

## PUERTO RICO TEACHERS RETIREMENT SYSTEM

June 30, 2016 Actuarial Valuation Report

***Based on the census data, assets, and assumptions used in this valuation report, PRTRS liquid assets are expected to be exhausted in the 2017-2018 fiscal year and PRTRS assets are expected to be exhausted in the 2018-2019 fiscal year.***

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September 8, 2017

Mr. Armando Rivera Díaz  
Executive Director  
Puerto Rico Teachers Retirement System  
Capital Center Building, North Tower  
235 Arterial Hostos Avenue  
8th Floor  
San Juan, PR 00918

Dear Mr. Rivera:

This report presents the results of the actuarial valuation of the Puerto Rico Teachers Retirement System (PRTS) as of June 30, 2016. Section I contains highlights of the valuation including a general discussion. The subsequent Sections contain schedules summarizing the underlying calculations, asset information, participant data, plan benefits and actuarial assumptions and methods. This valuation reflects Act 160-2013 (enacted on December 24, 2013), taking into account the Puerto Rico Supreme Court decision of April 11, 2014.

### Purpose

The main purposes of this report are:

- to present information pertaining to the operation of the plan for inclusion in financial statements based on relevant Statements of the Government Accounting Standards Board (GASB);
- to review the experience under the plan since the previous valuation; and
- to assess the relative funded position of the plan.

The use of this report for purposes other than those stated above may not be appropriate and should be reviewed with Milliman.

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The report was prepared solely to provide assistance to the Commonwealth of Puerto Rico Teachers Retirement System for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning PRTRS's operations, and uses PRTRS's data, which Milliman has not audited. Milliman and PRTRS do not intend to benefit and assume no duty or liability to other parties who receive this report. Milliman and PRTRS recommend that any third party recipient of this report be aided by its own actuary or other qualified professional when reviewing the Milliman report. Any distribution of this report should be made in its entirety.

### Data Reliance

In performing this analysis, we relied on the census data, asset information, and other information (both written and oral) provided by the System. We have not audited or verified the census data, asset information, or other information. To the extent that any of these are inaccurate or incomplete, the results of this valuation may likewise be inaccurate or incomplete.

We did not audit the data used in our analysis, but did review it for reasonableness and consistency and have not found material defects in the data. It is possible that material defects in the data would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

The asset information used for the valuation was taken from unaudited financial statements as of June 30, 2016 provided by PRTRS on August 22, 2017 and is subject to change upon audit.

### Future Measurements

This valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

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Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as the following:

- Plan experience differing from the actuarial assumptions;
- Future changes in the actuarial assumptions;
- Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as potential additional contribution requirements due to changes in the plan's funded status); and,
- Changes in the plan provisions or accounting standards.

Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such measurements.

#### Certification

We hereby certify that, to the best of our knowledge, this report is complete and accurate and all costs and liabilities were determined in conformance with generally accepted actuarial principles and practices which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting recommendations of the American Academy of Actuaries and are based on actuarial assumptions and methods adopted by the System. All of the actuarial assumptions were developed by Milliman in consultation with PRTRS. We believe that the actuarial assumptions and methods used in this actuarial valuation are reasonable for the main purposes of this report as stated herein.

Actuarial computations presented in this report are for purposes of fulfilling financial accounting requirements under the GASB Statements 45 and 67. The calculations in the enclosed report have been made on a basis consistent with our understanding of the plan provisions described in Section VI of this report, and of the applicable GASB Statements. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

This valuation reflects the law in effect as of June 30, 2016, as required by GASB accounting. As a known event, the impact of Act 3-2017 was reflected in the future salary growth assumption. The impact of any prospective legislative changes impacting the System are not yet fully known.

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Mr. Armando Rivera Díaz  
September 8, 2017  
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Qualifications

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

We are members of the Society of Actuaries and meet the qualification standards of the American Academy of Actuaries to render this actuarial opinion.

Respectfully submitted,



By: Glenn D. Bowen, F.S.A.  
Member American Academy of Actuaries



Katherine A. Warren, F.S.A.  
Member American Academy of Actuaries

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION I – SUMMARY**

**A. Summary of Principal Results of June 30, 2016 Actuarial Valuation**

***GASB 67 Accounting (\$ amounts in thousands)***

	June 30, 2015 <u>Valuation</u>	June 30, 2016 <u>Valuation</u>
Total Pension Liability <sup>1</sup>	\$16,307,731	\$18,165,572
Net Fiduciary Position	1,311,081 <sup>2</sup>	895,455
Net Pension Liability	14,996,650	17,270,117

***GASB 45 Accounting (\$ amounts in thousands)***

	June 30, 2015 <u>Valuation</u>	June 30, 2016 <u>Valuation</u>
Actuarial Accrued Liability <sup>1</sup>	\$548,518	\$523,300
Actuarial Value of Assets	<u>0</u>	<u>0</u>
Unfunded Actuarial Accrued Liability	548,518	523,300
Employer Normal Cost as a percent of payroll	0 0.00%	0 0.00%
Annual Required Contribution for upcoming fiscal year as a percent of payroll	38,049 3.37%	37,490 3.40%

<sup>1</sup> A discussion of the benefits included in the Total Pension Liability and Actuarial Accrued Liability begins on page 3 of this section.

<sup>2</sup> Reflects addendum to June 30, 2015 valuation dated March 29, 2017.

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# PUERTO RICO TEACHERS RETIREMENT SYSTEM

## SECTION I – SUMMARY

	July 1, 2014 Census Data <u>Collection</u> <sup>1</sup>	July 1, 2015 Census Data <u>Collection</u>
<b><i>Participant Data</i></b>		
<u>Active Members</u>		
Number	37,700	37,684
Average Salary	\$29,907	\$29,775 <sup>2</sup>
Total Annual Salary	\$1,127,499,643	\$1,101,895,593 <sup>2</sup>
<u>Retirees</u>		
Number	36,210	36,124
Average Monthly Basic System Benefit	\$1,476	\$1,496
Average Monthly System Administered Benefit	\$49	\$47
<u>Disabled Members</u>		
Number	2,301	2,364
Average Monthly Basic System Benefit	\$531	\$559
Average Monthly System Administered Benefit	\$50	\$47
<u>Beneficiaries</u>		
Number	3,150	3,263
Average Monthly Basic System Benefit	\$416	\$431
Average Monthly System Administered Benefit	\$17	\$16
<u>Terminated Vested Members</u>		
Number	527	750
Average Monthly Basic System Benefit	\$743	\$762

Basic System Benefit and System Administered Benefit amounts shown above are for pension benefits, including minimum benefits and COLAs. Special Law "bonus" benefits are not reflected.

<sup>1</sup> The July 1, 2014 Census Data Collection information reflects new retirements during July 2014.

<sup>2</sup> Active members on leave of absence are excluded.

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# PUERTO RICO TEACHERS RETIREMENT SYSTEM

## SECTION I – SUMMARY

### **B. General Discussion**

#### Basic System Benefits

As summarized in Section VI, the Puerto Rico Teachers Retirement System (PRTRS) provides benefits to members, or their beneficiaries, upon:

- Retirement
- Disability
- Vested withdrawal
- Death
- Nonvested withdrawal (return of contributions)

Annuity benefits are subject to a \$300 monthly minimum (if hired before August 1, 2014). The statutory funding requirement for these benefits for the 2016-2017 fiscal year includes member contributions of 9% of payroll for members hired on or before July 31, 2014 and 10% of payroll for members hired August 1, 2014 and later, and employer contributions of 14.75% of payroll. Employer statutory funding requirements in future years will increase under Act 114-2011 and Act 160-2013 (see page 4).

These benefits will be referred to as the “Basic System Benefits” throughout this report.

#### System Administered Benefits

Also summarized in Section VI are benefits granted under a series of special laws that are administered by PRTRS, including:

- Additional minimum pension benefits, including the increase in the monthly minimum benefit from \$300 to \$400 (if hired prior to August 1, 2014)
- Additional minimum death benefit (if retired prior to August 1, 2014)
- Ad-hoc cost-of-living adjustments (COLAs)
- Medical insurance plan contribution (if retired prior to August 1, 2014)
- Medication bonus (if retired prior to August 1, 2014)
- Christmas bonus (if retired prior to August 1, 2014)

These benefits are funded on a pay-as-you-go basis from the General Fund of the Commonwealth of Puerto Rico and will be referred to as “System Administered Benefits” throughout this report. These benefits are not an obligation of the PRTRS assets.

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# PUERTO RICO TEACHERS RETIREMENT SYSTEM

## SECTION I – SUMMARY

### Act 160-2013

During the 2013-2014 fiscal year, Act 160-2013 was enacted on December 24, 2013. Act 160-2013 supersedes Act 91-2004. Act 160-2013 was modified by an April 11, 2014 decision of the Puerto Rico Supreme Court. A summary of the changes in benefits due to Act 160-2013, reflecting the Supreme Court decision, appears later in this section.

### Act 114-2011 Employer Contributions

During the 2010-2011 fiscal year, Act 114-2011 was enacted which increased employer contributions from the prior 8.5% of compensation to 9.5% of compensation effective July 1, 2011. For the next four fiscal years effective July 1, employer contributions will increase annually by 1% of compensation. For the next five fiscal years, employer contributions will increase annually by 1.25%, reaching an ultimate employer contribution rate of 19.75% effective July 1, 2020. Act 160-2013 maintains the same structure set forth in Act 114-2011 and further provides for an ultimate employer contribution rate of 20.525%, effective July 1, 2021.

### Other Contributions

In addition to the payroll-based contributions described under Basic System Benefits above, Article 1.1 of Act 160-2013 (discussed further below in this section) defines the following additional contributions:

- 1.1.(a) Annual Additional Contribution - the annual contribution certified by the external actuary of the System, prepared within at least one hundred twenty (120) days before the beginning of Fiscal Year 2018-2019 and every two (2) years thereafter until fiscal year 2041-2042, as necessary to prevent the value of the projected gross assets of the System from falling below three hundred million dollars (\$300,000,000) during any subsequent fiscal year, subject to the provisions of Article 7.1 of this Act.
- 1.1.(c) Teacher's Justice Uniform Contribution - the annual contribution to be made to the System equal to \$30 million in fiscal year 2016-2017, to \$30 million in fiscal year 2017-2018, and to \$60 million in fiscal year 2018-2019, and subsequent years until fiscal year 2041-2042.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION I – SUMMARY

Act 160-2013 also provides that effective July 1, 2014, the System will receive a supplemental contribution of \$1,675 each fiscal year from the General Fund for each pensioner (including beneficiaries receiving survivor benefits) notwithstanding if the pensioner retired prior to or on or after August 1, 2014. This contribution will pay for the Medical Insurance Plan Contribution (up to \$1,200 per member), the Christmas Bonus (\$200 per member), and Medication Bonus (\$100 per member) payable to members who retired prior to August 1, 2014. The excess amount of the supplemental contributions will remain in the System to pay down the unfunded liability.

#### System Experience since Prior Valuation

The approximate actual rate of return since the prior valuation was 3.98% for 2015-2016. The investment return assumption for the 2015-2016 fiscal year was 6.65%. The asset loss due to investment performance that was less than expected served to increase the System's net pension liability.

Our analysis of System experience from June 30, 2015 to June 30, 2016 resulted in a liability loss of \$0.07 billion (e.g. – the original June 30, 2015 Total Pension Liability of \$16.31 billion was expected to increase to \$16.47 billion as of June 30, 2016, and instead increased to \$16.54 billion prior to the changes in assumptions).

Major sources of gains and losses from the June 30, 2015 valuation to the June 30, 2016 valuation are as follows:

1. \$15 million loss on new entrants and rehired active members who were not included in the June 30, 2015 valuation.
2. \$55 million loss on roughly 800 active members who retired since the prior valuation.
3. \$25 million gain on retiree and beneficiary mortality and data changes.
4. \$50 million loss on salary increases larger than anticipated and other data changes for continuing active members.
5. \$65 million gain from active members terminating employment.

Further discussion is warranted on Item 2.

For Item 2, the act of retiring from active status generates a liability loss for an individual member. Possible explanations for additional liability losses attributable to individual members include purchases of service (which are offset to some extent on the asset side

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## SECTION I – SUMMARY

by the member's purchase price) and any data clean-up that may have occurred during the benefit calculation process when the member retired.

### Changes in Assumptions since Prior Valuation

This valuation reflects a decrease in the investment return assumption from 6.65% to 5.85% per year. The 5.85% assumption reflects the asset allocation for the non-loan portion of the portfolio that was adopted by the Board during January 2016 as shown below and Milliman's capital market assumptions as of June 30, 2016. In addition, the assumption reflects that loans to members comprise approximately 20% of the portfolio and, as provided by the System, have an approximate return of 9.5% with no volatility.

Asset Class	Target Allocation
Domestic Equity	14%
International Equity	6%
Fixed Income	79%
Cash	1%

Under the prior GASB 25/27, the investment return assumption was used to discount all projected Basic System Pension Benefits and System Administered Pension Benefits to determine the Actuarial Accrued Liability. Under GASB 67, the investment return assumption is an input that is used in the calculation of the single equivalent interest rate that is used to discount these benefits to determine the Total Pension Liability. GASB 67 also requires that the plan sponsor select a municipal bond index for use in developing the single equivalent interest rate. The index selected for PRTRS is the Bond Buyer General Obligation 20-Bond Municipal Bond Index. The index rate decreased from 3.80% as of June 30, 2015 to 2.85% as of June 30, 2016.

As a result of the reduction in the investment return assumption, the assumed investment return on the Defined Contribution Accounts (80% of the net investment return assumptions) was decreased from 5.32% to 4.68%.

This valuation reflects a decrease from 3.10% to 3.00% per year in the investment return assumption for GASB 45 purposes. The 3.00% assumption reflects Milliman's capital market assumptions as of June 30, 2016 and assumes that the Commonwealth's General Fund (the assets used to pay the GASB 45 benefits) is invested approximately in 75% cash and 25% short-term bonds.

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# PUERTO RICO TEACHERS RETIREMENT SYSTEM

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The projected mortality improvement scale was updated from Scale MP-2015 to Scale MP-2016, which was published by the Society of Actuaries in October 2016.

This valuation also reflects a salary freeze until July 1, 2021 due to the Act 3-2017 four year extension of Act 66-2014.

In addition, to reflect actual retirement activity among active members that is higher than anticipated during 2015-2016, the retirement rates for active members were doubled for 2015-2016.

### Changes in Methods since the Prior Valuation

There have been no change in methods since the prior valuation.

### Changes in Plan Provisions since Prior Valuation

#### *Act 3-2017*

Act 66-2014 originally implemented a salary freeze for FY 2014-15 through FY 2016-17. The recent extension in Act 3-2017 freezes salaries for four additional years, through FY 2020-21.

#### *Fiscal Plan*

The *Fiscal Plan for Puerto Rico* (dated March 13, 2017) was approved by the Puerto Rico Fiscal Board (a body created by the enactment of the Puerto Rico Oversight, Management, and Economic Stability Act (“PROMESA”)). The approval was conditioned on the Puerto Rico government and the Board reaching an agreement to reduce benefit payments of the following systems by 10% in the aggregate:

- Puerto Rico Government Employees Retirement System
- Puerto Rico Judiciary Retirement System
- Puerto Rico Teachers Retirement System

The details of the reduction methodology, which will determine how the reductions impact each system, are not final at this time. A multi-year delay in implementation is also anticipated. These potential reductions are not reflected in this June 30, 2016 valuation.

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## SECTION I – SUMMARY

Note that the Fiscal Plan does not anticipate future payment of the Act 160-2013 Annual Additional Contribution and Teachers Justice Uniform Contribution contained in current law. Rather, the Fiscal Plan anticipates that PRTRS will be funded on a pay-as-you-go basis once assets are exhausted.

### *Commentary on Pay-as-you-go (“paygo”) funding*

Operating a retirement system on a paygo basis may be conceptually simple, but can be very difficult in practice when the plan sponsor’s current funds and ability to rely on reserves are limited.

While the valuation of PRTRS liabilities for financial reporting purposes is conducted on an annual basis in arrears, statutory contributions and benefit payments vary continuously and respond instantaneously to emerging events.

At a basic level, PRTRS will need to hold some level of operating cash to account for any ongoing timing issues between receipt and disbursement of funds.

The paygo funding needed in a given year is the difference between actual contributions and actual disbursements:

- Contributions to PRTRS are primarily based on statutory percentages of payroll.
- Disbursements are comprised of benefit payments and administrative expenses.

Contributions and disbursements will experience natural variation due to emerging demographic experience. Contributions and disbursements can also be greatly impacted by specific management decisions, such as an early retirement incentive program or other workforce reduction.

A major issue that needs to be addressed by PRTRS and the Commonwealth is determining what the process of PRTRS budgeting for paygo funding will be. While the System can set an expected paygo amount at the time of budgeting for an upcoming fiscal year, both actual contributions and disbursements can vary from expectations during the fiscal year.

- If the budget is set based on expected contributions and disbursements, in the event of adverse experience during the fiscal year, will PRTRS be able to request additional funds from the Commonwealth?

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### SECTION I – SUMMARY

- Would PRTRS be permitted to develop a budget request of a paygo amount for the fiscal year that includes a margin to provide a buffer against adverse experience?
  - If so, consideration will need to be given to what level of margin should be included. Scenarios such as higher retirement activity and/or lower mortality rates could be modeled to provide a range of potential adverse outcomes.
  - Increased security comes at increased cost, and no specific margin guarantees protection against all circumstances.
- How would the impacts of specific management decisions be handled?
  - For instance, assume that the fiscal year paygo amount appears to be sufficient as of mid-year.
  - Then a reduction in workforce is announced, with an effective date of March 31.
  - In the final three months of the fiscal year, statutory rate contribution income will be lower than expectations due to lower payroll.
  - In the final three months of the fiscal year, disbursements will be higher than expected as some members will take a refund of contributions upon termination, and other members who are retirement eligible will commence their annuity earlier than they had been expected to do so.

There are certainly many more operational details to be considered. We provide this limited commentary in order to point out that paygo operation is a complex issue that requires careful thought and planning, constant monitoring, and the ability to respond to emerging events quickly.

#### Overview of Recent Significant Changes in Plan Provisions

Act 160-2013 (enacted December 24, 2013) proposed benefit changes for all members of PRTRS. Based on the Puerto Rico Supreme Court decision (dated April 11, 2014), many changes were struck down. A summary of the changes that passed Supreme Court review follows below based on the member's date of hire.

#### *Members hired before August 1, 2014*

The following changes were made for members hired before August 1, 2014:

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- The stop date for the additional contribution required for retirement due to age and service prior to age 55 and 30 years of Creditable Service was changed to age 55 for members who retired on or after December 24, 2013.
- The payroll-based employer contributions are also required to be made on behalf of members who retired due to age and service while the member is paying the additional contribution.
- System-funded post-retirement death benefits were eliminated for members who retire on August 1, 2014 or later. If a member elects an optional form of annuity with a survivor benefit, the member's benefit will be actuarially reduced to reflect the cost of the survivor benefit.
- The in-service one-year of salary lump sum death benefit was eliminated effective July 31, 2014.
- The Christmas Bonus was reduced from \$600 to \$200, and the Summer Bonus of \$100 was eliminated for members in pay status.
- All Special Law bonus benefits (Christmas Bonus, Medication Bonus, and Medical Insurance Plan Continuation) were eliminated for members retiring on or after August 1, 2014.
- The accumulation rate on service purchase was increased from 2% compound per year to 9.5% compound per year.

#### *Members hired on or after August 1, 2014*

New members would be covered by a contributory hybrid plan. A hybrid plan, such as a cash balance plan, determines the benefit amount based on a formula using contributions and earning credits, has notional individual accounts for members, and provides lifetime annuity benefits. The primary provisions of the contributory hybrid plan are as follows:

- Member contributions of
  - 10.00% of compensation for Fiscal Years 2014-2015 through 2016-2017
  - 13.12% of compensation for Fiscal Years 2017-2018 through 2019-2020
  - 14.02% of compensation for Fiscal Year 2020-2021 and each year thereafter
- The member contributions are credited to a notional individual account each year.
- For vested members, the notional individual account is credited with investment yield for each semester of the fiscal year as determined by the Board. The investment yield determined by the Board shall never be less than 80% of the System's investment portfolio yield during each semester, less investment fees.

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- Normal retirement age of 62 with 5 or more years of service and a notional account balance of \$10,000 or more.
- Members who separate from employment with less than 5 years of service or who have a notional account balance less than \$10,000 would receive their notional account balance as a lump sum. Such lump sum for these non-vested members would reflect 2% compound interest, rather than the investment yield determined by the Board, for up to 6 months after separation from service.
- Members who separate from employment with 5 or more years of service and a notional account balance of \$10,000 or more would receive their benefit in the form of a mandatory annuity.
  - Members who separate at or after normal retirement age would receive an immediate annuity.
  - Members who separate prior to normal retirement age for reasons other than disability would receive a deferred annuity commencing at normal retirement age, with interest credits continuing to accrue to the account during the deferral period.
  - Members who separate prior to normal retirement age due to disability would receive an immediate annuity.
  - The mandatory annuity would be a “modified cash refund” of the member’s account balance - which means that if the accumulated annuity payments at the time of post-retirement death are less than the account balance at the time of retirement, then the beneficiary would receive the remainder of the account.
- Beneficiaries of members who die prior to retirement would receive a lump sum payment of the members’ accumulated account balance at the time of death.

#### Asset Segregation

On September 29, 2015, the System’s Board decided to segregate the assets attributable to hybrid plan members (e.g. members hired August 1, 2014 and later) from the assets attributable to the legacy defined benefit (DB) plan members (e.g. members hired before August 1, 2014). Note that employer contributions made on behalf of hybrid plan members will be used to fund the legacy DB plan benefits and thus are included in the assets attributable to the legacy DB plan members. The assets attributable to hybrid plan members will include the hybrid plan member contributions and investment income thereon, reduced by benefits paid to hybrid plan members and hybrid plan expenses.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION I – SUMMARY

This report assumes that this segregation of assets does not require the System to be treated as two separate plans (legacy DB versus hybrid) under GASB 67.

#### GASB Pension Accounting Information

GASB has issued two new statements: Statement No. 67, “*Financial Reporting for Pension Plans*” (GASB 67), and Statement No. 68, “*Accounting and Financial Reporting for Pensions*” (GASB 68). GASB 67 and 68 replace GASB 25 and 27 respectively. The effective date of GASB 67 (which applies to financial reporting on a plan basis) is the fiscal year ending June 30, 2014. The effective date of GASB 68 (which applies to financial reporting by contributing employers) is the fiscal year ending June 30, 2015.

Pension accounting results in Section III of this report have been prepared under GASB 67 parameters to determine a Total Pension Liability at the end of the fiscal year. The Net Fiduciary Position at each date is then subtracted to arrive at the Net Pension Liability.

#### GASB OPEB Accounting Information

Accounting results for the Medical Insurance Plan Contribution in Section V of this report are calculated under Governmental Accounting Standards Board Statement No. 45, “*Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*” (GASB 45). (Note that the Medication Bonus has been included in the GASB 67 results as a Pension Benefit because members can receive the bonus without submitting documentation to substantiate medication expenses.)

There are no member or employer contributions on behalf of the Medical Insurance Plan Contribution. This benefit is financed on a pay-as-you-go basis from the General Fund of the Commonwealth of Puerto Rico. Since this benefit is not funded in advance, the ARC for this benefit has been calculated based on an assumed investment return rate of 3.00% based on the asset allocation of the Commonwealth’s general assets that are used to pay this benefit.

Note that GASB issued GASB 75 in June 2015 which makes changes to GASB 45 similar to how GASB 25/27 were updated by GASB 67/68. GASB 75 is effective beginning with the 2017-2018 fiscal year, unless earlier adoption occurs.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION I – SUMMARY

#### GASB 67 Projection to Determine Date of Depletion (if any)

GASB 67 requires that a projection be performed for the System to determine a date of depletion, if any, and the resulting effective discount rate. This complex projection is used to determine the point at which the System is expected to deplete assets per GASB 67. The analysis includes a projection of member and employer contributions, benefit payments, and administrative expenses attributable to current members. Amounts attributable to members hired in the future are excluded except to the extent that employer contributions exceed the cost of benefits for those future members. *Because the date of depletion projection does not incorporate all projected cash inflows to and outflows from the System, the results will differ from those in a comprehensive cash flow projection that models all inflows and outflows. In other words, the GASB 67 date of depletion is not the same as the date that the System would be expected to exhaust assets.*

Once a depletion date has been determined, it is used as an input in the determination of the accounting liability as follows:

- The present value of all future benefits for GASB 67 accounting purposes is determined as follows:
  - For projected benefit payments occurring prior to the date of depletion, the discount rate is based on the System's expected return on assets.
  - For projected benefit payments occurring after the date of depletion, the discount rate is based on a tax-free municipal bond index.
- Based on the resulting present value of all future benefits for GASB 67 accounting purposes, a single equivalent interest rate can be imputed that yields the same present value.

Subsection A of Section III shows the results of the GASB 67 date of depletion projection as of the end of the fiscal year, which then generates the discount rate used in the determination of the Total Pension Liability. As directed by the Treasury Department, the Government Development Bank, and the System (after consultation with the auditor), the date of depletion projection does not include any amounts from the additional contributions defined in Article 1.1 of Act 160-2013.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION II - SYSTEM ASSETS

#### A. Statement of Fiduciary Net Position

	<u>June 30, 2015</u>	<u>June 30, 2016</u>
<b>Assets</b>		
Cash and cash equivalents	\$63,738,000	\$11,354,000
Receivables and prepaid expenses	60,244,000	14,548,000
Investments:		
Bonds	371,022,000	0
Stocks	66,357,000	22,056,000
Non-exchange traded mutual funds	335,528,000	486,571,000
Private equity investments	7,500,000	5,574,000
Total loans to plan members	415,946,000	366,590,000
Other assets	<u>1,065,000</u>	<u>393,000</u>
Total investments	1,197,418,000	881,184,000
Invested securities lending cash collateral	25,960,000	760,000
Capital assets	<u>16,570,000</u>	<u>15,942,000</u>
Total assets	\$1,363,930,000	\$923,788,000
<b>Liabilities</b>		
Securities lending cash collateral	\$25,960,000	\$760,000
Other liabilities	<u>26,889,000</u>	<u>27,573,000</u>
Total liabilities	\$52,849,000	\$28,333,000
<b>Net position restricted for pensions</b>	\$1,311,081,000	\$895,455,000

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# PUERTO RICO TEACHERS RETIREMENT SYSTEM

## SECTION II - SYSTEM ASSETS

### B. Statement of Changes in Fiduciary Net Position

June 30, 2016

Additions	
a. Contributions	
Employer Contributions for Basic Benefits	\$148,619,000
Employer Contributions for Special Benefits	65,056,000
Member Contributions	99,557,000
Interest on cultural loans	49,000
Transfers in	<u>1,804,000</u>
Total Contributions	\$315,085,000
b. Investment Income	
Interest Income	\$43,476,000
Dividend Income	870,000
Net Appreciation of Investments	1,887,000
Other Income	1,412,000
Investment Related Expenses	<u>(1,235,000)</u>
Net Investment Income	\$46,410,000
Total Additions	\$361,495,000
Deductions	
Refund of Contributions	\$13,910,000
Annuities and Death Benefits	704,289,000
Special Benefits	32,997,000
Interest on cultural loans	49,000
Administrative Expenses	22,568,000
Loss on GDB Deposits	<u>3,308,000</u>
Total deductions	\$777,121,000
Net Increase (Decrease)	(\$415,626,000)
Net position restricted for pensions	
Beginning of year (June 30, 2015)	1,311,081,000
End of year (June 30, 2016)	\$895,455,000

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION II - SYSTEM ASSETS

#### C. Estimated Annual Rate of Return for year ending June 30, 2016

	<u>Market Value</u>
1. Value of Assets as of June 30, 2015	\$1,311,081,000
2. Total Contributions	315,085,000
3. Benefit Payments and Expenses	773,813,000
4. Value of Assets as of June 30, 2016	895,455,000
5. Non-Investment Increment: (2) - (3)	(458,728,000)
6. Investment Increment: (4) - (1) - (5)	43,102,000
7. Time Weighted Value: (1) +.5 * (5)	1,081,717,000
8. Estimated Annual Rate of Return: (6) / (7)	3.98%

#### D. Estimated Historical Rates of Return

<u>Plan Year Ending</u>	<u>Market Value</u>
June 30, 2016	3.98%
June 30, 2015	4.13%
June 30, 2014	11.20%
June 30, 2013	8.26%
June 30, 2012	1.73%
5-year Compounded Annual Return	5.81%

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## **PUERTO RICO TEACHERS RETIREMENT SYSTEM**

### **SECTION III – GASB 67 ACCOUNTING INFORMATION**

#### **A. Projection to Determine GASB 67 Date of Depletion (if any)**

The projection was prepared on a deterministic basis for the System as a whole and reflects the following:

- Projected investment income is based on the June 30, 2016 investment return assumption of 5.85% per year.
- All demographic assumptions are assumed to be met in future years (i.e. – no gains or losses from demographic sources are expected to occur).
- Employer contributions in each future year are calculated as follows:
  - Under Act 114-2011, the statutory payroll-based employer contribution rate is 14.75% for the 2016-2017 fiscal year. For the next four fiscal years starting with 2017-2018, this rate will increase annually by 1.25%, reaching an employer contribution rate of 19.75% effective July 1, 2020. Under Act 160-2013, effective July 1, 2021 and later fiscal years, the statutory payroll-based employer contribution rate will be 20.525%.
  - The employer contributions attributable to members who were active as of the valuation date were calculated based on the statutory payroll-based employer contribution rate (above) applied to the payroll for those members.
  - The employer contribution rate to the System on behalf of future hires exceeds the net employer normal cost rate (on entry age normal cost method basis with a 5.85% investment return assumption), which is thus available to be applied toward benefits for existing members. This excess employer contribution rate was determined as follows:
    - Based on the valuation, the gross normal cost rate for current active members hired on and after August 1, 2014 is 10.40% of payroll based on the plan provisions and actuarial assumptions set forth in this report.
    - With employee contribution rates of 10.00% of payroll effective from August 1, 2014 to June 30, 2017, 13.12% of payroll from July 1, 2017 to June 30, 2020, and 14.02% of payroll effective July 1, 2020 for members hired on and after August 1, 2014, the net employer normal cost rate for future hires is negative. Therefore, the entirety of the Act 114-2011 statutory employer contribution rate based on future hire payroll can be applied toward benefits for existing members.
- As directed by the Treasury Department, the Government Development Bank, and the System (after consultation with the auditor) at the outset of GASB 67, this projection does not include any amounts from the additional contributions defined in Article 1.1 of Act 160-2013. This decision was based on the following:

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## **PUERTO RICO TEACHERS RETIREMENT SYSTEM**

### **SECTION III – GASB 67 ACCOUNTING INFORMATION**

- The actual fiscal and budgetary condition of the Commonwealth of Puerto Rico, and
- Even though there is no prior collection history of the Commonwealth's contributions required by Act 160-2013, as a result of budgetary constraints, the Commonwealth has not paid similar additional contributions to the Puerto Rico Government Employees Retirement System ("PRGERS") since their inception in fiscal year 2013-2014.
- Total payroll was assumed to remain constant through 2020-2021 due to the four year extension of the Act 66-2014 salary freeze contained in Act 3-2017. The estimated payroll for members hired after the valuation date was determined by subtracting the projected payroll for members active as of the valuation date from the estimated total payroll.
- Administrative expenses were assumed to remain level.

As shown at the end of this subsection, the System assets are expected to be exhausted during fiscal year 2018-2019 under this GASB 67 projection basis.

Accordingly, based on the projected 2018-2019 year of depletion, the investment return of 5.85% per year as of June 30, 2016, and the municipal bond index of 2.85% as of June 30, 2016, the single equivalent interest rate as of June 30, 2016 was determined to be 2.86%. This single equivalent interest rate yields the same present value of all future benefits as using the expected return on plan assets until the 2017-2018 fiscal year and the tax-free municipal bond index beginning with the 2018-2019 fiscal year for the discount rate.

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**  
**SECTION III – GASB 67 ACCOUNTING INFORMATION**

**GASB 67 Projection as of June 30, 2016 to determine Date of Depletion (if any)**

Fiscal Year Ending	Employer Contribution Rate	Beginning of Year Assets	Estimated Payroll for Members Active as of the Valuation Date	Estimated Payroll for Members Hired After the Valuation Date	Estimated Employer Payroll Based Contribution	Estimated Gross Employer Supplemental Contribution (per Act 160-2013 Section 4.9(b))	Estimated Special "Bonus" Benefits paid from Employer Supplemental Contribution	Estimated Net Employer Supplemental Contribution (per Act 160-2013 Section 4.9(b))	Estimated Teacher's Justice Uniform Contribution (assumed paid end of year)	Estimated Annual Additional Contribution (assumed paid end of year)	Estimated Act 70-2010 Contribution	Estimated Employer Contribution per Act 160-2013 Section 4.4(d)	Estimated Contribution from Members hired before August 2014 Active as of the Valuation Date	Estimated Contribution from Members hired after July 2014 Active as of the Valuation Date	Estimated Contribution from All Members Active as of the Valuation Date	Estimated Benefit Payments to Retired and Active Members as of the Valuation Date	Estimated Administrative Expenses for Retired and Active Members as of the Valuation Date	Estimated Investment Income	End of Year Assets
06/30/2017	14.750%	895,455,000	1,027,616,000	45,404,000	158,270,000	72,074,000	48,558,000	23,516,000	0	0	340,000	2,675,000	89,545,000	3,267,000	92,812,000	707,337,000	20,975,000	39,389,000	484,144,000
06/30/2018	16.000%	484,144,000	993,270,000	79,750,000	171,683,000	72,677,000	47,465,000	25,212,000	0	0	350,000	2,297,000	86,608,000	4,062,000	90,670,000	715,297,000	20,975,000	15,461,000	53,546,000
06/30/2019	17.250%	53,546,000	955,785,000	117,235,000	185,096,000	73,286,000	46,345,000	26,941,000	0	0	372,000	2,065,000	83,330,000	3,922,000	87,252,000	725,724,000	20,975,000	0	0
06/30/2020	18.500%	0	913,754,000	159,266,000	198,509,000	73,988,000	45,201,000	28,787,000	0	0	383,000	1,949,000	79,626,000	3,807,000	83,433,000	739,590,000	20,975,000	0	0
06/30/2021	19.750%	0	867,728,000	205,292,000	211,921,000	74,844,000	44,033,000	30,811,000	0	0	364,000	1,686,000	75,558,000	3,953,000	79,511,000	756,475,000	20,975,000	0	0

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION III - GASB 67 ACCOUNTING INFORMATION**

**B. Net Pension Liability**

<b>Net Pension Liability</b>	<b><u>June 30, 2015</u></b>	<b><u>June 30, 2016</u></b>
Total pension liability	\$16,307,731,044	\$18,165,571,901
Fiduciary net position	1,311,081,000	895,455,000
Net pension liability	14,996,650,044	17,270,116,901
Fiduciary net position as a % of total pension liability	8.04%	4.93%
Covered payroll	\$1,127,499,643	\$1,101,895,593
Net pension liability as a % of covered payroll	1330.08%	1567.31%

The total pension liability was determined by an actuarial valuation as of July 1, 2015, calculated based on the discount rate and actuarial assumptions as shown in Section VII and was then projected forward to June 30, 2016. There have been significant changes between the valuation date of July 1, 2015 and the fiscal year end. Any significant changes during this period must be reflected as prescribed by GASB 67. Covered Payroll is as of July 1, 2015.

**Discount Rate**

The plan's fiduciary net position was not projected to be available to make all projected future benefit payments of current active and inactive members. Therefore, the discount rate for calculating the total pension liability is equal to the single equivalent rate that results in the same actuarial present value as the long-term expected rate of return applied to benefit payments, to the extent that the plan's fiduciary net position is projected to be sufficient to make projected benefit payments, and the municipal bond rate applied to benefit payments, to the extent that the plan's fiduciary net position is not projected to be sufficient.

	<b><u>June 30, 2015</u></b>	<b><u>June 30, 2016</u></b>
Discount rate	3.82%	2.86%
Long-term expected rate of return net of investment expense	6.65%	5.85%
Municipal bond rate *	3.80%	2.85%

\* Bond Buyer General Obligation 20-Bond Municipal Bond Index

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION III - GASB 67 ACCOUNTING INFORMATION**

**C. GASB 67 Benefit Obligations as of June 30, 2016**

	<u>Basic System Benefits</u>	<u>System Administered Benefits</u>	<u>Total</u>
1. Projected Benefits Payable to Retirees and Beneficiaries			
Retirees	\$10,272,453,020	\$361,428,632	\$10,633,881,652
Disabled Members	255,021,297	24,885,833	279,907,130
Beneficiaries	<u>182,009,023</u>	<u>9,359,022</u>	<u>191,368,045</u>
Total	10,709,483,340	395,673,487	11,105,156,827
2. Projected Benefits Payable to Vested Terminated Members	102,555,290	280,847	102,836,137
3. Actuarial Accrued Liability for Active Members	6,928,456,787	101,409	6,928,558,196
4. Refund of Contributions due to former members	29,020,741	0	29,020,741
5. Total Pension Liability as of June 30, 2016:			
(1) + (2) + (3) + (4)	\$17,769,516,158	\$396,055,743	\$18,165,571,901

The above liabilities are for Basic System Benefits and selected System Administered Benefits. See Section I for more information.

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION III - GASB 67 ACCOUNTING INFORMATION**

**D. Changes in Net Pension Liability**

<b>Changes in Net Pension Liability</b>	<b>Increase (Decrease)</b>		
	<b>Total Pension Liability (a)</b>	<b>Plan Fiduciary Net Position (b)</b>	<b>Net Pension Liability (a) - (b)</b>
Balances as of June 30, 2015	\$16,307,731,044	\$1,311,081,000	\$14,996,650,044
Changes for the year:			
Service cost	294,692,412		294,692,412
Interest on total pension liability	619,999,198		619,999,198
Effect of plan changes	0		0
Effect of economic/demographic (gains) or losses	72,633,385		72,633,385
Effect of assumptions changes or inputs	1,621,711,862		1,621,711,862
Benefit payments	(751,196,000)	(751,196,000)	0
Administrative expenses		(22,568,000)	22,568,000
Member contributions		99,557,000	(99,557,000)
Net investment income		46,410,000	(46,410,000)
Transfer		1,804,000	(1,804,000)
Loss on GDB deposits		(3,308,000)	3,308,000
Employer contributions		213,675,000	(213,675,000)
Balances as of June 30, 2016	\$18,165,571,901	\$895,455,000	\$17,270,116,901

**E. Sensitivity Analysis**

The following presents the net pension liability of PRTRS, calculated using the discount rate of 2.86%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (1.86%) or 1 percentage point higher (3.86%) than the current rate.

	<b>1% Decrease 1.86%</b>	<b>Current Discount Rate 2.86%</b>	<b>1% Increase 3.86%</b>
Total pension liability	\$20,990,746,347	\$18,165,571,901	\$15,878,439,700
Fiduciary net position	895,455,000	895,455,000	895,455,000
Net pension liability	20,095,291,347	17,270,116,901	14,982,984,700

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION IV - GASB 45 ACCOUNTING INFORMATION

#### A. Benefit Obligations

1. Projected Benefits Payable to Retirees and Beneficiaries	
Retirees	\$493,015,078
Disabled Members	30,284,854
Beneficiaries	<u>0</u>
Total	523,299,932
2. Projected Benefits Payable to Vested Terminated Members	0
2. Actuarial Accrued Liability for Active Members	0
3. Actuarial Accrued Liability as of June 30, 2016	523,299,932
4. Total Employer Normal Cost as of December 31, 2016	0

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION IV - GASB 45 ACCOUNTING INFORMATION

#### **B. Development of Unfunded Accrued Liability and Amortization Payment Payable as of December 31, 2016**

1. Actuarial Accrued Liability as of June 30, 2016	\$523,299,932
2. Actuarial Value of Assets as of June 30, 2016	0
3. Unfunded Actuarial Accrued Liability as of June 30, 2016: (1) - (2)	523,299,932
4. Amortization Period in years	18
5. Amortization Factor at beginning of year	14.1661
6. Amortization Amount Payable as of December 31, 2016: [ (3) / (5) ] * ( 1.0300 ^ 0.5 )	\$37,490,306

#### **C. Development of Annual Required Contribution**

1. Total Employer Normal Cost as of December 31, 2016	\$0
2. Amortization Payment as of December 31, 2016	37,490,306
3. Annual Required Contribution*: (1) + (2)	37,490,306

\* Assumes payments made throughout the year.

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION IV - GASB 45 ACCOUNTING INFORMATION

#### **D. Development of Net OPEB Obligation as of June 30, 2016**

1. Net OPEB Obligation as of June 30, 2015	\$59,848,200
2. Annual OPEB Cost for Fiscal Year 2015 - 2016	35,688,603
3. Fiscal Year 2015 - 2016 Employer Contribution	37,481,000
4. Net OPEB Obligation as of June 30, 2016: (1) + (2) - (3)	\$58,055,803

#### **E. Development of Fiscal Year 2016 - 2017 Annual OPEB Cost**

1. Annual Required Contribution	\$37,490,306
2. Interest on Net OPEB Obligation as of June 30, 2016	1,741,674
3. Adjustment to the Annual Required Contribution	4,221,167
4. Fiscal Year 2016 - 2017 Annual OPEB Cost: (1) + (2) - (3)	\$35,010,813

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION IV - GASB 45 ACCOUNTING INFORMATION**

**F. Schedule of Employer Contributions**

<u>Year Ended June 30</u>	<u>Actual Employer Contribution</u>	<u>Annual Required Contribution</u>	<u>Percent Contributed</u>	<u>Annual OPEB Cost</u>	<u>Percent Contributed</u>
2017	\$37,258,000	\$37,490,306	99.38%*	\$35,010,813	106.42%*
2016	37,481,000	38,048,604	98.51	35,688,603	105.02
2015	37,776,000	36,292,129	104.09	33,946,314	111.28
2014	35,892,000	46,402,944	77.35	45,901,955	78.19
2013	34,239,000	45,668,532	74.97	45,333,986	75.53
2012	34,471,000	41,068,597	83.94	40,980,028	84.12
2011	33,432,000	39,925,237	83.74	39,896,228	83.80

\* Percentage contributed for the year ended June 30, 2017 assumes the actual employer contribution is the expected pay-as-you-go amounts for the Medical Insurance Plan Contribution.

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION IV - GASB 45 ACCOUNTING INFORMATION**

**G. Schedule of Funding Progress**

	(a)	(b)	(c)=(b)-(a)	(d)=(a)/(b)	(e)	(f)=(c)/(e)
Actuarial Valuation <u>Date</u>	Actuarial Value of <u>Assets</u>	Accrued <u>Liability</u>	Unfunded <u>Liability</u>	Funded <u>Ratio</u>	Annual <u>Salary</u>	Unfunded Liability as a % of Annual <u>Salary</u>
06/30/2016	\$0	\$523,299,932	\$523,299,932	0.0%	1,101,895,593	47.5%
06/30/2015	0	548,518,327	548,518,327	0.0%	1,127,499,643	48.6%
06/30/2014	0	543,205,105	543,205,105	0.0%	1,171,153,830	46.4%
06/30/2013	0	792,875,089	792,875,089	0.0%	1,248,674,490	63.5%
06/30/2012	0	797,332,237	797,332,237	0.0%	1,292,974,899	61.7%
06/30/2011	0	706,068,965	706,068,965	0.0%	1,320,399,637	53.5%

The above liabilities are for the Medical Insurance Plan Contribution portion of the System Administered Benefits. See Section I for more information.

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# PUERTO RICO TEACHERS RETIREMENT SYSTEM

## SECTION IV - GASB 45 ACCOUNTING INFORMATION

### H. Additional Information

The following information was used to determine the Annual Required Contribution for the fiscal year ending June 30, 2017. The ARC is for the Medical Insurance Plan Contribution. See Section I for more information.

Valuation Date:	June 30, 2016
Actuarial Cost Method:	Entry Age Normal
Amortization method:	20 years closed (beginning July 1, 2014), level dollar
Remaining Amortization Period:	18 years
Asset valuation method:	Market Value of Assets
Assumptions:	
Investment rate of return	3.00%
Projected Salary Increases	not applicable
Payroll growth	not applicable
Inflation	not applicable
Cost of Living Adjustments	not applicable

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION V – CENSUS DATA**

**A. Reconciliation with Prior Valuation**

	<u>Active</u> <sup>1</sup>	<u>Terminated Vested</u>	<u>Retirees, Disabled Members, and Beneficiaries</u>	<u>Total</u>
Members as of July 1, 2014	37,700	527	41,661	79,888
Changes				
Terminated Vested	(282)	284	(2)	0
Retired & Disabled	(790)	(27)	817	0
Death	(48)	(2)	(852)	(902)
Disappeared	(658)	(37)	(111)	(806)
Return/Transfer of Contributions	(509)	(47)	0	(556)
Return to Active	49	(44)	(5)	0
New	2,222	96	243	2,561
Members as of July 1, 2015	37,684 <sup>2</sup>	750	41,751	80,185

<sup>1</sup> The July 1, 2014 census data reflects retirements during July 2014.

<sup>2</sup> Includes 676 members on leave of absence without pay who are assumed not to earn additional benefits.

The liability for the Return of Contributions due to former Members was provided by the System and equals the accumulated contributions with interest as of July 1, 2016 for former participants who terminated employment by July 1, 2016 and have not received a return of contributions as of July 1, 2016.

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION V – CENSUS DATA**

**B. Summary of Active Members as of July 1, 2015**

**Number of Defined Benefit Active Members**

Age Group	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	46	1	-	-	-	-	-	47
25-29	1,377	212	-	-	-	-	-	1,589
30-34	1,594	1,862	316	3	-	-	-	3,775
35-39	835	1,292	2,566	337	-	-	-	5,030
40-44	495	715	1,896	1,930	241	1	-	5,278
45-49	368	584	1,218	1,505	2,410	448	-	6,533
50-54	231	378	910	1,100	2,022	2,937	175	7,753
55-59	121	217	537	616	955	1,325	237	4,008
60-64	49	94	199	251	307	377	138	1,415
65-69	13	27	49	56	73	91	36	345
70+	6	5	13	18	22	25	29	118
<b>Total</b>	<b>5,135</b>	<b>5,387</b>	<b>7,704</b>	<b>5,816</b>	<b>6,030</b>	<b>5,204</b>	<b>615</b>	<b>35,891</b>

**Average Annual Compensation of Defined Benefit Active Members**  
(excluding 676 leave of absence members)

Age Group	Years of Service							Average
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	20,762	22,140	-	-	-	-	-	20,792
25-29	21,319	22,440	-	-	-	-	-	21,470
30-34	21,591	23,040	28,293	29,020	-	-	-	22,891
35-39	21,801	23,497	29,916	34,666	-	-	-	27,304
40-44	22,249	24,351	30,480	34,159	35,136	23,100	-	30,512
45-49	22,487	24,343	30,047	33,860	34,921	35,774	-	32,243
50-54	23,278	23,941	29,789	33,469	34,498	35,523	36,480	33,430
55-59	23,407	23,635	29,709	33,240	34,120	35,260	35,777	33,047
60-64	23,119	24,384	29,383	32,721	34,100	34,907	37,109	32,735
65-69	26,387	25,692	29,194	33,109	34,210	35,093	37,722	33,008
70+	21,596	22,280	28,110	31,001	34,291	34,605	38,581	33,200
<b>Average</b>	<b>21,803</b>	<b>23,562</b>	<b>29,958</b>	<b>33,799</b>	<b>34,609</b>	<b>35,419</b>	<b>36,515</b>	<b>30,217</b>

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION V – CENSUS DATA**

**B. Summary of Active Members as of July 1, 2015**

**Number of Hybrid Active Members**

Age Group	Years of Service							Total
	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	
<25	209	-	-	-	-	-	-	209
25-29	614	-	-	-	-	-	-	614
30-34	389	-	-	-	-	-	-	389
35-39	220	-	-	-	-	-	-	220
40-44	136	-	-	-	-	-	-	136
45-49	106	-	-	-	-	-	-	106
50-54	72	-	-	-	-	-	-	72
55-59	28	-	-	-	-	-	-	28
60-64	17	-	-	-	-	-	-	17
65-69	2	-	-	-	-	-	-	2
70+	-	-	-	-	-	-	-	-
Total	1,793	-	-	-	-	-	-	1,793

**Average Annual Compensation of Hybrid Active Members**  
(excluding 0 leave of absence members)

Age Group	Years of Service							Average
	<u>0-4</u>	<u>5-9</u>	<u>10-14</u>	<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30+</u>	
<25	20,616	-	-	-	-	-	-	20,616
25-29	21,018	-	-	-	-	-	-	21,018
30-34	21,020	-	-	-	-	-	-	21,020
35-39	21,217	-	-	-	-	-	-	21,217
40-44	21,633	-	-	-	-	-	-	21,633
45-49	21,639	-	-	-	-	-	-	21,639
50-54	21,409	-	-	-	-	-	-	21,409
55-59	20,531	-	-	-	-	-	-	20,531
60-64	21,235	-	-	-	-	-	-	21,235
65-69	22,278	-	-	-	-	-	-	22,278
70+	-	-	-	-	-	-	-	-
Average	21,091	-	-	-	-	-	-	21,091

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION V – CENSUS DATA**

**B. Summary of Active Members as of July 1, 2015**

**Number of All Active Members**

Age Group	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	255	1	-	-	-	-	-	256
25-29	1,991	212	-	-	-	-	-	2,203
30-34	1,983	1,862	316	3	-	-	-	4,164
35-39	1,055	1,292	2,566	337	-	-	-	5,250
40-44	631	715	1,896	1,930	241	1	-	5,414
45-49	474	584	1,218	1,505	2,410	448	-	6,639
50-54	303	378	910	1,100	2,022	2,937	175	7,825
55-59	149	217	537	616	955	1,325	237	4,036
60-64	66	94	199	251	307	377	138	1,432
65-69	15	27	49	56	73	91	36	347
70+	6	5	13	18	22	25	29	118
<b>Total</b>	<b>6,928</b>	<b>5,387</b>	<b>7,704</b>	<b>5,816</b>	<b>6,030</b>	<b>5,204</b>	<b>615</b>	<b>37,684</b>

**Average Annual Compensation of All Active Members**

(excluding 676 leave of absence members)

Age Group	Years of Service							Average
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
<25	20,642	22,140	-	-	-	-	-	20,648
25-29	21,224	22,440	-	-	-	-	-	21,341
30-34	21,475	23,040	28,293	29,020	-	-	-	22,712
35-39	21,673	23,497	29,916	34,666	-	-	-	27,042
40-44	22,107	24,351	30,480	34,159	35,136	23,100	-	30,285
45-49	22,284	24,343	30,047	33,860	34,921	35,774	-	32,071
50-54	22,806	23,941	29,789	33,469	34,498	35,523	36,480	33,318
55-59	22,787	23,635	29,709	33,240	34,120	35,260	35,777	32,959
60-64	22,585	24,384	29,383	32,721	34,100	34,907	37,109	32,595
65-69	25,800	25,692	29,194	33,109	34,210	35,093	37,722	32,945
70+	21,596	22,280	28,110	31,001	34,291	34,605	38,581	33,200
<b>Average</b>	<b>21,611</b>	<b>23,562</b>	<b>29,958</b>	<b>33,799</b>	<b>34,609</b>	<b>35,419</b>	<b>36,515</b>	<b>29,775</b>

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION V – CENSUS DATA**

**C. Summary of Terminated Vested Members as of July 1, 2015**

Terminated Vested

<u>Age</u>	<u>Count</u>	<u>Average Annual Basic System Pension Benefit</u>
<35	5	5,162
35-39	60	6,606
40-44	82	7,379
45-49	145	8,165
50-54	158	9,405
55-59	165	10,085
60-64	70	10,112
65+	65	12,182
All	750	9,148

The average annual pension amounts are as of July 1, 2015. The \$400 minimum monthly benefit is not reflected.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION V – CENSUS DATA

#### D. Summary of Participants in Pay Status as of July 1, 2015

All average annual pension amounts are as of July 1, 2015.

<u>Retirees</u>			
<u>Age</u>	<u>Count</u>	<u>Average Annual Basic System Pension Benefit</u>	<u>Average Annual Total Pension Benefit</u>
<45	8	19,505	19,505
45-49	33	16,374	16,374
50-54	895	23,328	23,330
55-59	4,843	25,222	25,226
60-64	8,580	22,190	22,250
65-69	7,437	18,313	18,744
70-74	5,025	15,416	16,236
75-79	3,651	12,522	13,699
80-84	2,875	10,437	11,916
85-89	1,755	9,219	10,715
90-94	786	8,741	10,107
95-99	181	7,989	9,208
100+	<u>55</u>	7,733	8,790
All	36,124	17,950	18,514

In addition, 994 retirees are currently paying annual additional contributions of \$2,625,528 (via a reduced monthly benefit which is not reflected above). The 59 Act 70-2010 retirees as of July 1, 2015 have initial monthly employer contributions totaling \$18,429 and the amounts above do not reflect the deferral of the benefits for these retirees.

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION V – CENSUS DATA**

**D. Summary of Participants in Pay Status as of July 1, 2015**

**Disabled Members**

<u>Age</u>	<u>Count</u>	<u>Average Annual Basic System Pension Benefit</u>	<u>Average Annual Total Pension Benefit</u>
<45	40	6,548	6,619
45-49	99	8,911	9,000
50-54	256	10,099	10,174
55-59	375	9,371	9,597
60-64	368	7,263	7,764
65-69	292	5,567	6,333
70-74	261	4,780	5,661
75-79	220	4,710	5,577
80-84	240	4,457	5,329
85-89	134	4,498	5,368
90-94	54	4,598	5,416
95-99	18	4,370	5,205
100+	<u>7</u>	5,526	6,278
All	2,364	6,711	7,275

**Beneficiaries**

<u>Age</u>	<u>Count</u>	<u>Average Annual Basic System Pension Benefit</u>	<u>Average Annual Total Pension Benefit</u>
<30	79	5,777	5,882
30-35	3	7,412	7,802
35-39	15	4,647	4,724
40-44	17	5,584	5,708
45-49	52	4,609	4,759
50-54	58	5,744	5,878
55-59	116	6,359	6,522
60-64	208	6,663	6,855
65-69	364	6,270	6,448
70-74	429	5,738	5,921
75-79	557	5,231	5,435
80-84	594	4,559	4,765
85-89	456	4,252	4,450
90+	<u>315</u>	3,923	4,100
All	3,263	5,173	5,361

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## **PUERTO RICO TEACHERS RETIREMENT SYSTEM**

### **SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS** **AS OF JUNE 30, 2016**

PRTRS was established in 1951. Act 160-2013 (enacted December 24, 2013) superseded Act 91-2004 (enacted March 29, 2004), which superseded Act 218-1951 (enacted May 6, 1951).

Two main sets of benefit provisions apply to various members of PRTRS depending on the member's date of hire as a result of Act 160-2013, as modified by the April 11, 2014 decision of the Puerto Rico Supreme Court.

- The first set of provisions applies to members hired on or before July 31, 2014. Distinctions for members who retired August 1, 2014 or later are noted throughout this first set of provisions as applicable.
- The second set of provisions applies to members hired August 1, 2014 or later.

This summary of plan provisions, with separate descriptions for the two sets of benefits and the employer contributions, is intended only to describe the essential features of the plan for valuation purposes. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself.

References to Act 160-2013 in this summary are all inclusive and refer to the applicable section, together with any modifications by the April 11, 2014 Supreme Court decision and the June 9, 2016 sentence from the Puerto Rico Court of Appeals.

#### **Provisions applicable to members hired on or before July 31, 2014**

##### **1. Type of Plan**

A contributory, defined benefit pension plan.

##### **2. Eligibility for Membership**

Members of the Teacher's Retirement System of Puerto Rico include teachers hired by the Department of Education on or before July 31, 2014, retired teachers, licensed teachers working in private schools or other educational organizations who elect to become members on or before July 31, 2014, employees of the System hired before March 29, 2004 who elected to become members, and employees of the System hired on or after March 29, 2004 and on or before July 31, 2014 (Act 160-2013, Article 3.1).

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS AS OF JUNE 30, 2016

#### 3. Definitions

- a. Fiscal Year: A Fiscal Year is a 12-month period beginning on July 1 and ending on June 30.
- b. Fund: System Contribution Fund (Act 160-2013, Article 4.1).
- c. General Fund: The General Expenses Budget of the Government of the Commonwealth of Puerto Rico.
- d. Creditable Service: The years and months of plan participation, during which contributions have been made, beginning on the date of the first original appointment for rendering services. For purposes of calculating Creditable Service, 15 calendar days of a school year month shall be equal to 1 calendar month worked during the school year for teachers; and 21 calendar days of a month shall be equal to 1 calendar month worked for other participants. (Act 160-2013, Article 3.8) Creditable Service also includes purchased service, if any (Act 160-2013, Articles 3.6 and 3.8).
- e. Compensation: The gross cash compensation, excluding bonuses and overtime, upon which contributions by a Member to the Fund are based (Act 160-2013, Article 1.1).
- f. Average Compensation: The average of the 36 highest months of compensation that the participant has received for Creditable Service (Act 160-2013, Article 1.1).
- g. Average Non-occupational Disability Compensation: The average of the 60 highest consecutive months of compensation that the participant has received. (Act 160-2013, Article 4.6).
- h. Average Occupational Disability Compensation: The average of the 60 highest consecutive months of compensation that the participant has received. If less than 60 months of creditable service, the average of the monthly compensation that the participant has received. (Act 160-2013, Article 4.6).
- i. Contributions: The amount deducted from the compensation of a Member or directly paid to the System (Act 160-2013, Article 1.1).

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS**  
**AS OF JUNE 30, 2016**

- j. Accumulated Contributions: The sum of all amounts deducted from the compensation of a Member or directly paid to the System, without interest.

4. Retirement Benefits

a. Retirement because of age

Eligibility: Age 60 with 10 years of Creditable Service (Act 160-2013, Article 3.9).

Benefit: Members who retire because of age shall be entitled to a lifetime monthly income equal to 1.8% of Average Compensation multiplied by years of Creditable Service (Act 160-2013, Article 4.4). In no event will the benefit determined be less than the Minimum Benefit.

Additional Contributions required: None.

b. Retirement because of age and years of service

Eligibility: Age 47 with 25 years of Creditable Service (Act 160-2013, Article 3.9).

Benefit: Members who retire because of age and years of service shall be entitled to a lifetime monthly income based on age and years of Creditable Service as shown below (Act 160-2013, Article 4.4). In no event will the benefit determined below be less than the Minimum Benefit.

Attained Age	Years of Creditable Service	Lifetime Monthly Income
55	30	75% of Average Compensation
50	30	75% of Average Compensation
Under 50	30	65% of Average Compensation
50	25 but less than 30	1.8% of Average Compensation multiplied by years of Creditable Service
47 but less than 50	25 but less than 30	95% of 1.8% of Average Compensation multiplied by years of Creditable Service

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS AS OF JUNE 30, 2016

Additional Contributions required: If a member retires at age 55 or older with at least 30 years of Creditable Service, no additional contributions are required. Members who retired before December 24, 2013 who have not attained age 55 and 30 years of Creditable Service at retirement must contribute to the Fund 9% of the Average Compensation on a monthly basis for a minimum period of 5 years after retiring because of age and years of service. Current administrative practice requires contributions until attainment of both age 55 and the date when 30 years of Creditable Service would have been completed if employment had continued for members who retired before December 24, 2013. Members who retired on or after December 24, 2013 who have not attained age 55 and 30 years of Creditable Service at retirement must contribute to the Fund 9% of the Average Compensation on a monthly basis until attainment of age 55. The employer of each of these members shall continue making the corresponding employer contributions while the member is paying the 9% additional contribution until the age 55 requirement is met. (Act 160-2013, Article 4.4)

#### 5. Termination Benefits

##### a. Lump Sum Withdrawal

Eligibility: A Member is eligible upon termination of service.

Benefit: The benefit equals a refund of Accumulated Contributions, plus compound interest accumulated at 2.0% per annum for a period no longer than 6 months following separation of service. (Act 160-2013, Article 3.4)

##### b. Deferred Retirement

Eligibility: A Member is eligible upon termination of service prior to age 60 and after 10 years of Creditable Service, provided the member has not taken a lump sum withdrawal (Act 160-2013, Article 4.4).

Benefit: The benefit, commencing at age 60, is equal to 1.8% of Average Compensation multiplied by years of Creditable Service at date of termination (Act 160-2013, Article 4.4). In no event will the benefit determined be less than the Minimum Benefit.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS AS OF JUNE 30, 2016

#### 6. Death Benefits

##### a. Pre-retirement Death Benefit

Eligibility: Any current non-retired member is eligible.

Benefit: The benefit is as follows:

- (i) While in active service, the benefit equals a refund of Accumulated Contributions, plus interest accumulated at 2.0% per annum until the date of death; plus, if death occurred on or before July 31, 2014, an amount equal to one year of Compensation in effect at the time of death (Act 160-2013, Article 3.18).
- (ii) While not in active service, the benefit equals a refund of Accumulated Contributions, plus interest accumulated at 2.0% per annum up to separation of service (Act 160-2013, Article 3.17).

##### b. Post-retirement Death Benefit for members who retired on or before July 31, 2014

Eligibility: Any retiree or disabled member receiving a monthly benefit who retired on or before July 31, 2014.

Benefit: The benefit is as follows:

- (i) Full pension for the month in which the pensioner died plus an additional fifteen-day pay period payable to the member's eligible beneficiaries (Act 160-2013, Article 4.8). In no case shall the benefit be less than \$1,000. The General Fund pays up to \$500. The System pays for the rest. (Act 160-2013, Article 4.8 and Act 272-2004)
- (ii) For those married at the time of death, the lifetime annual income to a widow or widower is equal to 50% of the Retirement Benefit at time of death, payable for life (Act 160-2013, Article 4.8).
- (iii) For those with children at the time of death, the total lifetime annual income to all children is equal to 50% of the Retirement Benefit at time of death. The benefit is payable while the children are under age 6 or are currently enrolled

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS AS OF JUNE 30, 2016

in a regular public or private school or college program until the age of 22, and it is payable for life while they are disabled (Act 160-2013, Article 4.8).

- (iv) The benefit, when there is no relation as stated above, is equal to the remaining balance of Accumulated Contributions with interest (interest is determined as of the date of retirement if retired directly from active service or as of separation of service otherwise) after the deduction of lifetime annual income paid and is payable to a beneficiary or to the Member's estate (Act 160-2013, Article 4.8).

c. Post-retirement Death Benefit for Members who retire August 1, 2014 or later

Eligibility: Any retiree or disabled member receiving a monthly benefit whose retirement occurred August 1, 2014 or later (Act 160-2013, Articles 4.8 and 5.11).

Benefit: If the member elected at the time of retirement to transfer a portion of the annuity to a beneficiary by selecting an actuarially equivalent optional form of payment, the applicable survivor benefit (Act 160-2013, Article 5.11).

For all members, the excess, if any, of the Accumulated Contributions with interest (interest is determined as of the date of retirement if retired directly from active service or as of separation of service otherwise) after the deduction of lifetime annual income paid and is payable to a beneficiary or to the member's estate (Act 160-2013, Article 5.11). Beneficiaries may elect to receive the remaining accumulated contributions as a lump sum payment or a monthly payment of the pension amount until the depletion of the contributed amount.

7. Disability Benefits

a. Non-occupational Disability

Eligibility: All members are eligible for Non-occupational Disability upon 5 years of Creditable Service and the occurrence of disability (Act 160-2013, Article 4.5).

Benefit: 1.8% of Average Non-occupational Disability Compensation multiplied by years of Creditable Service (Act 160-2013, Article 4.6). In no event will the benefit determined be less than the Minimum Benefit.

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#### b. Occupational Disability

Eligibility: All members disabled while in the course and as a consequence of their work (Act 160-2013, Article 4.5).

Benefit: 1.8% of Average Occupational Disability Compensation multiplied by years of Creditable Service (Act 160-2013, Article 4.6). In no event will the benefit determined be less than the Minimum Benefit.

#### 8. Minimum Benefits

a. Past Ad hoc Increases: The legislature, from time to time, increases pensions for certain retirees as described in Act 124-1973 and Act 47-1984. The benefits are paid 50% by the General Fund and 50% by the System.

b. Current Minimum Benefit: The minimum monthly lifetime income for members who retire or become disabled is \$400 per month effective July 1, 2007 (\$300 per month up to June 30, 2007). The General Fund will pay for the \$100 per month increase in the minimum benefit (Act 38-2007, Section 3).

9. Cost-of-Living Adjustments (COLA) to Pension Benefits: The legislature, from time to time, increases pensions by 3% for retired and disabled members. Beneficiaries are not entitled to COLAs granted after the retiree's death. The first increase was granted by Act 62-1992. Subsequent 3% increases have been granted every third year since 1992, with the latest 3% increase established on April 24, 2007 and effective July 1, 2007 (retroactive to January 1, 2007) for retired and disabled members that were receiving a monthly benefit on or before January 1, 2004 (Act 38-2007). In addition, effective July 1, 2008, any retired or disabled member that was receiving a monthly annuity on or before January 1, 2004 less than \$1,250 per month received an increase of up to 3% without exceeding the limit of \$1,250 per month (Act 38-2007). All COLAs are paid by the General Fund, with the exception of Act 226-1998 (various Acts).

10. Medical Insurance Plan Contribution: A payment of up to \$100 per month to the eligible medical insurance plan selected by the retiree or disabled member provided the member retired prior to August 1, 2014. This benefit is paid from the Supplemental Contributions (see Employer Contribution section). (Act 160-2013, Article 4.9).

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#### 11. Special “Bonus” Benefits:

- a. Christmas Bonus: An annual bonus of \$200 for each retiree and disabled member paid in December provided the member retired prior to August 1, 2014. This benefit is paid from the Supplemental Contributions (see Employer Contribution section). (Act 160-2013, Article 4.9).
- b. Medication Bonus: An annual bonus of \$100 for each retiree, beneficiary, and disabled member to cover health costs paid in July provided the member retired prior to August 1, 2014. Evidence of coverage is not required. The amount is prorated if there are multiple beneficiaries. This benefit is paid from the Supplemental Contributions (see Employer Contribution section). (Act 160-2013, Article 4.9).

12. Member Contributions: Contributions by Members are 9% of Compensation (Act 160-2013, Article 4.3). Before January 27, 2000, member contributions were 7% of Compensation. In addition, members who retired due to age and service who are not age 55 and 30 years of Creditable Service at the time of retirement are required to continue to pay the member contributions as described in Item 4b.

13. Service Purchase: Active members with eligible service from prior employment may elect to purchase service in PRTRS. The cost of the purchase is calculated by applying the PRTRS statutory member and employer contribution rates to the member’s salary during the years of service at the former employer. The amount due to member contributions is accumulated at 9.5% compound per year until the time of service purchase. If the service purchase is a time purchase and not an intergovernmental service transfer, the amount due to employer contributions is accumulated at 9.5% compound per year until the time of service purchase. The accumulation rate was 2% compound per year for purchases prior to September 15, 2015. Any amount not covered by asset transfers from the member’s prior pension fund is payable by the member. (Act 160-2013, Article 3.6)

14. Act 70-2010 Retirement Incentive: During the 2010-2011 fiscal year, Act 70-2010 provided for an early retirement incentive. Additional window periods occurred through December 31, 2012. Active members who had at least 15 years of service, but less than 30 years of service, were able to retire immediately with an enhanced benefit ranging from 37.5% to 50% of salary. This enhanced benefit is paid by the General Fund until the member reaches the later of age 55 or the date the member

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS AS OF JUNE 30, 2016

would have completed 30 years of service had the member continued working. The System will have the liability to pay the benefit after this time period. While the General Fund is paying the pension benefit to the member or any surviving beneficiary, the General Fund will also pay a contribution to the System equal to the employer contribution rate (11.50% for the 2013-2014 fiscal year) applied to final salary. The employer contribution rate applied to final salary increases as under Act 160-2013 to an ultimate rate of 20.525% of payroll in 2021-2022 and thereafter. Members who retired under this incentive are not eligible to receive the Medical Insurance Plan Contribution.

#### **Provisions applicable to members hired August 1, 2014 and later**

##### 1. Type of Plan

A contributory, hybrid plan. A hybrid plan, such as a cash balance plan, determines the benefit amount based on a formula using contributions and earning credits, has notional individual accounts for members, and provides lifetime annuity benefits.

##### 2. Eligibility for Membership

Members of the Teacher's Retirement System of Puerto Rico include teachers hired by the Department of Education August 1, 2014 and later, licensed teachers working in private schools or other educational organizations who elect to become members August 1, 2014 and later, and employees of the System hired August 1, 2014 or later. (Act 160-2013, Article 3.1)

##### 3. Definitions

- a. Fiscal Year: A Fiscal Year is a 12-month period beginning on July 1 and ending on June 30.
- b. Fund: System Contribution Fund (Act 160-2013, Article 4.1).
- c. General Fund: The General Expenses Budget of the Government of the Commonwealth of Puerto Rico.
- d. Creditable Service: The years and months of plan participation, during which contributions have been made, beginning on the date of the first original

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS AS OF JUNE 30, 2016

appointment for rendering services. For purposes of calculating Creditable Service, 15 calendar days of a school year month shall be equal to 1 calendar month worked during the school year for teachers; and 21 calendar days of a month shall be equal to 1 calendar month worked for other participants. (Act 160-2013, Article 3.8)

- e. Compensation: The gross cash compensation, excluding bonuses and overtime, upon which contributions by a Member to the Fund are based (Act 160-2013, Article 1.1).
- f. Actuarial Equivalent: Equality in value such that the present value of the amount under any form of payment is essentially the same as the present value of the amount under the normal form of annuity payment for single participants. Actuarially Equivalent factors are determined based on annuity and mortality tables adopted by the Board of Trustees based on the system's experience and in accordance with the recommendations of the actuary.
- g. Defined Contribution Account: The notional individual account established for each new member as of August 1, 2014 and later. Each member has a nonforfeitable right to their contributions to the Defined Contribution Account. (Act 160-2013, Article 1.1)
- h. Credits to Defined Contribution Account: The credits to the Defined Contribution Account include (1) contributions by the member and (2) for vested members, at the end of each semester, the investment yield for each semester of the fiscal year as determined by the Board. The investment yield determined by the Board shall never be less than 80% of the investment portfolio yield of the System during each semester of each fiscal year minus management fees such as, but not limited to, fees payable to portfolio managers, custody, and investment advice. (Act 160-2013, Article 5.8)

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS AS OF JUNE 30, 2016

#### 4. Retirement Benefits

- a. Eligibility: Age 62 with 5 or more years of Creditable Service and a balance in the Defined Contribution Account balance of \$10,000 or more (Act 160-2013, Article 3.9).
- b. Benefit: An annuity payable for the lifetime of the member equal to the annuitized value of the balance in the Defined Contribution Account at the time of retirement (Act 160-2013, Article 5.10).

#### 5. Termination Benefits

##### a. Lump Sum Withdrawal

Eligibility: A Member is eligible upon termination of service prior to 5 years of service or if the balance in the Defined Contribution Account is less than \$10,000. (Act 160-2013, Article 3.4)

Benefit: The benefit equals a lump sum payment of the balance in the Defined Contribution Account as of the date of the permanent separation from service. Such lump sum would reflect 2% compound interest, rather than the investment yield determined by the Board, for up to 6 months after separation from service. (Act 160-2013, Article 3.4)

##### b. Deferred Retirement

Eligibility: A Member is eligible upon termination of service prior to age 62, completion of 5 or more years of Creditable Service, and a balance in the Defined Contribution Account of \$10,000 or more (Act 160-2013, Article 3.9).

Benefit: An annuity payable for the lifetime of the member commencing at age 62 equal to the annuitized value of the balance in the Defined Contribution Account at the time of retirement (Act 160-2013, Article 5.10).

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS AS OF JUNE 30, 2016

#### 6. Death Benefits

##### a. Pre-retirement Death Benefit

Eligibility: Any current non-retired member is eligible (Act 160-2013, Article 5.11).

Benefit: A refund of the Defined Contribution Account (Act 160-2013, Article 5.11).

##### b. Post-retirement Death Benefit

Eligibility: Any retiree or disabled member (Act 160-2013, Article 5.11).

Benefit: If the member elected at the time of retirement to transfer a portion of the annuity to a beneficiary by selecting an actuarially equivalent optional form of payment, the applicable survivor benefit (Act 160-2013, Article 5.11).

For all members, the excess, if any, of the Defined Contribution Account at the time of retirement over the total monthly pension payments paid to the member and any beneficiary per the terms of the optional form of payment shall be payable to a beneficiary or to the member's estate (Act 160-2013, Article 5.11).

#### 7. Disability Benefits

a. Eligibility: All members are eligible upon 5 years of Creditable Service and the occurrence of disability (Act 160-2013, Article 5.11).

b. Benefit: An annuity payable for the lifetime of the member equal to the annuitized value of the balance in the Defined Contribution Account at the time of disability (Act 160-2013, Article 5.11).

8. Member Contributions: Contributions by Members are 10.00% of Compensation from August 1, 2014 to June 30, 2017, 13.12% of Compensation from July 1, 2017 to June 30, 2020, and 14.02% of Compensation effective July 1, 2020 (Act 160-2013, Article 5.5).

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS**  
**AS OF JUNE 30, 2016**

**Employer Contributions**

1. Payroll-based Employer Contributions: Contributions by the Commonwealth of Puerto Rico and private school employers, as applicable, are 9.5% of Compensation for the fiscal year beginning July 1, 2011. For the next four fiscal years effective July 1, employer contributions will increase annually by 1%. For the next five fiscal years, employer contributions will increase annually by 1.25%, reaching an employer contribution rate of 19.75% effective July 1, 2020. Effective July 1, 2021 and later fiscal years, the employer contribution rate will be 20.525%. (Act 160-2013, Article 4.3) Prior to July 1, 2011, employer contributions were 8.5% of Compensation. The following table shows the employer contribution rate beginning with the 2011-2012 fiscal year.

Fiscal Year	Employer Contribution Rate
2011-2012	9.500%
2012-2013	10.500
2013-2014	11.500
2014-2015	12.500
2015-2016	13.500
2016-2017	14.750
2017-2018	16.000
2018-2019	17.250
2019-2020	18.500
2020-2021	19.750
2021-2022 & later	20.525

For members who retire due to age and service prior to attaining age 55 and 30 years of Creditable Service, continued member contributions are required for the time period described in Item 4b (if the member is hired on or before July 31, 2014). During this time period, the employer also makes contributions based on the rates described in the paragraph above as applied to the member's final salary. (Act 160-2013, Article 4.4)

2. Supplemental Contributions: Effective July 1, 2014, the System will receive a supplemental contribution of \$1,675 each fiscal year for each pensioner (including beneficiaries receiving survivor benefits). This supplemental contribution will be paid by the General Fund. (Act 160-2013, Article 4.9)

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VI – SUMMARY OF PRINCIPAL PLAN PROVISIONS AS OF JUNE 30, 2016

3. Teacher's Justice Uniform Contribution: The System will receive the Teachers Justice Uniform Contribution of \$30 million for the 2016-2017 and 2017-2018 fiscal years and \$60 million for each fiscal year from 2018-2019 to 2041-2042. The Teacher's Justice Uniform Contribution will be paid by the General Fund. (Act 160-2013, Articles 1.1 and 7.1)
4. Annual Additional Contribution: During each fiscal year from 2018-2019 through 2041-2042, the System will receive an Annual Additional Contribution certified by the external actuary of the System as necessary to avoid having the projected gross assets of the System, during any subsequent fiscal year, fall below \$300 million. The Annual Additional Contribution will be paid by the General Fund. (Act 160-2013, Articles 1.1 and 7.1)

#### **Changes in Plan Provisions since Prior Valuation**

None.

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION VII – SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JUNE 30, 2016**

Investment Return: 5.85% per annum, net of investment expenses. Based on the System’s investment policy, including target asset allocation and expectations regarding the loan portfolio, and Milliman’s capital market assumptions as of June 30, 2016.

Municipal Bond Rate: 2.85% per annum (Bond Buyer General Obligation 20-Bond Municipal Bond Index)

GASB 67 discount rate: 2.86% per annum

GASB 45 discount rate: 3.00% per annum. Based on the Commonwealth’s asset allocation for the general assets that are used to pay this benefit and Milliman’s capital market assumptions as of June 30, 2016.

Compensation Increases: Compensation increases vary by years of creditable service as shown below. The rates below include the assumption for general wage inflation of 2.5%. However, no compensation increases are assumed from July 1, 2013 until July 1, 2021 as a result of the Act 3-2017 four year extension of the Act 66-2014 salary freeze. Based on a 2004-2007 experience study, with updated expectations regarding general wage inflation and modified for the impact of Act 66-2014 as extended by Act 3-2017.

Years of Creditable Service	Increase in Annual Rate over Prior Year	Years of Creditable Service	Increase in Annual Rate over Prior Year
1-5	4.70%	15	3.20%
6	4.50	16	3.10
7	4.30	17-19	3.00
8	4.10	20	2.90
9	3.90	21	2.80
10	3.80	22	2.75
11	3.70	23	2.70
12	3.60	24-27	2.65
13	3.50	28	2.60
14	3.30	29 & Over	2.50

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VII – SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JUNE 30, 2016

Defined Contribution Account: Defined Contribution Accounts are assumed to grow using a 4.68% annual investment return (80% of the net investment return assumption).

Annuitization of Defined Contribution Account: Single life annuity factors using an interest rate of 4% and the RP-2000 Healthy Annuitant Mortality Table for ages 50 and over and the RP-2000 Employee Mortality Table for ages under 50, projected to 2025 using Scale AA and blended 50% male / 50% female, are used to convert the Defined Contribution Account to a lifetime annuity. Based on the current factors adopted by the System's Board.

Termination: Withdrawal rates vary by gender and years of creditable service. The withdrawal rates are shown below. Based on a 2004-2007 experience study as well as the actuary's judgment and continual review of experience.

Years of Creditable Service	Male	Female
0	12.00%	15.00%
1	9.00	8.00
2	6.00	5.00
3	3.00	3.00
4	3.00	2.75
5	2.50	2.50
6	2.50	2.25
7	2.00	2.00
8	1.50	1.50
9	1.00	0.50
10+	0.10	0.05

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION VII – SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JUNE 30, 2016**

Retirement for members hired on or before July 31, 2014: Rates of retirement vary by age and years of creditable service. The rates shown below apply when an active member is eligible for retirement (e.g. age 47 with at least 25 years of creditable service or age 60 with at least 10 years of creditable service). Based on a 2004-2007 experience study as well as the actuary’s judgment and continual review of experience.

Age	Less than 30 years of Creditable Service	30 or more years of Creditable Service
47-49	0.5%	20.0%
50-54	2.0	25.0
55-59	5.0	30.0
60-61	10.0	25.0
62-64	12.0	25.0
65-79	15.0	25.0
80	100.0	100.0

To reflect actual retirement activity among active members that is higher than anticipated during 2015-2016, the retirement rates prior to age 80 shown above were doubled for 2015-2016.

Current terminated vested members as of the census data collection date were assumed to retire (i) at age 55, or attained age if later, if the member had at least 30 years of service or (ii) at age 60, or attained age if later, otherwise. Future terminated vested participants are assumed to retire at age 60.

Retirement for members hired August 1, 2014 or later: Rates of retirement vary by age. The retirement rates are shown below. Based on actuary’s judgment.

Age	Annual Rate
62	25%
63-64	10
65-66	15
67	20
68-69	25
70-79	30
80	100

Future terminated vested participants are assumed to retire at age 62.

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION VII – SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JUNE 30, 2016**

Service Purchases for members hired on or before July 31, 2014: Members over age 50 who are not eligible for retirement are assumed to elect to purchase enough service to retire immediately at the rates shown in the table below. Based on a 2004-2007 experience study as well as the actuary’s judgment and continual review of experience, including the impact of Act 160-2013.

Age	Annual Rate
50-54	0.05%
55-59	0.10
60-64	0.20
65-79	0.80

In addition, 5% of active members retiring prior to attaining 30 years of creditable service are assumed to purchase enough years of service upon retirement to attain 30 years of creditable service. Based on actuary’s judgment and continual review of experience, including the impact of Act 160-2013.

Disability: Unisex rates which vary by age and years of creditable service are assumed. Illustrative rates are shown below. Rates of disability cease to apply upon attainment of retirement eligibility. Based on a 2004-2007 experience study as well as the actuary’s judgment and continual review of experience.

Age	Less than 5 years of Creditable Service	5 or more years of Creditable Service
25	0.008%	0.013%
30	0.008	0.013
35	0.008	0.013
40	0.009	0.014
45	0.020	0.031
50	0.068	0.105
55	0.133	0.204
60	0.163	0.251
65	0.157	0.242
70	0.144	0.222

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VII – SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JUNE 30, 2016

Pre-retirement Mortality: RP-2014 Employee Mortality Rates for males and females adjusted to reflect Mortality Improvement Scale MP-2016 from the 2006 base year, and projected forward using MP-2016 on a generational basis. As a generational table, it reflects mortality improvements both before and after the measurement date. Based on actuary's judgment.

Post-retirement Healthy Mortality: Rates which vary by gender are assumed for healthy retirees and beneficiaries based on a study of plan's experience from 2007 to 2012 and updated expectations regarding future mortality improvements. The 2010 base rates are equal to 92% of the rates from the UP-1994 Mortality Table for Males and 87% of the rates from the UP-1994 Mortality Table for Females. These base rates are projected using Mortality Improvement Scale MP-2016 on a generational basis from the 2010 base year. As a generational table, it reflects mortality improvements both before and after the measurement date.

Post-retirement Disabled Mortality: Rates which vary by gender are assumed for disabled retirees based on a study of plan's experience from 2007 to 2012 and updated expectations regarding future mortality improvements. The 2010 base rates are equal to the rates in the UP-1994 Mortality Table for males and females. These base rates are projected using Mortality Improvement Scale MP-2016 on a generational basis from the 2010 base year. As a generational table, it reflects mortality improvements both before and after the measurement date.

Marriage: 65% of current active and terminated members are assumed to be married at retirement with males 3 years older than females.

Form of Payment: For members retiring after July 31, 2014, a modified cash refund (approximated by a single life annuity with 3 years certain for members hired on or before July 31, 2014).

Spousal information was not provided for current retired and disabled members who retired prior to August 1, 2014. A 65% marriage assumption was applied to all current retirees and disabled members who retired prior to August 1, 2014 retroactively to the date of retirement or disability. The spouse's date of birth was imputed based on an assumed age difference of 3 years with males older than females. A 3-year certain period, retroactive to date of retirement or disability, is applied to approximate the cost of a modified cash refund for retirees without a surviving spouse.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VII – SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JUNE 30, 2016

No future dependent children were assumed to become beneficiaries.

Members who terminate employment with at least 5 years of service (10 years of service if hired on or before July 31, 2014) are assumed to elect to receive a deferred pension benefit in lieu of a refund of contributions.

Medical Insurance Plan Contribution: 85% of eligible retirees and disableds were assumed to receive a monthly medical insurance continuation benefit of \$100 per month.

Administrative Expenses: Average of past two year's expense is added to the normal cost. For 2016, this amount is \$18,661,000.

Census Data Collection Date: July 1, 2015. When information is provided by participant category in this report, the category is determined as of the census data collection date.

Special Data Adjustments: The following adjustments were made to the census data received from the System.

The entry age for active members was assumed to be the age as of June 30, 2015 less the provided years of creditable service.

If not provided by the System, benefits for new and continuing terminated vested participants were estimated based on the years of credited service and earnings history available from prior valuations.

Refer to the Form of Payment assumption above for a description of spousal data imputation for current retired and disabled members who retired before August 1, 2014.

For current retired and disabled members who retired on or after August 1, 2014 who did not elect an optional form of payment, the modified cash refund form of payment was approximated by a single life annuity with 3 years certain. According to PRTRS, no such retiree had elected an optional form of payment as of July 1, 2015.

If not provided by the System, the portion of the annual benefit payable to current beneficiaries attributable to past COLA adjustments was assumed to be 5% (and thus paid by the General Fund of the Commonwealth of Puerto Rico instead of the System).

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VII – SUMMARY OF ACTUARIAL ASSUMPTIONS AS OF JUNE 30, 2016

Benefits for current beneficiaries who are under age 22 as of the valuation date were assumed to cease at age 22. Benefits for current beneficiaries who are age 22 or older as of the valuation data were assumed to be payable for life. In addition, the current level of benefit was assumed to remain constant.

Benefits not valued: The minimum post-retirement death benefit of \$1,000 for retirees without surviving beneficiaries is not explicitly valued. The additional liability associated with this benefit is expected to be de minimis.

#### Changes in actuarial assumptions since the prior valuation:

The investment return assumption for GASB 67 purposes was decreased from 6.65% to 5.85%.

The investment return assumption for GASB 45 purposes was decreased from 3.10% to 3.00%.

The investment return on the Defined Contribution Accounts (80% of the net investment return assumptions) was decreased from 5.32% to 4.68%.

The projected mortality improvement scale was updated from Scale MP-2015 to Scale MP-2016, which was published by the Society of Actuaries in October 2016.

No compensation increases are assumed until July 1, 2021 as a result of the Act 3-2017 four year extension of the Act 66-2014 salary freeze.

To reflect actual retirement activity among active members that is higher than anticipated during 2015-2016, the retirement rates for active members were doubled for 2015-2016.

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## PUERTO RICO TEACHERS RETIREMENT SYSTEM

### SECTION VII – SUMMARY OF ACTUARIAL METHODS AS OF JUNE 30, 2016

The ultimate cost of a pension plan is the excess of actual benefits and administrative expenses paid over actual net investment return on plan assets during the plan's existence until the last payment has been made to the last participant. The plan's "actuarial cost method" determines the expected incidence of actuarial costs by allocating portions of the ultimate cost to each plan year. The cost method is thus a budgeting tool to help to ensure that the plan will be adequately and systematically funded and accounted for. There are several commonly-used cost methods which differ in how much of the ultimate cost is assigned to each prior and future year. Therefore, the pattern of annual contributions and accounting expense varies with the choice of cost method. Annual contributions and accounting expense are also affected by the "asset valuation method" (as well as the plan provisions, actuarial assumptions, and actual plan demographic and investment experience each year).

#### Actuarial Cost Method

The plan's actuarial cost method is the entry age normal method (level percentage of payroll). Under this method, a projected benefit is determined at each active participant's assumed retirement age assuming future compensation increases. The plan's normal cost is the sum of each active participant's annual cost for the current year of service determined such that, if it were calculated as a level percentage of his compensation each year, it would accumulate at the valuation interest rate over his total prior and future years of service to his assumed retirement date into an amount sufficient to fund his projected benefit. The plan's accrued liability is the sum of (a) the accumulation of each active participant's normal costs attributable to all prior years of service plus (b) the present value of each inactive participant's future benefits.

#### Asset Valuation Method

The Market Value of Assets.

#### Liability Determination

The results as of June 30, 2016 are based on projecting the System obligations determined as of the census data collection date of July 1, 2015 for one year using roll-forward methods, assuming no liability gains or losses.

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**PUERTO RICO TEACHERS RETIREMENT SYSTEM**

**SECTION VII – SUMMARY OF ACTUARIAL METHODS AS OF JUNE 30, 2016**

Changes in actuarial methods since the prior valuation

None.

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