Proactive Project Management (PPM)

Recognizing Signs and Taking Action

GEORGIA STATE FINANCING *and* INVESTMENT COMMISSION

RBE SOLUTIONS

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COAA®
Construction Owners Association of America

Yuanivel and Wes are both on the Leadership Team for COAA-GA. This topic was first presented in the article “Proactive Project Management During Construction: Recognizing Signs and Taking Action” written by Wes Berry and published in COAA’s Owner Perspective Magazine, Spring 2024.

OVERVIEW

As owners, we turn to those we hire to tell us how the project is progressing. Thus, we may not know there is an issue until we are told, which is often too late. By looking at lessons learned and root causes of past issues, we can proactively identify potential issues and have a better ability to independently assess progress or, at a minimum, know when to ask questions.

Proactive Project Management (PPM): For the purposes of this discussion, PPM is defined as identifying potential issues, asking questions, and taking action, if necessary, before they impact the project.

OBJECTIVES

- Gain knowledge and tools to independently assess projects and keep team members accountable.
- Discuss using lessons learned and root causes for past issues to assess project performance.
- Discuss example progress indicators to help identify potential issues.
- Lower project risk and protect Owner interest.

PPM – The Process

1. Utilize Lessons Learned: Trace past project issues to their root cause.

2. Use Root Causes to Establish Indicators

3. Monitor Indicators

4. Ask Questions – Open Discussion – Take Action, If Required

5. Share What Works With Other Owners

*These Are Examples That May or May Not Be Applicable Depending On The Project

Project Fundamentals

Project Team

Communication

- Control The Tone - We Are In This Together
- Collaborative vs. Adversarial
- Work Towards Establishing Trust
- Listen – Learn

Constructive and Supportive Accountability

- Open Discussion – All On The Table
- Trust and Verify

Maintain Positive Team Dynamic (Even When Things Aren't Going Well)

- Request Changes if Necessary

"Nothing can tank a project faster than a non-functional team."

Contracts

Know Team Member Contracts and How They Relate

- Sets clear framework for the project
- Allows for informed responses and quicker decisions
- Keep everything within the bounds of the contract, nothing more, nothing less
- Keep team members accountable
  - Issues keeping up with paperwork requirements could be an indicator of bigger issues

Team Member – Contract Type

DP = Design Professional

CP = Construction Professional (CM/GC, DBB, DB)

PM = Program Manager

Cx = Commissioning

Misc. Consultant

Useful Tool: Create A Table For Each Contract To Help You Understand Requirements and Track Deliverables

BOR PM Contract CM/GC				
Total Contract Value				
GMP Cost Limitation				
Contracted Fees Phase I + II				
Fees Phase I				
Fees Phase II				
Fees Phase III				
All Phases	**Process DP/CP Payment Applications**	**Advise Payment**		
	Program Change Log			
	Budget Change Log			
Phase I				
	Major Deliverables	Using Agency Program		
		Initial Cost Determination and Cost Model		
	Professional Services	Engineering and Design Review		
		Budget and Costing		
		Project Management Services		
	Basic Services (2.2.1)			
	2.2.1(a)	Develop and refine concept and programming		
			Review Predesign Study	
			Prepare Synopsis of Owner's Project Requirements (OPR)	
			Consolidate project planning actions and supporting documents	
			Review proposals	Interior finishes, lighting, furniture, other elements
			Document existing physical conditions	Determine adequacy of available water, telephone, gas, electrici wastewater, other required utilities
			Obtain historic and/or archaeological data	
			Establish meeting schedule, attendance list	Prepare agenda, provide handouts/other materials, meeting not
			Maintain list of official campus user-group representatives	
			Meet with campus facilities staff, user-group representatives, administration, etc.	Gain perspectives of OPR, explain in detail the process and meth be used
			Create and distribute notes	Meetings, decisions, related project documentation
			Tour and photograph the Project site	With appropriate campus personnel and in support of program validation
	2.2.1(b)	Develop proposed budget to validate feasibility		
			Review preliminary budget from Pre-design study	
			Estimates and calculations	Assure project scope meets available funds

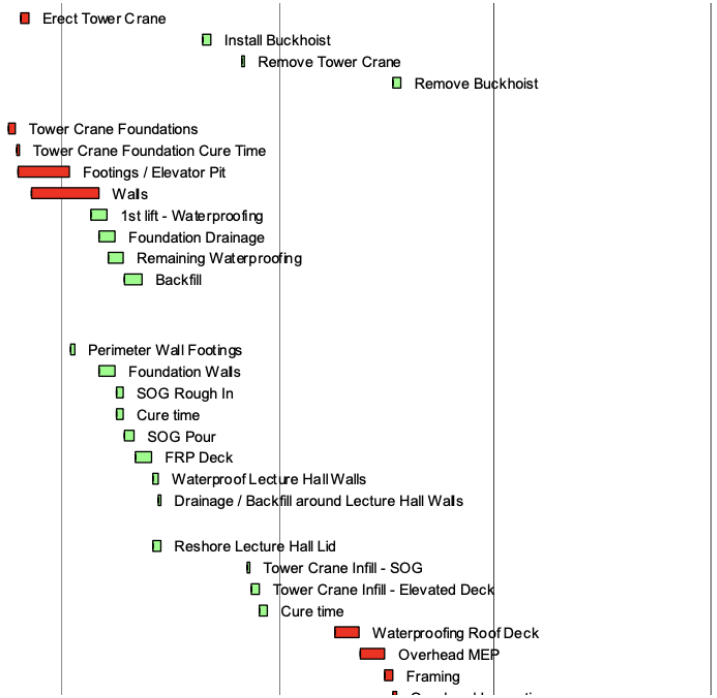
PPM During the Construction Phase

Forming An Independent Assessment

Schedule – The First Review

Critical Path Method (CPM) Schedule = Construction duration is determined by the amount of time to accomplish sequential activities required for building completion (critical path = zero float). Milestone dates are established to guage progress. Non-critical activities can shift. Milestones dates are concrete.

LIFT-1000	Erect Tower Crane	5d	May-27-22	Jun-03-22
LIFT-1010	Install Buckhoist	5d	Oct-28-22	Nov-03-22
LIFT-1020	Remove Tower Crane	3d	Nov-30-22	Dec-02-22
LIFT-1030	Remove Buckhoist	5d	Apr-07-23	Apr-13-23
Foundations / Lower Level		78d	May-17-22	Sep-06-22
FND-1000	Tower Crane Foundations	5d	May-17-22	May-23-22
FND-1020	Tower Crane Foundation Cure Time	3d	May-24-22	May-26-22
FND-1010	Footings / Elevator Pit	30d	May-25-22	Jul-07-22
FND-1030	Walls	40d	Jun-06-22	Aug-01-22
FND-1040	1st lift - Waterproofing	10d	Jul-26-22	Aug-08-22
FND-1050	Foundation Drainage	10d	Aug-02-22	Aug-15-22
FND-1070	Remaining Waterproofing	10d	Aug-09-22	Aug-22-22
FND-1060	Backfill	10d	Aug-23-22	Sep-06-22
Lecture Hall		256d	Jul-08-22	Jul-10-23
Foundations / SOG		54d	Jul-08-22	Sep-22-22
LECT-FND-1110	Perimeter Wall Footings	3d	Jul-08-22	Jul-12-22
LECT-FND-1120	Foundation Walls	10d	Aug-02-22	Aug-15-22
LECT-FND-1130	SOG Rough In	5d	Aug-16-22	Aug-22-22
LECT-FND-1100	Cure time	5d	Aug-16-22	Aug-22-22
LECT-FND-1160	SOG Pour	7d	Aug-23-22	Aug-31-22
LECT-FND-1170	FRP Deck	10d	Sep-01-22	Sep-15-22
LECT-FND-1140	Waterproof Lecture Hall Walls	3d	Sep-16-22	Sep-20-22
LECT-FND-1150	Drainage / Backfill around Lecture Hall Walls	2d	Sep-21-22	Sep-22-22
Structural Infill and Interior Buildout		207d	Sep-16-22	Jul-10-23
LECT-FIN-1030	Reshore Lecture Hall Lid	5d	Sep-16-22	Sep-22-22
LECT-FIN-1000	Tower Crane Infill - SOG	3d	Dec-05-22	Dec-07-22
LECT-FIN-1010	Tower Crane Infill - Elevated Deck	5d	Dec-08-22	Dec-14-22
LECT-FIN-1020	Cure time	5d	Dec-15-22	Dec-21-22
LECT-FIN-1040	Waterproofing Roof Deck	15d	Feb-17-23	Mar-09-23
LECT-FIN-1050	Overhead MEP	15d	Mar-10-23	Mar-30-23
LECT-FIN-1060	Framing	5d	Mar-31-23	Apr-06-23

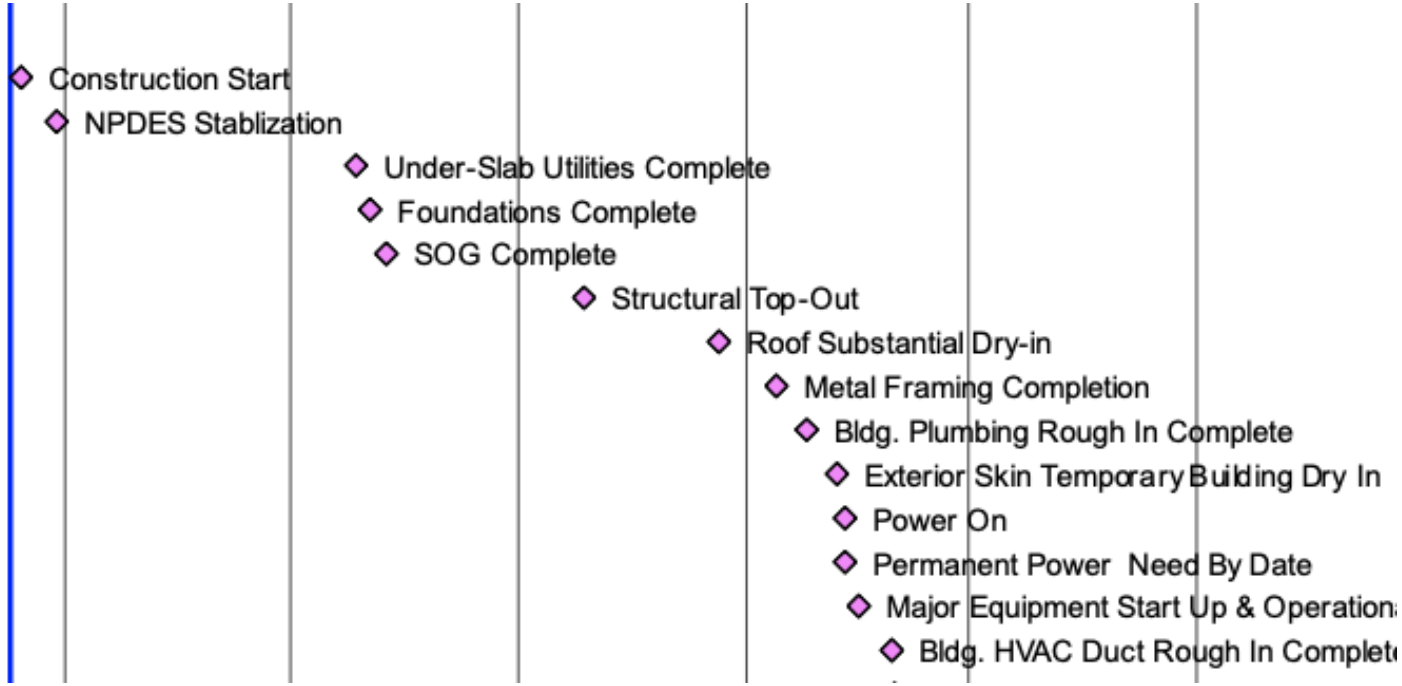


Critical Path indicated by Red Line

Float = Time between scheduled task finish and impact to critical path. Critical Path Items and Milestones have Zero Float.

Schedule – The First Review

Milestones



Milestones will be indicated with a icon and have zero-day durations (float). They should be listed separately and shown in the expanded schedule.

- Are the appropriate Milestones indicated.
  - Contractually dictated or Industry Standard
- Are Additional Needed?

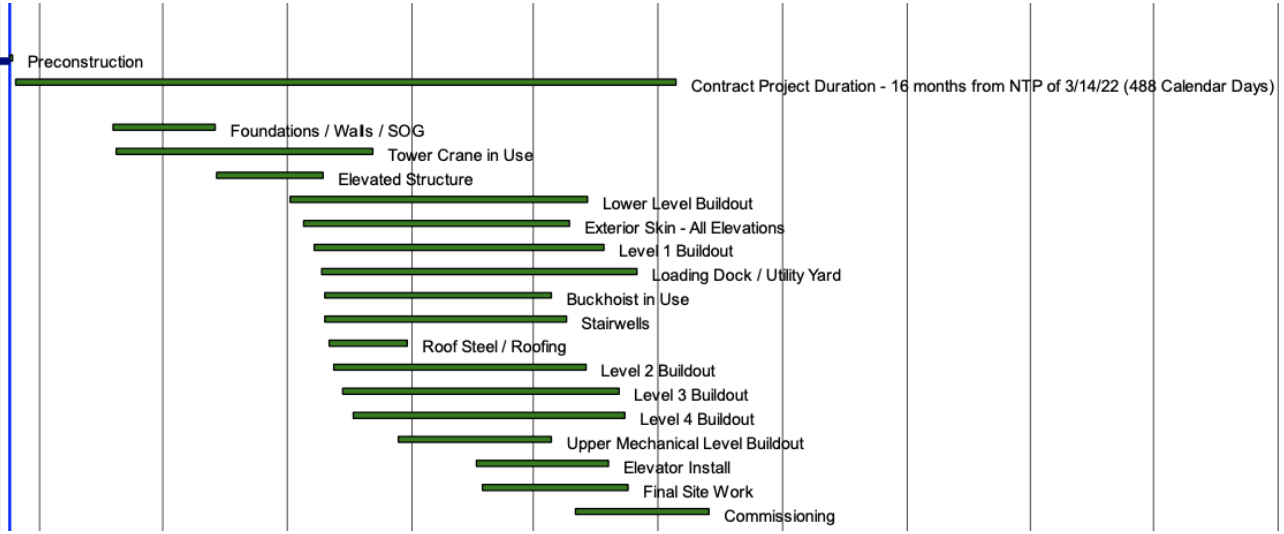
Schedule – The First Review

- What is out of our control?
  - Long Lead Items
  - Specialty Items (Fabrication)

- Is there enough time for Cx and Closeout activities at the end?

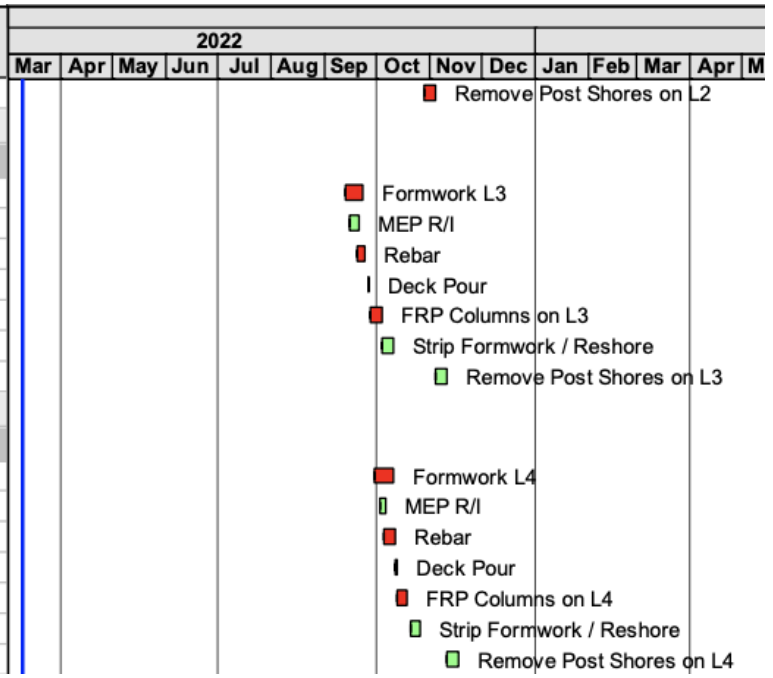
Submittal Process / Material Procurement		274d	Feb-02-22 A	Feb-27-23
CCO #2 - Early Release		265d	Feb-02-22 A	Feb-14-23
Roof Decking		136d	Feb-07-22 A	Aug-11-22
MATPROE-230	Roof Deck Shop Drawings	50d	Feb-07-22 A	Apr-15-22
MATPROE-440	Roof Deck - McCarthy Review	2d	Apr-18-22	Apr-19-22
MATPROE-450	Roof Deck - A/E Review	10d	Apr-20-22	May-03-22
MATPROE-460	Roof Decking Fabrication and Delivery	70d	May-04-22	Aug-11-22
TPO Roofing		191d	Feb-25-22 A	Nov-23-22
MATPROE-280	A/E Review	10d	Feb-25-22 A	Mar-11-22
MATPROE-340	Fabrication and Delivery	180d	Mar-14-22	Nov-23-22
Asphalt Shingles		171d	Feb-25-22 A	Oct-26-22
MATPROE-290	A/E Review	10d	Feb-25-22 A	Mar-11-22
MATPROE-360	Insulation Fabrication and Delivery	160d	Mar-14-22	Oct-26-22
MATPROE-370	Shingle Fabrication and Delivery	30d	Mar-14-22	Apr-22-22
Brick / Cast Stone		144d	Feb-02-22 A	Aug-23-22
MATPROE-210	Shop Drawings	20d	Feb-02-22 A	Mar-11-22

Project Summary		472d	Jan-29-21 A	Aug-08-23
SUMM-1230	Preconstruction	10d	Jan-29-21 A	Mar-11-22
SUMM-1010	Contract Project Duration - 16 months from NTP of 3/14/22 (488 Calendar Days)	488d	Mar-14-22	Jul-14-23
SUMM-1020	Foundations / Walls / SOG	52d	May-25-22	Aug-08-22
SUMM-1030	Tower Crane in Use	132d	May-27-22	Dec-02-22
SUMM-1040	Elevated Structure	57d	Aug-09-22	Oct-27-22
SUMM-1060	Lower Level Buildout	155d	Oct-03-22	May-10-23
SUMM-1050	Exterior Skin - All Elevations	138d	Oct-13-22	Apr-27-23
SUMM-1070	Level 1 Buildout	150d	Oct-20-22	May-22-23
SUMM-1200	Loading Dock / Utility Yard	163d	Oct-26-22	Jun-15-23
SUMM-1120	Buckhoist in Use	117d	Oct-28-22	Apr-13-23
SUMM-1080	Stairwells	124d	Oct-28-22	Apr-24-23
SUMM-1110	Roof Steel / Roofing	40d	Nov-01-22	Dec-28-22
SUMM-1090	Level 2 Buildout	130d	Nov-04-22	May-09-23
SUMM-1100	Level 3 Buildout	142d	Nov-11-22	Jun-02-23
SUMM-1130	Level 4 Buildout	139d	Nov-18-22	Jun-06-23
SUMM-1170	Upper Mechanical Level Buildout	80d	Dec-21-22	Apr-13-23
SUMM-1160	Elevator Install	70d	Feb-17-23	May-25-23
SUMM-1190	Final Site Work	77d	Feb-22-23	Jun-09-23
SUMM-1180	Commissioning	70d	May-01-23	Aug-08-23



Schedule Indicators – In Between Milestones

Activity Name	Orig Dur	Start	Finish
Remove Post Shores on L2	5d	Oct-28-22	Nov-03-22
	43d	Sep-13-22	Nov-10-22
vel 3	43d	Sep-13-22	Nov-10-22
Formwork L3	8d	Sep-13-22	Sep-22-22
MEP R/I	4d	Sep-15-22	Sep-20-22
Rebar	5d	Sep-19-22	Sep-23-22
Deck Pour	1d	Sep-26-22	Sep-26-22
FRP Columns on L3	5d	Sep-27-22	Oct-03-22
Strip Formwork / Reshore	5d	Oct-04-22	Oct-10-22
Remove Post Shores on L3	5d	Nov-04-22	Nov-10-22
	36d	Sep-29-22	Nov-17-22
vel 4	36d	Sep-29-22	Nov-17-22
Formwork L4	8d	Sep-29-22	Oct-10-22
MEP R/I	4d	Oct-03-22	Oct-06-22
Rebar	5d	Oct-05-22	Oct-11-22
Deck Pour	1d	Oct-12-22	Oct-12-22
FRP Columns on L4	4d	Oct-13-22	Oct-18-22
Strip Formwork / Reshore	5d	Oct-20-22	Oct-26-22
Remove Post Shores on L4	5d	Nov-11-22	Nov-17-22



Task Durations: Spot check scheduled vs. actual time it takes to complete activities (as defined by the schedule). If tasks are frequently taking longer than scheduled it may be an indicator of bigger issues. 2-Week Look Ahead Schedule

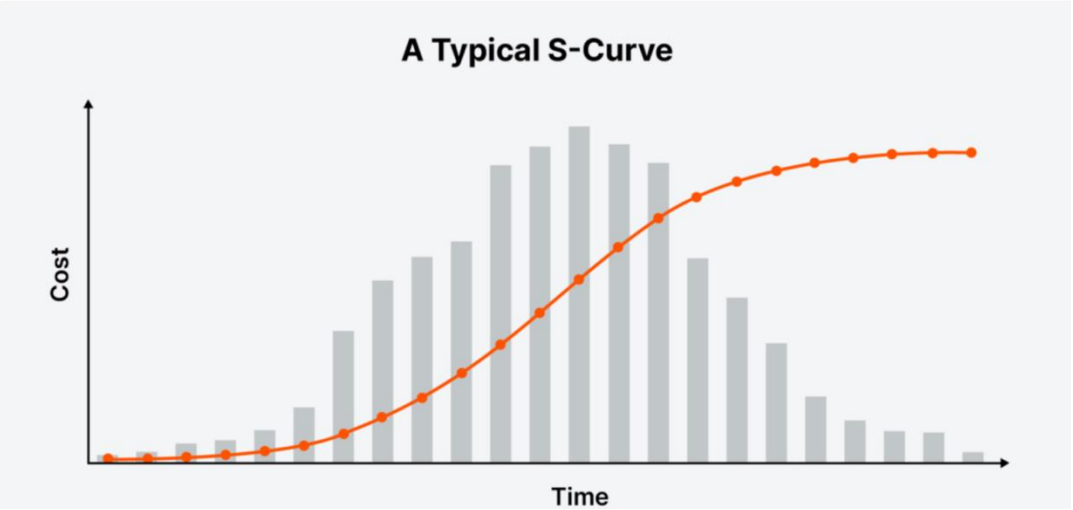
Schedule Indicators – In Between Milestones

Workforce: At OAC's, as "How many people are on site?". Compare that to the scheduled construction activities. If it seems low over time, that may be an indicator.

Critical Equipment and Specialty Fabrication Tracking: Most manufacturers will provide real-time tracking options for equipment and other specialty fabricated items. Request updates at OAC meetings. Missing any of these dates may delay the project. Sometimes, it is worth paying to expedite delivery if it can be guaranteed.

Budget

- Request a spend-down projection from the CP at the beginning of the project.
    - Variations are to be expected, if multiple PA's are lacking there may be an issue.
        - Potential Issues: lower productivity, equipment delay, trade contractor issues, etc.
- Look at Work Completed (This Period and Total) and % and compare month to month.
- For GMP projects where funds can shift between line items (outside of General Conditions), there may be items that come in higher or lower than the GMP document (which is an estimate with a not to exceed total). If a lot are coming in over, there may be an issue.



D	E	F	G	
WORK COMPLETED		MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)
FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD			
$2,260.69			$2,260.69	100%
$0.00	$2,552.90		$2,552.90	100%
$3,995.40	$100.88		$4,096.28	100%
	$3,454.03		$3,454.03	100%
	$1,061.04		$1,061.04	100%
$2,219,822.04	$137,942.46	$0.00	$2,357,764.50	97%
$5,358,753.05	**$169,732.46**	**$0.00**	**$5,528,485.51**	**99%**

Budget

- Make sure the team is tracking potential costs including pending/potential change orders and consideration of risk, which should be discussed at every OAC and evaluated prior to adding additional scope. Contingency can be utilized as allowed by pending cost and Risk.

IR	Amount	
IR-52	$ 15,876.60	to be approved
IR-70	$ -	to be approved
IR-71	$ (2,500.00)	estimate
IR-75	$ 11,904.95	to be reviewed
IR-79		missing estimate
IR-80	$ -	to be approved
IR-83	$ -	to be approved
IR-84	$ 20,283.38	estimate
IR-86		missing estimate
IR-87		missing estimate
IR-88	$ 18,000.00	estimate
IR-89	$ 7,000.00	estimate
IR-90		missing estimate
DP amendments for IRs	$ 952.60	for IR-52
Total	$ 71,517.53	
Owners Contigency	$ 1,129,637.66	
Contingency after Approval of all IR's above	$ 1,058,120.13	

F/U	1	Lyons Floor 1 Financial Aid and Post Office	738,110	11/1/2024
F/U	2	Maiblox Section A - 686 mailboxes	74,397	11/1/2024
F/U	3	Maiblox Section B - 147 mailboxes	15,942	11/1/2024
F/U	4	Maiblox Section C - 294 mailboxes	31,885	11/1/2024
F/U	5	Maiblox Section D - 294 mailboxes	31,885	11/1/2024
F/U	6	Maiblox Section E - 147 mailboxes	15,942	11/1/2024
F/U	7	Maiblox Section F - 294 mailboxes	31,885	11/1/2024
F/U	8	Maiblox Section G - 294 mailboxes	31,885	11/1/2024
VE13	9	Lyons Floor 2 Advisement & Tutoring	458,040	11/1/2024
F/U	10	Lyons Floor 1 Student Services	508,836	11/1/2024
F/U	11	Lyons Floor 1 Career Services	189,341	11/1/2024
VE15	12	Temporary Heating/Cooling for Bywaters & Founders	480,000	1/1/2025
F/U	13	Bywaters Floor 1 Nursing Sim and Nursing Skills	220,317	11/1/2024
F/U	14	Bywaters Floor 1 Nursing Classrooms and Home Health	93,993	11/1/2024
VE7	15	Lyons roofing system components as specified	19,500	11/1/2024
VE9	16	Lyons new fin balustrade at Multipurpose Room	26,440	1/1/2025
VE8	17	Lyons refinish of existing fin balustrade at Multipurpose Room	57,200	1/1/2025
VE12	18	Lyons fry reglet gypsum wallboard reveals	15,000	1/1/2025
A4	19	Lyons Suspended gypsum soffits and ACP cloud ceilings	203,941	12/1/2024
A1	20	Lyons Storefront Glazing back to Sunguard SNX 51/23	32,600	1/1/2025
VE6	21	Lyons recaulking of existing exterior joints	46,000	3/1/2025
VE3	22	Bywaters renovation of basement	95,142	1/1/2025
VE2	23	Bywaters renovation to Tiered Classrooms	220,483	1/1/2025

Quality

- Make sure all relevant stakeholders see and approve on-site mock-ups of details. In-place mock-ups allow stakeholders to see details in context.
- The entire Core Team should walk before each OAC for informed discussions during.
- When doing walkthroughs, look for deviations to standards. If everything looks the same except one, there may be an issue (or be a learning opportunity).

Quality

- Inspections should happen and reports issued per the contract. Pay special attention to pre-cover-up and Cx reports. If the same issues are noted over and over, there may be a sub issue. Issues should be confirmed correct prior to progressing (with pictures).

- If an OAC meeting is every two weeks, request the CP send out prior meeting minutes and relevant documents a week before the next OAC so everyone can review and approve.

- Often if the CP is struggling other project functions or processes (Budget, Schedule, Administrative, etc.), Quality begins to slip. Pay attention!

PPM During Design

Overview

“I would love to see this logic applied to design.” Bill Martin, UCF

1. Utilize Lessons Learned: Trace past project issues to their root cause.
2. Use Root Causes Establish Indicators
3. Create Controls To Better Monitor Progress

The issue with proactively managing the Design process is the structure of the DP contract as related to CP contract. By adding schedule, budget, and quality controls similar to those in the CP contract, we can better assess and proactively manage the Design process.

Schedule

Issue: Behind Schedule, End of Design Phase

Add to the DP Contract:

- Additional Milestones Between Phases
- Task Durations For Design Components (Civil, Structure, MEP, Architecture)
- Incorporate “Two Week Look Ahead” Schedules To Monitor

Budget

Issue: Scope Creep

Add to the DP Contract:

- Define Scope Fully At The End of Each Project Phase
- Create A Change Order Process – All Added Scope Must Be Approved By Owner
    - Developing Agreed To Scope Should Not Add Scope

Quality

Issue: Drawing Errors

- Team reviews of drawings, specifications, design progress and coordination during design phases.
    - Include Consultants
    - Include 3rd Party Reviews (PM Team, Cx)

Add to the DP Contract:

- Implement BIM For Systems Heavy Projects
- DP To Provide Quality Control Plan - ASTM E1804 (Basis)

Conclusion

Proactive Project Management

- Open Communication – Know Your Contracts
- Identify potential risks based on project experience
- Utilize Contractual Requirements and Project Data To Establish Indicators
- Active Engagement – Monitor Indicators
- Ask Questions – Open Discussion - Take Action, If Required
- Share What Works With

Remember:

- Each project gives additional opportunities for creating tools for success, such as indicators, and a better understanding of what should and shouldn't be happening at each stage of the project.
- Every project is different so the same things may not work or be applicable. Therefore, the more PM strategies and tools you develop, the better. Test them all out, see what works.

Discussion