

Pull Planning in Design – You have to do your homework before you can play!

Ronald E. Migliori, SE – Buehler & Buehler Structural Engineers

Shurid Rahman – Sutter Health

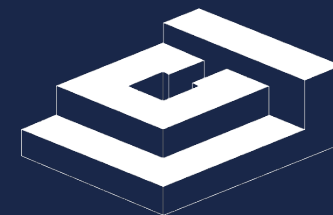
Uchenna Okoye - Skanska USA Building Inc.

Larry Summerfield, SE - Buehler & Buehler Structural Engineers

OCTOBER 18, 2017

CAPTURE AND LEVERAGE THE LEAN ADVANTAGE

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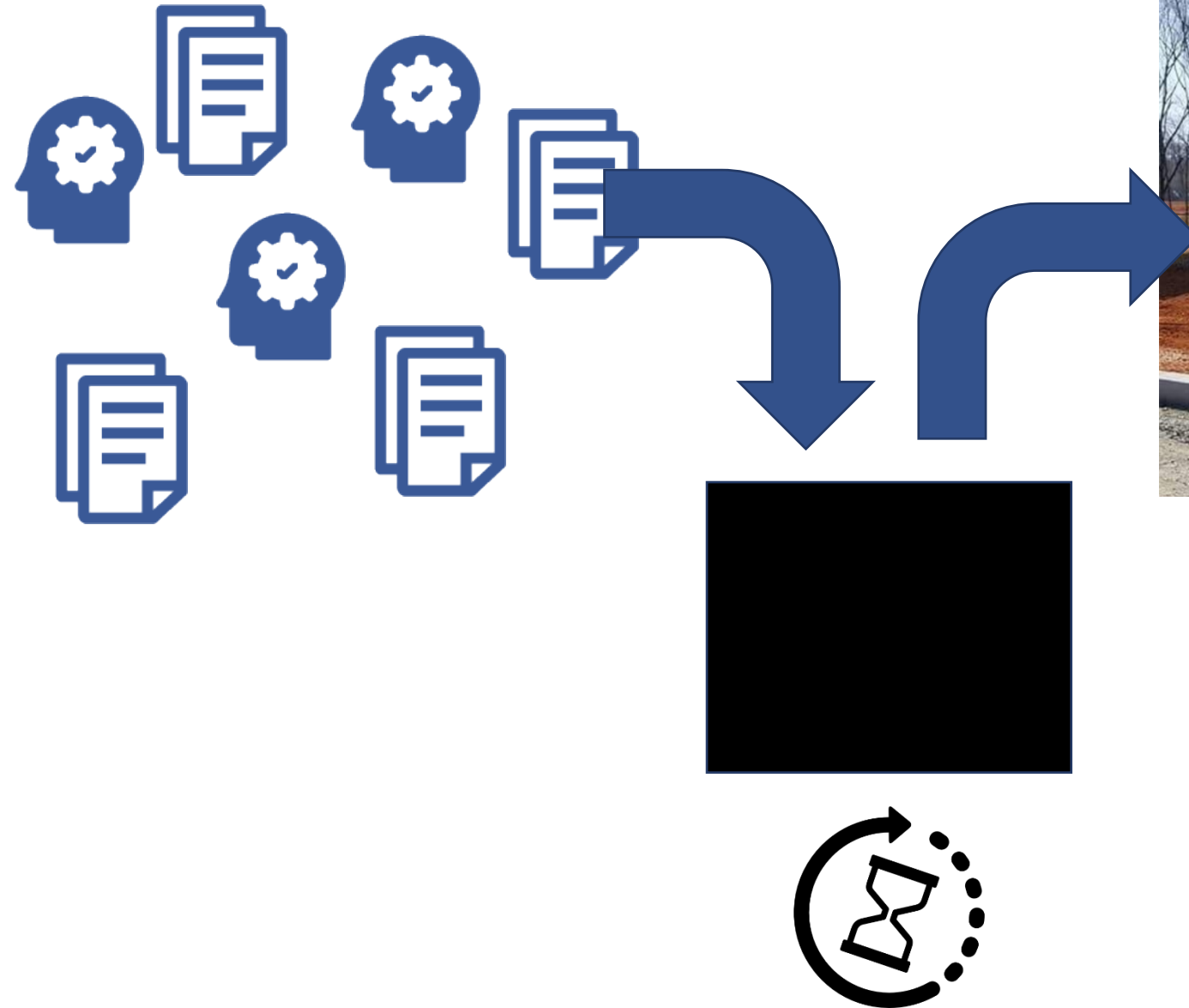
Outline

- Current State of Design Planning
- Nature of Design
- Adapting Last Planner for Design
- Pull Planning Preparation and Execution
- Design Planning Tools
- Lessons Learned

Current State of Design Planning

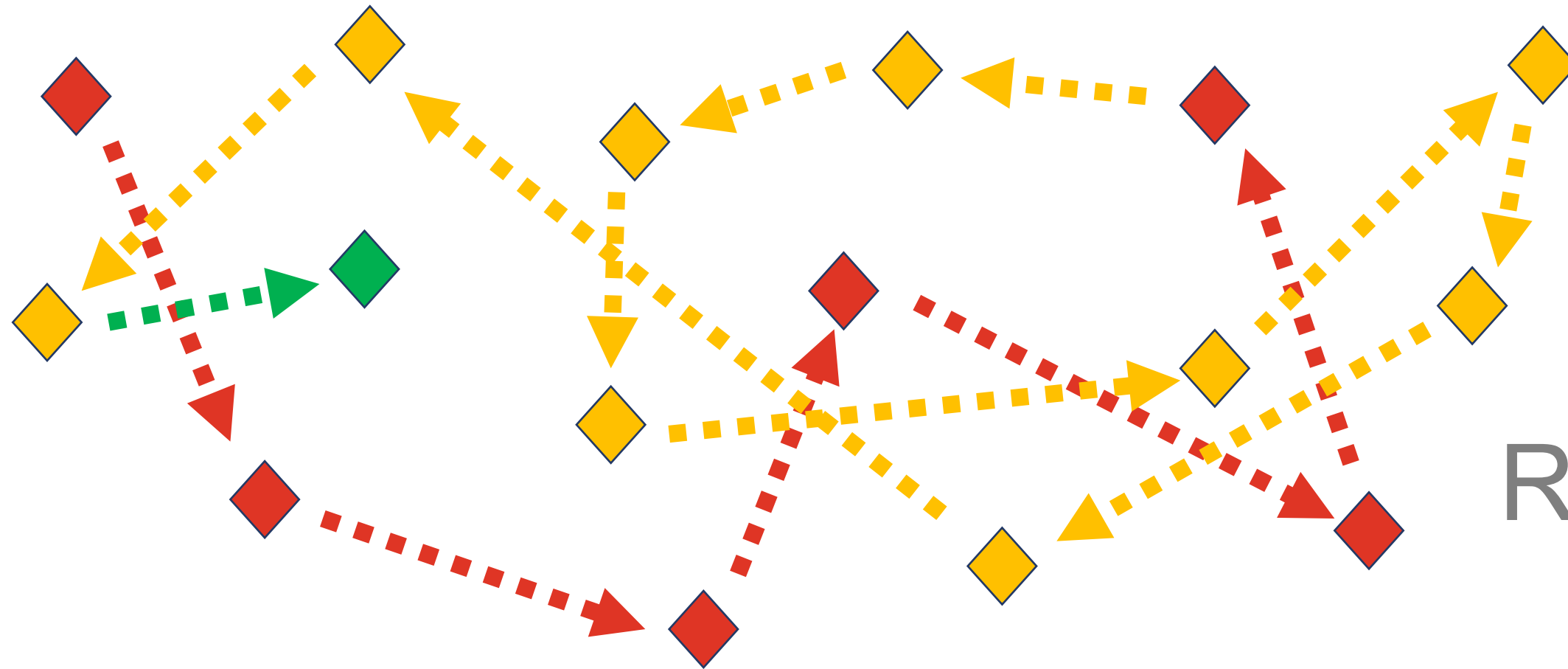


Nature of Design – Initial Misconceptions





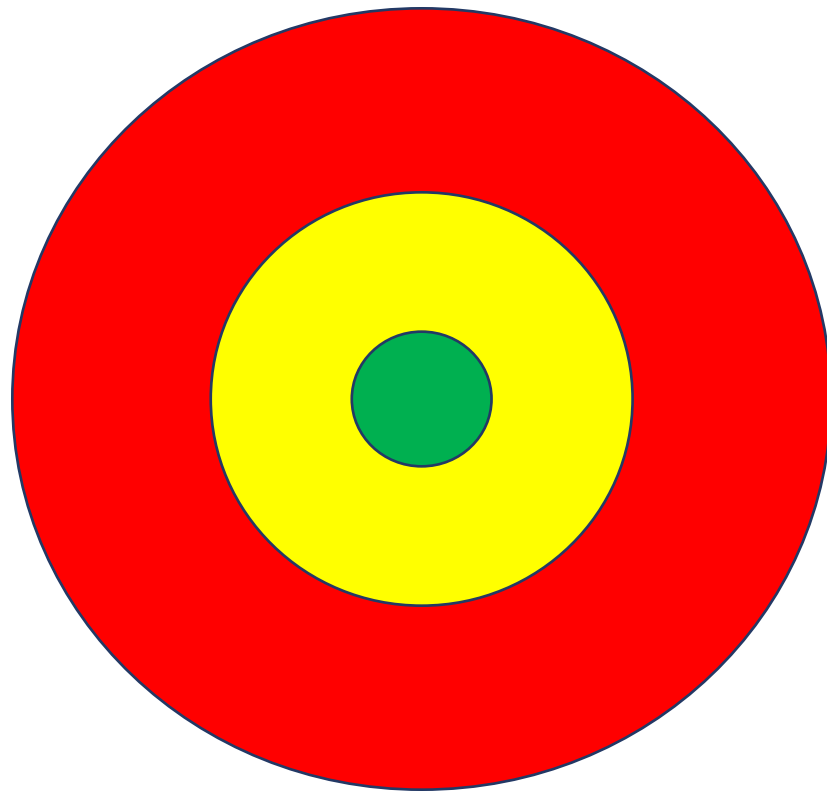
Nature of Design – Refinement Misconceptions



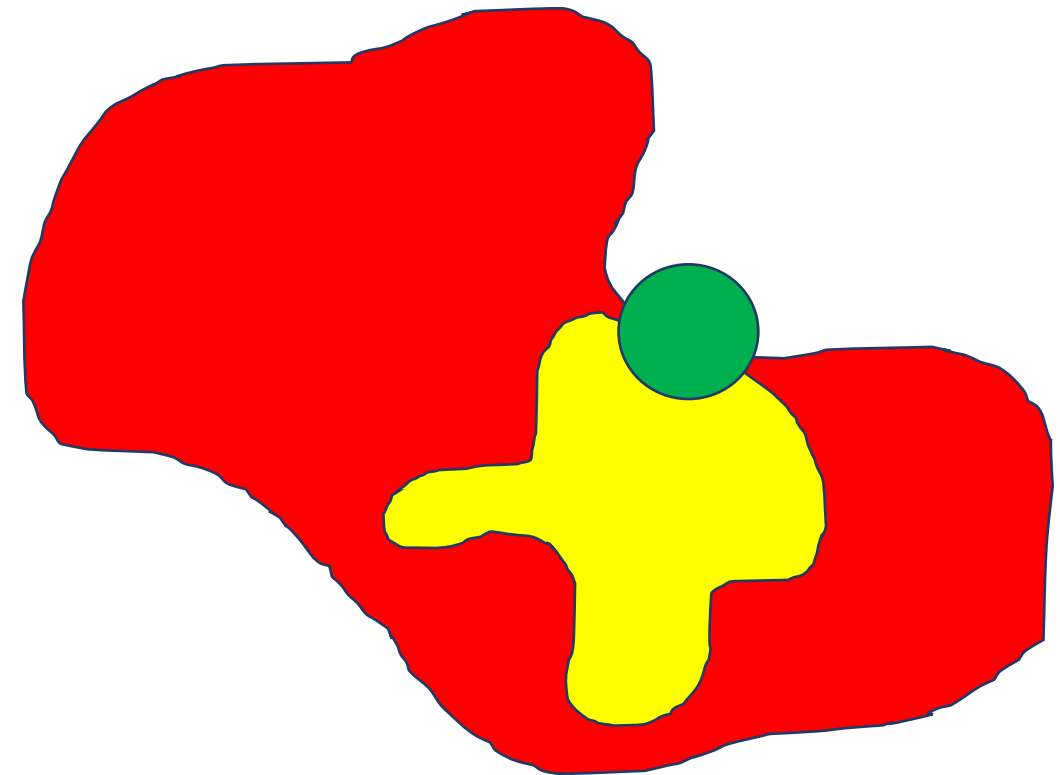
Refinement

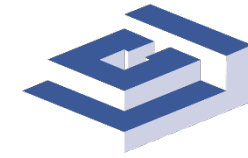
Nature of Design – Refinement Planning

Planned Design
Refinement Process



Actual Design
Refinement Process





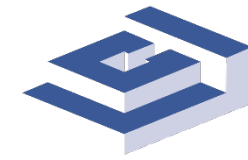
Nature of Design - Current Outcome

A large, solid blue downward-pointing arrow.

Reliability
of Design
Elements

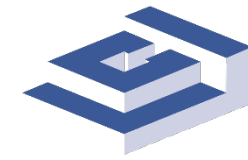
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Reliability
of Design
Schedule



Nature of Design – Current Outcome

“I’ll get that to you in 2 weeks”



Nature of Design – Current Planning Updates



Nature of Design



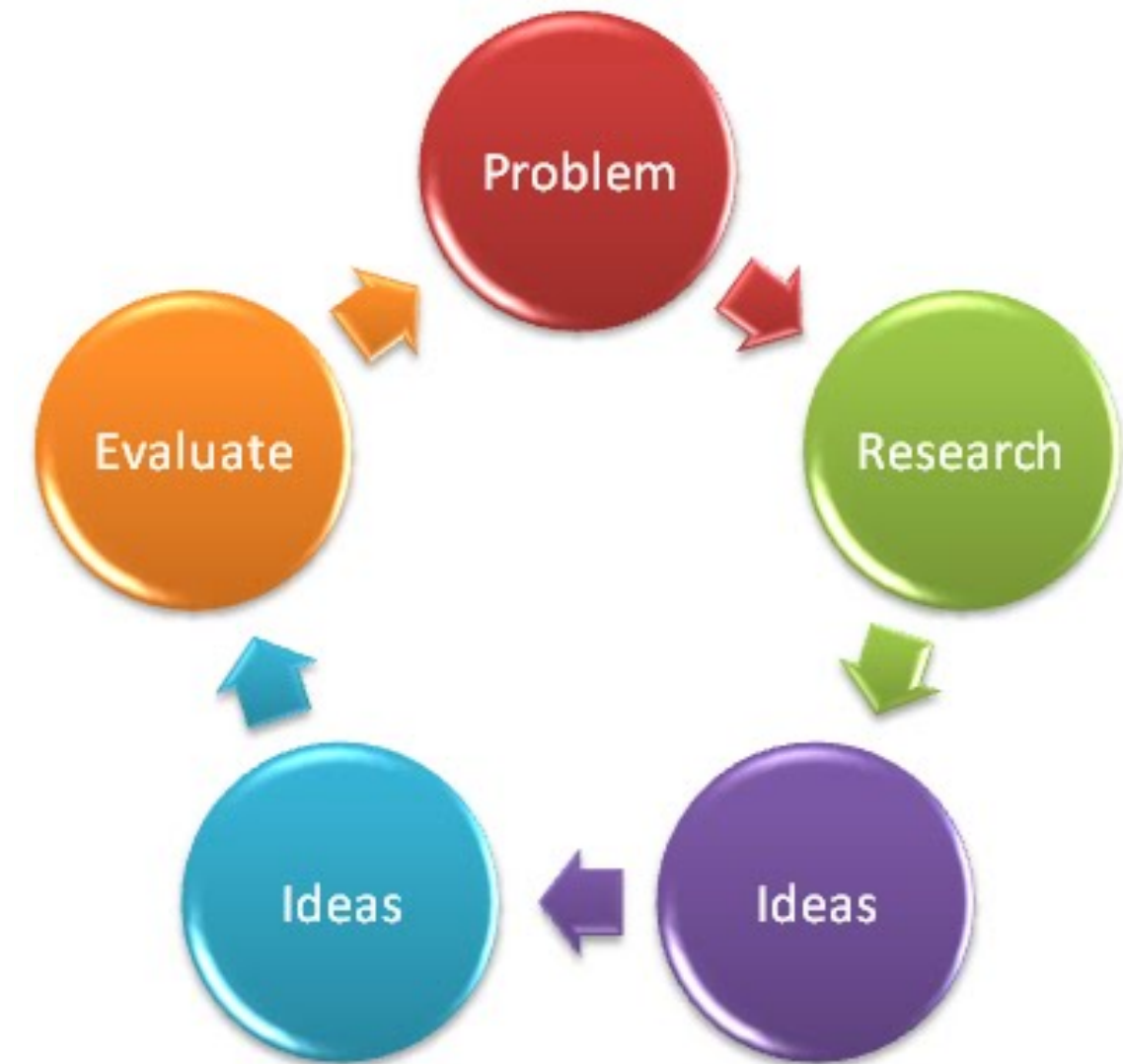
Nature of Design

- Can't plan a process without understanding its flow
- Design flow is a continuous improvement of a concept
- Design flow is not a linear sequence of tasks
- All design tasks are not known in advance
- Duration of design tasks is difficult to predict
- Determining what you need to do is half of every task



Design Cycle

- Prototype – Test – Improve
- Each “improvement” adds value
- Designers continue until next improvement isn't worth the time
- Information needed to design isn't known and must be discovered or obtained from others
- Reliable information to test with (cost, schedule, effectiveness) is hard to get
- Must either:
 - Wait until you get info you need, or
 - Proceed on an assumption (risky)



What Do Designers Need?

- Reliable information
- To understand what the owner truly needs & wants
 - Owners Goals
 - Users processes
- What their limitations are
 - Money
 - Space
- How each building system relates to the others (other designers)
- Relative value of different solutions (performance and cost feedback)
- Design of and element cannot finish until all needs are met



Design Planning

- How do you plan a process that develops itself as it proceeds????
 - Plan as you go!
 - Resist temptation to create a complete, detailed plan of the entire design before you start
 - Variability in design durations will accumulate if not corrected.
- Planning follows process
 - Initial high level, adaptable plans
 - Add near-term detail as you proceed
 - Re-plan as design develops



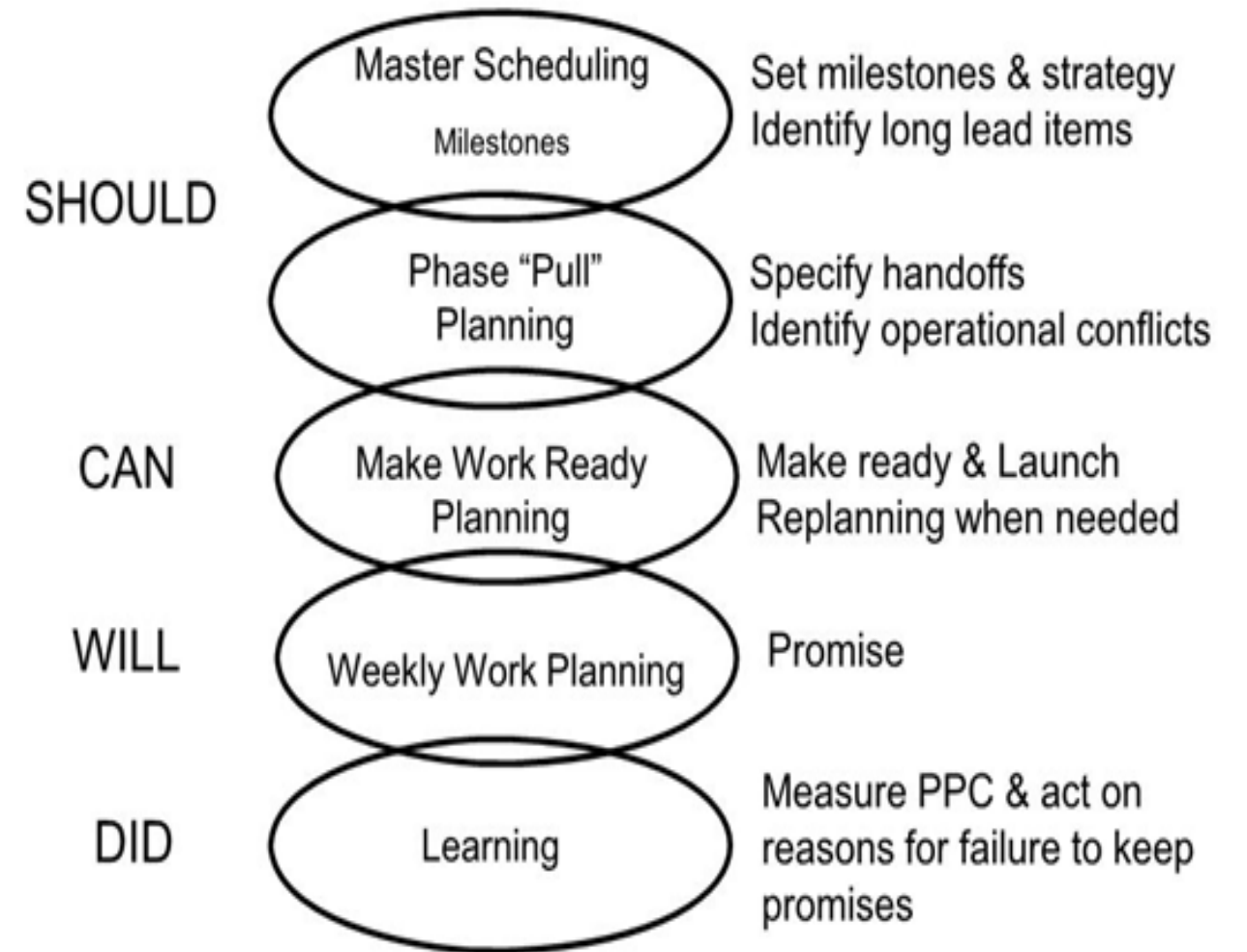
Adapting Last Planner for Design



Master Planning Process (Milestones)

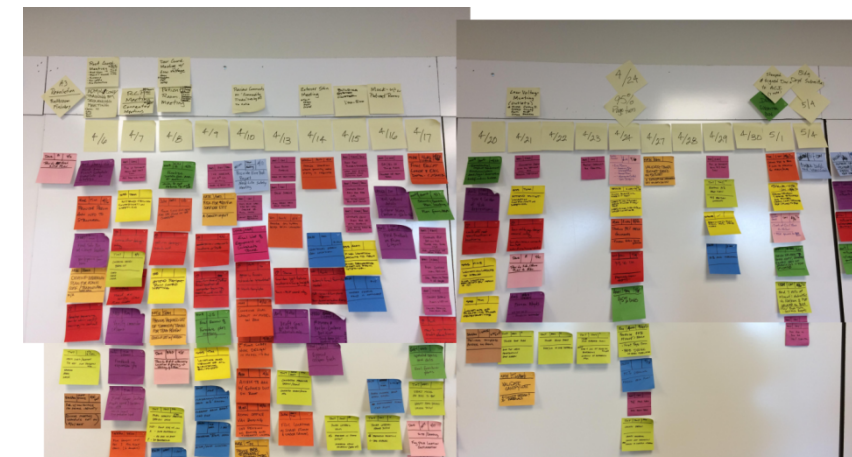
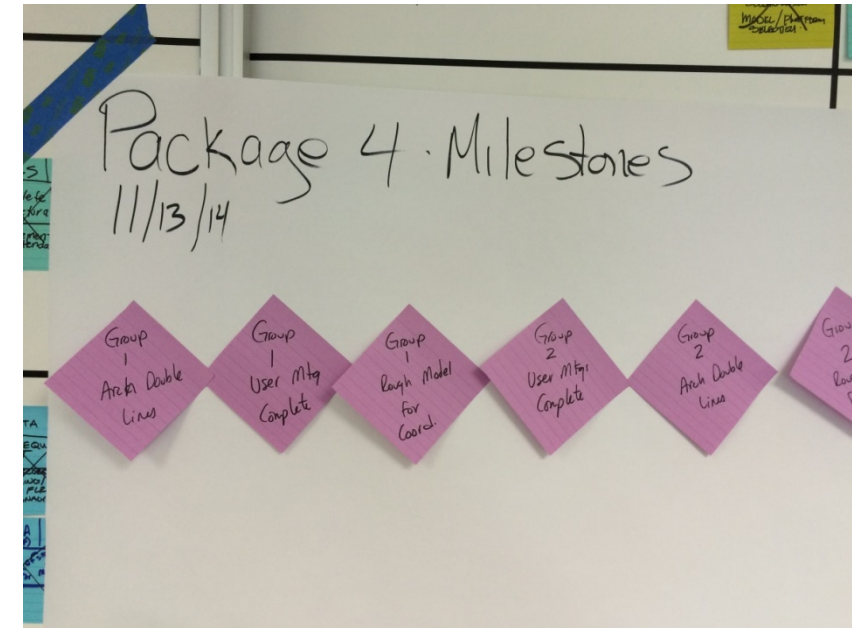
- Milestones – Major events that release work
 - Information Handoffs
- Project strategy as a series of milestones
- Integrate into one master plan
 - Research
 - Trade input and constructability
 - Design & drawing production
 - Permitting & approvals
 - Construction

The Last Planner® System of Production Control 5 - Connected Conversations

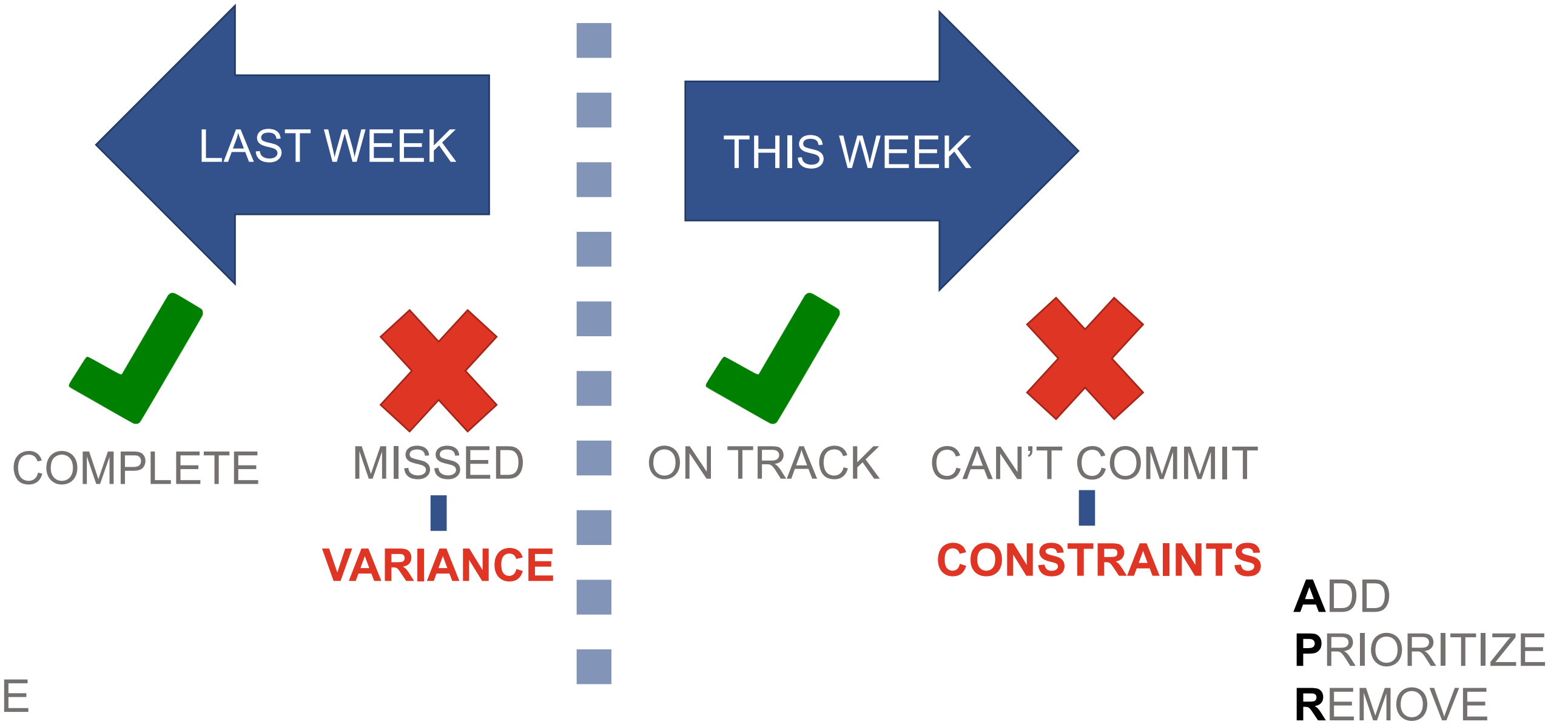


Phase Pull Planning Preparation

- Select a milestone to pull
- Define the Conditions of Satisfaction (COS) of that milestone
 - What are we trying to deliver?
 - Who is the customer?
 - Take time to define it in detail
- Keep the pull plan duration to 3 to 6 weeks (8 weeks max)
 - Why:
 - All forecast are wrong
 - The longer the forecast, the more wrong it is
 - Variability in design durations will accumulate!

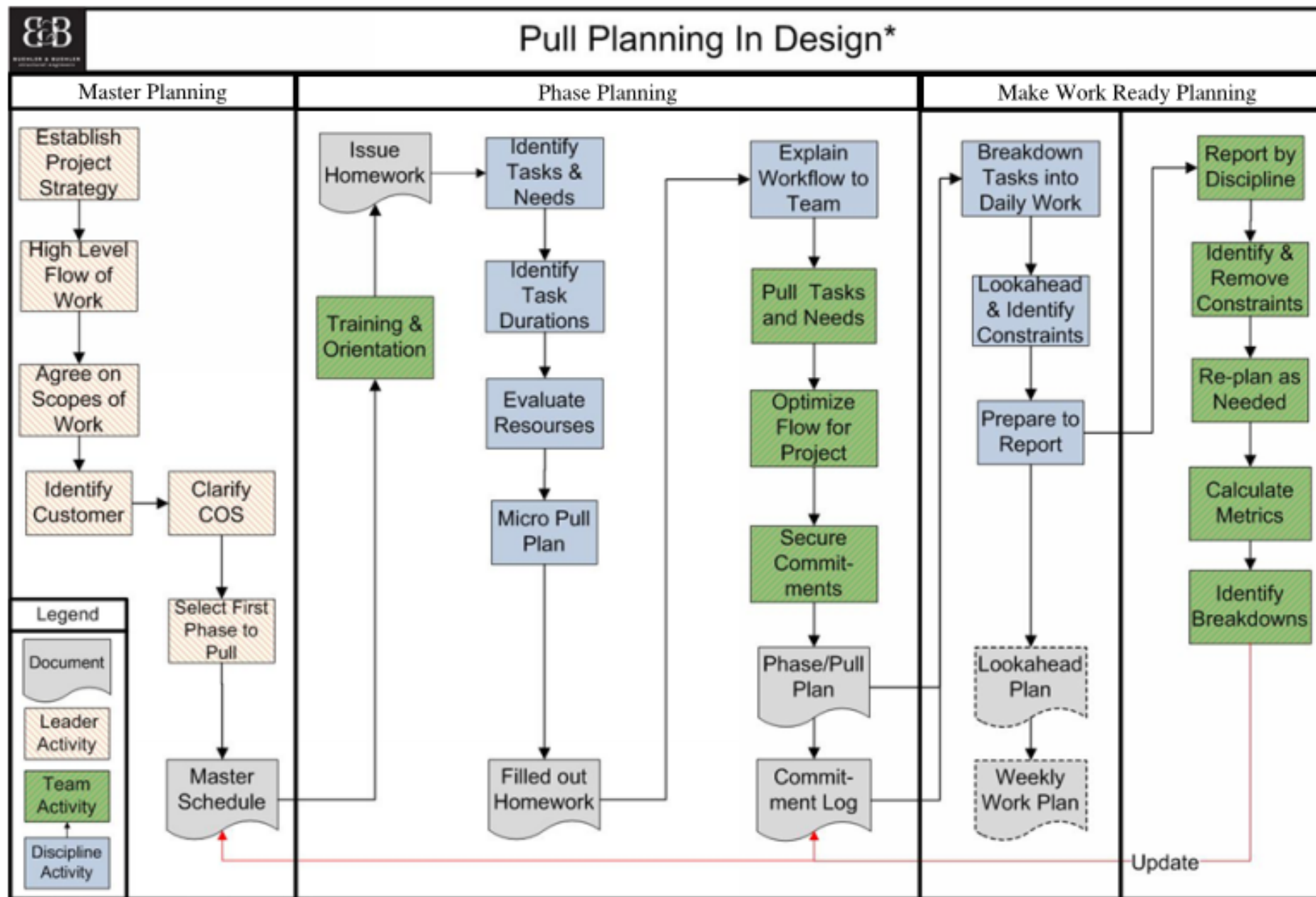


Make Work Ready Planning Process



Pull Planning in Design Process

- Design planning is a continuous flow
- Must continuously adapt as the design evolves



*modified from The Last Planner System (r) LCI, Inc

Pull Planning Preparation & Execution



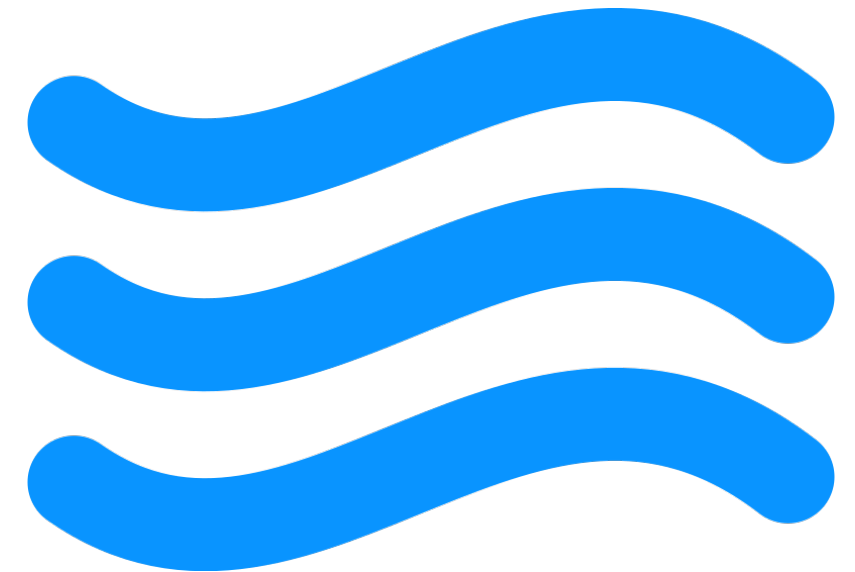
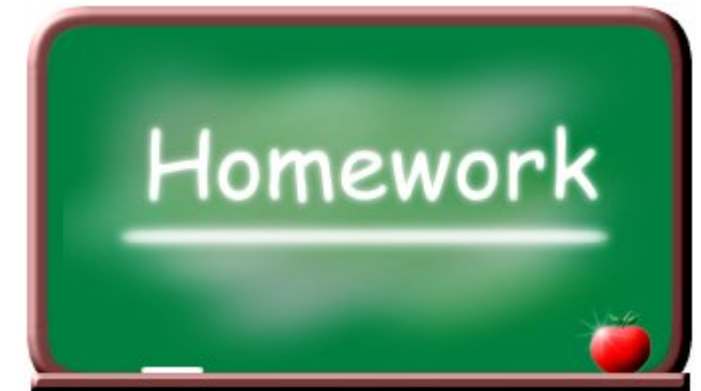
Idealized Design Flow

- Discover and create efficient design sequence
- Get information you need when you need it
- Produce design tasks at your ideal batch size and duration



Identifying Your Idealized Design Flow

- Each stakeholder establishes their design sequence of tasks to deliver their conditions of satisfaction (COS) of the milestone
 - Provide the duration required to complete the task
- For each task determine what information is needed from others
- Layout the sequence of tasks assuming you will receive the information you need when you need it
- Pull it back from a generic end date
- Identify when you need the information from others



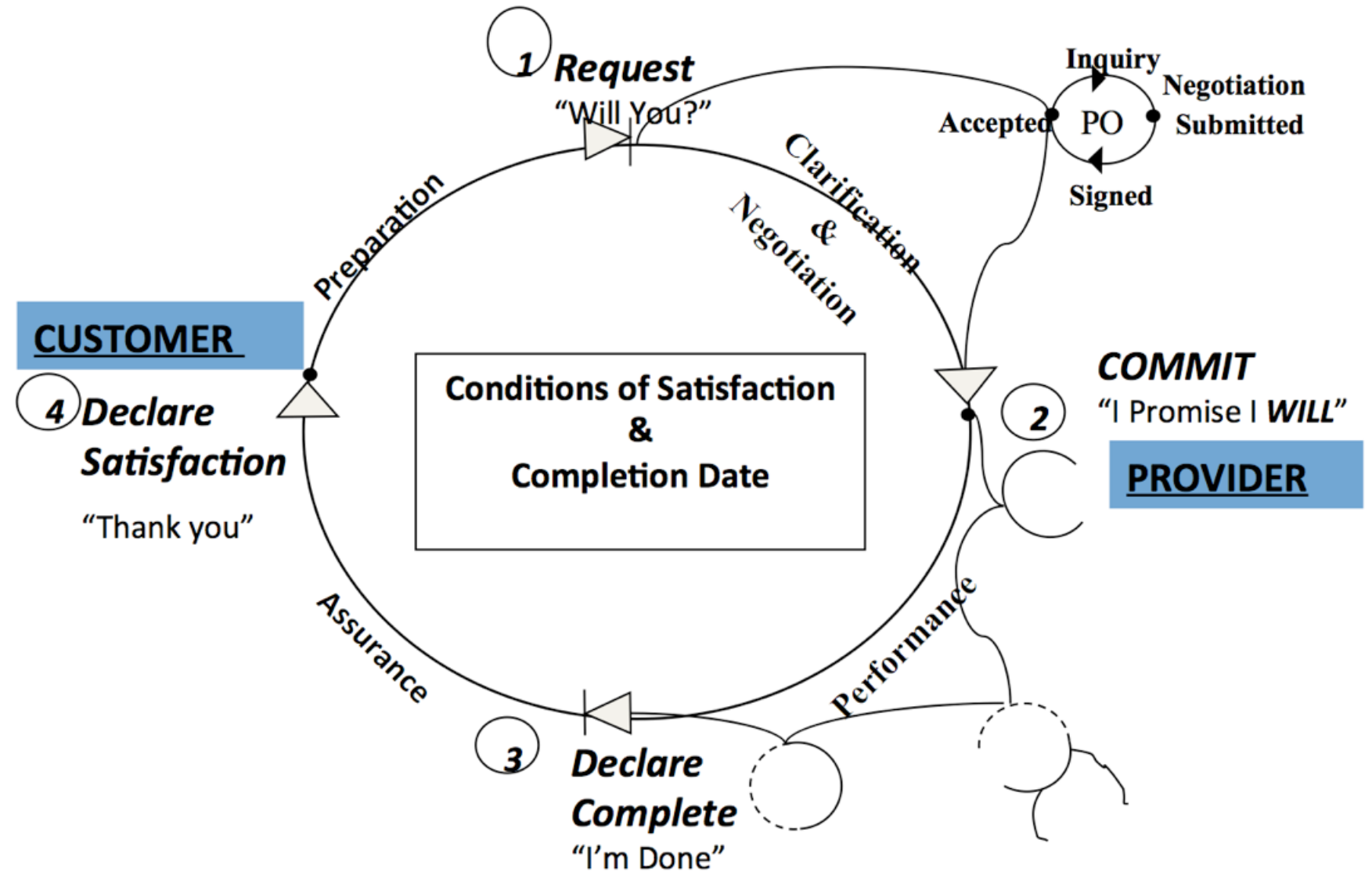
Activity/Task Tag

- Filling Out a Pull Plan Activity/Task Tag
 - The Supplier fills out the tag
 - The color of the tag is the Supplier's
 - Supplier initials identifies a person
 - Customer's initials identifies a person
 - Define what will be provided
 - Indicate what is needed to make the commitment
 - Provide the duration to complete the task
 - Only indicate a date after the task has been committed

supplier	customer	dur date
What I will provide.		
What I need.		

Reliable Promises

- Review the reliable promises process
- As a Customer:
 - Make a request
 - Negotiate
 - Declare “Satisfaction” if it met your COS
- As a Provider/Supplier:
 - Negotiate the request
 - Commit to a date
 - Declare “Complete” when done



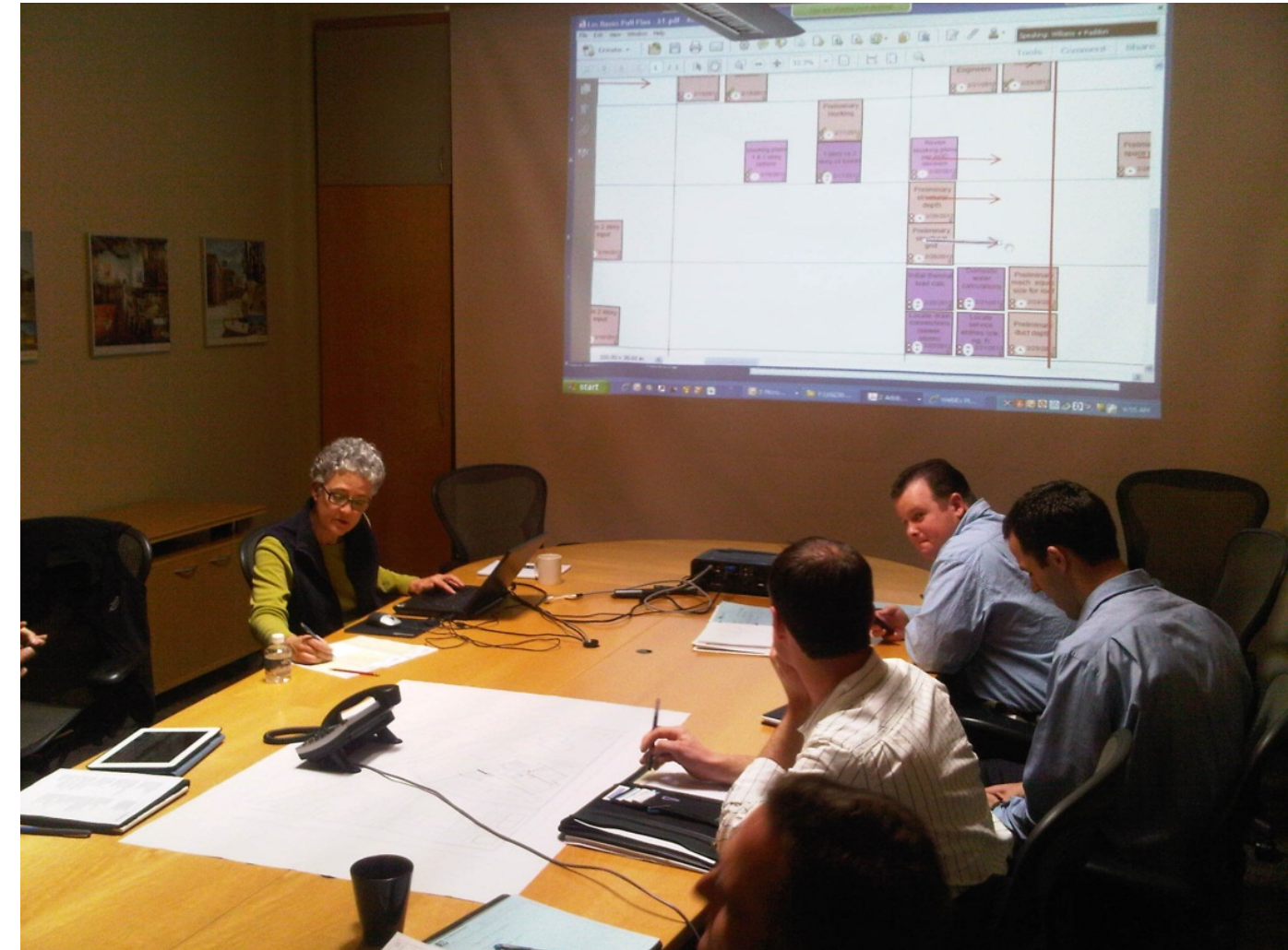
Pull Planning Execution

- Each Stakeholder brings filled-out tags from their homework “What I Will Provide”
- One at a time they describe their ideal workflow
- Pull from the critical stakeholder
- Sequence the design flow of the other stakeholders
- Negotiate “What I Need” from all team members
- Reduce batch sizes for out of sequence work
- Identify and remove constraints
- Make commitments and identify dates
- Team optimizes Project Workflow



Check-Ins – Make Ready Work

- Weekly or bi-weekly team check-in meeting
- Online or in person
- Report out: Task was completed or if not, Why?
- Report out: I received what I needed or if not, ask the question, Why?
- Capture Variance or why it was not delivered (for continuous improvement)
- Re-plan as necessary
- Look ahead to identify constraints

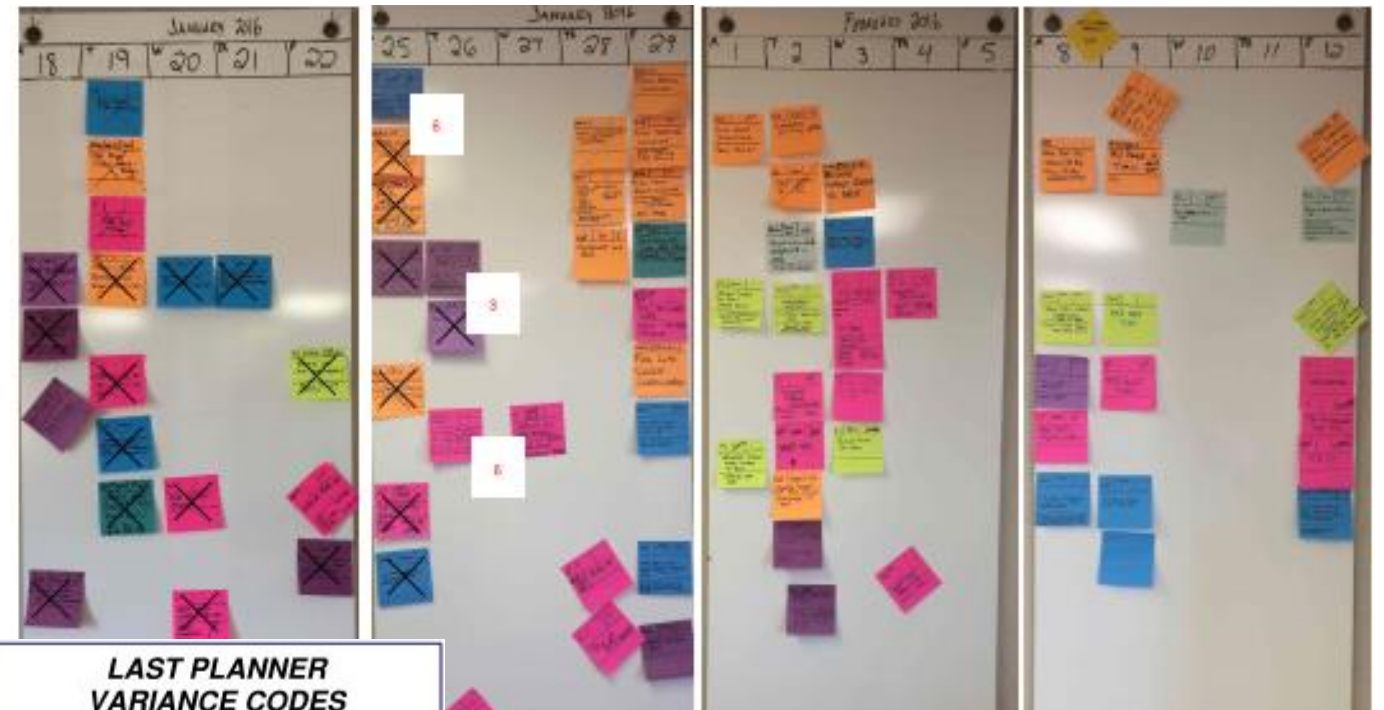


Design Planning Tools



Low Tech Pull Planning Tools

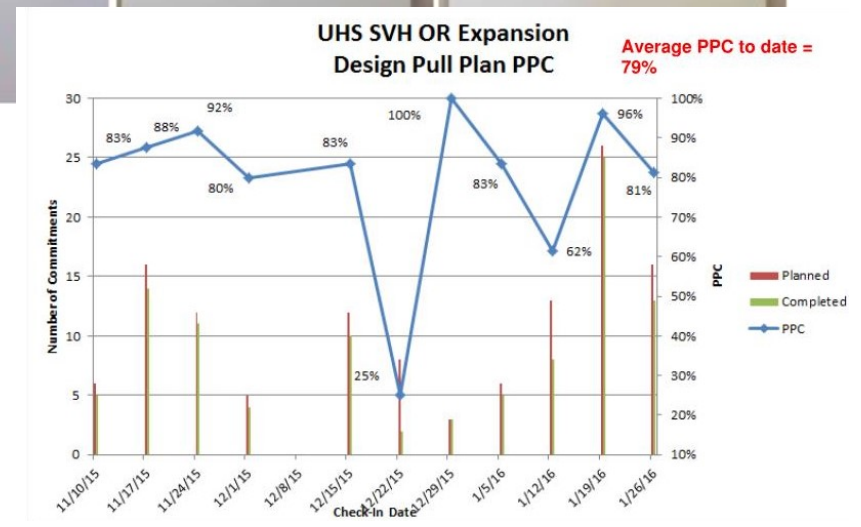
- Use and maintain the physical board
- Take it on-line with Bluebeam
 - Take images of the in-person Pull Plan
 - Utilize Bluebeam to combine images
 - X-out completed tasks
 - Re-plan uncompleted tasks
 - Cut/copy and move in Bluebeam
 - Count the tasks completed and not completed for Percent Planned Complete (PPC)



LAST PLANNER VARIANCE CODES

1. Over-Committed
2. Miscommunication
3. Previous Work Not Complete
4. Change in Work Plan
5. Outside Constraint
6. Resource Not Available
7. Materials / Equipment Not Available
8. Safety Concern
9. Work Not Authorized by Contract / Submittal / etc.
10. Other

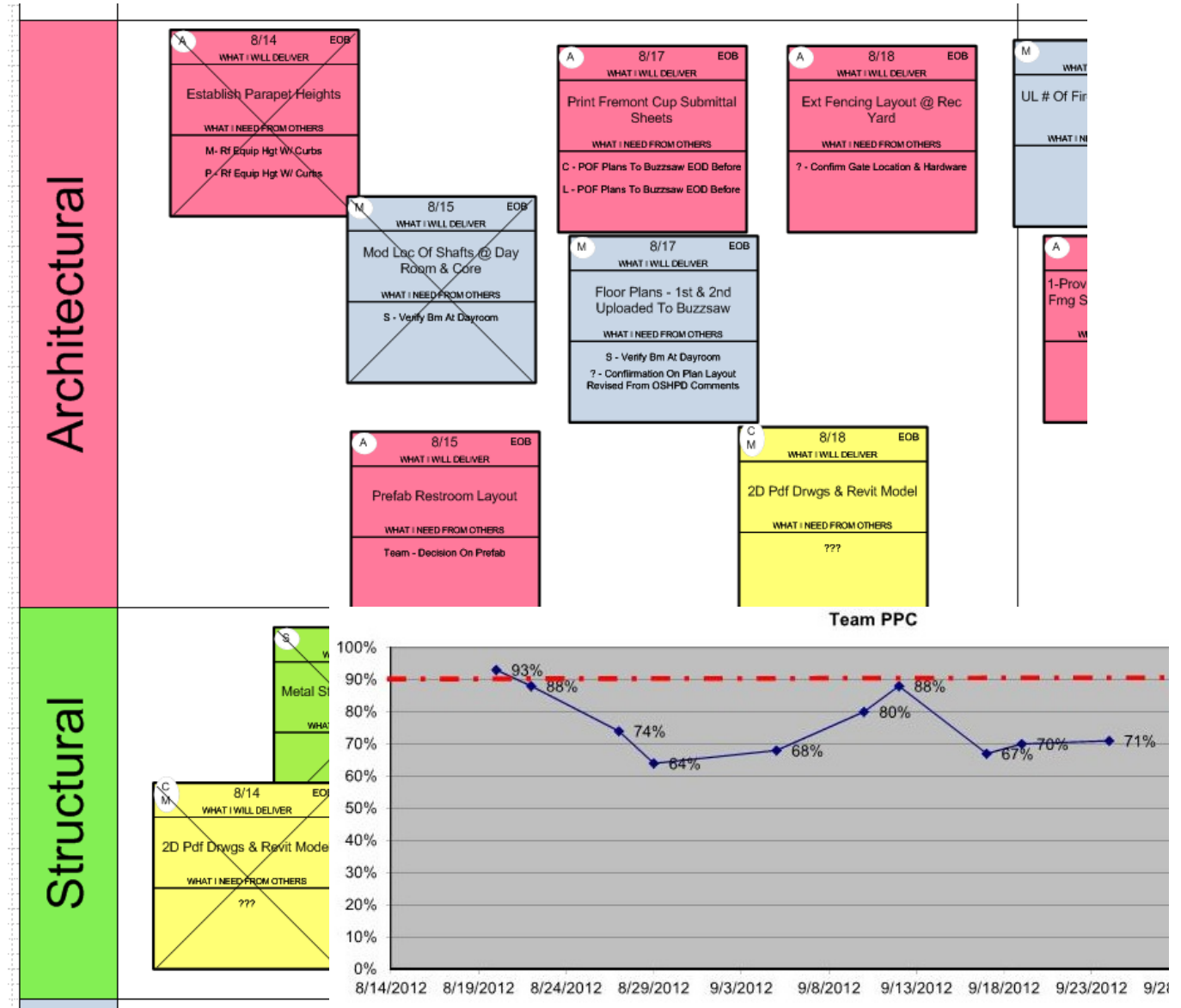
*If the task was not completed on the date promised note the variance code number on the face of the tag in red.



Medium Tech Pull Planning Tools

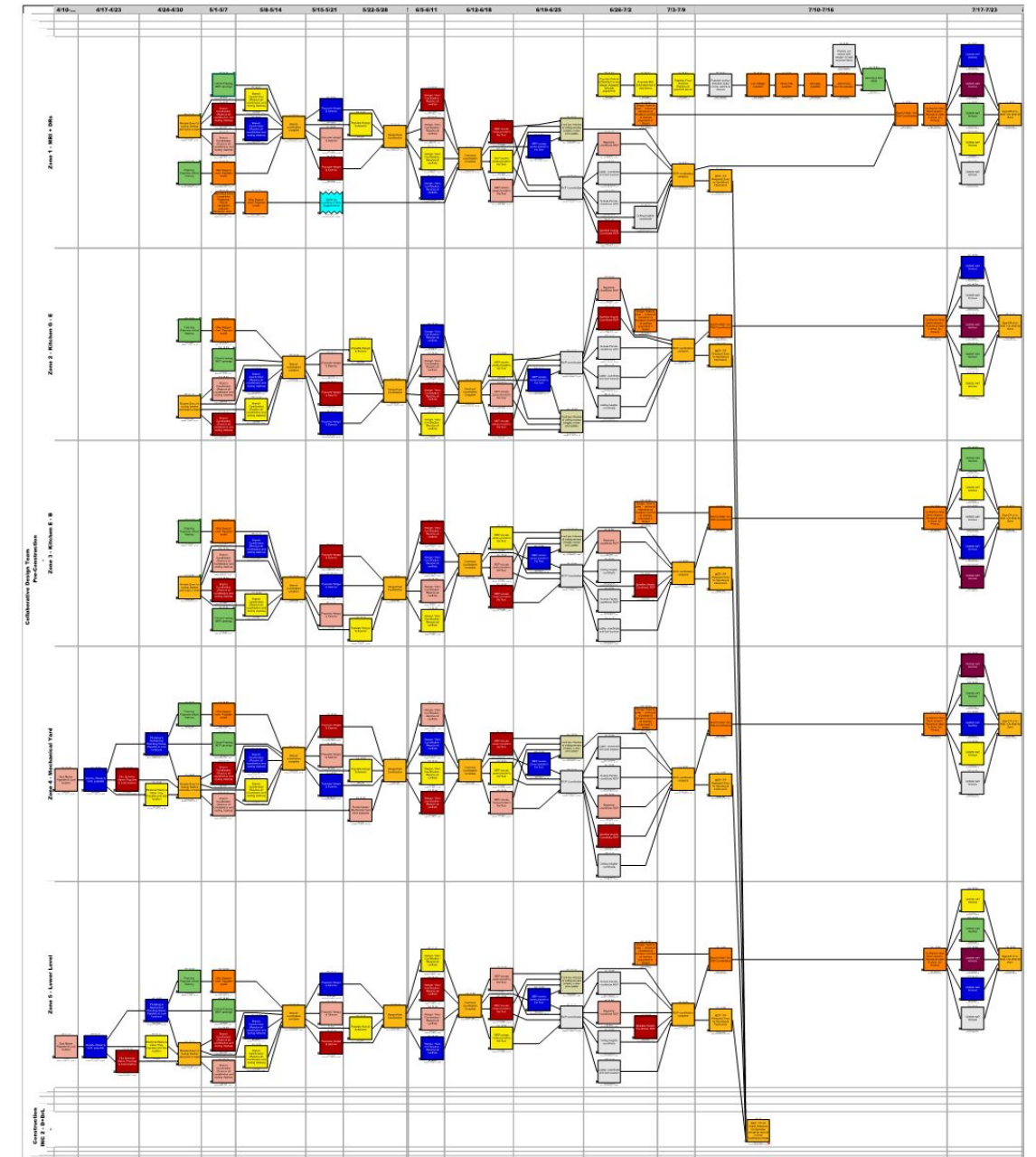
- Microsoft Visio
 - Graphic database
 - Looks like the planning wall
- Microsoft Excel
 - Familiar tool
 - Shallow learning curve

Commitm						
Project: Builder: Architec	Planned Percent Complete					
	Total Number of Tasks	24				
	Tasks Completed on Time	17				
Coordinator: Larry Summerfield Check in: 9/19/2012	PPC = On Time/Total		71%			
Commitment	Producer	Requester	Due	Today		
				Delivered?	Accepted?	On-Time?
Window (EXT) layout & sizes/Locations	A	A	9/23/2012	1	1	1
Interior window /Glazing types & locations	A	A	9/23/2012	1	1	1
Kitchen Design - floor plan & equip cutsheets	A	A	9/24/2012	1	1	1
Kitchen equip to be moved for SE	A	S	9/24/2012	1	1	1



High Tech Pull Planning Tools

- Tools such as vPlanner ®
- Graphic interface
 - Dynamic Layout, filters, swimlanes
- Analysis and metrics
 - Longest paths
 - PPC and PPRC
 - Forecasting
- Ability to isolate and integrate workflows



Lessons Learned



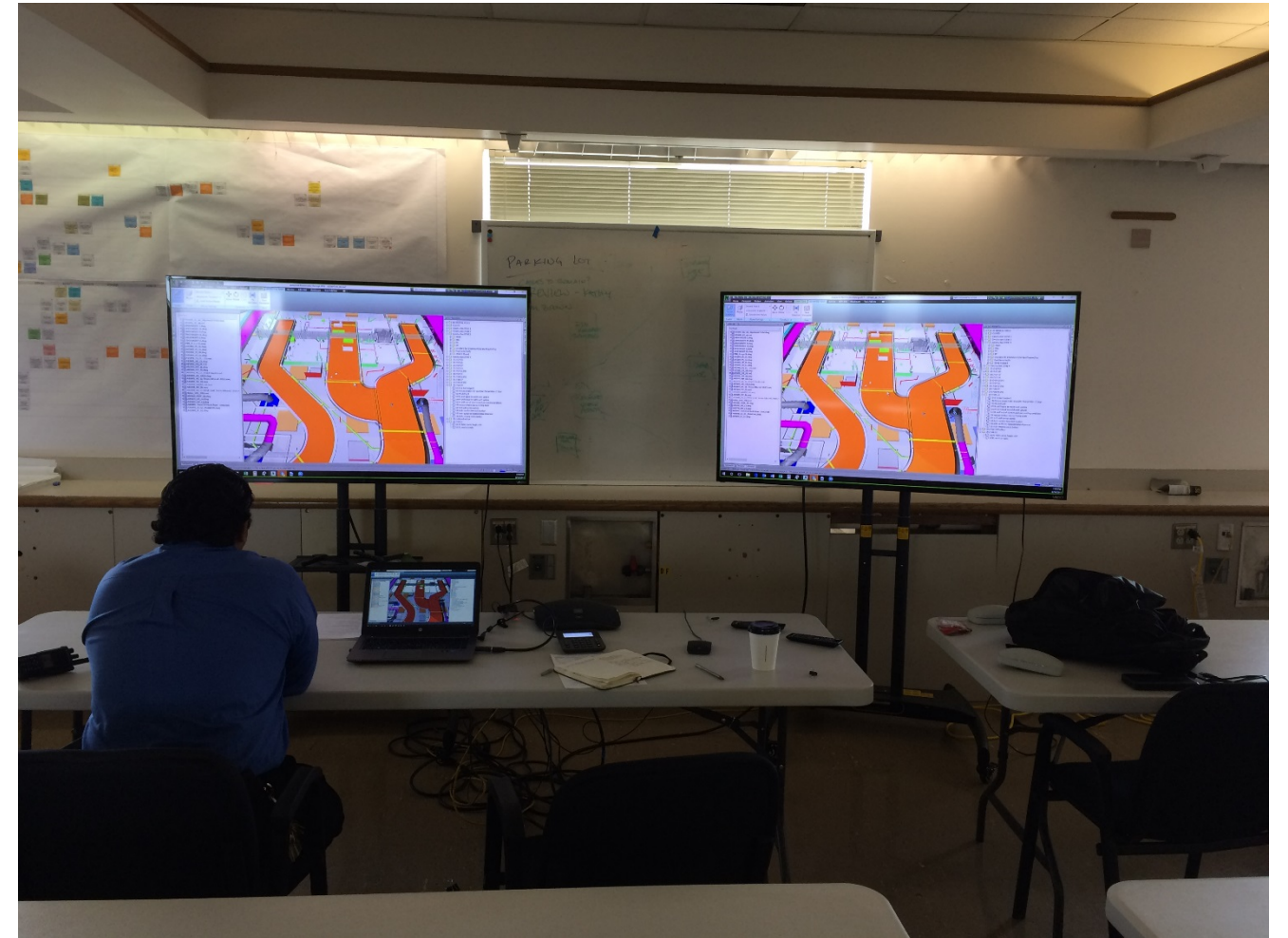
Lessons Learned

- Breakdowns happen when:
 - Information is not available when needed
 - Information is incomplete
 - Assumptions are incorrect
 - Designers focused on their work, not handoffs
 - Planning is opaque and siloed
- “No battle plan survives contact with the enemy” - Helmuth von Moltke



Lessons Learned – Invest in Planning

- Planning is an evolving iterative process
 - Each iteration provides value
- Underestimating planning time
- Its ok to plan for rework
- Design workflows are inherently integrated



Lessons Learned - Execution

- Understand your context
 - Metrics
 - Resources
 - Methodology
- Make Ready Planning is essential
 - Does this represent the work?
 - Keeps awareness and accuracy



In the spirit of continuous improvement, we would like to remind you to complete this session's survey in the Congress app! We look forward to receiving your feedback. Highest rated presenters will be recognized.

