

26TH ANNUAL



26TH LCI CONGRESS

OCTOBER 22-25, 2024

What Happens When Everything Goes Right?

Greg Sloniger, HDR Architecture, Inc.

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Mike Doiel, HDR Architecture, Inc

Justin Harding, Jamerson & Bauwens Electrical Contractors Inc

Brian Mullen, Pepper Construction Company

SURFING THE WAVE OF LEAN DESIGN AND CONSTRUCTION

OCTOBER 24, 2024

Agenda

1. Introduction to Advocate Health
2. Project Overview
3. Optimizing the Whole
4. Lean Collaboration
5. Continuous Improvement
6. Respect for People
7. *What Happens When Everything Goes Right*



Introduction to Advocate Health





**A Combination of Four Legacy Institutions Who Joined Forces
to Chart a New Future Together**



Where Bigger Meets Better

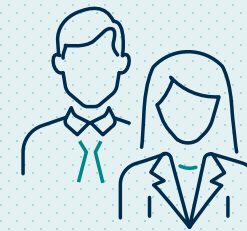
Empowered to Do More as an Integrated System



Nearly
6M
Unique Patients



\$28.2B
Revenue



Nearly
155K
Teammates



22K
Aligned and Medical
Staff Physicians



41K
Nurses



8K
Employed Physicians



1K+
Ambulatory Locations



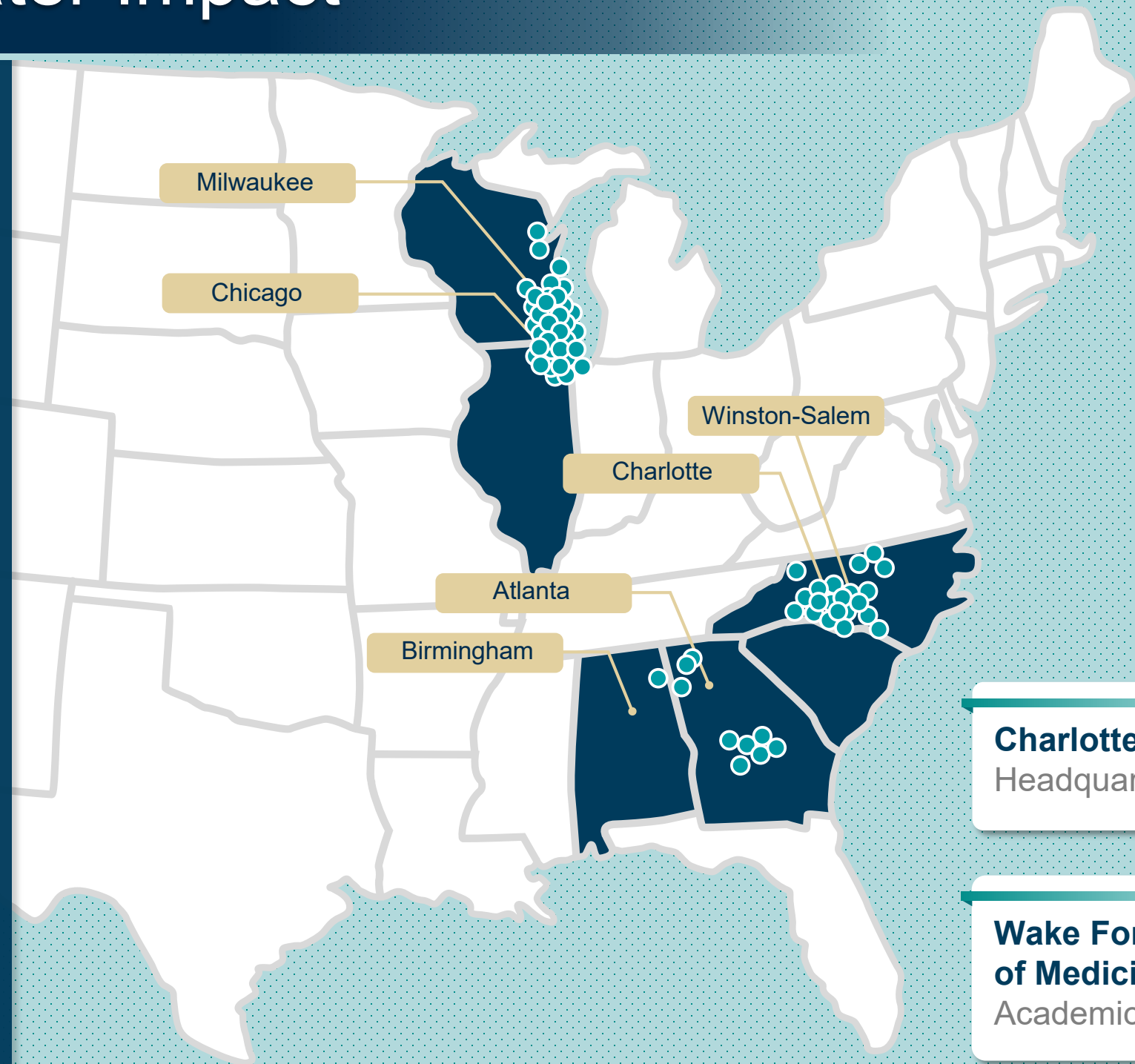
68
Hospital Locations



Nearly
\$6B
Community Benefit

Greater Reach – Greater Impact

50 million
individuals reside
across our footprint



Charlotte, NC
Headquarters

**Wake Forest University School
of Medicine**
Academic Core

ACMC Is Largest Metropolitan Trauma Center

802
BEDS

1,792
PHYSICIANS

95
SPECIALTIES

2,823
NURSES

400+
RESIDENTS

600+
MEDICAL STUDENTS

PART OF A
TOP 3
NOT-FOR-PROFIT HEALTH
SYSTEM

800+
NURSING STUDENTS

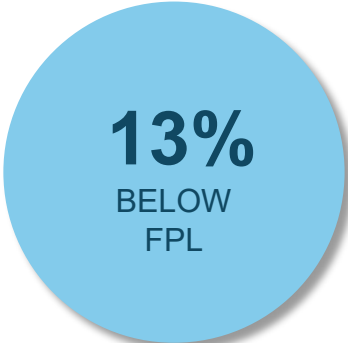
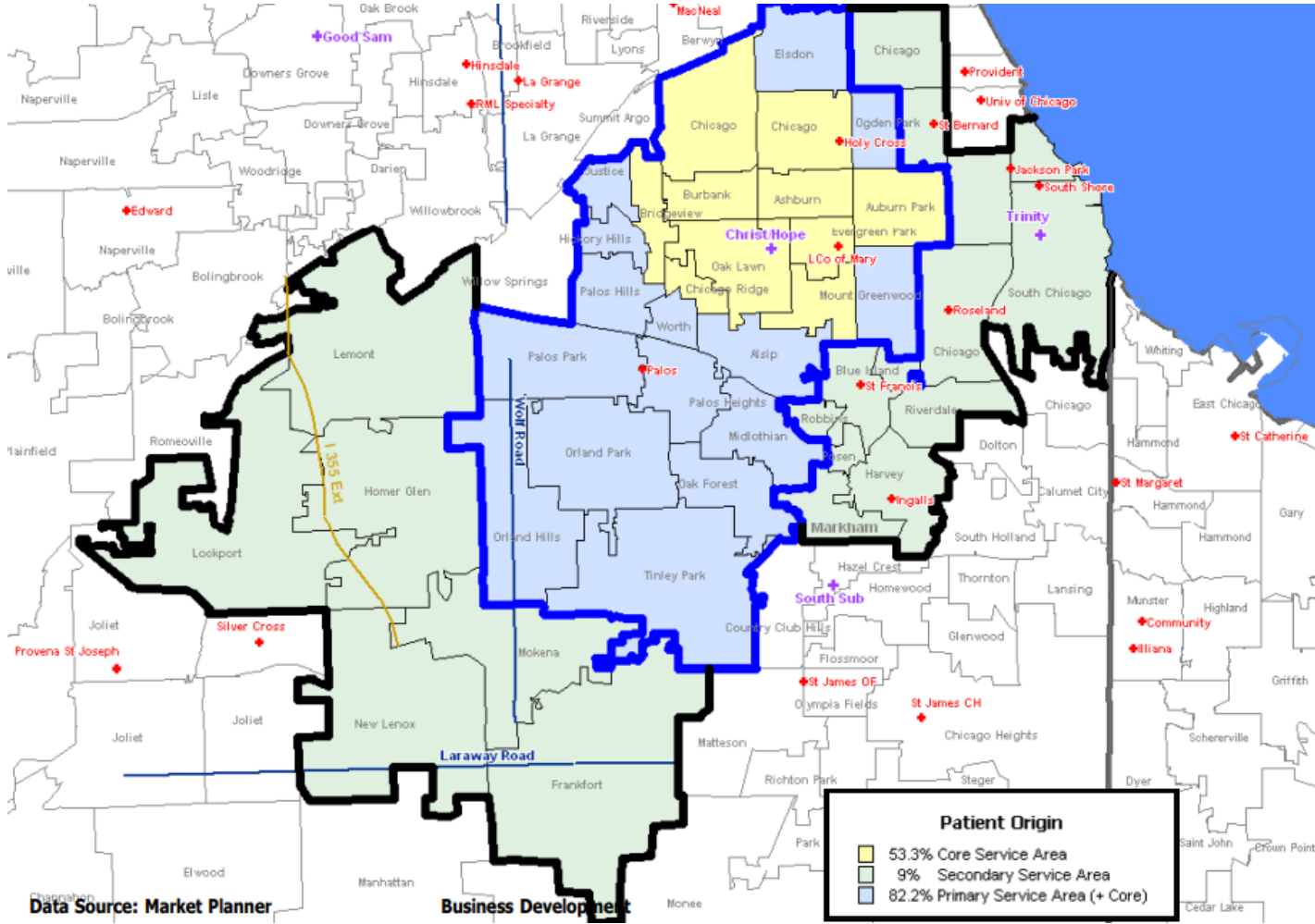
40
OPERATING ROOMS

Level 1
TRAUMA CENTER

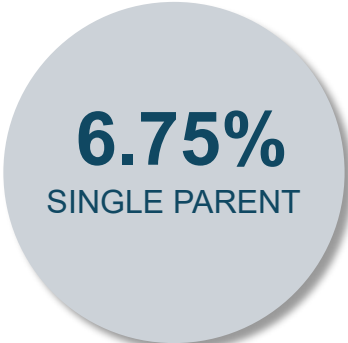
93
ED TREATMENT BAYS

100,000+
ANNUAL ED VISITS

Demographic Overview



12%
ILLINOIS



6.6%
COOK COUNTY



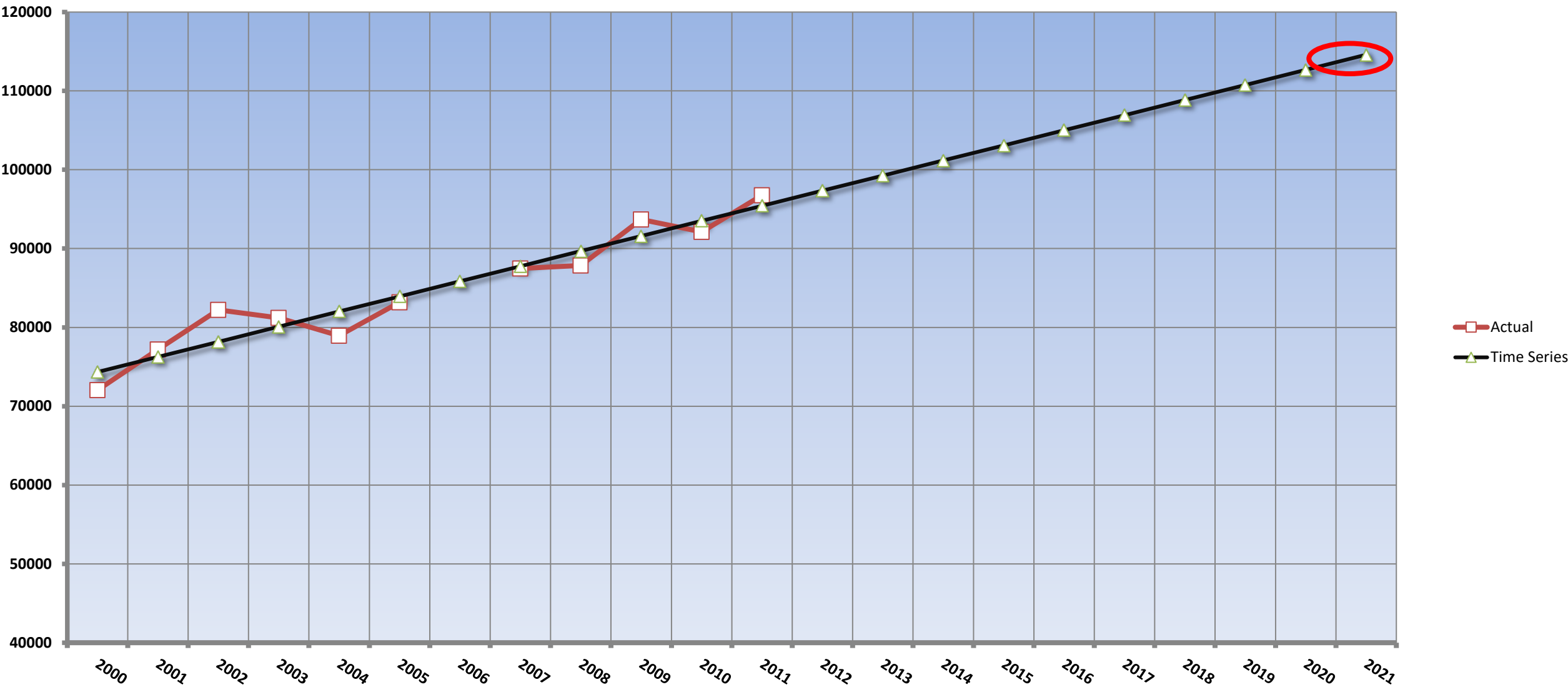
7%
COOK COUNTY

Project Overview



The Why?

Emergency Service Visits Trend Line



Advocate Christ Medical Center Emergency Department

Project Timeline

- Programming Started in 2012
- Certificate of Need Approved in 2015
- Phase 1 ED Delivered via IPD Lite
- Phase 2 ED Delivered via IFOA
- Project was Completed in 2023



Photo Circa 2012

Emergency Department Today



Optimizing the Whole



Vision Statement for ED Redesign

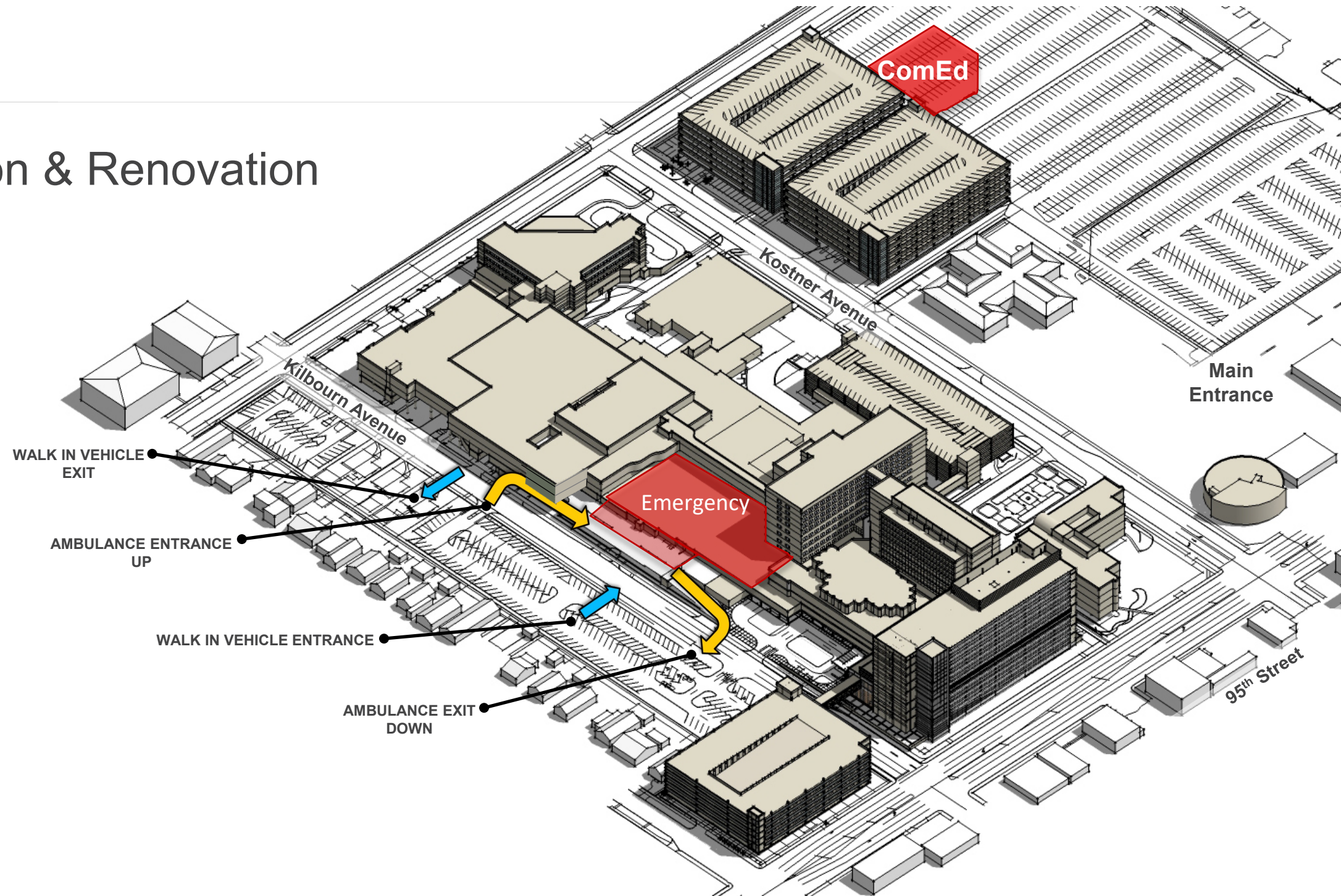
Advocate Christ Medical Center and Advocate Children's Hospital

The Redesigned Emergency Services Department of Advocate Christ Medical Center and Advocate Children's Hospital-Hope Pavilion will Provide for Patient- Centered Delivery of Emergency Care in a Safe, Physically Comfortable and Efficient Environment. The Design will Embody Lean Principles and Ergonomic Design Concepts in a Sustainable & Ecologically Responsible Manner.

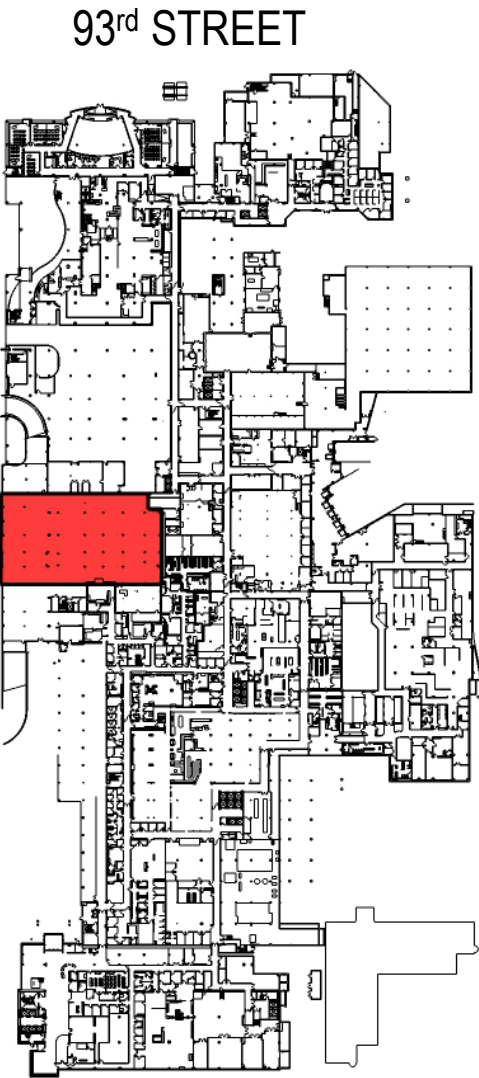


Site Plan

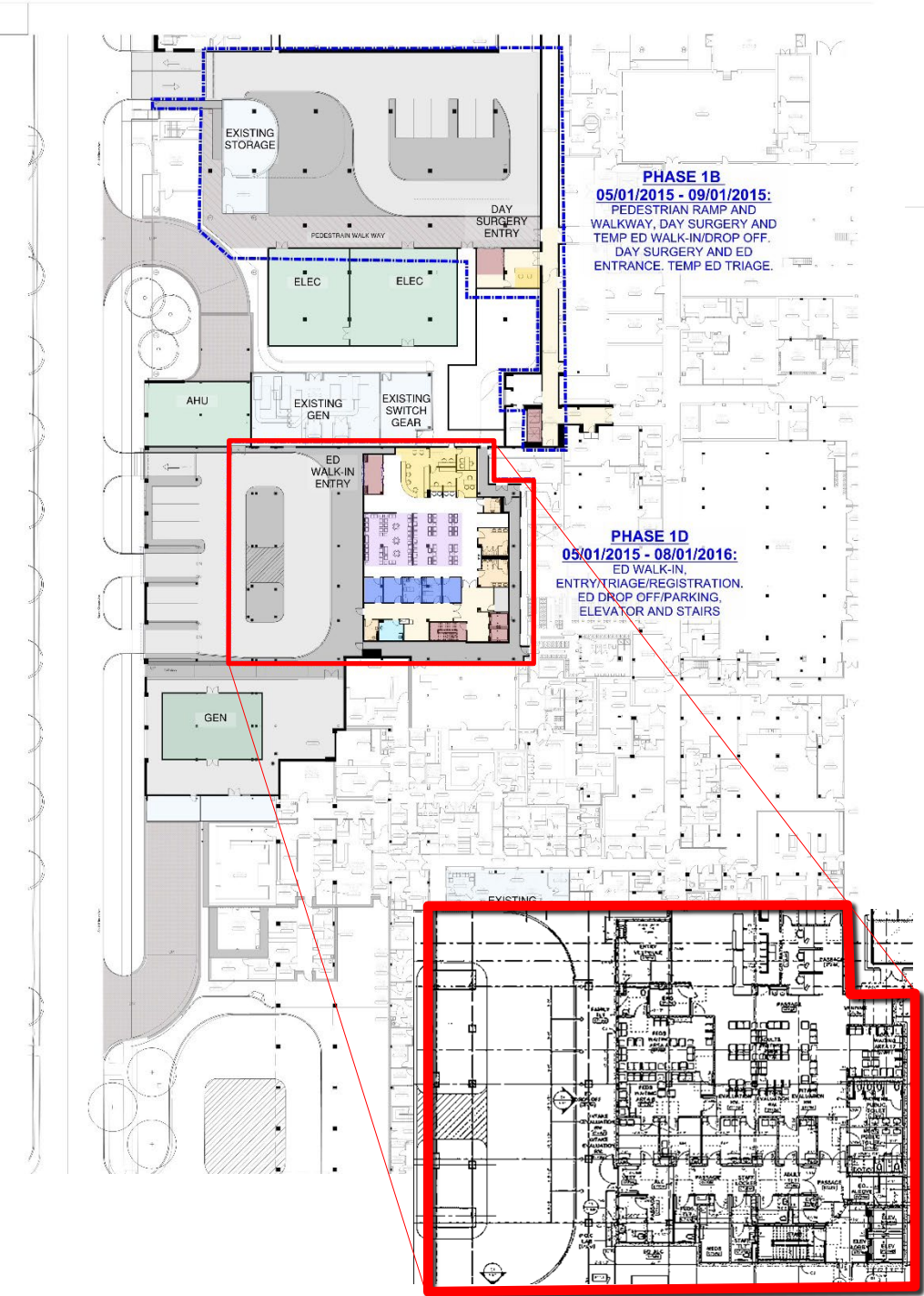
ED Expansion & Renovation



Emergency Phase 1



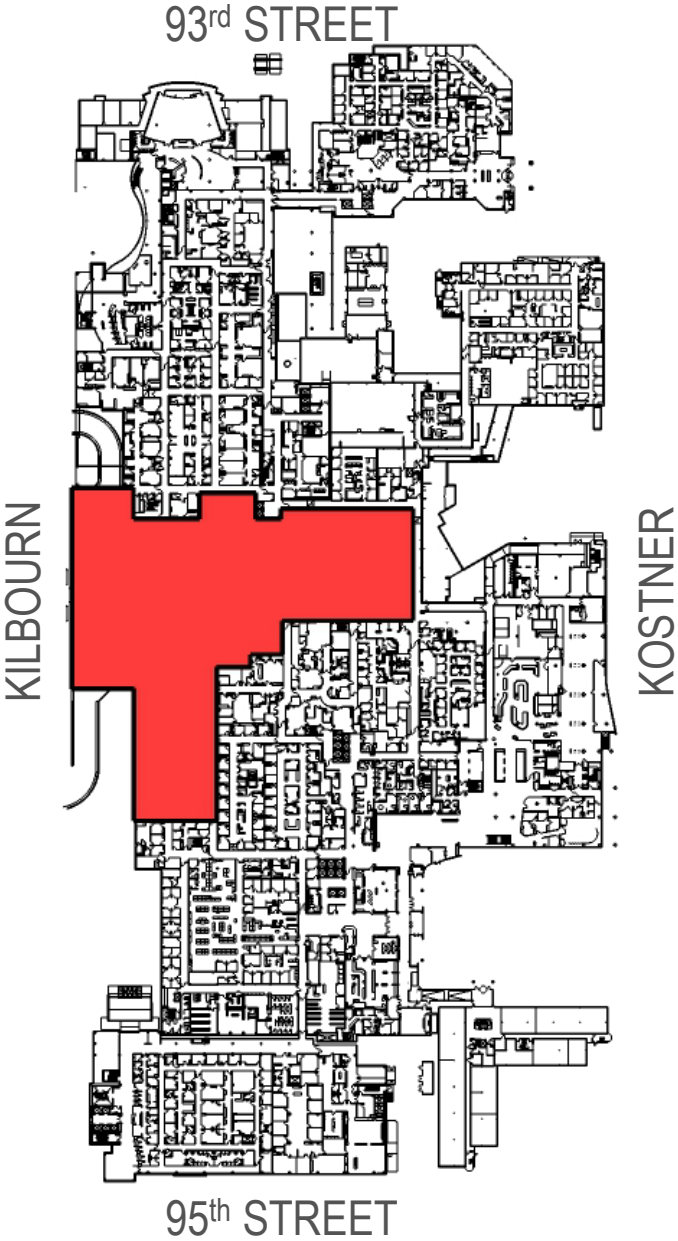
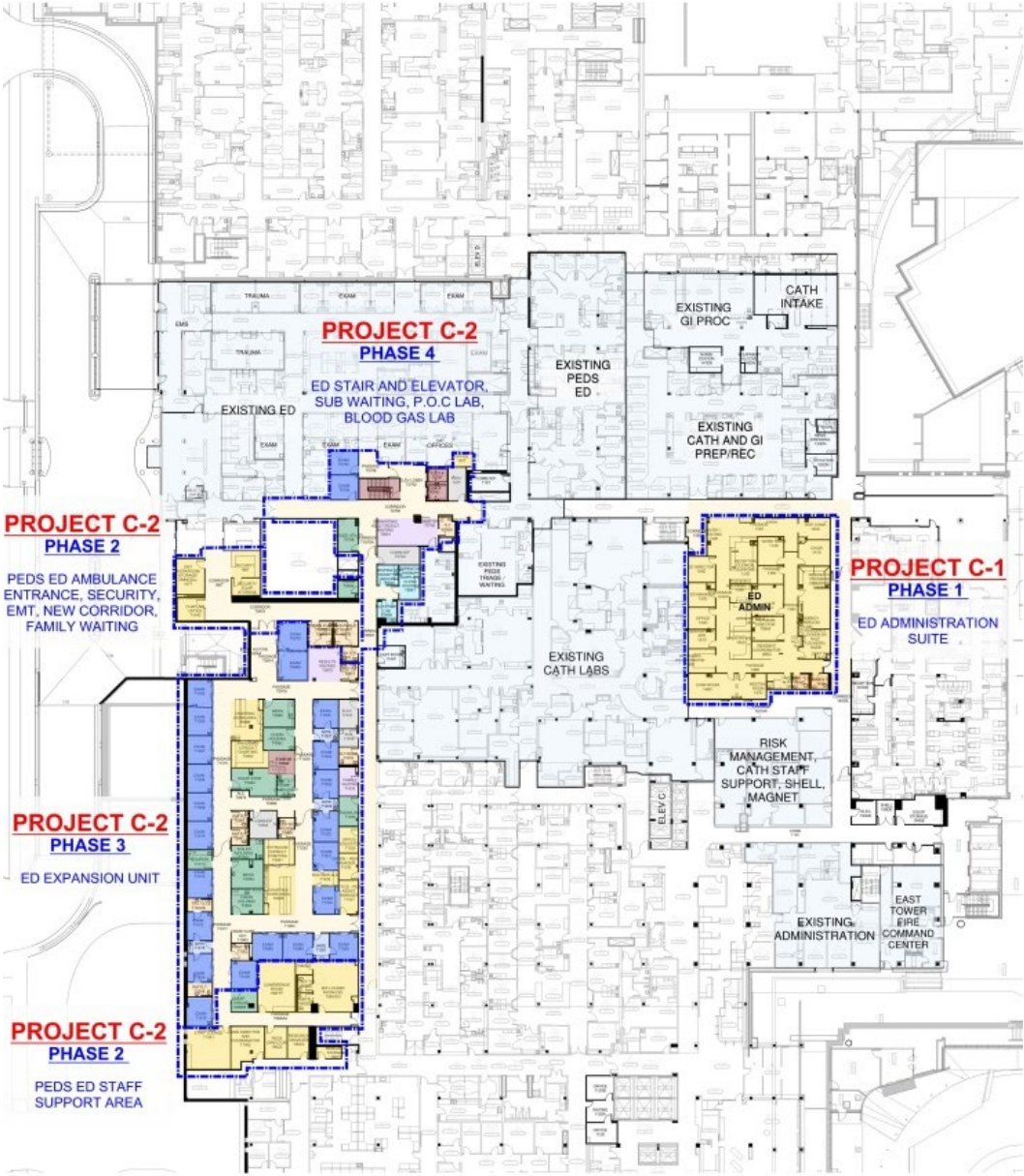
GROUND FLOOR



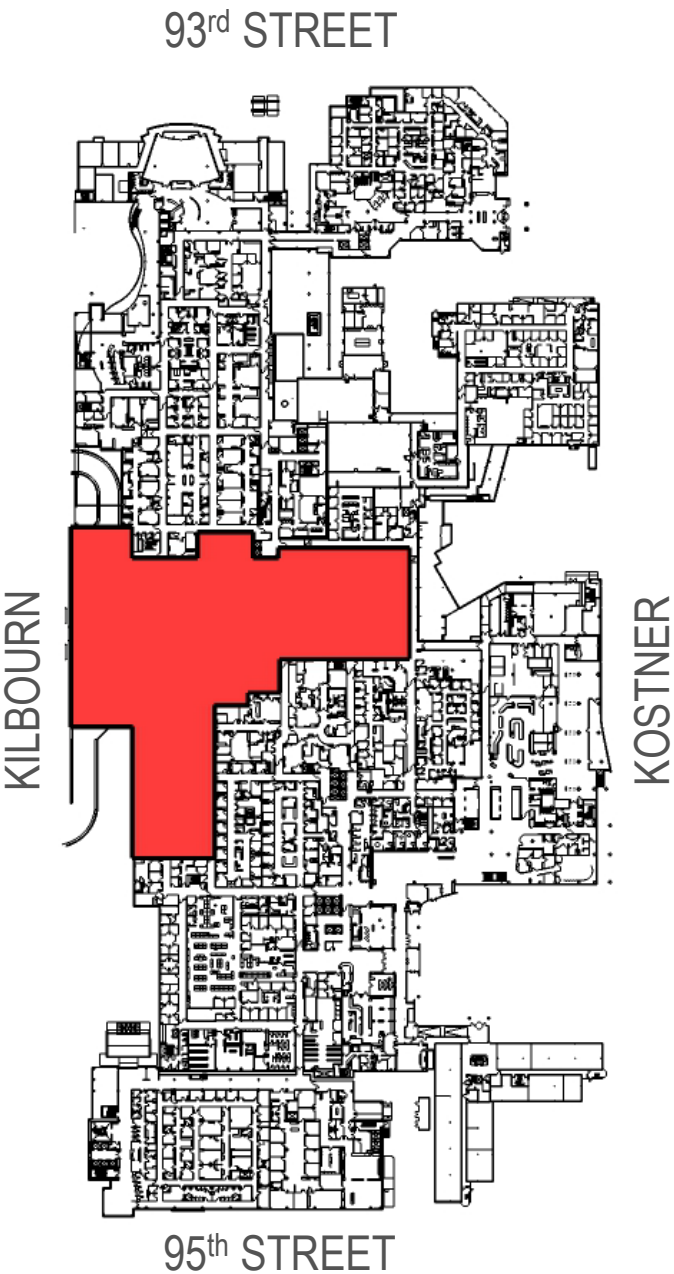
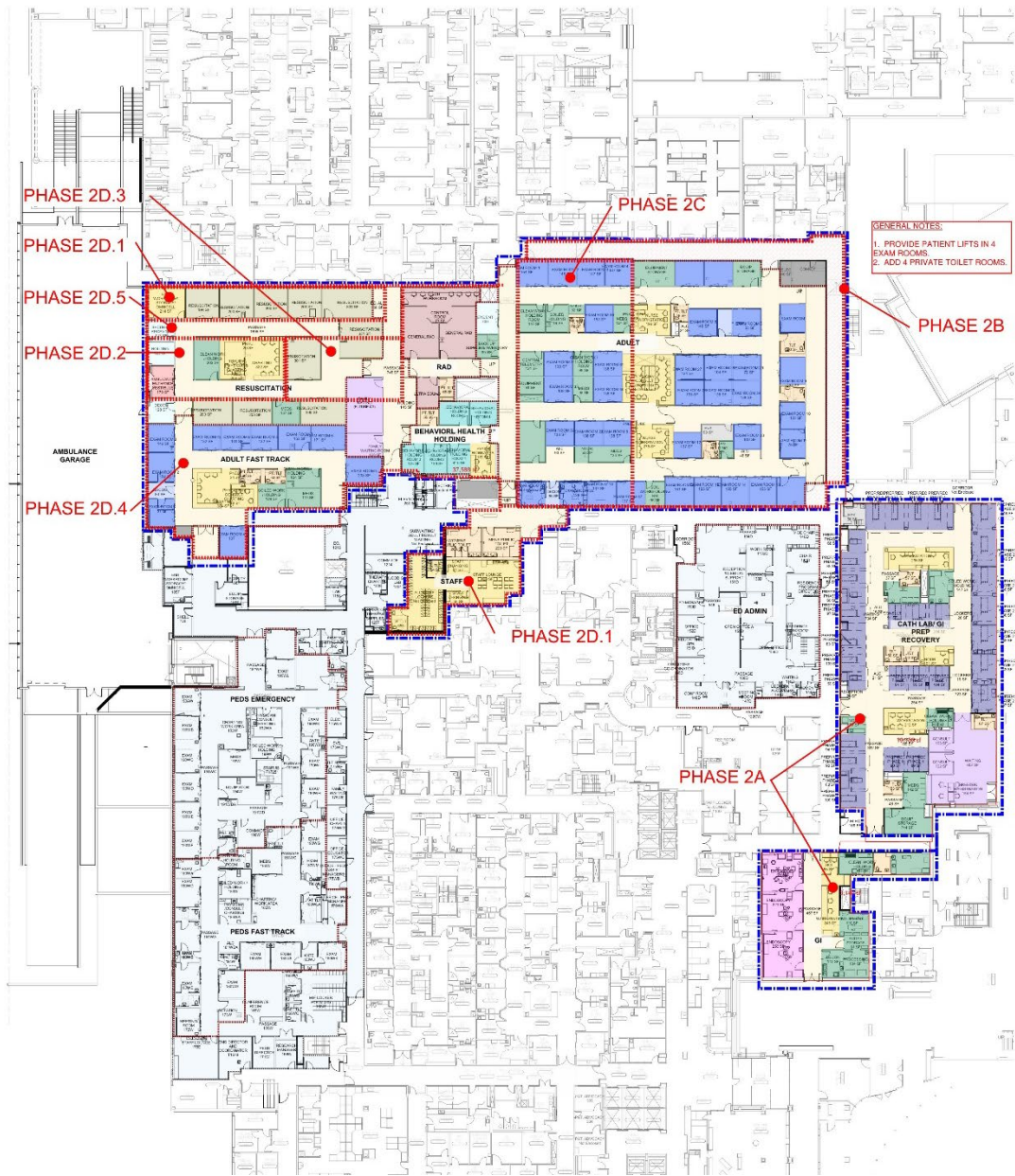
Revision to Ground Floor Reception

Emergency Phase 1

FIRST FLOOR
ED Renovation & Expansion



Emergency Phase 2



1st FLOOR

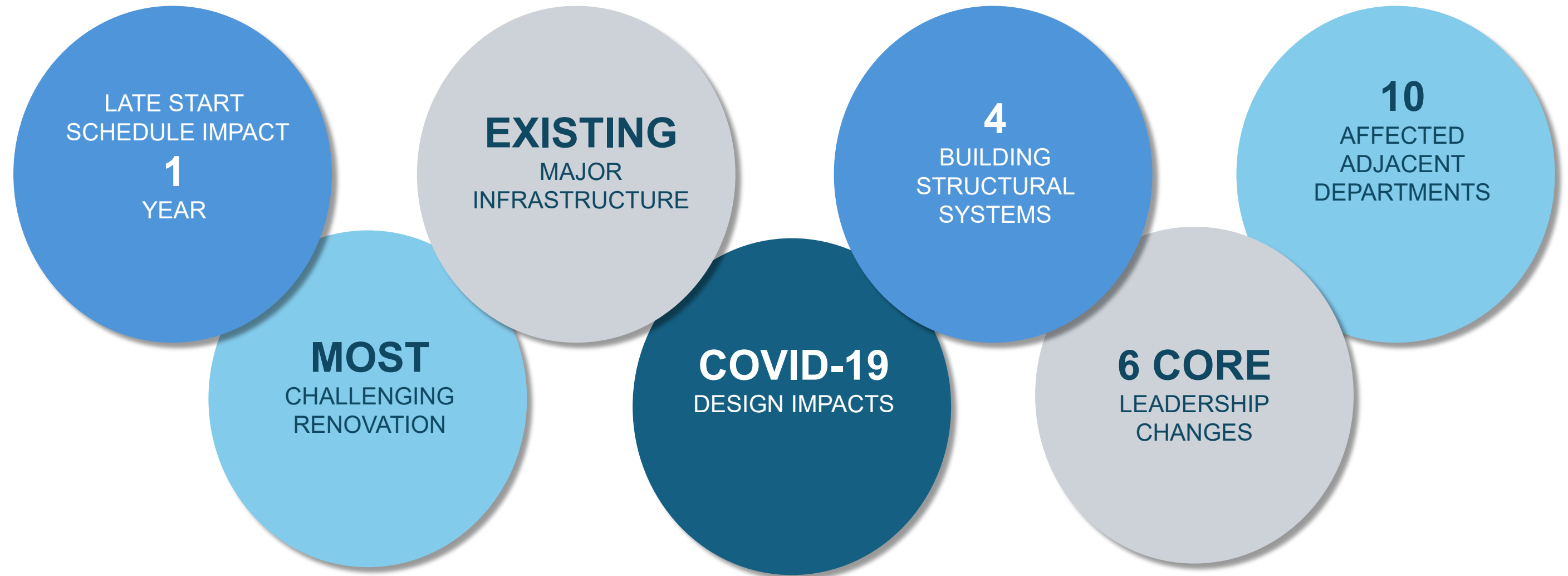
Ed Phase 2 Opportunities

The Ask



Ed Phase 2 Constraints

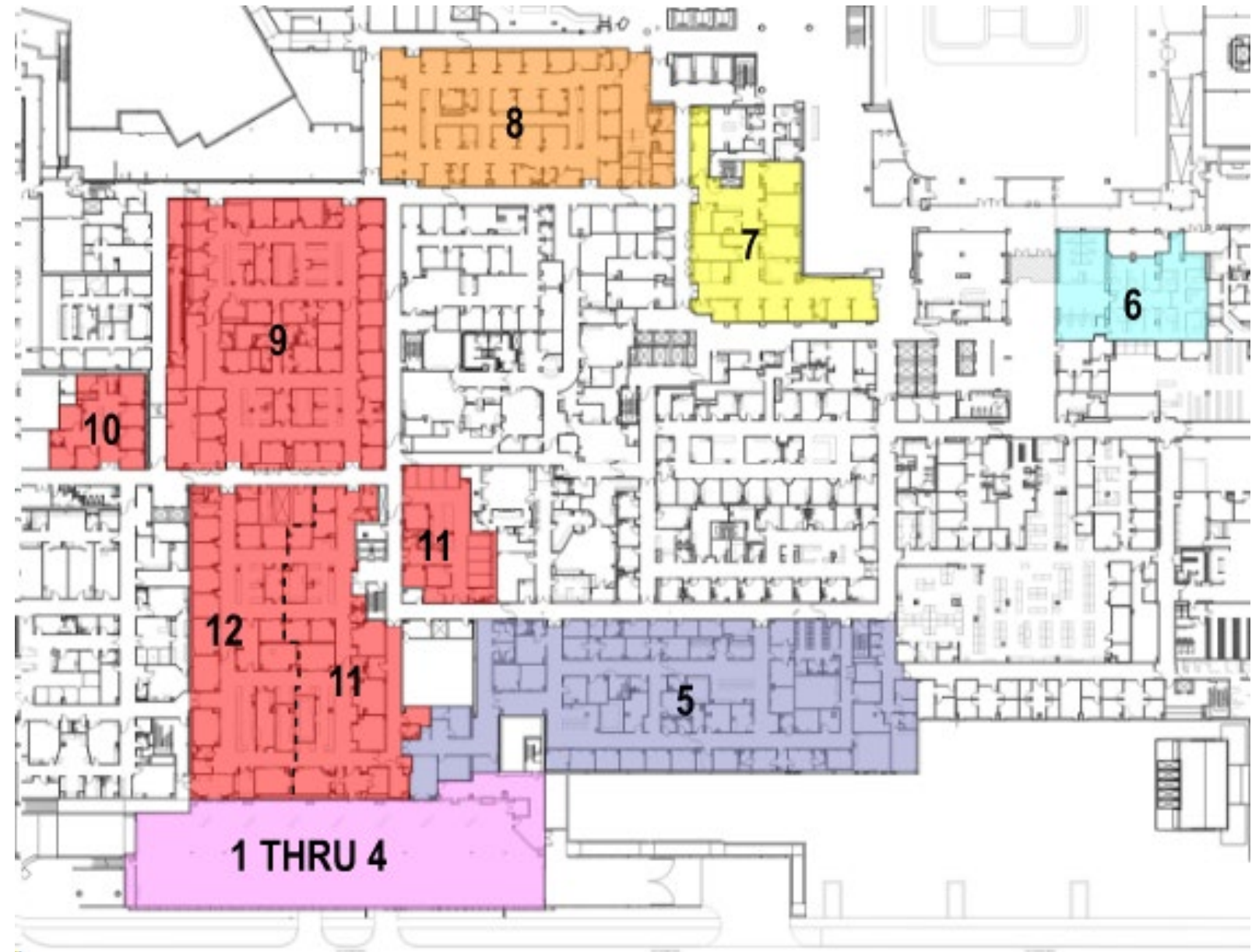
The Hurdles



Multiple Phases of Design & Construction

Programming for **Phase 2**

1. Infrastructure Upgrades Phase 1A
2. Relocate ED Entrance Phase 1B
3. Ambulance Garage Phase R
4. Ambulatory ED Entrance Phase 1C
5. Pediatric ED Exam/Treatment Phase 1D
6. Patient Access
7. Inpatient Endoscopy
8. Cath Prep/Recovery
9. ED Exam/Treatment Phase 2A
10. ED SSU-C Phase 2B
11. ED Trauma & Vertical Zone Phase 2C
12. ED Trauma Phase 2D

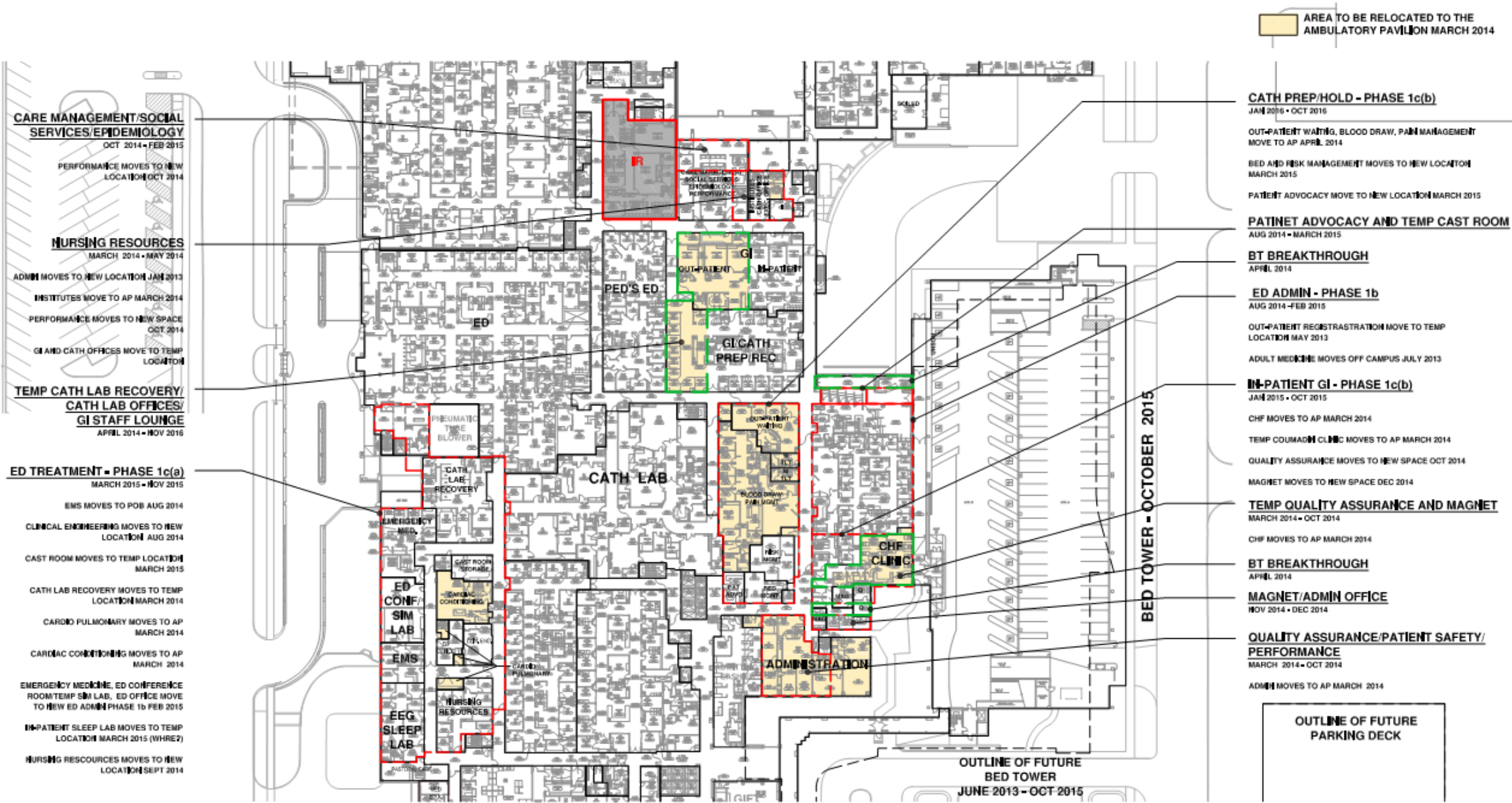


Departmental Relocations

- ED Ramp Reconstruction
- PED Relocation
- Cath Lab Recovery east
- EEG Sleep Lab Relocation
- ED Entry Relocation
- SIM Lab Relocation
- Pain Management Relocation
- EED/IND
- PT/OT Consolidation
- Temporary ED Greeter
- Procedure Center Intake Relocation
- Temporary Respiratory Storage
- Temporary Procedure Center Waiting
- Risk Management
- Interventional Support Rooms
- Community Health
- Patient Safety
- Procedure Center Waiting
- Procedure Center Prep/Recovery
- Inpatient Endoscopy
- Performance Excellence
- Trauma Office
- Patient Access/Cashier
- ED Admin Offices
- ED Annex
- SSU-C
- Temporary Vertical Zone
- Temporary Peds Express Care



ED Enabling Moves Chessboard



Agency Approvals

Coordination with AHJ

- CON Application and Approval
- Annual CON Updates
- Managing to Threshold Cost and Schedule

Coordination with Reviews and Inspections

- Phasing Plan Logistics
- Introducing 'Results Waiting' Program
- Temporary Occupancy Approvals

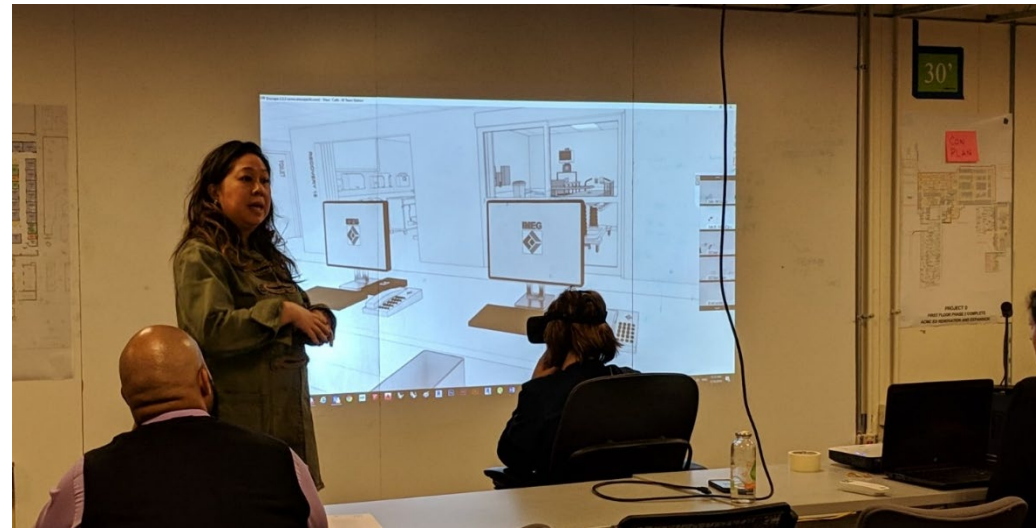


Lean Collaboration



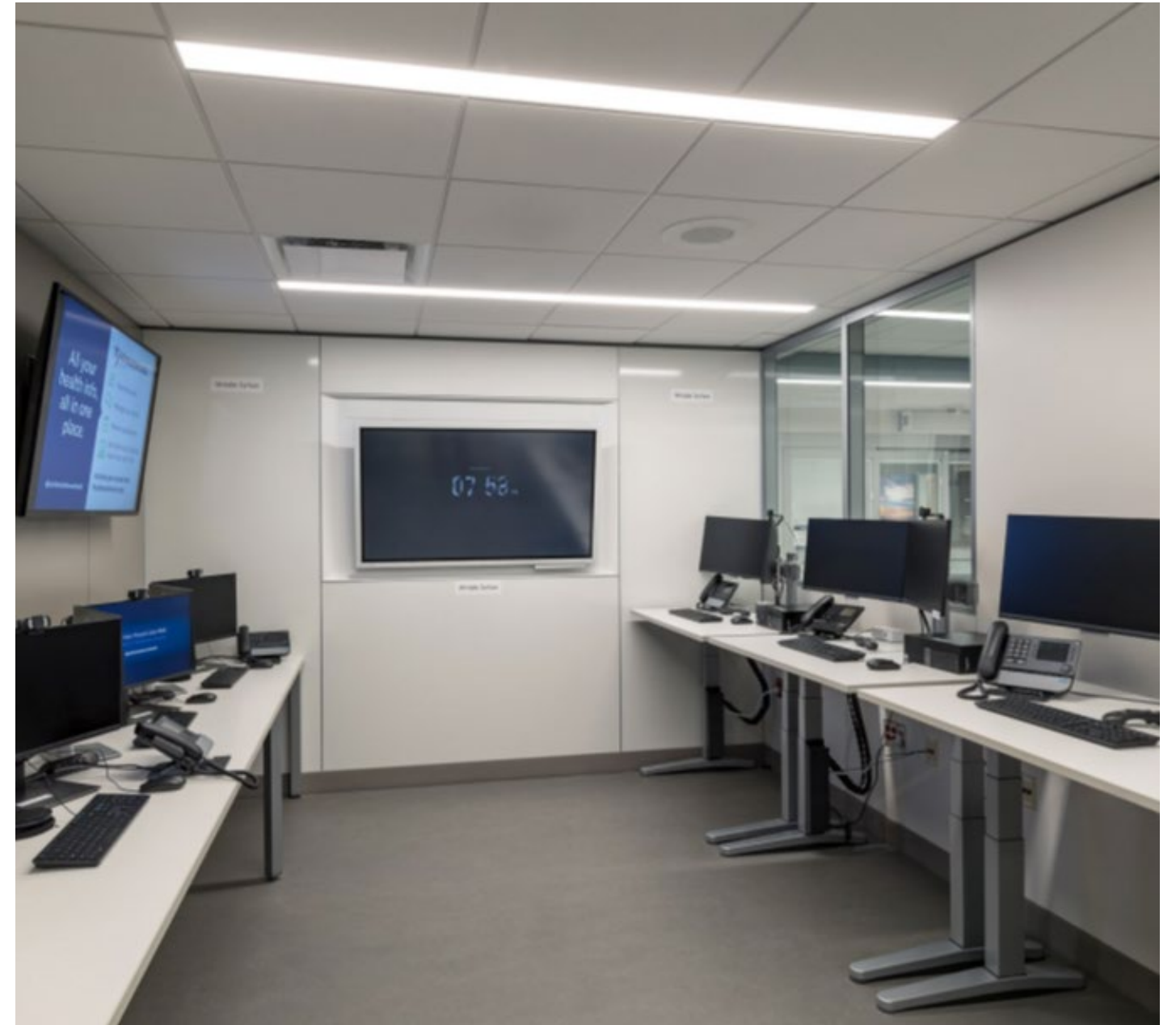
Engagement with All Stakeholders

- Visioning Workshop
- Programming Meetings
- Case Studies
- ED Design Trends
- Tours
- Simulation Exercises
- Kaizen Event
- Post Occupancy Evaluations
- Virtual Mockups
- Pandemic Lessons Learned
- Big Room Workshops
- IDT Meetings
- PMT Meetings
- SMT Meetings
- OAC Progress Meetings

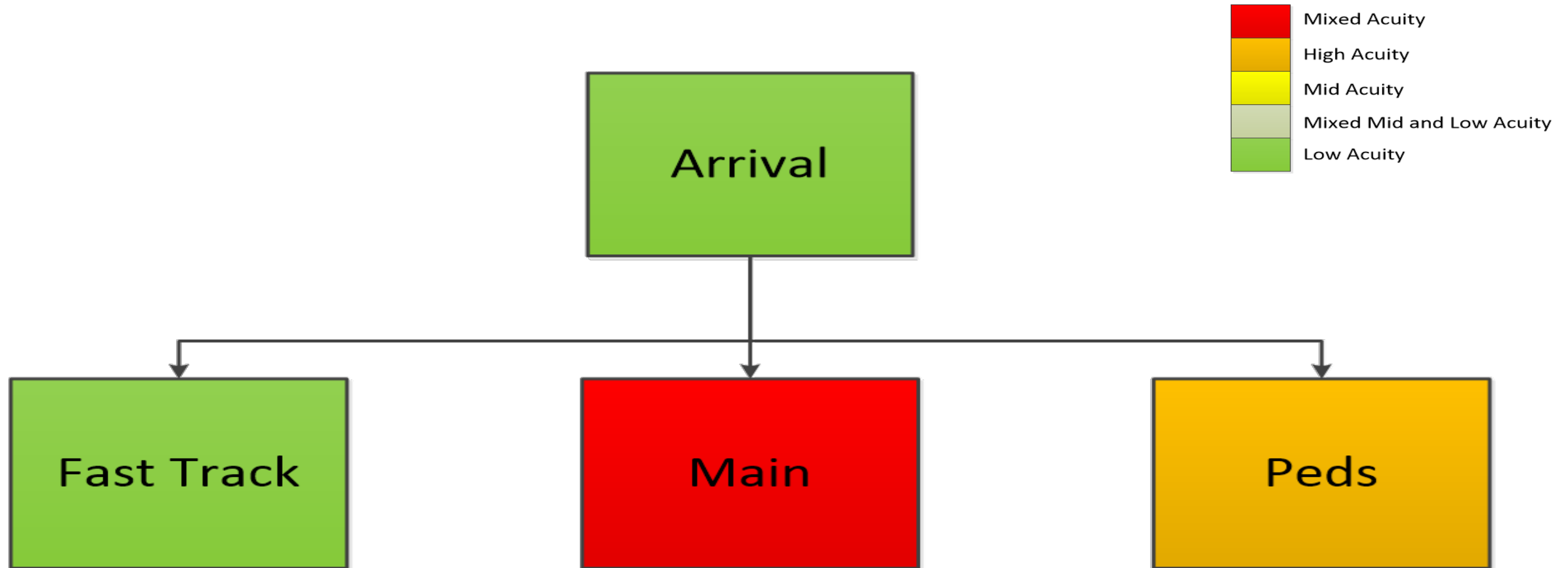


Criteria for Lean Operations

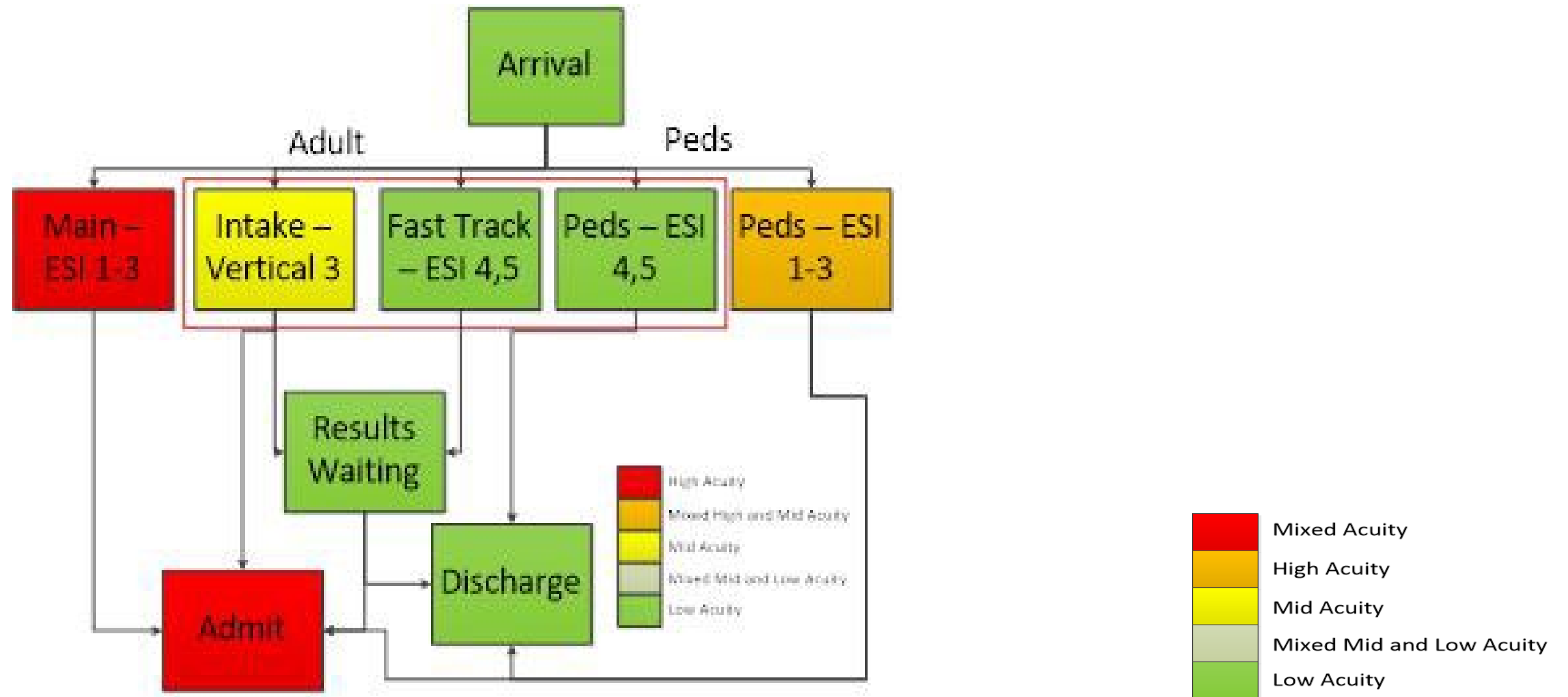
- Does the Design Provide Efficient Patient Flow?
- Are Staff Work Areas, Supplies, and Medications Located to Minimize Staff Travel Distances?
- Are Work Areas Designed to Maximize Staff Interaction and Visual Connectivity?
- Can the ED Staff-Up, and Down, During the Day to Respond to Patient Demand without Creating Unnecessary Queuing or Inefficient Staff Ratios?
- Can the ED Functionally Respond to High-Risk or Mass Casualty Events?
- Is the Design Flexible to Accommodate Future Growth through Internal Adaptation or Expansion?
- Is the Design Efficient from a SF/Treatment Area?



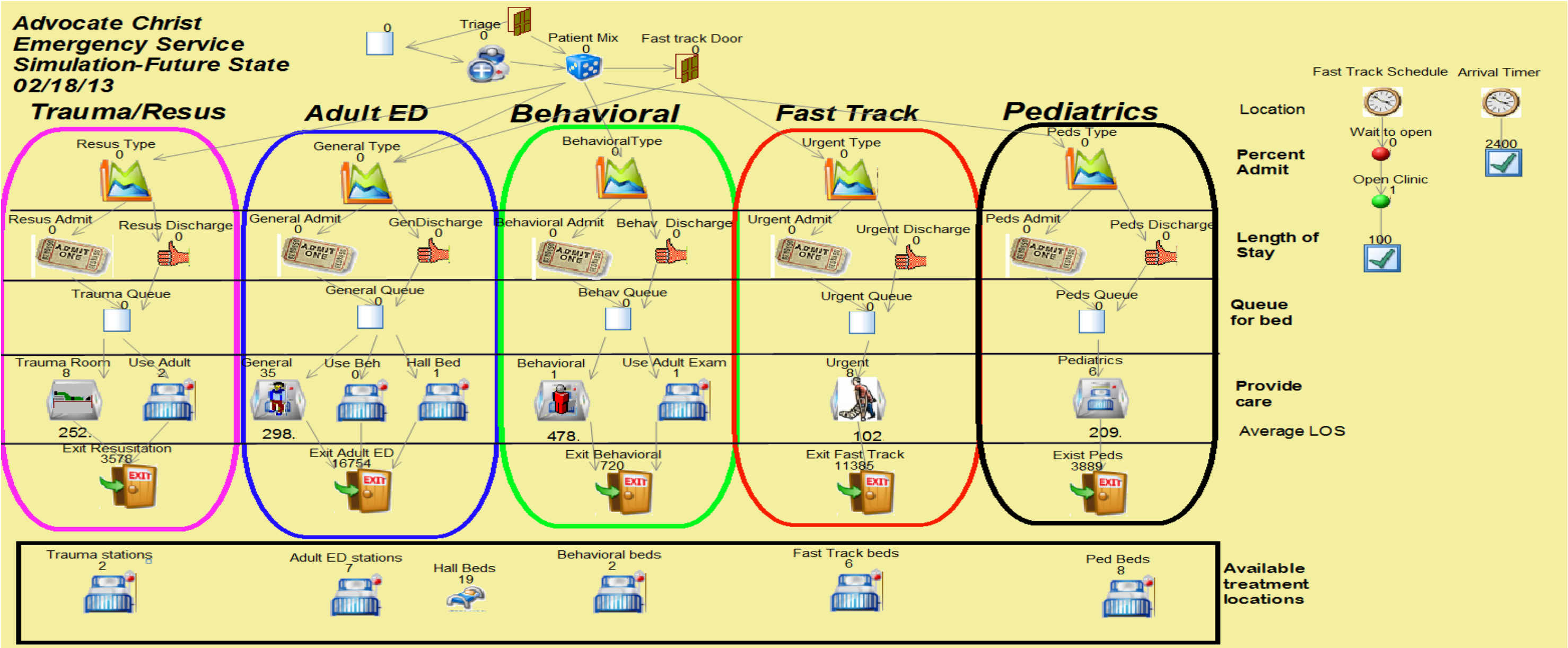
Existing State Flow



Future State Flow



Simulation Model of Future State

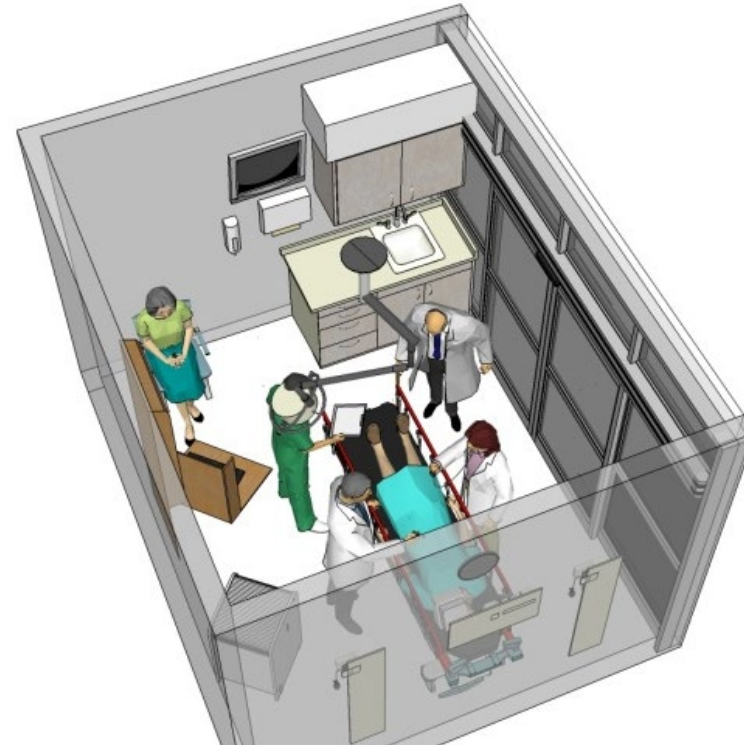


Event Scenario Planning

- Double Headwalls
- Corridor/Waiting Rooms Medical Gases
- Quarantine Zone for Epidemic Patients
- Mass Decontamination



Same-Handed Workflow Analysis



Continuous Improvement



Continuous Feedback Loop

Construction Cost Feedback Throughout Design

- Informed Design Decisions
- Prioritized Scope 'Wants' vs 'Needs'
- Maximized 'Bang for the Buck'

Site Investigations Throughout Design

- Maximized Program Efficiency
- Early Identification of Plumbing Routes
- Minimized 'Surprises' After Demolition

Constructability and Phasing During Design

- Interim Design Packages Improved Workflow
- Interim Reviews by Team Informed Design
- Phasing Plans Incorporated ILSM & ICRA
- Phasing Plans Reduced MEP Shutdowns



Integrated Teamwork

Construction Phase Planning + Operational Impact

- Maximized Bays at Every Phase of Construction
- Maintained Essential ED Services Throughout
- Planned Alternate Access Routes
- Developed Phased ED Egress & Site Access Plan
- Strategized Systems Shutdowns

Lessons-Learned + Continuous Improvement

- Improved Processes with Each Completed Phase
- Proactively Addressed Previously Resolved Issues
- Adjusted Design After Pandemic Response



Trade Partner Added Value

- Weekly Huddle Calls with All Design and Construction Parties
- Bottom-Up Management with Field PM
- Open Lines of Communication with Trade To Trade and Trade to Engineers
- Working with a Contractor Who Facilitates Learning
- Collective Mindset of End Goal for Project No Matter What Contract Type
- Safety Aspect with Trade Partners Looking Out for Each Other
- Mindset of Finished Product that is Beyond Project End Date and Turnover
- Respectful Atmosphere and Cohesion of Trade Partners with No Voice Unheard



Virtual Improvement Environments

- Ensure Typical Conditions were Achieved for All Staff in New Treatment Rooms
- Confirmed Locations of All Equipment were Carefully Understood by End Users
- Mockup Applied to Non-Standard Rooms to Ensure Standards were Maintained
- Virtual Mockup Used as Reference Tool During Construction



Respect for People



Respect for People and Commitments

- Contractor, Patient, Staff, and Visitor Safety was the #1 Goal
- Tracked Planned/Unplanned Shutdowns as a Metric through the Project
- Communication with Trades & Facilities were Critical Success Factors
- Trade Partner Foreman Participated in Weekly Safety Walks
- Internal Team Survey Allowed All members to Have a Voice
- Safety Incidents from Phase 2
 - 0 OSHA Recordables
 - 3 cut/laceration incidents with tradespersons
 - 0 unplanned impacts on patient care



Enhanced Project Tools

- Plan: Team Set Project Goals at the Kickoff of the Project
- Do: Initiatives were Established to Meet Those Goals
- Check: Monthly Check-Ins on the Initiatives were Presented to the Project Team
- Aadjust: Team Reviewed the Results each Month and Discussed What New Actions May Be Needed to Ensure that the Project Goals (Plan) were Met - This Discussion Often Influenced New Initiatives (Do) From the Team

ACMC ED PHASE 2 EXPANSION			
PLAN, DO, CHECK, ACT Log			
May 2023 Update			
PLAN (goals)	DO (initiatives)	CHECK (+/-)	ADJUST/ACT
SAFETY			
Prior to 07/29/21 Kickoff Meeting stats:			
ZERO Non-Conformance (NC) Issues from 07/29/21 forward	Share (monthly) Safety Successes/Metrics (Power BI)		
ZERO Tradesperson Injuries from 07/29/21 forward	Have "External" Safety Audits from members outside of the IPD Team	J Bitters has continued to have project Safety Audits with the IPD Partners. ACMC to advise on next AAH "External" Safety Audit AAH Safety Audit took place 7/8 and completed successfully. 01/19/26: Last Safety Appreciation Lunch.	Injury 9/14/22 - Resulted in 5 Stitches Injury 10/03/22 - Resulted in 5 Stitches
	Periodic Safety Celebrations (ie lunches, etc)		5/2/23 - Construction Safety Week - Stand for Safety Tool Box talk
	Ensure that all tradespeople understand the Hospitals Values	PCC/Tradepartners working on making sure all tradesmen are on the new certificate for 2023.	
	Shared Tool Box Talks	The Field Team continues to hold these each Monday (at the morning Huddle)	
	Ensure that all tradespeople know and understand how to respond during a medical event at the Hospital	- An Emergency Response was held for the current condition, but will be scheduled again in late September/early October AFTER the current construction entrance is moved - The Hospital held a mock Fire Drill during the week of 09/20/21.	
PATIENT FOCUSED			
ZERO Unplanned Service Interruptions	Report out the number of UNPLANNED interruptions (each Month)	In May there were 0 Unplanned Shutdowns	
ZERO Uncommunicated Noise/Vibration Interruptions	Report out the number of PLANNED interruptions (each Month)	In May there were 0 Planned Shutdowns	
	Report out the number of SHUTDOWN REQUESTS submitted (each Month)	In May there were 0 Requested Shutdowns	
	Report out the number of SHUTDOWN REQUESTS submitted with a duration LESS THAN 10 DAYS (each Month)	In May , there was 0 shutdown request submitted with LESS THAN 10 days.	
	Report out the number of INVESTIGATION REQUESTS submitted (each Month)	In May , there were 0 Investigation Request Submitted	
	Report out the number of INVESTIGATION REQUESTS submitted with a return time of GREATER THAN 10 DAYS (each Month)	In May , there were 0 Investigation Requests returned in GREATER THAN 10 days.	
EFFICIENT			
95% Successful First Round Testing	Coordinate with IMC2 for measuring this metric	Phase 2 testing success 82.5%	Phase 1 first round testing Average 75%



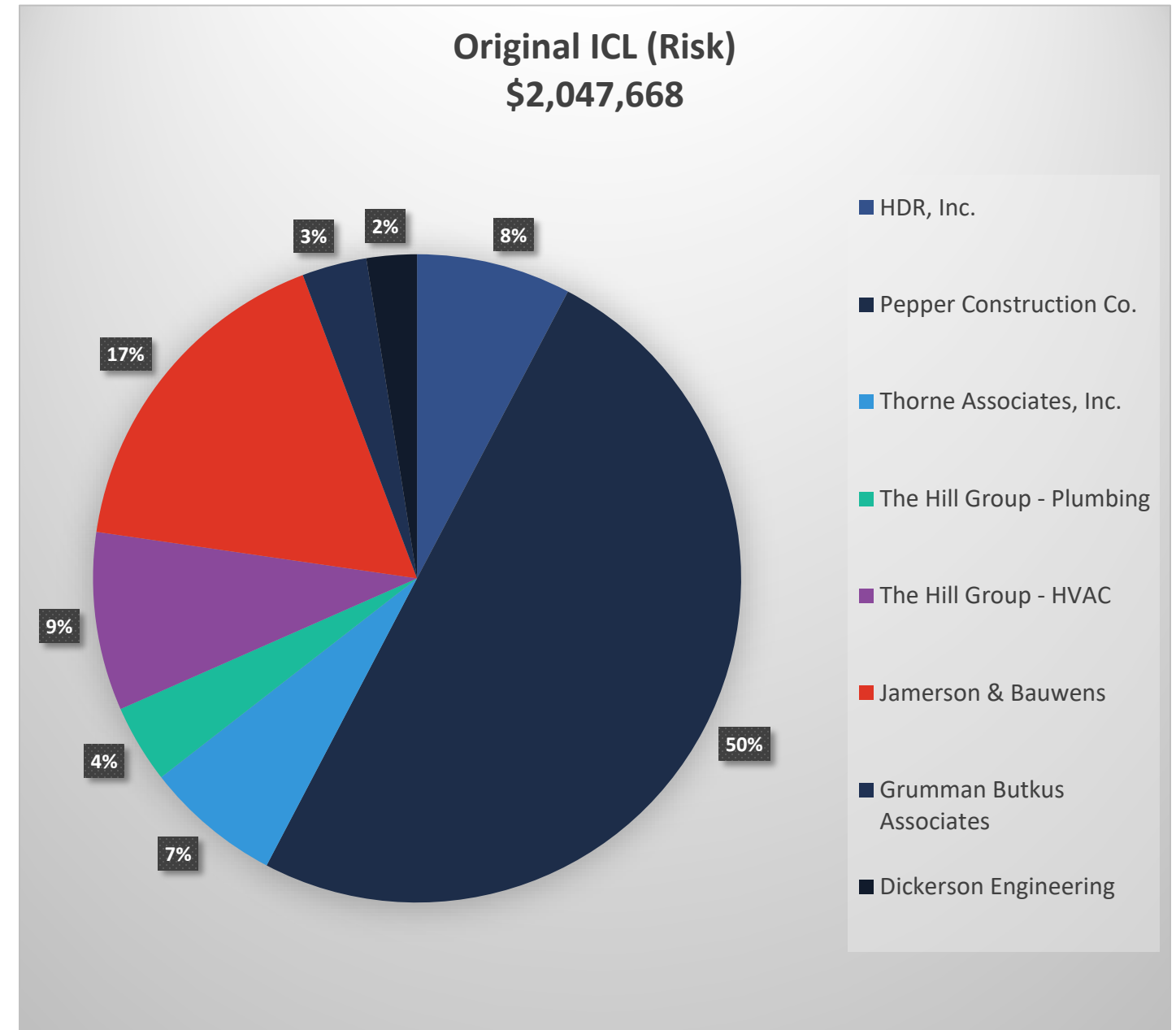
Best Practices for Transparency and Engagement

- Project Dashboard is a Single Page Update Intended to Reflect the Health of the Project
- Ensures Transparent and Easy to Review Monthly Snapshot for All Project Team Members



Incentive Compensation Layer Respects All Parties

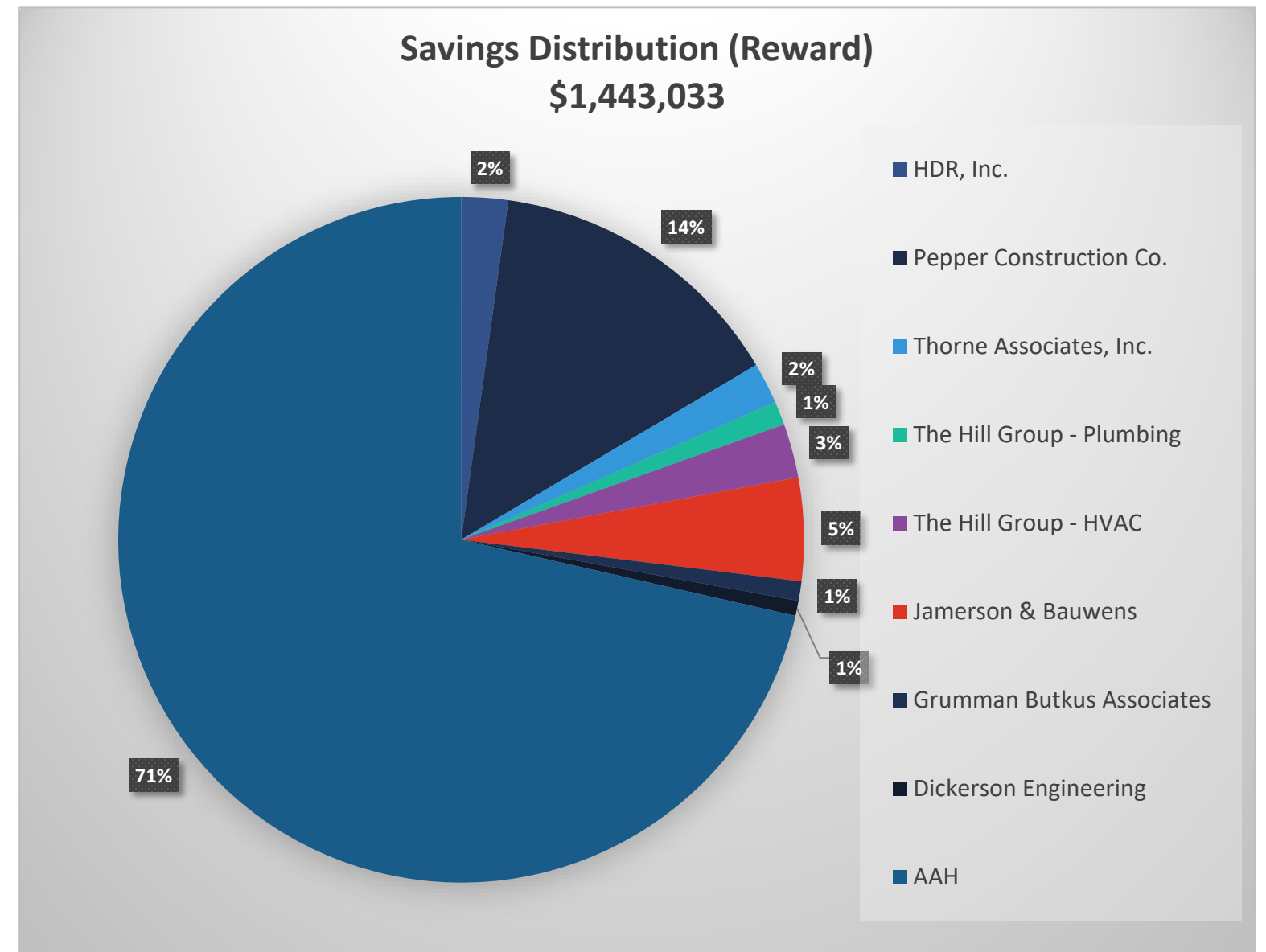
- Each Team Member Puts Their Anticipated Profit for the Project at Risk
- These At-Risk Values are Eroded if the Project Costs Overrun the Target
- Any excess Savings or Cost Overruns are Shared Equally Amongst the Parties



Incentive Compensation Layer Rewards all Parties

Project Results

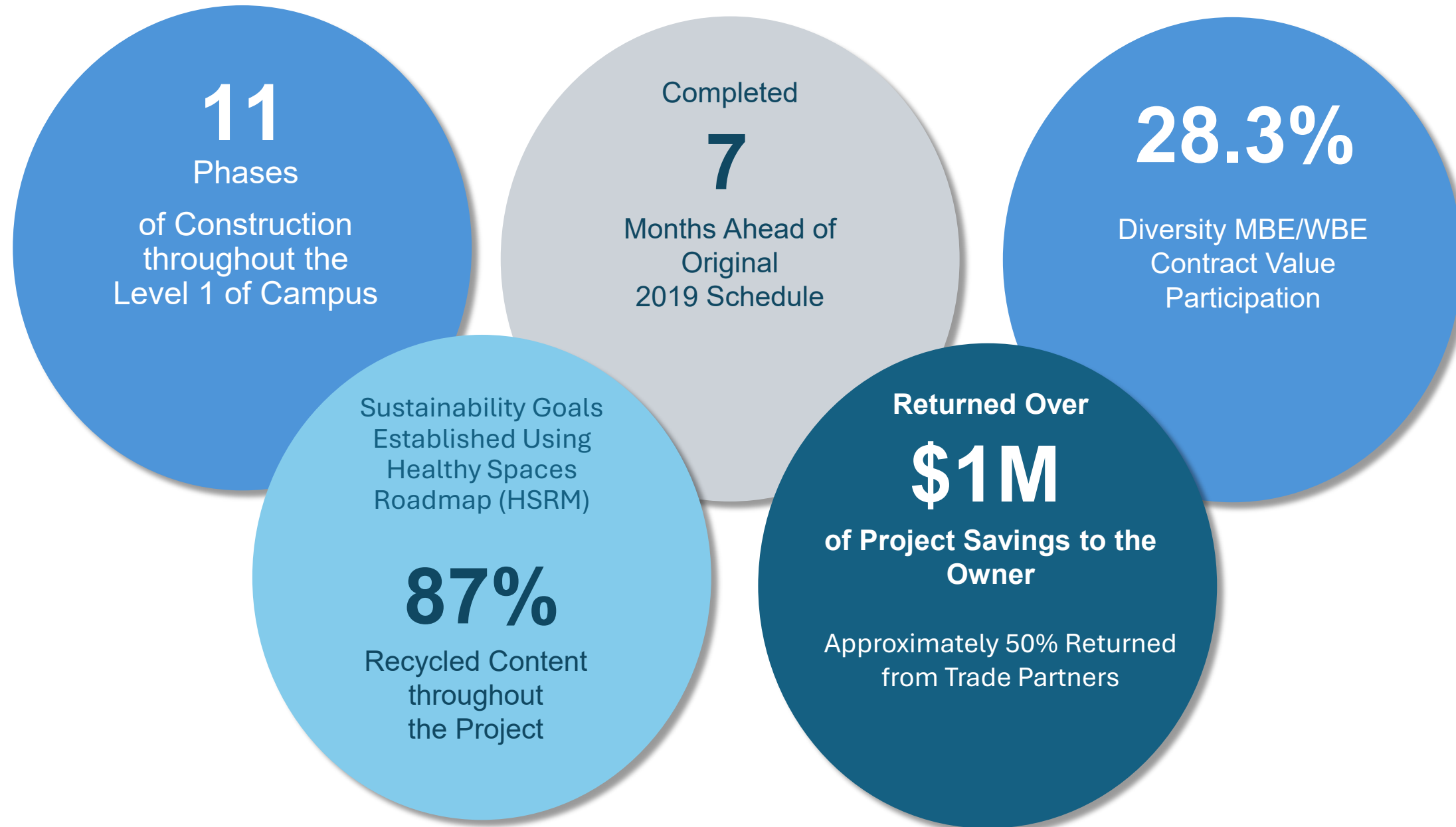
- Total Project Savings \$1,443,000
- Owner Portion of Savings \$1,031,000
- Trade Partner Savings 28.6% of Total Savings



What Happens When Everything Goes Right



Final Phase 2 Results



Key Takeaways

- Integrated Project Delivery
 - Complexity, Operational Impacts, Phasing, Procurement, Opportunities
- Innovative Design
 - Staff Efficiency, Patient Flow, H-L Acuity, Mapping Value Stream, 3D Visualization
- Advocate Health as a High Reliable Organization
 - Preoccupied with Failure - Seek Perfection



Questions?





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OCTOBER 22-25, 2024



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.

Contact Us

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Thank you for attending this presentation. Enjoy the rest of the 26th Annual LCI Congress!