

**A FINANCIAL ANALYSIS OF PLACING
FIXED GRAIN ASSETS IN NORTHERN
KANSAS**

by

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ABSTRACT

During the past two decades, there has been major consolidation in the grain handling industry. Staying competitive in today's environment involves finding projects that add value from a strategic geographic standpoint and a revenue generation standpoint. This study examines several economic factors regarding growth opportunities of facility assets that exist in Northern Kansas, and what the associated cost structure would look like based on a business feasibility study.

This study researched the county production by volume and acreage devoted to crop production as well as bid structures and freight spreads of competitors currently in the region today. It also involved researching the margin structures, and it considered a strategic decision about the size of facility that could be built on the existing margin opportunity. Several economic theories were used to derive the feasibility of this research and measure the profitability of the project. Farmer sentiment was polled and a focus group was assembled to understand the opportunity that Scoular may have in the region.

The results found a region that provides a steady volume of crop production and margins that are typical of those that Scoular is experiencing in other regions of the state. The research also found the farmers of this geography, receptive to more competition entering the market place.

TABLE OF CONTENTS

List of Figures	v
List of Tables	vi
Acknowledgments	vi
Chapter I: Introduction	1
1.1 Introduction	1
Chapter II: Literature Review	3
2.1 Introduction	3
2.2 Business Analysis.....	3
2.3 Competitive Footprint	3
2.4 Producer Sentiment	4
2.5 Crop Production Trends	7
Chapter III: Conceptual Model	10
3.1 Introduction	10
3.2 Freight Component and Margin Analysis	10
3.3 Net Present Value	14
3.4 Discount Rate – Opportunity Cost of Capital.....	14
3.5 Payback Period	15
3.6 Internal Rate of Return.....	15
Chapter IV: Methods	16
4.1 Introduction	16
4.2 Supporting Metrics	16
4.3 Facility Overview	20
4.4 Facility Financial Overview and Assumptions.....	24
4.5 Present Value and Project Metrics	43
Chapter V: Results	50
5.1 Project Analysis.....	50
5.2 Analysis of Table 4.12	50

5.3: Analysis of Strategic Value in Table 4.12.....	50
Chapter VI: Conclusions	52
6.1 Introduction	52
6.2 Conclusions	52
References	54

LIST OF FIGURES

Figure 2.1: Competitive Footprint.....4

LIST OF TABLES

Table 2.1: Washington County Producer Focus Group – 75,000 Acres Represented...	6
Table 2.2: Corn Production in Washington County, Kansas: 2006-2010	8
Table 2.3: Sorghum Production, Washington County, Kansas: 2006-2010.....	8
Table 2.4: Soybean Production in, Washington County, Kansas: 2006-2010.....	8
Table 2.5: Wheat Production, Washington County, Kansas: 2006-2010	9
Table 3.1: Typical Rail Freight Trade Sheet.....	11
Table 4.1: 2006-2010 Washington County Crop Production in Bushels	17
Table 4.2: 2006-2010 Marshall County Crop Production in Bushels	19
Table 4.3: Bin Site Expense Breakdown.....	21
Table 4.4: Bunker Cost Overview	22
Table 4.5: Miscellaneous Expenses.....	23
Table 4.6: Total Project Costs.....	24
Table 4.7: Facility Financial Overview Based on Project Costs	26
Table 4.8: Total Revenues – Typical Fiscal Year	28
Table 4.9: Total Expenses – Typical Fiscal Year	31
Table 4.10: Average Combined Revenues and Expenses – Typical Fiscal Year	35
Table 4.11: 10 Year Profit & Loss Statements.....	40
Table 4.12: Financial Metrics: Scoular’s	46
Table 4.13: Financial Metrics: Average.....	48

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CHAPTER I: INTRODUCTION

1.1 Introduction

The Scoular Company is a century-old, employee owned agricultural company located across North America, shipping agricultural goods around the globe. The company currently operates 60 facilities nationwide with additional locations in Mexico and Canada. The company currently sits at 63rd on the list of Forbes top 100 privately held companies. In 2007, Scoular had 400 employees on the payroll. Today, Scoular has almost 700 employees and has expanded their market share and footprint throughout the Midwest and North America. This research project considers expanding the market share in the State of Kansas where Scoular already has a large network of businesses. The objective of this project is to determine the feasibility of locating a grain elevator in North Central, Kansas. The amount of grain volume that could potentially be sourced, and what kind of margins could be secured are important factors affecting the decision. The feasibility factors used to arrive at the decision of whether to locate in Washington County are based on several financial concepts.

The research will be presented beginning with a literature review that will provide the competitors in the region and their storage capacities as well as the volume of grain produced from the 2006 to 2010 crop years. The next chapter outlines the margin analysis that indicates the opportunity that exists to create revenue. From those answers, the kind of facility that could be supported with the potential revenue stream is discussed. The methods chapter outlines the financial metrics used in making the decision. It will define several assumptions used in determining the desirability of the project.

The analysis chapter will tie together the previous research and provide other opportunities that exist in the region that make the project research more attractive. The price of raw materials today is high, and a project of this size needs to be justified on more than just margin opportunity unless the numbers are so significantly compelling.

CHAPTER II: LITERATURE REVIEW

2.1 Introduction

The current commercial and producer space in the region is important to any financial analysis of additional facilities. Margin analysis consists of researching the existing opportunity from a bid structure and freight standpoint. Researching the financial metrics was completed using the internal rate of return, net present value, opportunity cost of capital, and the project payback period. The following information will give an overview of the businesses that exist in the region. A financial analysis will be provided in the following chapters.

2.2 Business Analysis

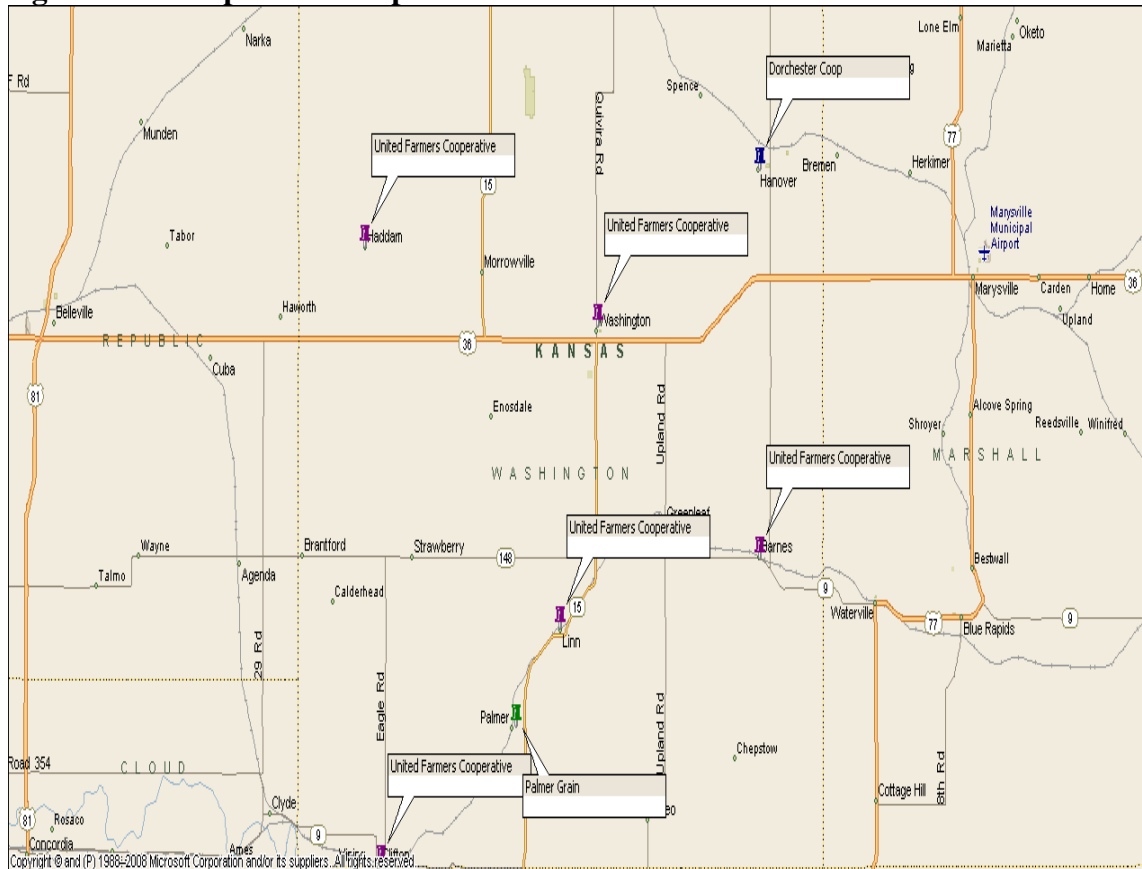
United Farmers Cooperative is the fifth largest farm cooperative in the state of Nebraska, and they currently operate five locations 1 in Washington County, KS with total storage capacity of 5,176,000 bushels. A competitor, Palmer Grain Company in Palmer, Kansas is a single location with 900,000 bushels of storage capacity. Farmers Cooperative, Dorchester, Nebraska is another competitor with a shuttle loading facility in Hanover, Kansas, and 2,786,000 bushels of storage capacity. The total commercial storage capacity of Washington County, Kansas is 8,862,000 bushels.

2.3 Competitive Footprint

Figure 2.1 provides the competitive footprint of Washington County. The county border lines are illustrated in Figure 2.1 by the dotted lines that run on either side of the push pins indicating given facilities. The layout of the competitive structure indicates a wide dispersion of facilities causing some producers to travel long distances to get to an elevator to market their grain. Farmers have less patience for slower facilities due to truck lines; therefore, dumping efficiency will be even more valuable to these producers. These efficiencies also play an important role in moving volume through the elevators. It is particularly important with wheat because when wheat

is ripe, the window to harvest is about 15 days and can be shorter due to weather conditions. When Scoular researched the facility that was needed, efficiency was at the top of the list as it pertained to dumping all commodities, but most specifically with wheat in mind.

Figure 2.1: Competitive Footprint



2.4 Producer Sentiment

Last year in August 2011, a focus group was assembled of twenty five possible producer customers. The acreage represented at this meeting was approximately 75,000 acres of production, or roughly 3,000 acres of production per producer. The sentiment expressed was an extreme dissatisfaction with the current competitive structure in the region. The elevators that currently service the region were discussed at length, and between the lack of efficiency and focus on

customer service there was a united opinion that a change needed to be made. Scoular provided each customer with a chance to voice his/her opinions of what they would like to see in a country elevator business, and the answers they provided were used as a backbone for this research. Efficiency was at the top of the list because of the inability or neglect of some of the other competitors in the region to focus on upgrading the assets they currently have in place. If you were to break down the production potential by percentage, the acreage that was represented is shown in Table 2.1. This does not necessarily represent the crop rotation of each customer or even what their percentage of each crop looks like. This is more an assumption and indication of total volume in just this group of potential customers based on current crop trend percentages from Tables 2.2 – 2.5. The numbers provided for yields is also conservative as the actual yield information from the National Agriculture Statistics Service would show these yield numbers are lower roughly across all commodities than the actual five year averages provided in Tables 2.2 – 2.5 (National Agricultural Statistics Service 2006 through 2010).

Table 2.1: Washington County Producer Focus Group – 75,000 Acres Represented

Crop	Percent of Crop	Acre Breakdown	Average Yields/Bushel	Total Production Potential/Bushels
Corn	29%	21,750	105	2,283,750
Wheat	22%	16,500	35	577,500
Sorghum	28%	21,000	98	2,058,000
Soybeans	21%	15,750	35	551,250
			Total	5,470,500

This information is a great indicator of the kind of possible potential that exists today to support a facility of the size being proposed. The dissatisfaction of this group was evident at the meeting. It should also be mentioned that Scoular sent semi's into this region during the fall harvest of 2011 and pulled grain to the South, directly out of the field. Scoular's terminal and the two facilities that I oversee saw more than 100,000 bushels of sorghum, wheat and corn from five different customers in Washington County throughout the fall of 2011. That grain volume was pulled from eighty eight miles away to the South, and that is a great example of an uneconomic movement of grain. There is no reason that volume should move past county lines to destination markets that far away. The reality of the situation was that Scoular could have handled a lot more of the volume in this crop year as well, if the semi truck capacity would have been available.

2.5 Crop Production Trends

Table 2.2 shows the corn production in Washington County from the 2006 through 2010 crop years. An increase in corn production has been the trend over these five years and represents the largest crop produced by bushels in Washington County. Table 2.3 represents sorghum production in the same five year period and shows a trend of decreasing production in both bushels and acres. The trend represents acres shifting from sorghum production into corn and soybean production and is also the lowest volume crop by bushels and acres in Washington County in 2010. Table 2.4 represents soybean production from 2006 through 2010 and shows an increasing trend in acres over this five year period. Table 2.5 represents the wheat production in Washington County over the same period and shows a flat to decreasing trend of acres and bushels over the five years.

The five year average of grain volume in Washington County is 16,323,020 bushels across all commodity types (National Agricultural Statistics Service 2006 through 2010). The bushels and acres produced favor more corn and soybean production than wheat and sorghum production over the five year period. This is a trend that we have observed in Kansas in recent years, as seed hybrids have improved in corn and soybeans. Furthermore, the dollar of revenue produced per acre, coupled with better yield potential has been the driver behind producer decisions.

Table 2.2: Corn Production in Washington County, Kansas: 2006-2010

Year	Total Acres	Harvested Acres	Average Yield	Total Bushels
2006	44,300	36,800	75 bu	2,777,100
2007	41,800	37,300	116 bu	4,315,000
2008	40,900	37,200	122 bu	4,527,000
2009	51,500	47,000	134 bu	6,300,000
2010	61,000	56,000	102.9 bu	5,762,000

Table 2.3: Sorghum Production, Washington County, Kansas: 2006-2010

Year	Total Acres	Harvested Acres	Average Yield	Total Bushels
2006	45,600	44,400	82 bu	3,636,300
2007	55,400	52,800	93 bu	4,922,900
2008	53,000	51,500	112 bu	5,751,000
2009	48,000	46,000	118 bu	5,450,000
2010	36,000	35,500	87.7 bu	3,115,000

Table 2.4: Soybean Production in, Washington County, Kansas: 2006-2010

Year	Total Acres	Harvested Acres	Average Yield	Total Bushels
2006	81,300	80,700	34 bu	2,717,000
2007	76,200	76,200	38 bu	2,928,300
2008	86,500	85,900	43 bu	3,703,000
2009	94,000	93,500	46 bu	4,280,000
2010	107,000	104,000	36.9 bu	3,840,000

Table 2.5: Wheat Production, Washington County, Kansas: 2006-2010

Year	Total Acres	Harvested Acres	Average Yield	Total Bushels
2006	87,900	86,600	44 bu	3,792,000
2007	100,500	94,800	31 bu	2,973,000
2008	89,200	86,100	43.5 bu	3,734,000
2009	80,500	77,500	51 bu	3,970,000
2010	76,500	70,500	44.3 bu	3,121,500

CHAPTER III: CONCEPTUAL MODEL

3.1 Introduction

Competitive advantage for the company is an important issue. Scoular considers any project with a 3 year payback period or less as a favorable project, and they consider anything in the 5 or 6 year range as “most likely” satisfactory. The net return numbers for the project will be discussed in the methods chapter of this thesis. This chapter provides the framework for determining the investment profitability and discusses the theory behind the net present value and payback methods. When examining investment profitability or the “real” opportunity that exists in the region and what kind of facility can be built, margin structure is important. Margin analysis quantifies the amount of facility that can be supported given the margin opportunity that exists. This margin opportunity is derived by taking current market opportunities from a bid standpoint and determining the freight assumed into those bids to derive an estimate of the margin available in selling those commodities. From this framework, the amount of capital that can be used to purchase a facility that the region can support can be determined.

3.2 Freight Component and Margin Analysis

Dorchester Coop’s Hanover facility is the only shuttle train capable facility in Washington County and is the only facility with rail access of any kind. The rest of the facilities in Washington County are truck houses. They have a disadvantage from a competitive freight standpoint because of the inability to sell by rail. Being the only facility that is accessible by rail in a county is also a disadvantage because long lines can develop during harvest.

Hanover’s margin analysis for the rail option is as follows. When shuttle freight is purchased for grain trains, there are a couple of decisions that are made. The first part of

buying shuttle freight is to purchase the tariff. The tariff is an individual car dollar amount assigned to every car on the train and does not fluctuate much on a crop year basis. Usually tariffs are set prior to harvest and carry through the entire crop year. The Hanover facility is serviced by the Union Pacific railroad and the rates on tariffs for the Union Pacific can be found on <https://c02.my.uprr.com/pic/jas/index.jas>. The rates vary by commodity and destination. Assuming wheat and using the Gulf of Mexico as the destination market, the tariff was \$3,467 on November 30th, 2011. This price is for trains with greater than 92 but less than 115 covered hopper cars that hold approximately 3,300 bushels of wheat on a 60 pound dry matter basis. The second part of the rail freight component is the cost of cars. The cost of cars is the dollar amount that purchases a one car unit of freight. These rates are more volatile depending on the market environment, and factors such as weather, harvest time demand and supply of cars, etc. These rates are available from a broker. A typical example is found in Table 3.1.

Table 3.1: Typical Rail Freight Trade Sheet

UNION PACIFIC		MONTH	BURLINGTON NORTHERN	
Bid	Offer		Bid	Offer
		Return		-\$200
		LP November	-\$300	
-\$450		FP December	-\$300	-\$150
		MP December	-\$300	-\$150
-\$475	-\$400	December	-\$350	-\$225
-\$425	-\$275	Jan, Feb, Mar	-\$300	-\$225
		FP Apr, May	-\$375	-\$325
-\$600	-\$350	Apr, May	-\$400	-\$350
-\$600	-\$300	Jun, Jul	-\$400	-\$275
		MP Aug, Sept	-\$325	-\$250
		Aug, Sept	-\$350	-\$200
		OND 2012	\$350	\$450
		JFM 2013	-\$175	-\$75

Rail freight is traded in periods (Table 3.1). Using the December period, the offer side of the cost of cars for the full month of December for rail freight on the Union Pacific is -\$400. If rail freight was purchased today, the railroad would pay \$400 per car to load a shuttle train. The other side of the market is that someone is bidding -\$475 per car to purchase freight. The transaction will probably trade in that range. Using the offer side of the market and the tariff from Table 3.1 and the fuel surcharge, the overall amount needed to ship wheat from Hanover, Kansas to the Gulf of Mexico is \$3,067 per car. A hopper car will hold 3,300 bushels of wheat, and dividing the dollar amount by the bushel per car amount results in 93 cents per bushel. To determine the margin for the bid delivered to the gulf market on a cents per bushel basis, the protein of the wheat being traded needs to be known. Washington County typically grows 12.0% protein wheat, and a recent bid out of the gulf market for 12.0% protein wheat was +110 cents per bushel over the Kansas City Board of Trade (KCBOT) December futures delivered the Texas Gulf. The conversion for the margin is the +110 bid from the Gulf and the 93 cents for freight or $110 - 93 = +17$ FOB Hanover, Kansas.

A current bid to the farmer to sell wheat to the shuttle loader in Hanover is -\$0.22. The facility is offering to buy wheat from the farmer at twenty two cents under the KCBOT December futures. This is added to the +17 from above and results in 39 cents per bushel margin for the Hanover terminal. The Hanover terminal will have a variable lift amount for expenses; in this instance a 10 cent lift will be used. The definition of a lift is the amount assigned to labor and operating expenses, and will be defined in detail later in the research. Thus, the final margin is 29 cents per bushel for Hanover's train loading facility. This margin has been pretty standard over the last five crop years in Kansas.

The truck houses can also be analyzed. United Farmers COOP is bidding -\$0.25 or a 3 cent discount to what the Hanover train loader is buying grain. Trucks are competitive with rail in the region. However, the COOP is not buying wheat and shipping it to the Hanover rail loader. Agmark, located in Concordia, Kansas is the next closest train loading market. Assuming they are currently bidding -0.10 delivered to Concordia, that results in an 18 cents a bushel from one of the COOP origins to the train loader, at \$1.75 a running mile. This is determined by taking the mileage (96 miles round trip roughly to and from the facility in Concordia and back to the wheat origins) and multiplying that by the running mile rate of \$1.75, or \$168 a truck load. Taking the \$168 a load and dividing that by the average amount of wheat bushels hauled in a semi truck of 900 bushels gives a resulting amount of 18.6 cents per bushel per truckload to haul grain in a semi from the origins to the Agmark train loader. Rounding down to eighteen cents and adding the transportation costs to Agmark's bid results in a bid of -\$0.28 FOB the wheat origin. This would result in a loss if the wheat was purchased from the farmer at -\$0.25 and sold to Agmark at -\$0.28 delivered of 3 cents. A flour mill is in proximity that could drive the spread favorably because of trucks looking for loads going back north. The natural movement of grain is south from the Corn Belt into states that are corn deficient, and trucks want a backhaul opportunity going north. Fremont, Nebraska, outside of Omaha, spreads single cars to the interior Chicago mill market. The bid in Fremont for wheat delivered to their market with 12.0% protein was +\$0.65. You could book freight for 0.40 cents a bushel going back north toward Omaha and the resulting margin would be +0.65 – 0.40 cents resulting in a bid of +0.25 FOB. Buying wheat at -0.25 results in a fifty cent margin depending on what the

facility allocates to lift expenses, and this margin would be more in line with what is able to be secured in wheat margins.

3.3 Net Present Value

The theory that a dollar today is worth more than a dollar in the future is the argument that supports the theory behind net present value. A dollar today will earn interest over time if invested, and after a year one would have more than the dollar. Net present value represents the net contribution of wealth to the company by investing Scoular capital into a project. If the net present value is positive, the project should be pursued. There are also risks that need to be considered. Inflation can have an impact on the project because inflation can decrease the value of money over time. The cash flow uncertainty is another risk to be considered. Discount factors need to be used to account for the uncertainty of the project.

3.4 Discount Rate – Opportunity Cost of Capital

Discount rates are used to help analyze the unique risk that a project will present in future cash payments. The discount rate is also called the opportunity cost of capital and it is the return foregone by investing in the project and not securities that offer the same risk over the same time period. The predicted cash flows need to be forecasted to provide an estimate of revenues and expenses. The timeframe that Scoular will be analyzing encompasses ten years of crop production and will include expected cash flows for that timeframe. The other consideration will need to be the return that Scoular could get if they invested that same capital into other investments with comparable risk. Higher risk projects are going to require higher rates of return, and so are projects that are capitalized over longer periods due to the typical yield curve. Scoular uses a scenario that uses three different kinds of cash flows. Projected cash output for an average, pessimistic and

optimistic crop years are analyzed separately by year, and the “additivity rule” is used to calculate the present value. By adding the different time periods together and coming up with the overall net present value number, there is an indication of what the true risk may be. Interest rates will be important in this research and it should be assumed that the rates shall remain flat across all terms of the projected cash output.

3.5 Payback Period

The payback period is also a tool Scoular utilizes, as it shows the expected time frame for getting the initial capital back on the investment. Payback gives equal weight to cash flows until the payback year or date is met and no weight to later cash flows. A business that uses payback period typically has a time frame that they will assign to a project as favorable. Scoular will typically pursue projects that payback the initial investment in three years or less time. Scoular will also consider projects that payback the initial investment in four to six years, but those projects also need to provide some other means of revenue generation.

3.6 Internal Rate of Return

Scoular will assign an internal rate of return percentage that is favorable to a project. The internal rate of return is a measure of profits through the timing of cash output. In this project, the cash output over ten years is considered assuming a flat term interest structure of three percent. This should not be confused with opportunity cost of capital that compares the ability of the project to earn against other investments of similar risk. This is something Scoular does put emphasis on because of the unique risk associated with a project of this size. For purposes of this research, Scoular would like to see the internal rate of return around fifteen percent and preferably higher.

CHAPTER IV: METHODS

4.1 Introduction

The objectives of this project were to establish the amount of grain volume in the region that could potentially be sourced and what kind of margins could be secured. First, the county volume of crops that could be obtained by the facility, were determined. That provided a revenue stream of margin potential as well as storage revenue for a facility. It provided a framework of expenses that could be used to develop a financial spreadsheet of margins and expenses.

4.2 Supporting Metrics

The supporting metrics for this research include the amount of grain handled and the margins secured in that grain and other revenues associated with a facility. The amount of crop production on average in the county is about 16,000,000 bushels. Table 4.1 shows the Washington County five year volume by commodity (National Agricultural Statistics Service 2006 through 2010).

Table 4.1: 2006-2010 Washington County Crop Production in Bushels

Crop Year	2010	2009	2008	2007	2006	5 Year Average
Wheat	3,121,500	3,970,000	3,734,000	2,973,000	3,792,000	3,518,100
Milo	3,115,000	5,450,000	5,751,000	4,922,900	3,636,300	4,575,040
Corn	5,762,000	6,300,000	4,527,000	4,315,000	2,777,100	4,736,220
Soybeans	3,840,000	4,280,000	3,703,000	2,928,300	2,717,000	3,493,660
Total Grain / Year	15,838,500	20,000,000	17,715,000	15,139,200	12,922,400	16,323,020

With 16 million bushels of grain in the county, an effective handle of 30% of the county crop production was assumed, based off of similar numbers for county producer grain handle at other facilities in the company. Thirty percent of 16 million is 4.8 million bushels handled in an average crop year. Those numbers are further supported if the facility can attract incremental volume from neighboring counties that also produce grain and the facility is located in the middle of this geography. Marshall County is a neighboring county to Washington and is relatively the same size in square miles. However, Marshall County on average produces 3 million more bushels of grain volume across all commodities than Washington County. Table 4.2 provides the commodity breakdown and average volume for Marshall County (National Agricultural Statistics Service 2006 through 2010).

Table 4.2: 2006-2010 Marshall County Crop Production in Bushels

Crop Year	2010	2009	2008	2007	2006	5 Year Average
Wheat	2,409,000	3,080,000	2,526,000	2,416,000	3,427,000	2,771,600
Milo	1,000,000	2,010,000	3,136,000	3,435,800	2,503,900	2,417,140
Corn	9,394,000	12,000,000	9,792,000	7,654,000	4,719,500	8,711,900
Beans	4,590,000	6,380,000	5,411,000	4,580,400	4,825,800	5,157,440
Total Grain / Year	17,393,000	23,470,000	20,865,000	18,086,200	15,476,200	19,058,080

The total storage capacity of commercial elevators in Marshall County is 6,457,000 bushels from 3 smaller grain companies. There is also a major space deficiency and efficiency of elevators in this county similar to that in Washington County. The following section and tables will show the material costs associated with this project and provide an overview of the facility.

4.3 Facility Overview

Construction of grain facilities is at an all time high, especially with the margin opportunity and the margins that have existed over the past five years. Grain storage has expanded at an accelerated rate to accommodate increasing yields and growing opportunity in revenue generated from futures prices and grain margins as well as ethanol production. Since this is a country elevator project, the project needs to be built with the producer in mind. Speed and efficiency are important. Crop trends need to be considered because tailoring a facility to receive and store wheat is different than building one for corn. With economics favoring corn planting, the decision to build functional and cost effective corn space is important. The design that made sense was two 500,000 bushel steel bins and two 500,000 bushel aluminum sidewall bunkers. The receiving equipment would include a 25,000 bushel an hour leg to fill the two steel bins and one 15,000 bushel an hour radial stacker for the bunkers with the ability to reclaim out of the bins and load trucks with the same speed as dumping into the pit. The reclaim out of the bunkers would need to be done with large loading equipment coming directly off the ground. Tables 4.3, 4.4, and 4.5 details the cost of the bins and the bunkers associated with this project. There will be other associated costs with this research, such as purchasing the property on which to build the facility, and that is explained in detail and included in the project price later in the research. These costs also include the labor to lay the foundations, erect the structures and install the infrastructure.

Table 4.3: Bin Site Expense Breakdown

Equipment	Cost	Description
2 - 500k Steel Bins	\$860,000	
2 - Footings	\$1,140,000	Footing installation including soil testing and engineering
2 - 25k Fill Conveyors	\$560,000	GSI 25k belt conveyors including associated electrical and tower support
2 - Reclaim Conveyors	\$500,000	GSI 25k belt conveyors including associated electrical
1 - 25k Receiving Leg	\$340,000	GSI 25k leg including support tower, concrete boot pit, spouting, and electrical
2 - Bin Sweeps	\$60,000	GSI Series II bin sweeps including electrical
1 - 25k Receiving Drag	\$240,000	GSI 25K En Masse Drag Conveyor, two receiving pits, concrete tunnel, and electrical
1 - Loadout Bin	\$65,000	Meridian hopper bottom bin 3,000 bushels
Bin Site Costs	\$3,765,000	

Table 4.4: Bunker Cost Overview

Materials/Contractors	Price	Comments
120' x 350' x 4 Bunker	\$115,000	2 - Lemar, price includes installation
Aeration Fans	\$7,000	8 - GSI axial fans
Aeration Transitions	\$5,000	8 - 24" O.D. x 60" long w/ flange to mate to fan
Aeration Pipe	\$23,000	480 ft of solid, 640 ft of perforated with sock, 16 end caps, 60 couplers, 8 tees, freight included
Top Aeration Pipe	\$3,500	2700 ft of 6 inch pipe with end caps and couplers
Aeration Pipe Cover	\$300	NO6 Geo-textile fabric
Bunker Covers	\$10,000	Two tarps
Bunker Web Net	\$12,000	2 - Lemar
Bunker Web Net Rachets	\$2,000	88 rachets
Drive Over Conveyor	\$36,000	Corn Hog conveyor 15,000 bph with wheel jacks, freight included
Radial Stacker	\$45,000	Allatoona with second axle
Electrical	\$55,000	
Dirt Work	\$65,000	
Permits	\$1,000	
Surveying	\$1,500	
Freight		
Contingency (5%)	\$19,065	
Total For Bunker Site	\$400,365	

Table 4.5: Miscellaneous Expenses

Item	Cost	Description
Office	\$32,000	10' x 44' Modspace office including electrical
Office Equipment	\$55,000	Computers, furniture, grain grading equipment
Truck Scale	\$80,000	Apollo 80' x 12' scale including electrical
Truck Probe	\$32,000	CR Manufacturing probe including electrical
Ticket System	\$35,000	CompuWeigh system including remote ticket printer and electrical
Road/Dirt Work	\$150,000	Access roads and drainage
Facility Lighting	\$40,000	Lighting around facility and office
Electrical Building	\$165,000	30' x 15' poured concrete structure with concrete cap and MCC equipment
Primary Electrical Service	\$50,000	Utility company cost to install transformers and associated components
Miscellaneous Costs	\$639,000	

These project costs also include the electrical infrastructure that would be needed to support a facility of this size. These prices were provided by Scoular’s project management support staff and reflect current prices of supplies and materials. The cost of the space and the associated infrastructure to support the space is \$4,165,365 dollars (Tables 4.3 and 4.4). Miscellaneous costs are in Table 4.5 and total \$639,000.

Table 4.6: Total Project Costs

Overview Of Expenses On Total Project	
Bin Site Costs (Table 4.3)	\$3,765,000
Bunkers (Table 4.4)	\$400,365
Misc. (Table 4.5)	\$639,000
10% Contingency	\$480,437
Total Cost	\$5,284,802

Scoular typically puts a 10% contingency of total cost on all projects that the company undertakes. The contingency is used in the upfront expense of the facility and is depicted in Table 4.6. However, this money may or may not be spent and therefore is not used in calculating depreciation. All associated investment costs with the contingency and \$50,000 dollars for the purchase of the property on which to set the facility total \$5,335,000 dollars.

4.4 Facility Financial Overview and Assumptions

Table 4.7 shows the total cost of the facility and the breakdown in cost structure. The property purchased will have a residual value for the company. The \$50,000 that is used to purchase the property will not lose its appraisal value overtime, although inflation needs to be considered. The \$50,000 represents a purchase of non crop-production property of 25 acres at 2,000 dollars an acre (American Society of Farm Managers and Rural Appraisers 2012). At the top of Table 4.7 is the cost structure split into four categories. The category at the top is the land purchase of \$50,000 followed by the structures which includes the bin costs and associated bin

infrastructure of \$3,765,000. The rolling stock and equipment are the third category, and the other category is the 10 percent contingency. The bottom of Table 4.7 shows the depreciation with exception of the contingency. Scoular's controller depreciates structures at a rate of 10 years, so all of the bin structures and concrete is a ten year straight line depreciable asset. The equipment and rolling stock, such as the conveying and receiving equipment, motors, and vehicles etc., are depreciated at a rate of 5 years using straight line depreciation. Straight line depreciation is used for book value purposes, but for tax purposes Scoular uses a more aggressive method. Included in Table 4.7 is also the interest rates assumed on this project. Scoular's internal interest rates were used for both the long term and short term interest. These are the rates that the business can borrow money from the company to fund projects and are the most accurate rates available.

Table 4.7: Facility Financial Overview Based on Project Costs

Assumes depreciable cost of the project based on the following breakout to be:													\$5,285,000
Total cost of the project													\$5,335,000
	Amount	Taxes	Total										
Land	\$50,000		\$50,000										
Structures	\$3,765,000		\$3,765,000										
Equipment and Rolling Stock	\$1,040,000		\$1,040,000										
Other	\$480,000		\$480,000										
Strategic Value	\$525,000	per year											
Residual Value	\$50,000												
Depreciating the Structures over	10	years											
Depreciating the Equipment over	5	years											
Long Term Interest	6.78%												
Short Term Interest	3.38%												
Revenue assumes:													
	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year	10 Year	10 year	
	1	2	3	4	5	6	7	8	9	10	Total	Average	
Depreciation (10 year)	376,500	376,500	376,500	376,500	376,500	376,500	376,500	376,500	376,500	376,500	3,765,000	376,500	
Depreciation (5 year)	208,000	208,000	208,000	208,000	208,000	0	0	0	0	0	1,040,000	104,000	
Total Depreciation	584,500	584,500	584,500	584,500	584,500	376,500	376,500	376,500	376,500	376,500	4,805,000	480,500	
Long Term Interest (10 Year)	275,048	249,521	223,994	198,468	172,941	147,414	121,887	96,361	70,834	45,307	1,601,775	160,178	
Long Term Interest (10 Year)	63,461	49,358	35,256	21,154	7,051	0	0	0	0	0	176,280	17,628	
Total Interest	338,508	298,879	259,250	219,621	179,992	147,414	121,887	96,361	70,834	45,307	1,778,055	177,806	

Breaking down the revenue stream and margin analysis and combining that with volume is also important for analysis purposes. The assumable recognition of two revenue streams is the most concrete margin opportunity for a country elevator. Margin analysis provides an idea of margins achieved in buying and selling a given commodity but does not represent the storage revenue accrued at a country elevator. Storage can be a very large revenue stream as well and can account for a large portion of the crop year opportunity. Table 4.8 projects the margin and storage revenue opportunity on 4.8 million bushels of assumed grain handle. As mentioned earlier under the supportive metrics of this research, that 4.8 million represents 30% of Washington County crop production. These numbers do not represent exact percentages of crop production trends in the county. Because of the size of the network that Scoular has access to, the ability to price itself in the market is favorable for some crops and not others. Scoular is able to source crops because of rate agreements that it has in place with freight suppliers. These numbers represent volumes of grain that are favorable to Scoular in handling and fit the guidelines for production within the county.

Table 4.8: Total Revenues – Typical Fiscal Year

	June	July	August	September	October	November	December	January	February	March	April	May	Year Totals
Wheat Bushels	1,000,000	500,000	0	0	0	0	0	0	0	0	0	0	1,500,000
Corn Bushels	0	0	0	2,000,000	0	0	0	0	0	0	0	0	2,000,000
Sorghum Bushels	0	0	0	0	1,000,000	0	0	0	0	0	0	0	1,000,000
Soybean Bushels	0	0	0	0	300,000	0	0	0	0	0	0	0	300,000
Total Bushels	1,000,000	500,000	0	2,000,000	1,300,000	0	0	0	0	0	0	0	4,800,000
Wheat Margins	\$300,000	\$150,000	0	0	0	0	0	0	0	0	0	0	\$450,000
Corn Margins	0	0	0	\$800,000	0	0	0	0	0	0	0	0	\$800,000
Sorghum Margins	0	0	0	0	\$400,000	0	0	0	0	0	0	0	\$400,000

Soybean Margins	0	0	0	0	\$90,000	0	0	0	0	0	0	0	0	\$90,000
Total Margins	\$300,000	\$150,000	\$0	\$800,000	\$490,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,740,000
Storage Revenue	0	\$48,000	\$40,000	\$80,000	\$60,000	\$80,000	\$65,000	\$50,000	\$40,000	\$25,000	\$20,000	\$10,000		\$518,000
Handling Shrink	-\$42,500	-\$21,250	0	-\$60,000	-\$78,000	0	0	0	0	0	0	0	0	-\$201,750
Cost to reclaim	0	0	0	-\$20,000	-\$20,000	0	0	0	0	0	0	0	0	-\$40,000
Total Revenue	\$257,500	\$176,750	\$40,000	\$800,000	\$452,000	\$80,000	\$65,000	\$50,000	\$40,000	\$25,000	\$20,000	\$10,000		\$2,016,250

The commodities are broken down into four categories at the top of Table 4.8 and represent respective trends in crop production in the county. The second section shows the total margin output for each commodity and totals the margins at the bottom of that section. The third section includes the storage revenue generated from the total volume handled and also represents the handling shrink costs and cost of reclaim associated with this volume. All inbound bushels are shrunk that go into upright steel or concrete space at a half percent per bushel except for soybeans. Soybeans are shrunk at one percent per bushel. Anything that goes on open ground is shrunk at one percent per bushel. The bushels that go on open ground will have to be reclaimed by loader and either put back into the elevator and re-elevated or shipped straight to destination. The assumed cost associated with this is about two cents per bushel on 2 million bushels of grain stored on the open ground. The total amount of revenue generated is \$2,016,250 on 4.8 million bushels of grain handled. This is factoring in margins of 0.30 cents on all wheat and bean volume and 0.40 cents on corn and sorghum volume handled and also includes storage revenue of \$518,000 which represents roughly 25 percent of the total revenue generated.

Table 4.9: Total Expenses – Typical Fiscal Year

	June	July	August	September	October	November	December	January	February	March	April	May	Year Totals
Wages	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$180,000
Overtime – Seasonal	\$3,000	\$3,000	0	\$3,000	\$3,000	\$2,500	0	0	\$1,000	\$1,000	0	0	\$16,500
Group Insurance	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$36,000
Other Benefits	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$36,000
Total Wages	\$24,000	\$24,000	\$21,000	\$24,000	\$24,000	\$23,500	\$21,000	\$21,000	\$22,000	\$22,000	\$21,000	\$21,000	\$268,500
Maintenance	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$36,000
Utilities	\$1,750	\$1,750	\$1,750	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$36,750
Supplies	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$6,000
Total Variable Expenses	\$29,250	\$29,250	\$26,250	\$31,000	\$31,000	\$30,500	\$28,000	\$28,000	\$29,000	\$29,000	\$28,000	\$28,000	\$347,250
Liability Expenses	\$500	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$22,500
Real Estate Taxes	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$24,000

Depreciation	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$480,480
Long Term Interest	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$177,804
Short Term Interest	\$17,805	\$18,074	\$5,132	\$9,870	\$17,229	\$14,718	\$16,739	\$18,761	\$21,690	\$19,029	\$20,095	\$10,580	\$189,721	
Total Expenses	\$104,412	\$106,181	\$90,239	\$99,727	\$107,086	\$104,075	\$103,596	\$105,618	\$109,547	\$106,886	\$106,952	\$97,437	\$1,241,755	

Table 4.9 presents total expenses starting with wages. Wages are one of the largest expenses for the facility. They represent \$180,000 dollars of the \$1,241,755 in total expenses. Labor consists of a manager and a couple of outside laborers to operate the facility. The next line is an estimate for the overtime expenses. Seasonality was considered in all overtime expenses. Overtime was estimated based on the overtime that Scoular incurs at a similar business. Overtime costs represent roughly 10 percent of the projected expenses. However, overtime is one of the expenses that can be controlled to some extent. Group insurance and other benefits are provided by the company to each employee.

Maintenance, utilities, supplies, and advertising are modeled after two other Scoular businesses; they are similar in operating expenses relative to these categories. The bad debt expense is a reserve that the company accrues for things that may happen throughout the fiscal year due to contract mismanagement or receivables not being paid. Typically, it is a \$5,000 per month accrual for a total of \$60,000 dollars that the business receives back at the end of the year if no bad debts are recognized. This category was left blank intentionally, as well as miscellaneous expenses, because these are directly influenced by the manager. A typical business in the company gets to take most, if not all, of this revenue back at the end of the fiscal year.

The last category of expenses is profit sharing, which may or may not be allocated depending on the board of directors, so it was left out. The property/liability insurance is similar to the other two Scoular facilities, which are also similar in size to this project. The real estate taxes are 50% higher than the other two businesses. This is because there will be new bins and equipment and it is assumed that these taxes will be higher.

Scoular uses straight line depreciation with \$40,040 being the monthly depreciation expense totaling \$480,500 over the fiscal year; this represents depreciating the structures and

equipment at \$4,805,000 over ten years. Long term interest is calculated by taking the cost of the structures and contingency (\$4,245,000 minus a yearly allocation of the ten year depreciation multiplied by fifty percent). That number is then multiplied by Scoular's long term internal interest rate of 6.78 percent and discounted over 10 years as the principal is paid. The average long term interest for the structures and the rolling stock is \$177,806 per year. The short term calculation is the amount of cash used on a monthly basis multiplied by the internal short term interest rate of 3.8 percent and divided by 12 months. The biggest change in this number on a month to month basis is the amount of cash that the business will need to borrow, reflected in the cash usage numbers at the bottom of Table 4.10. As the company takes on ownership of grain and pays that money out, cash is borrowed against those purchases until the grain is sold and the cash is taken back when the grain is sold.

Table 4.10 illustrates the cash usage numbers that were used in calculating those short term expenses as well as the net profit. The table was designed such that revenues and expenses could be viewed along with the profits generated and the cash usage numbers that were used in the short term interest calculations. Table 4.10 shows total revenues equal \$2,016,250 and total expenses of \$1,241,755. The total net profit generated from those two categories comes to \$774,495. The next line in Table 4.10 is used for business incentives. Because Scoular is an employee owned company, money is shared with the employees of the business and is a benefit that Scoular provides for being profitable; it allows the employees to have ownership in the company. These numbers represent an average year of crop production and grain handled.

Table 4.10: Average Combined Revenues and Expenses – Typical Fiscal Year

	June	July	August	September	October	November	December	January	February	March	April	May	Year Totals
Wheat Bushels	1,000,000	500,000	0	0	0	0	0	0	0	0	0	0	1,500,000
Corn Bushels	0	0	0	2,000,000	0	0	0	0	0	0	0	0	2,000,000
Sorghum Bushels	0	0	0	0	1,000,000	0	0	0	0	0	0	0	1,000,000
Soybeans Bushels	0	0	0	0	300,000	0	0	0	0	0	0	0	300,000
Total Bushels	1,000,000	500,000	0	2,000,000	1,300,000	0	0	0	0	0	0	0	4,800,000
Wheat Margins	\$300,000	\$150,000	0	0	0	0	0	0	0	0	0	0	\$450,000
Corn Margins	0	0	0	\$800,000	0	0	0	0	0	0	0	0	\$800,000
Sorghum Margins	0	0	0	0	\$400,000	0	0	0	0	0	0	0	\$400,000

Soybeans Margins	0	0	0	0	\$90,000	0	0	0	0	0	0	0	\$90,000
Total Margins	\$300,000	\$150,000	\$0	\$800,000	\$490,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,740,000
Storage Revenue	0	\$48,000	\$40,000	\$80,000	\$60,000	\$80,000	\$65,000	\$50,000	\$40,000	\$25,000	\$20,000	\$10,000	\$518,000
Handling Shrink	-\$42,500	-\$21,250	0	-\$60,000	-\$78,000	0	0	0	0	0	0	0	-\$201,750
Cost to Reclaim	0	0	0	-\$20,000	-\$20,000	0	0	0	0	0	0	0	-\$40,000
Total Revenue	\$257,500	\$176,750	\$40,000	\$800,000	\$452,000	\$80,000	\$65,000	\$50,000	\$40,000	\$25,000	\$20,000	\$10,000	\$2,016,250
Wages	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$180,000
Overtime/ Seasonal	\$3,000	\$3,000	0	\$3,000	\$3,000	\$2,500	0	0	\$1,000	\$1,000	0	0	\$16,500
Group Insurance	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$36,000
Other Benefits	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$36,000
Total Wages	\$24,000	\$24,000	\$21,000	\$24,000	\$24,000	\$23,500	\$21,000	\$21,000	\$22,000	\$22,000	\$21,000	\$21,000	\$268,500

Maintenance	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$36,000
Utilities	\$1,750	\$1,750	\$1,750	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$36,750
Supplies	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$6,000
Total Variable Expenses	\$29,250	\$29,250	\$26,250	\$31,000	\$31,000	\$30,500	\$28,000	\$28,000	\$29,000	\$29,000	\$28,000	\$28,000	\$28,000	\$347,250
Property / Liability Insurance	\$500	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$22,500
Real Estate Taxes	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$24,000
Depreciation	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$40,040	\$480,480
Long Term Interest	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$14,817	\$177,804
Short Term Interest	\$17,805	\$18,074	\$5,132	\$9,870	\$17,229	\$14,718	\$16,739	\$18,761	\$21,690	\$19,029	\$20,095	\$10,580	\$10,580	\$189,721
Total Expenses	\$104,412	\$106,181	\$90,239	\$99,727	\$107,086	\$104,075	\$103,596	\$105,618	\$109,547	\$106,886	\$106,952	\$97,437	\$97,437	\$1,241,755

Net Profit	\$153,088	\$70,569	(\$50,239)	\$700,273	\$344,914	(\$24,075)	(\$38,596)	(\$55,618)	(\$69,547)	(\$81,886)	(\$86,952)	(\$87,437)	\$774,495
Incentives	(\$30,618)	(\$14,114)	\$10,048	(\$140,055)	(\$68,983)	\$4,815	\$7,719	\$11,124	\$13,909	\$16,377	\$17,390	\$17,487	(\$154,901)
Pre-tax Profit/Loss	\$122,470	\$56,455	(\$40,191)	\$560,218	\$275,931	(\$19,260)	(\$30,877)	(\$44,494)	(\$55,638)	(\$65,509)	(\$69,562)	(\$69,950)	\$619,594
Cash Usage	5,637,500	5,722,500	1,625,000	3,125,000	5,455,000	4,660,000	5,300,000	5,940,000	6,867,500	6,025,000	6,362,500	3,350,000	5,005,833

*Cash Usage numbers are in U.S. Dollars.

Revenues and losses in some years may be worse than average or better than average. For that reason, there are three different kinds of scenarios: average, pessimistic and optimistic. These are compiled from 10 years of grain volumes handled and derive the financial metrics. The breakdown in Table 4.11 is the same relative to margin opportunity and expense recognition, but it is considered over 10 years with six of those years coming in at average, and two of those years coming in each at pessimistic and optimistic. The purpose of illustrating three scenarios is to help recognize the unique risk that is associated with this project. The spreadsheet model is a model that Scoular uses exclusively for measuring every project that is proposed. Manipulating the data relative to when optimistic or pessimistic years are recognized will change the net present value numbers; therefore, all Scoular projects use the same optimistic, pessimistic, and average years. Thus, all projects can be measured exactly the same. This is also the reason that Scoular uses a 10 year trend. It is possible that some projects would have more than 10 years worth of value in their life, so only accounting for the first 10 years can skew some of the data. It should be recognized that it is done for Scoular's purposes of evenly measuring every project's ability to earn against another. Crop years are good and bad and mother-nature influences how the year will play out. It is with this that a revenue number of \$534,832 profit before taxes is recognized and presented at the bottom of Table 4.11. This number represents the profit before taxes revenue that will be used for the duration of the research.

Table 4.11: 10 Year Profit & Loss Statements

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10		10 Year
Scenario Used	Average	Pessimistic	Optimistic	Average	Average	Pessimistic	Average	Average	Optimistic	Average		Average
Wheat Bushels	1,500,000	1,000,000	2,000,000	1,500,000	1,500,000	1,000,000	1,500,000	1,500,000	2,000,000	1,500,000		1,500,000
Corn Bushels	2,000,000	750,000	2,500,000	2,000,000	2,000,000	750,000	2,000,000	2,000,000	2,500,000	2,000,000		1,850,000
Sorghum Bushels	1,000,000	750,000	1,000,000	1,000,000	1,000,000	750,000	1,000,000	1,000,000	1,000,000	1,000,000		950,000
Soybeans Bushels	300,000	250,000	500,000	300,000	300,000	250,000	300,000	300,000	500,000	300,000		330,000
Total Bushels	4,800,000	2,750,000	6,000,000	4,800,000	4,800,000	2,750,000	4,800,000	4,800,000	6,000,000	4,800,000		4,630,000
Wheat Margins	\$450,000	\$300,000	\$700,000	\$450,000	\$450,000	\$300,000	\$450,000	\$450,000	\$700,000	\$450,000		\$470,000
Corn Margins	\$800,000	\$225,000	\$875,000	\$800,000	\$800,000	\$225,000	\$800,000	\$800,000	\$875,000	\$800,000		\$700,000
Sorghum Margins	\$400,000	\$225,000	\$350,000	\$400,000	\$400,000	\$225,000	\$400,000	\$400,000	\$350,000	\$400,000		\$355,000
Soybeans Margins	\$90,000	\$75,000	\$150,000	\$90,000	\$90,000	\$75,000	\$90,000	\$90,000	\$150,000	\$90,000		\$99,000
Total Margins	\$1,740,000	\$825,000	\$2,075,000	\$1,740,000	\$1,740,000	\$825,000	\$1,740,000	\$1,740,000	\$2,075,000	\$1,740,000		\$1,624,000
Storage Revenue	\$518,000	\$260,000	\$535,000	\$518,000	\$518,000	\$260,000	\$518,000	\$518,000	\$535,000	\$518,000		\$469,800

Handling Shrink	-\$201,750	-\$125,000	-\$250,000	-\$201,750	-\$201,750	-\$125,000	-\$201,750	-\$201,750	-\$250,000	-\$201,750		-\$196,050
Cost to Reclaim	-\$40,000	-\$20,000	-\$50,000	-\$40,000	-\$40,000	-\$20,000	-\$40,000	-\$40,000	-\$50,000	-\$40,000		-\$38,000
Total Revenues	\$2,016,250	\$940,000	\$2,310,000	\$2,016,250	\$2,016,250	\$940,000	\$2,016,250	\$2,016,250	\$2,310,000	\$2,016,250		\$1,859,750
Wages	\$180,000	\$150,000	\$180,000	\$180,000	\$180,000	\$150,000	\$180,000	\$180,000	\$180,000	\$180,000		\$174,000
Overtime	\$16,500	\$10,000	\$24,500	\$16,500	\$16,500	\$10,000	\$16,500	\$16,500	\$24,500	\$16,500		\$16,800
Group Insurance	\$36,000	\$30,000	\$36,000	\$36,000	\$36,000	\$30,000	\$36,000	\$36,000	\$36,000	\$36,000		\$34,800
Other Benefits	\$36,000	\$30,000	\$36,000	\$36,000	\$36,000	\$30,000	\$36,000	\$36,000	\$36,000	\$36,000		\$34,800
Total Wages	\$268,500	\$220,000	\$276,500	\$268,500	\$268,500	\$220,000	\$268,500	\$268,500	\$276,500	\$268,500		\$260,400
Maintenance	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000		\$36,000
Utilities	\$36,750	\$24,500	\$38,500	\$36,750	\$36,750	\$24,500	\$36,750	\$36,750	\$38,500	\$36,750		\$34,650
Supplies	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000		\$6,000
Total Variable Expenses	\$347,250	\$286,500	\$357,000	\$347,250	\$347,250	\$286,500	\$347,250	\$347,250	\$357,000	\$347,250		\$337,050
Liability Insurance	\$22,500	\$24,000	\$24,000	\$22,500	\$22,500	\$24,000	\$22,500	\$22,500	\$24,000	\$22,500		\$23,100
Real Estate Taxes	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000	\$24,000		\$24,000

Depreciation	\$584,500	\$584,500	\$584,500	\$584,500	\$584,500	\$376,500	\$376,500	\$376,500	\$376,500	\$376,500	\$480,500
Long Term Interest	\$338,508	\$298,879	\$259,250	\$219,621	\$179,992	\$147,414	\$121,887	\$96,361	\$70,834	\$45,307	\$177,806
Short Term Interest	\$189,721	\$98,698	\$135,453	\$189,721	\$189,721	\$98,698	\$189,721	\$189,721	\$135,453	\$189,721	\$160,663
Total Expenses	\$1,506,480	\$1,316,577	\$1,384,203	\$1,387,592	\$1,347,963	\$957,112	\$1,081,859	\$1,056,332	\$987,787	\$1,005,278	\$1,203,118
Net Profit	\$509,770	(\$376,577)	\$925,797	\$628,658	\$668,287	(\$17,112)	\$934,391	\$959,918	\$1,322,213	\$1,010,972	\$656,632
Business Unit Incentives	(\$89,210)	\$0	(\$162,014)	(\$110,015)	(\$116,950)	\$0	(\$163,519)	(\$167,986)	(\$231,387)	(\$176,920)	(\$121,800)
Pre-Tax Profit/Loss	\$420,561	(\$376,577)	\$763,782	\$518,643	\$551,337	(\$17,112)	\$770,873	\$791,932	\$1,090,826	\$834,052	\$534,832
EBITDA	\$1,343,569	\$506,802	\$1,607,533	\$1,322,764	\$1,315,829	\$506,802	\$1,269,260	\$1,264,793	\$1,538,160	\$1,255,859	\$1,193,137
Cash Usage	\$5,005,833	\$2,604,167	\$3,573,958	\$5,005,833	\$5,005,833	\$2,604,167	\$5,005,833	\$5,005,833	\$3,573,958	\$5,005,833	\$4,239,125

4.5 Present Value and Project Metrics

The following data are used to project financials used to make the decision as to whether to place assets in the geography. Table 4.12 uses two separate categories of metrics. One analyzes the project from an annual profit before taxes (PBT) perspective, determined by taking the earnings before interest, taxes, depreciation, and amortization (EBITDA) number generated from the ten years of cash flows in Table 4.11 minus the ten years of average long term interest in Table 4.11 ($\$1,193,137 - \$177,806 = \$1,015,332$). The depreciation is taken from the average project cash number to get profit before taxes ($\$1,015,332 - \$480,500 = \$534,832$). It also includes the (EBITDA) from a percent of project cost standpoint which is the ten years of cash flows generated by the project in Table 4.11, divided by the upfront project cost ($\$1,193,137 / \$5,335,000 = 22.4\%$). The net present value of the project is included, derived from taking the ten years of cash output in Table 4.11 discounted individually and adding up to $\$8,799,973$, and Scoular's assumed residual value for the land, discounted over 10 years, equal to $\$28,506$ added together, $\$8,828,479$ minus the project costs of $\$5,335,000$. The calculations are $\$8,828,479 - \$5,335,000 = \$3,493,478$ which is the net present value shown in the top box on Table 4.12.

The project payback in years is also shown in Table 4.12, which is the upfront project cost divided by the average cash flow generated on an annual basis without depreciation ($\$5,335,000 / 1,015,332 = 5.3$ years). The far right column in Table 4.12 includes the strategic value for the company. The return on cash usage is obtained by taking our profit before taxes number of $\$534,832$ divided by our average number of cash usage as shown in Table 4.11 of $\$4,239,125$. This gives us a return on cash of 12.62%. The internal rate of return for this project was determined to be 17.6%. Scoular should accept projects that are greater than their opportunity cost of capital. However, this is not always the best indication of whether a project should be pursued. The internal rate of return that was derived will be explained in detail in the results portion of this research.

Those are the calculations used to analyze the profitability of the project. The set of numbers in Table 4.12 analyze the strategic value assigned for the project. This is different than other companies may examine a project. For Scoular, strategic value means that the facility provides an additional revenue stream for another business in the group. In this instance, the Salina terminal would see positive revenue from handling additional volume from the Washington County facility. The number for strategic value for this project was five hundred and twenty five thousand dollars. This number represents a 0.21 cent per bushel margin in Salina's balance sheet on 2.5 million bushels which represents an average number of wheat and sorghum volume handled over 10 years and also represents commodities that are handled with favorable freight rates out of Salina. The 0.21 cents is broken down into three categories.

Fifteen cents of the 0.21 and the largest category of revenue is the lift that the Salina terminal would gain from purchasing the grain from the Washington County business when it was hauled to the train loader. Lift margins are complicated because they are influenced by crop conditions from year to year. In a year when grain is plentiful, and Kansas grows over a billion bushels among the four commodities, shuttle loading capacity is at a premium because plentiful grain stocks mean that there is plenty to go around and operating at capacity for a shuttle loader costs more. Consequently, in a year when production is smaller, shuttle capacity has less of a margin because everybody is competing for the same bushels of grain.

The second category is 0.03 cents made on mixing those inventories with off-grade grain stocks at the Salina facility purchased at a discount. It roughly takes 380,000 bushels of wheat or 420,000 bushels of sorghum to load a shuttle train, and the 2.5 million represents 4 trains of wheat and a little over 2 trains of sorghum. That opportunity results in a 0.03 cent margin.

The third category that would also be equal to 0.03 cents is the arbitrage opportunities for the terminal in purchasing and moving rail freight through their freight position. Because Scoular has a large network and is de-centralized, there are often freight needs in the group. This extra volume would allow Scoular to take a long or short position in freight given the freight environment and either trade the freight to other businesses in the group or to other companies needing to purchase freight. If Scoular does not capitalize on moving the freight through the position in this way, it can always take the freight and ship out of Scoular's own terminal. This additional volume allows Scoular to back its own purchase and sales position, as well as take a long or short paper position in the freight market to capitalize on additional revenue opportunities.

Table 4.12: Financial Metrics: Scoular's

Economic Summary:	Current	w/ Strategic Value
Annual PBT	\$534,832	\$1,059,832
EBITDA % of project cost	22.40%	32.20%
Project payback in years	5.3	3.5
Net Present Value of Project	\$3,493,478	\$7,398,121
Return on Cash Usage	12.62%	25.00%
Project Internal Rate of Return	17.60%	29.10%

	Current	W/ Strategic Value
Project Assumptions:		
Purchase Cost	5,335,000	5,335,000
Asset life in years	10	10
Residual value	50,000	50,000
L-T debt interest rate	6.78%	6.78%
NPV discount rate	5.78%	5.78%
Per the detailed project spreadsheets, here are the average:		
EBITDA	1,193,137	1,718,137
L-T Interest	177,806	177,806
Project Cash Flow	1,015,332	1,540,332
Depreciation	480,500	480,500
PBT	534,832	1,059,832
Project Payback		
Project Cash flow	1,015,332	1,540,332
Project Cost	5,335,000	5,335,000
Payback in Years	5.3	3.5
DCF calculation:		
PV of EBITDA	8,799,973	12,704,615
PV of Residual value	28,506	28,506
Less project cost	-5,335,000	-5,335,000
Net Present Value of Project	3,493,478	7,398,121

Return on Cash Usage	PBT		534,832			1,059,832
	Average Cash Usage		4,239,125			4,239,125
	Return on Cash Usage		12.62%			25.00%
Project Internal rate of Return (IRR)			17.60%			29.10%
		NPV & IRR Detail				
	Cost		-5,335,000			-5,335,000
	EBITDA		1 1,343,569	1		1,868,569
			2 506,802	2		1,031,802
			3 1,607,533	3		2,132,533
			4 1,322,764	4		1,847,764
			5 1,315,829	5		1,840,829
			6 506,802	6		1,031,802
			7 1,269,260	7		1,794,260
			8 1,264,793	8		1,789,793
			9 1,538,160	9		2,063,160
			10 1,255,859	10		1,780,859
	Residual value		50,000			50,000

Table 4.12 illustrates the typical financial metrics that Scoular uses in researching a project. The numbers in this research were pulled from 10 years of assumed grain volume and margins, using a method that Scoular sees as beneficial from an internal perspective. This method includes the 3 types of scenarios (average, pessimistic, and optimistic) factored into the 10 years of assumed grain margins and volume. However, using just the average numbers may be more representative of an overall average as opposed to the three scenarios that Scoular utilizes.

Table 4.13: Financial Metrics: Average

Economic Summary:		Current	w/ Strategic Value
Annual PBT	\$	665,636	\$ 1,190,636
EBITDA % of project cost		24.8%	34.7%
Project payback in years		4.7	3.2
Net Present Value of Project	\$	4,587,902	\$ 8,492,544
Return on Cash Usage		15.70%	28.09%
Project Internal rate of Return		21.7%	33.2%

		Current	W/ Strategic Value
Project Assumptions:			
	Purchase Cost	5,335,000	5,335,000
	Asset life in years	10	10
	Residual value	50,000	50,000
	L-T debt interest rate	6.78%	6.78%
	NPV discount rate	5.78%	5.78%
Per the detailed project spreadsheets, here are the <u>average</u>:			
	EBITDA	1,323,942	1,848,942
	L-T Interest	177,806	177,806
	Project Cash Flow	1,146,136	1,671,136
	Depreciation	480,500	480,500
	PBT	665,636	1,190,636
Project Payback			
	Project Cash flow	1,146,136	1,671,136
	Project Cost	5,335,000	5,335,000
	Payback in Years	4.7	3.2
DCF calculation:			
	PV of EBITDA	9,894,396	13,799,038
	PV of Residual value	28,506	28,506
	Less project cost	(5,335,000)	(5,335,000)
	Net Present Value of Project	4,587,902	8,492,544
Return on Cash Usage			
	PBT	665,636	1,190,636
	Average Cash Usage	4,239,125	4,239,125
	Return on Cash Usage	15.70%	28.09%
Project Internal rate of Return (IRR)			
		21.7%	33.2%

		NPV & IRR Detail			
	Cost		(5,335,000)		(5,335,000)
	EBITDA	1	1,343,569	1	1,868,569
		2	1,426,784	2	1,951,784
		3	1,373,026	3	1,898,026
		4	1,322,764	4	1,847,764
		5	1,315,829	5	1,840,829
		6	1,363,878	6	1,888,878
		7	1,269,260	7	1,794,260
		8	1,264,793	8	1,789,793
		9	1,303,653	9	1,828,653
		10	1,255,859	10	1,780,859
	Residual value		50,000		50,000

Table 4.13 shows the average of all factors. The largest differences generated came in the annual profits before taxes, project payback period, net present value number, and the internal rate of return. All of these factors increased somewhat substantially. Again with the way that Scoular analyzes a project, there can be issues with different scenario years located in different time frames of the project. This takes those factors out and gives the average ability of the project to earn without the under or overinflated methods. This format may be a more accurate depiction of what the true possibility is. The results chapter shall follow this text and it will explain the metrics derived. Scoular’s internal process in researching this project will be used for the remainder of the study.

CHAPTER V: RESULTS

5.1 Project Analysis

In analyzing the financial metrics of the project, the number the Scoular senior managers are looking at is the net present value number. This is the “nuts and bolts” relative to measuring the project against other investments. The rest of the numbers will be used as a measure of profitability and risk and do not represent discounted numbers. Therefore, most of the emphasis should be put on the net present value number. It is also important to Scoular to know how quickly the project will pay back the initial investment because new projects are being weighed against one another across the company.

5.2 Analysis of Table 4.12

In looking at Table 4.12 the net present value number generated is not that high at first glance. However, Scoular pursued a similar project in Illinois two years ago that was similar in relationship to the net present value generated as a percent of the project. The project in Illinois was a much larger project in terms of capital, and relative to the 10 year analysis of these projects, it should be understood that the project could have represented more value up front than it initially did, but the metrics were very similar to this project. This project involved the purchase of a large train loader in Central Illinois. This project started out pretty rocky in its first year, but has turned into an attractive investment in year two, and does add value to the company from a concrete, steel, and equipment standpoint.

5.3: Analysis of Strategic Value in Table 4.12

When factoring in the strategic value for the company, the project looks more attractive overall. This project with the strategic value pays Scoular back in just over three years and would be looked at as very favorable from that standpoint. The ability to support this facility with Scoular’s existing footprint holds a lot of value for the company from two strategic standpoints. It

allows Scoular to take advantage of the margin structure that the region has to offer and provides Scoular with another revenue stream. It also puts Scoular into a new geography and provides unique and crucial intellectual capital that does not exist today.

CHAPTER VI: CONCLUSIONS

6.1 Introduction

The results provided suggest that there is real possibility present in Washington County, Kansas. The crop production along with the space deficiency and limited competitive footprint provide several reasons to locate assets there. The assumable margin opportunity that exists seems to be in line with what Scoular is experiencing today in several other geographies of Kansas, and relative to that specific geography, Scoular would be new to the territory which also provides a benefit for the company. The payback and the strategic net present value numbers provided make the project look favorable. Relative to measuring it against other projects, the numbers seem to at least warrant further investigation in the region.

6.2 Conclusions

The conclusions of this study are that there is a customer base with a genuine interest in having a new competitor entering the market in Washington County, Kansas. The payback on Scoular's investment stays within the guidelines of what is considered favorable by Scoular for a project. Scoular will also benefit from the research as a whole because of the ability to understand that geography of Kansas better and the producer trends in the region.

Scoular's senior management staff has decided that Scoular should further research the geography. Several opportunities exist. These include building assets and operating them, or exploring an opportunity that may exist to find assets in the region that would be favorable to Scoular's business model, and working out an agreement with another company, or purchasing their assets with the intention of operating them outright. There is one of the competitors that Scoular would have an interest in from a strategic standpoint, and they have a good working relationship with Scoular today. There may be an opportunity to operate a new facility, such as the

one proposed and analyzed in this study and secure a put-through agreement with this other business as well. There may also be an option of Scoular operating the existing facility on a revenue sharing basis or lease agreement, with Scoular employees and intellectual networking capital. This would provide the competitor access to Scoular's large network of businesses and would allow Scoular entry into the market without the big upfront capital investment burden.

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