NEW YORK STATE

SUNY
THE STATE UNIVERSITY of NEW YORK

Development of Recommended Actuarial Assumptions for New York State/SUNY GASB 45 Valuation – *Participating Employer Version*

December 27, 2012

buckconsultants

TABLE OF CONTENTS

SECTION 1 – EXECUTIVE SUMMARY

Buck Consultants developed actuarial assumptions for use by New York State and SUNY in valuing their obligation for Postemployment Benefits other than Pension Plans (OPEB) under Governmental Accounting Standards Board (GASB) Statement 45 as of April 1, 2012. The basis for the development of these assumptions is outlined in our August 7, 2012 report to New York State Department of Civil Service (DCS), ***New York State/SUNY Development of Recommended Actuarial Assumptions for 4/1/2012 GASB 45 Actuarial Valuation***. Employers who are Participating Employers (PEs) of the New York State Health Insurance Program (NYSHIP) may need to value their OPEB obligation under GASB 45. In order to assist PEs with their valuation and at the request of DCS, Buck Consultants has prepared this separate report, which presents edited excerpts of our reports that we believe may be relevant to the PEs. This report and the assumptions contained herein were developed by Robin Simon, Frank Svara and Matthew Mayan, with input and review by Harvey Sobel of Buck Consultants, LLC, at the request of DCS. Both Ms. Simon and Mr. Sobel are Fellows of the Society of Actuaries and Mr. Svara and Mr. Mayan are Associates of the Society of Actuaries. All four are Members of the American Academy of Actuaries and have met the Qualification Standards of the American Academy of Actuaries to render any actuarial opinion contained herein.

Section 2 presents assumptions that we and/or DCS believe may be relevant to the PEs along with some basic rationale for many of the selections. The rest of the report provides more detail and support for development of certain major assumptions.

This report is being provided to PEs solely as guidance. Because Buck prepared assumptions strictly for use by the State and SUNY in valuing its OPEB obligation, the assumptions discussed herein may or may not be appropriate for an individual PE. Each employer should assess its own demographics and healthcare environment in order to develop the actuarial assumptions most appropriate for its own population, in consultation with its own actuarial and financial advisors.

Furthermore, because some employers provide their retirees or other former employees with other post employment benefits not through NYSHIP, such as medical benefits through HMOs (other than those offered through NYSHIP) or other benefits such as dental and life insurance, each PE will need to determine its own actuarial assumptions appropriate for valuing these benefits.

The Patient Protection and Affordable Care Act, enacted March 23, 2010, as amended by the Health Care and Education Reconciliation Act enacted March 30, 2010, (henceforth collectively referred to as Health Care Reform), has made a significant number of changes that affects current and future retiree costs. The valuation assumptions outlined in Section 2 have been adjusted to reflect our analysis of the impact of the legislation. Section 5 outlines various considerations resulting from recent Health Care Reform legislation that were reflected.

SECTION 2 – ACTUARIAL ASSUMPTIONS

Actuarial assumptions are assumptions as to the occurrence of future events affecting OPEB costs. We performed the April 1, 2012 GASB 45 actuarial valuation for New York State and SUNY based on the following Actuarial Assumptions:

MEASUREMENT DATE: The valuation is performed as of April 1, 2012. In the ordinary course of our valuation work, results are to be rolled forward to establish the ARCs for the various Fiscal Years.

DISCOUNT RATE: 3.112% per annum as of April 1, 2012 – the average Short Term Investment Pool rate for the past 15 years, as developed by the Office of State Comptroller. Since the plan is not pre-funded, the Discount Rate assumption is based on the yield of unrestricted employer assets. This rate is lower than the 3.830% per annum rate assumed for the April 1, 2010 valuation.

PER-CAPITA PLAN COSTS: GASB 45 indicates that per capita plan costs should be based upon claim costs or age adjusted premiums. State enrollees comprise over 50% of the overall Empire Plan enrollment. Changes in the demographics of State employees and retirees more immediately affect overall Empire Plan costs than other, smaller groups. Therefore, we believe it is more appropriate to establish per capita plan costs for the State's valuation of its liability based on the underlying Empire Plan claim costs of the retiree groups being valued.

We developed the following per capita costs for retirees and spouses in the Empire Plan, based on 2011 incurred claim experience (including the State and PEs but not including PAs) projected to Fiscal Year 2013 and demographically adjusted to age 65:

Coverage	Non-Medicare Eligible	Before EGWP Medicare Eligible	Reflects EGWP Medicare Eligible
Medical	$11,746	$1,330	$1,330
Drug	2,521	2,521	1,593
Total	$14,267	$3,851	$2,923

Certain individuals covered by the State are currently enrolled in Medicare Part D Prescription Drug Plans (generally low income individuals who qualify for various federal additional benefits). NYSHIP does not currently provide drug benefits for these individuals. For valuation purposes, we assumed those not currently receiving NYSHIP-provided drug benefits would continue in that status prior to adoption of the EGWP. After adoption of the EGWP, those individuals are assumed to be covered by the EGWP drug benefits with the same costs as other EGWP participants. All future retirees would qualify for NYSHIP-provided drug coverage.

Exception for PEs: *GASB 45 provides that costs for retirees should be segregated from costs for actives in developing per capita costs for valuation purposes. However, the Standard provides an exception based on the guidance of the current Actuarial Standard of Practice No. 6, Measuring Retiree Group Benefit Obligations ("ASOP #6"). The Standard and the current ASOP #6 allow community-rated plans to use unadjusted net premium rates charged for both active employees and retirees. While the Empire Plan is experience rated at the policyholder level, it is community rated at the PE level; each employer pays a contribution to the Empire Plan based on the overall experience of the Plan, irrespective of an individual PE's claim experience. (HMOs are community rated both at the policyholder level and at the PE level.)*

PEs pay the same premium rates for active employees as for retirees. It would, therefore, generally be permissible under current guidance for PEs to use unadjusted premium rates to establish per capita plan costs. However, proposed changes to the ASOP #6 would change generally accepted actuarial practice to restrict the use of community rated premiums potentially limiting its availability for use by PEs.

Each individual PE should determine appropriate assumptions for its own valuation purposes with its own actuary and financial advisors.

Exhibit 2-1 summarizes the projected FY 2013 premiums for HMOs and the Empire Plan. We developed these premiums based on the 2012 net premium rates (effective July 1, 2012), trended to FY 2013. The 2013 premium rates were not available as of the preparation of this report, nor were they available when assumptions were set for the April 1, 2012 valuation.

Note for PEs: *Effective July 1, 2012, NYSHIP began including the Medicare Part B Premium reimbursement as a component of cost used to calculate retiree contributions for the Participating Employer employees and retirees. The premiums shown on Exhibit 2-1 reflect this component.*

The 2013 Empire Plan premium rates will reflect the impact of the decision to adopt an EGWP. Since the Empire Plan will provide drug benefits to Medicare retirees through an EGWP, in the future it would generally be more appropriate for the per capita claims cost assumptions to be based on premiums reflecting EGWP going forward. We have estimated the impact of the EGWP on the Empire Plan premiums and indicate that amount as well as a premium amount before reflecting the EGWP on Exhibit 2-1.

MEDICARE PART B PREMIUM: The State pays for the Medicare Part B premium of Medicare eligibles, which, for Fiscal Year 2013, we project to be $1,248 per Medicare eligible individual. This amount is based on the Part B premium rate for 2012 as released in October 2011, and has been adjusted for NYSHIP Medicare enrollees who receive income related premiums.

The Standard Part B premium for 2012 is $99.90[1]. The base amount has been adjusted for projected calendar year 2012 and 2013 income related premium amounts. We estimate that a portion of NYSHIP Medicare enrollees received additional reimbursement of varying amounts from the Program and that the additional amount received results in an overall increase in Part B premium amounts reimbursed of 2.7% for FY13. The portion of Medicare enrollees expected to receive additional income related reimbursements, and the amount they are expected to receive, are both assumed to increase for the remainder of the current decade since the income limitations have been frozen for that period

[1] The standard Part B premium for calendar year 2013 is $104.90, but was unknown at the time these assumptions were developed, and has not been reflected in the values in this report.

under the health reform legislation.

> ***Note for PEs:*** *PEs using community rated premium rates that reflect Part B premium reimbursement costs would not be expected to separately measure the value of Part B premium reimbursement.*

MEDICARE COORDINATION: Medicare is assumed to remain the primary payor for current and future retirees and spouses who are at least age 65. Medicare is assumed to become primary for current retirees and spouses who are not yet age 65 when they attain that age, and for all future retirees and spouses by the time they reach age 65.

Certain individuals who are at least age 65 as of the valuation date were not indicated as being on Medicare in the census data we were provided. For valuation purposes, we assumed individuals who have attained age 66 as of the valuation date never go onto Medicare. Individuals who are age 65 but not coded as being on Medicare were assumed to be affected by an administrative lag and thus were assumed to enroll in Medicare immediately.

Medicare can also be the primary payor for individuals under age 65 who have been eligible to receive Social Security Disability benefits for 24 months, which in turn starts after a waiting period of 5 months of disability. For valuation purposes, Medicare is assumed to be the primary payor for current retirees and spouses under age 65 if the census data indicated that Medicare is currently the primary payor.

We reviewed the census data for disability retirees who have been retired long enough to qualify for Medicare. Based on that data, we have assumed that Medicare will ultimately be the primary payor for 40% of future disabled PFRS (Police and Fire Retirement System) participants and 80% of all other future disabled participants. The proportions used in the April 1, 2010 valuation were 35% and 75%, respectively. We have assumed for valuation purposes that the average period for qualifying for disability retirement is five months, thus we

assume that Medicare commences for disability retirees once they have been on disability retirement for 24 months. We have also assumed that Medicare will be the primary payor for the same proportions of those disability retirees who have been retired less than 24 months once they have been on disability retirement for 24 months. For the remaining participants who are currently disabled or who become disabled, we have assumed that Medicare is the primary payor at age 65.

> ***Note for PEs:*** *These assumptions may not be appropriate for PEs using community rated premium rates.*

RETIREE DRUG SUBSIDY: The value of the Retiree Drug Subsidy under Medicare Part D is not reflected in the valuation, in accordance with GASB Technical Bulletin No. 2006-1 *Accounting and Financial Reporting by Employers and OPEB Plans for Payments from the Federal Government Pursuant to the Retiree Drug Subsidy Provisions of Medicare Part D* on this issue. NYSHIP has applied for the subsidy for 2006 – 2012 for the State and for Participating Employers.

The value of the Federal Subsidies and Pharmaceutical Manufacturers' brand discounts under the EGWP are allowed to be reflected in GASB 45 calculations. As noted, these subsidies have been reflected in certain per capita plan costs and premium rates shown in this report.

EARLY RETIREE REINSURANCE PROGRAM: The Health Care Reform legislation included a federal subsidy for certain retirees between age 55 and 64 who are not on Medicare. We understand that NYSHIP has applied for the subsidy and received some funds in 2011. The program has ceased paying any claims and no further amounts are anticipated. We also did not reflect any potential obligation that would result from any agreement to use previously received funds to provide additional benefits to plan participants.

HEALTHCARE COST TREND: Per-capita retiree plan costs and premiums used to establish retiree contribution rates are assumed to increase each year in accordance with the following schedule:

Fiscal Year	Medical		Drug
	Non-Medicare Eligible	Medicare Eligible	
2013/2014	9.00%	5.50%	7.50%
2014/2015	9.00%	5.40%	7.10%
2015/2016	8.25%	5.30%	6.70%
2016/2017	7.50%	5.20%	6.30%
2017/2018	6.75%	5.10%	5.90%
2018/2019	6.00%	5.00%	5.50%
2019/2020	5.50%	4.90%	5.25%
2020/2021	5.00%	4.80%	5.00%
Thereafter	4.75%	4.75%	4.75%

The drug trend shown above applies to the drug costs and premiums associated with both the Empire Plan and HMOs. In addition, the non-Medicare eligible medical trend applies for HMOs and for projecting contribution amounts since contributions do not distinguish between non-Medicare and Medicare eligible members.

Note for PEs: *The non-Medicare eligible medical trend may also be appropriate for PEs using community rated premium rates. However, PEs should reflect their own expectations of future medical plan costs.*

We assumed that average fiscal year Medicare Part B premiums will increase at the same underlying health care trends as for Medical benefits to Medicare retirees. However, beginning in 2007, the Federal Government began charging Medicare Part B premium that varies by income level. A portion of NYSHIP Medicare enrollees received additional reimbursement from the Program for income related Part B premium amounts for calendar year 2010, amounting to about 2.4% of the stated Medicare Part B premium amount for that year. We project that additional Medicare eligible retirees will be required to pay income related premiums in the future, and that the additional amounts paid by each

retiree will increase over time, resulting in the following Medicare Part B premium trends:

Fiscal Year	Before Income Adjustment	Income Adjustment	After Income Adjustment
2013/2014	5.50%	0.20%	5.70%
2014/2015	5.40%	0.20%	5.60%
2015/2016	5.30%	0.20%	5.50%
2016/2017	5.20%	0.20%	5.40%
2017/2018	5.10%	0.20%	5.30%
2018/2019	5.00%	0.20%	5.20%
2019/2020	4.90%	0.20%	5.10%
2020/2021	4.80%	0.10%	4.90%
Thereafter	4.75%	0.0%	4.75%

AGE RELATED MORBIDITY: To reflect the differences in covered healthcare expenses due to aging, the increase in the per-capita plan costs for each age is assumed to be as follows:

Age	Annual Increase
Under 40	0.0%
40-49	2.5%
50-54	3.3%
55-59	3.6%
60-64	4.2%
65-69	3.0%
70-74	2.5%
75-79	2.0%
80-84	1.0%
85-89	0.5%
90 and over	0.0%

The age related morbidity is only applied to the per-capita plan costs for the Empire Plan and is used to adjust the per-capita plan costs from the age 65 level values shown earlier. Thus, for a retiree age 67, the medical per capita plan cost assumed for the period from April 1, 2012 through March 31, 2013 would be $1,411 (= $1,330 x 1.03 x 1.03 or $1,330 x $1.03^{(67-65)}$). For the following fiscal year, when that retiree would be age 68, the medical per capita plan cost would reflect one year trend plus one additional year of age to result in $1,533 (= $1,330 x $1.03^{(68-65)}$ x 1.055 or = $1,411 x 1.03 x 1.055).

The age related morbidity rates are from Table 4 of "Aging Curves for Health Care Costs in Retirement," by Jeffrey Petertil, published in the **North American Actuarial Journal**, July 2005, extended prior to age 50 based on experience with other large employers and other studies.

> ***Note for PEs***: *This assumption will most likely not apply to PEs using community rated premium rates.*

HIGH COST PLAN EXCISE TAX: The Health Care Reform legislation added a new High Cost Plan Excise Tax (also known as the "Cadillac Tax") starting in calendar year 2018. For valuation purposes, we assumed that the value of the tax will be passed back to NYSHIP in higher premium rates.

The tax is 40% of the excess of a) the cost of coverage over b) the limit. We calculated "a" (the cost of coverage) using the July 1, 2012 Empire Plan and HMO premiums, equivalent to those shown on Exhibit 2-1, projected with trend. We calculated "b" (the limit) starting with the statutory limits ($10,200 single and $27,500 family), adjusted for the following:

- Limits will increase from 2018 to 2019 by 3.75% (CPI plus 1%);
- Limits will increase after 2019 by 2.75% (CPI);

- For retirees over age 55 but not on Medicare, the limit is increased by an additional dollar amount of $1,650 for single coverage, $3,450 for family coverage[2]; and
- An estimate of trend for the period from 2010 through 2018 for the federal standard Blue Cross/Blue Shield option (using actual increase rates from 2010 to 2012 and the valuation non-Medicare eligible medical/drug trend for the period from 2012 to 2018) is compared to the statutory "assumed" 55% trend, with trend in excess of 55% applied on the base amount before the additional amount for "early" retirees.

MORTALITY: Based on the experience under the New York State & Local Retirement Systems (NYSLRS) and the New York State Teachers' Retirement Systems (NYSTRS), as summarized in Exhibit 2-2. These assumptions have been altered since the last valuation to reflect more recent experience gathered by the two retirement systems.

In order to reflect future mortality improvement, the post-retirement mortality is projected generationally using scale AA. The base tables are shown in Exhibit 2-2, which represent the middle of 2007 for ERS and PFRS and approximately 2013 for TRS. All projections to each payment year start with these tables.

SUNY Campus employees who are not clearly identifiable as PFRS members are valued using TRS assumptions.

[2] These additional amounts are available at other ages for plans sponsored by an employer where the majority of employees are engaged in high risk professions including law enforcement officers. Since only a minority of the retirees included in this valuation are police, we are assuming that this exception would not apply. This exception might apply to some PEs.

WITHDRAWAL, DISABILITY, AND RETIREMENT: Rates of decrement as summarized in Exhibits 2-3 through 2-5. The rates are based on the experience under the NYSLRS and the NYSTRS, except as noted. These assumptions have been altered since the last valuation to reflect more recent experience gathered by the two retirement systems. SUNY Campus employees who are not clearly identifiable as PFRS or Corrections participants are valued using assumptions developed for TRS in a 2006 experience study, with modifications to the 2006 TRS retirement rates based on experience examined along with our 2008 valuation. We have not altered the withdrawal and retirement rates for TRS from those we had used in our previous valuation. In particular, we have not reflected the results of a 2011 study of the experience of TRS which recommended changes in rates of decrement for the overall TRS population.

SUNY Hospital employees not clearly identified as PFRS or Corrections participants are valued using withdrawal rates developed based on an experience study performed for the April 1, 2008 valuation using actual SUNY Hospital experience. SUNY Syracuse Hospital employees not clearly identified as PFRS or Corrections participants are valued using a modification to the retirement rates of the NYSLRS. NYSLRS retirement rates are used for other employees not clearly identifiable as PFRS or Corrections.

Note for PEs: *Each individual PE should determine appropriate assumptions to use for its own valuation purposes. The original 2006 TRS retirement assumptions prior to modifications are provided in Exhibit 2-6 for convenience of the recipients of this report, for some of whom the original TRS retirement assumptions may be more appropriate than the modified version for SUNY Campus*[3]*. For more information on these assumptions, please see discussion in Section 4.*

[3] The 2011 TRS valuation assumptions can be found at (retrieved December 2012): http://www.nystrs.org/main/library/AnnualReport/2012CAFR.pdf

PROJECTED SALARY INCREASE ASSUMPTION: Based on the experience under the NYSLRS and the NYSTRS, as summarized in Exhibit 2-7. These assumptions have been altered since the last valuation to reflect more recent experience gathered by the two retirement systems. To be used for measurement of the ARC under certain actuarial cost methods (if necessary).

GENERAL INFLATION: 2.75% assumed long-term inflation. The rate is lower than the 3.0% per annum rate assumed for the April 1, 2010 valuation.

VESTEE COVERAGE: Vestees pay 100% of premium prior to eligibility for retiree medical benefits. Based on an analysis of Empire Plan claims vs. premiums, we estimate a deficiency of 8% of premiums. This deficiency estimate is lower than we assumed in our previous valuation. (HMOs are community rated and there is no added cost to the State for vestees.) We valued current vestees in the Empire Plan assuming a deficiency of 8% of premium through retirement, using the July 1, 2012 Empire Plan premium rates shown in Exhibit 2-1. Beginning at age 55, we value all vestees – those in HMOs as well as those in the Empire Plan – consistent with our valuation assumption for retirees.

For current vestees, we assumed all will opt to switch from vestee status to retiree status at age 55. For future vested terminations, we have assumed that the following percentage of terminated employees (excluding those terminated due to death, disability or retirement) will elect to remain in their current medical plan option as a vestee:

Age	Percent Electing
Under 40	0%
40-43	5%
44	20%
45-46	30%
47-48	40%
49	50%
50-51	80%
52-54	100%

For those vestees in the Empire Plan, we valued the cost using the same 8% premium deficiency. We assume that all future vestees will retire at age 55.

Note for PEs: *The 8% premium deficiency assumption would most likely not apply to PEs using community rated premium rates.*

COBRA/LTD COVERAGE/FULL SHARE SURVIVOR RATE DEFICIENCY: For current COBRA beneficiaries in the Empire Plan, we projected the cost to the State by valuing an assumed 78% deficiency in the premium currently being charged. The 78% deficiency rate is lower than we assumed in our previous valuation. We assumed that each beneficiary would continue coverage for 1/3rd of their remaining COBRA term (in general, to the end of 36 months).

To value future COBRA costs, we assumed that 14% of participants who terminate from employment and are not eligible for vestee coverage will elect Empire Plan COBRA coverage and continue coverage for 15 months after the assumed termination of employment, with an assumed 78% deficiency in premium (based on a composite Empire Plan premium of $610 per month trended). HMOs are community rated and there is no added cost to the State for participants that elect COBRA coverage.

The value of any medical continuation provided to LTD participants who do not qualify for disability retirement is assumed to be included in the overall value of

the COBRA coverage. Likewise, the value of any healthcare continuation provided to the "full share" surviving spouses of employees who die with 10 years of service, but not within 10 years of retirement eligibility, is assumed to be included in the overall value of the COBRA coverage.

> ***Note for PEs:*** *The 78% premium deficiency assumption would most likely not apply to PEs using community rated premium rates.*

PLAN ELECTIONS: 100% of future retirees are assumed to participate in the retiree medical program at retirement. 100% of active participants in the NYSHIP opt-out program are assumed to be covered under NYSHIP at retirement. We assumed that all retirees (i.e., current actives and current non-Medicare eligible retirees) will participate in their current medical plan option prior to Medicare eligibility, with the exception of active participants in the NYSHIP opt-out program. Those participants are assumed to elect coverage in the Empire Plan at retirement.

For current non-Medicare eligible retirees and future retirees, all who currently participate in the Empire Plan are assumed to remain in the Empire Plan upon becoming eligible for Medicare. For those currently in HMOs, 32% of current non-Medicare retirees and 32% of future retirees will migrate to the Empire Plan upon attainment of Medicare eligibility. This HMO migration assumption for future retirees has decreased since our previous valuation, while our assumption for current non-Medicare retirees remained the same. This is because a larger portion of current actives are already in the Empire Plan, resulting in less migration at Medicare eligibility.

Certain HMOs are a part of the Medicare Advantage program. The Health Care Reform legislation has reduced the amounts of reimbursements those plans will receive from CMS. This will result in a combination of higher premiums, lower benefits, and reduced service areas. As a result, our prior valuation assumed that an additional 50% of retirees in Medicare Advantage HMOs will migrate to the Empire Plan over the course of the next 5 years. However, based on actual experience over the last two years, we observed minimal amount of migration. Therefore, we do not assume there will be any additional migration above our normal migration at Medicare eligibility.

In all instances, spouses are assumed to participate in the same medical plan option as the retiree. If the retiree is deceased, the spouse is assumed to participate in the same healthcare plan as the retiree would have been assumed to participate in if he or she were alive.

> ***Note for PEs:*** *This assumption was based on the experience of the State and SUNY retirees. Plan elections and enrollment may differ for a different population.*

DEPENDENTS: For current retirees, actual data is used regarding dependent coverage. For future retirees, we assume 60% of males and 35% of females will be married at retirement and will cover their spouses under NYSHIP. Female dependent spouses are assumed to be 3 years younger than their husbands, and male spouses are assumed to be 2 years older than their wives. These assumptions are the same as those used in the prior valuation, except for a decrease in the percentage of males being married at retirement.

> ***Note for PEs:*** *This assumption was based on the experience of the State and SUNY retirees. Each PE should consider the demographics of its own population when developing this assumption.*

ASSETS: We assume the State will not set aside any assets to prefund its retiree medical liabilities.

CENSUS DATA: Census data was provided by New York State Department of Civil Service as of April 1, 2012. Reasonable assumptions were made if any data elements are unavailable or if any data elements are not within a reasonable range.

> ***Note for PEs:*** *Individual agency census data will be provided by DCS upon request.*

SUBSEQUENT EVENTS: We prepared our valuation results in December 2012, based on assumptions originally developed in August 2012. We have not revised our valuation to reflect updated Empire Plan claim experience, Empire Plan premiums, HMO premiums or Medicare Part B premiums, nor any other more recent event except as noted.

Exhibit 2-1
Projected NYSHIP Premium Rates
4/1/2012 - 3/31/2013

			Retiree Contribution		
Plan Option	Code	Tier	Non Rx	Rx	Total
HIP	050	Retiree/Surviving Spouse	6,346	1,813	8,160
		Spouse	8,947	2,630	11,576
MVP Rochester	058	Retiree/Surviving Spouse	4,634	1,154	5,789
		Spouse	6,681	1,732	8,412
Independent Health	059	Retiree/Surviving Spouse	5,674	1,566	7,240
		Spouse	8,254	2,353	10,607
MVP East	060	Retiree/Surviving Spouse	5,235	1,091	6,326
		Spouse	7,581	1,637	9,218
CDPHP - Capital	063	Retiree/Surviving Spouse	5,240	1,268	6,508
		Spouse	7,590	1,902	9,492
Blue Choice	066	Retiree/Surviving Spouse	4,968	939	5,907
		Spouse	7,318	1,434	8,751
Community Blue	067	Retiree/Surviving Spouse	5,561	1,755	7,316
		Spouse	8,828	2,895	11,723
HMO Blue - CNY	072	Retiree/Surviving Spouse	7,368	1,506	8,874
		Spouse	10,667	2,078	12,745
HMO Blue - Utica/ Watertown	160	Retiree/Surviving Spouse	7,155	1,309	8,465
		Spouse	11,126	1,951	13,077
Aetna	210	Retiree/Surviving Spouse	7,934	1,850	9,784
		Spouse	15,534	2,270	17,804
GHI HMO - Albany Region	220	Retiree/Surviving Spouse	7,587	1,975	9,562
		Spouse	12,212	3,061	15,272
EBCBS - Upstate Region	280	Retiree/Surviving Spouse	6,296	2,001	8,297
		Spouse	9,851	3,201	13,052
EBCBS - Downstate Region	290	Retiree/Surviving Spouse	8,209	2,153	10,362
		Spouse	12,937	3,445	16,382
CDPHP - Central	300	Retiree/Surviving Spouse	6,227	1,316	7,543
		Spouse	9,070	1,975	11,045
CDPHP - W. Hudson Valley	310	Retiree/Surviving Spouse	6,433	1,292	7,726
		Spouse	9,379	1,939	11,318
EBCBS - Mid-Hudson	320	Retiree/Surviving Spouse	8,087	2,122	10,209
		Spouse	12,739	3,396	16,135
MVP - Central Region	330	Retiree/Surviving Spouse	5,908	1,173	7,081
		Spouse	8,591	1,760	10,351
MVP - Mid- Hudson Region	340	Retiree/Surviving Spouse	6,122	1,195	7,317
		Spouse	8,912	1,792	10,705
GHI HMO - HV & Ulster Regions	350	Retiree/Surviving Spouse	8,297	1,975	10,272
		Spouse	13,574	3,061	16,635
MVP - North Region	360	Retiree/Surviving Spouse	6,943	1,289	8,232
		Spouse	10,144	1,934	12,077
Empire Plan Before EGWP		Retiree/Surviving Spouse	5,304	1,983	7,287
		Spouse	7,749	2,068	9,817
Empire Plan After EGWP		Retiree/Surviving Spouse	5,304	1,665	6,969
		Spouse	7,749	1,736	9,485

EXHIBIT 2-2
PRERETIREMENT MORTALITY RATES
MALES

	ERS		PFRS		TRS
	Accidental	All Other	Accidental	All Other	
Age	Death	Death	Death	Death	Death *
15	0.001%	0.045%	0.008%	0.035%	
16	0.001%	0.045%	0.008%	0.035%	
17	0.001%	0.045%	0.008%	0.035%	
18	0.001%	0.045%	0.008%	0.035%	
19	0.001%	0.045%	0.008%	0.035%	
20	0.001%	0.045%	0.008%	0.035%	0.0042%
21	0.001%	0.045%	0.008%	0.035%	0.0092%
22	0.001%	0.045%	0.008%	0.035%	0.0107%
23	0.001%	0.045%	0.008%	0.035%	0.0136%
24	0.001%	0.045%	0.008%	0.035%	0.0139%
25	0.001%	0.045%	0.008%	0.035%	0.0147%
26	0.001%	0.045%	0.008%	0.035%	0.0156%
27	0.001%	0.045%	0.008%	0.035%	0.0163%
28	0.001%	0.048%	0.008%	0.035%	0.0178%
29	0.001%	0.052%	0.008%	0.035%	0.0191%
30	0.001%	0.055%	0.008%	0.035%	0.0200%
31	0.001%	0.059%	0.008%	0.036%	0.0229%
32	0.001%	0.062%	0.008%	0.038%	0.0242%
33	0.001%	0.065%	0.008%	0.038%	0.0260%
34	0.001%	0.069%	0.008%	0.038%	0.0279%
35	0.001%	0.072%	0.008%	0.038%	0.0291%
36	0.001%	0.076%	0.008%	0.038%	0.0313%
37	0.001%	0.079%	0.008%	0.038%	0.0330%
38	0.001%	0.082%	0.008%	0.038%	0.0352%
39	0.001%	0.086%	0.008%	0.038%	0.0373%
40	0.001%	0.089%	0.008%	0.038%	0.0394%
41	0.001%	0.093%	0.008%	0.038%	0.0430%
42	0.001%	0.096%	0.008%	0.041%	0.0453%
43	0.001%	0.101%	0.008%	0.045%	0.0513%
44	0.001%	0.104%	0.008%	0.053%	0.0576%
45	0.001%	0.108%	0.008%	0.062%	0.0616%
46	0.001%	0.114%	0.008%	0.071%	0.0656%
47	0.001%	0.122%	0.008%	0.080%	0.0683%
48	0.001%	0.134%	0.008%	0.087%	0.0702%
49	0.001%	0.149%	0.008%	0.091%	0.0721%
50	0.001%	0.164%	0.008%	0.093%	0.0747%
51	0.001%	0.179%	0.008%	0.097%	0.0787%
52	0.001%	0.192%	0.008%	0.106%	0.0800%
53	0.001%	0.204%	0.006%	0.123%	0.0835%
54	0.001%	0.214%	0.006%	0.151%	0.0869%
55	0.001%	0.225%	0.006%	0.188%	0.0937%
56	0.001%	0.235%	0.006%	0.234%	0.1093%
57	0.001%	0.247%	0.006%	0.286%	0.1293%
58	0.001%	0.261%	0.006%	0.343%	0.1416%
59	0.001%	0.276%	0.006%	0.415%	0.1588%
60	0.001%	0.294%	0.006%	0.514%	0.1747%
61	0.001%	0.315%	0.006%	0.524%	0.1897%
62	0.001%	0.340%	0.006%	0.568%	0.2111%
63	0.001%	0.377%	0.006%	0.619%	0.2412%
64	0.001%	0.418%	0.006%	0.680%	0.2892%
65	0.001%	0.463%	0.006%	0.754%	0.3396%
66	0.001%	0.513%	0.006%	0.845%	0.3811%
67	0.001%	0.568%	0.006%	0.951%	0.4599%
68	0.001%	0.630%	0.006%	1.065%	0.5510%
69	0.001%	0.698%	0.006%	1.182%	0.6500%
70	0.000%	0.000%	0.000%	0.000%	0.7502%

* Assumed all deaths are non-accidental

EXHIBIT 2-2
PRERETIREMENT MORTALITY RATES
FEMALES

	ERS		PFRS		TRS
	Accidental	All Other	Accidental	All Other	
Age	Death	Death	Death	Death	Death *
15	0.001%	0.045%	0.008%	0.035%	
16	0.001%	0.045%	0.008%	0.035%	
17	0.001%	0.045%	0.008%	0.035%	
18	0.001%	0.045%	0.008%	0.035%	
19	0.001%	0.045%	0.008%	0.035%	
20	0.001%	0.045%	0.008%	0.035%	0.0040%
21	0.001%	0.045%	0.008%	0.035%	0.0050%
22	0.001%	0.045%	0.008%	0.035%	0.0057%
23	0.001%	0.045%	0.008%	0.035%	0.0068%
24	0.001%	0.045%	0.008%	0.035%	0.0072%
25	0.001%	0.045%	0.008%	0.035%	0.0086%
26	0.001%	0.045%	0.008%	0.035%	0.0102%
27	0.001%	0.045%	0.008%	0.035%	0.0117%
28	0.001%	0.048%	0.008%	0.035%	0.0118%
29	0.001%	0.052%	0.008%	0.035%	0.0119%
30	0.001%	0.055%	0.008%	0.035%	0.0142%
31	0.001%	0.059%	0.008%	0.036%	0.0148%
32	0.001%	0.062%	0.008%	0.038%	0.0163%
33	0.001%	0.065%	0.008%	0.038%	0.0175%
34	0.001%	0.069%	0.008%	0.038%	0.0176%
35	0.001%	0.072%	0.008%	0.038%	0.0186%
36	0.001%	0.076%	0.008%	0.038%	0.0202%
37	0.001%	0.079%	0.008%	0.038%	0.0212%
38	0.001%	0.082%	0.008%	0.038%	0.0222%
39	0.001%	0.086%	0.008%	0.038%	0.0239%
40	0.001%	0.089%	0.008%	0.038%	0.0257%
41	0.001%	0.093%	0.008%	0.038%	0.0277%
42	0.001%	0.096%	0.008%	0.041%	0.0300%
43	0.001%	0.101%	0.008%	0.045%	0.0334%
44	0.001%	0.104%	0.008%	0.053%	0.0361%
45	0.001%	0.108%	0.008%	0.062%	0.0388%
46	0.001%	0.114%	0.008%	0.071%	0.0411%
47	0.001%	0.122%	0.008%	0.080%	0.0432%
48	0.001%	0.134%	0.008%	0.087%	0.0465%
49	0.001%	0.149%	0.008%	0.091%	0.0482%
50	0.001%	0.164%	0.008%	0.093%	0.0511%
51	0.001%	0.179%	0.008%	0.097%	0.0544%
52	0.001%	0.192%	0.008%	0.106%	0.0587%
53	0.001%	0.204%	0.006%	0.123%	0.0622%
54	0.001%	0.214%	0.006%	0.151%	0.0658%
55	0.001%	0.225%	0.006%	0.188%	0.0683%
56	0.001%	0.235%	0.006%	0.234%	0.0724%
57	0.001%	0.247%	0.006%	0.286%	0.0762%
58	0.001%	0.261%	0.006%	0.343%	0.0816%
59	0.001%	0.276%	0.006%	0.415%	0.0895%
60	0.001%	0.294%	0.006%	0.514%	0.0954%
61	0.001%	0.315%	0.006%	0.524%	0.1051%
62	0.001%	0.340%	0.006%	0.568%	0.1114%
63	0.001%	0.377%	0.006%	0.619%	0.1199%
64	0.001%	0.418%	0.006%	0.680%	0.1303%
65	0.001%	0.463%	0.006%	0.754%	0.1458%
66	0.001%	0.513%	0.006%	0.845%	0.1625%
67	0.001%	0.568%	0.006%	0.951%	0.1782%
68	0.001%	0.630%	0.006%	1.065%	0.2011%
69	0.001%	0.698%	0.006%	1.182%	0.2252%
70	0.000%	0.000%	0.000%	0.000%	0.2532%

* Assumed all deaths are non-accidental

EXHIBIT 2-2
POSTRETIREMENT MORTALITY RATES
BASE TABLES

	ERS*				PFRS*	
	Healthy		Disabled			
Age	Males	Females	Males	Females	Healthy	Disabled
15	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
16	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
17	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
18	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
19	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
20	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
21	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
22	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
23	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
24	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
25	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
26	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
27	0.0540%	0.0540%	0.1080%	0.1080%	0.0420%	0.0840%
28	0.0576%	0.0576%	0.1152%	0.1152%	0.0420%	0.0840%
29	0.0624%	0.0624%	0.1248%	0.1248%	0.0420%	0.0840%
30	0.0660%	0.0660%	0.1320%	0.1320%	0.0420%	0.0840%
31	0.0708%	0.0708%	0.1416%	0.1416%	0.0432%	0.0864%
32	0.0744%	0.0744%	0.1488%	0.1488%	0.0456%	0.0912%
33	0.0780%	0.0780%	0.1560%	0.1560%	0.0456%	0.0912%
34	0.0828%	0.0828%	0.1656%	0.1656%	0.0456%	0.0912%
35	0.0864%	0.0864%	0.1728%	0.1728%	0.0456%	0.0912%
36	0.0912%	0.0912%	0.1824%	0.1824%	0.0456%	0.0912%
37	0.0948%	0.0948%	0.1896%	0.1896%	0.0456%	0.0912%
38	0.0984%	0.0984%	0.1968%	0.1968%	0.0456%	0.0912%
39	0.1032%	0.1032%	0.2064%	0.2064%	0.0456%	0.0912%
40	0.1068%	0.1068%	0.2136%	0.2136%	0.0456%	0.0912%
41	0.1116%	0.1116%	0.2232%	0.2232%	0.0456%	0.0912%
42	0.1152%	0.1152%	0.2304%	0.2304%	0.0492%	0.0984%
43	0.1212%	0.1212%	0.2424%	0.2424%	0.0540%	0.1080%
44	0.1248%	0.1248%	0.2496%	0.2496%	0.0636%	0.1272%
45	0.1296%	0.1296%	0.2592%	0.2592%	0.0744%	0.1488%
46	0.1368%	0.1368%	0.7361%	0.8183%	0.2585%	0.1307%
47	0.1464%	0.1464%	1.2130%	1.3775%	0.2100%	0.1870%
48	0.1608%	0.1608%	1.6897%	1.9366%	0.2177%	0.2434%
49	0.1788%	0.1788%	2.1666%	2.4958%	0.2635%	0.2996%
50	0.1968%	0.1968%	2.6435%	3.0548%	0.3559%	0.5026%
51	0.3151%	0.2394%	3.2339%	3.5555%	0.4913%	0.5346%
52	0.4334%	0.2822%	3.8794%	4.0572%	0.5896%	0.6197%
53	0.5518%	0.3248%	4.3222%	4.4208%	0.6032%	0.7355%
54	0.6701%	0.3675%	4.3633%	4.4659%	0.5362%	0.8420%
55	0.7884%	0.4101%	3.9934%	3.9197%	0.4765%	0.9487%
56	0.8000%	0.4565%	3.5794%	3.3278%	0.5276%	0.9736%
57	0.7559%	0.5110%	3.2945%	3.1327%	0.5797%	0.9592%
58	0.7477%	0.5857%	3.1457%	3.1584%	0.6058%	0.9992%
59	0.7953%	0.6583%	3.1049%	3.0061%	0.6284%	1.0178%
60	0.8681%	0.6996%	3.1674%	2.9934%	0.6652%	0.9787%
61	0.9233%	0.7376%	3.2791%	3.2048%	0.7296%	1.0319%
62	0.9893%	0.7947%	3.3656%	3.3089%	0.8946%	1.2157%
63	1.0852%	0.8847%	3.3054%	3.2747%	1.0980%	1.4728%
64	1.1730%	0.9519%	3.3949%	3.2522%	1.1964%	1.5877%
65	1.2923%	1.0182%	3.9558%	3.3020%	1.2222%	1.6610%
66	1.3869%	1.0819%	4.6964%	3.3848%	1.2368%	1.7312%
67	1.5011%	1.1845%	5.0768%	3.4482%	1.2832%	1.8043%
68	1.6900%	1.3125%	4.9259%	3.5884%	1.4011%	1.8152%
69	1.9758%	1.4707%	4.5398%	3.7016%	1.5904%	1.8101%
70	2.2429%	1.6334%	4.2672%	3.5471%	1.9628%	1.8397%

*Apply scale AA on a generational basis with base year of 2007

EXHIBIT 2-2
POSTRETIREMENT MORTALITY RATES
BASE TABLES

	ERS*				PFRS*	
	Healthy		Disabled			
Age	Males	Females	Males	Females	Healthy	Disabled
71	2.4226%	1.7869%	4.5776%	3.3517%	2.5530%	1.9639%
72	2.5969%	1.9440%	5.2922%	3.5585%	3.2262%	2.3705%
73	2.8713%	2.1424%	6.0710%	4.1242%	3.6973%	3.1186%
74	3.1757%	2.4098%	6.7134%	4.7812%	4.0828%	4.2503%
75	3.4777%	2.7458%	7.1854%	5.3150%	4.4825%	5.5606%
76	3.8453%	3.0170%	7.8665%	5.5260%	4.7666%	6.5719%
77	4.3393%	3.2238%	8.7278%	5.6652%	5.0750%	7.0511%
78	4.8688%	3.4782%	9.5873%	5.9654%	5.5696%	7.1641%
79	5.4048%	3.8775%	10.1538%	6.3828%	6.2838%	7.1545%
80	5.9411%	4.3886%	10.4521%	7.0127%	7.0370%	7.2205%
81	6.4995%	4.9464%	10.8778%	7.9253%	7.7240%	7.5706%
82	7.2223%	5.5190%	11.5204%	9.0372%	8.3720%	8.3226%
83	8.1909%	6.2132%	12.6751%	10.1680%	8.9788%	9.5656%
84	9.4419%	7.0193%	13.5484%	11.1582%	9.6958%	11.2561%
85	10.7758%	7.9266%	14.5355%	11.9022%	10.6837%	13.1540%
86	12.1183%	8.9257%	15.5417%	12.5952%	11.9867%	15.0348%
87	13.4125%	10.0784%	16.5088%	13.1946%	13.4532%	16.5990%
88	14.8405%	11.3730%	17.5246%	13.9877%	14.8675%	17.6722%
89	16.5707%	12.7688%	18.6222%	15.4145%	16.1262%	18.1398%
90	18.6385%	14.2954%	20.1905%	17.2508%	17.2452%	18.0275%
91	19.6598%	15.5721%	21.1205%	18.3538%	18.3485%	19.0847%
92	20.6811%	16.8489%	22.0505%	19.4567%	19.4516%	20.1419%
93	21.7022%	18.1256%	22.9804%	20.5595%	20.5549%	21.1991%
94	22.7235%	19.4024%	23.9104%	21.6624%	21.6581%	22.2563%
95	23.7448%	20.6791%	24.8404%	22.7653%	22.7614%	23.3135%
96	24.7661%	21.9558%	25.7704%	23.8682%	23.8645%	24.3707%
97	25.7874%	23.2326%	26.7002%	24.9710%	24.9678%	25.4279%
98	26.8086%	24.5093%	27.6302%	26.0740%	26.0710%	26.4851%
99	27.8298%	25.7861%	28.5602%	27.1769%	27.1742%	27.5424%
100	28.8511%	27.0628%	29.4902%	28.2798%	28.2774%	28.5996%
101	29.8724%	28.3396%	30.4201%	29.3826%	29.3807%	29.6568%
102	30.8937%	29.6163%	31.3501%	30.4855%	30.4838%	30.7140%
103	31.9150%	30.8930%	32.2801%	31.5884%	31.5871%	31.7712%
104	32.9363%	32.1698%	33.2101%	32.6914%	32.6903%	32.8284%
105	33.9574%	33.4465%	34.1400%	33.7942%	33.7936%	33.8856%
106	34.9787%	34.7233%	35.0700%	34.8971%	34.8967%	34.9428%
107	36.0000%	36.0000%	36.0000%	36.0000%	36.0000%	36.0000%
108	64.0000%	64.0000%	64.0000%	64.0000%	64.0000%	64.0000%
109	91.9999%	91.9999%	91.9999%	91.9999%	91.9999%	91.9999%
110	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%	100.0000%

*Apply scale AA on a generational basis with base year of 2007

EXHIBIT 2-2
POSTRETIREMENT MORTALITY RATES

	TRS*			
	Healthy		Disabled	
Age	Male	Female	Male	Female
1	0.0485%	0.0435%		
2	0.0327%	0.0283%		
3	0.0272%	0.0212%		
4	0.0212%	0.0158%		
5	0.0194%	0.0143%		
6	0.0186%	0.0134%		
7	0.0178%	0.0126%		
8	0.0164%	0.0112%		
9	0.0159%	0.0107%		
10	0.0161%	0.0107%		
11	0.0167%	0.0109%		
12	0.0174%	0.0113%		
13	0.0183%	0.0118%		
14	0.0196%	0.0127%		
15	0.0208%	0.0137%		
16	0.0219%	0.0144%		
17	0.0232%	0.0152%		
18	0.0244%	0.0155%		
19	0.0255%	0.0155%		
20	0.0266%	0.0154%		
21	0.0279%	0.0152%		
22	0.0290%	0.0154%		
23	0.0304%	0.0158%		
24	0.0315%	0.0164%		
25	0.0328%	0.0171%		
26	0.0349%	0.0182%		
27	0.0357%	0.0189%		
28	0.0367%	0.0200%		
29	0.0385%	0.0211%		
30	0.0415%	0.0231%	2.1045%	3.7191%
31	0.0466%	0.0275%	2.2268%	3.9790%
32	0.0525%	0.0314%	2.5123%	4.1804%
33	0.0590%	0.0349%	3.0890%	4.2036%
34	0.0656%	0.0380%	3.5471%	4.4687%
35	0.0722%	0.0409%	4.0060%	4.6087%
36	0.0786%	0.0437%	4.5043%	4.7456%
37	0.0845%	0.0464%	5.1671%	4.8137%
38	0.0889%	0.0494%	5.7059%	4.9542%
39	0.0929%	0.0528%	6.0136%	5.0006%
40	0.0968%	0.0576%	6.6075%	5.1448%
41	0.1011%	0.0631%	7.2010%	5.3712%
42	0.1061%	0.0695%	8.1075%	5.6153%
43	0.1119%	0.0764%	8.8267%	5.8391%
44	0.1187%	0.0839%	9.5107%	5.9102%
45	0.1264%	0.0904%	9.8034%	6.0023%
46	0.1336%	0.0970%	9.8073%	6.1115%
47	0.1414%	0.1038%	9.6203%	6.1499%
48	0.1496%	0.1122%	9.2171%	6.2033%
49	0.1583%	0.1213%	9.0039%	6.1267%
50	0.1673%	0.1330%	8.8106%	5.9644%
51	0.1890%	0.1490%	8.5180%	5.9103%
52	0.2030%	0.1668%	8.2046%	5.8019%
53	0.2220%	0.1875%	7.7567%	5.7648%
54	0.2433%	0.2116%	6.9299%	5.6312%
55	0.2538%	0.2355%	5.9562%	5.3003%

*Apply scale AA on a generational basis with base year of 2013

EXHIBIT 2-2
POSTRETIREMENT MORTALITY RATES

	TRS*			
	Healthy		Disabled	
Age	Male	Female	Male	Female
56	0.2780%	0.2509%	5.0222%	5.0651%
57	0.3056%	0.2672%	4.3923%	4.4260%
58	0.3370%	0.2843%	4.0994%	3.9761%
59	0.3709%	0.3041%	4.0370%	3.6583%
60	0.4093%	0.3267%	4.0254%	3.4142%
61	0.4551%	0.3527%	3.9865%	3.3041%
62	0.5047%	0.3826%	3.9284%	3.1701%
63	0.5638%	0.4168%	3.8507%	3.2287%
64	0.6278%	0.4561%	3.7749%	3.2367%
65	0.7004%	0.5012%	3.8009%	3.2588%
66	0.7867%	0.5529%	3.9816%	3.4360%
67	0.8804%	0.6122%	4.2679%	3.4616%
68	0.9816%	0.6803%	4.5317%	3.4773%
69	1.1014%	0.7584%	4.5826%	3.5903%
70	1.2307%	0.8480%	4.9085%	3.6463%
71	1.3835%	0.9459%	5.0661%	3.7256%
72	1.5565%	1.0631%	5.2953%	3.8447%
73	1.7524%	1.1914%	5.5112%	4.0345%
74	1.9741%	1.3446%	5.8231%	4.2217%
75	2.2362%	1.5125%	6.0057%	4.5375%
76	2.5213%	1.7127%	6.2590%	4.8144%
77	2.8581%	1.9517%	6.3405%	5.1458%
78	3.2405%	2.2155%	6.5189%	5.2913%
79	3.6746%	2.5174%	6.9245%	5.5751%
80	4.1671%	2.8627%	7.5091%	6.0605%
81	4.7254%	3.2576%	8.6987%	7.0429%
82	5.3580%	3.7089%	9.8446%	8.0934%
83	6.0435%	4.2242%	11.1338%	9.0446%
84	6.8492%	4.8122%	12.5188%	10.0878%
85	7.7205%	5.5103%	14.1337%	12.0011%
86	8.6987%	6.3094%	15.8600%	13.8088%
87	9.8446%	7.2230%	17.8646%	14.7979%
88	11.1338%	8.2248%	19.9938%	16.2252%
89	12.5188%	9.4083%	22.3410%	17.6070%
90	14.1337%	10.7017%	25.0439%	18.7908%
91	15.8600%	12.1632%	27.0403%	19.9611%
92	17.8646%	13.3966%	28.8938%	20.9895%
93	19.9938%	14.7979%	31.1066%	22.1434%
94	22.3410%	16.2252%	32.5777%	23.1938%
95	25.0439%	17.6070%	33.9933%	24.4834%
96	27.0403%	18.7908%	35.8628%	25.4498%
97	28.8938%	19.9611%	37.1685%	26.6044%
98	31.1066%	20.9895%	38.3040%	27.9055%
99	32.5777%	22.1434%	39.2003%	29.3116%
100	33.9933%	23.1938%	39.7886%	30.7811%
101	35.8628%	24.4834%	40.0000%	32.2725%
102	37.1685%	25.4498%	40.0000%	33.7441%
103	38.3040%	26.6044%	40.0000%	35.1544%
104	39.2003%	27.9055%	40.0000%	36.4617%
105	39.7886%	29.3116%	40.0000%	37.6246%
106	40.0000%	30.7811%	40.0000%	38.6015%
107	40.0000%	32.2725%	40.0000%	39.3507%
108	40.0000%	33.7441%	40.0000%	39.8308%
109	40.0000%	35.1544%	40.0000%	40.0000%
110	40.0000%	36.4617%	40.0000%	40.0000%

*Apply scale AA on a generational basis with base year of 2013

EXHIBIT 2-3
WITHDRAWAL RATES

ERS

	Years of Service					
Age	< 2	2 - 2.99	3 - 3.99	4 - 4.99	5 - 9.99	> = 10
15	18.375%	10.298%	6.792%	5.938%	4.333%	2.727%
16	18.375%	10.298%	6.792%	5.938%	4.333%	2.727%
17	18.375%	10.298%	6.792%	5.938%	4.333%	2.727%
18	18.375%	10.298%	6.792%	5.938%	4.333%	2.727%
19	18.375%	10.298%	6.792%	5.938%	4.333%	2.727%
20	18.259%	10.298%	6.792%	5.938%	4.333%	2.727%
21	18.011%	10.298%	6.792%	5.938%	4.333%	2.727%
22	17.680%	10.298%	6.792%	5.938%	4.333%	2.727%
23	17.286%	10.853%	8.065%	6.339%	4.505%	2.727%
24	16.840%	11.240%	8.865%	6.671%	4.628%	2.727%
25	16.362%	11.473%	9.293%	6.919%	4.701%	2.727%
26	15.892%	11.592%	9.493%	7.107%	4.727%	2.727%
27	15.479%	11.621%	9.587%	7.282%	4.719%	2.727%
28	15.157%	11.569%	9.645%	7.485%	4.690%	2.688%
29	14.917%	11.436%	9.683%	7.721%	4.655%	2.643%
30	14.716%	11.226%	9.682%	7.945%	4.620%	2.588%
31	14.502%	10.953%	9.602%	8.084%	4.589%	2.522%
32	14.240%	10.645%	9.411%	8.065%	4.563%	2.447%
33	13.929%	10.326%	9.100%	7.855%	4.539%	2.369%
34	13.592%	10.015%	8.695%	7.483%	4.510%	2.290%
35	13.264%	9.712%	8.247%	7.028%	4.472%	2.215%
36	12.972%	9.407%	7.814%	6.587%	4.418%	2.140%
37	12.731%	9.086%	7.440%	6.238%	4.345%	2.063%
38	12.538%	8.747%	7.146%	6.016%	4.254%	1.982%
39	12.387%	8.405%	6.926%	5.903%	4.146%	1.904%
40	12.262%	8.081%	6.755%	5.845%	4.033%	1.830%
41	12.148%	7.793%	6.610%	5.783%	3.919%	1.768%
42	12.033%	7.553%	6.473%	5.676%	3.812%	1.719%
43	11.910%	7.360%	6.336%	5.512%	3.716%	1.683%
44	11.782%	7.208%	6.202%	5.306%	3.629%	1.653%
45	11.659%	7.089%	6.079%	5.094%	3.550%	1.620%
46	11.560%	6.995%	5.968%	4.906%	3.472%	1.572%
47	11.499%	6.926%	5.870%	4.766%	3.389%	1.504%
48	11.485%	6.880%	5.777%	4.680%	3.301%	1.419%
49	11.516%	6.856%	5.688%	4.639%	3.210%	1.329%
50	11.577%	6.849%	5.608%	4.625%	3.122%	1.250%
51	11.642%	6.854%	5.549%	4.620%	3.048%	1.189%
52	11.688%	6.865%	5.524%	4.608%	2.990%	1.148%
53	11.697%	6.877%	5.547%	4.583%	2.951%	1.125%
54	11.670%	6.891%	5.620%	4.546%	2.926%	1.112%
55	11.623%	6.914%	5.736%	4.508%	2.912%	1.105%
56	11.594%	6.955%	5.875%	4.484%	2.906%	1.103%
57	11.633%	7.031%	6.023%	4.493%	2.908%	1.105%
58	11.790%	7.155%	6.170%	4.547%	2.916%	1.110%
59	12.106%	7.338%	6.311%	4.653%	2.927%	1.116%
60	12.585%	7.589%	6.453%	4.808%	2.940%	1.124%
61	13.185%	7.894%	6.594%	5.001%	2.954%	1.132%
62	13.796%	8.223%	6.726%	5.212%	2.966%	1.138%
63	13.796%	8.223%	6.726%	5.212%	2.966%	1.138%
64	13.796%	8.223%	6.726%	5.212%	2.966%	1.138%
65	13.796%	8.223%	6.726%	5.212%	2.966%	1.138%
66	13.796%	8.223%	6.726%	5.212%	2.966%	1.138%
67	13.796%	8.223%	6.726%	5.212%	2.966%	1.138%
68	13.796%	8.223%	6.726%	5.212%	2.966%	1.138%
69	13.796%	8.223%	6.726%	5.212%	2.966%	1.138%
70	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

EXHIBIT 2-3
WITHDRAWAL RATES

Upstate (Syracuse) Medical Center

	Years of Service					
Age	< 2	2 - 2.99	3 - 3.99	4 - 4.99	5 - 9.99	> = 10
15	23.000%	18.000%	15.000%	15.000%	11.000%	7.000%
16	23.000%	18.000%	15.000%	15.000%	11.000%	7.000%
17	23.000%	18.000%	15.000%	15.000%	11.000%	7.000%
18	23.000%	18.000%	15.000%	15.000%	11.000%	7.000%
19	23.000%	18.000%	15.000%	15.000%	11.000%	7.000%
20	23.000%	18.000%	15.000%	15.000%	11.000%	7.000%
21	23.000%	18.000%	15.000%	15.000%	11.000%	7.000%
22	23.000%	18.000%	15.000%	15.000%	11.000%	7.000%
23	22.800%	18.400%	15.000%	15.000%	11.000%	7.000%
24	22.600%	18.800%	15.000%	15.000%	11.000%	7.000%
25	22.400%	19.200%	15.000%	15.000%	11.000%	7.000%
26	22.200%	19.600%	15.000%	15.000%	11.000%	7.000%
27	22.000%	20.000%	15.000%	15.000%	11.000%	7.000%
28	21.800%	20.000%	15.200%	15.200%	11.000%	7.000%
29	21.600%	20.000%	15.400%	15.400%	11.000%	7.000%
30	21.400%	20.000%	15.600%	15.600%	11.000%	7.000%
31	21.200%	20.000%	15.800%	15.800%	11.000%	7.000%
32	21.000%	20.000%	16.000%	16.000%	11.000%	7.000%
33	20.800%	19.400%	15.600%	15.600%	10.800%	6.800%
34	20.600%	18.800%	15.200%	15.200%	10.600%	6.600%
35	20.400%	18.200%	14.800%	14.800%	10.400%	6.400%
36	20.200%	17.600%	14.400%	14.400%	10.200%	6.200%
37	20.000%	17.000%	14.000%	14.000%	10.000%	6.000%
38	19.200%	16.400%	13.800%	13.800%	9.600%	5.600%
39	18.400%	15.800%	13.600%	13.600%	9.200%	5.200%
40	17.600%	15.200%	13.400%	13.400%	8.800%	4.800%
41	16.800%	14.600%	13.200%	13.200%	8.400%	4.400%
42	16.000%	14.000%	13.000%	13.000%	8.000%	4.000%
43	16.000%	13.600%	12.200%	12.200%	7.600%	4.000%
44	16.000%	13.200%	11.400%	11.400%	7.200%	4.000%
45	16.000%	12.800%	10.600%	10.600%	6.800%	4.000%
46	16.000%	12.400%	9.800%	9.800%	6.400%	4.000%
47	16.000%	12.000%	9.000%	9.000%	6.000%	4.000%
48	16.000%	11.400%	8.900%	8.900%	5.800%	4.000%
49	16.000%	10.800%	8.800%	8.800%	5.600%	4.000%
50	16.000%	10.200%	8.700%	8.700%	5.400%	4.000%
51	16.000%	9.600%	8.600%	8.600%	5.200%	4.000%
52	16.000%	9.000%	8.500%	8.500%	5.000%	4.000%
53	16.000%	8.800%	8.400%	8.400%	4.800%	4.000%
54	16.000%	8.600%	8.300%	8.300%	4.600%	4.000%
55	16.000%	8.400%	8.200%	8.200%	4.400%	0.000%
56	16.000%	8.200%	8.100%	8.100%	4.200%	0.000%
57	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
58	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
59	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
60	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
61	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
62	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
63	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
64	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
65	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
66	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
67	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
68	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
69	16.000%	8.000%	8.000%	8.000%	4.000%	0.000%
70	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

EXHIBIT 2-3
WITHDRAWAL RATES

Brooklyn Hospital

	Years of Service					
Age	< 2	2 - 2.99	3 - 3.99	4 - 4.99	5 - 9.99	> = 10
15	23.000%	18.000%	12.000%	12.000%	9.000%	5.000%
16	23.000%	18.000%	12.000%	12.000%	9.000%	5.000%
17	23.000%	18.000%	12.000%	12.000%	9.000%	5.000%
18	23.000%	18.000%	12.000%	12.000%	9.000%	5.000%
19	23.000%	18.000%	12.000%	12.000%	9.000%	5.000%
20	23.000%	18.000%	12.000%	12.000%	9.000%	5.000%
21	23.000%	18.000%	12.000%	12.000%	9.000%	5.000%
22	23.000%	18.000%	12.000%	12.000%	9.000%	5.000%
23	22.800%	18.400%	12.000%	12.000%	9.000%	5.000%
24	22.600%	18.800%	12.000%	12.000%	9.000%	5.000%
25	22.400%	19.200%	12.000%	12.000%	9.000%	5.000%
26	22.200%	19.600%	12.000%	12.000%	9.000%	5.000%
27	22.000%	20.000%	12.000%	12.000%	9.000%	5.000%
28	21.800%	20.000%	12.400%	12.400%	9.000%	4.900%
29	21.600%	20.000%	12.800%	12.800%	9.000%	4.800%
30	21.400%	20.000%	13.200%	13.200%	9.000%	4.700%
31	21.200%	20.000%	13.600%	13.600%	9.000%	4.600%
32	21.000%	20.000%	14.000%	14.000%	9.000%	4.500%
33	20.800%	18.600%	13.600%	13.600%	9.000%	4.400%
34	20.600%	17.200%	13.200%	13.200%	9.000%	4.300%
35	20.400%	15.800%	12.800%	12.800%	9.000%	4.200%
36	20.200%	14.400%	12.400%	12.400%	9.000%	4.100%
37	20.000%	13.000%	12.000%	12.000%	9.000%	4.000%
38	19.200%	12.600%	11.000%	11.000%	8.600%	3.800%
39	18.400%	12.200%	10.000%	10.000%	8.200%	3.600%
40	17.600%	11.800%	9.000%	9.000%	7.800%	3.400%
41	16.800%	11.400%	8.000%	8.000%	7.400%	3.200%
42	16.000%	11.000%	7.000%	7.000%	7.000%	3.000%
43	16.000%	10.300%	6.600%	6.600%	6.600%	2.900%
44	16.000%	9.600%	6.200%	6.200%	6.200%	2.800%
45	16.000%	8.900%	5.800%	5.800%	5.800%	2.700%
46	16.000%	8.200%	5.400%	5.400%	5.400%	2.600%
47	16.000%	7.500%	5.000%	5.000%	5.000%	2.500%
48	16.000%	7.400%	5.000%	5.000%	4.700%	2.500%
49	16.000%	7.300%	5.000%	5.000%	4.400%	2.500%
50	16.000%	7.200%	5.000%	5.000%	4.100%	2.500%
51	16.000%	7.100%	5.000%	5.000%	3.800%	2.500%
52	16.000%	7.000%	5.000%	5.000%	3.500%	2.500%
53	16.000%	7.000%	5.000%	5.000%	3.500%	2.500%
54	16.000%	7.000%	5.000%	5.000%	3.500%	2.500%
55	16.000%	7.000%	5.000%	5.000%	3.500%	0.000%
56	16.000%	7.000%	5.000%	5.000%	3.500%	0.000%
57	16.000%	7.000%	5.000%	5.000%	3.500%	0.000%
58	16.000%	7.000%	5.200%	5.200%	3.500%	0.000%
59	16.000%	7.000%	5.400%	5.400%	3.500%	0.000%
60	16.000%	7.000%	5.600%	5.600%	3.500%	0.000%
61	16.000%	7.000%	5.800%	5.800%	3.500%	0.000%
62	16.000%	7.000%	6.000%	6.000%	3.500%	0.000%
63	16.000%	7.200%	6.200%	6.200%	3.500%	0.000%
64	16.000%	7.400%	6.400%	6.400%	3.500%	0.000%
65	16.000%	7.600%	6.600%	6.600%	3.500%	0.000%
66	16.000%	7.800%	6.800%	6.800%	3.500%	0.000%
67	16.000%	8.000%	7.000%	7.000%	3.500%	0.000%
68	16.000%	8.000%	7.000%	7.000%	3.500%	0.000%
69	16.000%	8.000%	7.000%	7.000%	3.500%	0.000%
70	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

EXHIBIT 2-3
WITHDRAWAL RATES

Stonybrook Hospital

	Years of Service					
Age	< 2	2 - 2.99	3 - 3.99	4 - 4.99	5 - 9.99	> = 10
15	25.000%	20.000%	15.000%	15.000%	10.000%	7.000%
16	25.000%	20.000%	15.000%	15.000%	10.000%	7.000%
17	25.000%	20.000%	15.000%	15.000%	10.000%	7.000%
18	25.000%	20.000%	15.000%	15.000%	10.000%	7.000%
19	25.000%	20.000%	15.000%	15.000%	10.000%	7.000%
20	25.000%	20.000%	15.000%	15.000%	10.000%	7.000%
21	25.000%	20.000%	15.000%	15.000%	10.000%	7.000%
22	25.000%	20.000%	15.000%	15.000%	10.000%	7.000%
23	24.600%	20.600%	15.000%	15.000%	10.000%	7.000%
24	24.200%	21.200%	15.000%	15.000%	10.000%	7.000%
25	23.800%	21.800%	15.000%	15.000%	10.000%	7.000%
26	23.400%	22.400%	15.000%	15.000%	10.000%	7.000%
27	23.000%	23.000%	15.000%	15.000%	10.000%	7.000%
28	22.800%	23.400%	15.500%	15.500%	10.300%	7.000%
29	22.600%	23.800%	16.000%	16.000%	10.600%	7.000%
30	22.400%	24.200%	16.500%	16.500%	10.900%	7.000%
31	22.200%	24.600%	17.000%	17.000%	11.200%	7.000%
32	22.000%	25.000%	17.500%	17.500%	11.500%	7.000%
33	21.800%	24.200%	17.000%	17.000%	11.000%	6.800%
34	21.600%	23.400%	16.500%	16.500%	10.500%	6.600%
35	21.400%	22.600%	16.000%	16.000%	10.000%	6.400%
36	21.200%	21.800%	15.500%	15.500%	9.500%	6.200%
37	21.000%	21.000%	15.000%	15.000%	9.000%	6.000%
38	20.800%	19.800%	14.200%	14.200%	8.400%	5.400%
39	20.600%	18.600%	13.400%	13.400%	7.800%	4.800%
40	20.400%	17.400%	12.600%	12.600%	7.200%	4.200%
41	20.200%	16.200%	11.800%	11.800%	6.600%	3.600%
42	20.000%	15.000%	11.000%	11.000%	6.000%	3.000%
43	19.600%	14.600%	10.400%	10.400%	5.800%	3.000%
44	19.200%	14.200%	9.800%	9.800%	5.600%	3.000%
45	18.800%	13.800%	9.200%	9.200%	5.400%	3.000%
46	18.400%	13.400%	8.600%	8.600%	5.200%	3.000%
47	18.000%	13.000%	8.000%	8.000%	5.000%	3.000%
48	17.600%	12.200%	7.600%	7.600%	4.800%	3.000%
49	17.200%	11.400%	7.200%	7.200%	4.600%	3.000%
50	16.800%	10.600%	6.800%	6.800%	4.400%	3.000%
51	16.400%	9.800%	6.400%	6.400%	4.200%	3.000%
52	16.000%	9.000%	6.000%	6.000%	4.000%	3.000%
53	15.800%	8.800%	6.000%	6.000%	4.000%	3.000%
54	15.600%	8.600%	6.000%	6.000%	4.000%	3.000%
55	15.400%	8.400%	6.000%	6.000%	4.000%	0.000%
56	15.200%	8.200%	6.000%	6.000%	4.000%	0.000%
57	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
58	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
59	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
60	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
61	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
62	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
63	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
64	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
65	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
66	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
67	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
68	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
69	15.000%	8.000%	6.000%	6.000%	4.000%	0.000%
70	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%

EXHIBIT 2-3
WITHDRAWAL RATES

Years of Service	**PFRS**
0	7.427%
1	4.223%
2	2.325%
3	1.510%
4	1.277%
5	1.211%
6	1.105%
7	0.958%
8	0.806%
9	0.662%
10	0.546%
11	0.447%
12	0.392%
13	0.395%
14	0.417%
15	0.427%
16	0.405%
17	0.337%
18	0.264%
19	0.215%
20	0.215%
21	0.260%
22	0.344%
23	0.344%
24	0.344%
25	0.344%
26	0.344%
27	0.344%
28	0.344%
29	0.344%
30	0.344%
31	0.344%
32	0.344%
33	0.344%
34	0.344%
35	0.344%
36	0.344%
37	0.344%
38	0.344%
39	0.344%

EXHIBIT 2-3
WITHDRAWAL RATES

TRS - Male

Age	0 Years of Service	1 Year of Service	2 Years of Service	3 Years of Service	4 Years of Service	5 Years of Service	6 Years of Service	7 Years of Service	8 Years of Service	9 Years of Service	At Least 10 Years of Service
20	26.0517%	10.1803%	6.5606%	3.7313%	2.5162%	2.0051%	1.7520%	1.4856%	1.0593%	0.3281%	1.0398%
21	26.0517%	10.1803%	6.5606%	3.7313%	2.5162%	2.0051%	1.7520%	1.4856%	1.0593%	0.3281%	1.0398%
22	26.0517%	10.1803%	6.5606%	3.7313%	2.5162%	2.0051%	1.7520%	1.4856%	1.0593%	0.3281%	1.0398%
23	26.2212%	10.1803%	6.5606%	3.7313%	2.5162%	2.0051%	1.7520%	1.4856%	1.0593%	0.3281%	1.0398%
24	26.3908%	10.3029%	6.5606%	3.7313%	2.5162%	2.0051%	1.7520%	1.4856%	1.0593%	0.3281%	1.0398%
25	26.5603%	10.4254%	6.5949%	3.7313%	2.5162%	2.0051%	1.7520%	1.4856%	1.0593%	0.3281%	1.0398%
26	26.7299%	10.5480%	6.6291%	3.8886%	2.5162%	2.0051%	1.7520%	1.4856%	1.0593%	0.3281%	1.0398%
27	26.8994%	10.6706%	6.6634%	4.0459%	2.6449%	2.0051%	1.7520%	1.4856%	1.0593%	0.3281%	1.0398%
28	27.0690%	10.7931%	6.6976%	4.2032%	2.7735%	2.0787%	1.7520%	1.4856%	1.0593%	0.3281%	1.0398%
29	27.2385%	10.9157%	6.7319%	4.3605%	2.9022%	2.1523%	1.8688%	1.4856%	1.0593%	0.3281%	1.0398%
30	27.4081%	11.0383%	6.7661%	4.5178%	3.0309%	2.2260%	1.9856%	1.4940%	1.0593%	0.3281%	1.0398%
31	27.1427%	11.0812%	6.8886%	4.5112%	3.1596%	2.2996%	2.1024%	1.5025%	1.1516%	0.3281%	1.0398%
32	26.8773%	11.1241%	7.0112%	4.5046%	3.2882%	2.3732%	2.2191%	1.5109%	1.2439%	0.5117%	1.0398%
33	26.6119%	11.1670%	7.1337%	4.4979%	3.4169%	2.4468%	2.3359%	1.5194%	1.3362%	0.6954%	1.0244%
34	26.3465%	11.2100%	7.2562%	4.4913%	3.5456%	2.5205%	2.4527%	1.5279%	1.4285%	0.8790%	1.0090%
35	26.0811%	11.2529%	7.3787%	4.4847%	3.6742%	2.5941%	2.5695%	1.5363%	1.5208%	1.0627%	0.9935%
36	26.3803%	11.5408%	7.5717%	4.6966%	3.7348%	2.8379%	2.4681%	1.7463%	1.5639%	1.2464%	0.9781%
37	26.6794%	11.8287%	7.7646%	4.9086%	3.7955%	3.0816%	2.3668%	1.9563%	1.6070%	1.4300%	0.9626%
38	26.9786%	12.1165%	7.9575%	5.1206%	3.8561%	3.3254%	2.2654%	2.1662%	1.6501%	1.6137%	0.9472%
39	27.2778%	12.4044%	8.1505%	5.3326%	3.9167%	3.5692%	2.1640%	2.3762%	1.6933%	1.7973%	0.9318%
40	27.5770%	12.6923%	8.3434%	5.5446%	3.9773%	3.8129%	2.0626%	2.5862%	1.7364%	1.9810%	0.9163%
41	27.3127%	12.8411%	8.3212%	5.8174%	4.1323%	3.8680%	2.4053%	2.7373%	1.9111%	2.0298%	0.8855%
42	27.0485%	12.9899%	8.2990%	6.0902%	4.2873%	3.9231%	2.7479%	2.8884%	2.0858%	2.0786%	0.8546%
43	26.7842%	13.1388%	8.2768%	6.3631%	4.4423%	3.9782%	3.0905%	3.0394%	2.2605%	2.1275%	0.8238%
44	26.5200%	13.2876%	8.2546%	6.6359%	4.5973%	4.0333%	3.4331%	3.1905%	2.4352%	2.1763%	0.7929%
45	26.2557%	13.4364%	8.2324%	6.9088%	4.7523%	4.0884%	3.7757%	3.3416%	2.6099%	2.2251%	0.7621%
46	26.6854%	13.5077%	8.6828%	6.9149%	5.0506%	4.5896%	3.8026%	3.4646%	2.8790%	2.5757%	0.7882%
47	27.1151%	13.5791%	9.1332%	6.9211%	5.3490%	5.0909%	3.8294%	3.5877%	3.1481%	2.9263%	0.8143%
48	27.5448%	13.6504%	9.5837%	6.9272%	5.6473%	5.5921%	3.8563%	3.7107%	3.4173%	3.2769%	0.8404%
49	27.9745%	13.7218%	10.0341%	6.9334%	5.9457%	6.0934%	3.8831%	3.8338%	3.6864%	3.6275%	0.8664%
50	28.4043%	13.7931%	10.4845%	6.9395%	6.2440%	6.5946%	3.9100%	3.9568%	3.9555%	3.9781%	0.8925%
51	28.8340%	13.8644%	10.9349%	6.9456%	6.5423%	7.0958%	3.9368%	4.0799%	4.2246%	4.3286%	0.9186%
52	29.2637%	13.9358%	11.3853%	6.9518%	6.8407%	7.5971%	3.9636%	4.2029%	4.4937%	4.6792%	0.9447%
53	29.6934%	14.0071%	11.8357%	6.9579%	7.1390%	8.0983%	3.9905%	4.3260%	4.7629%	5.0298%	0.9708%
54	30.1231%	14.0785%	12.2861%	6.9641%	7.4374%	8.5996%	4.0173%	4.4490%	5.0320%	5.3804%	0.9969%

EXHIBIT 2-3
WITHDRAWAL RATES

TRS - Female

Age	0 Years of Service	1 Year of Service	2 Years of Service	3 Years of Service	4 Years of Service	5 Years of Service	6 Years of Service	7 Years of Service	8 Years of Service	9 Years of Service	At Least 10 Years of Service
20	23.9474%	10.1131%	6.1054%	4.6437%	5.2638%	5.2717%	5.0623%	5.1462%	5.0984%	5.4963%	3.7037%
21	23.9474%	10.1131%	6.1054%	4.6437%	5.2638%	5.2717%	5.0623%	5.1462%	5.0984%	5.4963%	3.7037%
22	23.9474%	10.1131%	6.1054%	4.6437%	5.2638%	5.2717%	5.0623%	5.1462%	5.0984%	5.4963%	3.7037%
23	24.5399%	10.1131%	6.1054%	4.6437%	5.2638%	5.2717%	5.0623%	5.1462%	5.0984%	5.4963%	3.7037%
24	25.1323%	10.3802%	6.1054%	4.6437%	5.2638%	5.2717%	5.0623%	5.1462%	5.0984%	5.4963%	3.7037%
25	25.7247%	10.6473%	6.6031%	4.6437%	5.2638%	5.2717%	5.0623%	5.1462%	5.0984%	5.4963%	3.7037%
26	26.3171%	10.9143%	7.1008%	5.1351%	5.2638%	5.2717%	5.0623%	5.1462%	5.0984%	5.4963%	3.7037%
27	26.9095%	11.1814%	7.5985%	5.6266%	5.4905%	5.2717%	5.0623%	5.1462%	5.0984%	5.4963%	3.7037%
28	27.5019%	11.4485%	8.0962%	6.1180%	5.7172%	5.5094%	5.0623%	5.1462%	5.0984%	5.4963%	3.7037%
29	28.0943%	11.7155%	8.5939%	6.6094%	5.9439%	5.7471%	5.3375%	5.1462%	5.0984%	5.4963%	3.7037%
30	28.6867%	11.9826%	9.0916%	7.1009%	6.1705%	5.9848%	5.6127%	5.3786%	5.0984%	5.4963%	3.7037%
31	28.0855%	12.0841%	9.1119%	7.1390%	6.3972%	6.2225%	5.8878%	5.6111%	5.3483%	5.4963%	3.7037%
32	27.4843%	12.1855%	9.1322%	7.1771%	6.6239%	6.4601%	6.1630%	5.8435%	5.5983%	5.4963%	3.7037%
33	26.8831%	12.2870%	9.1525%	7.2152%	6.8506%	6.6978%	6.4381%	6.0760%	5.8482%	5.4963%	3.7037%
34	26.2819%	12.3884%	9.1728%	7.2534%	7.0772%	6.9355%	6.7133%	6.3084%	6.0981%	5.4963%	3.7037%
35	25.6807%	12.4899%	9.1931%	7.2915%	7.3039%	7.1732%	6.9885%	6.5409%	6.3480%	5.4963%	3.7037%
36	25.1402%	11.9873%	8.8700%	6.9278%	6.7732%	6.5074%	6.4350%	6.0394%	5.8585%	5.1900%	3.3579%
37	24.5997%	11.4846%	8.5469%	6.5641%	6.2424%	5.8416%	5.8815%	5.5378%	5.3691%	4.8837%	3.0121%
38	24.0593%	10.9820%	8.2239%	6.2004%	5.7117%	5.1758%	5.3281%	5.0363%	4.8796%	4.5774%	2.6664%
39	23.5188%	10.4794%	7.9008%	5.8366%	5.1809%	4.5101%	4.7746%	4.5348%	4.3902%	4.2712%	2.3206%
40	22.9784%	9.9768%	7.5777%	5.4729%	4.6502%	3.8443%	4.2211%	4.0332%	3.9007%	3.9649%	1.9748%
41	23.0350%	10.0167%	7.5293%	5.2637%	4.5548%	3.7934%	3.9791%	3.7762%	3.5936%	3.5894%	1.8024%
42	23.0916%	10.0566%	7.4809%	5.0545%	4.4594%	3.7425%	3.7370%	3.5192%	3.2865%	3.2139%	1.6299%
43	23.1482%	10.0966%	7.4326%	4.8454%	4.3640%	3.6917%	3.4950%	3.2622%	2.9794%	2.8383%	1.4575%
44	23.2048%	10.1365%	7.3842%	4.6362%	4.2686%	3.6408%	3.2530%	3.0052%	2.6723%	2.4628%	1.2851%
45	23.2615%	10.1764%	7.3358%	4.4270%	4.1732%	3.5900%	3.0109%	2.7482%	2.3652%	2.0873%	1.1127%
46	24.0807%	10.5514%	7.6273%	4.8294%	4.3248%	3.7497%	3.1159%	2.9064%	2.4572%	2.2283%	1.1271%
47	24.9000%	10.9263%	7.9187%	5.2318%	4.4763%	3.9094%	3.2209%	3.0646%	2.5493%	2.3692%	1.1416%
48	25.7193%	11.3013%	8.2102%	5.6342%	4.6278%	4.0692%	3.3260%	3.2227%	2.6414%	2.5102%	1.1560%
49	26.5385%	11.6763%	8.5017%	6.0366%	4.7794%	4.2289%	3.4310%	3.3809%	2.7335%	2.6512%	1.1705%
50	27.3578%	12.0512%	8.7931%	6.4390%	4.9309%	4.3886%	3.5360%	3.5391%	2.8256%	2.7921%	1.1849%
51	28.1771%	12.4262%	9.0846%	6.8414%	5.0825%	4.5484%	3.6410%	3.6972%	2.9177%	2.9331%	1.1994%
52	28.9964%	12.8012%	9.3761%	7.2438%	5.2340%	4.7081%	3.7460%	3.8554%	3.0097%	3.0741%	1.2139%
53	29.8156%	13.1761%	9.6675%	7.6462%	5.3855%	4.8679%	3.8511%	4.0135%	3.1018%	3.2151%	1.2283%
54	30.6349%	13.5511%	9.9590%	8.0486%	5.5371%	5.0276%	3.9561%	4.1717%	3.1939%	3.3560%	1.2428%

EXHIBIT 2-4
DISABILITY RATES

	ERS			PFRS		TRS	
	Accidental Disability		All Other	Accidental	All Other	Male	Female
Age	Tiers 1&2	Tiers 3,4&5	Disability	Disability *	Disability	Disability **	Disability **
15	0.020%	0.001%	0.067%	0.067%	0.023%		
16	0.020%	0.001%	0.067%	0.067%	0.023%		
17	0.020%	0.001%	0.067%	0.067%	0.023%		
18	0.020%	0.001%	0.067%	0.067%	0.023%		
19	0.020%	0.001%	0.067%	0.067%	0.023%		
20	0.020%	0.001%	0.067%	0.067%	0.023%		
21	0.020%	0.001%	0.067%	0.067%	0.023%		
22	0.020%	0.001%	0.067%	0.067%	0.023%		
23	0.020%	0.001%	0.067%	0.067%	0.023%		
24	0.020%	0.001%	0.067%	0.067%	0.023%		
25	0.020%	0.001%	0.067%	0.067%	0.023%		
26	0.020%	0.001%	0.067%	0.067%	0.023%		
27	0.020%	0.001%	0.067%	0.067%	0.023%		
28	0.020%	0.001%	0.067%	0.067%	0.023%		
29	0.020%	0.001%	0.067%	0.067%	0.023%		
30	0.020%	0.001%	0.067%	0.067%	0.023%	0.0005%	0.0005%
31	0.020%	0.001%	0.067%	0.087%	0.023%	0.0010%	0.0018%
32	0.020%	0.001%	0.067%	0.111%	0.023%	0.0015%	0.0032%
33	0.020%	0.002%	0.067%	0.162%	0.023%	0.0020%	0.0046%
34	0.020%	0.002%	0.067%	0.220%	0.023%	0.0027%	0.0054%
35	0.020%	0.002%	0.067%	0.279%	0.023%	0.0033%	0.0080%
36	0.020%	0.003%	0.078%	0.340%	0.023%	0.0038%	0.0090%
37	0.020%	0.003%	0.093%	0.401%	0.023%	0.0045%	0.0089%
38	0.020%	0.004%	0.112%	0.467%	0.023%	0.0061%	0.0113%
39	0.020%	0.005%	0.133%	0.533%	0.023%	0.0085%	0.0174%
40	0.020%	0.006%	0.152%	0.596%	0.023%	0.0109%	0.0220%
41	0.020%	0.006%	0.171%	0.652%	0.023%	0.0152%	0.0300%
42	0.020%	0.007%	0.187%	0.693%	0.023%	0.0210%	0.0387%
43	0.020%	0.007%	0.201%	0.712%	0.028%	0.0272%	0.0440%
44	0.020%	0.007%	0.214%	0.721%	0.038%	0.0340%	0.0482%
45	0.020%	0.007%	0.229%	0.723%	0.055%	0.0405%	0.0545%
46	0.020%	0.007%	0.248%	0.721%	0.078%	0.0490%	0.0589%
47	0.020%	0.007%	0.274%	0.716%	0.106%	0.0602%	0.0675%
48	0.020%	0.007%	0.308%	0.717%	0.134%	0.0747%	0.0773%
49	0.020%	0.007%	0.345%	0.724%	0.156%	0.0917%	0.0992%
50	0.020%	0.007%	0.382%	0.733%	0.170%	0.1051%	0.1222%
51	0.020%	0.007%	0.412%	0.739%	0.175%	0.1180%	0.1430%
52	0.020%	0.007%	0.434%	0.744%	0.169%	0.1290%	0.1575%
53	0.020%	0.007%	0.476%	0.743%	0.219%	0.1380%	0.1675%
54	0.020%	0.007%	0.522%	0.732%	0.269%	0.1440%	0.1725%
55	0.015%	0.006%	0.572%	0.719%	0.318%		
56	0.015%	0.004%	0.628%	0.707%	0.368%		
57	0.015%	0.002%	0.689%	0.696%	0.418%		
58	0.015%	0.002%	0.755%	0.689%	0.468%		
59	0.015%	0.002%	0.828%	0.689%	0.518%		
60	0.015%	0.002%	0.907%	0.689%	0.567%		
61	0.015%	0.002%	0.995%	0.689%	0.617%		
62	0.015%	0.002%	1.090%	0.689%	0.667%		
63	0.015%	0.002%	1.196%	0.689%	0.716%		
64	0.015%	0.002%	1.310%	0.689%	0.766%		
65	0.015%	0.002%	1.437%	0.689%	0.816%		
66	0.015%	0.002%	1.575%	0.689%	0.865%		
67	0.015%	0.002%	1.726%	0.689%	0.915%		
68	0.015%	0.002%	1.891%	0.689%	0.964%		
69	0.015%	0.002%	2.072%	0.689%	1.014%		
70	0.000%	0.000%	0.000%	0.000%	0.000%		

* Includes performance of duty

** Assumed all disabilities are non-accidental

EXHIBIT 2-5
RETIREMENT RATES

	ERS - Tier 1			ERS - Tiers 2,3 & 4*		
	Years of Service			Years of Service		
Age	< 20	20 - 29.999	> = 30	< 20	20 - 29.999	> = 30
55	15.655%	29.771%	55.855%	5.923%	8.206%	41.847%
56	8.874%	13.022%	23.639%	3.858%	4.789%	19.822%
57	7.267%	10.981%	20.885%	3.839%	4.887%	18.561%
58	8.663%	12.168%	19.484%	3.993%	5.426%	18.220%
59	9.860%	14.358%	19.139%	4.336%	6.459%	18.802%
60	9.824%	16.002%	19.303%	4.888%	7.811%	19.944%
61	12.896%	19.192%	21.575%	8.169%	16.183%	24.296%
62	17.478%	29.445%	30.069%	14.912%	32.164%	35.967%
63	14.088%	22.236%	20.647%	10.952%	21.710%	24.163%
64	15.868%	25.367%	20.720%	12.035%	21.020%	23.513%
65	20.503%	25.527%	23.208%	15.763%	25.788%	27.753%
66	21.347%	27.429%	23.237%	15.360%	25.820%	28.852%
67	18.053%	24.840%	20.013%	12.425%	20.575%	22.782%
68	14.699%	26.911%	18.633%	12.378%	19.431%	24.346%
69	17.778%	23.200%	17.022%	13.189%	20.578%	23.787%
70	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

* Excludes Syracuse Medical Center

	ERS - Tier 5			Upstate (Syracuse) Medical Center - ERS as Modified - Tiers 2,3,4&5		
	Years of Service			Years of Service		
Age	< 20	20 - 29.999	> = 30	< 20	20 - 29.999	> = 30
55	4.767%	6.619%	41.847%	10.736%	17.654%	28.216%
56	3.098%	3.849%	19.822%	9.036%	14.348%	20.938%
57	3.083%	3.928%	18.561%	9.252%	14.614%	18.393%
58	3.207%	4.364%	18.220%	9.740%	16.300%	21.279%
59	3.484%	5.201%	18.802%	11.366%	19.244%	24.370%
60	3.929%	6.298%	19.944%	12.824%	23.536%	23.707%
61	6.589%	13.160%	24.296%	20.910%	32.988%	32.988%
62	30.590%	38.923%	76.487%	20.910%	39.194%	43.710%
63	10.952%	21.710%	24.163%	14.090%	25.830%	31.095%
64	12.035%	21.020%	23.513%	14.543%	23.372%	24.977%
65	15.763%	25.788%	27.753%	19.902%	31.101%	27.759%
66	15.360%	25.820%	28.852%	15.511%	24.229%	22.960%
67	12.425%	20.575%	22.782%	14.727%	21.717%	21.737%
68	12.378%	19.431%	24.346%	14.148%	21.250%	20.472%
69	13.189%	20.578%	23.787%	15.790%	21.035%	21.862%
70	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

	Stony Brook Hospital and Brooklyn Hospital - Tier 1			Stony Brook Hospital and Brooklyn Hospital - Tiers 2,3,4&5		
	Years of Service			Years of Service		
Age	< 20	20 - 29.999	> = 30	< 20	20 - 29.999	> = 30
55	14.087%	21.760%	38.944%	5.368%	8.827%	28.216%
56	9.632%	15.181%	24.928%	4.518%	7.174%	20.938%
57	7.848%	13.186%	22.767%	4.626%	7.307%	18.393%
58	9.751%	14.383%	22.665%	4.870%	8.150%	21.279%
59	10.448%	16.200%	23.762%	5.683%	9.622%	24.370%
60	12.185%	17.497%	24.040%	6.412%	11.768%	23.707%
61	15.143%	23.394%	29.058%	11.522%	20.838%	32.988%
62	24.581%	39.194%	37.573%	20.910%	39.194%	43.710%
63	18.617%	25.830%	26.772%	14.090%	25.830%	31.095%
64	19.317%	23.372%	24.977%	14.543%	23.372%	24.977%
65	27.247%	31.101%	27.759%	19.902%	31.101%	27.759%
66	18.252%	24.229%	22.960%	15.511%	24.229%	22.960%
67	17.492%	21.717%	21.737%	14.727%	21.717%	21.737%
68	16.929%	21.250%	20.472%	14.148%	21.250%	20.472%
69	18.523%	21.035%	21.862%	15.790%	21.035%	21.862%
70	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

EXHIBIT 2-5
RETIREMENT RATES

Years of Service	ERS (Correction Officer) - Tiers 1 &2	ERS (Correction Officer) - Tier 3
25	18.935%	27.781%
26	19.929%	18.592%
27	20.158%	13.011%
28	19.685%	11.409%
29	18.441%	12.087%
30	16.533%	13.705%
31	14.504%	14.504%
32	14.632%	14.632%
33	16.659%	16.659%
34	18.643%	18.643%
35	20.682%	20.682%
36	23.861%	23.861%
37	28.477%	28.477%
38	32.107%	32.107%
39	32.673%	32.673%
40	32.673%	32.673%
41	32.673%	32.673%
42	32.673%	32.673%
43	32.673%	32.673%
44	32.673%	32.673%
45	32.673%	32.673%
46	32.673%	32.673%
47	32.673%	32.673%
48	32.673%	32.673%
49	32.673%	32.673%
50	100.000%	100.000%

EXHIBIT 2-5
RETIREMENT RATES

	State Police - Tier 1			State Police - Tier 2		
	Years of Service			Years of Service		
Age	< 20	20 - 29.999	> = 30	< 20	20 - 29.999	> = 30
55	15.655%	29.771%	55.855%	5.923%	8.206%	8.206%
56	8.874%	13.022%	23.639%	3.858%	4.789%	4.789%
57	7.267%	10.981%	20.885%	3.839%	4.887%	4.887%
58	8.663%	12.168%	19.484%	3.993%	5.426%	5.426%
59	9.860%	14.358%	19.139%	4.336%	6.459%	6.459%
60	9.824%	16.002%	19.303%	4.888%	7.811%	7.811%
61	12.896%	19.192%	21.575%	8.169%	16.183%	16.183%
62	17.478%	29.445%	30.069%	14.912%	32.164%	32.164%
63	14.088%	22.236%	20.647%	10.952%	21.710%	21.710%
64	15.868%	25.367%	20.720%	12.035%	21.020%	21.020%
65	20.503%	25.527%	23.208%	15.763%	25.788%	25.788%
66	21.347%	27.429%	23.237%	15.360%	25.820%	25.820%
67	18.053%	24.840%	20.013%	12.425%	20.575%	20.575%
68	14.699%	26.911%	18.633%	12.378%	19.431%	19.431%
69	17.778%	23.200%	17.022%	13.189%	20.578%	20.578%
70	100.000%	100.000%	100.000%	100.000%	100.000%	100.000%

	State Police - Tier 5		
	Years of Service		
Age	< 20	20 - 29.999	> = 30
55	4.767%	6.619%	8.206%
56	3.098%	3.849%	4.789%
57	3.083%	3.928%	4.887%
58	3.207%	4.364%	5.426%
59	3.484%	5.201%	6.459%
60	3.929%	6.298%	7.811%
61	6.589%	13.160%	16.183%
62	30.590%	38.923%	74.343%
63	10.952%	21.710%	21.710%
64	12.035%	21.020%	21.020%
65	15.763%	25.788%	25.788%
66	15.360%	25.820%	25.820%
67	12.425%	20.575%	20.575%
68	12.378%	19.431%	19.431%
69	13.189%	20.578%	20.578%
70	100.000%	100.000%	100.000%

EXHIBIT 2-5
RETIREMENT RATES

TRS As Modified

Age	Males	Females
55	9.4070%	7.6747%
56	7.7070%	6.2480%
57	6.6202%	4.7722%
58	6.4533%	4.7607%
59	7.0290%	5.0695%
60	7.5053%	5.8458%
61	7.4973%	5.9857%
62	22.5437%	18.1172%
63	19.0877%	17.9251%
64	17.6866%	17.1114%
65	19.3766%	19.5077%
66	16.4802%	17.6803%
67	16.9475%	14.8759%
68	16.4597%	17.0511%
69	14.3682%	16.6914%
70	11.2212%	15.4002%
71	100.0000%	100.0000%

EXHIBIT 2-6
ORIGINAL TRS RETIREMENT RATES

TRS as Provided - For Tier 1 Members and Tiers 2, 3 and 4 Members, at Least Age 62 or with 30 Years of Service

Age	Males	Females
55	37.6281%	30.6987%
56	30.8279%	24.9918%
57	26.4807%	19.0887%
58	25.8131%	19.0426%
59	28.1161%	20.2779%
60	30.0213%	23.3832%
61	29.9891%	23.9428%
62	37.5728%	30.1954%
63	31.8129%	29.8751%
64	29.4776%	28.5191%
65	32.2943%	32.5128%
66	27.4670%	29.4672%
67	28.2458%	24.7931%
68	27.4328%	28.4185%
69	23.9470%	27.8190%
70	18.7019%	25.6669%
71	100.0000%	100.0000%

TRS as Provided - For Tiers 2, 3 and 4 Members Less Than Age 62 and with Less Than 30 Years of Service

Age	Males	Females
55	9.4070%	7.6747%
56	7.7070%	6.2480%
57	6.6202%	4.7722%
58	6.4533%	4.7607%
59	7.0290%	5.0695%
60	7.5053%	5.8458%
61	7.4973%	5.9857%

EXHIBIT 2-7
SALARY SCALE

Service	**ERS**	**PFRS**
0	10.30%	29.76%
1	8.68%	29.76%
2	7.49%	18.33%
3	6.69%	12.19%
4	6.21%	9.11%
5	5.92%	7.41%
6	5.70%	6.34%
7	5.49%	5.73%
8	5.27%	5.36%
9	5.05%	5.09%
10	4.86%	4.85%
11	4.72%	4.62%
12	4.60%	4.46%
13	4.52%	4.33%
14	4.48%	4.32%
15	4.40%	4.41%
16	4.31%	4.57%
17	4.24%	4.74%
18	4.19%	4.82%
19	4.14%	4.68%
20	4.06%	4.42%
21	3.95%	4.28%
22	3.86%	4.24%
23	3.81%	4.18%
24	3.81%	4.15%
25	3.81%	4.22%
26	3.79%	4.36%
27	3.77%	4.50%
28	3.74%	4.54%
29	3.71%	4.41%
30	3.68%	4.24%
31	3.66%	4.12%
32	3.63%	4.08%
33	3.61%	4.08%
34	3.58%	4.08%
35	3.56%	4.08%
36	3.53%	4.08%
37	3.51%	4.08%
38	3.47%	4.08%
39	3.43%	4.08%
40	3.36%	4.08%
41	3.36%	4.08%
42	3.36%	4.08%
43	3.36%	4.08%
44	3.36%	4.08%
45	3.36%	4.08%
46	3.36%	4.08%
47	3.36%	4.08%
48	3.36%	4.08%
49	3.36%	4.08%
50	3.36%	4.08%
51	3.36%	4.08%
52	3.36%	4.08%
53	3.36%	4.08%
54	3.36%	4.08%
55	3.36%	4.08%

EXHIBIT 2-7
SALARY SCALE

	TRS	
Age	Males	Females
20	12.0300%	11.9800%
21	12.0100%	11.7700%
22	11.9800%	11.6200%
23	11.8400%	11.3900%
24	11.5200%	11.0100%
25	10.9100%	10.3500%
26	10.1800%	9.5400%
27	9.0900%	8.5700%
28	8.4100%	7.7000%
29	7.7700%	7.2000%
30	7.4800%	6.8400%
31	7.1800%	6.6000%
32	6.9100%	6.4400%
33	6.6500%	6.3600%
34	6.4600%	6.3000%
35	6.2700%	6.2600%
36	6.1500%	6.2200%
37	6.1100%	6.1400%
38	5.9300%	6.0200%
39	5.7600%	5.9100%
40	5.6100%	5.8200%
41	5.4500%	5.7200%
42	5.3200%	5.6200%
43	5.2400%	5.5300%
44	5.1700%	5.4600%
45	5.0400%	5.3900%
46	4.8500%	5.3000%
47	4.6900%	5.2300%
48	4.5600%	5.1600%
49	4.4800%	5.0600%
50	4.40%	4.97%
51	4.33%	4.85%
52	4.28%	4.74%
53	4.22%	4.61%
54	4.15%	4.49%
55	4.01%	4.42%
56	3.88%	4.35%
57	3.82%	4.24%
58	3.74%	4.16%
59	3.72%	4.13%
60	3.64%	4.10%
61	3.52%	4.02%
62	3.47%	3.93%
63	3.38%	3.86%
64	3.16%	3.83%
65	2.94%	3.76%
66	2.63%	3.67%
67	2.49%	3.52%
68	2.50%	3.41%
69	2.54%	3.29%
70	2.59%	3.28%
71	2.47%	3.26%
72	2.41%	3.25%
73	2.41%	3.22%
74	2.39%	3.09%
75	2.38%	3.08%

SECTION 3 – HEALTH CARE TREND

The health care cost trend assumption is used to project the current year per capita plan costs, premium rates, and Medicare Part B premiums into the future. These costs are applied to the surviving covered population to determine the stream of future payments. GASB 45 states that "The selection of all actuarial assumptions, including the health care cost trend rate… should be guided by actuarial standards" and should be based on actual experience of the covered group to the extent the experience of the group is credible. GASB 45 defines the healthcare cost trend rate as:

> The rate of change in per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

Unfortunately, since increases in medical costs can be volatile, this assumption is subject to wide variation and there can be a wide range of acceptable assumptions. In addition, our experience has shown that past cost increases are not necessarily indicative of future cost increases. Therefore, judgment is required in developing this assumption.

Based on a detailed analysis of the trend assumption, which considered the Actuarial Standard of Practice No. 6 (ASOP #6) - *Measuring Retiree Group Benefit Obligations*, research published by the Society of Actuaries entitled *Modeling Long Term Healthcare Cost Trends*, and other publications by actuaries and health care professionals regarding short-term medical cost increases and expected long-term health care spending, we believe that an appropriate trend assumption for valuing retiree health care liabilities should:

- Consider separate short-term trend rates for major cost components such as medical and prescription drug services;

- Be based primarily on the “core” trend components - medical inflation, utilization, and intensity of services, and exclude the impact of the aging of the covered population;
- Include short-term rates established with an emphasis towards the influences of the health care marketplace as a whole, while also considering the cost characteristics of the plan;
- Assume that over the long-term, health care costs ultimately will be constrained by the public’s ability and willingness to pay the higher cost of medical services; and
- Reflect the effect of future technology improvements on the long-term health care costs.

Generally, in practice the trend assumption is based on a select and ultimate model; that is, short-term and long-term experience will differ with rates typically decreasing in future years until an ultimate level is reached. The short-term or select rates often are based on past plan experience and external projections of the “core” trend components. Short-term trend should reflect any multi-year contractual arrangements, for example guaranteed maximum rate hikes. In some cases, this actually could result in a low initial trend, increasing to a “market” trend, before coming back down to an ultimate level. In this case, we have reflected expectations of changes in the health care environment due to Health Care Reform.

Based on our review of past NYSHIP experience, coupled with our review of industry trend surveys, we believe a reasonable short-term trend is 7.5% for Prescription Drugs and 9.0% and 5.5% for Medical benefits for non-Medicare and Medicare eligible retirees, respectively. The short term trend for Prescription Drug costs is lower than assumed for the April 1, 2010 valuation. The trend expectation for the current fiscal year for Medical costs is higher for Medicare and lower for non-Medicare eligible retirees than assumed for our previous valuation. Medicare changes have resulted in lower trends for medical benefit costs for the Medicare population. Further changes enacted with Health Care Reform are anticipated to continue this disparity into the future. Thus, we

continued to use trend rates that distinguish between pre and post-Medicare medical costs for the 4/1/2012 valuation.

We view the ultimate trend rate as the expected annual increase in plan costs once medical costs are constrained. GASB 45 noted that the ultimate trend rate generally approaches the assumed long-term rate of inflation over time. However, there is evidence from research in the actuarial field suggesting that technology improvements will have a long-term effect on health care costs, which we believe should be reflected in the ultimate trend rate.

Therefore, in developing the 4.75% ultimate rate we assumed it is comprised of:

- 1½% real growth in per capita plan costs (which is related to real GDP growth);
- ½% long-term growth attributable to technology innovations: and
- 2.75% assumed long-term inflation.

This is lower than the ultimate trend assumption used in our April 1, 2010 valuation based on the lower assumed long-term inflation.

SECTION 4 – DEMOGRAPHIC ASSUMPTIONS

Demographic assumptions are rates of mortality, disability, withdrawal and retirement.

With the exception of SUNY Campus employees, most State employees are covered by the Employees' Retirement System (ERS) and, to a lesser extent, by the Police & Fire Retirement System (PFRS). We reviewed the April 1, 2011 demographic assumptions being used by the New York State & Local Retirement System to value participants in ERS and PFRS and concluded that these assumptions generally form a reasonable basis for our valuation. These assumptions have been altered from the assumptions reflected in our previous valuation to reflect more recent experience gathered by the two retirement systems.

> ***Note for PEs:*** *The New York State & Local Retirement System applied mortality improvement by projecting the rates using Scale AA generationally for the post-retirement mortality of current retirees. For post-retirement mortality for current active participants, generational mortality improvement was approximated on a static basis due to constraints with the ERS systems. Buck's systems have the capability to apply generational mortality improvements to all post-retirement mortality, and thus we used generational mortality for all participants. Each individual PE should determine the assumption about mortality improvement after consulting with their actuary.*

We did not reflect any differences in demographic assumptions for Tier VI (new retirement provisions), since the State valuation only included employees in Tiers I through V.

We did not examine the detailed experience underlying the development of those assumptions. The assumptions were based on the experience of ERS and PFRS as a whole, and do not reflect any potential differences in termination rates between State employees and employees of PAs and PEs. No adjustments were made for the possibility that an employee could terminate from the State but remain covered under ERS or PFRS with a different employer.

We made the following adjustments to the ERS and PFRS mortality rates:

- The mortality rates were developed on a dollar-weighted basis (reflecting the better longevity of higher income employees). While dollar-weighted mortality rates are appropriate for valuing pension benefits, they should be modified when benefits are do not vary by income or pension levels. At the suggestion of the actuary for the New York State & Local Retirement System (NYSLRS), who has studied mortality rates based on numbers of deaths, we increased all mortality rates by 20%.

- Since census data relating to job type was not readily available, we assumed that 85% of retired males were clerks and 15% of retired males were laborers to develop a blended postretirement mortality assumption. The NYSLRS actuary determined this population split for male State retirees. We similarly developed a blended postretirement mortality assumption for females based on the female population split reported by the NYSLRS actuary of 92.5% clerks and 7.5% laborers.

> ***Note for PEs:*** *These blended assumptions were based on the proportion of State retirees who were clerks as compared to laborers. The proportion of retirees for a particular PE in each of these categories could vary based on group demographics.*

- The NYSLRS uses a single blended postretirement mortality assumption in valuing ERS active employees rather than three separate tables (male clerks, male laborers, and females). We did not use this approximation.

- We compared the pre-retirement mortality rates with the 20% adjustment and Scale AA projections, to the unadjusted table. The effect of the two adjustments mostly offset each other. As a result, we valued the pre-retirement mortality using the rates used by the Retirement System without either of these two adjustments.

- The NYSLRS values ERS and PFRS beneficiaries using a separate mortality table. However, because the beneficiary population is not fully credible and because beneficiaries under a retirement plan can be other than the retiree's spouse, we did not use the beneficiary mortality table but rather used the retiree table.

The ERS and PFRS valuations are based on central rates of decrement. For purposes of our calculations, the central rates were converted to rates of decrement based on the formulas outlined in **Life Contingencies**[4], by C.W. Jordan, as suggested by the actuary for the systems.

The situation is somewhat more complex for SUNY Campus employees. While some SUNY campus employees – primarily staff and not the professors – are in ERS, many are in the New York State Teachers' Retirement System (TRS), with the majority purchasing an annuity from TIAA-CREF. No demographic assumptions are readily available for those who are in TIAA-CREF. Moreover, our valuation data is missing the retirement system information for a significant portion of the Campus employees. Given these factors, we recommended that a single set of demographic assumptions be used for the SUNY Campus employees (other than those identifiable as PFRS).

[4] Jordan, Jr., Chester Wallace; ***Life Contingencies***;Society of Actuaries, 1967.

We reviewed the two most recent demographic experience studies provided to us by the actuary for TRS and believe they generally form a reasonable basis for valuing SUNY Campus employees. We did not examine the detailed experience underlying the development of those assumptions for purposes of this valuation. In practice, our experience with other university employers indicates that SUNY Campus employees are likely to have higher turnover and lower retirement rates than typical TRS participants who generally teach in public grade schools.

We were informed by the staff of TRS that the 2011 TRS mortality assumption is based on the most recent experience period and had been projected using Scale AA to 2013. To be consistent with our assumptions for ERS and PFRS, and because future mortality improvement has a much greater impact on the measurement of post-retirement medical costs than pension costs, we applied further mortality improvements on the post-retirement mortality by projecting the rates using Scale AA generationally.

We modified the 2006 TRS retirement assumptions based on various statistics provided to us by SUNY for our April 1, 2008 valuation, including counts of Campus retirements over the past few years. We did not reflect the higher retirement rates that applied to TRS employees eligible for "full" unreduced pensions.[5] We also reduced the TRS retirement rates for employees over age 62. We have not modified the rates used in this valuation to reflect the 2011 TRS retirement assumptions.

Note for PEs: *As noted above, it is our experience that university employees have different career patterns than teachers in public grade schools. The modifications in TRS retirement rates were developed to reflect university experience. The original TRS retirement rates without modifications reflect experience of the overall TRS population, consisting mainly of teachers in public grade schools.*

[5] TRS uses higher retirement rates at ages 55 through 61 for employees in Tier 1 and those in Tiers 2, 3 and 4 who have at least 30 years of service.

We did not modify the TRS withdrawal assumptions for this valuation. Thus, this valuation continues to use the withdrawal assumptions that had been developed for TRS in its 2006 experience study. While the overall numbers of employees who terminated from SUNY is higher than we had anticipated, it is likely that much of that turnover is within adjunct faculty employees, many of whom never joined either a Retirement System or NYSHIP.

> ***Note for PEs:*** *As noted above, it is our experience that university employees have different career patterns than teachers in public grade schools. It may be more appropriate to use other assumptions, such as the experience assumptions published in the Report on the 2011 Recommended Actuarial Assumptions published by New York State Teachers' Retirement System Office of the Actuary, dated October 14, 2011.*

The valuation also reflects specific withdrawal assumptions for three SUNY hospitals. A separate retirement assumption was also used for one of the hospitals. SUNY hospital employees generally participate in ERS. However, in our experience, hospitals, especially university teaching hospitals, tend to have much higher turnover than regular state employees. SUNY provided Buck with detailed census information for the three hospitals for our April 1, 2008 valuation which did indicate that the hospital employees had higher turnover than assumed for overall ERS participants. Based on this census information, we developed separate withdrawal assumptions for each hospital as well as modification of ERS retirement rates for one of the hospitals.

> ***Note for PEs:*** *These SUNY Hospital assumptions are based on experience of particular employers and are not likely to be representative of the experience of any particular PE.*

SECTION 5 – HEALTH CARE REFORM CONSIDERATIONS

The Patient Protection and Affordable Care Act (PPACA), was signed March 23, 2010, with further changes enacted by the Health Care and Education Reconciliation Act (HCERA), signed March 30, 2010. This report has discussed various assumptions that were modified based on considerations under Health Care Reform legislation. This Section discusses particular legislative changes that were reflected in our assumptions. We have not identified any other specific provision of Health Care Reform that would be expected to have a significant impact on the measured obligation for the State.

> ***Note for PEs:*** *Buck Consultants developed these recommended actuarial assumptions on the basis that the State no longer has grandfathered status as defined in PPACA.*

- Individual Mandate for Insurance — Under Health Care Reform, individuals (whether actively employed or otherwise) must be covered by health insurance or else pay a penalty tax to the government. While it is not anticipated that Health Care Reform will result in universal coverage, it is expected to increase the overall portion of the population with coverage. We believe that this will result in an increased demand on health care providers, resulting in higher trend for medical services for non-Medicare eligible retirees. (Medicare costs are contained by Medicare payment mechanisms already in place, plus additional reforms added by PPACA and HCERA.) We already assume 100% enrollment for retirees. While Health Care Reform also involves individual income-based subsidies for retirees, we do not believe that those subsidies will result in any significant waiver of NYSHIP's very heavily subsidized retiree coverage.

- Employer Mandate — Health Care Reform includes various provisions mandating employer coverage for active employees, with penalties for non-compliance. However, those provisions do not directly apply to the postemployment coverage included in this valuation.

- Expansion of Child Coverage to age 26 — Health Care Reform mandates that coverage be offered to any child, dependent or not, through age 26, consistent with coverage for any other dependent. New York State insurance law mandates coverage to age 29, but on a fully contributory basis. We have assumed that the impact of this increase is reflected in the underlying rates and the claims experience. We also reflected increased cost in HMO dependent premiums.

- Elimination of Annual or Lifetime Maximums — Health Care Reform provides that annual or lifetime maximums have to be eliminated for all "essential services". We have assumed that the impact of any necessary changes in the maximums has already been reflected in the underlying rates and the claims experience.

- Minimum Loss Ratio — Health Care Reform includes a provision that provides that medical benefit costs paid under large group health insurance insured premiums must be at least 85% of the premiums. The overall retention under the NYSHIP arrangements is generally low enough that this provision should not have any significant impact on NYSHIP benefits. We have removed MLR credits from the HMO rates so that they do not artificially decrease per capita costs.

- Early Retiree Reinsurance Program — The Health Care Reform legislation included a federal subsidy for certain retirees between age 55 and 64 who are not on Medicare. We understand that NYSHIP has applied for and has received subsidies. As noted in Section 2, we did not reflect the value of the Early Retiree Reinsurance Program in the valuation, because there are no future funds anticipated to be paid by the program.

- High Cost Plan Excise Tax — Health Care Reform includes various revenue raisers. One of the more complex revenue raisers is the High Cost Plan Excise Tax, also known as the Cadillac Tax. While its stated intent is to tax

only high cost plans that provide what might be considered “Cadillac” benefits, as legislated, it is likely to have much broader impact. The tax limits above which the benefits are taxed increase only at CPI, while we continue to assume that health care costs will increase faster, reflecting real growth in GDP and technology innovations. Given that assumption, any health benefit, no matter how frugal initially, will ultimately be assumed to cost more than the limit resulting in a tax. The assumptions included an explicit measure of this tax as part of the valuation.

- Medicare Payment Reforms — The legislation includes a variety of reforms in the payment mechanisms for medical benefits. The changes include reduced Part A and Part B payment levels, adjustment to future “market basket” payment updates for productivity improvements, reduced disproportionate share hospital payments, and implement an Independent Payment Advisory Board. All of these mechanisms control the costs of medical benefits for Medicare participants, both for Medicare and for benefits coordinated with Medicare (since costs not paid by Medicare are constrained by balance billing requirements). Since these restrictions do not apply to non-Medicare benefits, we have developed separate, lower trend assumptions for the medical benefits constrained by Medicare rules as compared to the trend assumption for medical benefits costs not constrained by Medicare.

- Medicare Advantage Changes — One of the funding sources in the legislation is a series of provisions reforming the amounts paid by the federal government to Medicare Advantage (MA) plans. The amounts provided to MA plans will be reduced to generally lower percentages of fee-for-service Medicare benefits. It is anticipated that MA plans, as a result of reduced federal funding, will either increase premiums to employers and members, reduce benefits, or some combination of the two. The complete set of assumptions included an expectation for the average amounts of the increase in Medicare Advantage premiums that would be paid by NYSHIP, as well as other assumptions specific to Medicare Advantage plans that we did not consider relevant to PEs. We assumed that these increases in Medicare

Advantage HMO premiums when combined with lower participation in Medicare Advantage HMOs would not affect the expected socialized HMO premiums charged directly to PEs.

Note for PEs: *The assumptions regarding increased cost of Medicare Advantage plans would not be appropriate for PEs using community rated premium rates.*

- Medicare Part D changes — Health Care Reform included a variety of changes to the Medicare Part D program involving a gradual improvement of benefits in the coverage gap (donut hole). There is also a discount program for brand drugs in what would have been the coverage gap, with the discount amount coming directly from the drug manufacturers. The improved Medicare Part D benefits will directly affect the EGWP arrangement and those Medicare Advantage HMOs that provide drug benefits through Medicare Part D arrangements. The impact could result in either higher or lower costs for this prescription coverage, since improved coverage gap benefits result in higher drug spend amounts before the True Out of Pocket limit is reached, and hence lower catastrophic benefit payments from the government. After consideration, we did not alter the trend assumption for the drug benefits.

Note for PEs: *This provision will now affect PEs since the Empire Plan will be an EGWP arrangement starting 1/1/2013.*

- Medicare Part B premium – Previous law included higher levels of Medicare Part B premium for individuals whose income exceeds certain limits. The limits had been indexed to cost of living. The Health Care Reform legislation freezes those income limits for this decade. This is expected to result in a greater portion of retirees being affected by the increased Part B premium levels. Since NYSHIP reimburses the Part B premium including any income related increase amounts, the change directly affects NYS costs, which we

reflected by an explicit load on the trend reflected for Medicare Part B premium reimbursements.

Note for PEs: *The value of Part B premium reimbursements may be directly reflected in community based premium rates charged to the PEs.*

- Pharmacy Fees and Costs — The law includes a direct tax on pharmacy manufacturers totaling $2.5 billion in 2011, increasing to $4.2 billion in 2018. Medicaid changes in Health Care Reform involve a significant requirement of increased pharmacy rebates that will have to come from the manufacturers. In addition, pharmaceutical manufacturers have additional costs from the brand discount under Medicare Part D. All of these are resulting in increased pressure on pharmaceutical costs. We considered these factors when developing the trend for prescription drug costs.

- Other Revenue Raisers — The Health Care Reform includes a variety of other revenue raisers that involve additional costs on providers (such as medical device manufacturers) and insurers. We considered these factors when developing the trend assumptions.

Note for PEs: *Buck Consultants has developed these recommended actuarial assumptions solely for the purpose of valuing New York State and SUNY's obligation under GASB 45. Each PE should consider its own circumstances when determining how to reflect the impact of the legislation.*

SECTION 6 – QUALIFICATIONS

Buck Consultants has developed these recommended actuarial assumptions solely for the purpose of enabling New York State to value its obligation under GASB 45. The assumptions may not be appropriate for any individual PE. While these assumptions are being provided to PEs for guidance, each PE will need to consult with its actuarial and financial advisors to ensure that the assumptions are appropriate for its own use.

DCS' contractual agreement with Buck Consultants does not provide for Buck to consult directly with NYSHIP Participating Employers. Therefore, any additional guidance with respect to this report or the establishment of actuarial assumptions would be at the expense of the employer.

In developing the assumptions, we relied upon plan provisions, premium, claim and enrollment data provided to us by the Department of Civil Service and the Empire Plan insurers. In selecting the discount rate assumption, we relied upon information provided to us by the Office of State Comptroller.