CAPITAL BUDGETING ANALYSES OF A PROPOSED NEW FACILITY FOR SOUTHEAST LOUISIANA HOSPITAL

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This study analyzes a proposal submitted by the Southeast Louisiana Hospital (SELH) administration to replace the existing facilities with a new 162-bed psychiatric hospital. At present, SELH facilities include a psychiatric hospital and a substance abuse facility. Since the cost of operating the substance abuse facility will be shifted to the soon-to-be-established Florida Parishes Human Services District, the enclosed analyses exclude cash flows for the facility. Cash flow data on the existing and proposed hospital were provided by the SELH administration. A two-step approach to the data was applied. First, the timing of each cash flow for the existing and proposed project was identified and incremental cash flows were calculated. Next, various capital budgeting techniques were applied to the incremental cash flow data under four scenarios. In the first scenario, relevant cash flows were adjusted for expected future inflation and the market values of SELH's existing assets were included in the analysis (Spreadsheet A). The second scenario assumed zero value for all fixed assets except the land (Spreadsheet B). In the third scenario, while fixed asset values were included, no adjustment for inflation was made (Spreadsheet C). The final analysis excluded both the inflation adjustment as well as the market values of the fixed assets (Spreadsheet D).

The payback period of the proposed project ranges from 3.2 years to 4 years depending on the model applied. The discounted payback period is 4 or 5 years. Because these two techniques have some known limitations, the net present value (NPV) of the cash flows was also calculated. Using a discount rate of 4.99%, the yield to maturity on a 19-year State of Louisiana bond, the net present value (NPV) of building a new facility versus continuing in the existing facility ranges from $47.15 million to $55.76 million. The NPV remains positive even when the expected life of the new facility is reduced from twenty years to ten years and the discount rate is significantly enhanced. Since the NPV is positive under all scenarios, the proposal is acceptable. However, because our analyses and conclusions are based on the data provided by the SELH administration, it is recommended that the proposed facility's costs and benefits be further reviewed to ensure that all relevant cash flows have been accurately identified and estimated. The enclosed spreadsheets include our findings and underlying assumptions.

FOOTNOTES ON CASH FLOWS

(* Indicates data provided by SELH)

1. **CONSTRUCTION COST OF NEW HOSPITAL***

Total cost of new construction: $25,031,088

2. **DEMOLITION COSTS OF CURRENT HOSPITAL***

Description	**Cost**
Cost of demolition existing facility	$980,000
Cost of roadway demolition	$190,000
Cost overrun (10% based on the State's Capital Outlay Request software	$117,000
Total demolition costs	$1,287,000

3. **COST SAVINGS OF PROPOSED FACILITY***

Category	Actual Cost	Estimated Annual Savings	Estimated Annual Savings for SELH	Expected Annual Inflation Rate[1]
Salaries	$18,477,237 (SELH)	$3,185,000 (91 FTE) (SELH)	$3,185,000	0%
Related Benefits	$4,913,215 (SELH)	$ 844,025 (SELH)	$ 844,025	2.44% for $422,012.5[2]
Insurance (sq ft)	$1,165,646 (SELH) $144,069 (S.A.)	$ 821,912 (62.75%; Both SELH and S.A.)	$731,501 (89% OF $821,912)	2.44%
Utilities (sq ft)	$ 872,811 (SELH) $107,876 (S.A.)	$ 615,431(62.75%; Both SELH and S.A.)	$547,733 (89% OF $615,431)	2.44%
Maintenance (Supplies/Equip)	$ 362,509 (SELH) $44,804 (S.A.)	$ 101,828 (25%; Both SELH and S.A.)	$90,627 (89% OF $101,828)	2.44%
Capital Outlay (Acquisitions & Major Repairs Less than $100,000)	$ 161,500	$ 80,750 (50%; SELH)	$ 80,750	2.44%

1 The average annual inflation rate over the past ten years is used as the expected future rate. This average rate is based on the Consumer Price Index as reported by the Federal Reserve Bank of St. Louis

2 Only 50% of related benefits will be adjusted for inflation, as group insurance is 50% of the related benefits expenditures. (source: expenditures from 7/1/02 to 8/14/03 provided by SELH)

4. **VALUE OF SELH's FIXED ASSETS***

Description	Market Value
Land, approximately 150 cleared acres and 3 ½ miles of paved roads.	$2,250,000[1]
Two deep water wells	$438,000
Refurbished 50,000 gallon water tower	$139,000
New state-of-the-art sewage treatment plant	$2,500,000
Primary electrical system above and below ground	$50,000
Major equipment (including chillers, water cooling towers, and emergency generators)	$489,000
Gymnasium and recreational building	$0
Swimming pool	$0
Catholic Chapel	$0
Total value	$5,866,000

1 At $15,000 an acre. The value of land in this area is estimated to be between $15,000 and $20,000 per acre*.

5. CAPITAL OUTLAY SAVINGS*

(The following capital outlays for the existing facilities will not be required, resulting in savings.)

Project #	Year 1 Requirement	Year 2-5 Requirement	Class	Probability of Funding[1]	Year of Funding	Years of Use	Years of Use as % of 20[2]	Capital Outlay Savings at Time t[3]
1	$1,560,000	0	-	1	1	19	0.95	$1,482,000
3	$300,000	$1,200,000	-	Completed	-	0	0	0
4	$278,105		A	1	2	18	0.9	$250,294.5
6	$132,000	0	A	0	-	0	0	0
7	$248,063	0	B	0.75	4	16	0.8	$148,837.8
8	$753,950	0	A	0.5	2	18	0.9	$339,277.5
9	$455,400	0	C	0.5	4	16	0.8	$182,160
10	$1,670,427	0	B	0.1	4	16	0.8	$133,634.2
12	$886,024	$10,065,958	C	0	-	0	0	0
13	$300,638	0	B	0.25	4	16	0.8	$60,127.6
21	0	$874,718	C	0.025	6	14	0.7	$15,307.57
22	0	$307,683	C	0.1	6	14	0.7	$21,537.81
23	0	$448,983	C	0	-	0	0	0
24	0	$294,840	C	0	-	0	0	0
25	0	$784,260	C	0	-	0	0	0
26	0	$776,788	C	0	-	0	0	0
27	0	$502,740	B	0.1	4	16	0.8	$40,219.2
28	0	$2,732,232	B	0.05	4	16	0.8	$109,289.3
29	0	$702,636	C	0.05	6	14	0.7	$24,592.26
30	0	$1,092,985	C	0	-	0	0	0
31	0	$2,429,381	C	0	-	0	0	0
32	0	$1,795,500	A	0.25	2	18	0.9	$403,987.5
33	0	$3,359,881	C	0	-	0	0	0
34	0	$1,011,884	C	0	-	0	0	0
35	0	$339,936	C	0	-	0	0	0
36	0	$200,376	C	0	-	0	0	0

1 Probabilities were provided by the SELH administration

2 Each project is assumed to have a useful life of 20 years.

3 Capital Outlay Savings at time t =(Probability of funding) X (Cost of project) X (Percentage of 20 years).

Note: Capital Outlay project 3, Remediation of Contaminated Soil, has been completed at a cost of $300,000. However, this amount is not included in the value of the land since this action is a necessary condition to bring the land up to code.

6. DISCOUNTING ASSUMPTIONS

Discount rate: 4.99%, yield to maturity on a19-year State of Louisiana bond. (source: Bloomberg, May 2004. The State has no 20-year general obligation bond outstanding).

Useful life of new hospital: 20 years*.