Overview of the Last Planner® System
Collaborative Construction Progress Planning – Spec. 013200
David Umstot, PE
31 October 2018
Sink or Swim Together?

Sure glad the hole isn’t at our end.
Why use Last Planner®?

- Completed Ahead of Schedule: 3X
- Completed Under Budget: 2X

Low Lean Intensity vs. High Lean Intensity
Performance from Approval of Capital Project (% of Best/Typical Projects)

- **SCHEDULE**
  - Completed Ahead of Schedule: 24%
  - Completed Behind Schedule: 46%

- **BUDGET**
  - Completed Under Budget: 6%
  - Completed Over Budget: 10%

**Total (n=81)**
Schedule Performance

Variance of Final Schedule vs. Allocated Capital Schedule

Ahead of Schedule

- 26% to 35% of schedule: 1%
- 11% to 25% of schedule: 6%
- 1% to 10% of schedule: 22%
- No Variance: 33%

Behind Schedule

- 1% to 10% of schedule: 14%
- 11% to 25% of schedule: 5%
- 26% to 35% of schedule: 6%
- More Than 35% of schedule: 4%
Timing of Key Stakeholder Engagement

**Best Projects:**
- 76% engage key stakeholders before or during conceptualization
- 42%
- 25%
- 22%
- 15%
- 17%
- 16%
- 9%
- 3%

**Typical Projects:**
- 42% don’t engage key stakeholders until design development or later
- 22%
- 15%
- 11%
- 11%
- 4%

Pre-business case | Business case validation (pre-design) | During conceptualization (0-15% design) | During schematic design (15-30%) | During design development (30-60%) | During construction documents (60-90%) | End of construction documents or later (100% CD)
Workflow & Risk

- Workflow losses are real, lead to adversarial relations, and are difficult to quantify, so…

- Everyone protects themselves by adding contingency and/or holding back labor to keep utilization high.

- This further reduces workflow predictability and increases project risk.

- By their/our actions, we increase that risk and shift it along.
KEY CONCEPTS:

1. Traditional planning systems are unable to produce predictable workflow.
2. Workflow reliability directly affects system speed and cost.
3. All plans are forecasts, all forecasts are wrong, the longer the forecast the more wrong it is, the more detailed the more wrong it is.
Last Planner® System Benefits:

- Improves communication & reliability
- Fosters an enjoyable environment, trust & collaboration
- Promotes early stakeholder engagement
- Improves visibility of the project plan (transparency)
- Creates team buy in
- Rapid learning through metrics, revealing areas for improvement
- Improves planning in both design & construction phases
Last Planner® System Overview

Hand-offs Matter
Last Planner® System

Milestone Planning
- Set milestones

Phase “Pull” Planning
- Specify handoffs

Look Ahead Planning
- Make work ready

Weekly Work Planning
- Make promises

Learning/Improving
- PPC/Variance

5 Connected Conversations

SHOULD

CAN

WILL

DID

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Last Planner® System

- Phase Pull Planning
- Look Ahead Planning
- Daily Huddle
- Weekly Work Planning

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Who is the Last Planner?

- Person closest to work, with authority to make decisions creates schedule

- A Last Planner can make the reliable commitment to complete the work
Milestone Planning

- Define the overall road map and gain alignment
- Identify milestones important to client and stakeholders – especially immovable dates
- Informs the Phase Pull Planning
Milestone Planning
Phase Pull Planning

- Phase of the work (8-12 wks)
- Informed by the Milestone Plan
- Work out the structure and durations
- After – add dates and transfer to the Look Ahead Plan
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<th>Activity</th>
<th>Predecessor / I Get</th>
<th>constraint</th>
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Pull Example

Mike G | 4 Crew | 3 days
---|---|---
Vaults Set
Zone 1

Dave S | 3 Crew | 3 days
---|---|---
Backfill Vaults
Zone 1

Mike G | 4 Crew | 5 days
---|---|---
Underground Piping
Zone 1

Dave S | 3 Crew | 3 days
---|---|---
Backfill UG Piping
Zone 1

Vaults on Site

Vaults Set

Vaults Set

Vaults Backfilled

UG Piping

Request

Promise
Pull the Work
Arrive at the Start
# Constraint Log

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<th>Activity Number</th>
<th>Constraint Description</th>
<th>RFI No</th>
<th>Responsible Person</th>
<th>Responsible Company</th>
<th>Date Identified</th>
<th>Date Need Resolution</th>
<th>Date Resolution Promised</th>
<th>Actual Date Resolved</th>
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**Look Ahead Planning**

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Weekly Work Planning

Weekly Work Plan Informs the Daily Huddle

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1. What did I complete?
2. What will I complete?
3. What needs to be re-planned?
Reasons for Variance

Sample Variance Analysis - Missed Commitments
Pareto Chart

Focus attention this side of line

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Future Training Opportunities

- CSU Dominguez Hills - Friday, November 16, 2018
- Cal Poly San Luis Obispo – Tuesday, December 11, 2018
- CSU East Bay – Wednesday, February 27, 2019
- CSU Sacramento – Friday, March 15, 2019
Questions?

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