COMPOSITE & LEGACY PLAN
Comparative Stress Testing

September 2016

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Stress Testing Goal and Methodology

**GOAL:** Measure Legacy/Composite Plan’s ability to recover from major investment shock

- **Mature DB plan**
  - Actual construction industry plan with 4,000+ participants
  - Endangered (yellow zone), but projected to emerge from the Yellow zone in 2029

- **2026-2035 investment experience are presumed to repeat actual 2005-2014 median returns for multiemployer plan universe** *(source: Segal Rogerscasey)*

<table>
<thead>
<tr>
<th>Actual Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
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<tbody>
<tr>
<td>Mapped Year</td>
<td>2026</td>
<td>2027</td>
<td>2028</td>
<td>2029</td>
<td>2030</td>
<td>2031</td>
<td>2032</td>
<td>2033</td>
<td>2034</td>
<td>2035</td>
</tr>
<tr>
<td>Median Investment Return</td>
<td>6.65%</td>
<td>12.15%</td>
<td>7.37%</td>
<td><strong>-22.34%</strong></td>
<td>17.12%</td>
<td>11.73%</td>
<td>1.70%</td>
<td>11.44%</td>
<td>14.99%</td>
<td>6.20%</td>
</tr>
</tbody>
</table>

- **Apply investment shock to replicate 2008 financial downturn**
  - Re-evaluation of contribution requirements in current and legacy/composite plans
Stress Testing Goal and Methodology continued

**GOAL:** Measure Legacy/Composite Plan’s ability to recover from major investment shock

- Assume transition to Legacy/Composite Plan in 2016
  - **Transition Scenario #1 – Minimum Legacy Plan Contribution**
    - Legacy plan assumed to get minimum required to satisfy both the Transition Contribution Rate (TCR) and Funding Improvement Plan (FIP) requirements, while using 25*-year amortization “fresh start”
    - Remainder goes to Composite plan, more than sufficient to satisfy 120% projected funded percentage rule
  - **Transition Scenario #2 – Maximum Legacy Plan Contribution**
    - Composite plan assumed to get only minimum contribution to satisfy 120% projected funded percentage rule
    - Remainder goes to Legacy plan, while using 25*-year amortization “fresh start”

- Allow new Legacy/Composite plan to slowly mature until shock – no gains/losses thru 2025
  - Assume 2026-2035 returns replicate 2005-2014 returns (median each year)
  - 7% assumed in other projection years

*Note – Discussion Draft has 30 years; a 25-year fresh start is presumed to prevail*
Transition Scenario #1
Minimum Legacy Plan Contribution

Summary of required hourly contribution rates:

- **Current Plan**: Contribution rate is set at $13.45 in 2017 to fulfill FIP goals, and avoid Red Zone in a few years.
  - Plan remains in the Green zone after 2029 shock; Plan stays well over 80% funded and credit balance stays positive after 2029. **By 2031, the Plan is 100% funded.**

- **Legacy Plan**: Calculated $5.68 TCR overridden: $7.07 is needed to satisfy current FIP
  - To avoid Early Red in 2021, updated FIP requires **an additional $0.28 from Composite Plan**
  - After 2029 shock, plan is **certified in Red Zone** beginning in 2030; rehab plan requires $9.79 in 2031
  - Gains result in early emergence to yellow zone (2032), then green zone (2036)
  - Rate drops back to original TCR of $7.07 in 2038
  - Funding recovers from low of 64% in 2030, reaching 85% by 2036, then **above 100% by 2038**

- **Composite Plan**: Contributions are the difference between Current and Legacy Plan.
  - The plan reaches 181% funding before the shock and drops down to 133% after the shock
  - **$0.28 and $2.44 of contributions are diverted** back to the Legacy Plan, in 2021 and 2031, respectively
  - After 2030, Plan stays well over 120% funded, hovering around **160-170% long term**

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2021</th>
<th>2031</th>
<th>2038</th>
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<td>7.35</td>
<td>9.79</td>
<td>7.07</td>
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<tr>
<td>Composite Plan</td>
<td>6.38</td>
<td>6.10</td>
<td>3.66</td>
<td>6.38</td>
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<tr>
<td>Total Legacy + Composite</td>
<td>13.45</td>
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</table>
Transition Scenario #1 – **Minimum Legacy Plan Contribution**

### Contribution Rates

<table>
<thead>
<tr>
<th>Plan Type</th>
<th>2017</th>
<th>2021</th>
<th>2031</th>
<th>2038</th>
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<td>13.45</td>
<td>13.45</td>
<td>13.45</td>
<td>13.45</td>
</tr>
</tbody>
</table>

### Plan Funded Percentage

- **Current Plan:**
  - 67% funded in 2016 for Current & Legacy Plans
  - Drop to 88% funded after -22% return in 2029

- **Legacy Plan:**
  - Drop to 64% funded after -22% return in 2029
  - Enters Red Zone: Rehab plan requires additional $2.44

- **Composite Plan:**
  - Drop to 133% funded after -22% return in 2029
Transition Scenario #2
Maximum Legacy Plan Contribution

Summary of required hourly contribution rates:

- **Current Plan**: Contribution rate is set at $13.45 in 2017 to fulfill FIP goals, and avoid Red Zone in a few years.
  - Plan remains in the Green zone after 2029 shock; Plan stays well over 80% funded and credit balance stays positive after 2029. **By 2031, the plan is 100% funded.**

- **Legacy Plan**: Contributions are the difference between Current and Composite Plan
  - Contribution rate of $8.88 is more than enough to meet TCR and FIP goals ($7.07)
  - After 2029 shock, funding percentage drops to 81% in 2030, but remains in the Green zone
  - $1.25 of contributions are diverted back to the Composite Plan in 2030 (see below)
  - Funding recovers and remains in the Green zone, reaching **100% by 2035**

- **Composite Plan**: Contribution rate of $4.57 is sufficient to satisfy 120% projected funded percentage target within 15 years
  - Plan reaches 129% funding before the 2029 shock and drops down to 94% after the shock
  - After 2029 shock, **an additional $1.25 is diverted** to satisfy 120% projected funded percentage target within 15 years. Funding recovers, reaching **120% by 2035** due to gains

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<th>2021</th>
<th>2030</th>
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<tbody>
<tr>
<td>Current Plan</td>
<td>$13.45</td>
<td>$13.45</td>
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<tr>
<td>Legacy Plan</td>
<td>8.88</td>
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<td>7.63</td>
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<tr>
<td>Composite Plan</td>
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<td>5.82</td>
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<tr>
<td>Total Legacy + Composite</td>
<td>13.45</td>
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Transition Scenario #2 – Maximum Legacy Plan Contribution

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**Current Plan:**
- 67% funded in 2016 for Current & Legacy Plans
- Drop to 88% funded after -22% return in 2029

**Composite Plan:**
- Drop to 94% funded after -22% return in 2029
- Requires $1.25 to meet 120% projected funded percentage target within 15 years

**Legacy Plan:**
- Drop to 81% funded after -22% return in 2029
# Appendix: Current Endangered Plan Metrics

## Plan of Benefits
- $120 accrual rate
- Normal Retirement Age: 65*
- Unreduced benefit at 60*/30
- Early retirement: 52/10, reduced 3%-6% per year
- Identical benefits and eligibility provisions for Composite plan
- $13.45 negotiated hourly contribution rate, effective 1/1/2017

* certain cohorts have lower normal & unreduced age requirements; assumed average retirement age = 61

## Assumptions and Methods
- Industry activity: actives work an average of 1,500 hours every year
- Investment return: 7.0% except 2026-2035 experience replicates 2005-2014
- Contribution rate: static, unless required to fulfill funding improvement plan (FIP) or rehabilitation plan
- As employees terminate or retire, new entrants replace them with same demographic profile as current active population
- No future gains/losses on all other assumptions (mortality, turnover, retirement, etc.)

## Current Funding Profile
- Actuarial liability:
  - Active = 32%
  - Inactive = 7%
  - Retirees = 61%
- 67% Funded Ratio
- Normal Cost = 5% of Active actuarial liability
- Active average age/service: 44/13
- Retiree average age: 69

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* Segal Consulting 7
Appendix: Assumed Expenses and Investment Returns

- 7% return (net of investment expenses) assumed for all years, except 2026-2035

- 2026-2035 returns are presumed to repeat actual 2005-2014 median returns for multiemployer plan universe (source: Segal Rogerscasey)

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Median Investment Return: 6.65% 12.15% 7.37% -22.34% 17.12% 11.73% 1.70% 11.44% 14.99% 6.20%

- Administrative expenses:
  - For Legacy plan = Current plan
  - For Composite plan = 20% of Current plan
  - All plans’ expenses assumed to grow 3.5%/year

- Other assumptions (actuary’s best estimate for minimum funding purposes) available upon request