

**CAYMAN ISLANDS  
PUBLIC SERVICE PENSIONS BOARD**

**Actuarial Valuation of  
Public Service Pensions  
as of July 1, 2003**

**April 13, 2004**



**CAYMAN ISLANDS  
PUBLIC SERVICE PENSIONS BOARD**

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**CAYMAN ISLANDS PUBLIC SERVICE PENSIONS BOARD**  
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***SECTION I - INTRODUCTION***

Watson Wyatt Worldwide ("Watson Wyatt") has been requested by the Cayman Islands Public Service Pensions Board ("the Board") to carry out an actuarial valuation of the Public Service pensions as of July 1, 2003. We are pleased to provide the results of the valuation in this report. The last actuarial valuation to be carried out was as of January 1, 2002.

The Pensions (Amendment) Law, 1991 established the Public Service Pension Fund (the "Fund"), the purpose of which is to accumulate contributions, investment income and other payments accepted by the Public Service Pensions Board for the eventual payment of pensions and related benefits being paid out of the general revenue of the Islands. The Fund was established with effect from January 1, 1990 but no benefits could be paid out of it during the 1990s since the Fund was not capable of meeting the projected liabilities, after taking into account the contributions and earnings of the Fund. Benefit payments are now being met by the Fund.

The Public Service Pensions Law (1999), "the 1999 Law", amended and restated the prior pension law. The 1999 Law resulted in several changes to the pension provisions. A major change brought out by the 1999 Law is that the retirement benefits for new entrants are based on defined contribution principles, with both the Government and participants contributing at a rate of 6% of pensionable earnings for the accumulation of defined contribution account balances. The Public Service Pensions Law (2000), "the 2000 Law", has made various amendments and revisions to the 1999 Law.

The valuation is to serve the following purposes, as specified in Section 13 of the 1999 Law:

1. to determine whether it remains capable of meeting its liabilities for the following period of at least 40 years at the rate or rates of contribution then in force;
2. if it is not so capable, to ascertain what rate or rates of contribution would be required to reinstate that capability; and
3. to determine the amount to be reflected on the balance sheet.

The current rates of contribution to the fund are 6% of pensionable emoluments from active participants and 16% of pensionable emoluments of the combined defined benefit and defined contribution groups from the Government. During March of 2004, the Board Trustees, in consultation with the undersigned consulting actuary, met to discuss and finalize future pension funding strategies. In particular, it has been decided to determine future contribution rates separately for the defined benefit and defined contribution sections of the 1999 Law.

All monetary amounts in this report have been expressed in Cayman Islands Dollars. Throughout this report "the Plan" means the pension provisions arising under the 1999 Law, as amended by the 2000 Law.

It should be noted that the Parliamentarians (both active and inactive members) and the Judiciary, are not included in this Report, but are covered in respective separate reports.

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**SECTION II - EXECUTIVE SUMMARY**

**1. Actuarial Position of the Fund as of July 1, 2003**

The past service liability measurement, with no allowance for future pay projections, is equal to CI\$224.9 million, based on the assumptions outlined in Exhibit 5 of this report.

This compares with Fund assets of CI\$104.7 million, which produces a 47% coverage (ratio of assets to liabilities), as opposed to 41% at the prior valuation.

The past service liability measurement, with allowance for future pay projections, is equal to CI\$269.1 million. The resulting actuarial deficiency is CI\$164.3 million. The coverage is 39% as opposed to 33% at the prior valuation.

**2. Future Contribution Requirement**

This year's valuation assesses the contribution requirements for the defined benefit ("DB") and defined contribution ("DC") obligations separately.

The contribution requirement for the DC participants is 13% of their payroll, or CI\$7.1 million for the year commencing July 1, 2003.

The contribution requirements for the DB participants on the basis of normal cost plus amortization of actuarial deficiency over 20 years is CI\$24.3 million for the year commencing July 1, 2003, or 40.75% of the payroll of the DB participants.

The contribution requirement on the basis of a fixed percentage of pay for the DB participants is 42.6%, or CI\$26.3 million for the year commencing July 1, 2003.

The total annual cost for the current year is therefore CI\$31.4 Million (or 27.0% of pay).

**CAYMAN ISLANDS PUBLIC SERVICE PENSIONS BOARD**

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**SECTION III - DETAILED RESULTS AND COMMENTS**

**1. Census Data**

Information was provided by the Board for each individual covered by the Plan as of July 1, 2003. The valuation was based on data submitted with respect to 1,681 active DB participants receiving total annual pensionable emoluments of CI\$61.8 million, 1,712 active DC participants receiving total pensionable emoluments of CI\$54.4 million, 570 participants (all DB) currently receiving annual benefits of CI\$6,021,033, and 344 terminated DB participants and 457 terminated DC participants entitled to deferred vested benefits.

Exhibit 3A shows details of the census data used, as well as a breakdown between the different groups of participants. Exhibit 3B shows a reconciliation of participant data between the previous and current valuations. Exhibit 3C describes further notes to the data used for this actuarial valuation.

**2. Benefit Provisions**

As of July 1, 2003, the legal document concerning the pension provisions is the Pension Law, which came into force on December 31, 1963, and subsequent amendments to it, in particular the, 1999 Law and 2000 Law. Exhibit 6 shows an outline of the principal provisions as they affect the actuarial valuation of the liabilities. Only the provisions that have the most important impact on the valuation are detailed in the outline. There are no substantial differences from the prior valuation.

**3. Available Assets**

Asset and cash flow information were made available by the Board. A summary of this information is shown in Exhibit 4. Audited accounts for the period since the last valuation are not yet available. The Plan assets are combined with the assets of the Parliamentarians Pension Plan and the Judiciary Pension Plan. The Board maintains a notional allocation of assets between these three plans and provided us with the allocation as of July 1, 2003 for purposes of this valuation. We estimated the value of the assets attributable to DC participants based on each participant's contribution account balance. The total assets pertaining to the DC participants was estimated at CI\$14.1 million, leaving a balance of CI\$90.6 million for the DB participants.

**4. Actuarial Assumptions Used for Valuing the Plan**

**4.1 Economic Assumptions**

It is important to take a consistent view on all of the economic assumptions used in an actuarial valuation since they are inter-related. The following are the most important of the economic assumptions:

*Inflation* - It is usual to commence with an assumption on the underlying long-term rate of inflation, as inflation impacts such things as future salary increases, future asset earnings, and future pension increases. Based on discussions with the Board, a long-term rate of 2.5% per year has been used for purposes of this valuation, representing a decrease of 0.5% per year since the prior valuation.

*Interest Rate* - The valuation interest rate is used to discount future benefit payments and represents the expected long-term rate of return of the Fund's invested assets. This valuation has been carried out using a 7% per year rate, based on discussions with the Board as to long-term expectations and future composition of the portfolio. This represents a decrease of 1% from the prior valuation.

*Salary Increases* - We suggested, and the Board concurred, that we should make an allowance of 1.5% over and above inflation for merit and promotion. The rate of salary increases used in this valuation is therefore 4% per year (compared to 5% at the last valuation).

*Pension increases* -. We have assumed in the future that pensions will increase at the rate of 2.5% per year, the same as the rate of inflation (compared to 3% at the last valuation).

**4.2 Demographic Assumptions**

The most important of the demographic assumptions are as follows:

*Retirement Age* - The plan provides unreduced benefits from age 55 after completing 10 years of service. However, an analysis of recent retirement experience indicates that the average retirement age is close to 57. Therefore, age 57 has been selected as the assumed retirement age. The prior valuation used an expected retirement age of 55. Note that Police Officers are assumed to retire on completion of 21 years of service, if earlier.

*Mortality* - The mortality rates used in the prior valuation are becoming outdated and do not reflect the longer expectations of life as shown in recent studies. The rates were accordingly changed to reflect a more modern table for this valuation. This table is described in Exhibit 5.

*Turnover* - An analysis was carried out of the turnover experience during the last three years. This showed that experience was in line with the rates expected in the previous valuation. The rates from the prior valuation were therefore maintained. The age-related turnover rates used in this valuation are shown in Exhibit 5.

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***SECTION III (Continued)***

**4. Actuarial Assumptions Used for Valuing the Plan (Continued)**

**4.2 Demographic Assumptions (Continued)**

*New Entrants* - One of the purposes for which this valuation is being carried out calls for projecting cash flows and the Fund assets and this requires making some assumptions about future participants. We have assumed that a sufficient number of new entrants will enter the plan to replace the employees who retire, die or leave service to keep the number of active participants constant. We have assumed that new entrants will have the same age and earnings profile as recent new participants to the plan. All new entrants are included under the DC portion of the plan.

**5. Actuarial Cost Method Used for Valuing the Benefits**

**5.1 Assessing the Actuarial Position of the Fund as of July 1, 2003**

For the defined benefit section, we have determined the current actuarial position of the Fund as of July 1, 2003 using the **projected unit credit actuarial cost method** in conjunction with the assumptions outlined in the preceding section. This method is commonly used for both measuring the funded status of the plan as of the valuation date as well as determining the amount of contribution required. Under this approach, we develop two past service liabilities, which are both based on pensionable service up to the valuation date.

The first past service liability is based on pensionable emoluments as of the valuation date and reflects the liability in respect of benefits actually earned up to June 30, 2003.

The second past service liability allows for the impact of future pay increases at the assumed annual rate of pay increase. This past service liability reflects the eventual liability of benefits related to past service at the valuation date. A surplus/ (deficiency) arises when the assets of the Fund are more/(less) than this projected past service liability under the projected unit credit actuarial cost method.

Both of these past service liabilities are commonly used as amounts to be reflected in the balance sheet.

For the defined contribution section, the past service liability is equal to the assets allocated to the defined contribution participants.

5. Actuarial Cost Method Used for Valuing the Benefits (Continued)

5.2 Assessing the Future Contribution Requirement

In the prior valuation, the future contribution requirement was assessed by means of projecting cash flows for a period of at least 40 years, based on the actuarial assumptions used. A contribution rate was determined that would enable the Fund to continue to meet future benefit payments. This contribution rate was expressed as a constant percentage of the combined payroll of DB and DC participants.

In the current valuation, it has been decided to determine contribution rates separately for the DC and DB participants.

**For the DC participants**, future contributions are taken as 13% of pay, 12% of pay being allocated to participants' account balances with the additional 1% of pay being reserved to provide for certain risk-related defined benefit type provisions.

**For the DB participants**, two methods of determining future contributions were explored, as follows:

Option A:

The projected unit credit actuarial cost method used for determining the past service liability also develops a **normal cost** of the Plan. The normal cost represents the cost of the accrual of one year's worth of benefit, based on projected pay. Under the projected unit credit actuarial cost method, a common approach to developing the current required annual contribution is to amortize the (surplus)/ deficiency arising. The total annual cost is the normal cost (representing the current year's accrual of benefit) plus this amortization payment (representing past accruals).

We have used 20 years as the basis of amortization, but some other period could have been used.

Option B:

A contribution rate is developed that is expected to remain relatively constant in the future when expressed as a fixed percentage of the payroll of the defined benefit participants.

Following a review of the results, the Board adopted Option A as the method for determining future contribution requirements for the DB portion of the Fund.



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***SECTION III (Continued)***

**6. Valuation Results**

**6.1 The Actuarial Position of the Fund as of July 1, 2003**

Exhibit 1A sets out the results of the actuarial valuation on the basis outlined in Section 5.1 above, as well as the results from the previous valuation, for comparison purposes, and the results of the actuarial valuation if no assumptions had been changed from the prior valuation.

*Past Service Liability (No Projection of Pay)* - The first past service liability measurement, with no future pay projections, is shown in Item C of Exhibit 1A, and is equal to CI\$224.9 million. This compares with Fund assets of CI\$104.7 million. It should be noted that the past service liability for inactive members is CI\$85.9 million, which is more than covered by the assets.

*Past Service Liability (With Projection of Pay)* - The second past service liability measurement, with future pay projections, is shown in Item D of Exhibit 1, and is equal to CI\$269.1 million. The resulting actuarial deficiency (shown as Item E) is CI\$164.3 million.

*The deficiency* has decreased by CI\$0.3 million since the prior valuation due to a number of factors, the main ones being as follows:

Time element (1.5 more years)	+\$37.9M
Asset increase	-\$22.5M
Salary experience	-\$8.9M
Valuation program changes	-\$6.0M
Other experience/New entrants	-\$6.6M
Assumption changes	+\$5.8M
<b>Total</b>	<b>-\$0.3M</b>

**6.2 Assessment of Future Contribution Requirements**

Exhibit 1B shows the determination of future contribution requirement based on the funding method adopted by the Board.

*Normal Cost* - As mentioned above, the normal cost is the cost with respect to benefits being earned during the current year, with allowance for future pay projection. This is shown in Item E of Exhibit 1B and is CI\$16.4 million (or 14.13% of current pay) for both DB and DC participants.

*Total Annual Cost* - The total annual cost of the benefits provided under the projected unit credit actuarial cost method used is the sum of the normal cost and the amortization of the actuarial deficiency as of July 1, 2003. The amortization period has been taken as 20 years but a different period can be used. The total annual cost is CI\$31.4 million (or 27.05% of pay) for both DB and DC participants.

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***SECTION III (Continued)***

**6.3 Fund Projections**

Exhibits 2A through 2E show long-term projections of benefit payments, contributions under different funding options, and Fund assets.

Exhibit 2A shows a graphic representation of the annual benefits to be paid in the first year following the valuation date and the next fifty years, based on the actuarial assumptions used. The graph shows that the annual benefit payments are likely to grow to some CI\$60 million in twenty years, and close to CI\$100 million in forty years. The graph also shows that the benefit payments, expressed as a percentage of payroll, are also expected to rise very steeply. Currently, benefit payments are some 6% of payroll, but are expected to grow to 20% in 10 years, 25% in 20 years, and peaking at 40% of payroll in 30 years.

Exhibit 2B shows a graphic representation of the projected future contribution requirement for the DB portion of the Fund. The exhibit shows the contribution pattern for both of the methods shown in Section 5.2 although Option A is the method selected by the Board.

The size of the Fund assets is determined by:

- (a) the level of benefits being paid out of the Fund,
- (b) the level of inflow of contributions (participants and Government) to the Fund, and
- (c) the investment returns on the assets of the Fund.

Exhibit 2C shows that the DB portion of the fund is likely to peak at around CI\$620 million by the year 2028, after which benefit payments will exceed contributions and investment return.

Exhibit 2D shows that the combined DB and DC fund will continue to grow, with the DC portion of the fund becoming an increasingly larger portion of the total fund. The total fund is expected to reach CI\$1 billion by the year 2028.

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***SECTION III (Continued)***

**7. Conclusions and Recommendations**

1. The Fund continues to be severely underfunded with respect to the benefit obligations in respect of service to date and without allowance for future pay increases, but allowing for future cost-of-living increases to pensions. It will continue to remain underfunded for the foreseeable future. However, the liability for inactive members, that is existing pensioners and beneficiaries and those with deferred pensions, is covered by available assets.
2. We strongly support the Board's decision to assess the required contribution rates separately for the defined benefit and defined contribution participants. As a result of a detailed review of various funding options, the contribution structure adopted is as follows:

Cayman Island Government Contribution Structure

- One combined rate consisting of the following:
  - DB: Normal cost plus amortization of deficiency
  - DC: 13% of pay

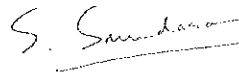
Statutory Contribution/Government Companies Structure

- Two separate rates as follows:
  - DB: Normal cost
  - DC: 13% of pay

3. The interest rate assumption is very crucial to the liability position and ongoing funding requirements. Consequently, continuous monitoring of investment performance and portfolio composition will be needed in order to ensure that investment rates of return and the actuarial valuation interest assumptions are aligned properly.

We are at the disposal of the Board to discuss this report and to answer any questions that may arise, or to provide any further information that may be required.

Respectfully Submitted  
WATSON WYATT WORLDWIDE



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Subramanian Sundaresan  
Fellow of the Institute of Actuaries



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Tony R. Broomhead  
Fellow of the Institute of Actuaries

April 13, 2004

CAYMAN ISLANDS PUBLIC SERVICE PENSION BOARD

EXHIBIT 1A

Actuarial Valuation of Public Service Pensions as of July 1, 2003

Actuarial Position as of July 1, 2003	January 1, 2002	July 1, 2003	July 1, 2003	July 1, 2003	July 1, 2003
	Total	Prior Assumptions Total	New Assumptions DB	New Assumptions DC	New Assumptions Total
A. Summary of Valuation Data					
1. Number of participants currently receiving benefits	401	570	570	0	570
2. Number of participants with deferred vested benefits	406	801	344	457	801
3. Number of active participants	3,120	3,393	1,681	1,712	3,393
4. Total annual pensionable emoluments	104,109,552	116,135,772	61,776,660	54,359,112	116,135,772
B. Value of Pension fund Allocated Assets	82,219,000	104,722,000	90,622,000	14,100,000	104,722,000
C. Past Service Liability (No Projection of Pay)					
1. Inactive participants	56,584,000	77,377,000	84,967,000	921,000	85,888,000
2. Active participants	144,508,000	140,195,000	125,836,000	13,179,000	139,015,000
3. Total	201,092,000	217,572,000	210,803,000	14,100,000	224,903,000
D. Past Service Liability (Projection of Pay)					
1. Inactive participants	56,584,000	77,377,000	84,967,000	921,000	85,888,000
2. Active participants	190,284,000	185,932,000	169,994,000	13,179,000	183,173,000
3. Total	246,868,000	263,309,000	254,961,000	14,100,000	269,061,000
E. Surplus/(Deficiency) (Item B less D3)	(164,649,000)	(158,587,000)	(164,339,000)	0	(164,339,000)
Assumptions					
Assumed Retirement Age	55	55	57	57	57
Discount Rate	8.00%	8.00%	7.00%	7.00%	7.00%
Salary Increases	5.00%	5.00%	4.00%	4.00%	4.00%
Pension Increases	3.00%	3.00%	2.50%	2.50%	2.50%
Mortality	Old	Old	New	New	New



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**EXHIBIT 1B**

**Future Contribution Requirement**

	<b><u>DB</u></b>	<b><u>DC</u></b>	<b><u>Total</u></b>
A. Summary of Valuation Data			
1. Number of active participants	1,681	1,712	3,393
2. Total annual pensionable emoluments	61,776,660	54,359,112	116,135,772
B. Value of Pension fund Allocated Assets	90,622,000	14,100,000	104,722,000
C. Past Service Liability (With Projection of Pay)			
1. Inactive participants	84,967,000	921,000	85,888,000
2. Active participants	169,994,000	13,179,000	183,173,000
3. Total	254,961,000	14,100,000	269,061,000
D. Surplus/(Deficiency) (Item B less C3)	(164,339,000)	0	(164,339,000)

**Funding for DB Section: Normal Cost Plus 20-year amortization of Past Service Liability**

E. Normal Cost for Year	9,347,000	7,067,000	16,414,000
F. Item E as % of Emoluments	15.13%	13.00%	14.13%
G. Amortization of Deficiency (over 20 years)	14,996,000	N/A	14,996,000
H. Item G as % of Emoluments	24.27%	N/A	12.91%
I. Total Annual Cost of Benefits (Item E plus Item G)	24,343,000	N/A	31,410,000
J. Item I as % of Emoluments	39.40%	N/A	27.05%

**Assumptions**

Age 57 Retirement  
7% Discount Rate  
4% Salary Increase  
2.5% Pension Increase  
New Mortality Table

## Cash Flow Projections

The exhibits after this page show the following cash flow projections:

**Exhibit 2A. Projected Benefit Payments**

The attached Exhibit 2A shows the projected benefit payments, based on the actuarial assumptions used in the valuation. The projected benefit payments are shown graphically, both as amounts, and as a percentage of pensionable emoluments. Another graph shows the split between the DB and DC benefit payments.

**Exhibit 2B. Projection of Future Contributions – DB Plan**

A projection of future contribution requirements under the defined benefit plan is shown for two funding alternatives: (A) Normal cost plus 20-year amortization of past service liability, and (B) Fixed percentage of total pay for active DB participants.

**Exhibit 2C. Projection of Fund Assets – DB Plan**

The fund assets pertaining to the DB participants have been projected and the results are shown graphically for the two funding alternatives shown in Exhibit 2B. The projected past service liability is also compared to the projected fund assets.

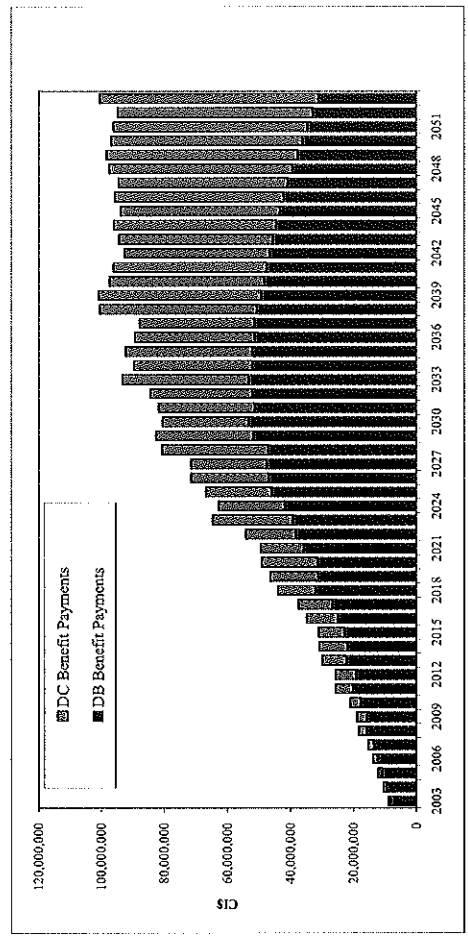
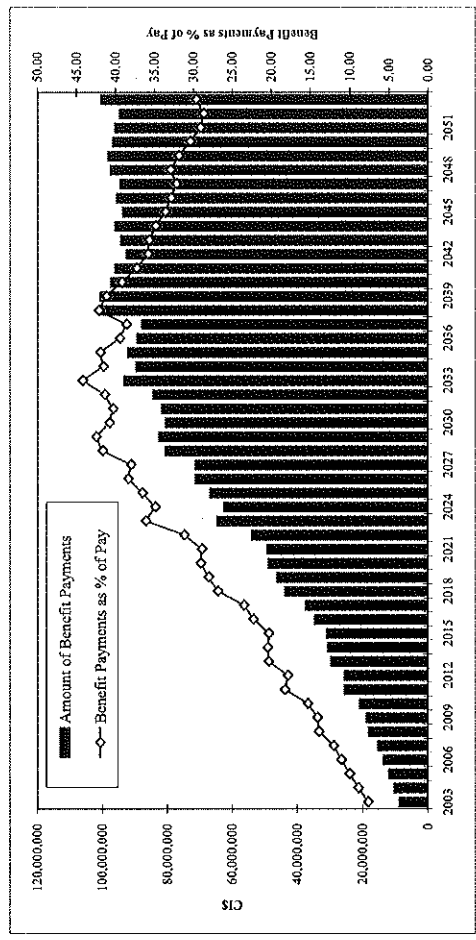
**Exhibit 2D. Projection of Fund Assets – DB and DC Plan**

This exhibit shows the projection of both DB and DC fund assets, assuming the DB plan will be funded using Option B described above under Exhibit 2B.

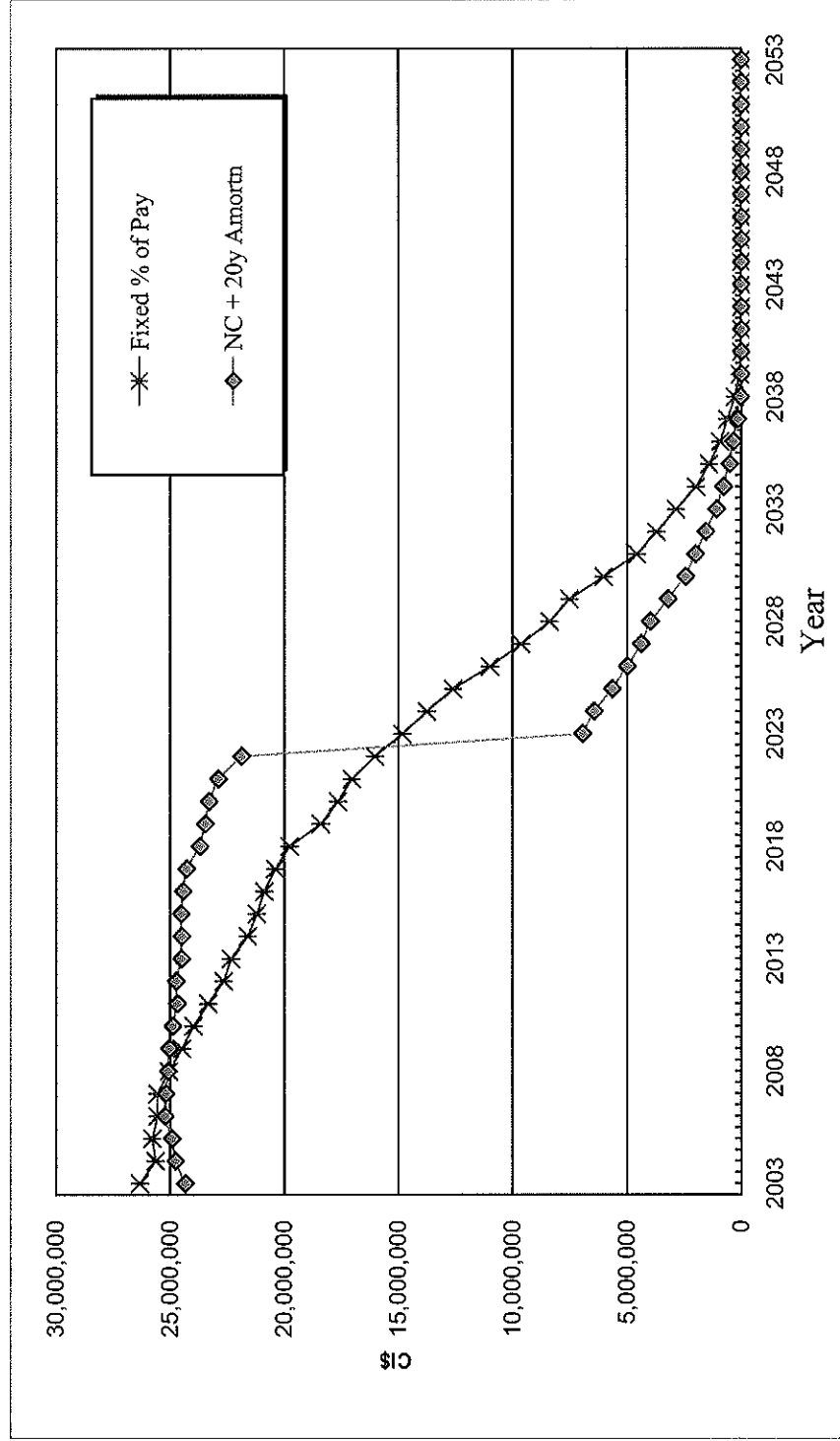
**Exhibit 2E. Projection of Future Contributions - DB and DC Plan**

This exhibit shows a projection of future contribution requirement for both the DB and DC plans together, assuming the DB plan will be funded using Option A described above under Exhibit 2B.

Projection of Benefit Payments



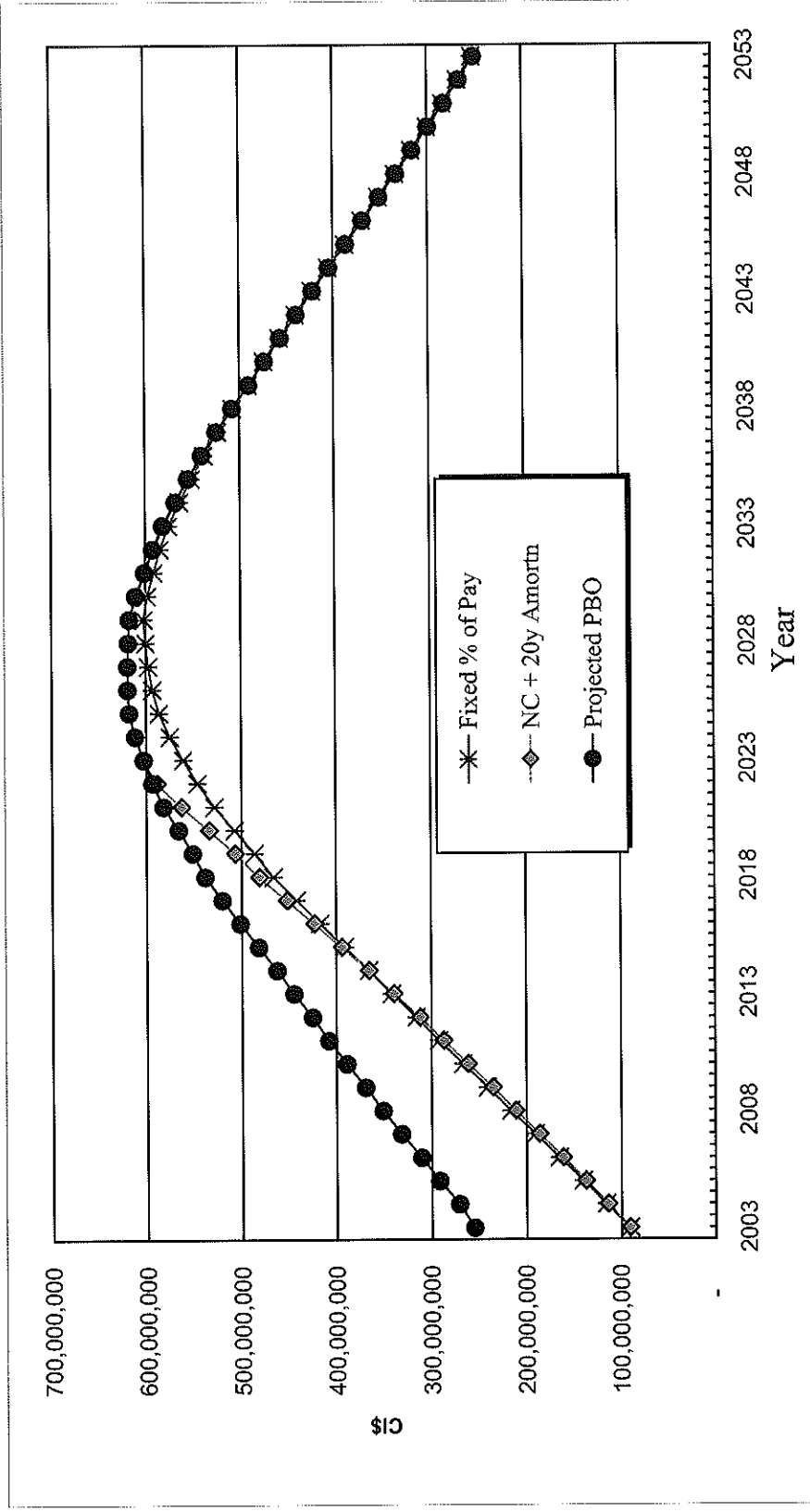
**Projection of Future Contributions - DB Plan**





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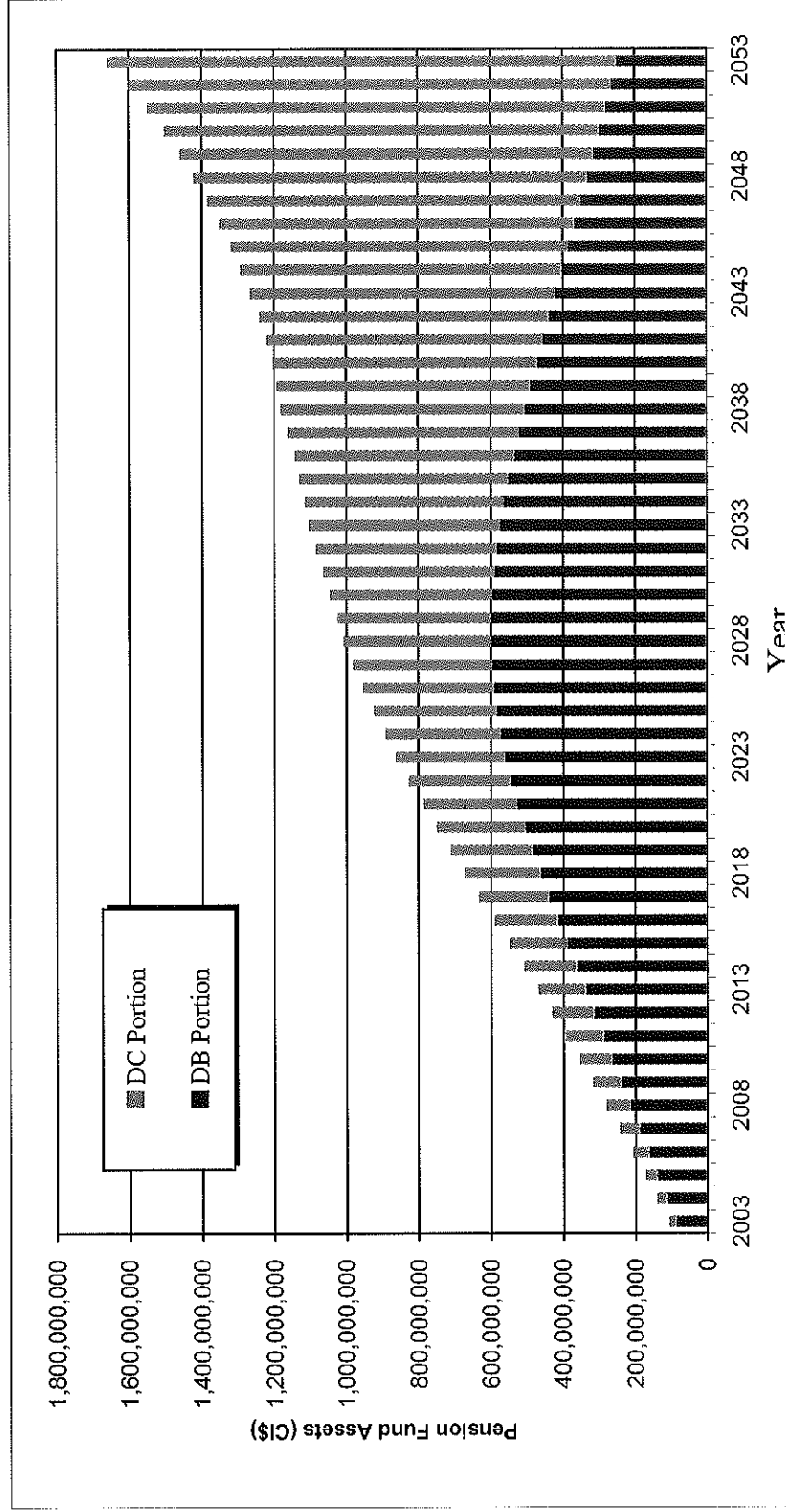
Projection of Fund Assets - DB Plan



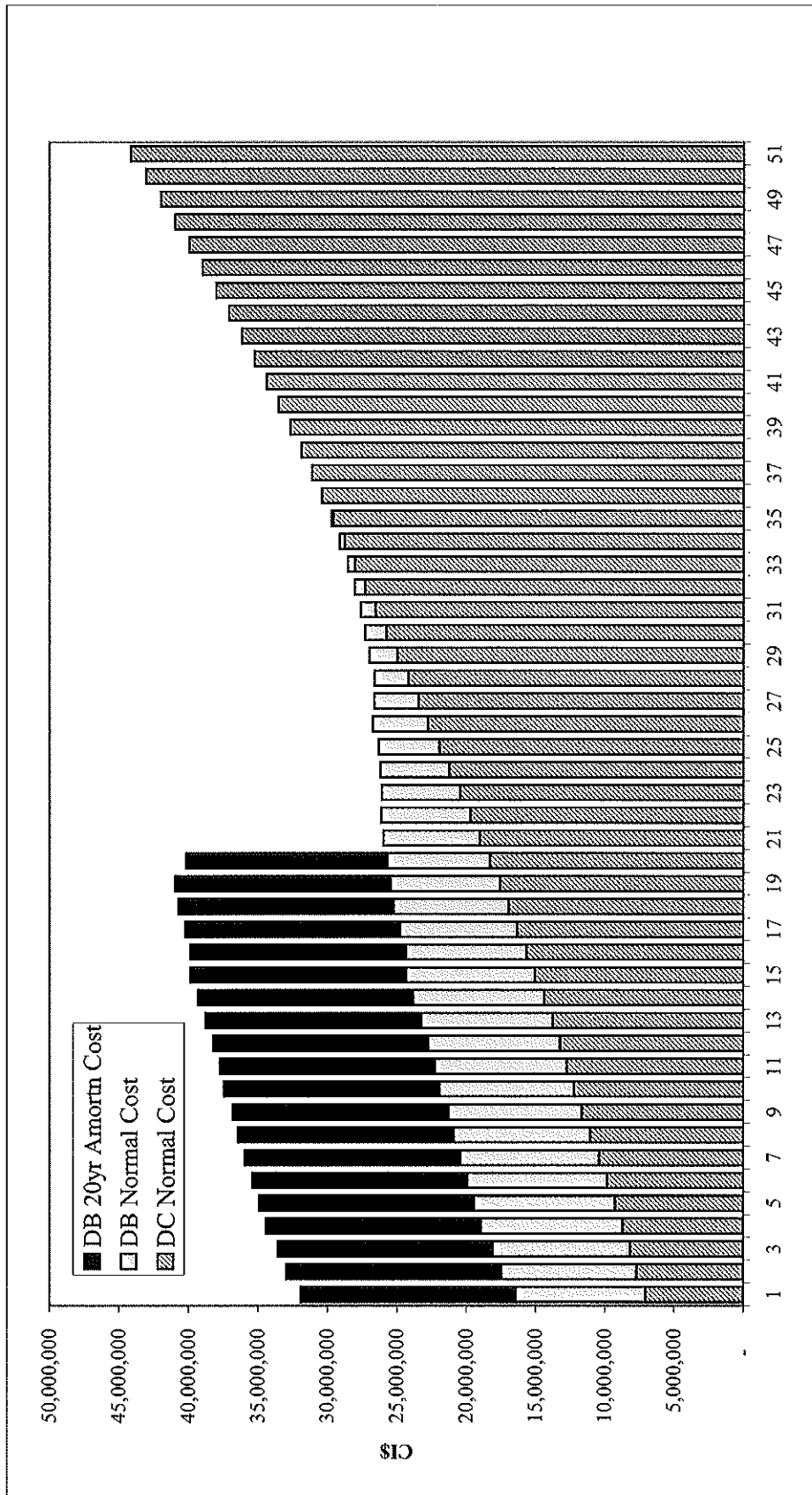
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**Projection of Fund Assets - DB and DC Combined**

Annual Return on Fund Assets:	7.00%
Retirement Age:	57.00
Annual Contributions as % of Pay:	DB: 42.60% DC: 13.00%



**Projection of Future Contributions (DB & DC)**



**Summary of Valuation Data**

<b>ACTIVE PARTICIPANTS</b>	<b><u>Headcount</u></b>	<b><u>Average Age</u></b>	<b><u>Average Service</u></b>	<b><u>Total Annual Emoluments</u></b>
Central Government				
Defined Benefit	1,425	40.1	13.2	51,319,968
Defined Contribution	1,483	38.9	5.3	46,704,168
Total	2,908	39.5	9.2	98,024,136
Royal Caymanian Police				
Defined Benefit	127	39.3	16.7	4,731,372
Defined Contribution	155	35.0	6.4	4,653,720
Total	282	36.9	11.0	9,385,092
Statutory Bodies				
Defined Benefit	129	38.9	11.9	5,725,320
Defined Contribution	74	35.7	3.6	3,001,224
Totals	203	37.7	8.9	8,726,544
All Groups				
Defined Benefit	1,681	39.9	13.4	61,776,660
Defined Contribution	1,712	38.4	5.4	54,359,112
Total	3,393	39.2	9.3	116,135,772

<b>INACTIVE PARTICIPANTS</b>	<b><u>Headcount</u></b>	<b><u>Average Age</u></b>	<b><u>Total Annual Benefit</u></b>
Participants Currently Receiving Benefits			
Defined Benefit	570	62.6	6,021,033
Defined Contribution	-	-	-
Total	570	62.6	6,021,033
Deferred Vested Participants			
Defined Benefit	344	36.7	1,334,213
Defined Contribution	457	32.3	N/A*
Total	801	34.2	1,334,213

\* Total account balance is \$921,357.

**CAYMAN ISLANDS PUBLIC SERVICE PENSIONS BOARD**  
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**EXHIBIT 3B**

**Reconciliation of Data**

***DB Participants***

	<b>Actives</b>	<b>Deferred Vesteds</b>	<b>Retirees</b>	<b>Beneficiaries</b>	<b>Total</b>
<b>January 1, 2002</b>	<b>1,895</b>	<b>241</b>	<b>336</b>	<b>65</b>	<b>2,537</b>
<b>Rehired</b>	<b>16</b>	<b>(15)</b>	<b>(1)</b>	<b>-</b>	<b>-</b>
<b>Terminated –Vested</b>	<b>(90)</b>	<b>90</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Terminated - Non-Vested</b>	<b>(13)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>(13)</b>
<b>Retired</b>	<b>(139)</b>	<b>(1)</b>	<b>140</b>	<b>-</b>	<b>-</b>
<b>Deceased</b>	<b>(2)</b>	<b>-</b>	<b>(1)</b>	<b>(1)</b>	<b>(4)</b>
<b>New to 2003 Data</b>	<b>41</b>	<b>45</b>	<b>12</b>	<b>12</b>	<b>127</b>
<b>Not included in 2003 Data</b>	<b>(27)</b>	<b>(16)</b>	<b>(9)</b>	<b>-</b>	<b>(52)</b>
<b>July 1, 2003</b>	<b>1,681</b>	<b>344</b>	<b>477</b>	<b>76</b>	<b>2,578</b>

***DC Participants***

	<b>Actives</b>	<b>Deferred Vesteds</b>	<b>Retirees</b>	<b>Beneficiaries</b>	<b>Total</b>
<b>January 1, 2002</b>	<b>1,224</b>	<b>165</b>	<b>-</b>	<b>-</b>	<b>1,389</b>
<b>Rehired</b>	<b>7</b>	<b>(7)</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Terminated –Vested</b>	<b>(112)</b>	<b>112</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Terminated - Non-Vested</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Retired</b>	<b>(16)</b>	<b>(1)</b>	<b>17*</b>	<b>-</b>	<b>-</b>
<b>Deceased</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>New to 2003 Data</b>	<b>707</b>	<b>214</b>	<b>-</b>	<b>-</b>	<b>921</b>
<b>Not included in 2003 Data</b>	<b>(98)</b>	<b>(26)</b>	<b>-</b>	<b>-</b>	<b>(124)</b>
<b>July 1, 2003</b>	<b>1,712</b>	<b>457</b>	<b>17*</b>	<b>-</b>	<b>2,186</b>

\* DC Retirees added to DB totals for purpose of this actuarial valuation.



**Notes on Data**

Watson Wyatt and the PSPB worked rigorously to validate the data provided for the purpose of the July 1, 2003 actuarial valuation. As shown in the Exhibit 3B, there were numerous participants that were either erroneously omitted from, or erroneously included in, the data used to prepare the January 1, 2002 actuarial valuation. In addition, there were a number of duplicate records provided and included in the January 1, 2002 actuarial report.

We are confident the data used in this valuation is a better representation of the true participant population. An audit of the data used in this valuation by the PSPB has declared the data used for this report as accurate and reasonable according to the PSPB records.

While the data used for this actuarial report has been declared accurate and reasonable, the process of updating all the records on the PSPB information system needs to be continued to ensure absolute accuracy in future data provided for the actuarial valuations. The audit identified differences between the data used for this valuation and the information that is now on the PSPB information system. These differences have not been incorporated in this valuation, because they have been deemed to be immaterial for the purposes of this valuation. These differences are summarized in the following tables:

	<b>Valuation Data</b>	<b>Audit Result</b>
<b>Active Participants</b>		
Central Government		
Defined Benefit	1,425	1,433
Defined Contribution	1,483	1,548
Royal Caymanian Police		
Defined Benefit	127	128
Defined Contribution	155	136
Statutory Bodies		
Defined Benefit	129	133
Defined Contribution	74	79
<b>Deferred Vested Participants</b>		
Defined Benefit	344	339
Defined Contribution	457	450

**CAYMAN ISLANDS PUBLIC SERVICE PENSIONS BOARD**  
**Actuarial Valuation of Public Service Pensions as of July 1, 2003**

**EXHIBIT 3C**

All data used for the July 1, 2003 actuarial valuation was taken as originally provided by the PSPB with the exception of the pension amounts for the deferred vested participants in the DB plan. For this group, of the 344 included in the valuation, the PSPB was only able to provide the benefit for 135 participants but was able to provide salary and pensionable service information to estimate the benefit of another 86 participants. These estimation calculations were performed by Watson Wyatt. The benefit amount was carried forward from the January 1, 2002 valuation for another 88 participants.

A total of 35 deferred vested participants in the DB plan had their benefit estimated based on their age and service. These estimated benefits were derived from the known benefit amounts for the rest of the deferred vested group. The following summarizes the monthly estimated benefit for each age and service group:

Age (years)	Service (years)			
	< 5	5 – 10	15 – 25	> 25
< 30	60.00	160.00	-	-
30 – 40	60.00	265.00	675.00	-
40 – 50	55.00	325.00	875.00	920.00
> 50	65.00	185.00	450.00	825.00

**CAYMAN ISLANDS PUBLIC SERVICE PENSION BOARD**  
**Actuarial Valuation of Public Service Pensions as of July 1, 2003**

**EXHIBIT 4**

**Income and Expenditure During the Period**  
**January 1, 2002 to June 30, 2003**

*All amounts are in CI\$*

	<u>Consolidated</u> <u>For All Plans 1/</u>	<u>Public Service</u> <u>Pension Plan</u> <u>Allocation</u>
Net Assets Available for Benefits at Beginning of Year 2/	84,551,269	82,219,000
Adjustment 3/	(1,079,701)	
Investment Income		
Interest	(1,252,921)	
Contributions		
Employees	9,661,274	
Employers	9,661,274	
Past Service Contribution	19,018,057	
Government Grant	1,222,500	
(Benefits Paid)	(12,683,589)	
(Expenses of Administration)	(1,858,060)	
Net Increase in Assets	23,768,535	
Net Assets Available for Benefits at End of Period 4/	107,240,103	104,722,000
Actual Investment Return	-0.90%	
Expected Investment Return	12.23%	

*Note 1: Consolidated for the Public Service Pension Plan, the Parliamentarians Pension Plan and the Judiciary Pension Plan*

*Note 2: Amount recognized in January 1, 2002 valuation based on unaudited accounts.*

*Note 3: Adjustment to reflect actual asset position as of January 1, 2002.*

*Note 4: Estimated DC account balance at June 30, 2003 is CI\$14,099,907.*





### Actuarial Assumptions Employed

A. Economic Assumptions

1. Underlying Inflation Rate: Long-term inflation rate of 2.5% per year.
2. Interest: 7% per year.
3. Salary Increases: 4% per year, consisting of an allowance of 2.5% for inflation and 1.5% for merit and promotion.
4. Pension Increases: 2.5% per year, the same as the rate of inflation.
5. Commutation of Pensions: It has been assumed that all employees will exercise to the maximum amount, their right to commute part of their pension for a lump sum payment.

B. Demographic Assumptions:

1. Mortality: It is not anticipated that the mortality rates of the participants will be significantly different to that of employees of U.S. corporations. Standard U.S. mortality rates have been used for the valuation. The rates used are based on the UP-1994 Table and sample rates are shown below:

<u>Age</u>	<u>Male</u>	<u>Female</u>
20	.000545	.000305
30	.000862	.000377
40	.001153	.000763
50	.002773	.001536
60	.008576	.004773
70	.025516	.014763
80	.066696	.042361
90	.164442	.125016

**Actuarial Assumptions Employed (Continued)**

B. Demographic Assumptions (Cont'd.):

2. Turnover: The rates at the following illustrative ages indicate the turnover assumptions, excluding mortality and disability:

<u>Age</u>	<u>Annual Rates of Turnover</u>	
	<u>Male</u>	<u>Female</u>
20	.075	.125
25	.050	.125
30	.035	.075
35	.025	.045
40	.015	.025
45	.005	.005
50	---	---

3. Disability: No disability incident rates have been used.

4. Retirement Age: Completion of age 57 and 10 years of service. Police are assumed to retire upon eligibility for full benefits (completion of 21 years of service).

5. Family Assumptions:

- a. Percentage of Employees with Spouse - 80%.
- b. Age of Wife - 3 years younger than husband.
- c. Percentage Employees with Dependent Children -
- |          |  |
|----------|--|
| Males:   | 65% pre-retirement<br>5% post-retirement |
| Females: | 20% pre-retirement<br>0% post-retirement |

**Actuarial Assumptions Employed (Continued)**

B. Demographic Assumptions (Cont'd.):

6. New Entrants:

A sufficient number of new entrants has been assumed to enter the defined contribution segment of the plan to replace the employees who retire, die or leave service to keep the total number of active employees constant. We have assumed that new entrants will have the same age and earnings profile as recent new participants to the plan. All new entrants are included under the defined contribution portion of the plan.

### **Principal Benefit Provisions**

1. Eligibility: Public service employees are immediately eligible for participation in the Plan.
  2. Pensionable Service: Continuous service from age 20 (or from age 18 if the first appointment was in the service of Jamaica).
  3. Pensionable Emoluments: Pensionable emoluments include salary, personal allowance, and house allowance.  
  
The retirement pension computation is generally based on the annual pensionable emoluments at the time of retirement, unless there are transfers from one office to another, in which case the computation may be based on one-third of the aggregate pensionable emoluments during the final three years. *Defined Benefit Section only.*
  4. Employee Contributions: Employee contributions are currently pitched at a rate of 6% of pensionable emoluments.
  5. Eligibility for Retirement Pension: Generally, on or after attaining age 55 (or age 50 in special cases) and completing 10 years of service. There are special cases under which these conditions may be relaxed.
- 6A. Retirement Benefits – Defined Benefit Section:
- a. Pension at retirement - An annual pension equal to  $1/720$  times the number of completed months of pensionable service times the final annual Pensionable Emoluments. For officers first appointed to a pensionable office prior to July 10, 1980, the annual pension is computed as  $1/600$  times the number of completed months of pensionable service times the final annual Pensionable Emoluments. The pension cannot exceed two-thirds of the highest annual pensionable emoluments received during the officer's service.

### **Principal Benefit Provisions (Continued)**

6A. Retirement Benefits – Defined Benefit Section (continued):

- b. Commutation - Up to  $\frac{1}{4}$  of the retirement pension can be commuted for a lump sum. The pension to lump sum conversions will be determined by the plan's actuarial factors. At age 55, these factors call for a lump sum conversion rate equal to 15.07 times the annual pension surrendered.
- c. Pension Increases - Pensions in payment may be increased, once a year. The Pensions Law (1999) calls for these pensions increases to match annual cost-of-living increases up to 5% and on a sliding scale thereafter.
- d. Early Retirement - Early retirement reduction factors apply to retirement pensions prior to completion of age 55 and 10 years of service. For deferred vested participants, early retirement reduction factors apply for pension commencement prior to completing age 60. Police officers are allowed to retire with full benefits after completing 21 years of service.

6B. Retirement Benefits – Defined Contribution Section:

- a. Pension at retirement - An annual pension based on the accumulated account balance representing the accumulation of employee contributions, matching Government contributions and investment returns.
  - b. Commutation - Part of the accumulated account balance may be taken in cash, while the remainder must be taken as a pension.
  - c. Pension Increases - Pensions in payment may be increased, once a year. The Pensions Law (1999) calls for these pensions increases to match annual cost-of-living increases up to 5% and on a sliding scale thereafter.
7. Benefits on Death After Retirement or While Eligible to Retire:
- A spouse's pension equal to 50% of the pensioner's benefit, payable until remarriage.
- A dependent children's pension, payable up to age 18, equal to  $\frac{1}{6}$ th of the pension received by a male officer per each dependent child, up to a maximum of 50%. These amounts are doubled if there is no spouse.

**Principal Benefit Provisions (Continued)**

8. Benefits on Disablement: A pension is payable to an officer who is permanently injured in discharge of duty and who is not entitled to compensation under any Workmen's Compensation Law. The amount of the pension depends on the extent of disablement.
9. Benefits on Death in Service: Either:
- (a) Lump sum equal to 12 months of Pensionable Emolument, or
- (b) A spouse's pension equal to 50% of the member's pension accrued as of the date of death, based on pay and service completed at the date of death. *Defined Benefit Section only.*
10. Termination Benefits: An employee who terminates his employment can expect to receive a pension commencing at age 60, based on benefits accrued at the time of termination or alternatively to receive the participant contribution account balance. The pension has the same features of commutation, post-retirement death benefit, and post-retirement pension increases as for active employees eligible for retirement benefits.
11. Other Benefits (Not Valued): Supplementary pensions on abolition of office and re-organization.