



Economic Conditions: Strategies to Mitigate Cost Escalation and Supply Chain Chain Challenges



Ryan Tognetti
Principal
FLINT



Economic Conditions: Strategies to Mitigate Cost Escalation and Supply Chain Challenges

Agenda

- Definitions
- Cost Escalation Drivers
- Strategies to Mitigate Cost Escalation
- Strategies to Mitigate Supply Chain Issues
- Elk Grove High School Case Study
- South Valley Middle School Case Study
- Best Practices
- Q&A Session



Cost Escalation

Escalation is the provision in a cost estimate for increases in the cost of labor, equipment, material due to continuing price changes over time. Escalation is used to estimate the future cost of a project or to bring historical costs to the present.



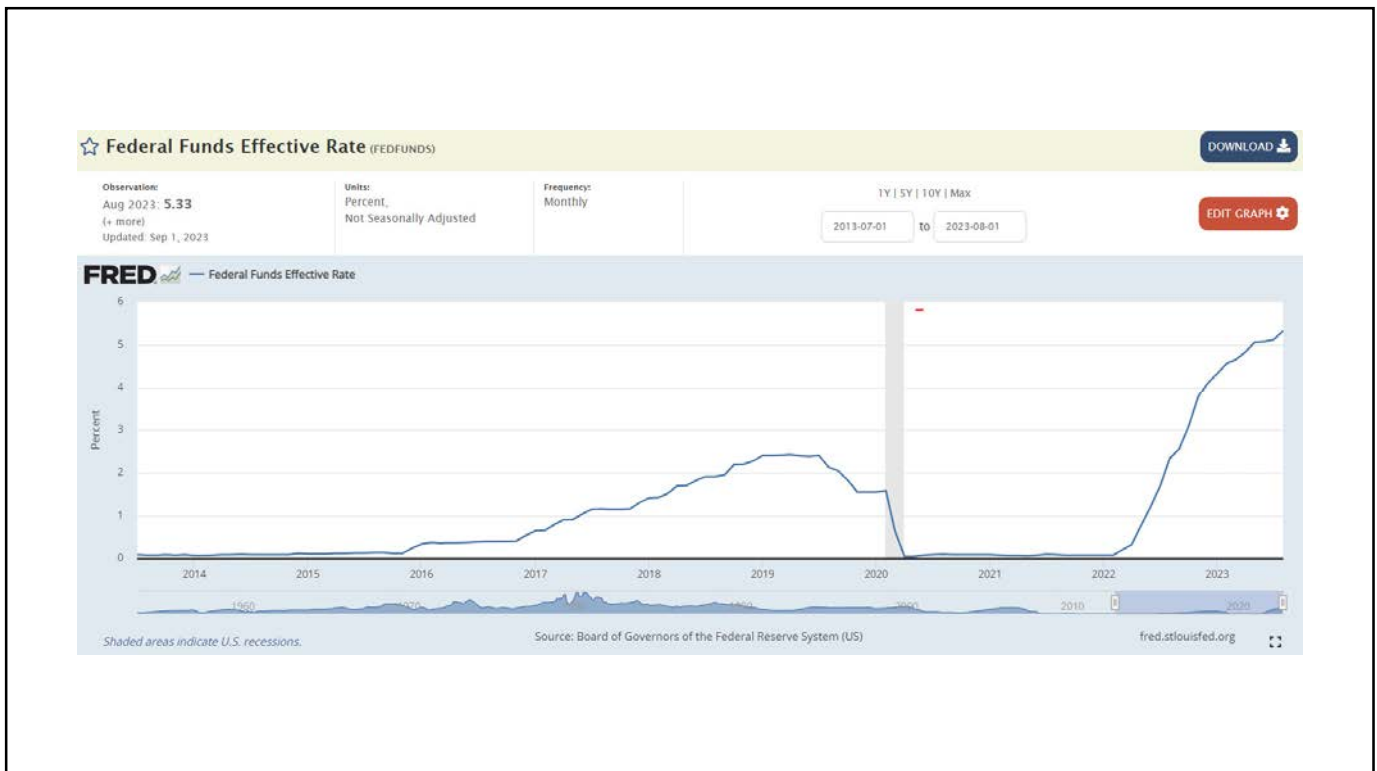
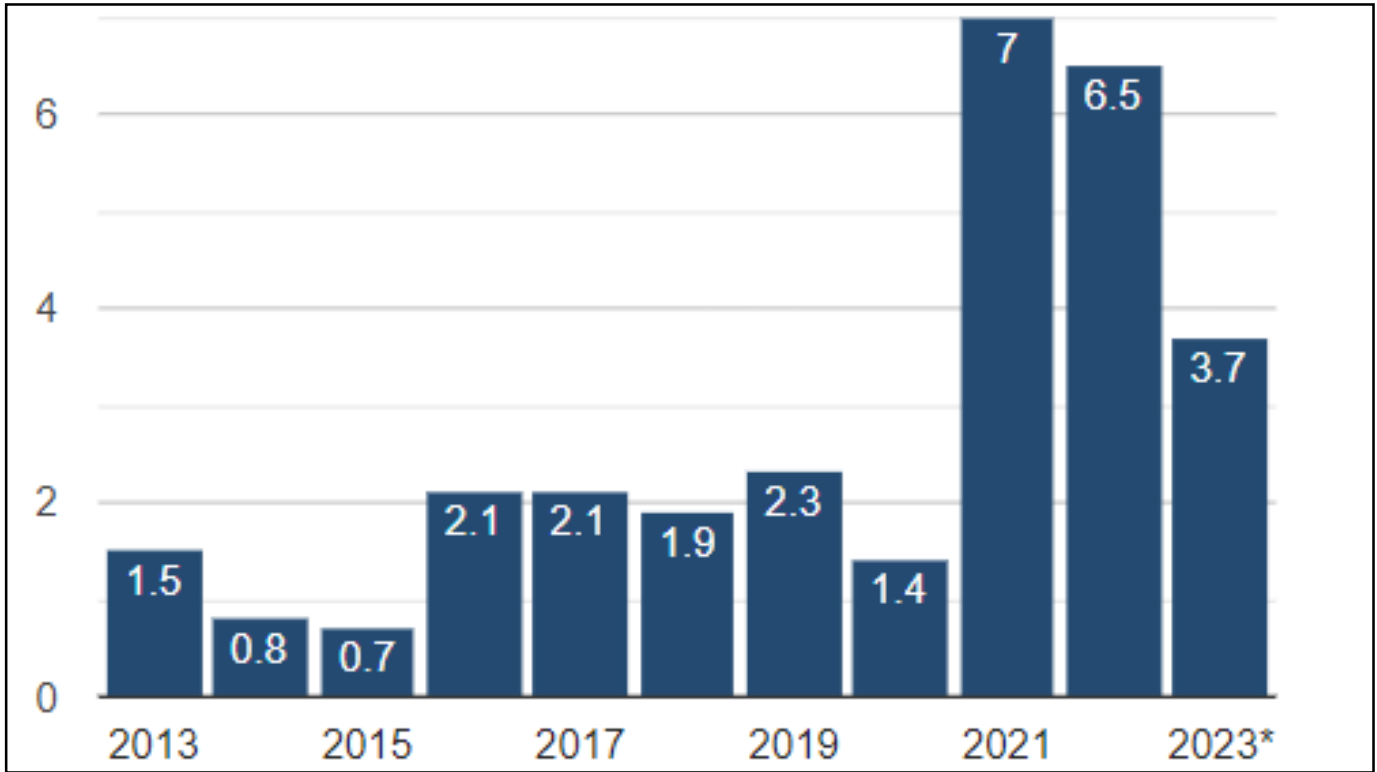
Supply Chain Management

Construction supply chain management refers to the processes, systems, and practices used to manage the flow of materials in the construction industry. It also includes managing the relationships between various parties within the supply chain—including manufacturers, suppliers, contractors, owners, and more.

Cost Escalation & Supply Chain Drivers

The COVID-19
Pandemic









Cost Escalation

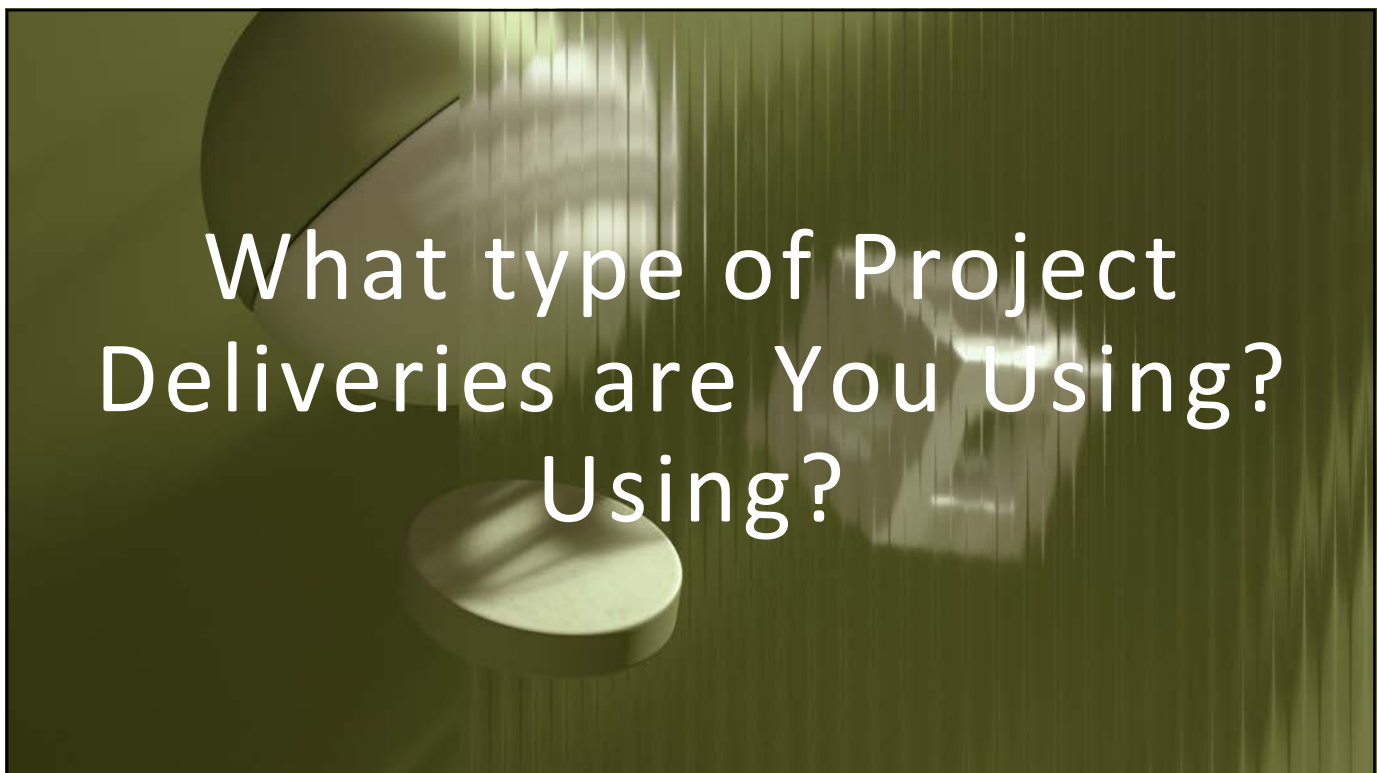
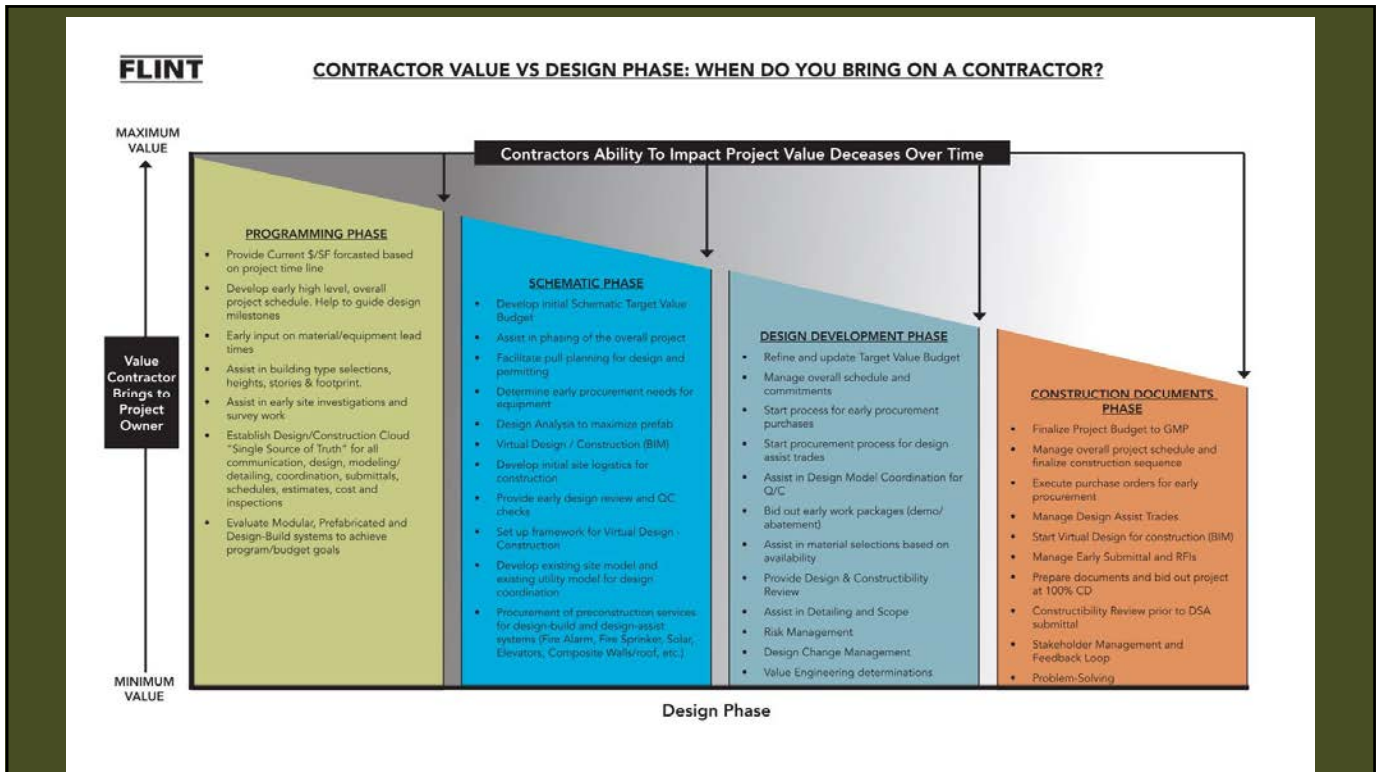
Historical Building Cost Index (PER ENR)				Location Adjustments		
#	Year	Index Average	% Escalation (Natl. Ave)	Sacramento	San Jose	San Diego
1 .	2023	TBD	TBD	TBD	TBD	TBD
2 .	2022	7,792	12.73%	13.36%	15.27%	14.00%
3 .	2021	6,912	10.05%	11.55%	13.06%	12.06%
4 .	2020	6,281	2.36%	2.72%	3.07%	2.84%
5 .	2019	6,136	1.94%	2.24%	2.53%	2.33%
6 .	2018	6,019	3.22%	3.71%	4.19%	3.87%
7 .	2017	5,831	3.29%	3.79%	4.28%	3.95%
8 .	2016	5,645	2.30%	2.65%	2.99%	2.76%
9 .	2015	5,518	2.43%	2.80%	3.16%	2.92%
10 .	2014	5,387	2.07%	2.37%	2.68%	2.48%
11 .	2013	5,278	2.01%	2.31%	2.61%	2.41%
12 .	2012	5,174	2.29%	2.64%	2.98%	2.75%
13 .	2011	5,058	3.58%	4.12%	4.66%	4.30%
14 .	2010	4,883	2.39%	2.75%	3.11%	2.87%
15 .	2009	4,769	1.66%	1.91%	2.16%	2.00%
Average				4.21%	4.77%	4.40%



Supply Chain Chain Lead Times

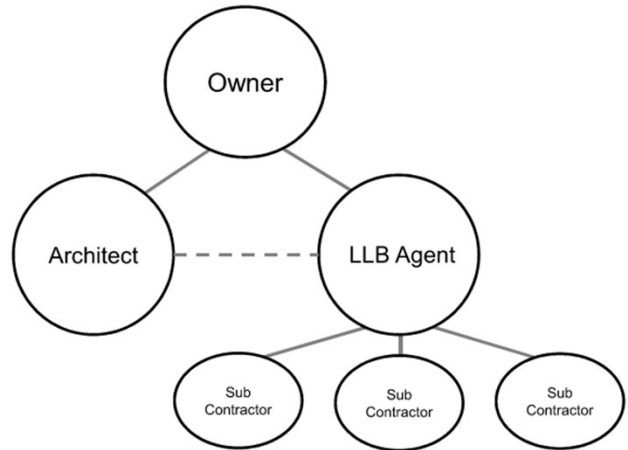
- Switchgear and Transformers: 10-18 months (Custom Built and High Demand)
- Steel: 6-9 month Process (Buying of Steel in not Problem)
- Cladding and Glazing Systems: 6-9 Months Process (12 Weeks)
- HVAC Equipment: 4-12 months (Microchips and Electronics)
- Lighting and controls: 4-8 Month Process (Order Time 6 weeks)
- Roofing Materials: Was 4-8 months now 6-8 Weeks
- Drywall and Studs: Was 4-6 Months Now available
- Wood Doors: 4-8 months (So Many Options that No One Stocks)
- FF&E (furniture, fixtures, and equipment): 4-8 Months (Made to Order)

Strategies to Mitigate Cost Escalation



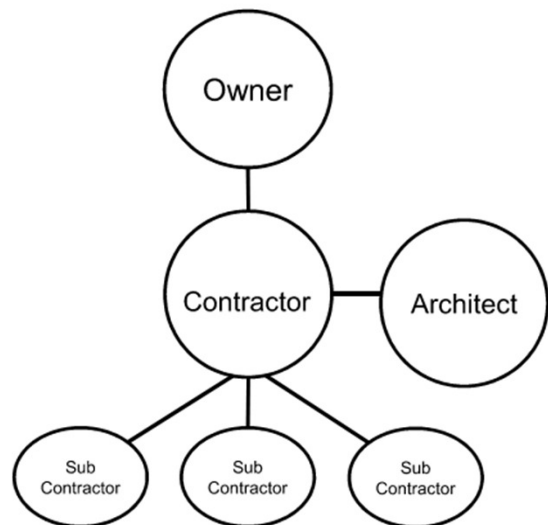
Lease Leaseback

Lease-Leaseback CONTRACT STRUCTURE



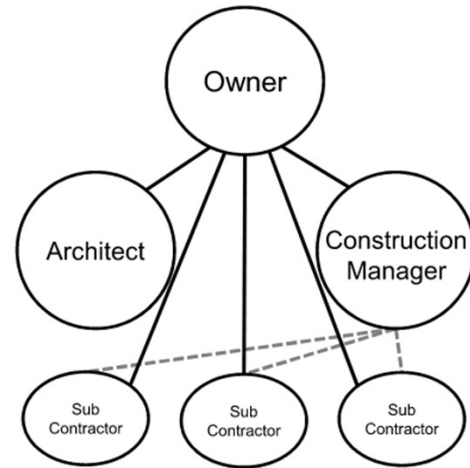
Design Build and Progressive Design Build Build

Design-Build CONTRACT STRUCTURE



Construction Management
Management Multi- Prime
Prime

CM Multi-Prime
CONTRACT STRUCTURE



Value Engineering
(Target Value Design)

- Improve Benefits and Reduce Cost
- Maintain Benefits and Reduce Cost
- Improve Benefits and Maintain Cost
- Increase Benefits and Increase Cost
- Increase Benefits and Increase Cost
- Reduce Benefits and Reduce Cost

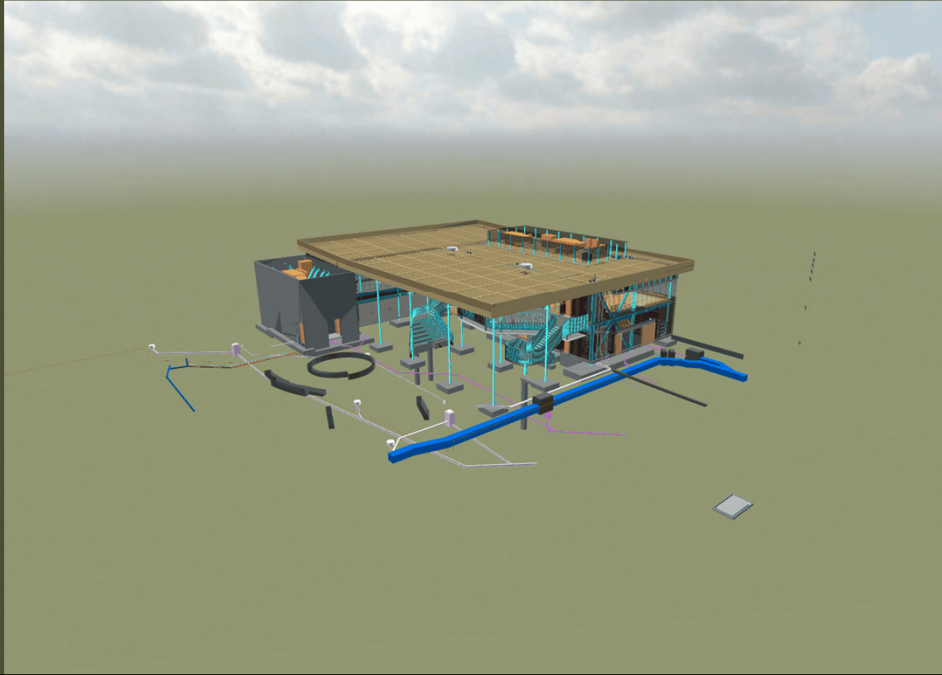
Complete Project Early



Modular or Prefab Construction



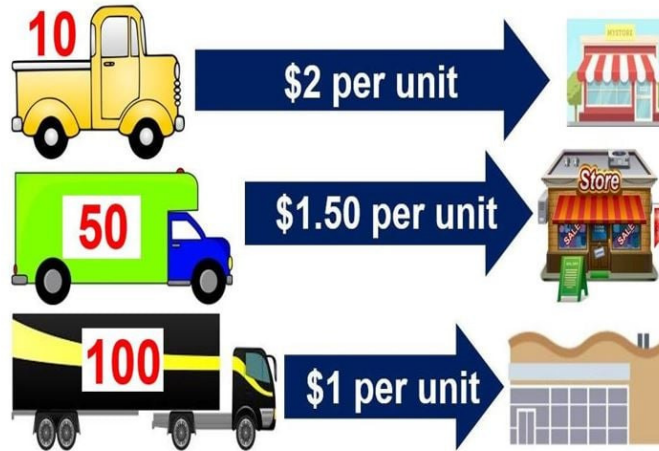
VDC/BIM



Budget Correctly and Contingencies

- Design Contingency
 - Programming: 15%-20%
 - Schematic: 10%
 - Design Development: 5%
 - Construction Docs: 2%
- Construction Contingency: 3-5%
- Owner Contingency: 5-10%

Economies of Scale



BIGGER IS OFTEN CHEAPER!

Strategies to Mitigate Supply Chain Issues

Start Planning Early



SCHEDULING/MATERIAL PROCUREMENT

Construction			436	350	21-Oct-21 A	03-Aug-23		
Phase #1 - Sitework & Classrooms			184	98	21-Oct-21 A	26-Jul-22		26-Jul-22, Phase #1 - Sitework & Classrooms
Sitework			184	84	21-Oct-21 A	26-Jul-22		26-Jul-22, Sitework
Onsite Improvements			184	84	21-Oct-21 A	26-Jul-22		26-Jul-22, Onsite Improvements
C-PHS-1-1050	MKPIPE	Install Building Storm Drain at Outside of Buildings	5	0	21-Oct-21 A	04-Apr-22		Install Building Storm Drain at Outside of Buildings
C-PHS-1-1160	GRADE	Compact Subgrade / Finish Grading @ Fire Access / Classroom	15	15	28-Mar-22	15-Apr-22		Compact Subgrade / Finish Grading @ Fire Access / Classrooms in Quad Area 1-4
C-PHS-1-1480	FLINT	Pour Shade Structure Foundations	10	10	28-Mar-22	08-Apr-22		Pour Shade Structure Foundations
C-PHS-1-1540	AHJ	PG&E Set Pole / Transformer	7	7	01-Apr-22	11-Apr-22		PG&E Set Pole / Transformer
C-PHS-1-1580	ROYAL	Complete Branch Electrical / Light Bases at Phase One Site	20	20	07-Apr-22	04-May-22		Complete Branch Electrical / Light Bases at Phase One Site
C-PHS-1-1170	CONC	Curbs and Flatwork Adjacent to Classrooms and Quad	30	30	11-Apr-22	20-May-22		Curbs and Flatwork Adjacent to Classrooms and Quad
C-PHS-1-1610	AHJ	Land Secondary / Install CT's	3	3	12-Apr-22	14-Apr-22		Land Secondary / Install CT's
C-PHS-1-1570	IOR	IOR Inspections / Tag MSB For Service / PG& E Energize	5	5	19-Apr-22	25-Apr-22		IOR Inspections / Tag MSB For Service / PG& E Energize
C-PHS-1-1330	MKPIPE	Install Shallow Storm Drain at Courtyard	5	5	21-Apr-22	27-Apr-22		Install Shallow Storm Drain at Courtyard
C-PHS-1-1180	LANDSCP	Irrigation, Drainage, Soil and Planting at Classrooms and Quad	25	25	25-Apr-22	31-May-22		Irrigation, Drainage, Soil and Planting at Classrooms and Quad
C-PHS-1-1590	MKPIPE	Install Perforated Drains at Turf Areas	5	5	25-Apr-22	29-Apr-22		Install Perforated Drains at Turf Areas
C-PHS-1-1620		Compact Subgrade / Finish Grading at Quad and Area 5-7	15	15	04-May-22	24-May-22		Compact Subgrade / Finish Grading at Quad and Area 5-7
C-PHS-1-1600	ROYAL	Set Lights and Wire Balance of Phase One Lighting	10	10	05-May-22	18-May-22		Set Lights and Wire Balance of Phase One Lighting
C-PHS-1-1200	PAVIN	Base, Paving and Traffic Coating Adjacent to Classrooms and Quad	30	30	25-May-22	08-Jul-22		Base, Paving and Traffic Coating Adjacent to Classrooms and Quad
C-PHS-1-1210	FENCE	Exterior Fencing and Site Accessories	30	30	25-May-22	08-Jul-22		Exterior Fencing and Site Accessories
C-PHS-1-1190	FLINT	Install Shade Structures Adjacent to Classrooms	12	12	11-Jul-22	26-Jul-22		Install Shade Structures Adjacent to Classrooms
C-PHS-1-1220	FLINT	Site Punchlist and Finals	7	7	12-Jul-22	20-Jul-22		Site Punchlist and Finals

Order Early and Store
Material



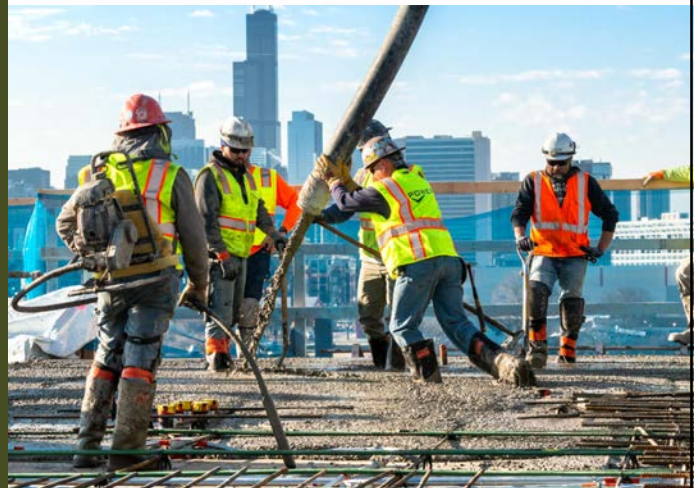
Multiple Suppliers



Local Suppliers



Early on Boarding of
Subcontractors



Case Studies

Elk Grove High School



South Valley Middle School



Best Practice

- Preconstruction is Your Friend
- Plan out the Project Early
- Budget Correctly with Contingencies
- Costs Tend to Always Trend up
- Start Procurement Log Early
- Have Multiple Supplies for Products
- Buy Long Lead Item Materials Early
- Work with Suppliers to do Just-in-Time Inventory for Materials with Surplus



