

# LEAN FACILITY DESIGN

## University of Michigan Health System Pathology Relocation and Renovation (PRR) project:

- Driven by innovation.
- Major multi-year project to consolidate Pathology faculty, staff, trainees and laboratories which are currently spread out across different campus zones, into four contiguous buildings. Phase 2 of project will include hospital renovation.
- Utilize Lean Design to create more efficient, effective and flexible space, encourage collaborative work across disciplines, and produce better outcomes.
- Lean design is a comprehensive design system focused on optimized process and people flow that engages many users and provides frequent opportunities to “see” and interact with design.
- Effective outcomes: in our Electron Microscopy Lab, using lean design interactive tools improved the efficiency of walk routes by 48%, improving critical process flow within the lab.

## Conceptual Design



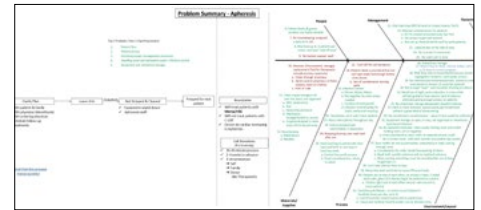
### Comprehensive Current State Analysis

List out current challenges with space and processes. Tools include Value Stream Mapping, Fish Bone Diagramming, and Video Capture.



### Value Stream Mapping

Map out the major process flows and support flows (i.e., specimen flow, supply flow, employee flow, waste flow).



### Fish Bone Diagramming

Map out current issues the facility creates and contributes to, that new design can resolve.



### Video Capture

Capture details of current state and flows through video tours and time lapse videos.



### 2-Day Workshop

Teams come together to present their current state analysis, brainstorm potential solutions, and provide feedback on initial designs.

## Schematic Design and Design Development (*iterative*)



### Paper Dolls

Use paper models to lay out the space in more detail and review optimal process flow based on the layout.



### Spaghetti Charts

Chart process flows to identify points of congestion and inefficiencies. Iterative process improves design and flow.



### Mock Ups

Mock up carefully selected sections of key spaces, then work through processes to evaluate space design.