



**City of Lansing  
Employees' Retirement System**

**Actuarial Review and Analysis  
as of December 31, 2010**

January 13, 2012

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## Executive Summary

This report presents the results of an actuarial review and analysis of the City of Lansing Employees' Retirement System (ERS) as of December 31, 2010.

The required Employer contribution for Fiscal Year 2012 has been determined based on actual demographic and asset information as of December 31, 2010. A summary of the current status of the ERS Plan as a whole is as follows:

|                                                | December 31, 2009    | December 31, 2010 |          |
|------------------------------------------------|----------------------|-------------------|----------|
| <b>Plan Membership</b>                         |                      |                   |          |
| Active                                         | 570                  | 497               |          |
| Inactive                                       | 62                   | 78                |          |
| <u>Receiving Benefits</u>                      | <u>799</u>           | <u>840</u>        |          |
| Total                                          | 1,431                | 1,415             |          |
| Average Pay                                    | \$53,687             | \$55,868          |          |
| <b>Assets (\$ millions)</b>                    |                      |                   |          |
| Market Value (MVA)*                            | \$ 162.7             | \$ 172.5          |          |
|                                                | <b>Prior Actuary</b> | <b>EFI</b>        |          |
| <b>Valuation Results (\$ millions)</b>         |                      |                   |          |
| Valuation Assets (AVA)                         | \$ 193.3             | \$ 193.1          | \$ 187.4 |
| Actuarial Accrued Liability (AAL)              | \$ 262.3             | \$ 260.2          | \$ 269.5 |
| Unfunded Accrued Liability                     | 69.0                 | 67.1              | 82.0     |
| Funding Ratio (AVA/AAL)                        | 74%                  | 74%               | 70%      |
| Funding Ratio (MVA/AAL)                        | 62%                  | 63%               | 64%      |
| <b>Contributions</b>                           |                      |                   |          |
| Employer Normal Cost Rate<br>(% of pay)        | 10.32%               | 10.01%            | 10.26%   |
| Total Employer Contribution Rate<br>(% of pay) | 22.63%               | 21.99%            | 26.41%   |
| Estimated Employer Contribution<br>(millions)  | \$ 7.3               | \$ 6.9            | \$ 7.6   |

\* Total Fund, less Healthcare Reserve

## Purpose of the Report

This Report presents the results of an actuarial review and analysis of the City of Lansing Employees' Retirement System (ERS, the Plan) as of December 31, 2010. The purposes of this Report are:

- To compute the annual contribution required to fund the Plan in accordance with actuarial principles;
- To review the experience of the Plan over the past year and to discuss reasons for changes in Plan cost;
- To discuss issues associated with the determination of Plan costs and future cost implications; and
- To present items required for disclosure under Statement No. 25 of the Governmental Accounting Standards Board (GASB).

## Change in Plan Cost from December 31, 2009 to December 31, 2010

The employer contribution determined based on actual demographic and asset information has increased since the prior valuation. The narrative and table below summarize the impact of actuarial experience and other changes on Plan cost.

|                                          | <b>Employer<br/>Contribution Rate</b> |
|------------------------------------------|---------------------------------------|
| <b>December 31, 2009 (Prior Actuary)</b> | <b>22.63%</b>                         |
| Change in Cost Due to:                   |                                       |
| Change in Actuary / Software / Methods   | (0.64%)                               |
| Scheduled Investment Loss Recognition    | 3.78%                                 |
| Actual Investment Experience             | (0.34%)                               |
| Demographic Experience                   | 0.42%                                 |
| <u>Plan Change</u>                       | <u>0.58%</u>                          |
| Total Change                             | 3.78%                                 |
| <b>December 31, 2010</b>                 | <b>26.41%</b>                         |
| Projected 2011 Payroll                   | 28,769,143                            |
| <b>Projected Contribution Amount</b>     | <b>7,596,879</b>                      |

The following impacted the change in cost from 12/31/2009 to 12/31/2010:

- Change in actuary and valuation system

This report represents the first time that EFI has conducted the actuarial valuation of the Plan, using EFI's own valuation systems and accompanying methods. To determine the impact of the change in

system and methods, we conducted a valuation as of December 31, 2009 using the data supplied by the prior actuary, and compared our calculations to those in the December 31, 2009 valuation report.

As shown in Section 4.1, our comparison with the results of the prior actuary was well within an acceptable range. The change in actuary caused a slight decrease in the contribution rate.

- Investment loss recognition

As part of the asset smoothing process, investment losses from prior years (specifically from 2008) are gradually recognized and cause contribution rates to increase. This caused a significant increase in the contribution rate.

More information on asset smoothing can be found in Section 3.3 herein.

- Investment experience

While prior loss recognition served to increase the contribution rate, the actual experience during 2010 represented an investment gain (12.9% return versus 8.0% expected). In accordance with the asset smoothing process, part of this gain was recognized immediately, partially offsetting the prior loss recognition. This is the intended operation of asset smoothing: gains and losses are expected to offset each other over time.

- Demographic and salary experience

Demographic experience includes movement within the population from one time period to another, in this case during the course of calendar year 2010. When experience differs from that expected (e.g., number of retirements or terminations, salary increases), then actuarial gains and losses occur, increasing or decreasing the contribution rate.

In 2010, the City offered a Retirement Incentive Program (RIP) to certain eligible members. Under the terms of the RIP, any Old Plan member with at least 25 years of service was eligible to retire immediately. As a result of the RIP, the number of retirements in 2010 was much higher than expected. This resulted in a higher City contribution rate.

- Plan changes

Effective February 2010, the benefit multiplier was increased for Teamsters groups 214 and 580, from 1.6% to 1.8%. This resulted in an increase in the liability and thus the contribution rate. The member contribution rate for Teamsters 580 was also increased from 5.50% to 6.35%, which partially offset the cost increase associated with the higher benefit multiplier.

## Future Costs

There are a number of factors that can be expected to impact costs in the future:

- The liabilities and contributions determined in this Report are based on a set of actuarial assumptions. Despite the care and effort expended in determining the most accurate possible set of assumptions, the future experience of the Plan will certainly differ from what we assume. As a result, actuarial gains or losses will occur annually, and the employer contributions will fluctuate.
- Based on the assumptions and cost method, Plan assets are currently below the target level of assets; consequently, there is an unfunded actuarial accrued liability. As a result, the employer contribution consists of two components: The normal cost and the amortization of the unfunded actuarial accrued liability.

The employer normal cost represents the cost of the additional benefits earned each year by active Plan members. The balance of the employer contribution represents the amortization of the unfunded liability, which is a payment, designed to bring the Plan's assets up to the target level. Currently, the amortization represents approximately 60% of the total contribution.

- There are investment losses that are deferred by the actuarial smoothing method and not included in the actuarial value of assets used to determine the employer contribution. The current amount of unrecognized investment experience is a net loss equal to about \$15 million. This will create upward pressure on the contribution over the next few years.

## Projections

The following graphs show baseline projections of contribution rates and funding progress for the Plan. These are based on only one of an infinite number of possible future outcomes – the case that all actuarial assumptions are exactly met each and every year. Even though this scenario is impossible, it is helpful to study these graphs to gain a sense of the general trend over the next two decades under current assumptions, policies, and plan provisions.

In Figure 1, the estimated funding ratio (assets as a percent of AAL) is shown on the right axis. The estimated UAAL is shown in dollars on the left axis. While gradual funding progress is possible, we can see that the UAAL is not expected to decrease at all under the current funding policies (i.e., rolling 30 year level percentage of pay amortization).

During the time that the UAAL is increasing most rapidly – over the next few years as investment losses are recognized – the contribution rate is expected to noticeably increase, as shown in Figure 2. After this, ignoring the impact of any gains or losses in the interim, a decrease in the rate is expected. Table 1 shows the dollar values of the expected future cash flows.

In other words, these projections are representations of the impact of past experience (prior to 12/31/2010) on future funding. What happens after 12/31/2010 will certainly impact contributions and funding as well.

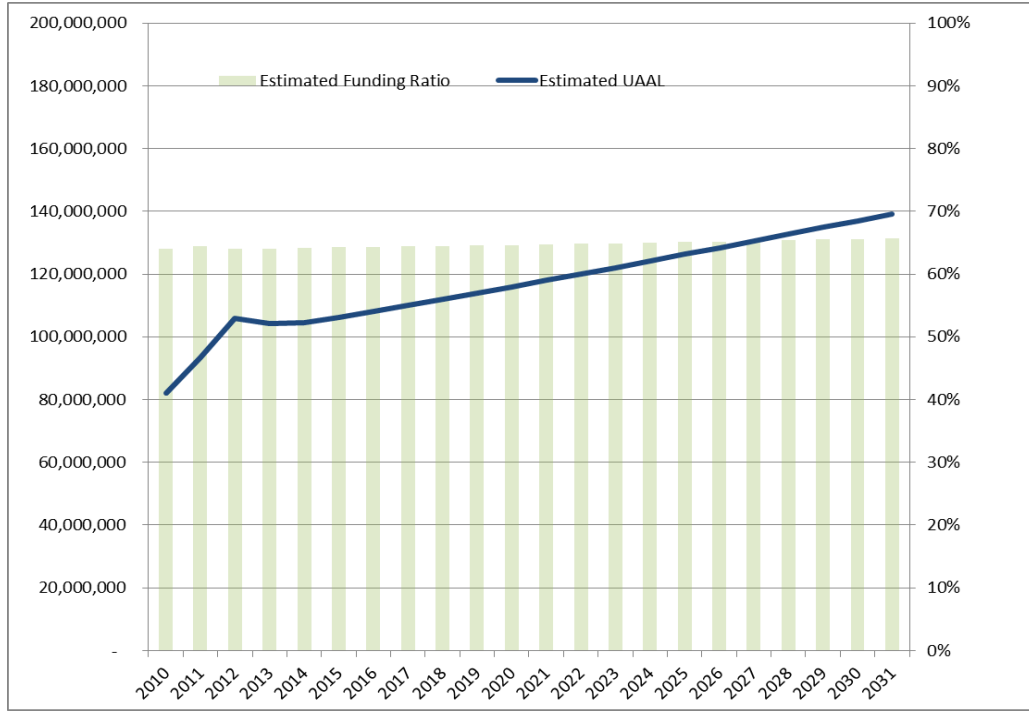


Figure 1: Estimated Future Funding Progress

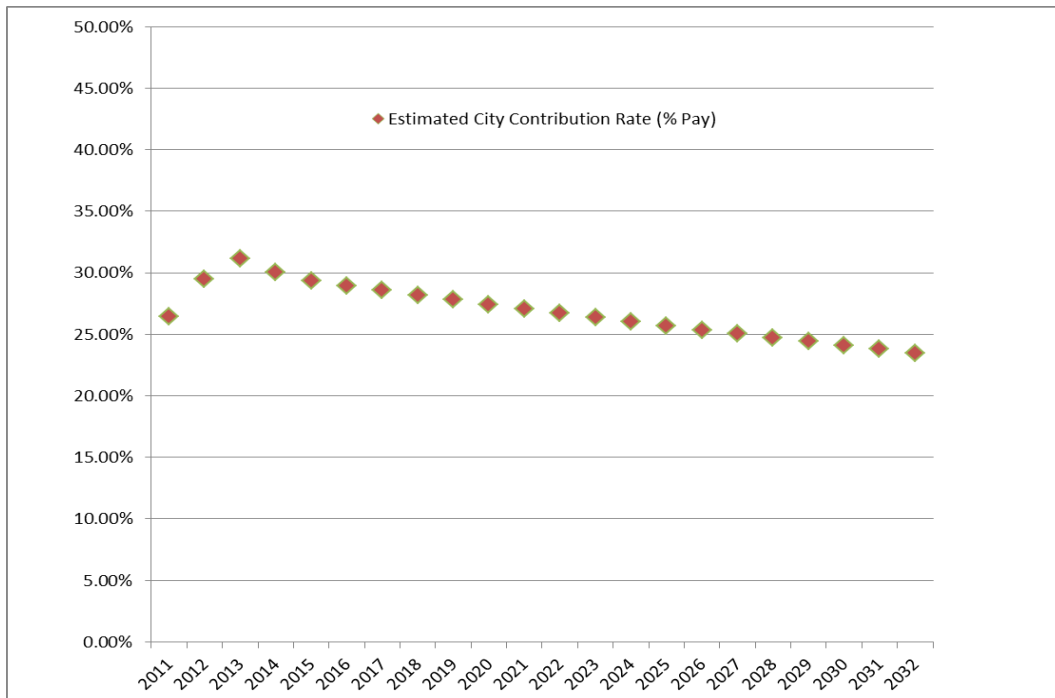


Figure 2: Estimated Future City Contribution Rates

**Table 1: Estimated Future Cash Flows (\$ thousands)**

| Year Ending<br>December 31 | Estimated<br>City<br>Contribution | Estimated<br>Member<br>Contributions | Estimated<br>Benefit<br>Payments |
|----------------------------|-----------------------------------|--------------------------------------|----------------------------------|
| 2011                       | \$ 7,597                          | \$ 1,365                             | \$ 20,438                        |
| 2012                       | 8,694                             | 1,420                                | 20,898                           |
| 2013                       | 9,546                             | 1,477                                | 21,368                           |
| 2014                       | 9,579                             | 1,536                                | 21,849                           |
| 2015                       | 9,736                             | 1,597                                | 22,341                           |
| 2016                       | 9,984                             | 1,661                                | 22,843                           |
| 2017                       | 10,245                            | 1,728                                | 23,357                           |
| 2018                       | 10,514                            | 1,797                                | 23,883                           |
| 2019                       | 10,790                            | 1,869                                | 24,420                           |
| 2020                       | 11,074                            | 1,943                                | 24,970                           |

Note: This is under the current amortization policy and assumptions.

## Actuarial Certification

In this study, we conducted an examination of all participant data for reasonableness and consistency. Actuarial funding is based on the Entry Age Normal Cost Method. Under this method, the employer contribution provides for current cost (normal cost) plus an amount to amortize the unfunded actuarial accrued liability (UAAL). As of the valuation date, the amortization period is 30 years.

For actuarial valuation purposes, Plan assets are valued at Actuarial Value, using a method that gradually recognizes investment gains and losses. The assumptions and plan provisions are the same as those used in the prior valuation.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for funding purposes meet the parameters of the Governmental Accounting Standards Board Statement No. 25.

The undersigned are members of and meet the qualification standards of the American Academy of Actuaries, and are qualified to render the actuarial opinions presented herein.

Respectfully Submitted,



Gregory M. Stump, FSA, MAAA



Karen T. Earley, FSA, MAAA



**Section 1:**

**Summary of Plan Provisions and Member Data**

## **1.1: Brief Outline of Plan Provisions**

### **Membership**

The Plan covers employees of the City in the following groups: Teamsters, UAW, Exempt, District Court (except Judges), Executive Pay Plan and Police 911. Newly hired elected officials do not become members of the retirement plan.

### **Definitions**

#### ***Compensation***

Compensation is defined as a member's salary, wages, and longevity bonus. In addition, Compensation may include up to 80 hours of compensatory time for members not eligible for overtime pay.

#### ***Final Average Compensation***

Final Average Compensation is determined as the average of the highest annual compensation paid a member during a period of two consecutive years of credited service contained within the member's ten years of credited service immediately preceding the date when the member's employment with the City has terminated.

### **Retirement – Old Plan**

#### ***Eligibility (UAW)***

UAW Members are eligible for Normal Retirement at age 50 with 25 years of service, or at age 58 with 8 years of service.

#### ***Eligibility (All Others)***

Members are eligible for Normal Retirement after 8 years of service and the attainment of the earlier of:

- age 58, or
- The age at which age plus service equals or exceeds 65.

#### ***Benefit Amount (UAW and Elected Officials)***

Benefit is determined as 2.75% of Final Average Compensation for the first 35 years of credited service, plus 1.5% of Final Average Compensation for the next 5 years of service, plus 1.0% of Final Average Compensation for service in excess of 40 years, with a maximum of 100% of Final Average Compensation.

***Benefit Amount (District Court Teamsters)***

Benefit is determined as 2.3% of Final Average Compensation times years of credited service.

***Benefit Amount (All Others)***

Benefit is determined as 2.80% of Final Average Compensation for each of the first 35 years of credited service, plus 1.5% of Final Average Compensation for the next 5 years of service, plus 1.0% of Final Average Compensation for service in excess of 40 years, with a maximum of 100% of Final Average Compensation.

**Retirement – New Plan**

***Eligibility (All)***

Members are eligible for Normal Retirement at age 50 with 25 years of service, or at age 58 with 8 years of service.

***Benefit Amount (UAW)***

Benefit is determined as 2.75% of Final Average Compensation times years of credited service.

***Benefit Amount (Teamsters 214 and 580)***

Benefit is determined as 1.8% of Final Average Compensation times years of credited service. (Effective 2/1/2010 – previously the benefit multiplier was 1.6%)

***Benefit Amount (All Others)***

Benefit is determined as 1.6% of Final Average Compensation times years of credited service.

***Form of Benefit***

The Retirement Benefit will be paid monthly beginning at retirement and for the life of the member. Optional benefit forms are also available, as described below. If the member selects a Joint and Survivor Option, in the event of the member's death a percentage of the benefit will continue for the life of the member's beneficiary.

**Duty Disability**

***Eligibility***

Members are eligible for Duty Disability Retirement benefits immediately upon employment.

***Benefit Amount***

The Duty Disability Retirement Benefit payable to members is equal to the accrued Retirement benefit, with additional service credit granted to age 60. During the workers' compensation period, the disability benefit may not exceed the difference between the member's final compensation and the workers' compensation amount.

### ***Form of Benefit***

The Duty Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement and for the life of the member. Upon the attainment of age 60, disabled retirees are transferred to service retirement status.

### **Non-Duty Disability**

#### ***Eligibility***

Members are eligible for Non-Duty Disability Retirement benefits after completing ten years of service.

#### ***Benefit Amount***

The Non-Duty Disability Retirement Benefit payable to members is equal to the accrued Retirement benefit, with a minimum benefit equal to 25% of final average compensation.

#### ***Form of Benefit***

The Non-Duty Disability Retirement Benefit will be paid monthly beginning at the effective date of disability retirement and for the life of the member.

### **Death Incurred in the Line of Duty**

#### ***Eligibility***

The Death in Line of Duty Benefit is payable to the survivors of a member who died as a result of an injury or disease arising out of and in the course of duty.

#### ***Benefit Amount***

The benefit payable to the survivors is equal to the survivors' weekly workers' compensation, converted to an annual basis.

#### ***Form of Benefit***

The benefit described above shall begin upon termination of the survivors' workers' compensation period, payable as a life annuity. Children's benefits shall terminate upon attainment of the age of 21 years, or death, or marriage, whichever comes first.

### **Non-Duty Pre-Retirement Death**

#### ***Eligibility***

The Non-Duty Pre-Retirement Death Benefit is payable upon the death of a member after earning eight years of credited service.

### ***Benefit Amount***

The Non-Duty Pre-Retirement Death Benefit is computed in the same manner as the Normal Retirement Benefit.

### ***Form of Benefit***

The benefit described above is payable as a 100% Joint and Survivor benefit to the surviving spouse.

## **Deferred Vested Benefit**

### ***Eligibility***

A member is eligible for a Deferred Vested Benefit upon termination of employment after earning eight years of credited service.

### ***Benefit Amount***

The Deferred Vested Benefit is computed in the same manner as the Normal Retirement Benefit, but it is based on credited service and Final Average Compensation on the date of termination.

### ***Form of Benefit***

The Deferred Vested Benefit will be paid monthly beginning at age 58 for New Plan members, and for the life of the member. For Old Plan members (except UAW), the Deferred Vested Benefit is payable at the age at which age plus service equals 65.

## **Optional Benefit Forms**

Prior to retirement, a member may elect to convert his retirement allowance into a benefit of equivalent actuarial value in accordance with one of the optional forms described below.

- Cash Refund Annuity – If a member dies before receiving the total value of accumulated member contributions, the remaining member contributions are payable to designated beneficiary(ies) at the time of death.
- 50% or 100% Joint and Survivor annuity
- Social Security Level Income (“Equating Pension”) - Any member who retires prior to age 65 may elect to have his retirement allowance actuarially equated to provide an increased retirement allowance to age 65, and a reduced retirement allowance payable thereafter. The increased retirement allowance shall approximate the sum of the member’s reduced retirement allowance payable after age 65 and the member’s estimated Social Security primary insurance amount.

## **Member Contributions**

Each member contributes a percentage of Compensation to the Plan. The percentages contributed are as follows:

**Contribution Rates (% of Pay)**

| <b>Member Group</b>      | <b>Old Plan</b> | <b>New Plan</b> |
|--------------------------|-----------------|-----------------|
| Police 911               | 7.25%           | 5.50%           |
| UAW                      | 1.70%           | N/A             |
| Teamsters 214            | 3.75%           | 6.50%           |
| Teamsters 580*           | 3.50%           | 6.35%           |
| District Court Teamsters | 3.50%           | 5.50%           |
| District Court Exempt    | 4.50%           | 5.50%           |
| Exempt                   | 3.75%           | 6.50%           |
| Executive Pay Plan       | 3.75%           | 6.50%           |
| Elected Officials        | 3.25%           | N/A             |

\* Member contribution rate for Teamsters 580 was increased in 2010 as a result of negotiated benefit increases. Previously, this rate was 5.50%.

**Post-Retirement Benefit Adjustments**

One-time post-retirement benefit increases were granted in 1984, 1987 and 1998.

Effective January 1, 1999, and each January 1 thereafter, eligible retirees and beneficiaries receive annual benefit increases financed by the Members' Benefit Fund. Retirees/Beneficiaries must meet both of the following conditions:

- 1) Has been retired at least 6 months as of the January 1 increase date
- 2) Age 60 as of the January 1 increase date

In general, the amount of the annual increase in retirement allowance shall be 3% of the annual retirement allowance. However, the maximum annual increase is as follows:

- For a retiree/beneficiary who elected a 50% or 100% Joint and Survivor Annuity, the maximum annual increase is equal to \$200 (\$100 for the beneficiary if 50% option is elected) times a ratio of the original Joint and Survivor benefit to the original straight life annuity benefit.
- For all other retirees/beneficiaries, the maximum annual increase is \$200.

**Changes in Plan Provisions since Prior Valuation**

The benefit multipliers for Teamsters Local 214 and Local 580 were both increased from 1.6% to 1.8%. The member contribution rate was increased for Teamsters 580, from 5.50% to 6.35%.

## 1.2: Member Data Summary

Data on active and inactive members and their beneficiaries as of the valuation date was supplied by the Plan Administrator on electronic media. Member data was neither verified nor audited.

| <b>Active Participants</b> | <b>12/31/2009</b> | <b>12/31/2010</b> |
|----------------------------|-------------------|-------------------|
| Number of Active Employees | 570               | 497               |
| Average Age                | 47.5              | 47.7              |
| Average Service            | 11.0              | 10.8              |
| Average Pay                | \$ 53,687         | \$ 55,868         |

| <b>Inactive Participants</b>                  | <b>12/31/2009</b> | <b>12/31/2010</b> |
|-----------------------------------------------|-------------------|-------------------|
| Number of Retired Participants                | 656               | 673               |
| Average Age                                   | 66.2              | 65.8              |
| Average Annual Benefit                        | \$ 24,945         | \$ 26,584         |
| Number of Disabled Retirees                   | 16                | 23                |
| Average Age                                   | 62.9              | 63.5              |
| Average Annual Benefit                        | \$ 18,146         | \$ 17,857         |
| Number of Beneficiaries/EDROs                 | 127               | 144               |
| Average Age                                   | 74.9              | 72.9              |
| Average Annual Benefit                        | \$ 10,946         | \$ 11,003         |
| Number of Deferred Vested Participants        | 62                | 63                |
| Average Age                                   | 51.4              | 51.1              |
| Average Annual Benefit                        | \$ 11,017         | \$ 11,824         |
| Number of Terminated Participants Due Refunds | 0                 | 15                |
| Average Balance                               | 0                 | \$ 4,438          |

### 1.3: Changes in Membership from Prior Valuation

|                                                             | Actives    | Non-vested<br>Terminations<br>due Refunds | Vested<br>Terminations | Retired    | Disabled  | Benefi-<br>ciaries* | Total<br>Participants |
|-------------------------------------------------------------|------------|-------------------------------------------|------------------------|------------|-----------|---------------------|-----------------------|
| <b>December 31, 2009</b>                                    | <b>570</b> | <b>0</b>                                  | <b>62</b>              | <b>656</b> | <b>16</b> | <b>127</b>          | <b>1,431</b>          |
| New Entrants                                                | 16         |                                           |                        |            |           |                     | 16                    |
| Rehires                                                     |            |                                           |                        |            |           |                     | 0                     |
| Retirements                                                 | (58)       |                                           | (4)                    | 62         |           |                     | 0                     |
| Disabilities                                                |            |                                           |                        |            |           |                     | 0                     |
| Vested Terminations                                         | (5)        |                                           | 5                      |            |           |                     | 0                     |
| Died, With Beneficiaries'<br>Benefit Payable                | (3)        |                                           |                        | (7)        |           | 10                  | 0                     |
| Non-Vested<br>Terminations and Death<br>without beneficiary | (16)       | 15                                        |                        | (16)       |           | (8)                 | (25)                  |
| Domestic Relations<br>Orders                                |            |                                           |                        |            |           |                     | 0                     |
| Withdrawals Paid                                            | (7)        |                                           |                        |            |           |                     | (7)                   |
| Data Corrections                                            |            |                                           |                        | (22)       | 7         | 15                  | 0                     |
| <b>December 31, 2010</b>                                    | <b>497</b> | <b>15</b>                                 | <b>63</b>              | <b>673</b> | <b>23</b> | <b>144</b>          | <b>1,415</b>          |

\* also includes EDRO beneficiaries



## **Section 2:**

### **Actuarial Methods and Assumptions**

## **2.1: Actuarial Methods**

### **Actuarial Cost Method**

Annual contributions to the Plan are computed under the Entry Age Normal Actuarial Cost Method. Under this Cost Method, the Normal Cost is calculated as the amount necessary to fund members' benefits as a level percentage of payroll over their projected working lives.

At each valuation date, the Actuarial Accrued Liability is equal to the difference between the liability for the members' total projected benefit and the present value of future Normal Cost contributions.

The excess of the Actuarial Accrued Liability (AAL) over Plan assets is the Unfunded Actuarial Accrued Liability (UAAL), and the liability for each change in UAAL is amortized as a level percent of payroll over an open period of 30 years.

The total Plan cost is the sum of the Normal Cost and the amortization of the Unfunded Actuarial Accrued Liability.

### **Actuarial Value of Plan Assets**

The valuation assets are equal to the expected actuarial value, plus a portion of actuarial gains and losses. Actuarial gains and losses from Plan investments over each of the five years prior to the calculation date are recognized at the rate of 20% per year in computing the actuarial value of assets. The detailed calculation of the actuarial value of Plan assets is shown in Section 3.3.

### **Changes in Actuarial Methods since Prior Valuation**

There have been no changes in actuarial methods since the prior valuation, other than the change in actuary.

## 2.2: Actuarial Assumptions

**Valuation Date** All assets and liabilities are computed as of December 31, 2010.

**Rate of Return** The annual rate of return on all Plan assets is assumed to be 8.0%, net of investment and administrative expenses.

**Cost of Living** The cost of living as measured by the Consumer Price Index (CPI) will increase at the rate of 4.00% per year.

**Increases in Pay** Increases in salary vary based on the age and service of the member as shown below (includes inflation of 4.00%):

| Age | Service |       |       |      |      |
|-----|---------|-------|-------|------|------|
|     | 0       | 5     | 10    | 15   | 20   |
| 25  | 11.0%   | 11.0% | 10.0% | 9.0% | 7.5% |
| 30  | 10.1%   | 10.1% | 9.1%  | 8.1% | 6.6% |
| 40  | 9.1%    | 9.1%  | 8.1%  | 7.1% | 5.6% |
| 50  | 8.3%    | 8.3%  | 7.3%  | 6.3% | 4.8% |
| 60  | 7.5%    | 7.5%  | 6.5%  | 5.5% | 4.0% |

**Member Mortality** Rates of mortality for Plan members are specified by the 1983 Group Annuity Mortality Tables, set forward 1 year for males and females. For Disabled members, the tables are set forward 10 years for both males and females.

**Service Retirement** Retirement is assumed to occur among eligible members in accordance with the table below.

| Age   | Rule of 65 Members | UAW/ New Members |
|-------|--------------------|------------------|
| 45-49 | 10%                | 0%               |
| 50    | 11%                | 30%              |
| 51-53 | 11%                | 30%              |
| 54    | 11%                | 40%              |
| 55-56 | 15%                | 40%              |
| 57    | 15%                | 20%              |
| 58-59 | 15%                | 10%              |
| 60    | 25%                | 20%              |
| 61    | 25%                | 35%              |
| 62-64 | 25%                | 20%              |
| 65+   | 100%               | 100%             |

Disability

Rates of disability vary based on the age of the member as shown below. 50% of disabilities are assumed to be duty-related.

Representative Assumed Rates of Disability

| Age | Rate  |
|-----|-------|
| 20  | .0007 |
| 30  | .0007 |
| 40  | .0025 |
| 50  | .0083 |
| 60  | .0180 |

Termination

Rates of termination vary based on the age and service of the member as shown below.

Representative Assumed Rates of Termination

| Age | Service |      |      |      |      |       |
|-----|---------|------|------|------|------|-------|
|     | 0       | 1    | 2    | 3    | 4    | 5+    |
| 25  | 0.07    | 0.04 | 0.03 | 0.03 | 0.03 | 0.025 |
| 30  | 0.07    | 0.04 | 0.03 | 0.03 | 0.03 | 0.025 |
| 40  | 0.07    | 0.04 | 0.03 | 0.03 | 0.03 | 0.015 |
| 50  | 0.07    | 0.04 | 0.03 | 0.03 | 0.03 | 0.007 |
| 60  | 0.07    | 0.04 | 0.03 | 0.03 | 0.03 | 0.007 |

Family Composition

90% of Plan members are assumed to be married. Male spouses are assumed to be three years older than their wives.

**Change in Actuarial Assumptions since Prior Valuation**

There have been no changes to the Actuarial Assumptions since the prior valuation.

## 2.3: Glossary of Actuarial Terms

### Actuarial Accrued Liability

A plan's actuarial accrued liability is the level of assets estimated by the system actuary to be needed as of the valuation date to

- Finance all previously earned benefits for actively employed members of the plan (and their beneficiaries, if applicable) for when they eventually retire, die or terminate with deferred vested benefits, and
- Finance all currently payable benefits of current pensioners and their beneficiaries (if applicable).

It is important to note that the Actuarial Accrued Liability is not a debt; instead, it is an asset target set by the actuarial cost method to produce an orderly accumulation of assets to finance the plan's obligations.

### Actuarial Assumptions

The actuarial assumptions are the actuary's anticipated rates of future termination, death, disability and retirement for each member of the plan as well as the actuary's anticipated rate of investment return on underlying assets. Because these assumptions will not be in exact accord with actual events, actuarial gains and losses will materialize.

### Actuarial Value of Assets

The actuarial value of assets, used for funding purposes, is computed using an asset smoothing technique in which investment gains and losses are not fully recognized in the year they occur, but are spread out over time, typically a specified number of years. Use of an actuarial value of assets (rather than market value) helps avoid large fluctuations in recognized value of the underlying assets and, in turn, avoids large fluctuations in required contribution rates.

### Actuarial Present Value of Benefits

The actuarial present value of benefits is the Actuarial Accrued Liability plus actuarial present value of future Normal Costs. The actuarial present value of benefits can also be explained as the actuarial present value of all future benefits expected to be paid to the Plan's current members, whether based on current or future service.

### Actuarial Funding Policy

The plan's actuarial funding policy is the scheduled program of accumulating assets to fund the plan's obligations, often as a level percentage of payroll.

The funding policy includes:

- The Normal Cost, and
- Amortization of the Unfunded or Overfunded Actuarial Accrued Liability (whichever is applicable).

#### Investment Gains and Losses

When the investment return on assets exceeds the assumed rate of return (the actuarial assumption as to investment return), this difference is identified as an investment gain. Correspondingly, when the returns are less than expected, this difference is identified as an investment loss. These investment gains and losses are either recognized immediately to produce the market value of assets or are spread out to produce the Actuarial Value of Assets.

#### Normal Cost

The Normal Cost is calculated as the annual amount necessary to fund each member's benefits from that member's Plan entry date to the end of his or her projected working life.

#### Unfunded Actuarial Accrued Liability

When the actuarial value of assets is below the Actuarial Accrued Liability, there is an Unfunded Actuarial Accrued Liability is funded according to an amortization schedule. When the actuarial value of assets is in excess of the Actuarial Accrued Liability, the amortization is negative, and can partially or fully offset the Normal Cost contribution.

## **Section 3:**

### **Asset Information**

### 3.1: Statement of Net Plan Assets

|                                                | 12/31/2009            | 12/31/2010            |
|------------------------------------------------|-----------------------|-----------------------|
| <b><u>ASSETS</u></b>                           |                       |                       |
| Cash, Short-Term                               |                       |                       |
| Investments and Receivables                    | \$ 4,916,022          | \$ 8,164,401          |
| Accrued Interest and Dividends                 | 211,751               | 230,821               |
| Investments:                                   |                       |                       |
| Government Bonds                               | 29,236,792            | 33,824,597            |
| Corporate Bonds                                | 41,249,035            | 36,176,835            |
| Common Stock                                   | 40,387,887            | 81,656,038            |
| Other Equities                                 | 54,256,000            | 21,642,841            |
| Real Estate                                    | 6,631,000             | 7,074,200             |
| <b>Total System Assets</b>                     | <b>176,888,487</b>    | <b>\$ 188,769,733</b> |
| Accounts Payable                               | (120,005)             | (937,294)             |
| <b><u>NET ASSETS AVAILABLE FOR BENEFIT</u></b> | <b>\$ 176,768,482</b> | <b>\$ 187,832,439</b> |



### 3.2: Income Statement

|                                             | <u>2009</u>          | <u>2010</u>           |
|---------------------------------------------|----------------------|-----------------------|
| Total Plan Assets – Beginning of Year       | \$ 157,951,415       | \$ 176,768,482        |
| <b><u>ADDITIONS</u></b>                     |                      |                       |
| Member contributions                        | 1,370,171            | 1,696,038             |
| Employer contributions                      | 6,043,861            | 7,186,000             |
| Employer contributions – Healthcare Reserve | 350,000              | 0                     |
| Adjustments                                 | 0                    | (21,934)              |
| Investment Income:                          |                      |                       |
| Interest                                    | 1,590,148            | 11,990,094            |
| Dividends                                   | 140,382              | 335,366               |
| Market Appreciation                         | 28,700,607           | 9,816,219             |
| Miscellaneous                               |                      |                       |
| Total Additions                             | +\$ 38,195,169       | 31,001,784            |
| <b><u>EXPENDITURES</u></b>                  |                      |                       |
| Member contributions refunded               | 0                    | 0                     |
| Retirement benefits paid                    | 17,885,800           | 19,158,835            |
| Other expenses                              | 18,630               | 246,211               |
| Investment expenses                         | 727,099              | 534,780               |
| Transfers                                   | 746,572              | 0                     |
| Total Expenditures                          | -\$ 19,378,102       | 19,939,827            |
| Adjustments                                 | 0                    | 2,000                 |
| <b><u>NET INCREASE/(DECREASE)</u></b>       | <b>\$ 18,817,067</b> | <b>11,063,957</b>     |
| <b>Total Plan Assets – End of Year</b>      | <b>176,768,482</b>   | <b>\$ 187,832,439</b> |

### 3.3: Computation of Actuarial Value of Assets

| <u>Year Ended</u>                                       | <u>Expected Earnings<sup>1</sup></u> | <u>Actual Earnings<sup>2</sup></u> | <u>Investment Gain/(Loss)</u> | <u>Percent of (c) Deferred</u> | <u>Amount Deferred</u> |
|---------------------------------------------------------|--------------------------------------|------------------------------------|-------------------------------|--------------------------------|------------------------|
|                                                         | (a)                                  | (b)                                | (c) = (b) – (a)               | (d)                            | (e) = (c) x (d)        |
| 12/31/2010                                              | 15,897,374                           | 22,143,679                         | 6,246,305                     | 80%                            | 4,997,044              |
| 12/31/2009                                              | 16,639,256                           | 29,685,408                         | 13,046,152                    | 60%                            | 7,827,691              |
| 12/31/2008                                              | 17,273,688                           | (49,044,101)                       | (66,317,789)                  | 40%                            | (26,527,116)           |
| 12/31/2007                                              | 17,151,852                           | 10,968,989                         | (6,182,863)                   | 20%                            | (1,236,573)            |
| (1) Total Gain/(Loss) Unrecognized as of Valuation Date |                                      |                                    |                               |                                | (14,938,954)           |
| (2) Market Value, Total Fund                            |                                      |                                    |                               |                                | 187,832,439            |
| (3) Actuarial Value, Total Fund: [(2)-(1)]              |                                      |                                    |                               |                                | 202,771,393            |
| (4) Healthcare Reserve as of 12/31/2010                 |                                      |                                    |                               |                                | 15,330,803             |
| (5) Actuarial Value, Pension Plan: [(3)-(4)]            |                                      |                                    |                               |                                | 187,440,590            |
| Ratio of Actuarial Value to Market Value, Total Fund    |                                      |                                    |                               |                                | 108.0%                 |
| Approximate Rate of Return based on Market Value        |                                      |                                    |                               |                                | 12.9%                  |
| Approximate Rate of Return based on Actuarial Value     |                                      |                                    |                               |                                | 3.3%                   |

<sup>1</sup> Computed assuming 8.0% return on actuarial value. Employee contributions and benefits assumed to be paid throughout the year, employer contributions one month prior to end of year.

<sup>2</sup> Market Value return

## **Section 4:**

### **Actuarial Computations**

### 4.1: Comparison of Prior Actuarial Calculations

|                                                        | <u>Prior Actuary (2010)</u> | <u>EFI (2010)</u>  |
|--------------------------------------------------------|-----------------------------|--------------------|
| Total Entry Age Normal Cost                            | \$ 4,483,172                | \$ 4,375,913       |
| <u>Estimated Employee Contributions</u>                | <u>1,325,060</u>            | <u>1,313,287</u>   |
| Net City Normal Cost                                   | 3,158,111                   | 3,062,625          |
| Valuation Payroll                                      | 30,601,855                  | 30,601,855         |
| City Normal Cost Rate (% of pay)                       | 10.32%                      | 10.01%             |
| Active Actuarial Accrued Liability                     | 65,089,689                  | 64,441,787         |
| Terminated Members Actuarial Accrued Liability         | 4,491,470                   | 4,568,359          |
| <u>Retiree/Beneficiary Actuarial Accrued Liability</u> | <u>176,133,432</u>          | <u>174,613,727</u> |
| Total Valuation Actuarial Accrued Liability (AAL)      | 245,714,591                 | 243,623,873        |
| Member Benefit Fund                                    | 16,583,768                  | 16,583,768         |
| Total Actuarial Accrued Liability                      | 262,298,359                 | 260,207,641        |
| Actuarial Value of Assets                              | 193,324,229                 | 193,129,867        |
| Net Unfunded Actuarial Accrued Liability (UAAL)        | 68,974,130                  | 67,077,774         |
| Amortization of UAAL                                   | 3,769,623                   | 3,665,982          |
| Amortization Rate (% of pay)                           | 12.31%                      | 11.98%             |
| <b>Total City Contribution Rate</b>                    | <b>22.63%</b>               | <b>21.99%</b>      |
| Projected Fiscal Payroll                               | 32,245,175                  | 31,547,766         |
| Estimated City Contribution                            | \$ 7,297,083                | \$ 6,936,590       |

## 4.2: Employer Contributions

|                                                        | <u>2010 (EFI)</u>  | <u>2011</u>        |
|--------------------------------------------------------|--------------------|--------------------|
| Total Entry Age Normal Cost                            | \$ 4,375,913       | \$ 4,214,833       |
| <u>Estimated Employee Contributions</u>                | <u>1,313,287</u>   | <u>1,365,370</u>   |
| Net City Normal Cost                                   | 3,062,625          | 2,849,463          |
| Valuation Payroll                                      | 30,601,855         | 27,766,628         |
| City Normal Cost Rate (% of pay)                       | 10.01%             | 10.26%             |
| Active Actuarial Accrued Liability                     | 64,441,787         | 55,339,084         |
| Terminated Members Actuarial Accrued Liability         | 4,568,359          | 4,901,433          |
| <u>Retiree/Beneficiary Actuarial Accrued Liability</u> | <u>174,613,727</u> | <u>193,594,309</u> |
| Total Valuation Actuarial Accrued Liability (AAL)      | 243,623,873        | 253,834,826        |
| Member Benefit Fund                                    | 16,583,768         | 15,627,109         |
| Total Actuarial Accrued Liability                      | 260,207,641        | 269,461,935        |
| Actuarial Value of Assets                              | 193,129,867        | 187,440,590        |
| Net Unfunded Actuarial Accrued Liability (UAAL)        | 67,077,774         | 82,021,345         |
| Amortization of UAAL                                   | 3,665,982          | 4,482,689          |
| Amortization Rate (% of pay)                           | 11.98%             | 16.15%             |
| <b>Total City Contribution Rate</b>                    | <b>21.99%</b>      | <b>26.41%</b>      |
| Projected Fiscal Payroll                               | 31,547,766         | 28,769,143         |
| Estimated City Contribution                            | \$ 6,936,590       | \$ 7,596,879       |

## **Section 5:**

### **Disclosure Information**

## 5.1: GASB Schedules

GASB Statement No. 25 requires preparation of schedules of funding status and employer contributions, as well as the disclosure of plan provisions, actuarial assumptions, and other information. The required schedules are shown below. In each case, we have relied upon information from our files and contained in the reports of other actuaries employed by the employer in completing the schedules.

### Schedule of Funding Status

| Actuarial Valuation Date | Actuarial Value of Assets | Actuarial Accrued Liability | Unfunded Actuarial Accrued Liability | Funded Ratio | Covered Payroll | Unfunded Liability as a Percent of Payroll |
|--------------------------|---------------------------|-----------------------------|--------------------------------------|--------------|-----------------|--------------------------------------------|
| 12/31/2001               | 191,311,000               | 213,648,000                 | 22,337,000                           | 90%          | 20,282,000      | 110%                                       |
| 12/31/2002               | 192,920,000               | 215,405,000                 | 22,484,000                           | 90%          | 19,098,000      | 118%                                       |
| 12/31/2003               | 199,329,000               | 221,088,000                 | 21,759,000                           | 90%          | 30,579,000      | 71%                                        |
| 12/31/2004               | 206,200,000               | 231,389,000                 | 25,189,000                           | 89%          | 32,383,000      | 78%                                        |
| 12/31/2005               | 207,881,000               | 241,882,000                 | 34,001,000                           | 86%          | 30,851,000      | 110%                                       |
| 12/31/2006               | 208,765,000               | 251,427,000                 | 42,661,000                           | 83%          | 31,944,000      | 134%                                       |
| 12/31/2007               | 208,572,000               | 254,356,000                 | 45,784,000                           | 82%          | 31,797,000      | 144%                                       |
| 12/31/2008               | 200,600,000               | 258,331,000                 | 57,731,000                           | 78%          | 29,688,000      | 195%                                       |
| 12/31/2009               | 193,324,000               | 262,298,000                 | 68,974,000                           | 74%          | 30,602,000      | 225%                                       |
| 12/31/2010               | 187,440,590               | 269,461,935                 | 82,021,345                           | 70%          | 27,766,628      | 295%                                       |

### Schedule of Employer Contributions

| Fiscal Year Ending | Annual Required Contribution | Actual Contribution | Percentage Contributed |
|--------------------|------------------------------|---------------------|------------------------|
| 6/30/2001          | 3,215,000                    | 3,215,000           | 100.0%                 |
| 6/30/2002          | 3,105,000                    | 3,105,000           | 100.0%                 |
| 6/30/2003          | 3,567,000                    | 3,499,000           | 98.1%                  |
| 6/30/2004          | 3,466,000                    | 3,466,000           | 100.0%                 |
| 6/30/2005          | 4,675,000                    | 4,675,000           | 100.0%                 |
| 6/30/2006          | 4,900,000                    | 4,900,000           | 100.0%                 |
| 6/30/2007          | 5,231,000                    | 5,231,000           | 100.0%                 |
| 6/30/2008          | 6,022,000                    | 6,022,000           | 100.0%                 |
| 6/30/2009          | 6,048,000                    | 6,477,000           | 107.1%                 |
| 6/30/2010          | 6,472,000                    | 6,045,000           | 93.4%                  |
| 6/30/2011          | 7,297,000                    | 7,297,000           | 100.0%                 |
| 6/30/2012          | 7,597,000                    |                     |                        |

**Net Pension Obligation/(Asset)**

|                                | <b>2010</b>   | <b>2011</b> |
|--------------------------------|---------------|-------------|
| Net Pension Obligation/(Asset) |               |             |
| – Beginning of Year            | (428,480)     | (9,947)     |
| Annual Required Contribution   | 6,472,349     | 7,297,083   |
| Interest on the NPO            | (34,278)      | (796)       |
| <u>Adjustment to the NPO</u>   | <u>24,323</u> | <u>544</u>  |
| Annual Pension Cost            | 6,462,394     | 7,296,831   |
| Contributions                  | (6,043,861)   | (7,297,083) |
| Increase/(Decrease) in NPO     | 418,553       | (252)       |
| Net Pension Obligation/(Asset) |               |             |
| – End of Year                  | (9,947)       | (10,199)    |



## 5.2: Summary of Valuation Information

The table below summarizes certain information about this actuarial report.

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Valuation date                | December 31, 2010                                                                |
| Actuarial cost method         | Entry Age Normal, Level Percentage of Payroll                                    |
| Amortization method           | Level Percentage of Payroll                                                      |
| Remaining amortization period | 30 years                                                                         |
| Asset valuation method        | Five year closed period smoothing<br>(Market Value vs. Expected Actuarial Value) |
| Actuarial assumptions:        |                                                                                  |
| Investment rate of return*    | 8.00%                                                                            |
| Projected salary increases*   | 4.00% - 11.00%, based on age and service                                         |
| *Includes inflation at        | 4.00%                                                                            |
| Cost of living adjustments    | None assumed                                                                     |

## **Appendix:**

### **Detailed Participant Data**

**Count of Active Members**

| Service / Age | 0-4       | 5-9        | 10-14     | 15-19     | 20-24     | 25-29     | 30+      | Total      |
|---------------|-----------|------------|-----------|-----------|-----------|-----------|----------|------------|
| 20-24         | 6         | 0          | 0         | 0         | 0         | 0         | 0        | 6          |
| 25-29         | 9         | 3          | 0         | 0         | 0         | 0         | 0        | 12         |
| 30-34         | 7         | 19         | 1         | 0         | 0         | 0         | 0        | 27         |
| 35-39         | 6         | 33         | 4         | 0         | 0         | 0         | 0        | 43         |
| 40-44         | 9         | 51         | 20        | 11        | 5         | 0         | 0        | 96         |
| 45-49         | 11        | 50         | 28        | 14        | 7         | 4         | 1        | 115        |
| 50-54         | 6         | 31         | 20        | 14        | 11        | 4         | 2        | 88         |
| 55-59         | 2         | 19         | 11        | 12        | 15        | 4         | 0        | 63         |
| 60-64         | 1         | 15         | 13        | 4         | 6         | 1         | 0        | 40         |
| 65+           | 0         | 4          | 2         | 1         | 0         | 0         | 0        | 7          |
| <b>Total</b>  | <b>57</b> | <b>225</b> | <b>99</b> | <b>56</b> | <b>44</b> | <b>13</b> | <b>3</b> | <b>497</b> |

**Average Salary of Active Members**

| Service / Age | 0-4           | 5-9           | 10-14         | 15-19         | 20-24         | 25-29         | 30+            | Total         |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|
| 20-24         | 49,901        | 0             | 0             | 0             | 0             | 0             | 0              | 49,901        |
| 25-29         | 43,065        | 69,084        | 0             | 0             | 0             | 0             | 0              | 49,570        |
| 30-34         | 46,831        | 58,682        | 42,179        | 0             | 0             | 0             | 0              | 54,998        |
| 35-39         | 59,636        | 58,488        | 48,653        | 0             | 0             | 0             | 0              | 57,734        |
| 40-44         | 53,273        | 58,854        | 52,646        | 47,229        | 49,898        | 0             | 0              | 55,239        |
| 45-49         | 59,159        | 56,801        | 51,528        | 46,914        | 64,867        | 60,832        | 62,111         | 55,217        |
| 50-54         | 52,550        | 57,032        | 52,897        | 54,865        | 48,288        | 67,187        | 135,211        | 56,587        |
| 55-59         | 48,575        | 56,568        | 56,360        | 53,083        | 53,506        | 58,461        | 0              | 55,005        |
| 60-64         | 96,709        | 65,343        | 60,304        | 56,281        | 52,296        | 39,039        | 0              | 60,969        |
| 65+           | 0             | 53,293        | 65,259        | 26,187        | 0             | 0             | 0              | 55,257        |
| <b>Total</b>  | <b>52,842</b> | <b>58,354</b> | <b>53,774</b> | <b>50,585</b> | <b>53,434</b> | <b>60,381</b> | <b>110,844</b> | <b>55,868</b> |

**Inactive Participants**

**Number of**

| Age          | Beneficiaries | Retired    | Disabled  | Terminated |  | Total      |
|--------------|---------------|------------|-----------|------------|--|------------|
|              |               |            |           | Vested     |  |            |
| Under 35     | 2             | 0          | 0         | 1          |  | 3          |
| 35-39        | 1             | 0          | 0         | 1          |  | 2          |
| 40-44        | 1             | 3          | 0         | 9          |  | 13         |
| 45-49        | 4             | 13         | 1         | 16         |  | 34         |
| 50-54        | 7             | 66         | 2         | 14         |  | 89         |
| 55-59        | 11            | 145        | 7         | 17         |  | 180        |
| 60-64        | 14            | 141        | 6         | 3          |  | 164        |
| 65-69        | 17            | 104        | 2         | 2          |  | 125        |
| 70-74        | 19            | 69         | 2         | 0          |  | 90         |
| 75-79        | 14            | 53         | 0         | 0          |  | 67         |
| 80+          | 54            | 79         | 3         | 0          |  | 136        |
| <b>Total</b> | <b>144</b>    | <b>673</b> | <b>23</b> | <b>63</b>  |  | <b>903</b> |

**Average Annual Benefit**

| Age          | Beneficiaries    | Retired          | Disabled         | Terminated       |  | Total            |
|--------------|------------------|------------------|------------------|------------------|--|------------------|
|              |                  |                  |                  | Vested           |  |                  |
| Under 35     | \$ 11,552        | \$ 0             | \$ 0             | \$ 5,499         |  | \$ 9,534         |
| 35-39        | 12,508           | 0                | 0                | 3,997            |  | 8,252            |
| 40-44        | 6,672            | 31,595           | 0                | 18,656           |  | 20,720           |
| 45-49        | 14,375           | 30,035           | 25,280           | 16,869           |  | 21,857           |
| 50-54        | 13,228           | 34,438           | 14,934           | 9,274            |  | 28,374           |
| 55-59        | 14,982           | 32,667           | 23,665           | 8,307            |  | 28,935           |
| 60-64        | 14,711           | 29,172           | 19,014           | 5,083            |  | 27,125           |
| 65-69        | 14,627           | 25,533           | 11,595           | 5,646            |  | 23,508           |
| 70-74        | 10,719           | 21,810           | 13,297           | 0                |  | 19,280           |
| 75-79        | 9,770            | 21,032           | 0                | 0                |  | 18,679           |
| 80+          | 8,003            | 12,758           | 8,680            | 0                |  | 10,781           |
| <b>Total</b> | <b>\$ 11,003</b> | <b>\$ 26,584</b> | <b>\$ 17,857</b> | <b>\$ 11,824</b> |  | <b>\$ 22,847</b> |