24TH ANNUAL

24TH LCI CONGRESS
OCTOBER 18-21

Digital From the Beginning
Pull Planning the Walbridge Way

Walbridge

Chris Dezsi

Ryan O'Grady

John Jurewicz

LEAN GUMBO: THE RIGHT INGREDIENTS FOR PROJECT SUCCESS

October 19, 2022 1:30 PM CST

Your Presenters

Walbridge

John Jurewicz
Director of Innovation

Chris Dezsi
Director, Scheduling

Ryan O'Grady
Superintendent

Walbridge
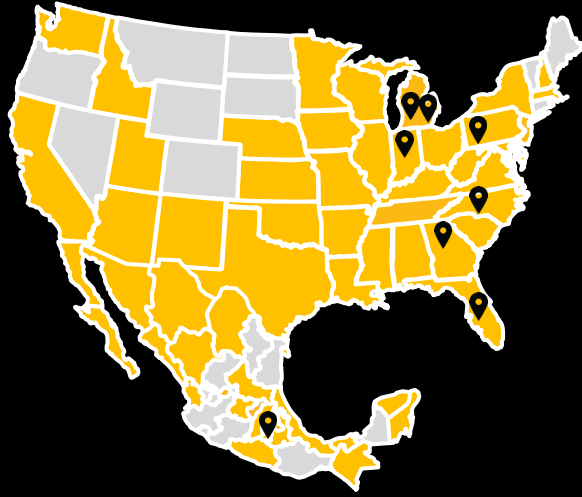
Where We've Worked | Office Locations

About Us

- 0.45 EMR - 2022
- Top 50 construction company in the U.S.
- 106-years experience, founded in 1916
- $3.4 billion annual sales
- More than 25M+ annual craft hours
- Experts in delivering complex & technical Projects
- 8 domestic U.S. / 3 international office locations
- 1,500 global team members
- 95% repeat clients

Single Source

- Consulting
- Planning
- Procurement
- Construction
- Process Equipment Install
- Facility Management
- Concrete
- Technology
- Architecture / Engineering

Locations

- Atlanta, Georgia
- Charlotte, North Carolina
- **Detroit, Michigan (HQ)**
- Kalamazoo, Michigan
- Kokomo, Indiana
- Mexico City, Mexico
- Pittsburgh, Pennsylvania
- Sao Paulo, Brazil
- Tampa, Florida
- Windsor, Canada

Delivery Systems

- FEL Studies
- Preconstruction
- Construction Management
- Design-Build
- General Contracting
- Program Management
- Integrated Project Delivery
- EPC / EPCM
- Facility Management

2021-22 ENR Rankings

#1 – Automotive *(19 of the last 20 years)*
#1 – Manufacturing
#3 – Co-generation
#7 – Aerospace
#8 – Steel & Non-ferrous Plants
#12 – Data Centers
#14 – Telecom
#39 – ENR Top 400
#46 – Industrial Process
#48 – Power

Self-Perform

- Design
- Structural Concrete / Placement
- Structural Steel Erection
- Selective Demolition
- Heavy Rigging
- Emergency Shutdowns
- Plant Relocation / Shutdowns
- Tooling / Equip. Shutdown
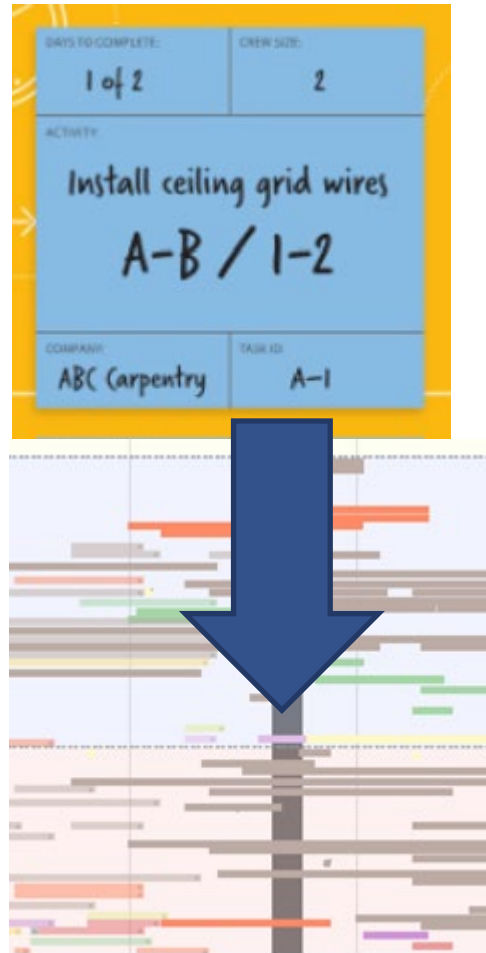- Technology (Field / Radar / Laser / etc.)

Problem Statement

Often adopting something new is challenging, especially when team are stressed with limited resources. To encourage pull planning adoption, Walbridge uses a large collaborative wall, onsite, so that trade foreman have an easy way to perform adjustments.

- Inconsistencies in implementation and usage

Agenda

1. History/Journey

2. Reboot of Last Planner

3. Implementation/Daily Use

4. Tutorial

5. Technology & Start up Tips

1 History/Journey

Lean Construction Institute
Transforming Design and Construction

How We Started

How We Started

Mixed Success

Corporate Requirement

Value Added Tool

Reevaluation

Gather Feedback

Analyze Feedback

Act on Feedback

Known Struggles

- Logistics

- Board Size

- Planning Limitations

- Post-its Falling

Journey Measurements & Accomplishments (Audits)

3. Weekly Work Plan meetings are being held on a weekly basis.
    Yes [x] No [ ] - Yes, but slowed due to slowed work flow and covid

5. Weekly Work Plan shows tasks extending out the appropriate number of weeks (5 Weeks).
    Yes [x] No [ ] - Due to space and the number of projects this team is only using 4 sets of board, 8 in total.

6. Each subcontractor has been assigned a color for their task notes.
    Yes [x] No [ ] – Yes, using Walbridge standard post its. Had some issues with enough colors at peak construction

10. Planned Percent Complete is being tracked and posted.
    Yes [x] No [ ] – Tracked on White Board. 100% mean subs could be challenged more
    What is the current PPC of the project?____100%_____

13. Reasons for missed commitments are being tracked.
    Yes [X] No [ ] – Not using WA procedure, tracking through meeting minutes.

14. All necessary subcontractors are actively participating.
    Yes [x] No [ ] - Roughly 80% subcontractor participation.

Audit Findings

- Inconsistencies of Application

- Inconsistencies in Documentation

- Social Distancing Requirements

- Subcontractor Engagement

2 Reboot of Last Planner

Lean Construction Institute
Transforming Design and Construction

Removing Barriers

Barrier

- ☐ Logistics
- ☐ Board Size
- ☐ Planning Limitations
- ☐ Post-its falling
- ☐ Inconsistencies of application
- ☐ Inconsistencies in documentation
- ☐ Subcontractor Engagement

Solution

- ☐ Electronic Version of LPS
- ☐ Electronic Version of LPS
- ☐ Electronic Version of LPS
- ☐ Electronic Version of LPS
- ☐ Electronic Version of LPS
- ☐ Electronic Version of LPS
- ☐ Contracts/Costs

Removing Barriers

- Last Planner software testing

- Supporting technology

- Enterprise License with Hoylu

  - Removed Cost Barriers on Project

- Introduce Contract Language

  - Remove Contractual Barriers

- Team Training

3 Implementation/Daily Use *in Action*

The Weekly Sub Coordination Meeting Then is Turned Into Daily Task Use

Lean Construction Institute
Transforming Design and Construction

Overview | Success

- Recent success
  - Data Center – Virginia
  - Up to $50,000 / day liquidated damages

- Success Metrics
  - $0 in actual liquidated damages
  - 3 weeks ahead during slab placement
  - All major construction milestones met

- Project challenges
  - COVID
  - Location / Trade availability
  - 2 months faster than previous phase

Mission Critical
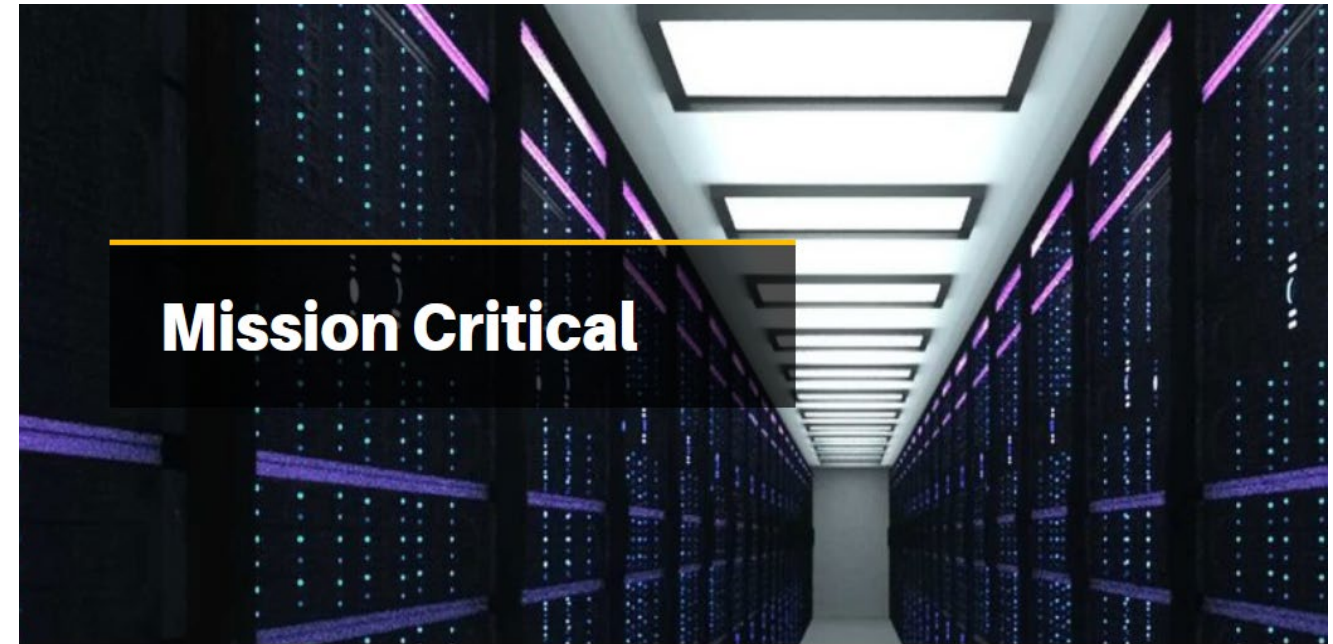
Overview | Last Planner

Meeting Flow

Weekly

Schedule Milestones
(12 Week)
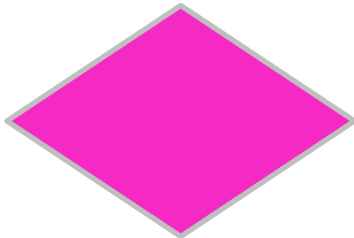
Visual Planning &
Discussion

Detail Tasks
in Hoylu
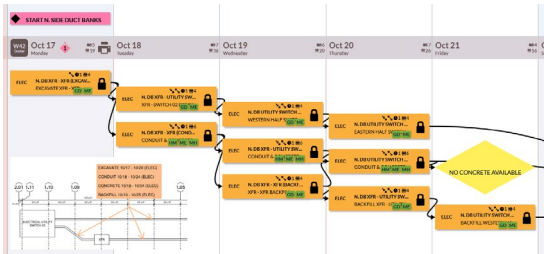
Daily

Schedule Milestones
(4 Week)
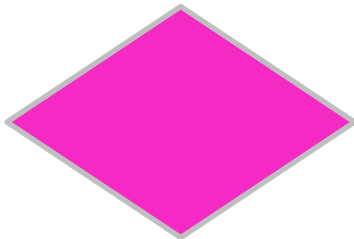
Task Review:
Current and Previous Day
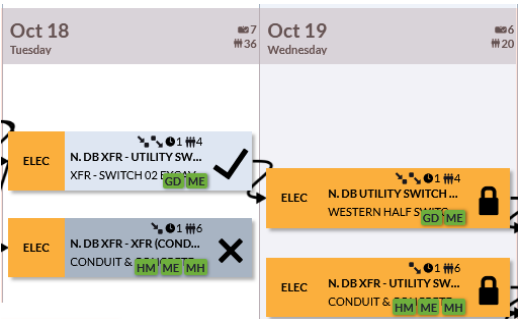
Current and
Upcoming Constraints
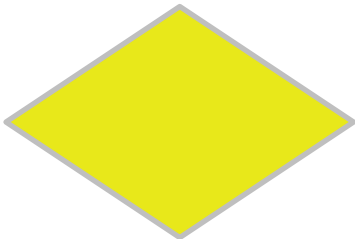
Weekly Meeting

- Major milestones (12 weeks)

- 4-week lookahead

- Drawings, BIM, Visual Planning

- Contractor involvement

  - Contract language

  - Visual aids

  - Lessons learned

- Benefits and disadvantages

  - Understanding potential impacts to / from other trades

  - Identify trends in Reasons for Missed Commitment (RMC)

  - Reluctancy to commit when missing commitments
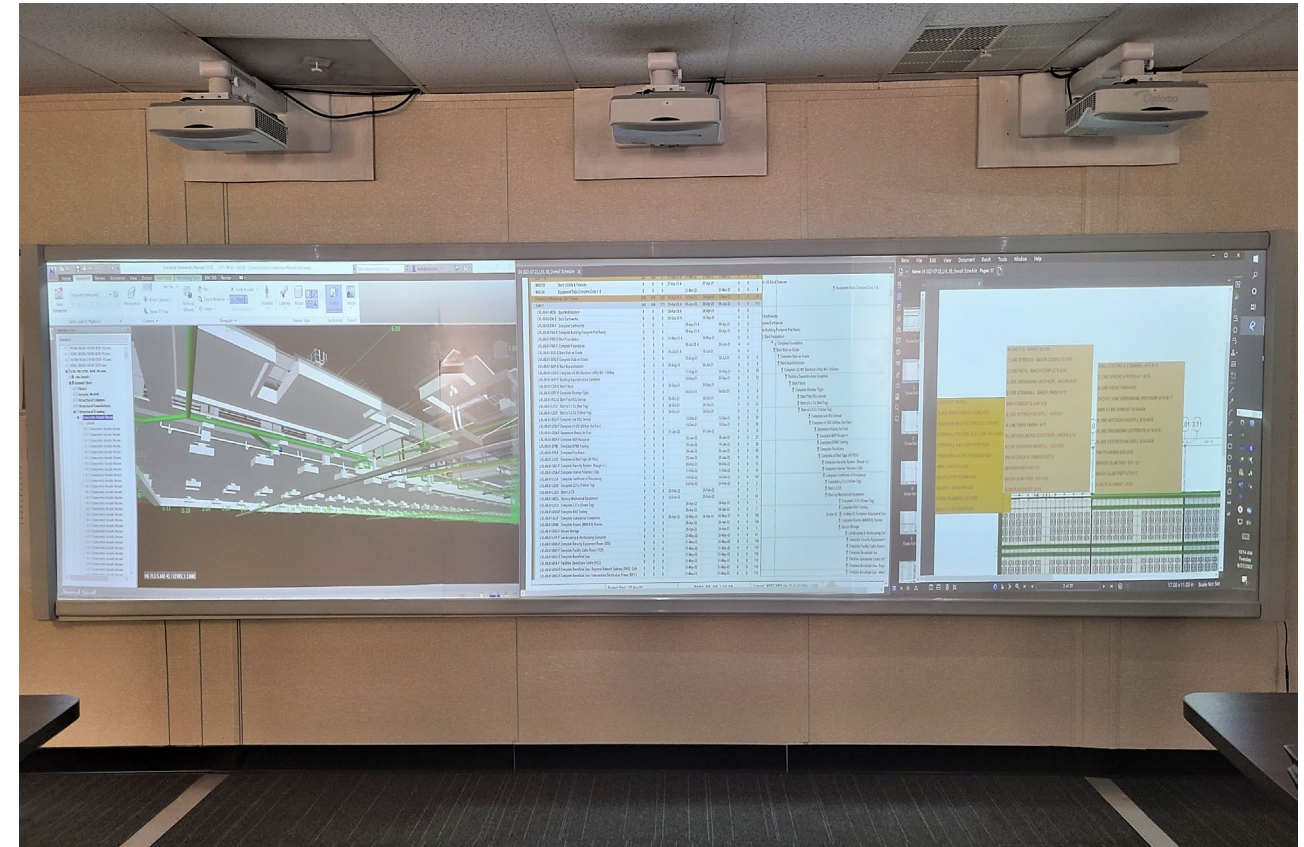
Daily Meeting

- Safety

- Critical milestones in the next 4 weeks

- Were planned tasks completed yesterday?
  - If not, why? (47% of incomplete tasks were from labor issues)
    - What are the impacts?
    - How do we recover?

- Today's tasks

- Current constraints

- Daily walks

4 Tutorial

Lean Construction Institute
Transforming Design and Construction

Hoylu Workspace

Visual Planning

Milestones
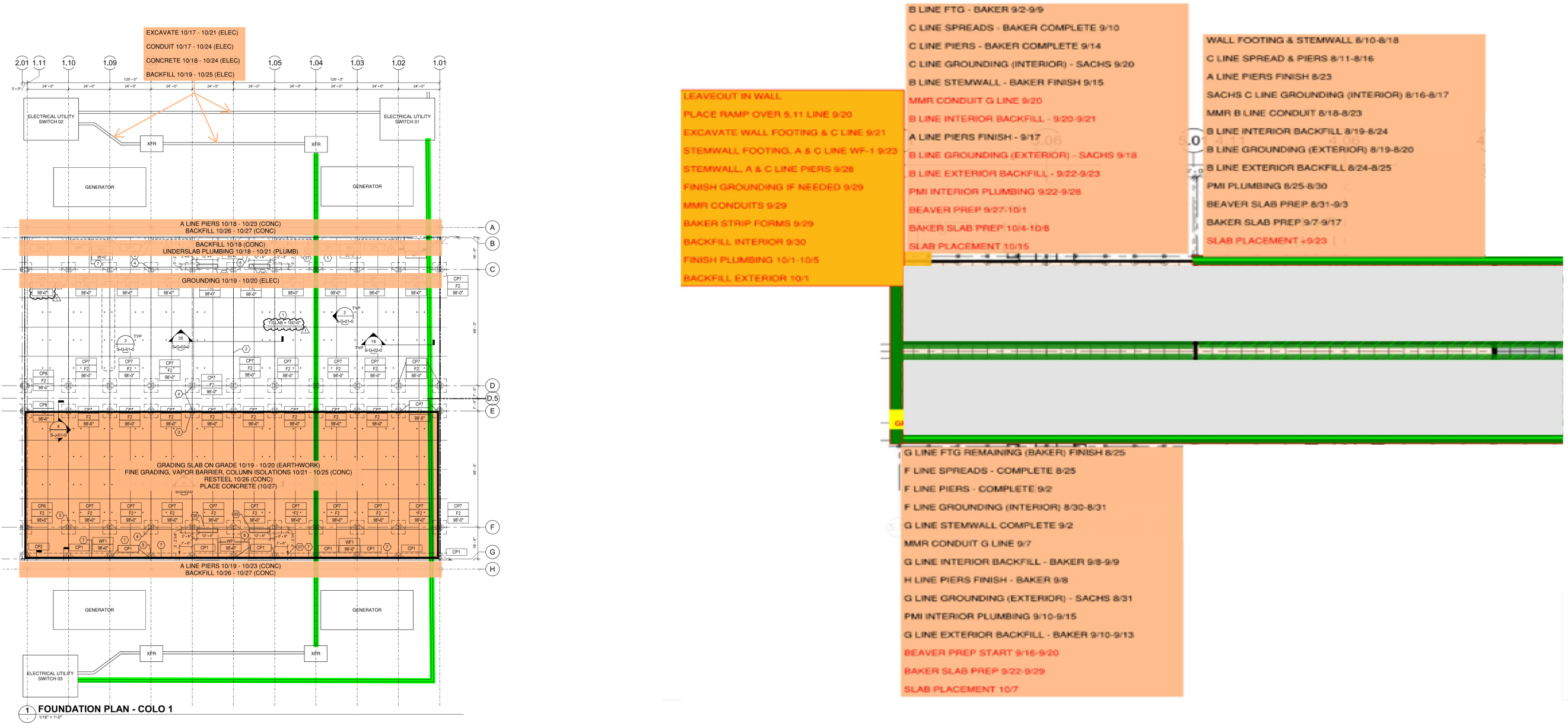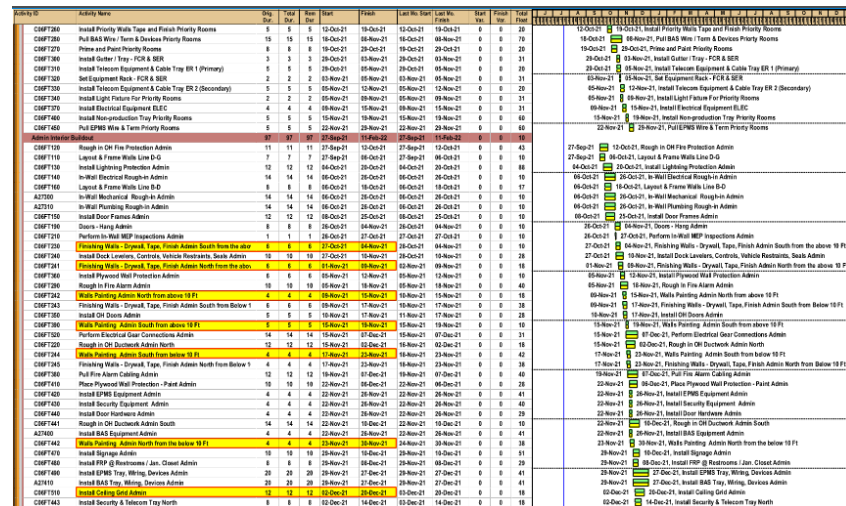
Committing to Work

Contractor enters activities which are then reviewed and locked in.

Commitments, and Constraints
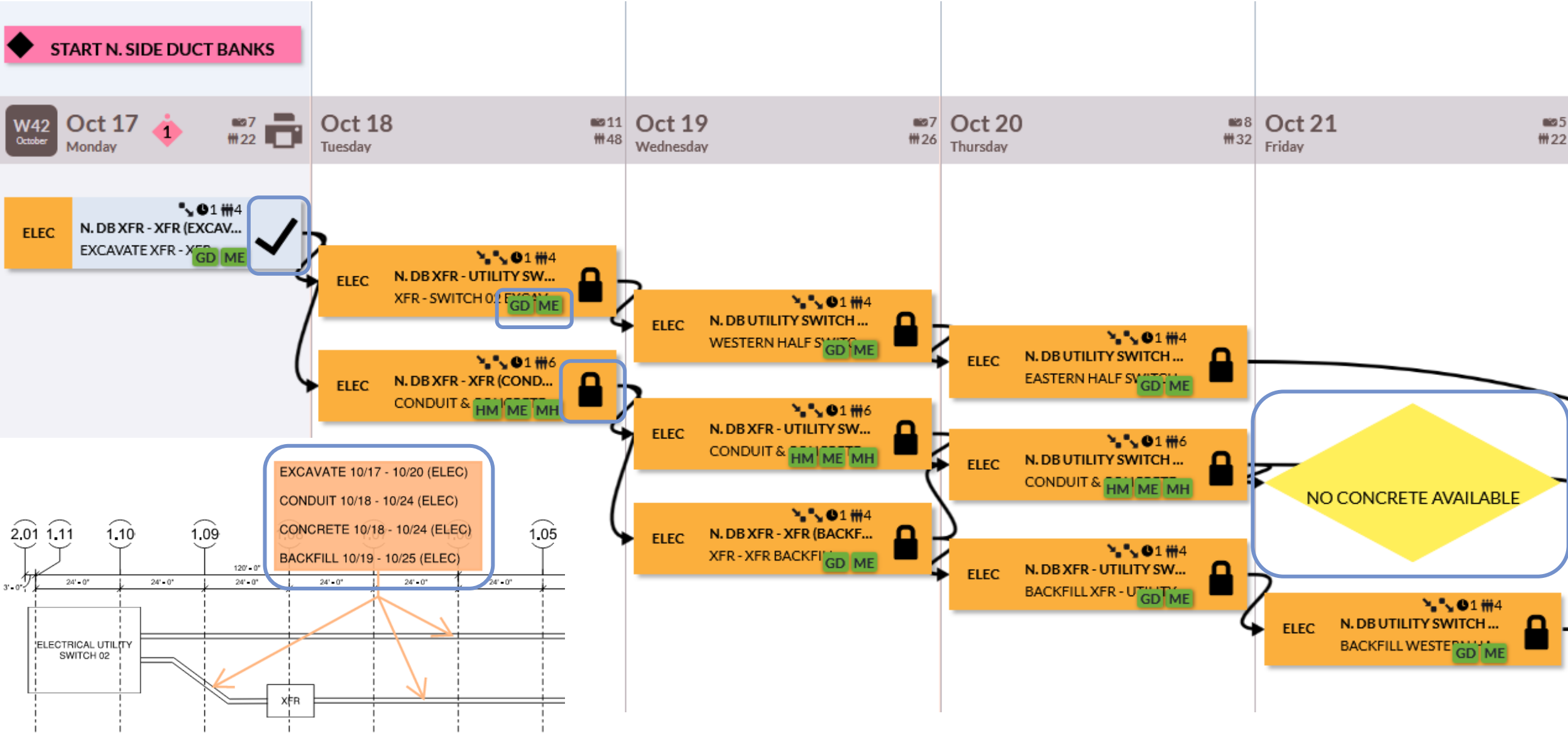
Variance: Reasons for Missed Commitment (RMC)
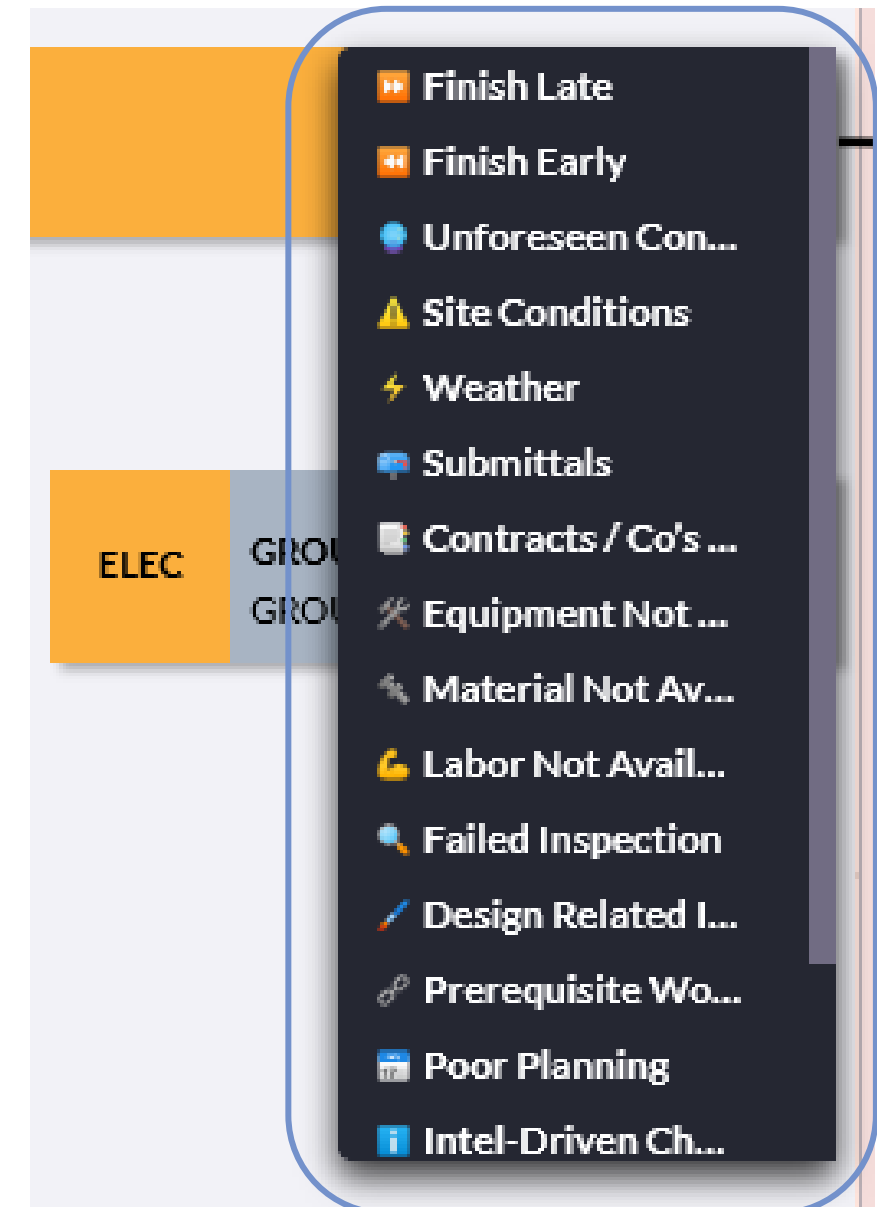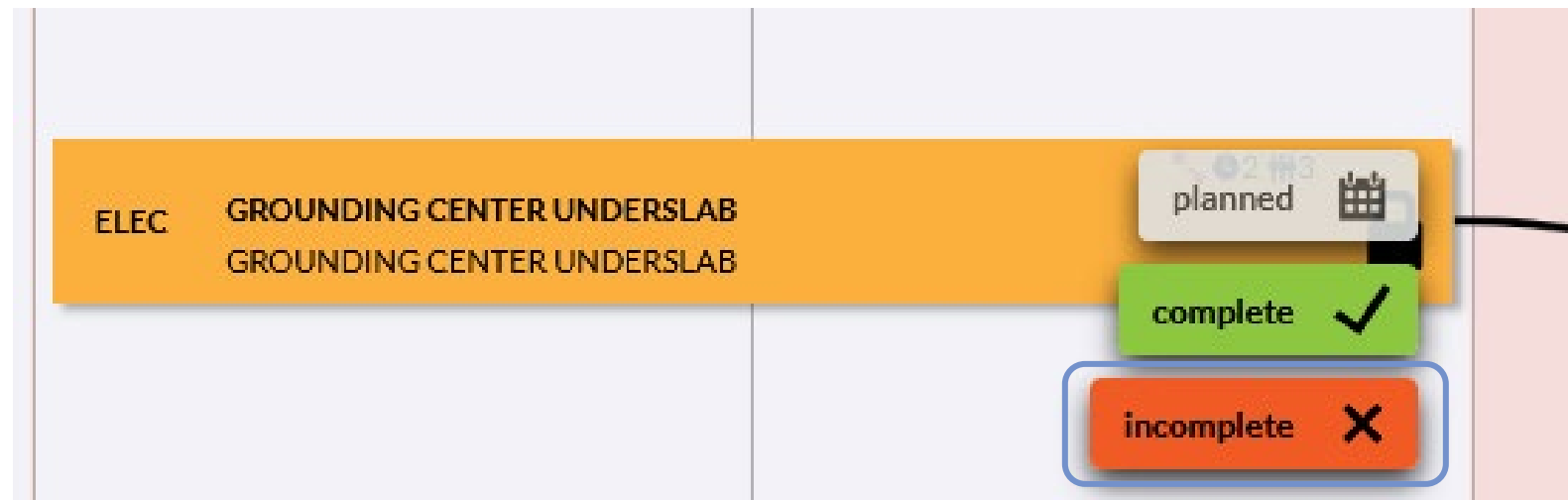
Delayed Work = Overlapping Activities
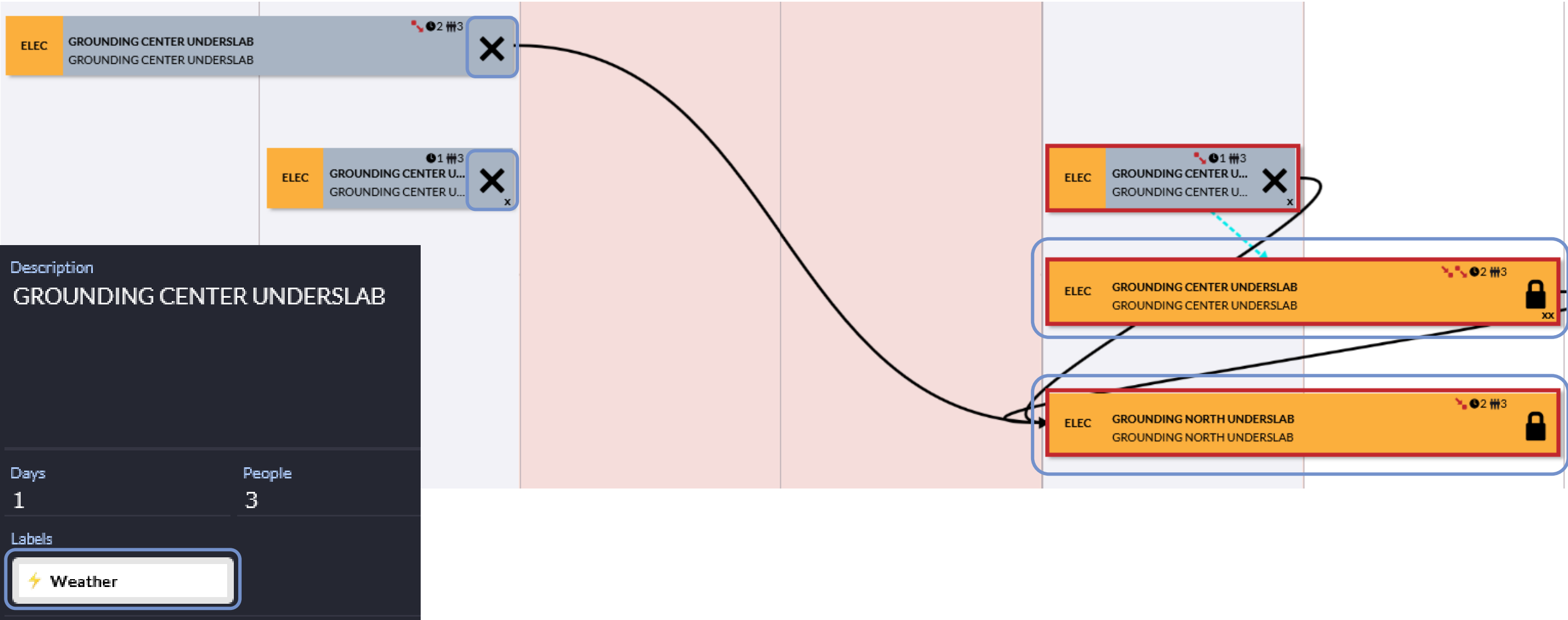
Overlapping Activities = Shifting & Recovery
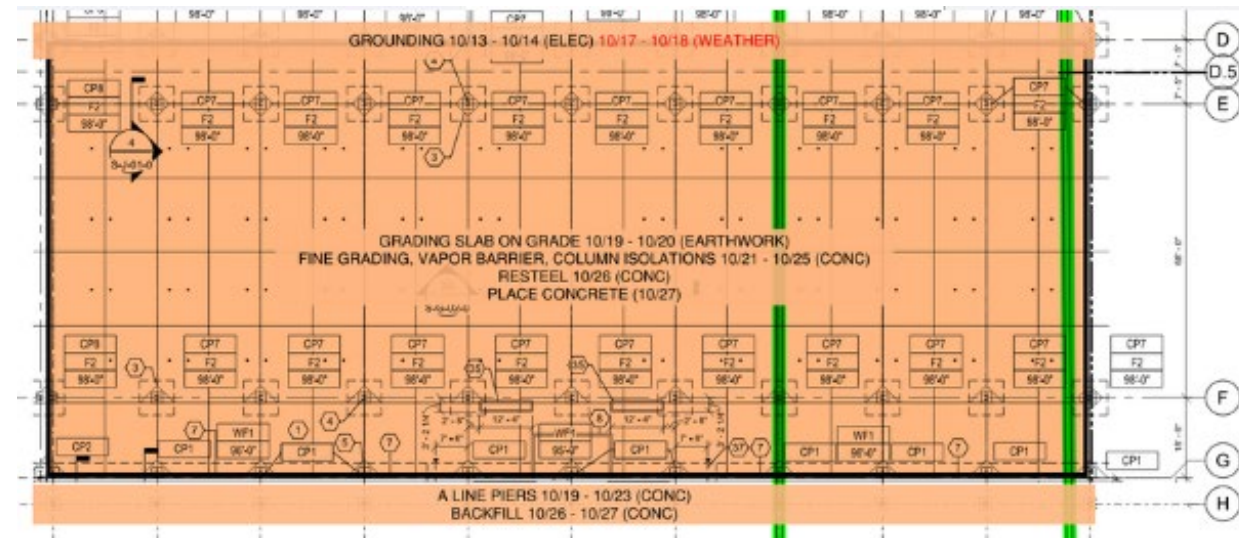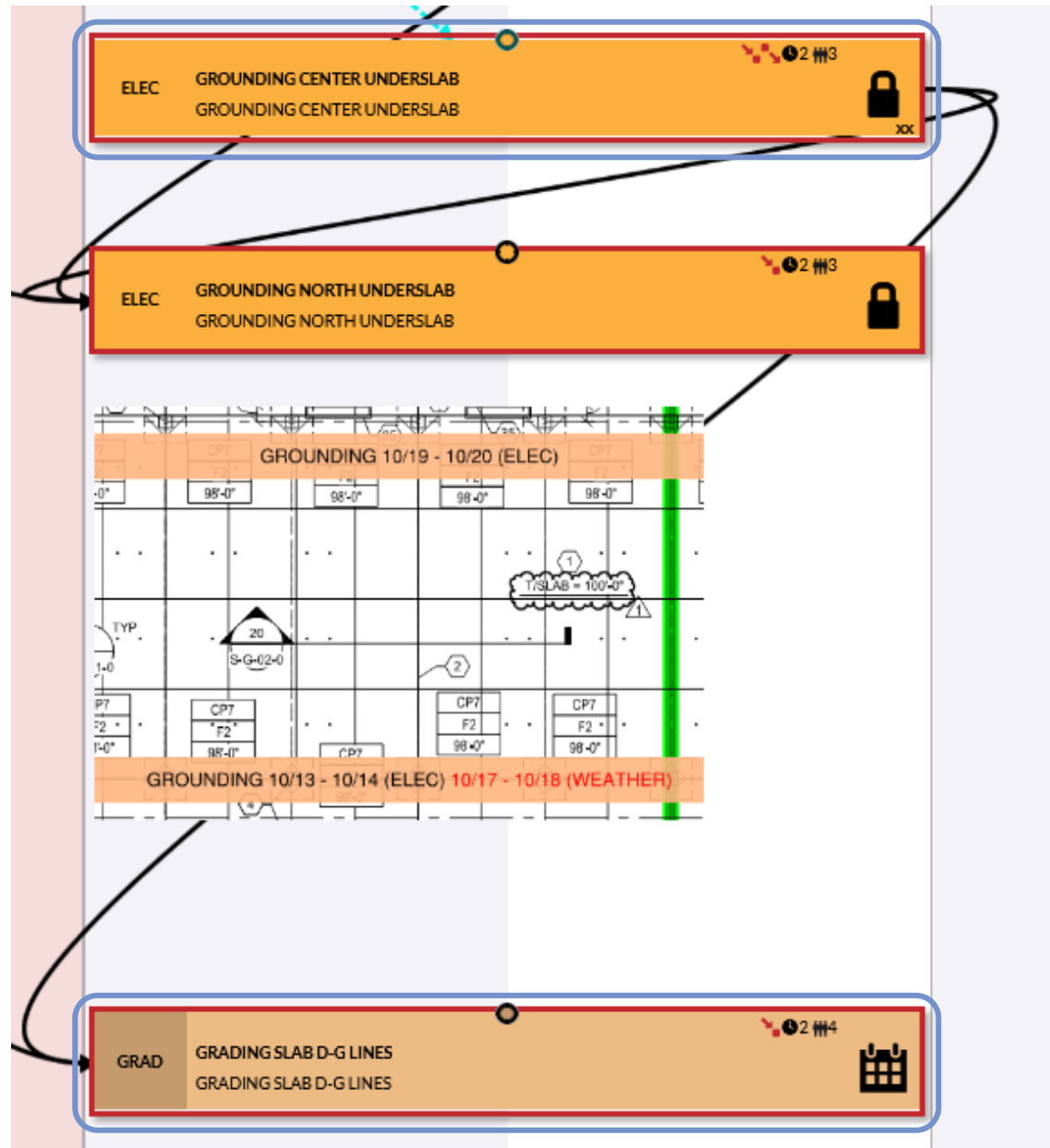
Problem: Grounding before grading for slab.

Questions:
1.) Can grading and grounding happen at same time?

2.) What can be done to speed up grading or following activities?

3.) Is grounding of the north side in the critical path?

Note: Questions will vary depending on RMC

End Result = Shifting & Stacking
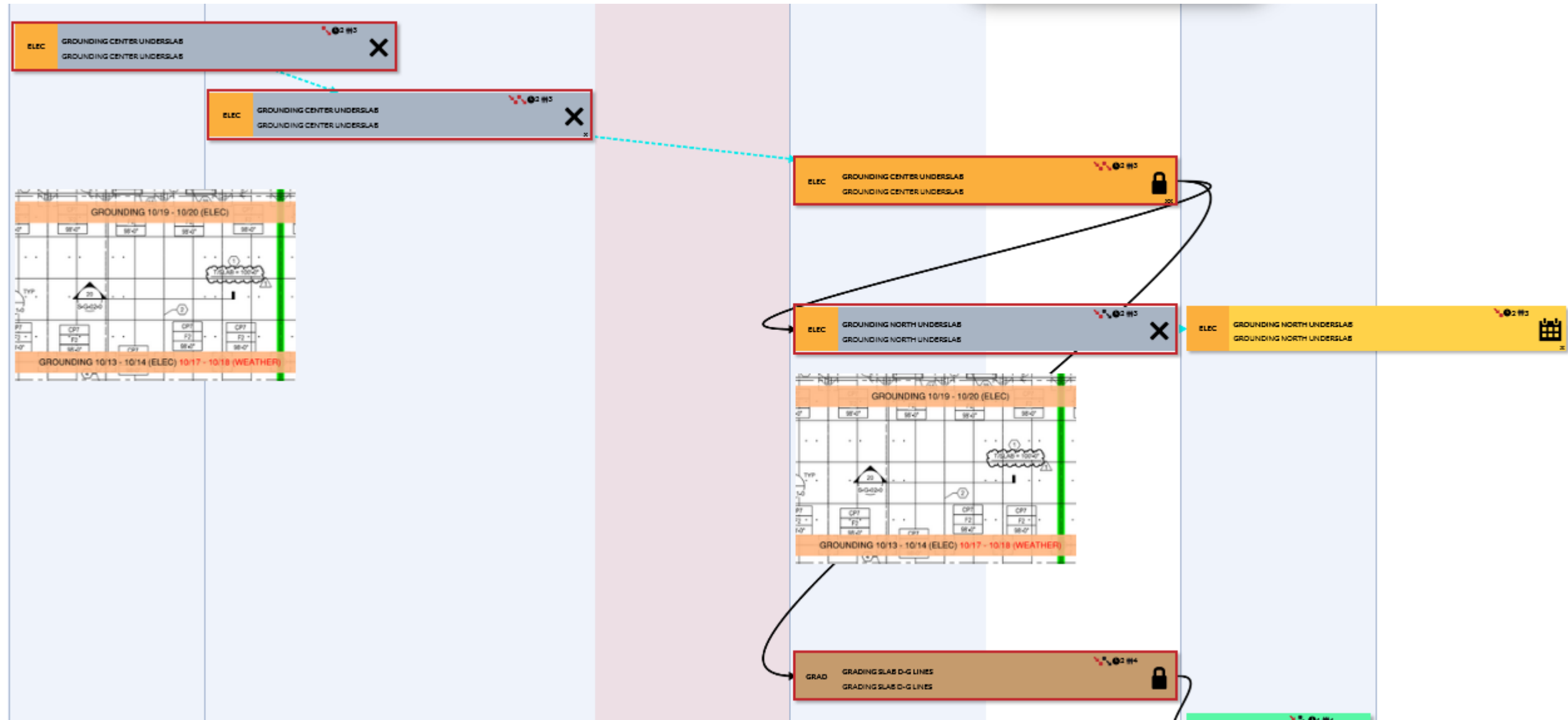
Weekly Work Plan / Trade Stacking
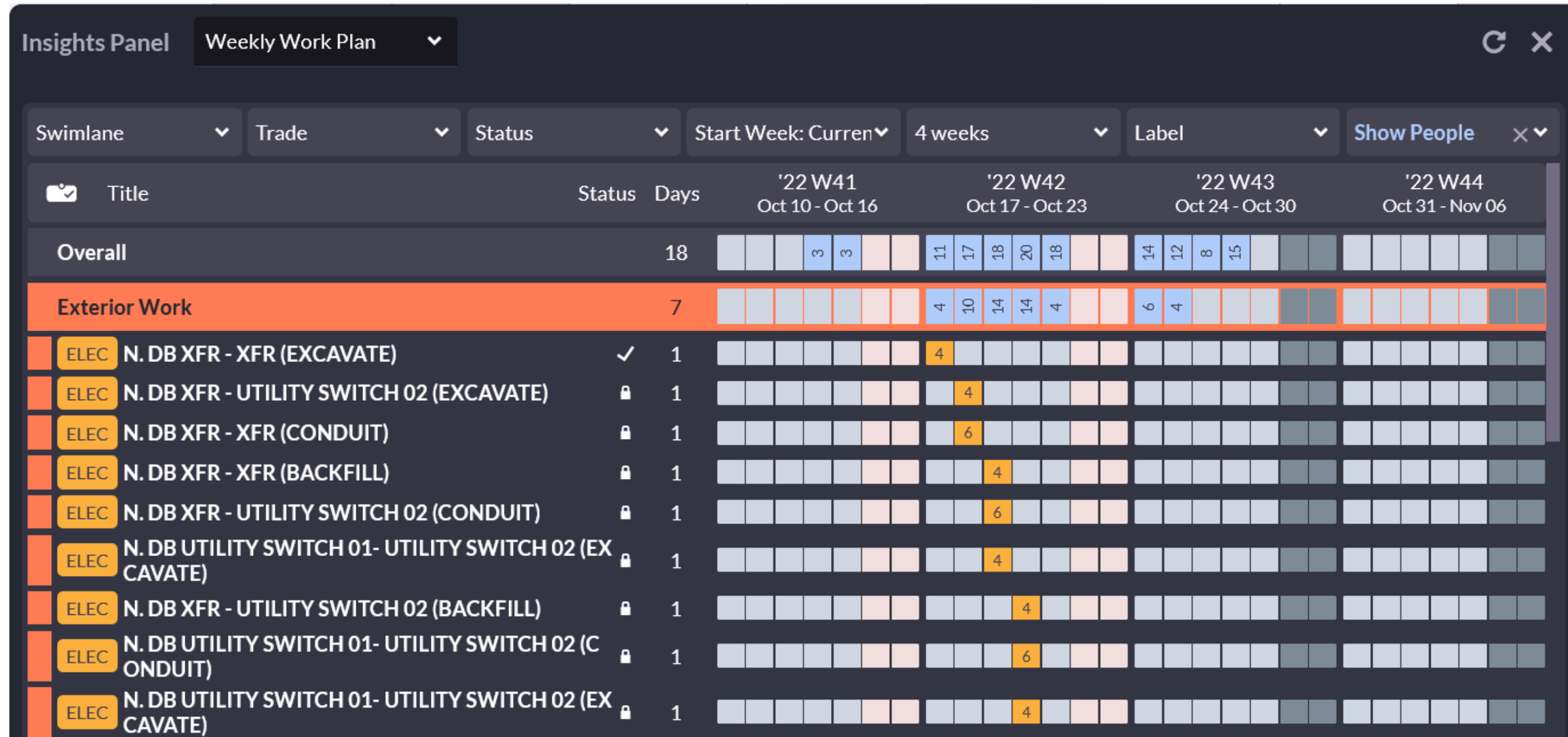
Filters
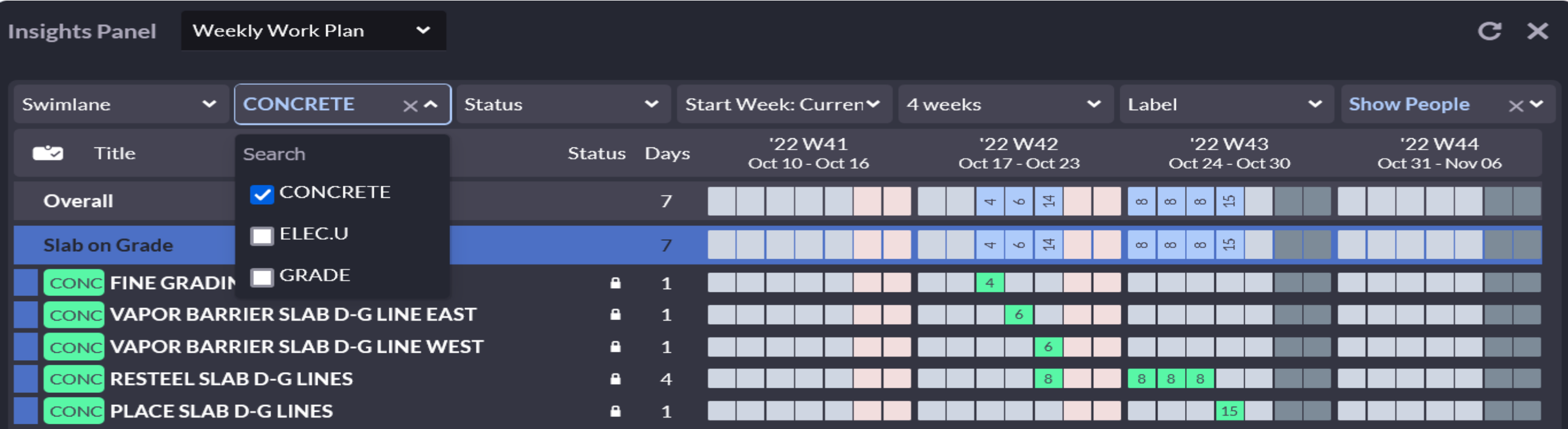
Charts and Trends - Tasks
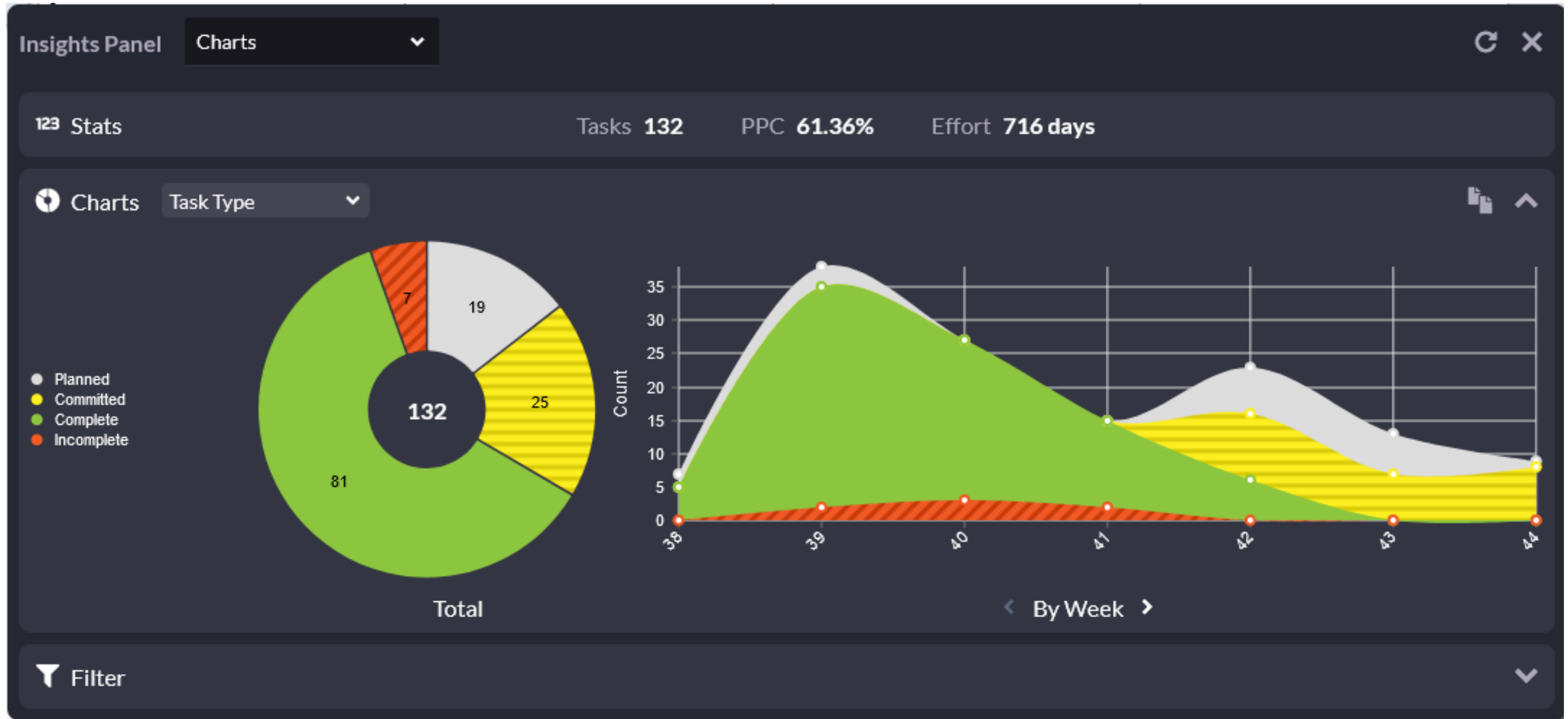
Charts and Trends – Planned Percent Complete
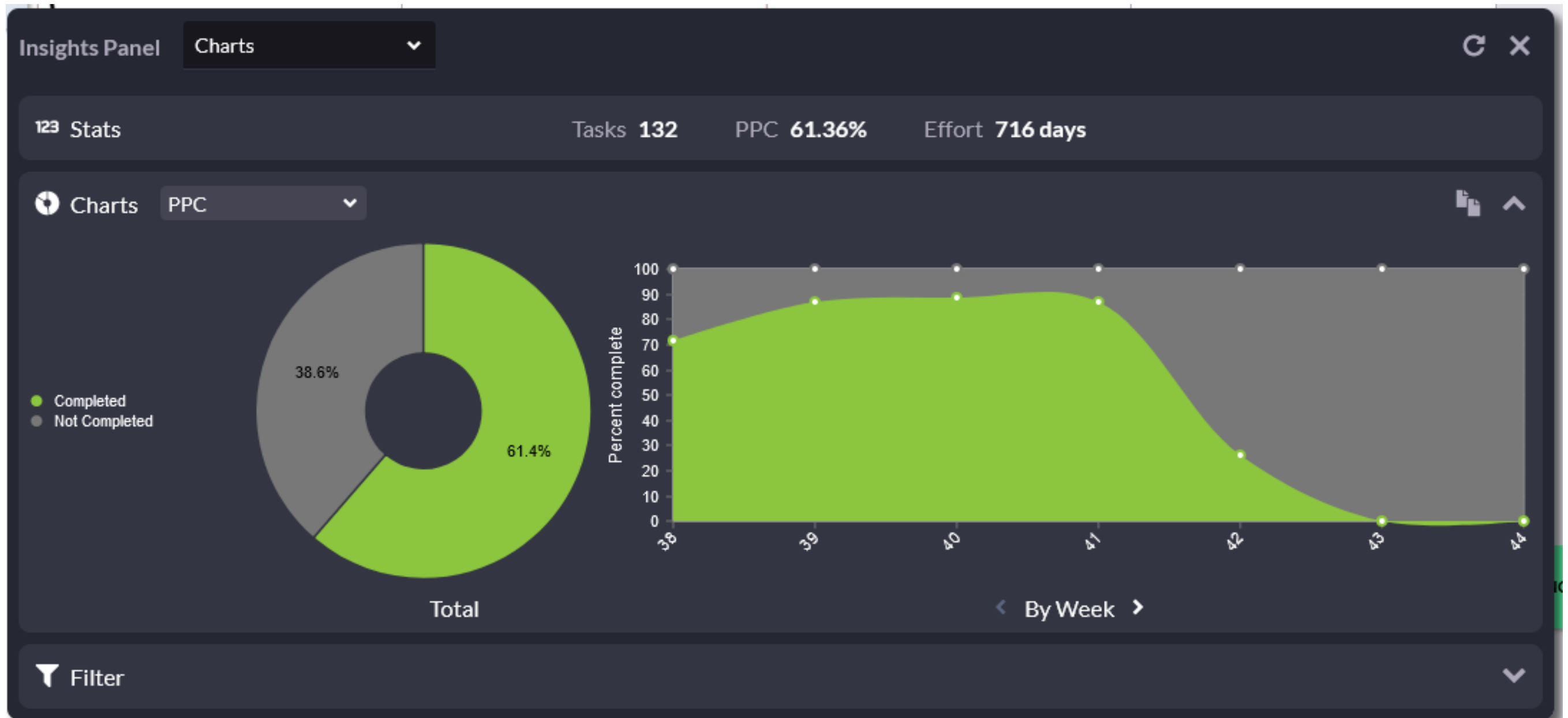
Charts and Trends – Reason for Missed Commitment
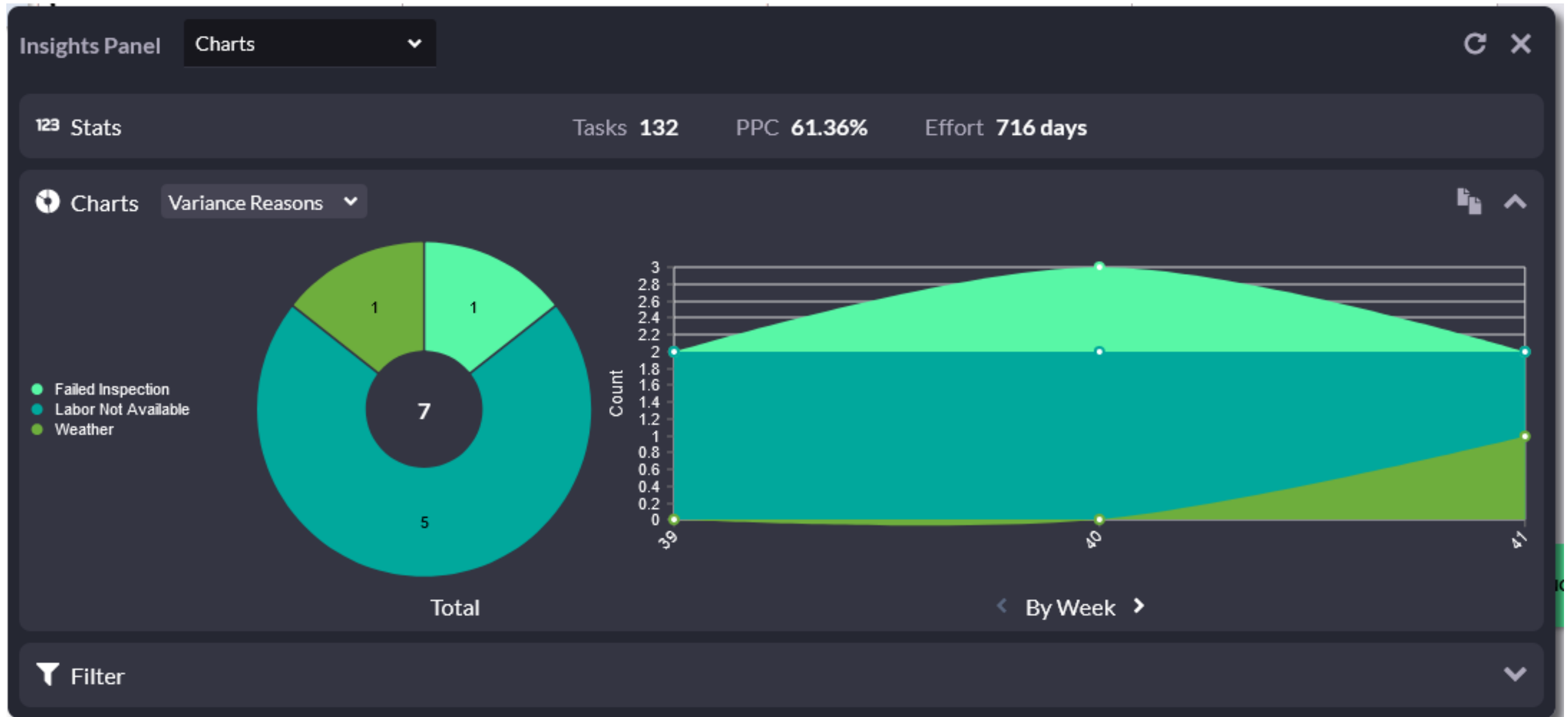
Charts and Trends – Crew Sizes

5 Technology & Start up Tips

Lean Construction Institute
Transforming Design and Construction
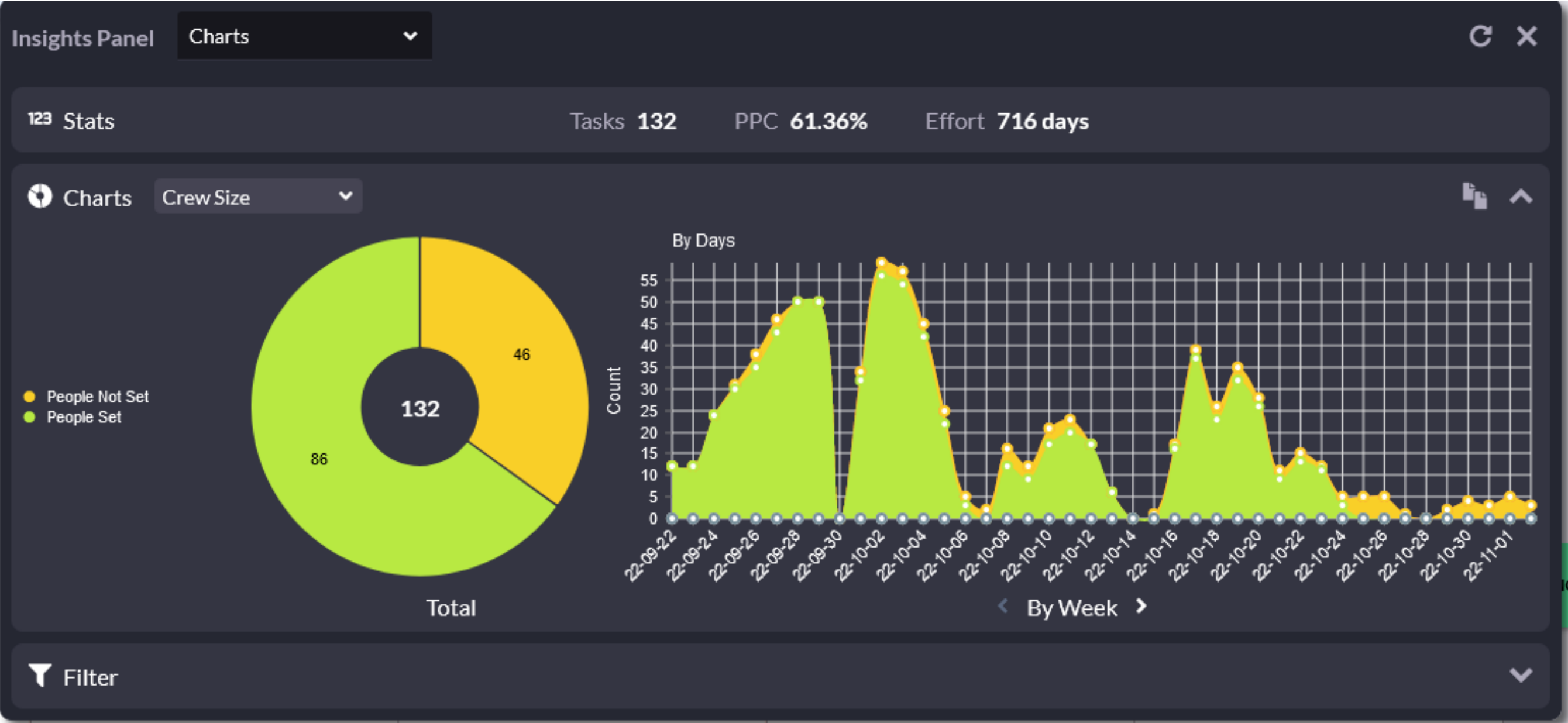
Technology Tips

Good: Large screen, so people can see
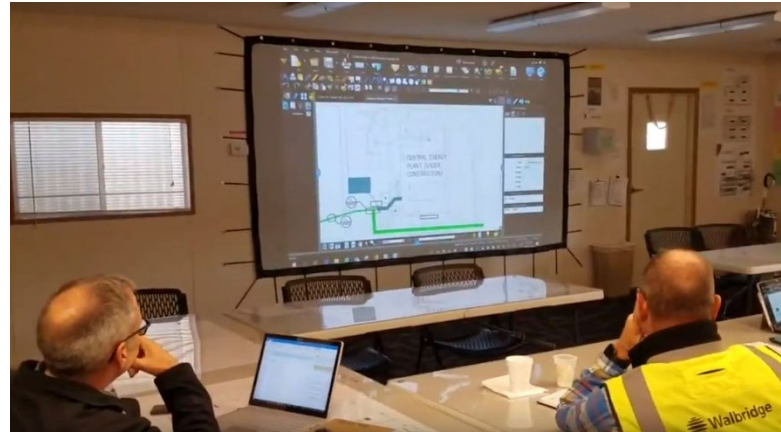
Better: Collaborative wall, easy to adjust
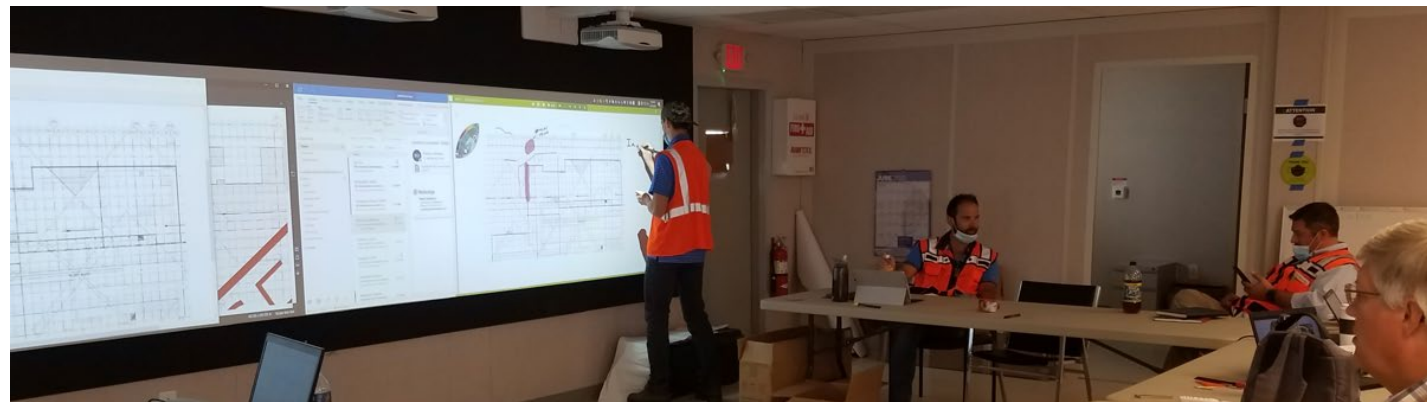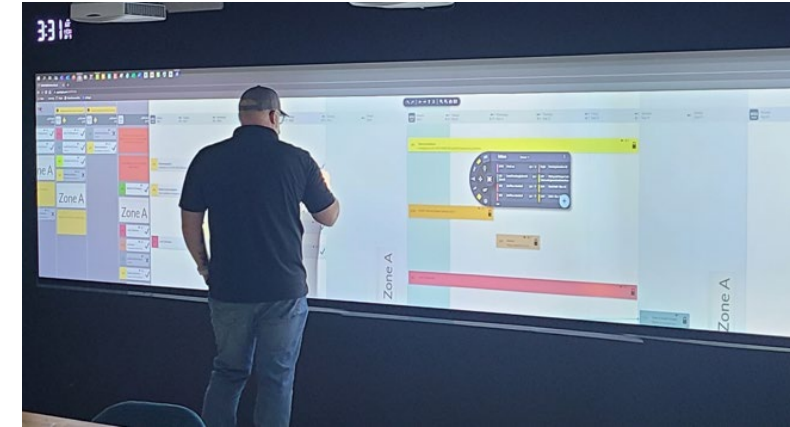
Best: Trade involvement; Well run, efficient

Technology Tips

VIRTUAL WAR ROOMS
EASY TO ADD AND ADJUST
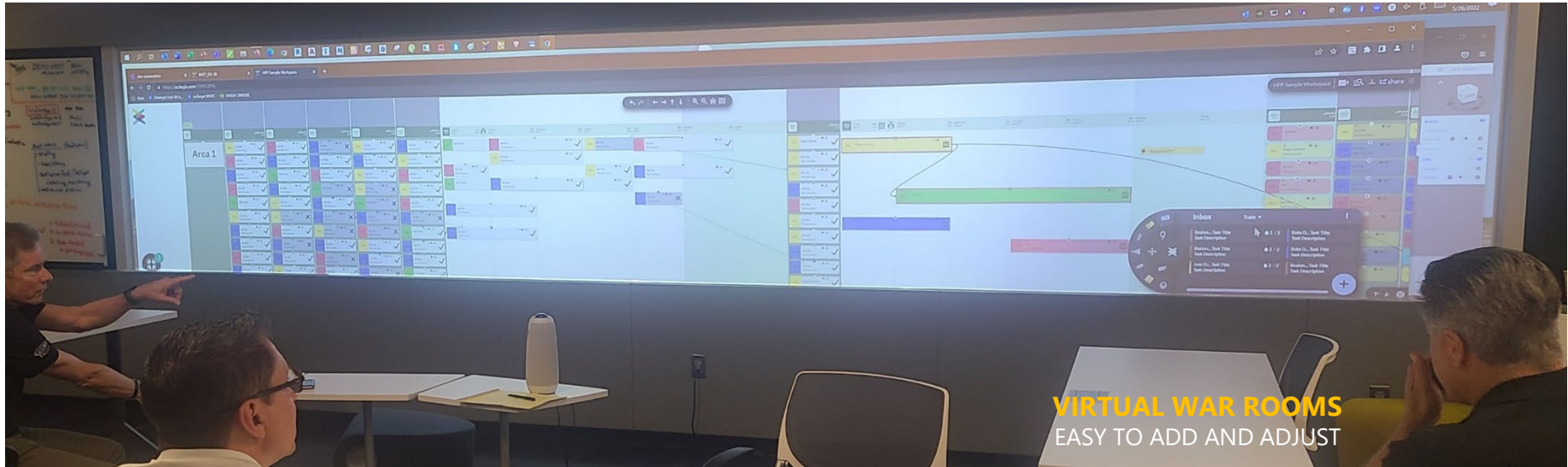
| **3** PROGRAMS | **5M+** Square Feet | **Lessons Learned** & Shared Savings | **HOYLU** multi-site collaboration tool |

Walbridge | Start-Up Tips

2-3 Weeks Prior to Last Planner Meeting

Secure a Space

WIFI Availability

Technology Works

Appetizers/Coffee

Calendar Invites to the Right People

Update Schedules and Visual Plans

1 Week Prior to Last Planner Meeting

Team Member Logins

Team Member Training

Add Basic Organization Within the Software

Add Milestones Within the Software

Add Visual Plans Within the Software

Walbridge | Start-Up Tips

Day of Last Planner Meeting

Test Technology

Have a Subject Matter Expert on Hand

Appetizers/Coffee

Last Planner Meeting Sample Agenda

0800-0820 Logins

0820-0830 Introductions, Express Project Commitment for LPS

0830-0930 Train Subcontractor on the Software

0930-1015 Sub Break Out Sessions

1015-1030 Break

1030-1130 1st Coordination Meeting – Make Commitments

1130-1200 Communicate Expectations Moving Forward – Schedule Future Meetings

Conclusions From a Scheduler Perspective

Communication is the hardest part of scheduling
- Difficult content
- Diversity understanding
- Schedule simplification is key

Last Planner forces schedule communication
- Active participation increases schedule buy-in
- Collaborative resolution of problems
- Virtual Big rooms
- Constraints identified and documented

Key to success
- Remove all barriers. i.e., IT, contracts, costs
- Stay diligent and do not lose momentum
- Bad news early

Q and A

Questions?
Thank you!

Lean Construction Institute
Transforming Design and Construction

Rate Presentations in the App

Continuous improvement: give presenters your feedback by taking the session evaluation!

1. Find the session under "schedule"

2. Click on it then scroll down

3. Click "core program evaluation"

4. Complete the 5-question evaluation

This information will determine the top 5 presentation teams and the top Live Lab
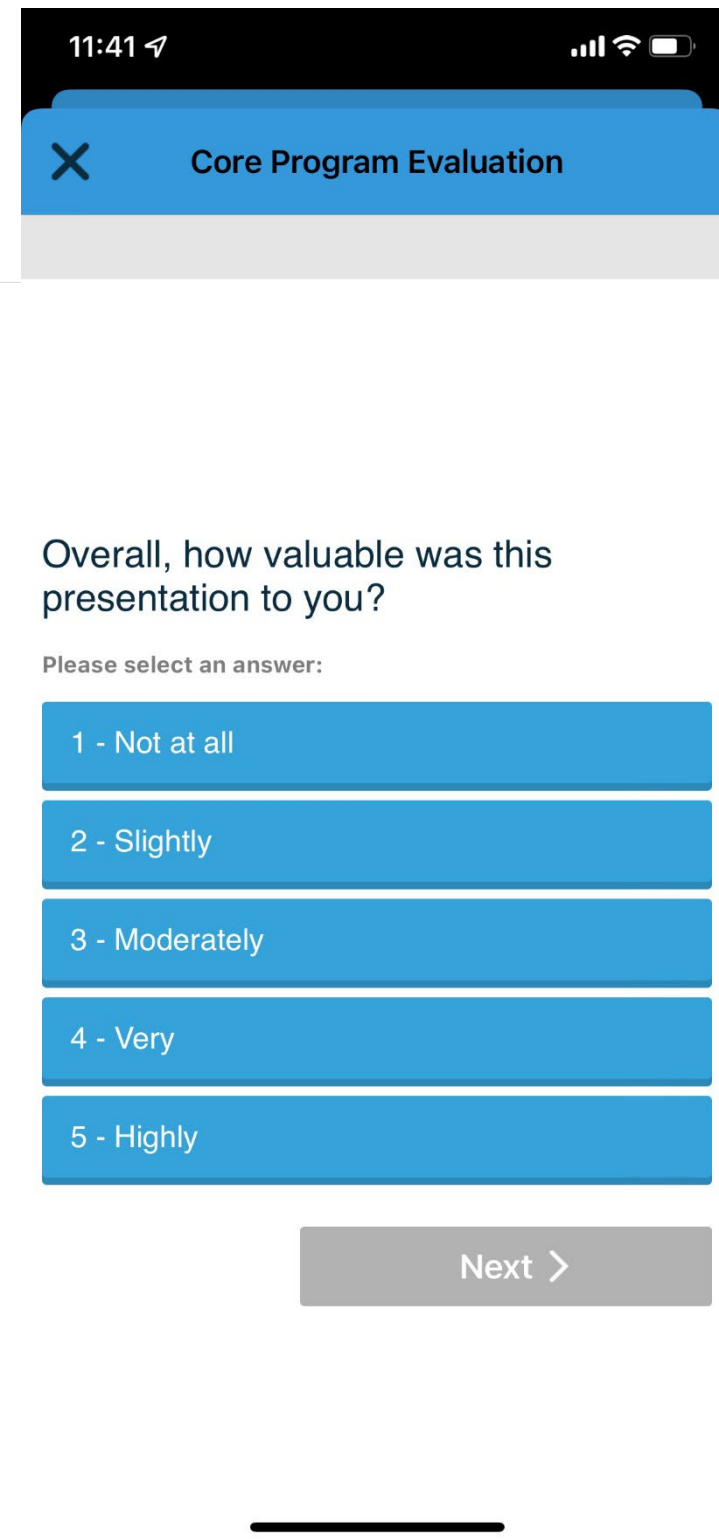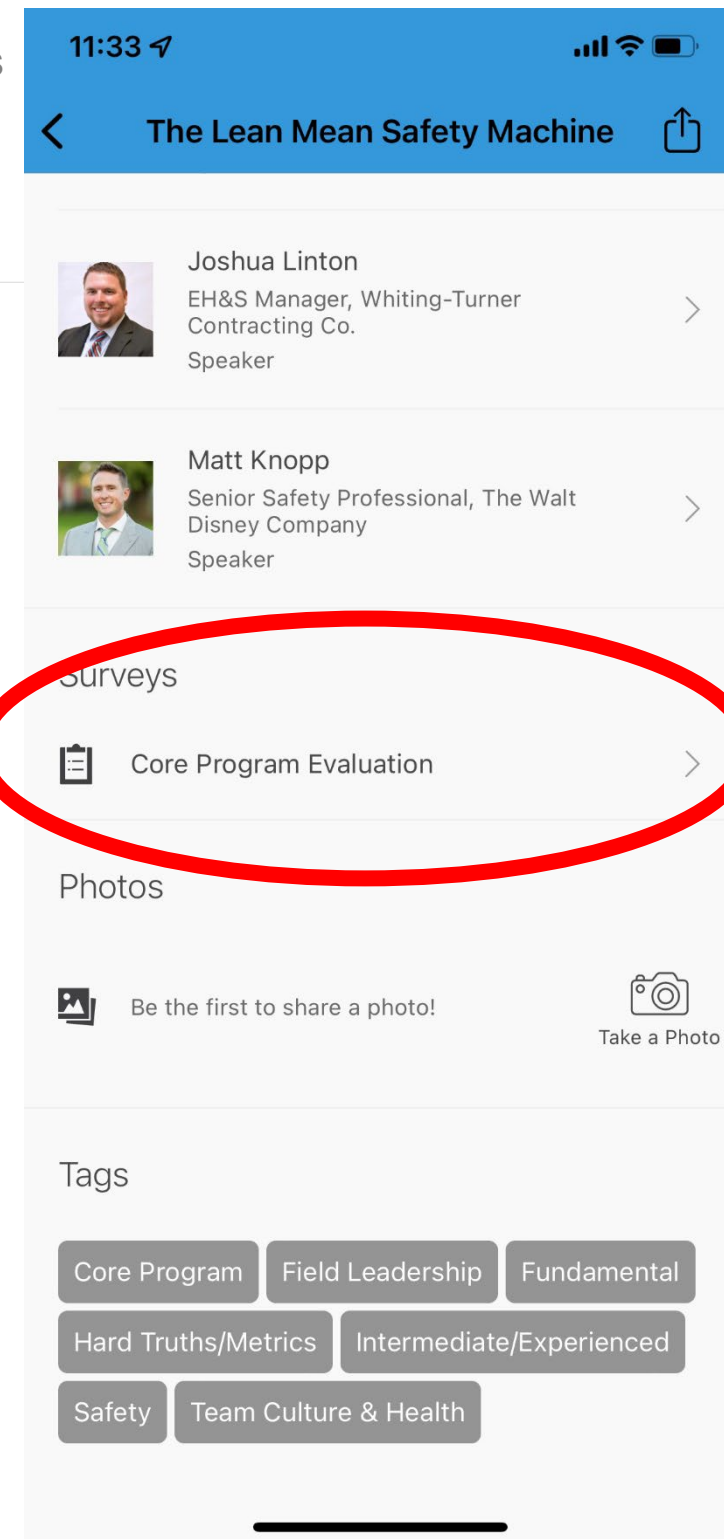
In the spirit of continuous improvement, we would like to remind you to complete this session's survey! We look forward to receiving your feedback.

24TH LCI CONGRESS
OCTOBER 18-21

Glossary

- **HPP (Hoylu Pull Planning):** a method of collaborative software for pull planning

- **LPS (Last Planner System):** is an approach on how to efficiently run a construction project ensuring that each manages their workload, while being held accountable for the work their promises for completion. *(developed by **Glenn Ballard and Greg Howell** who also founded LCI (letsbuild.com/blog)*

- **PPC (Percent Plan Complete):** analysis determines what percentage of the weekly tasks were accomplished. This helps to visualize what went wrong during the week so that adjustments can be made for the following week.

- **TMR (Tasks Made Ready):** Measuring checks if the phase scheduling process worked and is being followed. root-cause-analysis determines what went wrong.
  TA (Tasks Anticipated): measures how many tasks were identified for the upcoming week. Allows you to see how much work is expected week by week.

Contact Us –

John Jurewicz

Walbridge

jjurewicz@walbridge.com

Ryan O'Grady

Walbridge

rogrady@walbridge.com

Chris Dezsi

Walbridge

cdezsi@walbridge.com

Ryan Kelly

Hoylu

rkelly@hoylu.com