A FEASIBILITY STUDY OF A DIESEL MAINTENANCE PROGRAM AT NORTH ARKANSAS COLLEGE

by

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B.S., Arkansas Tech University, 2007

A THESIS

Submitted in partial fulfillment of the requirements for the degree

MASTER OF AGRIBUSINESS

Department of Agricultural Economics

College of Agriculture

KANSAS STATE UNIVERSITY

Manhattan, Kansas

2012

Approved by:

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ABSTRACT

As the U.S. economy has changed, the use of diesel vehicles has increased. With this increase, has come an increase in the demand of highly trained technicians to work on those vehicles. North Arkansas College of Harrison, AR is looking for opportunities to keep its program offerings current with the educational demands of its potential students. During the last few years, North Arkansas College has received requests to start a diesel vehicle maintenance program.

This thesis analyzes the feasibility of a diesel vehicle maintenance program at North Arkansas College. To determine the feasibility of such a program, all major aspects of the potential program must be considered and analyzed. The key questions addressed are: what is the interest level in the community for a diesel vehicle maintenance program, what are the major capital costs of starting the program, what would the potential operating budget resemble, and how would the program fit into the current field of area diesel maintenance programs?

To study the feasibility of a potential diesel vehicle maintenance program at North Arkansas College, four steps were completed. First, a survey was developed that measured the interest from potential students, prospective employers, and interested community members from the potential market of North Arkansas College. Second, research was done to understand how a potential diesel vehicle maintenance program would fit into the current marketplace of established diesel maintenance programs. This was done by researching and comparing area programs to the type of programs that North Arkansas College offers and
the possible model of a potential diesel vehicle maintenance program. Next, research was conducted to estimate the capital costs of starting a diesel vehicle maintenance program, as well as the potential operating budget. This was done by developing blueprints of a potential floor plan, a building to house the program, and the potential areas of study in the program. Based on these blueprints, actual bids and estimates were collected to calculate potential capital and operating costs. Finally, analysis was conducted to determine if the outcomes of a potential diesel vehicle maintenance program would fulfill the mission of North Arkansas College.

The analysis of the feasibility of a diesel vehicle maintenance program at North Arkansas College reveals that there is interest from all three parts of the community in starting a diesel vehicle maintenance program. The research also revealed that the program would be a fit in the marketplace if it was an affordable, three semester program that covered the basics of the diesel powered vehicle. Also, research of the potential costs and revenues of the program reveals that the program would be sustainable. Finally, a diesel vehicle maintenance program would have much synergy with the current programs already offered at North Arkansas College. In the end, the results suggest that it is worthwhile to move forward towards starting a diesel vehicle maintenance program.
# TABLE OF CONTENTS

List of Figures ........................................................................................................................................ vi
List of Tables .......................................................................................................................................... viii
Acknowledgments ................................................................................................................................... ix

## Chapter I: Introduction ..................................................................................................................... 1

1.1 Purpose Statement and Objectives ......................................................................................... 1
1.2 Motivation ................................................................................................................................. 2
1.3 The Overall Approach ............................................................................................................ 3

## Chapter II: Literature Review ...................................................................................................... 4

## Chapter III: Theory ....................................................................................................................... 10

## Chapter IV: Methods ..................................................................................................................... 12

4.1 General Discussion of the Interest Survey ............................................................................ 22
4.2 Discussion of the Survey Components .................................................................................. 23
4.3 Discussion of the Positioning of the Potential Diesel Vehicle Maintenance Program in the Area’s Marketplace ........................................................................................................... 24
4.4 Discussion of Operating Costs and Summary of Capital Costs ....................................... 25
4.5 Discussion of how a Potential Diesel Vehicle Maintenance Program would fit into the Overall Mission of the College .................................................................................................... 25

## Chapter V: Results and discussion ............................................................................................... 26

5.1 Analysis of the Response from the Prospective Students in the Interest Survey ............... 29
5.2 Overall Assessment of the Survey Response of Prospective Students .............................. 40
5.3 Analysis of the Response of the Community Members from the Interest Survey .......... 41
5.4 Overall Assessment of Community Members’ Response from Interest Survey ............... 49
5.5 Analysis of the Response of the Prospective Employers from the Interest Survey .......... 49
5.6 Overall Assessment of the Response of the Prospective Employers from the Interest Survey ................................................................. 50
5.7 Results from the Final Page of the Interest Survey ............................................................. 57
LIST OF FIGURES

Figure 4.1: Copy of Survey Used To Collect Data on Interest Level in Community... 13
Figure 5.1: Survey Response by Prospective Students on Number of Hours Worked Per Week ................................................................................................................................ 29
Figure 5.2: Survey Response by Prospective Students on Interest in the Diesel Vehicle Maintenance Field ........................................................................................................................................... 31
Figure 5.3: Survey Response by Prospective Students on Need of Hands-on Training in Potential Diesel Vehicle Maintenance Program ........................................................... 32
Figure 5.4: Survey Response by Prospective Students on Diesel Vehicle Maintenance Certificate Enabling Them to Find a Job .......................................................... 33
Figure 5.5: Survey Response by Prospective Students on Perceived Gain of Career Opportunities after Completing Certificate at North Arkansas College ....................... 34
Figure 5.6: Survey Response by Prospective Students on Three Semesters Being an Acceptable Length for the Diesel Vehicle Maintenance Program .................................. 35
Figure 5.7: Survey Response by Prospective Students on Willingness to Take Some General Education Courses ................................................................................................. 36
Figure 5.8: Survey Response by Prospective Students on Seriously Considering to Enroll Into a Diesel Vehicle Maintenance Program at North Arkansas College ....... 37
Figure 5.9: Survey Response by Prospective Students on Possible Preference of Program at North Arkansas College over Competitors .................................................. 38
Figure 5.10: Survey Response by Prospective Students on How Much Tuition Costs Factors in the Decision of Program Selection .......................................................... 39
Figure 5.11: Survey Response by Community Members on Competitiveness of Diesel Technician Salary .............................................................................................................................. 41
Figure 5.12: Survey Response by Community Members on Recommendation Based on Average Salary ......................................................................................................................... 42
Figure 5.13: Survey Response by Community Members on Benefit of North Arkansas College to Community ........................................................................................................... 43
Figure 5.14: Survey Response by Community Members on Familiarity of Current Programs at North Arkansas College .................................................................44
Figure 5.15: Survey Response by Community Members on Future Employment Opportunities for Diesel Technicians ........................................................................45
Figure 5.16 Community Members That Felt a Diesel Maintenance Program at North Arkansas College Would Add Value to the College and the Community ..................46
Figure 5.17: Survey Response by Community Members on Personal Recommendation of Program to Potential Students ........................................................47
Figure 5.18: Survey Response by Prospective Employers on Their Perception of the Employment Future for Diesel Maintenance Technicians ...........................................51
Figure 5.19: Survey Response by Prospective Employers on the Overall Value of North Arkansas College to the Community .................................................................52
Figure 5.20: Survey Response by Prospective Employers on Opportunities for Technicians at Their Businesses ..................................................................................53
Figure 5.21: Survey Response by Prospective Employers on North Arkansas College Graduates Adding Value to Their Business .......................................................................54
Figure 5.22: Survey Response by Prospective Employers on Hiring Graduate from a Diesel Vehicle Maintenance Program at North Arkansas College ..............................55
Figure 5.23: Proposed Floor Plan for Potential Diesel Vehicle Maintenance Program 61
Figure 5.24: Map Containing Potential Site for Building Housing Diesel Vehicle Maintenance Program ...........................................................................................................71
Figure A.1: Copy of Bid Received for Metal Building for Potential Diesel Vehicle Maintenance Program ...........................................................................................................78
LIST OF TABLES

Table 2.1: Summary of Area Diesel Maintenance/Technology Programs ......................5
Table 5.1: Summary of All Respondent’s To Interest Survey Age Group......................26
Table 5.2: Summary of Respondent Educational Level ..................................................27
Table 5.3: Summary of Respondent’s Current College Attendance Status ..................28
Table 5.4: Summary of Respondent’s Future College Plans .......................................28
Table 5.5: Metrics Used for Calculation of Calculated Average ..................................28
Table 5.6: Response by the Prospective Student about Acceptability of National Average Salary for Bus and Truck Mechanics and Diesel Engine Specialists ...........30
Table 5.7: Summary of Respondents’ Size of Business ..............................................50
Table 5.8: Summary of Respondents’ Willingness to Pay Tuition ..............................56
Table 5.9: Summary of All Respondents on Importance of Low Tuition of North Arkansas College ........................................................................................................57
Table 5.10: Summary of All Respondents on Most Important Aspect of a Potential Diesel Vehicle Maintenance Program at North Arkansas College ..............................57
Table 5.11: Summary of All Respondents How Respondents Heard About Survey ...58
Table 5.12: Summary of Major Capital Costs of Starting a Diesel Vehicle Maintenance Program ........................................................................................................64
Table 5.13: Summary of the Operating Budget of a Potential Diesel Vehicle Maintenance Program ........................................................................................................68
ACKNOWLEDGMENTS

The author wishes to thank, first of all, my Lord and Savior, Jesus Christ for giving me the strength and endurance to make it through this rewarding process. He is the very reason I even exist and am able to live my life. Second, I would like to thank the love of my life, Terrie, for standing beside me during the three years of much devoted and strenuous time it has taken to get through this time.

Next, I would like to thank my thesis committee at Kansas State University for assisting me in this journey. I would like to give a special thanks to Allen Featherstone and Mary Bowen for all of their hard work in this process. I would also like to thank everyone at North Arkansas College for their assistance in helping to gather information as well as several other items in this feasibility study. I would like to give a very special thanks to Edward Proctor for his assistance during the entire process and Katie Vaughn for her assistance during the formation of the interest survey.

Lastly, I would like to thank my entire family for being there and helping in any way they could. There were several times that I needed their help very much and they were right there to help me.
CHAPTER I: INTRODUCTION

In the last few years, there has been interest expressed for a diesel maintenance program at North Arkansas College. North Arkansas College is located in Harrison, AR and is a two year community college. There are some four year degrees available, but, for the majority, it is a community college. Administratively, this program would reside in the Business and Technology division. This division currently has certificates and degrees in the areas of general Automotive Service Tech, Collision Repair, Construction Technology, Welding Technology, Truck Driving, Engineering Technology, Biomedical Electronics, Heavy Equipment Operation, Computer Aided Design, Informational Technology, and Business Administration.

It has been suggested to the college that there would be interest in a Diesel Mechanics Program. In short, the program would probably be a two or three semester certificate that would cover all of the major systems dealing with a diesel powered vehicle. The college is interested in researching this idea as it would be potentially a great fit with the programs already offered at the college.

1.1 Purpose Statement and Objectives

The issue that the North Arkansas College wants to consider is the feasibility of a diesel mechanics program. There are three aspects that the college needs to examine to determine feasibility. First, and, probably most important; what is the overall demand for the program from the prospective students’ points of view and from the prospective employers’ points of view? From the overall demand perspective, the college desires a better understanding of the level of support from area businesses and corporations. One of the missions of the college is to make the community better and play an integral role in the
community. This relationship is beneficial for both the community and the college so the support of area businesses is valuable.

Next, North Arkansas College would like to know how to organize and position a diesel vehicle maintenance program in the “marketplace.” This aspect would consider the curriculum, types of classes, and the expected enrollment into the program. Just as businesses must compete to gain customers, the diesel vehicle maintenance program must compete with other programs to gain an appropriate amount of student enrollment into the program. Would the college prefer to position the program with high skills and high tuition associated with an associate’s degree or does it make sense to market the program as an opportunity to gain college level mechanics skills through a certificate program for a reasonable price? The college must have an idea of the competition to position the proposed program.

Finally, North Arkansas College wants to understand the primary costs involved in implementing this program. Will the college need new facilities or can it use the existing buildings? If new buildings are built, how much will the additional buildings cost? How much equipment is needed for training and how much will it cost to maintain that equipment? How many instructors will it take to do an effective job of teaching?

1.2 Motivation

For North Arkansas College to remain competitive, it must adapt to the ever changing educational needs of students. Based on general knowledge, a part of the economy that has changed in the last few years is the prevalence of diesel vehicles. Diesel vehicles represent a larger percentage of the vehicle fleet and are important for many types of equipment necessary for many industries in the overall economy. Opportunities may
present themselves for students to find employment as diesel mechanics, if they have the necessary skills to excel in this field. North Arkansas College recognizes this emerging need and wants to keep its programs current, relevant, and competitive.

1.3 The Overall Approach

There is some pertinent information that will need to be gathered to make an informed decision.

- What is the interest from the perspective employers?
- How many students would not only be interested, but willing to enroll?
- Would the community, as a whole, support the program?
- What is the expected job placement in the area?
- How many faculty will the program require and what will be the approximate salary?
- What equipment will be required and, approximately, how much will it cost?
- What are the classes that need to be taught?

The best place and method for obtaining the majority of this information is a strategically placed community survey. This survey has three target audiences; the community, prospective students, and current employers of the industry. Other information will come from interviews with local businesses, a tour of currently operating diesel maintenance programs, and research from suppliers of needed equipment.
CHAPTER II: LITERATURE REVIEW

The depth of related literature on starting a diesel maintenance program at a community college in north-central Arkansas is not extensive. Research was conducted using various electronic article databases, search engines, and book reviews with marginal success. There is valuable information in researching the existing area programs in diesel maintenance to determine factors such as core curriculum, tuition rates, related fields of study, and graduate employment rates. It was recommended by the Arkansas Department of Higher Education that research be conducted from the Arkansas Consumer Report System website (https://www.employment.arkansas.gov/ACRS/ASP/Public/Home.asp). This organization provides information related to the workforce in Arkansas for the purposes of research and continuing education in the state. It is possible to search all related programs for the specific program in Arkansas and neighboring states.

After conducting extensive research on this website, the following programs were identified as competitors of a potential diesel maintenance program at North Arkansas College. Table 2.1 is a summary of the different aspects of each related program identified as a potential competitor. The institutions with related programs were found in the northwest, north-central, west central and western regions of Arkansas. There were also programs examined in Missouri and Tennessee. These programs were included based on knowledge that the programs could be competitors for the North Arkansas market. It is important to know the competing programs, costs of the program, reputation of the program, etc, because that is what the potential customers will be comparing.
<table>
<thead>
<tr>
<th>Name of School</th>
<th>Program Name</th>
<th>Training Level</th>
<th>Program Costs</th>
<th>Book Costs</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulaski Technical College</td>
<td>Diesel Mechanics</td>
<td>Technical Certificate</td>
<td>$3,429</td>
<td>$1,200</td>
<td>35</td>
</tr>
<tr>
<td>Ozarks Technical Community College</td>
<td>Diesel Technology</td>
<td>Associate Degree/Certificate</td>
<td>$10,902.50</td>
<td>$2,000</td>
<td>65</td>
</tr>
<tr>
<td>Northwest Technical Institute</td>
<td>Diesel &amp; Truck Technology</td>
<td>Technical Certificate</td>
<td>$3,100</td>
<td>$1,500</td>
<td>72</td>
</tr>
<tr>
<td>University of Arkansas Community College-Hope</td>
<td>Diesel Technology</td>
<td>Technical Certificate</td>
<td>$3,050</td>
<td>$1,000</td>
<td>37</td>
</tr>
<tr>
<td>Arkansas State University-Searcy</td>
<td>Diesel Technology</td>
<td>Certificate of Proficiency</td>
<td>$1,194</td>
<td>$379</td>
<td>12</td>
</tr>
<tr>
<td>Nashville Auto-Diesel College</td>
<td>Diesel Mechanics/Technology</td>
<td>Associate Degree</td>
<td>$28,400</td>
<td>$987</td>
<td>84</td>
</tr>
</tbody>
</table>
Each of the programs has differences in their curriculum and the way the program is marketed. However, even with those differences, each of these programs provides useful information and should be considered when looking at the feasibility of a diesel maintenance program at North Arkansas College. In fact, these programs provide an excellent framework to build on when determining how to develop a program at North Arkansas College. Some of these programs have been in existence for several years and are excellent sources of information for design of a proposed diesel vehicle maintenance program at North Arkansas College.

Pulaski Technical College has a program that would be similar to the potential diesel vehicle maintenance program at North Arkansas College. The goal of the program, according to Pulaski Technical College is,

“to provide a short concentration in the specific area of diesel mechanics. The program is intended for students to enter the workforce after completion of the program or for those who are currently working and want to upgrade their skills. Some of the hours earned in this program are acceptable toward associate degree programs.” (http://www.pulaskitech.edu)

The areas that Pulaski Technical College teaches in their Diesel Mechanics program include tractor/trailer operation, diesel fundamentals, diesel engines, electrical, fuel injection, powertrains, brake systems, air conditioning systems, and workplace safety. This program is about 135 miles away from North Arkansas College. There is no information available on the number of students attending or graduating from the program.
The Diesel Technology program at Ozarks Technical Community College in Springfield, MO is a program that offers the option of either an Associate’s degree or a certificate in Diesel Technology. According to Ozarks Technical Community College, “

“The Diesel Technology program is an ASE (Automotive Service Excellence) master certified program that focuses on medium and heavy duty trucks. The classes are offered in the eight ASE areas: Diesel Engines, Drive Trains, Brakes, Steering and Suspension, Electrical and Electronics, Preventive Maintenance, Gas Engines, and Heating and Air Conditioning. The curriculum follows the recommended tasks that will give the students the skills to be an entry level mechanic.” (http://www.otc.edu/transportationdiesel/7392.php)

According to Ozarks Technical Community College, the job placement rate for technicians graduating from the program is 100% and the intended length of program is 12 to 24 months.

Northwest Technical Institute (NTI) in Springdale, AR would be the major competitor of a potential diesel vehicle maintenance program at North Arkansas College. However, their program could be a great resource for information and a framework upon which to model a program after. Much time and effort was spent getting acquainted with the faculty and the details of the Diesel and Truck Technology program of NTI. The mission of this program is “to prepare students to be competent technicians in order to gain employment and advancement opportunities in the field of diesel and truck repair” (Chambers, 2011). In an interview conducted with Kent Chambers of Northwest Technical Institute, lead instructor for the Diesel and Truck Technology Program, it was found that their program handles 25 students per year and, according to Chambers, “we have a waiting
list of students waiting to get into the program twice that number.” Kent also claims that
they have no problem placing graduates. In fact, he says, “most students have at least an
opportunity of a job before they graduate in their last semester and many already have
committed to sign with a certain company before they graduate.” “In the end, he stated, out
job placement is absolutely 100%.”

The faculty of the Diesel and Truck Technology Program at NTI emphasized that
the purpose of their teaching and instruction during the program was to prepare the students
to be employable. That is, they want them to have a working understanding of all the basic
systems of the diesel vehicle before they leave, but they are not training their students on a
specific technology in each area. Chambers stated, “Our job is to challenge the students to
the point to where they are hirable and will function well with the knowledge that they
have.” This training also widens the opportunities that the graduates could enter instead of
being specifically trained as a mechanic or as a sales coordinator. According to Chambers,
the program has been in existence for 32 years. The program is 82 miles west of North
Arkansas College.

The Diesel Technology program at the University of Arkansas Community College
at Hope, AR is designed to “provide the student with the necessary entry-level skills and
theory to enter either the medium/heavy duty truck or construction equipment
service/repair fields” (http://www.uacch.edu/?page_id=1275). This program is 241 miles
from North Arkansas College. There was not much information to be found about this
program.

The Diesel Technology program at Arkansas State University-Searcy resembles
that of the University of Arkansas Community College at Hope, AR in that not much
information was able to be obtained about the details to the program. The program is 140 miles from North Arkansas College.

The last program researched was that of the Nashville Auto-Diesel College. This program would be a strong competitor. This program has a strong reputation of providing excellent training, but with high tuition costs. This college specializes in the training on vehicles and has programs in the areas of automotive, collision repair, diesel, and high performance systems. The program has an intensive advertising program that reaches many students in high school who are trying to decide where they are going for an education. The program gives students with busy schedules the flexibility of both day and evening classes. The program is the most costly of all the programs considered to be competitors of a potential diesel vehicle maintenance program at North Arkansas College. The program promotes a quick education for a great paying salary by using the “NADC name to help you get your foot in the door with one of our many industry contacts” (http://nashvilleautodiesel.net/#). The college also states that it uses “comprehensive training programs that emphasize hands-on, interactive learning, so you get the actual “on-the-job” experience while still in school.” As for the specifics of their program, that information was not available. It is known that there is a significant waiting list to get into the program and that their job placement of their graduates is about 94%. The college is located in Nashville, TN, about 480 miles from North Arkansas College.
CHAPTER III: THEORY

As one analyzes the market trends over the last 20 years of the diesel industry, there has been a significant increase in demand for diesel technicians. This assumption is mostly based on industry knowledge. In today’s world, highly responsive and efficient logistics are a must. In several industries, there has been growth in the demand for diesel powered vehicles. In fact, the diesel vehicle industry is one of the most prevalent today. From logging to mining to agriculture, as well train locomotives for transportation, the diesel industry has a footprint in an estimated amount of 70% of the total industries in the United States market (http://www.bls.gov). The diesel technician occupation is one that touches many industries, and, thus provides the basis of starting a diesel vehicle maintenance program at North Arkansas College.

More importantly, however, are the predictions for the future of the diesel vehicle industry. According to the United States Bureau of Labor Statistics (2011), “opportunities should be very good for people who complete formal training in diesel mechanics; applicants without formal training will face competition for jobs”. The bureau is predicting that the industry will not only maintain the current number of technicians, but, also add about 14,000 more jobs in each of the coming 10 years.

From North Arkansas College’s position, it makes sense to possibly provide a diesel maintenance program because of the current market conditions. Many people are seeking to become marketable by obtaining technical skills. From the college’s perspective, if they can identify sustainable programs that add value to the college and that help educate and provide the community resources that enable it to succeed, then
they must do so. This is the environment that gives cause for considering a diesel maintenance program.

In the past, many have asked the Business and Technology Department of North Arkansas College if it would consider a diesel vehicle maintenance program. Through this suggestion and by analyzing the diesel mechanics industry, it has been concluded that it would be worthwhile to determine if a diesel mechanics program would be of benefit to the Business and Technology Department at North Arkansas College. To effectively determine if a diesel maintenance program is feasible, the college must appropriately determine the interest from the community and the surrounding area, determine what are the college’s upfront and recurring costs compared to the revenues the program will bring in, and determine if a program such as this would fit into the market of North-central Arkansas.
CHAPTER IV: METHODS

To gauge the feasibility of a diesel maintenance program, there are three tasks that must be accomplished. Those tasks include developing an interest survey for multiple community stakeholders, gathering potential costs and revenues to develop a financial plan, and create a potential market position map.

The first step in the process was to develop an interest survey. The survey was an important part of the project and was aimed to gain measurable data that could be used in economic models. It was designed to provide an assessment of interest in a diesel vehicle maintenance program. The survey was targeted to stakeholders, including interested community members, potential students, and potential employers in the area of North-central Arkansas and South-central Missouri. The reason for this area of concentration is that North Arkansas College will most likely be able to draw students from about a 100 mile radius. The actual survey is provided in the following 9 pages.
Figure 4.1: Copy of Survey Used To Collect Data on Interest Level in Community

**Diesel Vehicle Maintenance Program Interest Survey**

North Arkansas College's Division of Business & Technology is conducting a feasibility study for a potential Diesel Vehicle Maintenance Program. Results of this interest survey will be used as part of this study.

A Diesel Vehicle Maintenance Program would cover all of the concepts of maintenance and repairs of diesel vehicles, such as engine performance, electrical, engine cooling, transmission troubleshooting, and the fuel system. Given this information, please answer the following questions to the best of your knowledge.

**1. Which of the following best describes your interest in regard to a potential Northark Diesel Vehicle Maintenance Program?**

- [ ] A prospective student
- [ ] An interested community member
- [ ] A potential employer

**2. In which state do you live?**

- [ ] Arkansas
- [ ] Missouri
- [ ] Other (please specify)

**3. Given the age groups below, what would be your current age group?**

- [ ] 15-24
- [ ] 25-35
- [ ] 36-50
- [ ] 51-65
- [ ] 65+

**4. Which of the following would best describe your educational completion level?**

- [ ] High School or GED
- [ ] Finished some college classes
- [ ] Obtained a certificate
- [ ] Obtained an Associate degree
- [ ] Obtained a Bachelor's degree or higher
### Diesel Vehicle Maintenance Program Interest Survey

#### 5. College Attendance

<table>
<thead>
<tr>
<th>Are you currently enrolled in college?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you plan to attend college in the future?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Diesel Vehicle Maintenance Program Interest Survey

## Prospective Student

6. How many hours do you work per week?

- [ ] 0
- [ ] 1-15
- [ ] 16-35
- [ ] 36+

7. The United States Bureau of Labor Statistics states that the national average hourly wage for bus and truck mechanics and diesel engine specialists is $20.31, with a mean average annual salary of $42,250.

Bus and truck mechanics and diesel engine specialists include diagnostics, adjustments, or overhaul of buses and trucks, maintenance and repair of any type of diesel engines. Includes mechanics working primarily with automotive or marine diesel engines.

Given this data, do you believe that this pay rate is a good return of the time and money needed to pursue a degree in diesel mechanics?

- [ ] Yes
- [ ] No
- [ ] Not sure
### Diesel Vehicle Maintenance Program Interest Survey

#### 8. Please indicate your level of agreement with each of the statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am interested in a career in the diesel maintenance field.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The amount of time devoted to &quot;hands-on&quot; training in a program is an important factor to me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>A certificate/degree in Diesel Maintenance from Northark would enable me to find a job.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>As a result of completing a Diesel Vehicle Maintenance Program at North Arkansas College, a wider array of career opportunities will be available to me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>A program length of three semesters would be an acceptable length of time for me to commit towards obtaining my certificate/degree.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>If the Diesel Vehicle Maintenance Program at Northark required some general education courses, I would be willing to take those in order to complete the degree requirements.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Overall, if North Arkansas College had a Diesel Vehicle Maintenance Program, I would seriously consider enrolling into the program.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Considering all of the available diesel maintenance programs that I know of, I would prefer to enroll into a program at North Arkansas College over the others.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>The cost of tuition would be an important factor in my decision to choose North Arkansas College.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

#### 9. Would you prefer to obtain a certificate or associate degree in Diesel Vehicle Maintenance?

- ○ Certificate in Diesel Vehicle Maintenance
- ○ Associate Degree in Diesel Vehicle Maintenance
### Diesel Vehicle Maintenance Program Interest Survey

**Community Member**

10. The United States Bureau of Labor Statistics states that the national average hourly wage for bus and truck mechanics and diesel engine specialists is $20.31, with a mean average annual salary of $42,250.

*Bus and truck mechanics and diesel engine specialists include diagnostics, adjustments, or overhaul of buses and trucks, maintenance and repair of any type of diesel engines. Includes mechanics working primarily with automotive or marine diesel engines.*

Given this data, please indicate your level of agreement with each of the statements.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I consider this to be a good competitive salary in our area.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Given this salary, I would recommend this field to a potentially interested student.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

11. Please indicate your level of agreement with each of the statements.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Arkansas College is beneficial to its students and the community as a whole.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I am familiar with the current programs offered by North Arkansas College.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I believe there will be good employment opportunities for diesel maintenance technicians in the near future.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A Diesel Vehicle Maintenance Program at North Arkansas College would add value to the college and the community.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>If North Arkansas College had a Diesel Mechanics Program, I would personally recommend the program to potential students.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
# Diesel Vehicle Maintenance Program Interest Survey

## Potential Employer

### 12. In which state are you employed?
- [ ] Arkansas
- [ ] Missouri
- [ ] Other (please specify)

### 13. Which of the following best describes the size of your business?
- [ ] 1-4 Employees
- [ ] 5-10 Employees
- [ ] 11-20 Employees
- [ ] 20+ Employees

### 14. Please indicate your level of agreement with each of the statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe that there is a good outlook for future opportunities in the field of diesel maintenance.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Adding a Diesel Vehicle Maintenance Program to North Arkansas College would increase the overall value to the community.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I foresee opportunities at my business for a diesel maintenance technician.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>An employee with a certificate or degree in diesel maintenance would add value to my business.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>I would hire a graduate of a Diesel Vehicle Maintenance Program from North Arkansas College.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
Diesel Vehicle Maintenance Program Interest Survey

15. The United States Bureau of Labor Statistics states that the national average hourly wage for bus and truck mechanics and diesel engine specialists is $20.31, with a mean average annual salary of $42,250.

Bus and truck mechanics and diesel engine specialists include diagnostics, adjustments, or overhaul of buses and trucks, maintenance and repair of any type of diesel engines. Includes mechanics working primarily with automotive or marine diesel engines.

Given this data, would you be willing to pay this amount to a graduate of a diesel maintenance program?

☐ Yes
☐ No
☐ Maybe

Other (please specify)

16. If you had an employee wanting to enroll at a diesel vehicle maintenance program, would you be willing to pay for the tuition?

☐ Yes
☐ Some of it
☐ No

Other (please specify)
17. Research has shown that the tuition costs of North Arkansas College to be significantly lower than some national diesel vehicle maintenance programs. Would this fact cause you to prefer a Diesel Vehicle Maintenance Program at Northark?

- Yes
- No
- Maybe

18. What would you consider to be the most important aspect of a potential Diesel Vehicle Maintenance Program at Northark?

- Affordability
- Amount of time spent in hands-on-training vs. lecture
- Accessibility/Proximity to College
- Reputation of the quality of graduates from the program

19. How did you here about this survey?

- Email
- Website
- Newspaper
- Word of Mouth

Other (please specify)

20. Please share any additional comments below.
Diesel Vehicle Maintenance Program Interest Survey

Thank you for taking this survey. If you have additional comments or questions, please contact Ed Proctor, Dean of Business & Technology.

870-391-3228
eproctor@northark.edu
4.1 General Discussion of the Interest Survey

Since the survey is an important part of the feasibility study, significant time and effort was spent on survey development. Knowledge of the area and industry was used to determine the language of the questions, delivery method, and length. Advice and direction from the Dean of the Business and Technology at North Arkansas College, Mr. Edward Proctor was solicited to ensure that publicity for the survey was handled properly. Several meetings were held with the Director of Institutional Research, Mrs. Katherine Vaughn, to ensure that the survey was designed so that the results could be used to determine the information that would help the college make a decision on whether this program is feasible.

Faculty of diesel programs in northwest Arkansas were also consulted in the process. The Northwest Technical Institute helped with the entire process, not just the survey construction. During tours and meetings of similar area diesel programs, the primary goal was used to examine potentially important factors. In addition, the respondents to which the survey was sent were considered when creating questions. The survey was opened to the public in an online format on December 5, 2011 and was closed on February 10th, 2012. The survey was advertised through a variety of means including distribution of official letters throughout the community, emails to various contacts already established with the college, word of mouth, on the North Arkansas College website, and a special announcement in the local newspaper, the Harrison Daily Times. Through each of these methods, a direct link to the survey was provided so that a respondent could easily access to the survey.
4.2 Discussion of the Survey Components

As part of the effort to design the survey so that the results could be used effectively for assessing program feasibility, the survey sample was given to three audiences. These groups were the potential students of the program, the potential employers of those students, and the community members that would potentially support this program by recommending the program and as taxpayers. Each group completed the same initial page and once their interest was identified, they answered a specific part of the survey.

The first two pages of the survey introduced the goal of the survey in a short, concise manner that gave the respondent enough information without unintentionally biasing survey results. General background information about each respondent was collected that may be important to the analysis. After this information was collected, the respondent was taken to one of the three possible parts of the survey that reflected their initial responses. These three parts gathered from the three audiences are analyzed below.

The first section of the interest survey was the prospective student section. This section started on page three of the survey and ended on page four. The goal of this section was to gain information to determine if there is interest from potential students in the vicinity of the college for a diesel vehicle maintenance program, if the program would benefit them for employment opportunities, and if the program area being considered is relevant to the student’s educational desires. More specifically, the goal of this section was to determine if the prospective students would with all factors being considered, enroll into a diesel vehicle maintenance program at North Arkansas College, if offered.

The second section of the interest survey was the community member section. This section was on page five of the survey. The goal of this section was to gain an understanding of community interest in a potential diesel vehicle maintenance program.
The factors considered included the community’s perception of the diesel mechanics occupation, opportunities available to potential graduates, and North Arkansas College’s ability to sustain a program of this type. In the end, an understanding of whether the community would support a potential diesel vehicle maintenance program in all aspects was desired.

The third section of the interest survey was designated for the prospective employers. This section started on page seven and ended on page eight. The goal of this section was to determine if potential employers perceived a need for diesel maintenance technicians in the labor market, if the employers would hire graduates of a potential diesel vehicle maintenance program at North Arkansas College, and what they thought would be the most important aspect of the program. Overall, the goal was to gauge employers response to a diesel vehicle maintenance program and if the students would be able to find jobs in the long term.

The final section of the interest survey was intended for all three audiences. This section of the survey was on page 8 and collected additional information about what the respondents consider to be the most important aspect of North Arkansas College, and a chance for the respondents to provide open-ended comments. The goal of this section was to quantify the ability of North Arkansas College to separate itself from other diesel maintenance programs based on tuition costs and to capture all other opinions of the survey group that had not been previously revealed.

4.3 Discussion of the Positioning of the Potential Diesel Vehicle Maintenance Program in the Area’s Marketplace

The second part of the feasibility study was to develop a market positioning map for the potential diesel vehicle maintenance program. The positioning map takes into
account the factors that would affect how the program would compare to other programs that are considered competitors. These factors include tuition costs, type of degree/certificate, curriculum content, teaching methods, length of program, building layout and floor plan, as well as, the number of faculty to teach program.

4.4 Discussion of Operating Costs and Summary of Capital Costs

The next part of the feasibility study was to develop a general financial plan of the proposed diesel vehicle maintenance program. Information on the potential capital costs and the program’s operating budget were obtained. These costs provide an understanding of the upfront costs to start the program and the financial health of the program after the program would be established. There might be interest in the program, but if the program is not financially sustainable for North Arkansas College, then it does not make sense to start the program. The capital costs and the operating budget are split due to “sunk costs.” It is assumed that after the program is started, many of the upfront capital costs of the program will no longer be important as they are sunk costs, therefore making the operating budget significant for program viability.

4.5 Discussion of the how a Potential Diesel Vehicle Maintenance Program would fit into the Overall Mission of the College

The last part of the feasibility study was to look at how the program would fit with other programs at North Arkansas College. The program may seem like a good idea by itself, but if it does not match up with the mission and overall goals of the college, it is of less value. This part of the study looked at where the building of the diesel vehicle maintenance program could be built, how the program would affect other programs, and if the overall outcomes of the program are of benefit to the college.
CHAPTER V: RESULTS AND DISCUSSION

Analysis of the interest survey is discussed first. The responses of the individuals from all three audiences are analyzed to quantify the level of interest from the community. Microsoft Excel is used for analysis purposes; that is summarizing individual questions, and putting responses into graphical form.

The interest survey received 168 responses. Of those responses, 83 were from community members, 68 were from prospective students, and 17 were from prospective employers. The category determination came from question 1. Also, from question 2, it was determined that all respondents were from the state of Arkansas, except for 4 respondents that were from Missouri. Of the four respondents from Missouri, three were potential employers and one was a community member.

Question 3 on the survey collected information about the age range of the respondent so that conclusions on the type of respondents might be made. Table 5.1 depicts the age ranges of all the respondents from the interest survey, by category.

<table>
<thead>
<tr>
<th>Age Range (Yrs)</th>
<th>Potential Employers</th>
<th>Potential Students</th>
<th>Community Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-24</td>
<td>2</td>
<td>57</td>
<td>20</td>
</tr>
<tr>
<td>25-35</td>
<td>3</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>36-50</td>
<td>6</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>51-65</td>
<td>6</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>65+</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

The data in Table 5.1 show an older median age among potential employers, a large percentage of younger potential students, and an even distribution of the ages among the community members. The age distribution of the students is surprising in that most of the programs interviewed reported that the major portion of the students are “middle-aged”
students returning to school to increase their skill set to become more competitive in the labor market. While, it is important to recognize a younger age distribution among the prospective students, it is wise to remember that this is still a relatively small sample size. In addition, the younger age distribution might have occurred due to the use of a web-based survey.

The survey collected data from the respondents on their respective educational level at the time of the survey. Table 5.2 summarizes the educational level of the sample group that was collected with question 4.

**Table 5.2: Summary of Respondent Educational Level**

<table>
<thead>
<tr>
<th>Respondents Overall Highest Completed Educational Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School or GED</td>
</tr>
<tr>
<td>Finished some college classes</td>
</tr>
<tr>
<td>Obtained a certificate</td>
</tr>
<tr>
<td>Obtained an Associate degree</td>
</tr>
<tr>
<td>Obtained a Bachelor’s degree or higher</td>
</tr>
</tbody>
</table>

The data in Table 5.2 is typical of the area except for the number of respondents that have obtained a Bachelor’s degree or higher (45). This is a fairly large number considering the area does not have a large percentage of citizens that have a Bachelor’s degree, according the United States Bureau of Labor Statistics. This should be kept in mind as one analyzes the following data.

Tables 5.3 and 5.4 depict the college attendance information collected from the respondents during the survey from question 5. Table 5.3 depicts the college attendance at the time of the survey.
Table 5.3: Summary of Respondent’s Current College Attendance Status

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Members</td>
<td>15</td>
<td>66</td>
</tr>
<tr>
<td>Potential Employers</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Potential Students</td>
<td>22</td>
<td>43</td>
</tr>
</tbody>
</table>

Table 5.4 describes the response for all categories from the survey of the respondents that were planning on attending college in the future. This question was asked in a general sense and not in reference to the potential diesel vehicle maintenance program.

Table 5.4: Summary of Respondent’s Future College Plans

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Members</td>
<td>44</td>
<td>34</td>
</tr>
<tr>
<td>Potential Employers</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Potential Students</td>
<td>61</td>
<td>4</td>
</tr>
</tbody>
</table>

In the data below, the analysis summarizes the response by the community members, followed by the prospective students and ending with the prospective employers. In each question, an analysis of the response received for the stated question is provided through a graph and/or written analysis.

In the discussion below, an average is calculated of the responses to get a measure of the degree of agreement among the respondents to the indicated statement. The metrics used for this calculation are in Table 5.5.

Table 5.5: Metrics Used for Calculation of Calculated Average

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>5</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
</tr>
<tr>
<td>Neutral</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
</tr>
</tbody>
</table>
5.1 Analysis of the Response from the Prospective Students in the Interest Survey

Figure 5.1 depicts the response of the prospective students to question 6, “How many hours do you work per week?” These data provide insight to how many of the prospective students are already in the workforce and might be looking for continuing education opportunities from the program. These data reflect the previously reported data that the sample of prospective students is of a younger age. Most respondents worked part-time.

Figure 5.1: Survey Response by Prospective Students on Number of Hours Worked Per Week

Table 5.6 represents the response of the prospective students for question 7 of the interest survey. This question gave the respondent the average annual salary of $42,250 and a small description of the work that the typical diesel technician would do. The question then asked if the respondent would consider the given pay rate to be a good return
of the time and money needed to pursue a degree in diesel mechanics. The data received reveal that most students consider the average annual salary to be either acceptable or they are not sure at this point in their life.

Table 5.6: Response by the Prospective Student about Acceptability of National Average Salary for Bus and Truck Mechanics and Diesel Engine Specialists

<table>
<thead>
<tr>
<th>Possible Response</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>33</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
</tr>
<tr>
<td>Not Sure</td>
<td>26</td>
</tr>
</tbody>
</table>

Figure 5.2 depicts the number of responses for the statement, “I am interested in a career in diesel maintenance field,” which is from question 8 of the interest survey. The analysis reveals that the prospective students sampled have a diverse range of interests in regards to technical skills. The “Strongly Agree” column has the most responses but, there is a range of responses. This is reflected in the average of 3.49 for the responses. It is important to keep in mind that the interest survey was available for all students to take, not just a group interested in diesel mechanics.
Figure 5.2: Survey Response by Prospective Students on Interest in the Diesel Vehicle Maintenance Field

Figure 5.3 depicts the number of responses by the prospective students for the question, “The amount of time devoted to “hands-on” training in a program is an important factor to me.” As represented by Figure 5.3, the sample group would prefer to have training in this field through the hands-on approach. The average of the responses for this question is 4.17.
Figure 5.3: Survey Response by Prospective Students on Need of Hands-on Training in Potential Diesel Vehicle Maintenance Program

Figure 5.4 depicts the response by the prospective students to the statement from question 8, “a certificate/degree in Diesel Maintenance from Northark would enable me to find a job.” The average of the responses is 3.74. As indicated by Figure 5.4 and this average, the students are not completely sure that a certificate/degree in diesel vehicle maintenance would help them to get a job but they are optimistic as there are just 5 responses out of 68 that are “disagree” or “strongly disagree.”
Figure 5.5 depicts the number of responses for each of the possible choices for the statement “as a result of completing a Diesel Vehicle Maintenance Program at North Arkansas College, a wider array of career opportunities will be available to me.” The analysis reveals that the prospective students sampled continue to have a relatively positive agreement with the statement presented. The average of these responses was 3.85.
Figure 5.5: Survey Response by Prospective Students on Perceived Gain of Career Opportunities after Completing Certificate at North Arkansas College

Figure 5.6 depicts the response by the prospective students to the statement from question 8, “a program length of three semesters would be an acceptable length of time for me to commit towards obtaining my certificate/degree.” The average of the responses for this statement was 3.70, which indicates that there was a positive agreement level of the prospective students with that statement. However, figure 5.6 further strengthens that assessment, especially when one looks at the number of “agree” responses of 30, which is 44% of the total prospective student respondents.
Figure 5.6: Survey Response by Prospective Students on Three Semesters Being an Acceptable Length for the Diesel Vehicle Maintenance Program

Figure 5.7 depicts the response by the prospective students to the statement from question 8, “if the Diesel Vehicle Maintenance Program at Northark required some general education courses, I would be willing to take those in order to complete the degree requirements.” The response to this statement again has a positive agreement level from the prospective students sampled. The average of the responses to this statement was 3.62.
Figure 5.7: Survey Response by Prospective Students on Willingness to Take Some General Education Courses

Figure 5.8 depicts the number of responses for the statement “overall, if North Arkansas College had a Diesel Vehicle Maintenance Program, I would seriously consider enrolling into the program.” The analysis reveals that the prospective students continue to have a relatively positive agreement with the statement presented, as represented by Figure 5.10 below. This statement generated an average response of 3.61.
Figure 5.8: Survey Response by Prospective Students on Seriously Considering to Enroll Into a Diesel Vehicle Maintenance Program at North Arkansas College

Figure 5.9 depicts the number of responses for the statement “considering all of the available diesel maintenance programs that I know of, I would prefer to enroll into a program at North Arkansas College over the others.” The analysis reveals that the prospective students sampled have a more distributed response compared to the other statements. The average of all the responses is 3.46, which indicates this response slightly above neutral.
Figure 5.9: Survey Response by Prospective Students on Possible Preference of Program at North Arkansas College over Competitors

Figure 5.10 depicts the number of responses for the statement “the cost of tuition would be an important factor in my decision to choose North Arkansas College.” The analysis reveals that the prospective students have a positive agreement level with the statement presented. The calculated average of this group is 3.97.
The data from question 9 of the interest survey were surprising. Thirty-eight prospective students responded that they would prefer to obtain an Associate’s degree in Diesel Vehicle Maintenance compared to 23 that responded they would prefer to obtain a certificate in Diesel Vehicle Maintenance. This reveals that the students sampled would like to obtain the higher degree over a certificate. Seven prospective students did not respond to the question.

Finally, question 20 of the interest survey gave the respondents a chance to provide any other comments that they might have that have not been expressed previously in the survey. Following is a summary of the responses received from all prospective students on question 20:

- “I strongly encourage a diesel class to open. I would be your first student.”
• “This is a good program for both, the North Arkansas College and for the students that are interested in it. But I am not very interested in this program.”

• “If I were to attend the college course I would have to be able to afford the course, and, I would rather have more hands on training and less lectures.”

• “Being able to afford the cost of going and enrolling to this program is a big concern, but also that hands-on work to learn correctly how to do things without messing up.”

• “I'm not interested in diesel vehicle maintenance.”

• “I would love to have a diesel degree.”

• “I feel that it would be a benefit to have the diesel maintenance program for the fact that it would not limit the opportunities.”

5.2 Overall Assessment of the Survey Response of Prospective Students

This group of respondents from the interest survey provides important data that delivers important information. Overall, there was a positive response to all of the statements that were presented to the respondents. This reveals that a diesel vehicle maintenance program at North Arkansas College would probably have significant interest from prospective students.
5.3 Analysis of the Response of the Community Members from the Interest Survey

The first question in the section of community members was question 10, which gave the respondent the average annual salary of $42,250 for diesel maintenance technicians and a small description of the work that the typical diesel technician would do. Based on that knowledge, the respondent picked their agreement level with the following two statements. Figure 5.11 reveals the response of the community members to the statement, “I consider this to be a good competitive salary in our area.” As depicted, most community members do have a strong positive agreement level with this statement. The average of the responses to this statement was 4.07.

Figure 5.11: Survey Response by Community Members on Competitiveness of Diesel Technician Salary

Figure 5.12 depicts the response by the community members to the statement, “given this salary, I would recommend this field to a potentially interested student.” The average of the responses to this statement is 4.13, clearly revealing a strong agreement level
of the community members that they would recommend potential students in our area to a potential diesel vehicle maintenance program.

**Figure 5.12: Survey Response by Community Members on Recommendation Based on Average Salary**

<table>
<thead>
<tr>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Neutral</td>
</tr>
<tr>
<td>Disagree</td>
</tr>
<tr>
<td>Strongly Disagree</td>
</tr>
</tbody>
</table>

Figure 5.13 reveals the response by the community members to the statement, “North Arkansas College is beneficial to its students and the community as a whole.” This statement was located under question 11 of the interest survey. The average of all of the responses with this statement was 4.45. Ninety four percent of the community member respondents reported either an “agree” or “strongly agree” response to the statement of North Arkansas College’s benefit to community.
Figure 5.13: Survey Response by Community Members on Benefit of North Arkansas College to Community

Figure 5.14 shows the response by the community members to the statement, “I am familiar with the current programs offered by North Arkansas College.” The average of the responses of the statement was 3.90. These data reveal that the community members are familiar with the college and the type programs offered to students. This reveals the working knowledge the respondents are using to answer the statements presented in the survey.
Figure 5.15 depicts the response by the community members for the statement from question 11 of the survey, “I believe there will be good employment opportunities for diesel maintenance technicians in the near future.” The average of these responses to the statement is 4.17. This average and Figure 5.15 further indicate that the community members may, if given opportunity, be willing to recommend an interested student to the area of diesel vehicle maintenance.
Figure 5.15: Survey Response by Community Members on Future Employment Opportunities for Diesel Technicians

![Bar chart showing survey response]

Figure 5.16 depicts the response of the community members to the statement, “a Diesel Vehicle Maintenance Program at North Arkansas College would add value to the college and the community.” The data illustrate the value the community members have for the proposed program. The average of all the responses to the statement was 4.36.
Figure 5.16 Community Members That Felt a Diesel Maintenance Program at North Arkansas College Would Add Value to the College and the Community

Figure 5.17 depicts the responses of the community members to the statement, “if North Arkansas College had a diesel vehicle maintenance program, would they personally recommend the program to a potential student.” The response was positive in that 68 of the community members sampled would personally recommend the program to an interested student. An important aspect of the data collected from this question is to note the number of “strongly agree” response is the highest when compared to the number of the other possible responses. The average of all of the responses for this statement was 4.22.
Finally, the community members had an opportunity to submit any other comments they felt would be beneficial to the study. Those comments are listed below:

- “I would hope that a program like this would not take students away from current programs.”

- “I am the counselor at a high school in Marion County, and I have many students that have expressed interest in diesel mechanics. The cost of the programs that I am aware of have always been cost prohibitive, $22,000 per year is just not something any of the students who want to go can fund.”

- “We have students that go far away for this program and we need them to stay locally because they would likely finish this program if here.”

- “I am a high school counselor in the out-lying area of North Arkansas College. This institution is a vital asset to my graduating seniors. NAC’s Secondary Center
program which trains our juniors and seniors provides an important service.

However, each year my students are disappointed to learn that diesel mechanics is not a program. Our only option for students wishing to study this field of mechanics is sending them over 2 hours away after they graduate high school. Adding this program would greatly benefit a large portion of my students.”

• “I am indifferent to any aspect of this program because I have virtually no interest in this area.”
• “I think this would be a good program to get started!”
• “This is a good way for students to get into the Northark College and be mechanics.”
• “I think that a diesel mechanics program could be good, with all the farmers and people that drive trucks that require diesel along with tractors and other farm supplies, it could be a good business.”
• “I don’t really enjoy this line of work but it’s okay.”
• “I am not a mechanic, but have relatives that would love to come here for this.”
• “I am the manager at FleetPride (previously Premier Truck Parts). This area is in need of educated technicians as a large number have little to no knowledge of the vehicle they are working. I would be interested in helping get this program started and/or help with training.”
• “All people need a trade, no matter what their profession.”
• “I am a high school counselor, and many of my students are interested in diesel mechanics. They usually look at schools in Oklahoma or New Mexico. It would be great if this program becomes available locally!”
• “I have a friend who retired from diesel maintenance. The trucking company had a devil of a time replacing him.”

• “I think this would be a good program to add to Northark’s already healthy tech dept.”

• “I am a local graduate of NAC and try to convince all local students to go to NAC and I personally think another option for students in this area is a great idea. There are way too many kids (people) graduating college with a general degree and not having very good luck finding good employment and I think there is more demand for people with a certain trade now days.”

• “I think with rising gas costs, with alternative fuel uses that are already being employed in diesel engines, and given the region in which we live, a diesel automotive program seems to make good sense and would be in demand given the numbers of vehicles and agricultural machinery this region.”

5.4 Overall Assessment of Community Members Response from Interest Survey

There seems to be a positive response from the community regarding the proposed diesel vehicle maintenance program. In all the data that were collected from the statements asking if the community members would recommend students to a potential diesel vehicle maintenance program, only 3 out of 84 respondents submitted a response of “disagree” or “strongly disagree.” Keeping in mind that the age groups of the community members was evenly distributed, this strong interest from the community shows that the program would most likely have support in all aspects.
5.5 Analysis of the Response of the Prospective Employers from the Interest Survey

The last category sampled by the interest survey is the prospective employers. Of the 16 respondents in this group, all but three were from the state of Arkansas. Table 5.7 summarizes the size of the businesses of the prospective employers that responded to the interest survey.

Table 5.7: Summary of Respondents’ Size of Business

<table>
<thead>
<tr>
<th>Size of Business Where Respondent is Employed</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4 Employees</td>
<td>2</td>
</tr>
<tr>
<td>5-10 Employees</td>
<td>7</td>
</tr>
<tr>
<td>11-20 Employees</td>
<td>4</td>
</tr>
<tr>
<td>20+ Employees</td>
<td>3</td>
</tr>
</tbody>
</table>

Figure 5.18 depicts the number of responses from the prospective employers for the statement “I believe that there is a good outlook for future opportunities in the field of diesel maintenance.” The analysis reveals that the prospective employers sampled have a very strong positive agreement with this statement. The calculated average of this group using the same previous scale is 4.88.
Figure 5.18: Survey Response by Prospective Employers on Their Perception of the Employment Future for Diesel Maintenance Technicians

Figure 5.19 depicts the number of responses from the prospective employers for the statement “adding a diesel vehicle maintenance program to North Arkansas College would increase the overall value to the community.” The average of the responses for this statement is 4.81. Again, the analysis reveals that the prospective employers sampled have a very strong positive agreement with this statement. This could be a reflection on their belief that a diesel maintenance program is needed for the education of students and for the benefit of the local economy.
Figure 5.19: Survey Response by Prospective Employers on the Overall Value of North Arkansas College to the Community

Figure 5.20 depicts the number of responses from the prospective employers for the statement “I foresee opportunities at my business for a diesel vehicle maintenance technician.” The average of the responses received for this statement was 4.50. The data were not as positive as the other responses, but, is nevertheless, still positive. The data indicate a few conditions, however. First, the employers sampled have already stated that they feel that the diesel vehicle maintenance field is full of opportunity. However, in light of this data, the employers may feel that the technicians may have to travel out of the area to find employment. However, it is important to realize that the sample size of 16 respondents is rather small. Further research on this statement should be done to ensure what the perception of the possible employers is.
Figure 5.20: Survey Response by Prospective Employers on Opportunities for Technicians at Their Businesses

Figure 5.21 depicts the number of responses from the prospective employers for the statement “An employee with a certificate or degree in diesel vehicle maintenance would add value to my business.” The data received on this statement is positive, with a calculated average of 4.69. The data from this group reinforce the presumptions made that there are opportunities, maybe just not at the sample’s respondents’ place of business.
Figure 5.21: Survey Response by Prospective Employers on North Arkansas College Graduates Adding Value to Their Business

Figure 5.22 depicts the number of responses from the prospective employers for the statement “I would hire a graduate of a diesel vehicle maintenance program from North Arkansas College.” Again, the data received on this statement is positive, with a calculated average of 4.69. This statement measured the perceived interest of the prospective employers in the region with all of the factors considered. The result is a very positive response to the proposed program.
The potential employer group had a chance in question 20 to submit additional comments that they felt were beneficial. Those comments are listed below:

- “This is a great idea.”
- “Very glad to see that the program is under consideration.”

The potential employers were also presented with the information of the average annual salary of $42,250 and a small description of the work that the typical diesel technician would do in question 15. Next, the statement, “given this data, would you be willing to pay this amount to a graduate of a diesel vehicle maintenance program” was asked. All but two potential employers said “yes.” The other two respondents indicated “maybe.” The potential employers were also asked, “If they had an employee wanting to enroll at a diesel vehicle maintenance program, would they willing to pay for the tuition.” Table 5.8 summarizes the results to this statement from question 16.
Table 5.8: Summary of Respondents’ Willingness to Pay Tuition

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>Some of it</td>
<td>11</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
</tbody>
</table>

5.6 Overall Assessment of the Response of the Prospective Employers from the Interest Survey

Overall, the response by the prospective employers was positive. This group of survey respondents is important since these individuals may have the most realistic view of the current condition of the diesel maintenance field and are those that will be potentially hiring the graduates of the diesel vehicle maintenance program. Based on the received data, the prospective employers have an interest in a diesel vehicle maintenance program and North Arkansas College and would be supportive of such a program.
5.7 Results from the Final Page of the Interest Survey

All respondents completed the final page of the survey, which measured some topics that pertained to all of the categories. The first question of this page was question 17, which presented the statement, “Research has shown that the tuition costs of North Arkansas College to be significantly lower than some national diesel vehicle maintenance programs. Would this fact cause you to prefer a potential Diesel Vehicle Maintenance Program at North Arkansas College?” The results of this question are summarized in Table 5.9:

Table 5.9: Summary of All Respondents on Importance of Low Tuition of North Arkansas College

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>111</td>
</tr>
<tr>
<td>Maybe</td>
<td>44</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
</tr>
</tbody>
</table>

The next question on the final page of the survey, question 18, asked the statement, “What would you consider to be the most important aspect of a potential Diesel Vehicle Maintenance Program at Northark?” The results of this statement are depicted in Table 5.10:

Table 5.10: Summary of All Respondents on Most Important Aspect of a Potential Diesel Vehicle Maintenance Program at North Arkansas College

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Affordability</td>
<td>50</td>
</tr>
<tr>
<td>Hands-on vs. Lecture</td>
<td>53</td>
</tr>
<tr>
<td>Accessibility of College</td>
<td>13</td>
</tr>
<tr>
<td>Reputation of Graduates</td>
<td>49</td>
</tr>
</tbody>
</table>

Finally, the last question the respondents answered, besides the open-ended question 20, was question 19. This question contained the statement, “How did you hear about this survey?” The results of this statement are represented in Table 5.11:
Table 5.11: Summary of All Respondents How Respondents Heard About Survey

<table>
<thead>
<tr>
<th>Method</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail</td>
<td>36</td>
</tr>
<tr>
<td>Northark Website</td>
<td>37</td>
</tr>
<tr>
<td>Local Newspaper</td>
<td>4</td>
</tr>
<tr>
<td>Word of Mouth</td>
<td>59</td>
</tr>
<tr>
<td>Hand Delivered Letter</td>
<td>34</td>
</tr>
</tbody>
</table>

5.8 Analysis of the Positioning of the Potential Diesel Vehicle Maintenance Program in Marketplace

For the potential diesel vehicle maintenance program to be successful in the long-term, research, planning, and purposeful action must be taken to position the program appropriately in the marketplace. To accomplish this, all factors must be considered including the results of the survey, the items learned on other programs, and the college’s knowledge of its own programs.

The first area to consider is how the tuition costs would be structured. Based on past success of other technical programs at North Arkansas College and the results from questions 17 and 18 of the survey, the program would be better positioned if the tuition costs used the same schedule as the other programs of North Arkansas College. If tuition costs can be kept low, value is added to students seeking to increase their education affordably.

The next area to consider is the type of degree or certificate to be offered. Based on the research conducted, the options that are available for the program are certificate of proficiency, technical certificate, or an associate’s degree. Recently, the college updated its mission statement to “North Arkansas College's mission is to provide high quality, affordable, convenient opportunities for learning and community enrichment.” With this change in mind and consistent with the response of the respondents in the survey, the college should consider making both the options of technical certificate and an associate’s
degree possible. This would make the program more flexible and possibly add value to the students, community, and employers.

A major factor in the positioning of the program is curriculum selection. Other curriculums cover similar areas, but a few set themselves apart. These programs, such as Ozarks Technical Community College and Northwest Technical Institute have adopted the curriculum of the National Automotive Technicians Education Foundation, or NATEF (www.natef.org). In aligning the program with the mission of the college, it is possible that the best option is to adopt the strict requirements and learning objectives of the NATEF. If this is done, the program can go through the accreditation process to become ASE Certified. The benefits of this accreditation are numerous and include: giving credibility to the potential program, helping to keep the program current on new technology and procedures, and adding more value to the certificate or degree that the graduates present to potential employers. NATEF provides a complete list of technical areas that must to be taught in a diesel vehicle maintenance program and tasks that the students are required to have mastered by the time they graduate. However, NATEF does allow flexibility in regards to what areas are taught. To align with NATEF’s standards, the description of the program must match with what is being taught. Therefore, the curriculum used would entirely depend on if the program resulted in an Associate’s degree or certificate and what areas of instruction the lead instructor or dean of the program offer. NATEF’s list and many other resources could be used to set up the program’s curriculum to make sure the program is positioned to provide high quality and affordable education for potential students.
Another component of the positioning of the program is the time required to finish the program. To make it attractive, the program cannot be too long or the students will view the opportunity costs of the sacrifice to attend the program too high. One significant opportunity cost for a prospective student might be the income they give up while attending school. However, if the program length is too short, the required material cannot be taught to ensure that the graduates are learning the concepts required. Based on survey results from question 8 and the research of other successful programs, the optimal time may be three semesters. Evaluating the time required to teach the concepts that NATEF requires and what other established programs are doing, three semesters seems to be appropriate. This would allow a new class of students to start the program both in the spring and fall semesters, adding more flexibility in graduation dates for the students and overall value to the potential program.

One aspect that plays a major role in the positioning of a program in the marketplace that is often overlooked is the building floor plan. The building floor plan can be a major difference in the efficiency and teaching effectiveness of the instructors. If the building floor plan is conducive to the learning process, the reputation of the program will be strengthened, thus making the program more competitive. Research was done in this area with regards to the best setup that would meet the current and future needs of the program, while taking account the project budget. In the end, a tour of Northwest Technical Institute resulted in a floor plan that could best meet the needs of a potential diesel vehicle maintenance program. Figure 5.23 illustrates the dimensions of the floor plan.
Figure 5.23: Proposed Floor Plan for Potential Diesel Vehicle Maintenance Program
Figure 5.23 was based on a planned expansion floor plan at Northwest Technical Institute. They plan on adding onto their existing building that houses their current Diesel and Truck Technology program, so, this floor plan is revised to meet our needs. The part that is similar is the lower part of Figure 5.23 that includes the classroom, office, restrooms, and storage rooms. The estimates on desired dimensions of all the stalls for the trucks and all of the rooms were also based on NTI’s furnished floor plan.

As Figure 5.23 depicts, the proposed building is 160’ long and 70’ wide. What is not shown on the floor plan but will be covered later is that the proposed building has 21’ sidewalls to house large trucks that will enter the building to be worked on. Each stall will have an insulated overhead door that is 16’ tall by 14’ wide. The overall goal of the floor plan is to create an environment that is comfortable for both the students and instructors and that works well for traffic flow as the students enter the building, move into the classroom, and work out in the shop on vehicles. The stalls are designed to house 10 large trucks to be worked on at 10 stations supporting teams of 2 to 4 students. The stalls are positioned to make it easy to maneuver trucks in and out of the building without disturbing other areas of the building. The two parallel bars at the top of Figure 5.23 are where a full truck lift would go. The reason that it may work at this location in the building is that it is out of the way of the main traffic areas. The full truck lift would add value to the program by providing the ability to the instructor to demonstrate the many systems and procedures of the diesel truck. The last room at the top of Figure 5.23 is a storage room for all tools, supplies, or anything else that needed to be present at the building.

The last major factor that would need to be considered to properly position the potential diesel vehicle maintenance program is the number of faculty needed to
sufficiently instruct the students while keeping the operating costs low. As research was
done in this area, it became apparent that this is a difficult factor to determine. Based on
the existing Automotive Service Tech program at North Arkansas College and research of
other relevant programs, the number of required faculty include one full time instructor and
one or two other part-time professionals that assist the instructor during work time in the
shop. This provides the instructor the flexibility of having more individuals to provide the
“hands-on” teaching that the respondents of the desired, while also keeping costs down.
Part-time professionals typically cost less than full-time instructors and can be available
during certain hours.

In the end, considering all of the information gathered, the program’s best position
might be to make it similar to the more successful programs in the area that have been
established for some time and allow the location of the school relative to other programs in
the area be the attribute that makes it unique. The fact that there are no other programs of
this nature in the area is a great asset. The goals of instruction and curriculum content
should be similar to those of its competitors, such as Northwest Technical Institute, that
have already established success in the area.

5.9 Analysis of the Capital Costs of Starting a Diesel Vehicle Maintenance Program

When starting a program of any kind, there are going to be significant startup costs.
This is also true for the potential diesel vehicle maintenance program at North Arkansas
College. To determine the feasibility of the program from a cost standpoint, research was
conducted on the major capital costs that would potentially be incurred. The analysis is not
a detailed cost summary but one that covers the major capital costs to be considered for the
overall feasibility of the program. Table 5.12 summarizes all of the major capital costs of
starting a potential diesel vehicle maintenance program at North Arkansas College.
Table 5.12: Summary of Major Capital Costs of Starting a Diesel Vehicle Maintenance Program

<table>
<thead>
<tr>
<th>Capital Costs of Projected Diesel Vehicle Maintenance Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(All figures are estimates)</em></td>
</tr>
</tbody>
</table>

**Building for Program Costs**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal Building Frame</td>
<td>$88,683.02</td>
</tr>
<tr>
<td>Cost of Erection of Metal Building</td>
<td>$39,200.00</td>
</tr>
<tr>
<td>Concrete for Floor/Footings</td>
<td>$65,000.00</td>
</tr>
<tr>
<td>Finishing of Classrooms, Offices, Restrooms</td>
<td>$218,400.00</td>
</tr>
<tr>
<td><strong>Total Building for Program Costs</strong></td>
<td><strong>$411,283.02</strong></td>
</tr>
</tbody>
</table>

**Capital Purchase of Equipment**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Hand Tools for Shop for 10 Stations</td>
<td>$40,000.00</td>
</tr>
<tr>
<td>Lab Tools for 10 Stations</td>
<td>$45,000.00</td>
</tr>
<tr>
<td>Specialty Tools For Specific Program Areas</td>
<td>$65,000.00</td>
</tr>
<tr>
<td>One Full Truck Lift</td>
<td>$50,000.00</td>
</tr>
<tr>
<td>26 Computer Stations for Classroom</td>
<td>$52,000.00</td>
</tr>
<tr>
<td><strong>Total Capital Purchase of Equipment</strong></td>
<td><strong>$252,000.00</strong></td>
</tr>
</tbody>
</table>

**Total Capital Costs** $663,283.02

The first item in Table 5.12 is the estimate of a metal building frame. The estimate for this was obtained from Heritage Building Systems of Little Rock, AR. This company was chosen due to prior experience of the company with constructing other buildings for North Arkansas College. This estimate includes all the costs of materials for a 160’ x 70’ x 21’ building. The materials included in the estimate are the frame of the building, all outer metal coverings, overhead doors, windows, walk-through-doors, and an eight foot wooden liner to go on all walls in the shop to protect the building and the students. Figure A.1 in the appendix includes a copy of the bid received for the metal building.

The next line in Table 5.12 is the cost of erecting the metal building. According to an interview with Pat Hill of Heritage Buildings (2012), the average cost of constructing a
metal building, such as the one proposed, is $3.50 \text{ ft}^2$. With 11,200 \text{ ft}^2 in the potential building, the costs of erecting the building would be $39,200.00.

The third line in Table 5.12 is the cost of the concrete to construct the footings and the floor. Concrete prices are expressed in cubic yards. To obtain a price of concrete for the building, a conversion had to be done using the following formula:

\[
\frac{\text{Length (Feet)} \times \text{Width (Feet)} \times \text{Depth (Feet)}}{27}
\]

The areas that were needed concrete is the footing for the building to be built on, the entire floor inside the building, and both sides of the building in which the overhead doors are located on. The footing was calculated to be 2 feet by 2.5 feet deep. The length of the footing was calculated by using the circumference of the building. Both the floor and the outside pads were calculated using a depth of 8 inches. The outside pads were calculated to be the entire length of the building and 25 feet wide. After inserting all of the stated figures into the formula, it was determined that the building would need 5,773 cubic yards of concrete. This number was rounded off to 6,000 cubic yards and multiplied by the current going rate of concrete of $100/\text{yd}^3$. This rate was provided by Kevin Somers of North Arkansas College, who is the physical plant manager and has recently assisted North Arkansas College in constructing several projects for the college that used concrete.

The fourth line in Table 5.12 is the cost finishing the classrooms, offices, restrooms, and storage rooms of the potential building. This work includes framing the walls, electrical work, plumbing, dry wall finishing, and floors. The calculation of this figure was done by multiplying the square footage of the classroom and office area of the potential building by the estimated current rate of finishing construction per square foot. The square footage of the classroom and office area was 2,730 \text{ ft}^2, which was calculated by
multiplying the width of the area, 70 feet, by the length of the area, 39 feet. The estimated current rate of finishing construction was obtained by contacting a licensed local contractor who is familiar with construction. Eugene Coffman stated that the current rate for this type of construction would be about $85/ft^2.

The next three lines list estimates for tools that would be need for a potential diesel vehicle maintenance program. The list used was obtained from the NATEF organization. This list is the required tool list needed to become ASE certified, which is a goal of the potential program. This list is in three categories; hand tools, lab/shop tools, and specialty tools used during the program. The estimated enrollment of the program is 25 students, which is based on the number of students enrolled in area programs, the estimated demand of the area, and the current enrollment of the current Automotive Technology program at North Arkansas College. It is assumed that each station can handle up to 3 students, so the building could potentially contain 30 people at 10 stations. The estimate was calculated using this enrollment and the standards set by NATEF concerning the tool sets needed per student. The list was supplied to Bill Waggoner of Snap-On Tools (2012) to calculate a rough estimate of the costs of all the tools. Mr. Waggoner provided the estimate because he has experience with supplying programs with tools that are ASE certified. During an interview, Mr. Waggoner supplied the figures listed in Table 5.12 after he had extensively reviewed the tool list supplied to him.

The next line in Table 5.12 contains the estimate for a full truck lift. This estimate was also supplied by Mr. Waggoner. The full truck lift would be a four post lift and would be rated for up to 50,000 lbs. and would be completely stationary.
The last line in Table 5.12 contains an estimate for computer stations for the classroom of the potential diesel vehicle maintenance building. The number of computer stations needed was based on the estimated enrollment of 25, plus one instructor. The total of 26 computer stations was multiplied by the amount of $2,000 per station. This amount was used from recent previous experience in supplying a classroom in the Business and Technology Department at North Arkansas College.

An important factor to consider when analyzing the capital costs, specifically the building for the program, is to realize that the college would be able to provide a significant part of the costs itself. Many programs would be able to provide assistance in starting this program such as the Heavy Equipment Operation program being able to provide equipment and students to do the “dirt-work” required to build the building. Another example would be the Construction Technology program helping build the classrooms and offices in the building. Lastly, the Heating and Air Conditioning program could install the heating and cooling system. These would be of substantial savings to the college and the students involved would gain hands-on education.

5.10 Analysis of the Operating Budget of a Potential Diesel Vehicle Maintenance Program

A critical part of analyzing the feasibility of starting a diesel vehicle maintenance program is having an understanding of what the operating budget would look like. In the current economic conditions, it is crucial for the college to make informed decisions before endeavoring into a project like a diesel vehicle maintenance program. Table 5.13 summarizes the findings of what the potential operating budget would look like for a diesel vehicle maintenance program.
### Table 5.13: Summary of the Operating Budget of a Potential Diesel Vehicle Maintenance Program

<table>
<thead>
<tr>
<th>Operating Budget of Proposed Diesel Vehicle Maintenance Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual Operating Costs</strong></td>
</tr>
<tr>
<td>Instructor's Salary</td>
</tr>
<tr>
<td>Instructor's Benefits</td>
</tr>
<tr>
<td>Professional Part-Time Assistants</td>
</tr>
<tr>
<td>Small Shop Tools</td>
</tr>
<tr>
<td>Non-Capital Equipment</td>
</tr>
<tr>
<td>Equipment Repair Expenses</td>
</tr>
<tr>
<td>Equipment Maintenance &amp; Service</td>
</tr>
<tr>
<td>General Software Acquisition</td>
</tr>
<tr>
<td>Uniforms-Laundry Services</td>
</tr>
<tr>
<td>Teaching Aids-Non Capital</td>
</tr>
<tr>
<td>Other Miscellaneous Costs</td>
</tr>
<tr>
<td><strong>Total Annual Operating Costs</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Annual Projected Revenue</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Income on 15 students</td>
</tr>
<tr>
<td>Income on 20 students</td>
</tr>
<tr>
<td>Income on 25 students</td>
</tr>
<tr>
<td><em>(Average of three estimates)</em></td>
</tr>
</tbody>
</table>

The annual operating costs in Table 5.13 were based on a current program at North Arkansas College. The Automotive Technology program at North Arkansas College would be comparable to a potential diesel program in that the supplies, maintenance, repair expenses, salaries, and other costs would be very similar. Both programs would be working on vehicles, conducting instruction in a very similar manner, and would be located on the same campus. The only obvious difference is the additional amount to maintain and repair some of the equipment that is needed to specifically work on diesel engines. This cost
could be more or less than the cost currently experienced by the Automotive Technology program.

The annual projected revenue was based off of the structure that North Arkansas College currently projects its tuition income for other programs. This program would potentially follow the same structure. The tuition income in this structure is calculated by using a mix of 60% in-county, 30% in-state, out-of-county, and 10% out-of-state residents. The tuition rates used to calculate each of the tuition costs for each of the resident types was $990 for in-county, $1,350 for in-state, out-of-county, and $2,415 for out-of-state. This rate assumes that the students will be enrolled in 15 or more semester hours. This mix is used to calculate the potential revenue for the three possible scenarios of 15, 20, or 25 students listed in Table 5.13.

For this program to be profitable, the college will need to receive additional income from another source besides the student tuition. This, however, is a common occurrence in higher education in that most colleges depend on some state funding to meet operating costs and provide cost effective education to its students. This operating budget is comparable to several operating budgets of successful programs at North Arkansas College such as the Automotive Technology, Truck Driving, and Welding programs.

5.11 Analysis of the Overall Fit of a Potential Diesel Vehicle Maintenance Program at North Arkansas College

Finally, an analysis was conducted with how a diesel vehicle maintenance program would fit into the current programs and mission of the college. Items analyzed were the location of the building for the program and how the potential program would affect current programs.
First, analysis was put into the planning of where a building for the potential program would best fit into the north campus of North Arkansas College. Currently, North Arkansas College has three campuses in the city of Harrison, AR. The north campus houses the technical programs of the college. Many ideas were brought forth by employees of the college that were asked about the location for a potential building that contained concerns about traffic flow and overall student interaction. All of these suggestions and concerns were considered and narrowed down to the solution that best satisfied concerns. Figure 5.24 depicts a map of the north campus of North Arkansas College and where the building could potentially be built. Figure 5.24 also depicts a potential road that could be constructed to ease the current and future problem of traffic flow.
Figure 5.24: Map Containing Potential Site for Building Housing Diesel Vehicle Maintenance Program
The placement of the potential building as depicted by Figure 5.24 offers many benefits. First, this space is already owned by the college, so no new land would have to be purchased. Also, at this site, land would be left untouched for growth of any other future programs.

Second, this area would enhance the programs that currently occupy the area. The Truck Driving program currently uses the gravel lot that part of the proposed building site would take up. However, the program would gain more area to do instruction with the trucks and have the possibility of gaining a new classroom. The depicted site would require the removal of two older buildings that house classrooms for the Construction Equipment Operation and Truck Driving programs. However, considering the elevation of the ground of this particular site and the required height of the building for diesel trucks, classrooms could potentially be built directly above the classroom and office for the diesel vehicle maintenance program. Access to the classrooms could easily be installed at ground level into the upper level of the building, thus removing the interruption of the involved programs. This addition is not reflected in the capital costs estimate, but, the marginal costs of adding the classrooms would be much lower than building additional buildings to replace the facilities required to be removed. This addition would also create synergy between the programs proposed to be housed together in the building. This site could not only provide an excellent site for a new program, but also provide a much needed upgrade for two current programs for a much lower additional cost when compared to the costs of new separate buildings.

The site would also ensure that the students would not be far from the other classes that they might have on campus and from the Student Center, in which interaction takes
place between all students on the north campus. This site also ensures that all programs located on the north campus would benefit from each other due to proximity. For example, the diesel vehicle maintenance program could foreseeably need welding work while the Construction Equipment Operation and Truck Driving program would need frequent maintenance work done on their equipment.

Finally, the site may also contain a new road on land that is not utilized currently. This land will not be easily used for anything else due to its narrow shape and the elevation of the ground. However, a road could be installed along the border of the campus that would relieve some existing traffic problems and accommodate the increase of truck traffic associated with a diesel vehicle maintenance program. With this new road, the large size diesel trucks would be directed away from automobile traffic and pedestrian crossings and allow easier entering and exiting onto the pavement in front of the college. The costs of building the road would be greatly reduced by using students in the Construction Technology program. The significant cost of this road would be the type of material used to build the road and is not reflected in the capital costs estimation.
CHAPTER VI: CONCLUSIONS

Diesel vehicles have steadily increased in popularity in all industries in the United States over the last few decades. With this increase has come the greater demand for qualified diesel technicians to maintain and repair those vehicles. The objective of this study was to analyze the interest level in the community of North Arkansas College of starting a diesel vehicle maintenance program, determine the capital costs of starting the program, understand what the marketplace resembles for such a program from North Arkansas College, and determine if a diesel vehicle maintenance program would be a good fit at North Arkansas College.

An interest survey was offered to potential students, prospective employers, and interested community members in regards to a diesel vehicle maintenance program at North Arkansas College. The overall results from the survey revealed that the community would likely support starting a diesel vehicle maintenance program. The results from the potential students revealed that many would prefer a diesel vehicle maintenance program at North Arkansas College. The strongest response came from the potential employers. For every question asked about starting a program except one, all employers replied that they “agreed” or “strongly agreed” with the statement provided. Overall, the data reveal that the community surrounding North Arkansas College has significant interest in a diesel vehicle maintenance program.

Study of the capital costs of the program revealed that there will be significant costs, but the program can be started in a cost effective manner that makes the program viable to the college. Many factors such as land already owned to place a new building on, current programs being able to help build buildings, and synergy with existing programs
provide the opportunity to start the program without incurring prohibitive capital and operating costs.

Study of the marketplace for a program such as North Arkansas College could offer reveals that it would be a great fit. Although the program would offer benefits to make it attractive in the marketplace, the main factor that creates a market for the program is the location of the college. Many students currently are traveling long distances to obtain the education that could be offered closer to home. This potentially offers more benefits to potential students, especially if the program is offered at significantly lower tuition rates than other programs. One key for the success of the program will be to establish a good reputation among the employers and community members.

Finally, the study reveals that the program would have tremendous synergy with current programs at North Arkansas College. The program would complement the programs currently offered at the college and would provide a great option for students to enhance the skills that they need to compete for the higher paying occupations in the workplace. Analysis revealed that the program would not interfere with programs currently offered at the north campus or any other campus. In fact, the program would most likely improve the surrounding programs.

Further study of the overall costs of the program is needed before deciding to start this program. Analysis is only provided for the major capital costs of the program, thus more research will need to be done to find an exact cost of starting a diesel vehicle maintenance program.

A concern for the success of this potential program is the issue of graduating technicians saturating the market in the area around North Arkansas College. Demand is
high at the current time, but, the issue needs further study will supply of graduates from this potential program satisfy the immediate demand for technicians in the next few years. Another concern is if the addition of a diesel vehicle maintenance program would “cannibalize” the Automotive Technology program. If the program becomes successful, will there be a continuing demand for Automotive Technology? More research needs to be done to determine if these two programs should be combined or associated in some manner.

Despite these concerns, the results of this thesis indicate that it is reasonable to begin to moving forward with efforts to begin a diesel vehicle maintenance program at North Arkansas College.
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APPENDIX A: HERITAGE BUILDING SYSTEMS BID

Figure A.1: Copy of Bid Received for Metal Building for Potential Diesel Vehicle Maintenance Program

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<td>SELLER: Pat Hill</td>
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<td>BUYER: Matt Shinkels</td>
</tr>
<tr>
<td>COMPANY: North Arkansas College</td>
</tr>
<tr>
<td>ADDRESS: 1515 Pioneer Drive</td>
</tr>
<tr>
<td>PHONE: (870) 754-7516</td>
</tr>
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<td>RIGHT ENDWALL FRAME: BEARING FRAME</td>
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<tr>
<td>Letters of Certification WITH Engineer’s Seal</td>
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<tr>
<td>* ARE FRAMED OPENINGS &amp; OPEN AREAS ENCLOSED WITH MATERIAL DESIGNED TO RESIST WIND LOAD?</td>
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<td>COLLATERAL LOAD: 1.0 PSF</td>
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<td>LIFETIME WARRANTED ROOF SCREWS INCLUDED. ANCHOR BOLTS BY OTHERS.</td>
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<td>ENGINEER STAMPED ERECTION DRAWINGS INCLUDED.</td>
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<td>BUILDING OCCUPANCY WILL NOT EXCEED 250 PEOPLE.</td>
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### FRAME OPENINGS

[DRAW-IN & DIMENSION LOCATION OF FRAME OPENINGS, DOORS, WINDOWS OR ATTACH SEPARATE DRAWING]

**THIS JOB HAS NO SPECIAL CONDITIONS**

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1. HERITAGE BUILDING SYSTEMS is a division of NGC Group, Inc. ("NGC" or "Manufacturer") subject to the terms and conditions set forth in this document ("Terms and Conditions").

2. Credit for Payment: The Terms and Conditions shall apply to all credit accounts maintained by Buyer and all purchases, orders, subcontracts, and/or agreements for the products and/or services supplied by Seller. The Terms and Conditions shall be binding upon Buyer. Buyer acknowledges and agrees that if Buyer fails to pay for any portion of the products and/or services supplied by Seller, Seller may file a claim with any credit reporting agency or similar organization to report the overdue accounts and may report Buyer’s account to any credit bureau for reporting purposes.

3. Payment Terms: The Terms and Conditions shall apply to all credit accounts maintained by Buyer. The Terms and Conditions shall be binding upon Buyer. Buyer acknowledges and agrees that if Buyer fails to pay for any portion of the products and/or services supplied by Seller, Seller may file a claim with any credit reporting agency or similar organization to report the overdue accounts and may report Buyer’s account to any credit bureau for reporting purposes.

4. Failure to pay by Buyer shall result in the sale of the products to Seller. The Terms and Conditions shall apply to all credit accounts maintained by Buyer. The Terms and Conditions shall be binding upon Buyer. Buyer acknowledges and agrees that if Buyer fails to pay for any portion of the products and/or services supplied by Seller, Seller may file a claim with any credit reporting agency or similar organization to report the overdue accounts and may report Buyer’s account to any credit bureau for reporting purposes.

5. In the event of a dispute or default, Buyer shall be responsible for all costs and damages caused thereby, including without limitation, all costs of defense, settlement, and any award or judgment. Buyer acknowledges and agrees that if Buyer fails to pay for any portion of the products and/or services supplied by Seller, Seller may file a claim with any credit reporting agency or similar organization to report the overdue accounts and may report Buyer’s account to any credit bureau for reporting purposes.

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7. Any disputes arising from the Terms and Conditions shall be governed by the laws of the State of Texas. Any disputes arising from the Terms and Conditions shall be governed by the laws of the State of Texas. Any disputes arising from the Terms and Conditions shall be governed by the laws of the State of Texas.

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81
DATE: March 8, 2012

HERITAGE
BUILDING SYSTEMS
Established 1979

A Company of NCI Building Systems, Inc.
2612 GRIBBLE ST. / N. Little Rock, AR 72114
800-643-5555 / FAX: 501-845-2255

QUOTE #: 030812MS

Please print detailed job-site driving directions on the lines provided below.

Jobsite Address: __________________________ City: __________________________ State: __________________________ Zip Code: __________________________
Contact Name: __________________________ Contact #: __________________________ IN or Out of City Limits: __________________________

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NOTES:

ACCEPTANCE OF CONTRACT

§§ YOUR SIGNATURE AND ACCEPTANCE SHALL CONFIRM THAT YOU ARE SOLELY RESPONSIBLE FOR VERIFYING THE APPLICABLE BUILDING CODE(S) AND LOADS REQUIRED BY YOUR LOCAL BUILDING DEPARTMENT. ANY CHANGES IN BUILDING CODES AND/OR LOADS WILL RESULT IN AN INCREASE IN THE AGREED BUILDING COST.

THESE INCREASES CAN RANGE FROM INCREASES IN MATERIAL COSTS TO REENGINEERING FEES. CHANGES WILL ALSO RESULT IN DELAYS OF DRAWINGS AND THE ACTUAL DELIVERY OF THE BUILDING MATERIALS. BUYER HERECY AGREES AND STIPULATES THAT IT SHALL PAY TO SELLER IMMEDIATELY UPON DEMAND ANY AND ALL APPLICABLE TAXES ASSOCIATED WITH THIS PURCHASE ORDER. ANY AND ALL APPROPRIATE TAXES ASSOCIATED WITH THIS PURCHASE ORDER SHALL BE CALCULATED BY SELLER OR ABOUT THE TIME OF MANUFACTURE, WHEREUPON, BUYER AGREES TO PAY SAID TAXES IMMEDIATELY UPON DEMAND.

WE PROPOSE TO FURNISH MATERIALS COMPLETE IN ACCORDANCE WITH THE ABOVE SPECIFICATIONS FOR THE SUM OF: BUILDING (w/o Alternates): $88,683.02

FREIGHT: Paid

CONTRACT PRICE: $88,683.02

DEPOSIT: $17,736.60

BALANCE: $70,946.42

THE ABOVE REFERENCED PRICE DOES NOT INCLUDE TAXES OR ALTERNATES. ANY AND ALL APPLICABLE TAXES SHALL BE CALCULATED AND ADDED TO THE ABOVE REFERENCED AMOUNT IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF THIS PURCHASE ORDER.

THIS CONTRACT IS VALID ONLY WHEN SIGNED AND ACCEPTED BY AN OFFICER OF HERITAGE BUILDING SYSTEMS.

CONTRACT ACCEPTED AND ENTERED ON THIS __________

DAY OF __________ 20____

HERITAGE BUILDING SYSTEMS

BY: __________________________ TITLE: __________________________

PRICE SUBJECT TO CHANGE - CONTACT HERITAGE PRIOR TO PLACING ORDER TO VERIFY PRICE.