

CASE STUDY

Designing the Production Network at CoolWipes

Matt O'Grady, vice president of supply chain at CoolWipes, thought that his current production and distribution network was not appropriate, given the significant increase in transportation costs over the past few years. Compared to when the company had set up its production facility in Chicago, transportation costs had increased by a factor of more than four and were expected to continue growing in the next few years. A quick decision on building one or more new plants could save the company significant amounts in transportation expense in the future.

CoolWipes

CoolWipes was founded in the late 1980s and produced baby wipes and diaper ointment. Demand for the two products was as shown in Table 5-18. The company cur-

rently had one factory in Chicago that produced both products for the entire country. The wipes line in the Chicago facility had a capacity of 5 million units, an annualized fixed cost of \$5 million a year, and a variable cost of \$10 per unit. The ointment line in the Chicago facility had a capacity of 1 million units, an annualized fixed cost of \$1.5 million a year, and a variable cost of \$20 per unit. The current transportation costs per unit (for both wipes and ointment) are shown in Table 5-19.

New Network Options

Matt had identified Princeton, New Jersey; Atlanta; and Los Angeles as potential sites for new plants. Each new plant could have a wipes line, an ointment line, or both. A new wipes line had a capacity of 2 million units, an

TABLE 5-18 Regional Demand at CoolWipes (in thousands)

Zone	Wipes Demand	Ointment Demand	Zone	Wipes Demand	Ointment Demand
Northwest	500	50	Lower Midwest	800	65
Southwest	700	90	Northeast	1,000	120
Upper Midwest	900	120	Southeast	600	70

TABLE 5-19 Transportation Costs per Unit

	Northwest	Southwest	Upper Midwest	Lower Midwest	Northeast	Southeast
Chicago	\$6.32	\$6.32	\$3.68	\$4.04	\$5.76	\$5.96
Princeton	\$6.60	\$6.60	\$5.76	\$5.92	\$3.68	\$4.08
Atlanta	\$6.72	\$6.48	\$5.92	\$4.08	\$4.04	\$3.64
Los Angeles	\$4.36	\$3.68	\$6.32	\$6.32	\$6.72	\$6.60

annual fixed cost of \$2.2 million, and a variable production cost of \$10 per unit. A new ointment line had a capacity of 1 million units, an annual fixed cost of \$1.5 million, and a variable cost of \$20 per unit. The current transportation costs per unit are shown in Table 5-19. Matt had to decide whether to build a new plant and if so, which production lines to put into the new plant.

Study Questions

1. What is the annual cost of serving the entire nation from Chicago?
2. Do you recommend adding any plant(s)? If so, where should the plant(s) be built and what lines should be

included? Assume that the Chicago plant will be maintained at its current capacity but could be run at lower utilization. Would your decision be different if transportation costs are half of their current value? What if they were double their current value?

3. If Matt could design a new network from scratch (assume he did not have the Chicago plant but could build it at the cost and capacity specified in the case), what production network would you recommend? Assume that any new plants built besides Chicago would be at the cost and capacity specified under the new network options. Would your decision be different if transportation costs were half of their current value? What if they were double their current value?