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2018 Annual Infrastructure Construction Cost Inflation Estimate

October 16, 2017

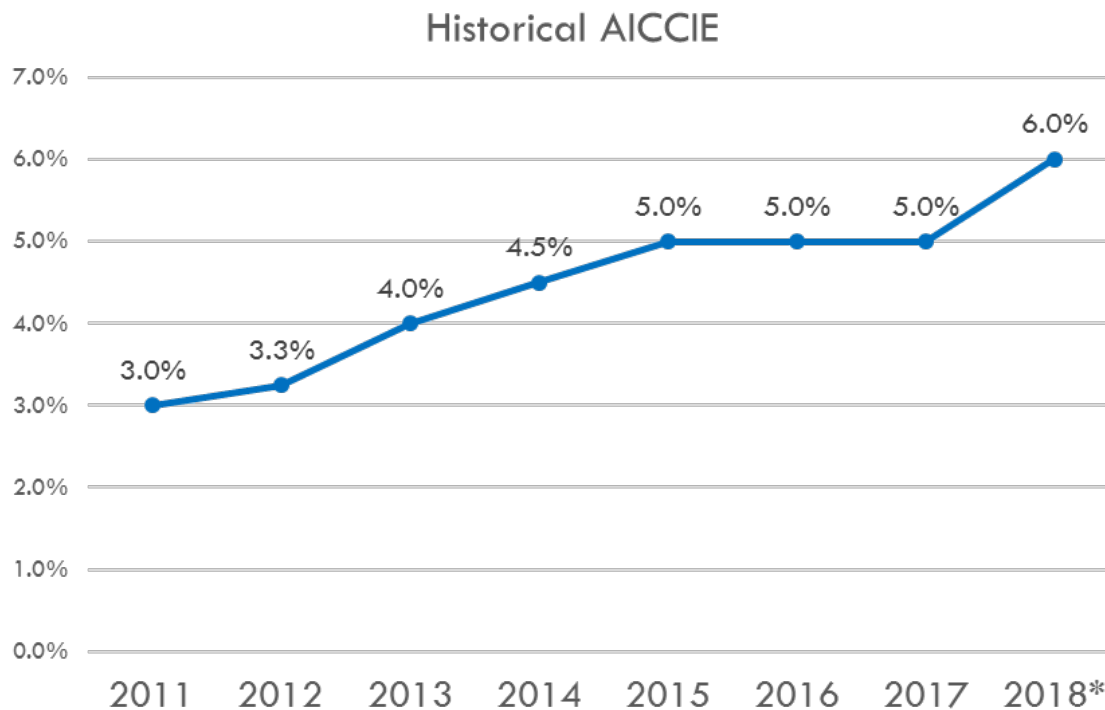
Annual Infrastructure Construction Cost Inflation Estimate (AICCIE)

- Today's Action item: Adopt the AICCIE for CY 2018

- AICCIE: projected rate of construction cost escalation for the upcoming calendar year, used to:
 - Forecast costs for the 2-Year Capital Budget & 10-Year Capital Plan
 - Annually adjust developer impact fees
 - Update FRRM and other city forecasting tools

AICCIE Recommendation CY2018

- ORCP recommends an AICCIE of **6.0%** for CY 2018
- Construction still booming even as slowdown looms



*pending CPC acceptance

Local Market Reality

“The health of the local economy is driving record amounts of construction, resulting in more work that the labor market can easily perform.

This is causing escalation in excess of labor and material increases.”

Escalation Indices

| Construction Index | Description | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|-------|-------|------|------|-------|------|------|
| Turner Building Cost Index | Change in costs of non-residential building construction nationwide | 1.6% | 2.1% | 4.1% | 4.4% | 4.5% | 4.8% | 4.2% |
| BLS New Construction PPI | Change in output price of new non-residential construction | 2.8% | 2.9% | 1.9% | 3.1% | 1.7% | 0.6% | 3.6% |
| BLS Maintenance Contractor PPI | Change in costs of price for work done to maintain and repair non-residential buildings | 2.2% | 1.9% | 1.7% | 2.8% | 2.0% | 1.4% | 3.0% |
| BLS SF Metro CPI | Change in cost of local cost of consumer goods | 2.9% | 2.8% | 2.0% | 3.0% | 2.6% | 3.1% | 3.4% |
| BLS SF Metro Employment Cost Index | Change in employment cost (averages Total Compensation and Wages/Salaries) | - | - | - | 4.5% | 2.2% | 2.2% | 5.8% |
| ENR CCI – San Francisco | Change in SF <i>common</i> labor and materials | 2.8% | 1.7% | 5.3% | 4.9% | 2.4% | 3.6% | 4.2% |
| ENR BCI – San Francisco | Change in SF <i>skilled</i> labor and materials | 6.0% | 1.5% | 3.7% | 3.0% | 2.6% | 3.7% | 4.8% |
| TBD Consultants Bid Index | Change in construction bid cost for an indexed building project scope in SF | 14.8% | 7.6% | 6.4% | 4.2% | 12.5% | 5.0% | 5.7% |
| Local Expert Average | Estimated cost escalation rate for the coming year | - | - | - | - | 5.1% | 5.1% | 6.1% |
| AICCIE | City of SF estimate for escalation in the calendar year listed | 3.0% | 3.25% | 4.0% | 4.5% | 5.0% | 5.0% | 6.0% |

- ▣ 2017 average across all listed indices: 4.46%
- ▣ 2017 average across all local indices (shaded rows): 4.91%

2017 SF Experts Projected Escalation

| Organization | 2017 Estimate | 2016 Estimate |
|------------------------------|---------------|---------------|
| Jacobs | 7.6 | 6.0 |
| Clark | 7 | N/A |
| Webcor | 7 | 5.5 |
| Cumming Construction | 6 | 5 |
| M. Lee Corporation | 6 | 5.5 |
| TBD Construction Consultants | 5.7 | 5 |
| Leland Saylor Associates | 4.8 | 4 |
| Pankow | 4.7 | 5.5 |

Industry experts are estimating SF 2017 escalation in the range of **4.7 – 7.6%**
Average: **6.1%**

Contractor/Project Manager Perspective

Labor capacity is just now reaching pre-recession market increases. There is hesitation to add capacity as fast as the market is growing.

Many projects are struggling to get a minimum number of bidders, which is driving short term bid spikes.

With so much work to bid, subcontractors can choose to be selective and only bid the highest margin work.

Developers can find financing at historically low interest rates and banks have liquidity to lend.

Materials pricing may go even higher with the vast amounts of construction as the recovery from recent natural disasters.

Contractor/Project Manager Perspective

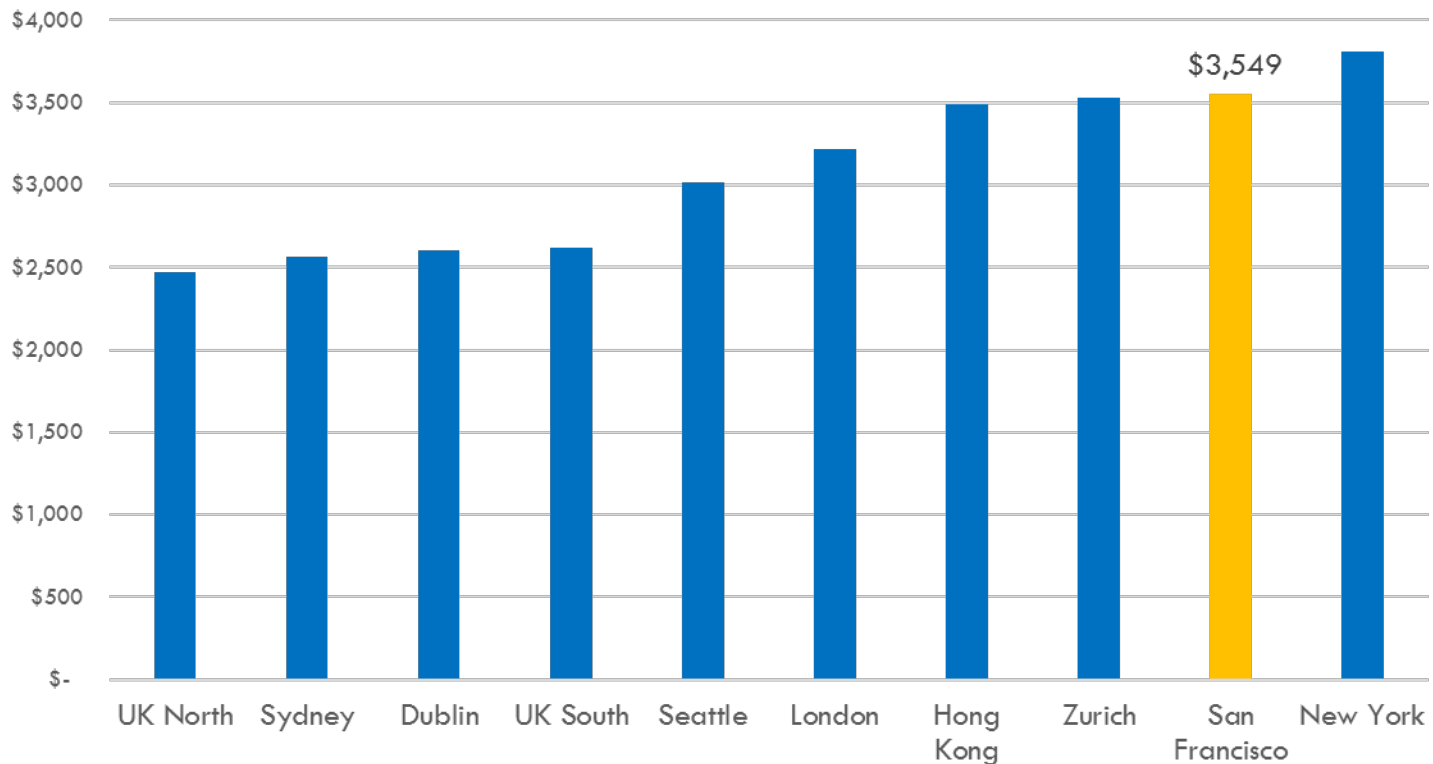
“In this economy, the public sector will struggle to attract competitive bids.

The procurement process of favoring lump sum bids with many bid alternates will struggle to attract a competitive pool of contractors.”

- TBD Consultants

Global Construction Costs

Top 10 Most Expensive Global Construction Markets
(Cost per Square Meter in \$USD)



- In 2017, San Francisco passed Zurich and London to claim #2.

National Economic and Sector Growth

- Economic recovery continues
 - GDP growth in Q2 2017 of 3.1% annual rate, the 13th consecutive quarter of growth
 - Overall US unemployment: 4.4% in August 2017 (4.9% last year)

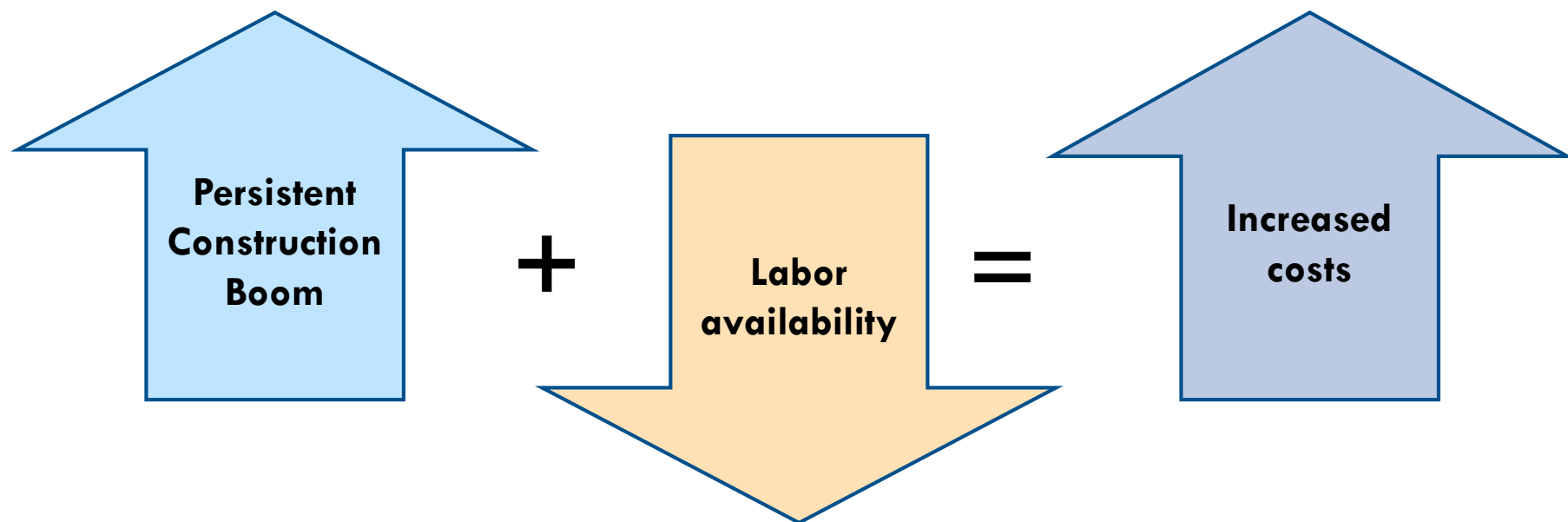
- Construction activity still strong but with signs of slowing
 - National construction industry unemployment: 4.7% (5.1% last year)
 - Construction spending up 1.8% YOY, just 5.9% below 2006 peak
 - Nonresidential spending slipped in 2017 for the second consecutive year
 - Dodge Momentum Index up 6.9% YOY
 - Expected low-cost capital over the next year, but construction lending is limited

Local Construction Cycle Perspective

- Some flattening in project pipeline, in line with national trend.
- San Francisco is the second ranked office construction market nationally.
- San Francisco has the second highest rental rate nationwide.
- Continued priority on building affordable housing likely to continue.



Local Labor Considerations

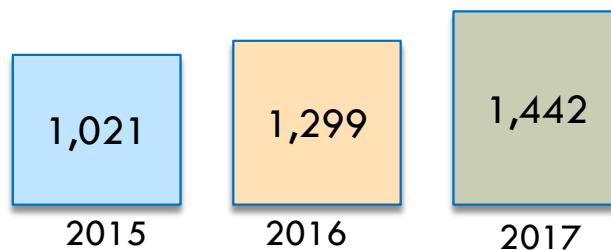


- SF unemployment: 3.9%, well below national level of 4.4% (August 2017)
- SF area construction employment up 6.2% from 2016
- Shortages in specialized subcontractors and labor
- 36.9% higher construction labor hourly wage than national average

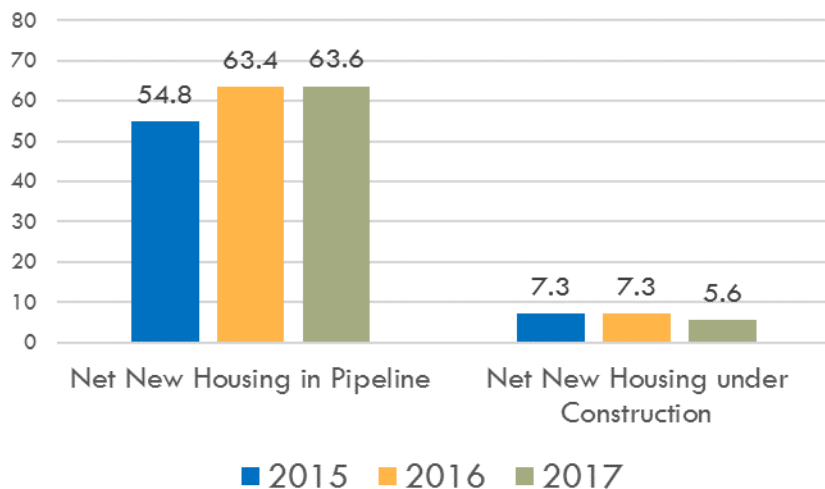
SF Planning Pipeline Statistics

13

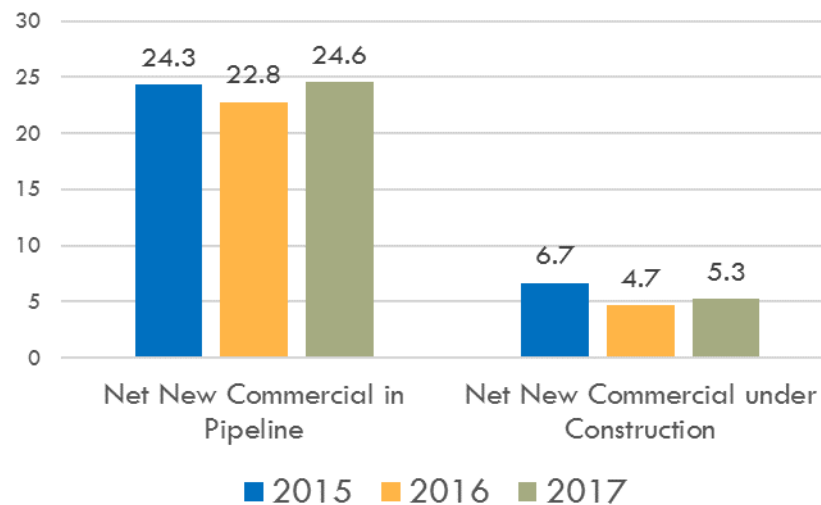
Projects in Pipeline



YOY Housing Construction Growth (K units)



YOY Commercial Construction Growth (M sqft)



Impact of # of Bids on Costs

- SF is in the same cost multiplier band as last year, at approximately **3 average bids per construction project**.

| Journal of Construction Engineering & Management (National, 2005) | |
|--|---------------------------------|
| # of Bids | Low Bid Deviation From Estimate |
| 1 | 1.15 |
| 2 | 1.11 |
| 3 | 1.07 |
| 4 | 1.01 |
| 5 | 0.95 |
| 6 | 0.91 |
| 7 | 0.89 |
| 8 | 0.88 |

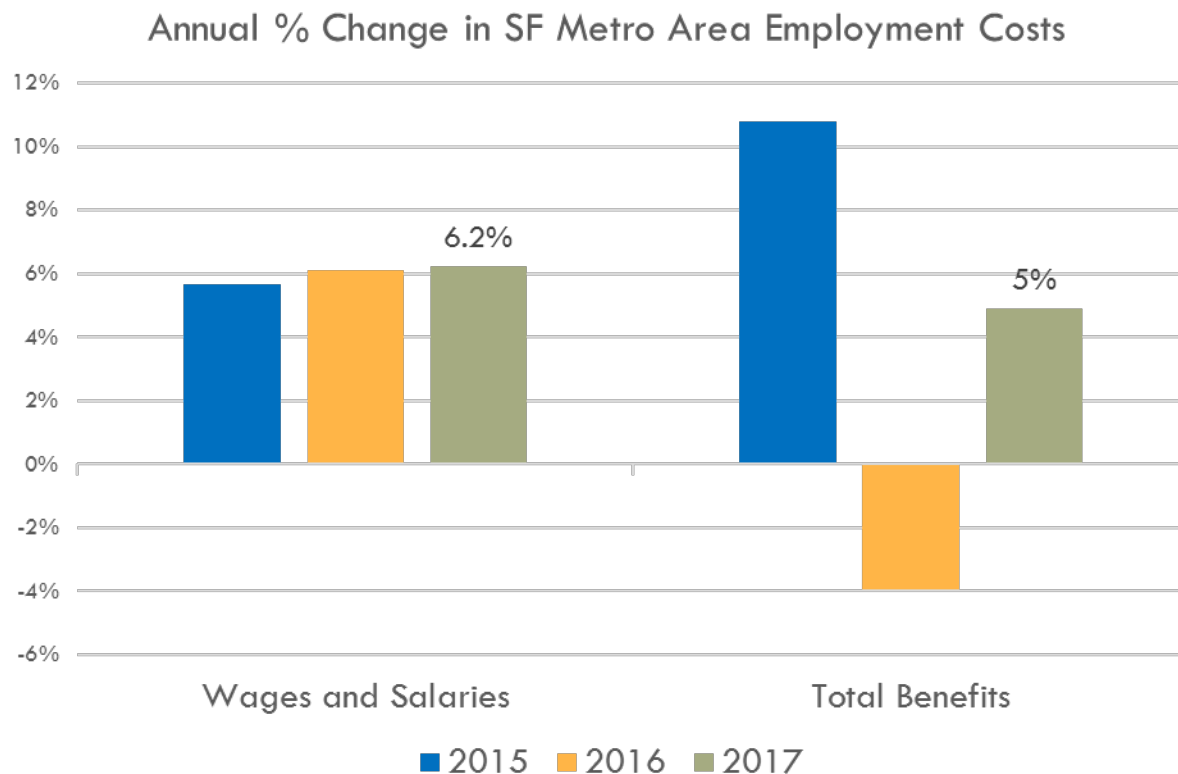
| Saylor Consulting (Bay Area, 2015) | |
|---------------------------------------|-----------------------------------|
| # of Bids | % Differential (estimate vs. bid) |
| 1 | +25% to 50% |
| 2-3 | +10% to 25% |
| 4-5 | 0% to 10% |
| 6-7 | 0% to -10% |
| 8 – 10 | -10% to -20% |

Current SF Market

Source: Saylor Consulting Market Trends 2015 Construction Forecast

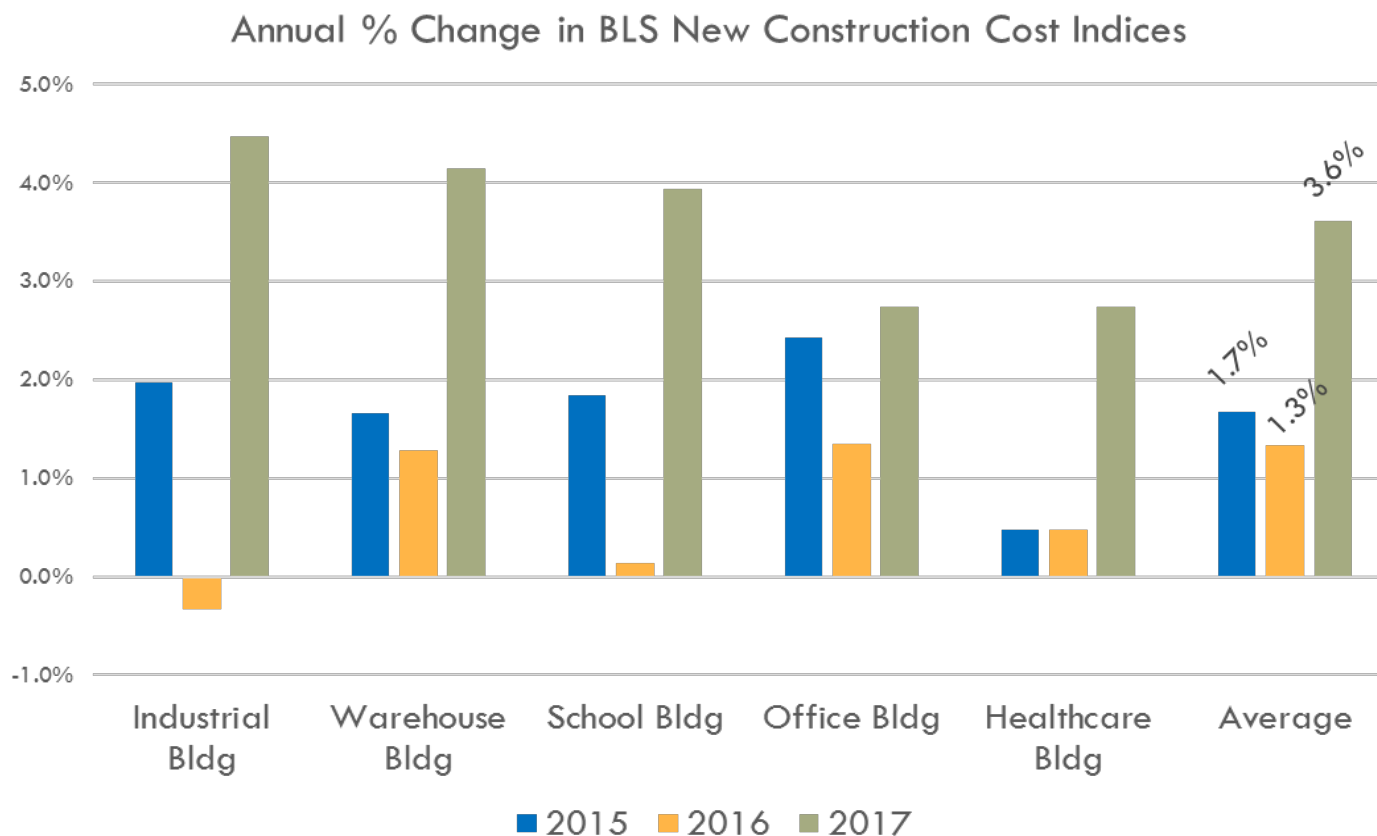
Local Private Industry Employment Cost Index

- Continued rise in Wages and Salaries. Benefits increasing in 2017 after decreasing last year.



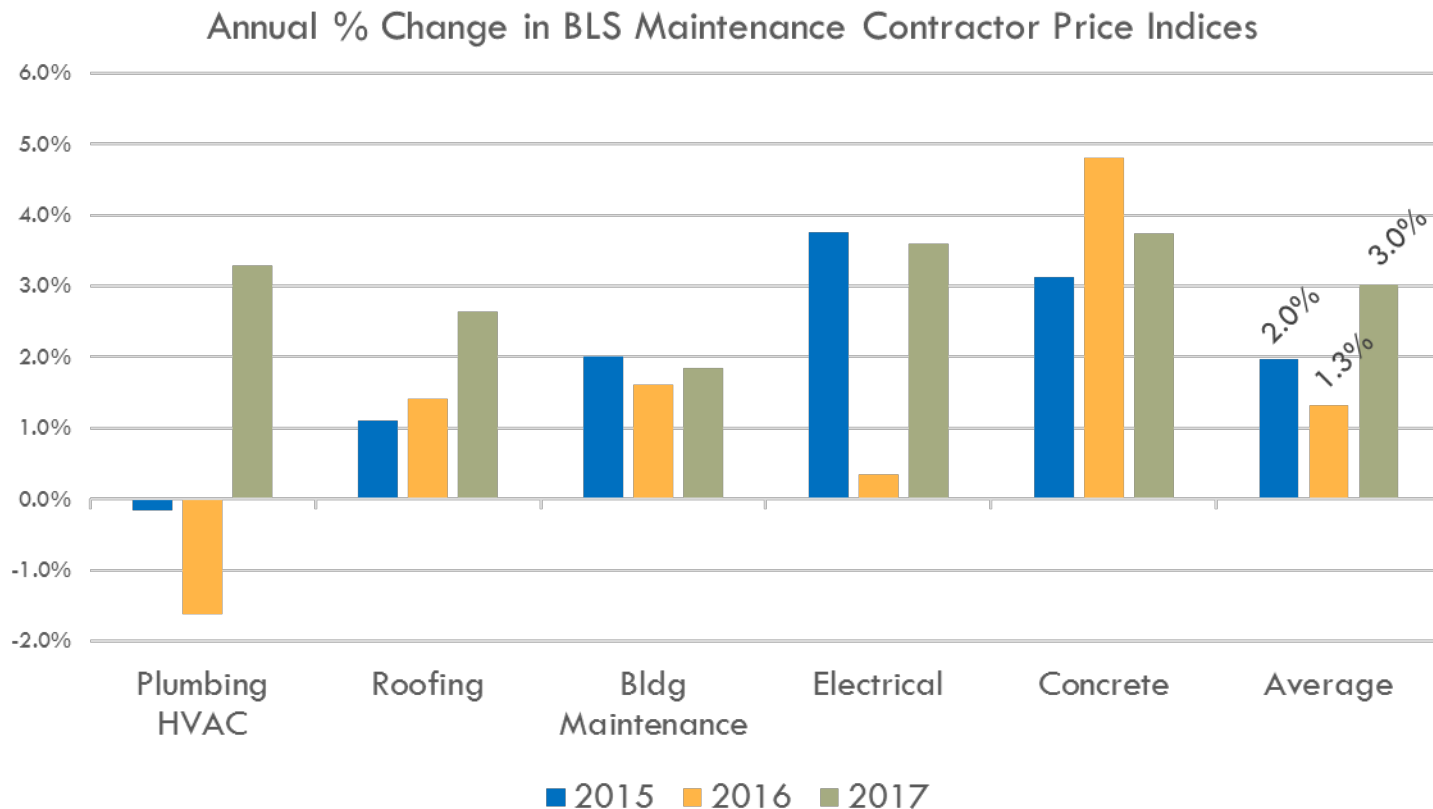
National New Construction Cost Indices

- Steep growth in all categories compared to last year.



National Maintenance Contractor Cost Indices

- Moderate increases across all categories.



Materials Costs – Special Concerns

- ▣ Volatile prices in certain materials
 - ▣ Concrete
 - ▣ Hot rolled bars
 - ▣ Plates and structural shapes
 - ▣ Building wire and cable

- ▣ Subcontract trade shortages
 - ▣ Mechanical
 - ▣ Welders
 - ▣ Electrical
 - ▣ Plumbers
 - ▣ Curtain wall
 - ▣ Pipefitters
 - ▣ Steel erectors
 - ▣ Sheet metal workers

- ▣ Significant backlog at factories and mills nationally
 - ▣ Curtain wall and elevators 12-18 months lead time

Local Sector Forecast

SF CURRENT MAJOR PROJECTS (\$500+M)

Treasure Island
 1500 Mission
 Mission Rock
 Chase Center
 India Basin
 Prologis SF Gateway
 Schlage Lock
 Executive Park
 Hope SF Sunnydale
 Flower Mart
 SFO – Terminal 3

- Annual construction volume forecast to grow 9.6% in 2017.
- Currently in the midst of sixth consecutive annual construction growth rate increase
- Annual construction volume forecast to hit \$40.0B in 2017, exceeding 2005 peak
- Volume surge still led by residential sector
- Expected volume **decrease** (-3.3%) from 2018 to 2019.

Relevant Legislation

- 25% Affordable Housing Requirement (as of June 2016)
- Public Health & Safety Bond (approved June 2016)
- Schools and BART Bonds (approved Nov. 2016)
- Prop M Exemption for Candlestick Point and Hunters Point (approved Nov. 2016)
- California State Housing Bond (2018 Ballot)
- Seawall Fortification Bond (2018 Ballot)
- Continued 30% Local Workforce Requirement
- Mayoral Executive Directive to Increase Housing Production

SF Debt Program and Enterprise Fund Projects

| Enterprise Fund Projects |
|---|
| Central Subway |
| Transit Optimization Program |
| Pier 70 |
| Sewer System Improvement Program |
| SFO On-Site Hotel and Terminal 3 |
| Active GO Bond Programs |
| 2008 and 2012 Neighborhood Parks & Open Space |
| 2010 and 2014 ESER |
| 2011 Road Resurfacing & Street Safety |
| 2014 Transportation |
| 2015 Affordable Housing |
| 2016 Public Health & Safety |
| Other Major Public Building Projects |
| Mosccone Expansion |

Conclusion

- ▣ Strong demand continues to be major construction cost escalation driver
- ▣ Bidding environment remains favorable for contractors/subcontractors
 - ▣ Labor: high demand, tight supply
 - ▣ Subcontractor trades continue to increase profit margins
 - ▣ Moderate increases in costs for most materials
 - ▣ Few bids coming in
- ▣ Local experts are using 2017 escalation rates of 4.2% to 7.6%
- ▣ CPP's recommendation of **6.0%** is in line with experts' predictions. It is higher than cost and material indices suggest on their own due to the strong effects of high activity, low bid counts, limited locally available labor resources, and contractor selectivity.

Questions or Comments?



There's only one San Francisco. Let's take care of it.

The Office of Resilience and Capital Planning is the City and County of San Francisco's program to plan and finance projects that strengthen the integrity and resilience of San Francisco's infrastructure, neighborhoods, and residents.



Capital Plan

The Plan captures the City's major infrastructure projects for the next ten years and recommends funding levels based on priority and availability for each project.

[Enter The Plan](#)



Capital Budget

The Budget puts the Plan into action by allocating funding over the next two years for projects recommended in the Plan.

[Enter The Budget](#)



Capital Planning Committee

The Capital Planning Committee (CPC) makes recommendations on capital projects to the Mayor and Board of Supervisors regarding capital plans, projects, and funding.

[View Committee Info](#)

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Methodology

- ▣ Reviewed cost inflation data, market trend analyses, employment data, and a variety of national, state and local commercial and institutional construction cost inflation indices to:
 - ▣ Understand economic conditions
 - ▣ Identify inflation trends for construction related materials and services
 - ▣ Gauge San Francisco's current construction market

- ▣ Resources Used:
 - ▣ Major construction and construction-related cost indices
 - ▣ National and local employment data from BLS
 - ▣ Market reports from industry experts
 - ▣ Conversations with project managers, construction consultants/economists, and those working in the field
 - ▣ Public reports of local construction activity

Economic Trends—Global

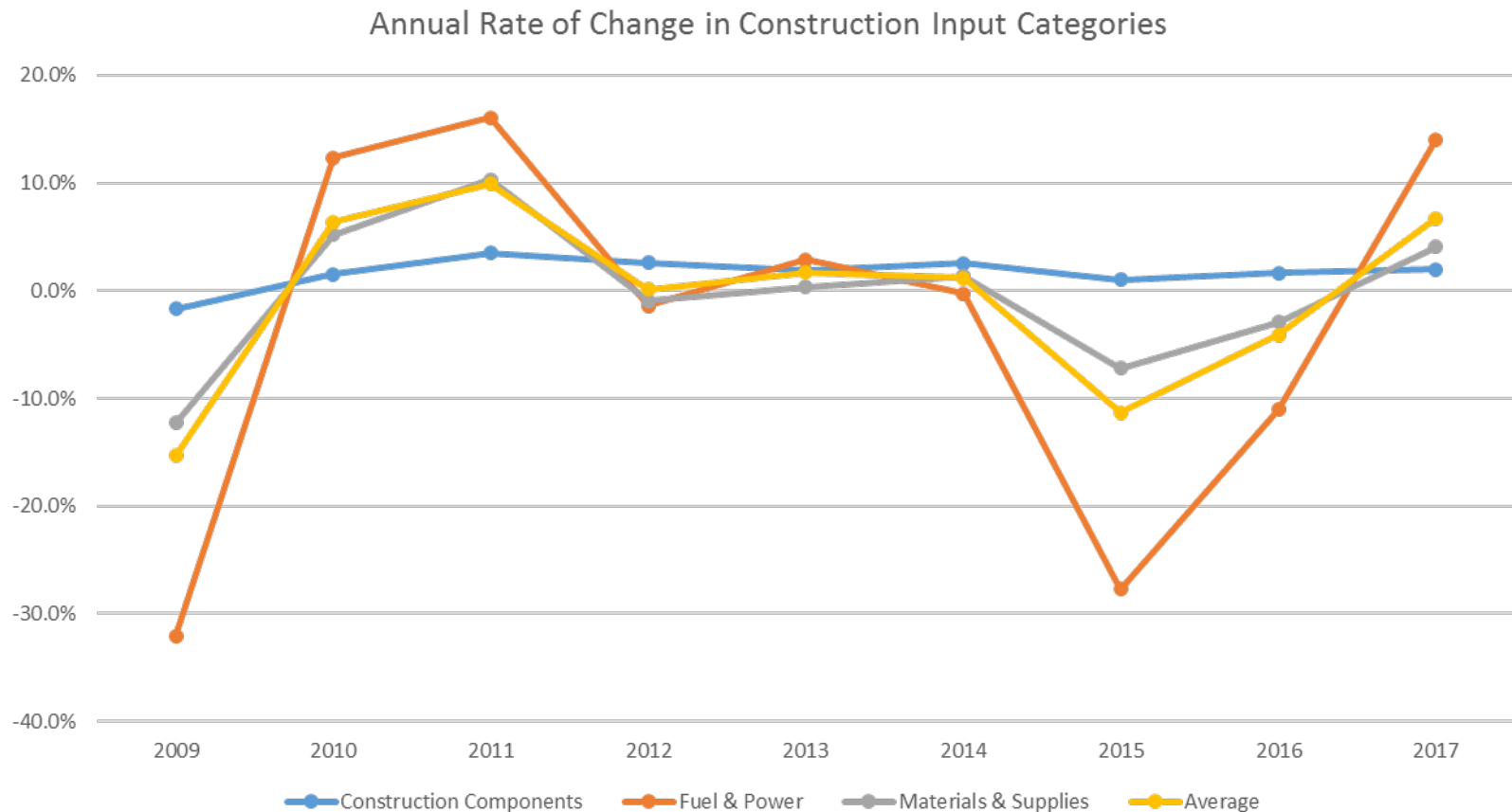
- Continued global construction growth expected overall

| Source | Global Construction Industry Projection |
|--|--|
| Timetric's CIC Global Construction Outlook 2021 | 3 % CAGR for the period 2017-21 |
| BMI Research Global Infrastructure Report 2017 | 3.83% forecasted annual growth 2017 |
| PWC Global Construction 2030 | 3.9% CAGR through 2030 |
| Turner & Townsend International Construction Market Survey | 3.5% Forecasted construction cost inflation 2017 |

- Increasing interest rates
- Divergent country trends
 - Continuing long-term opportunities in emerging countries
 - Investments in infrastructure being postponed in oil exporting countries
- Risks
 - Policy uncertainty (US regulatory policy, Brexit) remains high
 - In China, failure to address financial sector risks and curb excessive credit growth could result in an abrupt growth slowdown
 - Rollback of financial regulation could have negative repercussions for global stability

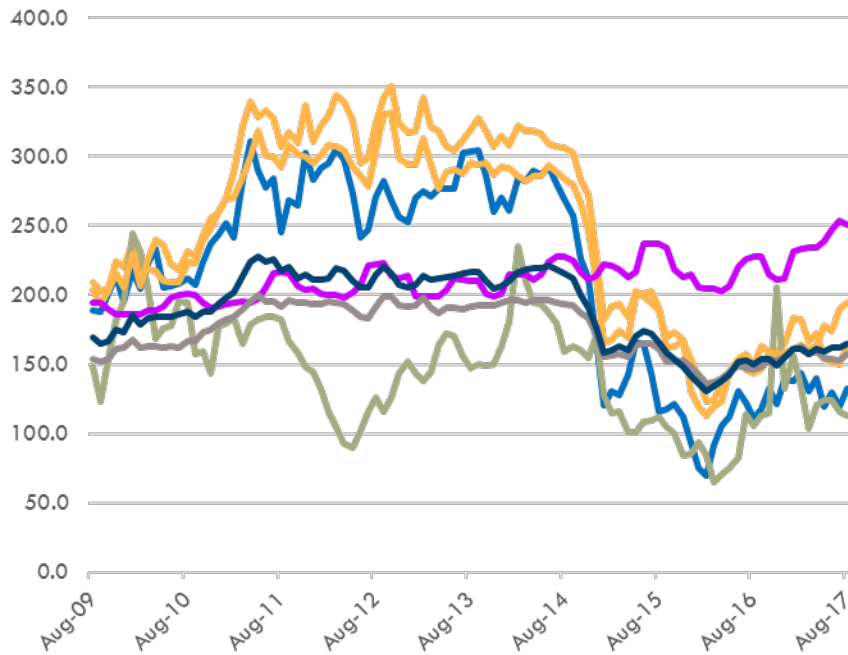
Materials Costs – Combined Categories

- Beginning to grow at faster pace after decreases in previous years



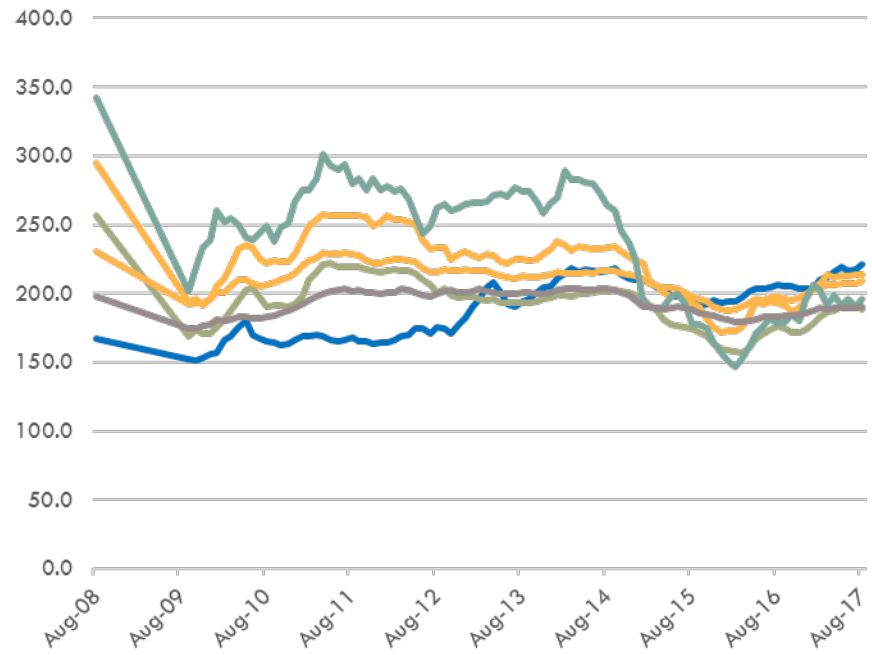
Materials Costs – Individual Commodities

Select Fuel & Power PPI Trends



- Crude Petroleum
- Gas (adj)
- Natural Gas
- No.2 Diesel Fuel
- Industrial Electric Power
- Finished Consumer Energy Goods (adj)
- Fuels & Related Products & Power

Select Materials & Supplies PPI Trends



- Lumber (adj)
- Iron & Steel
- Steel Mill Products
- Metal & Metal Products
- Unprocessed Nonfood Materials (adj)
- Inter Materials Supplies and Components (adj)