2022 Annual Infrastructure Construction Cost Inflation Estimate

December 13th, 2021
Annual Infrastructure Construction Cost Inflation Estimate (AICCIE)

- **Today’s action item:** Discuss AICCIE methodology and adopt rate for CY 2022

- 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 Facility Resource Renewal Model (FRRM) and other city forecasting tools
  - Adjusts property tax baseline for Transbay properties
  - Departments will use this for next calendar year estimates, unless they provide evidence of a different escalation rate
Methodology Alternatives Considered

1. **Historic AICCIE methodology – 6%**
   - Pro: Uses an **average of multiple indices, expert input, and internal and external trend** data to determine **prospective rate**
   - Con: Does not fully address **feedback from CPC membership**
   - Con: Prospective approach introduces **uncertainty**
   - Con: **Significant staff time to develop**

2. **Lookback using most recent Construction Cost Index – 9.5%**
   - Pro: **Many other cities use lookbacks** for developer impact fees
     - Los Angeles, San Diego, Portland, Millbrae, and Fairfield all use ENR Construction Cost Index for impact fees
   - Pro: **Lower administrative burden** to update escalation rate
   - Con: May result in **increased volatility in rate** (e.g. varies 0.3 – 9.5%)
   - Con: **Only provides snapshot of four components** (steel, cement, lumber, and labor)
   - Con: **No flexibility to incorporate SF specific considerations** (bid environment or impact of public delivery)

Staff Recommendation
AICCIE Summary

- **Construction activity increasing rapidly** due to pent up construction demand
  - Large increases in raw material prices, labor shortages increase costs of projects overall
- These trends reflected in bidding environment
  - Contractors concerned about accepting materials cost risk
  - Bids anticipated to begin coming in **30-40% over estimate**
- Local experts are using **2021 escalation rates of 4% to 10%**
- ORCP’s recommendation of **6.0%** is in line with experts’ predictions
ENR CCI standard for impact fees, but uncommon for capital budget

<table>
<thead>
<tr>
<th>City</th>
<th>Impact Fees Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Los Angeles</td>
<td>- Transportation and other Impact Fees updated based on ENR CCI</td>
</tr>
<tr>
<td>San Diego</td>
<td>- Impact fees adjusted every March, ENR CCI</td>
</tr>
<tr>
<td>Portland</td>
<td>- Adjusted July 1(^{st}), ENR CCI</td>
</tr>
</tbody>
</table>
| Millbrae        | - Millbrae Station Area Specific Plan DIF – July 1\(^{st}\), ENR CCI  
                   - Citywide DIF – January 1\(^{st}\), ENR CCI                 |
| Fairfield       | - Fees updated January 1\(^{st}\), ENR CCI                 |
Decision for Capital Planning Committee: Endorse Methodology and Rate

1. **Historic AICCIE methodology – 6%**
   - **Pro**: Uses an *average of multiple indices, expert input* and *internal and external trend* data to determine *prospective rate*
   - **Con**: Does not fully address *feedback from CPC membership*
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   - **Con**: No flexibility to incorporate SF specific considerations (bid environment or impact of public delivery)
Questions or Comments?

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ENR CCI Deep-Dive

- November ENR CCI rate: 9.5%

- **Transparent, respected methodology** in use for almost 100 years

- Calculated using **weighted average prices** for:
  - 200 hours of *common construction labor*
  - 25 cwt *standard structural steel shapes*
  - 1.128 *tons of cement*
  - 1,088 *2x4 lumber*

- Prices gathered from actual materials producers each month, so **reflects real-time changes**

*Source: Engineering News Record*
CCI has been more volatile than AICCIE

- AICCIE has historically been higher than ENR CCI numbers, with some variance
- .92% difference between 10 year average of AICCIE vs. CCI

AICCIE vs. ENR CCI

* AICCIE rate determined for next fiscal year (e.g. 2021 number prospective for 2022)
* 2022 AICCIE pending CPC acceptance
AICCIE Recommendation (using current methodology) CY2022

- Recommend AICCIE Rate of 6.0% for CY 2022
- Construction costs rapidly rising (materials and labor), unfavorable bid environment for public projects

Historical AICCIE

*2022 rate pending CPC acceptance
Current AICCIE Methodology

**Resources Used:**

- Major construction and construction-related cost indices
- Bureau of Labor Statistics (BLS) data
- Market reports from industry experts
- Conversations with project managers, construction consultants/economists, and those working in the field
- Public reports of local construction activity
Contractor/Project Manager Perspective

- Market competition is moderate to average, with contractors bidding to fill their backlogs as the market rebounds.
- Average accepted bid for Public Works projects 11% over-estimate (first half of 2021).
- Material supply chain interruptions due to global manufacturing shutdowns and transportation limitations.
- Soaring materials costs are raising risk levels for contractors in bidding environment.
- Construction labor competition is getting more fierce, with wages rising 3-4%.
Materials Costs – Combined Categories

- Large, double digit increases in materials costs across all inputs
- Global supply chain disruption has continued longer than expected

Annual Rate of Change Across Construction Inputs

Local Labor Considerations

- SF unemployment: 5% (August 2021)
- SF area construction employment numbers up ~1% from last year.
  - Construction wages have increased 4.1% in 2021 (43% higher than US average per BLS)
- Escalation has been steadily rising from Jan-August

Impact of # of Bids on Costs

- Slight increase in the last year to 4.75 average bids per construction project, which has remained consistent since last summer

<table>
<thead>
<tr>
<th># of Bids</th>
<th>Low Bid Deviation From Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.15</td>
</tr>
<tr>
<td>2</td>
<td>1.11</td>
</tr>
<tr>
<td>3</td>
<td>1.07</td>
</tr>
<tr>
<td>4</td>
<td>1.01</td>
</tr>
<tr>
<td>5</td>
<td>0.95</td>
</tr>
<tr>
<td>6</td>
<td>0.91</td>
</tr>
<tr>
<td>7</td>
<td>0.89</td>
</tr>
<tr>
<td>8</td>
<td>0.88</td>
</tr>
</tbody>
</table>


- One project rejected this year with bids 29% over estimate
- Estimators have been increasing estimates due to cost increases

<table>
<thead>
<tr>
<th># of Bids</th>
<th>% Differential (estimate vs. bid)</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>+25% to 50%</td>
</tr>
<tr>
<td>2-3</td>
<td>+10% to 25%</td>
</tr>
<tr>
<td>4-5</td>
<td>0% to 10%</td>
</tr>
<tr>
<td>6-7</td>
<td>0% to -10%</td>
</tr>
<tr>
<td>8 – 10</td>
<td>-10% to -20%</td>
</tr>
</tbody>
</table>

**Current SF Market**
## 2022 SF Experts Projected Escalation

<table>
<thead>
<tr>
<th>Organization</th>
<th>2021 Estimate</th>
<th>2022 Estimate</th>
<th>2021 vs. 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFO</td>
<td>2-3</td>
<td>6-9</td>
<td>5</td>
</tr>
<tr>
<td>SFPUC</td>
<td>4-5</td>
<td>6</td>
<td>1.5</td>
</tr>
<tr>
<td>Sightlines (academic institutions)</td>
<td>3.6</td>
<td>3.8</td>
<td>.2</td>
</tr>
<tr>
<td>Pankow</td>
<td>3-4</td>
<td>5-10</td>
<td>4</td>
</tr>
<tr>
<td>Cumming Construction</td>
<td>3</td>
<td>5.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Clark</td>
<td>3-4</td>
<td>4.5-5.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Jacobs</td>
<td>5</td>
<td>6-10</td>
<td>3</td>
</tr>
<tr>
<td>TBD Construction Consultants</td>
<td>3.5-4</td>
<td>4-5</td>
<td>0.75</td>
</tr>
<tr>
<td>Saylor Consulting Group</td>
<td>4</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>M. Lee Corporation</td>
<td>5</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>3.8</strong></td>
<td><strong>6.0</strong></td>
<td><strong>2.2</strong></td>
</tr>
</tbody>
</table>

Industry experts are estimating SF 2022 escalation in the range of 4% to 10%
## Historical Retrospective Escalation Indices

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Turner Building Cost Index</td>
<td>Change in costs of non-residential building construction nationwide</td>
<td>4.5%</td>
<td>4.8%</td>
<td>4.2%</td>
<td>5.6%</td>
<td>5.5%</td>
<td>1.8%</td>
<td>1.5%</td>
</tr>
<tr>
<td>BLS New Construction PPI</td>
<td>Change in output price of new non-residential construction</td>
<td>1.7%</td>
<td>0.6%</td>
<td>3.5%</td>
<td>3.3%</td>
<td>5.6%</td>
<td>2.1%</td>
<td>5.0%</td>
</tr>
<tr>
<td>BLS Maintenance Contractor PPI</td>
<td>Change in costs of price for work done to maintain and repair non-residential buildings</td>
<td>2.0%</td>
<td>1.3%</td>
<td>3.1%</td>
<td>2.7%</td>
<td>5.0%</td>
<td>1.3%</td>
<td>5.1%</td>
</tr>
<tr>
<td>BLS SF Metro CPI</td>
<td>Change in cost of local consumer goods</td>
<td>2.6%</td>
<td>3.1%</td>
<td>3.4%</td>
<td>4.3%</td>
<td>2.7%</td>
<td>1.6%</td>
<td>3.7%</td>
</tr>
<tr>
<td>BLS SF Metro Employment Cost Index</td>
<td>Change in employment cost (averages Total Compensation and Wages/Salaries)</td>
<td>2.2%</td>
<td>2.2%</td>
<td>5.8%</td>
<td>6.2%</td>
<td>2.6%</td>
<td>2.9%</td>
<td>3.1%</td>
</tr>
<tr>
<td>ENR CCI – San Francisco</td>
<td>Change in SF common labor and materials</td>
<td>2.4%</td>
<td>3.6%</td>
<td>4.2%</td>
<td>0.3%</td>
<td>2.4%</td>
<td>5.2%</td>
<td>6.9%</td>
</tr>
<tr>
<td>ENR BCI – San Francisco</td>
<td>Change in SF skilled labor and materials</td>
<td>2.6%</td>
<td>3.7%</td>
<td>4.8%</td>
<td>0.5%</td>
<td>4.2%</td>
<td>6.0%</td>
<td>11.8%</td>
</tr>
<tr>
<td>TBD Consultants Bid Index</td>
<td>Change in construction bid cost for an indexed simple new construction project in SF</td>
<td>12.5%</td>
<td>11.9%</td>
<td>2.7%</td>
<td>0.2%</td>
<td>9.8%</td>
<td>2.8%</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

| AICCIE                               | City of SF projected estimate for escalation in the calendar year listed (prepared the previous October) | 5.0% | 5.0% | 5.75%| 6.0% | 5.5% | 3.5% | 6.0% |

- **2021 average across all listed indices:** 5.1% (3.4% in 2020)
- **2021 average across all local indices in shaded rows:** 5.8% (3.7% in 2020)

* AICCIE rate determined for next fiscal year (e.g. 2020 number prospective for 2021)
* 2021 AICCIE pending CPC acceptance
Contractor/Project Manager Perspective

“The construction industry is in the midst of a period of exceptionally steep and fast-rising costs for a variety of materials”

Source: Association of General Contractors of America – Q1 2021

“All indicators denote a large amount of work coming to market in the next 12 months and beyond”

Source: Clark Construction Construction Market Insight – Q3 2021

“It’s not a favorable bidding environment for the city right now. There’s a lot of uncertainty for contractors because of material and labor”

Source: PUC Project Manager
Local Sector Forecast

**CURRENT MAJOR BAY AREA PROJECTS ($2+B)**

- Delta Water Tunnel
- Related Santa Clara (formerly City Place Mixed-Use Development)
- San Jose BART Extension
- Google North Bayshore Master Planned Development
- Vallco Town Shopping Center
- Market Park – South Village
- Mission Point Mixed-Use
- Pacheco Reservoir Enlargement
- Potrero Power Plant

- Most expensive city in US for construction
- Largest projects over $2B this year, compared to $1B last year
- Uncertainty in office development
  - Companies increasingly adopting fully remote work policy
  - Empty offices in the short-term, speculative long-term impacts
- Residential construction ~65% of total construction
  - Rent about ~15% from pre-pandemic levels
- Construction spending still far above national average, top 10 projects valued over $2B

*Source: Cumming Quarterly Construction Market Report Q3 2021*
SF Planning Pipeline Statistics

Projects in Pipeline

<table>
<thead>
<tr>
<th>Year</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects in Pipeline</td>
<td>1,925</td>
<td>2,060</td>
<td>2,231</td>
<td>2,316</td>
</tr>
</tbody>
</table>

Source: SF Planning Department Statistics, Q1 2021, received 10/15/21

**YOY Housing Construction Growth (K Units)**

- 2018: 69.6
- 2019: 72.6
- 2020: 70.8
- 2021: 81.8

**YOY Commercial Construction Growth (M sqft)**

- 2018: 27.6
- 2019: 19.7
- 2020: 19.4
- 2021: 18.3

Source: SF Planning Department Statistics, Q1 2021, received 10/15/21

**2021 planning pipeline data from Q1, rather than usual Q2 comparison data**
AICCIE Legislation

- Legislative text:
  - The AICCIE “shall be updated on an annual basis... in order to establish a **reasonable estimate of construction cost inflation** for the next calendar year for a mix of **public infrastructure and facilities** in San Francisco.
  - “The Controller shall review the amount of each development fee established in this Article and **shall adjust the dollar amount of any development fee** on an annual basis every January **based solely on the AICCIE**...”
Local Private Industry Employment Cost Index

- Wages and benefits declined from last year, but are still higher than 2019

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual % Change in SF Metro Area Employment Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>9.0%</td>
</tr>
<tr>
<td>2020</td>
<td>5.9%</td>
</tr>
<tr>
<td>2021</td>
<td>-2.0%</td>
</tr>
</tbody>
</table>

Source: Bureau of Labor Statistics Employer Costs for Employee Compensation San Jose-San Francisco-Oakland, CA
# SF Debt Program and Enterprise Fund Projects

## Enterprise Fund Projects

<table>
<thead>
<tr>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Subway</td>
</tr>
<tr>
<td>Transit Optimization Program</td>
</tr>
<tr>
<td>Pier 70</td>
</tr>
<tr>
<td>Sewer System Improvement Program</td>
</tr>
<tr>
<td>SFO On-Site Hotel and Terminal 1</td>
</tr>
<tr>
<td>Hope SF</td>
</tr>
<tr>
<td>Treasure Island Development</td>
</tr>
<tr>
<td>Hunters Point Shipyard and</td>
</tr>
<tr>
<td>Candlestick Point Redevelopment</td>
</tr>
<tr>
<td>Seawall Project</td>
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## Active GO Bond Programs

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<thead>
<tr>
<th>Programs</th>
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<tbody>
<tr>
<td>2012 Neighborhood Parks &amp; Open Space</td>
</tr>
<tr>
<td>2014 Transportation</td>
</tr>
<tr>
<td>2014 and 2020 ESER</td>
</tr>
<tr>
<td>2015 Affordable Housing</td>
</tr>
<tr>
<td>2016 Public Health &amp; Safety</td>
</tr>
<tr>
<td>2018 Seawall Bond</td>
</tr>
</tbody>
</table>

## Other Major Public Building Projects

<table>
<thead>
<tr>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Care &amp; Control</td>
</tr>
<tr>
<td>49 South Van Ness</td>
</tr>
<tr>
<td>Hall of Justice</td>
</tr>
<tr>
<td>India Basin Park</td>
</tr>
</tbody>
</table>
Relevant Legislation for San Francisco construction market

- Infrastructure Investment and Jobs Act (Passed Senate, currently in House)
- 2022 Transportation Bond (June 2022 ballot)
- Health and Recovery Bond (approved November 2020 ballot)
- Earthquake Safety & Emergency Response Bond (approved March 2020)
- SF Affordable Housing Bond (approved November 2019)
- Central SOMA Plan (approved December 2018)
- Seawall Bond (approved November 2018)
- State Affordable Housing Bond (approved November 2018)
State Economy

- State budget surplus ($76B + $27B in federal aid)
- COVID-19 pandemic and wildfires continue to challenge state economy
- “From sizzling to ho-hum” – UCLA
  - Economy rebounding from pandemic, but challenged by delta variant
- 7.5% unemployment rate (August 2021)
- State budget included $50B+ in funding for infrastructure over next 5 years

Economy rebounding from pandemic, but challenged by delta variant

Economy rebounding from pandemic, but challenged by delta variant
National Economic and Sector Growth

- Economy begins to recover from the pandemic recession
  - 6.7% GDP increase in Q2 2021
  - Expectation that third quarter GDP will be lower
  - Overall US unemployment: 4.8% in September 2021

- Accelerating recovery in construction after steep declines
  - 4.5% construction unemployment in Sept 2021 (7.1% last year)
  - National construction activity expected to more than double in value in 2022
    - $179.5B in 2022 vs. $87.5B in 2021 per Clark Construction Q3 2021 estimates

- Heightened volatility
  - Global supply chain disruptions continue
  - Demand volatility – unsure how many people will return to in person work
  - Infrastructure bill expected to add $550B in new spending over the next 5 years
  - Concerns over global construction/debt market due to Chinese market
  - Impacts from climate change (e.g. severe fire season, continued drought)
## Materials and Trades – Special Concerns

### Volatile Materials
- Lumber
- Steel
- Aluminum
- Copper
- Concrete
- Glass
- Asphalt
- Gypsum

### Subtrade Shortages
- Mechanical
- Electrical
- Plumbing
- Concrete
- Glazing
- Drywall

*Source: Jacobs BIAF Estimating Cost Impact Webcor Tariff Increase Impacts, May 2018*
Materials Costs – Individual Commodities

Select Fuel & Power PPI Trends

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

Select Materials & Supplies PPI Trends

- Lumber
- Steel Mill
- Iron & Steel
- Metals & products
- Unprocessed nonfood (adj)
- Inter materials & components (adj)

Economic Trends—Global

- Growth in global construction growth expected as part of anticipated long recovery from COVID-19 recession
  - IMF projecting 6% GDP growth for 2021, led by India, China and the United States
  - ~9% overall increase in global construction market, as part of overall recovery from COVID-19 recession

- Ongoing uncertainty
  - Delta variant continues to spread worldwide, and vaccines not universally available
  - Global supply chain issues worsened throughout 2020 and 2021, despite initial expectation that the market would right itself
  - Uncertainty around Chinese construction market (e.g. Evergrande)
  - Ongoing geopolitical tensions and concerns about the economic outlook
Global Construction Costs

10 Most Expensive Cities to Build

Cost per Square Meter in USD

- Macau
- Los Angeles
- London
- Boston
- Zurich
- Geneva
- New York City
- San Francisco
- Hong Kong
- Tokyo

Source: Turner & Townsend International Construction Market Survey 2021