

Business Plan for a General Contractor
in the New York City Public Sector

by

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B.S.E. Civil Engineering
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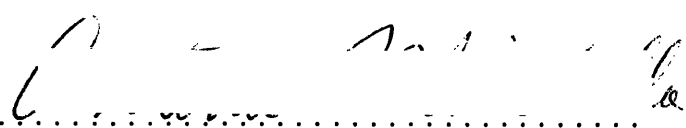
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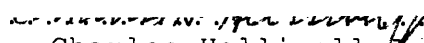
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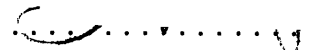
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ABSTRACT

To this day, many general contractors still do not understand the full significance of planning for the future. Their immediate concerns are only focused on the present day-to-day operations. This happens to be the case with ABC Construction Co., Inc., a small general contracting firm based in New York City. Thus, the main objective of this thesis is to prepare a five-year business plan for this construction company. But before preparing this plan, two relevant tasks need to be performed. The current market conditions need to be examined and the internal operations of the firm need to be carefully evaluated. And after the plan is introduced, a number of strategies need to be proposed to help implement the plan. By the end of this thesis, the reader should have a full understanding of where this company is headed in the next five years.

Thesis Supervisor: Charles Helliwell Jr.

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and Education

To Smita

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First and foremost, I would like to thank my parents for giving me the opportunity to attend such distinguished schools like Duke and MIT. Without their love and support I would never have been able to write this thesis.

I also want to thank my sister for tolerating me for all these years. I know I can be a little tough sometimes but it's only because I expect great things from you.

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CHAPTER 1

INTRODUCTION

Because of the rigidly structured nature of this thesis, I have decided to make the introduction a little more interesting. I think that using beautifully-worded quotes from some of my sources would add some color to the thesis. At the same time, these quotes do explain clearly what my thesis is all about.

I took the first quote out of the book, Construction and Professional Management. This book was written by Rubey and Milner and was copyrighted in 1966. The date of the copyright is what fascinates me most. Most people would say that the book is outdated and useless. But this book proved to be most valuable. It has become obvious that the concepts related to construction have not changed much over the past thirty years. Certainly, the role of computers in this industry has changed, but construction itself hasn't changed. Isn't it true that to this day, we still lay bricks one by one. Now, getting back to the quote... the first quote describes exactly why I'm pursuing my Master's degree and how I'm going to utilize this degree in the future:

"The ambitious young contractor should secure a bachelor's degree in civil, mechanical, or architectural engineering or in business administration, and preferably a combination of the two... Since it is difficult to combine these in one four-year Bachelor's degree, he should get a Master's degree in an additional year. On this basis he is prepared to compete successfully and without educational handicap among men of his age and native ability, and to render valuable service to contracting companies as well as in all phases of construction. At this early stage of his career he cannot start a business of his own but must enter a progressive company to secure the practical experience and know-how of

present-day contracting; eventually he will introduce more modern methods and procedure... After a probationary service of a few years in these capacities, usually alternately in the field and office as opportunity permits, he is now in a position to make constructive contributions to the actual operation and management of his company."

I don't think that my past, present, and future goals could have been explained any better than with this quote.

The next quote will explain why the second chapter, Evaluation of External Market, and the third chapter, Evaluation of Firm, are so important to this thesis. Without the two chapters, I would have not been able to write the business plan. This quote is taken out of the same book, Construction and Professional Management:

"In summary, the construction and contracting business should be set up on a permanent modern basis, constantly perfected internally, and kept in tune with its extensive external relationships. New ideas should be tried out and, if they promise success, the organization must have the reserve resources and ability to exploit them fully. Like military commanders who were unable to exploit their military successes, too many construction companies have not been in position financially and otherwise to exploit and develop the better approaches and methods they have tried out."

With the help of my proposed business plan, I hope this general contractor (from now on known as ABC Construction Company, Inc.) will be able to "exploit these new ideas."

The third quote proves why it was so important for me to become acquainted with the directors of the government agencies. Coming again from the same book, the authors write:

"Because of [the increasing role of government], the constructor must have a considerable knowledge of governmental procedure and politics... Obviously the more the constructor knows about government and its practical applications in politics, the better he will fare. He will keep in contact therewith through his staff handling law, taxes, public relations, and so on, as well as personally."

And I intend to keep in contact with the government officials which I have already met.

Now it is time for a short formal introduction. The purpose of my thesis, as the title indicates, is to prepare a five-year business plan for a general contractor in the New York city public sector. But before I could write the business plan, I had to first evaluate the market and analyze the firm's internal operations. These two tasks are performed respectively in the next two chapters. The fourth chapter is dedicated solely to the actual business plan. The strategies needed to implement this plan are proposed in the fifth chapter. Finally, the last chapter is concerned with bringing everything together and making further suggestions for the company's future.

CHAPTER 2

EVALUATION OF EXTERNAL MARKET

2.1 INTRODUCTION

Before any business plan can be written or any strategies can be proposed, an evaluation of the external market must be completed. This evaluation will be executed in two stages: first, Porter's five-forces model will be used to get a general understanding of the current state of the construction industry; then, information obtained from discussions with the owners' representatives and from the owners' business plans will be used to get a more detailed analysis of the construction industry in the New York City public sector.

2.2 PORTER'S FIVE-FORCES MODEL

2.2.1 What is the Five-Forces Model?

Michael E. Porter, in his book Competitive Advantage, asserts that "in any industry, whether it is domestic or international or produces a product or service, the rules of competition are embodied in five competitive forces: the entry of new competitors, the threat of substitutes, the bargaining power of buyers, the bargaining power of suppliers, and the rivalry among the existing competitors." A model of these five competitive forces is shown as Figure 2-1. Porter then goes on to say that the influence of each of the five forces is dependent on the "industry structure, or the underlying economic and technical characteristics of an industry." The most important elements of industry structure are outlined in Figure 2-2. By analyzing the affects of each of the five forces, a firm is able to

Figure 2-1: Five Forces Model

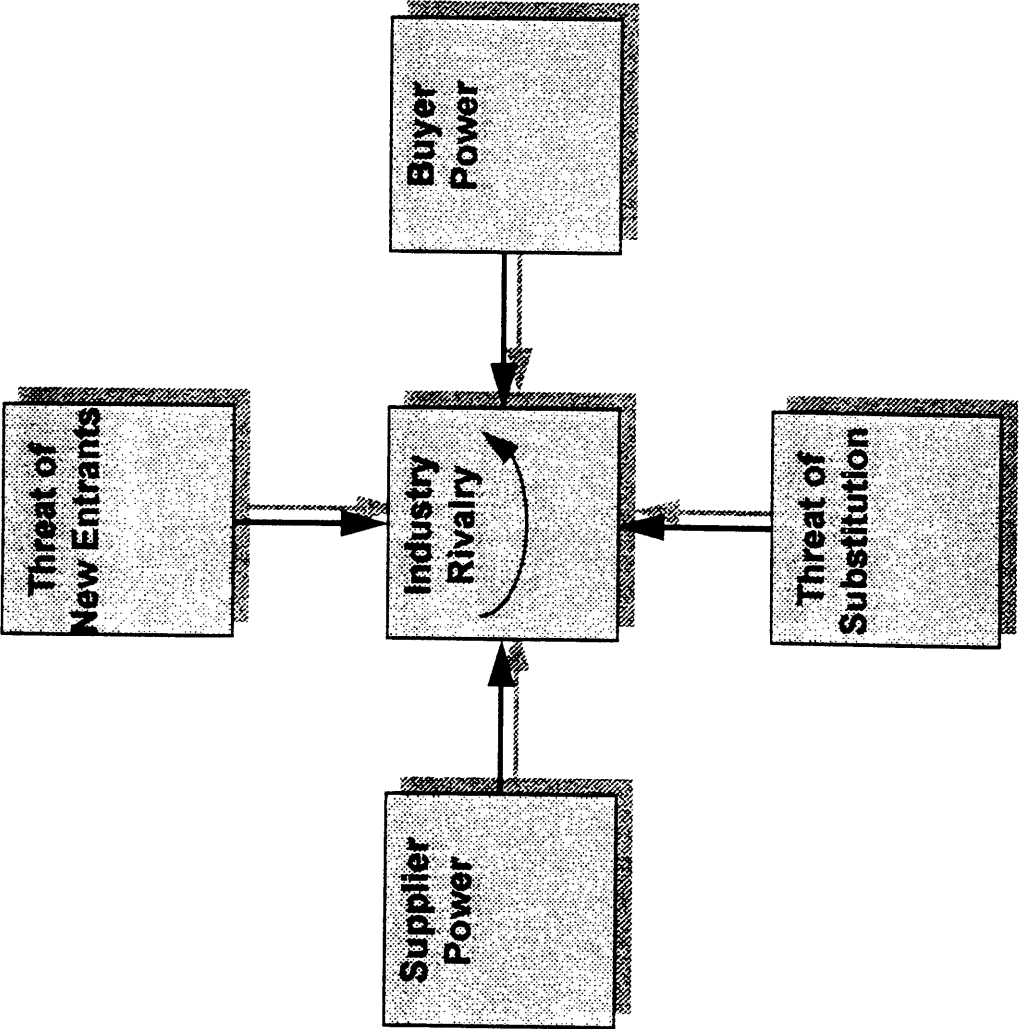
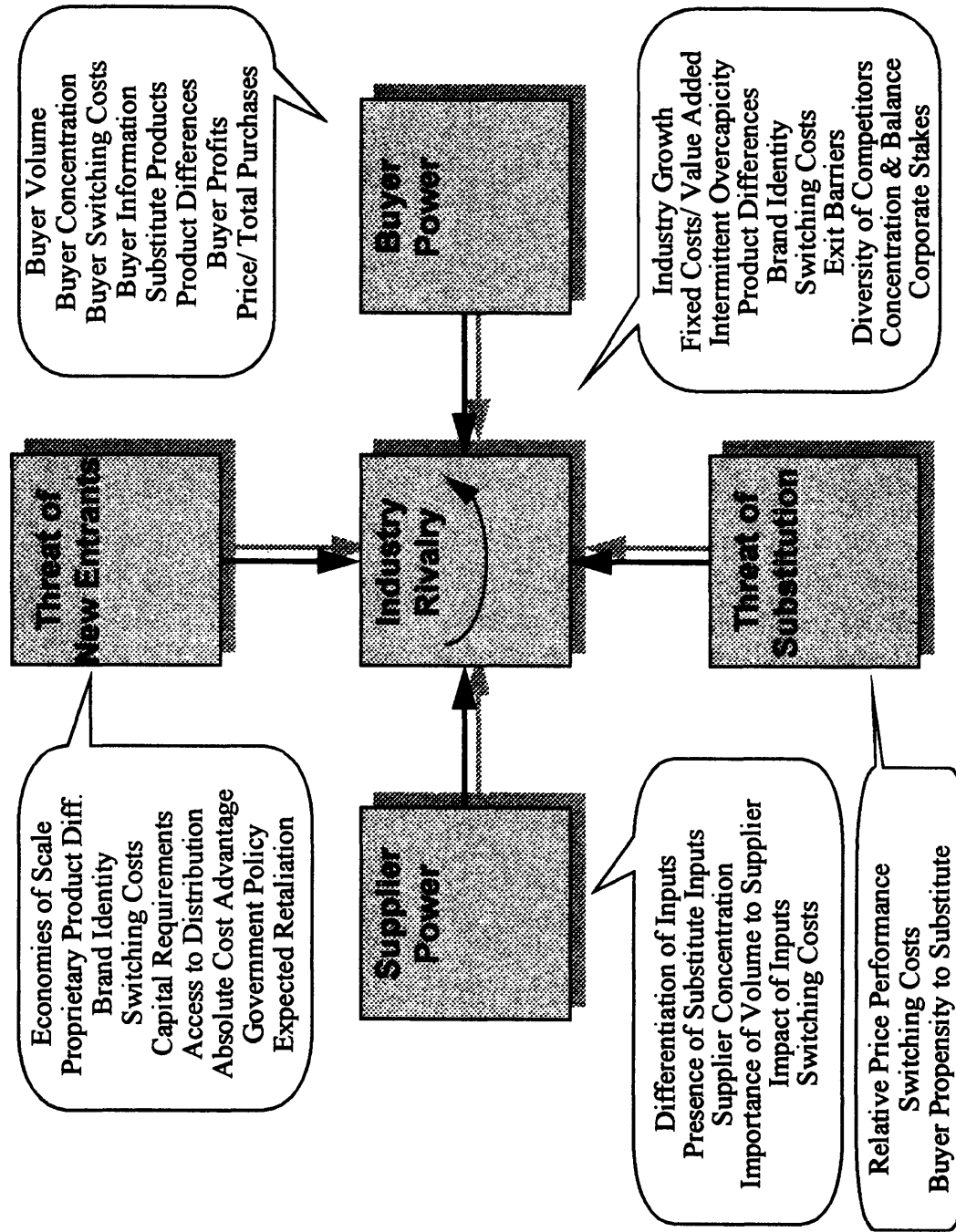


Figure 2-2: Elements of Industry Structure



"pinpoint those factors that are critical to competition in its industry, as well as to identify those strategic innovations that would most improve the industry's - and its own - profitability."

2.2.2 Application of Model

Now, it is time to apply this model to the construction industry in the N.Y.C. public sector. The easiest way to apply this model is by going through each of the five forces one by one. For each of the five forces, a rating of Low, Low-Moderate, Moderate, Moderate-High, or High is given in order to understand the relative importance of each force to the industry. Figure 2-3 highlights all of the elements of the industry structure which are pertinent to this particular market. This figure also includes the ratings given to each of the five forces. In addition, I also produced a model of the same market during the 1980's (see Figure 2-4). This model is only intended to be used for purposes of comparing today's competitive market with the more attractive market of the 80's. Now let's take a look at the influence of each of the five forces.

Threat of New Entrants - General contracting, in general, is known to be a very easy market to enter. This is due to the following reasons. 1) Not much capital is needed to become a small general contractor - a firm needs approximately 10% of total revenue in capital. This is a very low number compared to other industries such as product manufacturing where much money must be spent before there is any sign of a profit - a general contractor needs enough money to obtain bid bonds and to run a job without getting paid for two months. After the first two months of a contract, the contractor starts to receive monthly payments from the owner. 2) Only some experience is needed to run a general contracting firm - construction, for the most part, is not a very technical field; a Ph.D. is not needed for reading

Figure 2-3: Five Forces Model in 1995

Overall Attractiveness: Low - Mod to Mod

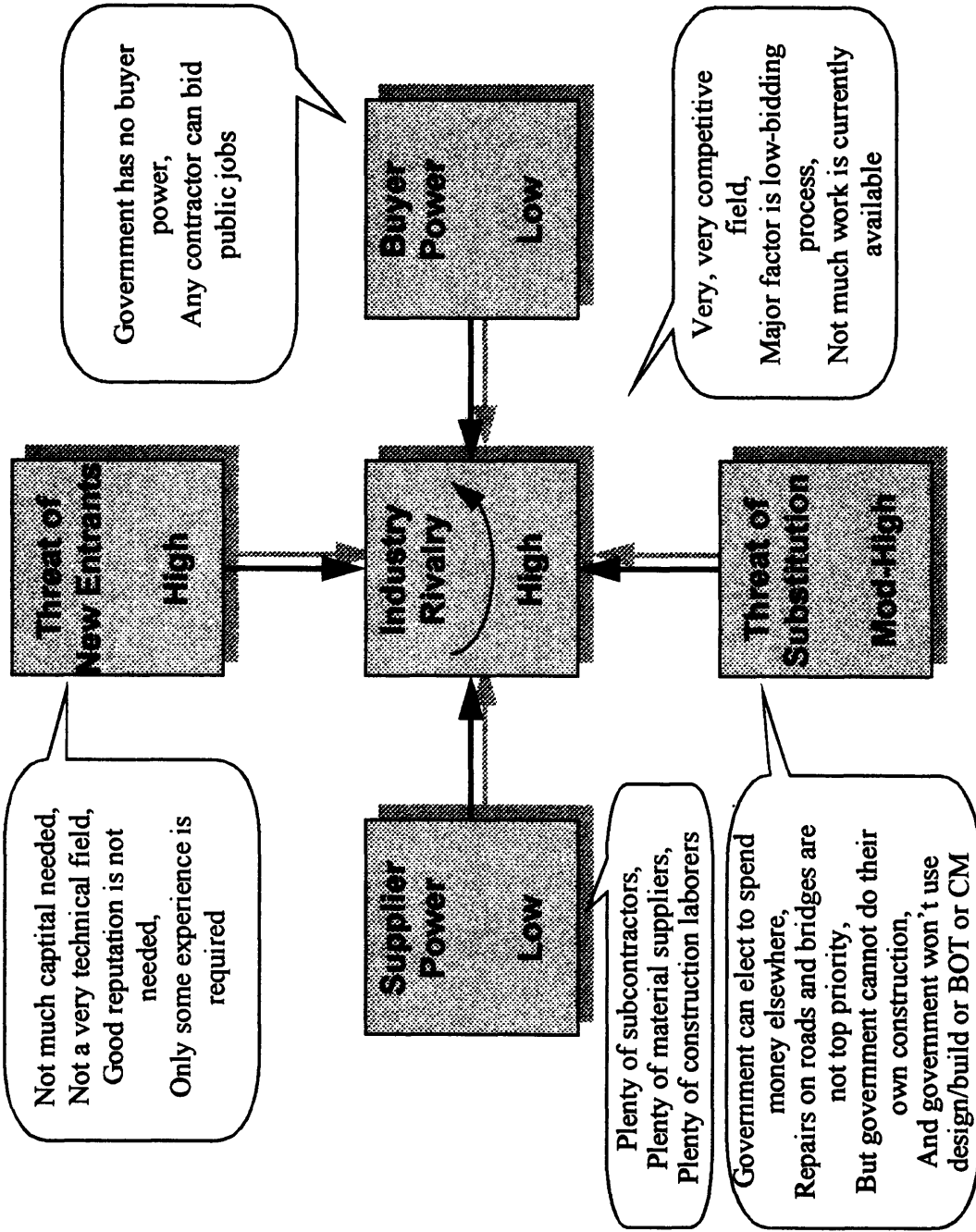
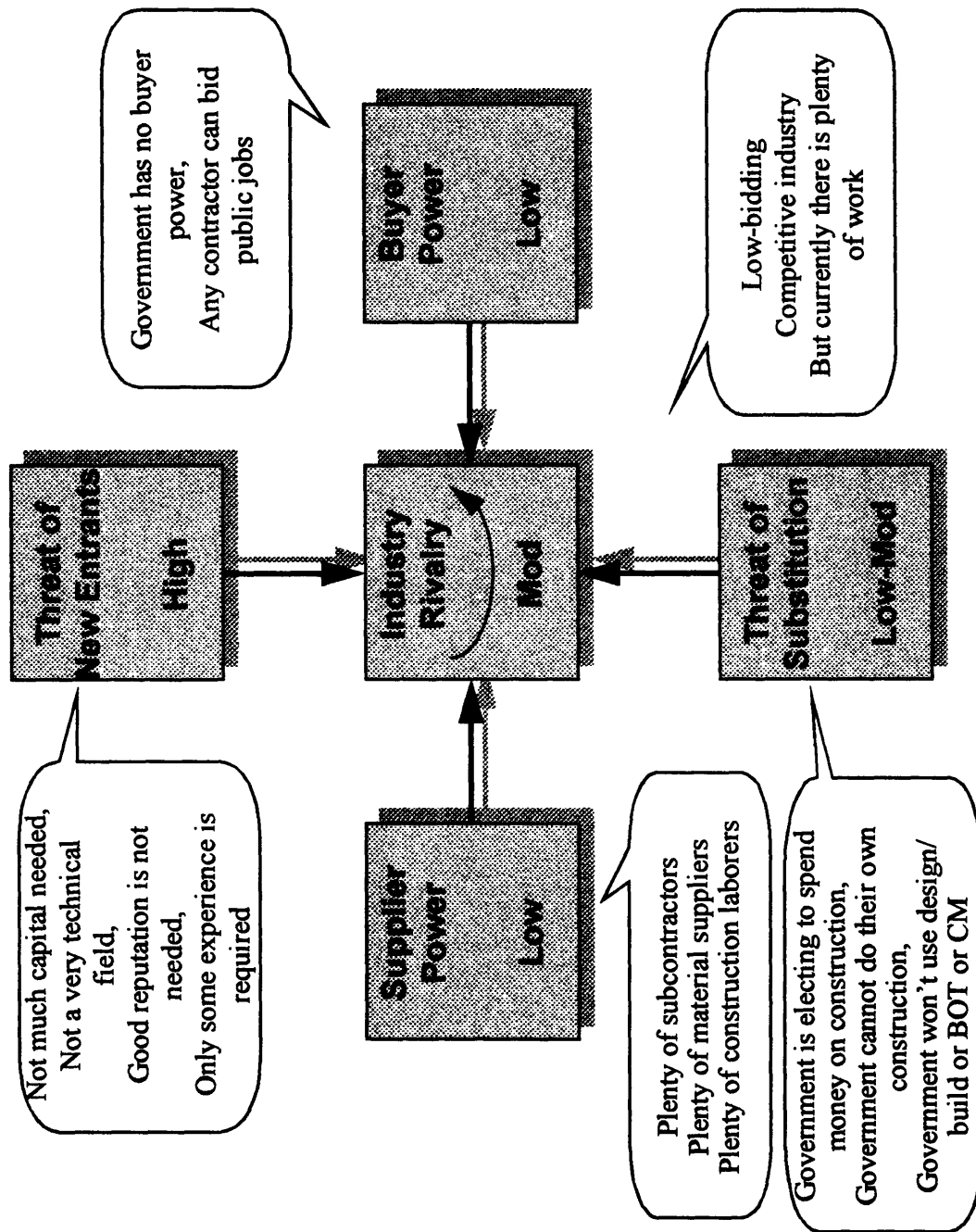


Figure 2-4: Five Forces Model in 1985

Overall Attractiveness: Mod to Mod - High



blueprints. 3) In the public sector, new entrants don't have to worry about the lack of reputation because all the contracts are awarded to the lowest bidder. Based on these three factors, the threat of new entrants receives a rating of HIGH.

Bargaining Power of Buyers - In the public sector, the government has very little to zero buyer power. This is based on the sole fact that all general contractors have the right to bid any government contract. Of course, there are several exceptions to this rule: the owner can award mega-projects on the basis of competency and reputation; the owner can disqualify general contractors who have defaulted in the past; and the owner can throw out bids which contain obvious errors. Thus, the bargaining power of buyers has to be considered LOW.

Threat of Substitutes - At first glance, one would think that the only substitutes for general contractors are construction managers, design/build companies, and build-operate-transfer firms. Obviously, these substitutes don't pose any threats because they, for the most part, don't bid on low-bid government contracts. But there is one substitute for general contracting which is not so obvious; that is, the government can elect to not spend money on construction. This is a very important substitute because it greatly affects general contractors working in the public sector. When money is tight, the government frequently decides to postpone the rehabilitation of roads and bridges for several more years. This is a logical course of action for the government because repair work is often considered not to be of immediate importance. Thus, one can conclude that when the local economy is depressed, spending on construction tends to be cut significantly. And the vice-versa is also true. When the economy is doing well, the government is willing to increase construction spending because of its immediate impact on job employment and

quality of life. So the threat of substitutes in 1995 must be given a rating of MOD-HIGH. This is entirely due to the current recession in the New York City economy and the extremely tight budgets imposed by Mayor Giuliani's administration.

Bargaining Power of Suppliers - Because of the very nature of construction in N.Y.C., supply tends to almost never pose a problem. There are plenty of subcontractors who are looking to fill their backlogs with much needed work. Just like contractors, subcontractors are always eager to grow and prosper in this industry. And because of the ease of entry into subcontracting, many firms are available to do the work. These concepts also hold true for suppliers of material such as concrete, asphalt, wood, and steel. Many suppliers can be found in N.Y.C. and they are all willing and able to service the general contractors. Finally, because of the relatively high unemployment rate in construction, many experienced laborers are also available to work. Of course, there are some exceptions to these rules. For example, there are some obscure materials which are only distributed by a very limited number of suppliers. In these cases, the bargaining power of suppliers is somewhat higher. In addition, the presence of organized crime in the N.Y.C. concrete supplying segment also increases the bargaining power of suppliers. Lastly, there does seem to be a lack of good superintendents and project managers in N.Y.C. The reasons for this fact are unknown to me. Thus, due to all these reasons, the bargaining power of suppliers is approximately LOW-MOD.

Intensity of Rivalry - General contracting, in general, is considered to be a very competitive market. The competition gets even tougher when working in the public sector. In government work, the awarding of contracts is based solely on price. So general contractors will try and do almost anything to bring their price down in order to obtain the

job. In addition, because of the recent slowdown in the economy, there are not many contracts to bid. In recent years, the few contracts which have been let have had many bidders and very low bids. This is in contrast to the 1980's where there were plenty of contracts, fewer bidders, and higher bids. Therefore, the intensity of rivalry today has to be considered HIGH.

Overall Attractiveness - In order to obtain a true rating for the overall attractiveness of the market, I decided to assign a number from 1 to 5 for each of the five rating standards. So, LOW would have a value of 5, LOW-MOD 4, MOD 3, MOD-HIGH 2, and HIGH 1. Assuming that each of the five forces are equally significant, I came up with an overall attractiveness rating of 2.6, which is between LOW-MOD and MOD attractiveness. This is not too bad considering that the economy is currently at a low point. It is evident that the economy, alone, increased the threat of substitutes and the intensity of rivalry. This can be proven by observing Porter's model for the same market during the 1980's boom (see Figure 2-4). The overall attractiveness of the market at that time is considered to be MOD to MOD-HIGH (rating of 3.6).

2.2.3 Conclusion

I think that one very important conclusion can be drawn from using this model: this particular market seems to always be in the moderately attractive range at any given time. This is a positive sign because it signifies that the market is relatively stable compared to other industries.

This conclusion signifies that the general contractor has to adjust to the ups and downs of the economy. This can be accomplished in several ways. First, the general contractor must remain flexible in terms of organizational structure and personnel. With increasing revenues, the firm should be able to easily recruit extra personnel. And

during times of decreasing revenues, the firm should be able to cut back in personnel. The general contractor can also adjust to the ups and downs of the economy by adjusting their bidding activity. When the economy is booming, the firm should be selective and bid on projects which will yield the highest profits. During times of recession, the firm must be less selective and bid on a greater number of projects since the hit ratio (number of projects won per number of projects bid) will be lower. Lastly, the general contractor must remember to continuously keep overhead expenses at a minimum. Overhead expenses are very easy to control if they are monitored correctly. At the same time, though, they are very difficult to control if not monitored closely. Too often a firm will go bankrupt during a recession because of a high overhead which probably accumulated during an economic boom.

2.3 INFORMATION FROM OWNERS

2.3.1 What Information was Obtained?

Valuable information can be obtained, in my opinion, just by speaking to the clients. So I decided to conduct four interviews with the representatives of four different public agencies: the New York City Department of Transportation, the New York State Department of Transportation, the Port Authority of New York and New Jersey, and the New York City Department of Parks and Recreation. During these interviews, I sought two general pieces of information: 1) the owners' expectations of the general contractor and 2) future capital expenditures. The detailed summaries of the four interviews can be found in Appendix A.

It is important to note that, in addition to receiving valuable information, I also had the chance to establish a relationship with the clients. These relationships will prove to invaluable in the future when I begin to interact with them on a business level. I know that I will be able

to contact them whenever there is a problem on a project. And they will know that they can contact me if they ever have a problem with the quality of ABC's work. This type of relationship, in my opinion, is very important for both ABC and their clients.

I also want to note that the four representatives of the four public agencies were relatively easy to contact. I found out the phone numbers of each of the representatives (who happened to be the Directors of Construction) and talked to them directly. I told them that I was an MIT graduate student working on my thesis and they were very willing to find time to talk to me. Each of the meetings were then set up within a week of our telephone conversation. I went into the meetings with a list of questions (found in Appendix A) and they answered them to the best of their knowledge. And when they didn't know the answer to a question they immediately told me who to contact within the agency for the answer. In summary, the clients were very cooperative and willing to help.

In the following four sections, I will evaluate the information extracted from each of the four public agencies. A summary will then end this part of the chapter.

2.3.2 Evaluation of NYC DOT Information

The most important points which Mr. Adelhardt, the Director of Construction of the New York City Department of Transportation Bureau of Roads and Bridges, made during the interview are: 1) the NYC DOT expects the general contractor to follow the specifications exactly as written; 2) finishing on time is very important; 3) bid prices have gone down approximately 10 - 15% over the last five to six years; and 4) design/build is currently being experimented with.

In addition, Mr. Adelhardt provided me with a copy of the NYC DOT Bureau of Bridges' Rehabilitation Program. This

program lists all the proposed lettings for the years 1994-2004. Each letting was accompanied with a description of the job and the engineer's cost estimate. For purposes of confidentiality, the complete program is not included in this thesis. Instead I have only extracted the list of contracts which ABC Construction Co., Inc. is realistically able to bid. For example, all contracts below \$1 million and above \$9 million were eliminated. In my opinion, contracts below \$1 million are too small and contracts above \$9 million are too large for ABC. I also eliminated all jobs which involved predominantly painting, electrical work, mechanical work, or material testing. ABC is not competent in these areas of construction. Concrete and asphalt work are currently their core competencies. Finally, only contracts which are being let during fiscal years 1995-1999 were included. This thesis is not concerned with work after 1999 since it is too far into the future. All the contracts which met these criteria are listed in Appendix B. As one can see, the NYC DOT provides at least \$60 million of work each year for ABC Construction. And the \$60 million is split up into at least 15 contracts. Unfortunately, though, because of the fierce competition in today's market, ABC cannot rely solely on the NYC DOT. Therefore I extended my evaluations to see if ABC can find work with the other public agencies in the New York City area.

2.3.3 Evaluation of NYS DOT Information

Mr. Petrou, the Director of Construction of the New York State Department of Transportation Region 11, made several good points which are worth noting at the onset. They are: 1) New York State lets out approximately \$400 million of work per year in the New York City region; 2) NYS DOT will probably never use design/build in the future; 3) NYS DOT has been seeking much more cooperation from their general contractors; 4) the use of partnering programs has

eased tensions between the owner and general contractor; and
5) the NYS DOT has saved much money in the past several
years because of the high competition among general
contractors.

I also received a copy of their five year program and a
narrative which explains the details of this program.
Before presenting specific numbers, I would like to comment
on some interesting quotes found in the narrative. First,
the state writes in the introduction:

"60.4% of State-owned structures will be deficient at the
beginning of SFY 94-95. By deck area, that deficient figure
jumps to 73.3%. As a result, the majority of our capital
resources are again being utilized for the rehabilitation
and maintenance of State bridges."

This quote is relevant because extra spending on bridges is
very helpful to this general contractor. The state then
goes on to say:

"With the bulk of the larger facilities already on our
Program, nearly all the remaining State bridges which
require some level of reconstruction are smaller, one to
four span structures either carrying State highways or
spanning them. Several of these structures have already
been programmed and others will be initiated in forthcoming
annual updates. We, therefore, expect a large improvement
in projected structural conditions as measured by numbers of
bridges."

This quote is also a very positive sign because ABC
Construction can only work on smaller bridges. Contracts
for the larger bridges can usually be as high as \$100
million while contracts for the smaller bridges are usually
less than \$10 million.

Now moving to an analysis of the program. First, I
would like to note that this program has a different format
than the NYC DOT's program. Unfortunately, specific jobs
are not listed in the NYS DOT's program. Instead, capital
spending is divided into more general categories. The

categories which are pertinent to this thesis are pavement program - maintenance, pavement program - rehabilitation and reconstruction, and state bridges. A list of these categories and the funds allotted to each category can be found in Appendix C. As one can see, New York State intends to spend at least \$100 million each year on pavement and bridges. And in 1998 and 1999, over \$250 million will be spent on bridges alone. Unfortunately it is impossible to predict the size of the contracts which are going to be let. Therefore it is difficult to know if ABC Construction is able to bid all of these jobs.

2.3.4 Evaluation of PANYNJ Information

The pertinent points made during the interview with Mr. Finnegan, the Manager of the Port Authority of New York and New Jersey Construction Management Division, are as follows: 1) general contractors need to improve their administration skills; 2) general contractors should familiarize themselves with current technological innovations; 3) design/build will probably never be used in the future by the PANYNJ; and 4) the fierce competition in the past few years has caused general contractors to bid very low - this, in turn, has significantly affected quality of work.

Mr. Finnegan was also able to give me a copy of their 1994-1998 business plan. Unfortunately the plan does not include capital expenditures for 1999. But some extrapolation will take care of that problem. Several important points were highlighted in some of the statements made in the business plan. First, the PANYNJ states that from 1994-1998, they will spend \$715 million in interstate transportation and \$1.9 billion in aviation (part of the aviation investment goes towards local roadways and bridges and concrete and asphalt work at the airports). This is a very encouraging statement since it appears that much work will be available for ABC Construction. Another interesting

quote pertains to the assumptions which their business plan is based on:

"The 1994-1998 Business Plan is based on a forecast of the regional, domestic, and global economies. Overall, this forecast envisions conditions of modest recovery over the five-year plan period, including slow economic growth, small job gains and mild inflation. The economic outlook utilized in this plan was developed by the Port Authority, based on its own regional data, as well as national and international economic data and forecasts furnished by Data Resources Inc./McGraw Hill (DRI). This economic outlook was subsequently reviewed by an external advisory committee of economists representing the region's private and public sectors and academia."

One major conclusion can be drawn from this quote: the PANYNJ's business plan is based on conservative but realistic assumptions. Thus, a general contractor can, for the most part, rely on the numbers provided in this business plan.

The numbers can be found in Appendix A of their plan, which is called the Capital Plan. The Port Authority's capital plan is divided first according to facilities (e.g. Kennedy Airport, George Washington Bridge, etc.). Each facility then has a number of projects which are either currently being executed or are going to be executed within the next four years. A description of the project and the amount of money to be spent on the project each year is also given. With all this information, I was able to come up with a list of suitable projects for ABC Construction. This list can be found in Appendix D. In reviewing this list, one important fact should be kept in mind. Each project listed is divided into a number of contracts. Unfortunately the PANYNJ's capital plan wasn't in sufficient detail to identify each contract. Therefore some of the projects in the list may contain contracts which are either too small or too large for ABC. Otherwise, this list is very helpful in understanding how much and what type of work is available in

the next four years. It is evident that over \$200 million of work will be available to ABC in 1995, 1996, and 1997. On the other hand, only half of this amount will be available during the year 1998. Most of this work can be attributed to four major projects: the reconfiguration of the entire roadway network within JFK's Central Terminal Area; the construction of a flyover roadway at LaGuardia Airport; the rehabilitation of the center tube of the Lincoln Tunnel; and the restoration of the median barrier and roadway deck at the Outerbridge Crossing. All these projects are appropriate for ABC Construction because they fall within the general contractor's core competencies.

2.3.5 Evaluation of Parks Information

The most important ideas which were mentioned during the interview with Mr. Natoli, the Chief of Construction of New York City Parks and Recreation, are as follows: 1) the general contractor is expected to strictly comply with the specifications; 2) the general contractor would greatly benefit from being cooperative with the Parks department; and 3) the recent increase in competition has led to an increase in defaults and terminations.

A detailed capital plan was not given to me but Mr. Natoli did give me an idea of the amount of work which will be available. Basically, approximately ten to twenty contracts with a value of over \$1 million will be available for each of the five years. In addition, the department lets out about \$125 million of work per year. Unfortunately, most of the contracts are under \$1 million. In fact, the average contract is worth only \$350,000. With this information, I made the assumption that there will be fifteen contracts available each year with an approximate value of \$2 million each. Thus, each year, only \$30 million of work from the Parks Department will be available to ABC Construction. This is summarized in Appendix E.

2.3.6 Summary of Owner's Information

The review of this information resulted in the following interesting conclusions. First, all four agencies are beginning to realize that adversarial relationships are not beneficial to anyone. They would all like to use a more cooperative approach in trying to successfully complete construction projects. It is obvious, though, that the NYS DOT is leading this drive with their introduction of the partnering program. The Parks Department and the PANYNJ would probably rank second and third as believers in a more cooperative relationship. The NYC DOT trails all of these agencies in this respect. This agency still seems to lean towards the more traditional and untrusting relationship.

Second, in terms of sophistication, the PANYNJ seems to lead the pack by a decent margin. This agency encourages the general contractor to use more innovative methods of construction. They also would like to see more technologically advanced materials being used. The other three public agencies, on the other hand, are comfortable with the traditional methods of construction. These agencies don't like to use any technology which hasn't been experimented with before. There is, of course, nothing wrong with this conservative approach to construction. These agencies are, in effect, "playing it safe" with the taxpayers' money.

Third, Mr. Finnegan of the PANYNJ made an interesting point when he noted that, often, the general contractor doesn't understand the full significance of administrative work. I tend to agree with this statement. Many general contractors think that the actual construction is most important. But, instead, it's what goes on in the office which is equally if not more important. Making the right management decisions is how projects are successfully completed on time and with a profit.

Fourth, all four agencies agree that design/build will probably never be used in the future. The agencies feel comfortable with the traditional method of low-bid. They don't see any real need to change.

Fifth, all four agencies agree that completing on time and following the specifications are very important factors.

In looking at the total amount of capital expenditures for the next five years, in Appendix F, the following points are apparent. The PANYNJ's 1999 expenditures was estimated to be \$100.0 million. This is a very conservative estimate since the average amount for the four other years is \$230.4 million. One should also note that spending seems to be increasing moderately over the five-year period. 1997 is the only year where spending drops. Overall, though, there is a 43% increase from 1995-1999. The Port Authority is providing most of the work for the first three years while the NYS DOT is providing most of the work for the last two years. The NYC DOT also contributes a decent amount of work while the Parks Department offers the least of the four agencies. Average spending for any given year is \$514.3 million. These numbers support the observation that there is ample amount of work for a general contractor who only needs \$10-20 million of annual revenue.

CHAPTER 3

EVALUATION OF THE FIRM

3.1 INTRODUCTION

Moving from the evaluation of the external market, it is now time to evaluate the internal aspects of the firm. In order to execute this evaluation, a brief overview of ABC Construction Co., Inc. is given. After this overview, the three generic strategies model is used to analyze the firm's status.

3.2 OVERVIEW

An overview is needed to give the reader an idea of how this firm operates and functions. The overview is divided into five different sections. First, the background and history of the firm is discussed. Then all matters pertaining to the finances of the firm are taken up. In the third section, I describe the type of work which this firm has completed in the past. In the following section, I list the firm's past clients and give some background information on each client. Finally, the organizational structure of the firm is depicted.

3.2.1 Background and History

ABC Construction Co., Inc. was formed in 1977 by two Italian immigrants who wanted to live the American dream. They didn't have much money to begin with but they did have the will and determination to be successful. And they knew that they wanted to succeed in the construction business. As most companies which just start out, ABC Construction completed very small jobs in the beginning. Actually, most

of the work involved rebuilding porches, driveways, etc. for homeowners. Soon, though, they realized that they wanted to specialize in concrete. This is when they began working in the public sector. Again, most of their work was still very small, under \$100,000. Gradually, they began learning how to bid successfully, how to deal with bonding companies, how to handle the labor unions, how to manage more complex jobs, etc. So each year their annual revenue and profit began to steadily increase.

By 1988, ABC Construction was completing over \$15 million of work per year and making over 10% gross profit. Obviously, the firm grew just as all the other construction firms in the U.S. did. The mid 80's proved to bring success to everyone. But, then, of course the 90's rolled around. Many construction companies went bankrupt and only few survived. Luckily, ABC Construction was one of those companies that was able to survive. The recession has taken its toll though. Profits have dwindled and annual revenue has decreased to approximately \$10 million per year.

It is obvious that many changes have to be made if ABC wants to stay alive. The biggest change relates directly to the purpose of my thesis: to develop a business plan. Before now, ABC has never written up a business plan. Most of their planning was done spontaneously and not enough time was spent thinking about the future. Thus it seems to be the perfect time to start implementing a solid business plan. This five-year plan will concentrate on the following four areas: finance, type of work, selecting clients, and organizational structure. The following four sections are dedicated to describing the current status of these four areas of the firm.

3.2.2 Finance

With respect to finance, there are four specific indicators which I want to concentrate on. These are revenue, profit margin, net worth, and rate of growth. As I mentioned before, the revenue for 1994 was \$10 million. The gross profit margin for that same year was approximately 4%. (Gross profit margin is considered to be the percentage of gross profit to annual revenue. Gross profit is profit after overhead expenses but before taxes.) The net worth of ABC Construction Co., Inc. was \$1.1 million. Finally, the rate of growth in terms of revenue has been negative for the past several years. Annual revenue has decreased from \$15 million in 1988 to \$10 million in 1994. Therefore, the rate of growth has been approximately -5% for each of the past five years.

3.2.3 Type of Work Performed

For the past fifteen years, ABC Construction has performed mostly concrete and asphalt work in the public sector. This type of work consists of repairing and rehabilitating roads, bridges (suspension, girder, and truss), tunnels, subway stations, and parks. ABC removes and replaces asphalt pavement, demolishes and replaces concrete medians and bridge decks, removes and replaces subway platforms, constructs new overpasses, replaces old steel or concrete pedestrian bridges, and repairs huge concrete piers. ABC's most noted work was the rehabilitation of the catwalks and ventilation shafts in both tubes of the Holland Tunnel. The contract was valued at \$18 million and had a duration of three years. ABC made a large profit from this contract because of its repetitive nature (i.e. it was a good example of how the learning curve works).

Occasionally, though, ABC has ventured outside of their core competencies. For example, ABC once took a job at JFK

airport to demolish and rehabilitate thirty public bathrooms. It did involve some concrete work, but, for the most part, the job involved mostly building construction. Electrical, plumbing, HVAC, tile, terrazzo, and ceiling subcontractors needed to be hired. Almost all of these subcontractors were unfamiliar to the general contractor. And most of the work was also unfamiliar to the general contractor. As a result, ABC ended up taking a huge loss because they couldn't quickly solve many of the problems which arose during the project duration.

Approximately 25% of the work is subcontracted out. This number fluctuates depending on the scope of the work. All work which does not involve demolition, concrete, or asphalt is subcontracted out. So depending on each particular contract, the percentage can be as low as 0% or as high as 50%.

3.2.4 Clientele

ABC Construction Co., Inc. has worked for five major public agencies: New York City Department of Transportation, New York State Department of Transportation, Port Authority of New York and New Jersey, New York City Parks and Recreation, and Metropolitan Transit Authority. The following paragraphs contain brief descriptions of these agencies. They include a list of the facilities which each agency owns and operates.

The NYC DOT owns all local roads, all local bridges (overpasses spanning over other roads, railroads, and highways), Williamsburg Bridge, Brooklyn Bridge, Manhattan Bridge, and Queensboro Bridge. This agency is characterized as being somewhat bureaucratic. There is a great deal of red tape to deal with and a multitude of forms to fill out. In addition, the agency is often slow to respond to letters. They sometimes take too long to reach a decision or take a course of action.

The NYS DOT owns all state highways (Brooklyn Queens Expressway, Long Island Expressway, Grand Central Parkway, Belt Parkway, Major Deegan Expressway, etc.) and all the bridges which span along the highways. The NYS DOT is known to be very responsive to the general contractor. They are quick when it comes to reviewing change orders or making approvals. In addition, they don't have too many forms to fill out. They try to keep the amount of paper work to a minimum. They do, however, have high expectations of the general contractor. They expect and demand cooperation from the general contractor.

The PANYNJ owns the Lincoln Tunnel, Holland Tunnel, George Washington Bridge, Outerbridge Crossing, Goethels Bridge, Bayonne Bridge, World Trade Center, JFK Airport, LaGuardia Airport, Newark Airport, Port Authority Bus Terminal, and the Port Authority Trans-Hudson. This agency is a separate entity from the government. They don't receive their funds from government taxes. They receive their funds from bridge and tunnel tolls and from renting out space at the airports, World Trade Center, and bus terminal. Thus, they are less influenced by the economy than other public agencies. Most other government agencies are often threatened by budget cuts during a recession. The PANYNJ is also less influenced by politics. This makes them more stable than the other agencies. The PANYNJ is more sophisticated than most other agencies. They try to encourage the use of innovative technology. They are only interested in the end product, and not the methods used to get there. In addition, the employees of the PANYNJ are, for the most part, very practical people who don't like bureaucracy. They try to respond as quickly as possible so that the general contractor can complete the project on time. They are also well-known for always paying the general contractor on time. Finally, another reason that makes this agency unique is the fact that they often waive the bond

requirements if the general contractor has proven to be reputable and responsible. This is extremely helpful for a general contractor who is trying to increase its volume of work.

The Parks Department owns all the local parks in New York City, Yankee Stadium, Central Park, and Flushing Meadows Corona Park (home of the World Fair, the U.S. Tennis Open, and Shea Stadium). It is a small department concerned mostly with the safety of the children who play in their parks. Their projects are known to be relatively easy to execute for several reasons. First, their specifications and drawings are not difficult to understand by any means. Second, the use of innovative technology is not needed because traditional methods of construction are applicable. Finally, most of the Parks' projects are very similar to each other. The projects basically consist of installing play equipment, safety surface, drinking fountains, and fences, pouring concrete curbs, laying some asphalt pavement, and installing some new water lines. So after completing two or three of these projects, the subsequent ones become routine.

The last agency is the MTA. This is the parent agency of the New York City Transit Authority and the Triborough Bridge and Tunnel Authority. The NYCTA owns the entire subway network of N.Y.C. The TBTA owns the Triborough Bridge, Whitestone Bridge, Throgs Neck Bridge, Verrazano Narrows Bridge, Queens Midtown Tunnel, and the Brooklyn Battery Tunnel. The MTA is known as an enormous and very bureaucratic agency. They are hampered by a great deal of red tape which makes them slow to respond to anything. The MTA does, however, follow one important rule. Once a payment requisition is approved, the general contractor is guaranteed a check within thirty days. Otherwise, though, the MTA is very difficult to work with.

3.2.5 Organizational Structure

To be perfectly honest, the current organization of ABC Construction has very little structure. This has been ABC's biggest problem for the past several years. The organizational structure has never been planned out. It has evolved into what it is today: an amoeba. Many employees don't know what is expected from them. Others seem to have multiple jobs. Some don't know who they should report to when faced with a problem. Many times, the office is full of confusion with nobody to blame for it. Secretaries sometimes work as bookkeepers, bookkeepers sometimes act as receptionists, project managers interchange responsibilities with superintendents.

On the other hand, this type of organizational structure has also had some benefits. Because of the combined leadership of the President and Vice-President, overhead has been kept at a minimum level. In addition, ABC has been able to remain very flexible since many of the employees are capable of performing more than one job. This flexibility helps especially when someone is fired or quits. ABC always has another employee who can temporarily fill the position until another person is hired. Finally, this organizational structure has also helped eliminate any type of hierarchy. This lack of hierarchy has produced a very good working atmosphere for the employees. But, as I will point out later in this section, many problems exist with this type of organizational structure and change is inevitable.

Currently, ABC Construction Co., Inc. employs the following people as permanent staff: 1 President, 1 Vice-President who also acts as the Construction Director and General Superintendent, 1 part-time Accountant, 1 Bookkeeper, 2 Secretaries, 1 Receptionist, 1 Estimator, 2 Project Managers, 4 Superintendents, 1 mechanic who also acts as the warehouse manager, and 1 project engineer. The

two owners of the firm hold the top two positions: President and Vice-President.

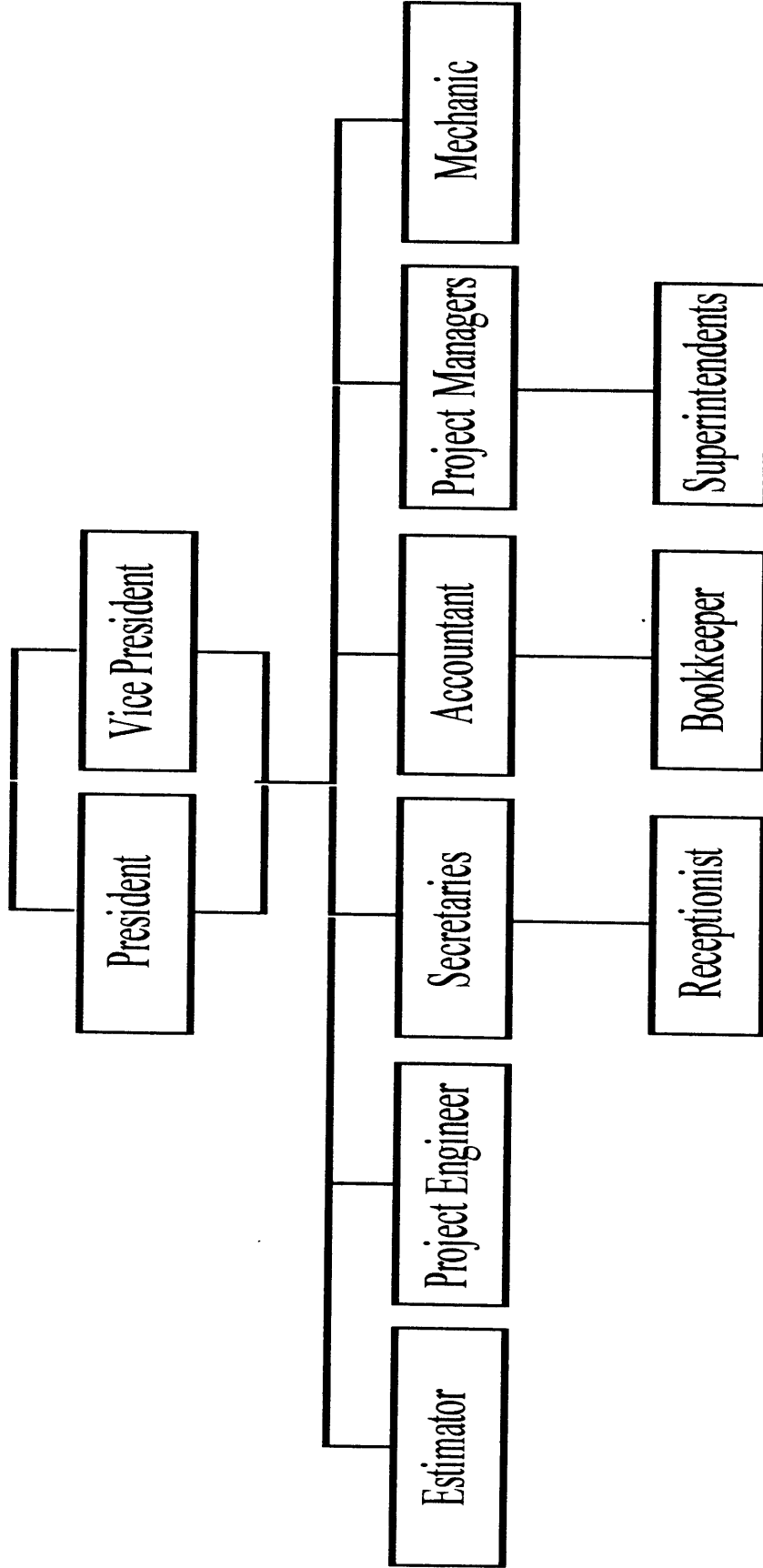
Since overhead is very important to every firm, I have calculated the overhead associated with the current staff. See Figure 3-1 for a detailed outline of ABC's overhead. The employees which were considered as being part of the overhead are as follows: president, vice-president, accountant, bookkeeper, secretaries, receptionist, estimator, mechanic, and project engineer. The project managers and superintendents were not considered as part of the overhead because they are part of the job cost. Other items which were included in the cost of the overhead are rent of the office and warehouse, legal fees, health plan for office employees, office supplies and utilities, and miscellaneous charges such as entertainment. As one can see from Figure 3-1, the overhead is \$875,000 per year, or 8.75% of the annual revenue. Normally, 10% of the annual revenue is allotted to overhead expenses. In the case of ABC, it is safe to say that they are slightly understaffed. This understaffing causes the firm to operate inefficiently. There have been many instances where job costs have not been monitored correctly because of the lack of personnel. Thus, in my opinion, ABC should use the extra \$125,000 to hire one or two more employees. These extra employees would help the firm run more efficiently by monitoring previously undetected job costs.

Finally, I prepared an organization chart which best depicts how the organization currently functions. This chart can be found in Figure 3-2. Almost all of the employees report directly to one of two bosses. This is not advisable for two reasons. First, there should never be more than one boss. Second, there are too many people reporting directly to the top. Instead, there should be some type of chain of command. With this chain of command, it is more likely that everyone will be held accountable for

Figure 3-1: CURRENT OVERHEAD

Salaries	
President	150,000
Vice-President	120,000
part-time Accountant	35,000
Bookkeeper	40,000
Secretaries (2)	50,000
Receptionist	20,000
Estimator	60,000
Mechanic	60,000
Project Engineer	<u>50,000</u>
Total Salaries	585,000
Rent	100,000
Legal Fees	20,000
Health Plan	50,000
Office Supplies & Utilities	100,000
Miscellaneous Charges	<u>30,000</u>
TOTAL	<u>\$875,000</u>

Figure 3-2: Current Organization Chart



their actions. This does not hold true with the current situation.

3.3 THREE GENERIC STRATEGIES

3.3.1 What is the three generic strategies model?

According to Michael E. Porter, a firm can choose from three generic strategies to achieve "above-average performance in an industry." Those three strategies are cost leadership, differentiation, and focus. The focus strategy can be further divided into two categories: cost focus and differentiation focus. A model of these three generic strategies can be found in Figure 3-3. As one can see from this model, each of the generic strategies is actually a combination of "the type of competitive advantage sought" and "the scope of the strategic target." As Porter explains, "the cost leadership and differentiation strategies seek competitive advantage in a broad range of industry segments, while focus strategies aim at cost advantage (cost focus) or differentiation (differentiation focus) in a narrow segment." So a firm must choose one of these strategies to gain an advantage over its competitors. A firm should not use more than one of these strategies because it leads to below-average performance. Using more than one strategy "often means that a firm has no competitive advantage at all." The following are brief descriptions of the three strategies.

Cost Leadership - Using the cost leadership strategy, a firm tries to become the "low-cost producer in its industry." In order to become the low-cost producer, a firm must usually have tight control over its operations, a very efficient organization, an economy of scale, low overhead, and easy access to materials. But a cost leader must also achieve "parity in the bases of differentiation relative to its competitors to be an above-average performer." Without parity, a cost leader might be forced to lower their prices

Figure 3-3: Three Generic Strategies

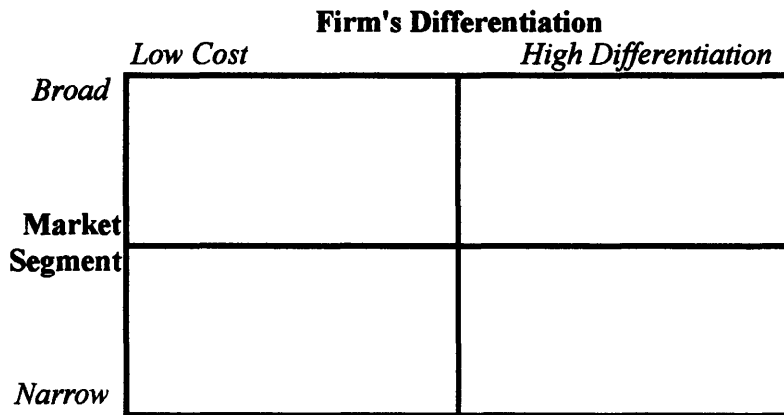
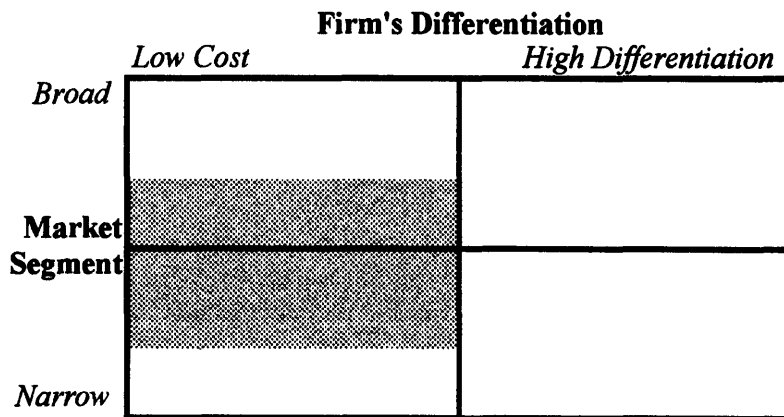


Figure 3-4: Firm's Position in the Three Generic Strategies Model



in order to increase sales. This move would decrease profits and nullify the benefits of being a cost leader. *Differentiation* - The differentiation strategy involves being unique. "A firm seeks to be unique in its industry along some dimensions that are widely valued by buyers... and [a firm] is rewarded for its uniqueness with a premium price." At the same time, a differentiator must also seek cost parity to remain competitive. An extremely high price for a product or service could discourage many buyers. So a differentiator must cut costs in all areas which do not affect differentiation.

Focus - The focus strategy consists of targeting one segment of an entire industry. A focuser has the advantage when a market segment is poorly served by broadly-targeted competitors. As Porter explains,

"competitors may be underperforming in meeting the needs of a particular segment, which opens the possibility for differentiation focus. Broadly-targeted competitors may also be overperforming in meeting the needs of a segment, which means that they are bearing higher than necessary cost in serving it. As opportunity for cost focus may be present in just meeting the needs of such a segment and no more."

3.3.2 Application of Model

Where does ABC Construction Co., Inc. fit in this model? In my opinion, ABC is occupying two out of the four boxes. Their strategy is currently a mix between cost leadership and cost focus (see Figure 3-4). The firm is partly a cost leader because they work for five or six public agencies. The firm is also a cost focuser because they only target concrete and asphalt work. ABC is not a differentiator or differentiation focuser because they are not much different from all the other New York City general contractor. They do however possess differentiation parity

because they believe in quality work and cooperating with the owners.

Is ABC currently in a good strategic position? According to Porter, a firm should not occupy more than one of these boxes. This leads to below-average performance and a lack of competitive advantage. Thus it seems imperative that ABC move out of the cost leadership box and concentrate on the cost focus box. ABC cannot be a true cost leader because they lack the size. They would not be able to compete with the larger firms in New York City. These larger firms have the expertise to perform many different types of construction work for many different agencies. In other words, ABC should probably concentrate their efforts on working for only two or three of the public agencies. And they should remain in the current narrow segment of concrete and asphalt. They should also continue to achieve parity in the bases of differentiation as long as cost reduction is not sacrificed.

The final question is how does ABC use the cost focus strategy? The business plan in Chapter 4 will answer this question in detail. But briefly, ABC must: 1) continue to reduce cost; 2) limit the number of clients to two or three; and 3) concentrate on their core competencies of asphalt and concrete.

3.3.3 Conclusion

Currently, ABC is not in a very bad strategic position. However the model did show that ABC cannot be a cost leader because the firm lacks the economy of scale. The larger local contractors, which perform approximately \$100 million of work per year, would crush ABC and not allow them to make any profit. Thus being a cost focuser is ABC's best strategy for the next five years. If an opportunity does arise in the future (i.e. when the economy is booming and work is plentiful), then perhaps ABC could try to become a

larger firm and a cost leader. For the near future it would be best for ABC to just be a cost focuser.

CHAPTER 4

FIVE-YEAR BUSINESS PLAN

4.1 INTRODUCTION

In this chapter, the five-year business plan is introduced. The previous analysis of the market and the evaluation of the firm provides sufficient background information to begin to formulate this plan. As mentioned before, the plan is divided into four sections: finance, type of work, clientele, and organizational structure.

4.2 FINANCE

Two different indicators will be used to track the finances of this firm over the next five years. The first indicator is the annual revenue or volume of work completed each year. In 1994, ABC Construction Co., Inc. completed \$10 million of work. In my opinion, ABC should double their annual revenue by 1999. This should be a gradual, straight-line increase over the entire five years. In other words, revenue should increase by approximately 15% per year. There are several reasons why this aggressive move is plausible and, in fact, necessary. Rubey and Milner explain the primary reason perfectly in their book, *Construction and Professional Management*. Before presenting the quote, I would like to note that, because of inflation, \$2 to \$3 million in 1966 is equivalent to \$7 to \$10 million in 1995. Now, the quote:

"Here consideration will be narrowed to a medium-sized contracting firm doing about a \$2 to \$3 million annual business; this is the size of a fairly large local contractor who has been successful in a small or medium-sized city where his competitors have about the same

competence as himself... It is at about this size that a small contracting company must decide either to change its organization, management, and recruiting policies to those suitable for a larger organization, or gradually to level off and to wither away. The withering process may arise from decreasing profits, nepotism, decreasing activity of the older officers of the company, opportunity of absorption into a larger organization, desire of older officers to retire, or perhaps deaths among them."

Simply put, it is very disadvantageous to be in the middle. ABC has to decide whether they become a small or large contractor. In this plan, I assumed that ABC wants to grow. I've shown that this proposed increase is necessary. Now the question is: "Is it possible?" After reviewing the external market, I have come to the conclusion that enough work is available for the next five years to support this increase in revenue. I'm not, however, stating that it will be easy to obtain these contracts. On the contrary, estimating and bidding procedures will have to be perfected in order to achieve this goal. Finally, one more reason to double the revenue in five years is to have the current staff operating at full capacity. As I will prove later in Section 4.6, a small increase in overhead expenses (for additional salaries) will be enough to handle the enormous increase in revenue. Simply put, only \$1.3 million of overhead is needed to run \$20 million of work. Compare this to \$1 million needed for \$10 million of revenue. By 1999, only 6.5% of annual revenue will be spent on overhead expenses compared to the current 9.7%.

The second indicator is the gross profit margin. In 1994, this margin was only 4%. Under normal economic conditions, the industry average for profit margin should be approximately 10%. This number can fluctuate from 5-15% depending on the state of the economy. In my opinion, ABC's gross profit margin should gradually increase to 10% by 1999. This is a 20% yearly rate of growth. This is a very optimistic goal but it is still realistic and plausible.

Three basic facts support this statement: 1) First, since overhead will be kept to a minimum, this allows the profit margin to increase with increasing revenues; 2) secondly, there are indications that the N.Y.C. economy will make a slight recovery which will also help profit margins; and 3) lastly, restructuring the organization will make the firm more efficient and thus more profitable.

4.3 TYPE OF WORK

According to the data, ABC can easily reach the annual revenue goals without diverging from their two core competencies of concrete and asphalt. If, for some unforeseen reason, not enough concrete or asphalt work is available, then ABC must explore one of two options. The firm can either scale down their annual volume or develop another core competency. This decision will be based on several factors. ABC must ask itself the following questions: Is ABC in a position to develop another core competency? What is this core competency? Will ABC make a profit by developing this new core competency? Is enough work available in this new area for the next five years? Can ABC compete successfully in this new line of work? If the answers to most of these questions are no then ABC should reduce their annual revenue and concentrate their efforts on making a good profit.

4.4 CLIENTELE

After reviewing the data obtained from the owners (Chapter 2.3) and the descriptions of the clients (Chapter 3.2.4), it was easy to come up with a list of preferred clients.

ABC Construction's two major clients for the next five years should be the NYS DOT and the PANYNJ. The following four factors helped me arrive at this conclusion. First, based purely on numbers, the NYS DOT and PANYNJ will provide

over \$300 million of work every year for the next five years. Moreover, there will be in excess of \$400 million of work for three out of the five years. Thus ABC should focus on work for these two agencies because they provide most of the work in the NYC public sector. In addition, they provide the most work in ABC's core competencies: concrete and asphalt. Second, both the NYS DOT and PANYNJ are considered to be very competent and responsive agencies. This is important because ABC wants to work for clients which respond quickly to the general contractor's questions or notifications. Third, the NYS DOT is eager to work in cooperation with the general contractor. Their new partnering program and their willingness to settle disputes out of court prove that this statement holds water. ABC should seek to work with this type of client. Fourth, the PANYNJ is considered to be a sophisticated client. This sophistication allows the general contractor to have some degree of freedom when executing the work. This freedom gives ABC the opportunity to utilize more technologically advanced techniques and machinery. The use of this "cutting edge" technology could then bring about a higher profit margin.

If, for some reason, not enough work is obtained from the NYS DOT and PANYNJ, then ABC should seek work from the NYC DOT. I chose the NYC DOT over the Parks Department for several reasons: 1) The NYC DOT provides work which is much more suitable for ABC than the Parks Department. Many of the NYC DOT contracts involve repairing and rehabilitating bridges and roads. ABC has performed this type of work for many years now. Many of the Parks' jobs consists of concrete/asphalt work which needs to be executed in an aesthetically-pleasing manner. In other words, the Parks Department wants the work to look "nice." The NYC DOT, on the other hand, is more concerned with the strict compliance of the specifications (e.g. pouring 3000 psi concrete

instead of 2500 psi). ABC is more inclined to comply with specifications than beautifying a construction site. 2) The NYC DOT provides many contracts which are in the appropriate price range for ABC. The agency lets out over \$60 million of work per year for contracts ranging from \$1 to \$9 million. And the average contract price is between \$4 and \$5 million which is perfect for a general contractor of ABC's size. The Parks Department, on the other hand, lets out many contracts which are too small for ABC. Almost all of their contracts don't exceed the \$1 to \$3 million range. And some of their contracts don't even exceed \$1 million. Thus, for these reasons, the NYC DOT is a more appropriate client for ABC Construction Co., Inc. than the Parks Department.

4.5 ORGANIZATIONAL STRUCTURE

As mentioned before, ABC's organizational structure seems to be their biggest problem area. Therefore much of the business plan will be dedicated to solving this problem. This section is divided into three parts. In the first part, I will propose two new organization charts: one for a \$10 million firm and the second for a \$20 million firm. In the second part, I will calculate the overhead expenses associated with the two organization charts. And in the last part, I will clearly define the responsibilities and duties of each position in the organization.

4.5.1 Organization Chart

Referring back to the current organization chart in Figure 3-2, there are three major problems which exist: 1) the presence of two bosses; 2) the need for two to three more employees; and 3) the fact that too many people are reporting directly to the top. After reviewing these problems, I am proposing another organization chart (see Figure 4-1) which should be implemented immediately. This

Figure 4-1: Organization Chart for a \$10 Million Firm

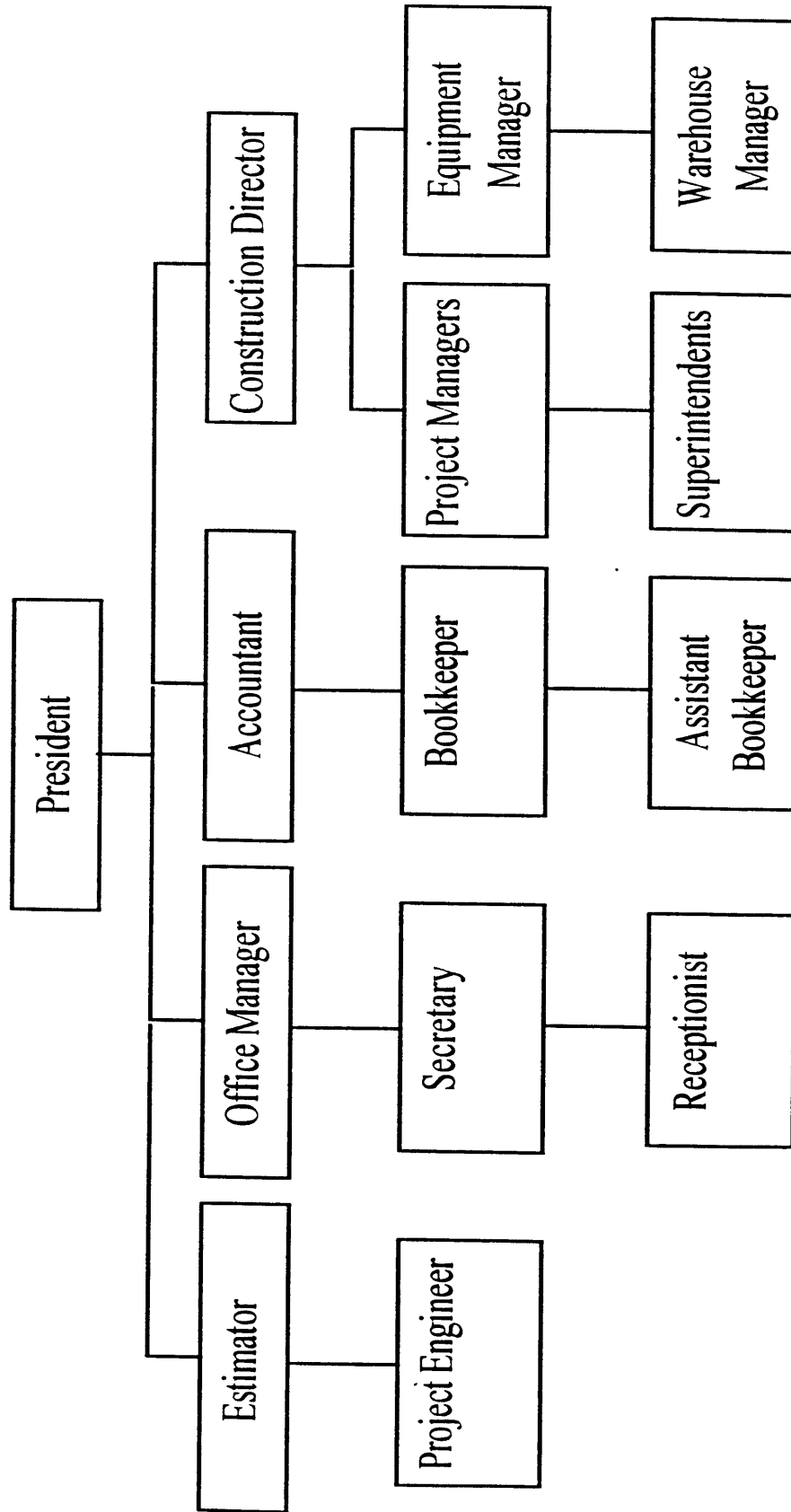


chart was derived from the organization charts provided by various authors. Figures 4-2, 4-3, and 4-4 accurately depict these organization charts. The major changes between the current chart and the proposed organization chart are as follows: 1) The Vice-President becomes the Construction Director. This eliminates the use of two bosses. The Construction Director is now solely responsible for the construction aspect of the business. 2) Each person reports only to one person. This is how an efficient organization must function. 3) One of the two secretaries was moved up to become an office manager. An office manager is needed to make sure that the flow of information inside and outside the office is not impeded. A more detailed job description will be provided in Section 4.5.3. 4) An assistant bookkeeper was added to the payroll. With \$10 million of work, it is obvious that one bookkeeper cannot keep precise track of all the job costs. Therefore she was given an assistant. 5) A warehouse manager was also added to the payroll. Currently, the mechanic is unsuccessfully handling two different jobs. He is trying to repair the equipment and maintain the warehouse at the same time. This has proved to be inefficient and costly. It is time for the mechanic to be given some help. 6) Only four people report directly to the President. This is much more efficient than having all the employees reporting to the President. Through these four people, the President will be informed of all aspects of the business.

I also prepared an organization chart which should resemble the organization by the year 1999. There are two major differences between this chart and the previous chart: four more employees are added to the payroll (project engineer, secretary, assistant bookkeeper, and estimator) and the accountant is now a full-time employee. These changes were made because of the extra volume of work. When

Figure 4-2: Coulter's Organization Chart

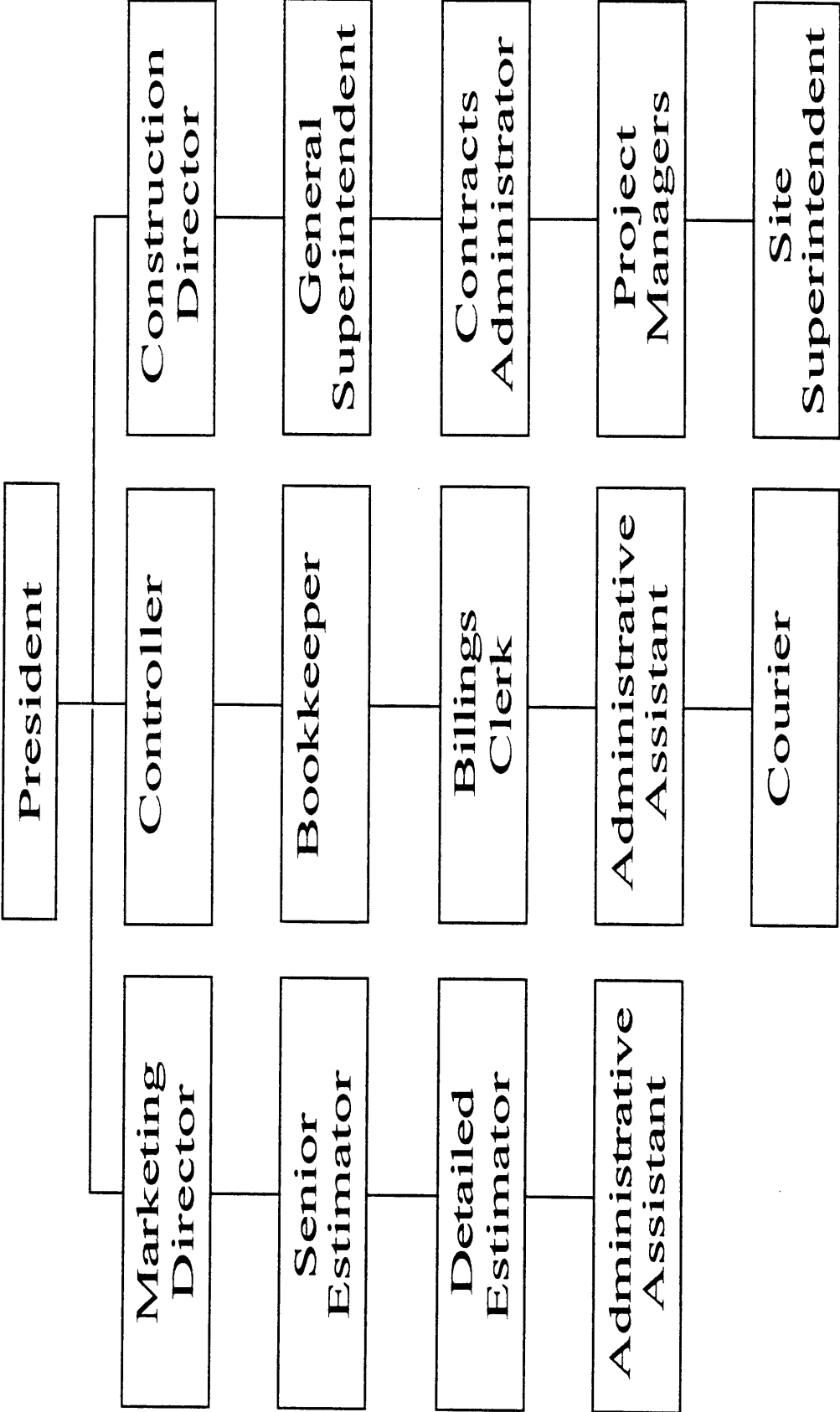


Figure 4-3: Clough's Organization Chart

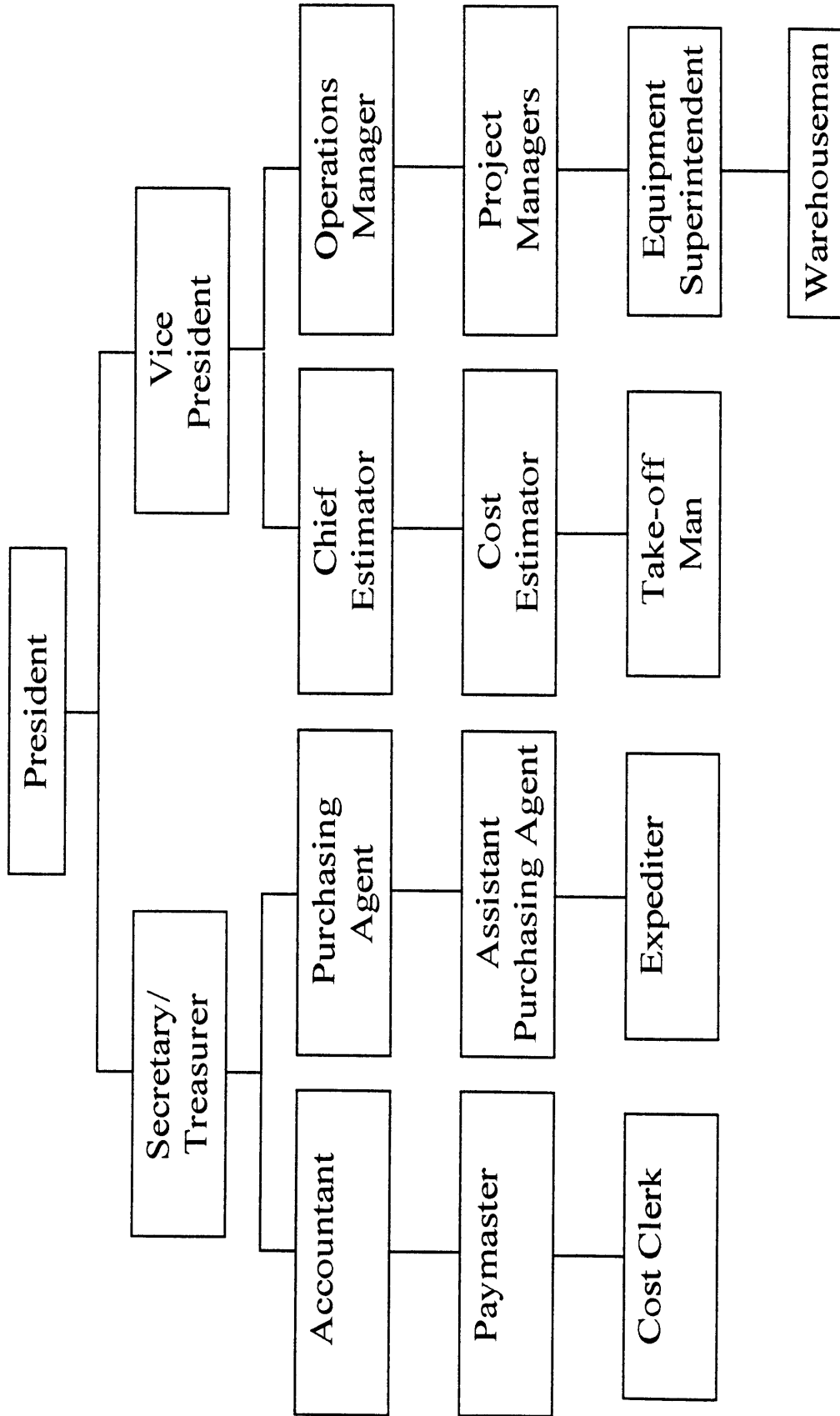


Figure 4-4: Cook's Organization Chart

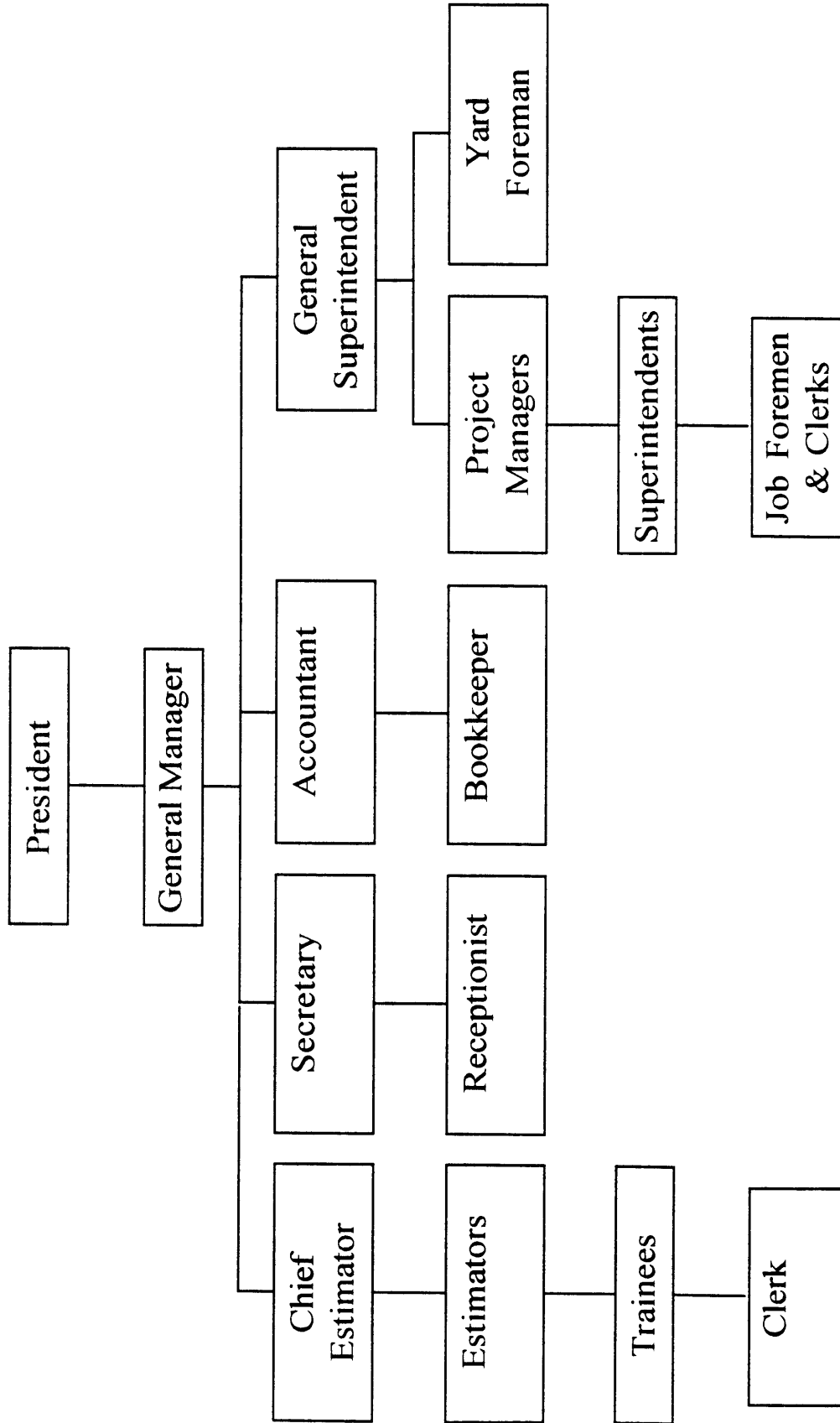
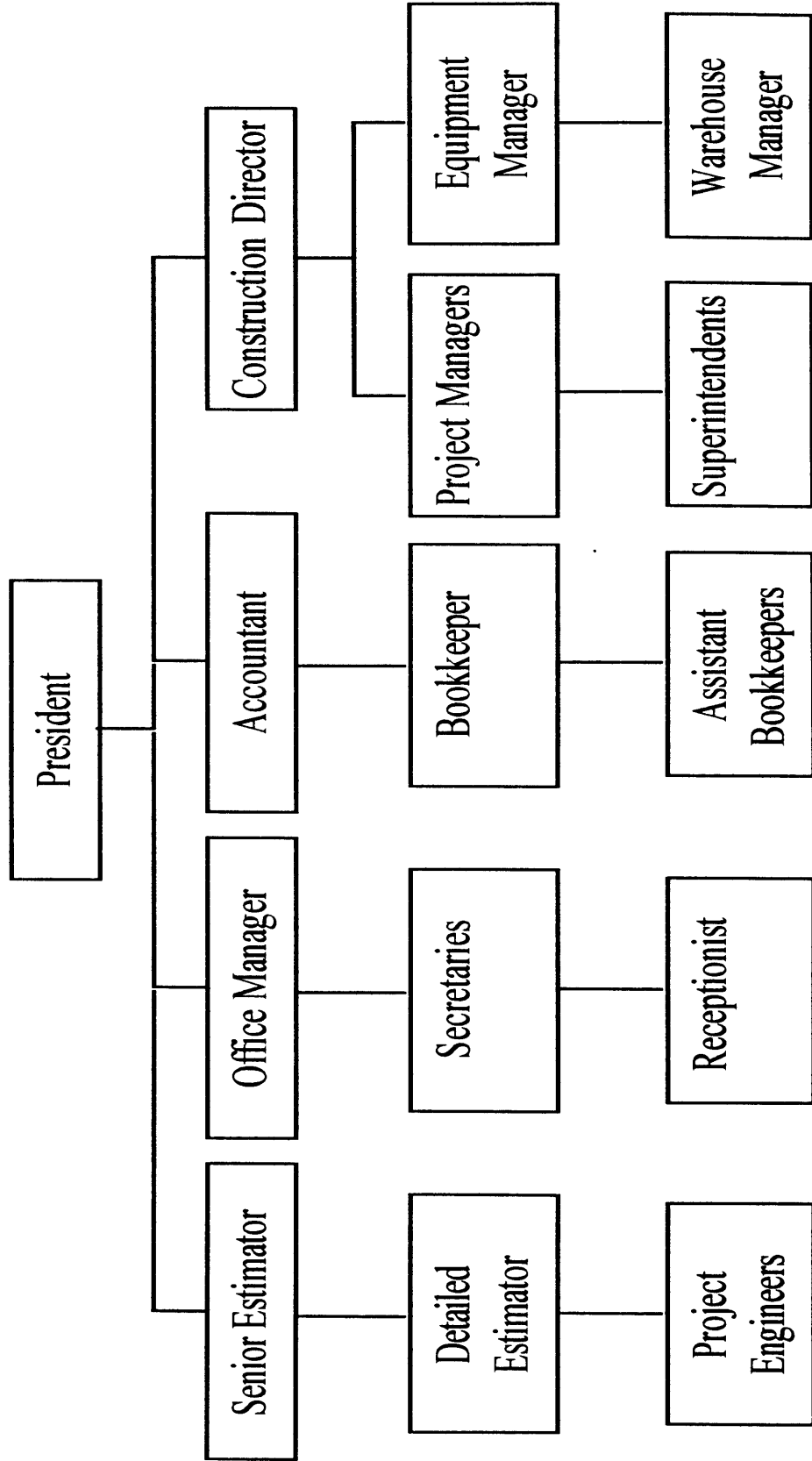


Figure 4-5: Organization Chart for a \$20 Million Firm



these additional employees are to be hired is completely at the President's discretion.

4.5.2 Overhead Expenses

Next the overhead expenses associated with these two organization charts are calculated. According to Figure 4-6, the first structure will require \$970,000 in overhead. This is almost 10% of the 1994 annual revenue. According to Figure 4-7, the second structure will require \$1,290,000 in overhead. This is only 6.5% of the 1999 annual revenue. Thus, increasing the volume should result in higher profits.

4.5.3 Job Descriptions

Since many of ABC's employees don't understand what is expected from them, I decided it would be useful to outline their primary responsibilities in this thesis. Elements of these outlines were drawn from the book, The Complete Standard Handbook of Construction Personnel Management.

President - The president is, in general, responsible for providing strong leadership and preparing the firm for the future. Following is a more detailed list of the president's responsibilities:

- 1) develop and implement a five-year business plan;
- 2) review the status of projects, annual revenue, and profits;
- 3) review the performances of all employees;
- 4) encourage all employees to work as a team;
- 5) develop companywide computer capability for accounting, estimating, and scheduling;
- 6) hold all employees accountable for their actions;
- 7) review all bids before they are turned in;
- 8) be accessible to clients and to your own employees;
- 9) be aware of external factors such as the state of the economy;

Figure 4-6: OVERHEAD FOR \$10 MILLION FIRM

Salaries	
President	150,000
Construction Director	100,000
part-time Accountant	35,000
Bookkeeper	40,000
Assistant Bookkeeper	30,000
Office Manager	40,000
Secretary	25,000
Receptionist	20,000
Estimator	60,000
Mechanic	60,000
Warehouse Manager	50,000
Project Engineer	<u>50,000</u>
Total Salaries	660,000
Rent	100,000
Legal Fees	20,000
Health Plan	60,000
Office Supplies & Utilities	100,000
Miscellaneous Charges	<u>30,000</u>
TOTAL	<u>\$970,000</u>

Figure 4-7: OVERHEAD FOR \$20 MILLION FIRM

Salaries	
President	150,000
Construction Director	100,000
full-time Accountant	35,000
Bookkeeper	40,000
Assistant Bookkeepers (2)	60,000
Office Manager	40,000
Secretaries (2)	50,000
Receptionist	20,000
Senior Estimator	70,000
Detailed Estimator	50,000
Mechanic	60,000
Warehouse Manager	50,000
Project Engineers (2)	<u>100,000</u>
Total Salaries	860,000
Rent	100,000
Legal Fees	40,000
Health Plan	80,000
Office Supplies & Utilities	150,000
Miscellaneous Charges	<u>60,000</u>
 TOTAL	 <u>\$1,290,000</u>

- 10) establish a policy on financial matters, including invoicing, payments, and daily cash flow;
- 11) develop companywide cost control and reduction for indirect costs, general conditions, and company labor;
- 12) maintain overhead expenses at an appropriate level;
- 13) hire and fire any employee.

Construction Director - The construction director is responsible for ensuring that all projects are completed on time and within budget. This is accomplished by:

- 1) developing a policy on change orders, communications, procedures, time extensions, requisitions, and shop drawing submissions;
- 2) reviewing the schedules and budget of each project with the project managers;
- 3) meeting weekly with each project manager and site superintendent;
- 4) reviewing the construction methods to be used in the field;
- 5) coordinating field forces in the most economical manner;
- 6) developing a policy on site safety;
- 7) inspecting the quality of the work;
- 8) aiding the project manager with any problem which may arise;
- 9) establishing a procurement policy for the purchasing of materials and hiring of subcontractors.

Project Manager - A project manager is responsible for completing the project on time and within budget. His/her primary responsibilities are as follows:

- 1) review contract documents, estimates, and schedules with the site superintendent;
- 2) attend progress meetings with the client;
- 3) manage the subcontractors;
- 4) schedule the job;

- 5) frequently review project costs, critical path, and bar schedule;
- 6) write letters to inform any party of any change or delay;
- 7) solicit subcontractor bids and material prices and then negotiate;
- 8) visit the site frequently;
- 9) purchase materials and hire subcontractors according to the construction director's procurement policy;
- 10) review status of shop drawings;
- 11) notify owner of any change orders;
- 12) inspect the quality of work;
- 13) prepare a safety plan for the project;
- 14) review subcontractor and supplier invoices and payment requisitions to owner;
- 15) supervise the superintendent;
- 16) review the status of the project with the construction director.

Superintendent - The site superintendent supervises the work performed at the site. His/her responsibilities include:

- 1) reviewing the specifications, blueprints, and schedule with the project manager;
- 2) informing the project manager to purchase materials;
- 3) informing the project manager of any on-site problems;
- 4) directing the entire work force on the site, including subcontractors;
- 5) keeping record of daily use of material, equipment, and labor;
- 6) developing a schedule for each day and reviewing this schedule with the crew foremen and subcontractors one day prior;
- 7) inspecting workmanship;
- 8) addressing all safety issues;

- 9) assisting the project manager with change orders, payment requisitions, purchase orders, invoices, and labor costs.

Equipment Manager - The equipment manager's primary concern is with maintaining the equipment. The responsibilities of an equipment manager are:

- 1) repairing the equipment;
- 2) scheduling equipment delivery with the drivers;
- 3) reviewing equipment requirements with the project managers;
- 4) maintaining equipment logs;
- 5) purchasing new tools and equipment when directed to do so;
- 6) informing the construction director of equipment shortages;
- 7) ensuring that equipment is properly stored, maintained, and used.

Warehouse Manager - The warehouse manager stores and organizes the materials and equipment in the warehouse and yard. His/her responsibilities include:

- 1) maintaining a materials inventory count;
- 2) picking up materials from suppliers;
- 3) checking and signing for material delivery to yard;
- 4) keeping fuel records;
- 5) keeping the warehouse and yard neat;
- 6) storing and distributing all reusable materials;
- 7) arranging for materials to be delivered to and from jobs;
- 8) informing the construction superintendent of and material shortages.

Accountant - The accountant manages the company finances and monitors the company business plan. The accountant:

- 1) sets up a computerized accounting system;
- 2) prepares quarterly financial reports;

- 3) develops a chart of accounts for overhead and direct costs for estimating, control, and cost reduction;
- 4) establishes banking and bonding relationships;
- 5) prepares a salary and benefit plan;
- 6) compares the business plan versus the actual financial projections;
- 7) reports monthly to the president regarding the firm's current financial standing;
- 8) prepares tax returns and conducts annual audit;
- 9) suggest ways to reduce cost.

Bookkeeper - The bookkeeper is responsible for financial record keeping. The duties of this position include:

- 1) maintaining all ledgers, including accounts payable, accounts receivable, general, asset, and job;
- 2) depositing funds in bank;
- 3) preparing the weekly payroll;
- 4) preparing job-cost reports;
- 5) paying the union benefits for the union labor force;
- 6) controlling the petty cash disbursements;
- 7) reviewing all ledgers and reports with the accountant;
- 8) inputting cost data onto the computer;
- 9) reviewing all invoices with the respective project managers;
- 10) paying the bills.

Assistant Bookkeeper - The assistant bookkeeper should be able to help the bookkeeper with almost any task. Normally though, the assistant bookkeeper will be given definitive tasks, such as maintaining one or two of the ledgers, inputting data into the computer, depositing checks into the bank, and preparing the payroll checks. Most likely, the assistant won't be handling the cash disbursements, preparing reports, and reviewing the ledgers and reports with the accountant.

Office Manager - The office manager is in charge of office administration and communications. He/She has one or two secretaries and a receptionist to help perform these tasks.

The office manager's primary responsibilities are:

- 1) to set up an organized filing system;
- 2) maintain stock of forms and supplies;
- 3) receive visitors;
- 4) develop a policy regarding mail, courier, telephone, and fax;
- 5) maintain a complete list of company employees;
- 6) assist the president with his/her schedule, appointments, and conferences;
- 7) type correspondence;
- 8) prepare payment requisitions for project managers;
- 9) maintain the office in a neat and orderly fashion.

Secretary - The secretary assists the office manager with all administration-type work. The secretary files all important documents, types correspondence for any of the other office employees, prepares payment requisitions for project managers, receives and transcribes dictation, and maintains stock of forms and supplies.

Receptionist - The receptionist assist the office manager with all communication-type work. The receptionist answers phones, takes messages, sorts through mail, distributes mail, makes photocopies, sends faxes, and locates field personnel by calling their beepers or mobile phones.

Senior Estimator - The senior estimator calculates the cost of completing a job by analyzing specifications and drawings. The responsibilities of this position include:

- 1) investigating the construction site before bidding;
- 2) developing a construction strategy, including a tentative schedule;
- 3) choosing competent subcontractors;

- 4) receiving bids or prices from material suppliers and subcontractors according to the construction director's procurement policy;
- 5) estimating the cost of the general contractors portion of the work;
- 6) marking up the job cost for overhead and profit (this should be done in conjunction with the accountant and president);
- 7) keeping in contact with the owners' architects and engineers;
- 8) assisting the project manager after the contract has been awarded;
- 9) keeping record of previous estimates and bids.

Detailed Estimator - The detailed estimator assist the senior estimator with the more detailed and tedious work. He/She is usually responsible for sending out documents to the subcontractors, doing takeoff quantities, asking material suppliers for prices, looking for mistakes in the drawings, handing in bids, and helping out in any way to prepare for the bid.

Project Engineer - The project engineer is basically an assistant for the estimators and project managers. He/She can assist the estimator by doing takeoff quantities and calling suppliers and subcontractors for prices and bids. He/She can assist the project managers by preparing change orders, calling suppliers and subcontractors for service, completing the as-built drawings, and writing letters. As one can see, this position requires some technical background and some communication skills.

CHAPTER 5

STRATEGIES

5.1 INTRODUCTION

The questions "what" and "when" have been answered in Chapter 4. Now, in Chapter 5, I will focus on the question "how." In other words, how is the proposed business plan supposed to be implemented. The strategies listed in this chapter will help ABC Construction Co., Inc. achieve the goals stated in Chapter 4. These strategies will be put forward in the same format as in the previous chapter. That is, each area of the business plan will have its own set of strategies.

5.2 Finance

The following strategies should be used in order to meet the objectives set in Chapter 4.2. First, ABC must bid approximately \$100 million to \$200 million worth of work in order to obtain the necessary amount of annual revenue. These figures are based on the assumption that ABC will be one out of ten bidders for each bid. This is actually a very conservative assumption. During the worst economic times, there are usually only eight or nine bidders. And during the better economic times, there can be as few as three to four bidders. Thus, the amounts, \$100 to \$200 million, are for a worst case scenario.

Second, ABC needs to monitor the direct job costs very closely. This task is the responsibility of both the project manager and the bookkeeper. The project manager has to keep a very good record of all the job costs, and the bookkeeper has to constantly input this data into the

computer. This must be done continuously throughout the project duration. Then, at the end of the project, the results must be compared to the estimator's calculations. This procedure will keep both the project manager and estimator accountable for their work.

Third, ABC must closely monitor overhead expenses. The accountant is held responsible for this function. At all times, the accountant should be making recommendations to the president on possible overhead reductions.

Finally, ABC must keep a constant lookout on the firm's backlog. Again, the accountant is held responsible for this task. The accountant, by reviewing the project durations and contract prices of the current backlog, should be able to predict when the firm needs to obtain more work.

5.3 Type of Work

Only one real strategy is appropriate in this area. This strategy is to stay within the firm's core competencies. ABC Construction should not stray from doing concrete and asphalt work. ABC should not be rehabilitating bathrooms or venturing into any type of building construction. As proven by the data, enough work is available in the concrete and asphalt sectors. Thus ABC should not have any reason to do otherwise. This is true no matter how tempting it can be to bid other types of jobs. Even if the choice is between a building construction job with a possible 10% profit margin versus a bridge rehabilitation job with a 5% profit margin. The bridge job will almost surely yield the 5% profit margin since the firm is very comfortable performing this work. The building job, on the other hand, can lead to a nonexistent or negative profit margin since the firm is not familiar with this type of work. Problems always arise on a construction job and the ability to correct these problems quickly is the way a general contractor makes a profit. By taking the building

job ABC can easily see its profits dwindle away by not solving the everyday problems in an efficient manner. This extra time needed can also threaten ABC's ability to finish on time. Finishing past the project deadline leads to extra costs incurred from liquidated damages. These costs, depending on the contract and the agency, can be as high as \$1,000 per calendar day. Thus ABC should stay within their core competencies, even if it means having less volume.

5.4 CLIENTELE

ABC's major strategy in regards to clientele is to keep in close contact with current clients, especially with the NYS DOT and the PANYNJ. This can be achieved by having the president keep in touch with the more influential employees of the public agencies. In addition, the president should attend the more important job meetings in order to demonstrate his/her concern with the project. The other employees of the firm, especially the construction director and project managers, should also become acquainted with the respective employees of the public agencies. These relationships will help the clients feel more comfortable with the general contractor. They should also foster cooperation between the clients and the general contractor. At the end, both sides will benefit with this type of strategy.

Another strategy, which seems obvious but should be stated anyway, is to be fair with the clients. General contractors, unfortunately, have the tendency to cut as many corners as possible during the lifetime of the project. ABC, on the other hand, should strive to become a "caring" firm. At the end, ABC will benefit because the client will be more understanding when the firm commits an error of some sort. Again, the strategy is to work with your client and not against him/her.

ABC's last strategy is to evaluate new marketing techniques which could help meet their clients' changing needs. Currently, some of these new techniques include total quality management, alternative dispute resolution, and partnering. Total quality management is, in essence, doing things right the first time and eliminating the cost of rework. Clients are beginning to understand that this new way of thinking should be adopted by all their general contractors. Alternative dispute resolution involves settling disputes without going to court. Some of these alternative techniques include negotiation, non-binding arbitration, mediation, review boards, and binding arbitration. Finally, partnering is a new approach in owner-contractor relationships which is beginning to become very popular. It is an approach which involves trusting one another and compromising. Thus, ABC should constantly be aware of emerging marketing tools which help build a better relationship with the clients.

5.5 ORGANIZATIONAL STRUCTURE

In this area, ABC must first implement the organization chart which was proposed in Chapter 4. This implementation must be executed in a firm manner by the leader of the company, the president. He must exercise his leadership abilities to bring about this drastic change in the firm. It is his responsibility, and his responsibility alone, to make sure that all employees understand their new positions in the firm.

In addition, ABC must distribute a detailed list of job descriptions to every employee of the firm. Then the president must make sure that every employee understands his/her allocated responsibilities. If every employee executes his/her job according to this list of responsibilities, then the internal operations of the firm will run smoothly.

Finally, I would like to address the issue of recruitment since it is significant to every organization. Currently, ABC's recruitment policy is limited to placing ads in the newspaper. But as Rubey and Milner note in their book Construction and Professional Management, construction firms must recruit from colleges. They explain:

"Although it is the largest of industries, construction ranks at the bottom in recruitment of personnel from colleges. Until this improves, construction management and profit will remain unsatisfactory. Nor can recruitment take place only as contracts are obtained, or perhaps for only one year, then miss some years and start again, nor follow a haphazard policy. Following the practice of other industries, the recruitment process must be consistent and continuous year after year, there must be an adequate permanent staff of graduates, and contractors must minimize temporary employees for emergency use."

In my opinion, the positions which should be filled by college graduates are project engineers, the detailed estimator, one or two project managers, and one or two superintendents. These are the positions which require the least experience. And after developing in these positions, the graduates will be ready to be promoted. This will usually occur when someone retires or is fired.

CHAPTER 6

CONCLUSIONS

6.1 SUMMARY

This final chapter is divided into two parts. First, I will give a brief summary, chapter by chapter, of the thesis. Then, I will make further suggestions which should hopefully aid ABC Construction Co., Inc. in the future. These suggestions are more general than those proposed in the previous chapters. Thus they seem to naturally fit in this in this chapter.

In the first chapter I stated the main objective of this thesis: to prepare a business plan for a general contractor in the New York City public sector. I chose this topic because I someday plan to own a general contracting firm. Thus writing this thesis has been an excellent exercise for me. Writing a business plan is a very integral part of running any type of business. Unfortunately, it has become evident to me, through my experience, that many general contractors don't even have a business plan. In essence, these firms are not planning for the future. Thus it was important for me to learn how to plan for the future.

The second chapter demonstrated that ABC Construction is in a relatively stable market with an ample amount of work. Porter's five-forces model was used to evaluate the market and the conclusion was to stay in the market. Then the information obtained from the clients was analyzed and the conclusion was that capital expenditures in the next five years will be sufficient.

In the third chapter, an overview of the firm was first given. This overview was divided into four areas, not

including the background and history of the firm. These four areas were chosen on the basis of urgency. In other words, these were the problem areas which ABC Construction needed to tackle during the next five years. After this overview, the three generic strategies model was used to categorize the firm. The conclusion was that ABC needed to better focus its attention on cost.

In the fourth chapter, the actual business plan was introduced. Unlike most business plans, this plan focused only on the firm's four problem areas: finance, type of work, clientele, and organizational structure. In each section, clear and well-defined goals were proposed for the next five years.

Finally, in the fifth chapter, a number of strategies were introduced in each of the four areas. These strategies should help ABC Construction with implementing the five-year business plan.

6.2 FURTHER RECOMMENDATIONS AND SUGGESTIONS

This part of the chapter includes further suggestions for ABC Construction Co., Inc. as follows. First, ABC must revise this business plan annually. This must be done because the external market and the internal dynamics of the firm are constantly changing. The business plan must then also change accordingly. To help with these revisions, ABC should try to acquire the public agencies' business plans each year. This data is integral to developing ABC's five-year business plan.

Second, ABC must be aware of all external factors which might affect the construction industry in New York City. This can be achieved in a number of ways, but three quickly come to mind. First, as I mentioned before, ABC should keep in contact with the owners' leaders. They can be helpful in providing useful information regarding future projects. Secondly, ABC should keep constant watch over local and

state politics. Every time a new governor or mayor is elected, ABC should expect some changes in the amount of spending on construction projects. Finally a simple way to be aware of external factors is by reading the newspaper. The New York Times is probably the best newspaper to read. There is a section in this newspaper which focuses entirely on the current events in the New York City Metro area. In addition, ABC should also browse through the local newspapers, the Daily News and Newsday, since they can sometimes be useful. I actually have two examples where reading the newspapers in the past few months has been beneficial. First, I found out that Mr. Petrou, the Director of Construction of the NYS DOT Region 11, was promoted to become the head of the NYS DOT in Region 10. In other words, Mr. Petrou was moved from New York City (Region 11) to Long Island (Region 10). Obviously, this has a significant impact on ABC. ABC must now become acquainted with the new Director of Construction of Region 11 and figure out his/her philosophy and beliefs on general contracting. Hopefully, this person will have the same "partnering" and cooperative attitude as Mr. Petrou did. This piece of information was found in the February 5, 1995 issue of Newsday. The other piece of information came from an article published in the New York Times. The article pointed out that there will be a decrease in capital spending in New York City for the fiscal years 1996 through 1999. The chart found with this article is titled "Capital Spending: A Construction Slowdown." While this title caught my attention, a further look at the details of the chart revealed that spending on bridges, highways, and parks will only be slightly affected. Actually the article states that "the Transportation Commissioner, Elliott G. Sander, said that construction and repair work on the city's major bridges would be generally unaffected by the reduction in capital spending."

Third, ABC should investigate the possibility of executing some subcontract work. The firm's expertise in concrete and asphalt may be useful to some of the larger contractors in the New York City Metro area. But ABC must first find out if subcontracting is a feasible and profitable option. If the outlook is optimistic, then ABC should take the chance and try it.

APPENDIX A: Interviews

Following are summaries of the four interviews which I conducted with the following owners' representatives: Mr. George Adelhardt, Director of Construction of the New York City Department of Transportation Bureau of Roads and Bridges; Mr. Raymond J. Finnegan, Manager of the Port Authority of New York and New Jersey Construction Management Division; Mr. Edward J. Petrou, Director of Construction of the New York State Department of Transportation Region 11; Mr. John Natoli, Chief of Construction of New York City Parks and Recreation.

The purpose of my discussions was twofold: first, I wanted to find out what the owners expected from the general contractor and second, I wanted to obtain information regarding future work. In order to achieve these objectives, I first gave the owners' representatives a brief description of my thesis topic and then asked them a series of general questions. These questions were as follows: 1) What do the owners/clients expect from the contractor during the execution of the contract (i.e. what is most important to the owner: following procedures, quality of work, actually finishing the job, etc.), 2) What are current trends with respect to type of work, amount of work, and bidding results? What were past trends? And what do you think will be future trends?, 3) Where can I get specific information regarding future capital expenditures, past contract results (e.g. bid cost and actual cost), and anything else that can be of help to me?, and 4) Do you think there will be changes in building format? In other words, will construction management, design/build, or build/operate/transfer ever be options to the traditional low-bid format? Or is this against the law?

Agency: New York City Department of Transportation

Person Interviewed: Mr. George Adelhardt, Director of
Construction

Date of Interview: January 10, 1995

Location of Interview: 2 Rector Street, 5th Floor, NY,
NY

Mr. George Adelhardt began by stating that the NYC DOT expects several simple things from the contractor: 1) to complete the work exactly as specified in the plans - he doesn't want the contractor to deviate from the engineers' designs (e.g. if the specifications ask for concrete with 5% air entrainment then he expects exactly that - he doesn't want concrete with 3% or 8% air entrainment), 2) to finish the project within the specified time frame - any time delays usually result in unnecessary traffic jams and extended bridge closures - this in turn causes the public to become angry - an angry public then blames the mayor for the inconvenience - the mayor then sends the blame all the way down the ladder until it reaches Mr. Adelhardt's office - Mr. Adelhardt must then respond personally to the angry letters sent in from the public - thus without any time delays, Mr. Adelhardt won't have to waste his valuable time and the city's money responding to these nasty letters, and 3) to deliver a quality product - he expects the contractor to avoid cutting corners. He then asserted that the NYC DOT wants to fully cooperate with the general contractor and avoid any confrontations. He and the rest of the staff understand that the contractor needs to make money. They have no problem with this concept; they actually want the contractor to make money. They do though expect the contractor to understand their point of view too. The NYC DOT needs to be consumer-friendly since politics and re-elections are involved. Thus it is imperative for the

contractor to finish the job as soon as possible and with the least amount of complications.

Mr. Adelhardt and I then discussed current and past trends in bid results. He said that there has been a noticeable difference in bid amounts between the 80's and 90's. He said that actually contract prices went down approximately 10-15% over the last several years. The NYC DOT is generally happy with this trend since more work can be executed with the same amount of money. Mr. Adelhardt also noticed that many large contractors in the past few years have started taking small jobs. These are obviously signs that not much work is available and that competition has become intense.

The next topic involved future capital expenditures. Mr. Adelhardt responded by handing me a copy of the NYC DOT Bureau of Roads and Bridges' Rehabilitation Program. It's dated September 21, 1994 and it contains a tentative list of jobs for the next ten years. The list includes a description of each contract and the estimated construction cost for each contract.

I also asked Mr. Adelhardt about the possibility of awarding design/build or construction management contracts. He told me that the NYC DOT actually awarded one design/build contract. At the time of this discussion, the job was still in the design phase. So it is still difficult to determine if this technique will work with the NYC DOT. He did say though that the government is optimistic. I then inquired about the bidding process for this design/build contract. He told me that each contractor was given a rating for reputation, quality of work, etc. Then the award was based on a combination of this rating and the contractor's price. He then referred me to Mr. John Hendrickson who is in charge of this project.

Lastly, Mr. Adelhardt informed me that the actual contract price is, on the average, 10% higher than the

awarded price. This is mostly due to change orders resulting from design errors, unforeseen site conditions, and ambiguous or controversial specifications.

Agency: New York State Department of Transportation

Person Interviewed: Mr. Edward J. Petrou, Director of Construction

Date of Interview: January 16, 1995

Location of Interview: 47-40 21st Street L.I.C., NY

Mr. Petrou began the discussion by telling me a little about the NYS DOT. He told me that the total budget for construction in New York State is approximately \$1.2 billion per year. And the budget for Region 11, which represents the five boroughs of New York City, is about one-third of the entire state budget or \$400 million. In addition, almost all of this money goes towards rehabilitation of existing highways and bridges. Virtually no money is spent on new construction. Mr. Petrou pointed out that most of the highways and bridges in New York City were built in the 1950's. Therefore the life span of these facilities, which is approximately thirty to forty years, is nearing the end.

Mr. Petrou and I then discussed the possibility of using the design/build format instead of the current low-bid process. He told me that currently there is no design/build being used. But he did note that there is some talk of possibly using it in the future. Mr. Petrou though feels that there isn't a great need for design/build contracts in the public sector. His reasoning is that the design phase in public jobs isn't that crucial with respect to time. It is the construction phase which the NYS DOT is preoccupied with. This is because the contractor is somehow affecting the flow of traffic or the condition of the roads and

bridges. The NYS DOT obviously wants the contractor to finish the job as soon as possible. Thus, there is some leeway during the design phase, but there is virtually no leeway during the construction phase since taxpayers are being affected.

We then spoke about the owner's expectations from the contractor. Mr. Petrou's biggest concern was with the contractor's willingness to work with the department when a problem arises. He does not want a complete shutdown on the site when there is a dispute between the owner and contractor. He expects the contractor to fully cooperate with the owner. This way no time will be wasted and the job can be finished on schedule. In order to foster this cooperation, the NYS DOT has actually implemented a partnering program. This voluntary program constitutes of two main parts: the signing of a charter by all the groups involved and the attendance of monthly meetings. The charter contains a list of objectives which all the parties share, and it is signed by the principals of the contractor, owner, engineer, consultant, and affected community. After the charter is signed, monthly meetings are held with the presence of the decision-makers of each group. During these meetings or partnering sessions, the representatives of each group gather together to try to find solutions to existing problems. According to Mr. Petrou, these partnering programs seem to have had a positive impact since its' inception in 1992. There has been a noticeable decrease in the amount of claims filed in the past few years. Mr. Petrou referred me to the NYS DOT's general counsel, Mr. Eric Kerness, for more information regarding the success of the partnering program. I did speak to Mr. Kerness and he told me that there were 26 claims filed in 1988 as compared with 6 in 1993 and 4 in 1994. He noted that the combination of the partnering program and the revisions in the NYS DOT's specifications contributed to this decrease. The fact that

the contractor and owner have been working out their differences during the monthly meetings instead of in the courtrooms has been very beneficial. Both sides save vast amounts of money by avoiding legal expenses.

Next, Mr. Petrou and I discussed the current state of construction in New York City. He told me that the general contractors are struggling to obtain public jobs since there is very little work in the private sector. Competition is high, bid prices are low, and as a result New York State is saving some money. With this extra money, the NYS DOT is able to put more contracts out to bid.

Lastly, we spoke about what can be expected in the future regarding capital expenditures. He referred me to Mr. Rich Schmalz of Regional Planning to obtain more specific information on this topic. I then contacted Mr. Schmalz and he was kind enough to give me the expenditure plan for the next five years. He also gave me a copy of the narrative of this plan. But Mr. Petrou did tell me that the election of a new governor (Mr. Pataki beat the incumbent Mr. Cuomo in the November 1994 elections) could have a major impact on spending. This impact though is still not clear.

Agency: Port Authority of New York and New Jersey

Person Interviewed: Mr. Raymond Finnegan, Manager of the
Construction Management Division

Date of Interview: January 24, 1995

Location of Interview: 1 World Trade Center, 51st Floor,
NY, NY

Mr. Finnegan's first point regarded the importance of administration for a general contractor. He feels that the construction industry, in general, has not mastered the management of time and money in the office. Following are

some examples which prove his point. He said that many contractors: 1) don't ask for schedules from subcontractors prior to bidding, 2) don't account for the submittal process when scheduling, 3) don't bill on a timely manner - in fact, the Port Authority has on occasion had to ask for payment requisitions, 4) don't cooperate when trying to settle disputes quickly, 5) don't have backup subcontractors for emergency purposes, and 6) don't read some of the contract provisions, especially for time and material jobs. So, basically, Mr. Finnegan feels that general contractors need to improve their office management skills. The main purpose of a general contractor, in the case of the Port Authority, is to schedule and manage time. Otherwise, the Port Authority could just hire the subcontractors themselves.

Mr. Finnegan, though, is relatively happy with the quality of work on-site. He believes that this is due to two reasons: the ample amount of skilled labor in the New York City Metro area and the extensive knowledge of the Port Authority with regards to on-site construction.

The next topic of conversation was in reference to the general contractor's use of technology. He feels that the typical general contractor has very little technical knowledge and doesn't use any statistical quality control. In other words, most contractors only use traditional methods of construction instead of the more innovative and usually cheaper techniques. He believes that the general contractor does not use the technological innovation available, especially with respect to concrete and asphalt mix designs. The use of newer materials could significantly decrease the cost of concrete and asphalt. And the Port Authority has no problem with the use of cheaper materials as long as it meets the performance specifications provided in the contract. Actually the Port Authority encourages general contractors to use cheaper materials because bid prices would go down. One solution to this problem is to

have the General Contractors Association become more involved with current technology. The association could hold training sessions and have regular meetings so that general contractors become aware of this new technology. Mr. Finnegan did, however, acknowledge that there are several obstacles which impede the spread of technology including the concrete suppliers' reluctance to change mix designs and use different materials and the general contractors' reluctance to use concrete mix designs which haven't been approved before.

Mr. Finnegan and I then spoke about the possibility of using design/build in the future. Mr. Finnegan basically said that the Port Authority will most likely never use this format. He said that the Port Authority wants to have full control of the design phase. They understand exactly what they want and therefore desire that most of the design be executed in-house.

Next we spoke about past trends in bidding. Mr. Finnegan told me that bids were much lower in the past five years than in the 1980's. But the Port Authority has not been particularly happy with the consequences of these lower bids. Apparently, many of the general contractors with low bids became disqualified. Last year, out of 210 bids, 30 to 40 of the low bidders had to be disqualified for various reasons. In addition, there has been an increase in defaults because many general contractors either went bankrupt or were kicked off the job because of poor quality.

The last topic was in regards to future capital expenditures. Mr. Finnegan addressed this issue by giving me a copy of the Port Authority's business plan for the years 1994-1998.

Agency: New York City Department of Parks and Recreation

Person Interviewed: Mr. John Natoli, Chief of
Construction

Date of Interview: January 26, 1995

Location of Interview: Flushing Meadows Corona Park,
Flushing, NY

Mr. Natoli began by giving me some background information on the Parks Department. He said that the Parks Department executes or contracts out approximately 1% of all the projects in the city. Obviously, this is a relatively small department in terms of capital. He also said that maintenance composes a big portion of the annual expenditures. Unfortunately, this is still not enough money to properly maintain the existing parks. As a result, the parks are starting to deteriorate and they will eventually need to be rebuilt. This, of course, will drive up the overall long-term costs. The department is currently trying to correct the situation. At this point in time, most of the maintenance is done by the Parks Department. But they are starting to contract out more of the maintenance tasks. So far, it's working out very well. Hopefully, this might mean that eventually all the maintenance might be done solely by contractors.

Next, Mr. Natoli briefly explained what the Parks Department expects from the general contractor. Basically, he said that they expect two things from the contractor: to strictly comply with the bid documents and to be very cooperative. Being cooperative, he said, would greatly benefit the contractor in the long run. One reason is because the Parks Department has just begun to let out requirements contracts (i.e. only contractors who meet the strict requirements imposed by the Parks Department can bid these jobs). These requirements are based on reputation, timeliness, and quality of work. This selection process is

totally legal because it only involves emergency work, which doesn't lend to a long bidding process. This emergency work is typically unfinished work from terminated or defaulted contracts. At this time, Mr. Natoli said that there are approximately ten contractors who have been asked to be "on-call." In addition, he said that this one-year old program has been working out very well.

Mr. Natoli then elaborated on the current bidding situation. He acknowledged that competition has become very fierce in the past several years and that many of the bids have been very low. Unfortunately, it doesn't seem that the department is very happy with the consequences. He said that many unfamiliar and inexperienced contractors were awarded many of the contracts. As a result, there was a record number of terminations in 1994. Approximately fifty contractors were either thrown out by the owner or defaulted because of other reasons. This is obviously not a good trend.

Lastly, I asked Mr. Natoli for some information regarding future capital expenditures. He felt that it was inappropriate to hand me their business plan so he gave me some approximate numbers instead. The Parks Department lets out approximately \$125 million in project-oriented contracts and \$25 million in maintenance contracts. The average contract is about \$350,000, and they let out ten to twenty contracts over \$1 million per year. He finished the conversation by telling me that their business plan would not be very useful anyway because of the strong and erratic influence of politics. The business plan, he said, changes drastically from year to year because of the constant change in local politicians. Very often, the parks to be rehabilitated are not selected on the basis of need but on the basis of how to get re-elected.

APPENDIX B

NYC DOT Capital Expenditures from 1995-1999:

Possible Contracts to Bid	Estimate (millions)
1995	
1. Brooklyn Bridge #5D	1.8
2. Comp Rehab-Contract "94C"	6.2
3. Comp Rehab-Contract "95A"	5.0
4. Comp Rehab-Contract "95B"	5.0
5. Comp Rehab-Contract "95C"	5.0
6. Comp Rehab-Contract "95D"	5.0
7. E.156th St./Amtrak (demo)	3.3
8. Prospect Exp./3rd Ave.	2.5
9. Prospect Exp./4th Ave.	3.5
10. Ditmas Ave./NYCTA	2.3
11. 4th Ave./Conrail	7.1
12. 65th St. & Bay Pkwy/NYCTA	3.3
13. Vernon Blvd./LIRR	4.5
14. 65th Place/LIRR	2.8
15. 102nd St./Hawtree Basin	5.9
16. DeHart Ave. & John St./ B&ORR	2.5
17. Lafayette Ave./Amtrak	5.5
18. Bronx Mrkt. Rp./Cromwell Ave.	1.1
19. Hutchinson Rv. Pkwy./Amtrak	8.0
Total for 1995	<u>\$80.3</u>
1996	
1. Flatbush Ave./Belt Pkwy.	4.8
2. Church Ave. & Caton Ave./NYCTA	5.8
3. Avenue "P" & Kings Highway/NYCTA	4.7
4. 4th Ave./NYCTA	1.9
5. Hill Drive/Prospect Park Lake	1.8

6. BQE Westbound Drop-Off	3.1
7. 60th St./LIRR & E.15th St./Conrail	4.1
8. Northern Blvd./B.C.I.P.	4.0
9. 57th Ave. & Caldwell Ave./Conrail	4.2
10. Forest Pk. Dr. & Park Ln. S./LIRR	7.4
11. Conduit Blvd.(SB)/84th St.	1.1
12. Amboy Rd. & Chelsea Rd.	3.2
13. Grand Concourse/ E. Tremont	4.0
14. Comp Rehab	2.5
15. Comp Rehab	5.0
16. Comp Rehab	5.0
Total for 1996	<u>\$63.9</u>

1997

1. Comp Rehab	5.0
2. Comp Rehab	5.0
3. Comp Rehab	5.0
4. Comp Rehab	5.0
5. Bryant Ave./Amtrak (demo)	1.1
6. Empire Blvd./NYCTA	4.3
7. 11th Ave./Conrail	4.8
8. 65th St./LIRR	2.6
9. Andrews Ave./LIRR	1.1
10. Steinway St./BQE(WB) & GCP	9.0
11. Coney Island Ave./Belt Parkway	9.0
12. Johnson Ave./Ellis St. (demo)	3.3
13. South Ave./B&ORR	4.2
14. Bank St./NY Susquehanna RR	3.5
15. E Tremont Ave. & E.178th St. Ftbg	3.7
16. Gun Hill Rd./NYCTA	2.5
17. Bruckner Blvd./Conrail	3.4
Total for 1997	<u>\$72.6</u>

1998

1. Comp Rehab	4.0
2. Comp Rehab	4.0
3. Comp Rehab	4.0
4. Comp Rehab	4.0
5. Westchester Ave./Hutchinson Pkwy	4.9
6. Astoria Blvd. EB	3.2
7. E. 8th St. Access Ramp/Belt Pkwy	5.0
8. Guy Brewer Blvd./Belt Pkwy	3.2
9. Springfield Blvd./Belt Pkwy	3.5
10. Houston St./F.D.R. Drive	4.4
11. E. 161 St./Conrail	5.6
12. Parkside Ave./NYCTA	3.1
13. 91st Place Ped./LIRR	1.7
14. Cross Bay Blvd./Conduit Blvd.	6.8
15. Great Kills Rd./S.I.R.T.	2.4
Total for 1998	<u>\$59.8</u>

1999

1. Comp Rehab	5.0
2. Comp Rehab	5.0
3. Comp Rehab	5.0
4. Comp Rehab	5.0
5. Fresh Pond Rd./Metropolitan Ave.	8.4
6. Bruckner Exp. EB/Amtrak	9.0
7. Jerome Ave./Mosholu Pkwy.	4.7
8. Belt Pkwy./Bay Ridge Ave.	2.0
9. Belt Pkwy./Nostrand Ave.	4.8
10. Belt Pkwy./Rockaway Pkwy.	4.6
11. Farmers Blvd/Belt Pkwy.	2.6
12. Hempstead Ave./B.C.I.P.	5.7
13. Union Turnpike/B.C.I.P.	5.4
14. 103rd St. Ped. Br./F.D.R	2.4
15. Concourse Village Ave./M-N	7.1

16. Cortelyou Rd./NYCTA	1.2
17. Sixth Ave./Conrail	5.6
18. Eighth Ave./Conrail	4.8
19. Seventh Ave./NYCTA	2.1
20. W.37th St./Amtrak	3.0
21. To GWB-171st St./Riverside Dr.	4.3
22. Riverside Drive/W.138th St.	2.7
23. Grand Ave./Conrail	1.4
24. Cooper ave./71st Ave	1.1
25. Forest Park Dr./Myrtle Ave.	2.0
26. New Dorp Lane/S.I.R.T.	2.3
Total for 1999	<u>\$107.2</u>
Total for Years 1995-1999	\$383.8

APPENDIX C

NYS DOT Capital Expenditures from 1995-1999:

	(in millions of \$)				
	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>
Pavement- maintenance	17.9	10.1	10.1	34.9	58.4
State bridges	72.0	97.0	73.0	277.0	377.0
Pavement- rehabilitation	10.8	7.6	21.5	9.0	39.8
Totals	<u>\$100.7</u>	<u>\$114.7</u>	<u>\$104.6</u>	<u>\$320.9</u>	<u>\$475.2</u>

Five-Year Total: **\$1,116.1**

APPENDIX D

PANYNJ Capital Expenditures from 1995-1998:

	(in millions of \$)			
	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
<u>Kennedy Airport</u>				
Roadways	66.6	84.6	82.4	0.0
Southwest Restricted Service Rd	1.9	7.7	5.6	0.0
Aeronautical Capacity Improv.	6.4	3.8	0.0	0.0
Van Wyck Rehabilitation	3.4	4.4	0.0	0.0
Bulk Fuel Farm Paving & Drain.	2.0	0.0	0.0	0.0
Capital Maintenance Projects	16.0	10.0	11.1	11.6
<u>LaGuardia Airport</u>				
Runway 13-31 Overrun Area	14.3	18.6	0.0	0.0
Second Flyover-GCP to East End	2.3	22.0	30.6	0.0
Modify Roads West of CTB	.3	.9	8.6	0.0
Rehab of 102nd St. Bridge	0.0	3.5	0.0	0.0
Capital Maintenance Projects	12.4	12.9	13.4	14.0
<u>Newark Airport</u>				
Landside Access Phase 1A	4.5	12.6	23.5	0.0
Landside Access Phase 1B	0.0	1.3	1.9	8.5
Landside Access Phase II	0.0	.9	10.3	13.3
Paving to North Cargo facility	2.7	2.2	0.0	0.0
Capital Maintenance Projects	5.5	4.8	5.3	6.6
<u>Bayonne Bridge</u>				
Replace Sidewalk and Handrails	4.4	0.0	0.0	0.0
Capital Maintenance Projects	.7	1.4	2.0	2.7
<u>George Washington Bridge</u>				
Rehab of 2 Hudson St. Bridges	.7	0.0	0.0	0.0
Hudson River Ramps Rehab	2.7	2.8	0.0	0.0
Rehab of Lemoine Ave. Overpass	1.9	1.7	0.0	0.0

Capital Maintenance Projects	0.0	3.5	4.3	4.8
<u>Goethals Bridge</u>				
Restoration of Median and Deck	6.3	9.6	0.0	0.0
Full Depth Replacement of Rdwy	1.7	0.0	0.0	0.0
Capital Maintenance Projects	.2	1.4	2.0	2.7
<u>Holland Tunnel</u>				
14th St. Traffic Improvements	1.1	7.1	5.4	0.0
12th St. Traffic Improvements	3.5	0.0	0.0	0.0
Capital Maintenance Projects	0.0	3.0	4.2	4.7
<u>Lincoln Tunnel</u>				
South Tube Rehab	7.9	0.0	0.0	0.0
Toll Plaza Redevelopment	8.5	20.2	22.0	34.9
Center Tube Rehab	15.6	24.6	12.1	0.0
Rehab of Bus Ramp Roadways	1.7	9.9	11.0	0.0
Capital Maintenance Projects	.5	3.0	4.2	4.7
<u>Outerbridge Crossing</u>				
Restoration of Median and Deck	19.0	6.1	0.0	0.0
Replace Sidewalk and Handrails	.5	1.1	0.0	0.0
Capital Maintenance Projects	.2	1.4	2.0	2.7
<u>Bus Terminal</u>				
North Wing Bus Rdwy. Repairs	.7	0.0	0.0	0.0
Capital Maintenance Projects	.3	1.8	3.1	3.8
<u>Trans-Hudson</u>				
Capital Maintenance Projects	1.0	5.6	8.8	12.6
<u>Port Newark</u>				
Roadway Access & Improvements	3.8	4.2	.4	0.0
TOTALS	<u>\$221.2</u>	<u>\$298.6</u>	<u>\$274.2</u>	<u>\$127.6</u>

Four-Year Total: \$921.6

APPENDIX E

Parks Capital Expenditures from 1995-1999:

	(in millions of \$)				
	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>
Rehabilitation of Parks	<u>\$30.0</u>	<u>\$30.0</u>	<u>\$30.0</u>	<u>\$30.0</u>	<u>\$30.0</u>

Total from 1995-1999: \$150.0

APPENDIX F

Total Capital Expenditures from 1995-1999:

	(in millions of \$)				
	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>
NYC DOT	80.3	63.9	72.6	59.8	107.2
NYS DOT	100.7	114.7	104.6	320.9	475.2
PANYNJ	221.2	298.6	274.2	127.6	100.0*
Parks	30.0	30.0	30.0	30.0	30.0
Totals	<u>\$432.2</u>	<u>\$507.2</u>	<u>\$481.4</u>	<u>\$538.3</u>	<u>\$612.4</u>

FIVE-YEAR TOTAL: \$2,571.5

* estimated

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