

PARK EMPLOYEES' ANNUITY  
AND BENEFIT FUND OF CHICAGO

ACTUARIAL VALUATION  
AS OF JUNE 30, 2000

**GOLDSTEIN & ASSOCIATES**  
*Actuaries and Consultants*

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December 6, 2000

The Trustees of the Retirement  
Board of the Park Employees'  
Annuity and Benefit Fund of Chicago  
55 East Monroe Street  
Suite 2880  
Chicago, Illinois 60603

Re: **Actuarial Valuation as of June 30, 2000**

Dear Board Members:

I am pleased to submit our actuarial report on the financial position and funding requirements of the Park Employees' Annuity and Benefit Fund of Chicago as of June 30, 2000.

The report consists of 10 sections and 3 appendices as follows:

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I would be pleased to discuss any aspects of this report with you at your convenience.

Respectfully submitted,



Sandor Goldstein, F.S.A.  
Consulting Actuary

#### **A. PURPOSE AND SUMMARY**

We have carried out an actuarial valuation of the Park Employees' Annuity and Benefit Fund as of June 30, 2000. The purpose of the valuation was to determine the financial position and funding requirements of the pension fund. This report is intended to present the results of the valuation.

The results of the valuation are summarized below:

1.	Total actuarial liability	\$ 655,966,716
2.	Actuarial value of assets	627,937,703
3.	Unfunded actuarial liability	28,029,013
4.	Funded Ratio	95.7%
5.	Actuarially determined contribution requirement for fiscal year beginning July 1, 2000	\$ 6,426,833
6.	Estimated employer contributions for fiscal year beginning July 1, 2000	\$ 9,519,363
7.	Annual required contribution for fiscal year beginning July 1, 2000 under GASB Statement No. 25	\$ 6,426,833

#### **B. DATA USED FOR THE VALUATION**

Participant Data. The participant data required to carry out the valuation was supplied by the fund. The membership of the fund as of June 30, 2000, on which the valuation was based, is summarized in Exhibit 1. It can be seen that there were 3,639 active members, 2,242 pensioners, 965 surviving spouses, and 34 children receiving benefits included in the valuation. The total active payroll as of June 30, 2000 was \$101,267,759.

Exhibit 1

Summary of Membership Data

1. Number of Members	
(a) Active Members	
(i) Vested	1,199
(ii) Non-vested	2,440
(b) Members Receiving	
(i) Retirement Pensions	2,242
(ii) Surviving Spouse's Pensions	965
(iii) Children's Annuities	34
2. Annual Salaries	
(a) Total Salary	\$ 101,267,759
(b) Average Salary	27,828
3. Annual Pension Payments	
(a) Retirement Pensions	\$ 38,158,337
(b) Surviving Spouse's Pensions	7,144,151
(c) Children's Annuities	41,400

Assets. In November of 1994, the Governmental Accounting Standards Board (GASB) issued GASB Statement No. 25 which establishes standards of financial reporting for governmental pension plans. The statement is effective for periods beginning after June 15, 1996

Under GASB Statement No. 25, the actuarial value of assets to be used for determining a plan's funded status and annual required contributions needs to be **market related**. However, GASB has indicated that current market values should not be used if those values would result in unnecessary fluctuation in the funded status and the annual required contribution. Thus, in determining the actuarial value of assets, smoothing changes in the market value of assets over a period of three to five years is considered appropriate.



The asset values used for the valuation were based on the asset information contained in the statement of assets as of June 30, 2000 prepared by the fund. The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 4 years. In addition, the difference between the June 30, 1997 actuarial value of assets and market value of assets is being recognized over a 4-year period. The resulting actuarial value of assets is \$627,937,703. The development of this value is outlined in Exhibit 2.

## Exhibit 2

### Actuarial Value of Assets

#### A. Development of Investment Gain

1. Actuarial Value of Assets as of June 30, 1999	\$ 592,283,760
2. Employer and Employee Contributions	17,801,937
3. Benefits and Expenses	49,526,889
4. Expected Investment Income	46,138,116
5. Total Investment Income, Including Income From Securities Lending	24,303,889
6. Investment Gain/(Loss) for the Year Ended June 30, 2000 (5 - 4)	(21,834,227)

#### B. Development of Actuarial Value of Assets as of June 30, 2000

7. Expected Actuarial Value of Assets (1 + 2 - 3 + 4)	\$ 606,696,924
8. Investment Gain/(Loss) as of June 30, 2000 Recognized in Current Year (25% of 6)	(5,458,557)
9. Investment Gain/(Loss) as of June 30, 1999 Recognized in Current Year	4,168,133
10. Investment Gain/(Loss) as of June 30, 1998 Recognized in Current Year	11,584,281
11. One-fourth of difference between actuarial value of assets and market value of assets as of June 30, 1997	<u>10,946,922</u>
12. Actuarial Value of Assets as of June 30, 2000 (7 + 8 + 9 + 10 + 11)	<u>\$ 627,937,703</u>

### **C. FUND PROVISIONS**

Our valuation was based on the provisions of the fund in effect as of June 30, 2000 as provided in Article 12 of the Illinois Pension Code. A summary of the principal provisions of the fund is provided in Appendix 2.

### **D. ACTUARIAL ASSUMPTIONS AND COST METHOD**

Based on an analysis of the experience of the fund over the period 1997-1999, we have made some changes in the termination and mortality rate assumptions used for the June 30, 2000 actuarial valuation. The other actuarial assumptions used for the June 30, 2000 actuarial valuation are the same as those used for the June 30, 1999 valuation. The actuarial assumptions used for the current valuation are outlined in Appendix 1.

In our opinion, the actuarial assumptions used for the valuation are reasonable in the aggregate, taking into account fund experience and future expectations, and represent our best estimate of anticipated experience.

The entry age actuarial cost method was used for the valuation. This is the same actuarial cost method that has been used in previous valuations.

#### **E. ACTUARIAL LIABILITY AND FUNDED STATUS**

The actuarial liability as determined under the valuation for the various classes of members is summarized in Exhibit 3. The total actuarial liability is then compared with the actuarial value of assets in order to arrive at the unfunded actuarial liability. (The actuarial terms used in this report are defined in Appendix 3.)

As of June 30, 2000, the total actuarial liability is \$655,966,716, the actuarial value of assets is \$627,937,703, and the unfunded actuarial liability is \$28,029,013. The ratio of the actuarial value of assets to the actuarial liability, or funded ratio, is 95.7%.

### Exhibit 3

#### Actuarial Liability and Funded Status

	Year Ending June 30	
	<u>2000</u>	<u>1999</u>
1. Actuarial Liability For Members in Receipt of Benefits		
(a) Money purchase component of annuities to retirees	\$ 212,156,717	\$ 205,040,764
(b) Fixed benefit component of annuities to retirees	42,236,062	41,290,232
(c) Annual increases in retirement annuity	82,502,249	71,979,824
(d) Annual increases to employee annuitants	1,262,580	1,186,981
(e) Survivor annuities to survivors of current retirees	36,556,168	38,612,050
(f) Lump sum death benefits	2,939,233	3,161,864
(g) Survivor annuities to current survivors	<u>59,933,000</u>	<u>\$ 53,998,050</u>
(h) Total	\$ 437,586,009	\$ 415,269,765
2. Actuarial Liability For Active Members		
(a) Basic retirement annuity	\$ 140,583,680	\$ 122,725,475
(b) Annual increase in retirement annuity	33,513,011	27,355,779
(c) Pre-retirement survivor's annuity	3,958,885	4,358,543
(d) Post-retirement survivor's annuity	6,980,587	7,504,052
(e) Withdrawal benefits	6,954,058	9,914,868
(f) Pre-retirement death benefit	759,142	922,006
(g) Post-retirement death benefit	<u>465,192</u>	<u>507,684</u>
(h) Total	\$ 193,214,555	\$ 173,288,407
3. Actuarial Liability For Inactive Members	<u>25,166,152</u>	<u>21,969,455</u>
4. Total Actuarial Liability	<u>\$ 655,966,716</u>	<u>\$ 610,527,627</u>
5. Actuarial Value of Assets	<u>627,937,703</u>	<u>592,283,760</u>
6. Unfunded Actuarial Liability	<u>\$ 28,029,013</u>	<u>\$ 18,243,867</u>
7. Funded Ratio	95.7%	97.0%



Estimate of Impact of Changes in Actuarial Assumptions. We have estimated that the changes made in the actuarial assumptions used for the June 30, 2000 valuation had the impact of impact if increasing the total actuarial liability by \$32,559,000.

**F. EMPLOYER'S NORMAL COST**

The employer's share of the normal cost for the year beginning July 1, 2000 is developed in Exhibit 4. For the year beginning July 1, 2000, the total normal cost is determined to be \$13,153,428, employee contributions are estimated to be \$9,114,098, resulting in the employer's share of the normal cost of \$4,039,330.

Based on a payroll of \$101,267,759, the employer's share of the normal cost can be expressed as 3.99% of payroll.

#### Exhibit 4

##### Employer's Normal Cost For Year Beginning July 1, 2000

1. Basic retirement annuity	\$ 6,818,948
2. Annual increase in retirement annuity	1,470,026
3. Pre-retirement survivor's annuity	262,440
4. Post-retirement survivor's annuity	379,648
5. Withdrawal benefits, including refunds	2,167,066
6. Pre-retirement death benefit	95,177
7. Post-retirement death benefit	38,847
8. Children's annuity	36,600
9. Ordinary disability benefit	595,436
10. Duty disability benefit	83,603
11. Administrative expenses	<u>1,205,637</u>
12. Total normal cost	\$ 13,153,428
13. Employee contributions	<u>9,114,098</u>
14. Employer's share of normal cost	<u>\$ 4,039,330</u>
15. Total payroll	\$ 101,267,759
16. Employer's share of normal cost as a percent of payroll	3.99%

#### **G. ACTUARIALLY DETERMINED CONTRIBUTION REQUIREMENT**

GASB Statements No. 25 and 27 provide for annual employer contribution requirements determined on an actuarial basis. According to the GASB statements, the actuarially determined contribution requirement is equal to the employer's normal cost plus an amortization of the unfunded actuarial liability. For a period of 10 years, the maximum acceptable amortization period is 40 years. After the 10-year period, the maximum acceptable amortization period is 30 years. We have therefore calculated the actuarially determined employer contribution requirement for the

fiscal year beginning July 1, 2000 as the employer's normal cost plus a 30-year level-dollar amortization of the unfunded actuarial liability. The results of our calculation are shown in Exhibit 5.

Employer contributions to the fund come from a tax levied upon all taxable property in the City of Chicago. The amount of tax that is levied is 1.10 times the amount of employee contributions made 2 years previously. The 1.10 is known as the tax multiple.

As can be seen from Exhibit 5, for the fiscal year beginning July 1, 2000, the actuarially determined contribution requirement amounts to \$6,426,833. Based on the 1.10 tax multiple, and assuming a 5% loss in collections, we have estimated the employer contribution for the year beginning July 1, 2000 to be \$9,519,363. Thus, the employer contribution is expected to exceed the actuarially determined contribution requirement by \$3,092,530.

#### Exhibit 5

##### Actuarially Determined Contribution Requirement For Year Beginning July 1, 2000

1. Employer's normal cost	\$ 4,039,330
2. Annual amount to amortize the unfunded liability over 30 years through annual level-dollar payments	<u>2,387,503</u>
3. Actuarially determined contribution requirement for year beginning July 1, 2000	\$ 6,426,833
4. Estimated employer contribution for the year	<u>9,519,363</u>
5. Amount by which employer contribution is expected to exceed actuarially determined contribution requirement	<u><u>\$ 3,092,530</u></u>

## **H. ANNUAL REQUIRED CONTRIBUTION FOR GASB STATEMENT NO. 25**

GASB Statement No. 25 requires the disclosure of the annual required employer contribution (ARC), calculated in accordance with certain parameters. Based on the results of the June 30, 2000 actuarial valuation, we have therefore calculated the annual required contribution for the fiscal year beginning July 1, 2000. In accordance with the parameters prescribed in GASB Statement No. 25, in calculating the annual required contribution, we have used adjusted market value for the actuarial value of assets and have used a 30-year level-dollar amortization of the unfunded liability. On this basis, the annual required contribution for Fiscal Year 2001 has been determined to be as follows:

1. Employer's normal cost	\$ 4,039,330
2. Annual amount to amortize the unfunded liability over 30 years through annual level-dollar payments	<u>2,387,503</u>
3. Annual required contribution	<u><u>\$ 6,426,833</u></u>

## **I. ANALYSIS OF FINANCIAL EXPERIENCE**

The net actuarial experience during the period July 1, 1999 to June 30, 2000 resulted in an increase in the fund's unfunded actuarial liability of \$9,785,146. This increase in unfunded actuarial liability is a result of several kinds of gains and losses. The financial effect of the most significant gains and losses is illustrated in Exhibit 6.



The employer funding requirement for the year of normal cost plus interest on the unfunded actuarial liability amounted to \$3,948,360, whereas the actual employer contribution for the year is estimated to be \$8,892,701, resulting in a decrease in the unfunded liability of \$5,034,341.

The net rate of investment return earned by the assets of the fund, based on the actuarial value of assets, was 11.7% in comparison with the assumed rate of investment return of 8.0%. This resulted in a decrease in the unfunded liability of \$21,241,000. Salaries increased at an average rate of 5.02% per year in comparison with an assumed rate of 5.0%, resulting in an increase in the unfunded liability of \$46,000.

The changes in assumptions used for the June 30, 2000 resulted in an increase in the unfunded liability of \$32,559,000. The various other aspects of the fund's experience resulted in a net increase in the unfunded actuarial liability of \$3,455,487. The aggregate financial experience of the fund resulted in a net increase in the unfunded actuarial liability of \$9,785,146.

Exhibit 6

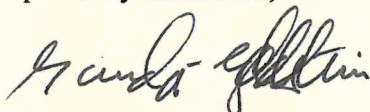
Analysis of Financial Experience  
Over the Period July 1, 1999 to June 30, 2000

1. Unfunded actuarial liability as of 7/1/99	\$ 18,243,867
2. Employer contributions requirement of normal cost plus interest on unfunded liability for period 7/1/99 to 6/30/00	3,948,360
3. Actual employer contribution for the year	<u>8,982,701</u>
4. Decrease in unfunded liability due to employer contribution greater than normal cost plus interest on unfunded liability (3 – 2)	5,034,341
5. Decrease in unfunded liability due to investment return higher than assumed	21,241,000
6. Increase in unfunded liability due to salary increases higher than assumed	46,000
7. Increase in unfunded liability due to changes in assumptions	32,559,000
8. Increase in unfunded liability due to other sources	<u>3,455,487</u>
9. Net increase in unfunded liability for the year (6 + 7 + 8 – 4 – 5)	<u>\$ 9,785,146</u>
10. Unfunded actuarial liability as of June 30, 2000 (1+9)	<u><u>\$ 28,029,013</u></u>

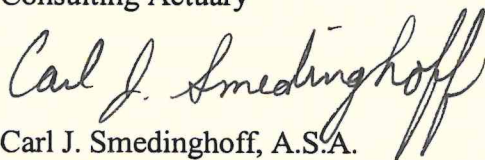
**J. CERTIFICATION**

This actuarial report has been prepared in accordance with generally accepted actuarial principles and practices and to the best of our knowledge, fairly represents the financial condition of the Park Employees' Annuity and Benefit Fund as of June 30, 2000.

Respectfully submitted,



Sandor Goldstein, F.S.A.  
Consulting Actuary



Carl J. Smedinghoff, A.S.A.  
Associate Actuary

## Appendix 1

### Summary of Actuarial Assumptions and Actuarial Cost Method

#### Actuarial Assumptions

The actuarial assumptions used for the June 30, 2000 valuation are summarized below. These assumptions were adopted as of June 30, 2000.

Mortality Rates. The UP-1994 Mortality Table was used for the valuation.

Termination Rates. Termination rates based on the recent experience of the fund were used. The following is a sample of the termination rates that were used:

<u>Age</u>	<u>Rate of Termination Per 1,000 Members</u>
20	221
25	148
30	103
35	73
40	44
45	28
50	12
55 and later	0

Retirement Rates. Rates of retirement for each age from 50 to 75 based on the recent experience of the fund were used. The following are samples of the rates of retirement that were used:

<u>Age</u>	<u>Rate of Retirement Per 1,000 Members</u>
50	100
55	110
60	200
65	300
70	350
75	1,000

Salary Progression. - 5.0% per year, compounded annually.

Interest Rate. - 8.0% per year, compounded annually.



Marital Status. 75% of participants were assumed to be married.

Spouse's Age. The age of the spouse was assumed to be 2 years younger than that of the employee.

Actuarial Value of Assets

The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 4 years. In addition, the difference between the June 30, 1997 actuarial value of assets and market value of assets is to being recognized over a four-year period.

Actuarial Cost Method.

The entry age actuarial cost method was used, with costs allocated on the basis of earnings.

## Appendix 2

### Summary of Principal Provisions

1. Membership. Any person employed by the Chicago Park District in a position requiring service for 6 months or more in a calendar year is required to become a member of the fund as a condition of employment.

2. Employee Contributions. All members of the fund are required to contribute 9% of salary to the fund as follows:

- 7% for the retirement pension
- 1% for the spouse's pension
- 1% for the automatic increases in the retirement pension

In addition, employees are required to contribute \$3.60 per month toward the cost of the single sum death benefit.

3. Retirement Pension-Eligibility. An employee may retire at age 50 with at least 10 years of service or at age 60 with 4 years of service.

If retirement occurs before age 60, the retirement pension is reduced 1/4 of 1% for each month that the age of the member is below 60. However, there is no reduction if the employee has at least 30 years of service.

4. Retirement Pension-Amount. The retirement pension is based on the average of the 4 highest consecutive years of salary within the last 10 years, at the following rates:

- 1.9% for each of the first 10 years of service; plus
- 2.2% for each of the next 10 years of service; plus
- 2.4% for each of the next 10 years of service; plus
- 2.8% for each year of service over 30.

The maximum pension payable is 80% of average annual salary.

An employee who was a participant before July 1, 1971 is entitled to the pension provided under the money purchase formula if it provides a greater pension than that provided under the above fixed benefit formula.

5. Post-Retirement Increase In Retirement Pension. An employee retiring at age 60 or over, or an employee with 30 or more years of service, is entitled to automatic annual increases of 3% of the originally granted pension following 1 year's receipt of pension payments. In the case of an

employee with less than 30 years service who retires before age 60, the increases begin following the later of attainment of age 60 and receipt of 1 year's pension payments.

6. Surviving Spouse's Pension. A surviving spouse is entitled to a pension upon the death of an employee while in service or on retirement. If the surviving spouse is age 60 or over and the employee or pensioner had at least 20 years of service, the minimum surviving spouse's pension is 50% of the deceased employee's or retired employee's pension at the date of death. If the age of the surviving spouse is less than 60, the pension is reduced 1/2 of 1% for each month the surviving spouse is under age 60. If the employee had less than 20 years of service, the surviving spouse is entitled to a pension under the money purchase formula, taking into account employee and employer contributions toward the surviving spouse's pension.

Surviving spouse's pensions are subject to annual automatic increases of 3% per year based on the current amount of pension.

7. Children's Pension. Unmarried children of a deceased employee under the age of 18 are entitled to a children's pension. If either parent is living, the pension is \$100.00 per month. If no parent survives, the pension for each child is \$150.00 per month. The total amount payable to a spouse or children may not exceed 60% of the employer's final salary.

8. Single Sum Death Benefit. A death benefit is payable upon the death of an employee in service in addition to any other benefits payable to the surviving spouse or minor children. The death benefit payable is as follows:

- \$3,000 benefit during the 1st year of service,
- \$4,000 benefit during the 2nd year of service,
- \$5,000 benefit during the 3rd year of service,
- \$6,000 benefit during the 4th through 10th year of service,
- \$10,000 benefit if death occurs after 10 or more years of service.

Upon the death of a retired member with 10 or more years of service, the \$10,000 maximum benefit is reduced to \$6,000 if death occurs during the first year of retirement. Thereafter, it is reduced by \$1,500 for each year or fraction of a year while on retirement, but shall not be less than \$3,000.

9. Ordinary Disability Benefit. An ordinary disability benefit is payable after 8 consecutive days of absence for illness without pay. The amount of the benefit is 45% of salary. The benefit is payable for a period not to exceed 1/4 of the length of service or 5 years, whichever is less.

10. Occupational Disability Benefit. Upon disability resulting from an injury incurred while on duty, an employee is entitled to a disability benefit of 75% of salary from the first day of absence without pay. The benefit is payable during the period of disability until the employee attains age 65, if disability is incurred before age 60, or for a period of 5 years if disability is incurred after age 60.



11. Occupational Death Benefit. Upon the death of an employee resulting from an accident incurred in the performance of duty, the surviving spouse is entitled to an occupational death benefit of 50% of salary. Each unmarried child under the age of 18 is entitled to a benefit of \$100 per month. The combined payments to a family may not exceed 75% of the employee's final salary. The total payments are reduced by Workmen's Compensation benefits.

12. Refunds. An employee who terminates employment before qualifying for a pension is entitled to a refund of employee contributions. The refund is payable to any employee who withdraws before age 55, regardless of the length of service. It is also payable to an employee who withdraws between age 55 and 60 with less than 10 years of service, and to an employee who withdraws after age 60 with less than 5 years of service.

An employee who is unmarried at date of retirement is entitled to a refund of the full amount contributed for the spouse's pension, without interest.



## Appendix 3

### Glossary of Terms used in Report

1. Actuarial Present Value. The value of an amount or series of amounts payable at various times, determined as of a given date by the application of a particular set of actuarial assumptions.
2. Actuarial Cost Method or Funding Method. A procedure for determining the actuarial present value of pension plan benefits and for determining an actuarially equivalent allocation of such value to time periods, usually in the form of a normal cost and an actuarial accrued liability.
3. Normal Cost. That portion of the present value of pension plan benefits which is allocated to a valuation year by the actuarial costs method.
4. Actuarial Accrued Liability or Accrued Liability. That portion, as determined by a particular actuarial cost method, of the actuarial present value of pension benefits which is not provided for by future normal costs.
5. Actuarial Value of Assets. The value assigned by the actuary to the assets of the pension plan for purposes of an actuarial valuation.
6. Unfunded Actuarial Liability. The excess of the actuarial liability over the actuarial value of assets.
7. Entry Age Actuarial Cost Method. A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of an individual between entry age and assumed exit age. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided at a valuation date by the actuarial present value of future normal costs is called the actuarial liability.
8. Actuarial Assumptions. Assumptions as to future events affecting pension costs.
9. Actuarial Valuation. The determination, as of the valuation date, of the normal cost, actuarial liability, actuarial value of assets, and related actuarial present values for a pension plan.
10. Accrued Benefit or Accumulated Plan Benefits. The amount of an individual's benefit as of a specific date determined in accordance with the terms of a pension plan and based on compensation and service to that date.
11. Vested Benefits. Benefits that are not contingent on an employee's future service.

# Actuarial Certification

GOLDSTEIN & ASSOCIATES  
150 North Wacker Drive, Suite 2230  
Chicago, Illinois 60606  
Tel. # (312) 726-5877 \* Fax # (312) 726-4323

November 16, 2001

The Trustees of the Retirement Board of the  
Park Employees' Annuity and Benefit Fund of Chicago  
55 East Monroe Street, Suite 2880  
Chicago, Illinois 60603

We have completed the annual actuarial valuation of the Park Employees' Annuity and Benefit Fund of Chicago as of June 30, 2001. The purpose of the valuation was to determine the financial condition and funding requirements of the Fund.

Since the effective date of the last actuarial valuation, there has been no changes in the benefit provisions of the Fund.

The actuarial assumptions used for the June 30, 2001 actuarial valuation were based on an experience analysis of the Fund over the three-year period 1997-1999 and were adopted as of June 30, 2000. These are the same assumptions as were used for the June 30, 2000 valuation. We believe that, in the aggregate, the current actuarial assumptions relate reasonably to the past and anticipated experience of the Fund.

The funding policy of the Fund is to have contributions sufficient to amortize the unfunded liability over a 30-year period through level dollar payments. Employer contributions come from a property tax levied by the District equal to the amount of contributions made by employees in the calendar year 2 years prior to the year of the levy, multiplied by 1.10. The 1.10 is known as the tax multiple. In recent years, employer contributions to the Fund have been sufficient to meet the actuarially determined contribution requirement.

The entry age normal actuarial cost method was used for the June 30, 2001 actuarial valuation. This is the same actuarial cost method that was used for the June 30, 2000 valuation.

The asset values used for the valuation were based on the asset information contained in the audited financial statements for the Fund for the year ending June 30, 2001. For purposes of the actuarial valuation, a 4-year smoothed market value of assets was used to determine the actuarial value of assets.

The valuation has been based on the membership data which was supplied by the administrative staff of the Fund. We have made additional tests to ensure its accuracy.

The trend data schedules presented in the financial section of the Comprehensive Annual Financial Report (CAFR) were prepared by the staff of the Fund based on information contained in our actuarial reports. All exhibits, tables, schedules, and appendices included in the accompanying actuarial section were prepared by us based on information provided by the Fund.


The assumptions and methods used for funding purposes meet the parameters set for the disclosures presented in the financial section by Governmental Accounting Standards Board (GASB) Statement No. 25.

In our opinion, the following valuation results fairly represent the financial condition of the Park Employees' Annuity and Benefit Fund of Chicago.

Respectfully submitted,



Sandor Goldstein, F.S.A.  
Consulting Actuary



Carl J. Smedinghoff, A.S.A.  
Associate Actuary

# Actuary's Report

## A. PURPOSE AND SUMMARY

We have carried out an actuarial valuation of the Park Employees' Annuity and Benefit Fund as of June 30, 2001. The purpose of the valuation was to determine the financial position and funding requirements of the Pension Fund. This report is intended to present the results of the valuation.

The results of the valuation are summarized below:

1. Total actuarial liability	\$673,429,603
2. Actuarial value of assets	651,343,906
3. Unfunded actuarial liability	22,085,697
4. Funded Ratio	96.7%
5. Actuarially determined contribution requirement for fiscal year beginning July 1, 2001	6,469,156
6. Estimated employer contributions for fiscal year beginning July 1, 2001	9,599,049
7. Annual required contribution for fiscal year beginning July 1, 2001 under GASB Statement No. 25	\$ 6,469,156

## B. DATA USED FOR THE VALUATION

**Participant Data.** The participant data required to carry out the valuation was supplied by the Fund. The membership of the Fund as of June 30, 2001, on which the valuation was based, is summarized in Exhibit 1. It can be seen that there were 3,395 active members, 2,188 pensioners, 968 surviving spouses, and 32 children receiving benefits included in the valuation. The total active payroll as of June 30, 2001 was \$105,739,601.



**Exhibit 1**

**Summary of Membership Data**

1. Number of Members	
(a) Active Members	
(i) Vested	1,166
(ii) Non-vested	2,229
(b) Members Receiving	
(i) Retirement Pensions	2,188
(ii) Surviving Spouse's Pensions	968
(iii) Children's Annuities	32
2. Annual Salaries	
(a) Total Salary	\$105,739,601
(b) Average Salary	31,146
3. Annual Pension Payments	
(a) Retirement Pensions	\$ 37,797,942
(b) Surviving Spouse's Pensions	7,615,738
(c) Children's Annuities	39,000

**Assets.** In November of 1994, the Governmental Accounting Standards Board (GASB) issued GASB Statement No. 25 which establishes standards of financial reporting for governmental pension plans. The statement is effective for periods beginning after June 15, 1996.

Under GASB Statement No. 25, the actuarial value of assets to be used for determining a plan's funded status and annual required contributions needs to be **market related**. However, GASB has indicated that current market values should not be used if those values would result in unnecessary fluctuation in the funded status and the annual required contribution. Thus, in determining the actuarial value of assets, smoothing changes in the market value of assets over a period of three to five years is considered appropriate.

The asset values used for the valuation were based on the asset information contained in the statement of assets as of June 30, 2001 prepared by the Fund. The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 4 years. In addition, the difference between the June 30, 1997 actuarial value of assets and market value of assets is being recognized over a 4-year period. The resulting actuarial value of assets is \$651,343,906. The development of this value is outlined in Exhibit 2.

**Exhibit 2**

**Actuarial Value of Assets**

**A. Development of Investment Gain**

1. Actuarial Value of Assets as of June 30, 2000	\$627,937,703
2. Employer and Employee Contributions	18,184,160
3. Benefits and Expenses	50,593,779
4. Expected Investment Income	48,963,571
5. Total Investment Income, Including Income from Securities Lending	(8,590,539)
6. Investment Gain/(Loss) for the Year Ended June 30, 2001 (5 - 4)	(57,554,110)

**B. Development of Actuarial Value of Assets as of June 30, 2001**

7. Expected Actuarial Value of Assets (1 + 2 - 3 + 4)	\$644,491,655
8. Investment Gain/(Loss) as of June 30, 2001 Recognized Current Year (25% of 6)	(14,388,528)
9. Investment Gain/(Loss) as of June 30, 2000 Recognized in Current Year	(5,458,557)
10. Investment Gain/(Loss) as of June 30, 1999 Recognized in Current Year	4,168,133
11. Investment Gain (Loss) as of June 30, 1998 Recognized in Current Year	11,584,281
12. One-fourth of difference between actuarial value of assets and market value of assets as of June 30, 1997	10,946,922
13. Actuarial Value of Assets as of June 30, 2001 (7+8+9+10+11+12)	<u>\$651,343,906</u>

**C. FUND PROVISIONS**

Our valuation was based on the provisions of the Fund in effect as of June 30, 2001 as provided in Article 12 of the Illinois Pension Code. A summary of the principal provisions of the Fund is provided in Appendix 2.

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## D. ACTUARIAL ASSUMPTIONS AND COST METHOD

The actuarial assumptions used for the June 30, 2001 actuarial valuation are the same as those used for the June 30, 2000 valuation. The actuarial assumptions used for the current valuation are outlined in Appendix I.

In our opinion, the actuarial assumptions used for the valuation are reasonable in the aggregate, taking into account fund experience and future expectations, and represent our best estimate of anticipated experience.

The entry age actuarial cost method was used for the valuation. This is the same actuarial cost method that has been used in previous valuations.

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## E. ACTUARIAL LIABILITY AND FUNDED STATUS

The actuarial liability as determined under the valuation for the various classes of members is summarized in Exhibit 3. The total actuarial liability is then compared with the actuarial value of assets in order to arrive at the unfunded actuarial liability. (The actuarial terms used in this report are defined in Appendix 3).

As of June 30, 2001, the total actuarial liability is \$673,429,603, the actuarial value of assets is \$651,343,906, and the unfunded actuarial liability is \$22,085,697. The ratio of the actuarial value of assets to the actuarial liability, or funded ratio, is 96.7%.

**Exhibit 3**

**Actuarial Liability and Funded Status**

	<i>Year Ending June 30</i>	
	<b>2001</b>	<b>2000</b>
1. Actuarial Liability For Members in Receipt of Benefits		
(a) Money purchase component of annuities to retirees	\$207,562,634	\$212,156,717
(b) Fixed benefit component of annuities to retirees	40,910,933	42,236,062
(c) Annual increases in retirement annuity	81,135,478	82,502,249
(d) Annual increases to employee annuitants	1,223,008	1,262,580
(e) Survivor annuities to survivors of current retirees	36,301,695	36,556,168
(f) Lump sum death benefits	2,896,401	2,939,233
(g) Survivor annuities to current survivors	63,520,966	59,933,000
(h) Total	\$433,551,115	\$437,586,009
2. Actuarial Liability For Active Members		
(a) Basic retirement annuity	\$156,663,047	\$140,583,680
(b) Annual increase in retirement annuity	37,572,271	33,513,011
(c) Pre-retirement survivor's annuity	4,354,665	3,958,885
(d) Post-retirement survivor's annuity	7,750,415	6,980,587
(e) Withdrawal benefits	6,922,253	6,954,058
(f) Pre-retirement death benefit	777,228	759,142
(g) Post-retirement death benefit	461,149	465,192
(h) Total	\$214,501,028	\$193,214,555
3. Actuarial Liability For Inactive Members	25,377,460	25,166,152
4. Total Actuarial Liability	\$673,429,603	\$655,966,716
5. Actuarial Value of Assets	651,343,906	627,937,703
6. Unfunded Actuarial Liability	\$ 22,085,697	\$ 28,029,013
7. Funded Ratio	96.7%	95.7%



## F. EMPLOYER'S NORMAL COST

The employer's share of the normal cost for the year beginning July 1, 2001 is developed in Exhibit 4. For the year beginning July 1, 2001, the total normal cost is determined to be \$14,104,467, employee contributions are estimated to be \$9,516,564, resulting in the employer's share of the normal cost of \$4,587,903.

Based on a payroll of \$105,739,601, the employer's share of the normal cost can be expressed as 4.34% of payroll.

### Exhibit 4

#### Employer's Normal Cost for Year Beginning July 1, 2001

1. Basic retirement annuity	\$ 7,370,271
2. Annual increase in retirement annuity	1,597,920
3. Pre-retirement survivor's annuity	281,786
4. Post-retirement survivor's annuity	406,696
5. Withdrawal benefits, including refunds	2,272,558
6. Pre-retirement death benefit	95,041
7. Post-retirement death benefit	37,871
8. Children's annuity	39,000
9. Ordinary disability benefit	590,674
10. Duty disability benefit	34,791
11. Administrative expenses	1,377,859
12. Total normal cost	\$ 14,104,467
13. Employee contributions	9,516,564
14. Employer's share of normal cost	\$ 4,587,903
15. Total payroll	\$105,739,601
16. Employer's share of normal cost as a percent of payroll	4.34%

## G. ACTUARIALLY DETERMINED CONTRIBUTION REQUIREMENT

GASB Statement No. 25 and 27 provide for annual employer contribution requirements determined on an actuarial basis. According to the GASB statements, the actuarially determined contribution requirement is equal to the employer's normal cost plus an amortization of the unfunded actuarial liability. For a period of 10 years, the maximum acceptable amortization period is 30 years. We have therefore calculated the actuarially determined employer contribution requirement for the fiscal year beginning July 1, 2001 as the employer's normal cost plus a 30-year level-dollar amortization of the unfunded actuarial liability. The results of our calculation are shown in Exhibit 5.

Employer contributions to the Fund come from a tax levied upon all taxable property in the City of Chicago. The amount of tax that is levied is 1.10 times the amount of employee contributions made 2 years previously. The 1.10 is known as the tax multiple.

As can be seen from Exhibit 5, for the fiscal year beginning July 1, 2001 the actuarially determined contribution requirement amounts to \$6,469,156. Based on the 1.10 tax multiple, and assuming a 5% loss in collections, we have estimated the employer contribution for the year beginning July 1, 2001 to be \$9,599,049. Thus, the employer contribution is expected to exceed the actuarially determined contribution requirement by \$3,129,893.

### Exhibit 5

#### Actuarially Determined Contribution Requirement For Year Beginning July 1, 2001

1. Employer's normal cost	\$4,587,903
2. Annual amount to amortize the unfunded liability over 30 years through annual level-dollar payments	1,881,253
3. Actuarially determined contribution requirement for year beginning July 1, 2001	\$6,469,156
4. Estimated employer contribution for the year	9,599,049
5. Amount by which employer contribution is expected to exceed actuarially determined contribution requirement	\$3,129,893

## H. ANNUAL REQUIRED CONTRIBUTION FOR GASB STATEMENT NO. 25

GASB Statement Number 25 requires the disclosure of the annual required employer contribution (ARC), calculated in accordance with certain parameters. Based on the results of the June 30, 2001 actuarial valuation, we have therefore calculated the annual required contribution for the fiscal year beginning July 1, 2001. In accordance with the parameters prescribed in GASB Statement No. 25, in calculating the annual required contribution, we have used adjusted market value for the actuarial value of assets and have used a 30-year level-dollar amortization of the unfunded liability. On this basis, the annual required contribution for Fiscal Year 2001 has been determined to be as follows:

1. Employer's normal cost	\$4,587,903
2. Annual amount to amortize the unfunded liability over 30 years through annual level-dollar payments	1,881,253
3. Annual required contribution	<u>\$6,469,156</u>

## I. ANALYSIS OF FINANCIAL EXPERIENCE

The net actuarial experience during the period July 1, 2000 to June 30, 2001 resulted in a decrease in the Fund's unfunded actuarial liability of \$5,943,316. This decrease in unfunded actuarial liability is a result of several kinds of gains and losses. The financial effect of the most significant gains and losses is illustrated in Exhibit 6.

The employer funding requirement for the year of normal cost plus interest on the unfunded actuarial liability amounted to \$6,197,004, whereas the actual employer contribution for the year is estimated to be \$9,206,851, resulting in a decrease in the unfunded liability of \$3,009,847.

The net rate of investment return earned by the assets of the Fund, based on the actuarial value of assets was 9.1% in comparison with the assumed rate of investment return of 8.0%. This resulted in a decrease in the unfunded liability of \$6,852,000. Salaries increased at an average rate of 7.2% per year in comparison with an assumed rate of 5.0%, resulting in an increase in the unfunded liability of \$4,619,000.

The various aspects of the Fund's experience resulted in a net decrease in the unfunded actuarial liability of \$700,469. The aggregate financial experience of the Fund resulted in a net decrease in the unfunded actuarial liability of \$5,943,316.

**Exhibit 6**

**Analysis of Financial Experience  
Over the Period July 1, 2000 to June 30, 2001**

1. Unfunded actuarial liability as of 7/1/00	\$28,029,013
2. Employer contributions requirement of normal cost plus interest on unfunded liability for period 7/1/00 to 6/30/01	6,197,004
3. Actual employer contribution for the year	<u>9,206,851</u>
4. Decrease in unfunded liability due to employer contribution greater than normal cost plus interest on unfunded liability (3 - 2)	3,009,847
5. Decrease in unfunded liability due to investment return higher than assumed	6,852,000
6. Increase in unfunded liability due to salary increases higher than assumed	4,619,000
7. Decrease in unfunded liability due to other sources	<u>700,469</u>
8. Net decrease in unfunded liability for the year (4 + 5 - 6 + 7)	<u>\$ 5,943,316</u>
9. Unfunded actuarial liability as of June 30, 2001 (1 + 8)	<u><u>\$22,085,697</u></u>



# Appendix 1

## Summary of Actuarial Assumptions and Actuarial Cost Method

**Actuarial Assumptions.** The actuarial assumptions used for the June 30, 2001 valuation are summarized below. These assumptions were adopted as of June 30, 2001.

**Mortality Rates.** The UP-1994 Mortality Table was used for the valuation.

**Termination Rates.** Termination rates based on the recent experience of the Fund were used. The following is a sample of the termination rates that were used:

<i>Age</i>	<i>Rate of Termination Per 1,000 Members</i>
20	221
25	148
30	103
35	73
40	44
45	28
50	12
55 and later	0

**Retirement Rates.** Rates of retirement for each age from 50 to 75 based on the recent experience of the Fund were used. The following are samples of the rates of retirement that were used.

<i>Age</i>	<i>Rate of Retirement Per 1,000 Members</i>
50	100
55	110
60	200
65	300
70	350
75	1,000

**Salary Progression.** 5.0% per year, compounded annually.

**Interest Rate.** 8.0% per year, compounded annually.

**Marital Status.** 75% of participants were assumed to be married.

**Spouse's Age.** The age of the spouse was assumed to be 2 years younger than that of the employee.

**Actuarial Value of Assets.** The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 4 years. In addition, the difference between the June 30, 1997 actuarial value of assets and market value of assets is to being recognized over a four-year period.

**Actuarial Cost Method.** The entry age actuarial cost method was used, with costs allocated on the basis of earnings.

# Appendix 2

## Summary of Principal Provisions

**1. Membership.** Any person employed by the Chicago Park District in a position requiring service for 6 months or more in a calendar year is required to become a member of the Fund as a condition of employment.

**2. Employee Contributions.** All members of the Fund are required to contribute 9% of salary to the Fund as follows:

- 7% for the retirement pension
- 1% for the spouse's pension
- 1% for the automatic increases in the retirement pension

In addition, employees are required to contribute \$3.60 per month toward the cost of the single sum death benefit.

**3. Retirement Pension-Eligibility.** An employee may retire at age 50 with at least 10 years of service or at age 60 with 4 years of service.

If retirement occurs before age 60, the retirement pension is reduced 1/4 of 1% for each month that the age of the member is below 60. However, there is no reduction if the employee has at least 30 years of service.

**4. Retirement Pension-Amount.** The retirement pension is based on the average of the 4 highest consecutive years of salary within the last 10 years, at the following rates.

- 1.9% for each of the first 10 years of service; plus
- 2.2% for each of the next 10 years of service; plus
- 2.4% for each of the next 10 years of service; plus
- 2.8% for each year of service over 30

The maximum pension payable is 80% of average annual salary.

An employee who was a participant before July 1, 1971 is entitled to the pension provided under the money purchase formula if it provides a greater pension than that provided under the above fixed benefit formula.

**5. Post-Retirement Increase In Retirement Pension.** An employee retiring at age 60 or over, or an employee with 30 or more years of service, is entitled to automatic annual increases of 3% of the originally granted pension following 1 year's receipt of pension payments. In the case of an employee with less than 30 years service who retires before age 60, the increases begin following the later of attainment of age 60 and receipt of 1 year's pension payments.

**6. Surviving Spouse's Pension.** A surviving spouse is entitled to a pension upon the death of an employee while in service or on retirement. If the surviving spouse is age 60 or over and the employee or pensioner had at least 20 years of service, the minimum surviving spouse's pension is 50% of the deceased employee's or retired employee's pension at the date of death. If the age of the surviving spouse is less than 60, the pension is reduced 1/2 of 1% for each month the surviving spouse is under age 60. If the employee had less than 20 years of service, the surviving spouse is entitled to a pension under the money purchase formula, taking into account employee and employer contributions toward the surviving spouse's pension.

Surviving spouse's pensions are subject to annual automatic increases of 3% per year based on the current amount of pension.

**7. Children's Pension.** Unmarried children of a deceased employee under the age of 18 are entitled to a children's pension. If either parent is living, the pension is \$100.00 per month. If no parent survives, the pension for each child is \$150.00 per month. The total amount payable to a spouse or children may not exceed 60% of the employer's final salary.

**8. Single Sum Death Benefit.** Single Sum Death Benefit. A death benefit is payable upon the death of an employee in service in addition to any other benefits payable to the surviving spouse or minor children. The death benefit payable is as follows:

- \$3,000 benefit during the 1st year of service,
- \$4,000 benefit during the 2nd year of service,
- \$5,000 benefit during the 3rd year of service,
- \$6,000 benefit during the 4th through 10th year of service,
- \$10,000 benefit if death occurs after 10 or more years of service.

Upon the death of a retired member with 10 or more years of service, the \$10,000 maximum benefit is reduced to \$6,000 if death occurs during the first year of retirement. Thereafter, it is reduced by \$1,500 for each year or fraction of a year while on retirement, but shall not be less than \$3,000.

**9. Ordinary Disability Benefit.** An ordinary disability benefit is payable after 8 consecutive days of absence for illness without pay. The amount of the benefit is 45% of salary. The benefit is payable for a period not to exceed 1/4 of the length of service or 5 years, whichever is less.

**10. Occupational Disability Benefit.** Upon disability resulting from an injury incurred while on duty, an employee is entitled to a disability benefit of 75% of salary from the first day of absence without pay. The benefit is payable during the period of disability until the employee attains age 65, if disability is incurred before age 60, or for a period of 5 years if disability is incurred after age 60.



**11. Occupational Death Benefit.** Upon the death of an employee resulting from an accident incurred in the performance of duty, the surviving spouse is entitled to an occupational death benefit of 50% of salary. Each unmarried child under the age of 18 is entitled to a benefit of \$100 per month. The combined payments to a family may not exceed 75% of the employee's final salary. The total payments are reduced by Workmen's Compensation benefits.

**12. Refunds.** An employee who terminates employment before qualifying for a pension is entitled to a refund of employee contributions. The refund is payable to any employee who withdraws before age 55, regardless of the length of service. It is also payable to an employee who withdraws between age 55 and 60 with less than 10 years of service, and to an employee who withdraws after age 60 with less than 5 years of service.

An employee who is unmarried at date of retirement is entitled to a refund of the full amount contributed for the spouse's pension, without interest.

# Appendix 3

## Glossary of Terms Used in Report

1. **Actuarial Present Value.** The value of an amount or series of amounts payable at various times, determined as of given date by the application of a particular set of actuarial assumptions.
2. **Actuarial Cost Method or Funding Method.** A procedure for determining the actuarial present value of pension plan benefits and for determining an actuarially equivalent allocation of such value to time periods, usually in the form of a normal cost and an actuarial accrued liability.
3. **Normal Cost.** That portion of the present value of pension plan benefits which is allocated to a valuation year by the actuarial costs method
4. **Actuarial Accrued Liability or Accrued Liability.** That portion, as determined by a particular actuarial cost method, of the actuarial present value of pension benefits which is not provided for by future normal costs.
5. **Actuarial Value of Assets.** The value assigned by the actuary to the assets of the pension plan for purposes of an actuarial valuation.
6. **Unfunded Actuarial Liability.** The excess of the actuarial liability over the actuarial value of assets
7. **Entry Age Actuarial Cost Method.** A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of an individual between entry age and assumed exit age. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided at a valuation date by the actuarial present value of future normal costs are called the actuarial liability.
8. **Actuarial Assumptions.** Assumptions as to future events affecting pension costs.
9. **Actuarial Valuation.** The determination, as of the valuation date, of the normal cost, actuarial liability, actuarial value of assets, and related actuarial present values for a pension plan
10. **Accrued Benefit or Accumulated Plan Benefits.** The amount of an individual's benefit as of a specific date determined in accordance with the terms of a pension plan and based on compensation and service to that date.
11. **Vested Benefits.** Benefits that are not contingent on an employee's future service.

# Tables

TABLE I

Schedule of Active Member  
Valuation Data

Valuation Date	Number	Active Members		
		Annual Payroll	Annual Average Pay	% Increase In Average Pay
06/30/94	4,536	\$120,590,135	\$26,585	5.1
06/30/95	3,768	104,639,001	27,770	4.5
06/30/96	3,850	98,205,215	25,508	(8.1)
06/30/97	3,993	112,575,449	28,193	10.5
06/30/98	4,260	116,765,182	27,410	(2.8)
06/30/99	3,595	94,254,767	26,218	(4.3)
06/30/00	3,639	101,267,759	27,828	6.1
06/30/01	3,395	105,739,601	31,146	11.0

TABLE II

Schedule of Retirees and  
Beneficiaries Added to and  
Removed from Rolls

Year Ended	Added to Rolls		Removed from Rolls		Rolls-End-of Year		% Increase	
	Number	Annual Benefits	Number	Annual Benefits	Number	Annual Benefits	Average Annual Benefit	in Average Annual Benefit
1994	361	\$5,376,936	329	\$3,797,561	3,009	\$31,107,174	\$10,338	5.2
1995	236	2,784,759	157	439,427	3,088	33,452,506	10,833	4.8
1996	307	5,407,980	192	790,911	3,203	38,069,575	11,886	9.7
1997	132	1,309,596	163	532,749	3,172	38,846,422	12,247	3.0
1998	132	1,335,037	157	652,559	3,147	39,528,900	12,561	2.6
1999	310	5,741,244	206	762,966	3,251	44,507,178	13,690	9.0
2000	126	1,390,498	170	595,198	3,207	45,302,488	14,126	3.2
2001	140	1,638,676	191	1,527,484	3,156	45,413,680	14,390	1.9

TABLE III

Solvency Test

Fiscal Year Ended	ACCRUED LIABILITIES FOR					Percent of Accrued Liabilities Covered by Assets		
	(1)	(2)	(3)	Actuarial Value of Assets	Percent of Accrued Liabilities Covered by Assets	(1)	(2)	(3)
	Active Members	Members	Active and					
	Accumulated Contributions	Currently Receiving Benefits	Inactive Member Employer Portion					
1994	\$116,828,274	\$283,917,541	\$101,596,552	\$401,768,853	100	100	100	1
1995	114,171,180	304,236,920	87,917,142	417,063,903	100	100	100	0
1996	119,624,003	351,498,105	54,246,822	444,419,488	100	92	100	0
1997	127,359,649	358,081,483	64,120,292	513,807,362	100	100	100	44
1998	133,340,241	356,995,275	75,246,803	549,728,274	100	100	100	79
1999	122,692,192	415,269,765	72,565,670	592,283,760	100	100	100	75
2000	113,292,867	437,586,009	105,087,840	627,937,703	100	100	100	73
2001	119,126,713	433,551,115	120,751,775	651,343,906	100	100	100	82

PARK EMPLOYEES' ANNUITY  
AND BENEFIT FUND OF CHICAGO

ACTUARIAL VALUATION  
AS OF JUNE 30, 2002

**GOLDSTEIN & ASSOCIATES**  
*Actuaries and Consultants*

29 SOUTH LaSALLE STREET SUITE 735  
CHICAGO, ILLINOIS 60603  
PHONE (312) 726-5877 FAX (312) 726-4323

December 13, 2002

The Trustees of the Retirement  
Board of the Park Employees'  
Annuity and Benefit Fund of Chicago  
55 East Monroe Street  
Suite 2880  
Chicago, Illinois 60603

Re: **Actuarial Valuation as of June 30, 2002**

Dear Board Members:

I am pleased to submit our actuarial report on the financial position and funding requirements of the Park Employees' Annuity and Benefit Fund of Chicago as of June 30, 2002.

The report consists of 10 sections and 3 appendices as follows:

	<u>Page No.</u>
Section A - Purpose and Summary	1
Section B - Data Used For Valuation	1
Section C - Fund Provisions	4
Section D - Actuarial Assumptions and Cost Method	4
Section E - Actuarial Liability and Funded Status	5
Section F - Employer's Normal Cost	7
Section G - Actuarially Determined Contribution Requirement	8
Section H - Annual Required Contribution For GASB Statement No. 25	9
Section I - Analysis of Financial Experience	10
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Appendix 2 - Summary of Principal Provisions	15
Appendix 3 - Glossary of Terms	18

I would be pleased to discuss any aspects of this report with you at your convenience.

Respectfully submitted,



Sandor Goldstein, F.S.A.  
Consulting Actuary

## **A. PURPOSE AND SUMMARY**

We have carried out an actuarial valuation of the Park Employees' Annuity and Benefit Fund as of June 30, 2002. The purpose of the valuation was to determine the financial position and funding requirements of the pension fund. This report is intended to present the results of the valuation.

The results of the valuation are summarized below:

1.	Total actuarial liability	\$ 678,207,973
2.	Actuarial value of assets	637,749,858
3.	Unfunded actuarial liability	40,458,115
4.	Funded ratio	94.0%
5.	Actuarially determined contribution requirement for fiscal year beginning July 1, 2002	\$ 7,546,740
6.	Estimated employer contributions for fiscal year beginning July 1, 2002	\$ 9,622,536
7.	Annual required contribution for fiscal year beginning July 1, 2002 under GASB Statement No. 25	\$ 7,546,740

## **B. DATA USED FOR THE VALUATION**

Participant Data. The participant data required to carry out the valuation was supplied by the fund. The membership of the fund as of June 30, 2002, on which the valuation was based, is summarized in Exhibit 1. It can be seen that there were 3,422 active members, 2,148 pensioners, 945 surviving spouses, and 34 children receiving benefits included in the valuation. The total active payroll as of June 30, 2002 was \$103,786,911.



Exhibit 1

Summary of Membership Data

1. Number of Members	
(a) Active Members	
(i) Vested	1,206
(ii) Non-vested	2,216
(b) Members Receiving	
(i) Retirement Pensions	2,148
(ii) Surviving Spouse's Pensions	945
(iii) Children's Annuities	34
2. Annual Salaries	
(a) Total Salary	\$ 103,786,911
(b) Average Salary	30,329
3. Annual Pension Payments	
(a) Retirement Pensions	\$ 38,702,775
(b) Surviving Spouse's Pensions	7,814,938
(c) Children's Annuities	40,800

Assets. In November of 1994, the Governmental Accounting Standards Board (GASB) issued GASB Statement No. 25 which establishes standards of financial reporting for governmental pension plans. The statement is effective for periods beginning after June 15, 1996

Under GASB Statement No. 25, the actuarial value of assets to be used for determining a plan's funded status and annual required contributions needs to be **market related**. However, GASB has indicated that current market values should not be used if those values would result in unnecessary fluctuation in the funded status and the annual required contribution. Thus, in determining the actuarial value of assets, smoothing changes in the market value of assets over a period of three to five years is considered appropriate.

The asset values used for the valuation were based on the asset information contained in the statement of assets as of June 30, 2002 prepared by the fund. The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 4 years. The resulting actuarial value of assets is \$637,749,858. The development of this value is outlined in Exhibit 2.

## Exhibit 2

### Actuarial Value of Assets

#### A. Development of Investment Gain

1. Actuarial Value of Assets as of June 30, 2002	\$ 651,343,906
2. Employer and Employee Contributions	19,170,641
3. Benefits and Expenses	50,549,192
4. Expected Investment Income	50,876,517
5. Total Investment Income, Including Income from Securities Lending	(18,775,731)
6. Investment Gain/(Loss) for the Year Ended June 30, 2002 (5 – 4)	(69,652,248)

#### B. Development of Actuarial Value of Assets as of June 30, 2002

7. Expected Actuarial Value of Assets (1 + 2 – 3 + 4)	\$ 670,841,872
8. Investment Gain/(Loss) as of June 30, 2002 Recognized in Current Year (25% of 6)	(17,413,062)
9. Investment Gain/(Loss) as of June 30, 2001 Recognized in Current Year	(14,388,528)
10. Investment Gain/(Loss) as of June 30, 2000 Recognized in Current Year	( 5,458,557)
11. Investment Gain/(Loss) as of June 30, 1999 Recognized in Current Year	4,168,133
12. Actuarial Value of Assets as of June 30, 2002 (7 + 8 + 9 + 10 + 11)	<u>\$ 637,749,858</u>

**C. FUND PROVISIONS**

Our valuation was based on the provisions of the fund in effect as of June 30, 2002 as provided in Article 12 of the Illinois Pension Code. A summary of the principal provisions of the fund is provided in Appendix 2.

**D. ACTUARIAL ASSUMPTIONS AND COST METHOD**

The actuarial assumptions used for the June 30, 2002 actuarial valuation are the same as those used for the June 30, 2001 valuation. The actuarial assumptions used for the current valuation are outlined in Appendix 1.

In our opinion, the actuarial assumptions used for the valuation are reasonable in the aggregate, taking into account fund experience and future expectations, and represent our best estimate of anticipated experience.

The entry age actuarial cost method was used for the valuation. This is the same actuarial cost method that has been used in previous valuations.

#### **E. ACTUARIAL LIABILITY AND FUNDED STATUS**

The actuarial liability as determined under the valuation for the various classes of members is summarized in Exhibit 3. The total actuarial liability is then compared with the actuarial value of assets in order to arrive at the unfunded actuarial liability. (The actuarial terms used in this report are defined in Appendix 3.)

As of June 30, 2002, the total actuarial liability is \$678,207,973, the actuarial value of assets is \$637,749,858, and the unfunded actuarial liability is \$40,458,115. The ratio of the actuarial value of assets to the actuarial liability, or funded ratio, is 94.0%.



Exhibit 3

Actuarial Liability and Funded Status

	Year Ending June 30	
	<u>2002</u>	<u>2001</u>
1. Actuarial Liability For Members in Receipt of Benefits		
(a) Money purchase component of annuities to retirees	\$ 204,978,696	\$ 207,562,634
(b) Fixed benefit component of annuities to retirees	39,992,903	40,910,933
(c) Annual increases in retirement annuity	87,703,354	81,135,478
(d) Annual increases to employee annuitants	1,260,060	1,223,008
(e) Survivor annuities to survivors of current retirees	35,010,675	36,301,695
(f) Lump sum death benefits	2,870,241	2,896,401
(g) Survivor annuities to current survivors	<u>64,872,530</u>	<u>63,520,966</u>
(h) Total	\$ 436,688,459	\$ 433,551,115
2. Actuarial Liability For Active Members		
(a) Basic retirement annuity	\$ 160,660,364	\$ 156,663,047
(b) Annual increase in retirement annuity	38,712,569	37,572,271
(c) Pre-retirement survivor's annuity	4,430,740	4,354,665
(d) Post-retirement survivor's annuity	7,972,483	7,750,415
(e) Withdrawal benefits	6,565,963	6,922,253
(f) Pre-retirement death benefit	806,735	777,228
(g) Post-retirement death benefit	<u>474,109</u>	<u>461,149</u>
(h) Total	\$ 219,622,963	\$ 214,501,028
3. Actuarial Liability For Inactive Members	<u>21,896,551</u>	<u>25,377,460</u>
4. Total Actuarial Liability	<u>\$ 678,207,973</u>	<u>\$ 673,429,603</u>
5. Actuarial Value of Assets	<u>637,749,858</u>	<u>651,343,906</u>
6. Unfunded Actuarial Liability	<u>\$ 40,458,115</u>	<u>\$ 22,085,697</u>
7. Funded Ratio	94.0%	96.7%

## F. EMPLOYER'S NORMAL COST

The employer's share of the normal cost for the year beginning July 1, 2002 is developed in Exhibit

4. For the year beginning July 1, 2002, the total normal cost is determined to be \$13,441,352, employee contributions are estimated to be \$9,340,822, resulting in the employer's share of the normal cost of \$4,100,530.

Based on a payroll of \$103,786,911, the employer's share of the normal cost can be expressed as 3.95% of payroll.

### Exhibit 4

#### Employer's Normal Cost For Year Beginning July 1, 2002

1. Basic retirement annuity	\$ 7,202,074
2. Annual increase in retirement annuity	1,563,242
3. Pre-retirement survivor's annuity	275,244
4. Post-retirement survivor's annuity	396,565
5. Withdrawal benefits, including refunds	2,228,860
6. Pre-retirement death benefit	94,446
7. Post-retirement death benefit	39,557
8. Children's annuity	40,800
9. Ordinary disability benefit	369,060
10. Duty disability benefit	52,738
11. Administrative expenses	<u>1,178,766</u>
12. Total normal cost	\$ 13,441,352
13. Employee contributions	<u>9,340,822</u>
14. Employer's share of normal cost	<u>\$ 4,100,530</u>
15. Total payroll	\$ 103,786,911
16. Employer's share of normal cost as a percent of payroll	3.95%



#### **G. ACTUARIALLY DETERMINED CONTRIBUTION REQUIREMENT**

GASB Statements No. 25 and 27 provide for annual employer contribution requirements determined on an actuarial basis. According to the GASB statements, the actuarially determined contribution requirement is equal to the employer's normal cost plus an amortization of the unfunded actuarial liability. For a period of 10 years, the maximum acceptable amortization period is 40 years. After the 10-year period, the maximum acceptable amortization period is 30 years. We have therefore calculated the actuarially determined employer contribution requirement for the fiscal year beginning July 1, 2002 as the employer's normal cost plus a 30-year level-dollar amortization of the unfunded actuarial liability. The results of our calculation are shown in Exhibit 5.

Employer contributions to the fund come from a tax levied upon all taxable property in the City of Chicago. The amount of tax that is levied is 1.10 times the amount of employee contributions made 2 years previously. The 1.10 is known as the tax multiple.

As can be seen from Exhibit 5, for the fiscal year beginning July 1, 2002, the actuarially determined contribution requirement amounts to \$7,546,740. Based on the 1.10 tax multiple, and assuming a 5% loss in collections, we have estimated the employer contribution for the year beginning July 1, 2002 to be \$9,622,536. Thus, the employer contribution is expected to exceed the actuarially determined contribution requirement by \$2,075,796.

### Exhibit 5

#### Actuarially Determined Contribution Requirement For Year Beginning July 1, 2002

1. Employer's normal cost	\$ 4,100,530
2. Annual amount to amortize the unfunded liability over 30 years through annual level-dollar payments	<u>3,446,210</u>
3. Actuarially determined contribution requirement for year beginning July 1, 2002	\$ 7,546,740
4. Estimated employer contribution for the year	<u>9,622,536</u>
5. Amount by which employer contribution is expected to exceed actuarially determined contribution requirement	<u>\$ 2,075,796</u>

#### **H. ANNUAL REQUIRED CONTRIBUTION FOR GASB STATEMENT NO. 25**

GASB Statement No. 25 requires the disclosure of the annual required employer contribution (ARC), calculated in accordance with certain parameters. Based on the results of the June 30, 2002 actuarial valuation, we have therefore calculated the annual required contribution for the fiscal year beginning July 1, 2002. In accordance with the parameters prescribed in GASB Statement No. 25, in calculating the annual required contribution, we have used adjusted market value for the actuarial value of assets and have used a 30-year level-dollar amortization of the unfunded liability. On this basis, the annual required contribution for Fiscal Year 2003 has been determined to be as follows:

1. Employer's normal cost	\$ 4,100,530
2. Annual amount to amortize the unfunded liability over 30 years through annual level-dollar payments	<u>3,446,210</u>
3. Annual required contribution	<u>\$ 7,546,740</u>

## **I. ANALYSIS OF FINANCIAL EXPERIENCE**

The net actuarial experience during the period July 1, 2001 to June 30, 2002 resulted in an increase in the fund's unfunded actuarial liability of \$18,372,418. This increase in unfunded actuarial liability is a result of several kinds of gains and losses. The financial effect of the most significant gains and losses is illustrated in Exhibit 6.

The employer funding requirement for the year of normal cost plus interest on the unfunded actuarial liability amounted to \$6,288,061, whereas the actual employer contribution for the year is estimated to be \$9,897,372, resulting in a decrease in the unfunded liability of \$3,609,311.

The net rate of investment return earned by the assets of the fund, based on the actuarial value of assets, was 2.8% in comparison with the assumed rate of investment return of 8.0%. This resulted in an increase in the unfunded liability of \$33,092,000. Salaries increases lower than expected resulted in a decrease in the unfunded liability of \$14,263,000.

The various other aspects of the fund's experience resulted in a net increase in the unfunded actuarial liability of \$3,152,729. The aggregate financial experience of the fund resulted in a net increase in the unfunded actuarial liability of \$18,372,418.



Exhibit 6

Analysis of Financial Experience  
Over the Period July 1, 2001 to June 30, 2002

1. Unfunded actuarial liability as of 7/1/01	\$ 22,085,697
2. Employer contributions requirement of normal cost plus interest on unfunded liability for period 7/1/01 to 6/30/02	6,288,061
3. Actual employer contribution for the year	<u>9,897,372</u>
4. Decrease in unfunded liability due to employer contribution greater than normal cost plus interest on unfunded liability (3 - 2)	3,609,311
5. Increase in unfunded liability due to investment return lower than assumed	33,092,000
6. Decrease in unfunded liability due to salary increases lower than assumed	14,263,000
7. Increase in unfunded liability due to other sources	<u>3,152,729</u>
8. Net increase in unfunded liability for the year (5 - 4 - 6 + 7)	<u>\$ 18,372,418</u>
9. Unfunded actuarial liability as of June 30, 2002 (1 + 8)	<u><u>\$ 40,458,115</u></u>

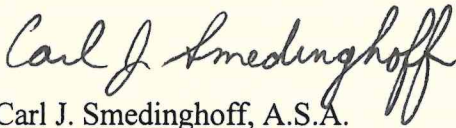
**J. CERTIFICATION**

This actuarial report has been prepared in accordance with generally accepted actuarial principles and practices and to the best of our knowledge, fairly represents the financial condition of the Park Employees' Annuity and Benefit Fund as of June 30, 2002.

Respectfully submitted,



Sandor Goldstein, F.S.A.  
Consulting Actuary



Carl J. Smedinghoff, A.S.A.  
Associate Actuary

## Appendix 1

### Summary of Actuarial Assumptions and Actuarial Cost Method

#### Actuarial Assumptions

The actuarial assumptions used for the June 30, 2002 valuation are summarized below. These assumptions were adopted as of June 30, 2002.

Mortality Rates. The UP-1994 Mortality Table was used for the valuation.

Termination Rates. Termination rates based on the recent experience of the fund were used. The following is a sample of the termination rates that were used:

<u>Age</u>	<u>Rate of Termination Per 1,000 Members</u>
20	221
25	148
30	103
35	73
40	44
45	28
50	12
55 and later	0

Retirement Rates. Rates of retirement for each age from 50 to 75 based on the recent experience of the fund were used. The following are samples of the rates of retirement that were used:

<u>Age</u>	<u>Rate of Retirement Per 1,000 Members</u>
50	100
55	110
60	200
65	300
70	350
75	1,000

Salary Progression. - 5.0% per year, compounded annually.

Interest Rate. - 8.0% per year, compounded annually.



Marital Status. 75% of participants were assumed to be married.

Spouse's Age. The age of the spouse was assumed to be 2 years younger than that of the employee.

Actuarial Value of Assets

The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 4 years. In addition, the difference between the June 30, 1997 actuarial value of assets and market value of assets is to being recognized over a four-year period.

Actuarial Cost Method.

The entry age actuarial cost method was used, with costs allocated on the basis of earnings.

## Appendix 2

### Summary of Principal Provisions

1. Membership. Any person employed by the Chicago Park District in a position requiring service for 6 months or more in a calendar year is required to become a member of the fund as a condition of employment.

2. Employee Contributions. All members of the fund are required to contribute 9% of salary to the fund as follows:

- 7% for the retirement pension
- 1% for the spouse's pension
- 1% for the automatic increases in the retirement pension

In addition, employees are required to contribute \$3.60 per month toward the cost of the single sum death benefit.

3. Retirement Pension-Eligibility. An employee may retire at age 50 with at least 10 years of service or at age 60 with 4 years of service.

If retirement occurs before age 60, the retirement pension is reduced 1/4 of 1% for each month that the age of the member is below 60. However, there is no reduction if the employee has at least 30 years of service.

4. Retirement Pension-Amount. The retirement pension is based on the average of the 4 highest consecutive years of salary within the last 10 years, at the following rates:

- 1.9% for each of the first 10 years of service; plus
- 2.2% for each of the next 10 years of service; plus
- 2.4% for each of the next 10 years of service; plus
- 2.8% for each year of service over 30.

The maximum pension payable is 80% of average annual salary.

An employee who was a participant before July 1, 1971 is entitled to the pension provided under the money purchase formula if it provides a greater pension than that provided under the above fixed benefit formula.

5. Post-Retirement Increase In Retirement Pension. An employee retiring at age 60 or over, or an employee with 30 or more years of service, is entitled to automatic annual increases of 3% of the originally granted pension following 1 year's receipt of pension payments. In the case of an



employee with less than 30 years service who retires before age 60, the increases begin following the later of attainment of age 60 and receipt of 1 year's pension payments.

6. Surviving Spouse's Pension. A surviving spouse is entitled to a pension upon the death of an employee while in service or on retirement. If the surviving spouse is age 60 or over and the employee or pensioner had at least 20 years of service, the minimum surviving spouse's pension is 50% of the deceased employee's or retired employee's pension at the date of death. If the age of the surviving spouse is less than 60, the pension is reduced 1/2 of 1% for each month the surviving spouse is under age 60. If the employee had less than 20 years of service, the surviving spouse is entitled to a pension under the money purchase formula, taking into account employee and employer contributions toward the surviving spouse's pension.

Surviving spouse's pensions are subject to annual automatic increases of 3% per year based on the current amount of pension.

7. Children's Pension. Unmarried children of a deceased employee under the age of 18 are entitled to a children's pension. If either parent is living, the pension is \$100.00 per month. If no parent survives, the pension for each child is \$150.00 per month. The total amount payable to a spouse or children may not exceed 60% of the employer's final salary.

8. Single Sum Death Benefit. A death benefit is payable upon the death of an employee in service in addition to any other benefits payable to the surviving spouse or minor children. The death benefit payable is as follows:

- \$3,000 benefit during the 1st year of service,
- \$4,000 benefit during the 2nd year of service,
- \$5,000 benefit during the 3rd year of service,
- \$6,000 benefit during the 4th through 10th year of service,
- \$10,000 benefit if death occurs after 10 or more years of service.

Upon the death of a retired member with 10 or more years of service, the \$10,000 maximum benefit is reduced to \$6,000 if death occurs during the first year of retirement. Thereafter, it is reduced by \$1,500 for each year or fraction of a year while on retirement, but shall not be less than \$3,000.

9. Ordinary Disability Benefit. An ordinary disability benefit is payable after 8 consecutive days of absence for illness without pay. The amount of the benefit is 45% of salary. The benefit is payable for a period not to exceed 1/4 of the length of service or 5 years, whichever is less.

10. Occupational Disability Benefit. Upon disability resulting from an injury incurred while on duty, an employee is entitled to a disability benefit of 75% of salary from the first day of absence without pay. The benefit is payable during the period of disability until the employee attains age 65, if disability is incurred before age 60, or for a period of 5 years if disability is incurred after age 60.

11. Occupational Death Benefit. Upon the death of an employee resulting from an accident incurred in the performance of duty, the surviving spouse is entitled to an occupational death benefit of 50% of salary. Each unmarried child under the age of 18 is entitled to a benefit of \$100 per month. The combined payments to a family may not exceed 75% of the employee's final salary. The total payments are reduced by Workmen's Compensation benefits.

12. Refunds. An employee who terminates employment before qualifying for a pension is entitled to a refund of employee contributions. The refund is payable to any employee who withdraws before age 55, regardless of the length of service. It is also payable to an employee who withdraws between age 55 and 60 with less than 10 years of service, and to an employee who withdraws after age 60 with less than 5 years of service.

An employee who is unmarried at date of retirement is entitled to a refund of the full amount contributed for the spouse's pension, without interest.



### Appendix 3

#### Glossary of Terms used in Report

1. Actuarial Present Value. The value of an amount or series of amounts payable at various times, determined as of a given date by the application of a particular set of actuarial assumptions.
2. Actuarial Cost Method or Funding Method. A procedure for determining the actuarial present value of pension plan benefits and for determining an actuarially equivalent allocation of such value to time periods, usually in the form of a normal cost and an actuarial accrued liability.
3. Normal Cost. That portion of the present value of pension plan benefits which is allocated to a valuation year by the actuarial costs method.
4. Actuarial Accrued Liability or Accrued Liability. That portion, as determined by a particular actuarial cost method, of the actuarial present value of pension benefits which is not provided for by future normal costs.
5. Actuarial Value of Assets. The value assigned by the actuary to the assets of the pension plan for purposes of an actuarial valuation.
6. Unfunded Actuarial Liability. The excess of the actuarial liability over the actuarial value of assets.
7. Entry Age Actuarial Cost Method. A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of an individual between entry age and assumed exit age. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided at a valuation date by the actuarial present value of future normal costs is called the actuarial liability.
8. Actuarial Assumptions. Assumptions as to future events affecting pension costs.
9. Actuarial Valuation. The determination, as of the valuation date, of the normal cost, actuarial liability, actuarial value of assets, and related actuarial present values for a pension plan.
10. Accrued Benefit or Accumulated Plan Benefits. The amount of an individual's benefit as of a specific date determined in accordance with the terms of a pension plan and based on compensation and service to that date.
11. Vested Benefits. Benefits that are not contingent on an employee's future service.

PARK EMPLOYEES' ANNUITY  
AND BENEFIT FUND OF CHICAGO

ACTUARIAL VALUATION  
AS OF JUNE 30, 2003



**GOLDSTEIN & ASSOCIATES**  
*Actuaries and Consultants*

29 SOUTH LaSALLE STREET SUITE 735  
CHICAGO, ILLINOIS 60603  
PHONE (312) 726-5877 FAX (312) 726-4323

December 4, 2003

The Trustees of the Retirement  
Board of the Park Employees'  
Annuity and Benefit Fund of Chicago  
55 East Monroe Street  
Suite 2880  
Chicago, Illinois 60603

Re: **Actuarial Valuation as of June 30, 2003**

Dear Board Members:

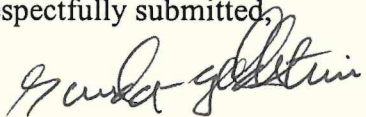
I am pleased to submit our actuarial report on the financial position and funding requirements of the Park Employees' Annuity and Benefit Fund of Chicago as of June 30, 2003.

The report consists of 10 sections and 3 appendices as follows:

	<u>Page No.</u>
Section A - Purpose and Summary	1
Section B - Data Used For Valuation	1
Section C - Fund Provisions	4
Section D - Actuarial Assumptions and Cost Method	4
Section E - Actuarial Liability and Funded Status	5
Section F - Employer's Normal Cost	7
Section G - Actuarially Determined Contribution Requirement	8
Section H - Annual Required Contribution For GASB Statement No. 25	9
Section I - Analysis of Financial Experience	10
Section J - Certification	12
Appendix 1 - Summary of Actuarial Assumptions	13
Appendix 2 - Summary of Principal Provisions	15
Appendix 3 - Glossary of Terms	18

I would be pleased to discuss any aspects of this report with you at your convenience.

Respectfully submitted,



Sandor Goldstein, F.S.A.  
Consulting Actuary

#### A. PURPOSE AND SUMMARY

We have carried out an actuarial valuation of the Park Employees' Annuity and Benefit Fund as of June 30, 2003. The purpose of the valuation was to determine the financial position and funding requirements of the pension fund. This report is intended to present the results of the valuation.

The results of the valuation are summarized below:

1.	Total actuarial liability	\$ 701,208,927
2.	Actuarial value of assets	624,209,658
3.	Unfunded actuarial liability	76,999,269
4.	Funded ratio	89.0%
5.	Actuarially determined contribution requirement for fiscal year beginning July 1, 2003	\$ 8,203,656
6.	Estimated employer contributions for fiscal year beginning July 1, 2003	\$ 9,341,260
7.	Annual required contribution for fiscal year beginning July 1, 2003 under GASB Statement No. 25	\$ 8,203,656

#### B. DATA USED FOR THE VALUATION

Participant Data. The participant data required to carry out the valuation was supplied by the fund. The membership of the fund as of June 30, 2003, on which the valuation was based, is summarized in Exhibit 1. It can be seen that there were 3,179 active members, 2,104 pensioners, 936 surviving spouses, and 34 children receiving benefits included in the valuation. The total active payroll as of June 30, 2003 was \$102,329,721.

Exhibit 1

Summary of Membership Data

1. Number of Members	
(a) Active Members	
(i) Vested	1,165
(ii) Non-vested	2,014
(b) Members Receiving	
(i) Retirement Pensions	2,104
(ii) Surviving Spouse's Pensions	936
(iii) Children's Annuities	34
2. Annual Salaries	
(a) Total Salary	\$ 102,329,721
(b) Average Salary	32,189
3. Annual Pension Payments	
(a) Retirement Pensions	\$ 39,050,846
(b) Surviving Spouse's Pensions	8,027,201
(c) Children's Annuities	40,200

Assets. In November of 1994, the Governmental Accounting Standards Board (GASB) issued GASB Statement No. 25 which establishes standards of financial reporting for governmental pension plans. The statement is effective for periods beginning after June 15, 1996

Under GASB Statement No. 25, the actuarial value of assets to be used for determining a plan's funded status and annual required contributions needs to be **market related**. However, GASB has indicated that current market values should not be used if those values would result in unnecessary fluctuation in the funded status and the annual required contribution. Thus, in determining the actuarial value of assets, smoothing changes in the market value of assets over a period of three to five years is considered appropriate.



The asset values used for the valuation were based on the asset information contained in the statement of assets as of June 30, 2003 prepared by the fund. The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 5 years. In previous years, a four-year smoothing of unexpected gains or losses had been used. The resulting actuarial value of assets is \$624,209,658. The development of this value is outlined in Exhibit 2.

## Exhibit 2

### Actuarial Value of Assets

#### A. Development of Investment Gain

1. Actuarial Value of Assets as of June 30, 2003	\$ 637,749,858
2. Employer and Employee Contributions	19,375,577
3. Benefits and Expenses	51,404,717
4. Expected Investment Income	49,763,470
5. Total Investment Income, Including Income from Securities Lending	20,297,955
6. Investment Gain/(Loss) for the Year Ended June 30, 2003 (5 – 4)	(29,465,515)

#### B. Development of Actuarial Value of Assets as of June 30, 2003

7. Expected Actuarial Value of Assets (1 + 2 – 3 + 4)	\$ 655,484,188
8. Investment Gain/(Loss) as of June 30, 2003 Recognized in Current Year (20% of 6)	(5,893,103)
9. Investment Gain/(Loss) as of June 30, 2002 Recognized in Current Year	(13,059,797)
10. Investment Gain/(Loss) as of June 30, 2001 Recognized in Current Year	(9,592,352)
11. Investment Gain/(Loss) as of June 30, 2000 Recognized in Current Year	(2,729,278)
12. Actuarial Value of Assets as of June 30, 2003 (7 + 8 + 9 + 10 + 11)	<u>\$ 624,209,658</u>

### **C. FUND PROVISIONS**

Our valuation was based on the provisions of the fund in effect as of June 30, 2003 as provided in Article 12 of the Illinois Pension Code. A summary of the principal provisions of the fund is provided in Appendix 2.

### **D. ACTUARIAL ASSUMPTIONS AND COST METHOD**

Based on an experience analysis of the system over the three-year period 2000 to 2002, we have made some changes in the actuarial assumptions used for the June 30, 2003 actuarial valuation. The mortality assumption was changed from the UP94 Mortality Table for Males to the UP94 Mortality Table for Males, rated down one year. New rates of retirement and termination were adopted, and the salary increase assumption was reduced from 5% per year to 4.5% per year. The other actuarial assumptions used for the June 30, 2003 actuarial valuation are the same as those used for the June 30, 2002 valuation. The actuarial assumptions used for the current valuation are outlined in Appendix 1.

In our opinion, the actuarial assumptions used for the valuation are reasonable in the aggregate, taking into account fund experience and future expectations, and represent our best estimate of anticipated experience.

The entry age actuarial cost method was used for the valuation. This is the same actuarial cost method that has been used in previous valuations.

**E. ACTUARIAL LIABILITY AND FUNDED STATUS**

The actuarial liability as determined under the valuation for the various classes of members is summarized in Exhibit 3. The total actuarial liability is then compared with the actuarial value of assets in order to arrive at the unfunded actuarial liability. (The actuarial terms used in this report are defined in Appendix 3.)

As of June 30, 2003, the total actuarial liability is \$701,208,927, the actuarial value of assets is \$624,209,658, and the unfunded actuarial liability is \$76,999,269. The ratio of the actuarial value of assets to the actuarial liability, or funded ratio, is 89.0%.



Exhibit 3

Actuarial Liability and Funded Status

	Year Ending June 30	
	<u>2003</u>	<u>2002</u>
1. Actuarial Liability For Members in Receipt of Benefits		
(a) Money purchase component of annuities to retirees	\$ 208,355,535	\$ 204,978,696
(b) Fixed benefit component of annuities to retirees	40,318,858	39,992,903
(c) Annual increases in retirement annuity	94,212,961	87,703,354
(d) Annual increases to employee annuitants	1,298,779	1,260,060
(e) Survivor annuities to survivors of current retirees	34,029,849	35,010,675
(f) Lump sum death benefits	2,711,596	2,870,241
(g) Survivor annuities to current survivors	<u>68,065,658</u>	<u>64,872,530</u>
(h) Total	\$ 448,993,236	\$ 436,688,459
2. Actuarial Liability For Active Members		
(a) Basic retirement annuity	\$ 163,541,846	\$ 160,660,364
(b) Annual increase in retirement annuity	34,134,484	38,712,569
(c) Pre-retirement survivor's annuity	6,308,792	4,430,740
(d) Post-retirement survivor's annuity	15,265,012	7,972,483
(e) Withdrawal benefits	8,217,280	6,565,963
(f) Pre-retirement death benefit	1,261,613	806,735
(g) Post-retirement death benefit	<u>421,604</u>	<u>474,109</u>
(h) Total	\$ 229,150,631	\$ 219,622,963
3. Actuarial Liability For Inactive Members	<u>23,065,060</u>	<u>21,896,551</u>
4. Total Actuarial Liability	<u>\$ 701,208,927</u>	<u>\$ 678,207,973</u>
5. Actuarial Value of Assets	<u>624,209,658</u>	<u>637,749,858</u>
6. Unfunded Actuarial Liability	<u>\$ 76,999,269</u>	<u>\$ 40,458,115</u>
7. Funded Ratio	89.0%	94.0%

## F. EMPLOYER'S NORMAL COST

The employer's share of the normal cost for the year beginning July 1, 2003 is developed in Exhibit

4. For the year beginning July 1, 2003, the total normal cost is determined to be \$10,854,556, employee contributions are estimated to be \$9,209,675, resulting in the employer's share of the normal cost of \$1,644,881.

Based on a payroll of \$102,329,721, the employer's share of the normal cost can be expressed as 1.61% of payroll.

### Exhibit 4

#### Employer's Normal Cost For Year Beginning July 1, 2003

1. Basic retirement annuity	\$ 4,430,781
2. Annual increase in retirement annuity	842,654
3. Pre-retirement survivor's annuity	272,510
4. Post-retirement survivor's annuity	437,758
5. Withdrawal benefits, including refunds	3,146,423
6. Pre-retirement death benefit	88,823
7. Post-retirement death benefit	19,202
8. Children's annuity	40,200
9. Ordinary disability benefit	286,624
10. Duty disability benefit	61,573
11. Administrative expenses	<u>1,228,008</u>
12. Total normal cost	\$ 10,854,556
13. Employee contributions	<u>9,209,675</u>
14. Employer's share of normal cost	<u>\$ 1,644,881</u>
15. Total payroll	\$ 102,329,721
16. Employer's share of normal cost as a percent of payroll	1.61%

## **G. ACTUARIALLY DETERMINED CONTRIBUTION REQUIREMENT**

GASB Statements No. 25 and 27 provide for annual employer contribution requirements determined on an actuarial basis. According to the GASB statements, the actuarially determined contribution requirement is equal to the employer's normal cost plus an amortization of the unfunded actuarial liability. For a period of 10 years, the maximum acceptable amortization period is 40 years. After the 10-year period, the maximum acceptable amortization period is 30 years. We have therefore calculated the actuarially determined employer contribution requirement for the fiscal year beginning July 1, 2003 as the employer's normal cost plus a 30-year level-dollar amortization of the unfunded actuarial liability. The results of our calculation are shown in Exhibit 5.

Employer contributions to the fund come from a tax levied upon all taxable property in the City of Chicago. The amount of tax that is levied is 1.10 times the amount of employee contributions made 2 years previously. The 1.10 is known as the tax multiple.

As can be seen from Exhibit 5, for the fiscal year beginning July 1, 2003, the actuarially determined contribution requirement amounts to \$8,203,656. Based on the 1.10 tax multiple, and assuming a 5% loss in collections, we have estimated the employer contribution for the year beginning July 1, 2003 to be \$9,341,260. Thus, the employer contribution is expected to exceed the actuarially determined contribution requirement by \$1,137,604.



## **I. ANALYSIS OF FINANCIAL EXPERIENCE**

The net actuarial experience during the period July 1, 2002 to June 30, 2003 resulted in an increase in the fund's unfunded actuarial liability of \$36,541,154. This increase in unfunded actuarial liability is a result of several kinds of gains and losses. The financial effect of the most significant gains and losses is illustrated in Exhibit 6.

The employer funding requirement for the year of normal cost plus interest on the unfunded actuarial liability amounted to \$7,214,997, whereas the actual employer contribution for the year is estimated to be \$9,842,559, resulting in a decrease in the unfunded liability of \$2,627,562.

The net rate of investment return earned by the assets of the fund, based on the actuarial value of assets, was 0.8% in comparison with the assumed rate of investment return of 8.0%. This resulted in an increase in the unfunded liability of \$44,627,000. Salaries increases lower than expected resulted in a decrease in the unfunded liability of \$6,382,000.

The changes in the actuarial assumptions used for the June 30, 2003 actuarial valuation had the impact of increasing the unfunded liability by \$8,663,000. The change in the method of calculating the actuarial value of assets had the impact of decreasing the unfunded liability by \$13,351,996. The various other aspects of the fund's experience resulted in a net increase in the unfunded actuarial liability of \$5,612,712. The aggregate financial experience of the fund resulted in a net increase in the unfunded actuarial liability of \$36,964,712.

Exhibit 6

Analysis of Financial Experience  
Over the Period July 1, 2002 to June 30, 2003

1. Unfunded actuarial liability as of 7/1/02	\$ 40,458,115
2. Employer contributions requirement of normal cost plus interest on unfunded liability for period 7/1/02 to 6/30/03	7,214,997
3. Actual employer contribution for the year	<u>9,842,559</u>
4. Decrease in unfunded liability due to employer contribution greater than normal cost plus interest on unfunded liability (3 - 2)	2,627,562
5. Increase in unfunded liability due to investment return lower than assumed	44,627,000
6. Decrease in unfunded liability due to salary increases lower than assumed	6,382,000
7. Increase in unfunded liability due to changes in assumptions	8,663,000
8. Decrease in unfunded liability due to change in asset valuation method	13,351,996
9. Increase in unfunded liability due to other sources	<u>5,612,712</u>
10. Net increase in unfunded liability for the year (5 - 4 - 6 + 7 - 8 + 9)	<u>\$ 36,541,154</u>
11. Unfunded actuarial liability as of June 30, 2003 (1 + 10)	<u><u>\$ 76,999,269</u></u>



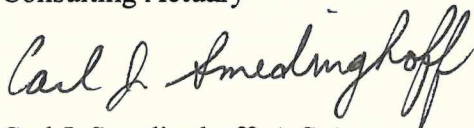
**J. CERTIFICATION**

This actuarial report has been prepared in accordance with generally accepted actuarial principles and practices and to the best of our knowledge, fairly represents the financial condition of the Park Employees' Annuity and Benefit Fund as of June 30, 2003.

Respectfully submitted,



Sandor Goldstein, F.S.A.  
Consulting Actuary



Carl J. Smedinghoff, A.S.A.  
Associate Actuary

## Appendix 1

### Summary of Actuarial Assumptions and Actuarial Cost Method

#### Actuarial Assumptions

The actuarial assumptions used for the June 30, 2003 valuation are summarized below. These assumptions were adopted as of June 30, 2003.

**Mortality Rates.** The UP-1994 Mortality Table, rated down 1 year, was used for the valuation.

**Termination Rates.** Termination rates based on the recent experience of the fund were used. The following is a sample of the termination rates that were used:

Age	0-4 Years Service	Rates of Termination Per 1000 Members	
		4-10 Years Service	10 or More Years Service
20	281		
25	260	231	
30	179	131	47
35	167	129	41
40	156	97	35
45	113	93	28
50	110	89	
55	107	85	

**Retirement Rates.** Rates of retirement for each age from 50 to 75 based on the recent experience of the fund were used. The following are samples of the rates of retirement that were used:

Age	Rate of Retirement Per 1000 Members	
	Less Than 30 Years Service	30 Or More Years of Service
50	50	400
55	55	200
60	80	80
65	120	120
70	140	140
75	1,000	1,000

**Salary Progression.** – 4.5% per year, compounded annually.

**Interest Rate.** - 8.0% per year, compounded annually.

Marital Status. 75% of participants were assumed to be married.

Spouse's Age. The age of the spouse was assumed to be 2 years younger than that of the employee.

Actuarial Value of Assets

The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 5 years.

Actuarial Cost Method.

The entry age actuarial cost method was used, with costs allocated on the basis of earnings.

## Appendix 2

### Summary of Principal Provisions

1. Membership. Any person employed by the Chicago Park District in a position requiring service for 6 months or more in a calendar year is required to become a member of the fund as a condition of employment.

2. Employee Contributions. All members of the fund are required to contribute 9% of salary to the fund as follows:

- 7% for the retirement pension
- 1% for the spouse's pension
- 1% for the automatic increases in the retirement pension

In addition, employees are required to contribute \$3.60 per month toward the cost of the single sum death benefit.

3. Retirement Pension-Eligibility. An employee may retire at age 50 with at least 10 years of service or at age 60 with 4 years of service.

If retirement occurs before age 60, the retirement pension is reduced 1/4 of 1% for each month that the age of the member is below 60. However, there is no reduction if the employee has at least 30 years of service.

4. Retirement Pension-Amount. The retirement pension is based on the average of the 4 highest consecutive years of salary within the last 10 years, at the following rates:

- 1.9% for each of the first 10 years of service; plus
- 2.2% for each of the next 10 years of service; plus
- 2.4% for each of the next 10 years of service; plus
- 2.8% for each year of service over 30.

The maximum pension payable is 80% of average annual salary.

An employee who was a participant before July 1, 1971 is entitled to the pension provided under the money purchase formula if it provides a greater pension than that provided under the above fixed benefit formula.

5. Post-Retirement Increase In Retirement Pension. An employee retiring at age 60 or over, or an employee with 30 or more years of service, is entitled to automatic annual increases of 3% of the originally granted pension following 1 year's receipt of pension payments. In the case of an



employee with less than 30 years service who retires before age 60, the increases begin following the later of attainment of age 60 and receipt of 1 year's pension payments.

6. Surviving Spouse's Pension. A surviving spouse is entitled to a pension upon the death of an employee while in service or on retirement. If the surviving spouse is age 60 or over and the employee or pensioner had at least 20 years of service, the minimum surviving spouse's pension is 50% of the deceased employee's or retired employee's pension at the date of death. If the age of the surviving spouse is less than 60, the pension is reduced 1/2 of 1% for each month the surviving spouse is under age 60. If the employee had less than 20 years of service, the surviving spouse is entitled to a pension under the money purchase formula, taking into account employee and employer contributions toward the surviving spouse's pension.

Surviving spouse's pensions are subject to annual automatic increases of 3% per year based on the current amount of pension.

7. Children's Pension. Unmarried children of a deceased employee under the age of 18 are entitled to a children's pension. If either parent is living, the pension is \$100.00 per month. If no parent survives, the pension for each child is \$150.00 per month. The total amount payable to a spouse or children may not exceed 60% of the employer's final salary.

8. Single Sum Death Benefit. A death benefit is payable upon the death of an employee in service in addition to any other benefits payable to the surviving spouse or minor children. The death benefit payable is as follows:

- \$3,000 benefit during the 1st year of service,
- \$4,000 benefit during the 2nd year of service,
- \$5,000 benefit during the 3rd year of service,
- \$6,000 benefit during the 4th through 10th year of service,
- \$10,000 benefit if death occurs after 10 or more years of service.

Upon the death of a retired member with 10 or more years of service, the \$10,000 maximum benefit is reduced to \$6,000 if death occurs during the first year of retirement. Thereafter, it is reduced by \$1,500 for each year or fraction of a year while on retirement, but shall not be less than \$3,000.

9. Ordinary Disability Benefit. An ordinary disability benefit is payable after 8 consecutive days of absence for illness without pay. The amount of the benefit is 45% of salary. The benefit is payable for a period not to exceed 1/4 of the length of service or 5 years, whichever is less.

10. Occupational Disability Benefit. Upon disability resulting from an injury incurred while on duty, an employee is entitled to a disability benefit of 75% of salary from the first day of absence without pay. The benefit is payable during the period of disability until the employee attains age 65, if disability is incurred before age 60, or for a period of 5 years if disability is incurred after age 60.



11. Occupational Death Benefit. Upon the death of an employee resulting from an accident incurred in the performance of duty, the surviving spouse is entitled to an occupational death benefit of 50% of salary. Each unmarried child under the age of 18 is entitled to a benefit of \$100 per month. The combined payments to a family may not exceed 75% of the employee's final salary. The total payments are reduced by Workmen's Compensation benefits.

12. Refunds. An employee who terminates employment before qualifying for a pension is entitled to a refund of employee contributions. The refund is payable to any employee who withdraws before age 55, regardless of the length of service. It is also payable to an employee who withdraws between age 55 and 60 with less than 10 years of service, and to an employee who withdraws after age 60 with less than 5 years of service.

An employee who is unmarried at date of retirement is entitled to a refund of the full amount contributed for the spouse's pension, without interest.

### Appendix 3

#### Glossary of Terms used in Report

1. Actuarial Present Value. The value of an amount or series of amounts payable at various times, determined as of a given date by the application of a particular set of actuarial assumptions.
2. Actuarial Cost Method or Funding Method. A procedure for determining the actuarial present value of pension plan benefits and for determining an actuarially equivalent allocation of such value to time periods, usually in the form of a normal cost and an actuarial accrued liability.
3. Normal Cost. That portion of the present value of pension plan benefits which is allocated to a valuation year by the actuarial costs method.
4. Actuarial Accrued Liability or Accrued Liability. That portion, as determined by a particular actuarial cost method, of the actuarial present value of pension benefits which is not provided for by future normal costs.
5. Actuarial Value of Assets. The value assigned by the actuary to the assets of the pension plan for purposes of an actuarial valuation.
6. Unfunded Actuarial Liability. The excess of the actuarial liability over the actuarial value of assets.
7. Entry Age Actuarial Cost Method. A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of an individual between entry age and assumed exit age. The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided at a valuation date by the actuarial present value of future normal costs is called the actuarial liability.
8. Actuarial Assumptions. Assumptions as to future events affecting pension costs.
9. Actuarial Valuation. The determination, as of the valuation date, of the normal cost, actuarial liability, actuarial value of assets, and related actuarial present values for a pension plan.
10. Accrued Benefit or Accumulated Plan Benefits. The amount of an individual's benefit as of a specific date determined in accordance with the terms of a pension plan and based on compensation and service to that date.
11. Vested Benefits. Benefits that are not contingent on an employee's future service.

PARK EMPLOYEES' ANNUITY  
AND BENEFIT FUND OF CHICAGO

ACTUARIAL VALUATION  
AS OF JUNE 30, 2004

**GOLDSTEIN & ASSOCIATES**  
*Actuaries and Consultants*

29 SOUTH LaSALLE STREET SUITE 735  
CHICAGO, ILLINOIS 60603  
PHONE (312) 726-5877 FAX (312) 726-4323

December 14, 2004

The Trustees of the Retirement  
Board of the Park Employees'  
Annuity and Benefit Fund of Chicago  
55 East Monroe Street  
Suite 2880  
Chicago, Illinois 60603

Re: **Actuarial Valuation as of June 30, 2004**

Dear Board Members:

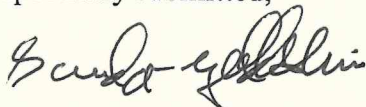
I am pleased to submit our actuarial report on the financial position and funding requirements of the Park Employees' Annuity and Benefit Fund of Chicago as of June 30, 2004.

The report consists of 10 sections and 3 appendices as follows:

	<u>Page No.</u>
Section A - Purpose and Summary	1
Section B - Data Used For Valuation	1
Section C - Fund Provisions	4
Section D - Actuarial Assumptions and Cost Method	4
Section E - Actuarial Liability and Funded Status	5
Section F - Employer's Normal Cost	7
Section G - Actuarially Determined Contribution Requirement	8
Section H - Annual Required Contribution For GASB Statement No. 25	9
Section I - Analysis of Financial Experience	10
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Appendix 2 - Summary of Principal Provisions	16
Appendix 3 - Glossary of Terms	19

I would be pleased to discuss any aspects of this report with you at your convenience.

Respectfully submitted,



Sandor Goldstein, F.S.A.  
Consulting Actuary



## A. PURPOSE AND SUMMARY

We have carried out an actuarial valuation of the Park Employees' Annuity and Benefit Fund as of June 30, 2004. The purpose of the valuation was to determine the financial position and funding requirements of the pension fund. This report is intended to present the results of the valuation.

The results of the valuation are summarized below:

1.	Total actuarial liability	\$ 738,578,830
2.	Actuarial value of assets	610,293,849
3.	Unfunded actuarial liability	128,284,981
4.	Funded ratio	82.6%
5.	Actuarially determined contribution requirement for fiscal year beginning July 1, 2004	\$ 15,812,224
6.	Estimated employer contributions for fiscal year beginning July 1, 2004	\$ 9,544,572
7.	Annual required contribution for fiscal year beginning July 1, 2004 under GASB Statement No. 25	\$ 15,812,224

## B. DATA USED FOR THE VALUATION

Participant Data. The participant data required to carry out the valuation was supplied by the fund. The membership of the fund as of June 30, 2004, on which the valuation was based, is summarized in Exhibit 1. It can be seen that there were 2,820 active members, 2,294 pensioners, 921 surviving spouses, and 25 children receiving benefits included in the valuation. The total active payroll as of June 30, 2004 was \$87,840,802.



Exhibit 1

Summary of Membership Data

1. Number of Members	
(a) Active Members	
(i) Vested	941
(ii) Non-vested	1,879
(b) Members Receiving	
(i) Retirement Pensions	2,294
(ii) Surviving Spouse's Pensions	921
(iii) Children's Annuities	25
2. Annual Salaries	
(a) Total Salary	\$ 87,840,802
(b) Average Salary	31,149
3. Annual Pension Payments	
(a) Retirement Pensions	\$ 46,544,000
(b) Surviving Spouse's Pensions	8,310,367
(c) Children's Annuities	30,600

Assets. In November of 1994, the Governmental Accounting Standards Board (GASB) issued GASB Statement No. 25 which establishes standards of financial reporting for governmental pension plans. The statement is effective for periods beginning after June 15, 1996

Under GASB Statement No. 25, the actuarial value of assets to be used for determining a plan's funded status and annual required contributions needs to be **market related**. However, GASB has indicated that current market values should not be used if those values would result in unnecessary fluctuation in the funded status and the annual required contribution. Thus, in determining the actuarial value of assets, smoothing changes in the market value of assets over a period of three to five years is considered appropriate.

The asset values used for the valuation were based on the asset information contained in the statement of assets as of June 30, 2004 prepared by the fund. The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 5 years. The resulting actuarial value of assets is \$610,293,849. The development of this value is outlined in Exhibit 2. In comparison, the market value of assets as of June 30, 2004 was \$573,870,138.

## Exhibit 2

### Actuarial Value of Assets

#### A. Development of Investment Gain

1. Actuarial Value of Assets as of June 30, 2004	\$ 624,209,658
2. Employer and Employee Contributions	20,434,262
3. Benefits and Expenses	55,864,000
4. Expected Investment Income	48,546,847
5. Total Investment Income, Including Income from Securities Lending	69,754,905
6. Investment Gain/(Loss) for the Year Ended June 30, 2004 (5 – 4)	21,208,058

#### B. Development of Actuarial Value of Assets as of June 30, 2004

7. Expected Actuarial Value of Assets (1 + 2 – 3 + 4)	\$ 637,326,767
8. Investment Gain/(Loss) as of June 30, 2004 Recognized in Current Year (20% of 6)	4,241,612
9. Investment Gain/(Loss) as of June 30, 2003 Recognized in Current Year	(5,893,103)
10. Investment Gain/(Loss) as of June 30, 2002 Recognized in Current Year	(13,059,797)
11. Investment Gain/(Loss) as of June 30, 2001 Recognized in Current Year	(9,592,352)
12. Investment Gain/(Loss) as of June 30, 2000 Recognized in Current Year	(2,729,278)
13. Actuarial Value of Assets as of June 30, 2004 (7 + 8 + 9 + 10 + 11 + 12)	<u>\$ 610,293,849</u>

### **C. FUND PROVISIONS**

Our valuation was based on the provisions of the fund in effect as of June 30, 2004 as provided in Article 12 of the Illinois Pension Code. Since the effective date of the last valuation, House Bill 600, which was signed into law on January 16, 2004 as Public Act 93-0654, made a number of changes in the benefit provisions of the fund. The most significant benefit changes were as follows: (1) increased the retirement annuity formula to 2.4% of final average salary for each year of service; (2) provided that employees who retire during the period between January 31, 2004 and February 29, 2004 with at least 30 years of service would be entitled to the maximum retirement annuity of 80% of final average salary; (3) provided an early retirement incentive program (ERI) for employees who withdrew with 10 or more years of service between January 31, 2004 and February 29, 2004. Under this ERI, employees were able to purchase up to 5 additional years of service.

A summary of the principal provisions of the fund is provided in Appendix 2.

### **D. ACTUARIAL ASSUMPTIONS AND COST METHOD**

The actuarial assumptions used for the June 30, 2004 actuarial valuation are the same as those used for the June 30, 2003 valuation. These actuarial assumptions were based on an experience analysis over the three-year period 2000-2002. The actuarial assumptions used for the current valuation are outlined in Appendix 1.



In our opinion, the actuarial assumptions used for the valuation are reasonable in the aggregate, taking into account fund experience and future expectations, and represent our best estimate of anticipated experience.

The projected unit credit actuarial cost method was used for the valuation. In previous actuarial valuations the entry age normal actuarial cost method had been used.

**E. ACTUARIAL LIABILITY AND FUNDED STATUS**

The actuarial liability as determined under the valuation for the various classes of members is summarized in Exhibit 3. The total actuarial liability is then compared with the actuarial value of assets in order to arrive at the unfunded actuarial liability. (The actuarial terms used in this report are defined in Appendix 3.)

As of June 30, 2004, the total actuarial liability is \$738,578,830, the actuarial value of assets is \$610,293,849, and the unfunded actuarial liability is \$128,284,981. The ratio of the actuarial value of assets to the actuarial liability, or funded ratio, is 82.6%.



Exhibit 3

Actuarial Liability and Funded Status

	Year Ending June 30	
	<u>2004</u>	<u>2003</u>
1. Actuarial Liability For Members in Receipt of Benefits		
(a) Money purchase component of annuities to retirees	\$ 263,764,136	\$ 208,355,535
(b) Fixed benefit component of annuities to retirees	54,506,709	40,318,858
(c) Annual increases in retirement annuity	107,343,266	94,212,961
(d) Annual increases to employee annuitants	1,301,743	1,298,779
(e) Survivor annuities to survivors of current retirees	46,880,995	34,029,849
(f) Lump sum death benefits	2,823,575	2,711,596
(g) Survivor annuities to current survivors	<u>69,420,940</u>	<u>68,065,658</u>
(h) Total	\$ 546,041,364	\$ 448,993,236
2. Actuarial Liability For Active Members		
(a) Basic retirement annuity	\$ 117,383,187	\$ 163,541,846
(b) Annual increase in retirement annuity	24,254,206	34,134,484
(c) Pre-retirement survivor's annuity	4,776,659	6,308,792
(d) Post-retirement survivor's annuity	10,576,942	15,265,012
(e) Withdrawal benefits	9,629,002	8,217,280
(f) Pre-retirement death benefit	807,415	1,261,613
(g) Post-retirement death benefit	<u>281,956</u>	<u>421,604</u>
(h) Total	\$ 167,709,367	\$ 229,150,631
3. Actuarial Liability For Inactive Members	<u>24,828,099</u>	<u>23,065,060</u>
4. Total Actuarial Liability	<u>\$ 738,578,830</u>	<u>\$ 701,208,927</u>
5. Actuarial Value of Assets	<u>610,293,849</u>	<u>624,209,658</u>
6. Unfunded Actuarial Liability	<u>\$ 128,284,981</u>	<u>\$ 76,999,269</u>
7. Funded Ratio	82.6%	89.0%

Impact of Benefit Changes Enacted Under Public Act 93-0654. We have estimated that the benefit changes enacted under Public Act 93-0654 had the impact of increasing the fund's total actuarial liabilities as of June 30, 2004 by \$57,170,000.

Impact of Change in Actuarial Cost Method. We have estimated that the change from the entry age normal to the projected unit credit actuarial cost method had the impact of reducing the fund's total actuarial liability as of June 30, 2004 by \$36,979,000.

#### **F. EMPLOYER'S NORMAL COST**

The employer's share of the normal cost for the year beginning July 1, 2004 is developed in Exhibit 4. For the year beginning July 1, 2004, the total normal cost is determined to be \$12,790,619, employee contributions are estimated to be \$7,905,672, resulting in the employer's share of the normal cost of \$4,884,947.

Based on a payroll of \$87,840,802, the employer's share of the normal cost can be expressed as 5.56% of payroll.

Exhibit 4

Employer's Normal Cost For Year Beginning July 1, 2004

*Different  
Funding  
Method*

	<u>Dollar Amount</u>	<u>Percent of Payroll</u>
1. Basic retirement annuity	\$ 6,849,678	7.80%
2. Annual increase in retirement annuity	1,361,040	1.55
3. Pre-retirement survivor's annuity	341,427	.39
4. Post-retirement survivor's annuity	634,782	.72
5. Withdrawal benefits, including refunds	1,891,023	2.15
6. Pre-retirement death benefit	83,715	.10
7. Post-retirement death benefit	21,306	.02
8. Children's annuity	30,600	.04
9. Ordinary disability benefit	265,859	.30
10. Duty disability benefit	52,035	.06
11. Administrative expenses	<u>1,259,154</u>	<u>1.43</u>
12. Total normal cost	\$ 12,790,619	14.56%
13. Employee contributions	<u>7,905,672</u>	<u>9.00</u>
14. Employer's share of normal cost	<u>\$ 4,884,947</u>	<u>5.56%</u>

Note. The above figures are based on a total active payroll of \$87,840,802 as of June 30, 2004.

**G. ACTUARIALLY DETERMINED CONTRIBUTION REQUIREMENT**

GASB Statements No. 25 and 27 provide for annual employer contribution requirements determined on an actuarial basis. According to the GASB statements, the actuarially determined contribution requirement is equal to the employer's normal cost plus an amortization of the unfunded actuarial liability. For a period of 10 years, the maximum acceptable amortization period is 40 years. After the 10-year period, the maximum acceptable amortization period is 30 years. We have therefore calculated the actuarially determined employer contribution requirement for the



fiscal year beginning July 1, 2004 as the employer's normal cost plus a 30-year level-dollar amortization of the unfunded actuarial liability. The results of our calculation are shown in Exhibit 5.

Employer contributions to the fund come from a tax levied upon all taxable property in the City of Chicago. The amount of tax that is levied is 1.10 times the amount of employee contributions made 2 years previously. The 1.10 is known as the tax multiple.

As can be seen from Exhibit 5, for the fiscal year beginning July 1, 2004, the actuarially determined contribution requirement amounts to \$15,812,224. Based on the 1.10 tax multiple, and assuming a 5% loss in collections, we have estimated the employer contribution for the year beginning July 1, 2004 to be \$9,544,572. Thus, the employer contribution is expected to fall short of the actuarially determined contribution requirement by \$6,267,652.

Exhibit 5

Actuarially Determined Contribution Requirement For Year Beginning July 1, 2004

1. Employer's normal cost	\$ 4,884,947
2. Annual amount to amortize the unfunded liability over 30 years through annual level-dollar payments	<u>10,927,277</u>
3. Actuarially determined contribution requirement for year beginning July 1, 2004	\$ 15,812,224
4. Estimated employer contribution for the year	<u>9,544,572</u>
5. Amount by which employer contribution is expected to exceed actuarially determined contribution requirement	<u>\$ 6,267,652</u>



## **H. ANNUAL REQUIRED CONTRIBUTION FOR GASB STATEMENT NO. 25**

GASB Statement No. 25 requires the disclosure of the annual required employer contribution (ARC), calculated in accordance with certain parameters. Based on the results of the June 30, 2004 actuarial valuation, we have therefore calculated the annual required contribution for the fiscal year beginning July 1, 2004. In accordance with the parameters prescribed in GASB Statement No. 25, in calculating the annual required contribution, we have used adjusted market value for the actuarial value of assets and have used a 30-year level-dollar amortization of the unfunded liability. On this basis, the annual required contribution for Fiscal Year 2005 has been determined to be as follows:

1. Employer's normal cost	\$ 4,884,947
2. Annual amount to amortize the unfunded liability over 30 years through annual level-dollar payments	<u>10,927,277</u>
3. Annual required contribution	<u>\$ 15,812,224</u>

## **I. ANALYSIS OF FINANCIAL EXPERIENCE**

The net actuarial experience during the period July 1, 2003 to June 30, 2004 resulted in an increase in the fund's unfunded actuarial liability of \$51,285,712. This increase in unfunded actuarial liability is a result of several kinds of gains and losses. The financial effect of the most significant gains and losses is illustrated in Exhibit 6.

The employer funding requirement for the year of normal cost plus interest on the unfunded actuarial liability amounted to \$7,572,287, whereas the actual employer contribution for the year is estimated to be \$9,840,681, resulting in a decrease in the unfunded liability of \$2,268,394.

The net rate of investment return earned by the assets of the fund, based on the actuarial value of assets, was 3.6% in comparison with the assumed rate of investment return of 8.0%. This resulted in an increase in the unfunded liability of \$27,033,000. Salaries increases lower than expected resulted in a decrease in the unfunded liability of \$3,217,000.

The benefit changes enacted under Public Act 93-0654 had the impact of increasing the unfunded liability by \$57,170,000. The change in the actuarial cost method from entry age normal to projected unit credit had the impact of decreasing the unfunded liability by \$36,979,000.

The various other aspects of the fund's experience resulted in a net increase in the unfunded actuarial liability of \$9,547,106. The aggregate financial experience of the fund resulted in a net increase in the unfunded actuarial liability of \$51,285,712.

Exhibit 6

Analysis of Financial Experience  
Over the Period July 1, 2003 to June 30, 2004

1. Unfunded actuarial liability as of July 1, 2003	\$ 76,999,269
2. Employer contributions requirement of normal cost plus interest on unfunded liability for period 7/1/03 to 6/30/04	7,572,287
3. Actual employer contribution for the year	<u>9,840,681</u>
4. Decrease in unfunded liability due to employer contribution greater than normal cost plus interest on unfunded liability (3 - 2)	2,268,394
5. Increase in unfunded liability due to investment return lower than assumed	27,033,000
6. Decrease in unfunded liability due to salary increases lower than assumed	3,217,000
7. Increase in unfunded liability due to benefit changes enacted under Public Act 93-0654	57,170,000
8. Decrease in unfunded liability due to change in actuarial cost method	36,979,000
9. Increase in unfunded liability due to other sources	<u>9,547,106</u>
10. Net increase in unfunded liability for the year (5 - 4 - 6 + 7 - 8 + 9)	<u>\$ 51,285,712</u>
11. Unfunded actuarial liability as of June 30, 2004 (1 + 10)	<u><u>\$ 128,284,981</u></u>

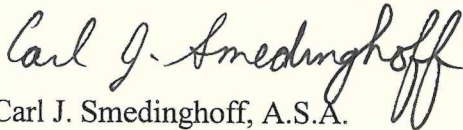
J. CERTIFICATION

This actuarial report has been prepared in accordance with generally accepted actuarial principles and practices and to the best of our knowledge, fairly represents the financial condition of the Park Employees' Annuity and Benefit Fund as of June 30, 2004.

Respectfully submitted,



Sandor Goldstein, F.S.A.  
Consulting Actuary



Carl J. Smedinghoff, A.S.A.  
Associate Actuary



## Appendix 1

### Summary of Actuarial Assumptions and Actuarial Cost Method

#### Actuarial Assumptions

The actuarial assumptions used for the June 30, 2004 valuation are summarized below. These assumptions were adopted as of June 30, 2003.

Mortality Rates. The UP-1994 Mortality Table, rated down 1 year, was used for the valuation.

Termination Rates. Termination rates based on the recent experience of the fund were used. The following is a sample of the termination rates that were used:

<u>Age</u>	<u>Rates of Termination Per 1000 Members</u>		
	<u>0-4 Years Service</u>	<u>4-10 Years Service</u>	<u>10 or More Years Service</u>
20	281		
25	260	231	
30	179	131	47
35	167	129	41
40	156	97	35
45	113	93	28
50	110	89	
55	107	85	

Retirement Rates. Rates of retirement for each age from 50 to 75 based on the recent experience of the fund were used. The following are samples of the rates of retirement that were used:

<u>Age</u>	<u>Rate of Retirement Per 1000 Members</u>	
	<u>Less Than 30 Years Service</u>	<u>30 Or More Years of Service</u>
50	50	400
55	55	200
60	80	80
65	120	120
70	140	140
75	1,000	1,000

Salary Progression. - 4.5% per year, compounded annually.

Interest Rate. - 8.0% per year, compounded annually.

Marital Status. 75% of participants were assumed to be married.

Spouse's Age. The age of the spouse was assumed to be 2 years younger than that of the employee.

Actuarial Value of Assets

The actuarial value of assets was determined by smoothing unexpected gains or losses over a period of 5 years.

Actuarial Cost Method.

The projected unit credit actuarial cost method was used. Actuarial gains and losses are reflected in the unfunded actuarial liability. This actuarial cost method was adopted as of June 30, 2004.

## Appendix 2

### Summary of Principal Provisions

1. Membership. Any person employed by the Chicago Park District in a position requiring service for 6 months or more in a calendar year is required to become a member of the fund as a condition of employment.

2. Employee Contributions. All members of the fund are required to contribute 9% of salary to the fund as follows:

- 7% for the retirement pension
- 1% for the spouse's pension
- 1% for the automatic increases in the retirement pension

In addition, employees are required to contribute \$3.60 per month toward the cost of the single sum death benefit.

3. Retirement Pension-Eligibility. An employee may retire at age 50 with at least 10 years of service or at age 60 with 4 years of service.

If retirement occurs before age 60, the retirement pension is reduced 1/4 of 1% for each month that the age of the member is below 60. However, there is no reduction if the employee has at least 30 years of service.

4. Retirement Pension-Amount. The retirement pension is based on the average of the 4 highest consecutive years of salary within the last 10 years. For an employee who withdraws from service on or after December 31, 2003, the amount of the retirement pension is 2.4% of highest average salary for each year of service.

The maximum pension payable is 80% of the highest average annual salary.

An employee who was a participant before July 1, 1971 is entitled to the pension provided under the money purchase formula if it provides a greater pension than that provided under the above fixed benefit formula.

5. Post-Retirement Increase In Retirement Pension. An employee retiring at age 60 or over, or an employee with 30 or more years of service, is entitled to automatic annual increases of 3% of the originally granted pension following 1 year's receipt of pension payments. In the case of an employee with less than 30 years service who retires before age 60, the increases begin following the later of attainment of age 60 and receipt of 1 year's pension payments.

benefit of 50% of salary. Each unmarried child under the age of 18 is entitled to a benefit of \$100 per month. The combined payments to a family may not exceed 75% of the employee's final salary. The total payments are reduced by Workmen's Compensation benefits.

12. Refunds. An employee who terminates employment before qualifying for a pension is entitled to a refund of employee contributions. The refund is payable to any employee who withdraws before age 55, regardless of the length of service. It is also payable to an employee who withdraws between age 55 and 60 with less than 10 years of service, and to an employee who withdraws after age 60 with less than 5 years of service.

An employee who is unmarried at date of retirement is entitled to a refund of the full amount contributed for the spouse's pension, without interest.



### Appendix 3

#### Glossary of Terms used in Report

1. Actuarial Present Value. The value of an amount or series of amounts payable at various times, determined as of a given date by the application of a particular set of actuarial assumptions.
2. Actuarial Cost Method or Funding Method. A procedure for determining the actuarial present value of pension plan benefits and for determining an actuarially equivalent allocation of such value to time periods, usually in the form of a normal cost and an actuarial accrued liability.
3. Normal Cost. That portion of the present value of pension plan benefits which is allocated to a valuation year by the actuarial costs method.
4. Actuarial Accrued Liability or Accrued Liability. That portion, as determined by a particular actuarial cost method, of the actuarial present value of pension benefits which is not provided for by future normal costs.
5. Actuarial Value of Assets. The value assigned by the actuary to the assets of the pension plan for purposes of an actuarial valuation.
6. Unfunded Actuarial Liability. The excess of the actuarial liability over the actuarial value of assets.
7. Projected Unit Credit Actuarial Cost Method. A cost method under which the projected benefits of each individual included in an actuarial valuation are allocated by a consistent formula to valuation years. The actuarial present value of benefit allocated to a valuation year is called the normal cost. The actuarial present value of benefits allocated to all periods prior to a valuation year is called the actuarial liability.
8. Actuarial Assumptions. Assumptions as to future events affecting pension costs.
9. Actuarial Valuation. The determination, as of the valuation date, of the normal cost, actuarial liability, actuarial value of assets, and related actuarial present values for a pension plan.
10. Accrued Benefit or Accumulated Plan Benefits. The amount of an individual's benefit as of a specific date determined in accordance with the terms of a pension plan and based on compensation and service to that date.
11. Vested Benefits. Benefits that are not contingent on an employee's future service.