June 2010

# Actuarial valuation report as of January 1, 2010

## The City of Ladue Firemen and Policemen's Pension Plan

MERCER

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# Contents

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# Report highlights

Mercer has prepared this report for the City of Ladue to:

- present the results of a valuation of the City of Ladue Firemen and Policemen's Pension Plan as of January 1, 2010;
- review experience under the plan for the year ended December 31, 2009;
- provide the plan sponsor with the funding policy contribution under the plan for the year ending December 31, 2010; and
- provide the plan's accountants with information concerning the funded status of the plan.

## *Contributions*

The following table summarizes important contribution information.

| | Plan year ending | |
|---|---|---|
| | **December 31, 2010** | **December 31, 2009** |
| Funding policy contribution | $ 1,092,786 | $ 1,255,382 |

The funding policy contribution decreased during the past year. This was primarily due to favorable asset performance.

## *Plan experience during prior plan year*

During 2009, the plan experienced a net actuarial gain of $1,224,289. This gain consisted of a $497,464 liability loss and a $1,721,753 asset gain. During 2009, the yield rate based on the actuarial value of assets was 16.90% compared to an assumed 7.75% return. The return on a market value basis was 23.40%.

Between January 1, 2009 and January 1, 2010, the number of active participants decreased from 60 to 55. During the same period, the number of retirees and beneficiaries increased from 49 to 51 and the number of vested terminated participants remained at 0.

## *Accounting*

This report also provides information for the plan for financial statements, governmental agencies and other interested parties, pursuant to governmental accounting standards.

## *Changes in plan provisions, actuarial assumptions and methods*

There were no changes in plan provisions, actuarial assumptions or actuarial methods since the last valuation as of January 1, 2009.

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# Certification

Mercer has prepared this report exclusively for The City of Ladue for the following purposes:

- Present the results of a valuation of The City of Ladue Firemen and Policemen's Pension Plan as of January 1, 2010;
- Review plan experience for the year ending December 31, 2009;
- Provide the plan sponsor with the funding policy contributions for the period beginning January 1, 2010; and
- Provide reporting and disclosure information for financial statements for governmental agencies pursuant to governmental accounting standards.

This valuation report may not be relied upon for any other purpose or by any party other than the City or the Plan's auditors solely for the purpose of completing an audit related to the matters herein. Mercer is not responsible for the consequences of any unauthorized use.

A valuation report is a snapshot of a plan's estimated financial condition at a particular point in time; it does not predict a plan's future financial condition or its ability to pay benefits in the future.

Over time, a plan's total cost will depend on a number of factors, including the amount of benefits the plan pays, the number of people paid benefits, plan expenses and the amount earned on any assets invested to pay the benefits. These amounts and other variables are uncertain and unknowable at the valuation date, but are predicted to fall within a reasonable range of possibilities.

To prepare this report, *actuarial assumptions*, as described in Section 8, are used to select a single scenario from a range of possibilities. The results of that single scenario are included in this report. However, the future is uncertain and the plan's actual experience will differ from those assumptions; these differences may be significant or material. In addition, different assumptions or scenarios may also be within the reasonable range and results based on those assumptions would be different. Actuarial assumptions may also be changed from one valuation to the next because of changes in mandated requirements, plan experience, changes in expectations about the future and other factors. Due to the limited scope of our assignment, we did not perform, nor do we present, an analysis of the potential range of future possibilities and scenarios.

Because actual plan experience will differ from the assumptions, decisions about benefit changes, investment policy, funding amounts, benefit security and/or benefit-related issues should be made only after careful consideration of alternative future financial conditions and scenarios, and not solely on the basis of a valuation report or reports.

## *Data and plan provisions*

To prepare this report, Mercer has used and relied on financial data submitted by the plan sponsor, as well as participant data supplied by plan sponsor. The data used is summarized herein. We have reviewed the financial and participant data for internal consistency and general reasonableness, but we have not verified or audited any of the data or information provided. Finally, we have used and relied on the plan documents, including amendments, supplied by the plan sponsor. A summary of the plan provisions valued is presented in our report. The plan sponsor is solely responsible for the accuracy, validity and comprehensiveness of this information. If the data or plan provisions supplied are not accurate and complete the valuation results may differ significantly from the results that would be obtained with accurate and complete information; this may require a later revision of this report.

## *Actuarial calculations, methods and assumptions*

To the best of our knowledge and belief, this report is complete and accurate and all costs, liabilities and other factors under the plan were determined in accordance with generally accepted actuarial principles and procedures, using an actuarial cost method approved by the City. Assumptions used are based on the last experience study, as adopted by the City. This valuation is based on assumptions, plan provisions, methods and other parameters as summarized in this report. If this information is inaccurate or incomplete or does not reflect current statutes, regulations or City directives, the reader of this report should not rely on the valuation results and should notify Mercer promptly. In our opinion, this report fully and fairly discloses the actuarial position of the plan on an ongoing basis.

## *Contributions*

In computing the funding policy contribution, all liabilities and other factors under the plan were determined in accordance with generally accepted actuarial principles and procedures. In our opinion, the actuarial assumptions are reasonable and represent our best estimate of the plan's anticipated experience with respect to those assumptions. This report fully and fairly discloses the actuarial position of the plan on an ongoing basis.

## *Professional qualifications*

I am available to answer any questions on the material in this report or to provide explanations or further details as appropriate. The undersigned credentialed actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report. I am not aware of any direct or material indirect financial interest or relationship, including investments or other services that could create a conflict of interest, that would impair the objectivity of our work.

Ann E. Bremehr

**Ann E. Bremehr, FSA**
**Enrolled Actuary (No. 08-04001)**

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June 29, 2010
**Date**

**The information contained in this document (including any attachments) is not intended by Mercer to be used, and it cannot be used, for the purpose of avoiding penalties under the Internal Revenue Code that may be imposed on the taxpayer.**

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# Development of contributions

## *Principal valuation results*

| | Actuarial Valuation as of | |
|---|---|---|
| | **January 1, 2010** | **January 1, 2009** |
| **Funding Valuation** | | |
| Actuarial accrued liability | $ 30,728,346 | $ 29,214,709 |
| Funded ratio | 71.90% | 62.52% |
| Actuarial asset value | 22,092,661 | 18,266,006 |
| Unfunded actuarial accrued liability | 8,635,685 | 10,948,703 |
| Normal cost | 388,486 | 372,911 |
| Funding policy contribution (end of year) | 1,092,786 | 1,255,382 |
| | | |
| **Participant Data** | | |
| Number of participants in valuation | | |
| Active participants | 55 | 60 |
| Participants with deferred benefits | 0 | 0 |
| Participants receiving benefits | 51 | 49 |
| Total | 106 | 109 |
| | | |
| **Active Participant Statistics** | | |
| Average age | 41.4 | 41.0 |
| Average years of service | 14.0 | 13.2 |

## *Unfunded actuarial accrued liability*

The actuarial accrued liability is the present value of projected plan benefits allocated to past service by the actuarial funding method being used.

| | January 1, 2010 | January 1, 2009 |
|---|---|---|
| 1. Actuarial accrued liability | | |
| a. Active participants | | |
| Retirement benefits | $ 12,405,863 | $ 11,842,983 |
| Withdrawal benefits | 0 | 0 |
| Disability benefits | 360,824 | 344,244 |
| Death benefits | 148,969 | 141,670 |
| Return of contributions | (62,845) | (58,166) |
| Total | 12,852,811 | 12,270,731 |
| b. Participants with deferred benefits | 0 | 0 |
| c. Participants receiving benefits | 17,875,535 | 16,943,978 |
| d. Actuarial accrued liability *(a. + b. + c.)* | 30,728,346 | 29,214,709 |
| 2. Actuarial asset value | 22,092,661 | 18,266,006 |
| 3. Funded ratio *(2. ÷ 1.d.)* | 71.90% | 62.52% |
| **4. Unfunded actuarial accrued liability** *(1.d. – 2., not less than $0)* | **$ 8,635,685** | **$ 10,948,703** |

## *Normal Cost*

The components of normal cost under the plan's funding method are:

| **Component** | **January 1, 2010** | **January 1, 2009** |
|---|---|---|
| 1. Normal cost | | |
| a. Retirement benefits | $ 427,845 | $ 410,062 |
| b. Withdrawal benefits | 0 | 0 |
| c. Disability benefits | 28,872 | 27,810 |
| d. Death benefits | 14,232 | 13,517 |
| e. Return of contributions | 17,566 | 17,358 |
| f. Expenses | 25,000 | 25,000 |
| g. Total | 513,515 | 493,747 |
| 2. Expected employee contributions | 125,029 | 120,836 |
| **3. Total normal cost** *(1.g. – 2.)* | **$ 388,486** | **$ 372,911** |

## *Funding policy contribution*

The funding policy contribution consists of the normal cost calculated under the entry age cost method, a 20-year amortization of the unfunded actuarial accrued liability (as a level percentage of projected pay) and interest to the end of the plan year.

| | Plan year ending | |
|---|---|---|
| | **December 31, 2010** | **December 31, 2009** |
| 1. Normal cost at beginning of year | $ 388,486 | $ 372,911 |
| 2. 20-year amortization of the unfunded actuarial accrued liability at end of year | 670,316 | 849,857 |
| 3. Interest on 1. to end of year | 33,984 | 32,614 |
| **4. Funding policy contribution** *(1. + 2. + 3.)* | **$ 1,092,786** | **$ 1,255,382** |

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# Financial reporting accounting requirements – funding progress

Provided below is the financial reporting information for the plan.

## *Schedule of funding progress*

| Actuarial Valuation Date | Actuarial Value of Assets (a) | Actuarial Accrued Liability (AAL) Entry Age (b) | Unfunded AAL (UAAL) (b) – (a) | Funded Ratio (a)/(b) | Covered Payroll (c) | UAAL as a Percentage of Covered Payroll (b) – (a) / (c) |
|---|---|---|---|---|---|---|
| 01/01/2001 | $ 16,248,145 | $ 17,670,704 | $ 1,422,559 | 91.9% | $ 3,155,718 | 45.1% |
| 01/01/2002 | 17,007,931 | 19,295,567 | 2,287,636 | 88.1% | 3,428,896 | 66.7% |
| 01/01/2003 | 15,204,281 | 21,411,392 | 6,207,111 | 71.0% | 3,586,895 | 173.0% |
| 01/01/2004 | 17,194,086 | 23,255,866 | 6,061,780 | 73.9% | 3,581,760 | 169.2% |
| 01/01/2005 | 17,267,814 | 24,530,293 | 7,262,479 | 70.4% | 3,651,659 | 198.9% |
| 01/01/2006 | 17,426,067 | 25,861,569 | 8,435,502 | 67.4% | 3,782,856 | 223.0% |
| 01/01/2007 | 18,106,583 | 27,471,232 | 9,364,649 | 65.9% | 4,102,912 | 228.2% |
| 01/01/2008 | 19,999,879 | 28,526,368 | 8,526,489 | 70.1% | 4,245,175 | 200.9% |
| 01/01/2009 | 18,266,006 | 29,214,709 | 10,948,703 | 62.5% | 4,469,088 | 245.0% |
| 01/01/2010 | 22,092,661 | 30,728,346 | 8,635,685 | 71.9% | 4,447,537 | 194.2% |

While not required by the governmental accounting standards, the following schedule shows the funding progress of the plan based on the market value of assets.

| Actuarial Valuation Date | Market Value of Assets (a) | Actuarial Accrued Liability (AAL) Entry Age (b) | Unfunded AAL (b) – (a) | Funded Ratio (a)/(b) | Covered Payroll (c) | UAAL as a Percentage of Covered Payroll (b) – (a) / (c) |
|---|---|---|---|---|---|---|
| 01/01/2008 | $ 19,843,121 | $ 28,526,368 | $ 8,683,247 | 69.6% | $ 4,245,175 | 204.5% |
| 01/01/2009 | 15,221,672 | 29,214,709 | 13,993,037 | 52.1% | 4,469,088 | 313.1% |
| 01/01/2010 | 19,545,180 | 30,728,346 | 11,183,166 | 63.6% | 4,447,537 | 251.4% |

## *Schedule of employer contributions*

The annual required contributions as defined in the governmental accounting standards and ratio of actual to required contributions are as follows:

| Year Ended December 31 | Annual Required Contribution | Percentage Contributed |
|---|---|---|
| 2001 | $ 462,505 | 88% |
| 2002 | 567,169 | 100% |
| 2003 | 910,979 | 100% |
| 2004 | 906,696 | 100% |
| 2005 | 983,068 | 100% |
| 2006 | 1,129,573 | 100% |
| 2007 | 1,210,076 | 150% |
| 2008 | 1,055,357 | 212% |
| 2009 | 1,255,382 | 180% |
| 2010 | 1,092,786 | * |

** Cannot be determined until all 2010 contributions have been made.*

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# Financial reporting accounting requirements – net pension cost and net pension obligation

Provided below is additional information required for financial reporting by the City of Ladue.

## *Annual pension cost and net pension obligation*

The City's annual pension cost and net pension obligation for the City's fiscal years ending December 31, 2010 and December 31, 2009 are as follows:

| | December 31, 2010 | December 31, 2009 |
|---|---|---|
| 1. Annual required contribution | $ 1,092,786 | $ 1,255,382 |
| 2. Interest on net pension obligation | (215,787) | (138,304) |
| 3. Adjustment to annual required contribution | (216,126) | (138,521) |
| 4. Annual pension cost *(1. + 2. – 3.)* | 1,093,125 | 1,255,599 |
| 5. Contributions made | * | 2,255,382 |
| 6. Increase (decrease) in net pension obligation *(4. – 5.)* | * | (999,783) |
| 7. Net pension obligation beginning of year | (2,784,353) | (1,784,570) |
| **8. Net pension obligation end of year** *(6. + 7.)* | **$ *** | **$ (2,784,353)** |

## *Trend Information*

| Fiscal Year Ending | Annual Pension Cost (APC) | Percentage of APC Contributed | Net Pension Obligation |
|---|---|---|---|
| 2001 | $ 462,176 | 88.0% | $ 0 |
| 2002 | 567,169 | 100.0% | 0 |
| 2003 | 910,979 | 100.0% | 0 |
| 2004 | 906,696 | 100.0% | 0 |
| 2005 | 983,068 | 100.0% | 0 |
| 2006 | 1,129,573 | 100.0% | 0 |
| 2007 | 1,210,076 | 149.6% | (600,000) |
| 2008 | 1,055,430 | 212.2% | (1,784,570) |
| 2009 | 1,255,599 | 179.6% | (2,784,353) |
| 2010 | 1,093,125 | * | * |

* *Cannot be determined until all 2010 contributions have been made.*

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# Plan assets

| Summary of assets | Market Value as of December 31, 2009 | | Percentage of Total |
|---|---|---|---|
| Cash or cash equivalents: | $ | 561,702 | 2.87% |
| Investments: | | | |
| ▪ Corporate bond funds | | 7,173,015 | 36.70% |
| ▪ Corporate stocks – domestic | | 1,535,735 | 7.86% |
| ▪ Corporate stock funds | | 10,244,339 | 52.41% |
| Accounts receivable | | 30,389 | 0.16% |
| Net assets | $ | 19,545,180 | 100.00% |

| | Plan year ending | | | |
|---|---|---|---|---|
| Reconciliation of assets (market value) | December 31, 2009 | | December 31, 2008 | |
| Net assets at beginning of year | $ | 15,221,672 | $ | 19,843,121 |
| Contributions received | | | | |
| ▪ City | | 2,255,382 | | 2,240,000 |
| ▪ Employee | | 136,030 | | 127,583 |
| Investment earnings | | | | |
| ▪ Interest and dividends | | 525,206 | | 550,977 |
| ▪ Realized and unrealized gain/(loss) | | 3,163,414 | | (5,823,677) |
| Other income | | 0 | | 0 |
| Disbursements | | | | |
| ▪ Benefit payments to participants or beneficiaries | | (1,687,646) | | (1,641,817) |
| ▪ Investment expenses | | (47,118) | | (52,665) |
| ▪ Administrative expenses | | (21,760) | | (21,850) |
| Net income | $ | 4,323,508 | $ | (4,621,449) |
| Net assets at end of year | $ | 19,545,180 | $ | 15,221,672 |
| Actual investment return | | 23.40% | | (26.37%) |

## *Actuarial value of assets*

| | | |
|---|---|---|
| 1. | Preliminary actuarial value of assets at January 1, 2009 | $ 20,793,607 |
| 2. | Contributions | 2,391,412 |
| 3. | Benefit payments | (1,687,646) |
| 4. | Expenses | (21,760) |
| 5. | Expected interest at 7.75% on 1. + 2. + 3. + 4. | 1,637,932 |
| 6. | Expected actuarial value of assets at December 31, 2009 *(1. + 2. + 3. + 4. + 5.)* | 23,113,545 |
| 7. | Market value of assets at December 31, 2009 | 19,545,180 |
| 8. | Adjustments to reflect market value *(see following table)* | (1,020,884) |
| 9. | Preliminary actuarial value at December 31, 2009 *(6. + 8.)* | 22,092,661 |
| 10. | 80% of market value at December 31, 2009 | 15,636,144 |
| 11. | 120% of market value at December 31, 2009 | 23,454,216 |
| **12.** | **Actuarial value of assets at December 31, 2009** *(9., but not less than 10. nor more than 11.)* | **$ 22,092,661** |

## *Schedule of market value adjustments*

| Year | Gain/(Loss) Base | Unrecognized Balance 1/1/2009 | 12/31/2009 Adjustment | Unrecognized Balance 1/1/2010 |
|---|---|---|---|---|
| 2005 | $ (447,856) | $ (89,572) | $ (89,572) | $ 0 |
| 2006 | 528,778 | 211,510 | 105,756 | 105,754 |
| 2007 | (286,279) | (171,767) | (57,256) | (114,511) |
| 2008 | (6,902,632) | (5,522,106) | (1,380,526) | (4,141,580) |
| 2009 | 2,003,570[1] | N/A | 400,714 | 1,602,856 |
| **Total** | **$ (5,104,419)** | **$ (5,571,935)** | **$ (1,020,884)** | **$ (2,547,481)** |

[1] 7. – 6. – Unrecognized balance January 1, 2009.

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# Participant data

## Statistics

| | Plan year beginning January 1, 2010 | Plan year beginning January 1, 2009 |
|---|---|---|
| **Participants included in valuation** | | |
| ▪ Active participants | | |
| - Vested | 29 | 31 |
| - Non-vested | 26 | 29 |
| - Total actives | 55 | 60 |
| ▪ Inactive with deferred benefits | 0 | 0 |
| ▪ Inactive with immediate benefits | 51 | 49 |
| ▪ Total | 106 | 109 |
| **Active participant statistics** | | |
| ▪ Average age | 41.4 | 41.0 |
| ▪ Average years of service | 14.0 | 13.2 |
| ▪ Total compensation[1] | $ 4,447,537 | $ 4,469,088 |
| ▪ Average compensation[1] | 80,864 | 74,485 |
| **Inactive deferred statistics** | | |
| ▪ Average age | N/A | N/A |
| ▪ Total monthly benefits | N/A | N/A |
| ▪ Average monthly benefits | N/A | N/A |
| **Inactive immediate statistics** | | |
| ▪ Average age | 66.5 | 65.8 |
| ▪ Total monthly benefits | $ 146,174[2] | $ 138,959[3] |
| ▪ Average monthly benefits | 2,866 | 2,836 |

[1] Annualized earnings for prior calendar year increased by the salary assumption of 4.75%.

[2] Includes benefits for two alternate payees and two children of disabled participants.

[3] Includes benefits for two alternate payees and one child of disabled participant.

## *Participant data reconciliation*

| | | Inactive participants | | |
|---|---|---|---|---|
| | Active participants | With deferred benefits | Receiving benefits | Total |
| Beginning of the year | 60 | 0 | 49[1] | 109 |
| Retirements | (2) | 0 | 2 | 0 |
| Disabilities | 0 | 0 | 0 | 0 |
| Deaths | 0 | 0 | (1) | (1) |
| Non-vested terminations | (3) | N/A | N/A | (3) |
| Vested terminations | 0 | 0 | N/A | 0 |
| Rehires | 0 | 0 | 0 | 0 |
| Lump sum payouts | 0 | 0 | 0 | 0 |
| Survivors | N/A | 0 | 1 | 1 |
| New entrants | 0 | N/A | N/A | 0 |
| Data corrections | 0 | 0 | 0 | 0 |
| Net change | (5) | 0 | 2 | (3) |
| End of the year | 55 | 0 | 51[2] | 106 |

[1] Counts do not include one child and two alternate payees.

[2] Counts do not include two children and two alternate payees.

## *Distribution of active participants*

| Age | Years of service as of January 1, 2010 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Under 1 | 1 – 4 | 5 – 9 | 10 – 14 | 15 – 19 | 20 – 24 | 25 – 29 | 30+ | **Total** |
| Under 25 | | | | | | | | | 0 |
| 25 – 29 | | 4 | 1 | | | | | | 5 |
| 30 – 34 | | 3 | 5 | | | | | | 8 |
| 35 – 39 | | 7 | 4 | 4 | | | | | 15 |
| 40 – 44 | | | 1 | 3 | 4 | | | | 8 |
| 45 – 49 | | | 1 | | | 3 | 3 | | 7 |
| 50 – 54 | | | | 1 | | 2 | 4 | 2 | 9 |
| 55 – 59 | | | | | | | 1 | | 1 |
| 60 – 64 | | | | | | | | 2 | 2 |
| 65 – 69 | | | | | | | | | 0 |
| 70 & up | | | | | | | | | 0 |
| **Total** | 0 | 14 | 12 | 8 | 4 | 5 | 8 | 4 | 55 |

In each cell, the number is the count of active employees for each age/service combination.

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# Actuarial basis

## *Actuarial cost method and valuation procedures*

**Actuarial cost method:** Liabilities and contributions shown in this report are computed using the individual entry age normal method of funding. The objective under this method is to fund each participant's benefits under the plan as payments which are level as a percentage of salary, starting at the original employment date and continuing until the assumed retirement, termination, disability or death.

At the time the funding method is introduced, there will be a liability which represents the contributions which would have been accumulated if this method of funding had always been used. The difference between this liability and the assets (if any) which are held in the fund is the unfunded liability, which is typically funded over a chosen period in accordance with an amortization schedule.

A detailed description of the calculation follows:

- The normal cost for each active participant under the assumed retirement age is determined by applying to compensation the level percentage of salary which, if contributed each year from date of entry into the plan until the assumed retirement (termination, disability or death) date, is sufficient to provide the full value of the benefits expected to be payable.

- The present value of future normal costs is the total of the discounted values of all active participants' normal costs, assuming these to be paid in each case from the valuation date until retirement (termination, disability or death) date.

- The present value of projected benefits is calculated as the value of all benefit payments expected to be paid to the plan's current participants, including active and retired members, beneficiaries, and terminated members with vested rights.

- The accrued liability is the excess of the present value of projected benefits over the present value of future normal costs.

- The unfunded liability is the excess of the accrued liability over the actuarial asset value of the fund, and represents that part of the accrued liability which has not been funded by accumulated past contributions.

The funding policy contribution is the normal cost with interest to the end of the plan year plus a 20-year amortization of the unfunded accrued liability as a level percentage of projected payroll.

**Changes in actuarial cost method since prior valuation:** There were no changes since the prior valuation. The last change to the actuarial cost method was made January 1, 2000.

**Financial and census data:** We used January 1, 2010 financial and participant data as supplied by the plan sponsor without further audit. Customarily, this information would not be verified by a plan's actuary. We have reviewed the information for internal consistency and we have no reason to doubt its substantial accuracy.

**Benefits not included in liabilities:** All benefits described in the summary of plan provisions were valued.

**Participants included:** The plan sponsor provides us with data on all employees as of the valuation date. No actuarial liability is included for participants who terminated nonvested prior to the valuation date.

**Disabled participants:** The liabilities for participants on long-term disability are included with the liabilities for active participants with frozen final average pay.

**Valuation earnings**: Annualized earnings for the prior calendar year increased by the pay increase assumption.

**Attribution period:** The attribution period is the period of an employee's service over which the benefit cost calculation recognized the expected benefit obligation for that employee. The beginning of the attribution period is the entry date into the plan and the ending date is the date of termination.

## *Method for determining actuarial valuation of assets*

The actuarial asset value is based on a five-year moving average of expected and market values determined as follows:

- At the end of each plan year, an expected asset value is calculated as the sum of the previous year's preliminary actuarial value increased with a year's interest at the plan valuation rate plus net cash flow adjusted for interest (at the same rate) to the end of the plan year;

- The investment gain/(loss) is the excess of the current market value over the sum of the expected asset value plus the unrecognized balances of investment gains/(losses) for the previous five years;

- The investment gain/(loss) so determined is recognized in five equal installments in the actuarial valuation immediately following the year in which such gain/(loss) incurred;

- The preliminary actuarial asset value is the sum of the expected asset value plus the installments of investment gains/(losses) during the preceding five plan years; and

- The actuarial asset value is the preliminary value but in no case more than 120% of the market value or less than 80% of the market value.

## *Method changes since prior valuation*

No changes have been made to the asset valuation method. The last change to the asset valuation method was made January 1, 1995.

## *Summary of actuarial assumptions*

The following assumptions were used in valuing the liabilities and benefits under the plan.

| | |
|---|---|
| **Investment return** | 7.75% per year compounded annually. |
| **Salary increases** | 4.75% per year compounded annually. |
| **Inflation** | 3.00% per year. |
| **Expenses** | $25,000 |
| **Mortality** | |
| ▪ Healthy | RP-2000 Combined White Collar Mortality table projected to 2007 by Scale AA for males and females. Active deaths are assumed to be 50% duty related. See table of sample rates. |
| ▪ Disabled | Post-1994 Disability Mortality table as prescribed by IRS Revenue Ruling 96-7. See table of sample rates |
| **Demographic assumptions** | |
| Disability | |
| ▪ Rates | 1985 Pension Disability Table – Class 3. Disabilities are assumed to be 75% duty related. See table of sample rates. |
| ▪ Duration of disability | Factors varying by age for active participants and age at disability for disabled participants after January 1, 2008 |

| Age | Duration |
|---|---|
| Under 45 | 10 years |
| 45 – 54 | 8 years |
| 55 – 59 | 5 years |
| 60 and over | 2 years |

| | |
|---|---|
| Withdrawal | Rates varying by age. See table of sample rates. |
| Retirement | Rates varying by age for active participants. |

| Age | Retirement Rate |
|---|---|
| 55 | 0.25 |
| 56-58 | 0.20 |
| 59 | 0.50 |
| 60 | 1.00 |

For vested terminations, 100% at age 55.

| | |
|---|---|
| Percentage married | 80% for active participants. Actual information is used for retirees. |
| Child prevalence | Active members are assumed to have one child at the time of disability and, if assumed married, one child at time of death. |

| | |
|---|---|
| Age difference | A married male is assumed to be four years older than his spouse. Actual spouse birth date is used for retirees. |
| **Form of payment** | Life annuity with a postretirement death benefit payable to spouses and eligible children, except terminations before retirement are assumed to elect a return of contributions. |
| **Changes since prior valuation** | None. |

## *Table of sample rates*

| | Rate | | | | | |
|---|---|---|---|---|---|---|
| **Attained Age** | **Mortality – Healthy** | | **Mortality – Disabled** | | | |
| | **Male** | **Female** | **Male** | **Female** | **Disability** | **Withdrawal** |
| 20 | .0002 | .0002 | .0246 | .0097 | .0014 | .1000 |
| 25 | .0003 | .0002 | .0275 | .0120 | .0020 | .0800 |
| 30 | .0003 | .0003 | .0307 | .0148 | .0030 | .0550 |
| 35 | .0006 | .0004 | .0342 | .0177 | .0042 | .0340 |
| 40 | .0008 | .0006 | .0384 | .0206 | .0059 | .0140 |
| 45 | .0012 | .0009 | .0430 | .0240 | .0082 | .0020 |
| 50 | .0017 | .0014 | .0480 | .0280 | .0122 | .0000 |
| 55 | .0029 | .0024 | .0531 | .0326 | .0209 | .0000 |
| 60 | .0050 | .0045 | .0581 | .0380 | .0310 | .0000 |
| 65 | .0100 | .0084 | .0637 | .0443 | .0412 | .0000 |
| 70 | .0173 | .0147 | .0733 | .0513 | .0000 | .0000 |
| 75 | .0305 | .0243 | .0889 | .0626 | .0000 | .0000 |
| 80 | .0554 | .0410 | .1071 | .0805 | .0000 | .0000 |
| 85 | .0996 | .0711 | .1333 | .1094 | .0000 | .0000 |
| 90 | .1733 | .1235 | .1734 | .1535 | .0000 | .0000 |
| 95 | .2595 | .1843 | .2341 | .2170 | .0000 | .0000 |
| 100 | .3422 | .2358 | .3192 | .3034 | .0000 | .0000 |

## *Summary of plan provisions*

Following is a brief summary of the major plan provisions used to determine the plan's financial position. It should not be used in determining plan benefits.

| | |
|---|---|
| Effective date | May 1, 1947; last amended effective November 9, 2007. |
| Plan year | January 1 through December 31. |
| Sponsoring employer | The City of Ladue. |
| Participating employees | All salaried uniformed employees of the Fire Department and of the Police Department of the City of Ladue. |
| Administration | Trust |
| Type of plan | Defined benefit. |
| Eligibility | Hire date. |
| Actuarial equivalence | Based on UP84 Mortality set back one year and 5% interest. |
| Employee contributions | Each participant contributes 3% of salary to the pension fund. The interest rate used to accumulate contributions as set by the Retirement Committee is 4%. |
| Salary | Compensation paid to an employee by the City of Ladue for personal services rendered during a calendar year, including vacation pay, unused sick pay, pretax contributions to deferred compensation and cafeteria plans, and LTD premiums paid on behalf of the employee. |
| Final average monthly salary | Average monthly salary during the last five years of employment. For disabled employees, the average shall be determined as of the date they ceased to be actively employed due to disability. |
| Career average monthly salary | Average monthly salary during an employee's entire period of service. For disabled employees, the average shall be determined as of the date they ceased to be actively employed due to disability. |
| Credited service | The period of continuous employment and periods while a participant is employed or receiving LTD benefits or disability benefits under the plan (or while on an FMLA leave). |

| | |
|---|---|
| **Normal retirement** | |
| ▪ Eligibility | The date the employee attains age 55 and completes 10 years of service. |
| ▪ Benefit | A participant who retires with 20 or more years of service receives a monthly benefit equal to 40% of Final Average Monthly Salary plus 2.5% of Final Average Monthly Salary for each year of credited service between 20 and 30 years.<br><br>A participant who retires with less than 20 years of service will receive a monthly benefit equal to 2% of Career Average Monthly Salary multiplied by years of credited service. |
| ▪ Increase in retirement benefit | The benefit of any participant who retired on or after April 17, 1972 is adjusted on January 1 each year, starting with the second January after benefits became payable. The adjustment will equal the change in the Consumer Price Index since the last adjustment, to the nearest one-tenth of one percent, provided that if the increase is less than 1% then the adjustment factor is zero, and if the increase is 2% or more, then the adjustment factor is 2%. If the CPI decreases, the adjustment factor will be zero unless the decrease is 2% or more. The maximum cumulative increase that a Participant may receive is 20%. |
| **Deferred retirement** | A participant may continue on the City's payroll and defer his pension after reaching age 55 upon discretion of the City Council. |
| **Early retirement** | |
| ▪ Eligibility | The first day of any month following attainment of age 50 and completion of 10 years of service. |
| ▪ Benefit | The participant's accrued benefit, actuarially reduced, based on his salary and length of service at retirement. |
| **Disability benefit** | Disability benefits prior to retirement are paid outside of the plan through an insurance company. Upon cessation of payments, the early retirement, normal retirement, late retirement or termination provisions will apply if the participant has 10 years of Credited Service when payments cease. |

| Death | |
|---|---|
| ▪ Benefit for active participants | Duty: The spouse or eligible children receive a monthly benefit equal to 50% of the deceased participant's average monthly wages during the five years immediately prior to death, plus 10% of such monthly salary for each unmarried dependent child under age 18, up to a maximum of three children.<br><br>Non-Duty: The spouse, who has attained age 50, or the eligible children of a participant who dies after completing at least one year of service will receive a monthly benefit equal to 5% of the participant's Final Average Monthly Salary, multiplied by the participant's completed years of service, up to a maximum of 24% of the Final Average Monthly Salary. If there are unmarried dependent children under age 18 living at home, an additional 2% of the average monthly salary times completed years of service up to a maximum of 10% of the average monthly salary will be payable for each child, up to three. |
| ▪ Benefit for disabled participants | Duty Disability: The spouse or eligible children of a participant who dies following duty disability retirement will receive a monthly benefit equal to 40% of the participant's Final Average Monthly Salary, plus 10% of such monthly salary for each unmarried dependent child under age 18, up to three.<br><br>Non-Duty Disability: The spouse or eligible children of a participant who dies following non-duty disability retirement will receive a monthly benefit equal to 2/3 of the pension that the disabled retiree was receiving, plus 1/3 of such pension for each unmarried dependent child under age 18, up to three. |

| | |
|---|---|
| ▪ Postretirement benefit | The spouse or eligible children of a participant who dies following normal retirement will receive a monthly benefit equal to 50% of the pension that the retiree had been receiving, provided:<br><br>(a) The surviving spouse had attained age 50, or<br><br>(b) There are unmarried dependent children under age 18 who are dependent on the surviving spouse.<br><br>Upon death of the surviving spouse, payments will continue until all children have married or attained age 18. |
| **Termination benefit** | A participant who terminates his employment prior to completion of 10 years of service will receive a refund of his accumulated contributions with interest.<br><br>A participant who terminates after completing at least 10 years of service may receive either a refund of his accumulated contributions with interest, an accrued benefit or a reduced benefit payable at an early commencement date. |
| **Form of payment** | The normal form of benefit payment is a monthly life annuity with a postretirement death benefit possibly payable to a spouse or eligible children. |
| **Changes since prior valuation** | None. |

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