

VEVA Team

The Team

- 1) Sam Martin, Facilitator, PE, CVS-Life, CVC, CVT, SAMI LLC
- 2) Carol Landau, QVT, SAMI, LLC
- 3) Michael Almasy, Mechanical Engineering
- 4) Steve Grueber, Architect
- 5) Daniel Harrington, Electrical & Communications
- 6) John Holland, Civil Engineering
- 7) Brenda Rollheiser, Structural Engineering

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1

Results of Value Engineering Workshop of August 6-10, 2007

Fort Leonard Wood Primary Care Clinic Addition/Alteration

For Merrick 35% Concept Design

**DRAFT 1
8/13/2007**



2

Objective and Agenda

q Objective: To present the results of the workshop to review and produce economic options for Fort Leonard Wood Primary Care Clinic Addition/Alteration project, and improve meeting its mission objectives at lower or minimal added cost, as feasible

q Agenda:

1. Background
2. Team activities
3. Summary of Results
4. Issues
5. Proposals
6. Implementation phase - the path forward

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3


Objectives

The Team's Objective

To identify the best available strategies and technologies for minimizing the costs, generating the optimum project and life-cycle costs and/or add significant value for the user while maintaining the project budget:

- 1) Fort Leonard Wood Primary Care Clinic Addition/Alteration Mission
- 2) Building
- 3) Parking Lot
- 4) Affect on hospital and visa versa

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Results

The results:

- q Generated over 250 ideas
- q Consolidated about 80 area concepts
- q Identified 25 concepts for expected optimum proposal development to generate high returns (priority one)
- q Identified another 10 priority two concepts
- q Proposing cost avoidance, plus many value added features

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Qualifications

Caveats:

- q Effect of savings is shown for each proposal – reduced for combined cost to implement
- q Rough order of magnitude estimates

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Request

- q Due to
 - § Number of proposals
 - § Number of people attending
 - § Complexity of some proposals
 - § In consideration of other peoples schedules

Please write down but hold questions to the end of the presentation



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Proposals

1-Delete Clerestory

- q Benefits
 - § Less cost
 - § Simpler roof with fewer leaks
 - § Simpler structural system
- q Disadvantages
 - § Loses an important amenity
 - § Loses daylighting
 - § De-emphasizes "mall" concept
 - § Boring
- q Risks
 - § Less user enjoyment on a daily basis.

Non-recurring \$56,000 LCC \$56,000



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Proposals

2-Additional Clerestory Glass

- q Benefits
 - § Additional daylighting for customer enjoyment
 - § More natural ventilation in mall area
- q Disadvantages
 - § More cost
- q Risks
 - § Possibly too much daylighting and heat gain
 - § May require frosted glass
 - § Ventilation may upset mechanical controls.

Non-recurring (\$19,000) LCC (\$19,000) undet long term



S Fort Leonard Wood Primary Care Clinic Addition/Alteration - Aug 2007 9

Proposals

3-Mall Plan Layout

CHILD PLAY
PARKING
HEALTH PROMO DISP.
REC.
WAIT
REC.
WAIT
REC.
WAIT
PARKING

Fort Leonard Wood Prim

10

Proposals

3-Mall Plan Layout

- q Benefits
 - § Improved customer experience
 - § Straightforward circulation
 - § More pleasant waiting areas
 - § Stronger design concept
 - § Stronger competition with private sector facilities
- q Disadvantages
 - § Some re-design
 - § May add some square footage
- q Risks

Non-recurring (\$5,000) LCC (\$5,000)

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11

Proposals

4-Entry Design

- q Benefits
 - § Entrances more clearly defined
 - § Entrances more integrated into overall architecture
 - § Opportunity for visual interest
- q Disadvantages
 - § None noted
- q Risks

Non-recurring \$ negligible LCC \$ negligible

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12

Proposals

5-Add High Interior Windows

q Benefits

- § Added daylighting for interior rooms
- § Better user and customer experience

q Disadvantages

- § Higher cost

q Risks

- § None noted

Non-recurring \$ (24,000) LCC \$ (24,000)

Z Series
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Proposals

6-Interior Wall Height

① SUSP AC CLG
② REC LIGHT
③ 2 LAYERS SUSP GWB
④ SURFACE MNT LIGHT
⑤ ACOUSTIC GWB WALLS
⑥ Z RETURN BOOT

X Series
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14

Proposals

6-Interior Wall Height

q Benefits

- § Lower cost
- § Plenum return ILO ducted return
- § Faster construction time

q Disadvantages

- § Livelier acoustics due to GWB ceilings
- § Ceiling access limited to corridors or access panels
- § Possibly use surface-mounted light fixtures

q Risks

- § Acoustics within room may be less than desirable due to hard ceiling

Non-recurring \$ 209,000 LCC \$ 209,000

X Series
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Proposals

7-Demountable Walls

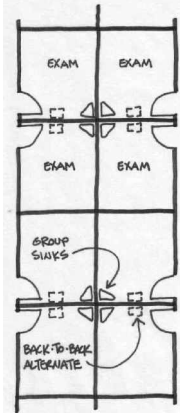
Proposal deleted from consideration

A1
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8-Exam Sink Layout



W
Fort Leonard Wood Primary Care Clinic Addition

17



Proposals


8-Exam Sink Layout

- q Benefits
 - § Less cost
 - § Easier and simpler installation
 - § Fewer floor penetrations
 - § Fewer supply drops
 - § Fewer vent penetrations through roof
- q Disadvantages
 - § Not in compliance with criteria
- q Risks
 - § None noted

Non-recurring \$ 10,000 LCC \$ 10,000

W
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18




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Proposals

9-As Built

- q Benefits
 - § Ultimately less cost to client
 - § Fewer surprises during construction
 - § Fewer change orders during construction
 - § More confident of "new" design and assumptions
- q Disadvantages
 - § Additional field trips and costs
 - § Additional time and burden for designers
 - § Insufficient justification for additional site visit.
- q Risks
 - § Additional field trips w/ added time and costs, may not be in scope

Non-recurring \$ (15,000) LCC \$ (15,000)

 **BO** Share
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Proposals

10-Clerestory Framing

- q Benefits
 - § Simplicity
 - § Cost effective
 - § Ease in deck installation
 - § Can still achieve interest with gabled roof
 - § Can use standard framing connections, including moment frames in the N-S direction
- q Disadvantages
 - § Not as architecturally appealing
 - § Entry canopy will require modifications to match the revised clerestory
- q Risks
 - § Redesign of entry canopies

Non-recurring \$ 11,000 LCC \$ 11,000

 **E** Share
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Proposals

11-Clerestory Roof Deck

- q Benefits
 - § Decreased number of steel beams required
- q Disadvantages
 - § Deeper beams required
 - § Deeper roof profile
- q Risks
 - § None identified

Non-recurring \$ 10,000 LCC \$ 10,000

 **G** Share
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Proposals

12–Raised Roof

- q Benefits
 - § Better access overhead for HVAC and electrical components
 - § Add architectural interest to exterior elevation
- q Disadvantages
 - § More material required to construct and finish
 - § Difficult to work into existing architectural elevation
 - § Creates drifting loads on existing roof
- q Risks
 - § Existing roof may not be adequate for added drifting loads
 - § Requires approval of client for change in appearance, slows design process

Non-recurring \$ (65,000) LCC \$ (65,000)

 O Brands
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22


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Proposals

13–Automatic Lighting Control

- q Benefits
 - § Lighting can be “swept” off at the end of the day
 - § Users will not be required to spend part of their day verifying that all exam / provider / etc room lights have been turned off
 - § Potentially longer time between luminaire re-lamping
 - § Possible LEED points associated with energy usage
- q Disadvantages
 - § New hardware required for control
 - § More equipment to maintain
 - § Requires users to be trained on the lighting system
- q Risks
 - § Verify that if the lighting controller malfunctions the lights will still work

Non-recurring \$ (9,000) LCC \$ 7,000

 AJ Brands
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23


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Proposals

14–Add CCTV and Data Jacks

- q Benefits
 - § Flexibility in locations where monitors may be placed
 - § As funding permits, additional monitors may be added
 - § Additional monitors can be used for user way finding
- q Disadvantages
 - § Initial costs associated with infrastructure
 - § Potential for more equipment to be maintained if additional monitors are purchased for additional jacks
- q Risks
 - § None identified

Non-recurring \$ (7,000) LCC \$ (7,000)

 AD Brands
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24

Proposals

15-Add Accent Lighting

q Benefits

- § More appealing lighting design
- § Sconces located behind reception desks will aide in way finding for users


q Disadvantages

- § Added cost for lighting fixtures
- § Additional lamps types may be added to the design and required to be stored on site.
- § Fixtures will require maintenance

q Risks

- § None identified

Non-recurring \$ (7,000) LCC \$ (7,000)



AE ^{Inc}
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25

Proposals

16-Compact Fluorescent Lights

q Benefits

- § Add a more flexible lighting design in the conference room and exam / provider rooms


q Disadvantages

- § Additional lamp types will be required to be stocked

q Risks

- § None identified

Non-recurring \$ (3,500) LCC \$ (3,500)



AK ^{Inc}
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26

Proposals

17-Water Closet Plumb Fixtures

q Benefits

- § Fixtures will require minimal maintenance


q Disadvantages

- § Need to provide infrastructure
- § During loss of power, the fixtures will not function

q Risks

- § Sanitary issues during power loss. This occurs only if the fixtures are not circuited on emergency power

Non-recurring \$ (750) LCC \$ 9,000



AC ^{Inc}
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27


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Proposals

21-Supply 2 VAV Air Units

- q Benefits
 - § AHU ductwork would be connected to provide partial redundancy (heating and cooling) to the areas served
 - § One AHU at 50% capacity would meet ASHRAE minimum ventilation requirements
 - § Smaller supply and return air ductwork would ease installation and congestion above first floor ceiling
- q Disadvantages
 - § Multiple units will increase maintenance
- q Risks
 - § None identified

Non-recurring \$ (8,800) LCC \$ TBD



AG ^{M&M}
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31


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Proposals

22-Service Multizone Air Units

- q Benefits
 - § Bring existing MZAHUs up to 100% capacity
 - § Antimicrobial filters will improve the environment at the Exam and Treatment rooms
- q Disadvantages
 - § Maintenance will have to stock multiple filter types
- q Risks
 - § None identified

Non-recurring \$ (15,100) LCC \$ ()



AY ^{M&M}
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32


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Proposals

23-Return Air Duct In Crawl

- q Benefits
 - § Superior air flows at the Exam and Treatment and Isolation rooms
 - § Eases the congestion above the first floor ceiling
- q Disadvantages
 - § 2 hour rated requires fire dampers at each penetration which will require testing and maintenance
 - § Requires duct chases for the vertical return air risers
 - § Will slightly impede cleaning
 - § Slight decrease in room versatility. Solid objects cannot cover return air grill
- q Risks
 - § None identified

Non-recurring (\$23,680) LCC (\$23,680)



AP ^{M&M}
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33


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Proposals

24-Increase Crawlspace Height

- q Benefits
 - § Increased ability to service equipment and MEP distribution systems
 - § Ease of mechanical installation
- q Disadvantages
 - § Increased materials for foundation walls
 - § Additional excavation for building foundation
- q Risks
 - § None identified

Non-recurring \$ (52,000) LCC \$ (52,000)

 **D** MSA
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34


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Proposals

25-Use PVC Piping

- q Benefits
 - § Ease of installation
 - § Ease of maintenance
 - § Lighter weight piping will reduce seismic bracing
- q Disadvantages
 - § None identified
- q Risks
 - § Plastic piping may be more susceptible to damage than metal piping

Non-recurring \$ 63,720 LCC \$ 63,720

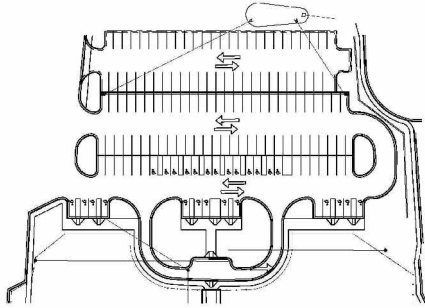
 **AS** MSA
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35


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Proposals

26-Reconfigure Drop-off Lane



2007-08-08 10:00 AM (MERRICK) (MERRICK) (MERRICK) (MERRICK) (MERRICK)

 **BB** MSA
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36


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Proposals

26–Reconfigure Drop-off Lane

- q Benefits
 - § Less initial paving and curb and gutter
 - § Less paved area to maintain in the future
- q Disadvantages
 - § Tighter maneuverability for fire truck access, but still allowable
- q Risks
 - § None identified

Non-recurring \$ 65,000 LCC \$ 65,000(-)



BB Job

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37


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Proposals

27–Use Multiple Retaining Walls

- q Benefits
 - § Shorter walls will have smaller footings
 - § Having several walls will aid in grading of the site
- q Disadvantages
 - § Additional site walls to maintain
 - § Loss of parking spaces in order to accommodate new layout
- q Risks
 - § None identified

Non-recurring \$ 75,000 LCC \$ 75,000



BF Job

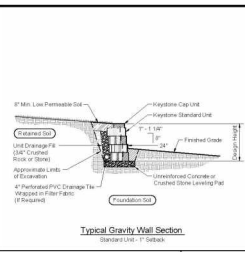
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38

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Proposals

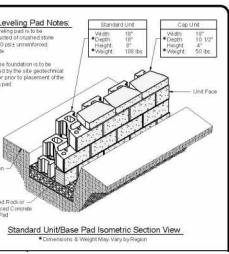
28–MSE Walls



Typical Gravity Wall Section
Standard Unit - 1' Section


Base Leveling Pad Notes:

- The leveling pad shall be constructed of compacted stone or 2,000 psi unadorned concrete.
- The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.



Standard Unit/Base Pad Isometric Section View
Standard Unit - 1' Section

*Dimensions & Weight May Vary by Region



BE Job

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39


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Proposals

28–MSE Walls

- q Benefits
 - § Lower cost versus conventional poured concrete and bricked-faced retaining walls
- q Disadvantages
 - § Walls material type will not match building exterior material type
- q Risks
 - § None identified

Non-recurring \$ 52,000+ LCC \$ 52,000+



BE John
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40


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Proposals

29–Reconfig Parking Lot Opt

- q Benefits
 - § New layout will result in fewer retaining walls
- q Disadvantages
 - § Redesign of Civil portion of project
- q Risks
 - § None identified

Non-recurring \$ 56,000 LCC \$ 56,000



BL John
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41

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Proposals

30–New Building/New Location

- q Benefits
 - § New site may not have constraints of having to avoid existing utilities which can not be removed or replaced
 - § Seismic upgrade of existing facility no longer required
 - § The personnel who are currently housed in the facility would not have to be temporarily relocated during the alteration of the existing facility
 - § New construction cheaper than renovation work



BM John
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Proposals

30–New Building/New Location

- q Disadvantages
 - § Total redesign of project to date
 - § May have to build new mechanical plant
 - § Will have duplicate pharmacy (existing one at hospital and new one at clinic)
- q Risks
 - § Other site may have utility issues
 - § Other site may have grading issues
 - § Other site may have environmental issues

Non-recurring \$ 4,200,000 LCC \$ 4,200,000+

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43


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Proposals

31–High Efficiency Transformer

- q Benefits
 - § Lower core winding losses
- q Disadvantages
 - § Slightly higher initial cost
- q Risks
 - § None identified

Non-recurring \$ (8,300) LCC \$ 21,000

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44

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OCFC

Other concepts for further consideration

- q Defined as worthy of consideration but not fully developed by team due to time, simplicity, or other issues
 - § More than 10 are suggested
(raw to undetermined cost, however, some may be significant)
 - § Please review written report for more details

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45

Summary of cost issues

Total Savings

- q Maximum combined potential identified at this time is:
 - § \$5,400,000 +/- total estimated overall savings
 - § Many value added features
 - § Many Life Cycle Cost (LCC) reductions

46




Report

Draft report

- q Supporting features in report
 - § Briefing attendance logs
 - § Consultation logs
 - § Documents logs
 - § Economic analyses
 - § Telephone and other records
 - § Other activity logs

47




Making it all work

The path forward

- q Consider the team's recommendations and determine the areas that warrant further action in the interest of all involved
 - § Provide feedback to Tammy Johnson at 303.353.3660 or Tammy.Johnson@Merrick.com (SAMI's vereporting.com options will also be available)
- q Merrick, USACE, and FLW Health Admin will evaluate and implement
- q Merrick will monitor results, and verify returns

48




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Thanks

Questions?

q May we have your questions please




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Q&A

Summary of Proposals

Core Champion	#	Savings	Implement	net	
R steve	Delete directory	1	55,959	0	55,959
S steve	Add directory/signing workstation units	2	-19,198	0	-19,198
V steve	Mail floor plan layout	3	-5,000	0	-5,000
T steve	Entry design	4	0	0	0
Z steve	Add high interior windows	5	23,774	0	23,774
X steve	Wall height	6	209,250	0	209,250
All steve	Demountable walls	7	0	0	0
W steve	Exam room sink layout	8	9,793	2,000	7,793
BO steve	Directory framing	9	-15,000	0	0
E brenda	Directory framing	10	10,300	0	10,300
G brenda	Deeper roof deck for directory	11	10,300	0	10,300
O brenda	Raise roof	12	-85,200	0	-85,200
AJ dan	Lighting control systems	13	-9,141	400	-9,541
AD dan	Add CATV/DATA jacks mail	14	-7,424	400	-7,024
AE dan	Lighting fixtures	15	-7,260	400	-7,760
AK dan	Computer light design	16	-3,595	400	-3,995
AC dan	Auto bath sensors	17	-735	0	-735
AA dan	Solar tubes	18	-29,100	0	-29,100
BD dan	Acid electric	19	0	0	0
AO mike	Reduce size heat exchane	20	16,299	16,299	57500
AD mike	provide 2 air handlers	21	-6,000	0	-6,000
AV mike	Service H2O/HV	22	-15,160	0	-15,160
AP mike	Exam room return air	23	-23,880	0	-23,880
D mike	increase op w/ space height	24	-52,000	0	-52,000
AS mike	Use PVC piping	25	63,720	0	63,720
BB john	Reconfigure drop off lane	26	67,960	3,090	64,870
BF john	Retaining walls	27	75,016	5,000	73,016
BE john	Move stoop walls	28	52,671	1,000	51,671
BL john	Move bid option parking	29	59,959	1,200	59,959
BM john	Move building site	30	4,127,580	800,000	4,127,580
BP dan	High efficiency transformer	31	-8,250	0	-8,250
					21642



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