Delaware Division of Libraries Lean 3P Event
Developing the Next Generation DDL Facility
Final Report

April 19, 22, 24, 2024

L Weis & A Coletta

EXECUTIVE SUMMARY

The Delaware Division of Libraries (DDL) provides a multitude of services that are critical to supporting daily operations and long-term strategy for libraries in Delaware. This effort established great clarity on the future role of DDL in shaping a unified library system in Delaware. With this understanding, DDL stakeholders developed facility requirements that will accommodate expanded services and benefits to the citizens of Delaware.

Studies conducted of current and anticipated future DDL and Delaware Library Access Services (DLAS) service offerings concluded that a larger facility is needed to support growth in services to Delawareans. DDL's role as a conduit for outside partners to reach the general public (DOE, DNREC, etc.) and "Library of Things," continues to expand. DDL provides the connective structure for the current DE Library Consortium and provides the groundwork for the future universal library system, supporting lifelong learning, literacy, and social services.

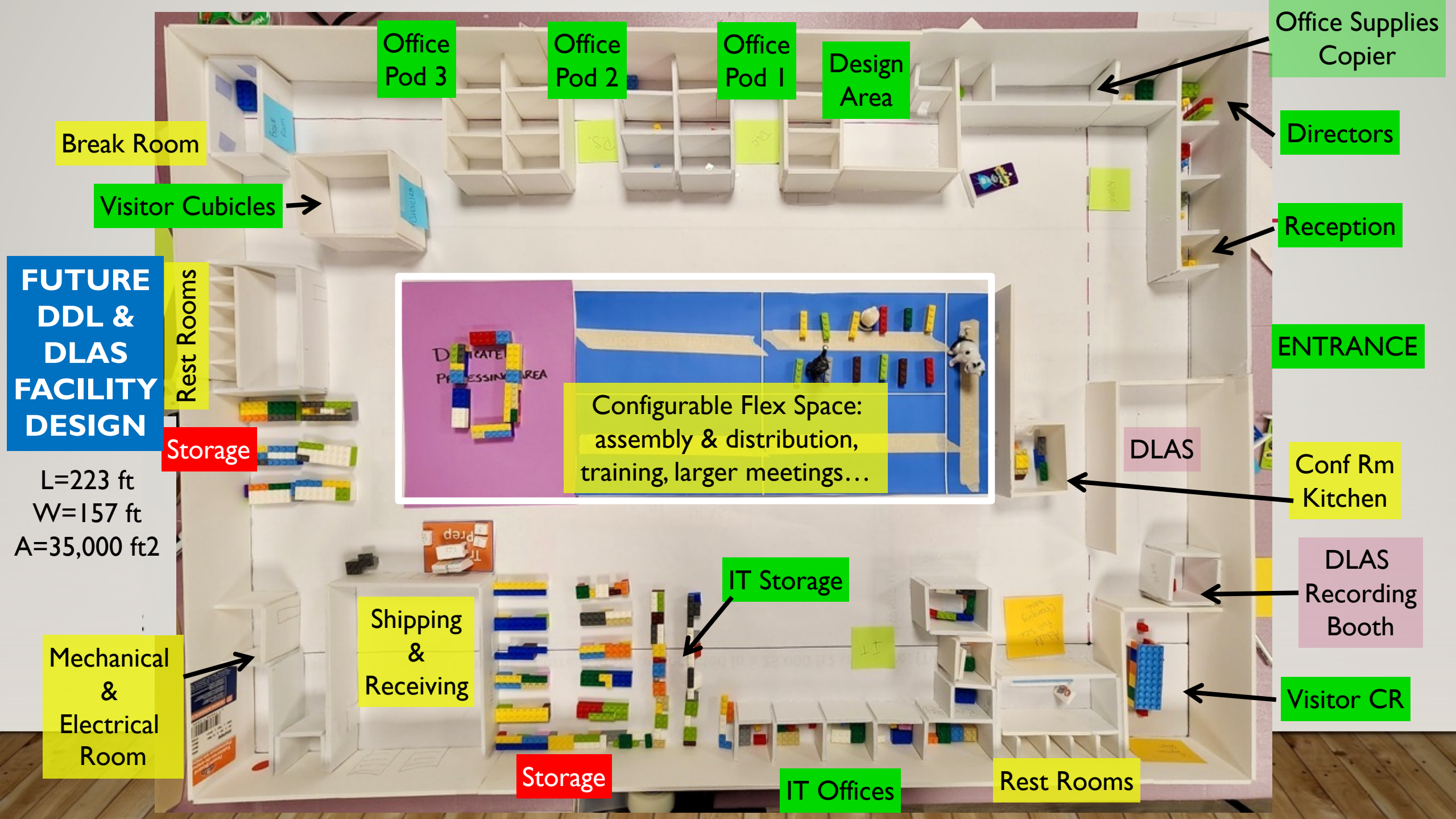
In mid-April 2024 a 3-day Lean 3P event was conducted that reviewed current and future needs for DDL and DLAS for purposes of designing a facility capable of delivering the broad expanse of critical services. Thirteen alternative layout designs were developed and assessed before converging on a single preferred design.

The final layout design was developed into a scale model representing a 35,000* sq ft building that provided offices/cubicles around the perimeter and a large highly-configurable space in the center. The central flex space would be used for assembling and packaging a wide variety of materials and items for distribution to the libraries or used for mid to large gatherings (up to 200) of library associates for training, collaboration, and strategy deployment.

* 20 ft aisles in the model could be reduced to decrease building size to ~30,000 ft2

PRE-EVENT STUDY TO DETERMINE FUTURE NEEDS

- During the months leading up to the Lean 3P event Lisa Weis (DEMEP) and Allan Coletta (Lean 3P Associates) met multiple times with DDL and DLAS staff to understand current services, constraints and limitations, and future needs anticipated over the next three to five years.
- Observations:
  - The ~10,000 ft sq of space in the existing facility is inadequate for current needs, and only works because team members are allowed to work remotely and use office space for storage of needed items. There is limited ability for public-facing activities or larger gatherings. Larger projects for distribution are sometimes restricted or completed sub-optimally due to space constraints.
  - Future needs to be accommodated include DDL's expanded role managing and distributing physical items, providing training, and bringing library representatives together for larger meetings. DLAS has both internal and public-facing needs that are increasing, with more Delaware citizens becoming eligible for services..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FUTURE DDL & DLAS FACILITY DESIGN
L=223 ft
W=157 ft
A=35,000 ft2
Rest Rooms
Storage
Configurable Flex Space: assembly & distribution, training, larger meetings…
DLAS
Conf Rm Kitchen
DLAS Recording Booth
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IT Storage
Shipping & Receiving
Mechanical & Electrical Room
Storage
IT Offices
Rest Rooms

HIGHLIGHTS OF THE DDL LEAN 3P PROCESS

- Event Kick Off, Introductions, and Team Expectations
- Event Contract, Event Charter
- Lean 3P Introduction and Overview
- Understanding the possible: office area and conference room concepts
- Types of Space and the Adjacency Diagram
- Review of Value Stream Maps
- Establishing Design Criteria for the Event
- Paper Layout Exercise (2D Try-storming or the “7 Ways”)
- Physical scale model creation

LEAN 3P EVENT INTRODUCTIONS

- Please tell us:
  - Your name
  - What your role is in the DE Division of Libraries
  - How long you've been here
  - Expectations of the event

Expectations

All our ideas matter

"Find ways for streamlining and improving our use of space."

"Learn, observe how to apply 3P to other organizations!"

"To ensure we have the right space for the big equipment we distribute."

"Learn how the 3P process can be used for designing new libraries!"

"To develop our needs into plans for a future building."

"To determine: what do we really need?"

"To create the optimum space for Delaware Division of Libraries!"

3P EVENT CONTRACT

- I _____ agree to openly and honestly participate throughout this event in order to solve the problems we have facing us. I will not be judgmental or critical of other participants and will purpose to actively listen to their viewpoints and try their suggestions.

- I will avoid sarcasm and conflict. I will be respectful with everyone who is on this event. I will think and act creatively and encourage creativity among the other participants by returning to my 12-year-old mindset to generate useful ideas.

- I understand that our goal is to create value for our organization by leveraging our combined knowledge and experience to develop the best possible product and operation within the boundary conditions outlined in our charter.

- I will work with the team to ensure delivery of what is promised and committed to. I will openly share my ideas and thoughts without fear of criticism or judgment and participate fully in every aspect of the Lean 3P Design process.

_____ _____

Participant Date

DDL 3P EVENT CHARTER

Process Name	Start Date	End Date
DDL & DLAS - Future Facility	April 19, 22, 24, 2024	April 24, 2024
Process Boundaries (Start to End)	**Start Time:**	**End Time:**
START: This new facility will build off of the current facility needs, anticipating growth of services in specified areas. The new facility is limited to 25,000 ft2 max. The event will include receiving/shipping locations , offices and work areas and storage.	8:30 AM	4:00 PM
	Team Meeting Location:	
	DDL Offices: 121 Martin Luther King Jr. Blvd. N Dover, DE	
	Process Owner(s)	
	Annie Norman	
END: The event will not include the building exterior.	**Process Expert(s)**	
Why Do We Need This Event?	Christine Karpovage Rogers	Marie Cunningham
The DDL has been housed in sub-optimal space for some time, while their focus has been expanding; additonal libraries being serviced, including catalog, IT, and training. Routine meetings/workshops are required to establish direction of the library system. The DDL desires to design a new space with input from all stakeholders to ensure functionality and effectiveness	Ben Sauselein	Alta Porterfield
	Amber O'Donnell	Sarena Deglin
	Susan Elizabeth Cordle	Anne Hiller Clark
	Jaclyn Hall	Sheri Brown
	Katie McDonough	Other DDL Staff
Event Targets	**Process Outsider(s)**	
Develop design for a new facility which supports/enhances DDL and DLAS services and value to the DE Consortium, the Library profession and services required by the citizens of Delaware	Daniel Madrid (DD Finance)	Council on Libraries rep
	Larry Trunflo (DHR)	County Librarians rep
	Facilitator(s)	
Design a facility that supports the effective and efficient accomplishment of DDL and DLAS's work as it evolves	Lisa Weis (DEMEP)	Allan Coletta (Lean 3P Assoc)
	Process Consultants	
	TBD	

What is 3P?

Production Preparation Process

An event-driven process for developing a new **product** concurrently with the operation (**process**) that will produce it, by the **people** who will interact with it.

The three types of 3P focus

Product

New Product design with 3P is done in parallel with the production operation

Breakthrough Results

Process

Process 3P can be done with Product, or as a stand-alone method to add capacity

Lowest Ongoing Cost Basis

Layout

Layout 3P can be done with Process, or as a stand-alone method for new expansions

Lowest Initial Capital Costs

Where did 3P come from?

Chihiro Nakao

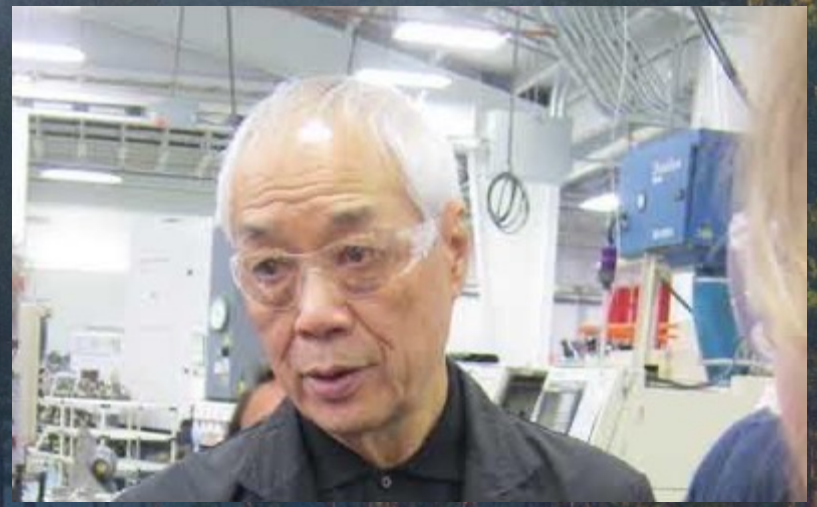
Former senior leader at Toyota and founder of Shingijutsu USA developed 3P for Toyota suppliers and other clients as a faster, less resource intensive version of set-based concurrent design..

Set-based Concurrent Design

Considered the “Second Toyota Paradox.” set-based concurrent design considers a broad range of possible designs and has the fastest, most efficient vehicle development cycle in the industry.

Allan Coletta

Began applying 3P in 2005 and wrote the first book on the subject published in 2012, winning the Shingo Prize for Research and Professional Publication in 2013.



The 3P Solution

Knowledge gathering

All participants review an event charter, Voice-of-the-Customer, prioritized feature sets, market information, sales projections, and other factors that impact design.

The 7 Ways

For every design feature, develop 7 Ways nature accomplishes that design. Then convert natural processes into industrially viable methods.

Try-storm Prototypes

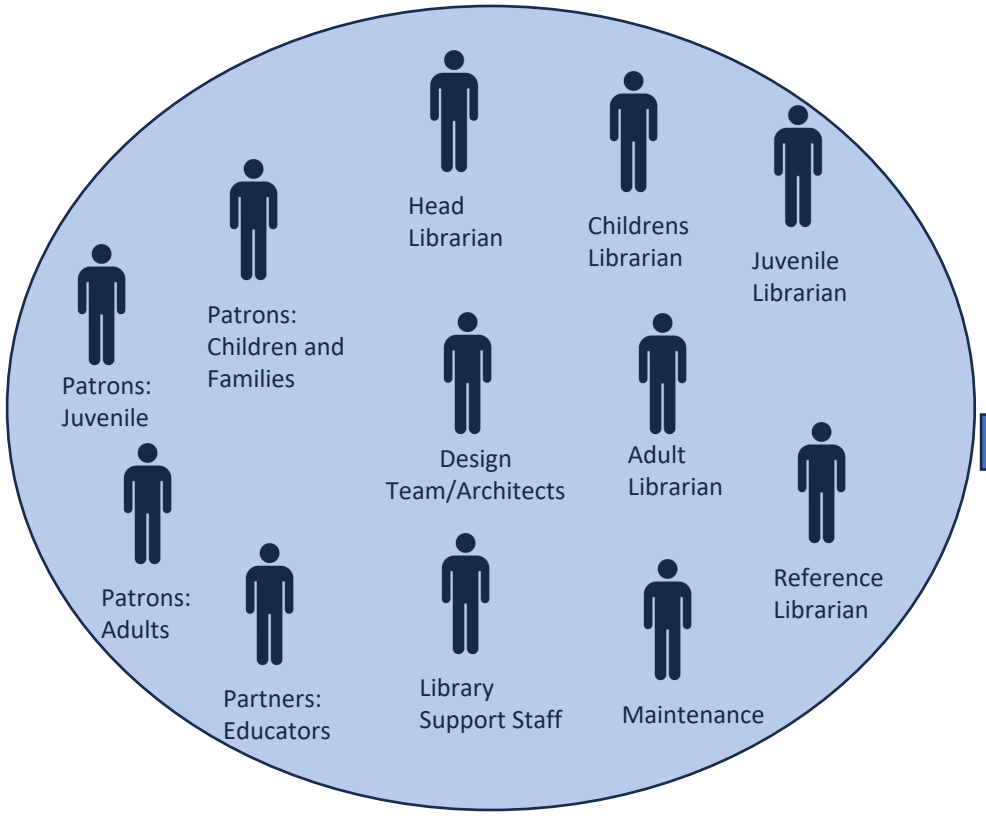
Select the three best, viable methods determined using the 7 Ways exercise and assign them to one of three prototype teams. Three teams build three competing prototype designs.

Best Design Final Prototype

Evaluate the designs against the agreed criterion and select the best design for each feature. Combine best concepts into one final prototype.

3P Design Process

All Stakeholders



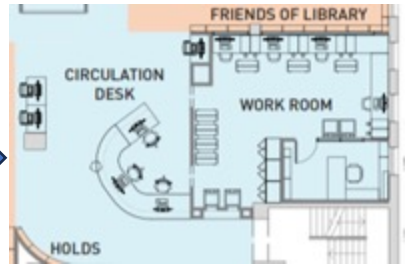
Stakeholders collaborate together to optimize area layout, to address the needs of today and the future

Full Scale Model with input from all stakeholders developed by all stakeholders

Design Team/Architects

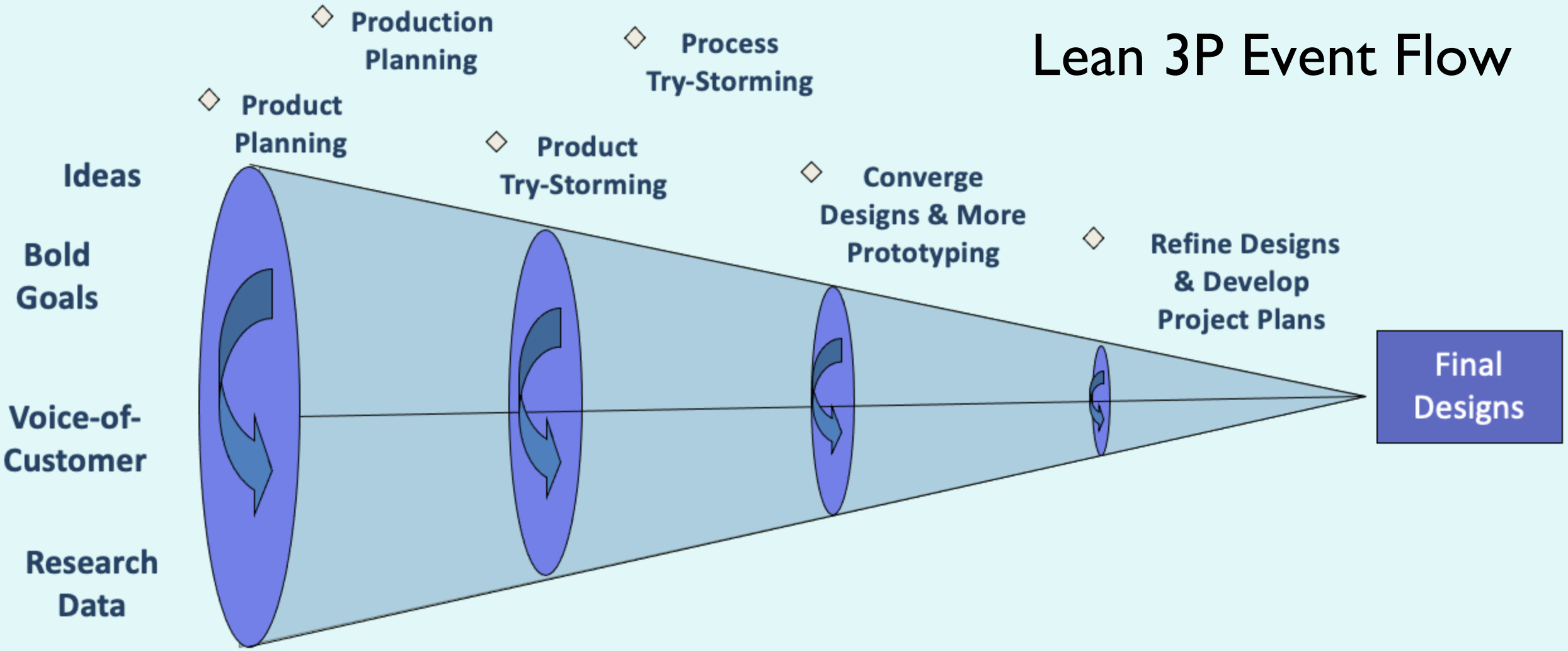
Final Detailed Design developed from model.

Final Area Design Space is designed to optimize work



Workers are effective and efficient in doing work upon move in.

Lean 3P Event Flow

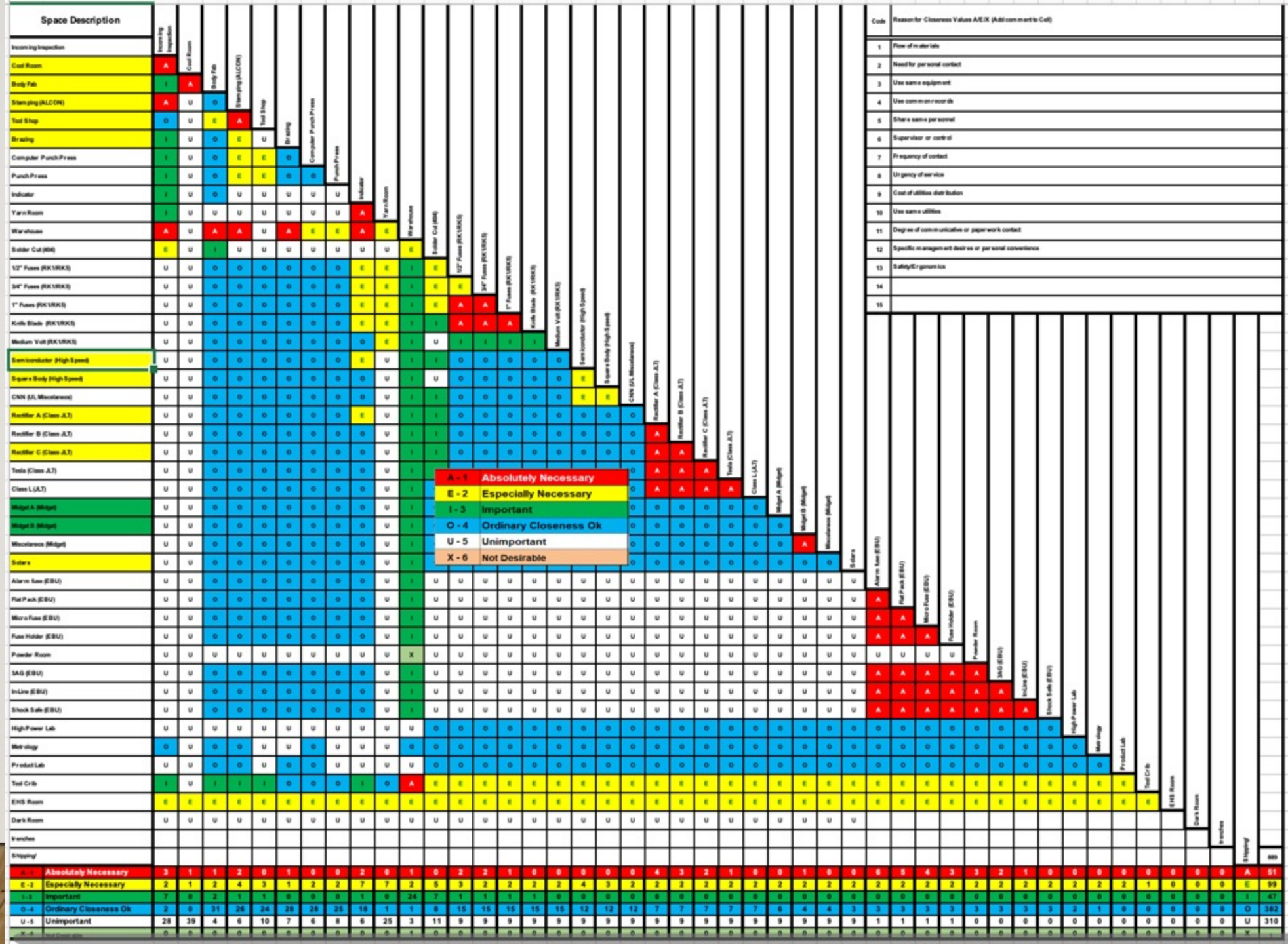


Information	Innovation	Prototyping & Redesign	Optimization
Knowledge Gathering	Develop Alternatives	Prototyping & Convergence	Evaluation & Detailed Planning

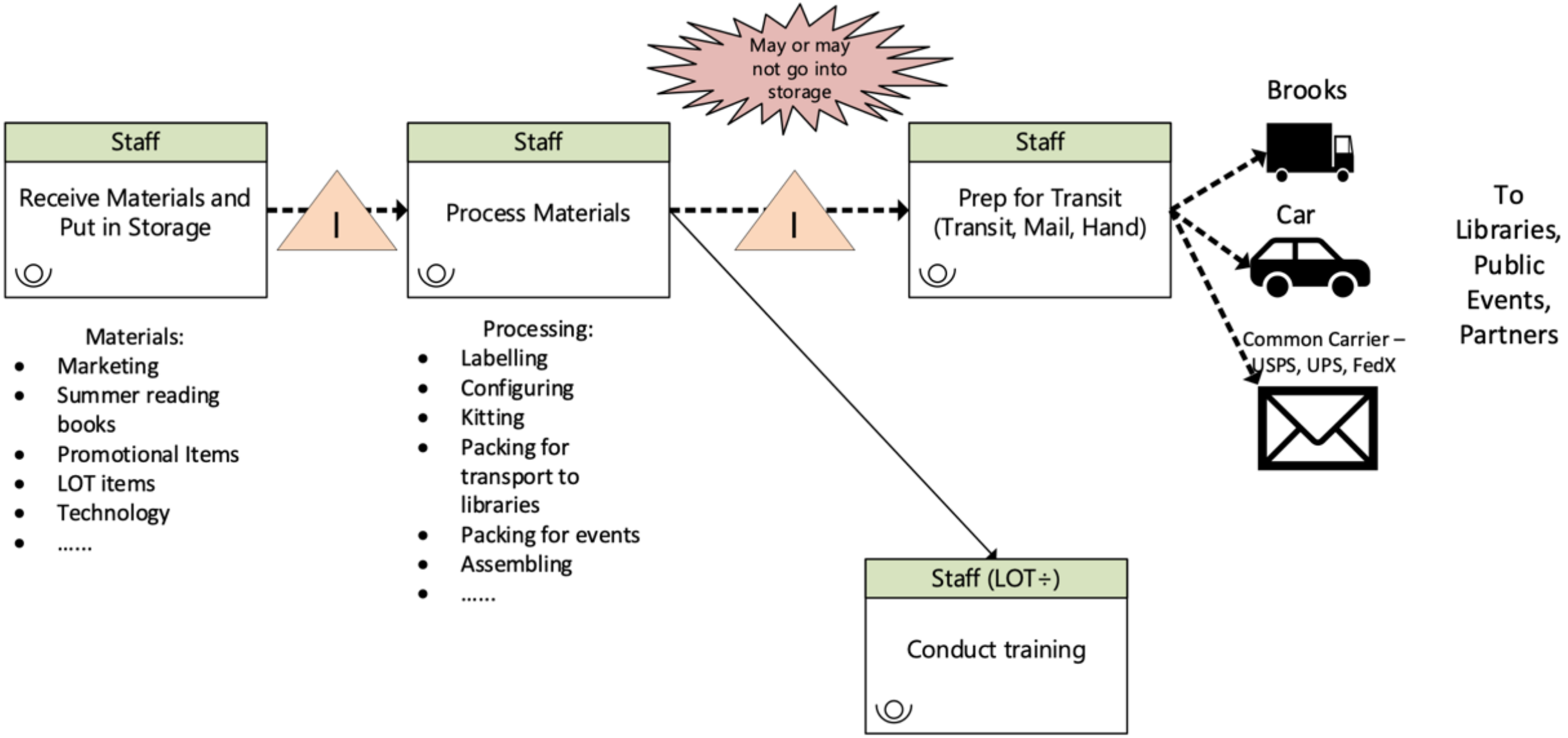
* Used with permission: Coletta, Allan. *The Lean 3P Advantage*. Boca Raton: CRC, 2012

MANY DESIGN POSSIBILITIES

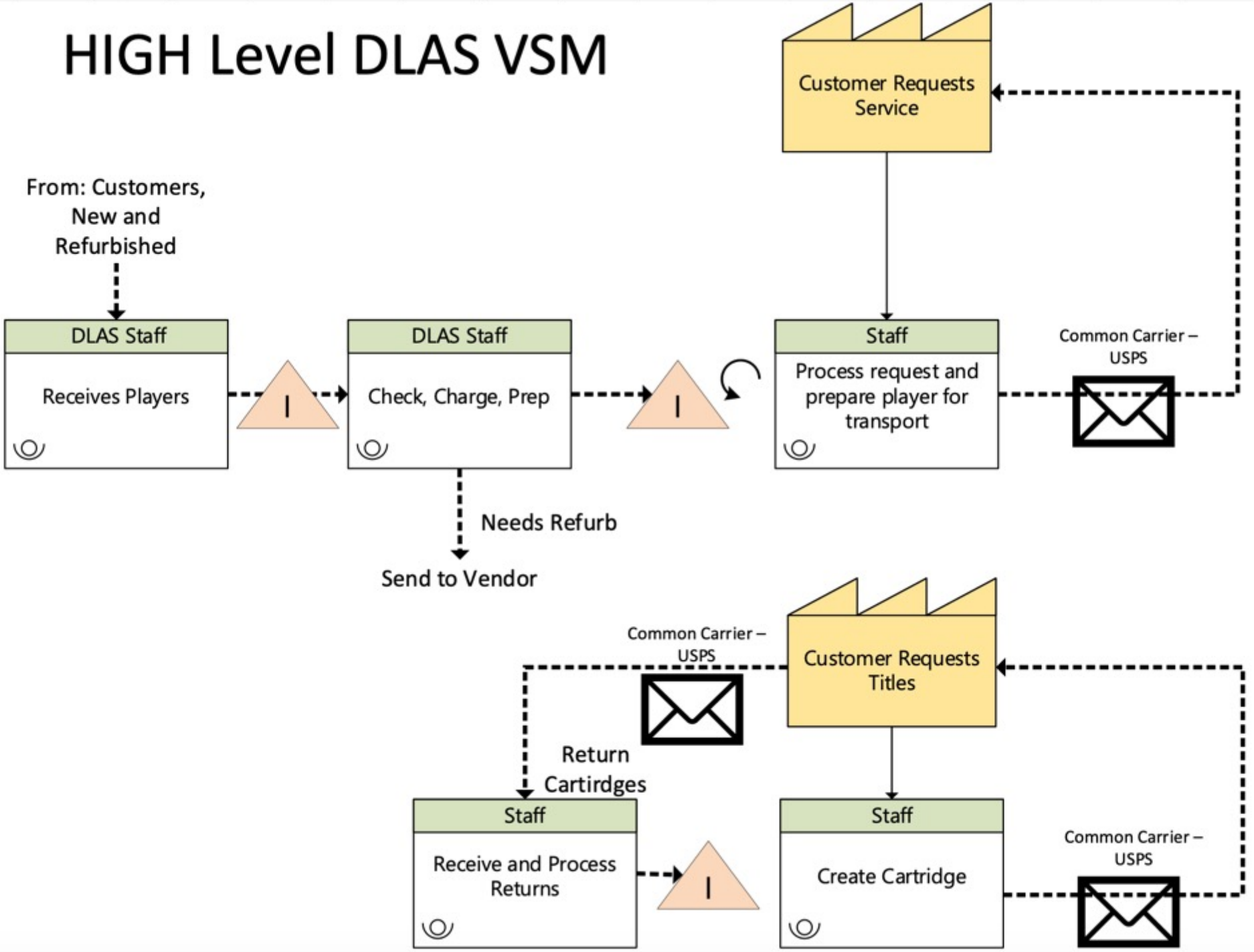
DDL/DLAS ADJACENCY DIAGRAM



HIGH Level Libraries VSM



HIGH Level DLAS VSM



DDL 3P DESIGN EVALUATION CRITERIA

(The Criteria Used to Compare Alternative Layout Designs)

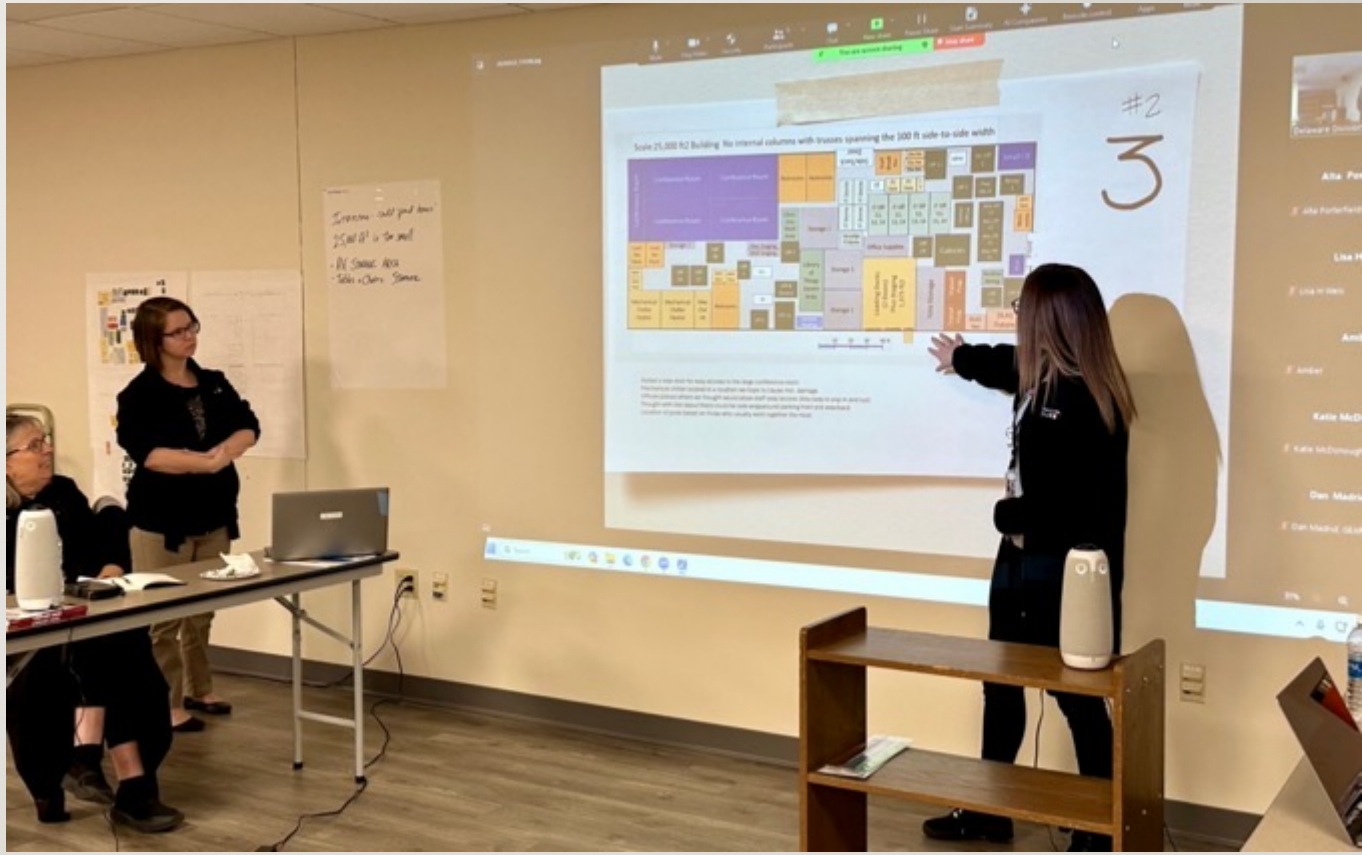
- Flexibility: have the ability to reconfigure space easily with high functionality
  - Support the evolution of libraries for 3-5+ years out
- Capacity for current operations and sufficient room for growth/Expansion
  - Capability for wiring/infrastructure
  - Access to cellular
- Physical environment conducive to both independent and collaborative work
- Accessibility for Staff and Visitors
- Excellent flow through the building
- Improve efficiency of DDL
  - And reduce burden on staff due to ineffective processes

PAIRING UP TO DEVELOP ALTERNATIVE DESIGNS

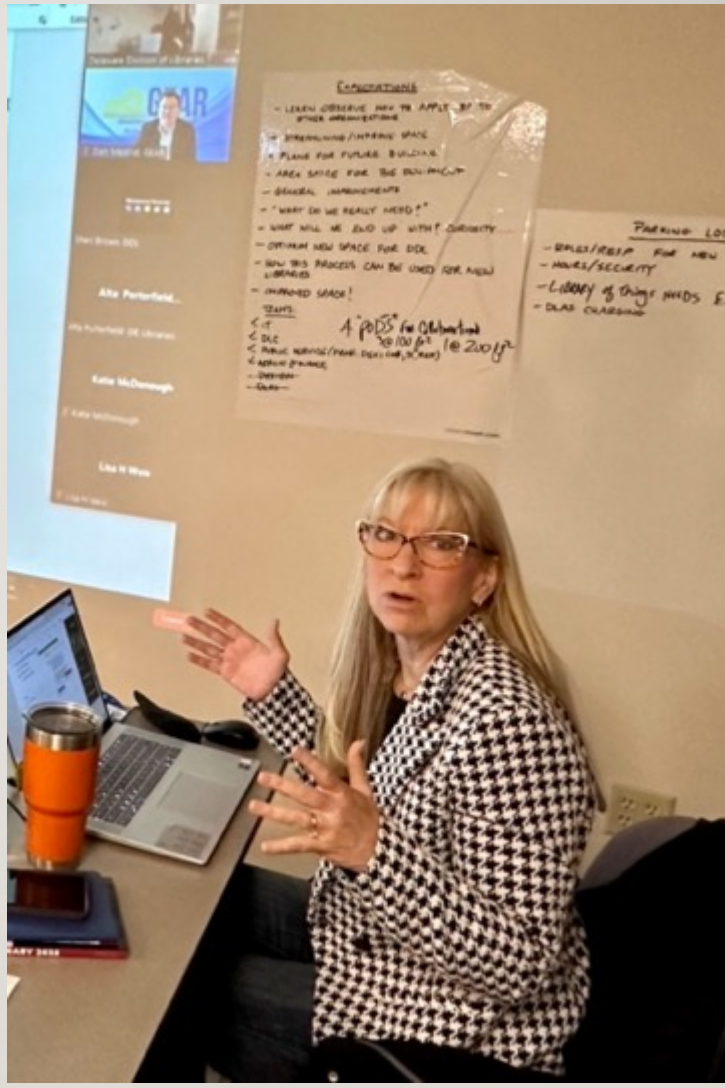
(referred to as developing the "7 Ways")

EVALUATING LAYOUT DESIGNS

DEVELOPING AND PRESENTING LAYOUT ALTERNATIVES

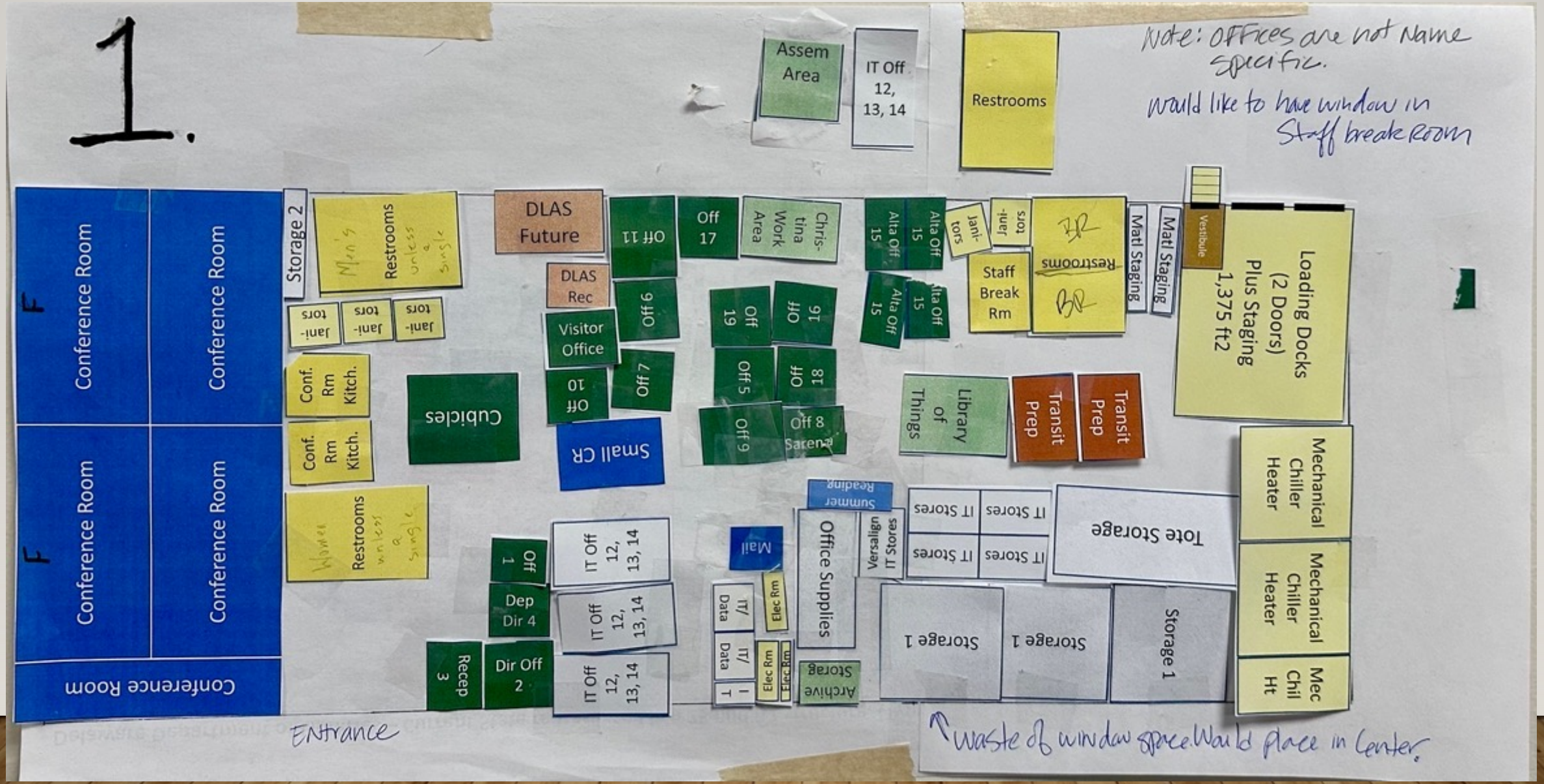


DEVELOPING LAYOUT ALTERNATIVES



“7 WAYS” PAPER TRY-STORMING DESIGNS

1



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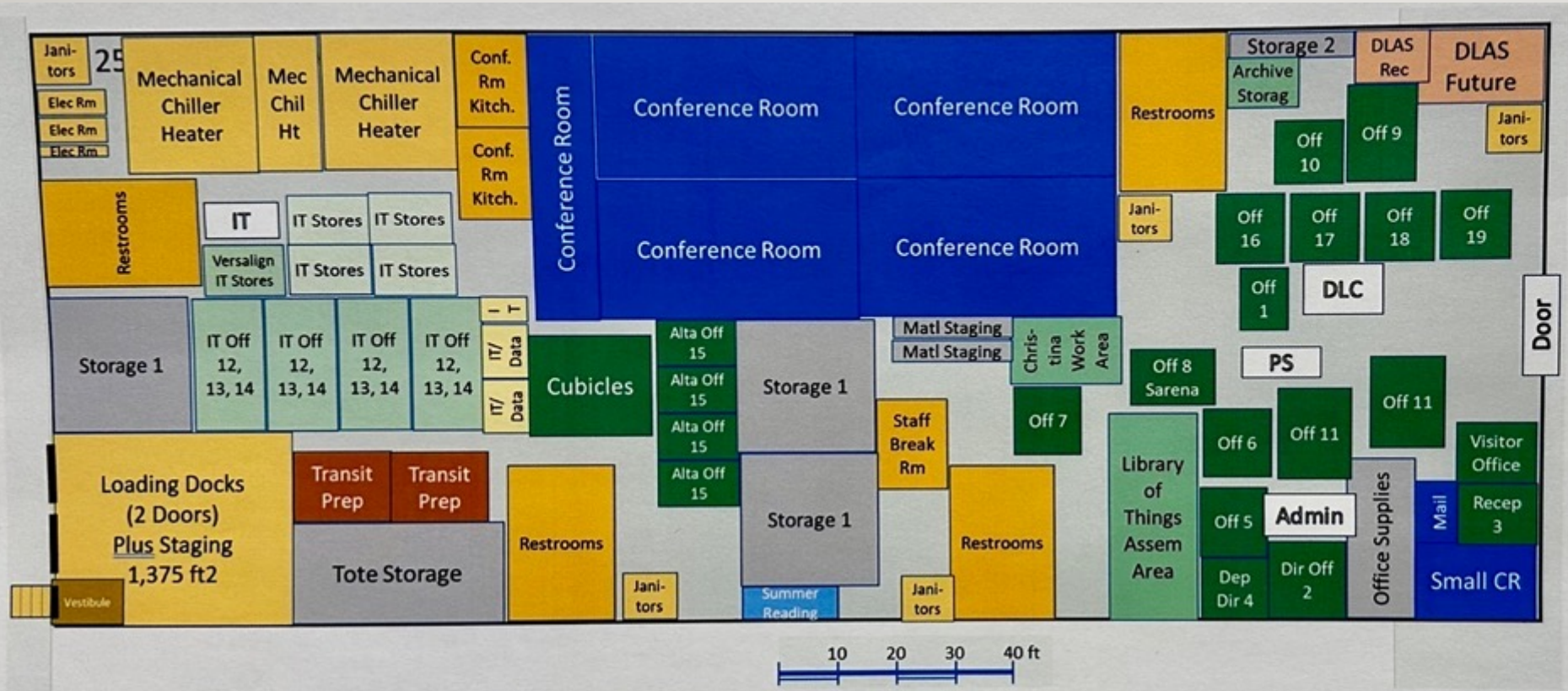
2



Grouped storage areas together based on needs and thinking of current staff duties

Conference space set thinking of access to building and noise levels

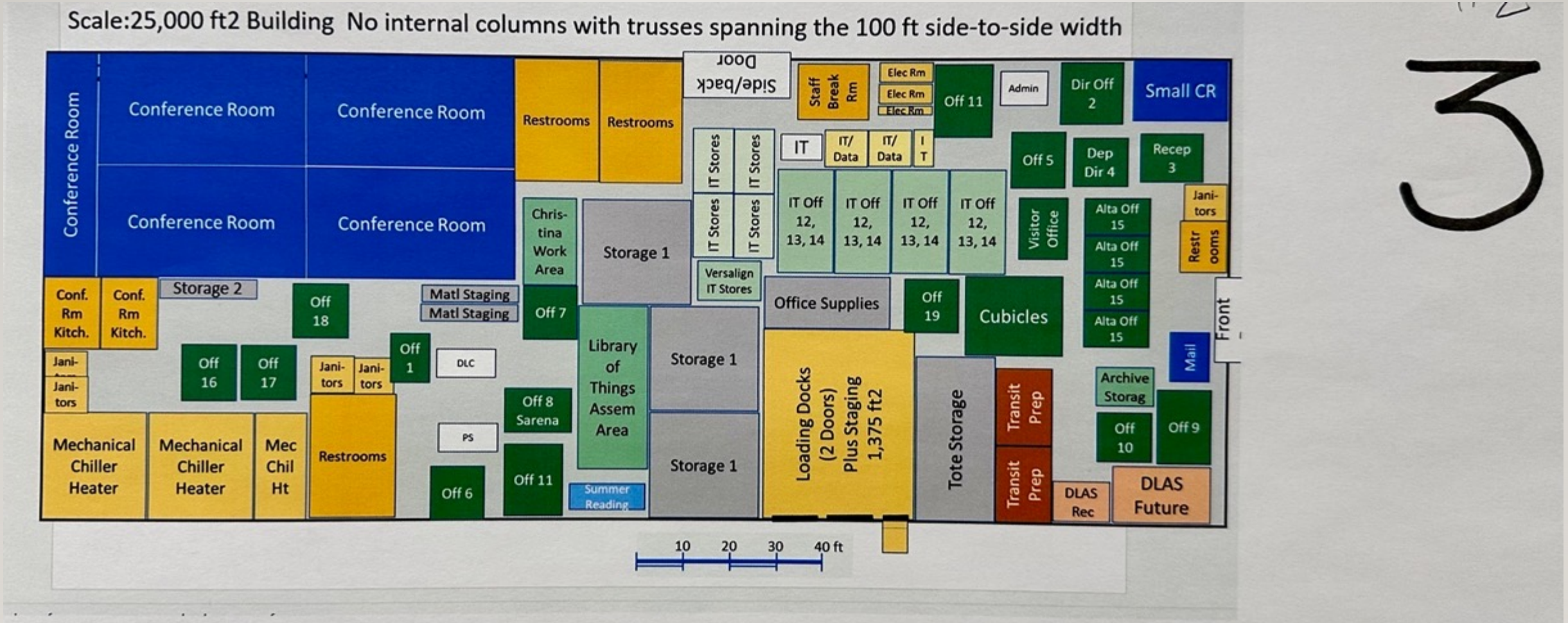
Access to bathrooms tried to place them evenly throughout the building

Offices grouped based on teams and located near one another due to work overlap

Tried to place Mechanical where if it flooded it would cause the least damage

“7 WAYS” PAPER TRY-STORMING DESIGNS

3



Added a side door for easy access to the large conference room
Mechanical chiller located in a location we hope to cause min. damage
Offices placed where we thought would allow staff easy access (Alta easy to pop in and out)
Thought with this layout there could be side wraparound parking front and side/back
Location of pods based on those who usually work together the most.

“7 WAYS” PAPER TRY-STORMING DESIGNS

4

Went outside tl

As many offices as possible on the outside to allow for window access/sunlight!

Placed storage such as LOT and summer reading near the offices of those who will be accessing them the most

DLAS Future near front as this will be accessible space for public?

Elec. Room near conference room allow for AV needs of the conference room as well

Breakroom also is on an outside wall where staff who do not have any windows can enjoy some sunlight while on break

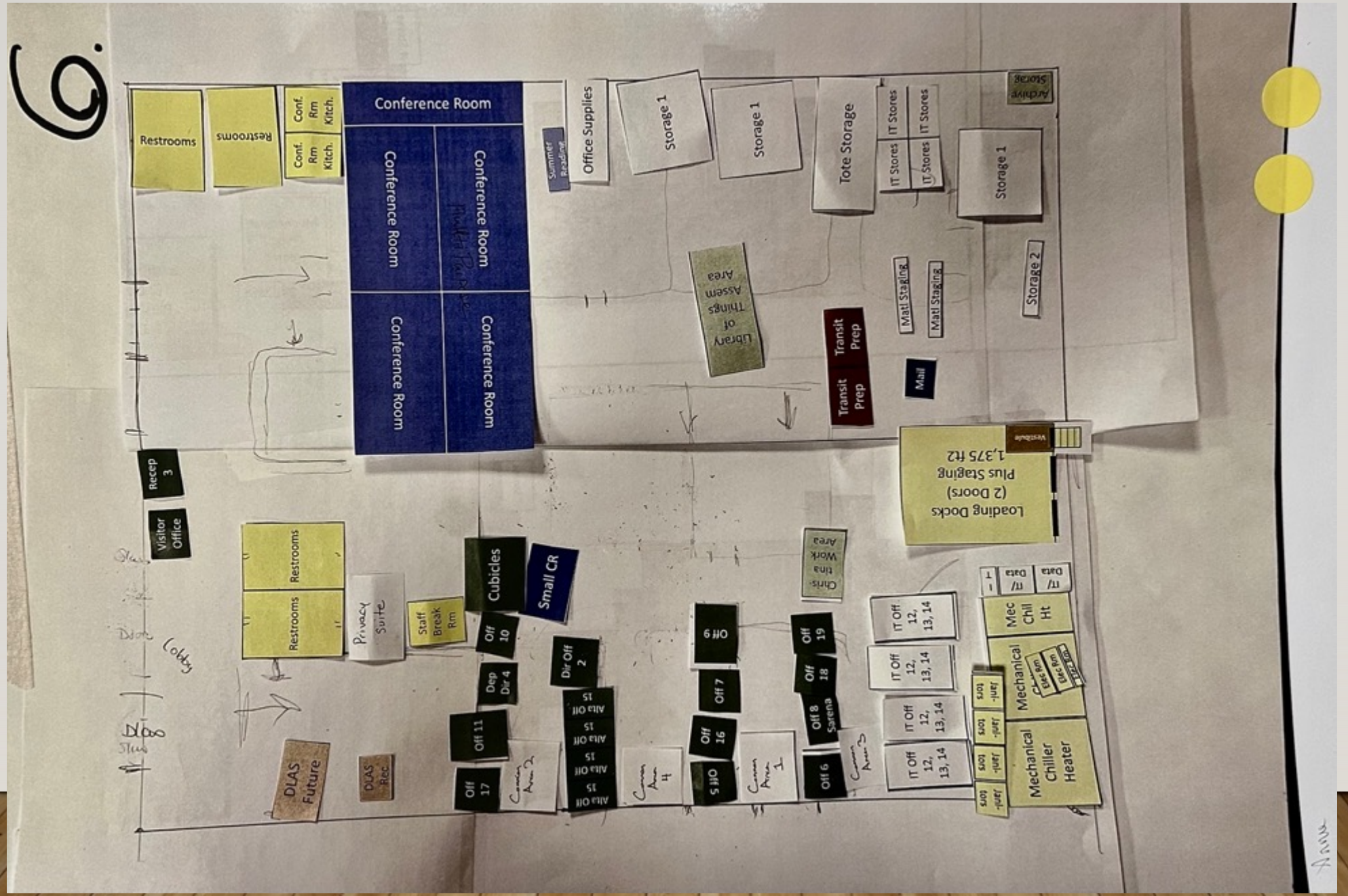
Not seen- roof is a roof top garden, lots of outdoor green space, tables for staff to take breaks outside, and in house coffee shop/Cafe

8

“7 WAYS” PAPER TRY-STORMING DESIGNS

5

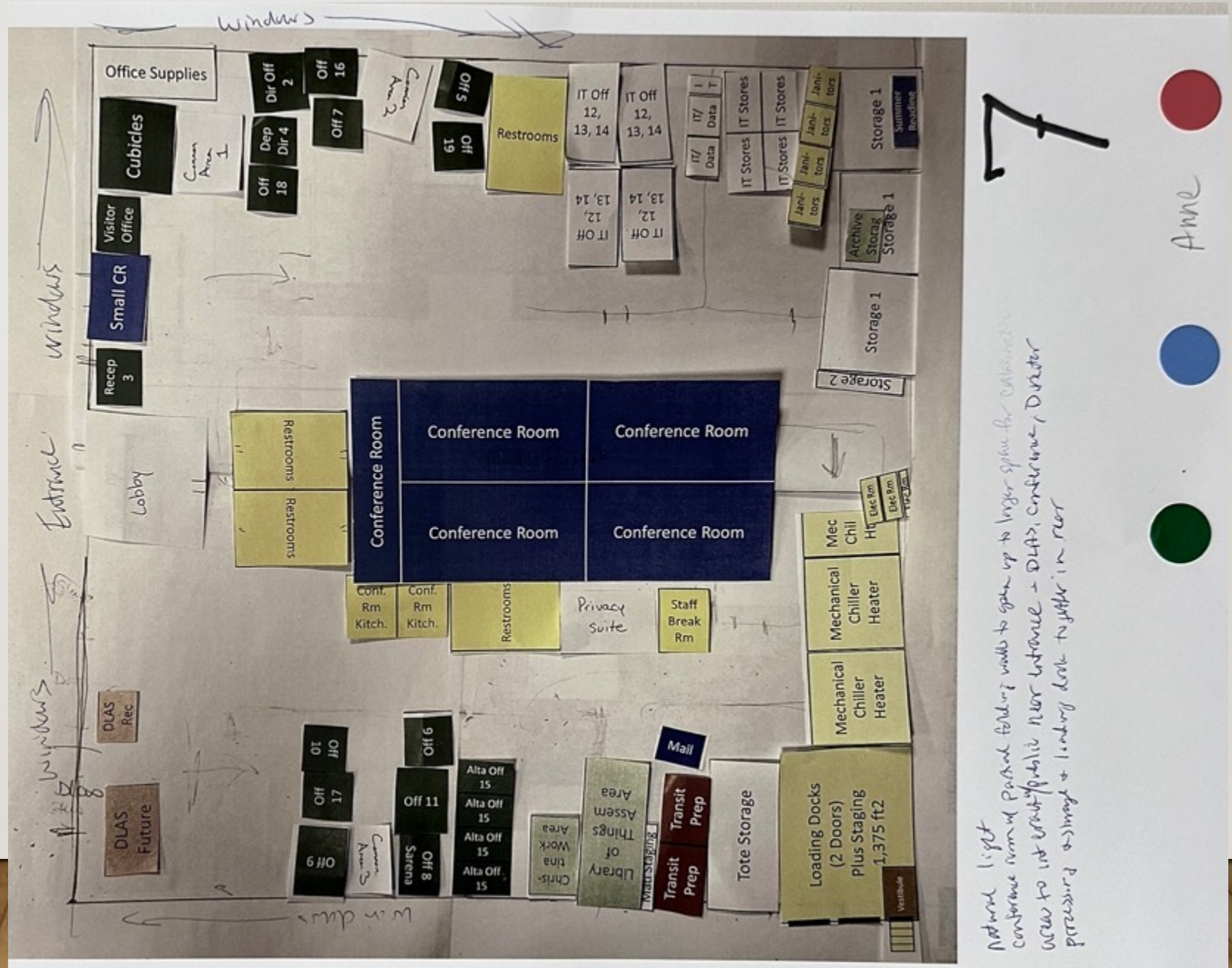
“7 WAYS” PAPER TRY-STORMING DESIGNS 6



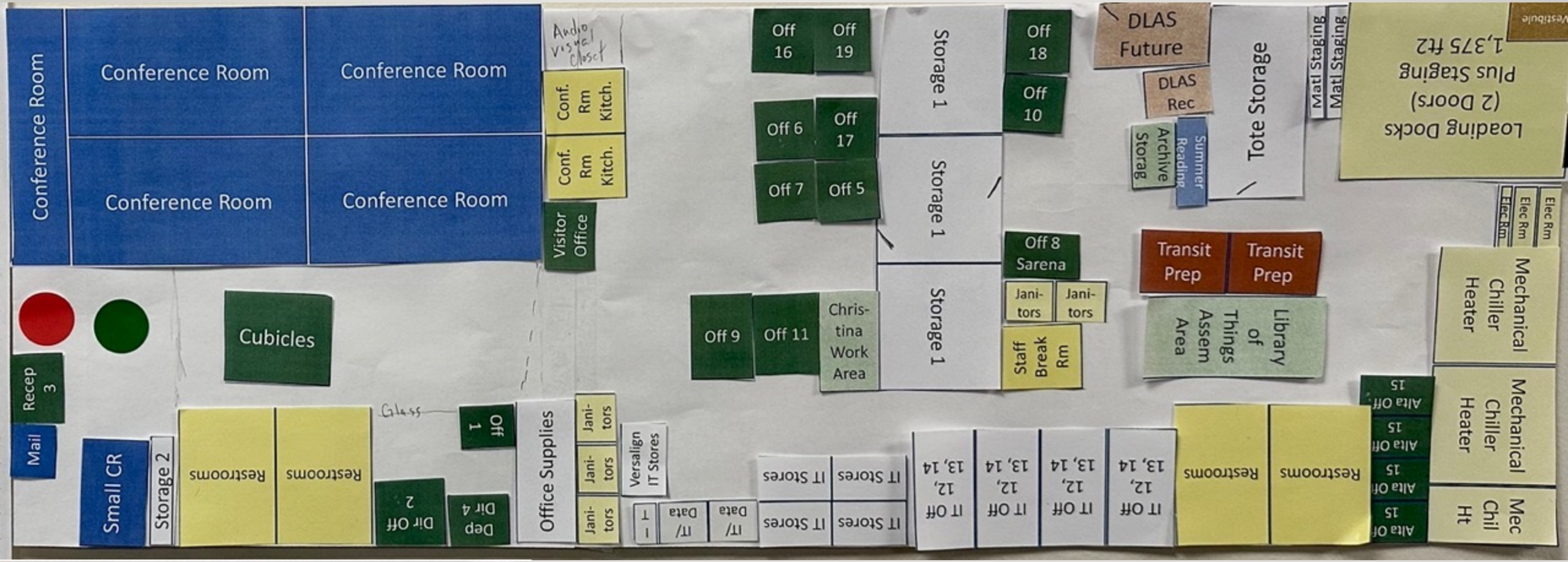
“7 WAYS” PAPER TRY-STORMING DESIGNS 7

Highlights:

- Natural Light
- Conference Room has partial folding walls that open up to provide a larger space for collaboration
- Area to interia with Pods near the entrance
- DLAS conference room and Director
- Processing and Storage and Loading Docks together in rear



"7 WAYS" PAPER TRY-STORMING DESIGNS 8



Missing / Highlights / Flaws

- nursing room
- audio visual closet for Conf Room
- storage for Conf Rm tables & chairs
- possible barrier
- display / rack card
- more defined pod area
- office equipment area copiers, etc
- outside delivery area

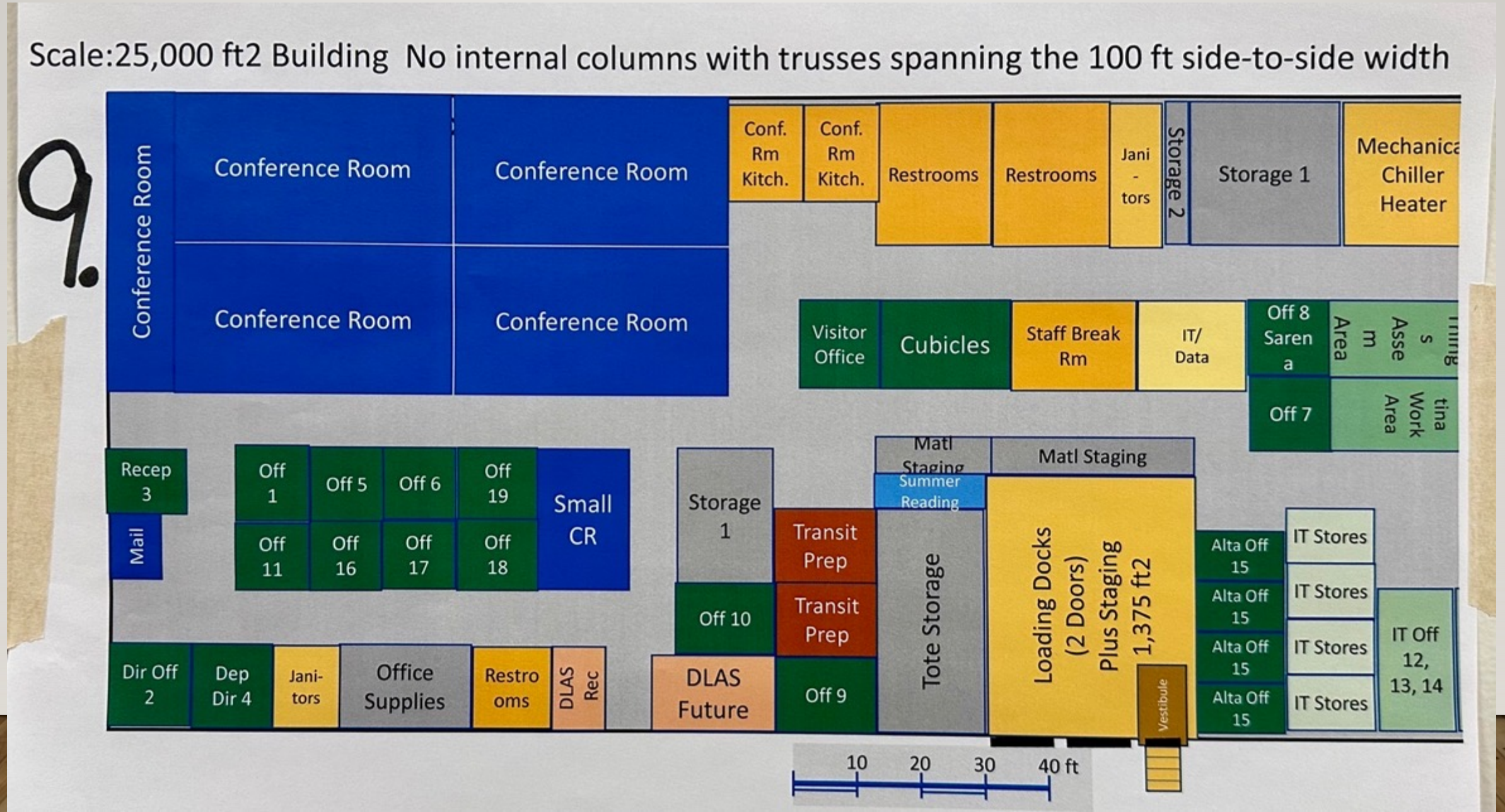
Highlights

maximize sunlight
clear, straight passageways - front to back
DLAS's own outside entrance
front of the house / back of the house
multiple doorways to storage areas

Flaws

IT in straight line
IT proximity to loading dock
I couldn't remember all members of teams

“7 WAYS” PAPER TRY-STORMING DESIGNS 9



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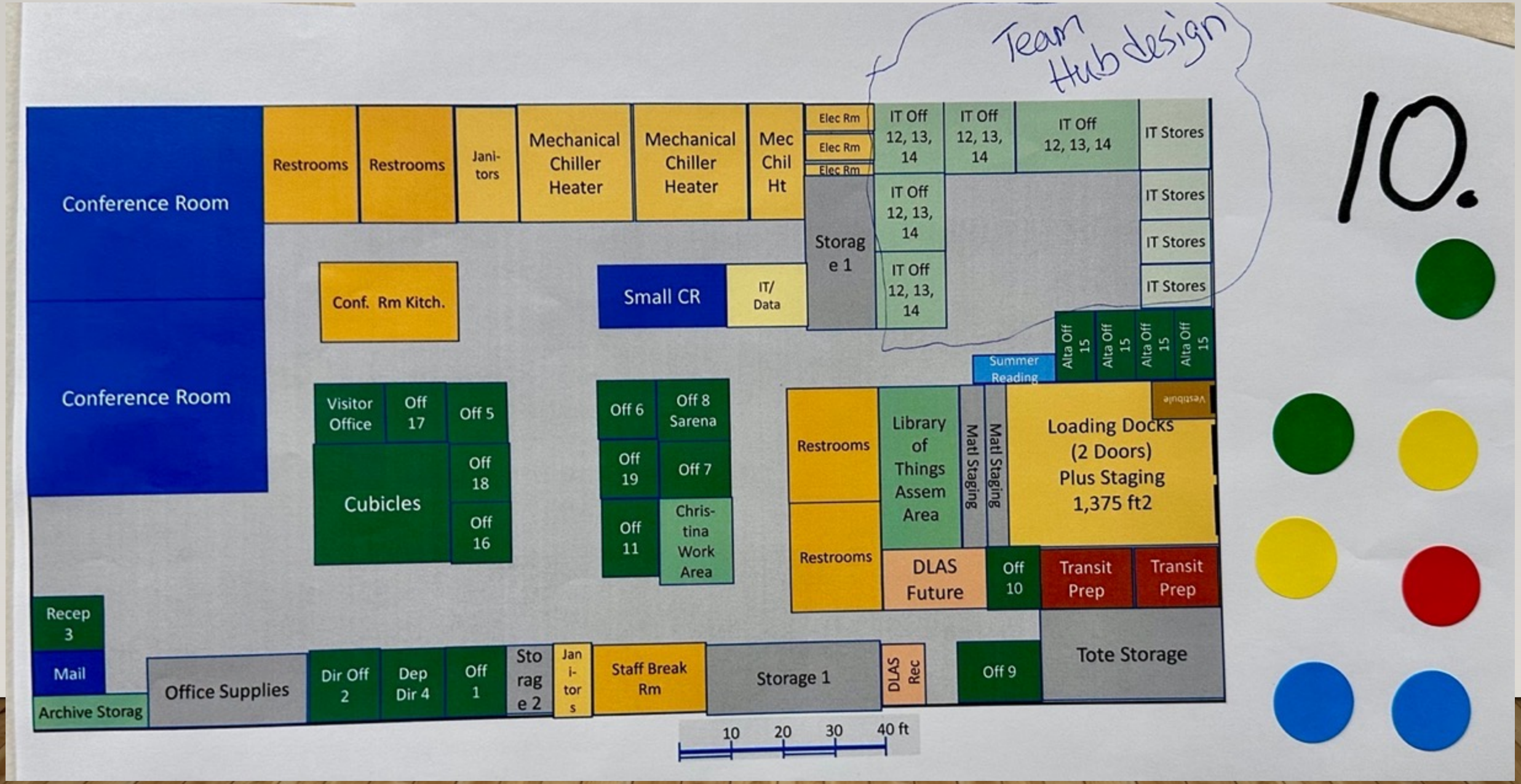
10



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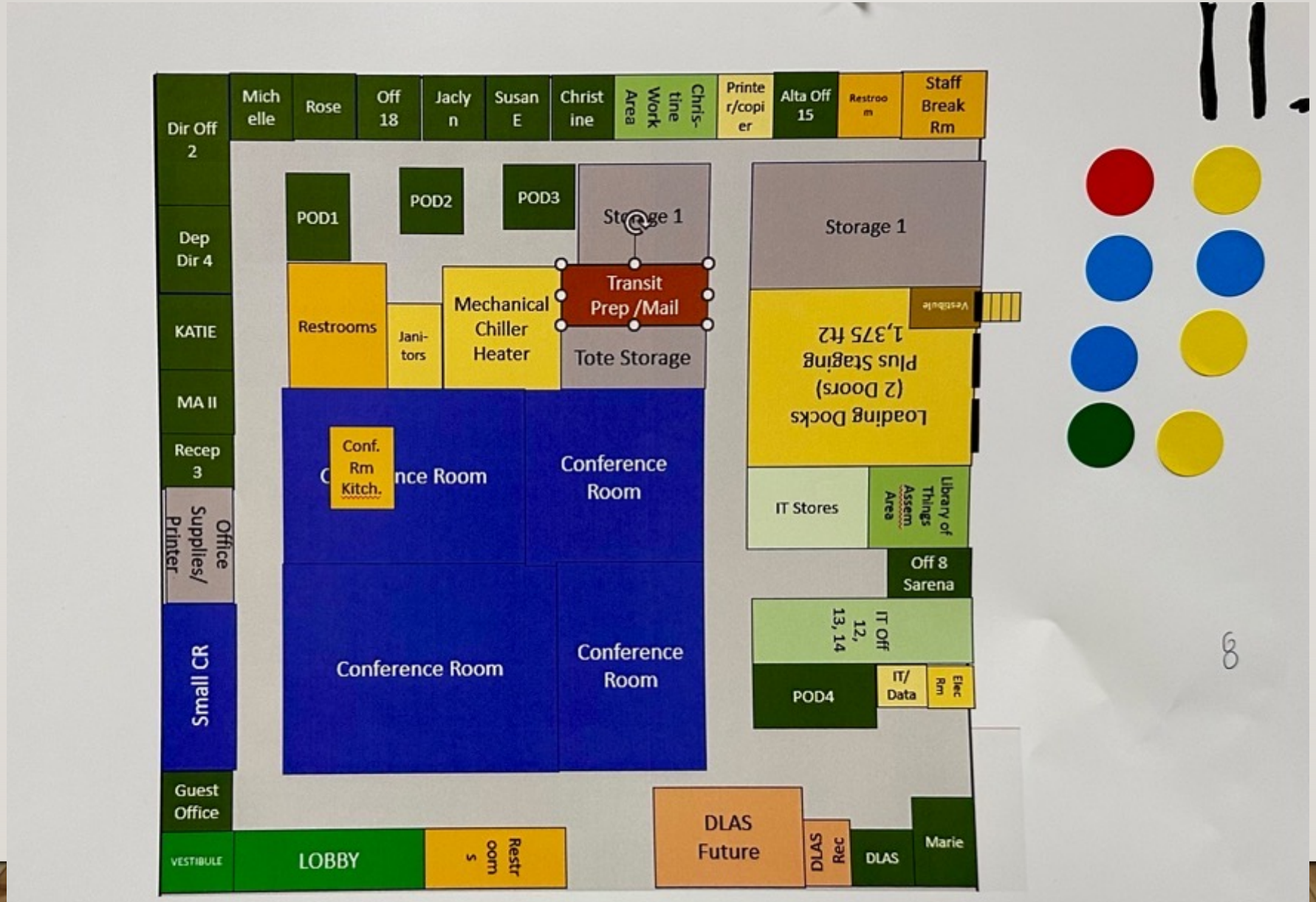
11



Highlights: Storage areas are near each other. Offices have windows. Appropriate things are near front strategically. Functions/teams are grouped together.

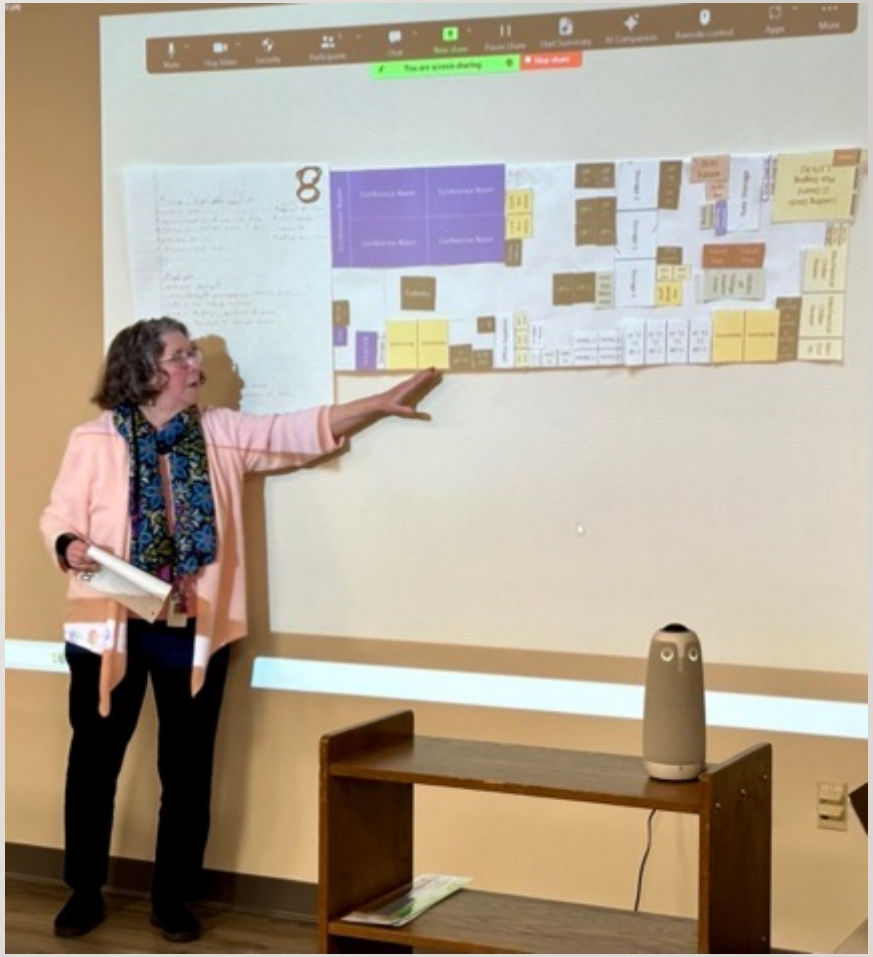
“7 WAYS” PAPER TRY-STORMING DESIGNS

12

“7 WAYS” PAPER TRY-STORMING DESIGNS

13

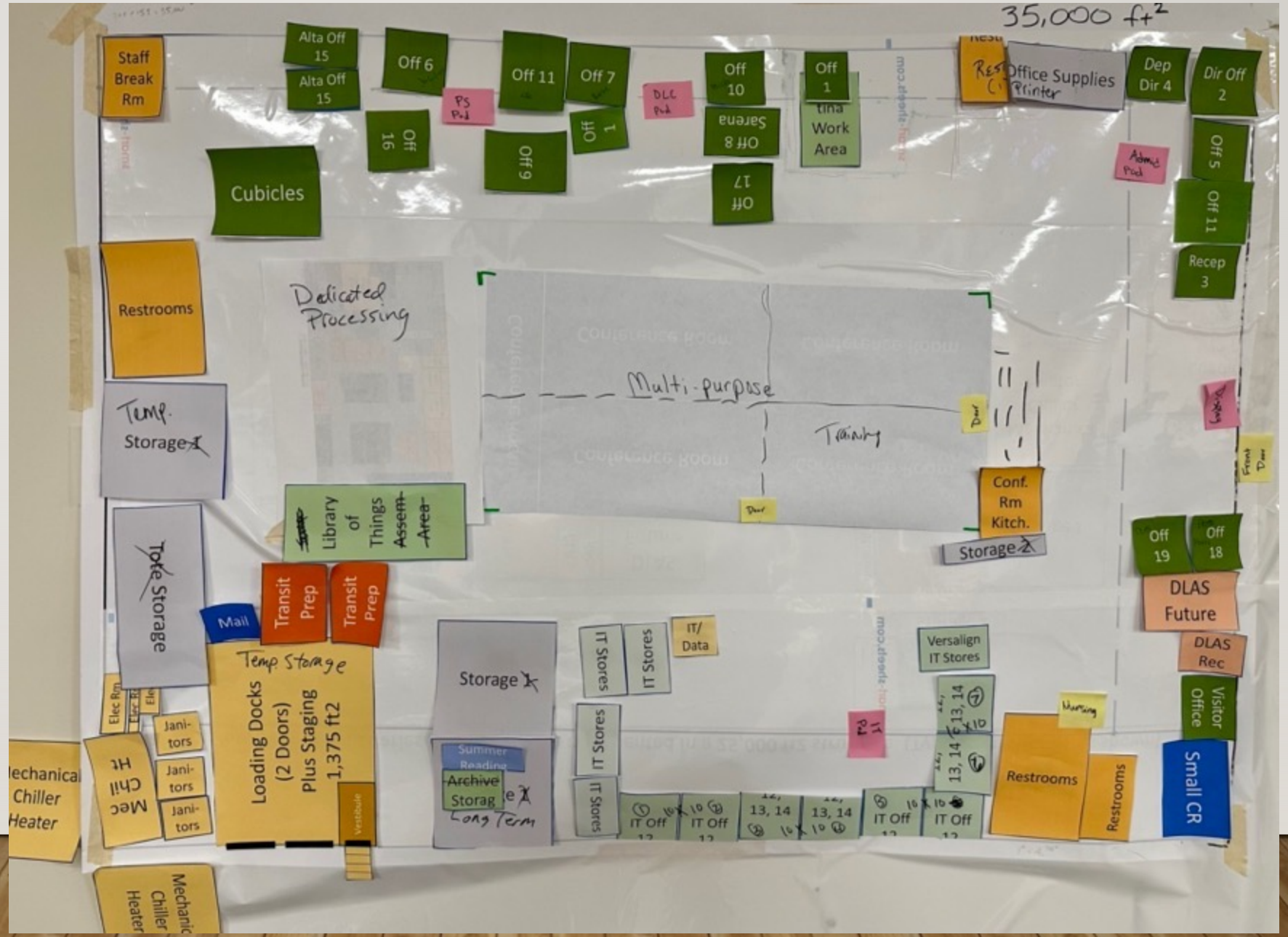
EVALUATING THE LAYOUT DESIGNS



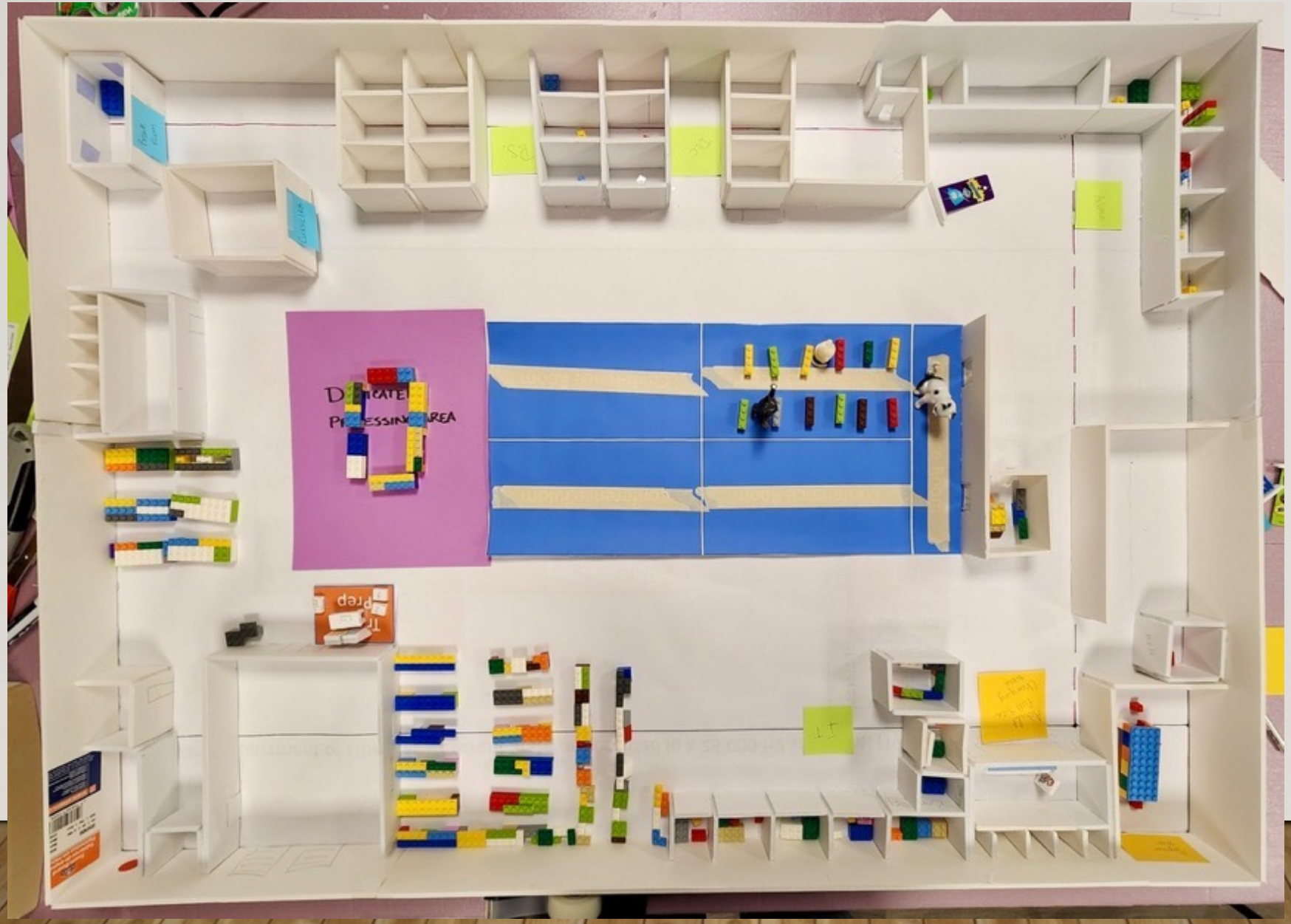
CONSOLIDATING THE BEST DESIGN IDEAS (2D)

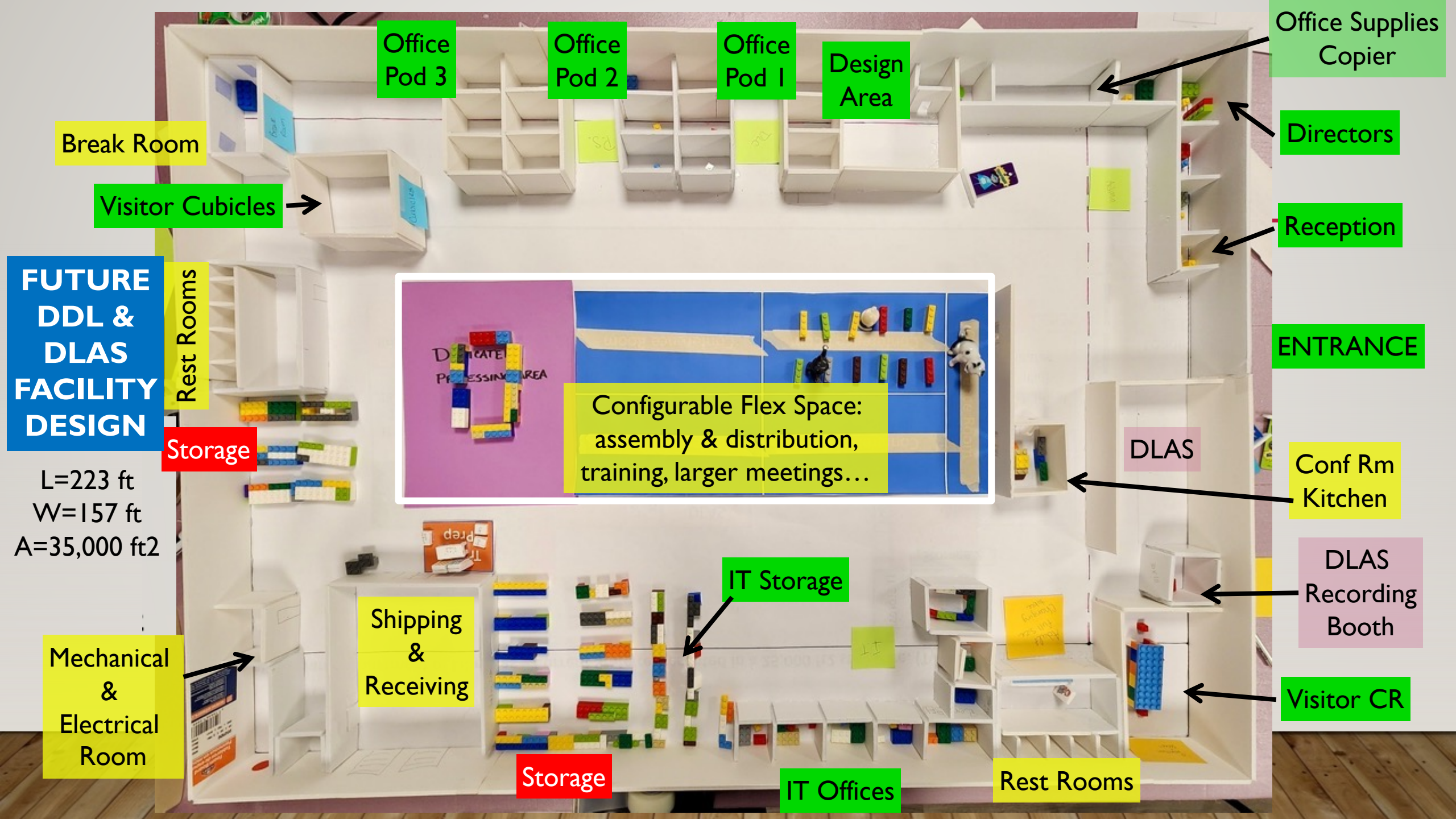
After assessing the thirteen alternative layout designs, the entire team worked to create a final design in 2D. This design was based on a 35,000 ft sq space. This is the design that was physically modeled.

The physical model allowed significantly more detail to be built into the design, increasing the level of understanding relative to future needs and benefits.



CONVERGING ON THE BEST MODEL

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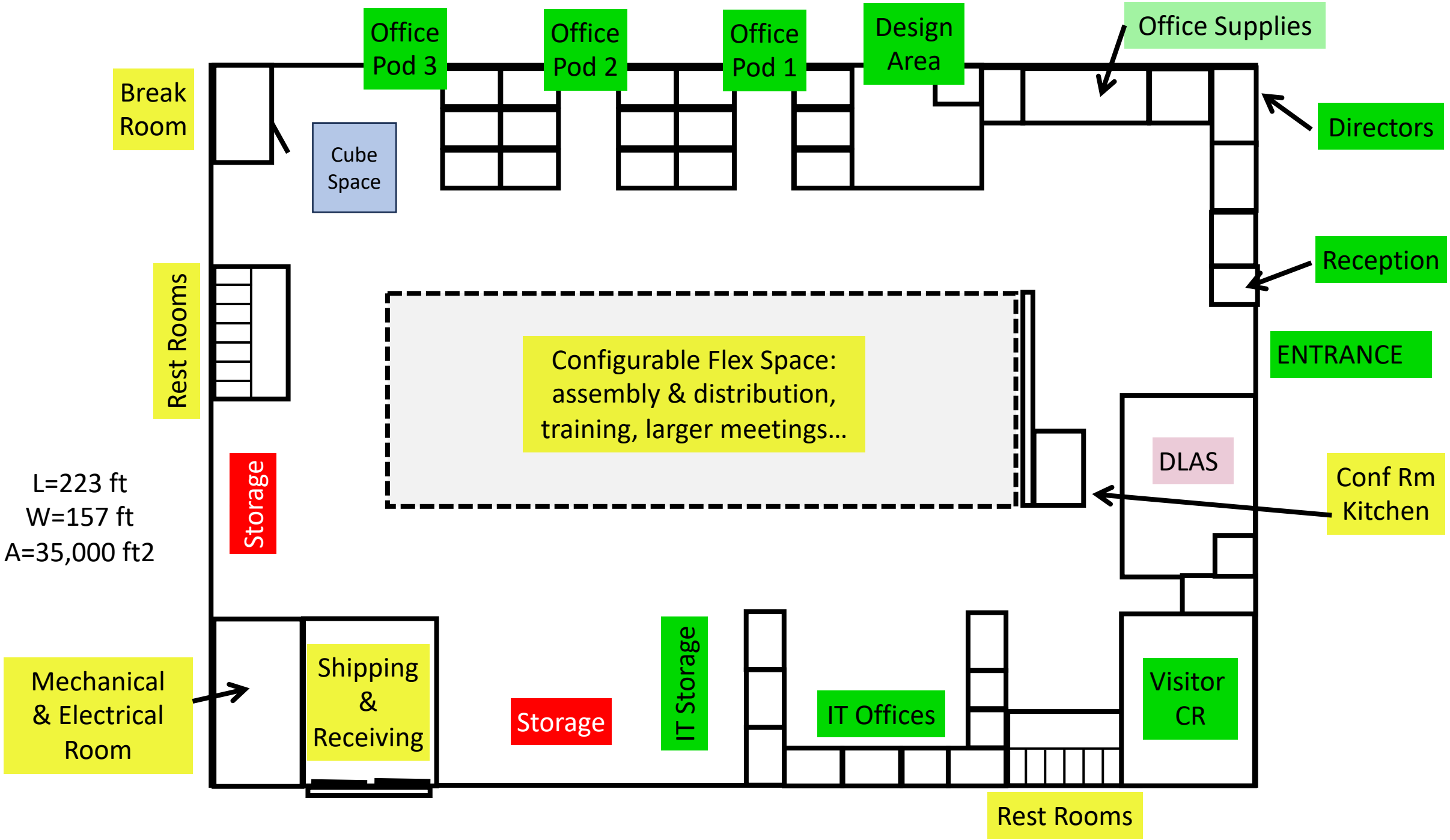
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DIFFERENT VIEWS OF THE FINAL LAYOUT DESIGN MODEL

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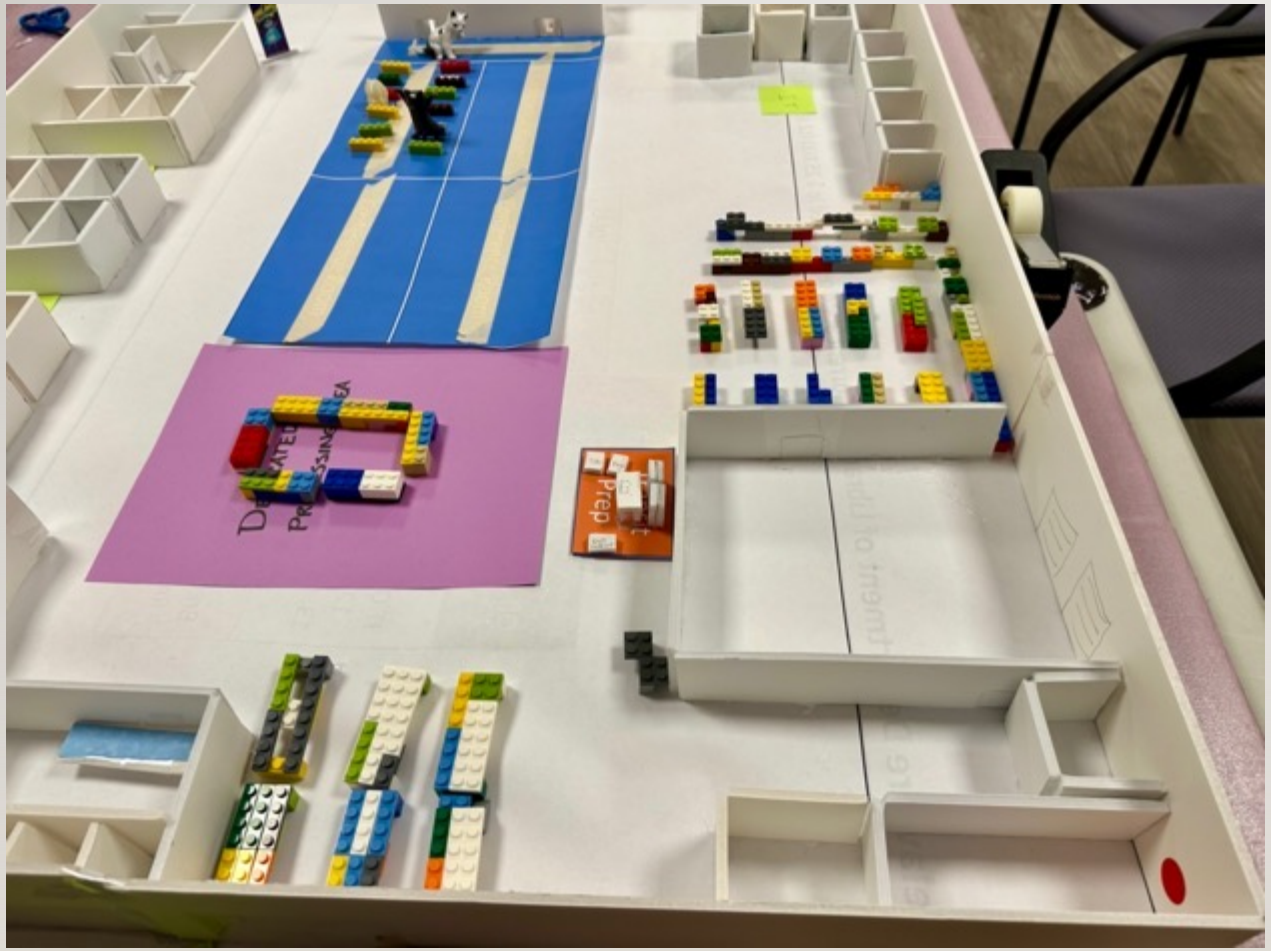

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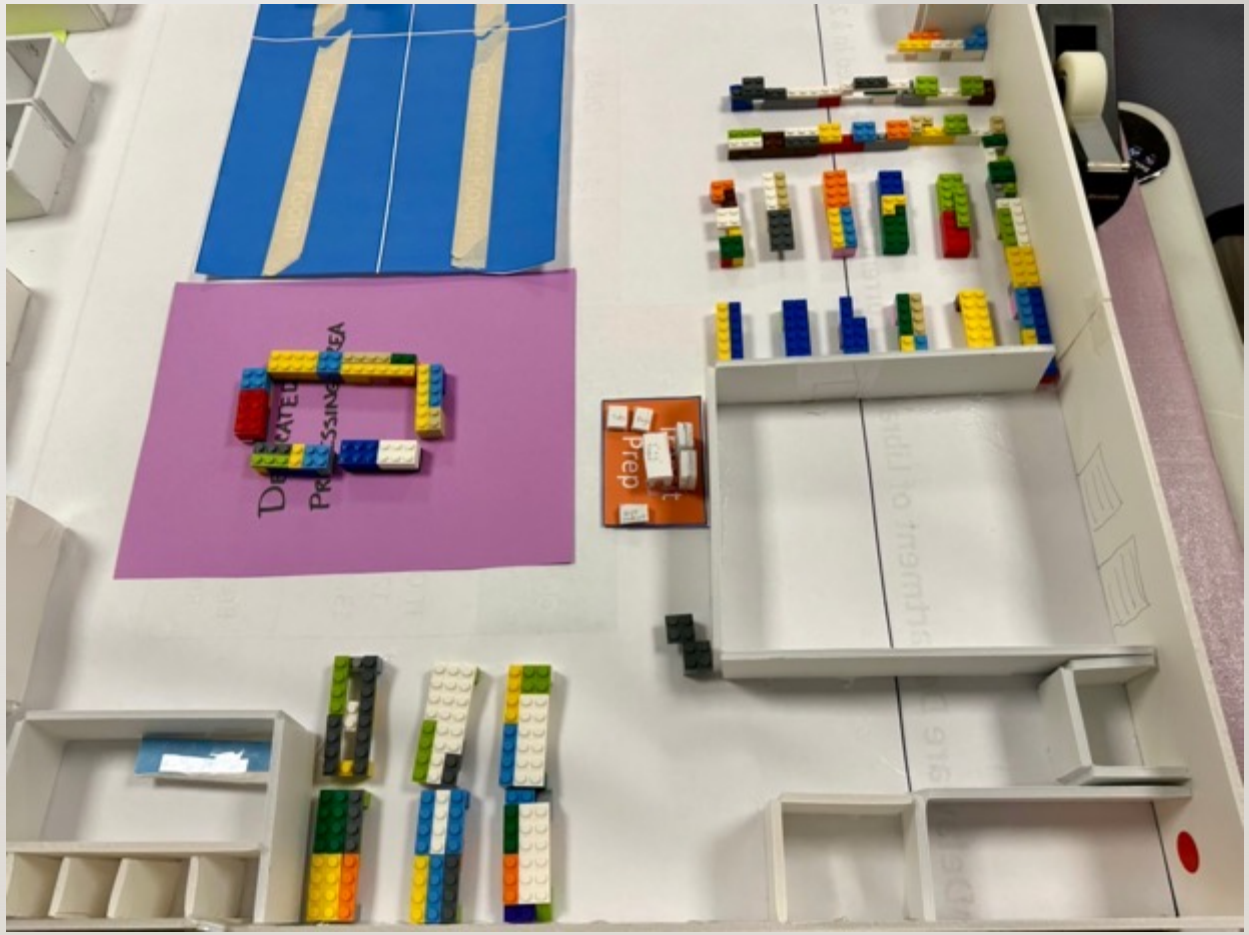


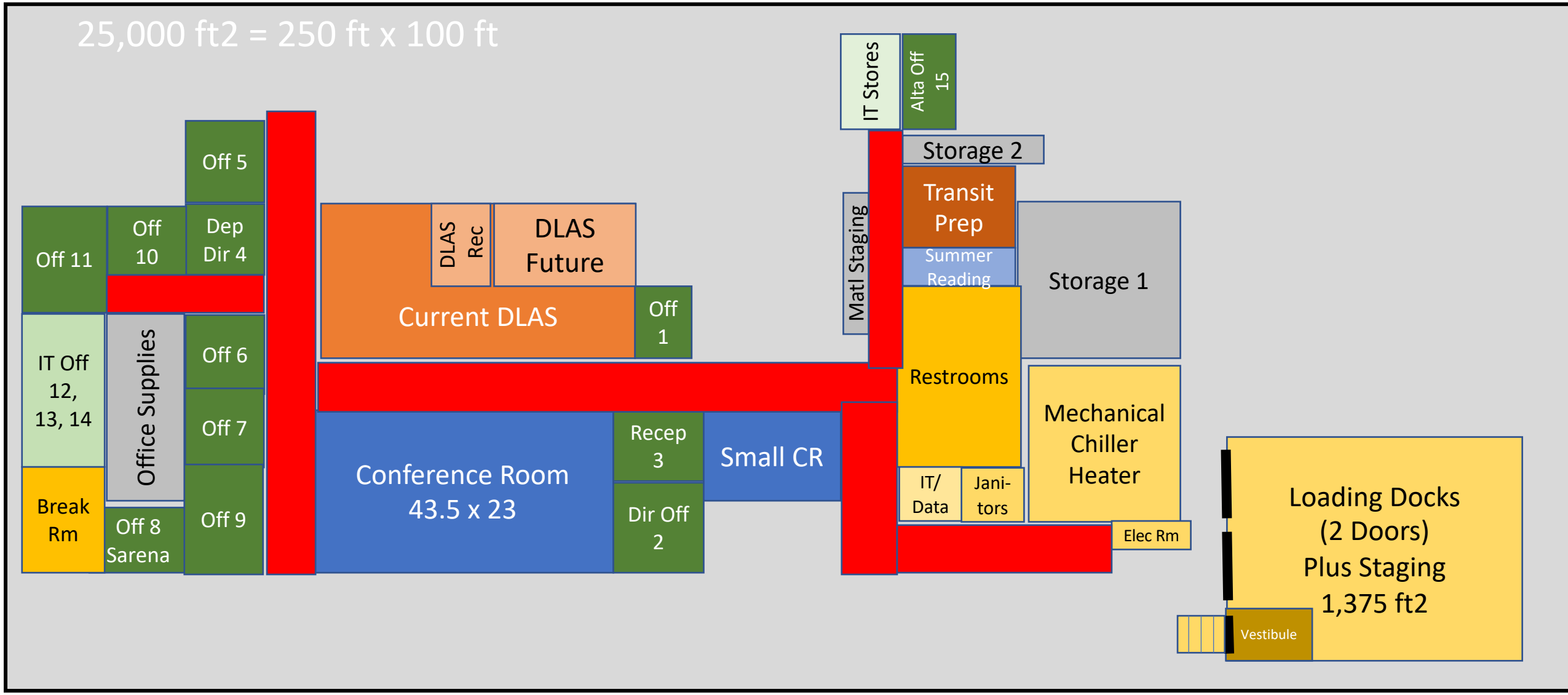
3P REPORT OUT SESSION (TYPICAL)

The DDL team did not have time to complete an event report out due to time constraints, however the main benefits were

- Review the final prototype model
  - Key benefits
  - Significant changes
  - Spaghetti Diagram to indicate flow of materials and people
- Benefits and Project Planning Team
  - High-level project plan with Timing
  - Milestones for achieving additional Capacity
  - Estimated Capital Costs and Ongoing Cost Impacts
  - Resources, Risks and Mitigation
  - Next Steps, follow-up actions, plan to keep team engaged

Delaware Division of Libraries – Current State in Archives Building (~10,000 ft2) Assumes a typical shipping/receiving area (1,375 ft2)

Delaware Division of Libraries – Current State represented in a 25,000 ft2 structure. (Typical loading docks shown)



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