Los Angeles County
Metropolitan Transportation Authority

2023 Construction Market Analysis

Metro

March 2024

Thank you to the Association of General Contractors of California and the prime/sub contractors for supporting and participating in this effort to help Metro be the owner of choice.

Metro Acknowledgments

Office of CEO
Program Management
Vendor/Contract Management
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Diversity and Economic Opportunity Department

Metro

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Acronyms and Abbreviations

AGC	Associated General Contractors of America
APE	Annual Program Evaluation
ARTBA	American Road & Transportation Builders Association
BLS	Bureau of Labor Statistics
Board	Metro Board of Directors
BRT	bus rapid transit
Caltrans	California Department of Transportation
CCI	Construction Cost Index
CEQA	California Environmental Quality Act
City	City of Los Angeles
CM/GC	construction manager/general contractor
CPI	Consumer Price Index
DB	design-build
DBE	Disadvantaged Business Enterprise
DOT	Department of Transportation
EDD	Employment Development Department
EIA	U.S. Energy Information Administration
EIT	Early Intervention Team
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FTE	full-time equivalent
FY	fiscal year
GDP	gross domestic product
GMP	Guaranteed Maximum Price
HOME	Homeless Outreach, Management, and Engagement
ICE	independent cost estimate
IFB	invitation for bid
IIJA	Infrastructure Investment and Job Act
IRA	Inflation Reduction Act
LA	Los Angeles
LACCD	Los Angeles Community College District
LACEDC	Los Angeles County Economic Development Corporation
LACPW	Los Angeles County Public Works
LADWP	Los Angeles Department of Water and Power
LAEDC	Los Angeles County Economic Development Corporation
LAHSA	Los Angeles Homeless Services Authority
LAWA	Los Angeles World Airports
LAX	Los Angeles International Airport
LPA	locally preferred alternative
MCA	master cooperative agreement
Metro	Los Angeles County Metropolitan Transportation Authority
MWD	Metropolitan Water District of Southern California
NEPA	National Environmental Policy Act of 1969
NTP	notice to proceed
OCTA	Orange County Transportation Authority
OMB	Office of Management and Budget
OST	Office of the Secretary, Department of Transportation
P3	public-private partnership
PATH	People Assisting the Homeless
PDB	progressive design-build
Q	quarter
RCTC	Riverside County Transportation Commission
RFP	request for proposal
RFQ	request for qualifications
SANDAG	San Diego Association of Governments
SBCTA	San Bernardino County Transportation Authority
SBE	Small Business Enterprise
STEM	science, technology, engineering, and math

Executive Summary

Every two years, Los Angeles County Metropolitan Transportation Authority (Metro) prepares a construction market analysis to assess current economic conditions and the state of the construction industry. The 2023 Construction Market Analysis provides a view of the construction industry and how it may affect Metro's capital program. The 2023 Construction Market Analysis also presents contractors' views of the market and Metro.

The analysis includes the following:

1. Identification of economic conditions and trends nationally, statewide, and locally
2. Examination of the state of the construction market
3. Anonymous contractor survey results
4. An assessment of Metro's responses to market conditions
5. Recommendations for how Metro can position itself as the owner of choice in the region

As the agency actively advances the construction of approximately $13 billion for ten megaprojects (over $100 million), Metro is proactively adopting more collaborative and innovative alternative delivery methods to streamline and improve project management. Projects like the G Line Improvements, I-105 ExpressLanes, Link US, and East San Fernando Valley Transit Corridor exemplify Metro's forward-thinking approach and commitment to improving project delivery.

In recognition of the importance of staying ahead of market dynamics, Metro prioritizes understanding current market conditions and future projections. The Construction Market Analysis serves as a strategic tool, enabling Metro to navigate the ever-evolving construction landscape with foresight and precision. By gaining valuable insights into the present and future state of the construction market, Metro can position itself at the forefront of progress, ensuring the successful realization of its mission to enhance transit infrastructure throughout the Los Angeles region.

Economic Conditions

The economy has remained resilient despite inflationary pressures. Nationally, lower inflation is projected in 2024, and correspondingly fewer, federal interest rate hikes, which will help to keep consumer and business demand healthy. However, uncertainty about the economy will remain partly because of international conflicts and the 2024 presidential election. Federal investment from the Infrastructure Investment and Job Act and the Inflation Reduction Act has helped to spur construction across the country.

After several years of budget surplus, the State of California's budget faces a shortfall. In Los Angeles County, Metro leads the effort to strengthen the regional construction sector through its continual investments in public infrastructure. This commitment to public infrastructure development is echoed by key entities such as Los Angeles World Airports, the Los Angeles Community College District, and Los Angeles County, who collectively contribute to the region's flourishing construction sector. However, the local construction sector is vulnerable to a tight labor market because unemployment is low, and the workforce is aging. Figure ES-1 demonstrates key economic indicator trends with data from the past three years, broken down by geography.

Figure ES-1

Key Economic Indicators

		2021	2022	2023
NATIONAL	GDP GROWTH	6%	2%	3%
	UNEMPLOYMENT RATE	5%	4%	4%
	INFLATION RATE	5%	8%	4%
CALIFORNIA	GDP GROWTH	8%	1%	1%
	UNEMPLOYMENT RATE	7%	4%	4%
	INFLATION RATE	5%	8%	5%
LOS ANGELES	GDP GROWTH	8%	1%	1%
	UNEMPLOYMENT RATE	9%	5%	6%
	INFLATION RATE	4%	7%	5%

National — ***Key Drivers:*** *Pause in interest rate changes and three major federal funding investments*

California — ***Key Drivers:*** *State budget shortfall and declining population*

Los Angeles — ***Key Drivers:*** *Multiple labor strikes and second most construction cranes in North America*

GDP = gross domestic product

Source: Bureau of Economic Analysis (2023), Bureau of Labor Statistics (2023), Los Angeles Economic Development Corporation (2023), California State Budget 2023–2024

State of the Construction Market

Material prices continue to fluctuate but with more minor variations and inflation is driven less by supply chain issues and more by labor market dynamics and geopolitics. Figure ES-2 demonstrates the more significant recent variations, but reduced volatility for lumber and plywood over the past year. A more significant influence on construction is the labor shortage, compounded by an aging workforce and a skills gap. Fewer younger laborers are entering the market; experienced and skilled workers are retiring; and construction has become more technically advanced, requiring a more skilled workforce. Employers have raised wages to attract workers, with the highest wages on the west coast. Figure ES-3 shows the projected labor shortage, which is forecast to grow annually through 2028.

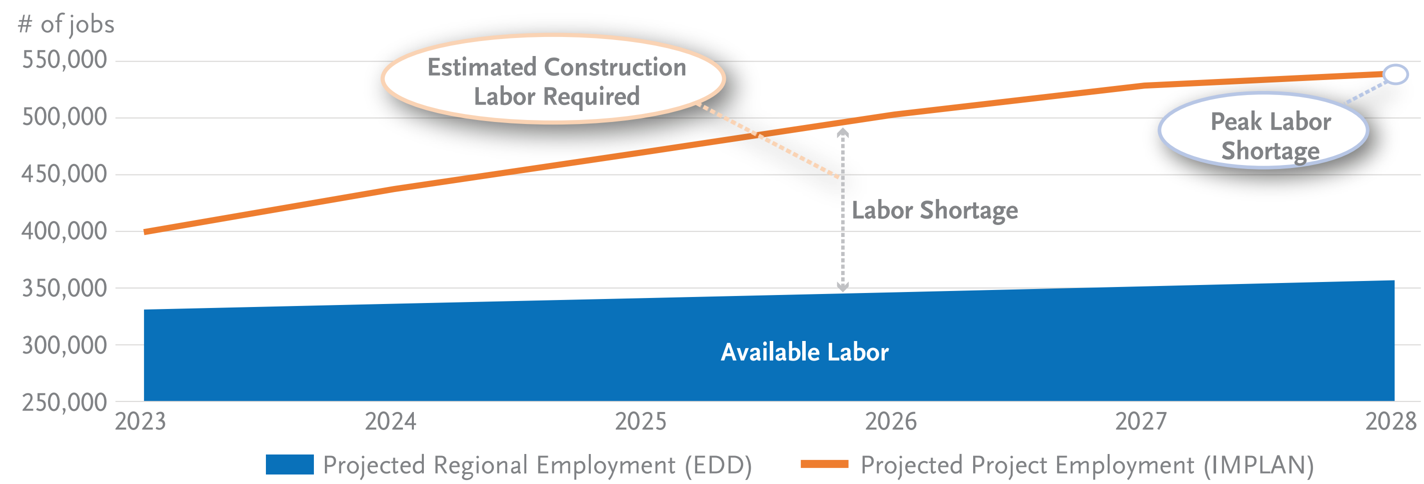
Figure ES-2

Average Annual % Change in Lumber/Plywood

Source: Bureau of Labor Statistics, WPUSI004011 (2023)

Figure ES-3

Comparison of EDD's Construction Employment Projection and Forecasted Construction Labor Demand (in job years)



Metro's Response to Market Conditions

Adapting to current market conditions, Metro has continued to make changes to its programs and approaches. The agency continues to use collaborative alternative delivery methods, has established an Early Intervention Team to help contain costs and risks, and has approved a new master cooperative agreement with the City of Los Angeles. Other strategies focus on recruiting, process improvements, and revised contract templates.

> **"The demand for our services is evident by our prospect pipeline. We continue to track a slate of prospects that is more than 15 times the size of our current backlog."**
>
> *ENR Top 10 Contractor CEO at most recent earning call (Q3 2023)*

> **"We have a healthy strong order backlog. We can allow ourselves to continue to be selective and go for projects where we see we have a competitive advantage."**
>
> *ENR Top 20 Contractor CEO at most recent earning call (Q3 2023)*

> **"The company is proud to have de-risked our portfolio away from large design-build projects and now moving towards collaborative contracting methods such as construction manager/general contractor (CM/GC) and progressive design-build (PDB)"**
>
> *ENR Top 50 Contractor CEO for May 2023 ENR Interview*

Contractor Surveys

The 2023 Construction Market Analysis includes responses to an anonymous contractor survey that sought opinions on Metro's performance and the latest industry trends and best practices, the results of which are intended to help strengthen Metro's relationships with contractors. Useful themes emerged from the survey responses, with suggestions that address contract terms, risk allocation, and promoting more competition for Metro projects. Survey responses included praise for Metro's movement to collaborative delivery approaches, the agency's timely payment of invoices, and Metro's hiring of recognized industry talent, all of which have elevated the agency's image. Figures ES-4 and ES-5 show results from two noteworthy survey questions (all survey questions are provided in Chapter 4).

Figure ES-4

What do you foresee as the % escalation in the bid costs in the next ten years?

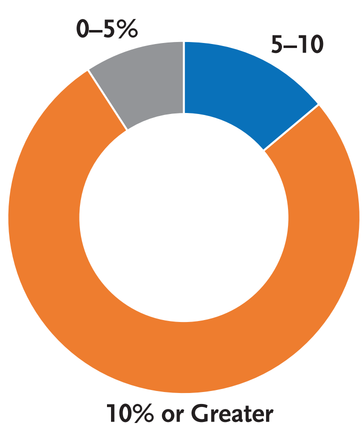


Figure ES-5

Lack of labor will become the bottleneck for delivering projects. Projects will take longer to deliver, increasing risk to the contractors and owners. What is your preferred delivery method(s)?

1. CM/GC
2. Design-Build
3. Design-Bid-Build
4. Public-Private-Partnership (P3)
5. CM at Risk

Recommendations

This 2023 Construction Market Analysis provides Metro with specific recommendations as the agency continues its adaptive strategy to deliver projects successfully. Table ES-1 shows those recommendations.

Table ES-1

Summary of Recommendations

#	RECOMMENDATION	PRIMARY GOAL RECOMMENDATION HELPS TO ACHIEVE	ADDITIONAL GOALS RECOMMENDATION HELPS TO ACHIEVE
1	Continue to embrace collaborative delivery methods while engaging and communicating with the construction industry, and incorporating lessons learned as Metro's experience grows.	M	+ $
2	Continue to evaluate potential updates to terms and conditions based on changing market conditions, to reflect collaborative delivery methods, and/or to capture best practices/innovative ideas and concepts for continuous improvement, including an industry input process for developing a more robust approach to risk sharing.	M	+ $
3	Continue aligning SBE/DBE requirements with a project's scope and the recently updated Disparity Study when setting goals.	M	+ $
4	Continue to build a standard format for the transition from planning to program management and construction.	$	M
5	Explore expanding the current informal liaison practice between Metro and contractors to resolve issues.	M	+ $
6	Continue to work with the industry, focusing on apprenticeship/readiness programs to grow capacity for current and future projects.		M + $
7	Simplify procurements to reduce the administrative burden on bidders/proposers.	M	+ $

Grow the resource pool

M Be an owner of choice

$ More predictable cost and schedule estimates

CHAPTER 1

Introduction

Since the passage of Measure R, the Los Angeles County Metropolitan Transportation Authority (Metro) has successfully navigated a myriad of challenges to project delivery. These obstacles encompass escalating capital costs, labor shortages, supply chain disruptions due to the pandemic, and inflationary pressures. Nonetheless, Metro has demonstrated competence as it advances the nation's most expansive transit capital program. Metro recently marked significant milestones with the successful opening of both the K Line and Regional Connector Projects, underscoring its capacity to overcome obstacles and deliver results.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SPEED SWING
445F

Looking ahead, Metro remains poised to embark on transformative projects within the next 12 to 24 months, including the commencement of construction for the G Line Improvements, I-105 ExpressLanes, and the East San Fernando Valley Transit Corridor. Regional game changing projects, such as the Airport Metro Connector and the Purple Line Extension, are rapidly progressing towards successful completion, underscoring Metro's commitment to enhancing transportation infrastructure and driving positive change throughout the region.

With the recently completed projects and several new alternative delivery projects in preconstruction, Metro is actively assessing current and future market conditions and trends that may positively or negatively influence Metro's ability to deliver the Measure M Expenditure Plan. Figures 1 and 2 highlight the recently completed and active construction projects.

Figure 1

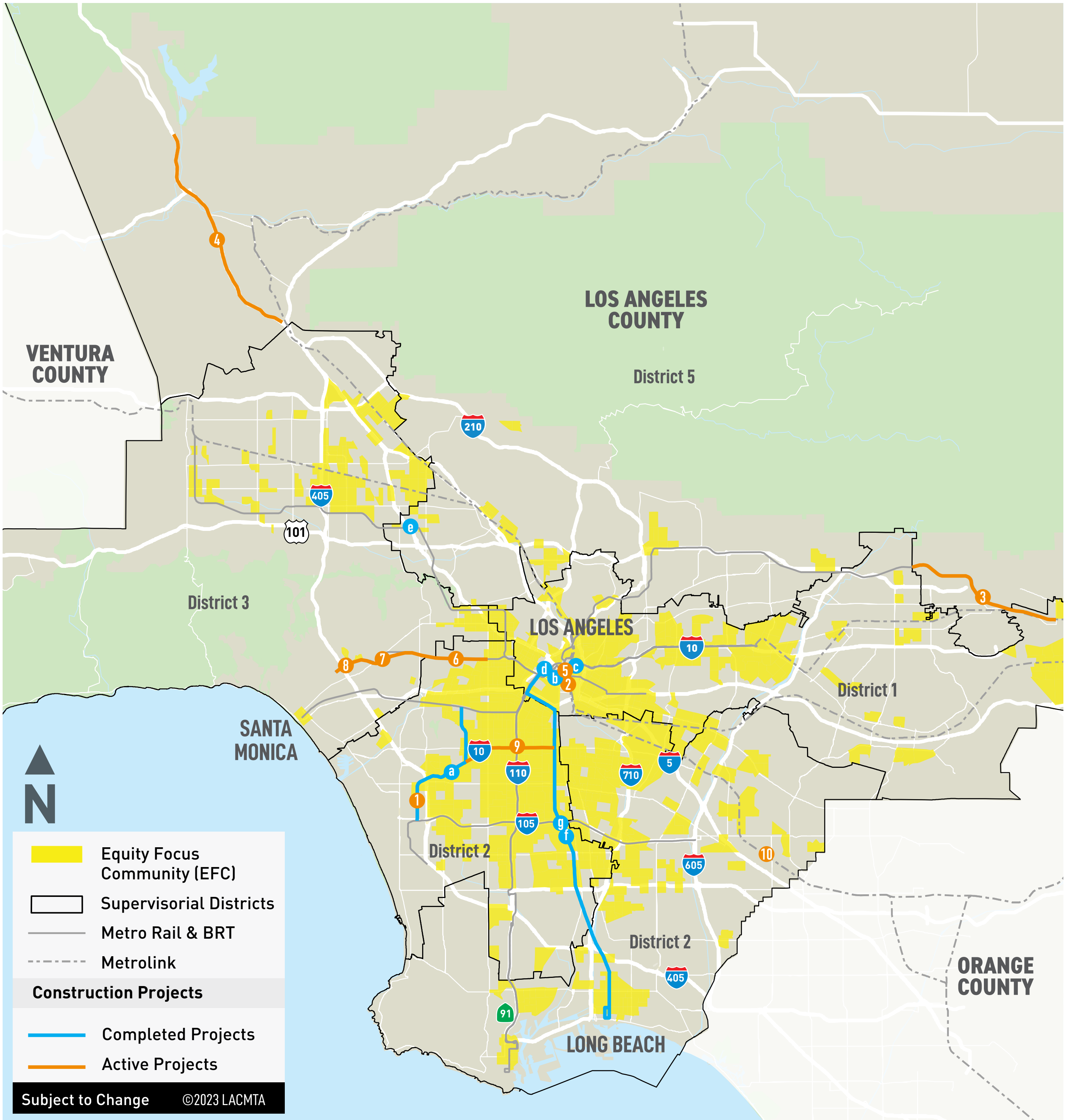
List of Recently Completed and Active Construction Projects

RECENTLY COMPLETED CONSTRUCTION PROJECTS	
a	Crenshaw/LAX Line
b	Eastside Access Improvements
c	Patsaouras Busway Station
d	Regional Connector
e	Soundwall Package 11
f	The New Blue
g	Willowbrook/Rosa Parks Stations

ACTIVE CONSTRUCTION PROJECTS	
1	Airport Metro Connector
2	Division 20 Portal Widening Turnback Facility
3	Foothill Gold Line Phase 2B
4	I-5 North County
5	Metro Center Street Project
6	Purple Line Extension 1
7	Purple Line Extension 2
8	Purple Line Extension 3
9	Rail to Rail Active Transportation Corridor
10	Rosecrans/Marquardt Grade Separation

Figure 2

Map of Projects



Source: Metro

1. What are the purpose and objectives?

This 2023 Construction Market Analysis was prepared to help Metro assess and understand the near- and longer-term conditions it faces while improving and expanding the transportation infrastructure in the Los Angeles region.

The 2023 Construction Market Analysis aims to assess current and future construction market trends. This analysis takes place within the national context of inflation, historic federal investment in infrastructure, and the possibility of a recession. Meanwhile, challenges for owners like Metro persist and evolve, such as labor shortages and fluctuating material costs.

The objectives of the 2023 Construction Market Analysis are to assess and forecast the resource pool, identify trends within the construction market, identify ways for Metro to be a better owner informed by feedback from the contractor community.

The data and recommendations from this report are intended to help Metro achieve the following outcomes:

GROW THE RESOURCE POOL
Grow local SBE/DBE capacity, increase the number of bidders, and be a catalytic influence on skilled labor growth.

BE AN OWNER OF CHOICE
Demonstrate partnership through collaboration, balancing project risk objectives, and aligning contract terms that fit the marketplace and delivery method.

MORE PREDICTABLE COST AND SCHEDULE ESTIMATES
Align with the marketplace regarding risk allocation and process/procedure best practices to more accurately forecast cost, schedule estimates, and contain costs during construction.

2. What is the history of the Construction Market Analysis?

Measure R and M set into motion one of the most extensive infrastructure programs in the country, with expansive goals to improve Los Angeles' complex transportation systems. During this period, market dynamics related to bid prices, commodities, and labor resources have made it more challenging to deliver projects.

In anticipation of the construction needs associated with the Measure M Expenditure Plan, Metro's Program Management Department commissioned the preparation of a construction market analysis to understand the factors influencing construction costs and project delivery.

2013 Construction Market Analysis Report

In 2012, Metro staff noticed a significant upward trend in project bid costs. Metro prepared the first Construction Market Analysis[1] to identify factors that may be related to the increase in bid prices and use that information to develop mitigation strategies.

2015 Construction Market Analysis Report

Meant to be a biennial report, Metro updated the Construction Market Analysis[2] to reflect 2015 factors influencing construction bid prices and Metro's ability to deliver Measure R projects 2018 Construction Market Analysis Report.

2018 Construction Market Analysis

In response to the passage of Measure M, the award of the 2028 Games to Los Angeles, and the escalating costs in the bids submitted for the Foothill Gold Line Phase 2B project, Metro prepared a new Construction Market Analysis.[3]

2020 Construction Market Analysis Report and COVID-19 Addendum

The publication of the 2020 Construction Market Analysis[4] aligned with the onset of the COVID-19 pandemic. The version also included an addendum to provide insights into how the economy and construction market responded to the pandemic early on. This iteration also provided the Metro Board of Directors with a presentation by the Associated General Contractors of America's (AGC's) Chief Economist, Ken Simonson.

2021 Construction Market Analysis Report

With significant federal stimulus packages re-energizing the economy, Metro staff prepared a new Construction Market Analysis to focus on the economic and construction market data.[5]

Construction Market Analysis Updates

At the Metro Board of Directors' request, summary-level information from the Construction Market Analysis was presented to the Board in various forms, such as periodic Board Box updates, program management's quarterly major project status reports at Metro's Construction Committee, and as part of Metro's Annual Program Evaluation. The updates included changes and trends regarding inflation, materials, commodities costs, bid pricing, and labor.

2022 Construction Market Analysis Motion

In response to the February 2022 Construction Market Analysis Update, a motion by Directors James Butts, Fernando Dutra, Ara Najarian, Kathryn Barger, and Janice Hahn was approved by the Metro Board of Directors that directed staff to report back on the following during the Fiscal Year (FY) 2023 Annual Program Evaluation:

> Assess what construction projects can reasonably continue without facing new budget shortfalls before their completion.

> Assess the incremental and cumulative annual fiscal impact on the agency's operations and maintenance budgets that will result from the opening of revenue service of each newly completed capital project.

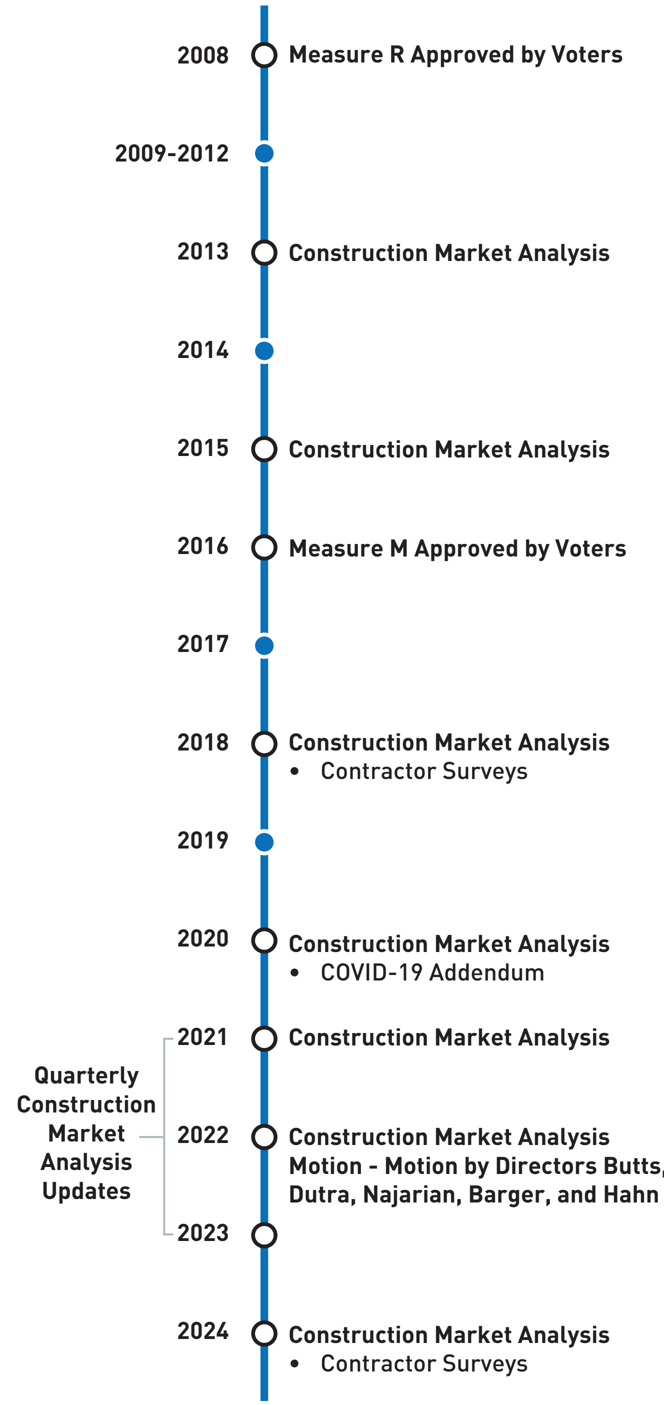
2023 Construction Market Analysis Report

This new version builds on the analysis from prior reports to update Metro on the latest trends and data from the construction market. This report also includes new contractor surveys and interviews and compares the contractor feedback from 5 years ago.

Figure 3 provides a timeline of the previous Metro Construction Market Analysis reports and updates since the passage of Measure M. Metro continues to be proactive and committed to understanding market conditions to provide more predictable cost and schedule estimates for its megaprojects and improve its standing with contractors.

Figure 3

Timeline



What is Inside the Report?

This analysis is organized according to the following themes:

Economic Conditions – What are the economic conditions that Metro faces?

Construction Market – What is the state of the construction market?

Contractor Interviews – How do contractors view the construction market and Metro as an owner?

Metro Assessment – How is Metro doing?

How to Read This Report

Each section of this analysis reviews the data and findings within the context of one of the themes with corresponding questions we aim to answer. The data and findings are presented in narrative and graphic formats. The section wraps up with a conclusion about the findings and key take-aways for Metro.

Big picture question about the market or Metro.

Information and summary of findings and actionable information for Metro.

Data and graphics that extract key information and present it in a useful format.

How this Report was Prepared

This analysis was prepared by Metro's Program Controls Department and Jacobs. Metro data, industry literature, statistical data, and contractor opinions and feedback were used to prepare this evaluation of the construction market. Based on the data and survey collected, trends and forecast conditions were developed for the report.

Sources consulted during the preparation of this analysis include publications from the following construction industry organizations:

> American Road & Transportation Builders Association (ARTBA)

> Associated General Contractors of America (AGC)

> Bureau of Labor Statistics (BLS)

> Dodge Construction Network

> Engineering News-Record (ENR)

> Los Angeles County Economic Development Corporation (LACEDC)

> Sage Policy Group, Inc.

> Southern California Association of Governments (SCAG)

> University of California, Los Angeles (UCLA) Anderson Forecast

The data appearing in this report may not reflect the latest available data from the above sources. The data was compiled and analyzed between September 2023 and November 2023, when the report was prepared.

CHAPTER 2

Economic Conditions

KEY QUESTIONS WE AIM TO ANSWER

1. How are the U.S., California, and Los Angeles County economies doing?
2. What emerging trends may affect Metro?
3. What is the economic outlook?

1. How are the U.S., California, and Los Angeles County economies doing?

In 2023, the economy was resilient and stronger than expected, considering high interest rates, inflation, and the potential for a recession. Many economists are generally optimistic about the national economic outlook for 2024, but several trepidations that existed at the start of 2023 remain today. Interest rates are anticipated to drop in the second half of 2024, which should encourage growth in the construction sector. California is facing a budget deficit and a decline in the labor force, which will likely result in slower economic growth. However, Los Angeles County is well positioned in 2024 to see economic growth because several sectors, such as transportation, information, logistics/warehousing, and arts/entertainment, have a strong outlook and anticipate job growth.

United States

In 2021, the U.S. was generally on the path of economic recovery from the COVID-19 pandemic, with the gross domestic product and employment rebounding to near pre-pandemic levels. This was partly due to major fiscal stimulus packages injecting life into the economy by increasing household incomes and consumption.

Then, in 2022, the convergency of rising prices, supply chain issues, and Russia's invasion of Ukraine resulted in high inflation. The Federal Reserve intervened with a series of interest rate hikes. This monetary policy slowed economic growth and reduced price inflationary pressures.

However, the U.S. economy has remained resilient to the economic headwinds of volatile prices, tightening monetary policies, a decline in the stock market, some of the largest bank failures in U.S. history, and geopolitical conflicts worldwide. For most of 2023, the economy has experienced the deceleration of inflation and consistent job growth.

Since the last Metro Construction Market Analysis in 2021, several legislative packages have been approved that have stimulated the economy and will have a major impact on construction. Figure 4 shows the nearly $1 trillion provided since 2021 from federal legislation that is to be invested in planning, designing, and constructing America's infrastructure. Figure 4 also identifies the amount of federal funding flowing into California and Los Angeles County.

November 2021 - Infrastructure Investment and Job Act (IIJA)

> Authorizes **$1.2 trillion** to repair and rebuild America's infrastructure to address the climate crisis, advance environmental justice, and invest in historically disadvantaged communities.

August 2022 – CHIPS and Science Act (CHIPS)

> Authorizes **$52 billion** in subsidies for chip manufacturing on U.S. soil, investment tax credits for manufacturing, and semiconductor research and workforce training.

August 2022 – Inflation Reduction Act (IRA)

> Authorizes **$485 billion** to mitigate inflation and fight climate change.

Figure 4

Impact of IIJA, CHIPS, and IRA on the Construction Industry

$300B+
in **public infrastructure** and **clean energy since 2021**

- **$177B** TRANSPORTATION
- **$23B** CLEAN ENERGY
- **$18B** CLIMATE CHANGE RESILIENCY
- **$23B** CLEAN WATER

$600B+
in commitments to **invest in modern industries**

- **$231B** SEMICONDUCTORS AND ELECTRONICS
- **$142B** ELECTRIC VEHICLES AND BATTERIES
- **$204B** CLEAN ENERGY MANUFACTURING & CLEAN POWER
- **$37B** BIOMANUFACTURING & HEAVY INDUSTRY

FEDERAL DOLLARS FLOWING TO CALIFORNIA

CALIFORNIA
2,048
number of funding awards
5% *percent of US*

$11,804M
total amount of funding
10% *percent of US*

FEDERAL DOLLARS FLOWING TO LOS ANGELES COUNTY

LOS ANGELES COUNTY
197
number of funding awards
9% *percent of CA*

$1,558M
total amount of funding
13% *percent of CA*

FEDERAL TRANSPORTATION FUNDING AWARDED TO LOS ANGELES COUNTY

- **$38M** OST, 9 *awards*
- **$834M** FHWA, 107 *awards*
- **$40M** FRA, 3 *awards*
- **$114M** FTA, 6 *awards*

FHWA = Federal Highway Administration
FRA = Federal Railroad Administration
OST = Office of the Secretary, Department of Transportation
FTA = Federal Transit Administration

Source: Invest.gov (2023). Investing in America Map. Retrieved from this link

California

After enjoying several years of budget surplus, the California State Budget 2023–24 states "California faces a downturn in revenues driven by a declining stock market and persistently high inflation in 2022, rising interest rates, and job losses in high-wage sectors—all of which have led to slower revenue growth than previously projected."[6] As a result, the FY 2023 state budget had a $31.7 billion shortfall offset by budget reserves.[7] Solutions included funding reallocations, delayed spending, and nonprojected borrowing from special fund balances.

The budget includes $16.1 billion for new transportation infrastructure programs and projects, an increase of $1.1 billion compared to the 2022 budget. Regarding public transit, the state allocated $4 billion in Transit and Intercity Rail Capital Program funding and $1.1 billion in zero-emission vehicle transit funding. This funding comes with new reporting and accountability requirements for transit agencies.

The employment landscape in California is significantly different than before the pandemic. Some sectors lost jobs, while others gained, and still others saw jobs move out of state due to remote work. Rapid job creation in logistics, technology (professional, technical, and scientific services and information), construction, durable goods manufacturing, and healthcare has numerically offset job losses in other sectors.

California has made significant strides in clearing red tape for new housing development by promoting density and facilitating the construction of accessory dwelling units and affordable housing. The state continues to have a significant housing shortfall and aims to rapidly increase the housing stock to help combat the unaffordability crisis. State officials estimate about 180,000 units need to be built annually to help meet housing demand.[8]

Another important trend to watch is the continuing decline in the state's population. The trend is due to several factors, including an aging population and affordability. The state's aging population will shrink the labor force size as growing numbers of workers retire. Regarding affordability, the state is losing households at all income levels to states such as Texas, where housing costs are lower.

Los Angeles County

The economic conditions in Los Angeles County in 2023 are mixed, with some sectors recovering strongly from the COVID-19 pandemic while others continue to struggle. The housing market remains unaffordable for many residents, and homelessness is a significant problem.

Historically, tourism has been an economic engine for Los Angeles County. However, tourism still has some lingering effects from the pandemic, which has dampened employment in the leisure and hospitality industry and revenue from local sales tax in the region. In 2023, passenger air traffic at LAX increased by 15% from 2022, but is still less than 15% of pre-pandemic levels, with the number of international visitors still sluggish from the lack of tourism from China.[9]

In 2023, pre-pandemic employment levels have been exceeded in several sectors, including construction and professional services. However, a significant amount of underemployment and wage inequality remains in Los Angeles County. Many workers are employed in part-time or low-wage jobs that do not provide adequate income, which has led to several labor union strikes from hotel workers, screenwriters and actors, and city workers.

According to the Los Angeles County Economic Development Corporation, the median household income in Los Angeles County is $70,000.[10] However, this figure masks a great deal of inequality. The top 10% of households earn over $200,000 per year, while the bottom 20% earn less than $30,000 per year.

Figure 5 provides a 3-year comparison of critical national, state, and local economic indicators, such as gross domestic product (GDP) growth rates, unemployment rates, and inflation rates. It also provides key drivers affecting the national, state, and local economies and influencing the construction market.

Figure 5

Key Economic Indicators

NATIONAL

	2021	2022	2023
GDP GROWTH	6%	2%	3%
UNEMPLOYMENT RATE	5%	4%	4%
INFLATION RATE	5%	8%	4%

Key Drivers: *Pause in interest rate changes and three major federal funding investments*

CALIFORNIA

	2021	2022	2023
GDP GROWTH	8%	1%	1%
UNEMPLOYMENT RATE	7%	4%	4%
INFLATION RATE	5%	8%	5%

Key Drivers: *State budget shortfall and declining population*

LOS ANGELES

	2021	2022	2023
GDP GROWTH	8%	1%	1%
UNEMPLOYMENT RATE	9%	5%	6%
INFLATION RATE	4%	7%	5%

Key Drivers: *Multiple labor strikes and second most construction cranes in North America*

GDP = gross domestic product

Source: Bureau of Economic Analysis (2023), Bureau of Labor Statistics (2023), Los Angeles Economic Development Corporation (2023), California State Budget 2023-2024

2. What emerging trends may affect Metro?

Trends that may affect Metro's ability to deliver projects on time and on budget are continuously emerging and evolving in this economic climate of cautious optimism and uncertainty. For instance, nonresidential construction, fueled by public infrastructure projects and technology/manufacturing developments, creates upward pressure on construction materials, labor, and wages. Another example is the regulatory requirements from the recent packages of federal infrastructure investments. Awareness of these trends will be beneficial to advancing Metro's capital program. The following provides more details on example trends that may affect Metro.

Buy America

The White House Office of Management and Budget (OMB) recently (August 2023) issued final guidance to supplement the Build America, Buy America Act (Buy America) and provisions contained in the IIJA. The new guidance, effective October 2023, is intended to be high-level coordinating guidance for federal agencies to use in their direct implementation of Buy America and will affect all entities that have or receive covered awards.

The current market and Buy America Act provisions will likely sap some of the buying power and benefits from federal funding. Some of the provisions and guidance under Buy America that may make it more costly to deliver Metro projects include the following:

> **Rolling Stock:** A minimum of 70% of the cost of components and subcomponents for rolling stock transit vehicles must be produced in the U.S. Final assembly for rolling stock must also occur in the U.S.

> **Construction Materials:** A minimum of 55% of the cost of components must be fabricated domestically and applies to steel, iron, and manufactured products.

Metro staff provided the Board with a *comprehensive report* evaluating the applicable provisions of Buy America in January 2024.

Wage Increases and Worker Happiness

The gap between wage growth and inflation is closing. Historically, the National Average Wage Index, which provides insight into wage growth among American workers as a measure of inflation, has hovered just below 3%. The past two years have seen the index jump to more than 7%.

Public transportation and public works agencies are coping with this tight labor market by implementing cost-of-living adjustments, creating performance incentive programs, and increasing salary and pay bands to stay competitive in the current economy.

According to a new survey from a human resources technology company, the construction industry tops a list of sectors with the happiest workforces.[11] The survey measured the Employee Net Promoter Score at over 1,600 companies, calculating how likely workers were to recommend their organization as a place to work over the last three years. The survey attributes construction workers' happiness to rising wages and plentiful job opportunities. However, employee stress from lack of staffing is anticipated to create discontent among construction workers in the months and years ahead.

3. What is the economic outlook?

The UCLA Anderson Forecast foresees a weak but "no-recession" national economy in 2024, followed by a return to steady-state growth rates in 2025.[12] GDP growth is projected to slow as high interest rates and tighter financial conditions dampen consumer and business demand, slowing interest-sensitive consumption and investment. Credit conditions are projected to begin easing, and GDP is projected to recover to average growth rates of up to 2% through 2026.

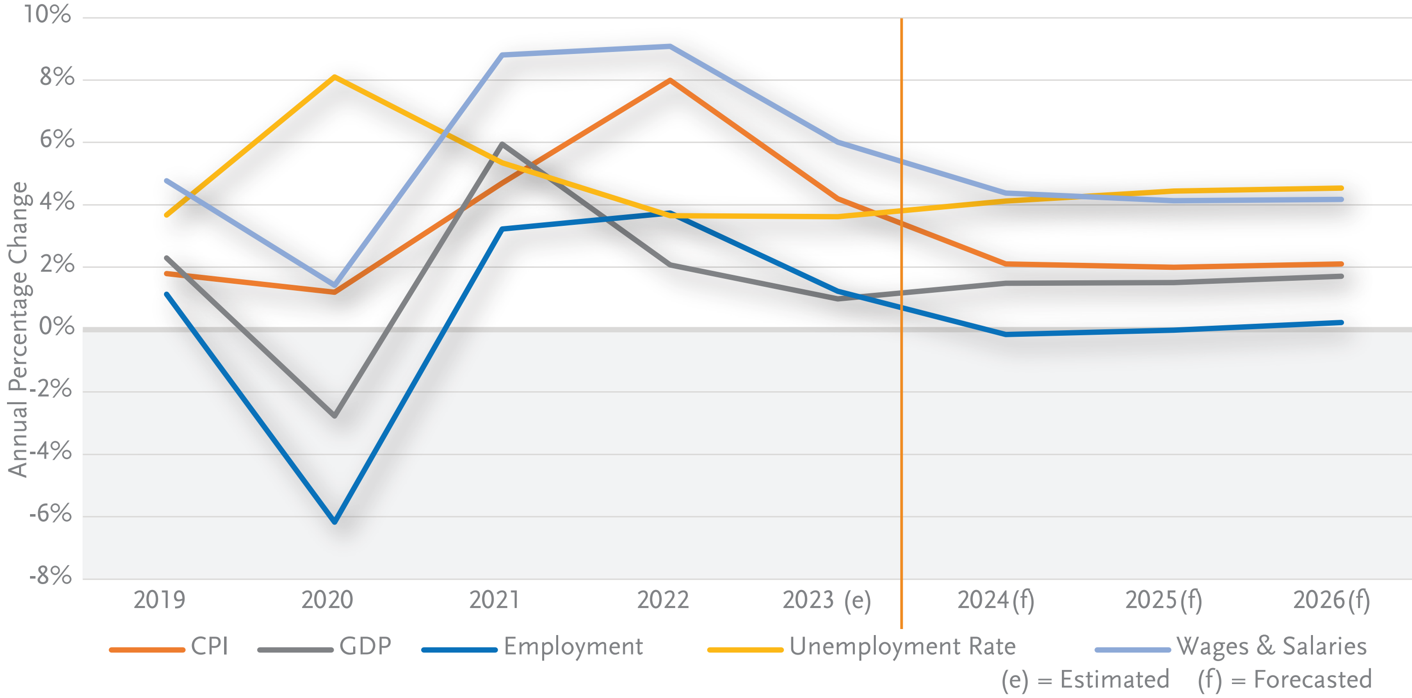
Inflation is slowly working its way back down to historical average rates of slightly above 2% for the nation and 3% for California by late 2024. If the projection holds, the Federal Reserve is anticipated to relieve borrowers after nearly a dozen interest rate hikes since March 2022. The UCLA Anderson Forecast anticipates the Federal Reserve will reduce rates in mid-to-late 2024 when there is sufficient deflation in the economy.

Figure 6 shows the 3-year forecast of critical national economic indicators from the State of California Department of Finance. Inflation (CPI) and GDP are estimated to come down in the future and hover around 2% growth. The unemployment rate is anticipated to increase through 2025 as tight financial conditions soften the labor market, while wages and salaries are likely to decline but remain higher (4% growth) than inflation.[13]

The December 2023 UCLA Anderson Forecast identified potential risks to the economic outlook in 2024: "A protracted government shutdown was averted until 2024 but the possibility still exists, and geopolitical events might upset the current growth pattern. On a more distant horizon, uncertainty about the election in November 2024 might result in significantly weaker business investment and consumer spending. These risks are substantial and bear watching, as they could drive the economy off its current growth path."[14]

Figure 6

Three-Year National Economic Outlook



Source: State of California, Department of Finance (2023)

CHAPTER 3

State of the Construction Market

KEY QUESTIONS WE AIM TO ANSWER

1. What is the level of construction activity?
2. What are the trends in materials prices?
3. What is labor availability and how does it affect construction?
4. What trends are emerging in bid prices?
5. How are contractors responding to market conditions?


VONS
OPEN

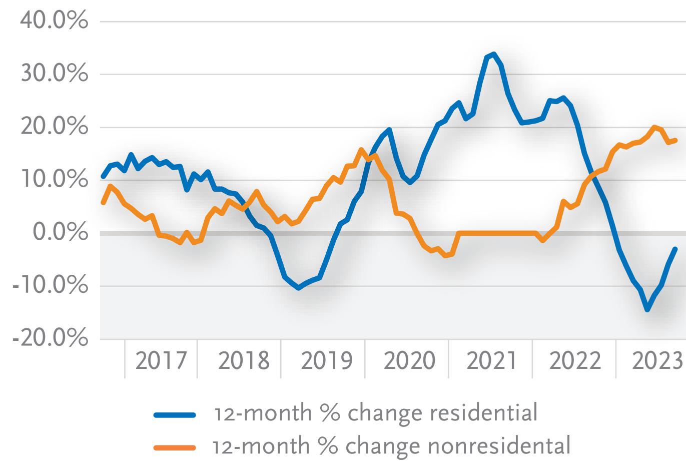
1. What is the level of construction activity?

The construction market has endured the difficulties of the last few years, with some sectors faring better than others. Residential construction skyrocketed in 2021 due to people relocating and work-from-home trends. Peak residential construction occurred in June 2021, with a year-over-year increase in construction starts of 34%. However, inflationary pressures have increased costs and high interest rates have tempered residential construction and commercial building. In April 2023, residential construction declined by 15% year over year, but is trending upward more recently.

With the passage of the IIJA, the IRA, and the CHIPS Act, nonresidential construction, specifically infrastructure and manufacturing, has thrived in 2022 and 2023. Currently, nonresidential construction is averaging an 18% increase year by year.[15] Figure 7 shows the annual rate changes for construction activity by residential and nonresidential sectors. More importantly to Metro, Figure 8 identifies an anticipated $200 billion in national transportation infrastructure construction spending.

Figure 7

National Construction Spending Annual Rate Changes - Residential versus Nonresidential



Source: U.S. Census Bureau, Construction Spending (2023)

Nonresidential construction spending is up 18% in 2023.

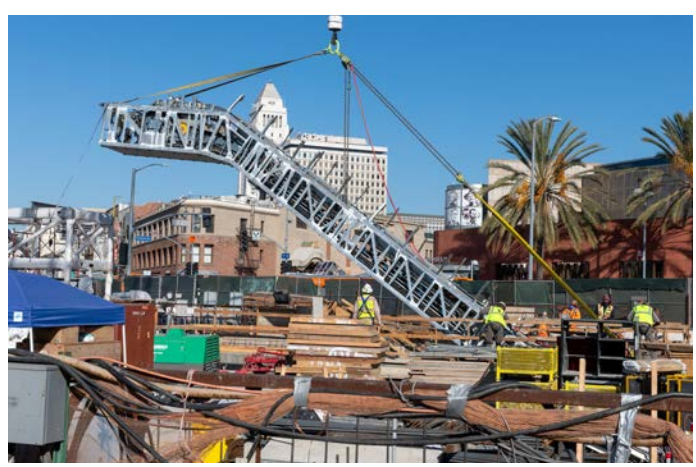
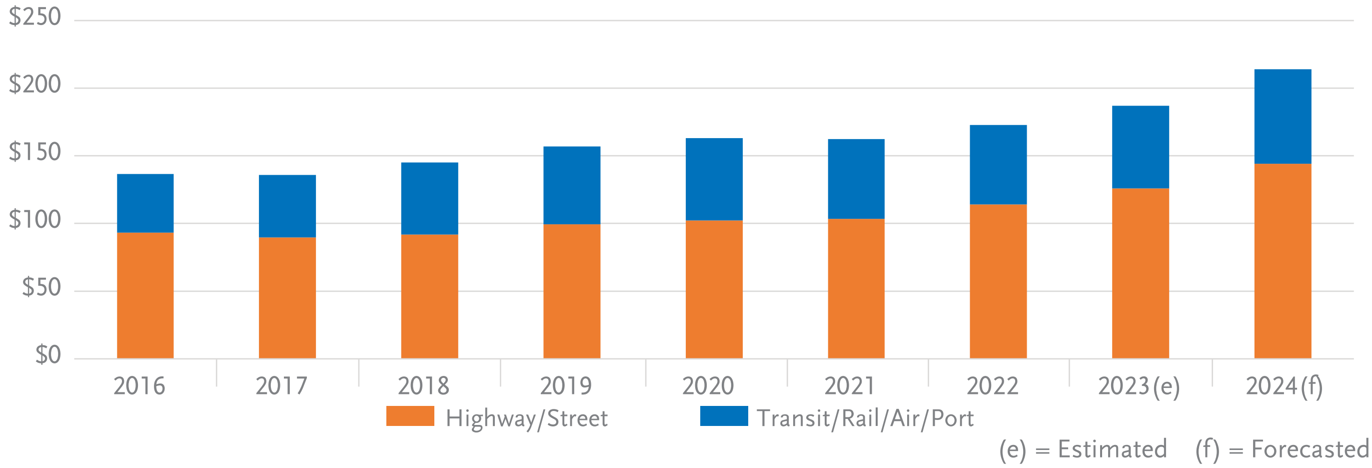


Figure 8

National Annual Transportation Construction Spending ($ in Billions)



Source: American Road & Transportation Builders Association (2023)

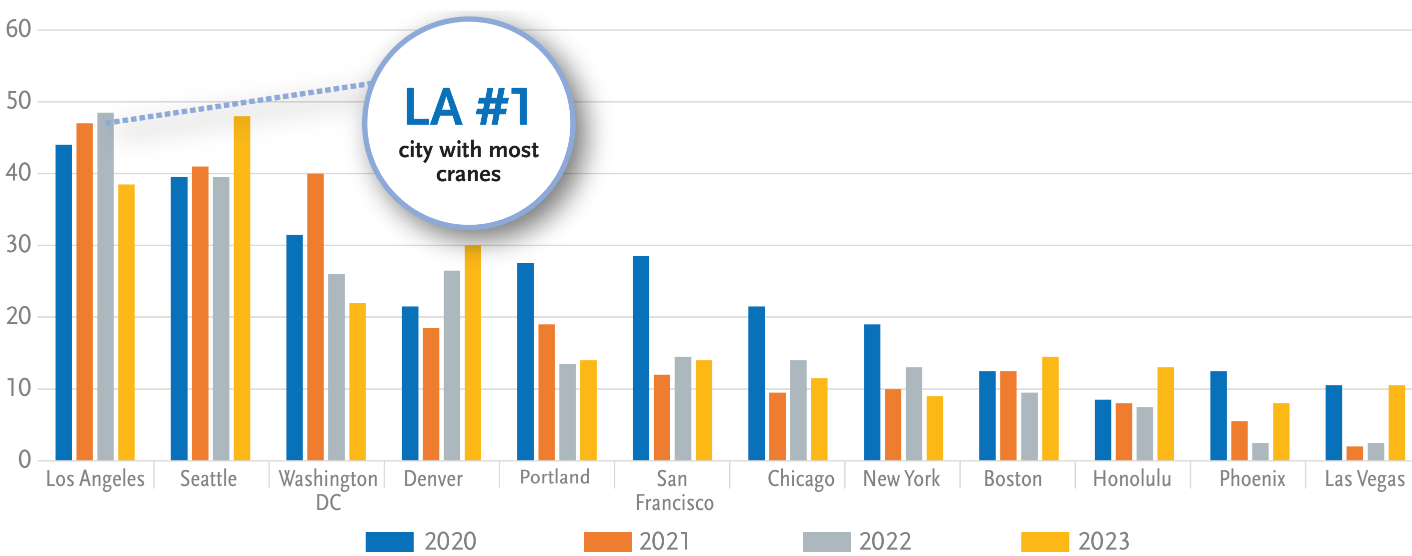
A bellwether indicator of construction activity is the number of fixed cranes on construction sites, which gives a simplified measure of the current state of the construction industry's workload. The crane count for the third quarter of 2023 is shown in Figure 9.

The number of cranes in Los Angeles has declined in the second half of 2023, partly due to the lack of major developments coming online. With the region's low occupancy rates and many residential/mixed-use projects on pause, the tight lender market impacts on construction. Infrastructure projects are steadily increasing in construction-in-place value but focus on roadway and underground projects that do not require cranes.[16]

An uptick in the number of cranes is anticipated with the upcoming terminal work at LAX and Burbank Airport, among other projects.[17]

Figure 9

Annual Average Crane Count by City



Source: RLB (2023)

Metro Leads Local Public Agencies and Nationwide Transit Agencies in Construction Spending

Metro has $13 billion in active construction and $27 billion in its capital program. The size of Metro's program is one of the most extensive public agency capital programs in the state and the US as shown in Figure 10. Metro is at the scale of statewide agencies such as Caltrans and California High-Speed Rail Authority. Figure 11 shows that Metro accounts for approximately 30% of the construction spending by public agencies within Southern California.

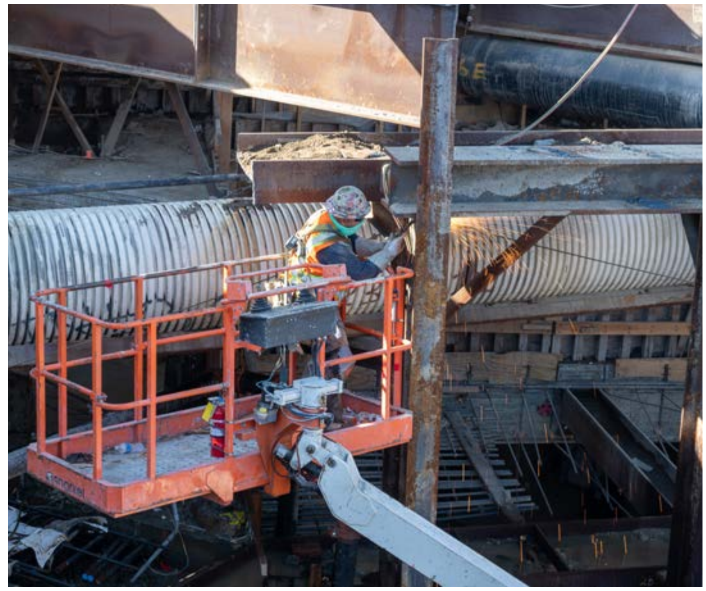
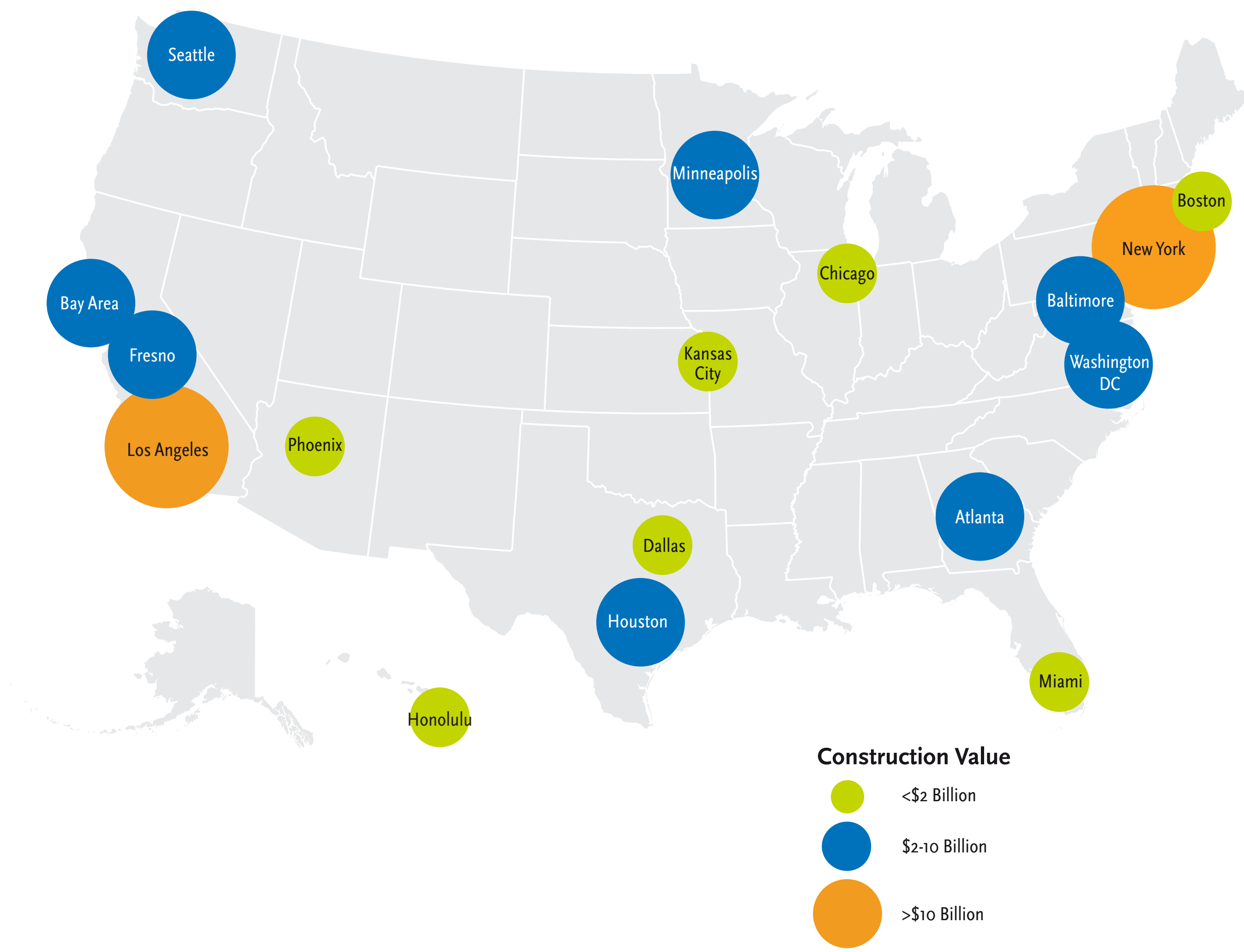


Figure 10

Transit Megaprojects Under Construction by Metropolitan Area



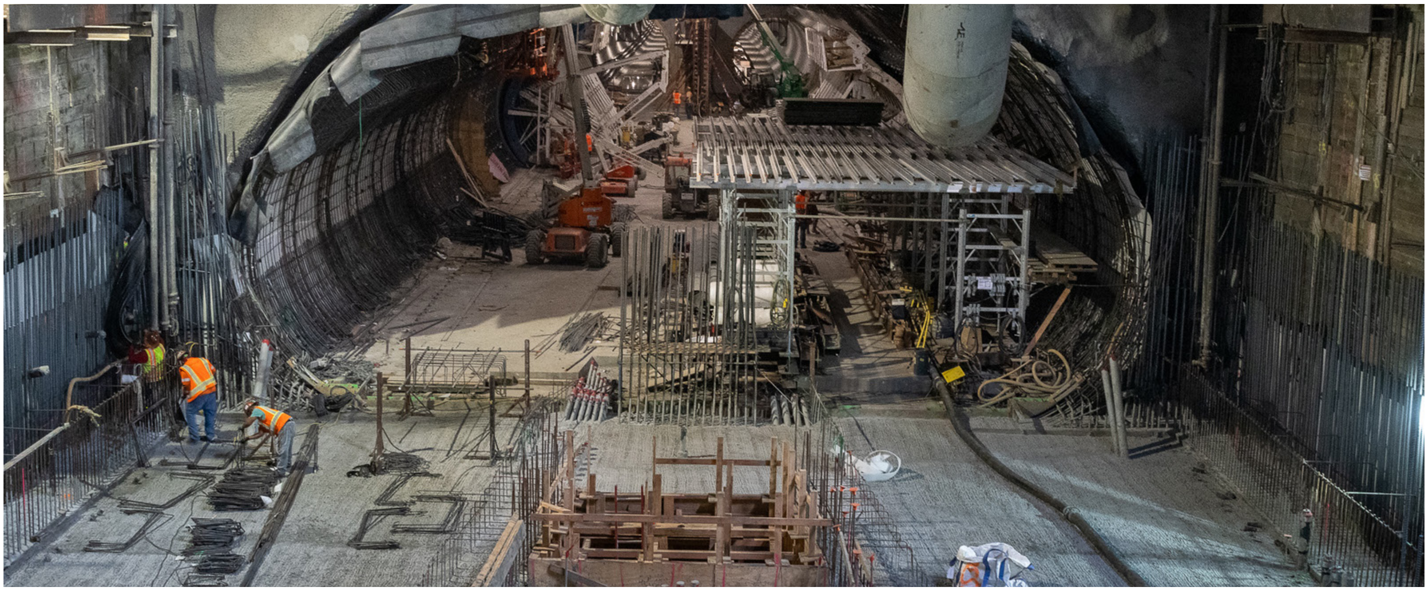
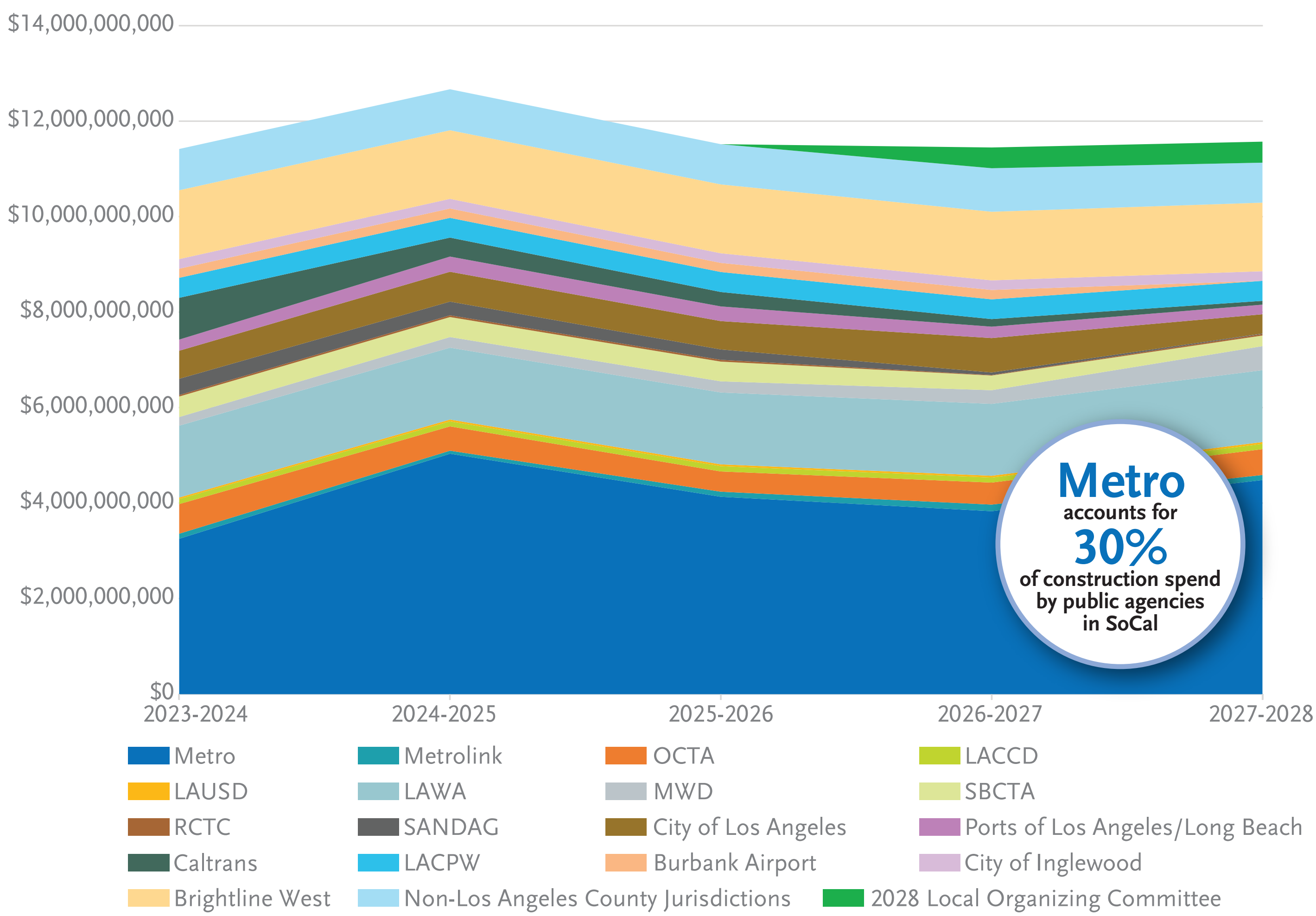


Figure 11

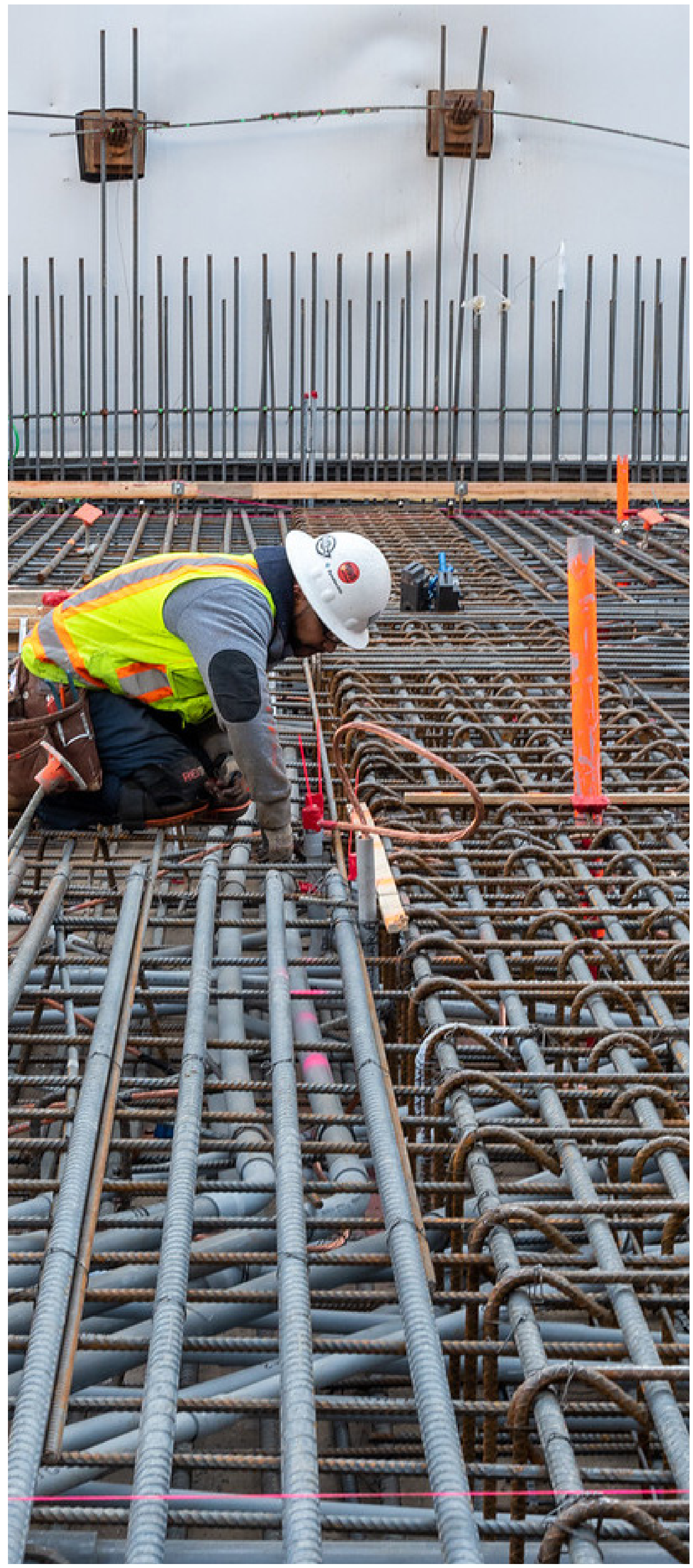
Owners with Major Capital Programs Competing for Labor Resources



2. What are the trends in materials prices?

Material prices have generally stabilized after several years of supply chain issues and increasing costs. During this time, several of the most common construction materials used on infrastructure projects became substantially more expensive, affecting project budgets. Inflationary pressures emerged in late 2020 and early 2021 when production and supply chains were unprepared to handle surging demand from stimulus spending, affecting project budgets. Today, inflation is driven less by supply chain issues and more by structural labor market dynamics and geopolitics. The volatility in key construction materials between 2016, when Measure M was passed, and 2023 is shown in Figures 10 through 15 and reveals some trends.

The following data was compiled and analyzed between September 2023 and November 2023, when the report was prepared. As a result, the following may not reflect the latest available data.



Fuel

Fuel has been subject to cyclical trends (refer to Figure 12), making it challenging to price in construction projects. As an example of the volatile swings, fuel experienced its lowest price in May 2020 and reached historic peak levels in June 2022. After reaching unprecedented prices, fuel prices saw a general decline in 2023, according to the Bureau of Labor Statistics.[18] During this decline, fuel prices experienced some volatility that can be attributed to global and local factors, including the following:[19]

> An increase in the price of crude oil determined by geopolitical events and a global market

> Unanticipated refinery maintenance events causing decreases in supply

> Unusual California spot market transactions caused an outsized effect on gas prices

Fuel prices are anticipated to increase in 2024 due to Organization of Petroleum Exporting Countries (OPEC+) production cuts according to the U.S. Department of Energy's Energy Information Administration (EIA). The EIA also anticipates that historic levels of U.S. production will help keep fuel prices steady in 2025.[20]

Figure 12

Average Annual % Change in Fuel

Source: Bureau of Labor Statistics, WPU057303 (2023)

-19%	10%	4%
percent change in last 12 months	*percent change in last 6 months*	*percent change in last month*

FUTURE (2024 TO 2026)

8%	-1%	0%
2024	*2025*	*2026*

Steel

Policies enacted by the federal government over the past several years subjected imported steel to 25% tariffs. The tariffs were intended to protect some U.S. metal producers but resulted in higher prices for many domestic manufacturers that use steel. In the last three years, several of the country's largest steelmakers (US Steel and Cleveland-Cliffs) shut down some of their older mills and have continued to keep them idle because of the high cost of restarting operations. In late 2021, the steel tariffs were lifted as U.S. steel production rebounded, helping bring down prices in the past year (refer to Figure 13).

According to ENR's cost report for the third quarter of 2023, steel production costs are decreasing as mills ramp up and steel prices outside the U.S. are low. As a result, economists are anticipating that steel prices will continue to decline for the foreseeable future.

Figure 13

Average Annual % Change in Steel

Source: Bureau of Labor Statistics, WPU1017 (2023)

-12%	-1%	-4%
percent change in last 12 months	*percent change in last 6 months*	*percent change in last month*

FUTURE (2024 TO 2026)

-10%	-7%	-3%
2024	*2025*	*2026*

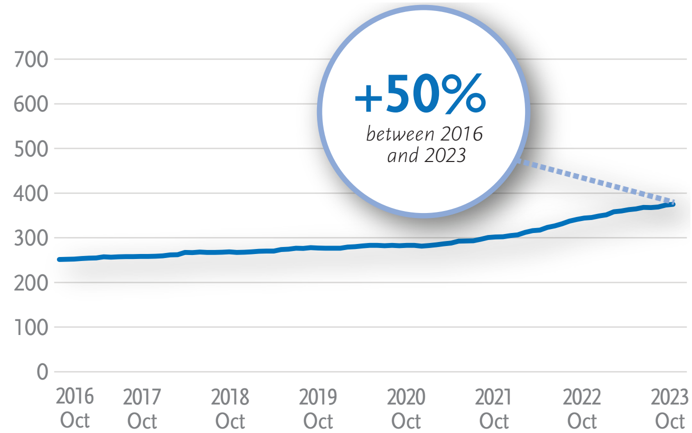
Concrete

Unlike other common materials in infrastructure construction, concrete has not seen the sharp ups and downs (refer to Figure 14). Instead, concrete has steadily increased year after year.[21] The supply of concrete materials in the U.S. is limited and imports have been slow to move.[22] For example, the years-long concrete price increases are partially due to high energy costs and the closure of a large quarry and port in Mexico causing a shortage of cement mix.[23] As a result, many contractors face severe pressure from the lack of concrete availability and high prices.

In 2024, the supply of concrete products will be limited, resulting in higher prices. Price increases beyond 2024 are anticipated to generally be around 2%, according to ENR's latest cost report.[24]

Figure 14

Average Annual % Change in Concrete

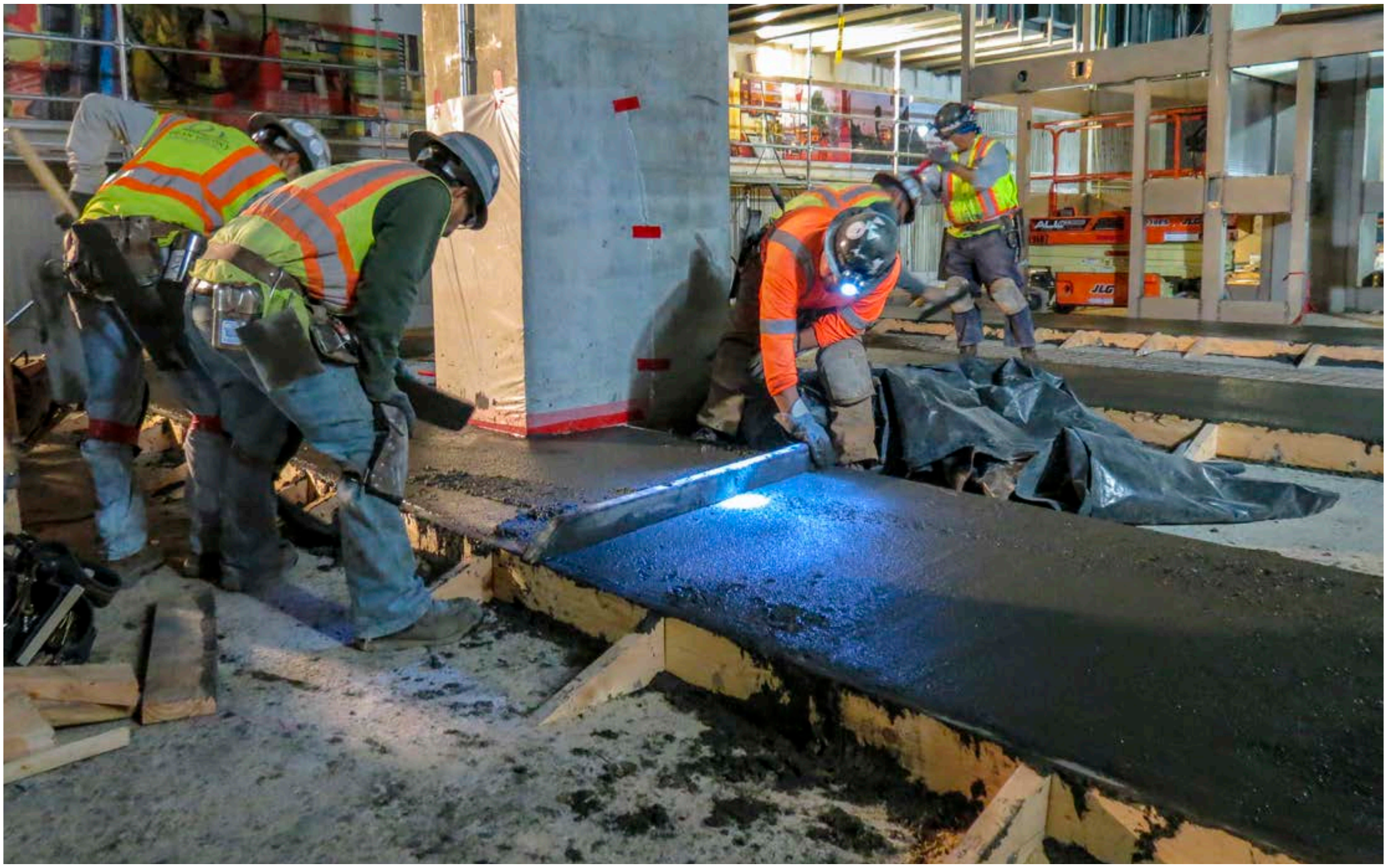


Source: Bureau of Labor Statistics, WPU133 (2023)

9%	3%	1%
percent change in last 12 months	*percent change in last 6 months*	*percent change in last month*

FUTURE (2024 TO 2026)

4%	2%	2%
2024	*2025*	*2026*



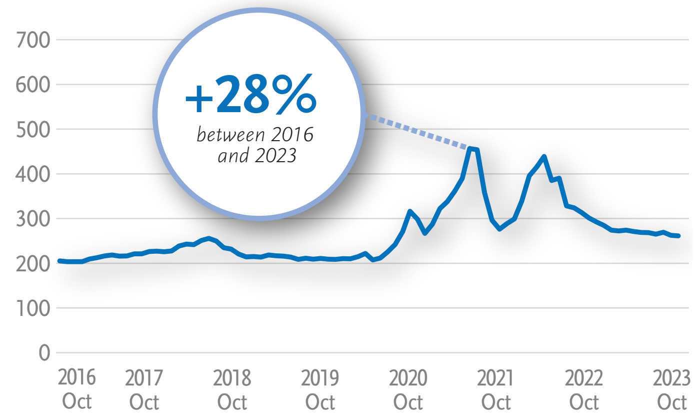
Lumber/Plywood

No other commodity has faced as much volatility as lumber/plywood over the past three years (refer to Figure 15). Producers in the U.S. and Canada cut production. However, demand for lumber/plywood experienced a quick V-shape recovery in the summer of 2020 from new housing starts and permits. This resulted in a mismatched supply and demand situation that peaked in the summer of 2021, and prices dramatically declined shortly after.[25] Prices took another sharp turn upward due to the federal government imposing tariffs on Canadian imports. In 2023, prices have steadily declined and are leveling. With the large wildfires in Canada in the summer of 2023, prices may see another upward trend.

Mortgage rates remain high and affect demand for residential construction, typically a key driver for lumber prices. As a result, lumber prices are expected to see steady prices for the foreseeable future.[26]

Figure 15

Average Annual % Change in Lumber/Plywood



Source: Bureau of Labor Statistics, WPUSI004011 (2023)

-14%	-4%	-1%
percent change in last 12 months	percent change in last 6 months	percent change in last month

FUTURE (2024 TO 2026)

1%	1%	2%
2024	2025	2026

Asphalt

Historically, asphalt paving has followed oil price trends because it is made from processing crude oil. As a result, asphalt has seen its fair share of volatility over the past few years, as shown in Figure 16.

Asphalt price changes generally lag behind fuel price changes and, therefore, will likely see a short-term decline as a result of previous declines in fuel prices. However, with the current increase in fuel prices, asphalt prices will tick back up beyond 2024 per ENR's cost report.[27]

Figure 16

Average Annual % Change in Asphalt

Source: Bureau of Labor Statistics, WPU058102 (2023)

-26% *percent change in last 12 months*

20% *percent change in last 6 months*

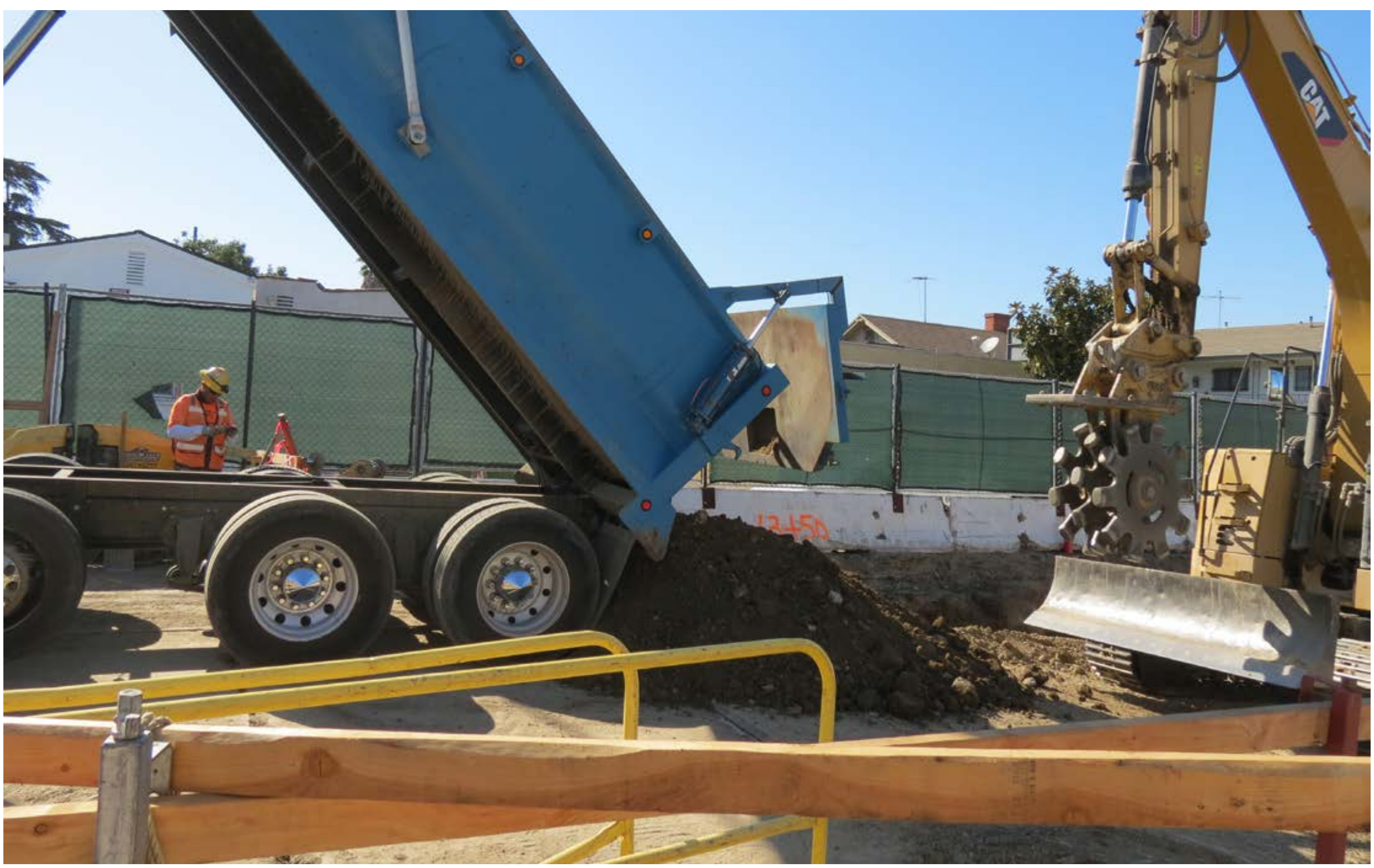
0% *percent change in last month*

FUTURE (2024 TO 2026)

-1% *2024*

3% *2025*

2% *2026*



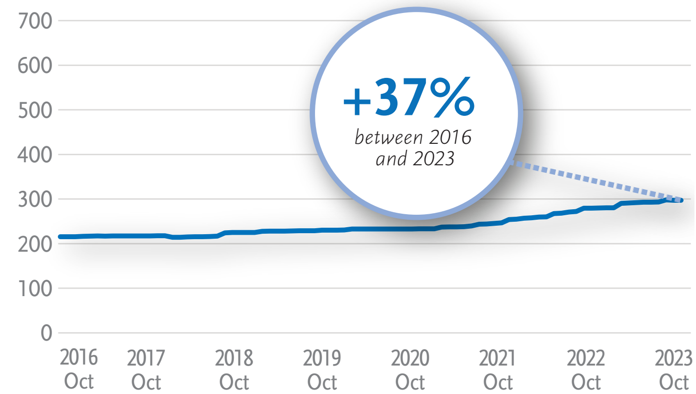
Machinery and Equipment

Contractors struggled with acquiring construction machinery and equipment over the last three years. Many found creative solutions and sources to their purchasing needs. A shortage of critical electronic control chips—found in many models of construction equipment and automobiles—due to supply chain issues was a major driver of the lack of availability of new machines these past years. However, the shortage appears to have been resolved, and major indicators, such as machine age and usage, are normalizing in accordance with historical trends.[28]

Original equipment manufacturers foresee production stability, but prices could remain volatile, while spare parts, labor or maintenance, and operating costs have risen steadily for several categories of machines, according to the latest EquipmentWatch data.[29] It is anticipated that machinery and equipment prices will rise (refer to Figure 17) because contractors extended the useful life of machinery and equipment during the pandemic but are now looking for replacements and bidding up prices, per EquipmentWatch.

Figure 17

Average Annual % Change in Machinery and Equipment

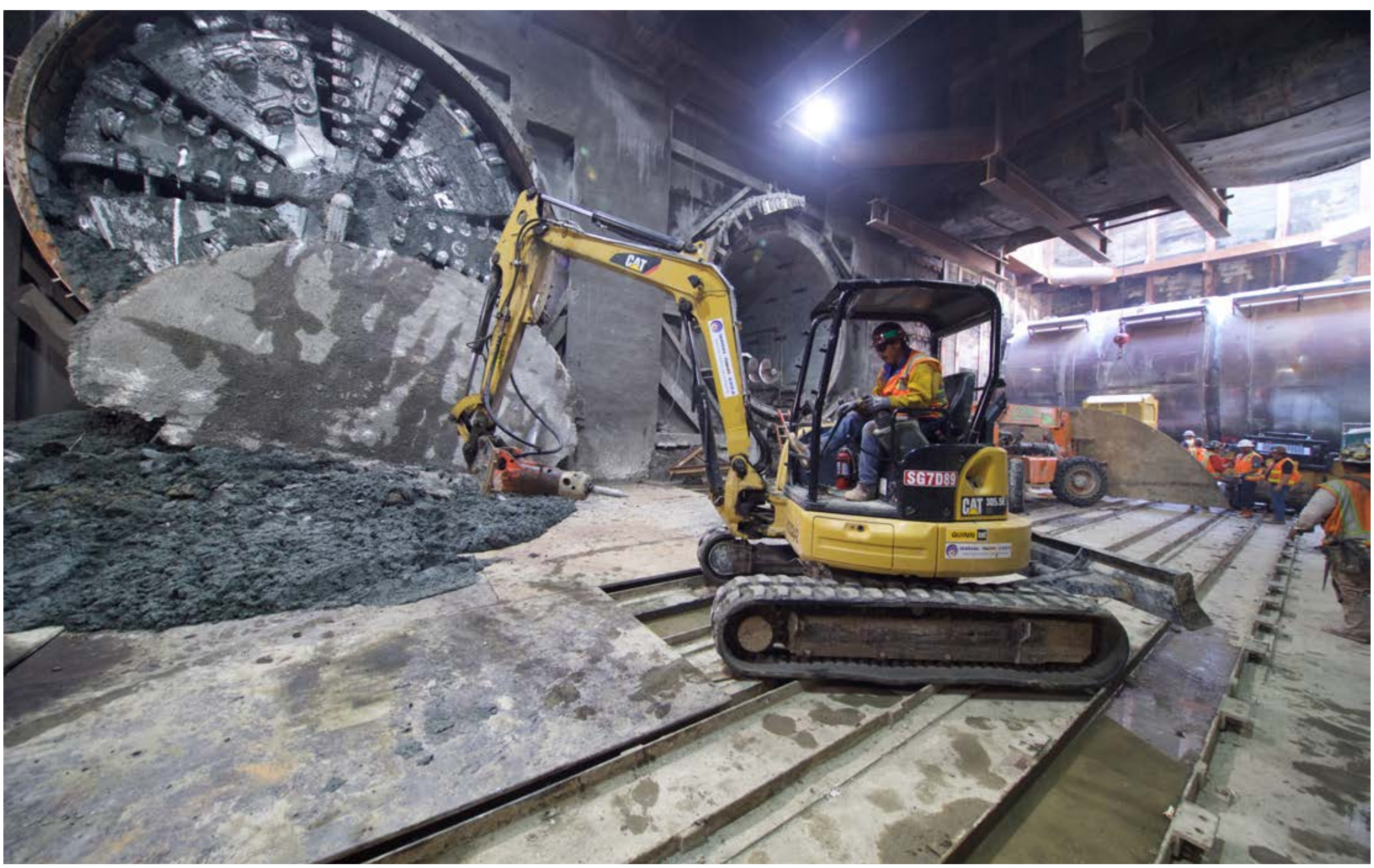


Source: ENR & EquipmentWatch (2023)

6%	2%	0%
percent change in last 12 months	*percent change in last 6 months*	*percent change in last month*

FUTURE (2024 TO 2026)

2%	3%	3%
2024	*2025*	*2026*



3. What is labor availability and how does it affect construction?

The construction industry faced a persistent labor shortage for the past several years. The ongoing labor shortage is due to several factors, such as an aging workforce and skills gap. Many experienced construction workers are retiring, and too few new workers are entering the workforce to keep up with demand. Meanwhile, the construction industry has become more technologically advanced over the last two decades. This requires workers to have new skills and knowledge, yet many do not, contributing to the labor shortage. The labor shortage is also exacerbated by other market trends including competition from other industries, immigration restrictions, and the gig economy.

Employment/Unemployment

With materials costs stabilizing, labor availability has resumed as the biggest challenge for contractors. Construction employment is currently at an all-time high of 8 million, as shown in Figure 18. This represents a cumulative increase of 21% since 2016 according to data published by the BLS.[30]

The construction labor market also hit another milestone in 2023—the lowest unemployment rate since the BLS started tracking. This occurred in April 2023 when it reached 3.4%, more than a half point lower than the national unemployment rate. Historically, construction employment has been three percentage points higher on average, making this a rarity. Since April 2023, the construction unemployment rate increased slightly to 3.8%, matching the national unemployment rate for October 2023, as shown in Figure 19.

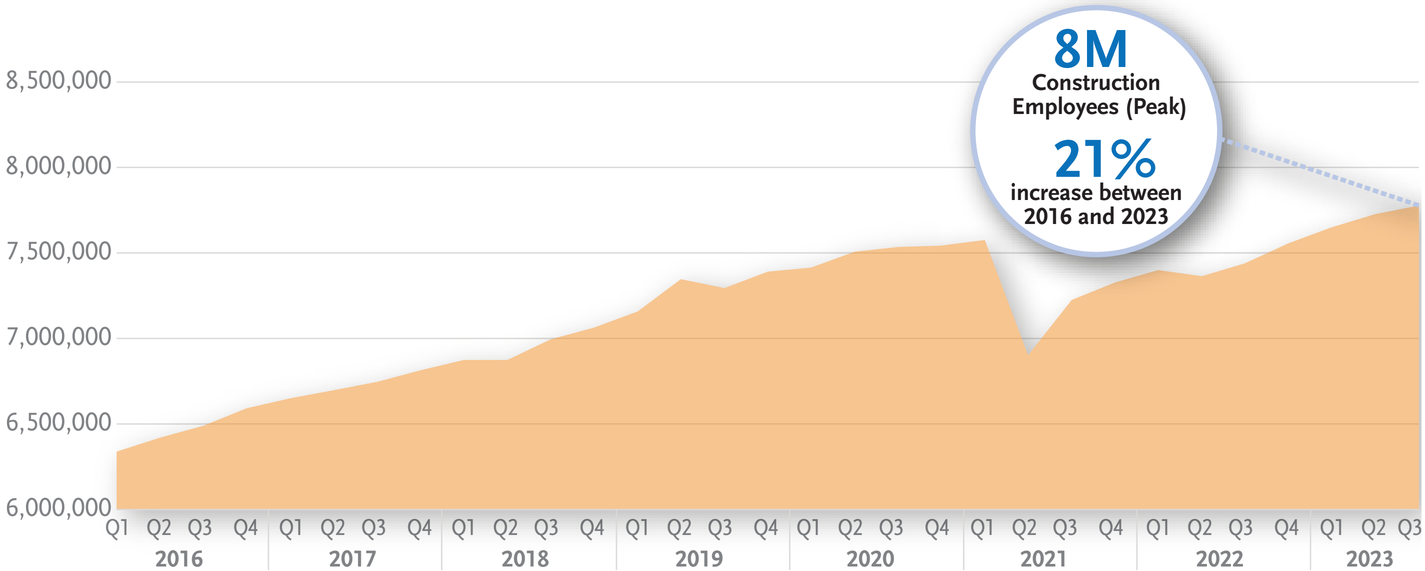
Unemployment Rates for Professional Services at All-Time Lows

Professional services staffing is experiencing unprecedentedly low unemployment. The professional services unemployment rate reached an all-time low of 1.7% in May 2022 and has generally hovered around 2.5% for the last two years.[31] The unemployment rate for professional services shows minimal resources in the market, making it difficult for contractors and owners to hire staff and support resources.

On the owner's side, one effect is that staffing shortages result in increasing durations for preconstruction activities. All increases in preconstruction activity duration and delay to the start of construction will escalate construction cost due to the inflation of year-over-year construction market. On the contractor's side one effect is that professional services staffing shortages result in upward salary pressures, directly affecting construction bid pricing. In both cases, the result is increasing project costs.

Figure 18

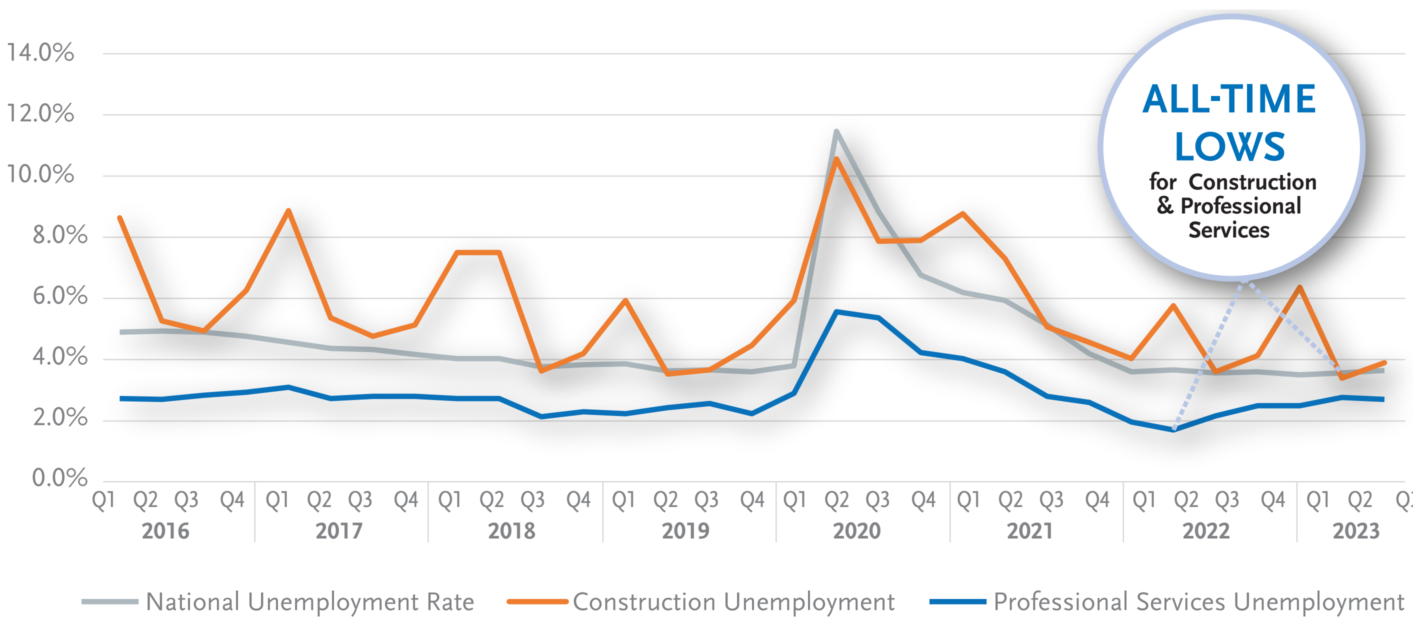
National Construction Employment



Source: Bureau of Labor Statistic, CES2000000001 (2023)

Figure 19

National Unemployment Rates



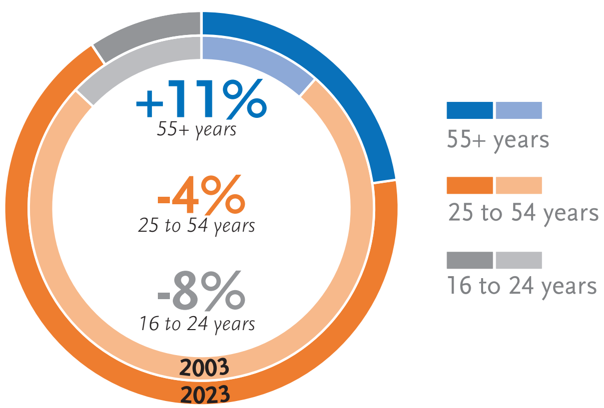
Source: Bureau of Labor Statistics, LNU04032231/LNS14000000/LNU04034219 (2023)

Demographics

With all-time highs for employment and all-time lows for unemployment, the industry is gravely concerned about sustaining current construction demands. Figure 20 looks at the demographics of construction labor over the last 20 years, which shows that the share of construction workers 55 and older has nearly doubled from 12% to 23%.[32] In part, this increase reflects the aging of the population. However, the 16 to 24 age group has declined by 4%, and the 25 to 54 age group has decreased by 8% over the same period.[33] Regarding gender, Figure 21 shows that the construction industry has made only a modest gain of 2% in the last ten years in terms of the share of women in the workforce.[34]

Figure 20

Construction Employment Age – 2003–2023 Comparison



Source: Bureau of Labor Statistics Construction Industry Spotlight (2022)

Figure 21

10-Year Comparison of Women in the Construction Workforce

Men	Women
91% 2013	9% 2013
89% 2023	11% 2023
2% difference	*Change in women participating in the construction workforce*

Openings versus Hirings

For the last two years, job openings have generally outpaced the number of hires, as shown in Figure 22. This indicates a severe shortage of construction labor as a result of high construction activity combined with the historic levels of employment and unemployment rates.

This issue is further reinforced by the results of the AGC 2023 Workforce Survey, as shown in Figure 23. The survey reveals that among firms with openings, 88% are struggling with filling the positions, especially craft labor that requires onsite construction work.[35] This challenge is across the board, with similar results reported by large and small contractors, ones that use exclusively union labor, and others that operate as open-shop employers, and across geographies.

The survey also reveals the main reason the labor shortage is so severe in the construction industry is that most job candidates are not qualified to work in the industry. More than two-thirds of contractors responded that applicants lack the skills to work in construction.[36]

Figure 23

AGC 2023 Workforce Survey – Labor Shortage by the Numbers

88% of contractors are having a **hard time filling craft labor**

68% of contractors find available **candidates are not qualified** and **lack the needed skills**

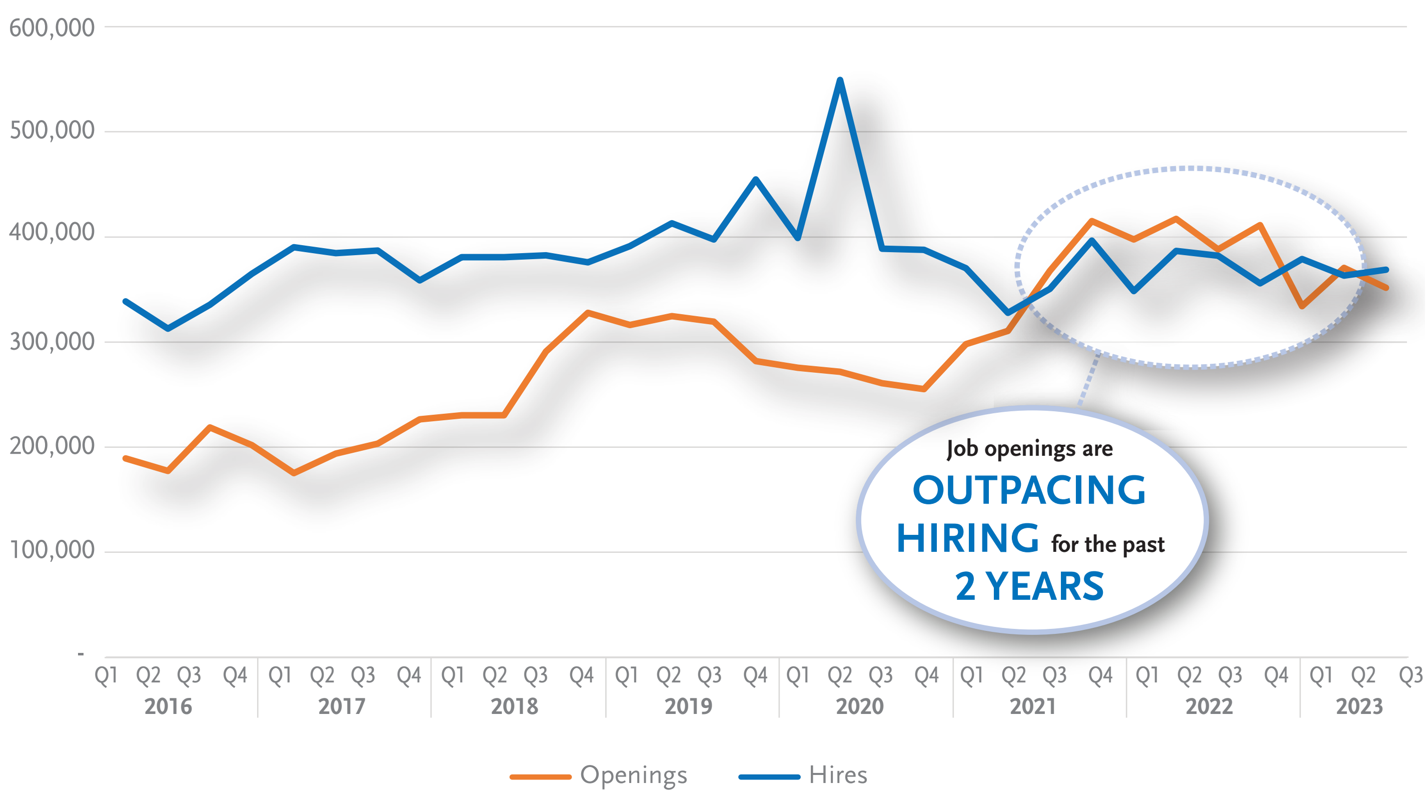
69% of contractors expect to have **additional job opening** in the **next 12 months**

60%+ of contractors have **increase investment** in **online recruitment, and training and professional development**

Source: AGC (2023)

Figure 22

National Construction Job Openings versus Hiring



Source: Bureau of Labor Statistics, Job Openings and Labor Turnover Survey (2023)

Wages

Labor shortages and inflationary pressures continue to push up craftworker wages at rates not seen in decades. Both union and open-shop pay are on the rise, as employers fight to attract and retain workers to meet the high volume of demand. Wage increases are also driven by the cost of living resulting from inflation. Figure 24 shows the national average hourly rates by craftwork and the percentage change in hourly rates between 2022 and 2023.

In 2023, union labor settlements increased wages from 3.6% to 4.5%.[37] The current first-year settlements are on track to equal or surpass the high watermark of 4.6% set in 2008. This upward trend will continue as union settlements are almost always multi-year contracts, and the current increases lag behind demand. The highest wage increases appear to be on the West Coast according to statements from union contractor groups in ENR's 2023 Q3 Cost Report. The report speculates that federal investment demand for megaprojects over the next several years will drive wage increases to above 5% in 2024 and 2025.

Demand for megaprojects fueled by federal investment spending will drive wage increases above 5% in 2024 and 2025.

Figure 24

Hourly Rates by Craftworker

Craftworker	2023 U.S. Average	Annual % Change
CEMENT MASONS	$29.54	4.36%
ELECTRICIANS	$29.54	4.49%
EQUIPMENT OPERATORS	$33.90	4.30%
LABORERS	$22.81	4.43%
IRONWORKS	$31.84	3.98%

Source: ENR Q3 Cost Report (2023)


IW
416
W65

4. What trends are emerging in bid prices?

The escalation of bid prices has many negative consequences for owners and contractors. For owners, the escalation of bid prices is making it more expensive to build new projects and repair and maintain existing infrastructure. This could lead to a slowdown in construction activity, as owners may delay, descope, or cancel projects due to the high cost.

For contractors, the escalation of bid prices is making it more difficult to make a profit on projects. This is because contractors are often locked into a fixed-price contract, which means that they cannot pass on the higher costs of materials and labor. This could lead to financial losses for contractors, some contractors going out of business, and contractors increasing future bids to guard against these types of losses.

Cost Indices

The construction industry uses several cost indices to measure inflation in the construction market, or, more simply, the change in cost over time. The year-over-year changes in these cost indices are used to estimate escalation.

In construction, escalation is commonly used in cost estimates to represent anticipated future changes in construction costs. This report looks at the ENR Construction Cost Index (ENR CCI), calculated based on material and labor components and a 20-city national average. ENR's cost indices are highly respected and used by California's Department of General Services to develop the California Construction Cost Index (CA CCI).

Figure 25 compares inflation within construction by using the ENR CCI, CA CCI, and the Consumer Price Index. This compares inflation between the typical basket of consumer goods and construction. The chart reveals that construction inflation is higher than the national average. In California, the indices show that items are generally more expensive than the national average. Another data point from the chart is that construction costs in California have ranged between 10% and 25% higher than the national average since May 2021.

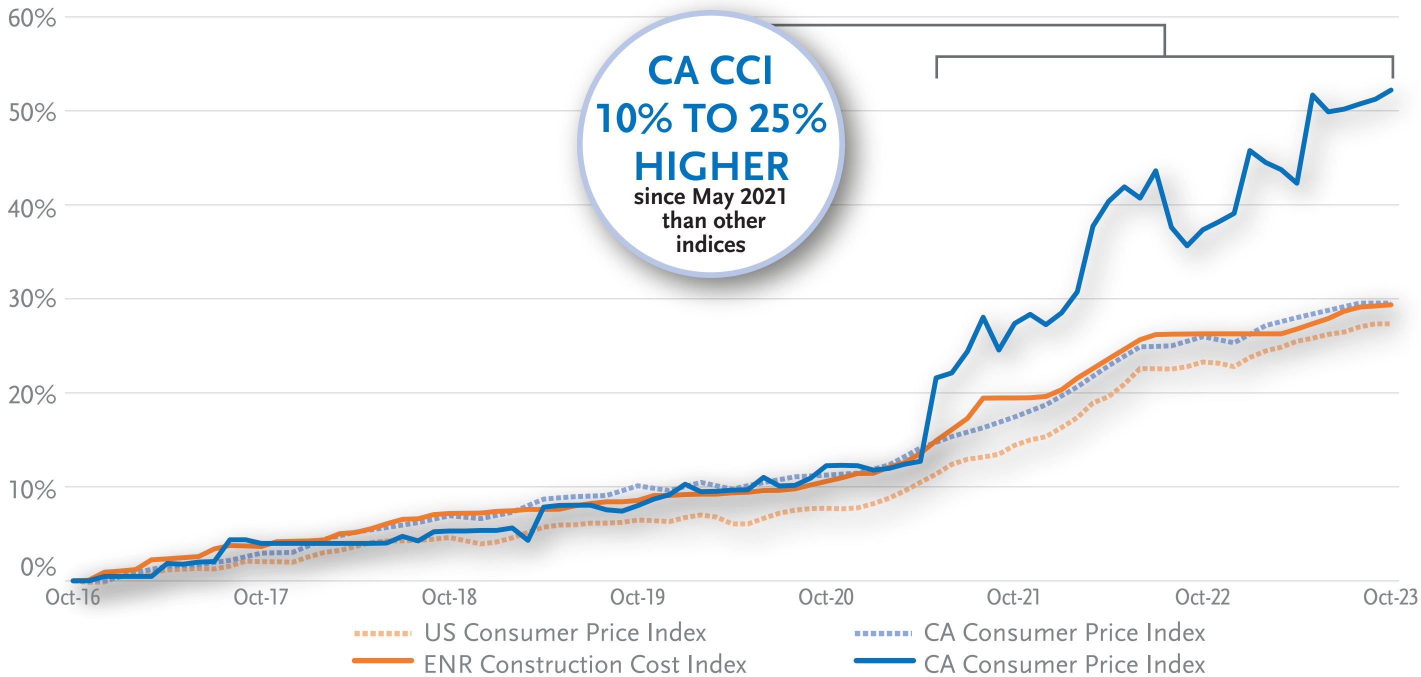
Bid Prices

Increasing construction costs from inflation have caused two periods in the last two years in which construction costs exceeded bid pricing. The first occurrence was in the summer of 2021 and resulted in several spikes in bid prices. Construction costs continued to increase with bid pricing spikes going into 2022. Costs exceeded bid prices again in February 2022, resulting in significant spikes in bid prices over the next several months. In tandem with the leveling of materials prices in 2023, bid prices have also flattened and are dropping slightly (Figure 26).

The escalation of bid prices is having negative consequences. For owners, the escalation of bid prices is making it more expensive to build projects. For contractors, the escalation of bid prices is making it more difficult to make a profit on projects.

Figure 25

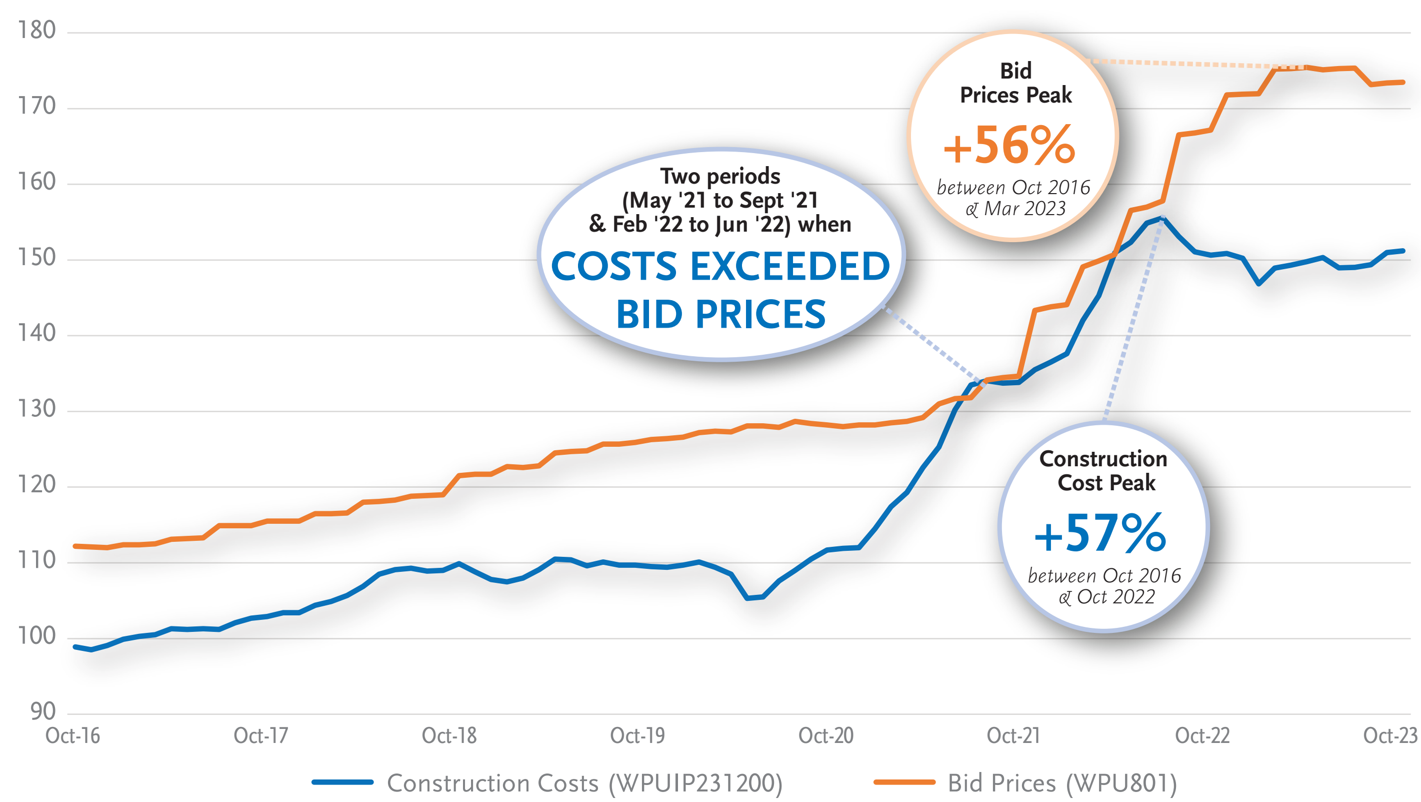
National & California Cumulative Increase in Consumer versus Construction Market Inflation



Source: BLS 2023, ENR 2023

Figure 26

National Construction Costs versus Bid Pricing



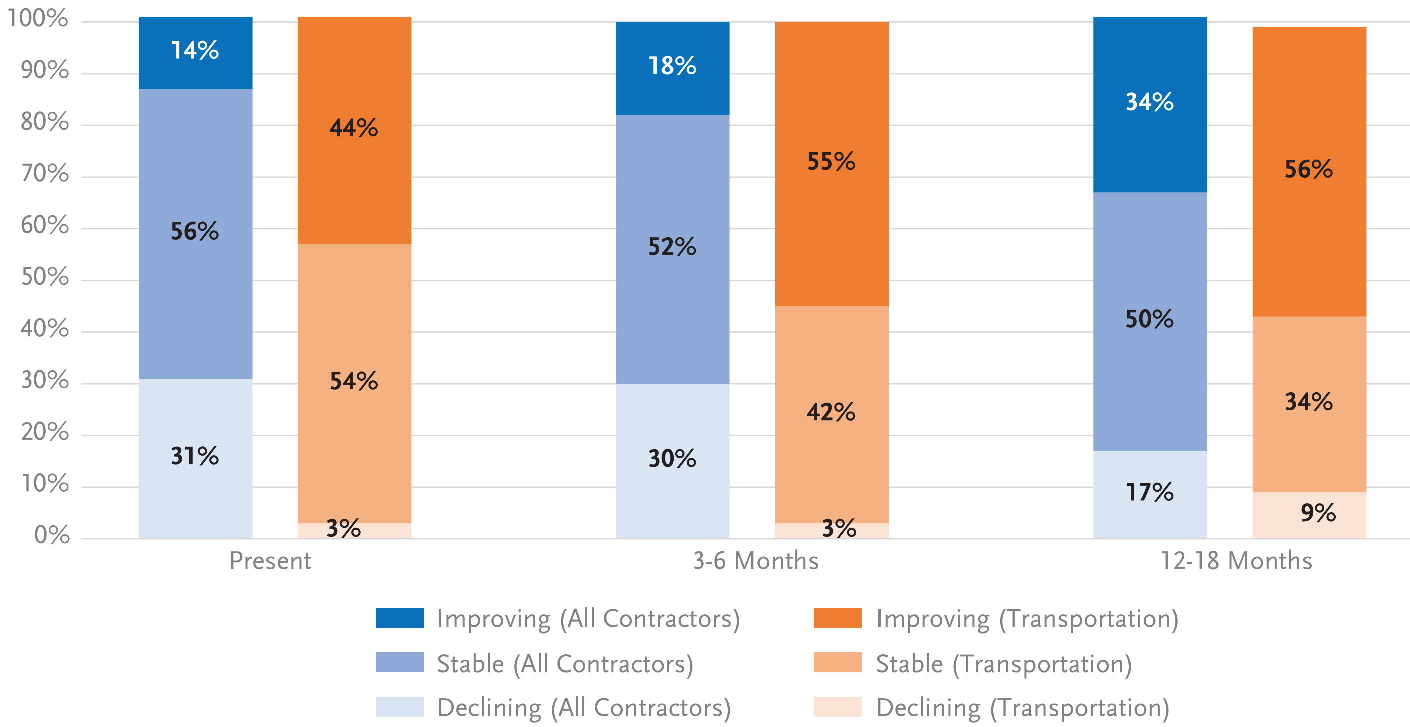
Source: BLS 2023

5. How are contractors responding to market conditions?

Confidence in the current construction market is growing among contractors per ENR's 2023 Q3 Cost Report Survey. Contractors generally responded with more positivity, especially in the short-to-medium term. Of our survey respondents, 70% of contractors anticipate a stable or improving market 3 to 6 months from now (10% increase from 2023 Q2). Looking ahead 12 to 18 months from now, 83% of contractors see either a stable or improving market (an increase of 16% from 2023 Q2). Transportation contractors are by far the industry's most optimistic, as shown in Figure 27. In the AGC 2023 Outlook Survey, transportation and bridge/highway were the top 2 of 18 construction sectors, with the highest optimism for the increased value of construction work in the coming years.[38]

Figure 27

2023 Q3 ENR Construction Industry Confidence Index Survey - How do you think the overall construction market is performing currently and will perform in the next 3 to 6 months and 12 to 18 months?



Source: ENR 2023

CHAPTER 4

The Construction Environment: An Inside View

KEY QUESTIONS WE AIM TO ADDRESS

1. Why conduct contractor surveys?
2. What was the process for conducting surveys?
3. What were some of the common themes in the contractor responses?
4. How did the results compare to the previous Construction Market Analysis contractor interviews in 2018?


MUSEUM

1. Why conduct contractor surveys?

Contractors are key Metro partners and critical to the success of building out the transportation system as outlined in Measure R and M. To meet the mandate set by Los Angeles County voters, Metro must efficiently deliver projects of all sizes, maximizing the value of taxpayer dollars. Metro benefits from the open and candid feedback received from the contractor community, as it helps in foster effective partnerships and ensures the timely and budget-conscious delivery of high-quality projects.

By surveying contractors for feedback and thoughtfully responding to the information provided, Metro can gain valuable insights, improve delivery performance in the future, and build stronger relationships with contractors. This can lead to a competitive advantage in the marketplace and better outcomes for future projects.

The status of the marketplace often dictates beneficial modifications in delivery methods, revisions to contract terms and conditions, and efficiency in processes. An owner's adaptiveness to the market, and willingness to consider these modifications, is considered by contractors when they evaluate their "go/no-go" decisions on prospective projects. Owners perceived positively in the market will obtain more bids on their projects, with possible cost benefits due to the increased competition.

Benefits of the Contractor Surveys

Engaging contractors in surveys to gather insights on the latest construction market trends and soliciting their feedback yields several advantages, including:

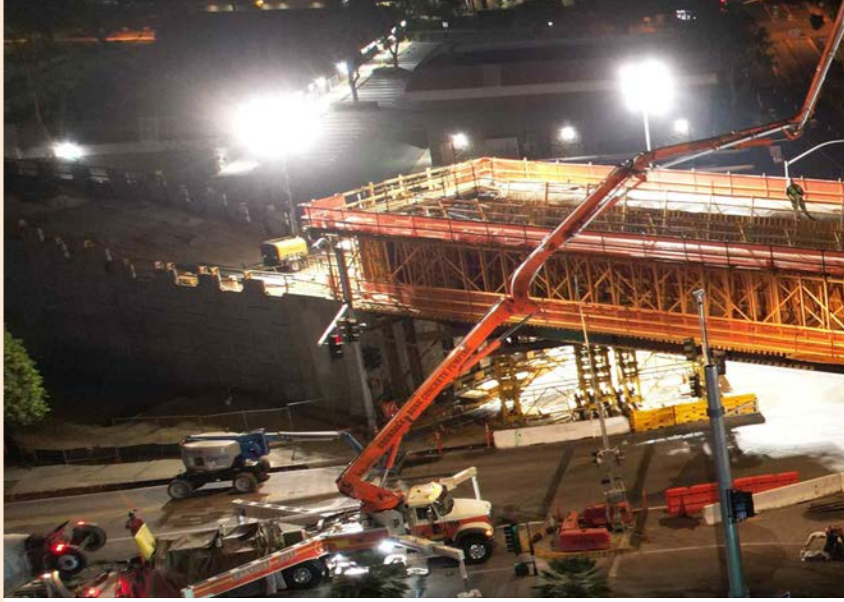
> **Obtaining valuable input on Metro's performance and identifying potential areas for enhancement.** Contractors have a unique perspective on the construction process and can provide valuable insight into how Metro can improve business and delivery for all parties involved. For example, contractors may be able to suggest ways to improve the owner's communication style, delivery strategy, decision-making process, or project management skills.

> **Awareness of the latest industry trends and best practices.** The construction industry is constantly evolving, and contractors are often at the forefront of new technologies and techniques. Metro can learn about the latest best practices by surveying contractors and identifying opportunities to improve delivery strategies and construction management.

> **Build stronger relationships with contractors.** By listening, demonstrating interest in feedback and ideas for improvement, and providing thoughtful responses to suggested changes, contractors are more likely to view Metro as a good partner and owner of choice. This can lead to better communication, collaboration, and outcomes on future projects. Owners who are committed to being better owners are more likely to attract top contractors and receive more competition.

2. What was the process for conducting surveys and interviews?

The survey and interviews are meant to collect input from a broad spectrum of contractors, varying in revenue and employee size, and varying in their history with Metro, capturing feedback from contractors who have worked or are working with Metro, contractors who are trying to do work with Metro, and contractors who are not interested in working with Metro at this time. To do this, Metro conducted two types of anonymous surveys: an online survey and one-on-one interviews via a third party.



AGC Membership Online Survey

For the survey, Metro worked with AGC of California to distribute an online survey to its membership to obtain input on general construction market conditions and improvements an owner could make to address items of concern. The survey consisted of multiple choice, yes/no, and open-ended questions. Questions focused on employment conditions, escalation, Small Business Enterprise (SBE)/Disadvantaged Business Enterprise (DBE) utilization, and recommended improvements an owner could make to address the conditions anticipated for the next 5 to 10 years. The questions were similar to those used during the AGC survey conducted for the 2018 Construction Market Analysis. The results of the 2023 survey are presented later in this chapter.

One-on-One Interviews

For the one-on-one interviews, contractors participated anonymously. The list of contacted contractors consisted of Metro's top 20 prime contractors and top 10 subcontractors based on contract value for the last five years, Metro's top five small business prime contractors, and ENR's top 40 transportation contractors. While some contractors declined to participate, most of the contractors who were contacted participated in the one-on-one interviews and even engaged their top executives to provide feedback.

Although the interviews were a dialogue, a set of questions was used to facilitate the conversation, compare responses between contractors, and identify changes in responses from the 2018 contractor one-on-one interviews. The questions touched on current and future market conditions, bid pricing/escalation, SBE/DBE utilization, labor supply, delivery method preference, and general comments. The questions were intended to spark conversation and solicit ideas on specific items or issues that could be addressed to improve bidder participation, result in better bid prices, and develop better working relationships between Metro and the contractors.

In addition, some questions were specific to contractors not currently working with or have not previously worked with Metro or in the Los Angeles market.

One-on-One Interview and Survey Results

WHO WAS INCLUDED?

77%
Prime Contractors

18%
SubContractors

5%
Other

Bidding Conditions

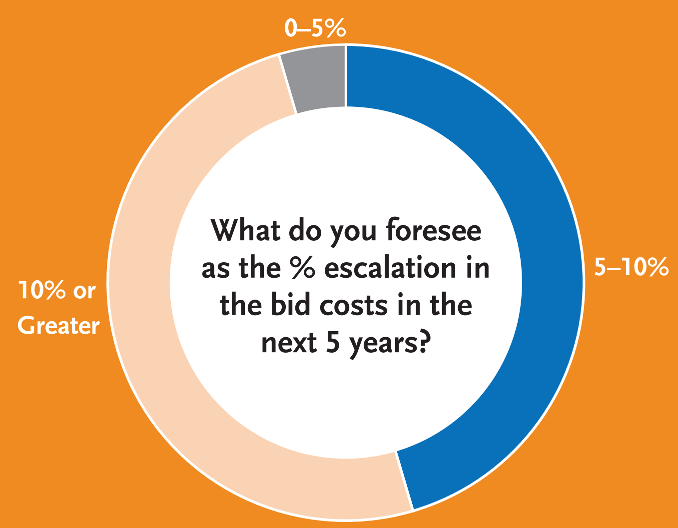
What factors do you see currently affecting bidding conditions and pricing? Do you foresee future issues affecting the market (up or down) in the next 5 years?

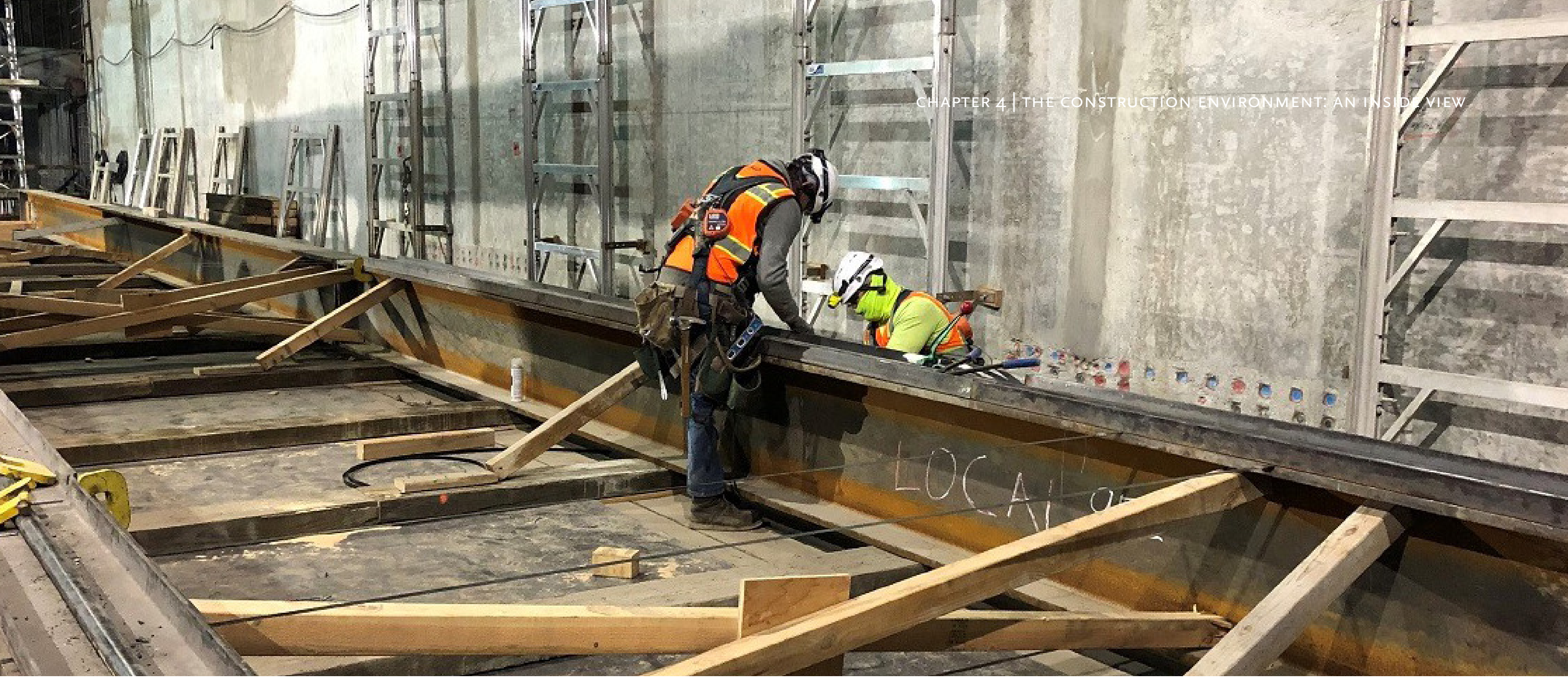
" Lack of fundings, shortage of subcontractors, shortage of supplied materials (i.e., concrete) and unfunded projects. These factors will get worse in next 5 years."

" Inflation, skilled employee shortages, labor compliance, global instability, regulatory compliance. All trending toward increased costs."

" Price of fuel, DBE requirements and availability, inflation, lack of escalation protection in contract for long duration projects. These items will continue to impact the market, driving pricing up."

" Bidding conditions will be in an unfortunate place, costs will continue to rise and there will be less work to bid = lower margins. Future issues will impact the market down for the next 2 years; after that it will depend on who is in the White House in 2025."





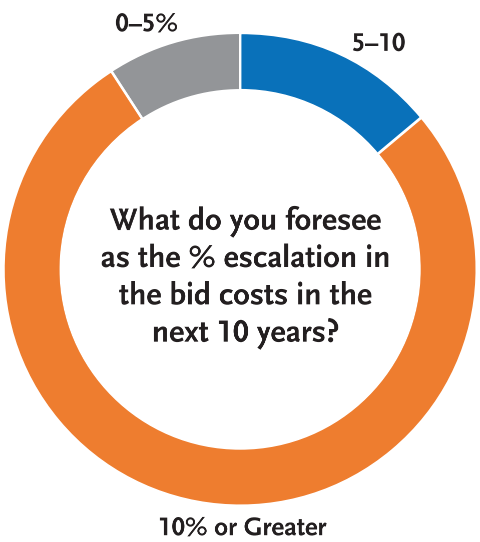
What actions would you recommend that owners take to positively affect bidding conditions and pricing?

" Provide for cost indexing based on the award period. Incentivize owner consultants to get to timely completion and fewest disputes."

" Reduce the DBE/SBE requirements to realistic numbers, create a mechanism to index material pricing."

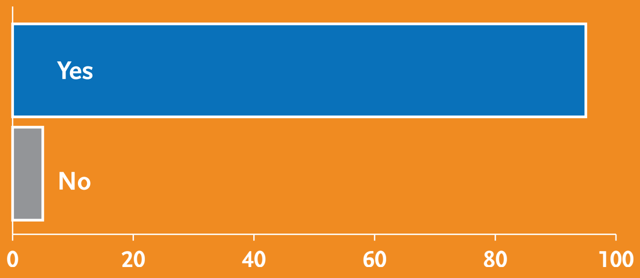
" Have allowances to cover fuel and material escalation. Make contract language such that changes or claims are not difficult to resolve, and that the contractor does not have to absorb the financial burden and go through a lengthy process to find resolution."

" Provide for escalation protection. Set DBE goals that are achievable without having to add significant premiums to the bid price."



DBE/SBE Utilization

Are you experiencing any issues with meeting DBE/SBE utilization requirements? If YES, what specific issues?

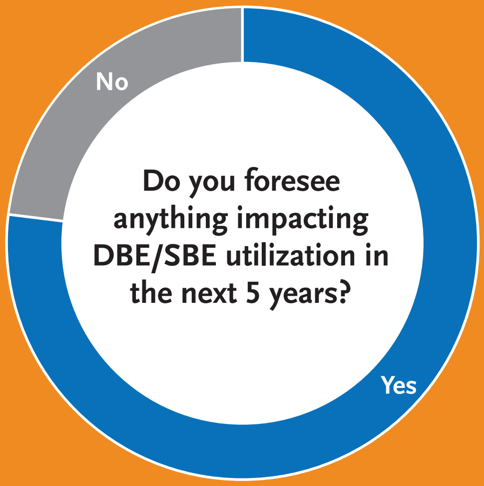


" Most DBEs can only perform small scopes. It is difficult to accumulate enough participation from DBEs on larger projects to meet the goals. Goals should be reduced, not increased."

" We have been able to meet minority goals. Some agencies though, set unrealistic targets that are extremely difficult to meet."

" Not enough firms that meet commercial use function requirements. Agency certifying firms are unqualified."

" Finding qualified contractors, resource constraints, financial stability, goals not lining up with scope of work."



Labor Market

What specific issues do you foresee in the next 5 years with the labor market?

" With the number of forecasted projects and the limited number of people joining the workforce, we are paying over scale wages to retain a competent workforce."

" More labor pool retiring than are entering the industry."

" Continued pressure on trade labor to build all of the work available."

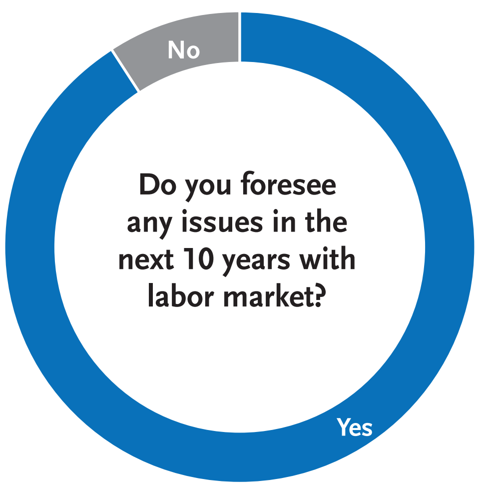
" Project labor agreements and local hire restrictions actually limit how we can recruit employees and generate interest in the industry long term."

Do you foresee any issues in the next 10 years with the labor market? If YES, what specific issues?

" Lack of labor will become the bottleneck for delivering projects. Projects will take longer to deliver, increasing risk to the contractors and owners."

" Schools/colleges have discontinued trade/skilled education programs (blue collar jobs, manufacturing, shop, etc.) in favor of STEM programs."

" If we don't start now recruiting, training, and developing the next generation of construction workers, there will not be enough workers."



" It is anticipated that it will be a challenge to acquire qualified labor resources for all types of work and for DBE/SBE scopes of work, to perform our work safely and with quality. This is due primarily to the volume of construction work in California and in Southern California, which reduces the available qualified labor for all projects."

STEM = science, technology, engineering, and math

Project Delivery

What general recommendations would you make to an owner to improve project delivery?

" Create incentives for all parties to expedite and speed up project delivery. "

" Focus on streamlining processes (procurement, controls, operations, etc.) within Metro, in order to expedite the start and finish of projects, as well as improving the efficiency of the system during projects. Notable areas are submittal review periods, utility coordination, coordination with the City of Los Angeles, contract change management, and processing payments to the contractor."

" Have interagency buy-in before putting an RFP on the street. Too many times, the various stakeholders do not agree on the design, which causes delays and additional costs during construction."

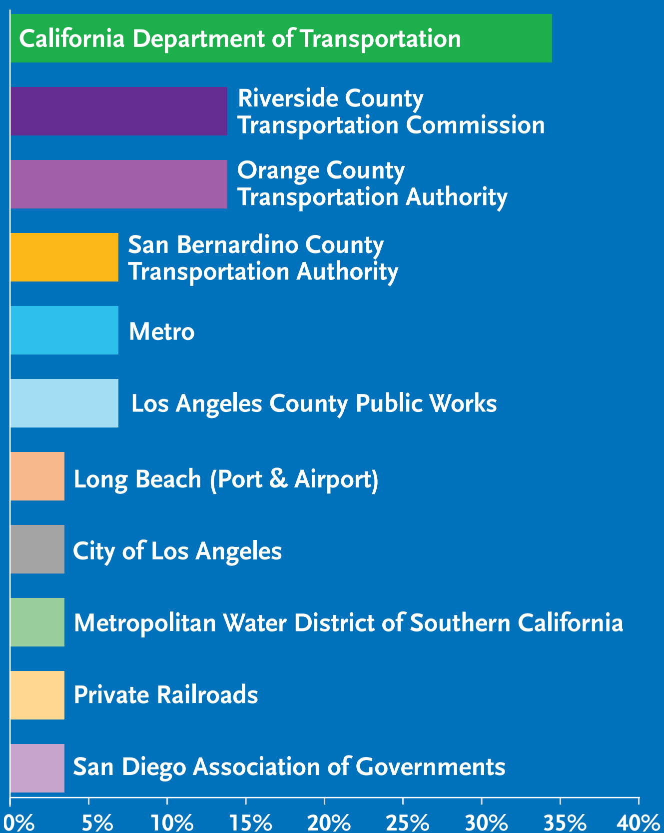
" Take a balanced approach to the project. The contractor, subcontractors, and suppliers need to be profitable to continue to provide services; when an "us/them" mentality is in place the partnership is in jeopardy and no one wins."

Lack of labor will become the bottleneck for delivering projects. Projects will take longer to deliver, increasing risk to the contractors and owners. What is your preferred delivery method(s)?

1. CM/GC
2. Design-Build
3. Design-Bid-Build
4. Public-Private-Partnership (P3)
5. CM at Risk

Owner of Choice

Of all the agencies in Los Angeles, Orange, Riverside, and San Bernardino Counties, which do you prefer to work for and why?



"Orange County. They do not have various internal departments/agencies who hinder the approval process. They employ progressive design-build, limiting risk to contractors and allowing the agency to have greater input in the design. They act in true partnership with their contractors."

"Caltrans, Riverside County. These agencies don't have unreasonable spec or submittal requirements. They are consistent from project to project, and don't push all changes to claims at the end of the project."

"Los Angeles and San Bernardino because that is where a lot of our labor comes from. Also, a lot of projects in these areas go union. We are a signatory to many unions: 11, 12, 300. The labor is also better in these regions."

"Port of Long Beach, Long Beach Airport, Los Angeles County Department of Public Works—they treat contractors fairly."

If there was one thing you could change in Metro to make it the preferred agency to work for, what would that be?

"Consistency in specifications and organization. It is suggested that Metro develop a "Metro" specification that is consistent on all projects. Additionally (similar to Caltrans), we would suggest providing a "Special Provision" with each project to modify the main "Metro" specification, which is utilized to customize the needs for each individual project."

"Reduce the amount of administrative requirements for payment, submittals, change orders, claims, etc."

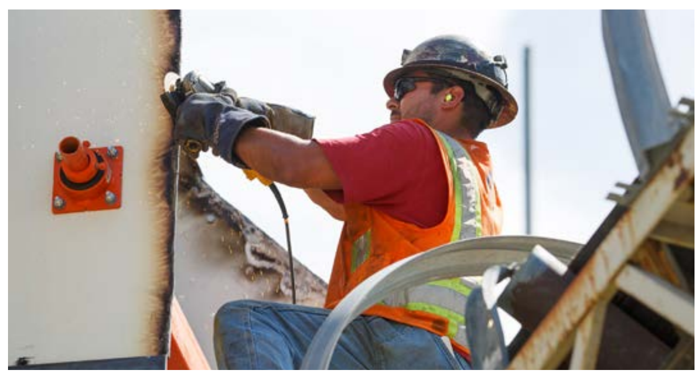
"Improve the tendering process by reducing the submissions required on bid day. Provide more timely payments."

3. What were some of the common themes in the contractor responses?

Based on the responses from the contractor surveys, several common themes emerged. The themes generally focused on areas of improvement for Metro, such as contract terms and conditions, delivery methods, and procurement. Other themes suggested challenges with labor resources and DBE/SBE goals. Several themes also identified areas where Metro is doing well compared to other owners. The following provides details regarding the common themes that emerged in the interviews.

Theme 1: Contractors Prefer Alternative Delivery Methods

The contracting community applauds Metro for moving toward and adapting various alternative delivery methods to improve project delivery. The interviews revealed that contractors prefer alternative delivery methods, such as construction manager/general contractor (CM/GC) or progressive design-build (PDB) on public infrastructure projects. The main reason contractors like alternative delivery methods for public infrastructure is that the risk allocation can be appropriately shared. Public infrastructure megaprojects are inherently complex and risky, with multiple stakeholders, right-of-way challenges, and third-party utilities. However, contractors continue to pursue work across various delivery methods and bid on more traditional delivery methods depending on the risk and owner.



Theme 2: Metro Excels at Engaging the Construction Industry

Contractors recognized Metro's efforts at communicating with the contracting community. Specifically, contractors applauded Metro's Meet the Prime events and viewed these events to be more efficient for primes and sub consultants when compared to events for subconsultants hosted by primes. The contracting community also appreciates Metro's efforts to communicate upcoming opportunities through the Vendor Portal and AGC collaboration. Contractors also complimented Metro for hiring recognized industry talent, which helps improve Metro's reputation as an owner.

Theme 3: Some Large Contractors Have Exited the Market

Due to their constrained resources and an abundance of bid opportunities, contractors are making business decisions not to pursue large, complex, public projects, including Metro's projects. Reasons include significant unshared risk exposure, contract terms and conditions, and contract delivery method. While Metro's efforts to move toward collaborative delivery are acknowledged, contractors emphasized the need for additional considerations to contract terms and conditions related to inflation risk, insurance limits of liability, indemnification, and third-party stakeholders. Contractors expressed an ongoing desire to engage with Metro in providing feedback to address these industry challenges, and some contractors shared that increasing bonding company involvement contributed to these business decisions.

Theme 4: Challenges with Metro's Long and Extended Procurement Times

A theme heard repeatedly from contractors is the burden placed on contractors, key personnel, and subcontractors by long and extended Metro procurement timelines. With the current high demand and low capacity in the marketplace, contractors encourage Metro to select bid winners within a reasonable timeframe. With some contracts imposing liquated damages on substitutions of key staff, Metro's long procurement times make it challenging to retain proposed personnel and subcontractors and make go/no-go decisions on other projects.

Contractors strongly prefer more collaborative delivery methods like CM/GC and PDB.

Theme 5: Metro's DBE/SBE Goals Do Not Seem to Align with Market Conditions and the Project Scope of Work

Contractors expressed concern about the increasing DBE and SBE goals over the past few years. The large volume of work and number of complex megaprojects across the region is putting significant stress on resources. Many contractors believe policymakers are setting requirements that are not aligned with the market conditions and are unfamiliar with the limited availability of technically qualified resources to deliver Metro projects.

Theme 6: Resolving Change Orders is Complex

Several contractors currently working with Metro have concerns with the process for resolving change orders and claims. The contractor interviews revealed too many layers of escalation among those at Metro who do not have the authority to resolve issues, and each level of escalation added time to the resolution. Another issue contractors brought up in the interviews was that when a change order or claim resolution takes an extended period, Metro contracts require payments to subcontractors, regardless of whether Metro has paid the prime contractors, which creates cash flow challenges for the prime contractors. In addition, a contractual lack of allowed markups for primes on subcontractor work translates to a loss of recovery when subcontractors are involved in change orders.

4. How did the results compare to the 2018 contractor survey results?

The contractor surveys for the 2023 Construction Market Analysis provide an opportunity to compare the contractor views offered in the 2018 Construction Market Analysis, the last time contractors were surveyed. The results can show trends and changes in perspectives regarding bidding conditions, DBE/SBE utilization, and the labor market.

The following are observations and trends identified from comparing the results from the 2018 and 2023 Construction Market Analysis contractor survey of AGC of California members:

Bidding Conditions

> 14% increase in the number of contractors who foresee the escalation in bid costs increasing by more than 10% in the next five years.

> 21% increase in the number of contractors who foresee the escalation in bid costs increasing by more than 10% in the next ten years.

DBE/SBE Utilization

> 20% increase in contractors currently experiencing issues in meeting DBE/SBE utilization requirements. Figure 28 shows a timeline of Metro's annual DBE goal and contractor DBE attainment by year between 2018 and 2023 overlaid with the change in the percentage of contractors experiencing issues in meeting DBE utilization requirements based on responses from the 2018 Construction Market Analysis and 2023 Construction Market Analysis.

> No substantial change (less than 3% difference) in response to 5-year DBE/SBE utilization, with the majority continuing to foresee declining utilization.

> No substantial change (less than 3% difference) in response to whether there will be local, available resources to achieve DBE/SBE utilization requirements, with the majority continuing to foresee a lack of local, available DBE/SBE resources.

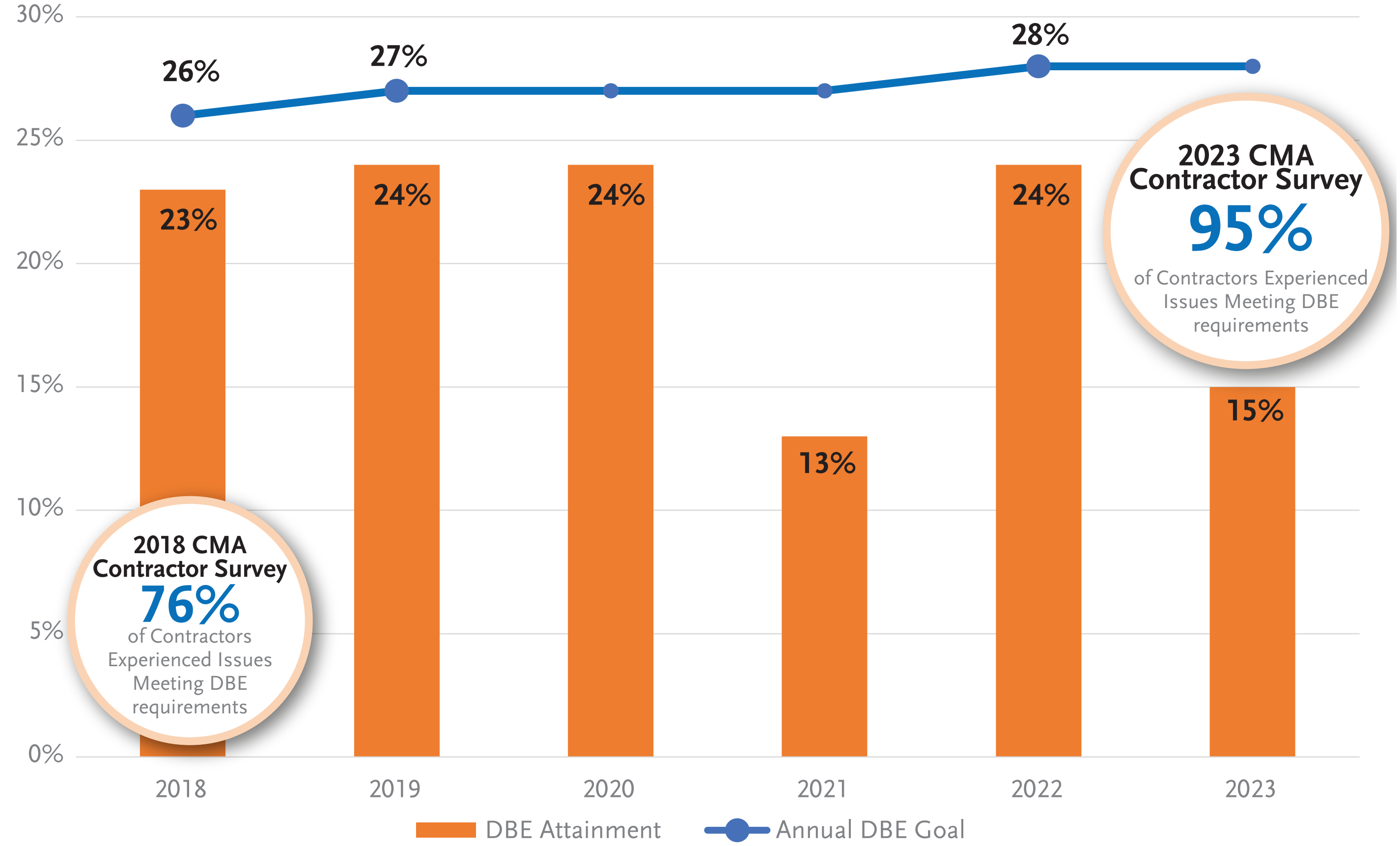
Labor Market

> No substantial change (less than 3% difference) in response to the ability of the local labor market to support the current workload, with the majority continuing to experience issues with finding available labor in the local market.

> 8% increase in contractors who foresee challenges in the local labor market to support upcoming construction projects in the next ten years.

Figure 28

DBE Attainment versus DBE Goal



Source: Metro

CHAPTER 5

Metro's Response to Market Conditions

KEY QUESTIONS WE AIM TO ADDRESS

1. How has Metro performed?
2. Why are Metro project costs increasing?
3. What is Metro doing to improve?

1. How has Metro performed?

Due to market pressures affecting project delivery and Metro's extensive construction program totaling approximately $13 billion, Metro continuously monitors potential scope, schedule, and budget changes to its capital portfolio. Metro continually evolves its program management approach to adapt to changing economic conditions, contractor market conditions, and staff shortages to deliver one of the nation's most ambitious capital programs. The following outlines critical drivers and initiatives related to Metro's actions to market conditions and being an owner of choice.

Metro's Annual Program Grows Every Year

The Annual Program Evaluation (APE) initiative comprehensively evaluates capital projects in the Program Management Department. Given the challenges of managing a multi-billion-dollar capital program, a comprehensive annual review of the risks associated with the program's cost and schedules is presented to the Metro Board of Directors each year. The APE focuses on only those capital projects managed by Program Management with a total project cost greater than $5 million. Since the passage of Measure M, the dollar size of the APE has more than doubled, as shown in Figure 29.

Since the passage of Measure M in 2016, the dollar amount of Metro's Program Management portfolio of projects has grown by nearly 140%.

METRO'S PROGRAM MANAGEMENT PORTFOLIO

10 MEGAPROJECTS
($100M+ *in size)*
in construction

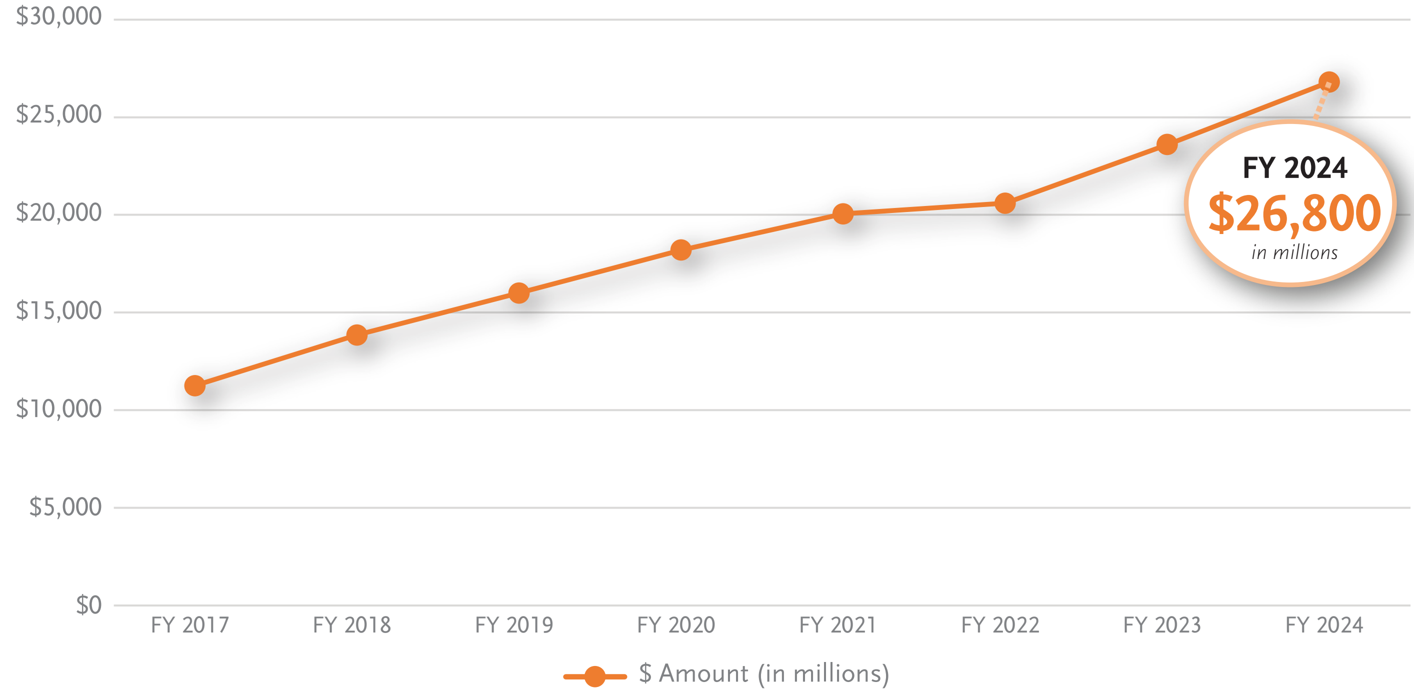
70+
active projects

$27B
project costs

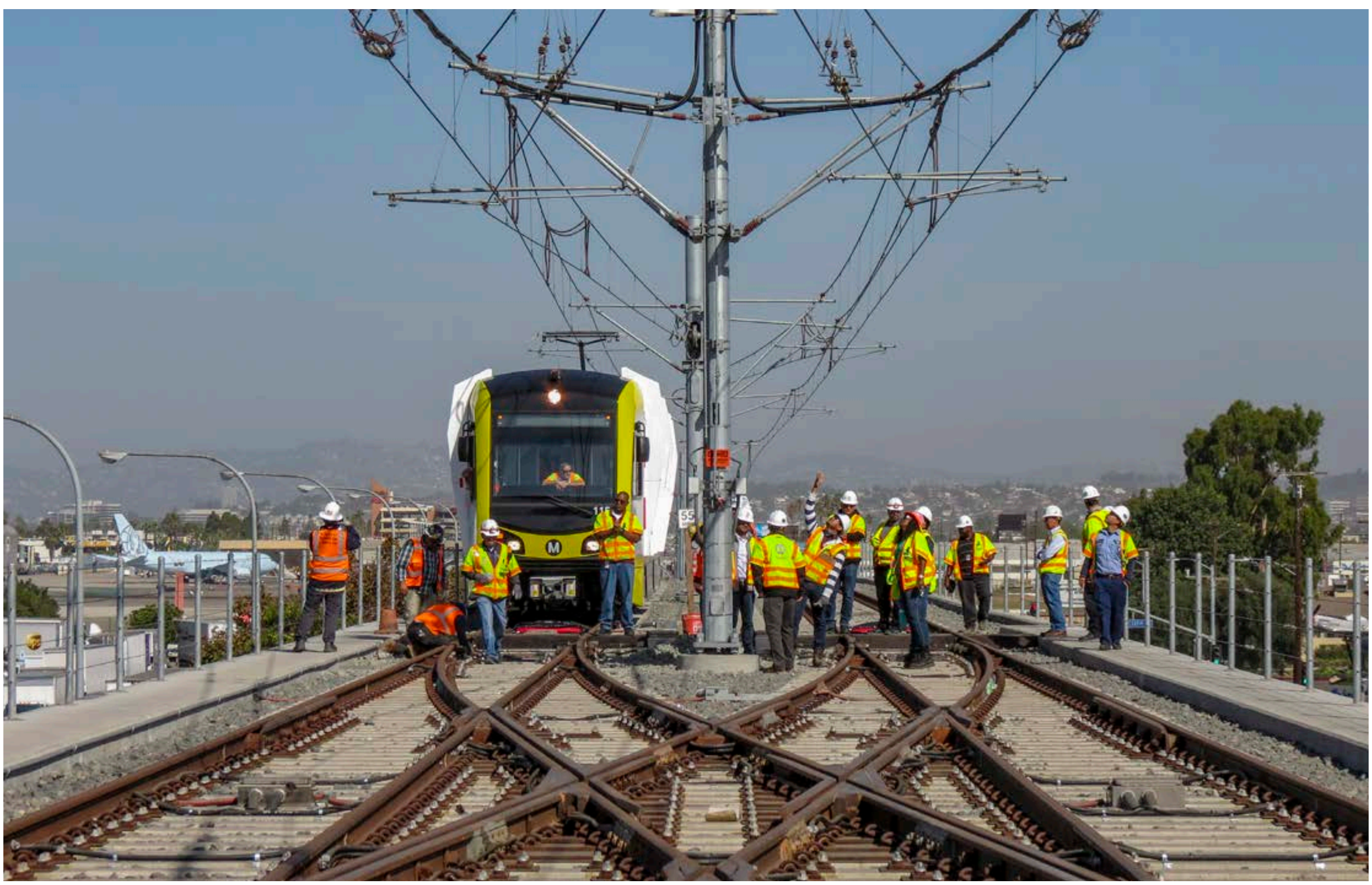
Source: Metro FY24 Annual Program Evaluation

Figure 29

Size of Metro's Program Management Portfolio



Source: Metro (2017-2023)



Bid Pricing

Many factors influence the number of bidders and bid pricing on Metro projects, such as the type of project, delivery method, and contractor awareness of projects before of their advertisement. As a result, analyzing the bidding environment for Metro projects is subjective but may reveal potential trends for Metro to be aware of as the agency continues to bid out projects. In reviewing low bids and Metro's independent cost estimate (ICE) of projects of $10 million or more, the following observations were made:

SINCE 2019

> Average of 3.1 bidders per project

> Average bid amounts are typically 14% higher than Metro's ICE

SINCE 2022

> Average of 2.8 bidders per project

> Average bids are trending 25% higher than the Metro ICE

The trends in the number of bidders and average bid amounts suggest Metro needs to attract more bidders (ideally a minimum of four to five bidders) to bring the average bid prices closer to Metro's ICE (ideally within 10% of the ICE). The considerable uptick in the average bid amounts over the Metro ICE suggests Metro is not immune to many of the factors affecting the construction market such as labor shortages and spikes in material prices.

Metro's Staff Shortage

Metro has experienced staffing shortages in this hot labor market, but the agency has also prioritized efforts to remedy these gaps. Metro continues to prioritize staffing office workers, project staff, and other professional services employees to implement the vast scope of work Metro manages. Metro supplements its internal staff with consultants for capacity and specialized support. Metro also continues to evaluate and right-size consultant ratios to provide necessary and qualified resources to deliver Metro's program. Figure 30 shows the vacancy rates for Metro's non-contract full-time employees based on the *Measure M Five-Year Comprehensive Assessment and Equity Report*.

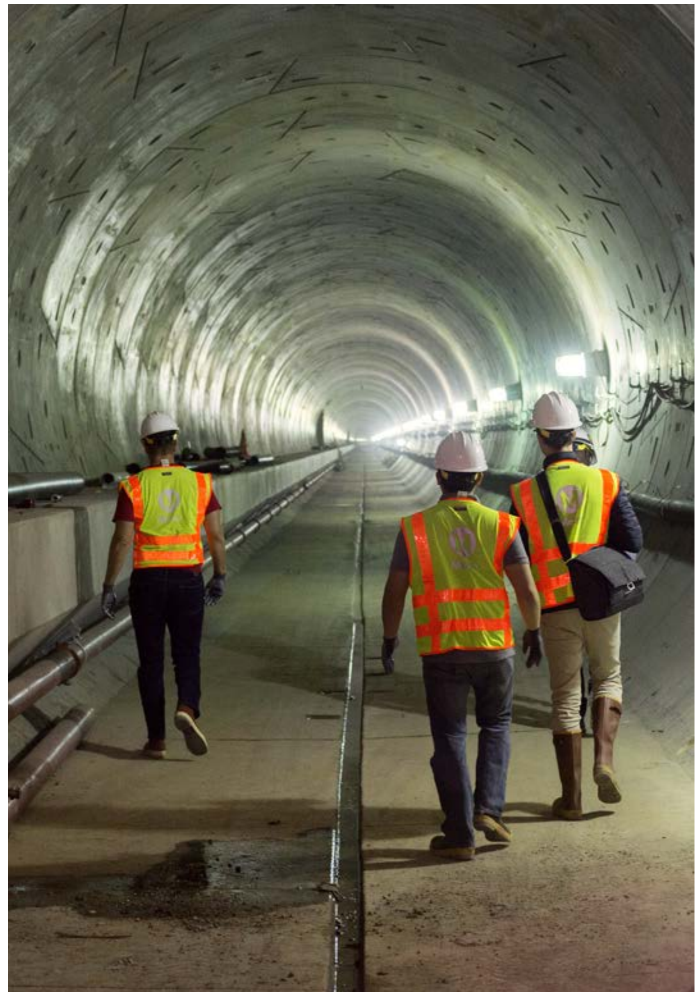
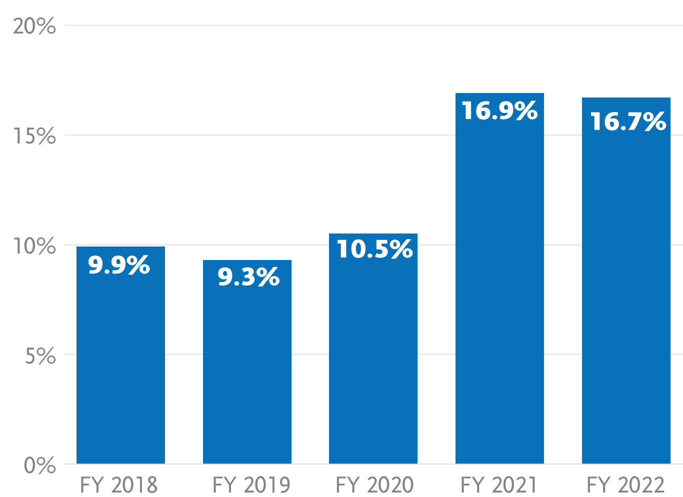


Figure 30

Metro Non-Contract Full-Time Employee Vacancy Rate



Source: Metro 2023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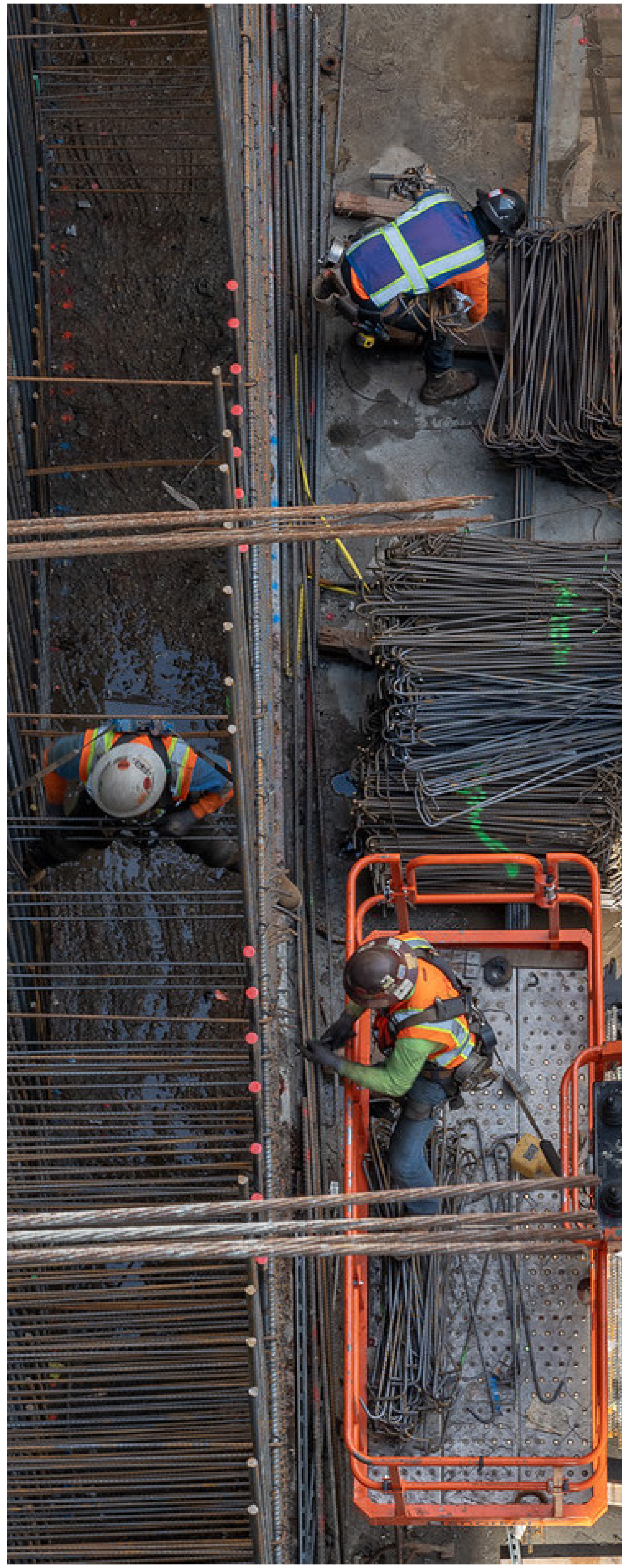
2. Why are Metro project costs increasing?

In addition to the economic conditions and state of the construction market described in the previous sections, transit projects, by their very nature, are highly complex undertakings. These projects are in the heart of the communities they serve, resulting in construction in dense urban settings that complicate construction and generate extensive third-party coordination needs. For these reasons, there has been a considerable increase in the costs of these projects.



Looking beyond some of the key cost drivers like material prices and the labor shortage, there are underlying reasons for transit projects being more and more expensive in recent years. Some of the reasons are summarized in Table 1.

Table 1

Cost Drivers Making Transit Projects More Expensive

COST DRIVER	DESCRIPTION
Environmental Ground Conditions and Cleanup	> Classifications of contaminated materials has become stricter, resulting in more soil that cannot be reused on a project and must be hauled away > Reduction in the number of nearby landfills that accept contaminated material
Third-Party Stakeholders	> Cost of reviews > Schedule of review process > Betterment requests
Communities	> Mitigating disruptions to businesses and residences > Restrictions on work hours > Construction moratoriums
Real Estate Costs	> Cost of real estate in most cities has outpaced general inflation > Time to acquire a critical property can be up to 18 months
Operation Requirements	> As rail systems expand, they become interconnected with the larger network, increasing the importance of reliability of the operation along with new systems needed to achieve that reliability > Results can be more interlockings (crossovers), sidings, and pocket tracks; more extensive signaling to accommodate shorter headways; reverse signaling; more robust power systems; larger maintenance facilities; additional elevators for redundancy; hardened rail; and more
Railroad Interfaces	> Existing rail corridors are often optimal locations for transit projects, but generate challenging coordination needs > Risk, capacity, and profitability to railroads result in stricter requirements for transit projects to share their alignment
Alignments	> Increased vehicular traffic congestion requires more expensive grade separations (aerial or tunnel) > Low-cost traffic engineering innovations with signal priority, lane and street closures, and parking prohibitions are often not allowed, resulting in more expensive, separated alignments
Regulatory Oversight	> Numerous levels of federal, state, and local oversight and regulations are involved to assure the integrity of the project and compliance with regulations > Administration of the regulatory process > Risk that regulators will not approve opening
Utilities	> Corridors are congested with underground and overhead utilities > The third-party utility must often do work > New and larger conduits or moving lines from overhead to underground > Old utilities not correctly marked on documentation

3. What is Metro doing to improve?

Metro is delivering the largest transportation infrastructure program in the country. The Program Management FY 2024 APE reported an FY 2024 program size of nearly $27 billion, a 13% increase from FY 2023. The program has been experiencing construction market pressures from labor shortages, material costs, and market risks. Metro has embarked on the following initiatives and actions to mitigate these risks and improve delivery.

Continuing to Implement Collaborative Alternative Delivery Strategies

Managing the delivery of megaprojects is extremely difficult. In the past, most megaprojects were awarded through low-bid design-bid-build or design-build contracts. Depending on the type and complexities of the projects, these delivery methods can be appropriate, but have a greater risk of cost overruns due to low-bid selections that may not account for the risk uncertainties and complexities of megaprojects. In addition, the pool of contractors willing to bid on these types of delivery methods is diminishing and even securing bonding is difficult, as is evident in the responses from the contractor surveys.

For these reasons, Metro has reassessed its delivery strategy. Several of its construction-ready projects were recently determined to be well suited for alternative delivery methods not previously used by Metro. This includes PDB for the G Line Improvements, East San Fernando Valley Transit Corridor, and CM/GC for the I-105 ExpressLanes.

Metro also made significant progress on the alternative delivery of several major projects: Sepulveda Transit Corridor Pre-Development Agreement, Southeast Gateway Line (formerly West Santa Ana Branch Transit Corridor) CM/GC for high-risk project components, and North Hollywood to Pasadena BRT CM/GC. Metro continues to evaluate the potential for using public-private partnerships as a project delivery method on projects when appropriate. Alternative delivery methods were chosen for these specific projects based on risk and complexity and feedback from the industry. The use of alternative delivery methods for these megaprojects is intended to:

> Improve execution

> Better control costs and reduce change orders

> Engage the builders for early input

> Establish more certainty at key decision points to support accurate establishment of project budgets

As an example of the benefits of collaborative delivery strategies, PDB is already providing cost containment benefits on the G Line Improvements Project. Early contractor input and collaboration on the project scope have flagged costs to be well outside available funding, leading to innovative strategies and scope refinements to bring the project within budget.

Early Intervention Team

The Early Intervention Team (EIT) established a cross-functional team in July 2022. The overarching objectives of the EIT initiative include the following:

> Improving the successful delivery of the capital program, with a focus on cost and schedule containment strategies and clear, shared interdepartmental objectives.

> Considering and complementing existing agency programs.

Key actions undertaken to date by the EIT include the following:

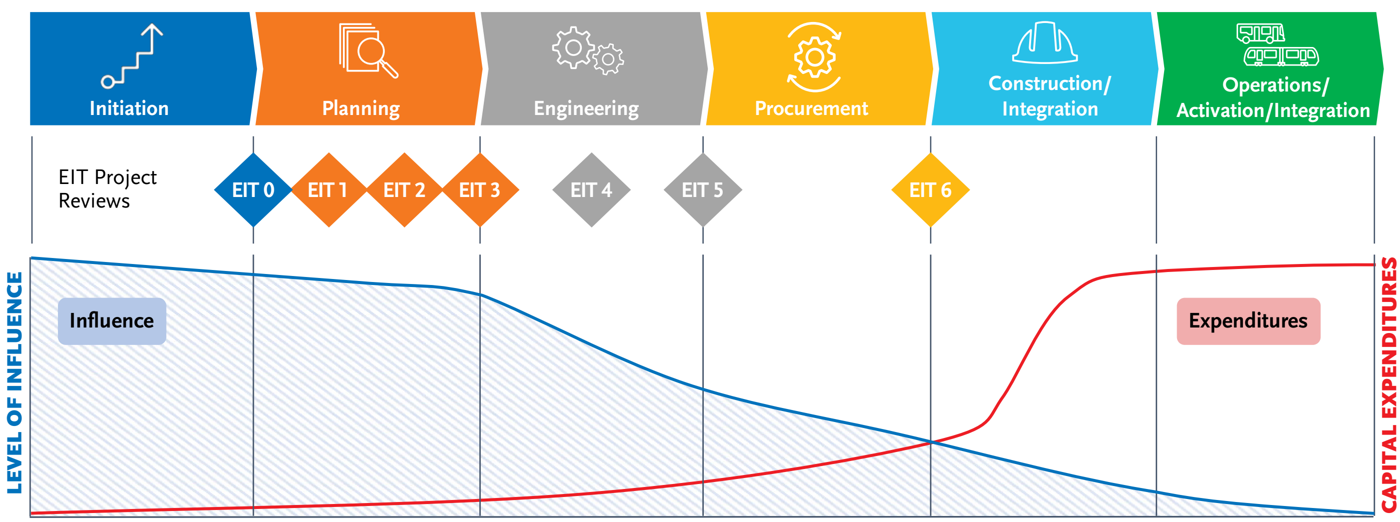
> Assess primary cost drivers and corresponding mitigation actions that must be considered for successful project delivery, including decision points related to funding strategies and delivery models.

> Update project cost estimates, considering significant external market drivers, for use as the basis for future metrics to evaluate the success and progress of agency cost-control efforts.

> Conduct project-focused reviews to align EIT interventions and discussions more quickly with immediate and long-term project needs. Figure 31 identifies the intervention points for EIT Project Reviews that span the project life cycle and are concentrated in the early project phases where there is a greater ability to influence the project outcomes. Figure 32 highlights the intended outcomes for each EIT Project Review by delivery phase.

Figure 31

Project Influence Curve with EIT Project Review Timing



Source: Metro

Figure 32

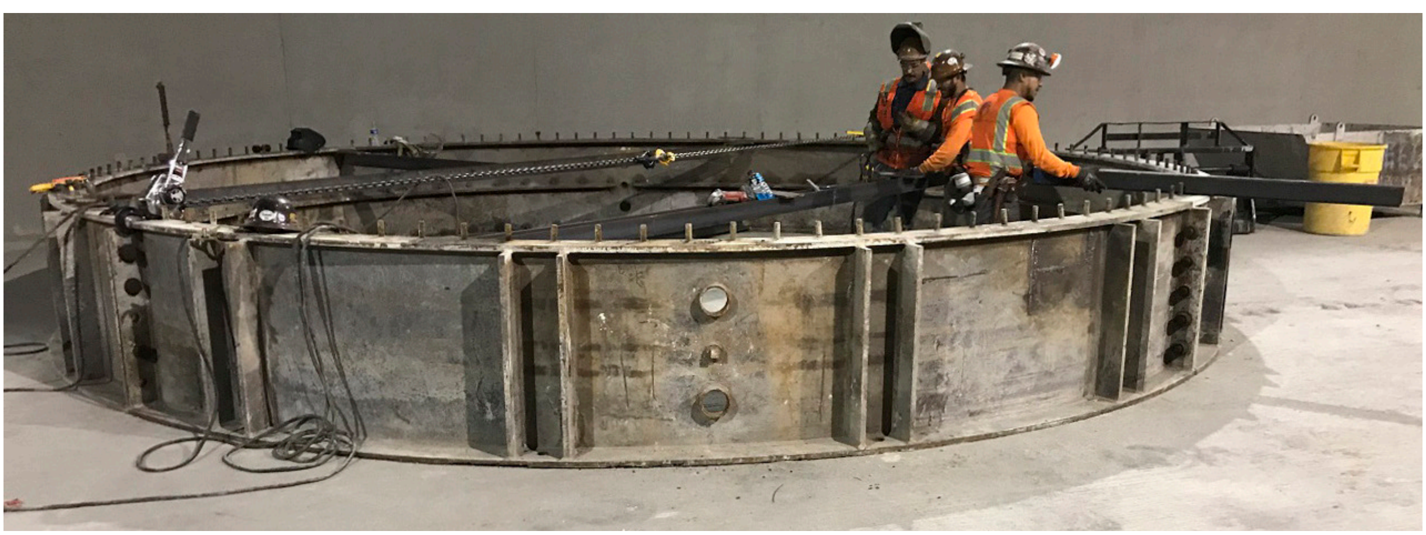
EIT Project Review Outcomes by Phase

	Initiation	Planning		
EIT Project Reviews	EIT 0 **EIT Initial Briefing Pre-Draft**	EIT 1 **Pre-Draft Environmental**	EIT 2 **Pre-Final Environmental**	EIT 3 **Pre-Transition to Engineering**
Intended Outcomes	Establish cross-functional executive leadership team to define and agree on intended project benefits from project inception Develop high-level assessment of potential project solutions to deliver on intended project benefits and seek input from a broad set of Metro stakeholders	Confirm a compelling, feasible set of project alternatives to consider, given NEPA/CEQA requirements, project magnitude, potential delivery methods, and the integration with existing infrastructure and communities Ensure robust stakeholder engagement to pressure test project alternative outcomes and likely impact on project benefits	Refine project scope, schedule and cost estimates for LPA[1] Iterate and syndicate list of potential project risks and mitigation strategies Identify actions to advance project delivery to minimize cost and ensure on-time delivery	Ensure smooth project handoff to Engineering team through best practice knowledge transfer across teams Inform viability of project delivery methods being considered, given additional information Monitor project risks and mitigation strategies

CEQA = California Environmental Quality Act
GMP = Guaranteed Maximum Price
IFB = invitation for bid
LPA = locally preferred alternative
NEPA = National Environmental Policy Act of 1969
NTP = notice to proceed
RFP = request for proposal
RFQ = request for qualifications

Engineering		Procurement
EIT 4	**EIT 5**	**EIT 6**
Pre-Final Delivery Method Selection	**Pre-RFP/ IFB Release**	**Pre NTP (for GMP)**
Support the creation of a well-informed final delivery method recommendation, given preliminary engineering impact assessment, schedule and cost estimate, and constructability review across each delivery method being considered Drive continued stakeholder engagement with internal and external stakeholders to ensure clear project scope and agreement prior to selection of the delivery method	Confirm scope with the original project definition team; ensure engineering innovations and preliminary engineering presented in RFQ/RFP[2] aligns with the original project definition and what is supported from prior environmental and funding project reviews Assess project readiness for successful procurement phase by identifying opportunities for improvement	Satisfactory project design to enable successful construction phase Scope, schedule, cost, and potential risks identified and confidently controlled by the project team Define clear roles and responsibilities across critical stakeholders to guide decisionmaking rights, improve collaboration, and strengthen construction performance management and risk mitigation process

Source: Metro



New Master Cooperative Agreement

In 2020, Metro and the City of Los Angeles (City) terminated their master cooperative agreement (MCA) for several reasons, the foremost being that the MCA had aged 20 years and was no longer suited for Metro projects. Following this, Metro and the City engaged in numerous partnering sessions, facilitation meetings, workshops, focus groups, and negotiations to develop a new MCA that addresses lessons learned and will support the delivery of Metro's upcoming program of transportation projects under a range of delivery methods. The following is a summary of key elements included in the new MCA:

> **Governance -** The agreement establishes an MCA Executive Task Force. This standing task force will meet quarterly and will, among other tasks, review lessons learned, opportunities, and challenges, and look ahead to upcoming transportation projects and long-range resource planning. The Executive Task Force will comprise of City department general managers, executive directors of the public works bureaus, assistant general managers and the Metro Deputy Chief Planning Officer or the Deputy Chief Program Management Officer and Chief Planning Officer or the Chief Program Management Officer. Metro and the City will designate a project liaison responsible for facilitating coordination among the parties. The City may also appoint a City Project Liaison on a programmatic basis to coordination of the transportation projects.

> **Issue Resolution -** If not resolved at the project working level, issues will be escalated to the "Level 1 Decision Makers" (Deputy Chief-level for Metro; Assistant General Manager or Deputy Chief Engineer for the City) and then to the "Level 2 Decision Makers" (Chief-level for Metro; General Manager or Chief Engineer for the City). If a dispute is not addressed through the resolution procedures, either party may refer the dispute to the alternative dispute resolution.

> **Early Involvement -** Metro and the City will cooperate and coordinate during the Planning and Advanced Conceptual Engineering Phase, during which Metro and the City will exchange information, participate in coordination meetings, and perform other activities to identify, in a "project definition" document, the scope of rearrangements, the applicable City standards, and other design requirements applicable to those rearrangements for inclusion in the procurement documents released by Metro. The parties will discuss the anticipated project schedule and resourcing needs during this process.

> **Utility Adjustments -** The new MCA sets out procedures for the parties to cooperate and coordinate to identify utility conflicts and ensure utility owners implement the utility adjustments required to address utility conflicts.

> **Design -** Metro will design any rearrangements, although the City may, if Metro requests, perform some level of design work (this is anticipated to be the exception). Metro will comply with the design requirements for rearrangements, including compliance with the defined City standards. The new MCA sets out the procedures for submittal of the designs of rearrangements to the City and the City's review.

> **City Standards -** The City agrees not to adopt any new City standards or amend City standards for the sole purpose of affecting Metro's transportation projects. Subject to exclusions set out in the definition of "betterment," changes to the City standards after the establishment of the project definition of a transportation project will be considered a betterment.

> **Construction -** Metro will be responsible for the construction of any rearrangements. However, Metro may request that the City construct a rearrangement and/or perform additional construction work for a transportation project. The new MCA sets out construction requirements for rearrangements or any other construction work performed in the public right-of-way and procedures for inspecting and accepting of the construction of rearrangements.

> **Betterments -** In accordance with Federal Transit Administration requirements, all betterments will be at the cost of the City. The new MCA sets out the procedure for identifying, reviewing, and approving potential betterments. Metro may refuse betterments incompatible with the transportation project, do not comply with applicable law, or requested after establishing the project definition.

> **Special Permitting Process -** Metro and the City agree on the design and construction requirements for rearrangements of City facilities, agree on the permits that will be waived by the City, and any required City fees applicable to transportation projects.

> **Inspection and Acceptance -** The parties agree all rearrangements performed by Metro or a Metro contractor will be inspected to ensure the work was performed per the approved designs and terms of the MCA.

Continue to Advance Strategic Initiatives

The sheer size of Metro's capital program and aggressive implementation schedule create unprecedented challenges to project delivery. In response to these challenges, Program Management implemented several strategic initiatives to improve project delivery planning, consistency, transparency, and discipline. These strategic initiatives are complementary and performed with the EIT strategic initiatives. Program Management's key initiatives for contracting strategy and cost containment are summarized in Table 2.

Table 2

Metro's Strategic Initiatives to Improve Project Delivery

STRATEGIC INITIATIVES	MITIGATION MEASURES	DESCRIPTION
Organizational Structure	Staff/Consulting Ratio	Recruitment efforts are underway to achieve a balanced ratio of staff and consultants, providing future cost-saving benefits and ensuring the retention of organizational knowledge and experience. Program Management and the Chief People Office are developing a new hiring strategy to recruit industry leaders successfully.
	Continuous Improvement	To improve project delivery, staff have initiated several measures, such as updating the Metro Rail Design Criteria, conducting case studies on change orders, performing root cause analysis, and reassessing contractual and claims avoidance language in master contracts with the assistance of counsel and Vendor Contracts Management.
Streamlined Process	Material Supply Initiatives	Program Management is studying material initiatives addressing price fluctuations.
	CEO Delegated Authority	CEO board-delegated authority is being used to accelerate the contract change process within the life of project budget.
	Stage Gate Reviews	Stage Gate Reviews at key points during project development are conducted with the EIT to provide cross-agency collaboration and cost control as outlined in the EIT status report.
	Update Controls Processes and Contingency	Project control procedures are updated and completed to address alternative delivery and Federal Transit Administration oversight procedures for new cost and schedule contingency targets.
Contract Documents	Alternative Delivery	Staff have delivered new contract templates for use with CM/GC and PDB contracts; developed a guidance manual and training program; completed training for core alternative delivery project staff; and scheduled training for all Program Management staff. A new escalation process has been implemented for change orders.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CHAPTER 6

Economic Forecast

KEY QUESTIONS WE AIM TO ADDRESS

1. What is the level of future capital investment in the region?
2. What is the future demand for construction labor?
3. How do the projected results compare to the previous analysis?

1. What is the level of future capital investment in the region?

The construction market in Southern California continues to experience growing demand from public agencies and the private sector. The increased level of investment in capital projects originated from the combination of an increasingly lucrative residential property market, generous governmental funding assistance, and sales tax from strong consumer demand for goods and services. This has also led to increased demand for a shrinking construction workforce pool.

This analysis evaluates the level of future capital investment in the region to quantify the future demand for construction labor in the region. By comparing the expected labor demand based on future investment with the forecast sector employment, the analysis illustrates the shortage in regional labor to deliver the programmed capital projects in the near term. The Los Angeles County Economic Development Corporation projected an annualized growth rate in gross domestic product in Los Angeles County of 2.3% between 2020 and 2024.[39] In comparison, the construction workforce in Los Angeles County is expected to grow by an annualized growth rate of only 0.9% over the same time. Similarly, Caltrans projected that the construction workforce would grow annually by an average of 0.7% from 2022 to 2024 before contracting by 0.8% annually from 2024 to 2028.[40] From 2020 to 2030, the California Employment Development Department (EDD) projects an annualized growth rate in the construction workforce in the Los Angeles-Long Beach-Glendale Metropolitan Division of 1.3%.[41] These indicators illustrate a critical challenge facing the public and private sector businesses with significant capital investment portfolios: the available construction workforce is not expected to keep up with the market demand for construction services.

Economic indicators illustrate a critical challenge facing the public and private sectors with significant capital investment portfolios: the available construction workforce is not expected to keep up with the market demand for construction services.

Local Agencies and Private Sector Capital Investment

The analysis of the projected construction labor for capital investments in Southern California is based on the programmed capital expenditures by public sector agencies and private sector businesses. The data of projected private sector capital investment are sourced from Dodge Data and Analytics, a data analytics company with insights into the construction sector; the data are organized by residential and nonresidential construction. The capital expenditure information for public agencies was sourced from published annual budgets, capital improvement plans, and internal financial projections. The public sector agencies, providers, and organizations included in the review of capital expenditures are as follows and the total construction spend by these agencies are shown in Figure 33:

> Southern California Regional Rail Authority (Metrolink)

> City of Los Angeles

> County of Los Angeles

> Port of Los Angeles

> Los Angeles County Public Works (LACPW)

> Los Angeles Community College District (LACCD)

> Los Angeles United School District (LAUSD)

> Los Angeles World Airports (LAWA)

> Metro

> Orange County Transportation Authority (OCTA)

> San Bernardino County Transportation Authority (SBCTA)

> County of San Bernardino

> City of San Bernardino

> Riverside County Transportation Commission (RCTC)

> City of Riverside

> San Diego Association of Governments (SANDAG)

> County of San Diego

> Port of Long Beach

> Burbank Airport

> City of Inglewood

> Caltrans

> Brightline West

> Local Organizing Committee for the Olympic and Paralympic Games

> Metropolitan Water District of Southern California (MWD)

The analysis evaluates the labor specifically related to construction expenditures; the expenditures related to design, engineering, planning, administration, or land acquisition were excluded from the compiled cost information. These costs were excluded because of one or more of the following reasons: they could be performed outside of the Southern California area, they would be classified as ongoing operations costs, or they do not generate a significant labor demand. The overview of the value of public sector and private sector construction spending by fiscal year between 2023 and 2028 is shown in Table 3.

Figure 33

Owners with Major Capital Programs Competing for Labor Resources

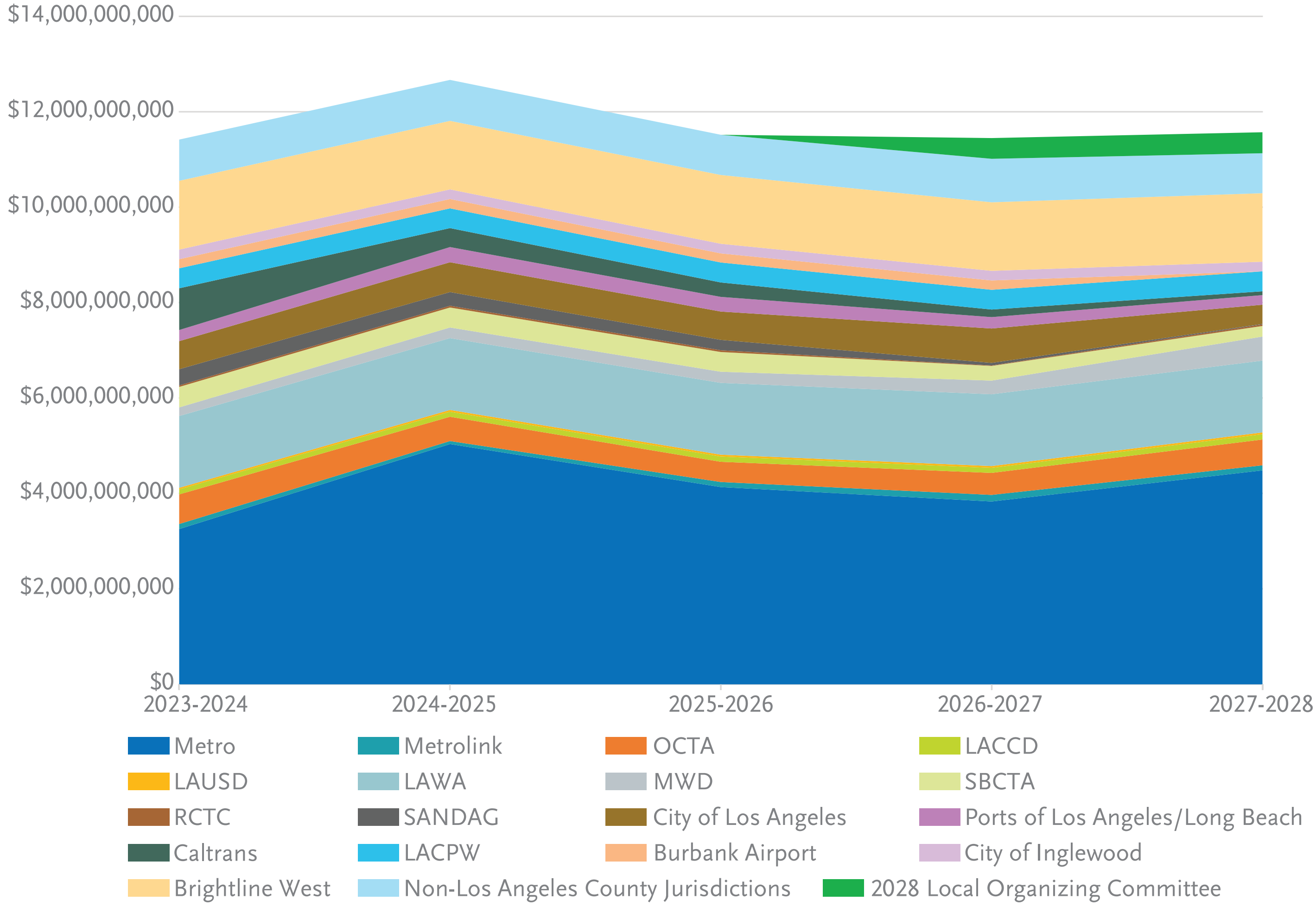


Table 3

Projected Public Sector and Private Sector Construction Spending by Year, Southern California Area (in millions of nominal dollars)

	FY 23–24	FY 24–25	FY 25–26	FY 26–27	FY 27–28
Public Sector[a]	$11,424	$12,676	$11,525	$11,459	$11,578
Private Sector[b]	$52,429	$56,741	$61,993	$66,796	$69,513
Total	**$63,853**	**$69,417**	**$73,518**	**$78,255**	**$81,091**

a Collated from budget and capital improvement programs of the agencies listed in this section.
b Forecast capital expenditures provided by Dodge Data and Analytics, adjusted for total regional market construction activity.

2. What is the future demand for construction labor?

Using the capital expenditures data from the public and private sector markets in Southern California, this analysis calculates an estimated labor demand by year. In principle, using an input-output model, the number of job-years supported by the projected construction spending can be calculated based on labor productivity in the market. For example, if one year of construction labor costs $100,000 in gross construction spending, then $10 million in gross construction spending would support 100 job-years of construction labor; a "job-year" refers to a unit of work completed by a full-time equivalent (FTE) employee in one year. An FTE could be one full-time employee working 2,080 hours, or a combination of part-time employees working 2,080 person-hours. The analysis evaluates the number of job-years estimated to be necessary to complete the programmed projects, based on the total value of construction spending.

Methodology for Economic Impact Analysis

The analysis uses the IMPLAN input-output model to calculate the flow of spending throughout the market, whether by businesses, the supply chain, or households. Input-output models describe how the purchasing between different industries (the inputs) produces each industry's outputs. Input-output models quantify the total economic activity generated by a particular type of spending across industries. For example, new expenditures in the construction sector will cycle through the intermediate steps in the supply chain and generate increased demand for intermediate goods and services ranging from concrete to carpenters. In addition, input-output modeling considers how the additional labor income generated by spending in a particular industry—for example, the salaries earned by carpenters employed by the agency's contractors—will translate into increased consumer spending in the form of household expenditures.

For this analysis, IMPLAN's model was used to calculate economic impacts at the regional level, which encompasses Southern California. The analysis used predefined regional economies for states and counties embedded within the model based on 2021 data. The input-output model tracks cashflows from the planned expenditures for construction activities through the regional market to businesses in the supply chain and employee households. The employment and labor income calculations are based on the composition of labor costs as an input to generate business revenues and the market labor rates for each job position and their applicable industry sector. The expenditure data used for inputs were expressed in nominal dollars; the IMPLAN system can interpret inputs from different dollar-years and perform the conversion to constant dollar-years. For this analysis, all outputs are expressed as the direct impacts of direct spending on a project.

Annual construction spending in the region is estimated to be $64 billion in 2023 and increase to $81 billion in 2028 (an approximately 6% increase per year).

In collaboration with the Metro Countywide Planning and Development team, the results of the IMPLAN analysis were corroborated with the results of the team's 2023 analysis using the REMI input-output model to measure employment impacts of planned capital expenditures by Metro and regional partners through the year 2028. The total construction employment calculated by the IMPLAN and REMI analyses from 2024 to 2028 diverged by less than one percentage point. Additionally, the projected labor employment calculated by the IMPLAN analysis aligned with the forecasted market demand included in the Construction Market Analysis published in 2018.

Results of Economic Impact Analysis

The IMPLAN model generates the projected annual employment from the construction market expenditures as direct, indirect, and induced employment. Direct employment relates to onsite employment by contractors hired by public agencies and private businesses to complete projects. Indirect employment relates to the labor within the supply chain, which includes the businesses providing the materials and services to contractors. In contrast, induced employment relates to the goods and services purchased by households of employees either directly hired or within the supply chain. The projected direct employment from construction activities by public agencies and the private sector in Southern California is shown in Table 4.

Table 4

Projected Direct Employment Related to Construction Projects by Market Sector and Year (in job years)

Project Construction Employment	FY 23–24	FY 24–25	FY 25–26	FY 26–27	FY 27–28
Public Sector Direct Construction Employment	62,893	70,637	68,716	66,731	67,683
Private Sector Direct Construction Employment	355,494	382,973	417,712	449,051	466,186
Total Direct Construction Employment	**418,387**	**453,610**	**486,428**	**515,782**	**533,869**

For comparison, EDD published a long-term projection of the construction workforce by county from 2020 through 2030, which included annual growth rates for industry employment. The employment workforce projection includes the total number of full-time, part-time, and seasonal positions; the employment numbers were converted to full-time equivalents (FTEs) for comparability with the results from the IMPLAN analysis. When paired with the latest annual county-level employment data from the Bureau of Labor Statistics from 2022, the projected construction workforce from EDD can be compared with the projected direct construction jobs demand from the IMPLAN analysis to determine the future labor demand in Southern California for construction activities.

The comparison, shown in Table 5, illustrates a shortage in the availability of construction labor in Southern California in forthcoming years, indicating the need to attract qualified workers from beyond Southern California and from other industries with similar skill sets, such as manufacturing or agriculture.

Figure 34 compares the projected construction industry workforce provided by EDD and the forecast labor demand for construction activities in Southern California through the year 2028.

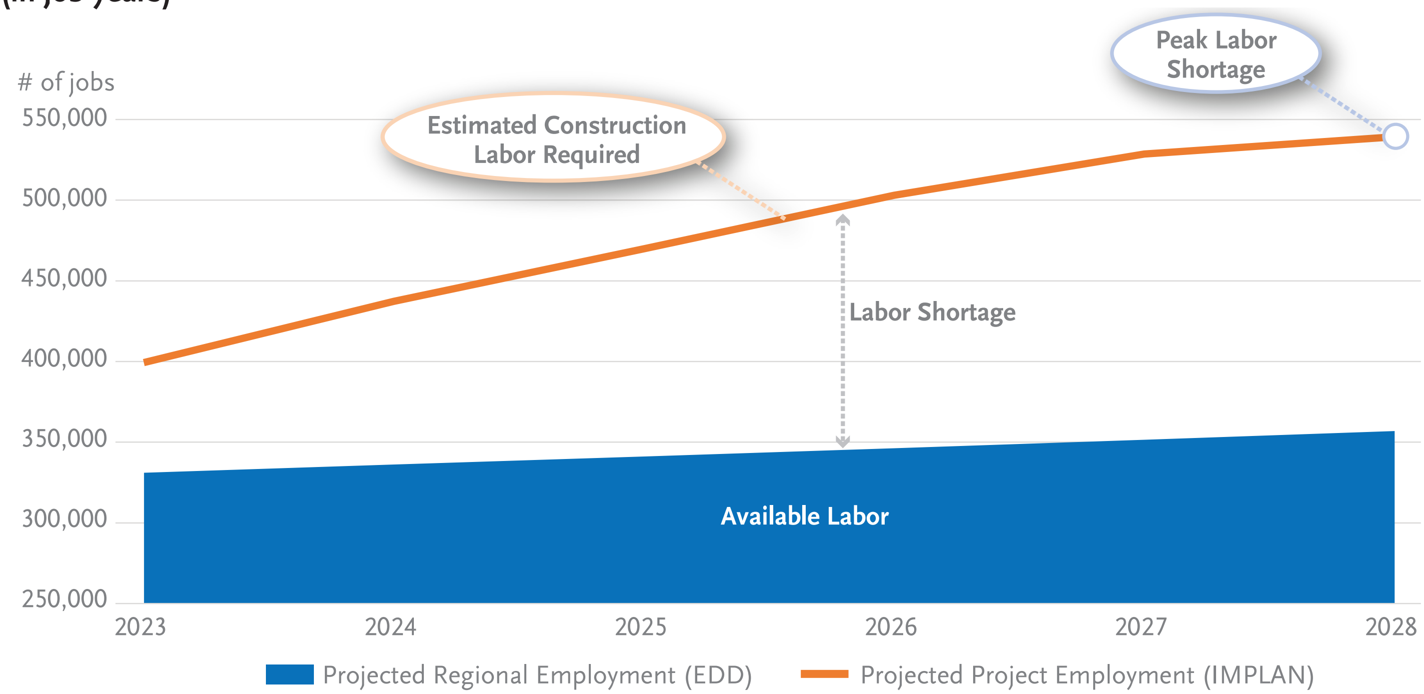
Table 5

Comparison of Construction Sector Employment Projections in Southern California (in job years)

	FY 23–24	FY 24–25	FY 25–26	FY 26–27	FY 27–28
Projected Project Employment Demand (IMPLAN)	418,387	453,610	486,428	515,782	533,869
Projected Regional Employment Workforce (EDD)	333,632	338,659	343,764	348,948	354,211
Labor Market Shortage	**(84,755)**	**(114,951)**	**(142,664)**	**(166,834)**	**(179,658)**

Figure 34

Comparison of EDD's Construction Employment Projection and Forecast Construction Labor Demand (in job years)



CHAPTER 7

Conclusions and Recommendations

KEY QUESTIONS WE AIM TO ANSWER:

1. What are the key takeaways from the report?
2. What are the recommendations for Metro?

1. What are the key takeaways from this report?

This section describes the 2023 Construction Market Analysis findings to help Metro better understand the factors influencing construction bid prices and Metro's ability to deliver one of the country's largest transportation construction programs. The following describes the key takeaways by the five chapters of the report:

> **Economic Conditions**
> **State of the Construction Market**
> **Contractor Surveys**
> **Metro's Response to Market Conditions**
> **Forecast of Construction Market**

Economic Conditions

> Federal monetary policy appears to be working to cool off inflation, resulting in lower interest rates, making it less costly to borrow money to finance projects.

> While the economy may be slowing, federal and state investment in infrastructure will continue to fuel construction activity and spending for the next several years, contributing to the labor shortage.

State of the Construction Market

> Materials prices are leveling after historic increases due to inflation and supply chain distribution.

> Employment numbers are at all-time highs while unemployment rates are at all-time lows, causing contractors to struggle to hire qualified laborers to meet the demand.

> Escalation and bid prices are trending higher and are expected to be 5% to 10% within the next 5 to 10 years due to labor issues and volatility in material prices.

Contractor Surveys

> Contractors prefer more collaborative delivery methods like CM/GC and PDB.

> Contractors would like Metro to revise contract terms to share more project risk, especially contractor exposure to things outside their control such as third-party issues.

> The volume of work results in a scarcity of labor resources that will extend into the future.

> With limitations on resources, contractors are being more selective on the opportunities they pursue.

Metro's Response to Market Conditions

> Due to market pressures affecting project delivery and Metro's growing construction program totaling approximately $13 billion, Metro continually evolves its delivery approach to adapt to changing market conditions to deliver one of the nation's most ambitious capital programs.

> Metro is experiencing higher bids (14% increase in the average bid when compared to the ICE). Metro's focus on evolving management tools, adding collaborative delivery tools, and continuing to engage the contracting community will result in narrowing this gap.

> Metro is implementing best management practices and innovative approaches to address the issues identified in this report, such as the EIT and Strategic Initiatives, including alternative delivery.

> Many factors are affecting the cost of building transit projects beyond Metro's control, like real estate costs, regulatory requirements, and third-party oversight.

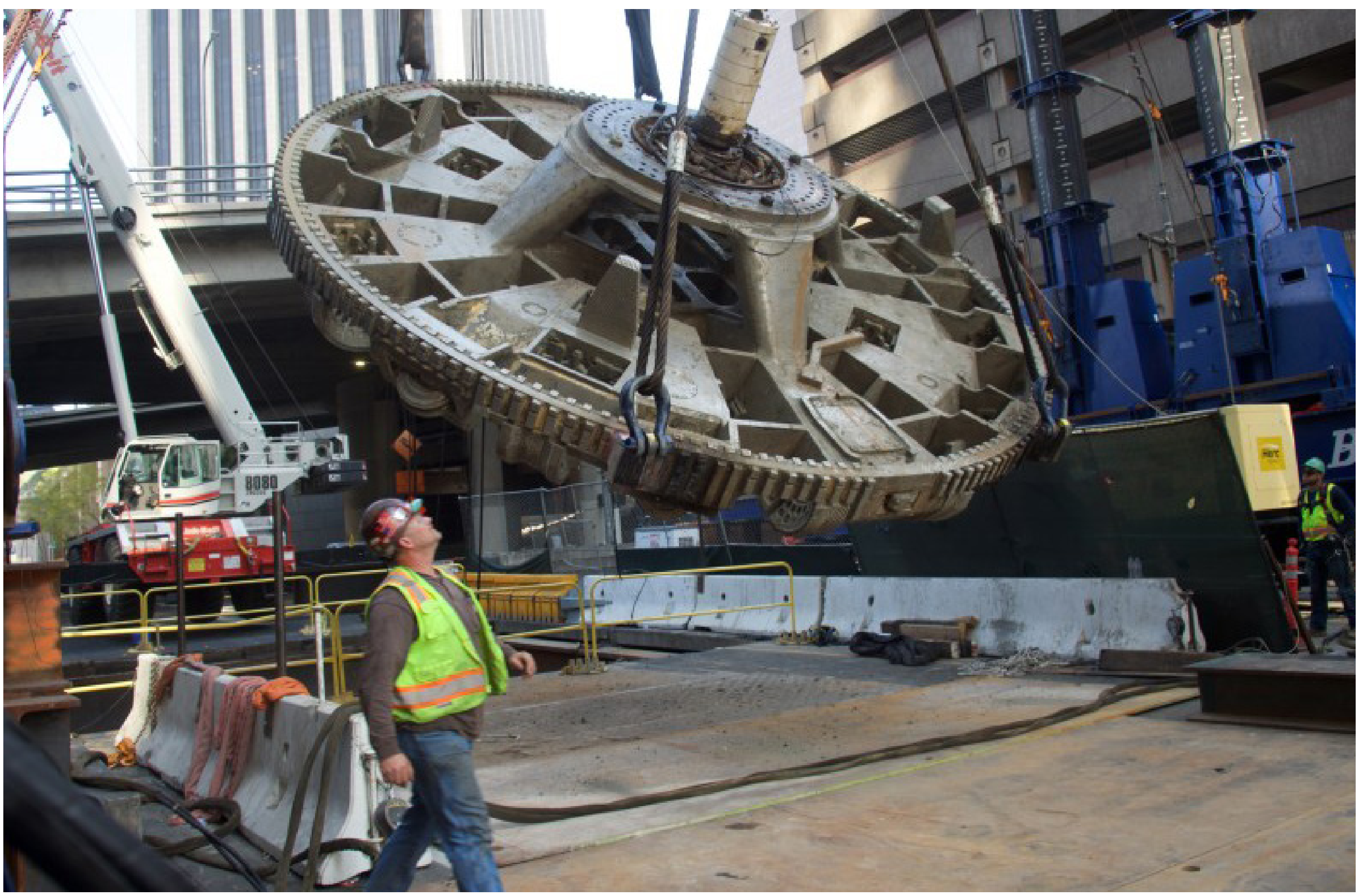
Forecast of Construction Market

> Construction activity in the Los Angeles area continues to experience growing demand from public agencies like Metro, LAWA, LACCD, and private development.

> Annual construction spending in the region is estimated to be $64 billion in 2023 and increase to $81 billion in 2028 (an approximately 6% annual increase).

> The construction labor supply is not expected to keep up with the market demand for construction services.

> Based on a comparison of forecast demand for construction labor and the projected construction sector employment prepared by the EDD total future demand for construction labor will significantly exceed projected employment levels through 2028, indicating a potential labor shortage in the greater Los Angeles region over the next five years.



2. What are the recommendations for Metro?

The following ten years will see more construction work than workers and firms available to deliver at a reasonable cost. The 2023 Construction Market Analysis results point to a construction industry that will be challenged to fulfill nationwide public and private construction investments, especially within the transit and highway sectors. Many local agencies are investing in their infrastructure and competing with Metro for construction resources. While Metro's recent initiatives in management practices and innovative development of local talent are solid examples of adaptation to this challenging market, there are additional measures Metro could enact to increase the reliability and cost effectiveness of their project delivery.

The following recommendations provide ideas and suggestions for how Metro can do that, focusing on the three goals identified in this report: grow the resource pool, be an owner of choice, and more predictable costs and schedule estimates. The recommendations are alson summarized in Table 6.

1. **Continue to embrace collaborative delivery methods and engage the contracting community during early project development (it is recommended that the delivery method be fixed between the 10% to 30% level of design), communicate the delivery method well in advance of the solicitation process, and incorporate the lessons learned from initial collaborative delivery Metro projects.**
   - It is important to develop mutual trust, transparency, and collaboration among the parties, including the owner, consultants, contractor, and stakeholders. All parties should be incentivized to work toward project success through efficiency, shared risk, and accountability.
   - Just as crucial as mutual trust, transparency, and collaboration is understanding the chosen delivery model, which often contains variations due to adaptation to the project, funding partner(s), and/or agency needs. Recognizing that the collaborative delivery methods are constantly evolving, industry training is imperative for all project partners and critical for subcontractors and suppliers to align the team with expectations for participation, the allocation of resources for project stages, and validation of the importance of identifying, quantifying, and mitigating project risk during the design and preconstruction services phases. This can occur through value engineering, constructability reviews, and risk element deep dives, which translate into a negotiation strategy based on collaboration, transparency, and partnership principles.

2. **Continue to evaluate potential updates to terms and conditions based on changing market conditions, to reflect collaborative delivery methods, and/or to capture best practices and innovative ideas for continuous improvement, including an industry input process with a focus on a more robust approach to risk sharing (inflation risk, insurance limits of liability, indemnification, third-party, and other project risks). Today's marketplace requires critical thinking regarding terms and conditions that align with Metro's movement toward collaborative project delivery, which balances risk through contract terms and appropriately considers challenges that contractors are facing while balancing the good steward's responsibility.**

3. **Due to the current state of the labor supply, supply chain, and amount of work in the region, Metro should continue aligning the SBE and DBE requirements with the project scope when setting goals.**

4. **Continue to build a standard format for the transition from planning to program management and construction. A transition document between planning and program management is typically used to communicate an understanding of current scope, schedule, budget, funding, environmental mitigation, memoranda of understanding or other agreements, real estate, utility relocations, and/or critical stakeholders' commitments. To the extent possible, these data are often included in the current risk matrix/assessment and provided in an agreed-upon manner for tracking purposes during design development and/or preconstruction activities. To support this, Metro could consider the following actions:**

   > Create a reporting system to monitor the budget and scope of projects from conception (planning) through revenue service (operation). This approach will enable Metro to track better changes in the marketplace that could affect project estimates, evaluate potential market changes during project reviews, and be able to consider that information when reviewing bid/proposal numbers.

   > Engage cost estimators for ICEs during the early phases of the project. Scope, schedule, budget, and funding should be handled the same across the various stages of a project. The scope, schedule, budget, and funding for each project should be revisited annually, and potential updates should be captured through one source of truth (centralized project controls).

5. **Explore expansion of the current informal liaison practice between Metro and contractors to resolve issues. Metro recognizes and has been working to strengthen its position in the local and regional marketplace as an "owner of choice" and an expanded liaison strategy could help achieve this goal. The potential benefits of having an expanded liaison and being the owner of choice include the following:**
   - Interested contractors and consultants will prioritize resources for Metro capital projects/programs above those of other owners due to an expanded focus on industry engagement, resulting in more interest and better competition.
   - Metro will stay "in tune" with the marketplace and be promoted as a true partner in the industry.
   - The liaison would serve as a trusted ambassador for Metro, which is focused on improving relationships within the region and the industry as a whole.

6. **Continue to work with the industry focusing on apprenticeship programs demonstrating the importance of investing now to support future workforce needs.**

7. **Continue to evaluate and implement methods to streamline procurements to reduce the administrative burden on bidders/proposers and increase the pool of interested contractors, subcontractors, and suppliers.**
   - Change the approach to preparing standard bid forms so that they are administered like Metro's prequalification form. The bid forms could be prepared once, placed on file at Metro, and remain current until there is a change in the information (or updated annually). This administrative function would then be kept separate from the proposal effort, except for confirmation that the forms are on file and current.
   - Evaluate where the request for proposal process can have fewer forms, to lessen the administrative burden on proposers.

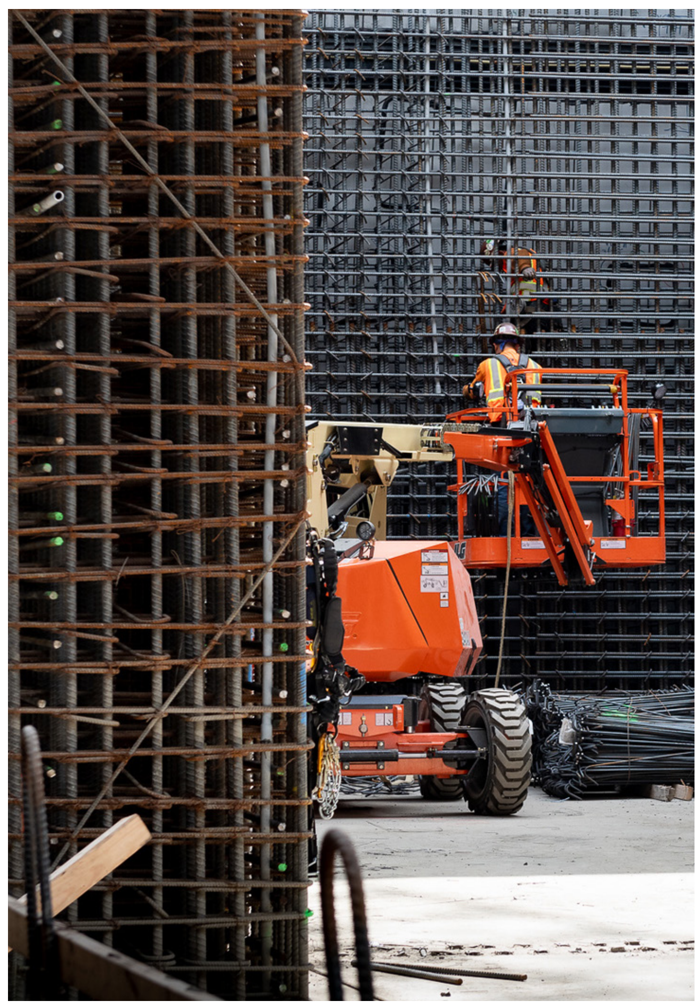


Table 6

Summary of Recommendations

#	RECOMMENDATION	PRIMARY GOAL RECOMMENDATION HELPS TO ACHIEVE	ADDITIONAL GOALS RECOMMENDATION HELPS TO ACHIEVE
1	Continue to embrace collaborative delivery methods while engaging and communicating with the construction industry, and incorporating lessons learned as Metro's experience grows.	M	+ $
2	Continue to evaluate potential updates to terms and conditions based on changing market conditions, to reflect collaborative delivery methods, and/or to capture best practices/innovative ideas and concepts for continuous improvement, including an industry input process for developing a more robust approach to risk sharing.	M	+ $
3	Continue aligning SBE/DBE requirements with a project's scope and the recently updated Disparity Study when setting goals.	M	+ $
4	Continue to build a standard format for the transition from planning to program management and construction.	$	M
5	Explore expanding the current informal liaison practice between Metro and contractors to resolve issues.	M	+ $
6	Continue to work with the industry, focusing on apprenticeship/readiness programs to grow capacity for current and future projects.		M + $
7	Simplify procurements to reduce the administrative burden on bidders/proposers.	M	+ $

Grow the resource pool

M Be an owner of choice

$ More predictable cost and schedule estimates

Endnotes and Photo Credits

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