Employees’ Retirement System of the State of Hawaii

2019 Valuation Results
January 13, 2019
Agenda

• Purpose of Valuation
• Revisit 2019 Experience Study
• Valuation Results
• Details on Funding Period
• Comparison of Projections to Previous Years
• Projections Under Alternative Scenarios
• Closing Remarks
Purpose of the Actuarial Valuation

• The **primary** purpose of the annual actuarial valuation is to either (1) set or (2) assess the adequacy of the contribution policy
  – “Funding” or “contribution allocation procedure”
• The funding policy is the pattern of contributions, not necessarily the contribution in a given year
• For ERS, the funding policy has mostly a fixed contribution rate from members and employers
  – Maximum Funding Period of 30 Years
• Thus, for ERS, the primary purpose of the annual actuarial valuation is to assess whether the current funding policy is expected to fully amortize the UAAL over a period of 30 years or less
The valuation results are heavily based on a series of assumptions about future behavior and events. These assumptions are not static; they should occasionally change to reflect new information or techniques. While we monitor the appropriateness of the assumptions annually, ERS Statute requires a formal process occur every three years. The 2019 Experience study was rather uneventful, mainly supporting previous decisions.

- **Material Recommendations:**
  - Increase individual salary scale assumption for Police and Fire Employees
- **Other recommendations:**
  - Update mortality assumptions through 2018
  - Minor adjustments in disability and retirement patterns
Salary Increase Assumption

• Average individual salary increases during career

<table>
<thead>
<tr>
<th></th>
<th>Assumed</th>
<th>Actual</th>
<th>Proposed</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Employees</td>
<td>4.43%</td>
<td>4.06%</td>
<td>4.43%</td>
<td>-</td>
</tr>
<tr>
<td>Teachers</td>
<td>4.38%</td>
<td>3.60%</td>
<td>4.38%</td>
<td>-</td>
</tr>
<tr>
<td>Police and Fire</td>
<td>5.16%</td>
<td>6.59%</td>
<td>5.57%</td>
<td>0.41%</td>
</tr>
</tbody>
</table>

Actual price inflation was approximately 1.4% over the observation period, compared to a 2.5% price inflation assumption.
Impact from 2019 Experience Study

• The changes to assumptions had a minor impact on the valuation results
• Increased the UAAL by $0.1B
• Decreased the funded ratio by 0.1%
• Added 3 months on the funding period
## 2019 Actuarial Valuation Results

<table>
<thead>
<tr>
<th>Valuation Year</th>
<th>2017</th>
<th>2018</th>
<th>Expected 2019</th>
<th>Actual 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Based on Smoothed Asset Value</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UAAL ($ Billions)</td>
<td>$12.93</td>
<td>$13.41</td>
<td>$13.77</td>
<td>$14.07</td>
</tr>
<tr>
<td>Actuarial Funded Ratio</td>
<td>54.9%</td>
<td>55.2%</td>
<td>55.5%</td>
<td>55.2%</td>
</tr>
<tr>
<td>Funding Period in years*</td>
<td>26</td>
<td>25</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td><strong>Based on Market Value</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actuarial Funded Ratio</td>
<td>54.8%</td>
<td>55.5%</td>
<td>55.8%</td>
<td>54.9%</td>
</tr>
<tr>
<td>Funding Period in years*</td>
<td>26</td>
<td>25</td>
<td>24</td>
<td>26</td>
</tr>
</tbody>
</table>


*Based on open group projection, recognizing new benefits for members hired after June 30, 2012
<table>
<thead>
<tr>
<th>Valuation Year</th>
<th>2017</th>
<th>2018</th>
<th>Expected 2019</th>
<th>Actual 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Police and Fire Employees (11% of Payroll)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UAAL ($ Billions)</td>
<td>$2.23</td>
<td>$2.31</td>
<td>$2.38</td>
<td>$2.50</td>
</tr>
<tr>
<td>Actuarial Funded Ratio</td>
<td>58.2%</td>
<td>59.0%</td>
<td>59.8%</td>
<td>58.7%</td>
</tr>
<tr>
<td>Funding Period in years*</td>
<td>26</td>
<td>26</td>
<td>25</td>
<td>28</td>
</tr>
<tr>
<td><strong>All Other Employees (89% of Payroll)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UAAL ($ Billions)</td>
<td>$10.70</td>
<td>$11.09</td>
<td>$11.37</td>
<td>$11.57</td>
</tr>
<tr>
<td>Actuarial Funded Ratio</td>
<td>54.1%</td>
<td>54.3%</td>
<td>54.7%</td>
<td>54.3%</td>
</tr>
<tr>
<td>Funding Period in years*</td>
<td>26</td>
<td>25</td>
<td>24</td>
<td>25</td>
</tr>
</tbody>
</table>


*Based on open group projection, recognizing new benefits for members hired after June 30, 2012
Funding Period in Months

- The official funding period is expressed in whole years as valuation cycles are not performed monthly.
- However, the change from year to year can be much more nuanced than that.

<table>
<thead>
<tr>
<th>As of</th>
<th>Police and Fire</th>
<th>All Others</th>
<th>Total ERS</th>
<th>Official Funding Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>27 Years 4 Months</td>
<td>29 Years 4 Months</td>
<td>29 Years 2 Months</td>
<td>30 Years</td>
</tr>
<tr>
<td>2017</td>
<td>25 Years 10 Months</td>
<td>25 Years 5 Months</td>
<td>25 Years 6 Months</td>
<td>26 Years</td>
</tr>
<tr>
<td>2018</td>
<td>25 Years 6 Months</td>
<td>24 Years 6 Months</td>
<td>24 Years 11 Months</td>
<td>25 Years</td>
</tr>
<tr>
<td>2019</td>
<td>27 Years 8 Months</td>
<td>24 Years 8 Months</td>
<td>25 Years 2 Months</td>
<td>26 Years</td>
</tr>
</tbody>
</table>
Projection of Funding Period from 2016 Valuation vs Actual Valuation Outcomes

Assumes all assumptions met, including a 7.00% return each year on the current smoothed value of assets.
Sources of Impact

• **Investments** underperformed 7.00% assumption on market basis
  – Smoothing technique will defer some of underperformance into future years
  – (Approximately $100m)

• **Liabilities** grew faster than expected due to salary increases larger than current expectations
  – All Other Employees had average increase of 4.9% (0.5% higher than assumed)
    o Produced a loss of $64m
  – Police/Fire Employees had average increase of 8.6% (3.2% higher than assumed)
    o Produced a loss of $96m
    o The increase for Police and Fire appears to be possibly driven by increases in overtime. If true and overtime returns to normal levels, there could be a gain in a future valuation
  – Also reflects new assumptions

• **Contributions** in dollars are expected to be modestly higher due to salary increases and head count increases for All Other Employees, but head count for Police and Fire Employees declined for third straight year
Estimated Yields on Market Value of Assets

Market Returns

- 2005: 11.1%
- 2006: 10.8%
- 2007: 16.9%
- 2008: -4.1%
- 2009: -18.0%
- 2010: 11.5%
- 2011: 20.9%
- 2012: -0.6%
- 2013: 12.3%
- 2014: 17.8%
- 2015: 3.9%
- 2016: -1.2%
- 2017: 13.6%
- 2018: 7.9%
- 2019: 5.7%

5.9% average return for 5 year period ending June 30, 2019
9.0% average return for 10 year period ending June 30, 2019
6.8% average return for 15 year period ending June 30, 2019
### Act 17 (SB 936) Contribution Rates

<table>
<thead>
<tr>
<th>Current Valuation Date</th>
<th>General Employees</th>
<th>Special Categories (Police Officers, Firefighters and Corrections Officers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/1/2016 – 6/30/2017</td>
<td>17.00%</td>
<td>25.00%</td>
</tr>
<tr>
<td>7/1/2017 – 6/30/2018</td>
<td>18.00%</td>
<td>28.00%</td>
</tr>
<tr>
<td>7/1/2018 – 6/30/2019</td>
<td>19.00%</td>
<td>31.00%</td>
</tr>
<tr>
<td>7/1/2019 – 6/30/2020</td>
<td>22.00%</td>
<td>36.00%</td>
</tr>
<tr>
<td>7/1/2020 – 6/30/2021</td>
<td>24.00%</td>
<td>41.00%</td>
</tr>
</tbody>
</table>

It is vital the last step in the funding strategy occur. The 26 year estimated funding period already recognizes these increases occurring. If they do not occur, the funding period is 31 years (37 for Police and Fire) and it will ultimately cost $5B more to finance the UAAL.
Impact of New Benefit Tiers:
All Other Employees: Counts by group and by age

There are 22,734 Post 2012 Hires, approximately 37% of the active membership
Impact of New Benefit Tiers:

*All Other Employees: Liability* by group and by age

Post 2012 Hires represent $552 million in liability, approximately 2.2% of the total liability.
Projection of UAAL (June 30, 2019)

Projections are based on smoothed value of assets as of the valuation date and assumed 7% return on assets in all future years.
Growth in UAAL

UAAL as a % of 2016 UAAL

- Police and Fire
- All Others
Police and Fire Salary History

Historical Average Compensation for Cohort of Members with 12 years of Service in 2009
(Approximately 180 members)

Base Pay
Total Pensionable Earnings
Recent Experience

• Salaries for Police and Fire have grown by 1% more than the assumption for the last decade
  – 3.5% per year more over the last 5 years

• If the current salary scale assumption was raised by the 1%, the funding period would exceed 30 years and the total projected employer contributions to amortize the UAAL would increase by $2.3B (just for Police and Fire)

• Total compensation for this group is projected to be $520m in FY20
History of Funded Ratio

Funded Ratio is Actuarial Value of Assets divided by Actuarial Accrued Liabilities
Assumes all assumptions met, including a 7.00% return each year on the current smoothed value of assets.
Projection of Funding Period from 2019 Valuation

Assumes all assumptions met, including a 7.00% return each year on the current *smoothed* value of assets.
Projection of Funding Period
Sensitivity from Investment Returns

Based on 2019 Valuation

Based on 2019 Valuation (6% Actual Returns)

Based on 2019 Valuation (5% Actual Returns)
Projection of Funding Period
Historical Scenarios

All scenarios model return from 70% stock/30% bond portfolio from the indicated decade and then 7% returns thereafter.
Stress Test Summary

• Actuarial valuation results show System is on target to be fully funded in less than 30 years
  – Primarily due to legislated employer contribution increases

• Stress test shows that System is sustainable in a low return environment
  – Although date of achieving full funded status would be extended
Valuation Summary

• While it does not show in the current UAAL and funded ratio, the current actuarial assumptions and the contribution commitment from Act 17 (SB 936) have materially strengthened the outlook for ERS

• The scheduled employer contribution rates are expected to be adequate to satisfy Hawaii Revised Statutes §88-122(e)(1), even with substantial adverse experience

• However, all of the positive outlook assumes the scheduled increases in contribution rates occur and investment income objectives are achieved. It is imperative that the currently scheduled funding strategies are implemented and sustained.

• UAAL is anticipated to grow until contribution rates are fully phased-in and funding period reaches 20 years (approximately 2025).