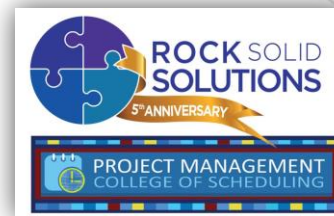


Airing Dirty Laundry

A Cleaner Approach to Tracking Delays



Raquel Floyd, FPMCOS, PSP, EI,

Raquel Floyd, President, RSPS

- 30+ yrs Construction industry experience in engineering, risk assessment, estimating & scheduling.
- Developed & managed 400+ CM/owner schedules
- Expert Testimony
- Deep commitment to educational outreach/mentorship
- Deep commitment to professional organization
- BS Civil Engineering, University of Nevada, Las Vegas



Rachel Smallwood, Senior Project Specialist, RSPS

- 15+ yrs Construction industry experience
- 25+ yrs working in production of live entertainment
- Adjunct Professor at 5 Universities
- Deep commitment to collaboration and transparency
- MS Construction Management, University of Nevada, Las Vegas
- MFA Scenic Design, Florida State University
- Terrible Joke Teller



Rachel Smallwood, PSP, MSCM, MFA



The path is just as important as the destination.



The path is just as important as the destination.

- Take Pictures.
- Take Notes.





A Simple Example To Get Us Started:



Just Breakfast?

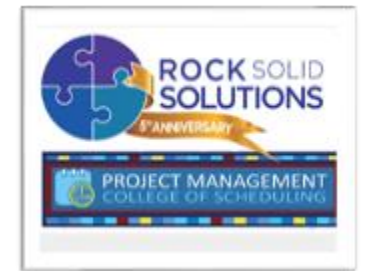


Remember the path?

Every project, big or small progresses...

...and WE NEED TO REMEMBER:

- Who was there?
- What were they doing?
- What equipment was on site?
- What was the weather?
- ?...?....?....?....?....?





What makes a good story better?

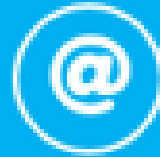
DETAILS



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Las Vegas, NV



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SCHEDULE UPDATE NARRATIVE



SCHEDULE UPDATE TRACKING

A standard schedule narrative includes, but is not limited to, information required by a project's specifications. These requirements often include:

- Project Milestones: Current / Variance
- Schedule status through the lifetime of the project
- Changes to the schedule:
 - Added/Deleted activities
 - Logic changes
 - Duration changes
 - Sequencing changes
- Listing of potential problems or impacts
- Listing delay / Frag events

PROJECT MILESTONES

SCHEDULE UPDATE STATUS AND HISTORY

CRITICAL PATH SUMMARY

SCHEDULE METRICS FOR PLANNED WORK

POTENTIAL PROBLEMS OR IMPACTS

CHANGES TO THE SCHEDULE



What if...



 **Project Controls**
EXPO
Washington, DC - USA

All Delays. ALL Stakeholders

“Dirty Laundry”

Force Majeure

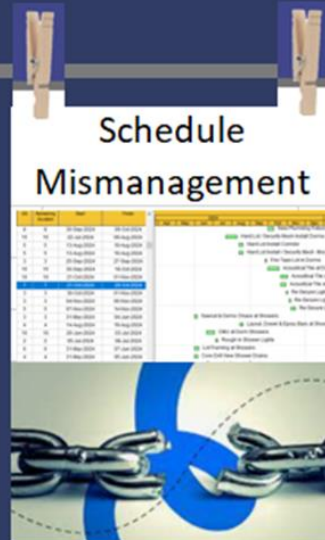


Inadequate Planning

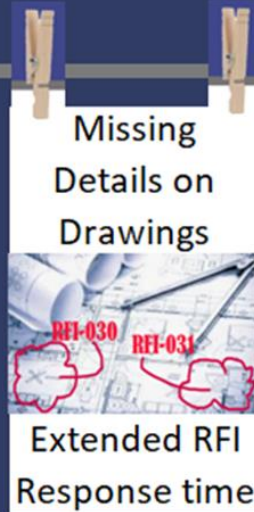


Missed Scope

Schedule Mismanagement



Missing Details on Drawings



Extended RFI Response time

Design Variation Between Trades

- PLUMBING
- MECHANICAL
- ARCHITECTURE
- STRUCTURAL
- ELECTRICAL

Added Scope / Scope Creep



I NEED A BUDGET ESTIMATE FOR MY PROJECT, BUT I DON'T HAVE A SCOPE OR A DESIGN FOR IT YET.

Dilbert.com DilbertCartoonist@gmail.com



- **Practice makes permanent;
Perfect practice makes perfect.**
- **Trust is earned.**
- **We have the same goals:**
 - 1. On-time**
 - 2. On-budget**
 - 3. No days lost to injuries**
- **Let's agree that we may not agree on
which path to take, but our destination is
the same.**



So, how do we track delays?

In the beginning...

...we read the SPECIFICATIONS.



Sometimes,

The specifications state “There will no changes to the baseline schedule without prior approval by...”

Or “A schedule reflecting anything other than an on-time completion will be REJECTED without...”



Case Study:

- University in the Middle East
- Cost & Resource Loaded
- Strict Adherence to Specifications – No Changes at all permitted without prior written authorization to be submitted in the narrative provided WITH submission.
 - Deliverables, in the format provided (no deviations) – ex. S-Curves, earned value, percentage complete, and variance report.



Tracking Planned Vs Actual Allotted "Units":

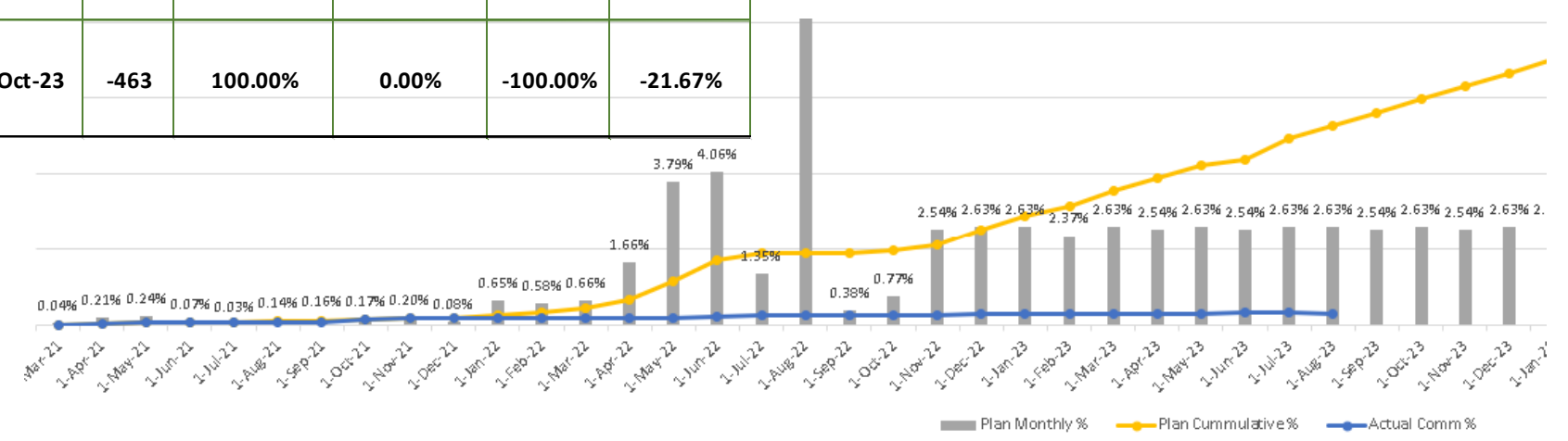
Date	Plan Monthly units	Plan Cumulative units	Plan Monthly %	Plan Cumulative %	Actual Comm %
1-Mar-21	3,756.30	3,756.30	0.04%	0.04%	0.00%
1-Apr-21	21,143.80	24,900.10	0.21%	0.25%	0.25%
1-May-21	23,400.00	48,300.10	0.24%	0.49%	0.49%
1-Jun-21	6,800.00	55,100.10	0.07%	0.56%	0.56%
1-Jul-21	2,484.90	57,585.00	0.03%	0.58%	0.56%
1-Aug-21	13,452.90	71,037.90	0.14%	0.72%	0.56%
1-Sep-21	15,506.80	86,544.70	0.16%	0.88%	0.56%
1-Oct-21	16,623.90	103,168.60	0.17%	1.04%	1.00%
1-Nov-21	20,093.90	123,262.50	0.20%	1.25%	1.20%
1-Dec-21	7,893.90	131,156.40	0.08%	1.33%	1.20%
1-Jan-22	63,941.40	195,097.80	0.65%	1.97%	1.42%
1-Feb-22	57,477.10	252,574.90	0.58%	2.56%	1.42%
1-Mar-22	65,054.20	317,629.10	0.66%	3.21%	1.42%
1-Apr-22	163,683.30	481,312.40	1.66%	4.87%	1.42%
1-May-22	374,197.50	855,509.90	3.79%	8.65%	1.42%
1-Jun-22	401,730.00	1,257,239.90	4.06%	12.72%	1.51%
1-Jul-22	133,560.00	1,390,799.90	1.35%	14.07%	1.77%
1-Aug-22	1,342,350.00	1,342,350.00	13.58%	13.58%	1.77%
1-Sep-22	37,800.00	1,380,150.00	0.38%	13.96%	
1-Oct-22	76,062.10	1,456,212.10	0.77%	14.73%	
1-Nov-22	251,172.80	1,707,384.90	2.54%	17.27%	
1-Dec-22	259,545.30	1,966,930.20	2.63%	19.90%	
1-Jan-23	259,545.30	2,226,475.50	2.63%	22.52%	
1-Feb-23	234,428.00	2,460,903.50	2.37%	24.90%	
1-Mar-23	259,545.30	2,720,448.80	2.54%	27.44%	

Date	Plan Monthly units	Plan Cumulative units	Plan Monthly %	Plan Cumulative %	Actual Comm %
1-Mar-21	3,756.30	3,756.30	0.04%	0.04%	0.00%
1-Apr-21	21,143.80	24,900.10	0.21%	0.25%	0.25%
1-May-21	23,400.00	48,300.10	0.24%	0.49%	0.49%
1-Jun-21	6,800.00	55,100.10	0.07%	0.56%	0.56%
1-Jul-21	2,484.90	57,585.00	0.03%	0.58%	0.56%
1-Aug-21	13,452.90	71,037.90	0.14%	0.72%	0.56%
1-Sep-21	15,506.80	86,544.70	0.16%	0.88%	0.56%
1-Oct-21	16,623.90	103,168.60	0.17%	1.04%	1.00%
1-Nov-21	20,093.90	123,262.50	0.20%	1.25%	1.20%
1-Apr-25	251,172.80	9,091,806.00	2.54%	91.98%	
1-May-25	259,545.30	9,351,411.90	2.63%	94.60%	
1-Jun-25	251,172.80	9,602,584.70	2.54%	97.14%	
1-Jul-25	192,565.80	9,795,150.50	1.95%	99.09%	



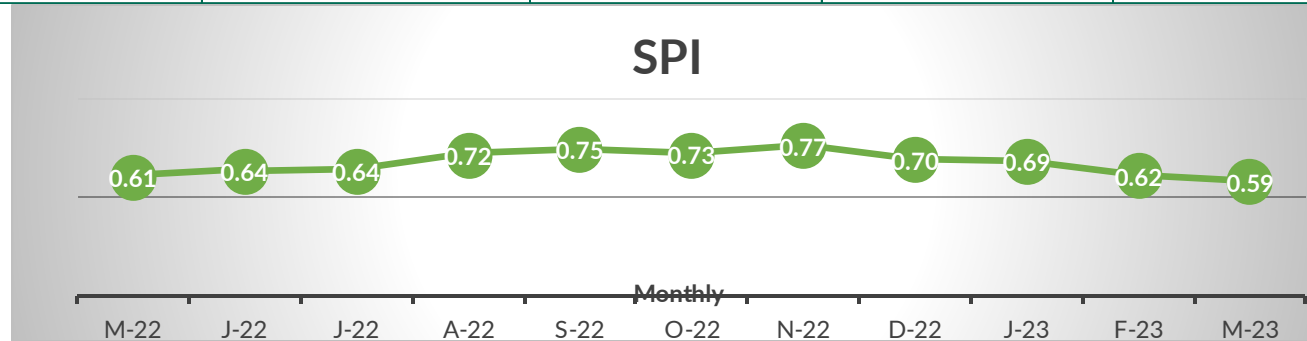
Description	Baseline		Actual / Forecast		Finish Date Var	Planned % (Cumulative)	Actual % (Cumulative)	Var.	Var. Last Week
	Start	Finish	Start	Finish					
Detailed Design	30-Dec-21	29-Jun-22	13-Jun-22	16-Mar-23	-260	100.00%	84.97%	-15.03%	-6.50%
DD Submissions	30-Dec-21	18-May-22	13-Jun-22	3-Feb-23	-261	100.00%	100.00%	0.00%	0.00%
50% Deliverables	30-Dec-21	16-Feb-22	13-Jun-22	12-Aug-22	-177	100.00%	100.00%	0.00%	0.00%
90% Deliverables	17-Feb-22	30-Mar-22	13-Aug-22	21-Oct-22	-205	100.00%	100.00%	0.00%	0.00%
100% Deliverables - FIRST	31-Mar-22	18-May-22	22-Oct-22	3-Feb-23	-261	100.00%			
100% Deliverables REVISION Based on Comments 6-Apr-23	31-Mar-22	18-May-22	6-Apr-23	16-May-23	-363	100.00%	100.00%	0.00%	0.00%
100% Deliverables REVISION	31-Mar-22	18-May-22	7-Aug-23	25-Aug-23	-464	100.00%	99.96%	-0.04%	
DD Approvals	19-May-22	29-Jun-22	5-Feb-23 17-May-23 8-27-23	5-Oct-23	-463	100.00%	0.00%	-100.00%	-21.67%

Detailed Design...



Schedule Performance Index (SPI) – a measure of conformance of actual progress (earned value) to planned progress (baseline) **SPI= EV/PV** - Less than 1.0, a project lags from schedule due to less earned value than planned value, greater than 1.0?? Ahead of schedule, good for you!

	M-22	J-22	J-22	A-22	S-22	O-22
Earned Value	SAR 33,533,683.00	35,941,948.39	37,355,666.56	44,929,339.61	49,603,163.61	51,676,145.30
Planned Value	SAR 54,782,652.15	55,929,541.08	58,092,602.13	62,066,643.62	66,040,685.11	71,240,200.83
SPI	0.61	0.64	0.64	0.72	0.75	0.73



Most Projects requiring monthly narratives will also track period progress... but this still doesn't tell us

WHY?

SCHEDULE FILE NAME		SCHEDULE DATA DATE	PROJECT SUBSTANTIAL COMPLETION	PROGRESS PERIOD GAIN/LOSS*	SCHEDULE TOTAL FLOAT*
ID	PROJECT NAME				
XXXX-06Aug21	XXXX August 6, 2021 (BASELINE)	6-Aug-21	4-May-23	NA	0
XXXX-30Sept21	XXXX September 30, 2021	30-Sep-21	7-Jul-23	-44	-44
XXXX-11Jan22	XXXX January 11, 2022	11-Jan-22	4-Aug-23	-28	-92
XXXX-13Apr22	XXXX April 13, 2022	13-Apr-22	17-Nov-23	-105	-197
XXXX-15JULY22	XXXX July 15, 2022	15-Jul-22	9-Nov-23	8	-97
XXXX-30Aug22	XXXX Aug 30, 2022	30-Aug-22	7-Nov-23	2	-95
XXXX-23Sept22	XXXX Sept 23, 2022	23-Sep-22	20-Dec-23	-43	-138
XXXX-03Nov22	XXXX Nov 03, 2022	3-Nov-22	15-Dec-23	5	-133
XXXX-15Dec22	XXXX December 15, 2022	15-Dec-22	8-Feb-24	-55	-188
XXXX-26Jan23	XXXX - January 26, 2023	26-Jan-23	23-Feb-24	-15	-203
XXXX-23Feb23	XXXX - February 23, 2023	23-Feb-23	28-Feb-24	-5	-208



Line	Driving Pred	Driving	S	F	Activity ID	Activity Name	Start	Finish	Baseline Finish	January Update	DELTA, CD
1	NO	NO	9/8/21	9/8/21	CDs-130	OSFM Meeting (See frag-01)	9/8/2021	9/8/2021	8/30/2021		
2	FS,6	FS,3	12/9/21	1/11/22	Perm-110	XXXX Fire Department Review(All But FA)	09-Dec-21 A	11-Jan-22	9/21/2021		-112
3	FS,2	FS,9	1/12/22	3/16/22	Perm-120	State Fire Marshal Review : Comments Rcv'd 3/16/22 SEE FRAG-10	12-Jan-22 A	16-Mar-22	2/7/2022		-37
4	NO	NO	1/12/22	2/11/22	Perm-130	XXXX County Building Department: Comments Rcv'd SEE FRAG-20	12-Jan-22 A	11-Feb-22	12/2/2021		-71
5	NO	NO	1/28/22	4/11/22	Perm-170	XXXX Review / Conformed Set	28-Jan-22 A	11-Apr-22	2/23/2022		-47
6	FS,1	FS,7; FS,2	9/9/21	12/8/21	FRAG-01	Smoke Control Design - Required Info Delayed by OSFM Meeting	09-Sep-21 A	8-Dec-21			
7	NO	FS,9	12/9/21	1/26/22	FRAG-02	Fire Alarm Design Awaiting FRAG-01	09-Dec-21 A	26-Jan-22			
8	FS,4	FS,24	2/14/22	4/22/22	FRAG-20	RE: XXXX Comments HOLDING For State Fire Marshal Comment Resolution	14-Feb-22 A	22-Apr-22			
9	FS,3	FS,10	3/17/22	4/22/22	FRAG-10	State Fire Marshal Review : Comments Rcv'd 3/16/22, XXXX to Propose Solution 4/22/22 SEE FRAG-30	17-Mar-22 A	22-Apr-22			
10	FS,9	FS,11	4/25/22	6/8/22	FRAG-30	State Fire Marshal Review of NEW PLANS per FRAG-10 Comments Recv'd 6/8/22, See FRAG-40	25-Apr-22 A	8-Jun-22			
11	FS,10	FS,12	6/9/22	7/8/22	FRAG-40	State Fire Marshal Review - Comments Recv'd 6/8/22 XXXXReq to Resubmit 7/8/22	09-Jun-22 A	8-Jul-22			
12	FS,11	FS,13	7/11/22	8/18/22	FRAG-50	State Fire Marshal Review of NEW PLANS per FRAG-40 Comments Recv'd 8/18/22	11-Jul-22 A	18-Aug-22			
13	FS,12	FS,14	8/19/22	8/25/22	FRAG-60	State Fire Marshal Plans -XXXX to Resubmit 8/26/22. See Frag-50	19-Aug-22 A	25-Aug-22			
14	FS,13	FS,15	8/26/22	9/14/22	FRAG-70	State Fire Marshal Review of NEW Plans 8/26/22. See Frag-60	26-Aug-22 A	14-Sep-22			
15	FS,14	FS,16	9/15/22	9/19/22	FRAG-80	XXXX Building Department Final Review	15-Sep-22 A	19-Sep-22			
16	FS,15	FS,17	9/20/22	9/26/22	FRAG-90	Preparation of BSCC Documents	20-Sep-22 A	26-Sep-22			
17	FS,16	FF,24	9/27/22	10/24/22	FRAG-100	XXXX Final Review	27-Sep-22 A	24-Oct-22	2/24/2022		-242
24	FF,17		10/24/22	10/24/22	MOB-170	CNTP MOBILIZATION	24-Oct-22 A	24-Oct-22	2/24/2022	5/26/2022	-151

You can use Excel...



Filter All: Remaining Work

Activity ID	Activity Name	Original Duration	RD	Comr	Start	Finish	Total Float	Variance to Last Week
FRAG-690	Fall Arrest Safety System - Per Email from Mech Inspector Beginning 1/26/23 See Notes	144	7	6/22 AOR on	26-Jan-23 A	18-Aug-23	-609	-29

General Status Resources Relationships Codes Notebook

Activity: FRAG-690 Fall Arrest Safety System - Per Email from Mech Inspector Beginning 1/26/23 See Notes Project: [REDACTED]

- Notebook Topic
- General Notes

General Notes

1/26/23 Mechanical Inspector Note RE: Fall Arrest System asking to submit RFI or Work Request

As of 6/15/23 this scope has not been approved by Mech Inspector.

6/22/23 AOR & Inspectors are on site discussing scope. Current thought suggests attaching to solar posts. Engineering / drawings / approvals required to price & perform scope. TBD

7/13/23 AOR on Vacaion this week, Holding finish at 7/17

7/27/23: Received drawings 7/25/23 from AOR to review prior to City for review. Current iteration Being discussed. Push to end of week.

8/3/23 - 8/1/23 Letter sent to ownership regarding Fall arrest Concerns and requested indemnification.

[REDACTED]

We are running this by the mechanical inspector to obtain his input. Even if he shows no objection, [REDACTED] is concerned on multiple levels, including but not limited to the following:

1. Is it OSHA compliant? Do you want an OSHA representative to review it?
2. It's a hit and miss system designed without safety engineering input. It's designed for minimum compliance, if that.
3. It probably should have instructional compliance signage. Otherwise, it nothing more than tube steel formed to rectangles.



And continue to track:

Activity ID	Activity Name	Original Duration	RD	Comrr	Start	Finish	To
FRAG-IS-11	*NEW* Placeholder Duration for Scope @ Corridors Interstitial approved in FRAG-IS-100 - RISK	20	20		17-Aug-23	14-Sep-23	-6

OWNER - SUN RENEW SOLAR SCOPE (Per 12/1/21)

General | Status | Resources | Relationships | Codes | Notebook

Activity: FRAG-IS-100 | *NEW*Duration between Mechanical Engineer Onsite Confirmation and Architect Respor | Project: [REDACTED]

Notebook Topic: General Notes

General Notes

Email Reference: From [REDACTED] 6/14/23 Addressing [REDACTED] S email from 6/14/23.

75deg guarantee requesting paperwork showing this is possible and condensation will not occur

Email Reference: from [REDACTED] v 6/15/23

In Response to Architect, referring inspector suggesting ducting requires insulation

As of 6/17/23 [REDACTED] Team awaiting resolution between Inspectors and Architects, Duration to push TBD +5days

6/22/23 Awaiting official response from Mech Inspector to Mechanical Engineers letter 6/20. +5days

7/7/23 meeting onsite TBD - HIGH RISK TO SCHEDULE PUSH+2wk for written resolution and mobilization. Resolution scope TBD, 10 day Placeholder for scope Added

7/13/23 Walk with ownership 7/7/23 and AOR - All trades involved, Awaiting direction from AOR and Ownership
Push 1 week after meeting to 7/14



We can go back into any update and show, in detail, the evolution of a delay.

If we do this, to any activity, critical, near-critical or not, we have the details. We show the cause(s), the effect(s), risk(s), we have a full memorialized picture in time.



Important note on nomenclature of recording details:

OBJECTIVITY

If the delay of a project is not resolved amicably, and a schedule is used in a litigation case, it is critical that all schedule notes are objective, and corroborated.



We can remember what we made for
breakfast...

...and it's always more than just breakfast.





THANK YOU