2023 Annual Infrastructure Construction Cost Inflation Estimate

October 24, 2022
Overview

The Annual Infrastructure Construction Cost Inflation Estimate is the projected rate of construction cost escalation for the upcoming calendar year.

The rate is used to:
- Forecast costs for the 2-Year Capital Budget & 10-Year Capital Plan
- Update Facility Resource Renewal Model (FRRM) and other city forecasting tools
- Departments will use this for next calendar year estimates, unless they provide evidence of a different escalation rate
- Adjust developer impact fees
- Adjust property tax baseline for Transbay properties

Today’s action item: Adopt rate for CY 2023
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...”
Contents

- Rate recommendation
- Review of methodology
- Industry indices
- Fuel and construction materials
- Labor
- Bid Market
- Local construction market
AICCIE Recommendation

- 6.0% for CY 2023
  - Inflation impacts on materials and fuels; supply chain challenges
  - Active construction market and good bid market competition

*2023 rate pending CPC acceptance
Methodology

Resources:
- 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
## Retrospective Industry Indices

<table>
<thead>
<tr>
<th>Description</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National Indices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Turner Building Cost Index</td>
<td>5.6%</td>
<td>5.5%</td>
<td>2.4%</td>
<td>0.9%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Change in costs of non-residential building construction nationwide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLS New Construction PPI</td>
<td>4.3%</td>
<td>5.5%</td>
<td>2.5%</td>
<td>3.2%</td>
<td>18.8%</td>
</tr>
<tr>
<td>Change in output price of new non-residential construction</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLS Maintenance Contractor PPI</td>
<td>3.4%</td>
<td>4.3%</td>
<td>2.0%</td>
<td>4.1%</td>
<td>15.6%</td>
</tr>
<tr>
<td>Change in costs of price for work done to maintain and repair non-residential buildings</td>
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<tr>
<td><strong>Local Indices</strong></td>
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</tr>
<tr>
<td>BLS SF Metro CPI</td>
<td>3.9%</td>
<td>3.2%</td>
<td>1.6%</td>
<td>3.2%</td>
<td>6.8%</td>
</tr>
<tr>
<td>Change in cost of local consumer goods</td>
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</tr>
<tr>
<td>BLS SF Metro Employment Cost Index</td>
<td>4.0%</td>
<td>2.6%</td>
<td>2.9%</td>
<td>3.1%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Change in employment cost (averages total compensation and wages)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENR CCI – San Francisco</td>
<td>2.5%</td>
<td>2.8%</td>
<td>5.4%</td>
<td>3.4%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Change in SF <em>common</em> labor and materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENR BCI – San Francisco</td>
<td>1.9%</td>
<td>4.9%</td>
<td>6.5%</td>
<td>5.7%</td>
<td>23.2%</td>
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<tr>
<td>Change in SF <em>skilled</em> labor and materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TBD Consultants Bid Index</td>
<td>0.54%</td>
<td>10.4%</td>
<td>2.6%</td>
<td>3.6%</td>
<td>17.2%</td>
</tr>
<tr>
<td>Change in construction bid for a simple new construction project in SF</td>
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<tr>
<td><strong>AICCIE Rate</strong></td>
<td>5.8%</td>
<td>6.0%</td>
<td>5.5%</td>
<td>3.5%</td>
<td>6.0%</td>
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</tbody>
</table>

BLS = Bureau of Labor Statistics
PPI = Product Price Index, measures the average change of selling prices
CPI = Consumer Price Index
Materials Costs – Combined Categories

- Materials and fuel prices changes have come down since last year

Annual Rate of Change in Construction Input Categories

Local Labor Considerations

- SF unemployment: 2.3%; Bay Area unemployment: 2.8% (August 2022)
- Construction labor shortage persists
- Multi-year contracts provide stability; local construction labor costs increasing 3 - 5% per year

Sources: Saylor Consulting Bay Area Market Report, BLS SF Area Economic Summary, BLS Employment Cost Index by Area

Modest to significant cost escalation
## Impact of # of Bids on Costs

- DPW received an average of 4.25 bids per project (out of 29 projects)

### Journal of Construction Engineering & Management (National, 2005)

<table>
<thead>
<tr>
<th># of Bids</th>
<th>Low Bid Deviation From Estimate</th>
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<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>
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<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>
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</table>

### Saylor Consulting (Bay Area, 2015)

<table>
<thead>
<tr>
<th># of Bids</th>
<th>% Differential (estimate vs. bid)</th>
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</thead>
<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>

Perspectives from City Project Managers

- Better bid environment
  - Average accepted bid for Public Works projects 4.7% under the engineer’s estimate
- Material delays
- Scarcity of skilled trades and general labor shortage; some subcontractors went out of business
- COVID safety protocols impacts productivity

“We continue to get multiple bidders; costs are higher, but [bids] have remained for the most part within our estimated ranges.”
Market Conditions

- Total construction market volume increased 1.2% in CY 2021 and is projected to increase 9.3% by end of CY 2022
  - Office, multifamily development and healthcare construction returned in 2021
- Supply chains causing construction delays
- Inflation and possible dampening demand for new construction

"...the potential for a recession in 2023 is a consistent topic of conversation in the contracting community."

Sources: Cumming Market Snapshot Q2 2022 San Francisco – San Jose, CA, Saylor Bay Area Market Report Q2 2022, TBD Consultants Market Report Summer 2022, Email Response from Cumming
## 2023 SF Experts Projected Escalation

<table>
<thead>
<tr>
<th>Organization</th>
<th>2020 Estimate</th>
<th>2021 Estimate</th>
<th>2022 Estimate</th>
<th>2023 Estimate</th>
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<tbody>
<tr>
<td><strong>Public Institutions</strong></td>
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<tr>
<td>SFO</td>
<td>6</td>
<td>2-3</td>
<td>6-9</td>
<td>5</td>
</tr>
<tr>
<td>SFPUC</td>
<td>6</td>
<td>4-5</td>
<td>6</td>
<td>6</td>
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<tr>
<td>Stanford University</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
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<tr>
<td><strong>Builders</strong></td>
<td></td>
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<td></td>
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<tr>
<td>Pankow</td>
<td>5</td>
<td>3-4</td>
<td>5-10</td>
<td>5</td>
</tr>
<tr>
<td>Cumming Construction</td>
<td>4.5</td>
<td>3</td>
<td>5.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Clark Construction</td>
<td>6.5</td>
<td>3-4</td>
<td>4.5-5.5</td>
<td>5.5</td>
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<tr>
<td>Jacobs</td>
<td>6</td>
<td>5</td>
<td>6-10</td>
<td>8</td>
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<tr>
<td><strong>Market Consultants</strong></td>
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<td></td>
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<tr>
<td>TBD Construction Consultants</td>
<td>5-6</td>
<td>3.5-4</td>
<td>4-5</td>
<td>6-7</td>
</tr>
<tr>
<td>Saylor Consulting Group</td>
<td>4.5</td>
<td>4</td>
<td>5</td>
<td>7</td>
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<tr>
<td>Martin Lee Corporation</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>8</td>
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<tr>
<td>Sightlines/Gordian</td>
<td>5.47</td>
<td>3.6</td>
<td>3.8</td>
<td>5.88</td>
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<tr>
<td><strong>Average</strong></td>
<td>5.75</td>
<td>3.8</td>
<td>6.0</td>
<td>6.3</td>
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</tbody>
</table>

Industry experts are estimating SF 2023 escalation in the range of 3% to 8%
Summary

- ORCP recommends 6.0%

- Local experts estimating rates 3% - 8%
  - Tight labor market
  - Materials delays
  - Good bid competition
Questions or Comments?

An official website of the City and County of San Francisco

PLANS AND BUDGETS PROGRAMS ABOUT US COMMITTEES DATA AND RESOURCES

There is 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.

www.onesanfrancisco.org
Appendix
Perspectives from the Field

“Broadly speaking, there is less material volatility than in the recent past, and the potential for a recession in 2023 is a consistent topic of conversation in the contracting community.”

Source: Email Response from Cumming

“Competition for projects has been dependent on how complex the contracts/projects are.”

Source: PUC Project Manager

“We get multiple bidders; costs are higher, although they have remained for the most part within our estimated ranges.”

Source: SFO Project Manager
Bay Area Market Conditions

CURRENT MAJOR BAY AREA PROJECTS OVER $2B

- Related Santa Clara
- San Jose BART Extension
- High Speed Rail
- Google North
- The Rise Mixed Use
- Pacheco Reservoir Enlargement
- Mission Point Mixed Use
- UCSF Parnassus Heights Hospital
- Potrero Power Plant
- Dumbarton Rail Bridge

Source: Cumming Quarterly Construction Market Report Q2 2022
Projects in Pipeline

Projects in Pipeline*

<table>
<thead>
<tr>
<th>Year</th>
<th>Net new housing units</th>
<th>New housing units under construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>72.87</td>
<td>8.50</td>
</tr>
<tr>
<td>2020</td>
<td>70.80</td>
<td>9.63</td>
</tr>
<tr>
<td>2021</td>
<td>70.35</td>
<td>4.69</td>
</tr>
<tr>
<td>2022</td>
<td>69.37</td>
<td>4.15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Net new commercial sqft</th>
<th>New commercial sqft under construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>26.13</td>
<td>5.73</td>
</tr>
<tr>
<td>2020</td>
<td>19.41</td>
<td>3.72</td>
</tr>
<tr>
<td>2021</td>
<td>18.28</td>
<td>2.21</td>
</tr>
<tr>
<td>2022</td>
<td>19.31</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Source: SF Planning Department Statistics, Q1 2022
Major SF Public Spend Projects

**Enterprise Fund Projects**
- Central Subway
- Transit Optimization Program
- Pier 70
- Sewer System Improvement Program
- SFO On-Site Hotel and Terminal 1
- Hope SF
- Treasure Island Development
- Hunters Point Shipyard and Candlestick Point Redevelopment
- Seawall Project

**Active GO Bond Programs**
- 2012 Neighborhood Parks & Open Space
- 2014 Transportation
- 2014 and 2020 ESER
- 2015 Affordable Housing
- 2016 Public Health & Safety
- 2018 Seawall Bond
Legislation Impacting San Francisco Construction Market

- Bipartisan Infrastructure Law
- Transportation Bond (failed June 2022 ballot)
- $487M Health and Recovery Bond (approved November 2020 ballot)
- $628M Earthquake Safety & Emergency Response Bond (approved March 2020)
- Prop E Amendment to Prop M
- $600M Affordable Housing Bond (approved November 2019)
- Central SOMA Plan (approved December 2018)
- $425M Seawall Bond (approved November 2018)
- State Affordable Housing Bond (approved November 2018)
State Economy

- State GDP shrank 1.5% in 2020, but increased 11.6% in 2021.
- 4.1% unemployment rate in August 2022; similar to the level before the pandemic
- Tax receipts were strong through 2020 and 2021
- FY23 budget included $1.4 billion for CA Ports to support supply chain improvements, $13.8 billion for housing and homelessness programs, $9.5 billion for transportation projects over four years

Sources: California Department of Finance Economic Indicators, California Legislative Analyst’s Office
2022-23 Budget Overview of the Spending Plan
Possible Recession

“The recession will eventually temper [construction] prices in late 2023 / early 2024. The data issued today argues lower inflation than originally forecasted for 2024 [...] the Fed will not be able to manage a soft landing.

The construction market in SF may contract faster [...] because office construction will likely not rebound soon and housing starts will remain depressed with the higher interest rates in 2023.”

Source: Saylor Consulting Email Survey Response
National Construction Sector Outlook

- Continuing recovery in construction
  - 3.9% construction unemployment in August 2022 (4.5% last year)
  - National construction volume projected to increase 9.3% by 2022
  - Re-opening of Chinese manufacturing could ease construction material supply chain impacts

- Stronger push on infrastructure construction
  - $550 billion of new spending on U.S. infrastructure over the next 5 years
Global Economic Trends

- Growth in global construction growth expected as part of anticipated long recovery from COVID-19 recession

- Ongoing uncertainty
  - Tentative global growth recovery in 2021 slowed with rising inflation and slowed outputs from China in 2022
  - Oil price volatility
  - Russian-Ukraine conflict
  - Possibility of economic recession beyond 8 – 12 months
10 Most Expensive Cities to Build
Cost per square meter

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

Source: Turner & Townsend International Construction Market Survey 2022
Select Fuel & Power PPI Trends

Crude Petroleum (domestic)
Gas fuels
Industrial electric power
No.2 diesel fuel
Finished consumer energy goods, seasonally adjusted

Select Materials & Supplies PPI Trends

## Construction materials impacted by tariffs

### 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*