22ND ANNUAL

22ND LCI CONGRESS
OCTOBER 19-23

Lean/IPD works in the public sector!

Lessons and methods from multiple projects

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THE ABC'S OF LEAN: TRANSFORMATION THROUGH ACTIONS, BEST PRACTICES AND COACHING

October 21, 2020

Problem Statement

- Highly regulated Public Sector procurement requirements need not obviate lean/IPD practices or restrict project delivery improvement.

My Lean/IPD Journey

- Lean journey begins early 2007
- LCI Pioneer award 2012
- UHS approximately 100 projects with over 50 using IFOA by 2014
- Disney 16 project engagement Imagineering and Facility Group 2016
  - Personal emphasis: can I transform another organization
- Jackson Health System $1.5Billion capital program year 2021
  - Personal emphasis: can Lean work in Public Sector

Program Background

- 6 “Signature Projects”: Actually,100 individual projects
- 6 A/E firms, 4 large CM firms, many small local GC’s
- $1Billion in total value 7 years concept to complete.
- 100% contract and invoice Audit. 0.025% findings
- 3 campuses, 8 remote locations
- Mentor Protégé Program, 5 out of 7 completed successfully
- Small Business Enterprise, Regional work plan, responsible wages, and other governmental program requirements/oversight

Employed Lean IPD Concepts/Tools/Strategies

- A3 Reporting
- A3 Decision Making
- Last Planner System
- Target Value Design
- Big Room
- Collaboration
- Study Action Team
- Core Clarity
- Early use of Trade Partners
- Plan Do Check Adjust
- Plus Delta / Retrospectives
- Continuous Estimating
- Onboarding
- Burn Rate Management
- Visual Management
- Work Clusters
- Team Based Budgeting
- Shared Risk / Reward Contract
- Value Based Partner Selection
- 5 Whys
- 5 S

NOT ALL THINGS ON EVERY PROJECT

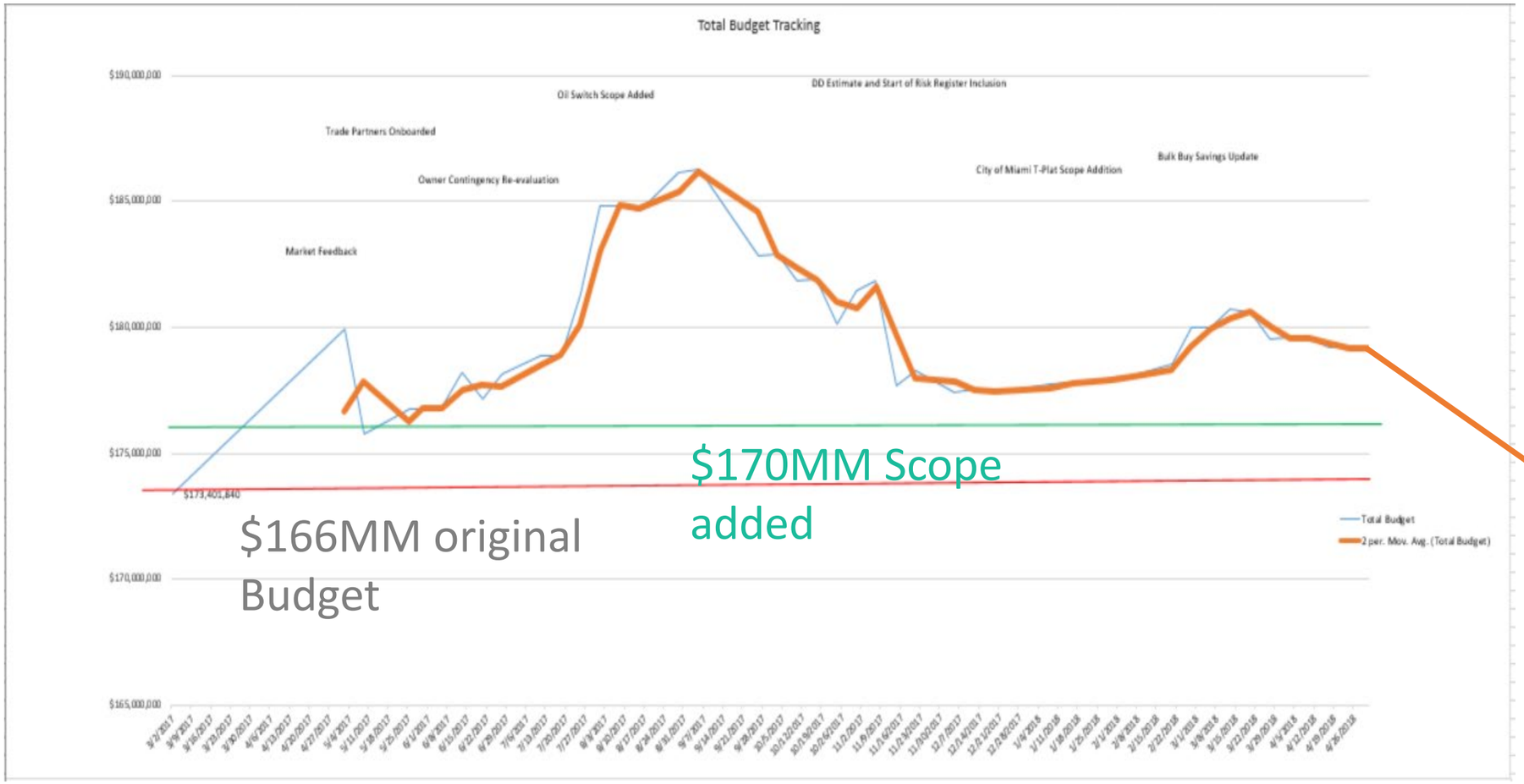
High Value
Easy Implementation

Christine Lynn Rehab Center

- 80 bed rehab/spine hospital
- 35,000sf Research
- Gyms, Pools,
- $170MM
- Opened March 2020

Anticipated Lean/IPD Outcome

Strong Pre-con team
Great value decision process
Shared risk/reward
Collaborative decision making



$166MM original Budget

$170MM Scope added

$162MM final cost

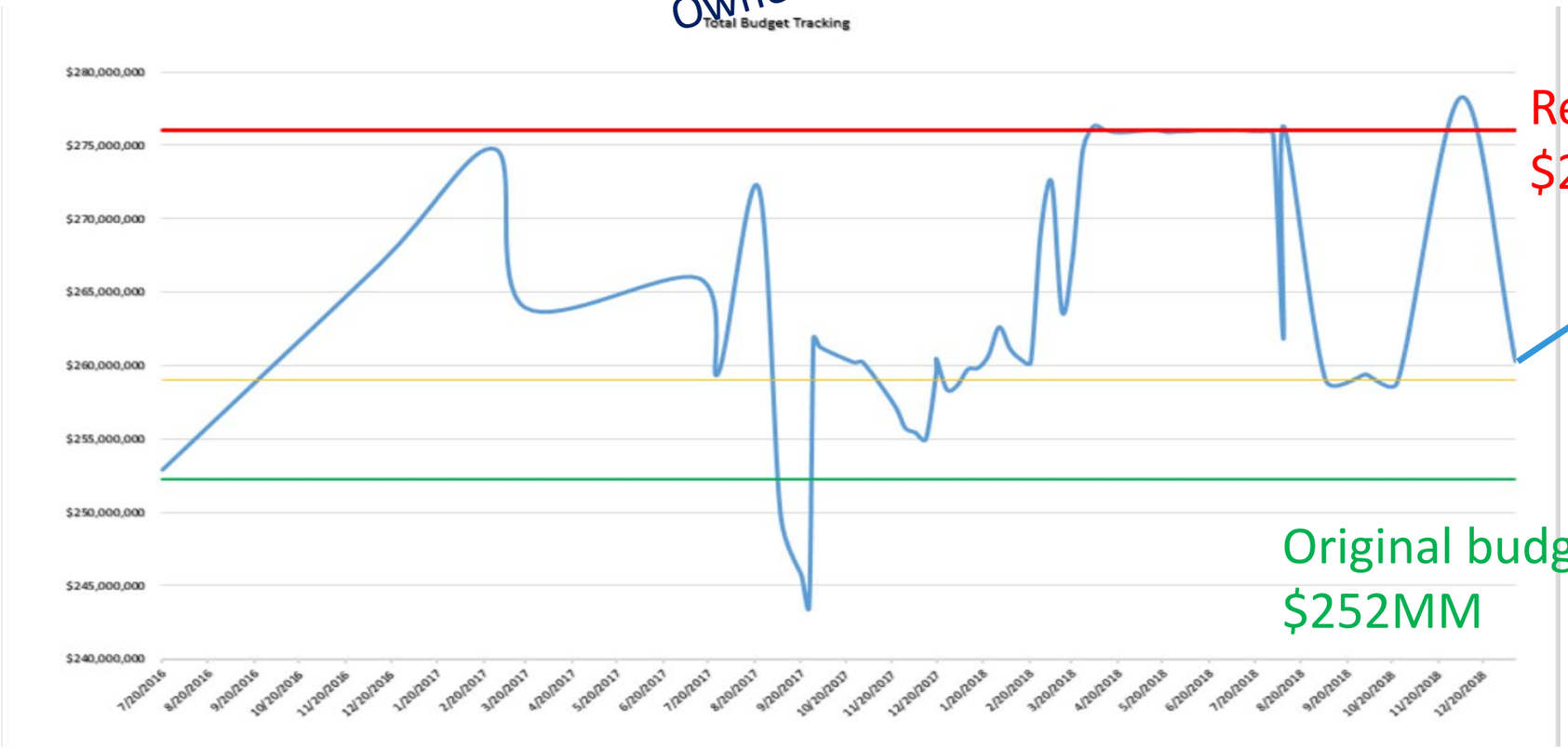
Jackson West Medical Center

- New 100 bed Community hospital
- Office building and garage
- 37-acre development.
- $325MM
- March 2021 opening

What Not To Do!

Fake lean, Team resistance, Complete abandonment,
Owner indecision, Scope change

Final cost
$325MM



Revised budget
$275

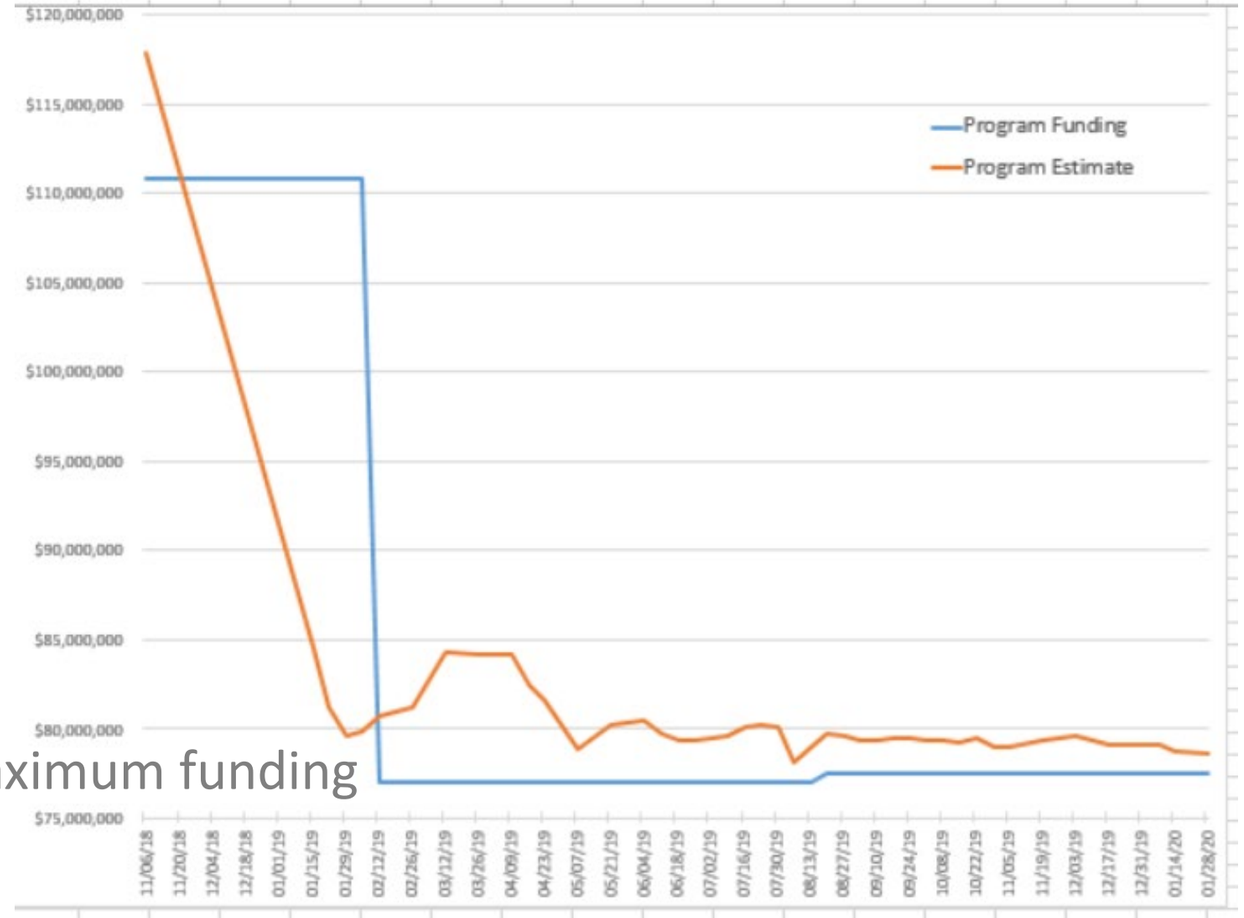
Original budget
$252MM

Countermeasures
People/Culture
Willingness to try
To learn
To adapt
To improve
Write into RFP!

Jackson Memorial ICU Vertical Expansion

- 54 bed ICU
- 27 shelled beds
- 81,000 SF
- $77MM
- 2 ½ years concept to completion
- January 2021

Validate and Deliver



$77MM maximum funding

Final cost
$77MM

Strong validation study
Decisions that stick
Tremendous VE process
Convert to Lump Sum GMP

Validation

- Deep structural study
- Bed count optimization
- Multiple options considered, adopted or aborted
- A3 now standard capital approval document
- Force decisions that stick and keep document: who decided to do…?
- $100k for a $77MM project: 0.1% of investment

BACKGROUND

Jackson is experiencing high occupancy rates on all of it's Intensive/Critical Care Units and must explore options for increasing number of beds to support operations. In addition, JMH's transplant program is amongst World leaders in the field and its supporting facilities should reflect that position. Finally, the ICU patient room industry standards are leaning towards private rooms with a larger area for medical equipment, clinician support, family and visitors.
The Design team was tasked with providing a feasibility study and scope definition for the DTC vertical expansion with the objective to accommodate 80 ICU beds with an overall program budget of $100 M. Alternative scenarios to increase the number of ICU beds to 100 shall be considered.

CURRENT STATE

Existing Intensive Care Units
**For more info refer to A3 Sheet No. 3*

ICU	Location	Cap. As of 10/9	Notes
CCU	Central 4	11	May move to new tower. Needs updating
NSICU	West Wing 8	24	New tower. Future step down neuro
MICU-A	Central 4	18	New tower. No future ICU use of unit
MICU-B	Central 4	8	New tower. Future ICU
SICU-A	West Wing 3	20	New tower. No future ICU use of unit
SICU-B	DTC 3	20	New tower. Future ICU
Total		**101**	

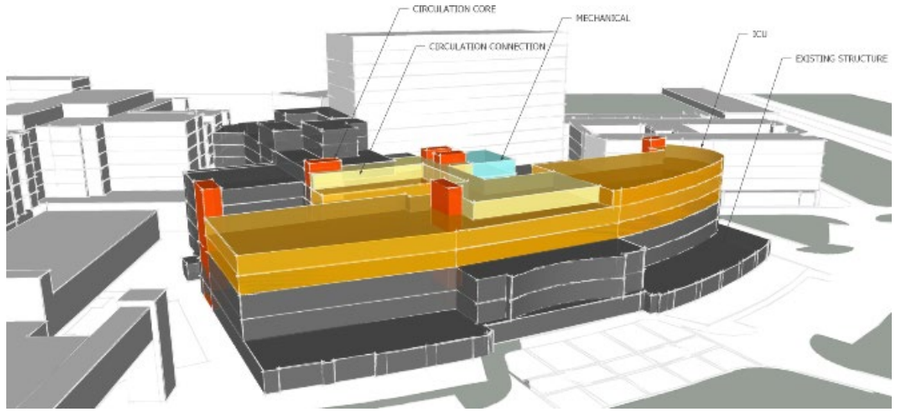
DTC Building Conditions:

The DTC building was allegedly designed to accommodate a vertical expansion. However, the actual expansion capacity for the structure and MEP systems are not clear and must be further investigated. The planning options shall also be explored in coordination with life safety, vertical circulation, structural and MEP constrains. Existing surgical ICUs are mostly located on the third floor and are predominantly open bay (curtains). The planning shall consider private rooms for SICU/Transplant, Medical ICU and provide flexibility to accommodate neuro and cardiovascular critical care units.

PROPOSAL

The vertical expansion of DTC is limited to 2 floors on the East side and 3 floors on the far West side by its foundations and structural support, considering applicable code, loads and wind pressures:

Additional (more than 3) expansion floors would qualify the building as a high-rise, increasing fire protection and life safety requirements, consequentially challenging project viability



Considering structure and program funding limitations the project team analyzed 3 expansion alternatives:

	(Opt1) 2 FLOORS OF ICU	(Opt2) 2 floors of ICU + 1/2 Shell	(Opt3) 2 + 1/2 floors of ICU
Project Area	86,246 SF	**114,698 SF**	114,698 SF
ICU Beds (*)	82 beds	**82 beds**	107 beds
Opinion of Probable Cost	**$100 M** ($1.22 M /bed)	**$110 M** ($1.34 M /bed)	**$123 M** ($1.15 M /bed)
Opinion of Probable Delivery			

(*) Bed count variance (+1 / -6) beds, due to MEP and shaft coordination and planning contingency

The project team advises for options 2 (2 ICU floors + 1/2 shell), as it addresses budget constrains, but capitalizes on the cost of opportunity.
As cost of opportunity, consider a future construction of the half (1/2) floor on the 6th level an opportunity within this program, due to risk of:

- Becoming non-viable as structural (wind pressures) regulations are becoming more strict with time; and
- Unfeasible due to the cost of mobilization and disruption to operations on second future vertical expansion.

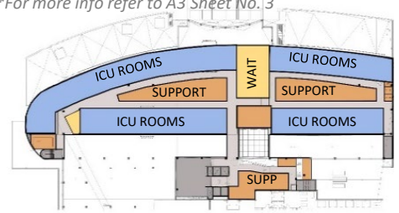
Additional program: Inclusion of Helipad:

Preliminary structural analysis suggests the extreme West portion of the building (even with the additional 3 floors) seems to allow for the loads of a helipad. Structural support is a result of the existing LINAC requirements with large 50 pc foundation footings as well as the large walls on the ground level that can help with directional loads. The cost of Helipad is still not included in the estimate

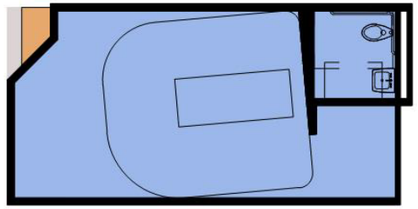
FUTURE STATE (option 2)

Delivery:
Program: 82 ICU BEDS, with shelled area for 25 future beds
Cost: $110 M
Bed count: 82 beds
Cost per bed: $1.34 M
Area: 114,698 SF
Cost per SF: $959.12/SF

ICU Floor Configuration:
**For more info refer to A3 Sheet No. 3*



ICU Room Configuration



Patient Room Area
Proposed: 290 SF
Existing: 240 SF
FGI 2014: 200 SF

RISK MANAGEMENT

- Disruption on 3rd floor ORs, during construction
- ICU room size vs. fully equipped room for post transplant patient
- Limitation of structural system options due to limits on vertical loads
- Limited existing sanitary branches (4")
- Public and service elevator capacity

MAJOR MILESTONE SCHEDULE

Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022	Q4 2022

A3 No	TITLE	REVISION	CHAMPION	DATE STARTED	DATE REVISED	COLLABORATORS	APPROVED BY	APPROVED DATE	STATUS
1	REHABILITATION BUILDING	0	Tim Ott	15-Mar-19		Scott Beck, Larry Blackburn, Shane Mommers, Maria Rios, Isa Nunez, Bill Seed			☐ Development ☐ Collaborative Review ☐ Implementation

Jackson HEALTH SYSTEM — Miracles made daily.

SECTION 1 - FUNDING MEMO SCOPE OF WORK

The DTC Vertical Expansion will be 80,500 square feet housing 54 ICU beds with shell to add 27 in the future. The expansion will also house visitor waiting space, nursing administration offices, staff support areas and a satilite pharmacy. The design of the spaces will be focused on positive patient care outcomes with an emphisis on collaborative care strategies to support our Transplant, Cardiology and other intensive care patients.

SECTION 2 - CURRENT STATE / RISK

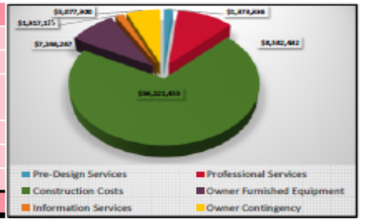
Current State: Schematic Design is complete and Design Deveopment is underway. Construction Drawings are on schedule to complete July 1, 2019. Steel erection is planned to begin on June 1st and first patient is expected 1/1/21. Below is analysis of the current budget and risks.

BUDGET ANALYSIS

BUDGET ITEM	FUNDING MEMO (07/27/16)	SD ESTIMATE (03/13/19)	VARIANCE - (Savings)/Over
Pre-Design Services	$1,373,336	$1,402,835	$29,499
Professional Services	$8,582,432	$8,768,363	$185,931
Construction Costs	$56,221,455	$56,543,242	$321,787
Owner Furnished Equipment	$7,246,267	$8,266,266	$1,019,999
Information Services	$1,317,177	$1,317,177	$0
Owner Contingency	$5,077,300	$2,372,293	($2,705,007)
Total	$79,817,967	$78,670,175	($1,147,792)
Target Reductions	($2,817,967)	($250,000)	$2,567,967
Revised Total (Includes $23MM donation)	$77,000,000	$78,420,175	$1,420,175

RISK REGISTER

ITEM	ISSUE	POTENTIAL COST
1	Misc furniture & artwork items	$400,000
2	Reroof of existing DTC	$300,000
3	Repaint existing DTC	$200,000
4	Misc design fees	$250,000
5	Landscaping & tree mitigation requirements	$500,000
6	Additional elevator needs	$450,000
7	Infrastructure upgrades	$300,000
TOTAL RISK REGISTER		$2,400,000



SECTION 3 - SCOPE & VALUE ANALYSIS

The project team considered several options related to stacking and layout of the building expansion. The first option was to provide a complete over-build of the DTC shelling 1.5 floors and the second option was to over-build just the west end of the DTC shelling only 1 floor. This 2nd option offered the best value related to cost vs. beds both immediate and future capacity.

Phase I is 3-story over-build with 54 beds and shell space for 27
Phase II is build-out of shell space for total of 81 beds
Phase III is 2-story over-build of east DTC with 34 beds for a final total of 115

SECTION 4 – SCHEDULE

Main Activities	Start	Finish	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4
Project Design	01/01/19	07/01/19												
Permitting	07/01/19	09/01/19												
Core and Shell	07/01/19	09/09/17												
Interior Build Out	09/01/19	09/01/20												
Owner Move-In and Commissioning	09/01/20	01/01/21												
1st Patient Day	01/01/21	01/01/21												

SECTION 5 – RECOMMENDATION AND ACTIONS

Fund the project for $77,000,000

Approve Turner Construction Contract Authority for $60,000,000

IMMEDIATE ACTIONS NEEDED

Release the design team to complete the project design

Authorize the CM to start enabling work

Continue innovation efforts to reduce costs and achieve the $77MM target

SECTION 6 – FINANCIALS / ROI

#	Facility Assumptions	Cost/Item
1	Total Buildout Cost	$ 77,000,000
2	Incremental New Beds Available	16
3	Incremental ICU Admissions	761
4	Occupancy Rate of New Capacity (Year 1 to Year 10)	80%
5	Incremental ICU Admissions (Year 1 to Year 10)	609
6	Occupancy Rate of New Capacity (Year 11 to Year 25)	85%
7	Incremental ICU Admissions (Year 11 to Year 25)	647
8	Critical Care LOS	7.7
9	Hurdle Rate / Cost of Capital	-
10	Capital Improvements	-

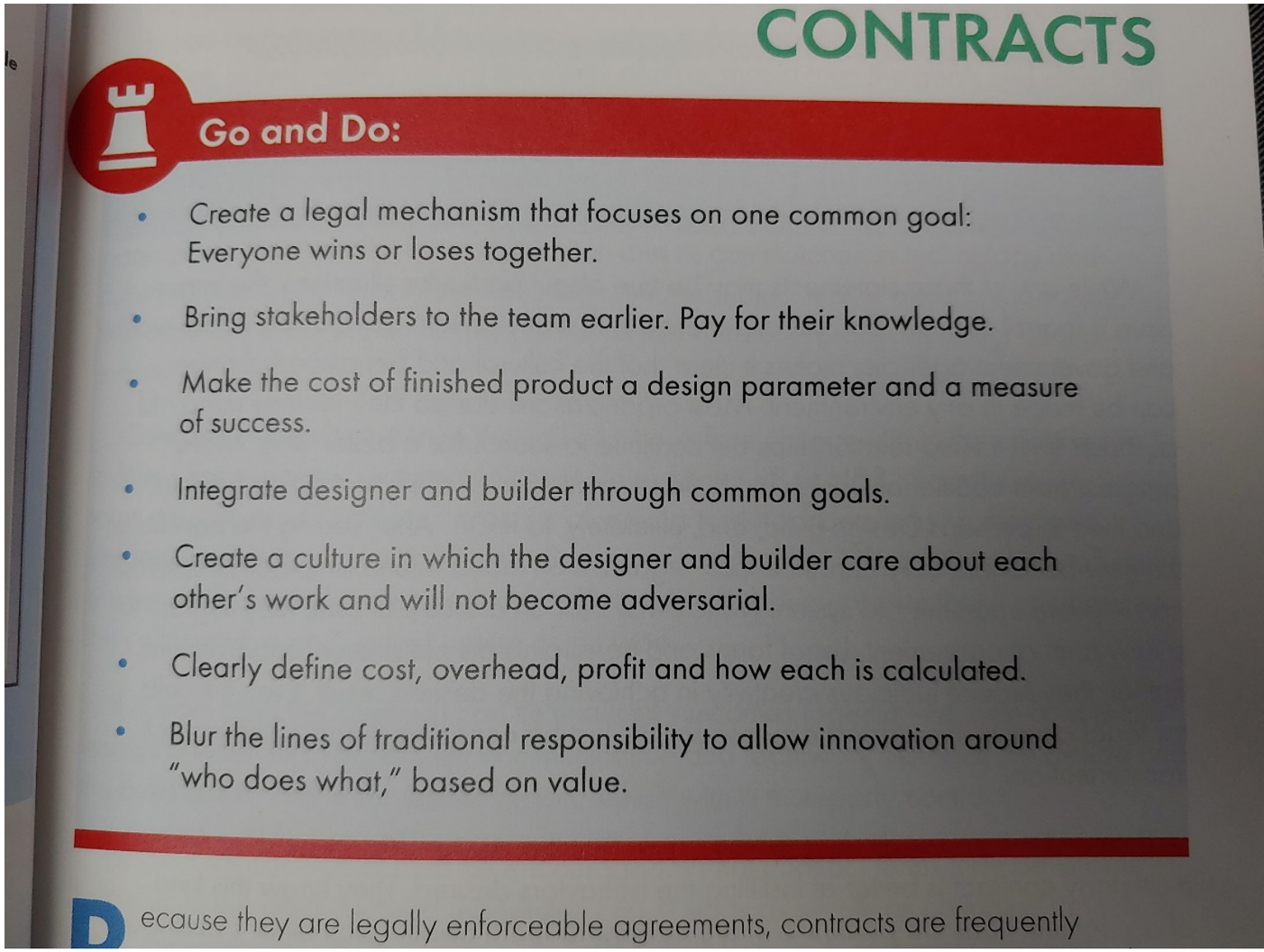
#	Financial Assessment (Over 25 Years)	Cost/Item
11	Projected Volumes	15,815
12	**Per Case**	
13	Net Revenue	54,120
14	Variable Cost	47,210
15	Contribution Margin	$ 6,910
16	Contribution Margin Ratio	12.8%
17	**Contribution Margin**	
18	Net Revenues	$ 855,913,331
19	Variance Cost	746,624,439
20	Contribution Margin	$ 109,288,892
21	**Capital Return on Investment**	
22	NPV (Net Present Value)	$ 32,288,892
23	IRR (Internal Rate of Return)	3.0%
24	Payback Period	16.20

#	Break-Even Analysis	
25	Break-Even # of Amissions	11,143
26	Break-Even - Net Revenue	$ 603,037,742
27	Break-Even - Occupancy Rate over 25 Years	58.6%

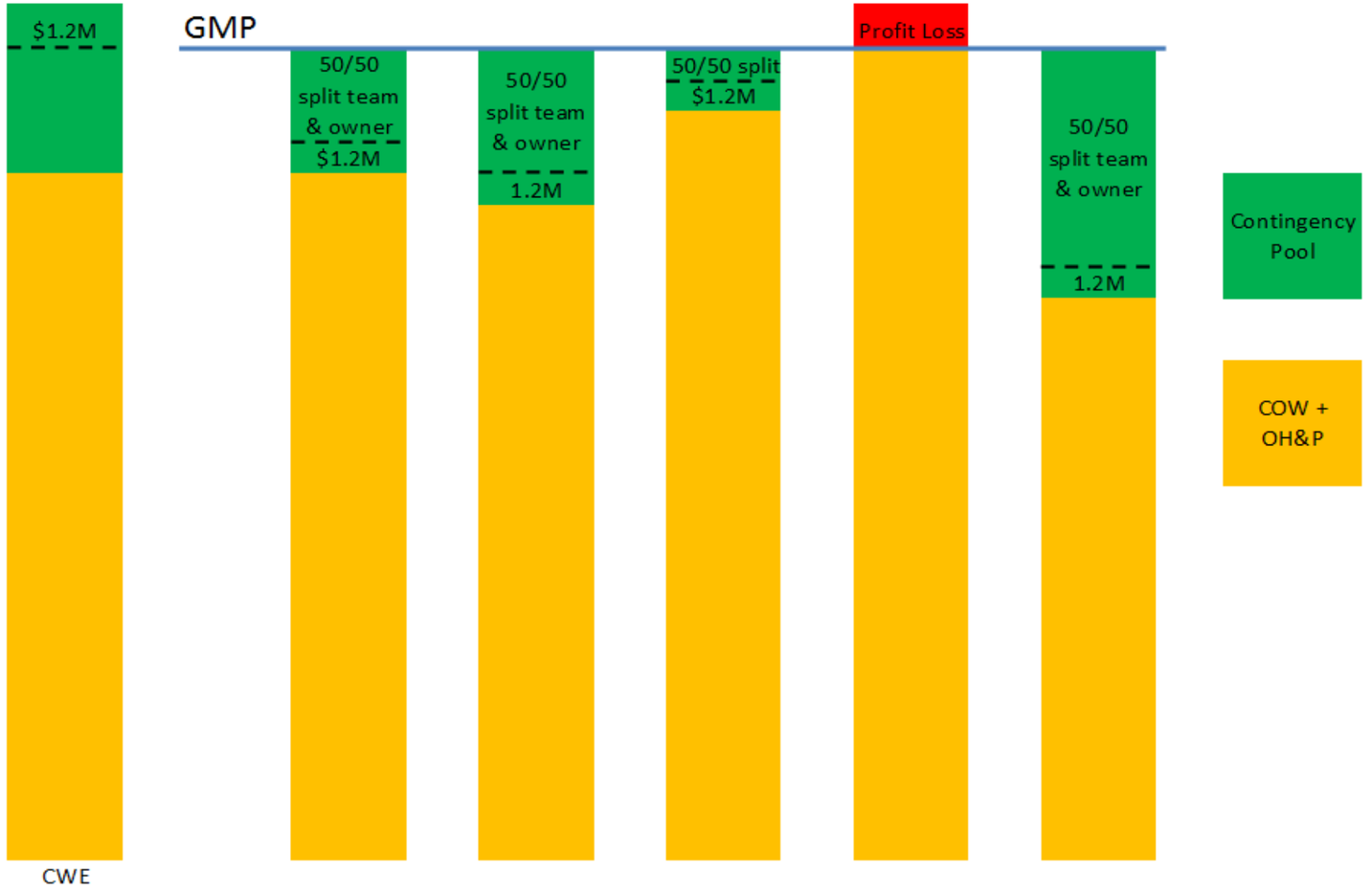
SECTION 7 – APPROVAL

Contract Terms

- Solicitation process
- Value based selection process
- CMAR GMP + Fee
- DA Trades, 7-8 multiple solicitations
- DA GMP to Lump Sum
- A/E terms
  - Controls
- Define cost/OH,P, Contingency
- “Audit” early
- Change management



The Deal



*First $1.2M of unspent contingency is returned to team. Remaining contingency is split 50/50 between owner and team. Team savings is distributed proportionatley to trade partners based upon original contribution to contingency pool.

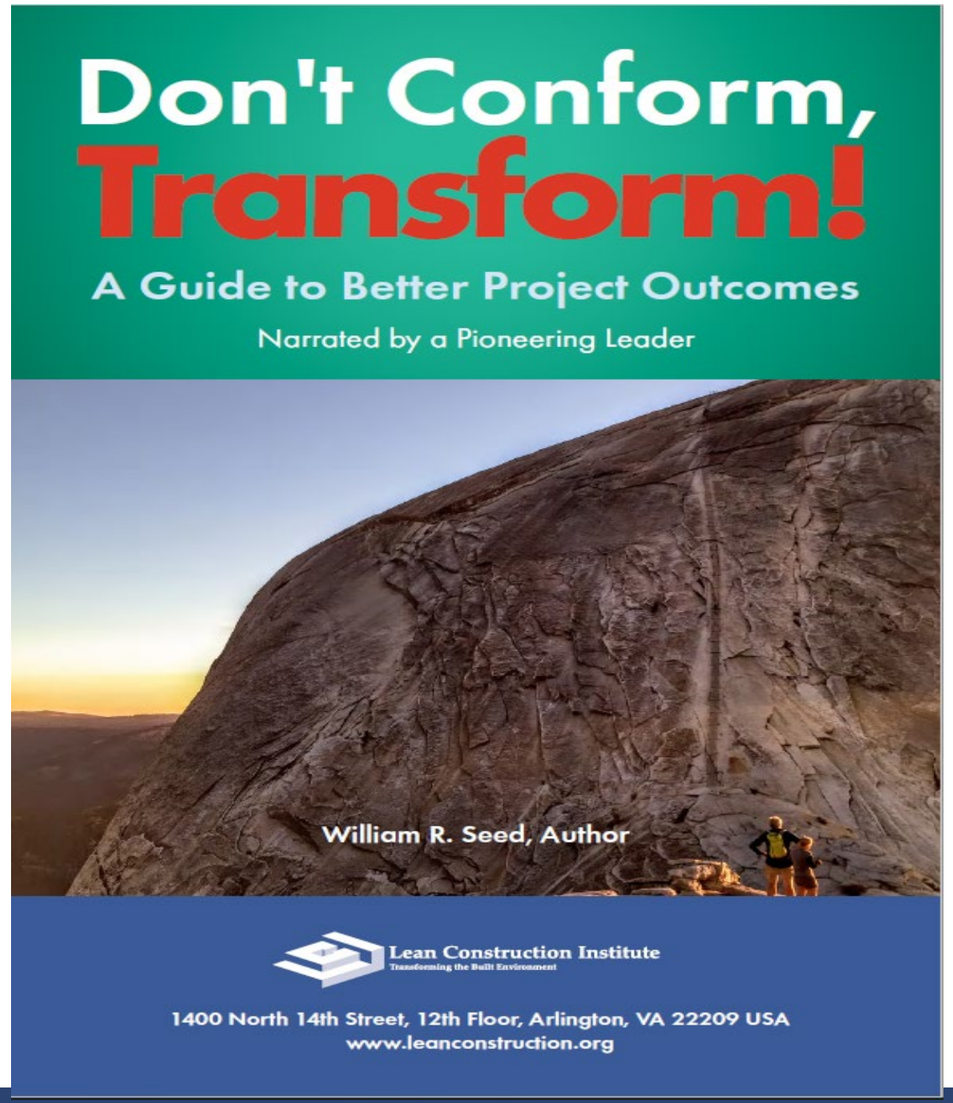
Outcomes

- Fake lean at first
- Bold resistance, then retreat
- 25% over budget, 1 year late
- Forced use of LPS to recover schedule, seeing improvement

- Awesome validation and delivering on it.
- Tremendous Target value design
- Revert to lump sum
- Delivering $3MM/4% more value on time

- Strong Target Value Design
- Limited Lean in the field
- On time delivery
- $2MM Team Bonus
- $8MM/5% under budget

How can you apply this tomorrow?



CONTENTS

Don't Conform, Transform!
A Guide to Better Project Outcomes

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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.

Contact Us

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Thank you for attending this presentation. Enjoy the rest of the 22nd Annual LCI Congress!