

25<sup>TH</sup> ANNUAL



25<sup>TH</sup> LCI CONGRESS  
OCTOBER 24-27, 2023

# Optimizing Design & Construction Methods with Lean Principles

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**25 YEARS OF LEARNING: SUPERCHARGE YOUR LEAN JOURNEY IN THE MOTOR CITY**

OCTOBER 26, 2023



# Agenda

- Introduction to the Project
- Lean Journey
- Lessons Learned
- Project Recognition
- Q&A





# Introduction to the Project





# McLaren Greater Lansing – Outpatient Care Center and Karmanos Cancer Institute

- Part of McLaren Greater Lansing Replacement Hospital Campus
- Outpatient Care Center
- Cancer Center
- Academic/Business Functions





# Project Statistics

- 3 Stories & Lower Level
- 170,000 SF
- \$69M Construction Cost
- \$26M Owner Direct Costs
  - Medical Equipment, IT, FFE, Signage, Specialty Consultants, Etc.





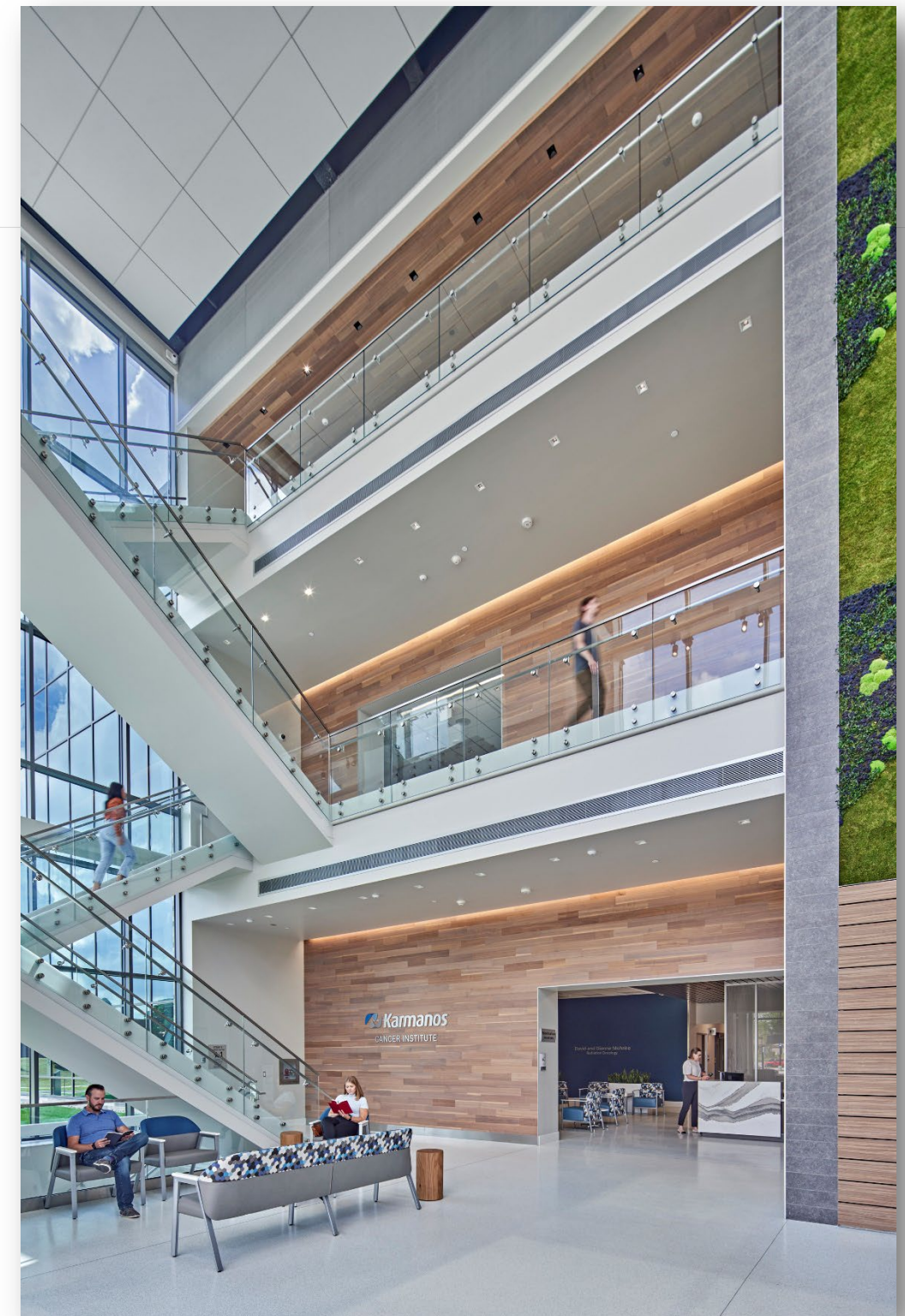
# Vision

***McLaren Guiding Principle: “To provide healthcare as we expect for our own family.”***

***Create:***

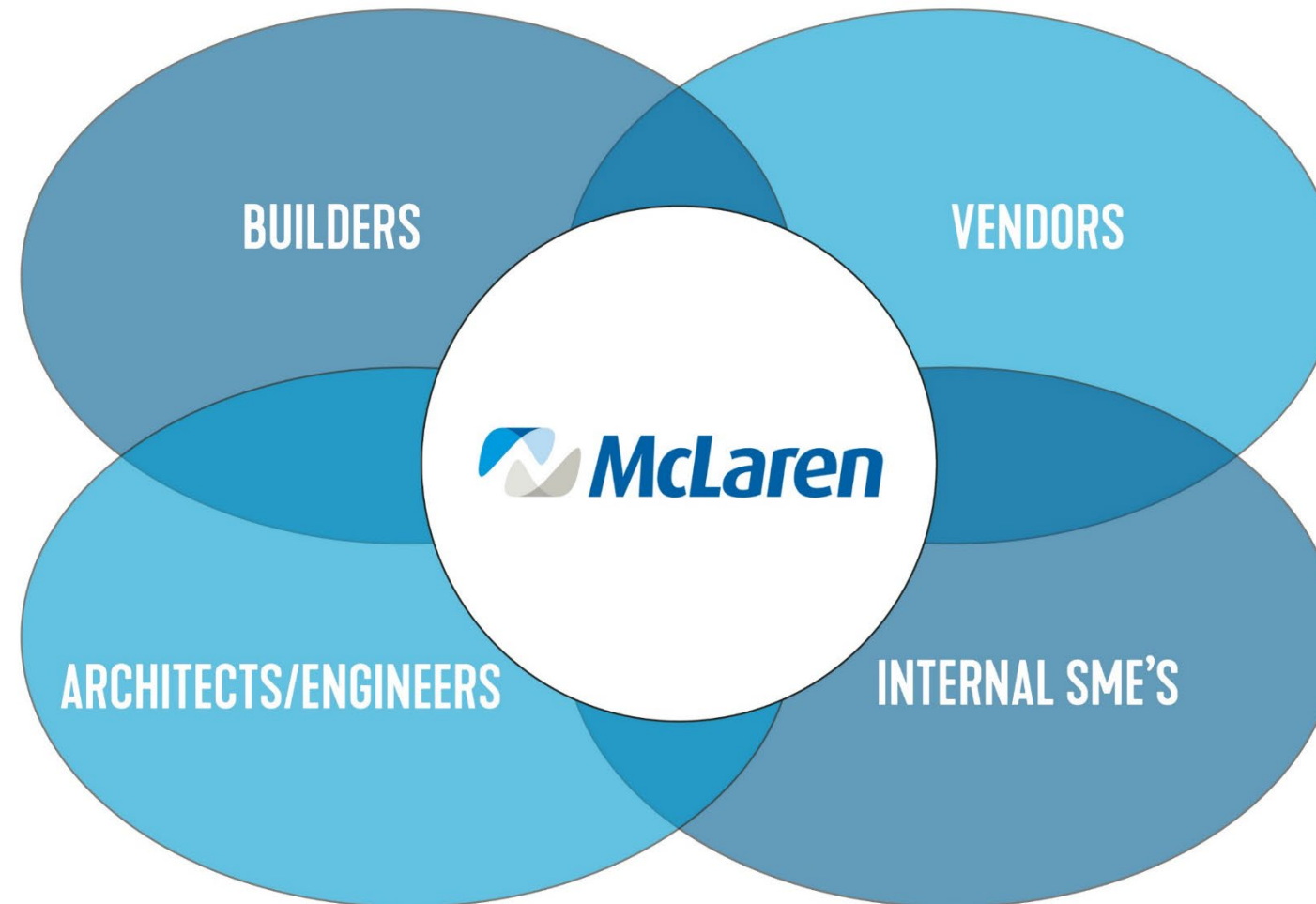
***An experience that is part of the campus but not a copy of the hospital ... like a sibling but not a twin.***

***An experience that expresses both forward thinking technology and warmth ... like a forest in a BMW.***



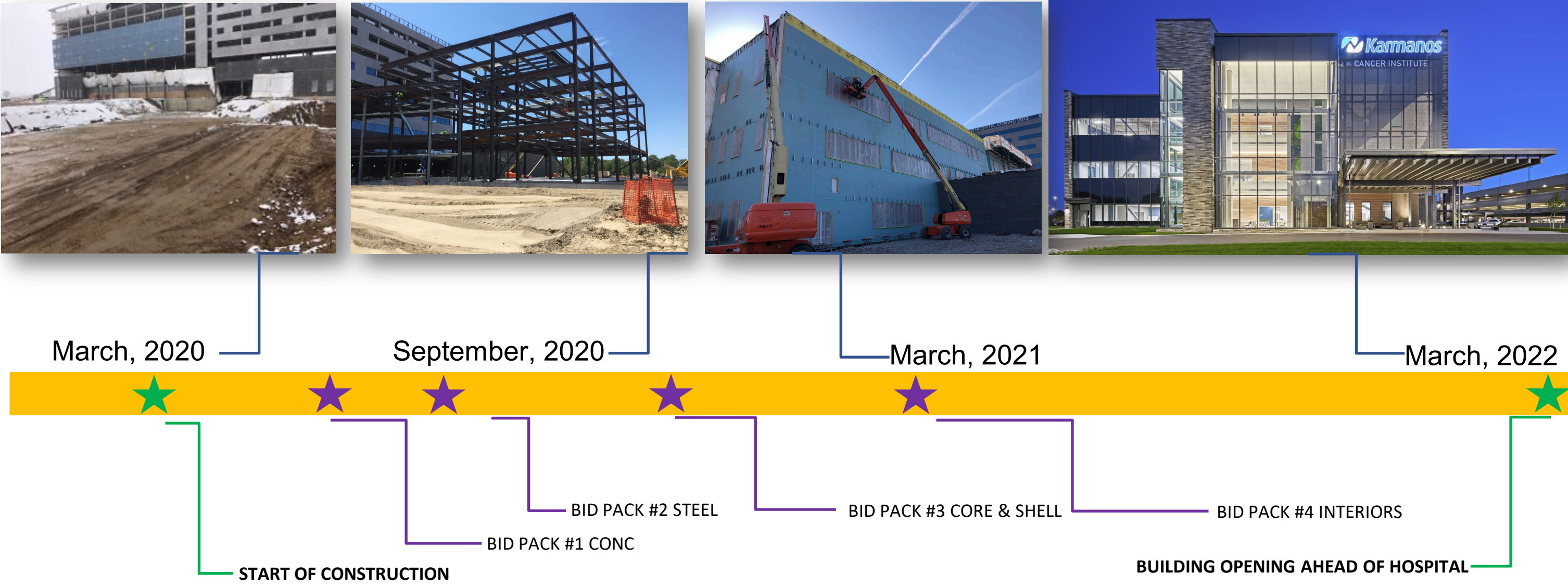


# The Team – More Than Bricks & Mortar





# Schedule





# Lean Approach

- Project Team Selection
- Target Value Delivery / Manage Financial Goals
- Communication Technology / Technique
- Design Assist / Prefabrication
- Project Vision Consensus
- Decision Making Process





# Lean Journey





# Partner Selection: Design Team and Construction Partners





# Design Assist Trade Partner Selection Qualifications

Design Assist  
Trade Partners

“Partners” not  
Subcontractors

Healthcare & Design  
Assist Experience

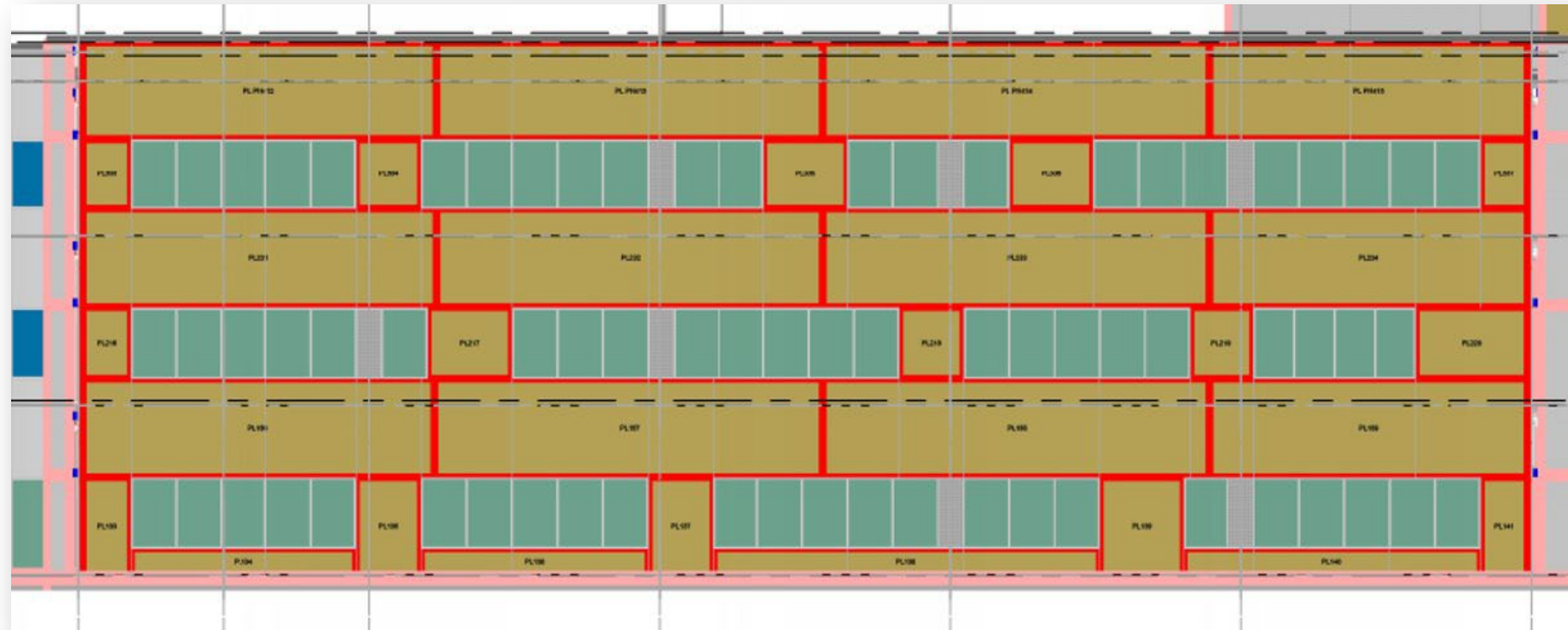
Comfortable /  
Familiar with Cost +  
Fee GMP contract





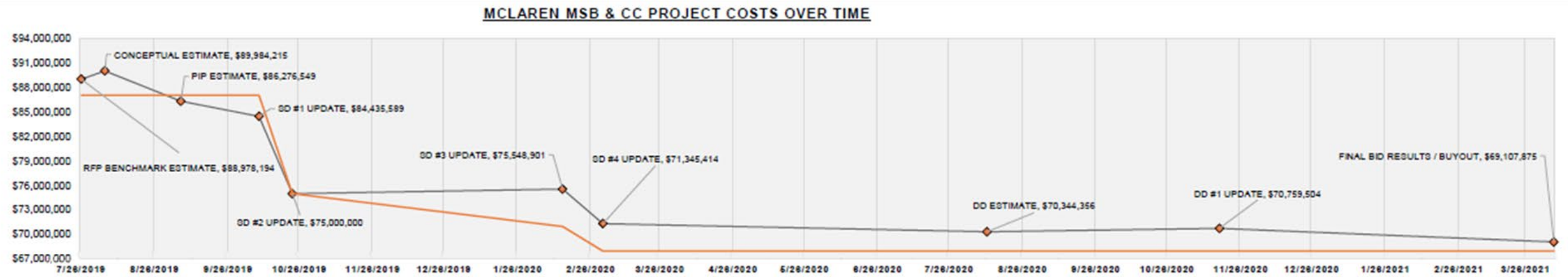
# Onboarding Design Assist Trade Partners

- Design input started during post-bid interviews
- Initial design ideas reviewed
- Pre-fabrication abilities and proposed solutions
- Drawing inference understanding





# Target Value Delivery



RFP - 7/26/2019



Conceptual & PIP Est - 8/5/2019 & 9/6/2019



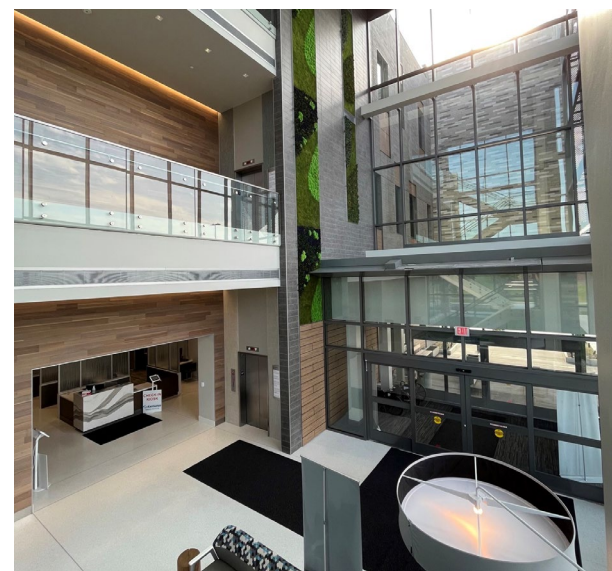
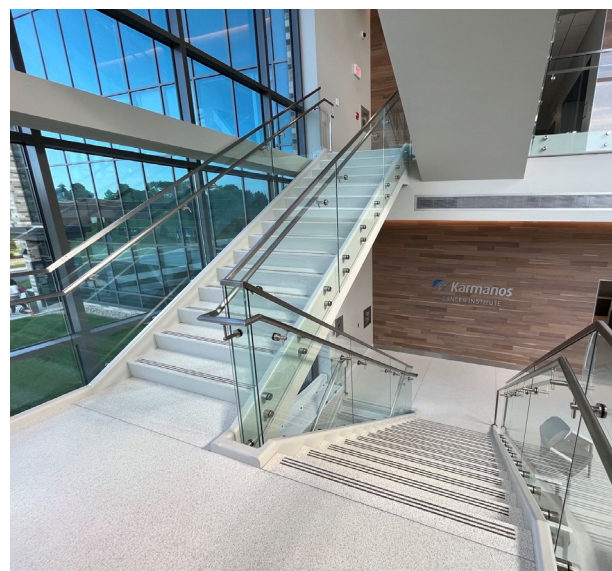
SD Update #1 - 10/9/2019



SD Update #3 - 2/14/2020 & DD Estimate - 8/11/2020

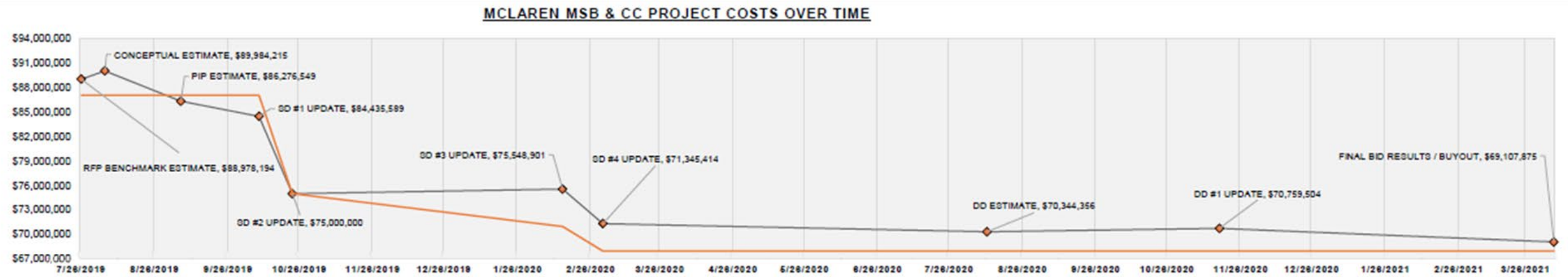








# Target Value Delivery



RFP - 7/26/2019



Conceptual & PIP Est - 8/5/2019 & 9/6/2019



SD Update #1 - 10/9/2019



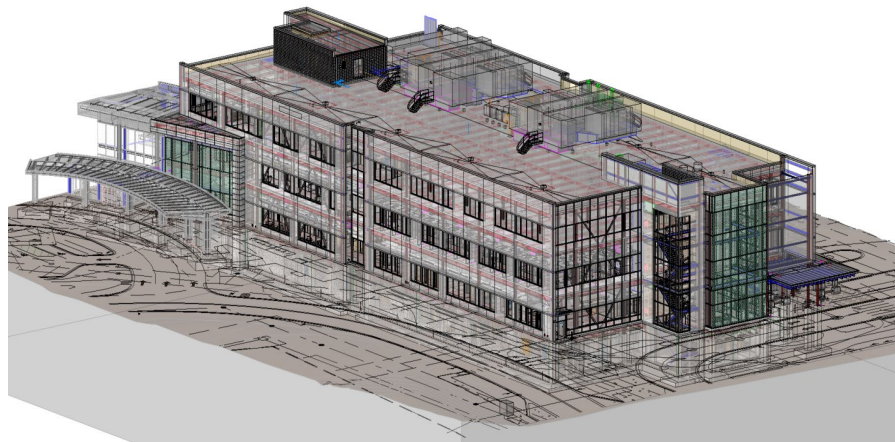
SD Update #3 - 2/14/2020 & DD Estimate - 8/11/2020





# Communication

- Design work sessions
- BIM Process & Virtual Design
- Project Team Co-location





# Prefabrication

1. Design Assist Partner Message
2. Prefabrication Examples Employed
3. Other Notable Strategies





# Project Vision Consensus / Decision Making Process



Priority Pyramid



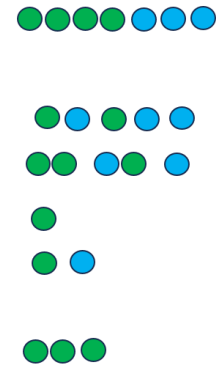
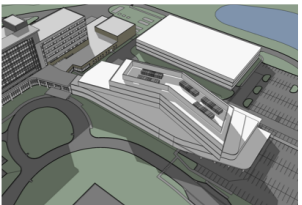
Mock-Ups

## PROS AND CONS

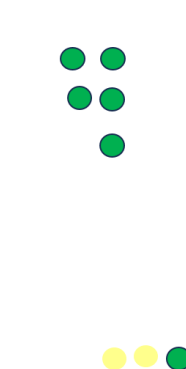
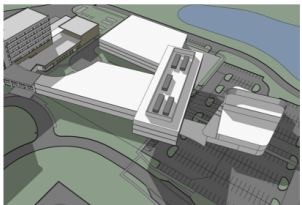
### CHOOSING BY ADVANTAGES

- SUPPORTS OPERATIONAL EFFICIENCIES
- SUPPORTS ISOLATION OF MSB + CANCER
- SUPPORTS MOST EFFICIENT TRAVEL DISTANCE
- ALLOWS FOR FUTURE EXPANSION
- PROMOTES BEST PROGRAMMATIC ADJACENCIES
- OPTIMALLY LOCATES ENTRIES
- PROMOTES CANCER CENTER BRANDING + IDENTITY
- FLEXIBILITY

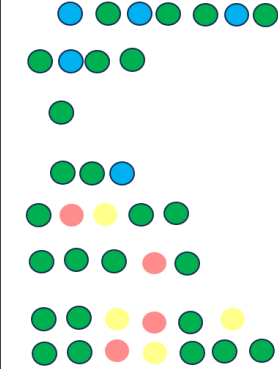
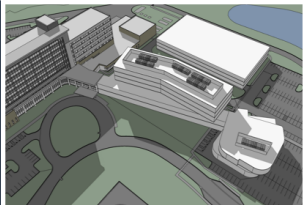
### EMBEDDED



### SEPARATED



### CONNECTED



Decision Making



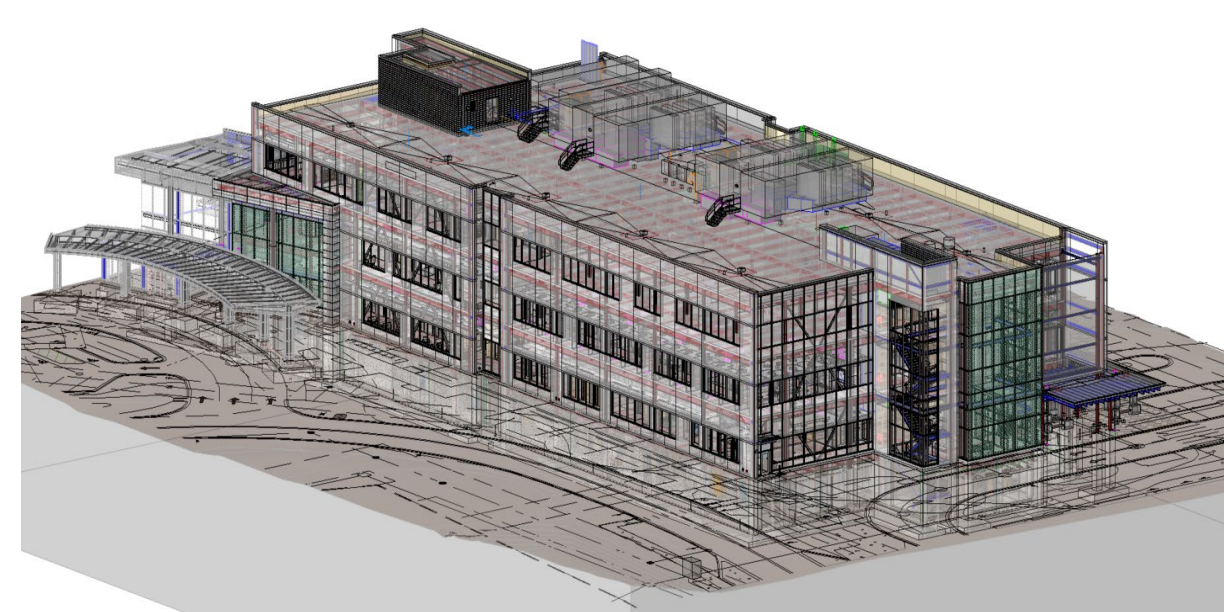
# Lessons Learned





# Critical Lean Tools

- 3P Rules of Engagement – Blue Sky versus Partly Sunny
- Panelization Design Assist Partner on-boarding earlier
- Establish early on Design Intent with Design Assist
- BIM documentation standards for Design Assist partners
- Risk tolerant (contractor mindset) versus conservative approach to the design.





# What Worked Well?

- Timing of onboarding and defining responsibilities
- Partners are an extension of the Design Team
- Subject Matter Experts engagement at the right time
- Group Pull Planning
- Saved a key element of the design



**BIM ROLES & RESPONSIBILITY MATRIX**

	Smith Group		DA Partners					
Mechanical	80%SD	100%SD	80%DD	100% DD	80%CD	100%CD	Shop Drawings	As Built
Duct Layout								
Piping Layout								
Diffuser Layout								
Equipment Layout								
Schedule Maintenance								
Sheet Creation								
Details								
Digrams								
Controls								
Notes, Legends, Symbols								
Specifications								



# Project Recognition





# Project Success





# How can you apply this tomorrow?





# Q&A





# Contact Us

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**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.**





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**Thank you for attending this presentation. Enjoy the rest of the 25<sup>th</sup> Annual LCI Congress!**