Supplemental to Complete Presentation

- The slides herein illustrate additional alternate amortization policy options requested by a Conference Principal
- These slides are supplemental to the full 82-page “2019 FRS Actuarial Assumption Estimating Conference” presentation, and all caveats and limitations of use are incorporated by reference
## Effect of Allocation / Amortization at 7.4%

<table>
<thead>
<tr>
<th>Valuation Results</th>
<th>Blended PP/IP Employer Rate</th>
<th>UAL (AVA)</th>
<th>Estimated PP/IP Contribution**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final 2019-20 at 7.40% assumption</td>
<td>10.08%</td>
<td>$29.9 B</td>
<td>$3.56 B</td>
</tr>
</tbody>
</table>

**Preliminary 2020-21 at 7.40%**:  
- Ultimate EAN; 30 yr % of pay amortization | 10.17% | $29.2 B | $3.67 B |

**Changing to Individual EAN and amortizing only the UAL decrease from that method change** as follows:  
- Individual EAN; 10 yr level $ amortization | 10.15% | $25.8 B | $3.61 B |
- Individual EAN; 12 yr level $ amortization | 10.31% | $25.8 B | $3.67 B |
- Individual EAN; 15 yr level $ amortization | 10.46% | $25.8 B | $3.73 B |
- Individual EAN; 20 yr level $ amortization | 10.60% | $25.8 B | $3.78 B |
- Individual EAN; 10 yr level % amortization | 10.32% | $25.8 B | $3.68 B |
- Individual EAN; 30 yr level % of Tier I PP active member payroll amortization | 10.43% | $25.8 B | $3.72 B |

* Reflecting recommended demographic assumption updates (presentations Oct. 8 and Oct. 23)  
** Based on projected 2020-21 PP/IP payroll of $37.9 billion (including payroll subject to only UAL contributions)
# Effect of Allocation / Amortization at 7.2%

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<tr>
<th>Valuation Results</th>
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</tr>
<tr>
<td>Preliminary 2020-21 at 7.20%*:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ultimate EAN; 30 yr % of pay amortization</td>
<td>11.12%</td>
<td>$33.7 B</td>
<td>$4.02 B</td>
</tr>
<tr>
<td>Changing to Individual EAN and amortizing only the UAL decrease from that method change as follows:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Individual EAN; 10 yr level $ amortization</td>
<td>11.10%</td>
<td>$30.0 B</td>
<td>$3.96 B</td>
</tr>
<tr>
<td>- Individual EAN; 12 yr level $ amortization</td>
<td>11.27%</td>
<td>$30.0 B</td>
<td>$4.02 B</td>
</tr>
<tr>
<td>- Individual EAN; 15 yr level $ amortization</td>
<td>11.43%</td>
<td>$30.0 B</td>
<td>$4.08 B</td>
</tr>
<tr>
<td>- Individual EAN; 20 yr level $ amortization</td>
<td>11.58%</td>
<td>$30.0 B</td>
<td>$4.14 B</td>
</tr>
<tr>
<td>- Individual EAN; 10 yr level % amortization</td>
<td>11.28%</td>
<td>$30.0 B</td>
<td>$4.03 B</td>
</tr>
<tr>
<td>- Individual EAN; 30 yr level % of Tier I PP active member payroll amortization</td>
<td>11.40%</td>
<td>$30.0 B</td>
<td>$4.07 B</td>
</tr>
</tbody>
</table>

* Reflecting recommended demographic assumption updates (presentations Oct. 8 and Oct. 23)
** Based on projected 2020-21 PP/IP payroll of $37.9 billion (including payroll subject to only UAL contributions)

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### Regular: Allocation / Amortization at 7.4%

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<tr>
<th>Valuation Results</th>
<th>Blended PP/IP Employer Rate</th>
<th>Estimated PP/IP Contribution**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final 2019-20 at 7.40% assumption</td>
<td>6.75%</td>
<td>$1.84 B</td>
</tr>
<tr>
<td>Preliminary 2020-21 at 7.40%*:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ultimate EAN; 30 yr % of pay amortization</td>
<td>7.22%</td>
<td>$1.99 B</td>
</tr>
<tr>
<td>Changing to Individual EAN and amortizing only the UAL decrease from that method change as follows:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Individual EAN; 10 yr level $ amortization</td>
<td>7.24%</td>
<td>$1.96 B</td>
</tr>
<tr>
<td>- Individual EAN; 12 yr level $ amortization</td>
<td>7.35%</td>
<td>$1.99 B</td>
</tr>
<tr>
<td>- Individual EAN; 15 yr level $ amortization</td>
<td>7.46%</td>
<td>$2.03 B</td>
</tr>
<tr>
<td>- Individual EAN; 20 yr level $ amortization</td>
<td>7.57%</td>
<td>$2.06 B</td>
</tr>
<tr>
<td>- Individual EAN; 10 yr level % amortization</td>
<td>7.36%</td>
<td>$2.00 B</td>
</tr>
<tr>
<td>- Individual EAN; 30 yr level % of Tier I PP active member payroll amortization</td>
<td>7.44%</td>
<td>$2.02 B</td>
</tr>
</tbody>
</table>

* Reflecting recommended demographic assumption updates (presentations Oct. 8 and Oct. 23)
** Based on projected 2020-21 PP/IP payroll of $29.4 billion, and does not include projected contributions on DROP payroll (estimated for 2019-20 to be $0.297 billion in contributions on $2.30 billion of applicable payroll)
### Special Risk: Allocation / Amortization at 7.4%

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<tbody>
<tr>
<td>Final 2019-20 at 7.40% assumption</td>
<td>23.76%</td>
<td>$1.16 B</td>
</tr>
<tr>
<td>Preliminary 2020-21 at 7.40%*:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ultimate EAN; 30 yr % of pay amortization</td>
<td>21.46%</td>
<td>$1.10 B</td>
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<tr>
<td>- Individual EAN; 10 yr level $ amortization</td>
<td>20.18%</td>
<td>$1.03 B</td>
</tr>
<tr>
<td>- Individual EAN; 12 yr level $ amortization</td>
<td>20.63%</td>
<td>$1.05 B</td>
</tr>
<tr>
<td>- Individual EAN; 15 yr level $ amortization</td>
<td>21.08%</td>
<td>$1.08 B</td>
</tr>
<tr>
<td>- Individual EAN; 20 yr level $ amortization</td>
<td>21.50%</td>
<td>$1.10 B</td>
</tr>
<tr>
<td>- Individual EAN; 10 yr level % amortization</td>
<td>20.67%</td>
<td>$1.05 B</td>
</tr>
<tr>
<td>- Individual EAN; 30 yr level % of Tier I PP active member payroll amortization</td>
<td>20.98%</td>
<td>$1.07 B</td>
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* Reflecting recommended demographic assumption updates (presentations Oct. 8 and Oct. 23)
** Based on projected 2020-21 PP/IP payroll of $5.12 billion, and does not include projected contributions on DROP payroll (estimated for 2019-20 to be $0.297 billion in contributions on $2.30 billion of applicable payroll)

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**Regular: Allocation / Amortization at 7.2%**

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<td>$2.22 B</td>
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<tr>
<td>- Individual EAN; 10 yr level $ amortization</td>
<td>8.04%</td>
<td>$2.19 B</td>
</tr>
<tr>
<td>- Individual EAN; 12 yr level $ amortization</td>
<td>8.17%</td>
<td>$2.22 B</td>
</tr>
<tr>
<td>- Individual EAN; 15 yr level $ amortization</td>
<td>8.29%</td>
<td>$2.26 B</td>
</tr>
<tr>
<td>- Individual EAN; 20 yr level $ amortization</td>
<td>8.40%</td>
<td>$2.29 B</td>
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<td>8.26%</td>
<td>$2.25 B</td>
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<td>23.09%</td>
<td>$1.18 B</td>
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Changing to Individual EAN and **amortizing only the UAL decrease from that method change** as follows:

| - Individual EAN; 10 yr level $ amortization                                      | 21.74%                      | $1.11 B                        |
| - Individual EAN; 12 yr level $ amortization                                      | 22.22%                      | $1.13 B                        |
| - Individual EAN; 15 yr level $ amortization                                      | 22.69%                      | $1.16 B                        |
| - Individual EAN; 20 yr level $ amortization                                      | 23.14%                      | $1.18 B                        |
| - Individual EAN; 10 yr level % amortization                                      | 22.25%                      | $1.14 B                        |
| - Individual EAN; 30 yr level % of Tier I PP active member payroll amortization    | 22.56%                      | $1.15 B                        |

* Reflecting recommended demographic assumption updates (presentations Oct. 8 and Oct. 23)

** Based on projected 2020-21 PP/IP payroll of $5.12 billion, and does not include projected contributions on DROP payroll (estimated for 2019-20 to be $0.297 billion in contributions on $2.30 billion of applicable payroll)
Disclaimer

At your request, we have provided these draft results prior to completion of the July 1, 2019 Actuarial Valuation Report. Because these are draft results, Milliman does not make any representation or warranty regarding the contents of the presentation. Milliman advises any reader not to take any action in reliance on anything contained in this presentation. All results from this presentation are subject to revision or correction prior to the release of the final July 1, 2019 Actuarial Valuation Report, and such changes or corrections may be material.
Certification

This presentation summarizes key preliminary results of an actuarial valuation of the Florida Retirement System (“FRS” or “the System”) as of July 1, 2019. The valuation, when finalized, will develop actuarially calculated contribution rates for the Plan Year ending June 30, 2021. The results in this presentation are preliminary in nature and may not be relied upon to, for example, prepare the System’s Consolidated Annual Financial Report (CAFR). The reliance document will be the formal July 1, 2019 Actuarial Valuation Report.

In preparing this presentation, we relied, without audit, on information (some oral and some in writing) supplied by Division of Retirement (“Division”) staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

Preliminary results have been determined on the basis of actuarial assumptions and methods as most recently adopted by the 2018 FRS Actuarial Assumption Conference. At the time of their review and adoption, those assumptions, with the exception of the investment return assumption as disclosed in the July 1, 2018 Actuarial Valuation Report, were individually reasonable (taking into account the experience of the System and reasonable expectations); and offered a reasonable estimate of anticipated future experience affecting the System.

Future actuarial measurements may differ significantly from the current measurements presented in this presentation due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan’s funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The FRS Actuarial Assumption Conference has the final decision regarding the selection of assumptions for System funding calculations.
Certification

Computations presented in this presentation are for purposes of preliminarily estimating the actuarially calculated contribution rates for funding the System. Computations prepared for other purposes may differ. The calculations in the presentation have been made on a basis consistent with our understanding of the System’s funding requirements and goals. The calculations in this presentation have been made on a basis consistent with our understanding of the plan provisions described in the appendix of our formal actuarial valuation report as of July 1, 2018. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this presentation. Accordingly, additional determinations may be needed for other purposes.

Milliman’s work is prepared solely for the internal business use of the Florida Department of Management Services (“DMS”). To the extent that Milliman’s work is not subject to disclosure under applicable public records laws, Milliman’s work may not be provided to third parties without Milliman’s prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman’s consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s):

(a) The System may provide a copy of Milliman’s work, in its entirety, to the System’s professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman’s work for any purpose other than to benefit the System.

(b) The System may provide a copy of Milliman’s work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman’s work product should rely upon Milliman’s work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman’s advice is not intended to be a substitute for qualified legal or accounting counsel. The presenting actuaries are independent of the plan sponsors. I am not aware of any relationship that would impair the objectivity of Milliman’s work.

On the basis of the foregoing, I hereby certify that, to the best of my knowledge and belief, this presentation has been prepared in accordance with generally recognized and accepted actuarial principles and practices. I am a member of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

This work product was prepared solely for the Department of Management Services for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.
Actuarial Basis

Data
We have based our calculations on demographic member census data as of July 1, 2019 as supplied by the Division of Retirement (“Division”). That data will be summarized in our formal actuarial valuation report for funding purposes as of July 1, 2019, which will be published in the 4th quarter of this year. Assets as of June 30, 2019, were based on values provided by the Division.

Methods / Policies
Actuarial Cost Method: Ultimate Entry Age Normal, using the interpretation of that method as most recently endorsed by the 2018 FRS Actuarial Assumption Conference, except where Individual Entry Age normal is explicitly modeled as a policy alternative in the body of the presentation.

UAL Amortization: Newly arising UAL each plan year is amortized as a level percentage of projected payroll over a closed 30-year period, except where explicitly modeled as a policy alternative in the body of the presentation.

Actuarial Value of Assets: A smoothed asset value specified by Florida Statutes that annually recognizes 20% of deviations in investment performance from the long-term assumption systematically over time. The statutory calculation approach includes a “corridor” to ensure smoothed assets vary no more than 20% from fair market value.

Assumptions
Assumptions for preliminary 2019 valuation calculations use assumptions as detailed July 1, 2018 Actuarial Valuation Report for funding purposes, with modifications for recommended updates to demographic assumptions from our 2019 Experience Study. Those updates are as summarized in this presentation and our October 8, 2019 presentation.

Provisions
Provisions valued are as summarized in the July 1, 2018 Actuarial Valuation Report for system funding purposes as subsequently modified by Senate Bill 426, which was enacted into law during the 2019 legislative session.

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