Road King Trucks

Introduction

Michael Livingston has recently been hired as the CEO of Road King Trucks, Inc. Previously he had been the marketing manager for a large manufacturing company and had established a reputation for identifying new consumer trends. Road King Trucks Inc. is a California-based truck manufacturing company. The company is well known for manufacturing large, heavy-duty trucks at a reasonable cost. One of its greatest achievements is that its trucks can be easily modified or customized for different applications. Road King Trucks also builds school buses.

The company is considering an expansion of its current product line to include transit buses. Mr. Livingston feels that due to high gasoline prices, commuters will be more willing to consider using mass transit instead of using their cars to commute to work.

Company Profile

Road King Trucks, Inc. was established by the Smith brothers in 1880 as the California Wagon Company. The firm started manufacturing horse-drawn wagons to serve the growing population in California. The brothers quickly realized that the times were changing, so they started looking for the technologies that would keep them at the forefront of their field of business. In 1915, the Smith brothers decided that they needed to make trucks as replacements for the wagons, because trucks were starting to serve the same uses as wagons, and the wagon industry was not going to be viable in the longer term.

The company started making school buses in the early 1940's. Most manufacturers had been commissioned by the government to produce different large vehicles to support World War II operations. Road King Trucks opted to produce buses. It was an easy decision to make, since the buses would use common parts with the company's trucks, and the customers were local governments. Starting in the 1950's, the school bus business accounted for about 50% of Road King Trucks' revenues.

The Transit Bus Opportunity

Mr. Livingston arranged a meeting with the firm's top management, as well as the chief design and manufacturing engineers to propose his new product. He presented an argument that more individuals in the United States and Canada would be willing to use public transportation than before, because people were becoming more environmentally conscious. Also, recent increases in fuel costs seemed to be long lasting. This was an opportunity to get people hooked on transit buses, as he put it.

The proposal under consideration was for the introduction of a large, public transport bus. To distinguish Road King Trucks from other manufacturers, the proposal included details about the level of comfort, air-conditioning, efficiency, and quietness of operation that needed to be developed.

Mr. Phillips and Mr. Lopez, the two engineers, reacted enthusiastically and quickly pointed out that the bus could be based on the company's trucks. The frame currently used for building the trucks could be modified to accommodate buses at a relatively low

cost. The marketing vice president, Mr. Chen, pointed out that a marketing analysis could be done quickly, and at a reasonable cost. At this point, Mr. Livingston charged the participants in the meeting to produce a financial plan for the development and production of a transit bus.

Public Transportation

The use of public transportation had declined steadily since the 1950's. Most people were opting to use their personal vehicles for all of their transportation needs. Recently, however, most of the metropolitan areas in the United State and Canada, the target markets for the new bus, had become more and more congested; and parking, which was already very expensive, was becoming scarce.

This combination of trends has renewed the public's interest in good and reliable public transportation. Several municipalities have been campaigning to their residents and commuters that they should use public transportation for business commuting, and only use their cars for shopping and weekend activities. However, such campaigns need to be supported by making high quality public transportation available to the target riders.

The Decision

Three weeks after the initial meeting, the vice presidents presented the sales and cost forecasts shown in the attached exhibits. The information presented contains the cost of production, financing information, and warranty cost estimates. The proposals also contained two engine options for the engines: The Detroit engine, and the Marcus engine. The Detroit engine was more expensive to install, but had a lower warranty cost. The Marcus engine was less expensive to install, but had a higher warranty cost. This begged the question: Which engine should be used?

Issues and Analyses

Mr. Livingston noticed that there was a great deal of enthusiasm among the management group about the transit bus opportunity, but his cautious nature told him to also seek a more objective viewpoint. Consequently, he sought out you to analyze the proposed project and provide your recommendations directly to him. The issues he wants you to address in your analysis and report are the following:

1) How much importance should be given to the energy cost situation?
2) What are the project's cash flows for the next twenty years? What assumptions did you use?
3) What is the company's cost of capital? What is the appropriate discount factor (which may be different) for you to use in evaluating the bus project?
4) If you decide to go ahead with the project, which of the two engines should be used in the bus, and why?
5) Evaluate the quality of the project, by using appropriate capital budgeting techniques.
6) Would you recommend that Road King Trucks accept or reject the project? What are the key factors on which you base your recommendation?

Exhibit 1: Sales and Cost Forecast

The sales forecast is based on projected levels of demand. All the numbers are expressed in today's dollars. The forecasted average inflation per year is 3.5%

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Price per bus	$220,000		
Units sold per year	11,000		
Labor cost per bus	$50,000		
Components & Parts	$95,000		
Selling General & Administrative	$250,000,000		
NOTE: Average warranty cost per year per bus for the first five years is $1,000. The present value of this cost will be used as a cost figure for each bus. Afterwards, the bus operator will become responsible the repairs on the buses.			
The buses can be produced for twenty years. Afterwards, the designs become obsolete.			

Engine choices

Engine	Detroit engines	Marcus engines
Price per engine, including installation	$20,000	$18,000
Average annual warranty cost per year for five years. Afterwards, the bus operator will become responsible for the repairs on the buses.*	$1,000	$1,500
The chosen engine will be installed in every bus and will become a cost figure for each bus. NOTE: The engine manufacturers are not providing Road King Trucks with any warranty. However, Road King Trucks will provide a warranty to its customers. After the initial five years, the bus operators may purchase an extended warranty from any insurance company that offers such packages.		

Exhibit 2: Investment Needs

To implement the project, the firm has to invest funds as shown in the following table:

Year 0	Year 1	Year 2	Year 3
$400 million* plus the land the company owns**	$500 million*	$200 million*	$100 million Production and selling of buses starts
* Road King Trucks estimated that it would cost a total of $1 billion to build the factory and purchase the necessary equipment to produce the buses. The other $200 million investment, divided equally in years 2 and 3, is for non-depreciable labor training costs. Such investment is treated as regular business expenses. ** The factory will be built on a parcel of land which Road King Trucks owns. The land was purchased ten years ago for $3 million and is currently valued at $6 million.			

Straight line depreciation will be used for the sake of simplicity.

To facilitate the operation of manufacturing the transit buses, the company will have to allocate funds to net working capital (NWC) equivalent to 10% of annual sales. The investment in NWC will be recovered at the end of the project.

Assume that he land, factory, and equipment will be sold at the end of the project. The company expects to spend about $300,000 demolishing the factory and cleaning the land. The company expects to sell the land for its current value, plus the inflationary effects on its price. The equipment will be sold for salvage at about $15,000,000.

Exhibit 3: Financing Assumptions

The following assumptions are used to determine the cost of capital.

Historically, the company tried to maintain a debt to equity ratio equal to 0.40. This ratio was used, because lowering the debt implies giving up the debt tax shield, and increasing it makes debt service a burden on the firm's cash flow. In addition, increasing the debt level may cause a reduced rating of the company's bonds. The marginal tax rate is 40%. All the numbers are expressed in today's dollars. The forecasted average inflation per year is 3.5%.

Cost of debt:

The company's bond rating is roughly at the high end of the A range. Surveying the debt market yielded the following information about the cost of debt for different rating levels:

Bond rating	AA	A	BBB
Interest cost range	5.5% ~ 6.5%	6.25% ~ 7.5%	7.5% ~ 9%

The company's current bonds have a yield to maturity of about 6.5%.

Cost of equity:

The current 10-year Treasury notes have a yield to maturity of 4% and the forecast for the S&P 500 market premium is 5.5%. The company's overall β is 1.15.

β analysis:

Company	Road King Trucks	Red Bird	General Trucks	Universal Transports	Trucks Inc.	International Trucks
Overall β	1.15	1.2	1.3	1.32	1.2	1.09
Debt to equity	0.4	0.3	0.5	0.45	0.35	0.25
Percentage of income from trucks	50	45	90	95	85	85