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During the first nine months of 2000, Marshall & McVeigh Inc. operated its only factory two shifts a day plus a good deal of overtime work, and expected to continue at this production rate through the end of the year. At this rate, it was unable to meet the growing demand for its products, and inventories of finished products had been reduced during 2000 to levels that management felt were inadequate in view of the company's reputation for delivering its products promptly on the dates promised.

To correct this situation, meet customer's needs, and prepare for future growth, the company's managers in November 2000 decided to consider the desirability of moving to three- shift operations and initiating a plant expansion program. To provide data useful in this context, J.C. Marshall, the company's controller, was to prepare a financial plan for 2001.

The Marshall & McVeigh product line consisted of two items of unusual design, both invented by the company's president, H. L. McVeigh. One product was a perpetual calendar called "Dagmat"; the other was a low-cost retriever for telephone numbers, sold under the name "Telemat".

Marshall & McVeigh, Inc. was a publicly owned company, with shares traded in over-the-counter market. In addition to Messrs. Marshall & McVeigh, the company's management consisted of two product managers, one for each of the two products. Because the company was small, Mr. McVeigh also performed the duties of general sales manager and production manager.

Working Capital Position

Mr. Marshall estimated that working capital balances on December 31, 2000 would be as in Table 1.

Product Managers' Proposals

Using an economic forecast supplied by the company's bank, together with reports of dealer sales and inventories gathered by the company's sales force, the two product managers gave Mr. Marshall the tentative budget proposals for 2001 as in Table 2.

The increases in sales promotion expenditures in excess of 2000 levels would consist mostly of increases in local newspaper advertising and point-of-sale promotional displays. The projected increases in sales could not be obtained without these increased expenditures. No increase in the size of the sales force was anticipated.

Production Capacity

Mr. McVeigh's estimates of maximum production capacity and "general factory costs" (all factory

costs except materials, labor, and depreciation) were as in Table 3.

These estimates included allowances for labor overtime and also provided for a normal amount of time lost due to machine breakdowns and other kinds of work interruptions. Factory personnel for the third shift could be obtained without difficulty in the local job market, and new people required almost no training.

Other Proposals & Estimates

Mr. Marshall also collected other estimates and proposals for discretionary expenditures, which he summarized in Table 4.

The proposed expenditure of \$90,000 for equipment replacement covered three proposals already in the works, calling for \$25,000, \$10,000, and \$15,000, plus another \$40,000 to cover proposals that were certain to come up during the year. Replacement expenditures had varied between \$65,000 and \$100,000 in the previous five years. Replacement expenditure decisions would not affect depreciation for the year.

The \$60,000 listed as special project expenditures covered three proposals: a \$10,000 annual contribution to the local arts center; \$15,000 to the local Chamber of Commerce for a Beautify Our City program; and \$35,000 to help defray the vocational training program at the local high school which provided most of the company's entry-level factory employees. The arts center grant was at the same level as in 2000; the other two proposals were new. Mr. McVeigh was a director of the Chamber of Commerce; Mr. Marshall was a prominent member of the local Parent-Teachers Association.

The proposed dividend payout was the same in 2001 as in 2000. Marshall and McVeigh had never had a formal research and development program, however, and the proposed budget was to enable the company to hire and support a product engineer to help Mr. McVeigh develop the next generation of company products.

Financing

Mr. Marshall was convinced that the company would be unable to obtain any new long- term financing in 2001. Agreements with creditors required the company to maintain a minimum cash balance as reported in table 4. Cash had to be paid for all assets and services purchased except that trade credit (accounts payable) was available to finance increases in raw materials inventories.

Bank loans were available in units of \$10,000 up to 50% of the sum of the face amount of accounts receivable and the total cost of all inventories monthly on the last day of the month. Interest on short-term bank loans was paid monthly on the last day of the month. For budgeting purposes it was

assumed that any amounts borrowed during the year would be borrowed on July 1, 2001.

Questions

Assume that the company uses the LIFO method for inventory costing.

its restrictions. If there is a cash shortfall, how should the company resolve its cash needs? Assume that the company uses the LIFO method for inventory costing.

1 Does the company have enough capacity to service the proposed sales for 2001? Note that additional production (beyond forecast sales) is required in 2001 for two reasons:

a) To replenish finished goods inventory depleted by the unexpectedly strong demand experienced in 2000, and

b) To maintain the higher levels of finished goods inventory commensurate with the increased sales. Although this is a one-time consideration (not expected to recur hereafter), it needs to be incorporated for the 2001 budget.

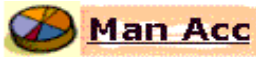
2 Will the move from 2 shifts to 3 shifts increase profits?

3 Which product should the company make if it had scarce machine capacity?

4 Prepare revised productions plan for 2001 that is feasible given the machine capacity using 3 shifts. (Don't worry about cash availability when answering this question.) The allocation of factory capacity must meet the following restrictions: a) the sales of each product must be at least as much as in 2000, and b) additional production is required to replenish inventories depleted in 2000 as well as to support the increased sales you determine are possible during 2001.

5 Prepare an income statement for 2001, given your revised production plan in Q. 4. Note that all of your production costs will not appear as cost of goods sold; since the company is building up finished goods inventory (production is not equal to sales). One item that is not known is the interest on the short-term bank loan. To determine the additional borrowing required you also need to construct a cash-flow statement, and to determine the interest expense you need to assume a borrowing pattern. Assume that the cash needs arise evenly over the year. Remember, you need to borrow enough to cover the interest on the borrowing. Assume that the tax statement is identical to the normal costing income statement.

6 Compare the bank loan required (answer to Q. 5) with the maximum the bank is willing to lend, given



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Table 1			
Working capital balance as of December 31,			2000
Current Assets			
Cash		\$ 160,000	
Accounts receivable		\$ 186,000	
Inventories		\$ 33,350	\$ 379,350
Current liabilities:			
Bank loans payable		\$ 30,000	
Accounts payable		\$ 19,050	
Taxes payable		\$ 27,000	\$ 76,050

Table 2			
Budget proposal	2001	Telemat	Dagmat
Unit Sales (Proposed)		40,000	300,000
Sales unit increase over last year		10,000	90,000
Both years			
Selling price per unit		\$11.13	\$3.35
Production costs per unit	Materials costs	\$2.50	\$0.55
	Labor costs	\$1.50	\$0.45
Machine hours required per unit		1.00	0.30
Product promotion expense (Proposed)		\$50,000	\$60,000
Increase over last year		\$12,500	\$18,000
Increase in finished goods required, even if sales are to remain at last year's level			
		500	4,500
Additional increase in assets because of increased sales over last year			
Accounts receivable		\$20,000	\$54,000
Materials inventories		\$2,500	\$4,950
Finished goods inventory (units)		500	3,500
Increase in accounts payable accompanying increased purchases			\$4,950

Table 3	Production capacity	Indirect Costs
2-shifts	93,000 machine-hrs	\$180,000 at capacity
3-shifts	125,000 machine-hrs	\$236,000 at capacity

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Table 4	
General sales & administrative expenses (except depreciation and promotion costs)	\$210,000
Depreciation: Factory and factory equipment	\$50,000
Office and sales facilities	\$25,000
Interest on long term debt (maturing two years from now)	\$50,000
Interest on short term bank loans	10.00%
Dividends on common stock	\$30,000
Research and development expense	\$45,000
Equipment replacement expenditures	\$90,000
Plant expansion expenditures (these additional facilities would not be completed till two years from now)	\$200,000
Special project expenditures	\$60,000
Income tax rate (half payable in the year accrued and half the next year)	40.00%
Minimum cash balance	\$140,000