03_Last Planner® System

LCI Lean Learning Series
Conditions of Satisfaction

The presentation materials are the copyright of the Lean Construction Institute.

Slides or material may not be copied or used in any way other than this presentation.

The presentation may be shared in PDF format only with the participants.
This LCI Lean Learning Series is a facilitated discussion on a particular subject matter, having to do with Lean Project Delivery, ideally leading the participants into new action.

Conducting the Discussion:

• The Facilitator shares the presentation allowing discussion along the way.
• Consider arranging the seating in a circle or other manner to support cross discussion among participants.
• Discussion questions are included to trigger a conversation.
• The Facilitator should ensure that all participants engage.
• The wrap up should include each participant sharing something new they learned.
3_Last Planner System™
This topic introduces the Last Planner System™ (LPS™) 5 levels and connected conversations.

Participants will learn the benefits and key concept of LPS™, definition of Last Planner®, push versus pull methodology. Learning will include examples of LPS™ being implemented.

Note: For AIA or other Continuing Education Credits, participants will need to self-report attendance and learning.
Lean Journey to Mastery

How will you reach the next level on your journey?

Going from less aware to awareness

Continuous Learning Cycle(s)
What are your dissatisfactions with the way projects are currently planned?
**Why Use Last Planner® System?**

**Time** —
- 70% were delivered late
- 20% delivered on time
- 10% delivered early

**Cost** —
- 73% were over budget
- 13% under tender price
- 14% on tender price

*Source: Benchmarking the Government Client Stage Two Study December 1999*

We have room to improve!
Correlation of Lean

Correlation of Lean intensity to outcomes (% likelihood on best projects)

- Completed Ahead of Schedule
  - Low Lean Intensity: 3X
  - High Lean Intensity: 2X

- Completed Under Budget
  - Low Lean Intensity: 2X
  - High Lean Intensity: 3X
1. Improves communication & reliability.
2. Fosters an enjoyable environment, trust, and collaboration.
4. Improves visibility of the project plan (transparency).
5. Creates team buy in.
6. Rapid learning through metrics, revealing areas for improvement.
7. Improves planning in both design & construction phases.
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, further in advance – more wrong, more detail – more wrong.
How might the benefits and key concepts of LPS start to address the dissatisfactions identified earlier?
Last Planner® System Overview

5 Connected Conversations

- **LEARN**
  - SHOULD: MILESTONE Planning - Set Milestones
  - CAN: PHASE PULL Planning - Specify Handoffs
  - WILL: LOOKAHEAD Planning - Make Work Ready
  - DID: WEEKLY WORK Planning - Make Promises
  - LEARNING/IMPROVING: PPC/Variance
It is important to implement LPS as a full system where each of the 5 levels is informed by the previous level.
Last Planner® System

- Milestone Plan
- Phase Pull Planning
- Lookahead Planning
- Daily Huddle
- Weekly Work Planning
Levels of Granularity

This indicates the increasing levels of granularity of detail in plans as we move through the system.

- **Milestone Planning**
- **Phase Pull Planning**
- **Lookahead Planning**
- **Weekly Work Planning**

The images represent the granularity levels:
- Boulder
- Rock
- Pebble
- Sand
Who is the Last Planner®?

The person closest to work, with authority to make decisions creates the schedule.

A Last Planner® (LP™) can make the reliable commitment to complete the work.
Push vs. Pull

**Push:**
- An “order” from a central authority based on a schedule; advancing work based on central schedule.
- Releasing materials, information, or directives possibly according to a plan, but irrespective of whether or not the downstream process is ready to process them.

**Pull:**
- A method of advancing work when the next in line customer is ready to use it. A “Request” from the customer signals that the work is needed and is “pulled” from the performer.
- Pull releases work when the system is ready to use it.
Pull Creating Flow

Start with the milestone and pull back making promises and requests.
How might the using “pull” help the flow of work on projects?
**Phase Pull Planning Example Tag**

<table>
<thead>
<tr>
<th>Name</th>
<th># People</th>
<th># Days 1 week max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MY PROMISE / ACTIVITY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• What I will Deliver</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Be specific</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Small batch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Zone / Area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| | | |
| **MY REQUEST / TRIGGER** | | |
| • What Releases my Work | | |
| • Be specific | | |
| Constraint | | |

- **Duration of the work in days**
- **Small batch work into 5 days maximum**
- **# of People for the work**
- **Work zone or area**
- **Description of the predecessor activity or work that releases the start of your activity**
- **Known constraint such as RFI**

Name of person making the commitment

Description of the activity

- Format tag to best fit your team needs
- Add more information as valued
- Color code by trade or discipline

This is just an example
### Phase Pull Example

<table>
<thead>
<tr>
<th>Phase</th>
<th>Requester</th>
<th>Crew</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vault Set Zone 1</td>
<td>Mike G</td>
<td>4 Crew</td>
<td>3 days</td>
</tr>
<tr>
<td></td>
<td>Dave S</td>
<td>3 Crew</td>
<td>3 days</td>
</tr>
<tr>
<td></td>
<td>Mike G</td>
<td>4 Crew</td>
<td>5 days</td>
</tr>
<tr>
<td></td>
<td>Dave S</td>
<td>3 Crew</td>
<td>3 days</td>
</tr>
</tbody>
</table>

- **Vaults Set Zone 1**
  - Requested by Mike G
  - Done by Dave S
- **Backfill Vaults Zone 1**
  - Requested by Mike G
  - Done by Dave S
- **Underground Piping Zone 1**
  - Requested by Mike G
  - Done by Dave S
- **Backfill UG Piping Zone 1**
  - Requested by Mike G
  - Done by Dave S
Start at the end

This is showing Level 2 Phase Pull Planning

Courtesy of: Turner Construction
Pull the Work

This is showing Level 2 Phase Pull Planning

Courtesy of: Turner Construction
This is showing Level 2 Phase Pull Planning

Arrive at the Start

Courtesy of: Turner Construction
LPS For Design:

- Is emerging, based on new information and the flow is “information”
- Milestones must be clearly defined by expected outcome which will describe what we need to know
- Milestones are often “decision points”
- Pull Plans identify work needed and date needed

LPS Construction:

- Is linear and the flow is “tangible materials”
- Milestones must be clearly defined by expected outcome which will be observable
- Pull Plans identify work structure and duration (not date)
How to Implement Lean?

What new actions or ideas that you learned today, can you take back to your work?
Lean Journey to Mastery

How will you reach the next level on your journey?

- Awareness
- Understanding
- Competency
- Mastery

Target Value Delivery: Classroom & eLearning (release 2019)
Lean in the Design Phase: Classroom & eLearning
Mindset of an Effective Big Room: Classroom & eLearning (release May 2019)
Last Planner® System in Design: Classroom & eLearning (release 2019)
Conducting Gemba Walks: Classroom

Introduction to Lean Project Delivery: Classroom, eLearning & Webinar
Introduction to Last Planner® System: Classroom & eLearning
Lean in the Design Phase: Classroom & eLearning
Introduction to Lean in Design-Build: Classroom
The Business Case for Learn: Classroom
More on Learning

**Books:**
- Transforming Design and Construction
- Target Value Delivery
- Don’t Conform, Innovate!
- Work in Progress

**Events:**
- Local Community of Practice
- Congress (October)
- Design Forum (May)

**LCI Instructor Program:**
- Apply to be a LCI Instructor through LCI website
- Provides access to teach LCI full courses
- Provides access to LCI materials for use
- Great to continue the Lean Journey of your company or team

**Continue learning now:**
[www.LeanConstruction.org](http://www.LeanConstruction.org)
eLearning

• **Learn on your own time** without taking time off project work

• **Increase knowledge retention by up to 60%** with interactive, small-batch learning

• **Access field resources** to use with teams

• **Earn 1.5 CEUs** (self report to AGC CM-Lean and/or AIA)

• **Incentivize with LCI badging credentials** for email signatures and a certificate of completion

• **Save money** by eliminating instructor and travel expenses
  • *LCI corporate member volume discounts of up to 75% off*
  • *Reduced member pricing is available in addition to standard non-member pricing*
Available now:

• Introduction to the Last Planner® System
• Introduction to Lean Project Delivery
• Lean in the Design Phase
• Effective Big Room

Coming soon:

• Target Value Delivery (Fall 2019)
Conduct a Plus/Delta
Capture on a flip pad or white board:

**Plus:** What produced *value* during the session?

**Delta:** What could we *change to improve* the process or outcome?