24TH ANNUAL

24TH LCI CONGRESS
OCTOBER 18-21

Introduction to Last Planner System® in Design

Justin Wise, Stantec
Dave Hagan, Devenney Group Ltd.

VIRGINIA COSGRIFF, COURSE CHAMPION

LEAN GUMBO: THE RIGHT INGREDIENTS FOR PROJECT SUCCESS

October 2022

Lean Construction Institute
Immersive Education Program

Introductions

Justin Wise

Dave Hagan

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Facilitation Slide

Facilitator:	Dave Hagan + Justin Wise		10/18/2022	Time keeper:	Virgina Cosgriff
Meeting Start Time:	8:00 AM	CST		Meeting End Time:	12:00 PM

Time (PST)	Duration	End Time	Topic	Leader	Who	Notes/Decisions/Action Items
8:00 a	5 min	8:05 AM	Preamble	DH/JW		1. Speaker Introductions 2. Rules of Engagement 3. Plus/Delta
8:05 a	30 min	8:35 AM	Milestone Lecture/Discussion	DH/JW	ALL	1. Group Discussion (5 min)
8:35 a	35 min	9:10 AM	Group Activity #1	ALL	ALL	1. Milestone Planning (20 min) 2. Report Out (15 min)
9:10 a	10 min	9:20 AM	BREAK	ALL	ALL	
9:20 a	35 min	9:55 AM	Phase Pull Planning Lecture/Discussion	DH/JW	ALL	
9:55 a	70 min	11:05 AM	Group Activity #2	ALL	ALL	1. Phase Pull Planning (45 min) 2. Report Out (25 min)
11:05 a	10 min	11:15 AM	BREAK	ALL	ALL	
11:15 a	25 min	11:40 AM	Conclusion Lecture/Discussion	DH/JW	ALL	1. Weekly Work Planning 2. Learning/PPC/PRCO/Comittments 3. Root Cause 4. Reflection 5. Capturing Lessons Learned 6. How to Implement Group Discussion (10 min)
11:40 a	20 min	12:00 PM	Next Steps/Adjournment plus/delta	DH/JW	ALL	

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Rules of Engagement

1. Phones/Devices OFF during the meeting - check at break
2. One meeting - NO side bar discussions
3. Listen - Engage the material - Keep an open mind
4. No “rank” in the room - we are equal peers
5. Help team stay on task
6. Return from breaks / be in your chair on time
7. Safe zone - ask questions - no fear

Conduct Plus/Delta

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+	△
Plus: *What produced value during the session*	**Delta:** *What could we change to improve the process or outcome?*

Lean Journey To Mastery

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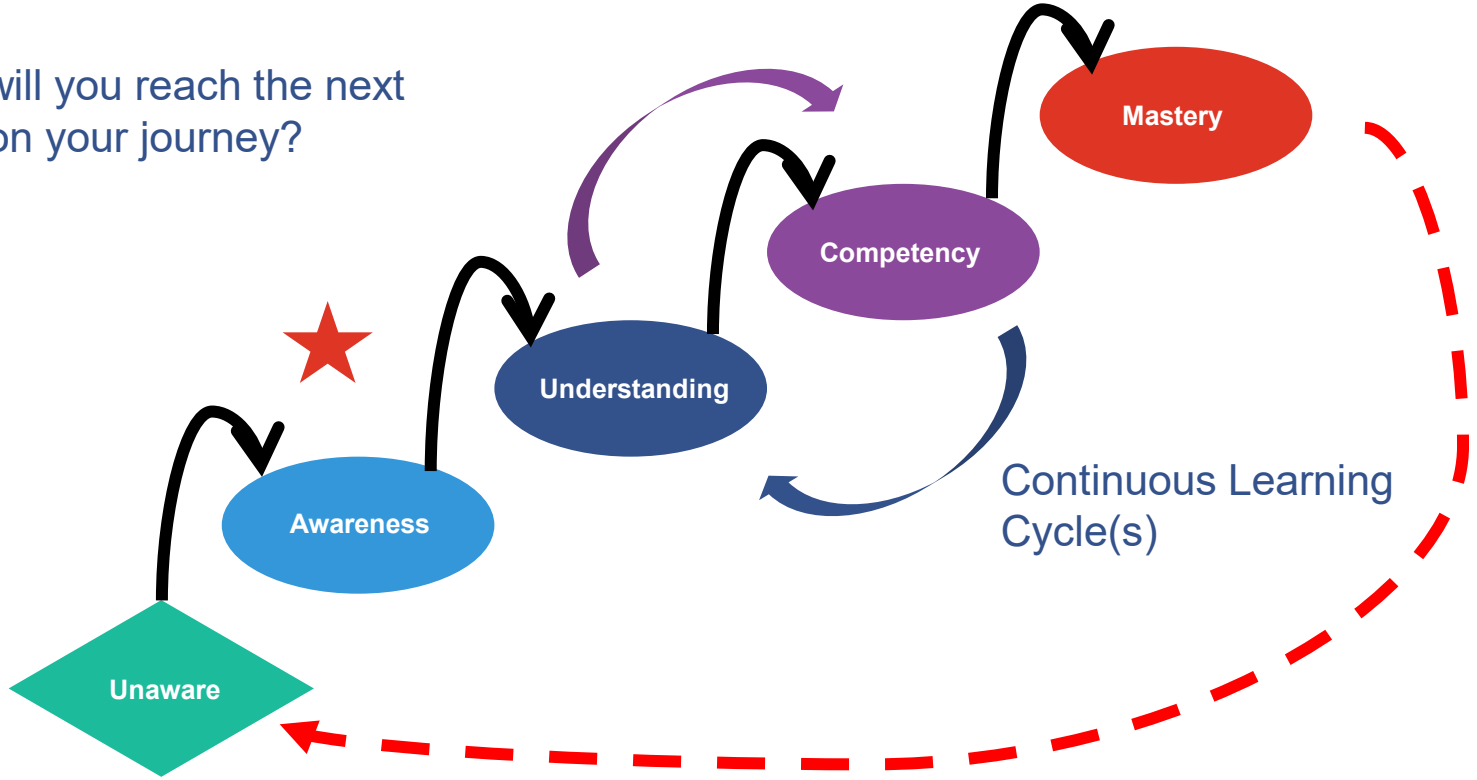
How will you reach the next level on your journey?



Learning Overview

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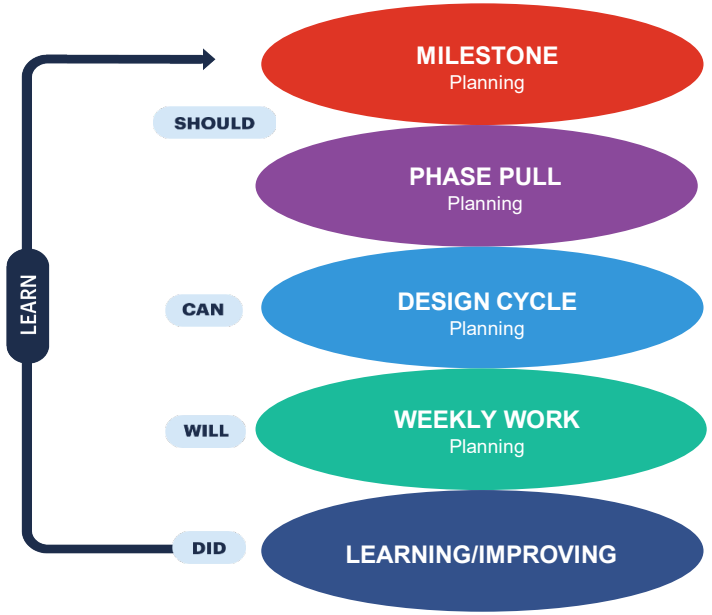
The Last Planner System® (LPS®) is a registered trademark of the Lean Construction Institute.

1. Why Last Planner System®
2. LPS® Overview
3. Milestone Planning
4. Phase Pull Planning
5. Design Cycle Planning
6. Weekly Work Planning
7. Learning/Improving

5 Connected Conversations



Discussion Question

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What are your dissatisfactions with the way projects are conventionally planned?

Large Group Discussion 5 min

Why LPS® In Design?

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Experienced Lean practitioners implementing LPS in design state that it aids in:

- Controlling how information gets shared across the different parties of the project.
- Identifying key decision points.
- Keeping the owner on track with making decisions that enable the next series of work to start.
- Aligning the team and the owner regarding information needed and when.
- Aligning the team with the plan for delivering the project.

Why Implement LPS®?

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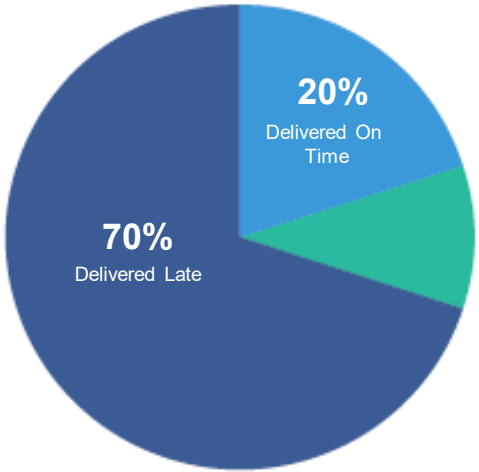
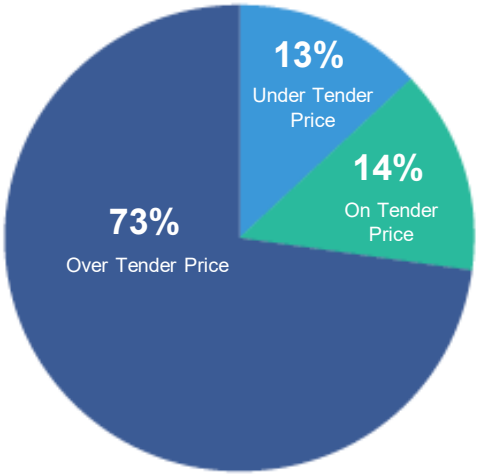
As the results of this benchmarking study indicate, there is great opportunity to improve the delivery of projects.

Time —
70% were delivered late



10%
Delivered Early

Cost —
73% were over budget



Source: Benchmarking the Government Client Stage Two Study December 1999

Why Implement LPS®?

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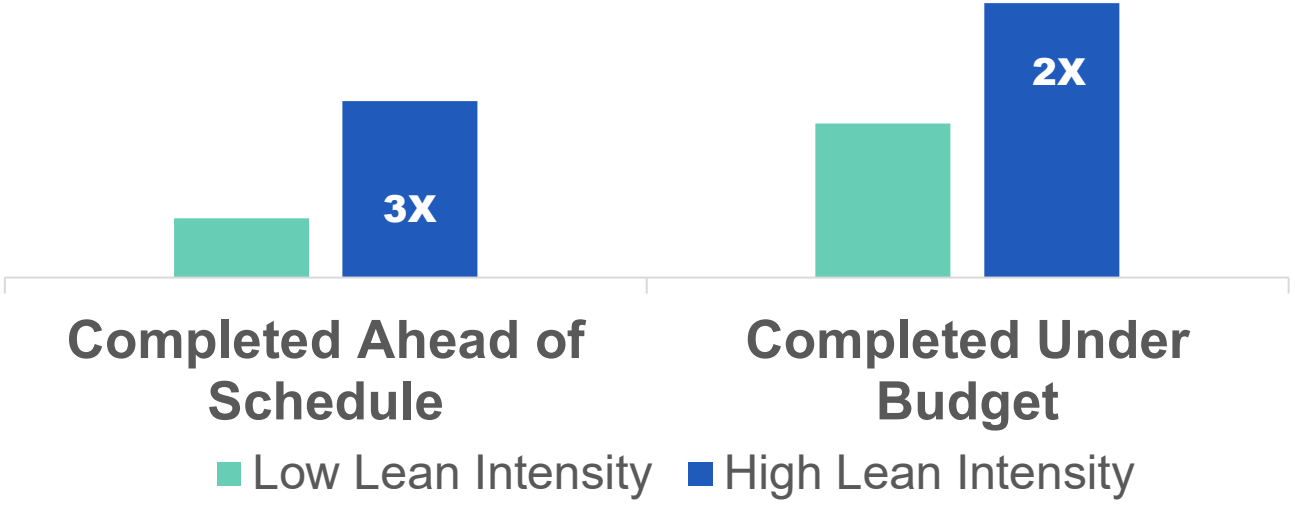
This study indicates the correlation of Lean intensity to project outcomes (% likelihood on best projects).



DODGE DATA & ANALYTICS

Why Implement LPS®?

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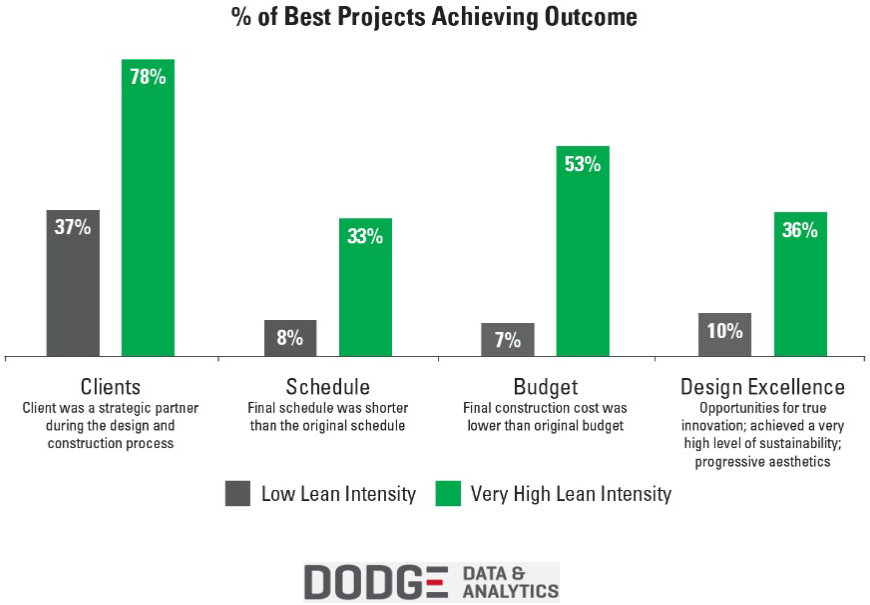
In an industry study, Dodge benchmarked “best” and “typical” projects from 310 designers. Each project was completed in 2012 or later with construction costs of at least $10M.

Of the best projects Dodge found a statistically significant correlation between very high Lean intensity projects and likelihood for better client outcomes and design excellence.



The Reliability Gap

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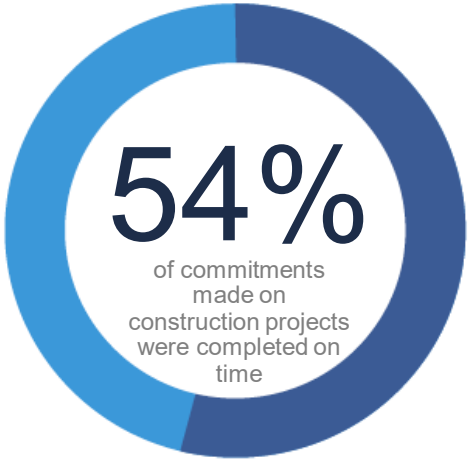
In the early 90's, Greg Howell and Glenn Ballard conducted a study of construction projects and determined that on average 54% of commitments made on projects were completed on time.

This led to the development of the Last Planner System.

This gap in reliability extends to the design phase of projects where there is also room to improve.



LPS® In Design

Iterative Process Flow

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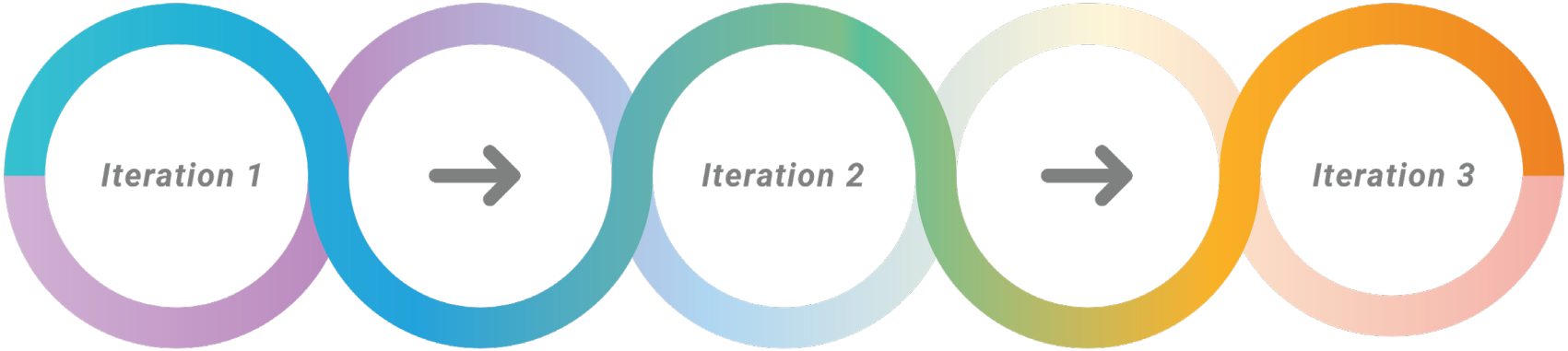

Iteration 1	Iteration 2	Iteration 3
Creative Process	Creative Process	Refine Document Decision
Planning and CoS	Planning and CoS	
Set Based Design	Set Based Design	
Testing/Target Costing	Testing/Target Costing	
Evaluation + Reflection	Evaluation + Reflection	

Courtesy: Stantec Architecture

Design Considerations

While the Last Planner System® is used in construction, it is highly applicable and useful in design. Some key differences to keep in mind include:

Design:

- Is emerging based on new information and the flow is “information”.
- Milestones are clearly defined by expected outcome which should describe what needs to be known.
- Milestones are often “decision points”.

Construction:

- Is linear in nature and the flow is “tangible materials”.
- Milestones are clearly defined by expected outcome which will be observable in the field.

Scrum & Agile Approaches

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5 Connected Conversations Of LPS®

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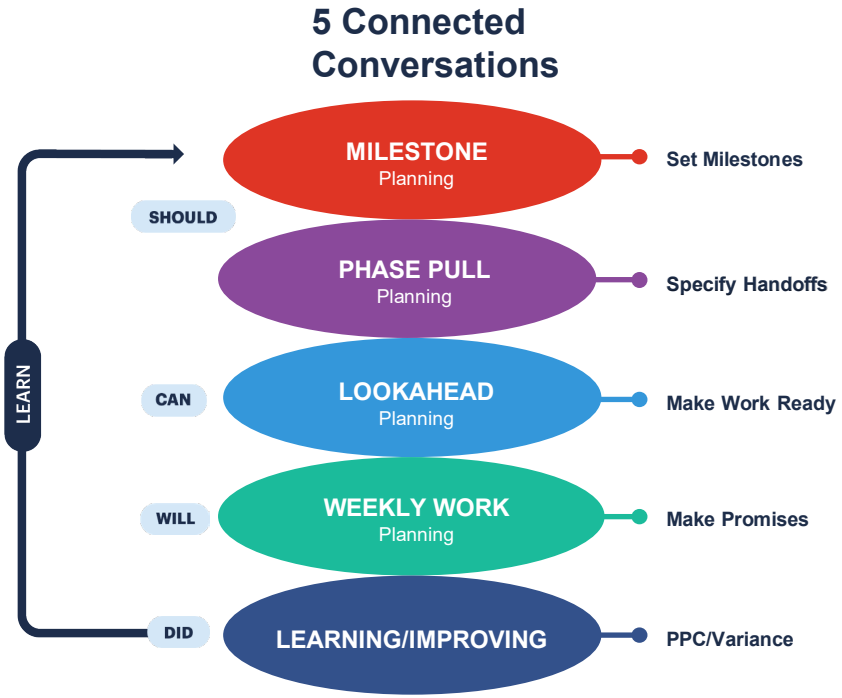
The LPS is a commitment-based system integrating 5 connected planning conversations at 5 levels:

1. Milestone Planning (Should)
2. Phase Pull Planning (Should)
3. Lookahead Planning (Can)
4. Weekly Work Planning (Will)
5. Learning & Improving (Did/Learn)



LPS® Modified For Design

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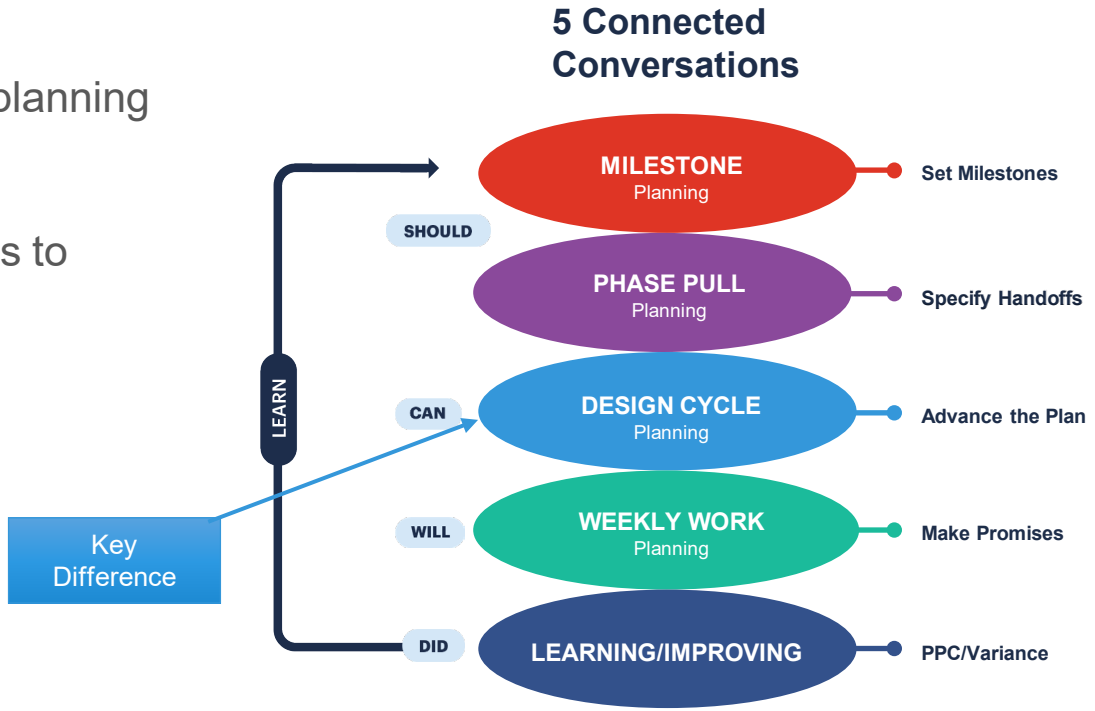
In modifying LPS for design, the 5 planning conversations remain the same.

The *Lookahead Planning* level shifts to *Design Cycle Planning*.



Who Is The Last Planner®

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The *Last Planner*® (LP™) is the person closest to work with authority to make decisions regarding the schedule and to make reliable commitments to complete the work of their discipline.

This may include the lead architect or project manager, the lead engineer, owner's project representative and the constructors as appropriate.

Courtesy: Stantec Architecture

Understanding Push VS. Pull

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Push:

- 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.

Creating Pull

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- All organizations or groups of greater than one can be viewed as operating as a ***network of promises*** or commitments, whether done well or poorly.
- The goal is to understand how to ***improve the quality*** of commitments and to ***actively take responsibility*** for managing them.
- The Last Planner System is a planning system based on developing a ***network of commitments***, then delivering on the commitments.

Elements of a Promise

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Elements of a promise include:

- ***The Customer:*** The person making the request.
- ***The Performer:*** The person fulfilling the request.
- ***Negotiated Conditions of Satisfaction (CoS):***
  - Are part of language act of making a promise.
  - Are developed by the people involved in the request and promise.
  - Are measureable statements that inform the performer of the promise which tests a task must pass to be accepted as a success.
  - Inform the decision-making process of the promisor.
  - Include a time frame.

Basic Action Workflow Of A Promise

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2. Customer makes a request of the Performer.

1. Customer prepares to make a request of the Performer

3. Customer & Performer negotiate the CoS.

4. The Performer performs the action of the negotiated request.

5. The Performer declares the request complete.

6. The Customer declares (or declines) satisfaction.

Credit: Dr. Fernando Flores

Milestone Planning

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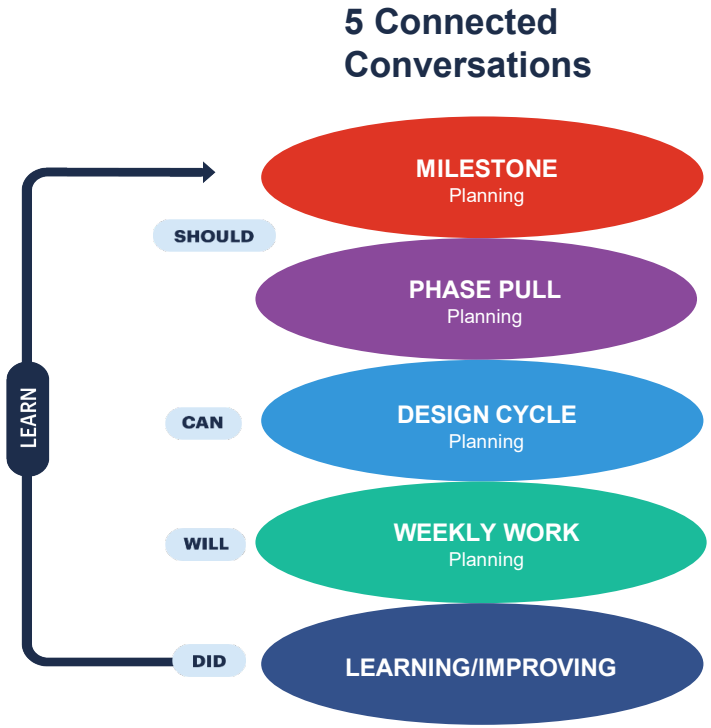
The first level of LPS is ***Milestone Planning***.

The goal of Milestone Planning is for the team to align on and *set the milestones* for the project.

The conversation at this level starts the *"should"* be able to do conversation.



Re-Defining Design Milestones

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Traditional

- Deliverable Drawing Sets
- Submit, Review, Price Iteration
- Percent Complete Sets
  - 30/60/90

Re-Defined

- Information Hand Offs
- Decision Points as Milestones
- Design first then draw
- Submission (permit) sets as backlog

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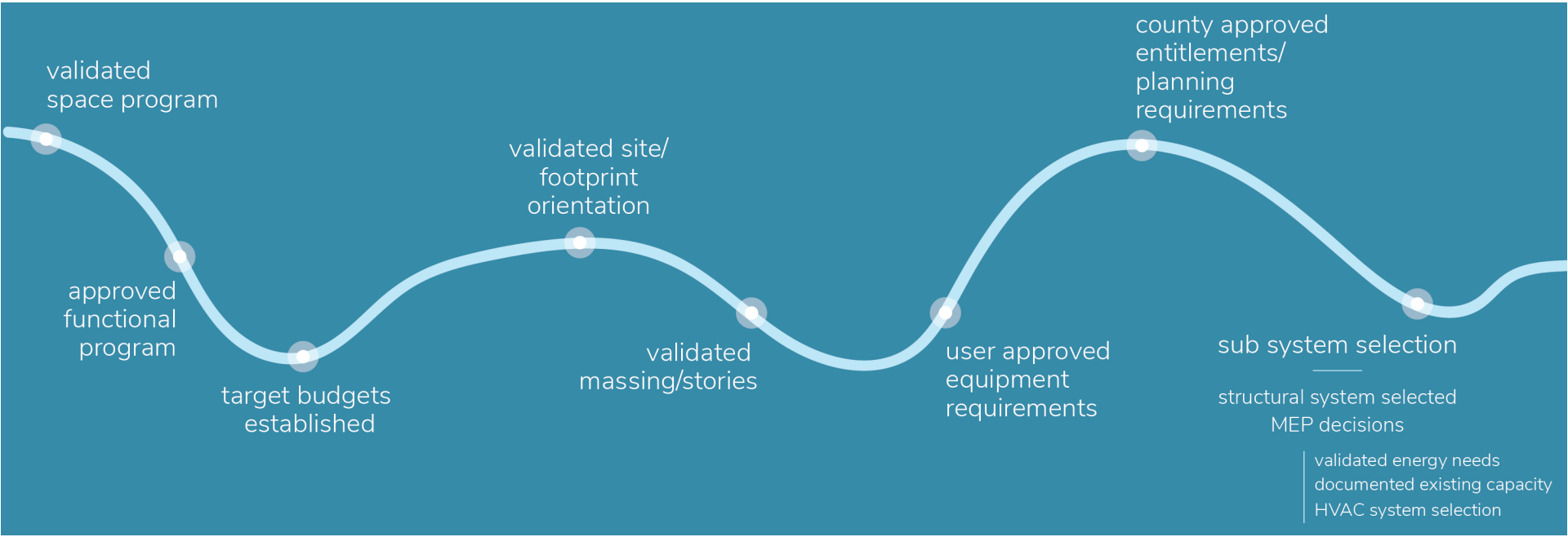
Decision Based Milestones



- CBA to select Paramount Advantage for systems, design elements etc.
- A3 to Capture Key Decisions

Courtesy: Stantec Architecture

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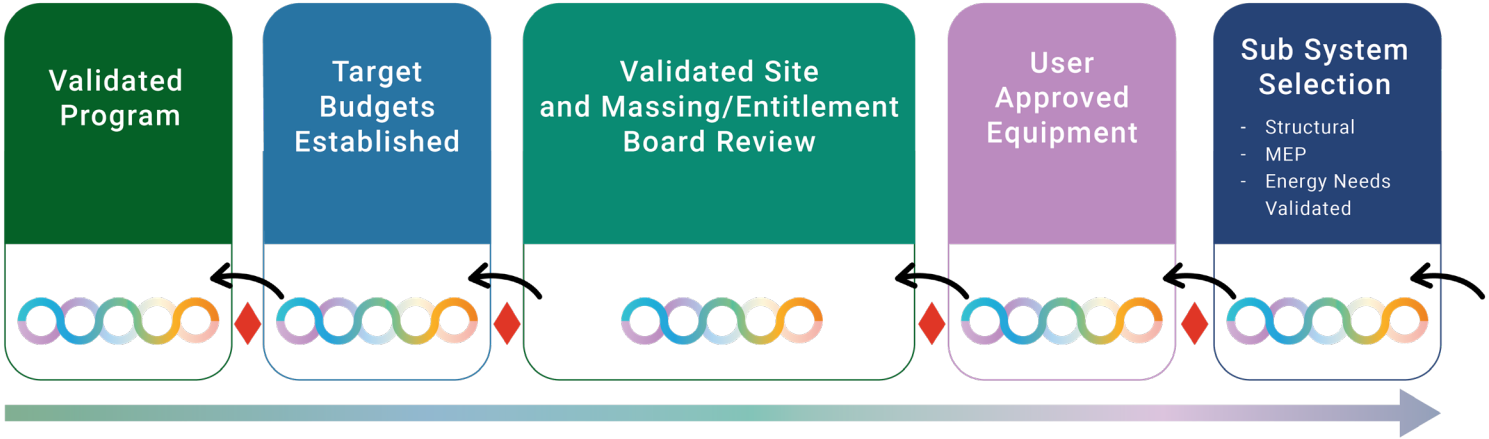
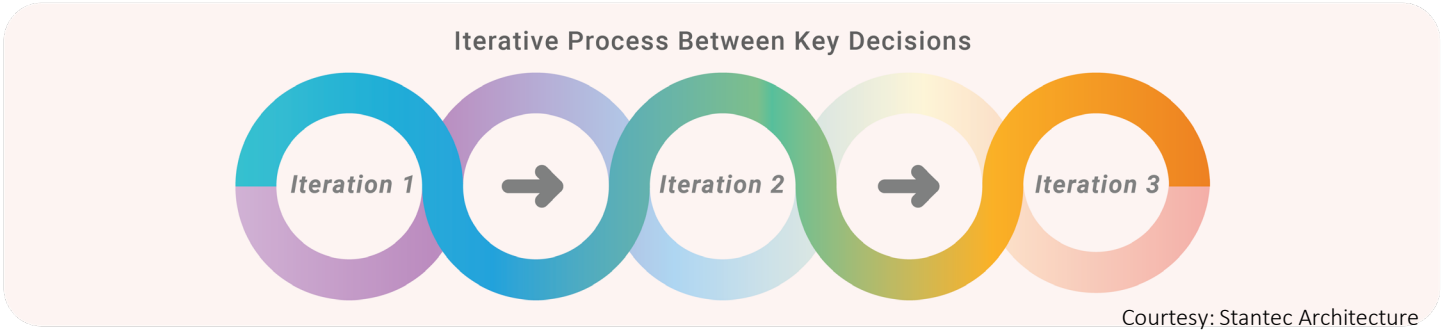
Key Decision Milestones





Courtesy: Stantec Architecture

Creating The Milestone Plan

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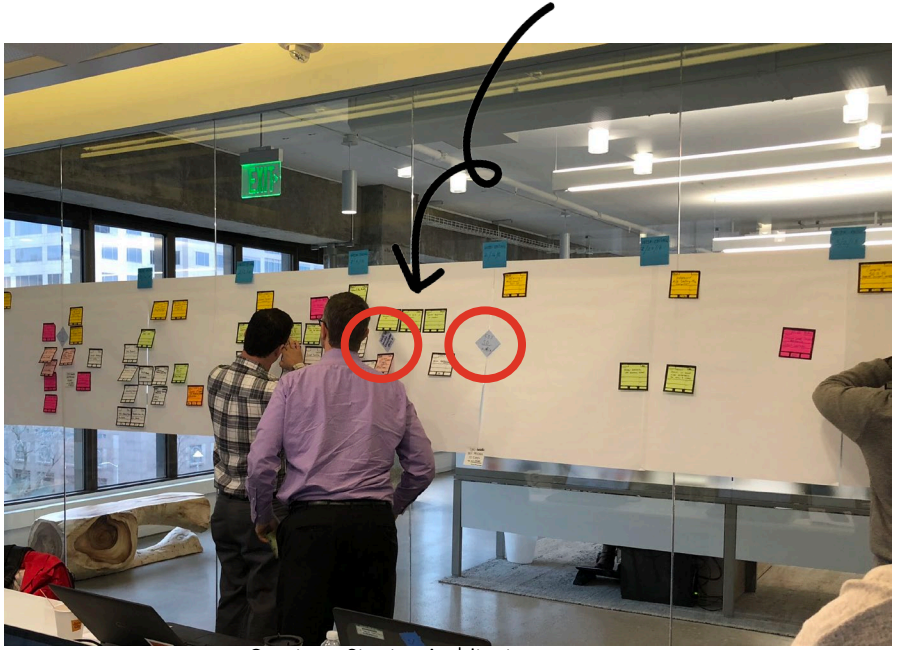
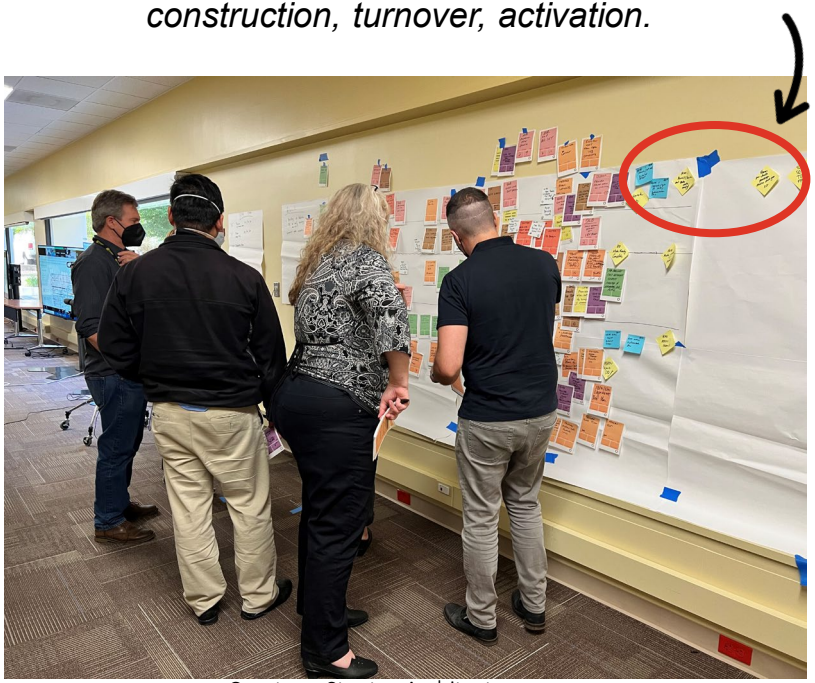
Developing the milestones to structure the flow.
The next step will add estimated durations.



Courtesy: Stantec Architecture

Color coding for different aspects of the plan,
i.e. design, approval processes, key decisions, construction, turnover, activation.



Courtesy: Stantec Architecture

Creating The Milestone Plan

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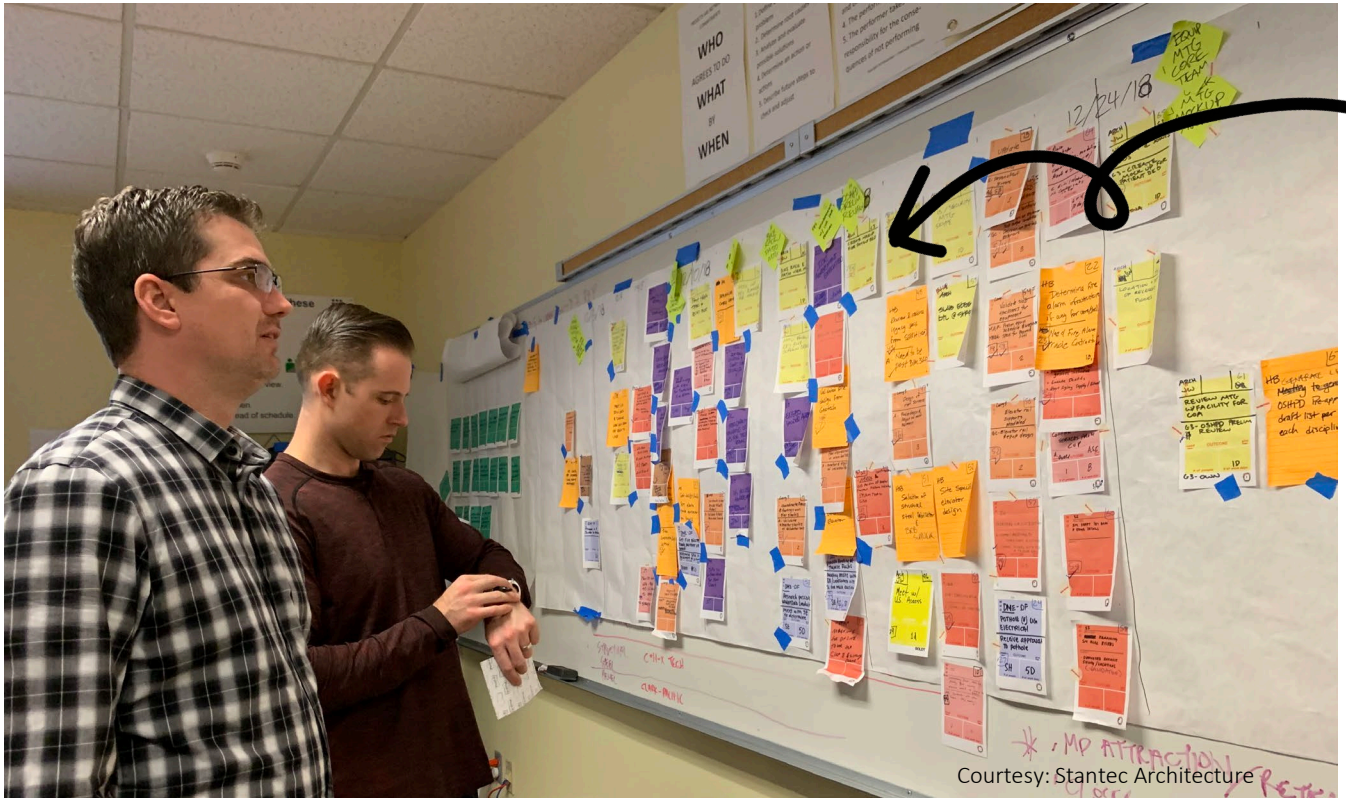

Courtesy: Stantec Architecture

- Developing the milestones to structure the flow.

  The next step is to add estimated durations.

Setting Up To Plan

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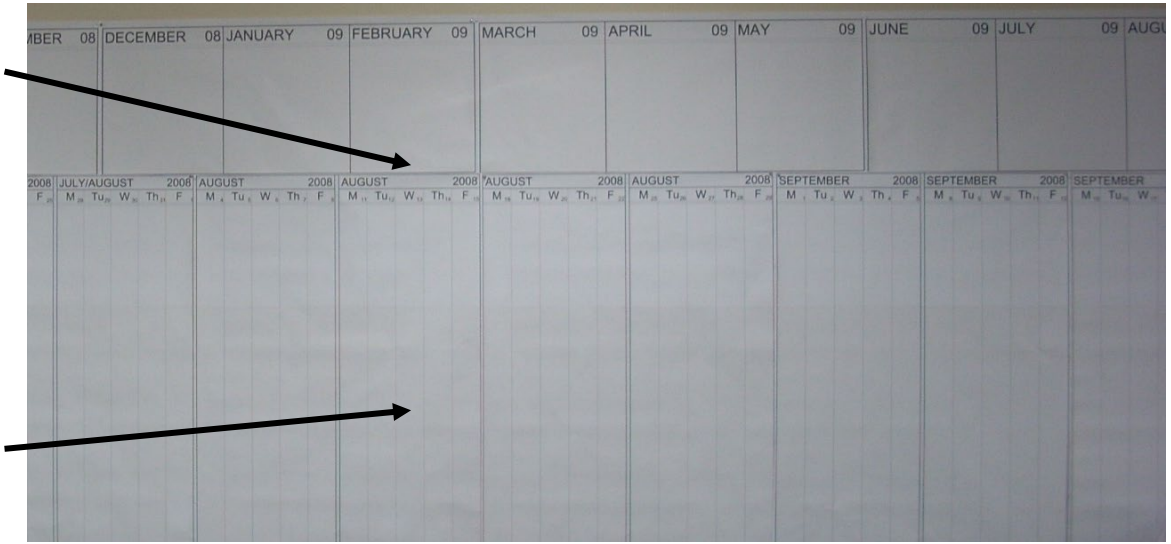
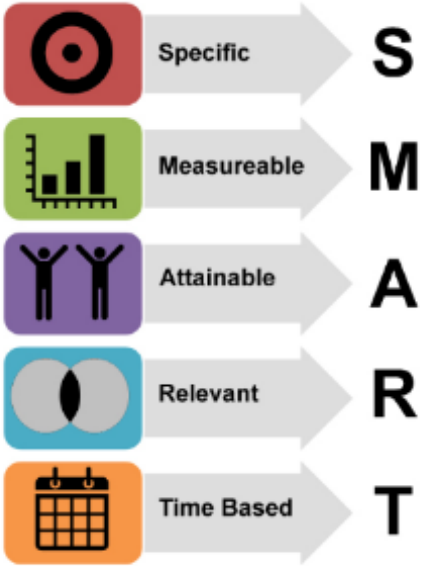
This set up includes a time scale (months) to transfer the Milestone Plan to once dates are determined.

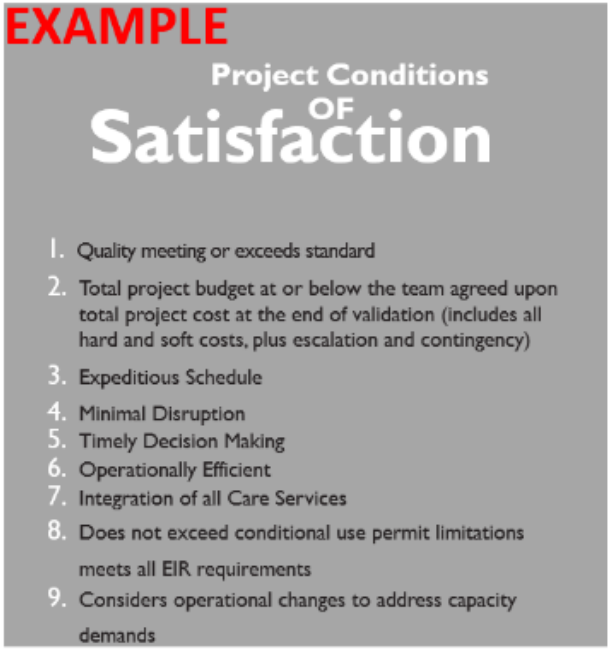


This set up includes a time scale (weeks & days) for the next level Phase Pull Planning.

CoS



Example Conditions of Satisfaction:



Courtesy: Stantec Architecture

Conditions of Satisfaction - Example

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Goal #1: Realize Patient Safety

CRITERIA:	Do not place any patients at increased risk to harm during construction. Strive not to create features in project design that increase risk to patient harm.
CONSTRAINTS:	Patient occupancy on floor below project location
PREFERENCE:	Less is better
METRIC:	No incidents of patient harm due to construction Reduced incidents of patient harm as compared to similar unit, on year after occupancy

Goal #2: Accelerate Speed to Market

CRITERIA:	Reduce time to first patient with additional licensed general acute care beds
CONSTRAINTS:	Construction occuring in occupied building Construction concurrent with other significant projects on the campus Access to licensed patient rooms on floor below project area Authorities having jurisdiction not achieving agreed milestones
PREFERENCE:	Sooner is better
METRIC:	Date of first patient in bed ahead of November 4, 2020

Goal #3: Reduce Total Project Cost

CRITERIA:	Reduce total cost of project as measured by Sutter Health FPS document B1.1
CONSTRAINTS:	Patient occupancy on floor below project location Unknown material and labor price escalation
PREFERENCE:	Less is better
METRIC:	Total project cost in USD

Courtesy: Stantec Architecture

Let's Plan a Wedding!

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"Blue Bayou" Wedding

Tiana and Naveen are planning a wedding in **6 months in New Orleans** and they have hired the LCI 101 team to help plan their wedding.

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Break Up In Groups – Identify Milestones

Group Activity | **20 min** - Groups at Wall
15 min - Debrief

Conditions of Satisfaction

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COS

- Plan for weather
- New Orleans themed
- On-Budget
- On-Time

Report Out

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Explain the logic

Large Group Discussion 15 min

BREAK

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10 Min.

Phase Pull Planning

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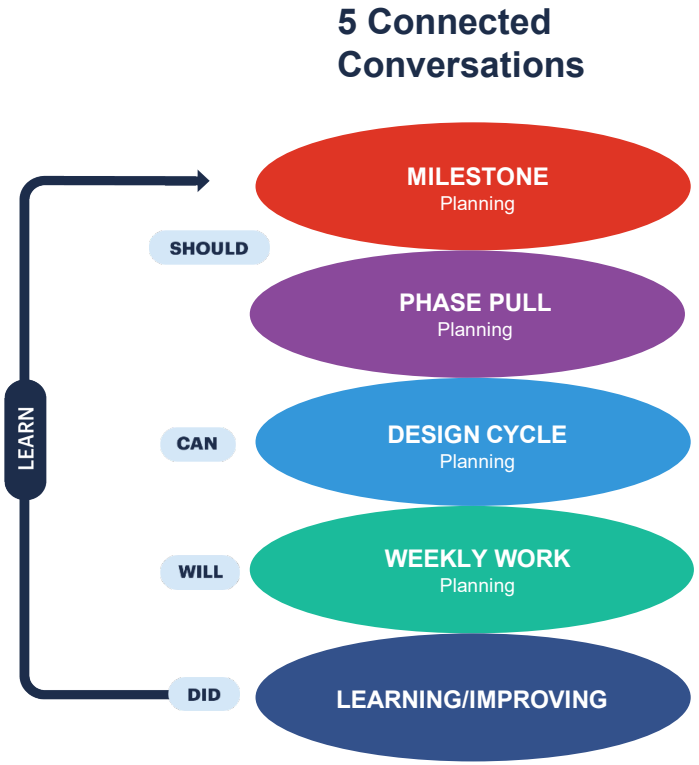
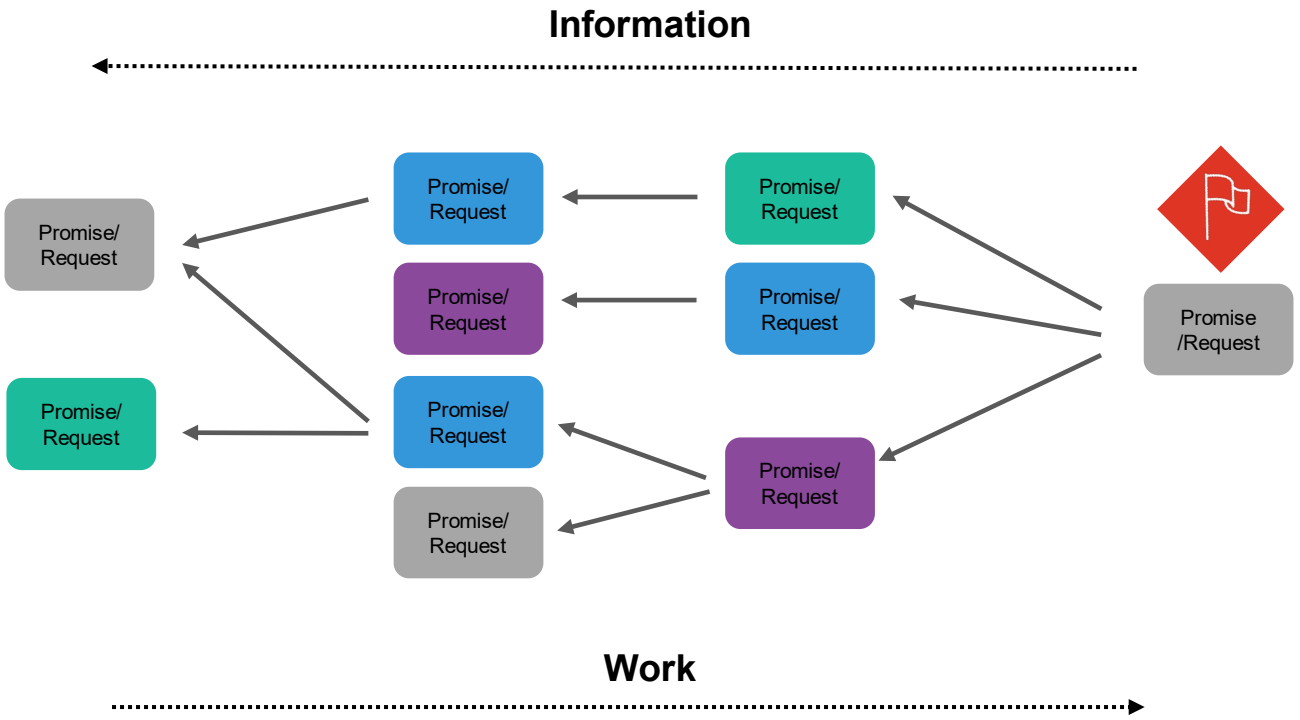
The second level of LPS is *Phase Pull Planning.*

The goal of Phase Pull Planning is for the team to determine the key *handoffs* of work or information needed to deliver a milestone.

The conversation at this level continues the *"should"* be able to do conversation.



Pull-Creating Flow



Focus On Hand-offs

Creating Tags For Promises

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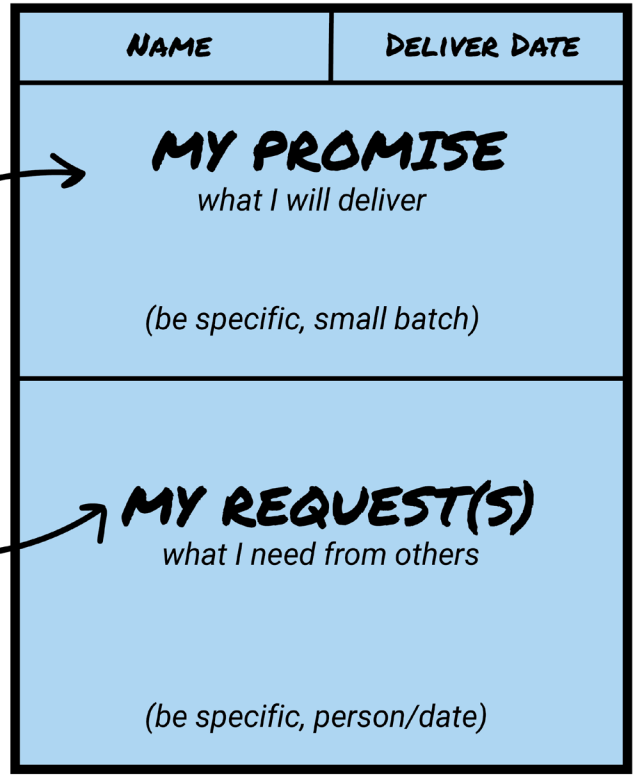
1. *The* **Performer** *completes a tag to capture their* **Promise** *for work or information to be delivered to meet the* **Request** *of the downstream* **Customer**

2. *The* **Performer** *then makes a* **Request(s)** *for work or information needed from an upstream* **Performer** *in order to complete their* **Promise**



Creating Tags For Promises

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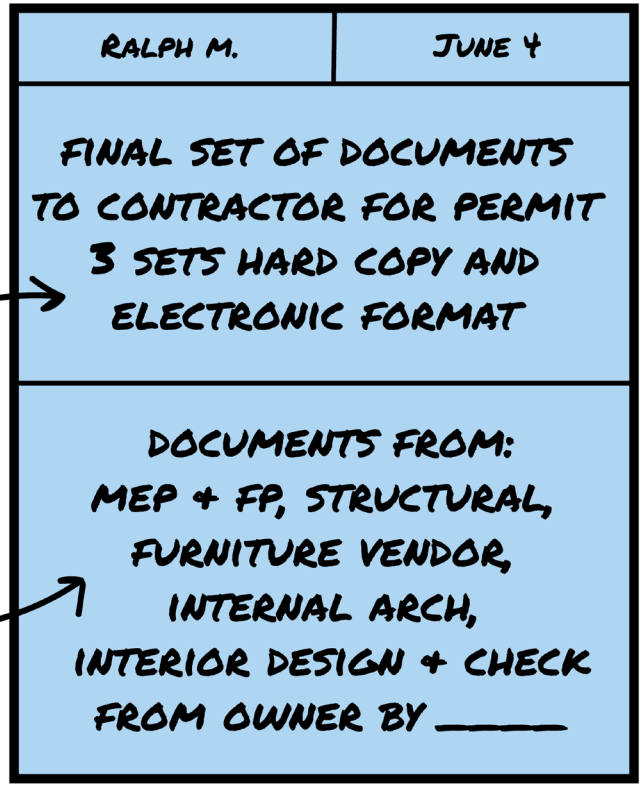
1 *The* **Performer's Promise** *for work or information they deliver.*

2 *The* **Performer's Request** *for work or information needed to complete their* **Promise.**



Creating Tags For Promises

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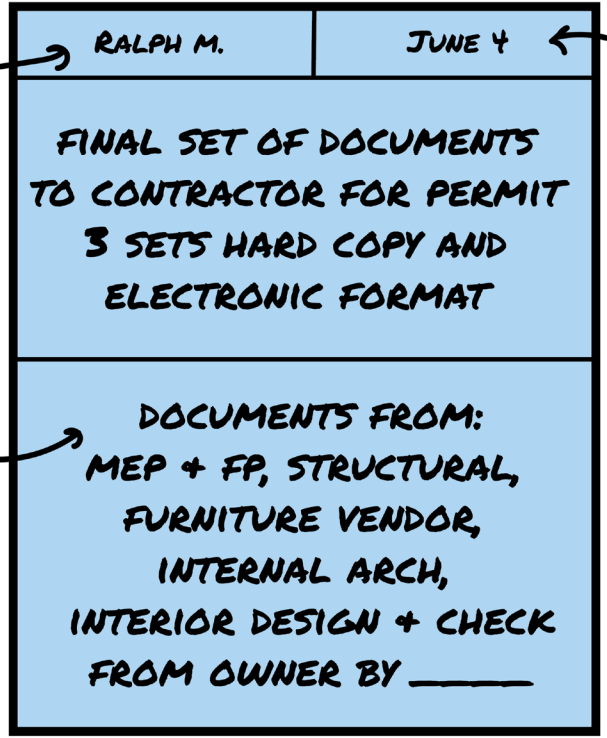
*The **Performer's** name (not company) is placed on the tag.*



*Upon negotiation of the Conditions of Satisfaction including a **delivery date**, the date is noted.*

Note additional info that adds clarify to the plan, includes who made the request is made of and the date the request is needed.

Creating The Phase Pull Plan

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Color-coded milestones on the Phase Pull Plan

Pull to date of handoff needed

Involve key discipline leads

Future milestone remain on the Milestone Plan

UHS Temecula Valley Hospital Team

Phase Pull Planning

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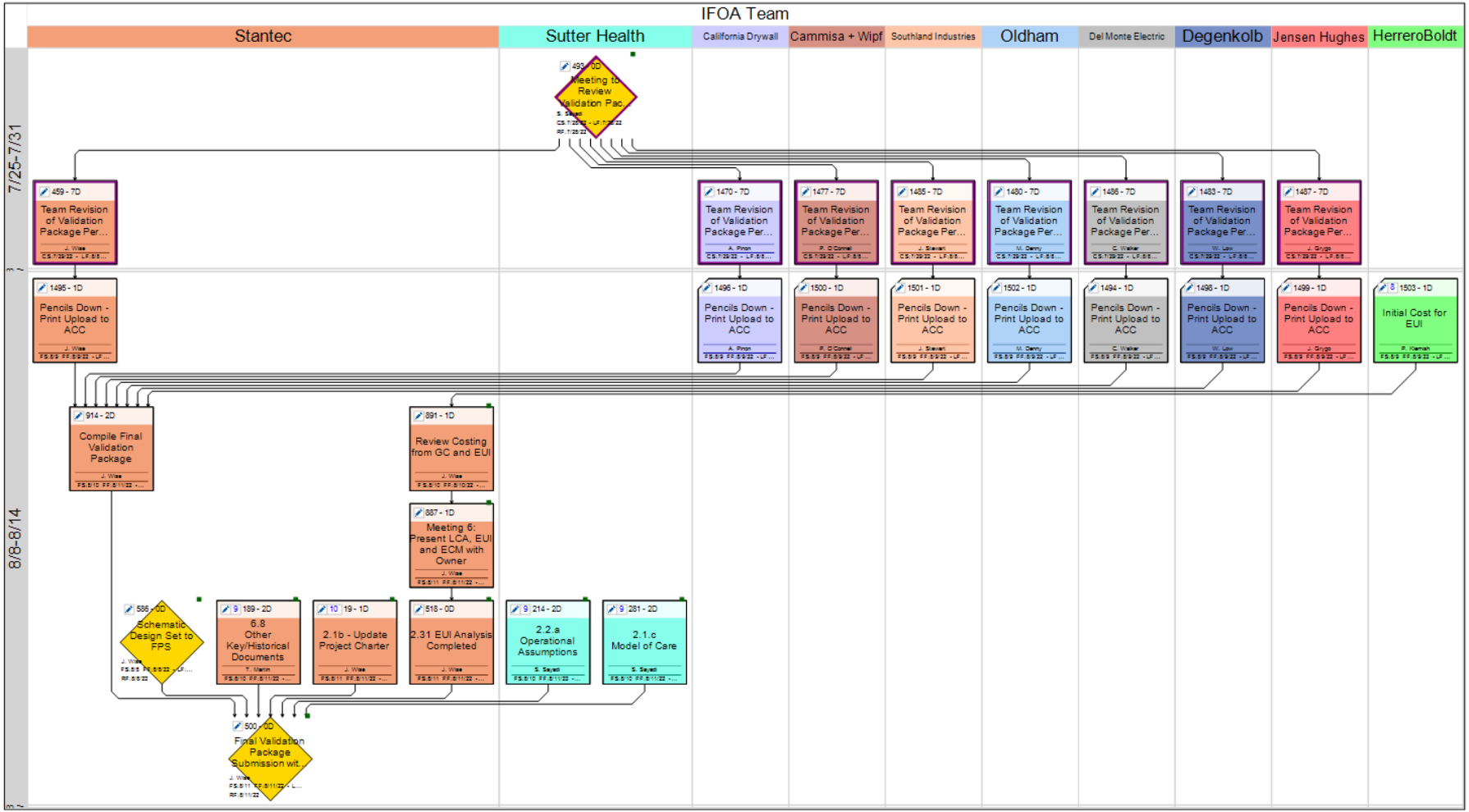
Milestones

Swim Lanes

Site Package
Foundation Package
Shell & Core Package
Current Working Estimate


IFOA Team
Stantec
Sutter Health
California Drywall
Cammisa + Wipf
Southland Industries
Oldham
Del Monte Electric
Degenkolb
Jensen Hughes
HerreroBoldt
7/25–7/31
8/8–8/14
493 - 0D
Meeting to Review Validation Pac...
459 - 7D
Team Revision of Validation Package Per...
1470 - 7D
Team Revision of Validation Package Per...
1477 - 7D
Team Revision of Validation Package Per...
1485 - 7D
Team Revision of Validation Package Per...
1480 - 7D
Team Revision of Validation Package Per...
1486 - 7D
Team Revision of Validation Package Per...
1483 - 7D
Team Revision of Validation Package Per...
1487 - 7D
Team Revision of Validation Package Per...
1495 - 1D
Pencils Down - Print Upload to ACC
1496 - 1D
Pencils Down - Print Upload to ACC
1500 - 1D
Pencils Down - Print Upload to ACC
1501 - 1D
Pencils Down - Print Upload to ACC
1502 - 1D
Pencils Down - Print Upload to ACC
1494 - 1D
Pencils Down - Print Upload to ACC
1498 - 1D
Pencils Down - Print Upload to ACC
1499 - 1D
Pencils Down - Print Upload to ACC
1503 - 1D
Initial Cost for EUI
914 - 2D
Compile Final Validation Package
891 - 1D
Review Costing from GC and EUI
887 - 1D
Meeting 6: Present LCA, EUI and ECM with Owner
586 - 0D
Schematic Design Set to FPS
189 - 2D
6.8 Other Key/Historical Documents
19 - 1D
2.1b - Update Project Charter
518 - 0D
2.31 EUI Analysis Completed
214 - 2D
2.2.a Operational Assumptions
281 - 2D
2.1.c Model of Care
500 - 0D
Final Validation Package Submission wit...

Pull Planning In Action

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Note the three tag pull example from this planning session.

Pull Planning In Action

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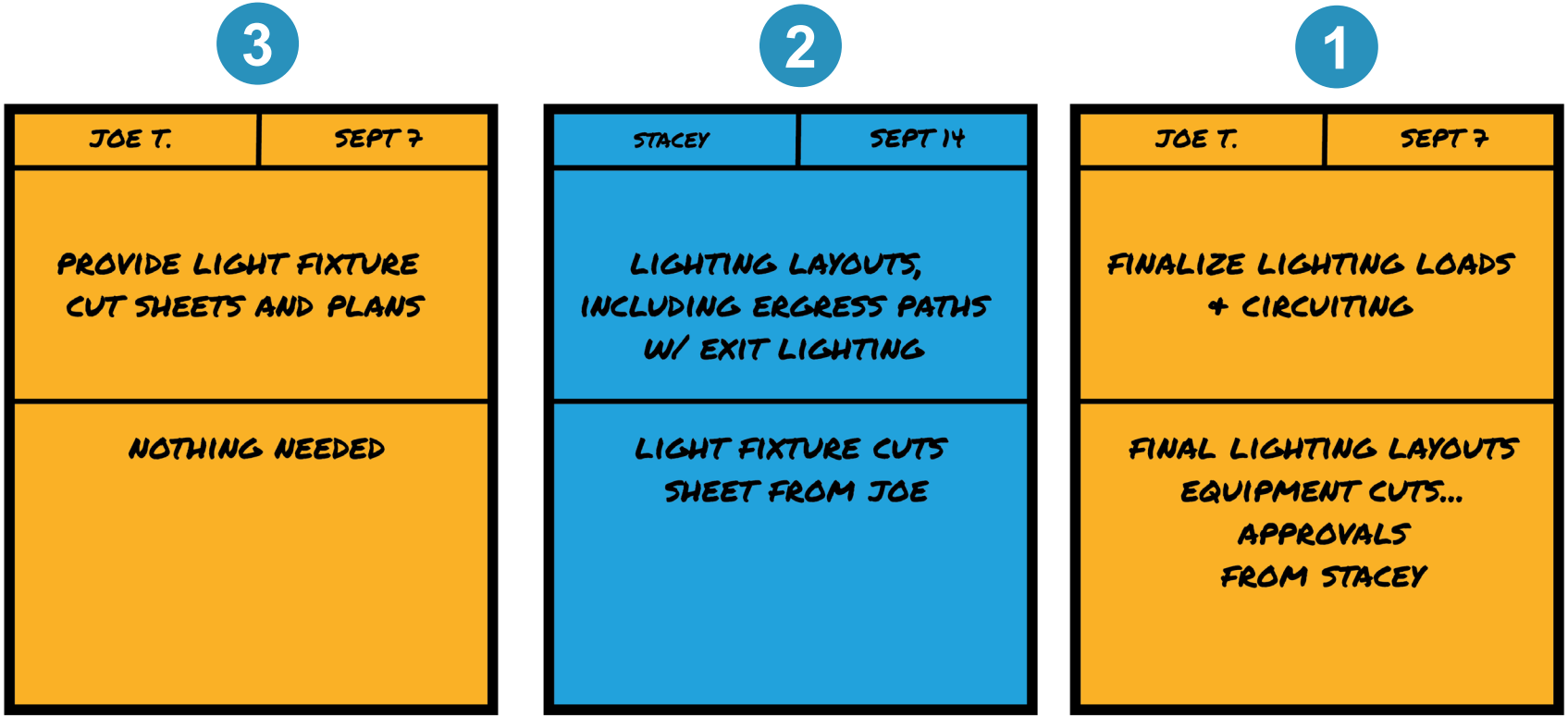
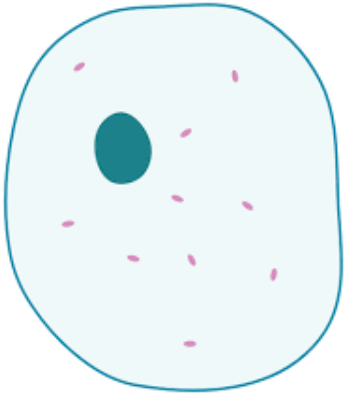
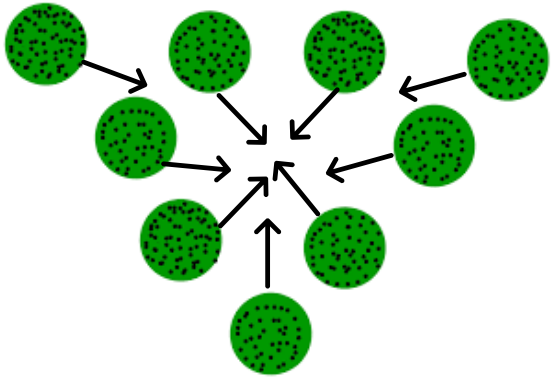


Pull Planning Options

Team vs. Cluster Pull Plans



VS.



Team Pull Planning

Cluster Pull Planning

Team Style Pull Planning

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- Pre-Covid, large group exercise
- In-person, at a white board
- Each discipline quickly describes design flow
- Start with the architect's flow first

Team Style Pull Planning

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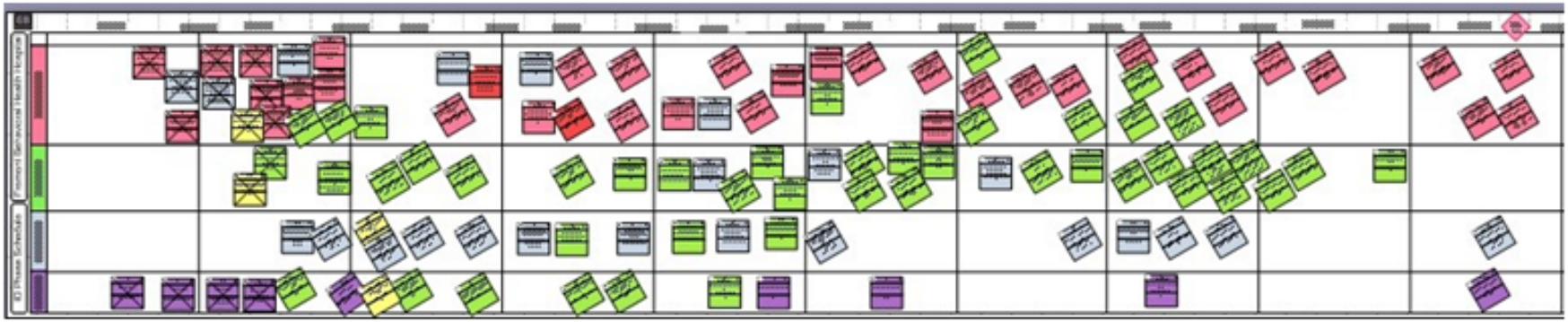
- Architect makes request of others to fulfill their needs (constraints)
- Disciplines place activity tags or creates new tags to fulfill the requests
- Straighten tags if it can be committed (and there is no constraints)
- Each discipline follows the same procedure until the pull plan is completed



Pull Planning - Check-ins

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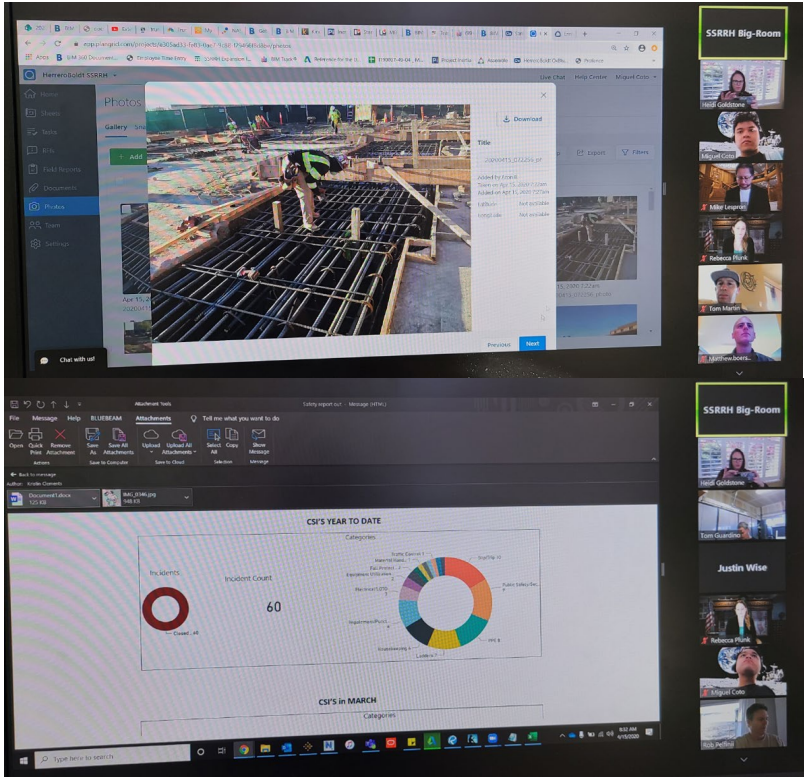
- Review past week of commitments by discipline
- Cross off tags that were completed and accepted by the customer
- Re-plan tags that were not complete and record the variance
- Capture Percent Planned Complete (PPC)
- Lookahead review for each discipline
- Identify constraints and re-plan if necessary
- Commit to the next week's work activities



Courtesy: Stantec Architecture

Cluster Style Design Pull Planning

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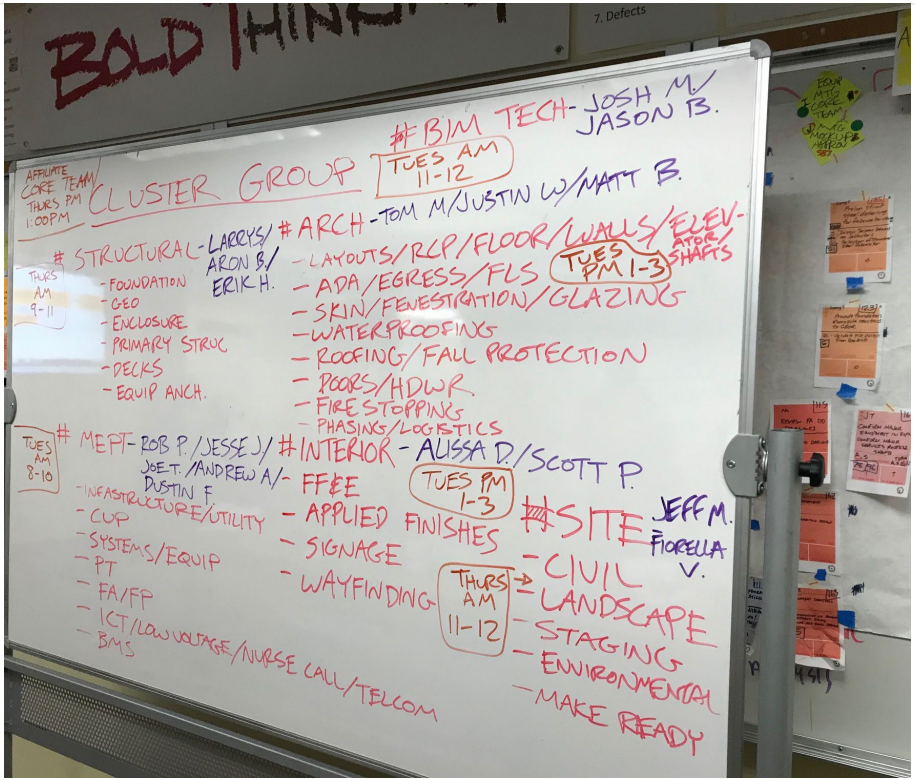
- **Cluster Groups** are smaller work groups responsible for a specific subset of the work
- **Cross Discipline** to include multiple stakeholders
  - Arch-Owner-GC
  - Arch-Structural
  - MEP designer-MEP Trade, etc.



Courtesy: Stantec Architecture

Cluster Style Virtual Planning

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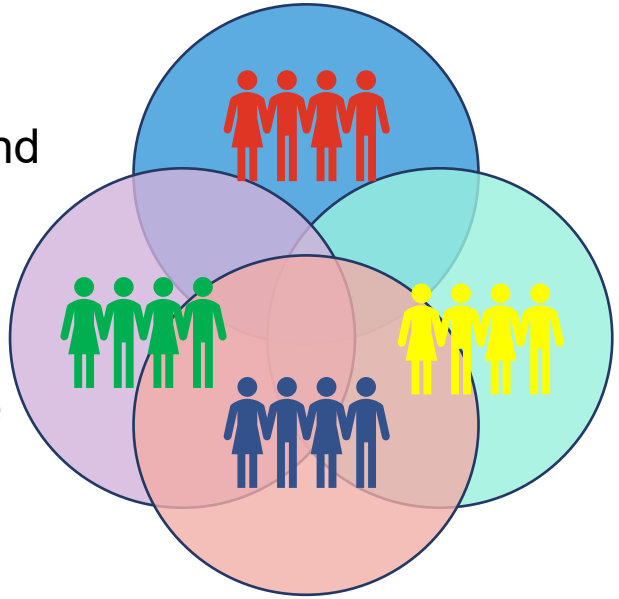
- **Can combine virtual meeting software** with LPS software (VPlanner Pull, etc.)
- **Team meets together** for discussion of milestone and CoS
- **Clusters break out** into virtual rooms to produce micro-plans
- **Team gathers again** to discuss handoffs and merge plans
- **Follow up** to finalize a plan



Cluster Style Design Pull Planning

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- **Combine planning with other design work** using the same on-going cluster

- **Example:**
  - Existing conditions require smaller electrical panel
  - MEP cluster coordinates tasks and decisions to execute change with Arch and Structural
  - Cluster integrates workflow into team production plan

Team vs Cluster Style

- Relative Advantages
  - Team Approach
    - Better understanding of other disciplines workflow
    - Feedback on cross discipline handoffs is real time, not delayed
  - Cluster Approach
    - More focused, natural conversations between like individuals
    - More detailed understanding of critical in-cluster handoffs
    - More efficient use of time
    - Planning incorporated more naturally into design coordination

Team vs Cluster Style

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- When to use?
  - Team Approach
    - smaller teams
    - simple projects - few phases, one building
    - shorter duration
  - Cluster Approach
    - larger teams with many stakeholders
    - more complex projects - multiple phase, multiple buildings
    - longer duration

Design Cycle Planning

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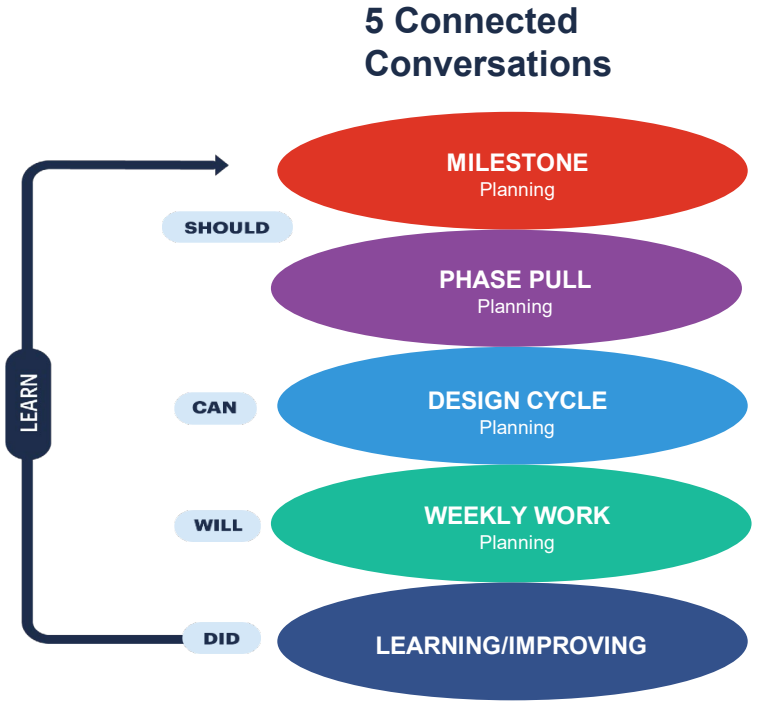
The third level of LPS is *Design Cycle Planning.*

The goal of this level is to continuously *advance the level of detail* of the Phase Pull Plan in 2-3 week cycles of time.

The conversation at this level is we *"can"* do this.



Scrum & Design Cycle Planning

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Courtesy: Stantec Architecture

Design cycle planning draws from ***Scrum*** in software design.

In Scrum, teams focus on determining what work can be delivered in continuous 2-3 week cycles called sprints. This aligns well with design.

Advancing The Plan

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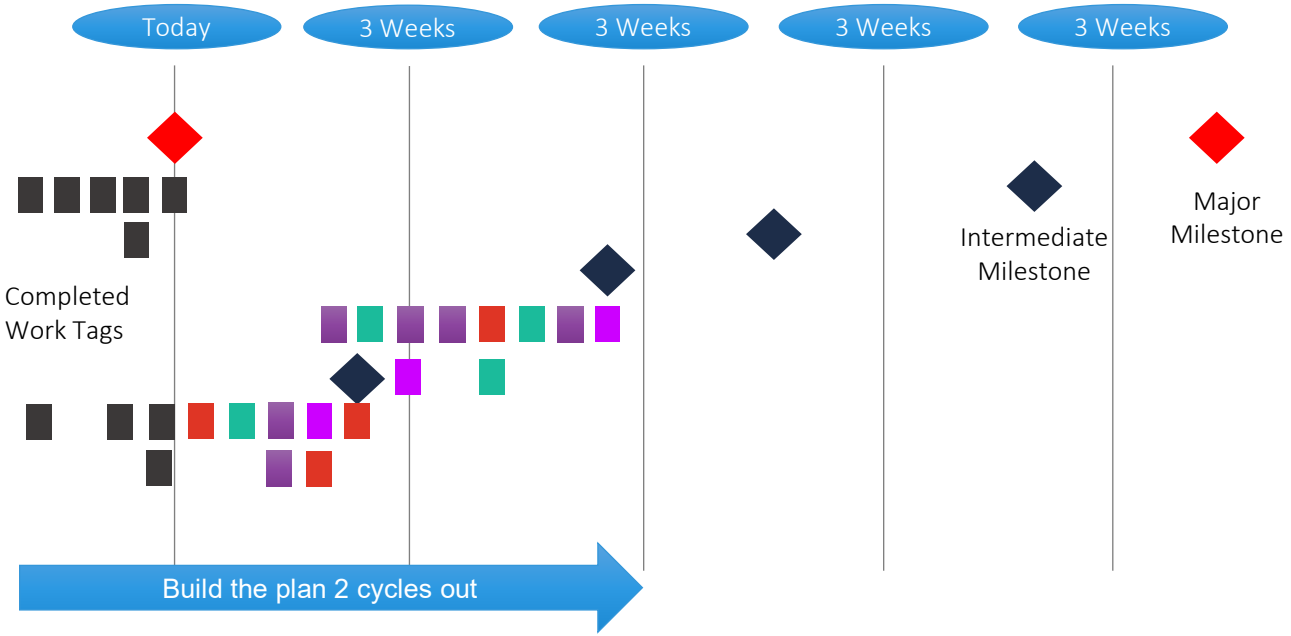
Continuously advance the plan every 2-3 weeks, always staying 2-3 cycles ahead in time.



Advancing The Plan

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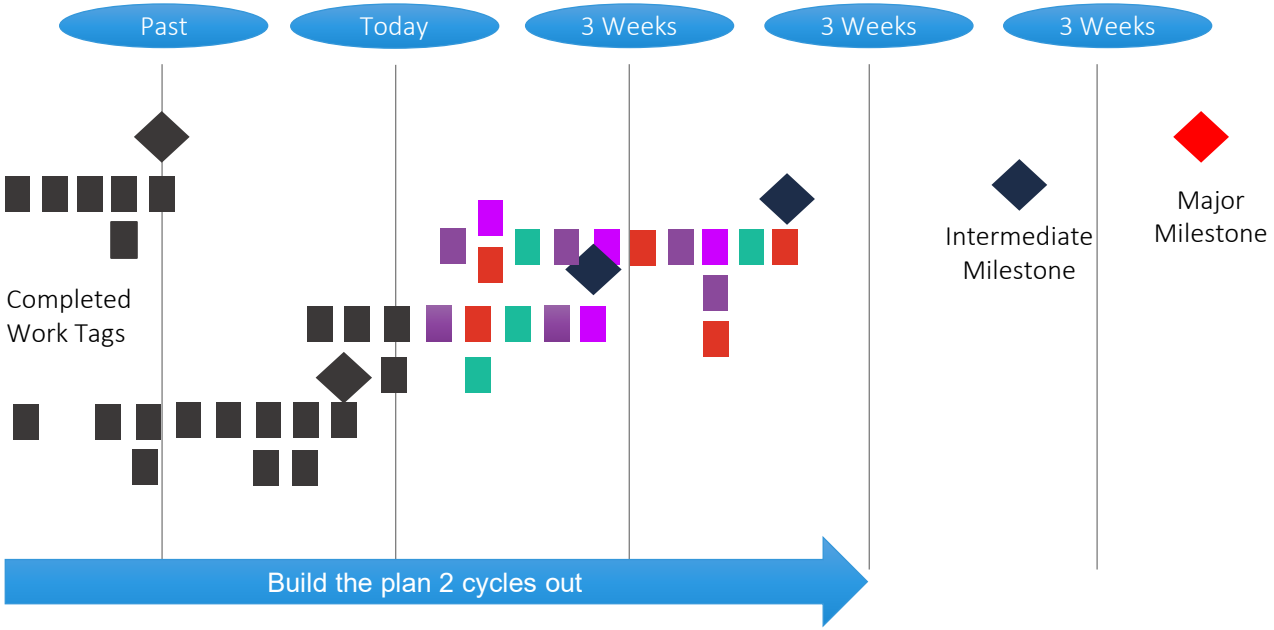
Continuously advance the plan in 2-3 week cycles.



Advancing The Plan

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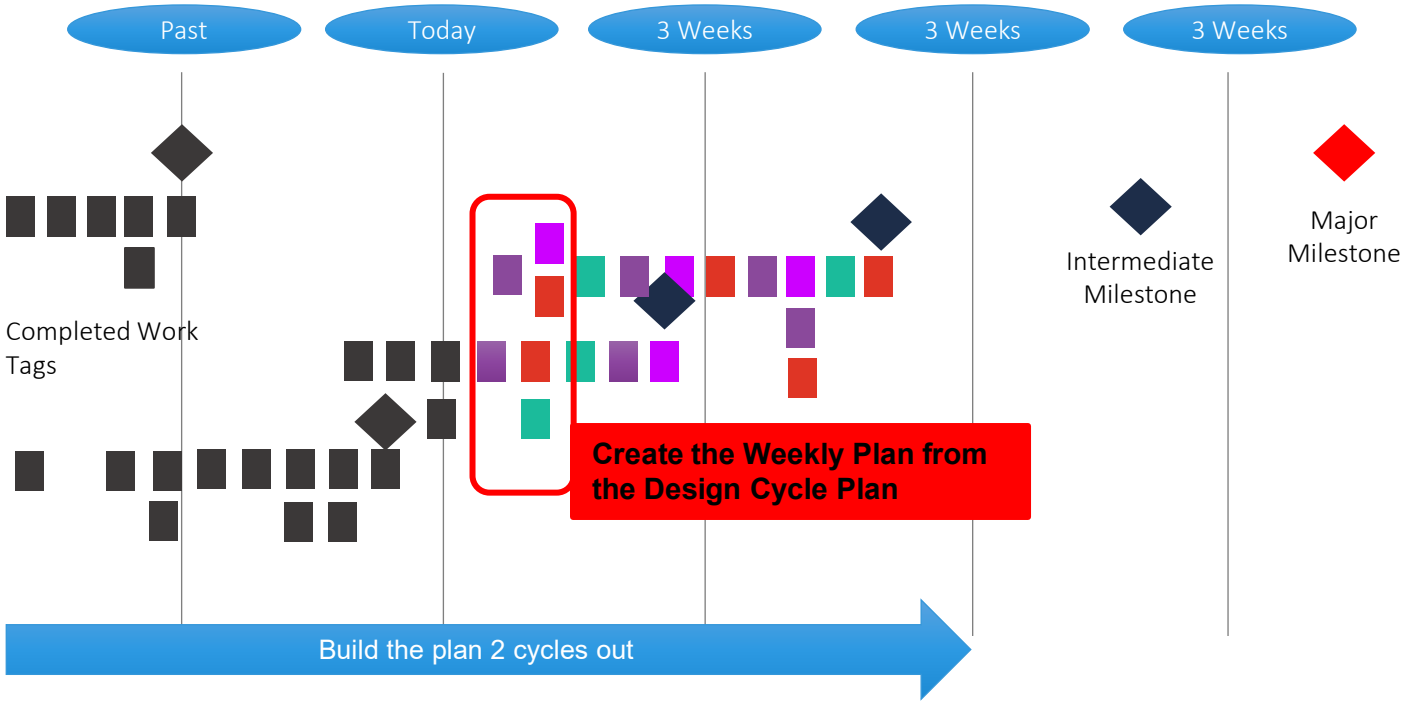

Workplan Commitments (Daily)

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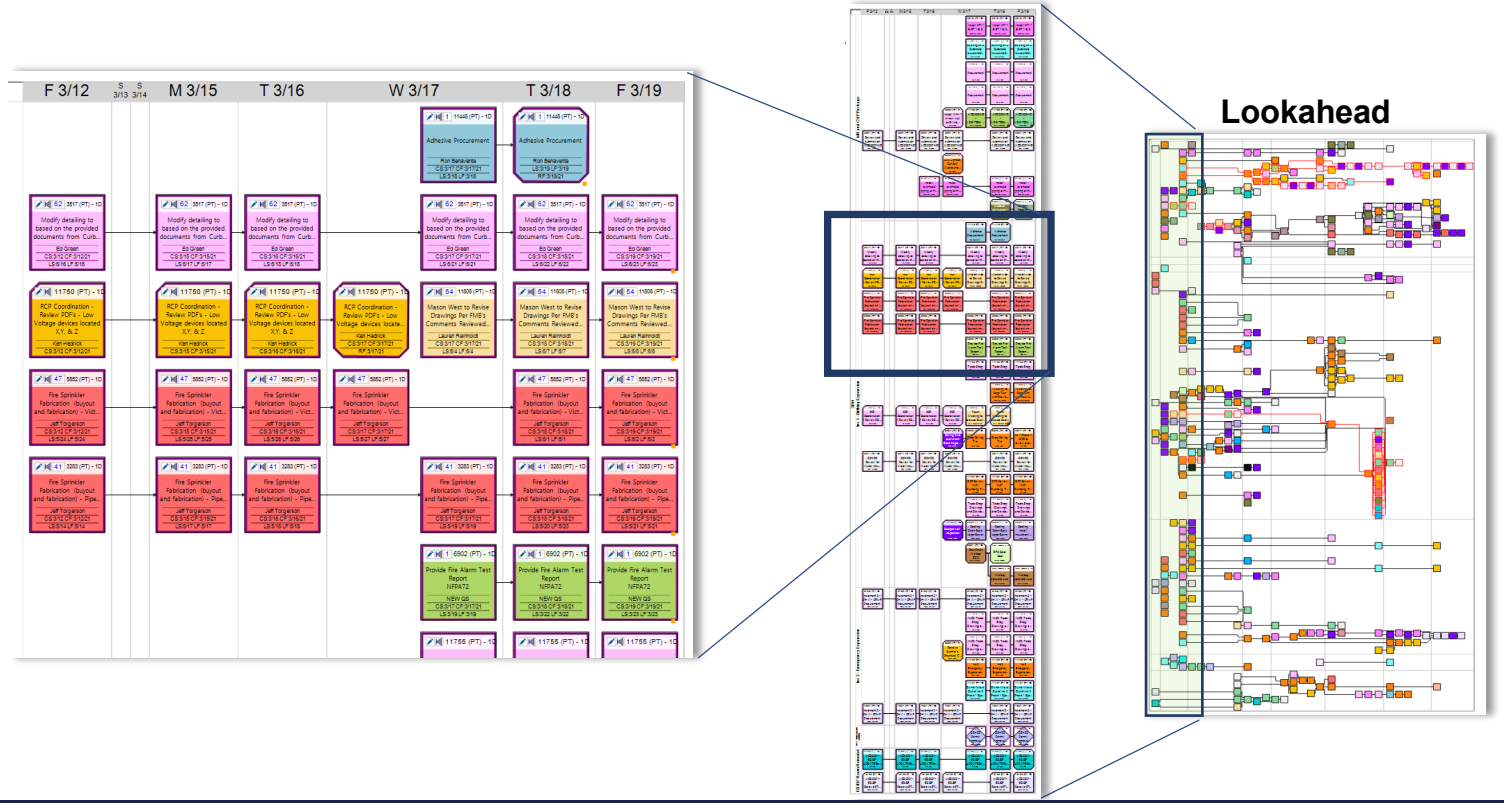

Documenting The Plan

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Whether using movable boards, or paper for the plan, the promises from the tags are documented in a *Work Register* for people to access at their place of work.

Project:
Date of Pull Plan: 09/30/10

	Milestones	Cycle Level Work	Requester	Performer	Discipline	Start Wee	Estimated El	Task Stat
				Week of 9/20				
	City B Site Plan	Discuss SCE with Rehim	self	Ward	Architectural	20-Sep		Done
	City B Site Plan	User name password Project Wise for Emily	Emily	Vanessa	DPR	20-Sep		Done
	City B Site Plan	Conversation w/Margie (see list)	self	Cynthia	Civil	20-Sep		Done
	City B Core and Shell	UHST Approval of Space Program						Done
	City B Core and Shell	Structural Steel Trade Partner		Turner/DPR		20-Sep		Done
	OSHPD "I" Submission 1.1	Appoint/confirm LV designer		Scott	Electrical	20-Sep		Done
	City B Site Plan	Obtain COT for building permit and email to team	Team	Ward	Architectural	20-Sep		Done
	City B Site Plan	Email first floor to trade partners and Site and CV and LA	Team	Ward	Architectural	20-Sep		Done
	OSHPD "I" Submission 1.1	Complete 3rd party code review		Steve	Architectural	27-Sep		Done

UHS Temecula Valley Hospital Team

The Work Register

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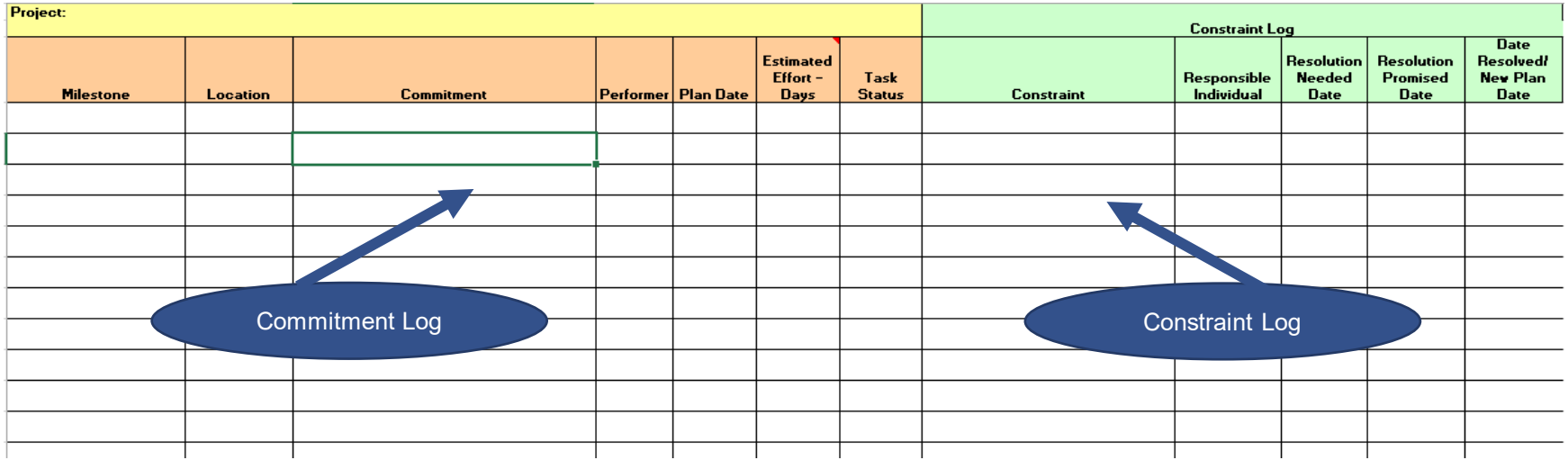
The Work Register is a combination of :

- The Commitment Log to stay on track with the commitments made.
- The Constraint Log to track the roadblocks that arise for any commitment.



Elements Of The Commitment Log

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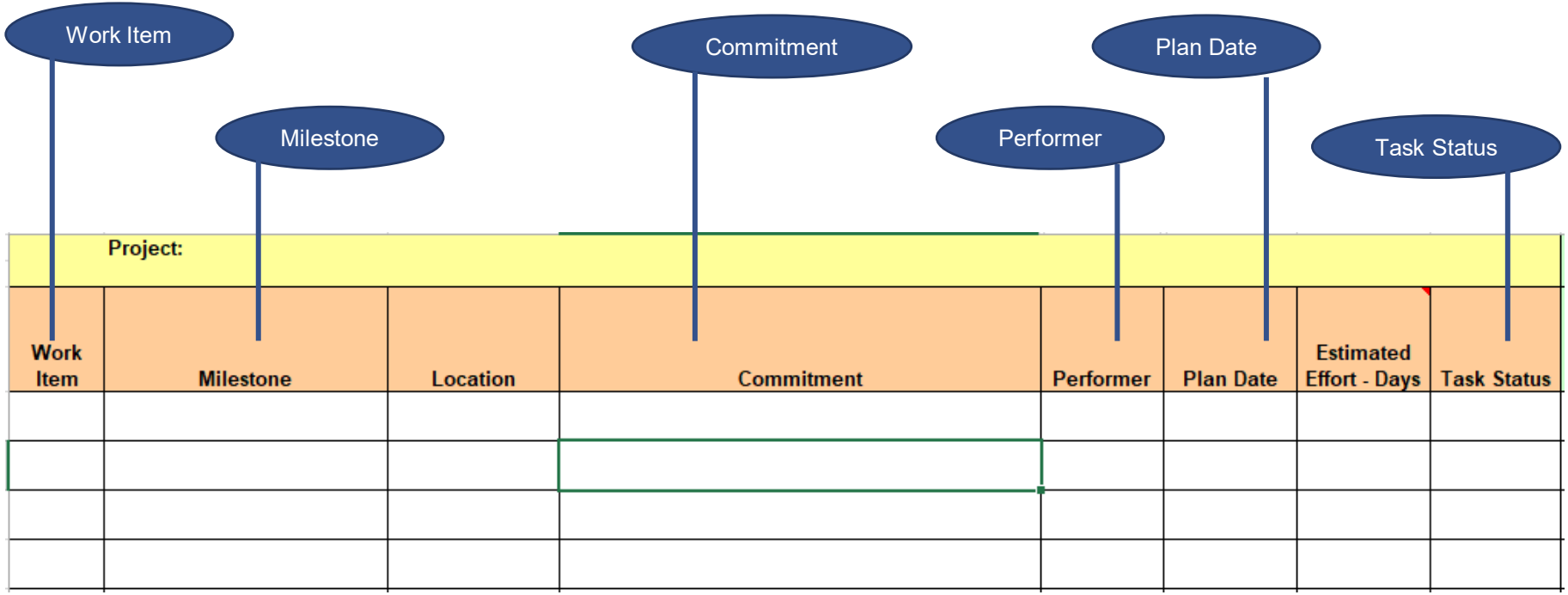

Elements Of The Constraint Log

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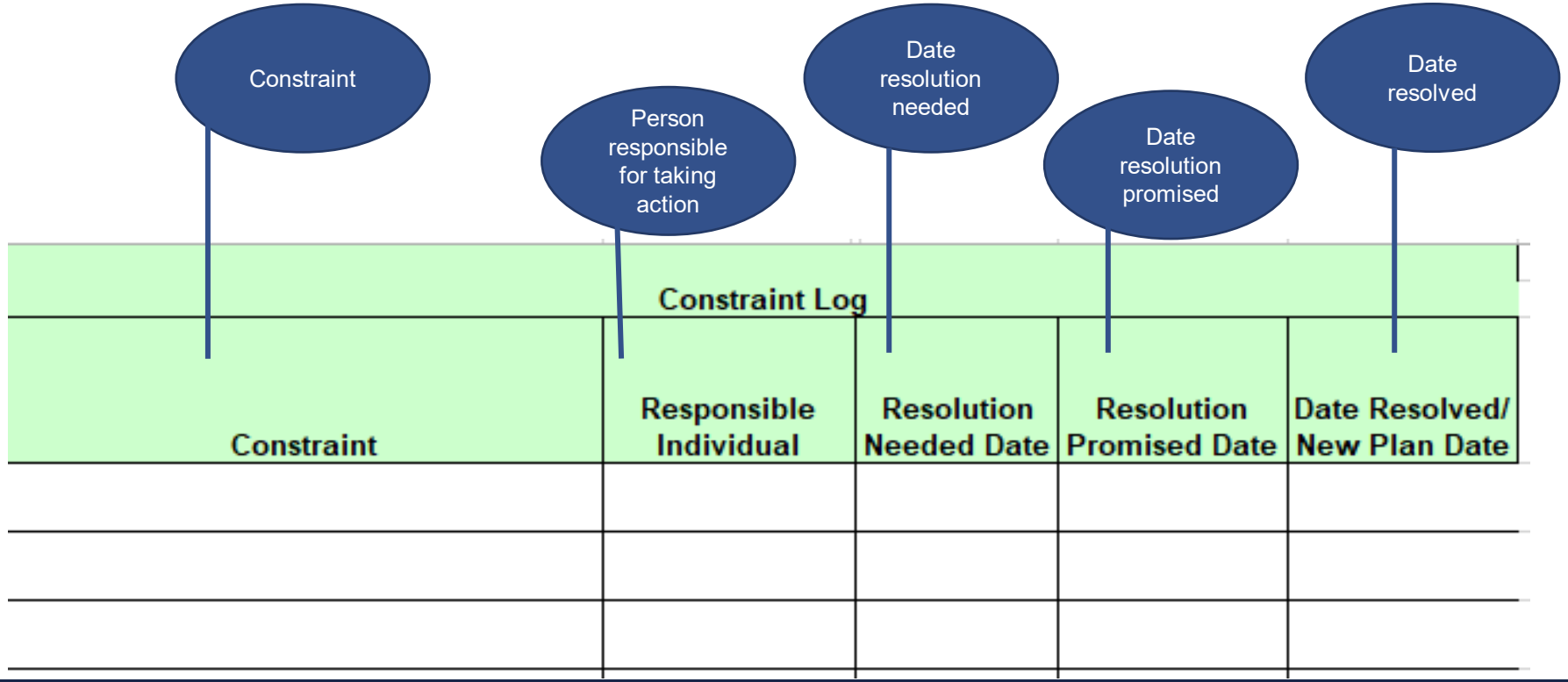

Phase Pull Plan Exercise – Wedding

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NAME	DELIVER DATE
MY PROMISE *what I will deliver* *(be specific, small batch)*	
MY REQUEST(S) *what I need from others* *(be specific, person/date)*	

Develop Phase Pull Plan

- Put a date scale at top (Weeks)
- Pick a milestone that involves many participants
- Color Code by Planning Group
- Define the milestone outcome
- Pull back from the milestone

45 min - Groups at Wall » 25 min - Debrief

Report Out

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Explain the logic

Large Group Discussion 25 min

BREAK

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10 Min.

Weekly Work Planning

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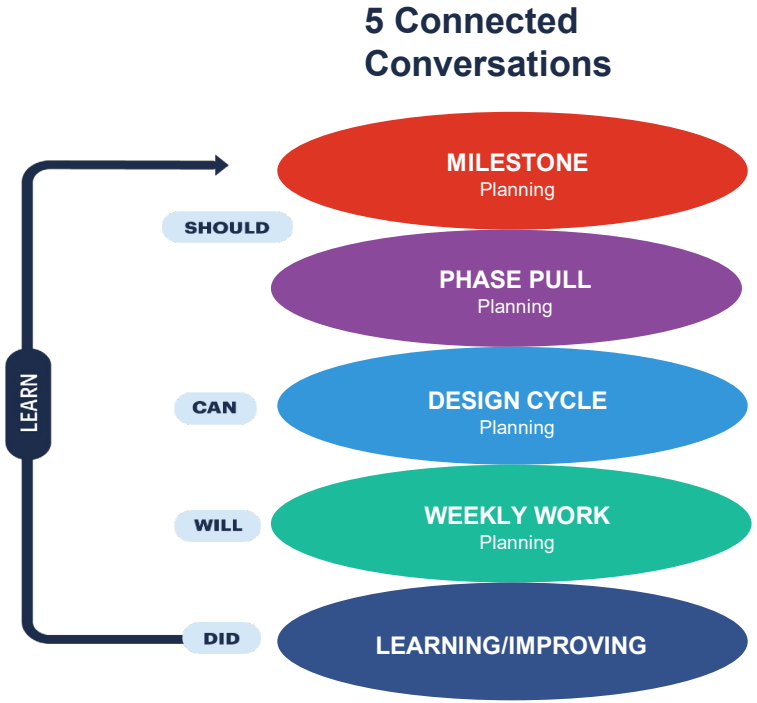
The fourth level of LPS is *Weekly Work Planning.*

The goal of this level is for the Last Planners to *establish the plan* for the upcoming week at the daily level.

At this level a Scrum or Kanban board can be integrated.

The conversation at this level is we *"will"* do this.



Weekly Work Planning

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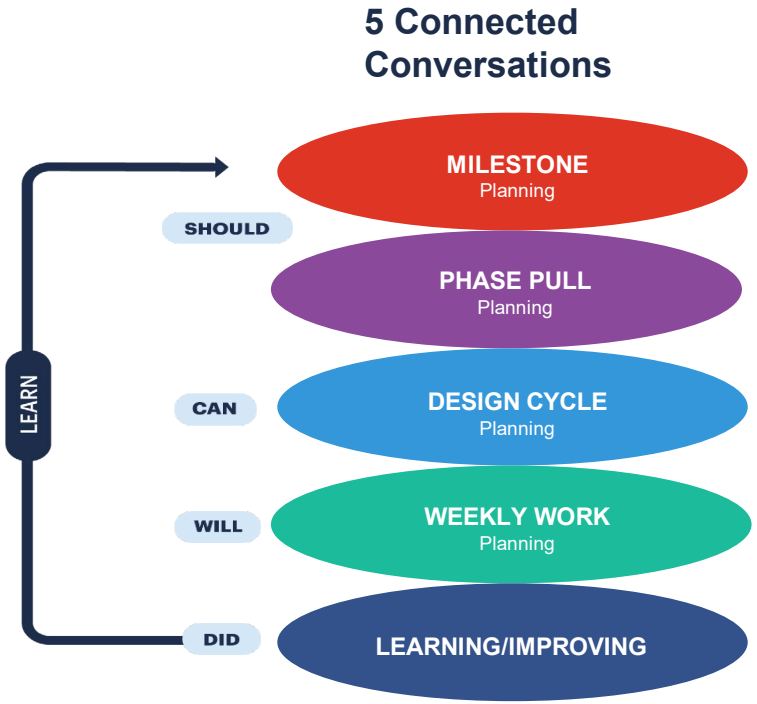
This is the level that the team identifies the *promised task completions* agreed upon by the *Performers* for the upcoming week.

The WWP is used to determine the *success* of the planning effort and to determine what *factors limit performance*. and is the basis of measuring PPC (Percent Plan Complete).

This is done during a *Check-in Session or Huddle.*



Conducting Check-in Sessions

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Check-in Sessions are short, high energy touch points. They are best conducted standing.

Each person answers:

1. What promises I fulfilled. (Declaring Done)
2. What promises I will fulfilled. (Managing Commitment)
3. What are my constraints or concerns. (Constraint management)
4. What is the status of my commitments overall. (Am I on track).

Learning/Improving

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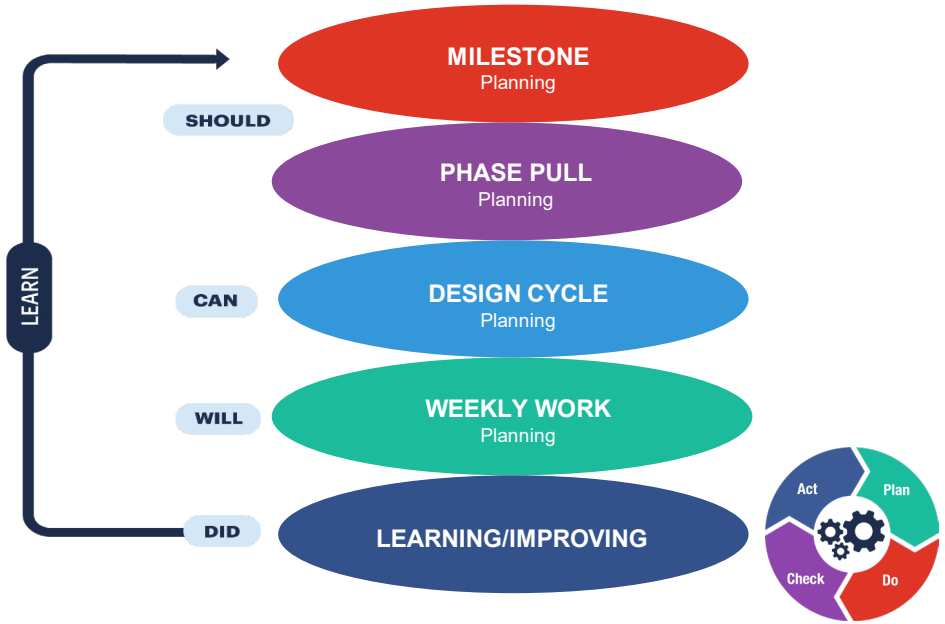
The fifth level is *Learning/Improving*.

The goal is for the team to *learn* from the cycle and take *actions for improving* going forward fulfilling PDCA.

The conversation at this level is we *"Did"* and *"Learned"*.

5 Connected Conversations



Learning From Check-in Sessions

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The *Commitment* and *Constraint Logs* are updated live during the Check-in Session.

The *Percent Plan Complete* (PPC) is calculated for the period or week.

PPC is the basic measure of how well the *planning system is working*. It is calculated as the "number of promises/activities completed on the day stated" divided by the "total number of promises/activities made/planned for the week".

Project:							Constraint Log				
Milestone	Location	Commitment	Performer	Plan Date	Estimated Effort – Days	Task Status	Constraint	Responsible Individual	Resolution Needed Date	Resolution Promised Date	Date Resolved/ New Plan Date

Track Percent Plan Complete

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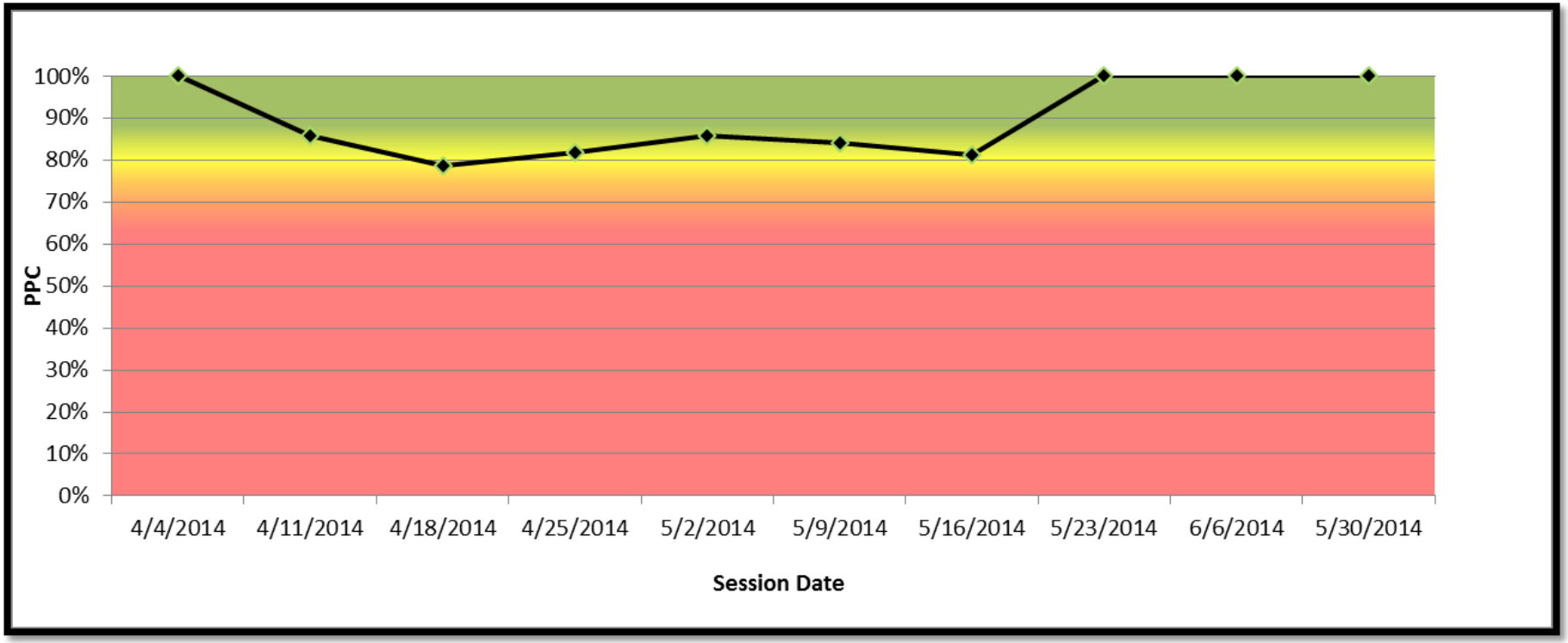

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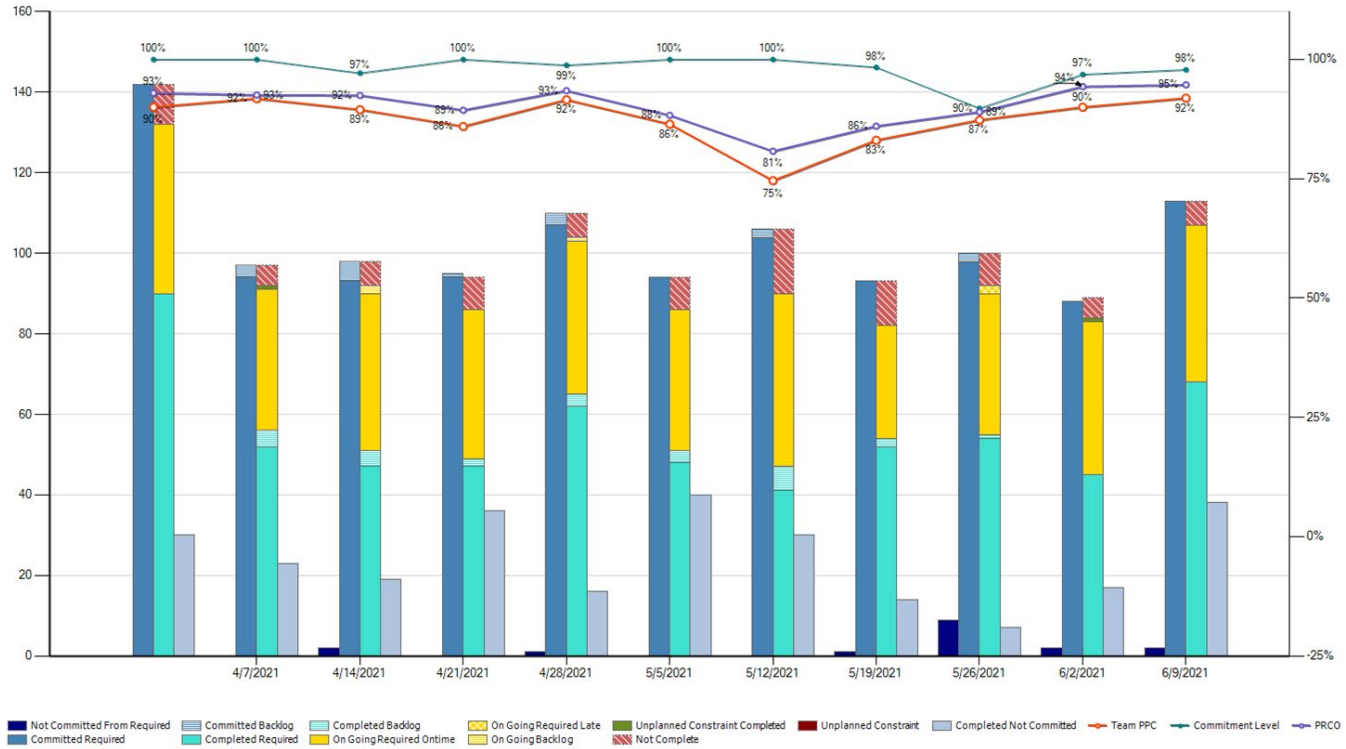
PPC/PRCO/Commitment



Reasons For Variance

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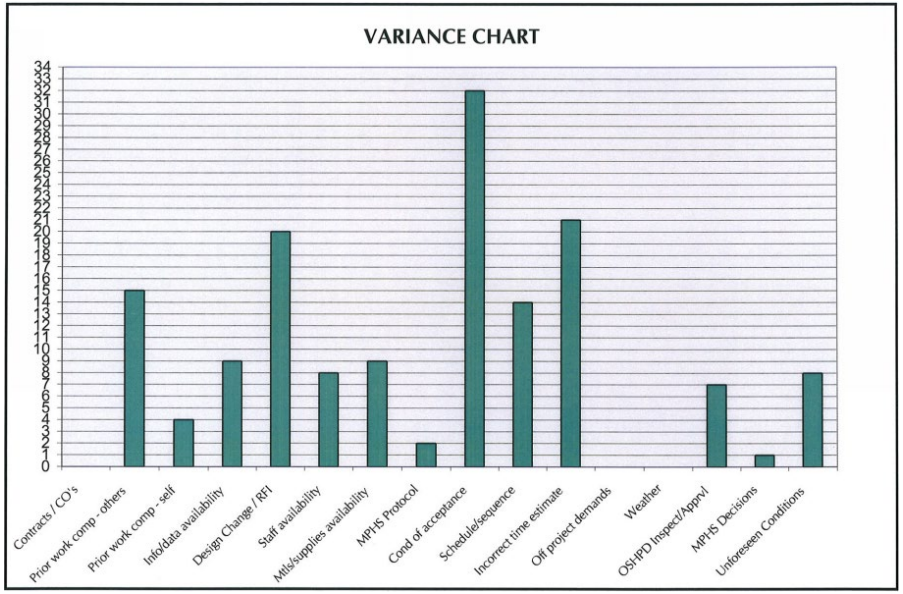
Reason for Variance:

- Factors that prevented a task from being completed as promised.
- Used by the team to promote learning concerning the failure of the planning system to produce predictable workflow.
- Assigned a category of variance.
- Enable a team to identify those areas of recurring failure that require additional reflection and analysis.



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Reasons for Variance

Design Phase:

1. Overcommitted
2. Miscommunication
3. Previous work not complete
4. Change in work plan
5. Outside constraint
6. Resources not available
7. Other

Root Cause Analysis

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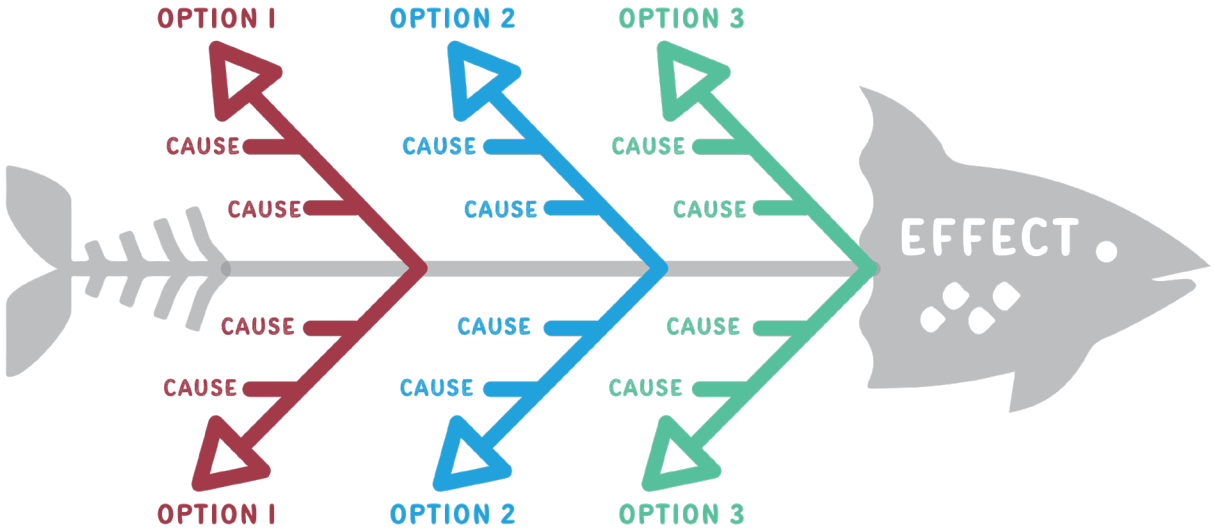
Root Cause Analysis is a systematic method of analyzing possible causes to determine the root cause of a problem.



FISHBONE DIAGRAM

Project Intervals for Reflection

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Detailed Design → Implementation Docs

Permitting → Construction

Reflection

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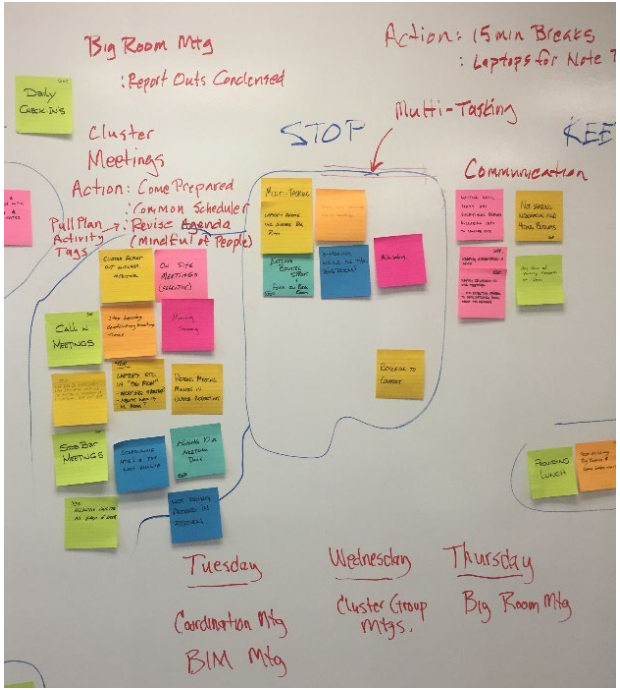
Start

Stop



Keep

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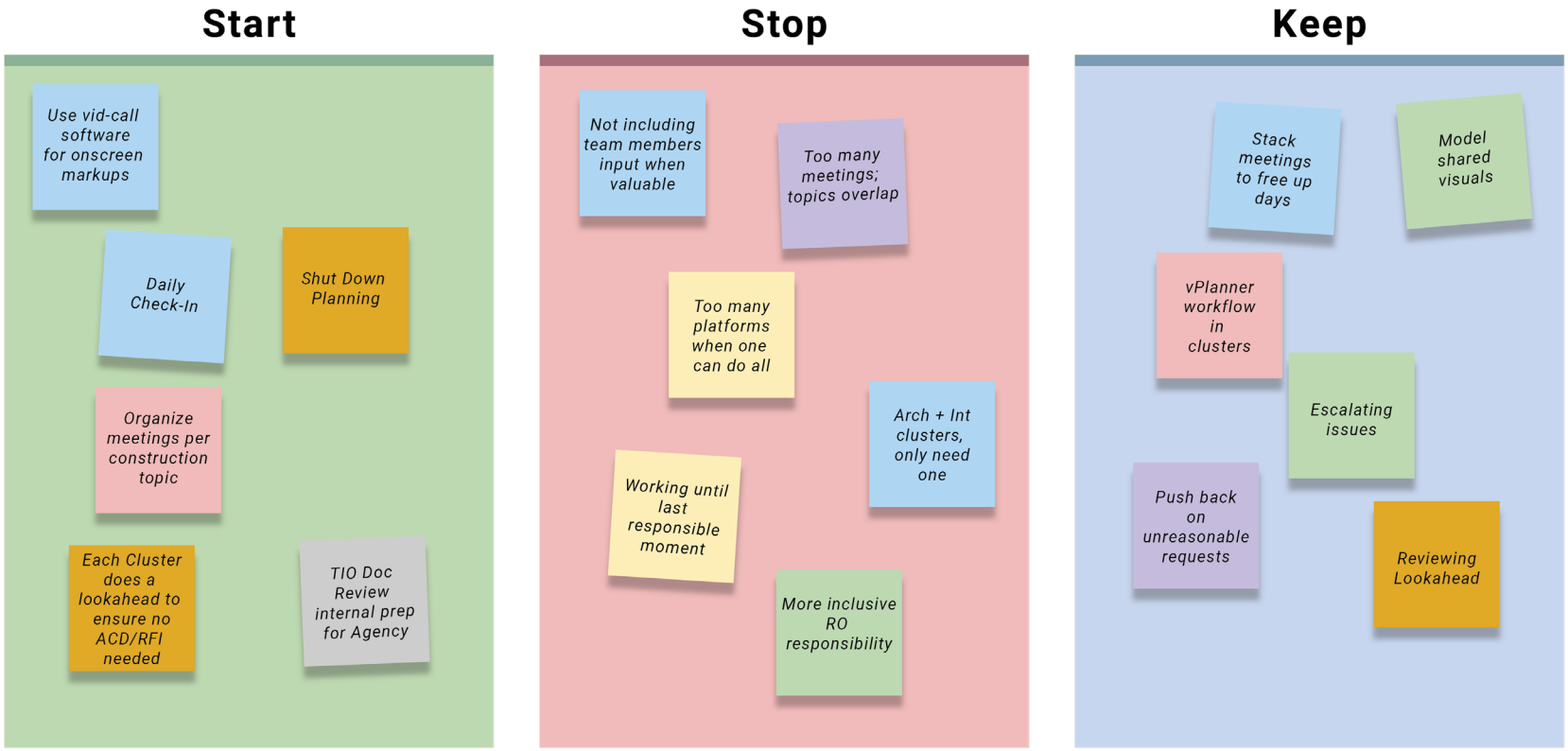
Culture of Transparency



Capturing Lessons Learned

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IDEA DESCRIPTION	CLUSTERS		Lower=Easier	Lower=Less Impact	
	DESIGN	CONST.	EFFORT (1-5)	IMPACT (1-5)	CHAMPION
Meet with CDPH in SD as they have requirements which can result in change orders at a later date	X		1	5	AOR
Gut entire facility for speed to market.		X	5	5	AOR
CBA - Detailed Room Design	X		4	4	AOR
Throughput Study for Circulation	X		3	4	Planner
Modular pre-fab multi-trade racking and trapeze systems		X	3	3	GC
Bathroom Sizing use Sutter PAC sizing Guidelines for ADA	X		2	3	AOR
Early Scoping w/AHJ's	X		3	5	AOR
Smart metering for distribution and branch panelboards	X		2	4	EEOR
Align on Specification Strategy Early with whole team	X		4	4	AOR
Headwall mockup early; use a surface mounted headwall especially if party wall is rated		X	2	4	GC
Work with the installer for Headwall not the sales person	X		1	4	OWNER
Comprehensive Seismic Anchorage Equip Narrative Plan	X		3	4	SEOR
Lease Warehouse and determine SF of materials to procure early		X	3	5	GC
On-site Staging/Co-lo vs Offsite, decide early		X	2	4	GC
100EUI Building (min), Zero Net Energy (stretch goal)	X		4	4	EEOR/MEOR
Modular Chiller Plant for space saving and power efficiency	X		3	4	MEOR
Pandemic Ready HVAC Systems	X		2	5	MEOR
Trade partner foreman involved in design	X		2	3	GC
Create custom TIO with BIQ Manager during Design	X		2	3	AOR
Early interior experience design concept to go with space planning	X		2	5	AOR

Discussion Question

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How to Implement?

What new actions or ideas that you learned today can you take back to your project?

10 min table conversation

Lean Journey to Mastery

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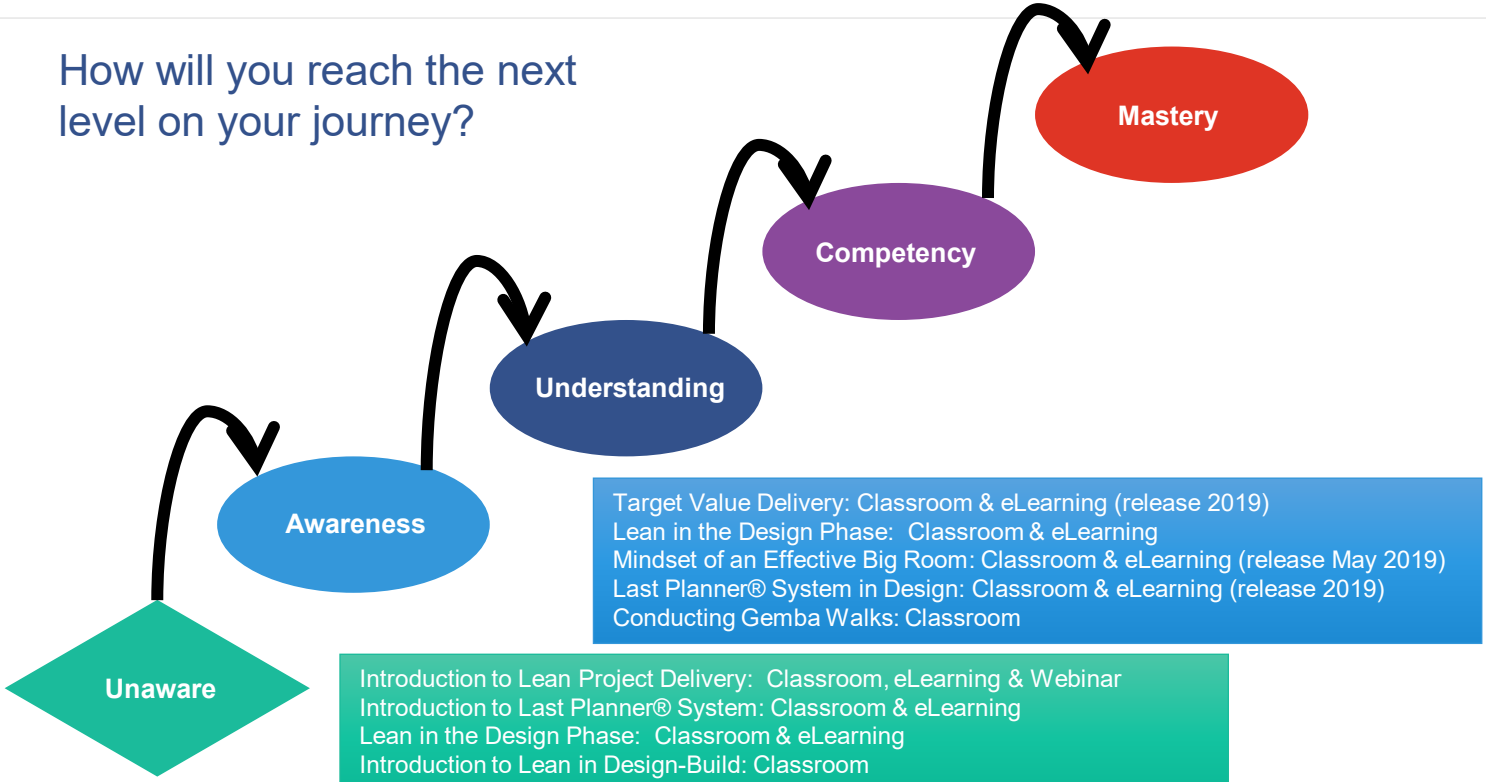
How will you reach the next level on your journey?



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

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Books:

Events:

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

Start learning now:
www.LeanConstruction.org

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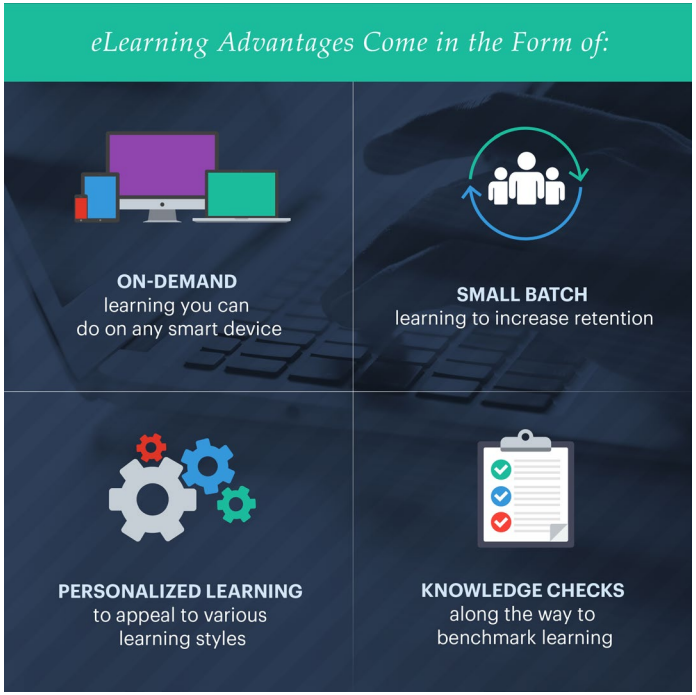
eLearning

- **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
- **Enterprise-level model:** unlimited access to all our eLearning courses directly from your own internal Learning Center or Learning Management System.



eLearning Courses

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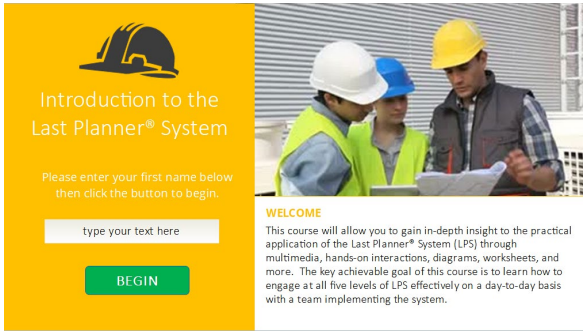
Available now:

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



Conduct Plus/Delta

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+	△
Plus: *What produced value during the session*	**Delta:** *What could we change to improve the process or outcome?*

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This concludes The American Institute of Architects
Continuing Education Systems Course

Lean Construction Institute info@leanconstruction.org

24TH LCI CONGRESS
OCTOBER 18-21

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.

Lean Construction Institute
Immersive Education Program

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24TH LCI CONGRESS
OCTOBER 18-21

Thank you for attending this presentation.

Enjoy the rest of the 24th Annual LCI Congress!