U.S Cement Outlook

IEEE

Ed Sullivan
Group VP, Chief Economist
Construction Activity
Billion Real $

2014 = 2.5%
2015 = 5.6%

12 Year Peak-to-Peak Recovery
Composition of Changes in Cement Consumption
Share of Total Growth

2014:
+7.0 MMT

- Public 33%
- Non-Res 54%
- Res 14%

2015:
+6.3 MMT

- Public 21%
- Non-Res 17%
- Res 62%
Economic Outlook
Economic Growth
Gross State Product (GDP), Annual Percent Change

Source: BEA, PCA
Economic Growth
Gross State Product (GDP), Annual Percent Change

Source: BEA, PCA
Putting Things Into Context: Economic Outlook

  – Stronger household formation

• Strong job growth in context of sub-6% unemployment suggests pressure on wages.

• Consumer confidence/sentiment has improved significantly and is expected to continue.

• Low oil prices add 20-30 basis points to economic growth.
  – Regional disruptions among energy producing states.
Putting Things Into Context: Economic Outlook

• Inflation remains low, interest rates expected to only gradually increase, slower increases in home prices and stronger increases in rents.
  – New home affordability remains favorable in absolute terms and against rents.

• Lending risks subside and lending standards ease.

• Economic recovery moving into higher growth phase in the years ahead.
  – Roughly 3% growth on a sustained basis.
  – Healing of excesses, and huge pent-up demand.
Consumers Are Ready to Propel Growth

• Debt-to-Income ratio at 18 year best,

• Job creation continues at a monthly rate of 225K to 250K.

• Job creation occurs in the context sub-6% unemployment. Pressure on wages begin to of emerge.

• Oil price declines, if sustained, add 0.3% to 0.4% consumer spending growth.

• While pressure gradually mounts, inflation and interest rates remain low.

• Consumer Wealth remains strong via home price increases and stock performances.

• Unprecedented levels of pent-up demand exist.

• Consumer sentiment rapidly improving.
Strong Dollar
Weighted Average Exchange Value of U.S. Dollar

Major Currencies Index
(Index Mar-1973=100, NSA)

- Lowers Inflation
- Hinders Interest Rate Pressures
- Reduces US Exports

19%
IMM New Orders Declines 6% in Past 12 Months.

Implies continued expansion but at less robust rate than previously expected.
Oil Impact
Oil Prices & Baker Hughes Rig Count

WTI Oil Prices

Rig Count

Baker Hughes Rig Count

WTI Oil Prices
West Texas Intermediate
Oil Prices Per Barrel

2006: $66.02
2008: $99.57
2010: $79.40
2012: $94.12
2014: $93.10
2016: $76.20
2018: $86.60
2020: $97.00
2022: $107.40
2024: $107.40
<table>
<thead>
<tr>
<th>Location</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marcellus Shale - SW Liquid Rich Pennsylvania</td>
<td>$24.23</td>
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<tr>
<td>Marcellus Shale - Super Rich Pennsylvania</td>
<td>$25.63</td>
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<tr>
<td>Utica - Wet Gas Ohio</td>
<td>$32.39</td>
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<tr>
<td>Missippian Horizontal - East Mississippi</td>
<td>$42.15</td>
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<tr>
<td>Utica - Liquid Rich Ohio</td>
<td>$44.04</td>
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<tr>
<td>Eagle Ford - Liquids Rich Texas</td>
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<tr>
<td>Niobrara - Wattenberg CO, WY, Neb</td>
<td>$46.10</td>
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<tr>
<td>Wolfcamp - N. Midland West Texas</td>
<td>$53.92</td>
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<td>Eagle Ford - Oil Window Texas</td>
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<td>Wolfcamp - S. Midland Texas</td>
<td>$61.57</td>
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<tr>
<td>Missippian Horizontal - West Mississippi</td>
<td>$64.05</td>
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<td>Wolfberry Texas</td>
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<td>Bakken Shale Montana, North Dakota</td>
<td>$64.74</td>
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<td>Wolfcamp - N. Delaware Texas</td>
<td>$68.54</td>
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<td>Uinta - Green River Utah, Colorado</td>
<td>$68.77</td>
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<td>Uinta - Wasatch - Horizontal Utah, Colorado</td>
<td>$72.15</td>
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<td>Granite Wash - Liquid Rich KS, TX, OK</td>
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<td>Uinta - Wasatch - Vertical Utah, Colorado</td>
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<td>Barnett Shale - Southern Liquid Rich Texas</td>
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Fed Policy
Federal Reserve Interest Rate Assumptions

- Strong dollar, weak global conditions, low oil prices, spot slack conditions and low wage rate gains suggest slow inflation increases.

- Past recession worst since post-WWII and recovery has been slow. Fed (Yellen) likely to err on over stimulate.

- Suggests a somewhat bigger window for raising rates (3rd Q).

- Rate increases probably smaller and longer time lapses between increases.
Housing Outlook
Housing Assessments

- **Perspective:**
  - MF Starts: 0.36 million (2005). 0.36 million (2014). At pre-recession levels.

- Large housing starts percentage increases expected by PCA must take into consideration the current low levels of activity.
SF Home Sales

Thousand Units

Recession

23% Price Decay

Distressed Sales
Home Sales to Employment Ratio

Home Sales/Employment

- 2005: 2.00%
- 2006: 2.50%
- 2007: 3.00%
- 2008: 3.50%
- 2009: 4.00%
- 2010: 4.50%
- 2011: 5.00%
- 2012: 5.50%
- 2013: 6.00%
Housing Assessments: Credit Access

• Credit Qualifications:
  
  – Stronger job market implies stronger FICO scores.
  
  – Equivax states 45% of all consumers have a FICO score below 700. This compares to 47% in 2005.
  
  – FICO credit-score calculations have recently eliminated records of a consumer failing to pay a bill if the bill has been paid and less weight to unpaid medical bills that are with a collection agency.
  
  – For borrowers in the 580-619 range, those who are close to a lender's typical credit score minimum, 45% of that population saw their scores improve enough to meet the credit score threshold,
Housing Assessments: Credit Access

• Credit Qualifications:

• Nations’ mortgage rules were recently made by the Consumer Financial Protection Burea (CFPB). Dodd-Frank

• Protection remains in place, but opens up access to mortgage market via the Qualified Residential Mortgage rule.

• Ability-to-repay guidelines adds clarity to lenders.

• Eliminates the 20% down payment requirement if banks don’t hold 5% of mortgages on its own books.

• Reduces FICA scores.

• More favorable guidelines for packaging & selling mortgage securities.
  – Stronger job market implies stronger FICO scores.
Housing Outlook

Housing Starts
Thousands of Units

<table>
<thead>
<tr>
<th>Year</th>
<th>2001</th>
<th>2003</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
<th>2017</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
<td>1,500</td>
<td>1,750</td>
<td>2,000</td>
<td>1,700</td>
<td>1,000</td>
<td>800</td>
<td>1,000</td>
<td>1,200</td>
<td>1,500</td>
<td>2,000</td>
</tr>
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</table>
Starts Composition

Multifamily Starts
Share of Total

- Percentage Range: 0% to 40%

Bar chart showing the share of total starts composition for multifamily housing from 2001 to 2019.
Nonresidential Outlook
Simplified Version of Nonresidential Recovery

– Investment in nonresidential commercial properties is determined by expected ROI.

– Expected ROI = NOI + Expected Asset Appreciation.

– Expected Asset Appreciation = NOI performance.


– Occupancy & Leasing Rates = Employment
Update: Job Creation Relationship to Changes in Cement Consumption

Past 12 Months, Thousand Net New Jobs, Thousand Tons

- Net Job Creation
- Change in Cement Consumption

[Bar chart showing the relationship between job creation and cement consumption across different sectors (Office, Hotel & Leisure, Retail, Health, Manufacturing).]
## Nonresidential Recovery: Construction Details

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Nonresidential Buildings</strong></td>
<td>3.8%</td>
<td>8.2%</td>
<td>8.8%</td>
<td>8.3%</td>
<td>6.3%</td>
<td>4.7%</td>
<td>3.7%</td>
</tr>
<tr>
<td><strong>Industrial</strong></td>
<td>3.2%</td>
<td>9.3%</td>
<td>8.8%</td>
<td>4.4%</td>
<td>3.3%</td>
<td>1.4%</td>
<td>0.7%</td>
</tr>
<tr>
<td><strong>Office</strong></td>
<td>7.6%</td>
<td>13.9%</td>
<td>12.3%</td>
<td>15.6%</td>
<td>9.6%</td>
<td>6.6%</td>
<td>3.9%</td>
</tr>
<tr>
<td><strong>Hotels, Motels</strong></td>
<td>23.0%</td>
<td>6.3%</td>
<td>8.1%</td>
<td>6.3%</td>
<td>5.5%</td>
<td>5.1%</td>
<td>5.2%</td>
</tr>
<tr>
<td><strong>Hospitals, Institutions</strong></td>
<td>-7.7%</td>
<td>-7.5%</td>
<td>2.5%</td>
<td>3.2%</td>
<td>3.1%</td>
<td>4.3%</td>
<td>4.9%</td>
</tr>
<tr>
<td><strong>Religious</strong></td>
<td>-12.3%</td>
<td>-2.3%</td>
<td>-1.0%</td>
<td>0.3%</td>
<td>2.0%</td>
<td>3.3%</td>
<td>3.1%</td>
</tr>
<tr>
<td><strong>Educational</strong></td>
<td>-0.8%</td>
<td>-3.8%</td>
<td>2.5%</td>
<td>3.3%</td>
<td>4.3%</td>
<td>4.4%</td>
<td>5.0%</td>
</tr>
<tr>
<td><strong>Other Commercial</strong></td>
<td>6.8%</td>
<td>17.6%</td>
<td>11.8%</td>
<td>10.8%</td>
<td>8.6%</td>
<td>6.4%</td>
<td>5.3%</td>
</tr>
</tbody>
</table>
Nonresidential Cement Intensities
Tons per million real $
Nonresidential Cement Intensities

Tons per million real $
Public Outlook
Public Construction
Million Real $

2014 = -2.1%
2015 = +1.6%

Seven Years Decline
State Highway & Street Funding Model

- **Gross State Product**
- **State Fiscal Assessment**
- **Discretionary Highway Expenditures**
- **MAP-21 Allocation**
- **Total Highway Funding**

**Note:** Simplified Flow. Many steps required to reach each bubble.

GSP = Gross State Product (Real). Indicates economic activity at the state level.
State Deficit Outlook

Net Balance (Revenues Less Expenditures)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Balance (in $000)</th>
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</thead>
<tbody>
<tr>
<td>2007</td>
<td>-300,000,000</td>
</tr>
<tr>
<td>2009</td>
<td>-250,000,000</td>
</tr>
<tr>
<td>2011</td>
<td>-200,000,000</td>
</tr>
<tr>
<td>2013</td>
<td>-150,000,000</td>
</tr>
<tr>
<td>2015</td>
<td>-100,000,000</td>
</tr>
<tr>
<td>2017</td>
<td>-50,000,000</td>
</tr>
<tr>
<td>2019</td>
<td>0</td>
</tr>
<tr>
<td>2021</td>
<td>50,000,000</td>
</tr>
<tr>
<td>2023</td>
<td>100,000,000</td>
</tr>
<tr>
<td>2025</td>
<td>150,000,000</td>
</tr>
<tr>
<td>2027</td>
<td>200,000,000</td>
</tr>
<tr>
<td>2029</td>
<td>250,000,000</td>
</tr>
<tr>
<td>2031</td>
<td>300,000,000</td>
</tr>
</tbody>
</table>
Share of State Expenditures On Transportation

2000-2008 Average = 2.25%
Based on Three Year Lag Between Home Prices and Employment, the ongoing improvement in prices implies a significant upturn in local spending beginning in 2015.
Portland Cement Consumption

Thousand Metric Tons

2014 = 8.7%
2015 = 7.5%
2016 = 7.9%
Capacity Utilization
Annual Production Divided by Capacity

- 2006: 95%
- 2008: 84%
- 2010: 62%
- 2012: 67%
- 2014: 76%
- 2016: 89%
- 2018: 90%
Import Share
Import Volume Divided by Total Consumption

2006: 28%
2008: 12%
2010: 10%
2012: 9%
2014: 9%
2016: 9%
2018: 20%
Longer Term Outlook
US Population

Millions of Persons

Source: US Census Estimates
Projected Per Capita Cement Consumption

Metric Tons Consumed/Population
Consumption in Excess of Long-Term Supply

Thousand Metric Tons

![Bar chart showing consumption in excess of long-term supply from 2002 to 2032.](chart.png)
U.S Cement Outlook

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