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I am submitting herewith a thesis written by Howard Louis Perry, Jr. entitled "A Cooperative Approach By Developer and Community to Facilitate Siting a Contoversial Industrial Facility in a Rural Community." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science in Planning.

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We have read this thesis and recommend its acceptance:

Accepted for the Council:

Associate Vice Chancellor and
Dean of The Graduate School

A COOPERATIVE APPROACH BY DEVELOPER AND COMMUNITY TO FACILITATE SITING A CONTROVERSIAL INDUSTRIAL FACILITY IN A RURAL COMMUNITY

A Thesis Presented for the Master of Science Degree
The University of Tennessee, Knoxville

Howard Louis Perry, Jr.
May 1997

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DEDICATION

This thesis is dedicated to my parents Mr. Howard Louis Perry and Mrs. Rowena Puckett Perry who have given me continous love and support through this endeavor and have helped provide me an invaluable gift that can never be taken away--an education.

This thesis is also dedicated to the memory of my grandmother Doreen Melvin Perry and my grandfather Archie Boone Puckett.

ACKNOWLEDGMENTS

There are many people to whom I am grateful for helping me overcome this albatross. I am appreciative to my Thesis Committee, George Bowen, David Patterson, and James Spencer, who provided me support and encouragement. Each have different teaching styles, but are dedicated to the education of their students.

Thanks heaps to Katherine (Kate) Victoria Reeve. I love and miss you much. Finally I say to my brother Jonathan (Jay) Puckett Perry, our friends Joshua Dragan and Samuel Elkins, NOW I AM FINISHED!

ABSTRACT

This study discusses how conflict in the industrial siting process often occurs when the industrial developer does not incorporate community involvement into this process. Residents fear possible detrimental effects a proposed industrial facility may have on a community. Their fears are often based on qualitative risk perceptions. The developer usually favorably perceives his proposed industrial facility from a quantitative risk perspective. Most industrial sitings occur in a seller's market. When the developer tries to site a controversial industrial facility, the developer can better reconcile these differences in risk perceptions in the paradigm of a buyer's market. The developer is also encouraged to engage in a risk communications process with community residents early in the siting process where community concerns about a proposed industrial facility are addressed. Community acceptance of a controversial industrial facility is mainly contingent upon the developer's credibility and how well he addresses the community's risk perceptions or concerns. The two case studies in this paper demonstrate how an ineffective risk communication's process can hinder a developer's siting efforts, whereas an effective risk communication's process can help siting efforts.

PREFACE

The author of this study was interested in how an industrial developer can best persuade community residents to accept a proposed controversial industrial facility. When researching the case studies for this study, the author found one community receptive to the idea of a large industrial facility proposing to cover over a thousand acres. In another community, residents were not as receptive to a proposed industrial facility that would cover around fifteen to twenty acres.

From the author's perspective, logic dictated that the smaller the industrial facility, the more likely it would be accepted into the community. The research described in the following pages explores what factors often influence community residents to be more receptive to a proposed industrial facility.

Chapter One briefly mentions some of the factors that can contribute to siting conflict between a developer and community residents. What research methods were used to acquire the necessary data for this study are outlined. Key definitions are specified and limitations of this study are mentioned.

Chapter Two focuses specifically on how siting conflict is usually exacerbated through the traditional method of

siting industrial facilities. What type of oppositional tactics concerned residents may display against a developer and the main reasons why these techniques are used are assessed.

Chapter Three suggests a three section proposition on how an industrial developer can better encourage a community to be more conducive to a proposed controversial industrial siting. Theoretical and pragmatic means of reducing siting conflicts are discussed. The perspectives of how a developer and community residents view a proposed industrial siting are contrasted. A model of reducing siting conflict is also discussed.

Chapter Four is divided into two sections. Section one describes the comprehensive site selection process a well-financed developer (the seller) may initiate to find a candidate industrial site. Also described is how a developer with limited financial resources locates an industrial site. Section two provides a general background of rural communities (the buyer). Profiles of West Virginia and Tennessee, the settings for my two case studies, are provided.

Chapter Five discusses how a developer attempted to site a proposed composting/recycling facility in Fayette County, West Virginia, but failed to convince many community residents to accept the facility. The steps the developer

initiated to try and persuade community residents to accept the facility along with his shortcomings are discussed.

Chapter Six discusses how a developer attempted to acquire community acceptance for a proposed chemical plant in Loudon County, Tennessee. The proactive steps the developer initiated to help significantly reduce community tensions toward the proposed chemical plant are discussed.

Chapter Seven summarizes this study and concludes with some suggestions about how a developer can best site a controversial industrial facility in a rural community.

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CHAPTER 1

INTRODUCTION

Location, location, location, an old real estate adage, is an important determinant of property values. In most instances, the better the location, the greater the value. An industrial developer wanting to site an industrial facility may view a land parcel as valuable because it can provide the facility easy access to labor resources, customers, and public services such as water, sewage treatment, and electricity. Community residents may value the same land parcel for its intangible benefits. For example, the land parcel may be close to a river or mountains thereby providing aesthetic views and "peace of mind" for rural residents (McMahan, 1989).

These value differences can lead to conflict between rural residents and the developer when siting an industrial facility. The developer might want to establish an industrial facility on the site. Rural residents may, instead, want the property protected from development (O'Hare, 1991).

Besides these value differences, industrial siting conflict in rural areas can also be contingent upon characteristics of the potential host community and of the proposed industrial facility. For example, a rural

community with a high unemployment level might be more receptive to industrial facilities that promise employment opportunities for its residents (Berry, May 1995). However, other residents possessing high personal incomes and high educational levels may be reluctant to accept industrial facilities that threaten the community's quality of life (Dear, 1992).

Developers should be aware of rural community attitudes toward industry. Residents residing in an economically depressed rural community, who believe that industry is needed to help revitalize the local economy, may be more accepting of industrial facilities. A community that already possesses industry may also be receptive to proposed industrial facilities (Richards, 1992).

Facility size and type can influence community resistance. A proposed industrial facility covering many acres may stir more controversy than a facility covering only a few acres. A proposed chemical facility is likely to raise more concerns than a community hospital (Carnathan, 1996).

Rural community resistance toward an industrial facility may also be influenced by the amount of industrial facilities already located in the community, by the reputation of the developer, and the proposed facility's appearance. Rural residents are more likely to oppose a

proposed industrial facility if they believe their community is being saturated with industrial facilities. The developer has a better opportunity to site a facility if he has a positive reputation from past industrial sitings. Also, a physically attractive facility that blends well into the community has a better chance of being accepted (Dear, 1992).

A developer proposing to site an industrial facility in a rural community may also encounter resistance because residents are not interested in the proposed facility. A community that is willing to accept industrial development might be targeting specific types of industry. Targeting permits a community to choose those industries which would be most beneficial to its economy and not overburden local resources and public services (Phillips, 1990).

While siting conflict between a community and an industrial developer can result from those factors described above, this study discusses how siting conflict in rural areas often results from lack of community involvement in siting decisions. Community involvement allows residents the opportunity to express their concerns to the developer about a given project. Community involvement, however, during the siting process usually occurs during public hearings, which are generally held after the developer has unilaterally made

most siting decisions without input from the community (O'Hare, 1991).

When community residents are not allowed the chance to express their concerns about a proposed development project, they may display oppositional "Not in My Backyard" tactics (Dear, 1992). These tactics are usually the result of fears or negative risk perceptions that community residents may have about a proposed industrial facility (Holt, 1996). For example, community residents may fear pollution emissions from a proposed industrial facility. How the developer addresses these community concerns or risk perceptions is the subject of this study.

The proposition recommends that an industrial developer has a better opportunity to site a controversial industrial facility in a rural community by doing the following:

1. persuading the community to accept the proposed facility,
2. involving community residents during the early stages of the siting process,
3. engaging the developer and community residents in a risk communications process for the purpose of examining risks to the community.

Methodology

Data for this paper originated from literature covering the following areas:

1. industrial site selection;
2. "Not in My Backyard" or NIMBY syndrome;
3. locational conflict and conflict resolution;
4. public participation or community involvement;
5. sale's strategies;
6. risk communications;
7. interviews with community officials, concerned residents, company representatives, and industrial siting consultants; and
8. newspaper articles concerning the two case studies presented in this paper.

Definition of Terms

Part A provides a dictionary definition of the following terms (Webster, 1977). Part B shows how each term is applicable to this paper.

1. Industrial developer

A. A person who develops real estate.

B. An entrepreneur or a large corporation in the private sector that initiates an industrial project (Schmenner, 1982).

2. Industrial facility

A. Something that is built, installed, or established that engages in industrial production or service.

B. (1) A project that produces marketable goods and services, (2) employs local community residents, and (3)provides local tax revenues and subsidiary employment to a community's economy (So, 1988).

3. Controversy

A. A dispute or discussion marked by the expression of opposing views.

B. When a developer proposes to site an industrial facility in or near a rural community and some of its residents show their disapproval toward the developer by initiating oppositional or "Not in My Backyard" tactics. Such tactics are used to prevent or slow the developer from proceeding with the project siting (Dear, 1992).

Limitations of this Study

1. Both case studies in this paper occur in rural areas. How residents might react if both case studies occurred in urban areas is unclear.
2. The proposed industrial facility in each case study has not yet been sited.
3. Both case studies involve private-sector industrial

projects. In a majority of development project sitings, a private developer is not endowed with the legal authority of eminent domain or condemnation which the government or public sector possesses. That power is used mainly by federal and state governments and public service corporations to acquire land for public projects such as schools and hydroelectric power plants. Even though the government will financially compensate any land owner who has lost property through eminent domain, the land owner often has little recourse to prevent the government from proceeding with the eminent domain process (Rose, 1996). Community residents will often have more success in preventing the development of a private controversial facility than a government facility (Armstrong, 1996).

CHAPTER 2

THE PROBLEM

The Traditional Siting Method

Many times when an industrial developer wants to site an industrial facility in a community, citizen participation or community involvement in the siting process is not often encouraged by the developer.

Community involvement is tempered whenever a developer follows the traditional "decide-announce-defend" model for siting an industrial facility. In the first stage, the developer goes through a site selection process and decides on which site to build an industrial facility. During stage two, after the developer acquires the land parcel, his siting intentions are announced to the community. The developer then defends the chosen site as the only correct site for the facility.

Limited community involvement is the central theme that penetrates this conventional siting process. This process makes little accommodation for community concerns to be acknowledged. Residents often feel they have little influence in the facility siting because the developer is making most of the siting decisions.

Values and expectations between the developer and the community often clash as a result of this method. Unless the

proposed facility is detrimental to the community, the developer believes that his rights to site the facility should be upheld. Since the developer assumes the proposed facility will be beneficial to the community, he thinks that merely informing the community of his siting intentions is sufficient. He is perceived to be either insensitive to the needs of the community or does not want the community to become involved in siting decisions. Residents believe their rights to a clean environment and control of their community's destiny should have priority over the rights of the developer. Residents expect any developer who is proposing to locate an industrial facility in their community to fully disclose information about the type of industrial project under consideration as well as its potential impacts on the community (O'Hare, 1991).

Public Hearings

The public is usually brought into the siting process at public hearings when the developer applies for facility operating permits. These hearings are usually required by law and are intended to provide those residents who are affected by the proposed development project an opportunity to question the developer's proposed project.

The hearing process is often formal and public comments are recorded. Instead of informative dialogue between the

developer and the community, citizen testimony usually consists of statements for or against the proposed project. The hearing process often allows little opportunity for residents to interact with the developer (O'Hare, 1991).

This lack of interaction, which results in little or no input from the community, creates resentment on the part of many citizens because their concerns were not addressed at the hearing (Williams, 1983). Because community residents perceive themselves as having little influence in decisions regarding a proposed facility siting, some of them may initiate tactics to delay or stop the facility's permitting process (O'Hare, 1991).

Tactics may include attending zoning hearings and signing neighborhood petitions. For instance, if a proposed industrial project does not comply with the local zoning ordinance, the developer may have to seek a rezoning or a variance to comply with the zoning regulations. Facility opponents will protest to the zoning board asking them not to grant the variance or rezoning. Opponents may also try to gain political support by sending petitions around the community and lobbying elected officials to oppose the new industrial facility (Dear, 1992).

Another opposition technique utilized in delaying or stopping a proposed industrial project is the adjudicatory process. In this procedure, project opponents file a lawsuit

against the developer complaining that if the facility's technology is put into operation, environmental harm will come to the host community.

The developer may think he can prevail over project opponents in court, but may find the judge not competent to rule on the facility's technology. The judge may indeed rule in favor of the opposition and base the court's decision on inadequate opportunity to involve the public in the siting process and lack of honest disclosure to the public about any possible detrimental effects which the facility might have on the community (Lake, 1987).

Court battles can cost the developer precious time and money. Evidence indicates that facility opposition can push project costs up 20 to 35 percent for the developer while project opponents may incur little expense. (Yarzebinski, 1992). If opponents are able to delay the proposed project long enough, the developer may abandon the project altogether (Lake, 1987).

The Not In My Backyard Syndrome

When residents in a community initiate these and other oppositional tactics to a new industrial facility, they may be showing symptoms of the "Not in My Backyard" or NIMBY Syndrome. These residents often have a strong physical and psychological attachment to their community and they

perceive a new incoming industrial facility as an unwanted intrusion on their community landscape (Wedge, 1985). Residents displaying NIMBY believe they are content with the community's status quo (Yarzebinski, 1992).

The community can provide an individual with a "sense of ethnic, cultural, or purely social identity and psychic support." A community is usually characterized as having "strong homogeneity of values" with the function of drawing and keeping a boundary of "community values" intact. This boundary can distinguish between community members and strangers.

A community may value clean air and water and want the community's health and safety protected. Any stranger crossing this boundary, in this case the developer, is often viewed as being capable of interrupting and threatening these values (Brion, 1991). These values may be viewed by residents as being "non-negotiable" (Armour, 1983). Residents will insist the developer protect these values and not violate them without the community's consent (Simmons, 1985).

Community residents may also fear the proposed facility will bring certain "negative externalities" like aesthetic and physical degradation to the community's amenities. For example, a proposed industrial facility may bring to the community unwanted noise, pollution, increased traffic, and

the fear of lower property values for surrounding landowners (Popper, 1985).

A NIMBY can encompass many types of land uses such as landfills and chemical facilities. Even though many residents acknowledge that these types of land uses are needed, they don't want them "in their backyard" or close to where they reside (Dear, 1992). Some NIMBY protestors have argued that they are less concerned about a proposed facility's technology than about its location (Freudenburg, 1992).

NIMBY activism often transpires in local opposition groups. These groups originate when they perceive their community as being threatened by an incoming NIMBY (Sagoff, 1985). These NIMBY groups often distrust the developer. Their fear is that the developer might only be concerned about profits and fail to address the environmental concerns which residents actually have (Collins, 1985).

These NIMBY groups usually disappear when the NIMBY disappears or when their concerns have been addressed by the developer (Sagoff, 1985). Over the years, these "grass-roots" opposition groups have proliferated. In 1970 there were around 200 of these groups. Estimates today put that figure around 18,000 (Richards, 1992).

According to a national survey, individuals composing NIMBY groups tend to have high incomes, are well-educated,

hold professional jobs, are married, are homeowners, and often live in the suburbs. This survey also suggests income to be the best indicator of opposition with the more affluent not as receptive to a NIMBY (Dear, 1992).

NIMBY activism can produce positive results. The developer can become more aware of concerns the community may have about the proposed facility. The community can also encourage the developer to add improvements to the proposed facility making it more acceptable to community residents (Dear, 1992).

However, NIMBY opposition has been effective in reducing the construction of needed land uses. For instance, NIMBY has kept such projects as jails, oil refineries, and low income housing from being constructed in communities. Without these land uses, this country's dependence on foreign oil may increase, the poor may become homeless, and convicted criminals may go free (Popper, 1985).

Michael Dear shows which types of facilities may be more acceptable to a community (Dear, 1992).

Hierarchy of Acceptance

Most Welcome	School Day Care Center
	Nursing Home
	Hospital
	Medical Clinic
Mixed Review	Group Home (Mentally Retarded)
	Homeless Shelter
	Alcohol Rehabilitation Center

Mixed Review(continued)	Drug Treatment Center
	Chronic Mentally Ill Facility
Absolutely Unwelcome	Shopping Mall
	Group Home (AIDS Patients)
	Factory
	Garbage Landfill
	Prison

Research indicates more acceptance for some land uses than for others. In 1980 the Council on Environmental Quality conducted a national poll showing land uses which people were more willing to live close to. Figure 1 shows the result of this poll.

This figure shows that only about 12 percent of the U.S. population would voluntarily live one mile or less from a nuclear power plant or hazardous waste facility. These two facilities had a majority acceptance of 51 percent when their distance from those surveyed passed 100 miles.

Only about 25 percent of the respondents were willing to live one mile or less from a coal fired facility or large factory. Sixty percent of the people were willing to live one mile or less from a ten story office building (Popper, 1985).

Why individuals tend to be more accepting and prefer to live closer to some land uses than others might be contingent upon how community residents perceive the risks each land use poses to them. Unless a community is targeting or prefers certain types of land uses, residents often shy

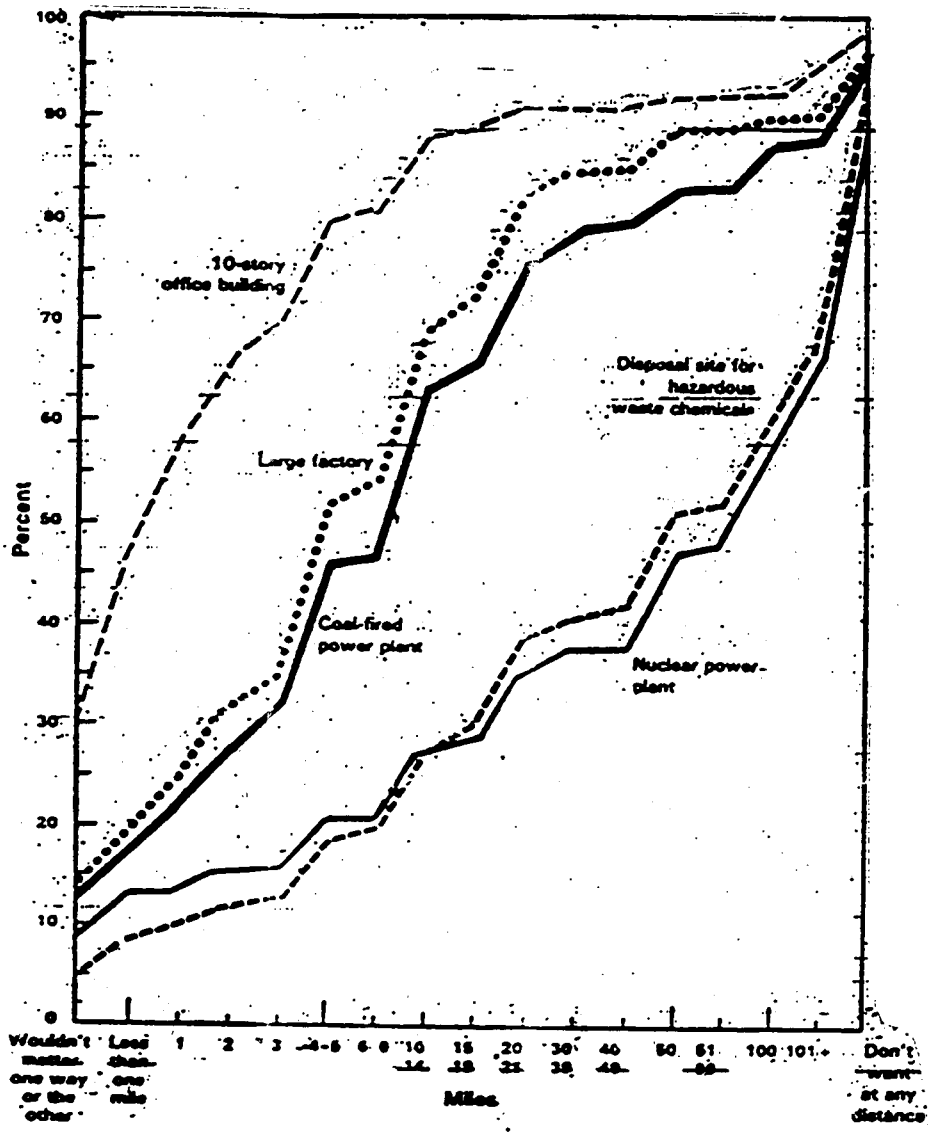


Figure 1: Cumulative percentage of people willing to accept new industrial installations at various distances from their homes

Source: Popper, Frank J. "The Environmentalist and the LULU." Environment. Vol. 27 No.2 March 1985:7

away from living next to land uses which they perceive as posing significant risks to their health and safety.

A study was conducted to see how close individuals were willing to live or work near certain industrial facilities. Those groups surveyed were chosen because of their interests in risks associated with industrial facilities.

Table 1 shows the six groups which were surveyed. Those individuals in these groups were asked if they were willing to work or live within ten miles of certain industrial facilities.

As Table 1 indicates, natural gas power plants scored the highest percentage in terms of those groups willing to work or live close to them. A nuclear waste disposal facility had the lowest percentage of groups willing to work or live next to it.

The study further suggests that those facilities in which respondents were more willing to work or reside closer to were considered low risk facilities. These facilities were considered to be less threatening to workers and nearby residents because the facility's risks were thought to be "common, well-known, and preventable." Respondents believed any accidents that might occur would be "non-catastrophic" and deaths over the operating life of the facility would be minor.

In contrast, those facilities perceived to be high risk were believed to have "less well-known and less preventable risks". Any accidents occurring were thought to be

Table 1: Percentage of Respondents in 1980 Survey Willing to Live or Work Within Ten Miles of Facility, by Group and Facility

Facility	Group		
	Environ-mentalists	Urban residents	Hazardous Facility communities
Natural gas power plants	73.0	67.5	79.1
Oil power plant	65.8	56.4	68.0
Coal power plant	46.5	55.9	68.2
Oil refinery	48.3	45.9	54.9
Liquified natural gas storage area	33.8	46.4	53.6
Nuclear power plant	15.2	21.5	35.4
Toxic chemical disposal facility	24.4	24.1	27.8
Nuclear waste disposal facility	14.0	14.7	18.6
Facility mean	40.1	41.6	50.7

Table 1: (Continued)

Facility	Group: Science writers	Nuclear engineers	Chemical engineers	Total
Natural gas power plants	83.7	85.7	100.0	78.3
Oil power plant	71.1	66.7	91.7	67.3
Coal power plant	57.9	47.6	83.5	59.1
Oil refinery	49.9	40.5	77.8	51.7
Liquified natural gas storage area	49.9	52.4	72.3	49.0
Nuclear power plant	31.6	88.1	61.1	35.5
Toxic chemical disposal facility	39.4	23.8	55.5	29.5
Nuclear waste disposal facility	32.4	59.6	47.3	25.1
Facility mean	52.0	58.1	73.7	49.4

Source: Lindell, Michael K. and Timothy C. Earle. "How Close is Close Enough:Public Perceptions of the Risks of Industrial Facilities." Risk Analysis. Vol 3, No.4, 1983:245

catastrophic in potential and possibly cause many deaths over the facility's operating life. Overall, this study indicates that controllability over risk exposure can be a crucial factor in creating opposition to siting an industrial facility (Lindell, 1983).

If given the choice, many residents probably prefer to distance themselves from industrial facilities. However, an Austrian study found that some respondents residing (500 meters) close to a nuclear reactor believed the risks hazards from the facility were low. Those residents surveyed living farther away (10 kilometers) from the facility also perceived the facility's risks to be low. This study indicated that most of the respondents were living in the study area before the nuclear reactor was constructed.

Cognitive dissonance theory is believed to explain why those residents living close to the facility thought the risks were low. This theory supports the idea that individuals living near an industrial facility may find it easier to change their mental attitude toward a facility (oppositional to acceptance) than changing their places of residence (Maderthaner, 1978).

Definition of Risk

Risk can be defined as a chance of harm or loss or the possibility that an unwanted consequence may occur from an

event. Human beings wish to avoid or minimize their exposure to risks (Webster, 1977; Rowe, 1977). While they would prefer to live in a "zero-risk society", the reality is that risks have become a part of our daily lives (Cutter, 1993).

At times when individuals are unable to avoid risks, they try to ignore the risks by mentally blanking them "out of sight, out of mind" (Rowe, 1977). Some risks like tornadoes, hurricanes, and earthquakes are beyond the control of persons and are treated as acts of God (Rowe, 1977). Modern technology, in spite of its many benefits to mankind, also has risk factors. On the positive side, technology has brought about improvements in our standard of living as evidenced by more and better food, clothing, shelter, medical care, greater income and more leisure time. On the negative side modern technology has brought with it new risks. An example of this is a chemical plant that uses chemicals to produce wanted consumer products, but may pose a threat to the health and safety of a community (National, 1989).

According to the studies mentioned above, facility acceptance is often contingent upon how people assess the risks a facility poses.

Risk Assessment

Defined, risk assessment "provides an orderly, explicit, and consistent way to deal with scientific issues in evaluating whether a hazard exists and what the magnitude of the hazard may be" (North, 1987). A company or developer may be tempted to have a risk assessment done for community residents in an attempt to persuade them on how safe a proposed facility might be. Such an assessment usually just analyzes technical issues and is often performed by technical experts within the company (Kates, 1977).

When the assessment is completed, results can be in quantitative form such as the number of lives lost per year from industrial accidents or reduction in life expectancy from chemical accidents. Even though this assessment may show the threat of a risk to human life to be statistically minimal, predicting the types of risks a proposed industrial facility will pose to a community is difficult.

If the proposed facility is a chemical plant and community residents fear the plant's emissions will pose risks, experts may have a hard time trying to understand what effects the plant's emissions will have on community residents. While scientists have learned that some industrial chemicals are toxic, there are some chemicals

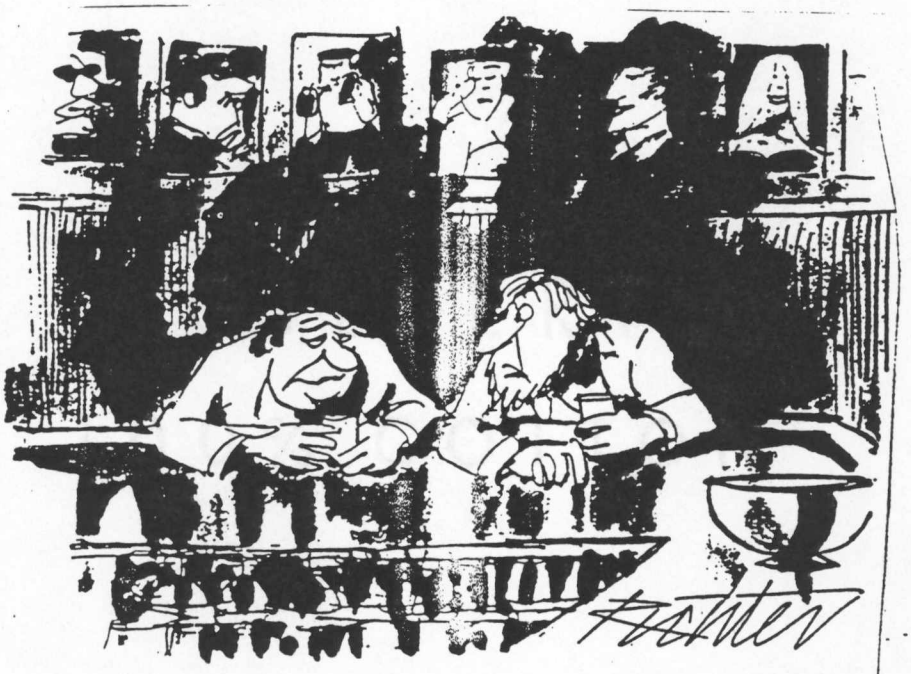
which are being produced or used that have unknown effects on people.

If experts are to have a better understanding about which chemicals pose a serious threat to the community, there must be an understanding of the physical, chemical, and biological attributes of each chemical. In short, learning all that might be needed to learn about a chemical substance can be difficult (National, 1989).

For one, gathering data on a chemical substance can be difficult, especially when a substance can be diffused in the air and waterways and undergo physical and chemical changes transforming them into other possibly less hazardous substances. A substance released into the environment at the source is often different in quantity from when people are ultimately exposed. Secondly, one of the best ways for experts to estimate the risk of a chemical is to examine the total amount of time people have been exposed to the chemical. Unlike automobiles, the experience needed to calculate risks from chemical exposure is often lacking. Since there are many chemicals that are being produced, analyzing exposure time is often insufficient because not enough time has transpired to analyze risk. Even when a chemical has been produced for many years and a person blames the chemical for an illness, it is often difficult to

tell whether the sickness was attributed to that chemical or another cause.

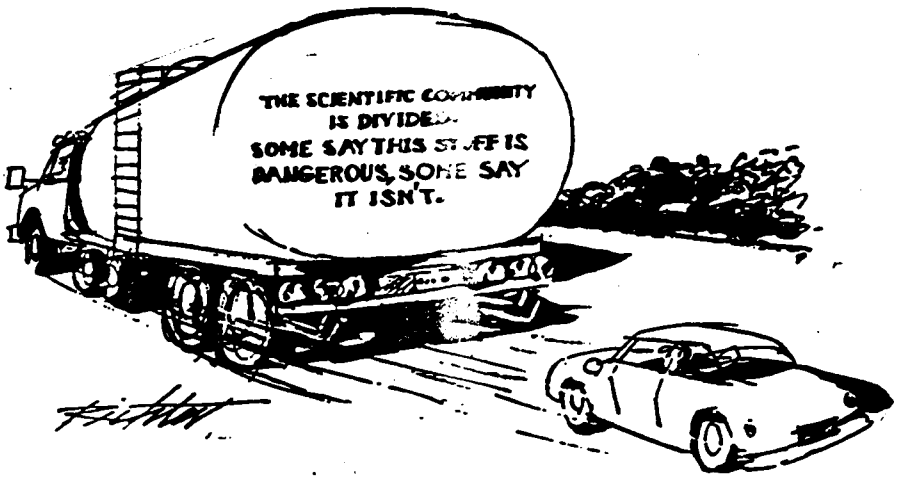
Thirdly, when dealing with chemicals, it is often hard to connect effects to causes especially when a chemical has



"Then we've agreed that all the evidence isn't in, and that even if all the evidence were in, it still wouldn't be definitive."

Source: National Research Council. Improving Risk Communications. Washington, D.C.: National Academy Press. 1989.

potential hazardous side effects that are delayed like cancer and birth defects. These abnormalities may not turn up until later even after years of exposure (National, 1989).



Source: National Research Council. Improving Risk Communications. Washington, D.C.: National Academy Press. 1989.

Risk Perception

Community residents perceive risks in different ways than experts perceive them. Cutter defines risk perception as an individual trying to make sense of outside stimuli (risks) based on personal experiences, values, and beliefs (Cutter, 1993). Community residents or lay people tend to rely on their backlog of personal experiences to form subjective opinions about risks. Scientists, on the other hand, rely on measurable quantitative data which are exposed to statistical treatment and can be replicated by other scientists in order to arrive at conclusions about risk factors (National, 1989).

The layman is often fascinated by catastrophes that happen to other people. Large events like a plane crash that kill many people often get more news coverage and viewer interest than someone dying of a disease. This type of media coverage tends to distort people's views about risks. The fact of the matter is that more deaths occur from diseases than from plane crashes (National, 1989; Rowe, 1977; Kates, 1977).

This type of subjective measurement that dominates the thinking of many individuals has drawbacks. People have a tendency to be overconfident and underestimate risks that are familiar like driving an automobile or smoking cigarettes (Cutter, 1993).

The risks associated with airplane crashes are usually overestimated by the public due to media hype given to major airplane catastrophes. Risks like cancer killing one person at a time are usually underestimated (Kates, 1977).

Individuals are also poor judges of risk frequency. For instance, they tend to overestimate the frequency of rare events like nuclear power plant accidents. However, they often underestimate the frequency of more high probability events like lightning strikes (Cutter, 1993).

Table 2 lists some qualitative factors that can affect risk perceptions.

Table 2: Qualitative Factors Affecting Risk Perceptions and Evaluation

Factors	Conditions Associated with Increased Public Concern	Conditions Associated with Decreased Public Concerns
Catastrophic potential	Fatalities and injuries grouped in time and space	Fatalities and injuries scattered and random
Familiarity	Unfamiliar	Familiar
Understanding	Mechanisms of process not understood	Mechanisms or process understood
Personal controllability	Uncontrollable	Controllable
Voluntariness of exposure	Involuntary	Voluntary
Effects on children	Children specifically at risk	Children not specifically at risk
Effects manifestation	Delayed effects	Immediate effects

Table 2:(continued)

Factors	Conditions Associated with Increased Public Concern	Conditions Associated with Decreased Public Concerns
Accident history	Major and sometimes minor accidents	No major or minor accidents
Equity	Inequitable distribution of risks and benefits	Equitable distribution of risks and benefits
Benefits	Unclear benefits	Clear benefits
Reversibility	Effects irreversible	Effects reversible
Origin	Caused by human action or failures	Caused by acts of nature or God

Source: National Research Council.Improving Risk Communications. Washington,D.C.: National Academy Press.1989.

The developer needs to acknowledge that these factors are often perceived by the community as being real. For the public, perception is reality. Not addressing qualitative or perceived risks tend to lead to public outrage against the developer. Any possible conflict during the siting process may be attributed to the gap between what the community perceives as real risks and what the developer perceives as real risks (Holt, 1996).

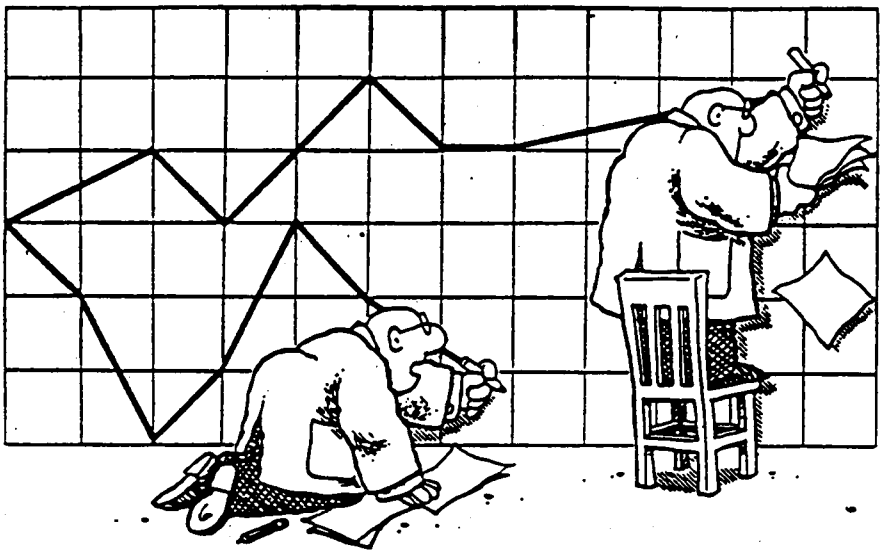
Subjectivity of Risk

Whether risk assessments are made by scientists or laypersons, both sides must contend with human "subjectivity". For laypersons, subjectivity usually results from a person's own experiences. For scientists, subjectivity enters into defining the research questions and developing the experiments to measure risk (Lowrance, 1980).

For instance, scientists may use different values or summary statistics when measuring the magnitude of a risk. Choosing one measure over another can make a technology more or less risky (National, 1989). Therefore, individuals should not be surprised when scientists disagree among themselves or when the general public views a risk differently than the experts (Lowrance, 1980).

The developer will find it important to understand the differences between how he and laypeople gather and analyze

information relating to risk factors. This is crucial if he is to effectively convince and persuade the community that the benefits of locating his particular industrial facility on the chosen site outweighs any potential risks of hazard to the community. How these different perspectives on risk might be reconciled is the subject of this paper's proposition.



Source: National Research Council. Improving Risk Communications. Washington, D.C.: National Academy Press. 1989.

CHAPTER 3

THE PROPOSITION

This paper's proposition recommends that an industrial developer has a better opportunity to successfully site a controversial industrial facility in a rural community by

1. persuading the community that it is in their interest to accept the proposed facility,
2. involving community residents in the early stages of the siting process, and
3. engaging concerned community residents in a communications process to examine risks to the community.

Section 1: Persuading the community that it is in their best interest to accept the proposed facility

There are two types of markets, a seller's market and a buyer's market. In a seller's market there are more buyers than sellers. There is also a high market demand for a product, but the product is in limited supply. If the customer finds the product highly desirable, any delay in purchasing may prove unwise because the customer has little bargaining power. In a buyer's market, there are more sellers than buyers. There is usually an adequate supply of the product so the seller tries to create customer demand for the product. The customer has more bargaining power and

can usually delay purchasing the product with little repercussions (Kennedy, 1990; Phillips, 1990).

When siting industrial facilities, the developer is working in one of the two markets above. In most industrial sitings, the developer is working in a seller's market where there are more buyers (communities) than sellers (developers). The product (the industrial facility) is in high demand. The community tries to sell itself to the developer by advocating that it can provide the best industrial site (Phillips, 1990). For example, there are only about 750 industrial locations in the United States each year. However, there are thousands of economic development organizations in communities across this nation seeking to recruit industrial prospects (Carnathan, 1996).

A developer may find it difficult to site a controversial industrial facility in a rural community because of size, product, perceived risks, and other factors. Although most industrial sitings occur in a seller's market, the developer may find one or more potential host communities to site the facility through a site selection process. This process is discussed in Chapter 4, Section 1 of this paper. When dealing with a controversial industrial facility, however, those communities chosen through the site selection process may not automatically accept the facility because of fear of

possible negative impacts on the local community. Therefore, the developer may need to change his selling strategy in order to persuade the rural community to accept the proposed facility through the paradigm of a buyer's market.

In the buyer's market approach the developer becomes the seller, the community the buyer, and the industrial facility the product. Explained below are the five basic steps described by Hopkins in the selling process: prospecting, customer contact, qualification, presentation and addressing concerns, and closing the sale. This process is presented below in part A and explained how it relates to industrial sitings in part B.

1. Prospecting:

A. A notorious expression about selling is: "Find a need and then fill it." To further elaborate, find a buyer with a problem and solve his problem with the offered product or service. Prospecting is the activity of locating a potential buyer for the seller's product. Prospecting is done in a variety of ways including, but not limited to, reviewing manufacturer's customer lists, cold canvassing, contests, directories of mailing lists, observation, trade shows, and personal acquaintances. The buyer and seller obtain a "win-win relationship" whenever the buyer gets the

desired product and the seller's business grows and prospers (Hopkins, 1995).

The seller understands that every product the buyer possesses has a limited lifespan. The seller's role is to find out what the potential buyer has and predict what buying decisions the customer will want to make. The seller starts off getting most prospects through acquaintances (Hopkins, 1995).

B. The developer desires to make a profit either by expanding existing operations or establishing new operations. The developer seeks out potential host communities through the site selection process or locates operations in a familiar environment (Schmenner, 1982; Dean 1972). The developer should try to persuade the community's residents that they need the proposed facility to improve upon the status quo. The potential host community may view the proposed facility as a way to improve the status quo as well as a way to fill a community need (Kunreuther, 1993).

2. Customer contact:

A. Once a potential buyer is located, the next step is to meet with him. Face-to-face contact with the buyer allows the seller to eliminate the buyer as a prospect or go forward with the selling process. This approach either

reinforces or changes preconceived negative images the buyer and seller have of each other.

B. Contact occurs when the developer or a liaison meets with the community's economic developer or community officials to inquire about whether the community would accept an industrial facility (Schmenner, 1982).

3. Qualification:

A. The next step in the selling cycle is to determine whether or not the buyer needs the product and can afford it. The seller should be knowledgeable about the company he represents, the competition, and the potential buyer (Hopkins, 1995).

B. The developer provides information to the community showing that one, he has experience at building the proposed facility and second, that he has a product that can satisfy the community's need.

4. Product Presentation and Addressing Concerns About the Product

A. To improve the chances of making a sale it is important to make an effective sales presentation. The presentation should guide the prospect logically through the stages of attention, interest, desire, conviction, and finally persuasion to take action. Successful presentations

require effective communication skills that actively involve the prospect.

When selling a product, the seller should attempt to develop an emotional involvement between the buyer and the product. The seller can get the buyer's "senses involved" in several ways. First, buyer involvement can occur by having the customer picture the product's benefits in his mind. The seller can use language that generates for the buyer positive or negative images. Second, in the buyer's mind, "seeing is believing." Visual aids and product demonstrations help the seller to convince the buyer that the product is worth the money and will solve the customer's problem.

Third, the most effective way to sell a product is "face to face" at the buyer's place of social interaction like his home or neighborhood. There the buyer and seller can establish a positive "rapport" by bringing out common values which they share. The goal of social interaction is to get the buyer to trust the seller and involve the buyer in the decision making process (Hopkins, 1995).

The buyer may have an interest in the product the seller is introducing to them, but may be unclear about the product's benefits. The buyer may have fears about possessing the product. The seller must help the buyer

overcome these fears so that a transaction can occur. Buyers' fears may include the following:

*the product may cause uncertain change in the customers' lives,

*being lied to about product benefits,

*lack of product understanding, or

*knowing other individuals who have had negative experiences with the product or a similar product

A seller can overcome these fears and earn a buyer's trust in several ways. First, when the potential buyer starts making objections, the seller needs to provide more information to the buyer so a more objective decision can be made.

Second, the seller needs to acknowledge and address the concerns raised by the potential buyer. Ignoring objections can lead to concerns being "blown out of proportion." Third, if a customer raises objections to a product because of negative experiences which others have had with it, the seller should admit to past product mistakes. Fourth, the seller can get letters of testimony from past satisfied buyers. People believe more of what they see than what they hear (Hopkins, 1995).

B. Face to face meetings, visual aids, and tours of the industrial facilities like those which are proposed can be

effective procedures for the developer to alleviate risk concerns of the community and to persuade the community to take action (Holt, 1996).

5. Closing the Sale:

A. After an effective presentation which has established value in the product, confidence in the seller, conviction that the price is reasonable and affordable, and objections have been overcome, the seller should ask for the order (Hopkins, 1995).

B. Has the developer earned the confidence and trust of local residents to site an industrial facility in the community?

Section 2: Involve community residents in the early stages of the siting process

Community involvement or citizen participation is the basic element of our democracy. The U.S. Constitution's First Amendment provides to citizens the right to participate in government by allowing the right to free speech, the right to peaceful assembly, and the right to petition the government for redress of grievances (Microsoft, 1994).

In government, participation is a way in which the dignity and worth of the individual is declared while maintaining consent of the governed. Participation is "a

means by which citizens' desires and needs are communicated to public officials to influence the direction of public policy" (Booher, 1974).

Citizen participation is usually mandated during the siting process when a public hearing is held to determine whether the developer should be granted operating permits. Any other encouragement of citizen participation done before the hearing process is usually done at the developer's discretion (O'Hare, 1991). The developer encouraging early participation in the siting process allows community residents to be viewed as a valuable source of information and experience when it comes to solving community problems (Booher, 1974).

In spite of efforts by the developer to encourage public participation, some people do not become involved in the siting process for various reasons. Among those reasons are (1) some individuals may feel their view is being adequately represented by another party, such as a public official or a leader from a concerned interest group; (2) people selectively choose which activities in which they wish to participate especially those activities which directly affect them; (3) some individuals are not aware of the proposed project or its potential impacts; and (4) some individuals are apathetic toward citizen participation because they think their involvement might be futile since

they believe that siting decisions have been finalized (Creighton, 1980).

Need for Early Community Involvement

When a developer proposes to site an industrial project in a rural community, conflict may occur between the developer and community residents. While the developer is mainly concerned about establishing an industrial facility that will operate successfully, community residents become concerned about possible negative impacts the facility may have on the community. Early community involvement allows the developer and the community to identify and deal with problems and concerns. For example, the community might gain a better understanding of how the developer acquires a site through the industrial site selection process. The developer might learn to better understand the concerns of the community residents regarding the proposed facility. If concerned residents go through the same thought processes as the developer and the developer acknowledges those issues which the community believes are important, then the public should be more likely to understand and accept the legitimacy of the siting outcome. Most community residents consider a siting process fair and acceptable when it seeks public inclusion to address community concerns (Armstrong, 1994). However, public inclusion does not have to compromise the decisions the developer makes about siting a facility.

Nor does it mean the developer has to comply with the public's "unrealistic demands". Public involvement simply gives the public a voice in the developer's decisions. The developer listens to public concerns before any decisions are made. The public often has no vote in the developer's decisions (Holt, 1996).

This method of community involvement is a form of "collaboration" in which the developer collects information from concerned residents and determines whether or not the information will be useful in the final decision. Further, the developer makes the final decision to proceed or cancel a proposed project (Yarzebinski, 1992).

Tony Katz, an executive vice president from the Rowland Company, a communications and public relations firm, supports this contention saying this method allows community residents to be heard while the developer still maintains control of the siting process (Katz, 1994).

The developer may find trying to get community consensus for project acceptance to be very time consuming and often occurs only by "stroking egos" rather than by choosing a specific course of action. Forming a consensus often means that everyone agrees on some "common denominator" and that the original siting issue which caused much controversy got "swept under the rug" only to resurface later (Yarzebinski, 1992).

The objective, therefore, should not be "majority support, consensus, wide agreement" or even approval from the community. The developer should not even ask citizens "is this (proposed project) ok?" Rather, his objective should be to allow opponents the opportunity to state their feelings about a project and encourage them to go along with the proposed project (Katz, 1994).

Theories on How Early Public Involvement Should Occur

One theory suggests that the developer plan a participation process before the siting process begins. Advanced planning should consider why participation is desirable, which persons should participate, and how it can be made most effective. Concerned residents are encouraged to form a citizen's advisory committee early in the siting process and participate in siting decisions. This committee should be comprised of selected citizens who represent various community interests. This committee's function would be to examine the most important siting factors layed out by the developer during the site selection process and then recommend to the developer the committee's preferred site or sites (Williams, 1983).

While public notification about a proposed facility usually occurs during the public hearing process, Lake recommends that residents have the opportunity to influence siting decisions before the public hearing, but

immediately after the developer has chosen one or more potential sites from the site selection process. Having involvement at this early stage of the proposal provides a "barometer" for both the developer and community on the likely impact of the project on the community. This information may provide direction to both parties concerning the merits of proceeding or abandoning the proposed project (Lake, 1987).

Reality of Public Involvement in the Siting Process

Ralph Carnathan, from the Knoxville, Tennessee, site consulting firm Lockwood Greene, says public notification about a proposed industrial facility depends on project size, type of impacts, and potential problems and benefits it can bring to a community. In many siting cases in which companies sought to acquire ten to twenty acres in an industrial park, the public process usually came after the developer had decided on the specific community where the proposed facility should be located.

If a company wants to site a large industrial facility such as a chemical plant covering several hundred acres in or near a community, the developer should attempt to acquire community approval for the project earlier in the siting process. Before the developer even announces a large facility siting proposal to a community, he should try to work "behind the scenes" with community officials to

understand and alleviate any problems which might be raised by the community. The developer should then announce to the community his intentions and address their concerns (Carnathan, 1996).

Schmenner suggests that the developer, usually working under a confidentiality agreement with community officials, will notify the public only after an option is put into place. According to Rhonda Rice from the Knoxville Chamber of Commerce, the public's involvement in the siting process usually comes after community officials allow the developer to establish facility operations in the community. Rice also says an incoming industry wants to have a high level of confidentiality about its siting intentions. Incorporating the public into the process too soon can possibly cause unnecessary community tensions to increase, therefore causing, in effect, a "hornet's nest" of community hostility to erupt (Rice, 1995).

An Economic Development Dilemma

The appropriate time to notify community residents of a proposed industrial project is a dilemma which many developers and community officials share and is contingent upon two perspectives.

A. Developer's Perspective

A developer will not locate in a community unless he thinks he can make a profit. If a community is found where

the developer believes industrial operations can be successful, he will often meet with community leaders under a fake personal and company name. This practice keeps the developer and the company he represents from being identified by community residents. For the developer, having anonymity during the siting phase can reduce the following: escalation in land values, competition from other communities in attracting industrial projects, and unwanted political pressure.

Increase in Land Values

Industrial property is often more valuable than residential property. If a community is aware that a developer is interested in acquiring land in the community to build an industrial facility, some residents might be willing to sell their property to the developer, but at a premium cost.

A developer being covert from the general public has a better chance to negotiate and purchase property at market value from a few land owners, which prevents him from being financially "taken to the cleaners" (Berry, 1996).

Fear of Unwanted Competition

A developer may be part of a company that can offer high wages and tax benefits for a community. If a developer is interested in one specific community and is not clandestine about siting decisions, the developer may be

inundated by siting requests from other interested communities. These siting inquiries may be communities which the developer did not consider at all during the site selection process. If this situation arose, the developer could lose control of the siting process. Most companies have neither the time nor the willness to spend the money to analyze all community siting requests (Berry, 1996).

Community competition for industrial projects can be beneficial to the developer. For instance, the developer might try to use his confidentiality status to gain leverage in finding an appropriate community. If the siting process reveals two or three potential industrial sites, the developer will approach each community and try to negotiate a siting agreement. Supposedly, these communities are unaware of what other communities are competing for the same industrial project. Whichever community offers the developer the best siting deal will usually receive the industrial project (Carnathan, 1996).

Unwanted Political Pressure

Keeping an industrial project secret can help reduce the political pressures from outside politicians who might try to influence the siting process. A large industrial facility might have the potential to cause an area's economy to boom. A prominent politician from another community or state might represent an area with a sluggish economy. In

that case, the developer may be politically pressured to locate the industrial facility in the area where that politician's constituency resides. Again, this scenario can complicate the siting process because the developer may feel obliged to analyze these other potential industrial sites which might not have been originally considered during the site selection process (Patterson, 1995).

B. Community's Perspective

When the developer starts to seriously consider locating in a community, its residents would like to know immediately who the company is and what its operations will be. Community residents want assurances from the developer that local environmental, social, and economic issues will be addressed (Armstrong, 1996).

Since the siting process occurs mostly in a "seller's market," the developer controls most of the siting decisions and dictates when the public should be brought into the siting process (Carnathan, 1996).

Even those community officials who are knowledgeable about the developer's intentions often can not inform their constituents about the proposed industrial project. These officials are usually constrained by a confidential agreement that would guarantee the developers anonymity until the developer decides when the appropriate time is to announce his intentions (Carnathan, 1996). "It is an ethic

in economic development that (community leaders) maintain (the developer's) confidentiality" (Berry, Oct,1995).

For community officials, maintaining the developer's confidentiality is often crucial for bringing in local economic development projects. If the company's identity unintentionally becomes known, the developer may leave and find another community to locate. Community officials, especially economic developers, are "judged" by how many jobs they can bring to the community and not by how well the community is informed about proposed economic development projects (Carnathan, 1996).

Removing the Secrecy Mask

Sooner or later, the developer will have to notify the community about the proposed industrial siting project. Doing so will allow the developer to assess community reaction toward the proposed project.

Every developer wants to be accepted by a community. "No industrial (developer) wants to come into a community that doesn't want him. The (developer) feels an obligation to come in and be a good corporate citizen. The company has nothing to gain if the community doesn't want them. A community that doesn't want a (developer) will drive them off" (Carnathan, 1996).

A company would be foolish if it was adamant about locating in a community even if the community's citizens do

not want it there. A company would spend much time and financial resources trying to earn corporate trust and credibility with the community. "No company is going to risk their reputation and credibility to go into a community where they were not wanted" (Armstrong, 1996).

Section 3: Have the industrial developer engage in a risk communications process with concerned community residents

The developer is encouraged to engage in a risk communications process with concerned community residents early in the siting process to help reduce the gap between real and perceived risks. Holt, Covello, and Wojtecki say this about public inclusion in risk decisions.

> "Often the degree of distortion found in public perceptions of risk correlates to the level of public inclusion in, or exclusion from, the decisions that created the risk. Experience shows that public inclusion in the decision processes (or siting processes) associated with risks reduces many of the factors that lead to exaggerated risk perceptions."

Table 2 presented factors such as personal control or voluntary acceptance which can influence public risk perceptions. Holt stresses the more control and the higher the volunteer acceptance the public has with a risk, the lower the level of risk perception. Research indicates that

before decisions are made, in this case by the developer, having open dialogue with the community about risks can increase both community control and facility acceptance (Holt, 1996).

Successful risk communication programs create open dialogue where issues are discussed. Dialogue means "two-way communication" where community residents are informed and have a major voice in risk decisions. Dialogue between two people or among small groups is the most powerful communication form. For instance, when the developer and community residents interact with each other, perceptions of each other are usually confirmed or challenged (Holt, 1996).

By involving concerned residents in the decision making process and allowing them to express their fears about potential risks, the developer builds trust and support which enable him to effectively alleviate their fears. When the developer does not deal with the emotion behind the project's risks, concerned citizens perceive they are being ignored and community opposition tends to become a "set stone position" (Katz, 1994).

Risk Communications

Risk communications is "the exchange of information among interested parties about the nature, magnitude, significance, or control of a risk." The goal for the developer when initiating risk communications is to increase

public trust in him and reduce unfounded concerns a community may have about risks (Holt, 1996).

The public has developed a distrust for developers for two basic reasons. One is the perceived risks that industrial operations have posed to the public and to the environment. Second is the developer has been perceived as not being open to discuss risks with the public (Holt, 1996). The public may be justified in remaining skeptical about putting their trust in industrial developers. With more Americans becoming better educated, more affluent, and having longer life spans, they insist on reducing their risks from accidents and diseases. Americans have become more concerned about protecting the environment, their health, and safety (Kasperson, 1992). Even though some developers have spent much time and money trying to operate a plant that's "environmentally friendly," the public tends to remember industry's failures more than its successes. For instance, industry has had its share of environmental abuses such as the Exxon Valdez oil spill in Alaska, the Union Carbide chemical leak in Bhopal, India, and the many Superfund hazardous waste sites across this nation (Hance, 1980).

The developer and the community have each blamed the other for breakdowns in risk communications. The developer has argued that the community does not perceive and evaluate

risk information correctly. The community has argued that the developer shows little concern and is not helpful when trying to resolve straight forward environmental problems (Holt, 1996).

While Table 2 shows some of the factors affecting risk perceptions, the most powerful influence in risk perception is the truth and credibility of the source disseminating risk information (Holt, 1996). Scientific risk assessment has the least impact on risk perceptions.

While the concept of trust has been identified as being important to social interactions, it has rarely been well defined. The author found one such definition that may be appropriate for risk communications. Trust is the "generalized expectancy that a message received is reliable and the communicator demonstrates competence and honesty for conveying accurate, objective, and complete information" (Kasperson, 1992).

Below, Kasperson outlines four dimensions of trust. These dimensions can be crucial for the developer in his efforts to build community trust.

a. Commitment: An institution has an obligation to a mission while fulfilling fiduciary obligations (Kasperson, 1992). A developer is often committed to siting a facility and should feel obligated to protect the environment.

b. Competence: One has confidence that others will voluntarily behave in a beneficial and expected manner (Kasperson, 1992). A community's trust will be violated if the developer does not correct past mistakes.

c. Caring: Trust can be built by acknowledging concerns (Kasperson, 1992). The developer should acknowledge that the community's concerns about a project are real even though the developer may not accept as correct the risk perceptions which underlie these concerns (Holt, 1996).

d. Predictability: Trust upholds that expectations will be fulfilled (Kasperson, 1996). This quality gives people faith to venture beyond available evidence and feel comfortable that a person (or developer) will be caring and responsive to community needs (Rempel, 1986). A developer's experiences in siting and operating an industrial facility can provide a community an indication of what to expect from the developer.

Some Caveats to Truth and Credibility

Overall, social science literature indicates that trust is hard to gain and easy to lose (Kasperson, 1992). In the context of industrial sitings, a developer may propose to site an industrial facility in a community. If

the developer has a positive reputation from previous industrial sitings, then the community will likely give the developer the "benefit of the doubt" if problems arise after the siting has occurred (Rempell, 1986).

Trust can usually only be gained incrementally over time. Even then, its often never permanently attained, making continuous maintance and reinforcement a must (Kasperson, 1992). Once trust is violated by broken promises or unmet expectations, that trust may be difficult to reestablish (Rempel, 1986). The developer's credibility is usually earned through open and honest dialogue with the community over a long period (Holt, 1996).

The developer will find it imperative to acquire community trust when initiating a risk communication program. Community "attitudes" toward a proposed industrial project may be negative because of certain incorrect risk perceptions. A quality risk communications program can be designed to respond to misconceptions and incorrect information about a proposed facility before they become "beliefs." Attitudes are generally easier to influence than beliefs.

In risk communications, there is a "four hit theory of belief formation" stating that "on average four unanswered and credible messages can transform an attitude into a belief." A credible message from a credible source on one

side of an issue can be balanced by a credible message and source on the other side of an issue. This theory does not hold up in the case of negative assertions, which elicit strong emotions, and therefore according to Holt, require three credible positive assertions to balance one credible negative assertion (Holt, 1996).

Earning Community Trust

A developer can earn trust and credibility by deciding what the content of his risk communications messages will be, how they will be delivered, and what credible company sources will deliver them.

The developer should tailor the risk communications message to address community concerns. Residents are more interested in knowing about the proposed facility's operations and risks as well as about the developer's competence and honesty in operating the facility.

The developer should also understand that residents are inundated with various informative messages daily. Therefore, risk communication messages need to be simple and truthful. For example, residents are less interested in complex risk assessments about chemical emissions then about what type of actions the developer might take to reduce the chemical emissions (Holt, 1996).

A developer also gains trust based on his past performances. Ralph Carnathan from Lockwood Greene, a

Knoxville site consulting firm, believes a developer can gain community trust and credibility by being "open and honest about (siting) problems and their intended solutions. Don't play games with the local folks. " The developer should tell the local citizens what he intends to do and how it will be done. If a problem arises, he needs to address it (Carnathan, 1996).

Darryll Armstrong, of the Darryll Armstrong Group, a facilitator for industrial conflicts, echoed similar sentiments. When the developer makes a promise to a community, he should follow through with it. If for example, the developer wants to locate an industrial facility in a community and promises to build certain amenities like a neighborhood park, but fails to deliver that promise, he has created a recipe for poor relations with the community because his trust and credibility have now been greatly diminished.

Most communities may consider a developer's reputation about coming into a community as a "blank slate." For the developer, "that leaves some opportunity to build credibility with that community" (Armstrong, 1996).

A Model of Risk Communications

A risk communication's program can provide many opportunities for citizens to provide input in to the siting process (Creighton, 1980). Whatever public involvement

events that a developer might use, he must realize that there is usually no single public participation strategy that can work for all proposed facility sitings. A risk communications program can be successful in one situation but ineffective in another.

A model of risk communications is presented below which provides a framework for developers to address community concerns, build trust, and reduce unfounded concerns about risks when in a variety of settings. Steps in the model of risk communications are listed below:

1. Goals and objectives
2. Identify potential stakeholders
3. Identify community issues
4. Identify and select suitable public participation techniques
5. Implement community dialogue and assess its effectiveness

Specific components of this five step model of risk communications are presented.

Summary of Risk Communications' Steps

Step 1: Goals and and Objectives

The developer should have clear and achievable goals and objectives that guide an industry in risk communications. A goal describes what conditions the

developer wishes to achieve regarding the relations a community has with a development project. Objectives are specific steps for achieving goals. Examples of a goal and a specific objective are stated below:

> Goal: The site selection will be approved by the county board of supervisors. This process should receive some pubic support.
>
> Objective: To gain community support through early public involvement in the siting process (Holt, 1996).

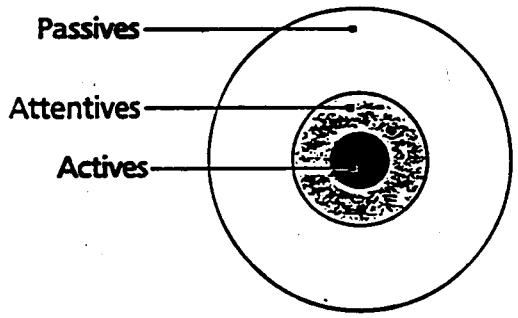
Step 2: Identify Potential Stakeholders

Even though an industrial project will impact some community residents, the developer will find it unnecessary to reach the entire community concerning every risk issue. Risk communications should target those residents or "stakeholders" in the community who have concerns about the proposed project. Notifying the entire community about every issue is very time consuming and may be counterproductive (Holt, 1996).

Composing a community profile is an effective way to identify key stakeholders. The developer needs to analyze the community to determine which citizens and interest groups feel that they might be negatively affected by the proposed siting. Such a profile could identify the citizens and interest groups who are the "movers and shakers" in the community and have substantial influence with regards to

siting approval. The developer needs this information to help gain community approval for the proposed facility. The developer should meet with these citizens and interest groups to discuss what impacts the proposed industrial project may have on them. He should then take their input (concerns) and analyze them within the framework of the risk communications model (Armstrong, 1996).

In risk communications, targeting those stakeholders is crucial for facility acceptance. A community has three levels of potential stakeholders as the diagram illustrates.



The actives, usually the news makers on a proposed project, represent the smallest percentage of the community. They are often the ones most actively involved in the project because of their resistance to change. In this diagram, influence flows outward from the center. The actives influence the attentives. The actives also influence the passives through the mass media.

Attentives are the community's opinion leaders. They often need more information on whether to support or oppose a project. The passives represent the community's majority. They at first are usually neutral in their position toward a proposed facility, but can be easily influenced by new information. Based on information provided, the passives will ultimately decide on whether the community will accept or oppose a proposed facility.

The attentives have influence over the passives because of direct interaction. This interaction will either support or discount messages conveyed by the media. In terms of the "four hit theory," the developer must initiate a risk communications process that provides accurate information to both the attentives and passives. If not, these two groups may get inaccurate information from the actives (Holt, 1996).

Step 3: Identify community issues

This stage enables the developer to "sense" what issues are important to those affected interest groups. The developer should remember that different groups may be interested in a variety of issues concerning a proposed industrial project. For instance, a labor union may be interested in employment issues. An environmental group may raise the issue of potential environmental harm (Creighton, 1980).

A developer can determine issues on community development in several ways.

*Meet with those identified interest groups.

*Review public attitude studies that may have been done on past industrial projects in the community.

*Review public comments on environmental reports from earlier community industrial projects. These reports can reveal information about what environmental issues concern local residents (Creighton, 1980).

*Transcripts from public meetings can be reviewed to see what previous development issues have been raised (Holt, 1996).

Community surveys can provide quantitative data on what people "believe" about a facility. Focus groups, usually composed of 12-15 people because of their membership in specific stakeholder groups, can provide qualitative data about why certain beliefs may be held by community residents (Holt, 1996).

This stage allows the developer to acquire the information needed to determine what issues may be raised, how extensive the risk communications program should be and which publics are likely to participate (Creighton, 1980).

Potential negative and positive project issues which may occur in a siting project are listed in Table 3 (Braun, 1990).

Table 3: Potential Project Issues

Negative	Positive
Health	Service Reliability
Safety	Economic Product
Property Value	Economic Development
Air Quality	Politics
Solid/Hazardous Waste	Employment
Aesthetics	Tax Revenues
Noise	Secondary Uses
Politics	Resource Recycling
Population	Others
Traffic/Roads	
Natural Resources	
Cultural Resources	
Services	
Housing	

Source: Braun, Florette, Bob McElfresh, and Louis Coakley. Public Participation Roadmap: A Step by Step Guide for Planning Public Participation Programs. Edison Electric Institute

Step 4: Identify and select suitable public participation techniques

There are a wide variety of techniques that can be utilized to create dialogue between the developer and the community. However, because of limited time and resources, a developer is usually only able to choose a few outreach techniques (Holt, 1996). Table 4 shows some public participation techniques.

Table 4: Participation Techniques

Participatory Techniques	Public Information Techniques
Advisory groups	Advertising
Computer-based participation	Brochures
Delphi	Consumer training programs
Field offices	Contests/events
Focus groups	Cumulative brochure
Hot lines	Exhibits/displays
Interviews	News conferences
Participatory television	Newsletters
Polls	Newspaper inserts
Questionnaires	News releases
Simulation games	Publications
Task forces	Publicity
Technical assistance	Public service announcements
	Reports

Table 4: (Continued)

Public Meeting Techniques	Conflict Resolution Techniques
Brainstorming	Arbitration
Charette	Conciliation
Coffee klatches	Mediation
Conferences	
Dialogues	
Hearings	
Large meetings	
Nominal group process	
Open houses	
Panels	
Public meetings	
Samoan circle	
Small group meetings	
Town meetings	
Workshops	

Source: Braun, Florette, Bob McElfresh, and Louis Coakley. Public Participation Roadmap: A Step by Step Guide for Planning Public Participation Programs. Edison Electric Institute-Public Participation Task Force.1990.

Discussing the advantages and problems of these participation techniques is beyond the scope of this paper. The author's intent is to show the reader some of the public participation techniques which exist. The developer needs to decide what participation techniques might be most effective in gathering citizen input for a risk communications program.

Table 4 shows many public interaction techniques that can be utilized by the developer seeking community input. Sherry Arnstein argues that many of the public involvement methods developers employ limit citizen control in the participation or risk communications process.

Arnstein believes many techniques like citizen advisory committees, the media, public relations material, public hearings, and neighborhood meetings which powerholders or developers use merely create an illusion that citizens are influencing (siting) decisions when in reality these techniques only advise or inform citizens (Arnstein, 1969).

Step 5:Implement community dialogue and assess its effectiveness

Whatever public participation techniques are used in risk communications, the developer should assess how effective the risk communications process was. The developer should evaluate whether or not the following took place:

*the risk communications' techniques were effective in reducing opposition,

*public opinion has changed for the better about the proposed facility, or

*effective dialogue can be improved between community and industry (Holt, 1996).

Below are some common objections which the developer might believe concerning why citizen involvement should he limited in the siting process.

Possible Objections to Citizen Participation

Objection

Bringing community residents into the siting process early means community residents will raise more concerns about the proposed facility which the developer may feel unprepared but obliged to answer (Lake, 1987).

Response

"Many developers think that once they go out to the public and get their feedback (on a proposed facility), then they are obligated to use it. No, the developer is obligated to make the best decision for their company and its integration into the community" (Armstrong, 1996).

However, the company should assume some corporate responsibility. For example, the developer should listen to the community and understand their concerns. Later on in the

siting process, the developer should notify the residents about what concerns were considered. If an issue were not considered, the developer should explain to the community why it was not addressed (Armstrong, 1996).

Objection

Early involvement of community laypersons might hinder the siting process because of their lack of technical training. Even if laypersons could be educated and acquire the necessary expertise to help facilitate the siting process, it could cost too much time and money (Lake, 1987; Creighton, 1980).

Response

The capabilities of community laypersons are often underestimated and those of experts or the developer are overestimated. Siting experts may be capable of understanding the technical benefits and consequences of a siting action. Citizens, however, are better at assessing their own social and cultural needs than experts (Lake, 1987).

Objection

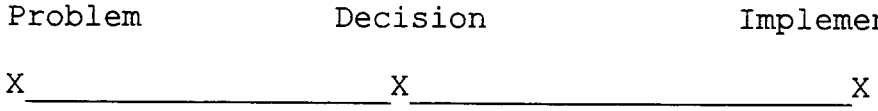
Community involvement is too time consuming and expensive for the developer to initiate early in the siting process (Creighton, 1980).

Response

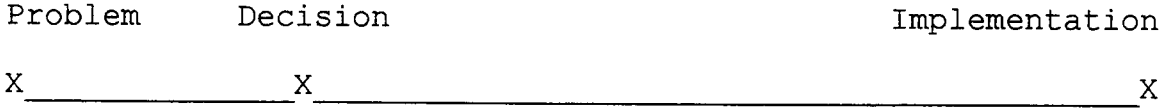
At first, unilateral decision making, like the "decide-announce-defend" siting method, appears to be more economical and efficient for the developer. However, this siting process removes the legitimacy for public decision making. The public, feeling ignored by the developer, can tie the development decision up in the court system, causing project delay or cancellation.

A siting decision involving the community can be more costly and time consuming for the developer, but project implementation can occur earlier than with the unilateral decision making process (Creighton, 1980).

Costs and Time of Decision Making with Community Involvement (If community agreement results)



Costs and time of unilateral decisions



Objection

Providing risk information to community residents at the beginning of the siting process can provoke unwanted opposition before information is released (Hance, 1980).

Response

The developer obviously needs enough information to answer citizens' questions about the facility's risks to the community. However, using insufficient information as an excuse to withhold information can be detrimental for the developer trying to build community relations.

Research indicates releasing provisional information early in the siting process causes less resentment toward the developer than waiting until later when people demand it (Hance, 1980).

Community residents are entitled to information about a proposed facility that may affect their lives. If that information is not provided, then they may seek information from other unreliable sources. A developer can control the accuracy of siting information if he is the first to present it (Kasperson, 1992).

A developer releasing risk information about a siting project before the community requests it can help the developer earn public trust and spend less time and energy responding to attacks. If risk information can not be released upfront, than the developer should explain why to the community and discuss what actions are being taken concerning the proposed facility (Hance, 1980) The

developer may find damage associated with being open easier to address than damage from concealment (Kasperson, 1992).

CHAPTER 4

DESCRIPTIONS OF THE DEVELOPER AND THE RURAL COMMUNITY

Section 1: The Developer or Seller

The Developer's Goal

Profit is the main reason a developer tries to site an industrial facility in a community. Many community residents are conscious of that reason. However, residents are concerned about impacts the proposed facility may have on the community's health and safety. The developer needs to be conscious that unless these concerns are acknowledged, the developer in all likelihood will encounter community opposition concerning a proposed project.

The developer would like the proposed development project to add value and vitality to the community. Some residents may percieve an incoming industrial developer as having motives of establishing an operation, turning a profit, and then leaving the community. However, a developer often takes great pride in producing quality products and wishes to develop a positive reputation within the host community (Urban, 1985).

The Developer's Problem: Factors that Need Consideration

Many times a very capital intensive industry like a chemical plant will make projections to evaluate whether consumer demand for the company's products will increase or

decline. If projections show an increase in demand for the product, the facility may have to increase production or expand facility operations.

There are options a developer can chose from to expand facility operations. One, add larger capacity to the existing plant. Second, relocate current operations to another existing facility having a larger capacity. Last, find a site and build a new facility. Depending on which option is chosen, a developer must first evaluate how much space is really needed and which of the above options is most economically feasible.

If a developer initates the process of locating a new site and wants to make a large capital investment in constructing a new industrial facility, the developer should evaluate what sales lifecycle his product occupies in the marketplace. In the market a product may experience birth, slow acceptance, rapid and mature sales, a tapering off, and then obsolescence in the marketplace. A developer would be foolish to build a new industrial facility if his product is expected to be near obsolescence (Schmenner, 1982).

A developer also needs to consider other factors that can make facility siting more difficult:

1. International competition: Outside competitors have been successful in the marketplace by manufacturing high quality products.

2. Government regulations: Environmental and safety regulations have made planning location choices more difficult and expensive.
3. Energy costs: Planning a new facility is complicated by the rise in energy and transportation costs.
4. Increasing geographic spread of domestic industry: The opportunities in acquiring cheap industrial sites in rural areas are becoming more difficult because many of these areas are becoming industrialized (Schmenner, 1982).

Past Trends in the Siting Process

After World War II, the population in the United States increased dramatically. Personal income increased allowing more people to afford automobiles and move from the inner cities into the suburbs. Industries began to increase in number and many followed their clientele into the suburbs.

Along with the population increase came an increase in demand for consumer products. Keeping up with consumer demand was the main priority for industry. Site selection for these new industries was often done quickly. Any social, environmental, and aesthetic concerns were often considered secondary when it came to building an industrial facility. This new industrial development that was occurring was causing much air and water pollution for local communities.

Today many developers undergoing the siting process must consider both profits and environmental concerns. Part of this attitude change can be attributed to the environmental movement in this country.

By the 1960's, Americans started to realize through the writings of scientists, environmentalists, and planners that the frontier was becoming ruined by new development operations. The public became more conscious of the impacts land use projects were having on the environment (Williams, 1983).

Criteria for the Site Selection Process

The site selection process is designed to be logical, structured, and comprehensive and can be tailored by the developer to help find the needs for the new facility. While subjective opinion has a role in the site selection process, many of the decisions made with this process is often based on quantitative facts. The siting process can be very time consuming and expensive and is often reserved only for large industries that have both siting experts and financial resources (Williams, 1983).

For the developer, searching for potential industrial sites is usually done in two ways. The developer forms a site selection team or the developer hires an outside siting consultant.

The Developer's Siting Team

This siting team is usually composed of selected personnel from the developer's corporate staff. The number of people on the siting team is usually determined by the developer.

When searching for potential industrial sites, the siting team will often use the guidance of siting factors as Table 5 in Appendix A displays. General factors include the following:

a. access to markets, suppliers, resources,

b. community and local/state government aspects,

c. surrounding competition and environmental considerations,

d. the local/ state labor status,

e. site characteristics,

f. taxes and financing, and

g. transportation, utilities, and other services.

When the siting factors are listed, the siting team should also take into account "exclusion factors" or exclusion areas. These factors may be dictated by the developer, by legislation, or by the potential host community. These exclusion areas should be considered off limits as potential sites. For instance, a federal law may prohibit the siting of any industrial facilities close to a national park. The developer may stipulate an industrial

site should be away from a flood plain for the fear of possible flooding. A potential host community may prohibit the developer from building in certain areas because of potential environmental harm (Schmenner, 1982).

Company Musts and Wants

Based on these siting factors, a company will often form two lists called "musts" and "wants." The "musts" list are factors the company feels are needed to successfully compete in the marketplace. This list is often used to evaluate major regions of the country that have certain known attributes. For instance, if a company knows that fifty percent of its market growth will be on the East Coast, the company needs to locate somewhere east of the Mississippi River.

The "wants" list are factors which the developer desires in a site, but are not crucial for the company's operation in the marketplace. For example, a company may also look for a site that has a nearby airport with jet service, nearby vocational/technical schools, and a temperate climate (Schmenner, 1982).

Outside Siting Consultant

A company not forming its own siting team will often appoint an outside siting consultant. The following entities can help a developer find potential industrial sites:

1. state industrial development agencies,
2. railroad company departments of real estate,
3. power company departments of industrial development,
4. location consulting firms,
5. community based industrial development commissions,
6. chambers of commerce,
7. industrial realtors, and
8. specific industry-affiliated consultants

(Schmenner, 1982).

These siting consultants often have the resources and experience to provide quick siting information to the developer about potential industrial sites (Harding, 1991).

Choosing an Industrial Site

The siting team or siting consultant starts by identifying a potential geographic region and then will usually pick for further analysis several potential sites within the region. Each of these sites will be screened by using factors like in Table 5 along with the "musts" and "wants" lists. Sites not having these factors will likely be eliminated in the siting process (Schmenner, 1982).

The next step in the site selecton process is when the siting team visits the communities where those potential industrial sites are located to determine whether the physical site characteristics are appropriate for an industrial facility (Williams, 1983).

The site visits enable more qualitative and quantitative information to be gathered and previously gathered information to be verified. The siting team or consultant may try to evaluate the local community's attitude toward industrial development by talking with various business and elected officials (Schmenner, 1982).

After all potential sites have been visited, the siting team usually numerically ranks each site on the facts and impressions gathered (Schmenner, 1982). The siting team will then pick as potential industrial sites several of the top ranked sites for their siting recommendations. If need be, follow up site visits to gather more specific information on those top ranked sites can occur narrowing those potential industrial sites down to two or three.

Company officials would then visit each site and try to negotiate an option to purchase the site from the community. (Schmenner, 1982). The company may try to obtain an option on more than one site. The developer may have to disregard one or more of the sites because of community opposition against the proposed facility siting.

The reader must realize when the siting team visits these potential host communities, they usually do so under secret conditions to protect the company's identity. Corporate identities are usually revealed after the option is put in place (Schmenner, 1982).

The Siting of Small Businesses

While a small business owner can engage in the comprehensive site selection process like large industries, the owner may not have the time, expertise, and financial resources to carry out such an elaborate siting process. Instead the small business owner will search for a facility site in a more simplified way. The owner is more likely to start or expand operations in familar environments such as in his home community where the owner is familar with the surrounding business environment and often has pre-established business acquaintances (Dean, 1972). A business owner having "hometown" contacts has the advantages of knowing potential customers, receiving capital from local financial institutions, and often has better access to suppliers (Greenhut, 1982). For the small business owner, finding a site location depends much on whether the owner can get the necessary resources to start and expand an operation. Getting access to those resources often depends a great deal on who the owner knows (Dean, 1972).

Section 2: The Buyer or Rural Community

The image of rural America is often that of open country, spacious vistas with farming as the dominant way of life (Lapping, 1989). Small villages with nicknames like "hick towns" or the "sticks" usually pepper the rural

landscape. These rural towns tend to be considered "insular, boring, and small minded places." Persons with any great ambitions assumed they would have to leave (Heenan, 1991).

Rural residents usually travel farther to reach services like schools, hospitals, and stores. The U.S. Census Bureau defines a nonurban area as being rural if it has less than 2500 people or if a county has a city with less than 50,000 inhabitants. While space and distance typifies rural life, there are various settings for rural areas. The first is open land that contains mountains and wilderness regions with little economic activity. The second is land used for producing crops and livestock and areas used for commercial lumbering, fishing, and mineral extractions. The third are settlement areas containing small towns, areas along the urban fringes, and unincorporated places.

While attitudes among rural residents vary, rural residents often hold more traditional views, are more politically conservative, and are slower in accepting new ideas. They tend to believe in permanence, stability, and tradition. In general, rural residents tend to have fewer high school and college graduates, lower family incomes, and higher rates of unemployment and poverty than urban residents (Lapping, 1989).

Manufacturing, farming, and mining have often been the economic backbone for many rural communities. However, mechanization on farms and in the coal industry have caused massive employment shifts away from these two sectors.

Therefore community officials may feel the urge to diversify the local economy in order to compensate for jobs loses. Community officials may engage in "smokestack chasing" or seeking out industries to site in their respective communities to create jobs with spin-off subsidiary employment (Pierce, 1979). Rural communities may try to lure in and site manufacturing, trade, and service industries. This is often being done through enticements like industrial revenue bonds, tax abatements, zoning changes, and by offering cheap land and labor costs (Lapping, 1989).

Ironically, many Americans are leaving urban areas and are heading toward rural areas. Metropolitan areas tend to have higher land costs, more crime, and more pollution (Pennington, 1995). Rural areas are perceived as being a pleasant place to work and live and tend to attract industrial developers into locating there because of large open spaces and a better quality of life (English, 1983).

Many rural communities may be vulnerable to NIMBY projects because these communities can have the following characteristics: little industrial development, low income

workers, high local unemployment, less educated population, and little experience in social activism. However, a developer may assume that if a community is located in a rural area, it would be more receptive to "NIMBY" industrial facilities that could provide employment opportunities (Gibbs, 1993). However, as the two case studies which follow demonstrate, this assumption is not necessarily true. Both cases occur in rural areas.

Profile of West Virginia Case

The first case takes place in Fayette County, West Virginia. This county, population of about 48,000 people, has a low per capita income of $8653, has a high unemployment rate (14%) and a high (24%) poverty rate (Census, 1990). Figure 2 shows what activities compose the county's economy.

This county is nestled in a state whose economy has been mostly driven by industries like manufacturing, construction, and mining (Cushing, 1994). Coal mining has always been one of the state's major employers. However, during the 1980s, mining jobs decreased in the state. This decline can be attributed to three major factors. First, the national and international economies have shifted employment away from the manufacturing and mining sectors to increased jobs in the service sectors. Second, to remain competitive with other energy sources, the coal industry has

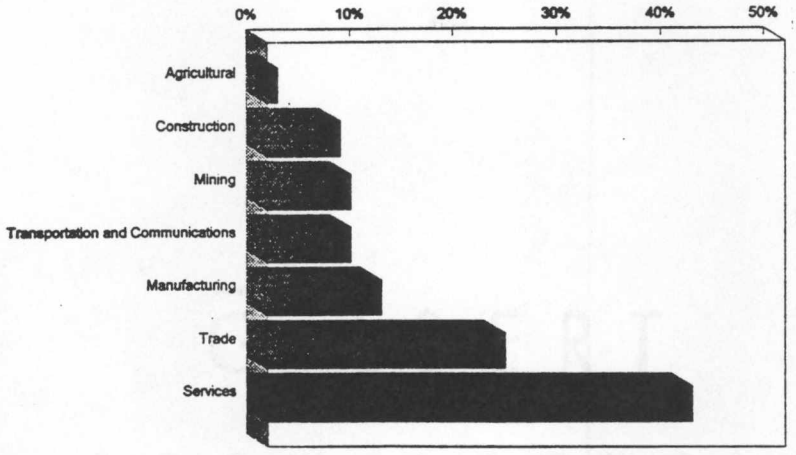


Figure 2: Composition of Industry in Fayette County, West Virginia

Source: Census of Population and Housing. Fayette County, West Virginia.1990.

invested in machinery permitting more coal to be mined while reducing the number of people employed in the mining industry. Last, stricter environmental laws curbing air pollution have reduced the market demand for West Virginia's high sulfur coal (Dilger, 1994).

Many residents, especially the young, are leaving the state because future coal mining employment is bleak. Even if the state's coal industry does resurrect to a degree, it will not be a panacea for the state's sluggish economy. West Virginia's poor economic performance is also the result of an inadequate physical infrastructure, low educational achievement level for the general population, outdated job

skills, rugged topography, a low population density, and a lack of a major airport or port facilities.

However, if West Virginia's economy does improve, it will probably come mainly from the state's tourism industry. With the state's rural setting, low population density, beauty and natural resources, West Virginia is a good place for people wanting to escape the rapid lifestyle pace of the city (Dilger, 1994; Fletcher, 1994).

Profile of Tennessee Case

The second case study occurs in Loudon County, Tennessee. This county, population of about 31,000 people, has a per capita income of $12,006, has an unemployment rate of 6%, and a 14% poverty rate (Census, 1990). Figure 3 shows what activities compose this county's economy. Loudon County is located in a state where agriculture used to dominate the economy. However, since World War II, encouraged by the low cost of electric power from the Tennessee Valley Authority, the manufacture of chemicals, clothing, textiles, industrial and transportation equipment has been the main thrust of Tennessee's economy (Microsoft, 1994).

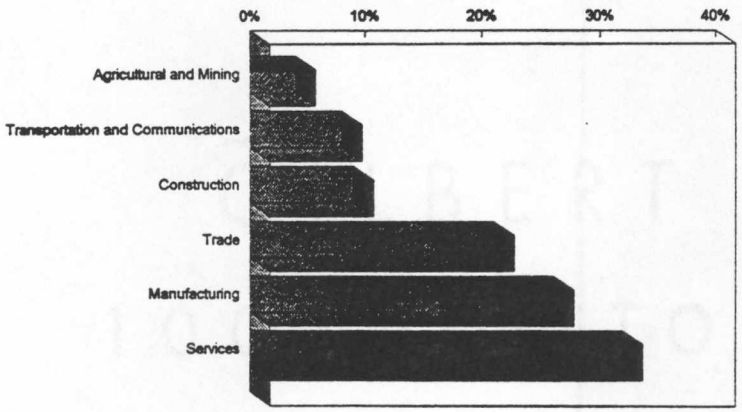


Figure 3: Composition of Industry in Loudon County, Tennessee

Source: Census of Population and Housing. Loudon County, Tennessee.1990.

CHAPTER 5

WEST VIRGINIA CASE STUDY

Prospecting

In 1994, the two landfills serving the residents in Fayette County, West Virginia, closed (Fayette, 1993). Both landfills were ordered closed by the West Virginia Division of Environmental Protection because they did not meet newly enacted environmental standards. New landfills are required to have plastic underliners on a clay foundation. The plastic allows toxic garbage leachate to funnel from the dump to a treatment facility so groundwater pollution is minimized. Both Fayette County landfills lack a plastic liner (Meyers, 1994).

Every household in West Virginia is either supposed to subscribe to a solid waste collection service or personally haul their waste to an appropriate landfill and pay a minimal tipping fee (Hambrick, 1993).

Fayette County residents wanting to properly dispose of their solid waste must have one of the five Fayette County garbage companies transport their wastes to Lanark, a modern solid waste landfill located in adjacent Raleigh County.

Fayette County officials decided in 1990 that to avoid paying two to three million dollars to construct a new

landfill in Fayette County, residents should use the Raleigh County landfill site (Meyers, 1994).

Some Fayette County officials and business leaders wanted alternatives for dealing with the county's future solid waste (Williams, June 1995).

One option was proposed by a former Fayette County politician and three of his out of state business acquaintances. These prospective developers collaborated on an idea of building a recycling and composting facility in Fayette County.

This proposed facility would be able to pick out recyclables from solid waste and resell them. Anything remaining in the garbage, excluding toxins, would be turned into a saleable compost. The end results would be money earned from reselling the recyclables and compost and less wastes would go into a landfill (Pollard, Nov 1995). This recycling and composting facility appeared to be a viable alternative for dealing with Fayette County's solid waste. No matter which landfill has vacant space to dump trash, landfills become filled to capacity over time (Pollard, Sept 1994).

Initial Customer Contact

Fayette County residents' first contact with these developers came during a zoning hearing in 1995 before the

Fayette County Zoning and Planning Commission. These developers wanted to acquire property in Fayette County, West Virginia, along U.S. Route 19. The proposed site is shown in Figure 4. The property in question was zoned rural residential. In order to site this proposed facility there, this land parcel needed to be rezoned to industrial. In April and June 1995, these developers petitioned the Fayette zoning commission to approve the rezoning request.The commission denied the rezoning request both times because of community opposition during the meetings (Myers, June 1995).

Ironically, during the first zoning meeting these developers were not present. The developers assumed there would be no public opposition against the rezoning. Instead, a real estate broker owning the subject property attended the zoning meeting.

This broker assumed the rezoning would easily be granted and then he in return would sell the property to these developers. During the zoning meeting, the commission asked this broker the reason for the rezoning request. This broker explained that the developers wanted to establish a recycling/composting facility on the subject property. Many of those Fayette residents attending this meeting expressed opposition citing that they did not want the proposed facility near their homes (Myers, April 1995).

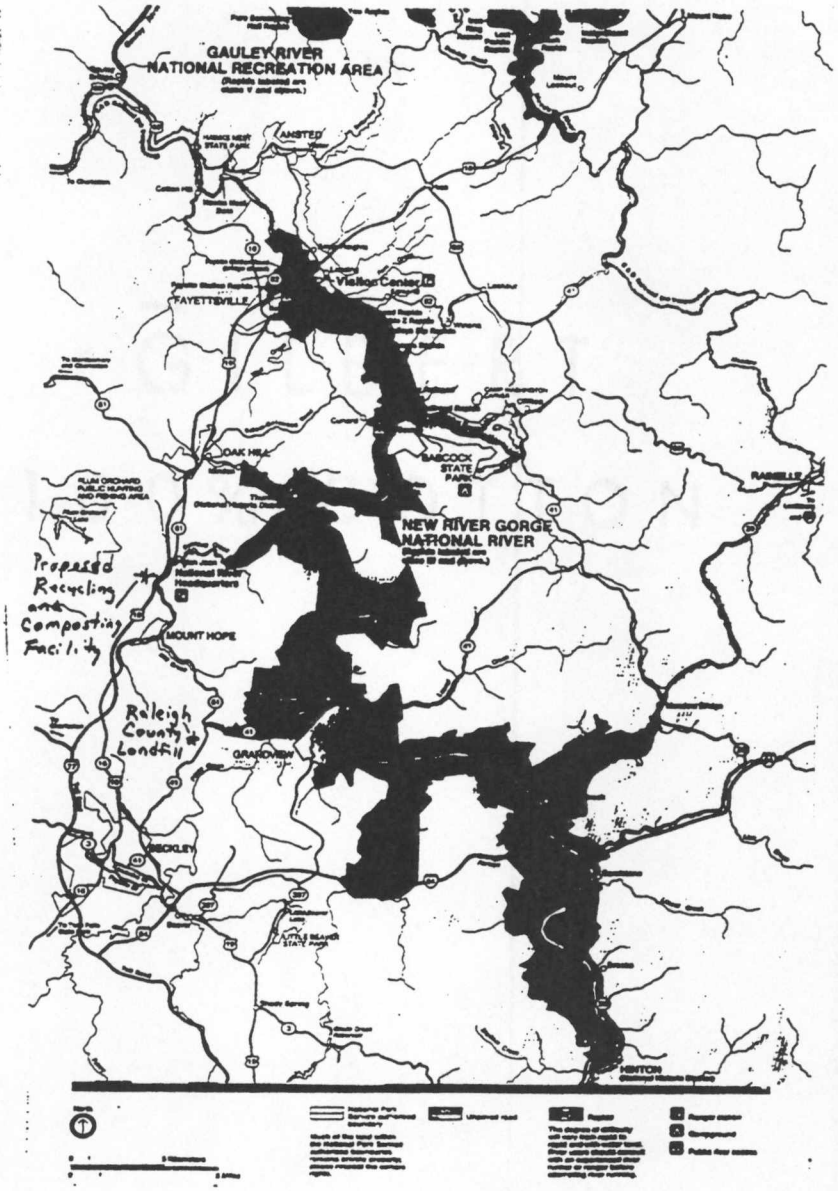


Figure 4: Location of Proposed Fayette County Recycling and Composting Facility and the Raleigh County Landfill

Source: Government Printing Office. New River Gorge: West Virginia National Park Service. U.S. Department of the Interior.1992.

At the second zoning hearing, the developers attended but still faced mounting public opposition against the rezoning and proposed facility. These developers later appealed to the Fayette County Commission requesting that they overturn the zoning commission's decision. The county commission upheld the planning commissions decision because of much public opposition from Fayette residents (Myers, June 1995).

Qualifications of Developer

These three out of state developers all had different professional backgrounds. One was a former photographer from Florida. Another one owned a television station in Florida. The last was an engineer from Harrisburg, Pennsylvania who was responsible for designing the proposed facility. All three lacked experience in building and operating recycling and composting facilities (Williams, June 25, 1995).

Many Fayette residents did not support the developers because of their lack of experience in solid waste management (Dragan, 1995) Some Fayette residents have expressed concerns to the Fayette County Commission about allowing these developers to site and build the proposed project in the county when they have no "track record of developing recycling and composting facilities" (Toombs, 1995).

"No one in Fayette County really knows a lot about these developers" or about this facility (Pollard, 1995). A former chairman of the Fayette County Solid Waste Authority (FCSWA), a public committee responsible for handling issues about the county's solid waste, claimed to support this proposed project even though he did not know the developers professional backgrounds (Williams, April 1995).

Product Presentation and Product Concerns

If this facility is built, 90% of Fayette County's solid waste will not end up in Raleigh County's landfill (Murdock, 1996; Roberts, 1993).

This facility is estimated to cost $9 million and will occupy about twenty to twenty five acres. (Pollard, June 1995; Myers, April 20, 1995). Plans call for the five Fayette County garbage haulers to furnish about 3,000 tons of solid waste to this proposed facility per month. This facility would be able to accept between 3,000 tons and 6,000 tons of solid waste per month. Fayette County generates about 4,000 tons of waste per month.

The developers claim they would be able to make up the 2,000 tons per month difference by importing solid waste from surrounding counties (Williams, June 25, 1995). The haulers claim that twenty to twenty-five garbage trucks will use the proposed facility daily (Myers, April 20,

1995). When the solid waste is unloaded from the garbage trucks and sent through the facility, any toxic household wastes will be manually sorted out on a picking line from other wastes. The facility would then automatically separate all recyclables such as plastics, glass, metals, and aluminum from the waste (Williams, June 25, 1995). The remainder of the solid waste would be biodegradable and would be fed into a 110 foot revolving tube to help it decompose into compost (Myers, April 20, 1995). The compost produced would be composed of sewage sludge, paper, food, and wood, and other easily biodegradable items. There will be no disposal of waste on the facility's premise (Williams, June 25, 1995). Any toxic wastes retrieved during the process would be put in containers and sealed and then disposed of at a location unknown to the developers (Pollard, June 1995).

The developers could only provide drawings showing the Fayette community how the proposed facility would appear when constructed. The drawings are shown in Appendix B (Ryan, 1996).

The developers insisted that if Fayette residents wanted to observe composting operations in progress, they could visit one such composting facility in Sevier County, Tennessee (Dragan, 1995).

This $9 million facility located near the county's landfill turns much of Sevier County's solid waste into a compost. This facility can accept 150 tons of solid waste daily. Non-biodegradable items in the waste are pulled out and the remaining is put into three 184-foot long, 12 foot wide tubes. After three days of turning inside the tubes, sewage sludge is than added to the compost. This mixture is then put into a warehouse for a few weeks and then sold (Grimac, 1993). This Sevierville plant does composting only and does not carry out any recycling as would the proposed Fayette County facility. Many Fayette residents felt that comparing these two facilities was unfair especially since the Sevierville facility did not perform the recycling operation (Dragan, 1995).

Product Concerns

Table 2 listed some qualitative risk factors which may have led to increased concerns for community residents. Many of these factors can be applied to risk concerns that some Fayette residents had about this recycling/composting facility.

Factor: Familiarity and Understanding the Facility's Technology

Developer's Assessment

There are eighteen solid waste composting facilities

operating around the nation and another 140 such facilities in the planning stages (Hammer, 1992). The proposed recycling/composting facility which the developers wanted to site in Fayette County would be the first in the nation (Murdock, 1996).

Despite the other composting facilities around the nation not recycling metals such as aluminum like the proposed facility, the developer claimed composting/recycling can be "scientifically done together" (Ravida, 1996). The developer also claimed the proposed facility will use a "proven technology" and an "exact science" that is "engineering and environmentally sound. This technology is the latest state of the art."

During a telephone interview the developer tried explaining to the author in technical terms how the facility would work. While the author had difficulty understanding the technical dialogue, he recalls how this developer kept stressing how safe this proposed facility would be if constructed (Lansat, 1996).

Community's Perception

Many Fayette residents believe this composting/ recycling facility concept could work, but doubt whether this facility would operate as planned (Williams, April 1995). One facility opponent was nervous about a facility using "equipment that has never been built." The developers

have done "no research and development testing" for this specific facility (Toombs, 1996). Other concerned Fayette residents claim that the technology the facility would use "lacks tests, trials, and demonstrations" to prove that it could effectively do both recycling and composting (Gaber, 1994).

Factor: Voluntariness of exposure

Developer's Assessment

Even though sewage sludge will be added to the compost, this proposed facility would be enclosed to prevent any foul odor from escaping during the composting process.

Community's Perception

Composting has a "reputation for (producing an) odor" (Toombs, 1996). Many county residents believe that technology for this facility exists to prevent odor problems, but some residents fear modern technology may not be utilized if the developers want to save money when building the facility (Pollard, Nov 1995).

While many Fayette residents acknowledge compost can be used as a fertilizer, they are also concerned the sludge in the compost will be nothing "but a waste product containing health and environmental hazards that must be buried in a landfill" (Gaber, 1994).

Sewage sludge is the dry residue remaining after raw sewage is treated. Raw sewage contains water, and human,

household, and commercial wastes. This sludge usually contains toxic heavy metals like lead, cadmium, mercury and organic compounds such as dioxins and PCB's. Disease causing bacteria and viruses are also known to be present in the sludge.

These hazardous compounds in sludge do not decompose well in the sewage treatment process. If sludge is used as a fertilizer, these compounds can enter the groundwater and contaminate the water supplies for plants, animals, and humans. Those individuals running sludge companies tend to downplay the hazards of sludge as a fertilizer. These companies often charge low disposal fees but sell the compost to consumers at a higher price (Tackett, 1991).

Factor: Controllability and Equity

Developer's Assessment

During the zoning hearings the developers wanted the subject property, 140 acres, to be zoned from rural residential to industrial even though the proposed facility would occupy only about twenty-five acres (Myers, June 27, 1995). The developers have said that while this facility may accept solid waste from surrounding counties, they have insisted no out of state waste will be transported into the facility (Ryan, 1996).

Community's Perception

Some Fayette residents who have visited the composting facility in Sevier County believe the only way this facility can operate economically is by having the adjacent landfill supplying it with solid waste (Williams, June 25, 1995). Residents fear the same will be true if the proposed Fayette facility is built. Fayette County may not provide enough solid waste for the facility to be profitable. The space not taken up by the actual facility could be used as a landfill to store solid wastes from out of state (Pollard, June 1995).

Fayette residents were concerned this proposed facility would receive shipments of solid wastes from other states. Their concerns may be valid considering there are no laws prohibiting out of state wastes from crossing state boundaries. The Supreme Court passed a ruling making it more difficult for states to keep out solid waste from other states citing such a prohibition interfered with interstate commerce (Carelli, 1992).

One Fayette resident felt that if this facility were established in the county, it would mean a "foot in the door for out of state garbage" (Concerned, Jan 1996). "There is a real run on West Virginia to make us the garbage dumping ground" (Hambrick, 1995).

The threat of out-of-state solid waste coming into West Virginia is real. Nationwide the number of available landfills to dispose of solid waste has significantly decreased because landfill space is running out in major cities like New York and landfill operators are being required by new environmental regulations to install expensive plastic landfill liners.

To illustrate, in 1978 there were about 20,000 landfills nationwide. By 1992, that number fell 4,000. In 1990, West Virginia landfills accepted about 130,000 tons of in-state garbage per month and 76,000 tons a month came from out of state (Dilger, 1994).

Ironically, some economically deprived coal communities are enticed to view landfills as their economic "life preserver." Hosting a landfill that holds out-of-state waste can create employment opportunities and bring in millions of dollars in tipping fees and tax revenues to a local community (Ward, 1991).

Fayette residents are concerned that if this facility is built along Route 19, nearby property values could decline, the county's tourism may be hampered, and attracting other types of industrial projects to locate along Route 19 might be difficult. Before the zoning hearing occurred, the county commission recommended to the developers that if they wanted to site this proposed

facility in Fayette County, they should keep it away from U.S. Route 19 and away from populated areas (Pollard, Dec. 27, 1995).

Residents in a subdivision close to the subject site claim the proposed facility would be visible from their homes and an odor would be smelled from the facility. The developers denied these claims (Myers, June 5, 1995). These residents also fear that if the facility is placed on the subject site, their residential property values could decline. Some homes in this subdivision are worth a minimum of $75,000 (Williams, June 25, 1995).

U.S. Route 19 is a scenic highway many tourists travel to reach numerous Southern West Virginia whitewater rafting companies, the New River Gorge National River, and state parks. Many Fayette residents do not want this highway's natural beauty disturbed by a composting/recycling facility accepting solid waste (Williams, June 5, 1995).

In terms of attracting development, Fayette County's local economic development authority would like to establish an attractive industrial anchor project, preferably a corporate office park on or near the subject property. This office park idea was proposed by an out-of-state developer, but he was scared off by the prospects of having the composting and recycling facility also locate along Route 19 (Pollard, Sept 29, 1994).

Factor: Benefits

Developer's Assessment

If this facility is built, it will help save Fayette County $1.6 million dollars a year in tipping fees to the Raleigh County landfill. Over thirty jobs will be created providing more than $600,000 a year in payroll. This facility will generate more than $200,000 in both real estate and personal property taxes (Ryan, 1996).

Those supporting this facility believe markets exist for recyclables and compost. One of the county's haulers claimed "recycling can be profitable, just look at the stock market" (Murdock, 1996). The developers feel outside markets for recyclables exist, especially in Florida. The compost the facility would produce can be used to help reclaim many West Virginia strip mines (Lansat, 1996; Williams, 1994).

The haulers and developers believe the profit potential for this facility is so great that the millions of dollars spent building and operating this facility would be a small investment compared to the profit potential (Pollard, 1993).

This facility could be the "hauler's salvation" to profit. If built, there is a big profit for the developers and haulers for the next 20 years (Ravida, 1996).

Community's Perception

While the developers and haulers are confident in this facility's profit potential, some Fayette resident are

skeptical. If the market for recyclables plummets, there is fear that the developers will have to store the recyclables on site until the recycling market improves (Dragan, 1995).

While the developers claim this facility will automatically separate items that can be recycled from those items that can be composted, state environmental officials question the profitability of this proposed facility. The West Virginia Division of Natural Resources says a mechanical facility would be 75% to 100% more expensive than a recycling facility that depended on source separated recyclables. Automated facilities are expensive and require large amounts of wastes to make them economically feasible. Since West Virginia is not heavily populated, transporting solid waste from outlying areas could be expensive.

Unfortunately recyclables coming out of the proposed Fayette Reclamation plant would probably be contaminated from other wastes and have a lesser market value. However, recyclables separated at the beginning and not contaminated by other wastes often have a better market value. Automated facilities create few jobs. Tom Degen, vice-president of the West Virginia Solid Waste Authority, said if the recycling market becomes glutted, buyers will pay for only the best clean recyclables (William, June 25, 1995).

Factor: Trust in the institution

Developer's Assessment

If the developers were allowed to establish the proposed facility in the community, they would be required to go through a comprehensive licensing process before they could initiate facility operations. Whether this proposed facility operates safely for Fayette residents depends on the approval of several public bodies: the county zoning commission, the county commission, the county's solid waste authority, the public service commission, and the department of environmental protection (Pollard, Nov 1995).

Approval from these public bodies ensures the following about the proposed facility: it's located in an appropriate area; it can effectively deal with the county's solid waste; customers are charged reasonable tipping fees; and the facility meets clean air and water regulations (WVSWMB, 1995).

Community's Perception

Despite these public bodies the developers would have to go through just to establish operations, many county residents worry this proposed facility will be approved anyway by "backroom political" dealings. Before the zoning hearings, that former Fayette County politician who first thought about the recycling/ composting facility died. One of the other developers claimed this former politician would

have had little trouble getting this project approved because of his political connections in the county. Getting this project approved by Fayette County officials will be more difficult now (Lansat, 1996).

This concerns many Fayette residents. One resident feels "West Virginia politics are very corrupt. The corruption is heavily influenced by (many) local business people. Many residents have a mentality that they are politically powerless. What the developer wants, they get." If the developers want something done, they "just go to the politicians. There is a deeply entrenched political machine in Fayette County. (County residents) just don't have any power."

However this concerned resident feels that powerless mentality is slowing changing because people "are beginning to realize they do have a voice" about what does occur politically in the county. Fayette residents' opposition to an unwanted industry is being heard as was evident at the two zoning hearings where the developers were denied their rezoning request for their proposed facility (Fayette, Jan. 1996).

Still some Fayette residents fear the county's political machine will allow the developers to find loop holes in the facility approval process (Fayette, Jan. 1996). One of the Fayette County commissioners responded to this

allegation by saying "there are no loopholes in the (approval) process. (These developers) must go through all these agencies" (Carte, 1996).

A Fayette County newspaper claimed that political "back room discussions" do occur and the "good old boy network" has long ruled Fayette County politics" (Keenan, 1995). In an interview with the author, a county official heard a rumor that county business often has a way of being "done under the table" (Pollard, Dec. 1995).

Overcoming Concerns

Before the first zoning hearing, these developers did not hold any public meetings where the Fayette community could be educated and concerns could be addressed about this proposed facility. Even though the developers were not mandated to notify the public until the zoning hearings occurred, the developers assumed there would be little "opposition" from the Fayette community (Carte, 1996). Since the zoning hearings proved to be unsuccessful for the developers, they have tried to inform the public about the potential benefits this proposed facility can bring to Fayette County.

Various public relations materials have been distributed to county residents. For instance, brochures were hung on doors of some Fayette County residents

expressing how the proposed facility would create local jobs, accept only local garbage, and be environmentally friendly (Porterfield, 1995).

A three page flier was also distributed to some county residents showing what the facility would look like, what mechanical processes would be used, what solid waste problems the county was facing, how this facility could alleviate those problems, and how many tax dollars the county would receive if the facility was built (International, 1995).

The county trash haulers and the developers thought they could win community support for this proposed facility by hiring two lawyers. For instance, during the zoning meetings members of the community would ask these lawyers, the trash haulers, or the developers questions about the proposed facility. Many times these lawyers would in return answer these questions "by using big terms and language that people couldn't comprehend."

The haulers and developers probably felt these lawyers could speak about the project in technical terms which a layperson might find difficult to understand. The theory being residents would not comprehend the project's technical aspects, give up on any project opposition, and believe the haulers and developers had nothing but good intentions for Fayette County (Dragan, 1995).

The author contacted both lawyers and asked why the developers and trash haulers did not hold community meetings to answer concerns Fayette residents may have had about the proposed facility prior to the first zoning hearing. One of the lawyers stated the haulers and developers were "not required by law" to hold community meetings (Keenan, 1996).

The other attorney has been involved in solid waste controversies for several years and has been involved in previous efforts to reduce conflicts. He felt community meetings were not very effective when reducing community concerns because "there will always be many questions that need to be answered. You will always have people opposing the project because of environmental issues" (Knee, 1996).

Community opposition to this facility may be attributed to insufficient factual information which community residents don't have. Some Fayette residents are frustrated that they have not received more factual information from the developers about how this proposed facility will affect their lives. This frustration has appeared at both zoning hearings in the form of project opposition (Williams, June 25, 1995).

One of the haulers felt project opponents were not educated about the benefits this proposed facility could offer to the community. "People really need to see the truth (about this proposed facility) and keep an open mind about

what it is capable of doing for the county. In my opinion, there are more people in support of this facility than there are people against. The problem is that those in support of the facility are staying home and not voicing their approval for the facility" (Murdock, 1996).

To better educate Fayette residents and to answer citizen concerns about this facility, the developers and haulers set up five public meetings in Fayette County during July 1995 (Ryan, 1996). The author did not attend any of these community meetings. However, according to one concerned Fayette resident that did attend several of the meetings, many of those residents in attendance felt like the developers and haulers were not adequately addressing concerned citizen questions. Many of the risk factors concerning county residents mentioned early in this paper were not fully addressed by the developers or haulers during these meetings. For instance, if this facility is built, what health risks will it pose to nearby residents and to its employees (Dragan, 1995).

Another concerned Fayette resident, a science teacher, attended one of these community meetings. This teacher said when one of the developers was discussing how the composting process would work at this facility, he was incorrectly describing how the decomposing processes occurs during composting (Perry, 1996).

Closing the Sale

On Monday, July 29, 1996, these developers and haulers petitioned the zoning commission again asking this time for only seventy-five acres of the subject property to be rezoned from rural residential to planned development. During this zoning hearing, the developers pleaded to the commission how this facility would help provide local Fayette residents employment opportunities and county tax revenues. Some Fayette residents vocally expressed their support for the facility believing it was an adequate way of dealing with the county's solid waste problems.

However, other county residents voiced opposition toward the rezoning. Many of the fears raised early by concerned residents still were not dealt with. During this zoning hearing, the author noticed that some of the maps and graphics of the subject property were poorly designed. One map being used had some labeling errors. Many of the residents attending this hearing also noticed the labeling mistakes. One of the zoning commission members pointed out the mistakes which the developers apologized. In the author's opinion, all the graphics and maps used did not leave a favorable impression in the minds of the zoning board or those county residents opposed to this facility that attended this meeting. The zoning commission finally

voted 5-5, sending the rezoning request to the county commission for a final vote. The county commission now had to decide whether the rezoning should be granted (Fayette, 1996).

Usually on the following Wednesday, the county commission votes on zoning issues sent by the zoning commission. However, this time the county commission post-poned voting on this rezoning petition. The county commission claimed that it wanted time to read and study some research material on composting and recycling which some facility opponents provided to them. When researching this case study, the author discovered that some of the most vocal opponents against this project initiated their own research. These opponents sought out information about how much experience these developers actually had in composting and recycling. Data explaining the positives and negatives of recycling and composting were gathered by opponents. In short, those facility opponents wanted the county commissioners to study their research material before rendering a decision that could affect Fayette County residents for years (Concerned, July 1996).

Before the county commission convened to render a formal decision regarding this rezoning case, the author witnessed a collaboration of various community members opposed to this facility. The purpose was to find an

effective strategy that could try to persuade the county commission to deny the rezoning petition.

This coming together of opponents, an informal grassroots NIMBY group, planned to ask the developers during the county commission meeting questions regarding the proposed facility. The questions would pertain to those issues which these residents feel the developers have not fully addressed (Concerned, July 1996).

On August 15, 1996, after the county commissioners heard three hours of arguments for and against this proposed facility, they voted 3-0 to deny it rezoning. The commissioners cited possible odors and traffic problems the facility might cause. They expressed fears the proposed facility may not work as planned.

One facility opponent, a park ranger from the New River Gorge National River, addressed the commission and said the park gets over 1 million visitors a year. He felt this facility could be located elsewhere besides next to the scenic Route 19. Representatives from the chamber of commerce and the local economic development authority raised objections to the rezoning. The county's economic development director mentioned to the county commission that some local business people are interested in promoting a $70 million animal theme park called "Wild Kingdom" in the same area as the subject property. This director went on to say

"sludge and recreation don't mix. Tourism will do more to benefit the area than a dump site" (Myers, August 1996).

After having their rezoning request denied by the county commission, the developers and haulers have filed a lawsuit in the county circuit court against the county commission. The lawsuit alleges the commission acted "arbitrary and capricious" when they rendered their decision causing the developers to be deprived of "beneficial use" of their property.

The developers claim zoning law was ignored citing there is another large industrial facility close to the subject property. This lawsuit alleges the county commission violated the West Virginia Open Governmental Proceedings Act or "Sunshine Law" in two ways. First, the developers contend the county commission privately made their decision on this rezoning case before rendering it in the county commission meeting. Secondly, the commission suggested privately to the developers to abandon the subject property on Route 19 and build the proposed facility near one of the Fayette County's landfills no longer in use. In essence, this law states that all public bodies like the county commission, must render all decisions affecting the public "in an open and public manner" (West, 1993; Myers, Sept. 1996).

The developers also accuse some county officials of violating the West Virginia Freedom of Information Act by

not releasing a document proving the idea of an animal theme park was not just concocted (Myers, Sept. 1996).

Project Hindsight

Some residents feel if these developers would have followed the advice of Fayette officials by staying away from residential areas and Route 19, the facility "would of been accepted without any problem." These developers became "less and less trustful as time went on" (Dragan, 1995).

Ironically, one of the developers acknowledged this dilemma by saying "they (Fayette residents) look at me as an outside investor. I have no trust or credibility among locals in the county (Lansat, 1996).

This distrust has occurred from a combination of factors. For one, these developers are inexperienced at recycling and composting (Carte, 1995; Pollard, 1995). Secondly, these developers should of held community meetings prior to the zoning meetings so more information could be disseminated and questions regarding this proposed facility could be answered (Dragan, 1995).

Many county residents are also disturbed by the notion that the county's solid waste authority has not put forth open bids to seek out companies that have had success in designing and operating composting and recycling technologies. Some county residents have indicated that if

the county's solid waste authority did search for other companies, county residents should be given the opportunity to become directly involved in the selection process (Concerned, Oct. 1995). In essence, if the solid waste authority wants a recycling/composting facility, then they should find individuals with experience and credibility at building such technologies (Dragan, 1995).

CHAPTER 6

TENNESSEE CASE STUDY

Developer's Qualifications

Profile of Eastman Chemical Company

Eastman Chemical Company, formerly Eastman Kodak, was first established in 1920 to produce photographic chemicals. Headquartered in Kingsport, Tennessee, Eastman Chemical has become an international chemical company with more than 7,000 customers worldwide. In 1940, Eastman had sales of over $29 million. Sales in 1995 were over $5 billion.

While Eastman Chemical does not sell consumer products, it does supply products to industrial customers for use in the manufacture of consumer items.

Being the tenth largest chemical producer in the United States, Eastman manufactures and markets over 400 chemicals, fibers, and plastics. Eastman's products are used in items such as food and beverage containers, fabrics, paints, pharmaceuticals, foods, and chemical intermediates.

Eastman has regional headquarters in Miami, Florida; the Hague, Netherlands; and Singapore. Principal manufacturing facilities are located in Tennessee, Texas, South Carolina, Arkansas, New York, West Virginia, Canada, and the United Kingdom.

Eastman employs over 16,000 people worldwide. Kingsport is Eastman's largest manufacturing plant, employing over 11,000 people. An Eastman chemical plant can have large effects on an area's economy. For instance, the Kingsport plant in 1994 paid over $32 million in state taxes. Eastman often donates thousands of dollars to local charitable organizations in Tennessee. In 1993, Eastman was awarded the Malcolm Baldrige National Quality Award in the large manufacturing category. Eastman plants in Tennessee, Texas, and Arkansas have won state quality awards. Eastman has been an active participant in community awareness, pollution prevention, and employee health and safety. Survey results have shown that Eastman is well accepted by communities in which its plants are located (Eastman, 1995).

Prospecting

Eastman Chemical anticipates even more demand for its chemical products in the future. Eastman Chemical predicts revenues by the year 2000 to reach about $20 billion. To help that prediction come true, Eastman wanted to acquire an industrial site to accommodate a new chemical manufacturing facility (SRS, 1991).

Eastman has tried to expand its manufacturing operations every 10 years (Taylor, 1996). To prepare for this additional manufacturing growth, Eastman is often

required to landbank property. To accomplish this, Eastman tries to initiate landbanking to acquire new sites. Landbanking is when an entity acquires land and holds it in reserve for future use (Blakely, 1994).

Landbanking is especially crucial for a large chemical company. Finding an appropriate industrial site is time consuming because of the often tedious site selection process. Even if an industrial site is found and acquired, obtaining all the required operating and environmental permits can take several years (Berry, May 1995).

To find a new industrial site, Eastman initiated a comprehensive site selection process. Eastman officials initiated the site selection process by forming lists of site selection criteria in the form of a "musts list" and a "wants list".

These two lists were given to a site selection team composed of four people. Two individuals were Eastman company officials. The other two individuals were retained from a site consultant firm CRS Sirrine. According to the siting criteria list, the main goal for the siting team was to locate a site "in the southern Midwest and the southeastern United States for a future barge served chemical plant" (CRS, 1991).

To find candidate sites, Sirrine provided these criteria lists to various industrial development

representatives from states, railroads, and utility companies showing what Eastman wanted in an industrial site. These organizations in return provided Eastman with fifty-seven industrial sites in eight states. This siting team then had the responsibility of visiting these sites to determine whether these sites had the physical characteristics to accommodate a chemical plant. Visiting each site allowed more data gathering, site photography, and meetings with state and local representatives (CRS, 1991).

Many of these sites were disqualified because they may have had certain negative physical attributes for an appropriate facility siting. For instance, the siting team visiting one of the candidate sites showed that this particular land parcel was partially covered with water. "Some of the sites could be eliminated just by stepping on them" (Brown, 1996).

These site visits helped reduce the number of candidate sites down to ten sites located in five states. Community officials in each of the ten communities were notified of their success in making the "short list." Sirrine sent to each of these ten communities an environmental questionnaire and information requests about local employment, rail and truck freight charges, utility expenses, and various other factors.

Using the siting criteria, the site visits, and other site information gathered, the siting team then numerically ranked these ten sites. The higher the site was ranked, the more the site conformed to the siting criteria.

The siting team then selected the top three ranked candidate sites it felt were the best possible places to establish a chemical facility. Figure 8 in Appendix C shows where these three top ranked sites are located. This siting team submitted as potential sites Matlock Bend, Loudon, Tennessee; Dow/Boykin, Mobile, Alabama; and Mulberry Creek, Florence, Alabama, to Eastman management for final consideration (CRS, 1991).

Site Acquisition

In September 1990, almost two years after this siting team first approached and secretively negotiated with Loudon officials about acquiring the Matlock Bend site, the siting team was able to option a 1,278 acre site at Matlock Bend. This tract size was obtained by having the county's industrial recruiter negotiate an option with four different adjacent landowners at a price of $5,188 per acre (Berry, March 1996). The site is shown in Figure 9, Appendix C.

This option allowed Eastman to do several things. The first was to conduct more indepth site studies of Matlock Bend to see if it were the best site for a chemical plant (CRS, 1991). Secondly, Eastman announced to the Loudon

community that it had negotiated a land option at Matlock Bend as a possible site to put a chemical plant. This announcement received local, state, and the national news coverage (Berry, May 1995).

Forming an option was one way Eastman and Loudon officials tried to prevent Loudon residents from making the accusation that efforts to bring in a major industrial plant were final. Establishing an option permitted Eastman officials to wait and see how Loudon residents would react to the prospects of having a chemical plant in their community (Berry, Oct. 1995). "Public reaction didn't take long" (Doug, May 1995).

Product Presentation and Addressing Concerns

The Risk Communications Process

Identify Community Issues

Chapter 3 provided a risk communications model which developers could follow to try and reduce community opposition toward an industrial facility. Below is the risk communications process Eastman and Loudon officials initiated to help alleviate community tensions toward a possible chemical plant in Loudon County.

On November 5, 1990, two Loudon County residents convened a public meeting at the Loudon County Courthouse to give local residents an opportunity to express their

concerns about Eastman possibly locating a chemical plant in the community.

Concerned residents attending this meeting compiled a list of questions which they wanted Eastman officials to answer regarding a possible chemical plant. Inquiries dealt with the following: what affects would a chemical plant have on the local environment, on the community's quality of life, future employment, on the city and county governments, and how responsive would Eastman be to the community's concerns. These questions were then presented to the Loudon County Commissioners with the intentions that they could find or provide answers to them. These questions were published in the community's newspaper (Brewer, Nov. 8, 1990).

Those in attendance claimed to be "pro-clean industry." Many Loudon residents understand industry is often needed to have a successful local economy but fear the negative impacts pollution may cause on the community.

What concerns many Loudon residents is that Eastman is one of the top polluting industries in Tennessee and in the nation (Brewer, Nov. 8, 1990). However, Loudon's Industrial Recruiter Doug Berry put Eastman's pollution problem into context. The reason Eastman is such a big polluter is because they manufacture many products (Berry, May 1995).

Some residents feel if Loudon officials prohibited heavy polluting industries from locating in Loudon County, then the county could have "the best of both worlds--we (could) have clean industry and we (could) keep the environment clean" (Brewer, Nov. 8, 1990).

Ironically, Eastman and Loudon officials did not attend this meeting. These officials felt this meeting organized by concerned citizens was a way "to form a mass of opposition" and turn the meeting into a "hanging party" for Eastman and Loudon officials. These officials felt if they attended this meeting, citizens' emotions concerning a future chemical plant would inhibit constructive dialogue where the issues could be discussed (Berry, March 1996).

Company officials or developers will tend to have less control of community meetings when they are formed by citizens. These types of meetings can take on the characteristics of a public hearing where the developers have to defend their actions against outraged community residents (Holt, 1996).

Identify Potential Stakeholders

Responding to the questions formulated from the first public meeting and any other concerns Loudon residents may have had about a chemical plant, both Eastman and Loudon officials set up a community meeting on November 27, 1990, at the Loudon High School Gymnasium (Brewer, Nov. 22, 1990).

Participation Technique

At this meeting, Eastman brought in eighteen of its employees and set up informational tables to help answer any questions raised by Loudon residents in attendance. If a citizen had a question about how to obtain employment at the proposed chemical plant, there was an Eastman human resource person there to answer. If questions about air and water quality were asked, Eastman had experts there to address those concerns. If none of the Eastman employees knew the answer to a citizen's question, they would write the question down so it could be answered later (Berry, May 1995).

Eastman's Assessment of this Meeting

This type of open informational meeting has been termed "buffet style" or "poster station format." With this format, each station has exhibits on a table top or in a booth describing project issues. This format allows individuals to ask questions on a one-on-one basis with Eastman employees.

From Eastman's perspective, this format helped prevent one or two individuals from "grand standing" in front of a large audience. For instance, if a meeting were held in an auditorium where everyone in the audience was sitting, one person could easily stand up and force his agenda or concerns on the entire audience. Some community residents

can be reluctant to speak in front of a large audience about an issue concerning them (Berry, Oct, 1995).

Many times in a group of people, one or two individuals will tend to be more confrontational. If some control is not put on these emotions, these outspoken individuals can skew the perceptions of everyone else in the meeting (Berry, Oct. 1995). Such controversy can easily attract biased media coverage (Holt, 1996).

This format also permits a large group of people to be broken into smaller groups allowing better manageability and more personal interaction (Berry, Oct. 1995).

For the concerned citizen, this type of open meeting allows an individual to visit each table or talk to a company representative at his or her own pace (Edwards, 1996). This format is also quicker. If a citizen is only interested in asking questions about a particular issue, that person can go directly to that company official for the desired information (Anderson, 1996).

Community's Perception of the Meeting

The following Loudon residents offered their opinions about the Eastman meeting at the high school.

A middle school teacher: "I thought it was an extremely good format. There were different tables set up and you could ask any questions you wanted. I felt (Eastman) bent over backwards to give the people the facts" (Kelso, 1996).

A car salesman: "I felt the Eastman presentation was well put together. (Eastman officials) seemed to allay a lot of fears which the local people had" (Cartwright, 1996).

A local news reporter: "I think the meeting helped those people who had specific questions get specific answers" (Concerned, March 1996).

Loudon City Mayor: "I felt Eastman was very open in their presentation. According to my recollections, they answered all questions satisfactorily" (Swiney, 1996).

An accountant: "(Eastman) tried to be really open and receptive to whatever concerns the public had. I was really impressed with that. They were willing to talk to people."

However, she felt it was just "a PR (public relations) meeting" and a "snow job". "They had a lot of information to give out. It was more of a public showing that didn't get to the issues." She also believed some people at the meeting were asking specific questions but were not getting specific answers from Eastman officials (Concerned, April 1996).

A housewife: Loudon officials answered her questions, but felt "I don't tend to believe (industry officials). I have lived long enough that you don't believe everything that you hear" (Lanford, 1996).

Toni Pacitti, a concerned resident: She said her questions were not answered in a satisfactory manner. Even though Eastman officials encouraged Loudon residents to

attend this meeting to express their views, she felt the opinions citizens offered would not be highly considered by Eastman officials. "Eastman is going to do what they want to do and everyone else be damned" (Pacitti, 1996).

The reader should note that Eastman did approach civic meetings in Loudon County like the Rotary Club to address questions and concerns people may have had about Eastman (Edwards, 1996).

Product Presentation

Eastman officials wanted to give Loudon County residents and officials a better understanding of the company and show them if a plant were constructed at Matlock Bend, what the facility would look like. On December 12, 1990, Eastman flew on a corporate jet nineteen people to Batesville, Arkansas to show them an Eastman chemical plant. These individuals were mostly Loudon officials, local business leaders, and concerned citizens that would live closest to the proposed chemical plant at Matlock Bend.

Eastman officials believed if they could show this group an Eastman facility up close that would be similar to the one built in Loudon County, then the Loudon community might have a better understanding of Eastman (Berry, May 1995). In theory, a plant tour explaining how an industrial facility works can reduce community fears and build confidence in the developers (Holt, 1996).

While the Loudon group was in Batesville, Eastman officials escorted them on a plant tour and allowed them the opportunity to ask questions to those Batesville-Eastman employees about the plant operations. This Loudon group also heard testimony about Eastman from Batesville residents (Berry, 1995).

Some Batesville residents expressed the following about the Eastman facility located in their community.

The Batesville mayor: He praised Eastman's salary structure as being larger than some other companies in the Batesville community.

A community doctor: No one in the community has been treated because of problems related to chemical exposures. In fact, with the help of contributions from Eastman, the community has been able to expand the local hospital.

A civic leader: Eastman is extensively involved in the Batesville community through civic organizations like the United Way and area churches.

One Batesville citizen: There is a community trust for Eastman. The community understands accidents can happen at the plant but feels Eastman would keep any accidents under control.

There was consensus among many Batesville residents that odor was not a problem at this plant (Brewer, Dec 27, 1990).

Community's Perception

Some of those Loudon residents that went on the Batesville trip had the following opinions about the Arkansas plant:

A middle school teacher: The Eastman employees in Batesville adequately answered questions he raised. He would not object to an Eastman facility built in Loudon if it were similar to the Batesville plant (Kelso, 1996).

A County Commissioner: This trip helped answer many of her concerns about Eastman. "I felt (Eastman) was trying to do the right thing" (Maples, 1996).

A Loudon City Councilman: He was impressed with the Batesville facility, especially with the abundant fish life in the nearby White River (Cartwright, 1996).

A local news reporter: "The actual trip to Arkansas sold me" on Eastman possibly locating in Loudon. There was no odor coming from the Batesville plant. This trip was an "effective tool" for demonstrating the positive aspects about Eastman (Concerned, April 1996).

Loudon's mayor: This trip cleared up some negative images he had of Eastman. He found the Batesville plant aesthetically pleasing and felt Eastman "could and would develop a quality facility" in Loudon. He recommended that Eastman come to Loudon (Swiney, 1996).

A concerned resident: The trip was a public relations technique that eased some residents' concerns. The plant tour was thorough and Eastman "was not trying to hide anything" negative from the Loudon group (Concerned, April 1996).

A concerned resident: The Batesville employees kept stressing how safe the chemical plant was and if any accidents would occur, alarm systems at the plant would activate, warning nearby residents of potential danger. This resident was not comforted by these reassurances because those Batesville employees she spoke with did not live in close proximity to the Eastman plant there. She felt since her residence was so close to the Matlock bend site that if the plant were built and an accident happened, she would not be able to react quickly enough to protect her family from chemical exposure (Lanford, 1996).

Eastman architect Don Brown believed the Batesville plant tour was effective. "I think it adverted opposition. I don't think it eliminated it, but I think it reduced it to a manageable level" (Brown, 1996). Eastman engineer Joseph Taylor felt after the trip was over those Loudon residents "had a better understanding of Eastman" (Taylor, 1996).

Loudon Industrial recruiter Doug Berry felt the Batesville trip changed how people reacted to the prospects of Eastman coming into Loudon. He said before the trip,

those who had an unfavorable opinion about Eastman often made their opposition publicly known. After the trip, these residents became less vocal in their opposition to Eastman.

Berry also felt those Loudon residents that went on the trip felt more comfortable about Eastman locating in Loudon. He said even though some residents still oppose a chemical plant, Berry believes these people understand that if Eastman does locate in Loudon that the plant would be "environmentally sensitive" and provide many benefits to the community (Berry, May 1995).

An opinion column in the Loudon paper suggested that while some residents still have concerns about a chemical company locating in the Loudon community, no one can promise an industrial accident would not occur and release harmful chemicals into the air and water. However, Loudon residents have some assurances. One, Federal regulations like the Clean Air Act would cause any chemical plant to adhere to strict guidelines. Second, any Eastman plant constructed would use modern technology backed by their years of experience to make any future plant as safe as possible (News, Dec. 20, 1990).

Closing the Sale

Some of the most vocal Loudon residents opposed to Eastman forming a land option in the county have had some of

their fears or risk perceptions reduced by these community meetings and the Batesville plant tour. In late December 1990, Eastman bought the property at Matlock Bend (Brewer, Dec 24, 1990). Having these reduced community tensions may of encouraged Eastman to proceed with this purchase. However, whether the Loudon community actually accepts Eastman siting a chemical facility in the county is unknown (Berry, May 1995).

Currently Eastman has not specifically proposed siting any chemical plant in Loudon County. Instead this company is focusing more on locating new chemical manufacturing plants in other countries (Taylor, 1996).

Eastman may eventually decide to build a chemical facility at Matlock Bend. If it does, Eastman's biggest task may be easing the fears or reducing the negative risk perceptions community residents have of a chemical facility. In essence, Eastman will have to earn the trust of Loudon residents. Eastman will have to convince these residents that they can build an environmentally safe chemical plant.

Community Trust

Unfortunately, Eastman will never earn the trust of all Loudon residents. Some residents are simply against all industry because they enjoy Loudon's quality of life (Concerned, March 1996). One Loudon resident opposed to Eastman said Eastman may never gain the trust or acceptance

of those individuals who have lived in Loudon since they were born. These people have the mentality that the "earth should be left alone and big business should go elsewhere." This concerned resident lives in Matlock Bend close to the Tennessee River. She felt, "This is the dream of a lifetime to live near a river, to have a home that is paid for, and have your children with you" (Lanford, 1996).

Another Eastman opponent feels "trust is a fragile thing." For this person, Eastman lost that trust when "they negotiated the option in private" and not in the public spectrum. "When a company works behind closed doors, there is an impression of people not being honest" (Sckrimsher, 1996).

Distrust in Eastman can also be traced back to 1986 when the Eastman plant in Kingsport caused a chemical leak in the nearby Holston River killing over 212,000 fish (Concerned, April 1996).

Some concerned residents are nervous that both Loudon and Eastman officials agreed to an option, but they don't know specifically what the plant would produce if built and what its chemical emissions would be (Concerned, April 1996; Guider, 1996).

Earning Community Trust

One of the propositions of this paper suggests industry officials can possibly reduce community conflict during the

siting process when community residents become involved in the siting process early.

Many of those Loudon residents interviewed for this paper believed any time a developer like Eastman suggests it would like to site a large industrial facility in the community, community involvement should occur early. One of Loudon's County commissioners said "the longer the people are kept out of the siting process, they less they tend to trust local government" (Maples, 1996).

A Loudon newspaper reporter felt the earlier residents are brought into the siting process, the better. "As a citizen, I do not like being kept in the dark. I want to know what is happening in my community." This reporter also suggested a developer providing accurate information to community residents about an industrial facility early in the siting process may allay community tensions and increase residents trust in the developer (Concerned, March 1996).

Two Eastman officials recommended that community involvement in the siting process should occur when the company has narrowed the number of potential industrial sites down to a few and options are placed on the site(s) (Taylor, 1996; Brown, 1996).

Many of those residents interviewed understood the economic development dilemma described early in this paper. While those residents wanted notification about an

industrial facility to occur early in the siting process, some of those residents felt Eastman's notifying Loudon residents after the option was negotiated was early enough (Guider, 1996; Concerned, April 1996).

Trust in Public Officials

The level of community opposition residents display against an industrial siting can be contingent upon the amount of trust they have in their community officials. Residents place an implied trust into their local elected officials that the decision these officials make will be for the community's betterment.

One Loudon County Commissioner said their intentions are to increase employment when the commission allows industry to enter the county. Some Loudon residents accuse the county commission of trying to bring industry in that causes environmental degradation. This commissioner denied this claim saying "even the elected officials have to drink the water and breathe the air. None of us want to commit suicide" (Maples, 1996).

Loudon's city mayor echoed similar sentiments saying residents need to trust their community's officials because both share similar interests like "breathing the same air and drinking the same water." Community officials are very unlikely to recruit industry that will harm the community and strain public trust (Swiney, 1996).

One Loudon resident felt the community should put their faith into their elected officials when it comes to deciding what types of industry should be allowed in the county.

"We vote those people in to make those decisions for us and hopefully they will abide by what our wishes are. Sometimes when they don't its because there are facts that the public may not be aware of. The bottom line is you have to have faith in what they are going to do will be right" (Kelso, 1996).

In order for a developer to gain the trust of community residents, public skepticism must be overcome. For instance, the chemical industry suffers a "stigma" resulting from past chemical accidents like the one in Bhopal, India (Edwards, 1996).

Overcoming public skepticism resulting from negative publicity because of a chemical accident takes time (Anderson, 1996). To try and overcome any prejudices a community may have toward a chemical facility, Eastman has an informal process termed "responsible care" which the public has a right to have any questions they may have about facility operation's answered. Industry officials should be honest and respond in a timely manner when residents do raise questions about a facility (Brown, 1996).

This process is often crucial in those communities where an Eastman facility is already located. Eastman

officials want to be perceived as being "good corporate citizens" (Anderson, 1996). Being this type of citizen used to mean a company only had to provide jobs and contribute to local charities. Today this definition has expanded. Community residents are more concerned about what operations occur inside the facility. Company officials "must convince" community residents that the facility is being operated in a responsible manner (Hance, 1980).

An industry's actions can also create trust. Eastman is "very forthright and honest" about any accidents that do occur. "We fix the problem and do any necessary changes...any changes we do (are) visible. When you tell people about it and they see it, they overcome their fears over time" (Anderson, 1996).

CHAPTER 7: SUMMARY AND CONCLUSIONS

Summary

When the industrial developer uses the unilateral or "decide-announce-defend" model for siting an industrial facility, there is little or no public involvement in the siting process. This lack of community involvement can create tension between the developer and community residents. Any public involvement that does happen often takes place later in the siting process during a public hearing after the developer has applied for the operating permit.

Residents not wanting the proposed industrial facility in their community may fear that it will bring pollution, increased traffic, and odor problems. These residents can initiate "Not In My Backyard" or (NIMBY) tactics to pressure elected officials not to accept the facility.

Unless a person is employed at an industrial facility, research indicates that people prefer to live and work away from industrial facilities. However, they tend to be more accepting of facilities if risks are well-known and preventable.

Risk perceptions can be assessed quantitatively by the developer and qualitatively by community residents. How well the developer understands and reconciles these differences in risk perceptions is the subject of this paper's proposition.

There are three elements to this proposition. First, while many industrial sitings occur in a seller's market, the developer should persuade the community to accept the proposed controversial industrial facility. This requires the developer to change his paradigm to that of a buyer's market. The developer can best persuade the community to accept the project by using effective sales techniques, as outlined in the following sequential steps: (1) prospecting, (2) customer contact, (3) qualifications, (4) product presentation and addressing product concerns, and (5) closing the sale.

Second, the developer should encourage community involvement or public participation early in the siting process. This allows the developer to maintain control of the siting process while addressing community concerns before they escalate into possible NIMBY tactics.

In theory, the developer can actively involve the public even before public hearings by encouraging them to form a citizen's advisory committee. The developer would present those siting factors deemed important to finding an industrial site to the committee. This committee would then analyze these siting factors and recommend to the developer appropriate industrial sites.

Pragmatically, community involvement in industrial sitings is contingent upon project type, size, and potential impacts on the community. For instance, residents usually show

more concern about a large chemical plant covering hundreds of acres locating in their community than about an industrial facility covering only a few acres.

In most cases, community involvement in siting decisions occurs after the developer has picked one or two specific sites and has secretatively bought or negotiated options with community officials on those sites. Community involvement in the siting process often does not occur earlier because of an economic development dilemma. Residents want to be involved in the siting process early, but the developer fears that economic and political ramifications may result.

The third element of this proposition recommends that the industrial developer engage in a risk communications process in which community residents' concerns are discussed. Risk communications can reduce the gap between how community residents and the developer perceive risks which an industrial facility poses. By initiating a risk communications process early in the siting process, the developer can both lower risk perceptions which residents may have about a facility and increase their acceptance of it.

The developer is encouraged to follow the five steps which are the described in the risk communication's model. Step one, the developer should outline goals and objectives that he wants to achieve in risk communications with community residents. Step two, potential community stakeholders should

be identified. Step three, identify community issues. Step four, identify and select suitable participation techniques to help address community concerns. Step five, implement community dialogue and assess its effectiveness.

This five step process stresses honest communications on behalf of the developer and encourages lay participation in the siting process. Risk communications increase public trust and credibility in the developer and allows project implementation to occur earlier than with the traditional "decide-announce-defend" model of industrial sitings.

The proposition recommends that the developer follow steps in the selling process when trying to site a controversial industrial facility in a rural community. In this case, the developer becomes the seller. In order for the seller to make a profit, he must find a suitable industrial site where facility operations can be established. The seller must initiate a site selection process to find such a site.

The site selection process is often methodical, comprehensive, time consuming, and expensive. Only a large corporation with good financial resources can fund such an effort. Site selection is usually undertaken by the company's siting team, by outside siting consultants, or both. The company provides this siting team with specific site selection factors, usually in the form of "musts" and "wants" lists, to

use as guidance when searching for an appropriate industrial site.

The siting team usually begins the site selection process by identifying specific regions of the country where the developer wants to site a facility. The siting team often submits its lists of siting factors to various economic development organizations in the chosen region. These organizations in return furnish lists of candidate sites. The siting team may visit all communities where the potential sites are located to evaluate and select the best potential sites. Company officials may attempt to buy or negotiate options on those recommended sites.

In contrast, a smaller business owner may establish or expand operations in a familiar environment, usually in his hometown, where customers or suppliers already exist.

Once a site is chosen, the seller must then persuade the buyer or the rural community to accept the proposed industrial facility. Rural residents tend to hold traditional values and are resistant to change. They tend to be less educated and have lower family incomes than urban residents. In general, rural areas also have higher rates of unemployment and poverty.

Manufacturing, farming, and mining usually serve as the economic backbone of rural areas. However, mechanization has caused massive unemployment in the coal and farm industries.

To create new employment opportunities, some rural communities are initiating efforts to attract manufacturing, trade, and service industries.

Ironically, many of these types of industries are attracted to rural areas because of the quality of life which they offer to their employees. Metropolitan areas tend to be plagued by pollution, crime, and high land values.

Based on the poor economic conditions which rural areas often have, developers frequently over optimistically view rural communities as being receptive to any industrial project offering employment opportunities to local residents.

The case studies, which follow in this paper, demonstrate otherwise. A rural community's acceptance of an industrial facility is contingent upon the selling process which the developer undertakes with community residents. An effective selling process addresses and overcomes many fears concerned residents have about a proposed industrial facility.

Summarized below are the siting efforts that the developer undertook in each case study. These actions are described in the context of the five step selling process.

The first case study occurred in West Virginia involving the request of an industry to acquire land and develop a plant to dispose and recycle solid waste. The second case was in Tennessee in which Eastman Chemical Company sought land to develop a chemical plant. The West Virginia case was

unsuccessful. In contrast, the Tennessee project succeeded mainly from it efforts to proactively involve the community throughout all stages of the project.

The West Virginia Case

Prospecting: New environmental regulations mandated that the county's two landfills close. County residents must now have their solid waste disposed of in an adjacent county's landfill. A former county politician and some of his out-of-state business acquaintances proposed siting and constructing a prototype recycling and composting facility. This facility would receive the county's solid waste. In return, this facility would resell recyclable items like certain metals and plastics and transform those biodegradable items into a compost that could also be sold.

Customer contact: The developers first initial contact with community residents came during a rezoning hearing when the developers were seeking to rezone a land parcel from agricultural to industrial which the proposed facility would locate. The rezoning request was denied because of community opposition.

Developers' Qualifications: None of the developers involved in this project have experience in designing and operating such a facility.

Product presentation: Community residents were only exposed to architectural drawings of this proposed facility.

The developers recommended to county residents who had concerns about this proposed facility that they visit a facility in Sevierville, Tennessee which carried out composting operations but did not recycle plastics and metals.

Addressing product concerns: County residents feared that the proposed facility would create odor and pollution problems from incoming solid waste that surrounding property values would decline, and would also threaten the area's tourism economy. Residents were also nervous about the stability of the recycling/composting markets. Trust in this county's public officials is tenuous because of years of alleged "backroom politics" or corruption with other developers.

After being denied the rezoning request twice, these developers attempted to overcome residents fears about this proposed facility by distributing various public relation brochures. County residents complained that these developers were not providing enough factual information about this proposed facility. In response, the developers hosted five informal public meetings in the county where residents could raise questions about this facility.

Closing the sale: The developers petitioned county officials once again to grant the rezoning of the subject property. These officials denied the rezoning based on public opposition against the project. These officials concluded that the proposed facility was incompatible with local tourism. At

this meeting, some community residents expressed opposition that they do not trust the competency of these developers to build and operate such a facility. The developers, feeling they have been denied "best use" of the subject property, have filed a lawsuit against the county for its ruling.

The Tennessee Case

The second case study occurs in Loudon County, Tennessee.

Developer's Qualifications: Eastman Chemical was first established in 1920 in Kingsport, Tennessee to produce photographic chemicals. Today, Eastman is an international company that produces and sells billions of dollars in chemical products.

Prospecting: Eastman wanted to expand facility operations to accommodate future product demand. Therefore, company officials initiated a comprehensive site selection process to find an industrial site to build a new chemical facility.

Eastman appointed two company officials and two individuals from a site consulting firm CRS Sirrine to find such a site. Siting criteria were layed out by Eastman's management in the form of "musts" and "wants" lists. The siting team submitted these criteria lists to various industrial development organizations in the southeastern United States. In return, these organizations provided the siting team with 57 potential industrial sites. The siting team visited each site to determine if it could accommodate a

chemical plant. Numerical ratings were assigned to each site to indicate degree of appropriateness. Three potential industrial sites were chosen. Eastman officials were able to negotiate an option on a site in Loudon County. The option was then announced to the Loudon community.

Product Presentation and Addressing Product Concerns: A risk communication's model was described early. Those risk communication steps Eastman officials initiated for the Loudon County are summarized below.

Identify Community Issues: Some residents who were opposed to Eastman locating in the county held a public meeting in which they compiled a list of questions for Eastman officials to answer concerning the proposed chemical plant. Many of their concerns dealt with type of chemicals to be used, chemical emissions, and what affects on the environment.

Identify Potential Stakeholders: Eastman officials hosted a community meeting to answer the questions compiled by Loudon residents. That meeting was in a "poster-station format" where residents asked questions to Eastman employees on a one-on-one basis. Some Loudon residents believed this format was effective in answering concerns about the proposed facility.

Product Presentation: A group of Loudon residents were flown to Batesville, Arkansas for a plant tour of an Eastman chemical facility. Eastman officials claimed that if a chemical plant was to be built in Loudon, it would be similar

to the one in Batesville. Some Batesville residents spoke positively about the benefits that the Eastman facility offered their community. Some Loudon County citizens who toured the plant left with a good feeling about what they had seen and heard. Eastman officials felt the trip was effective in reducing Loudon residents' fears of Eastman.

Closing the Sale: No chemical plant has officially been proposed to the Loudon community. However Eastman officials, believing that their community outreach techniques were effective in reducing community opposition, purchased the site in Loudon. Reduced opposition by Loudon County residents concerning Eastman's proposal to build a new chemical plant in their community was brought about by the trust which Eastman acquired as the result of open and honest communications with concerned citizens. Trust in Eastman may have been earned in several ways. First, Loudon residents were first notified about Eastman's proposal when the option was negotiated. Second, some Loudon residents had put their trust in local community officials believing they would not allow in industry that would be detrimental to the Loudon community. Third, Eastman officials answered the Loudon residents' questions in a timely and truthful manner. Fourth, Eastman acknowledged past problems like chemical spills that have occurred at its other plants and took the necessary actions to correct those problems.

Conclusions

Industries such as hazardous waste dumps, chemical plants, and other controversial industrial facilities encounter far greater community resistance than industries offering less risk to the community. Resistance to siting these types of facilities is not found exclusively in prosperous communities. Rural communities of low socio-economic status which greatly need jobs, money, and other benefits which result from industrial development also resist high risk facilities.

Once the developer locates a potential site for a proposed controversial industrial facility, his task is to first convince the community that the advantages of having the facility outweigh the disadvantages. Secondly the developer must persuade the community to approve the project proposal and issue the necessary permits for construction and operation.

Most communities encourage siting and development of less controversial industries and actively recruit them. In this case the community is the seller and the industry is the buyer. Although the developer must sell his proposal to the community his task is usually not difficult since he is selling to a willing buyer in a seller's market.

When proposing to site a controversial industrial facility in a rural community the developer must aggressively sell his controversial product to a reluctant buyer, the community. His prospect, the community, might reject his offer for any of the same reasons that prospects anywhere reject offers from salespeople whether their products or services are vacuum cleaners, automobiles, chemical plants, etc. Those reasons for rejection are no need, no want, no hurry, no money, no trust.

The developer must identify and address the concerns of the community. Their concerns (risks), real or perceived, include, but are not limited to, (a) contamination of air, water, and land; (b) population growth which increases the financial burden of the community due to need for more schools, roads, utilities, etc.; and (c) diminished quality of life because of increased noise, crime, pollution, marring of landscape, automobile traffic, etc.

The primary reason why communities reject offers for building controversial industrial facilities is lack of trust. Developers of these type industries have historically misled the public by presenting inaccurate, incomplete and misleading information. Further, they have often failed to keep promises made to the community. Their usually approach to siting is the "decide-announce-defend" model in which the project is purposely kept secret from the public with as little community

input as possible. This lack of involvement of the public in planning and being sensitive to their needs results in negative reactions by the community. Citizens become angry, frustrated, suspicious, and entrusting of the developer. They believe in the adage, "You can't get a good deal from a bad guy." The community typically reacts by becoming defensive and employs NIMBY tactics in an effort to abort the project. Because of high emotionally charged negative reactions by citizens, the public is likely to perceive greater risks to the community than actually exist, even in the pretense of legitimate evidence to the contrary presented by the developer. Thus a "contest" ensures in which both sides think "its us against them." It is well known that high levels of anger, hostility, anxiety, fear and other negative emotions decrease one's ability to think rationally. In such an environment the community is likely to reject the industry even when there is overwhelming evidence that risks are low and that the community would benefit from having the facility.

To further add to the polarization between the community and the developer, each employ different processes for gathering, analyzing, presenting and responding to data. The developer is usually scientifically minded and often employs the quantitative method. He thinks logically and relies on numbers, graphs, charts, probability forecasting, and other statistical data to give face validity to his presentation.

His effort is aimed at convincing the concerned citizens to respond to logical data in a logical manner.

The community, which is already suspicious of the developer's motives, is upset because they are being excluded from having input into the proposed project. Community residents, being comprised mainly of laypeople, not engineers, is more likely to respond emotionally than logically. They tend to be more qualitative than quantitative in their approach to interpreting and responding to information. Their decision, in this case, will likely be to reject the industry. Their justification are based on preservation of the landscape and of quality of life.

Controversial industries can be more effectively integrated into rural communities if the developer gains community trust and support by actively involving concerned citizens in dialogue in the beginning and throughout the project. The developer is encouraged to engage in a risk communications process which community residents' concerns are discussed. Risk communications can reduce the gap between how community residents and the developer perceive risks which an industrial facility poses. By initiating a risk communications process early in the siting process, the developer can both lower risk perceptions which residents may have and increase their acceptance of it.

The developer is encouraged to follow the risk communication's model. Step one, the developer should outline goals and objectives that he wants to achieve in risk communications with community residents. Step two, potential community stakeholders should be identified. Step three, identify community issues. Step four, identify and select suitable participation techniques to help address community concerns. Step five, implement community dialogue and assess it effectiveness.

This process stresses honest communications on behalf of the developer and encourages lay participation in the siting process. Risk communications increase public trust and credibility in the developer and allows project implementation to occur earlier than with the traditional "decide-announce-defend" model of industrial sitings.

The author acknowledges that a developer might initially be reluctant to adopt the recommendations set forth in this paper's proposition. When siting an industrial facility, the developer must often contend with certain internal and external factors which might affect his decision.

Internal factors might consist of personal and organizational philosophies in siting a facility. How the developer carries out an industrial siting can be contingent upon his own personal experiences and ethics. For example, the developer might feel he has an ethical responsibility to

community residents to address their concerns about a proposed industrial facility before siting the facility. He might also feel a need to address community concerns about a proposed siting because this approach has proven successful in the past with siting other industrial facilities.

External factors might also affect the developer's decisions to attempt to site an industrial facility in a particular community. These factors include, but are not limited to, finding and acquiring an appropriate industrial site, contending with various sociopolitical factors in the potential host community, and building and maintaining facility operations.

The developer might feel that the recommendations proposed in this study are good in theory, but adopting them could make the siting process more difficult. The developer might adhere to the traditional "decide-announce-defend" approach to facility siting because he is concerned that involvement of the community in the process might create unnecessary opposition toward the proposed facility and result in not having the project approved. His prime concern is that negative and inaccurate information about risks of the project to the community might be disseminated by members of the citizen's committee due to lack of information, preconceived notions about risk, individuals and groups having vested interests in not having the facility in their community, and

overzealous individuals with their own agendas who would use the opportunity as a forum to "grind their own ax."

A developer after all may not find it practical to involve community residents in an industrial project siting especially if the proposed project is small and is believed to have only minimal negative impacts on the potential host community. The developer, in effect, must evaluate whether community involvement should be encouraged.

For the developer, that decision is often contingent upon the type and size of the facility and the nature of the proposed facility's operations. The developer must also understand whether a potential host community views the incoming industry in a positive or negative way.

Some industrial developers may be reluctant to abandon the traditional "decide-announce-defend" siting paradigm and adopt the recommendations set forth in this study. However, because of (1) Americans increased concerns for the environment, (2) the fears of other environmental disasters from industrial accidents, (3) and an overall distrust in the belief that the industrial developer will consider what is in the best interests of community residents, the developer may find himself in need of changing his way of thinking about siting a proposed controversial industrial facility.

The author acknowledges the fact that switching to the paradigm suggested in this study will take time. For this

paradigm to succeed, industrial developers will have to make a conscious effort to adopt this proposed strategy. If some developers do make the adoption and have success with it, then the more this method in siting controversial industries will be adopted by other industrial developers.

Perhaps someday this new siting paradigm will be referred to as the traditional or conventional industrial facility siting method. Only time will tell.

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APPENDIX A

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Table 5: Major Factors that Shape Plant Location Searches

Item	Quantifiable	Data typically developed from	Company unit typically responsible
Access to Markets			
Cost of serving present markets/ distribution centers	Estimate possible	Location of markets/ distribution centers, quantities of each product shipped to each market/distribution center, shipping mode, freight rates, handling charges	Logistics
Trends in sales by area, ability to generate sales by company presence in area	Somewhat	Estimates of same data listed above	Marketing

Table 5: (Continued)

Item	Quantifiable	Data typically developed from	Company unit typically responsible
Access to Supplies			
Costs of transporting supplies	Estimate possible	Location of suppliers and costs incurred by owner quantities shipped from each location, by which mode, freight rates, handling charges	Logistics
Trends in supplier by area	Somewhat	Estimates of some data listed above	Purchasing
Community, Government Aspects			
Ambience, charisma of community	No	Site visits, hearsay polls of people's preferences	Location team
Cost of living	Yes	Bureau of Labor Statistics area figures	Location team
Cooperation with established industry	No	Site visit	Location team
Appearance, citizen	No	Site visit	Location team

Table 5: (Continued)

Item	Quantifiable	Data typically developed from	Company unit typically responsible
Housing/ costs, availability	Somewhat	Site visit, discussions with realtors	Location team
Schools, recreation culture attractions	Somewhat	Site visit, program offerings from state/ local sources, % going to college, etc.	Location team
Nearby colleges	Somewhat	State/local resources	Location team
Churches, civic groups	Somewhat	Site visit	Location team
Competitive Considerations			
Competition's location	Yes	Industry sources	Division
Likely competition reaction to this new site	No	Industry sources own sources	Division

Table 5: (Continued)

Item	Quantifiable	Data typically developed from	Company unit typically responsible
Environmental Considerations			
Government area or not?	Yes	Federal/state environmental protection service	Environmental Affairs
Are pollution rights of other companies available for purchase	Yes	State EPA development agencies, companies in area	Staff, Location team
Ease and speed of compliance	No	Federal/state EPA, militancy of local conservation efforts	Staff
Interaction with Rest of Corporation			
Is new plant to be a satellite of another plant or not?	Yes	Own knowledge	Division

Table 5: (Continued)

Item	Quantifiable	Data typically developed from	Company unit typically responsible
Is plant to be supplied by or to supply other company plant?	Yes	Own knowledge	Division
Extent of expected engineering/management troubleshooting from headquarters	No	Own Knowledge	Division
Labor			
Prevailing wage rates	Somewhat	Bureau of Labor Statistics, State/local publications, poll of manufacturers in the area	Personnel Location team

Table 5: (Continued)

Item	Quantifiable	Data typically developed from	Company unit typically responsible
Extent and militancy of labor unions in area	Somewhat	Does state have "right-to-work" law?, BLS data on union workers, work stoppages, NLRB certification/ decertification elections, poll of area manufacturers	Personnel, Location team
Productivity absenteeism, turnover worker attitudes	Somewhat	Poll of area manufacturers	Personnel, Location team
Availability population, area unemployment, commuting distances	Somewhat	BLS data, Census data	Personnel, location team
Skill levels available	Somewhat	Poll of manufacturers in area, local training programs	Personnel, Location team

Table 5: (Continued)

Item	Quantifiable	Data typically developed from	Company unit typically responsible
Site Itself			
Area of site and layout of each structure	Yes	State/local development agencies, railroads, power companies, developers, realtors, site visit	Location team
Price of site and any structures	Yes	Seller	Location team
Ability to option site, length, cost	Yes	Site visit, especially once option is taken	Location team
Condition of site and structures/topography, geology,construction	Yes	Site visit, especially once option is taken	Location team
Area parking and traffic	Somewhat	Site visit	Location team
Construction, insurance remodeling costs	Yes	Site inspections, engineering plans	Project engineering

Table 5: (Continued)

Item	Quantifiable	Data typically developed from	Company unit typically responsible
Taxes and Financing			
State income taxes corporate/personal	Yes	State government office	Tax department
Local property and local income tax	Yes	Local government office	Location team
Unemployment and workmen's compensation	Yes	State government office	
Other state/local business taxes	Yes	State/local offices	
Tax incentives and or concessions	Yes	State/local offices	
Industrial and/or pollution control revenue bonds	Yes	State/local offices	

Table 5: (Continued)

Item	Quantifiable	Data typically developed from	Company unit typically responsible
Transportation			
Trucking service charge rates and quality of service	Somewhat	Area trucking companies, other manufacturers in area	Location, logistics team
Rail service rates/frequency of service	Somewhat	Railroads and other manufacturers in area	Location, logistics team
Utilities, Services			
Availability, quality, and price of water, sewerage, electric power, natural gas	Somewhat	Utility companies, poll of manufacturers in area	Location team
Quality of roads, police, fire, medical, other services	Somewhat	Site visit, poll of manufacturers in area	Location team

Source: Schmenner, Roger W. Making Business Location Decisions. Englewood Cliffs, NJ: Prentice-Hall,Inc.,1982.

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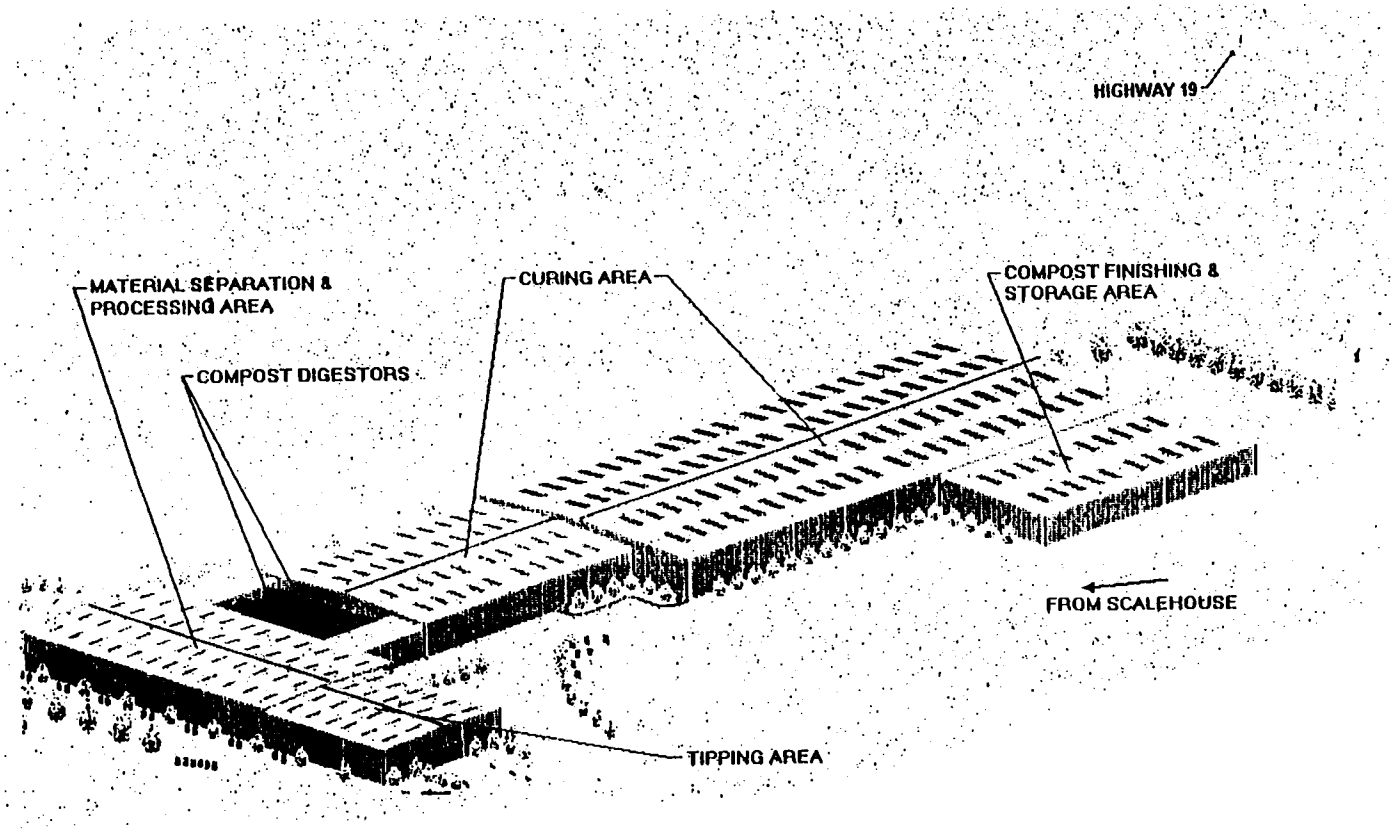


Figure 5: Exterior View of Proposed Composting and Recycling Facility

Source: Ryan, Charles. Charles Ryan Associates. Charleston, West Virginia. Brochure. June 1996.

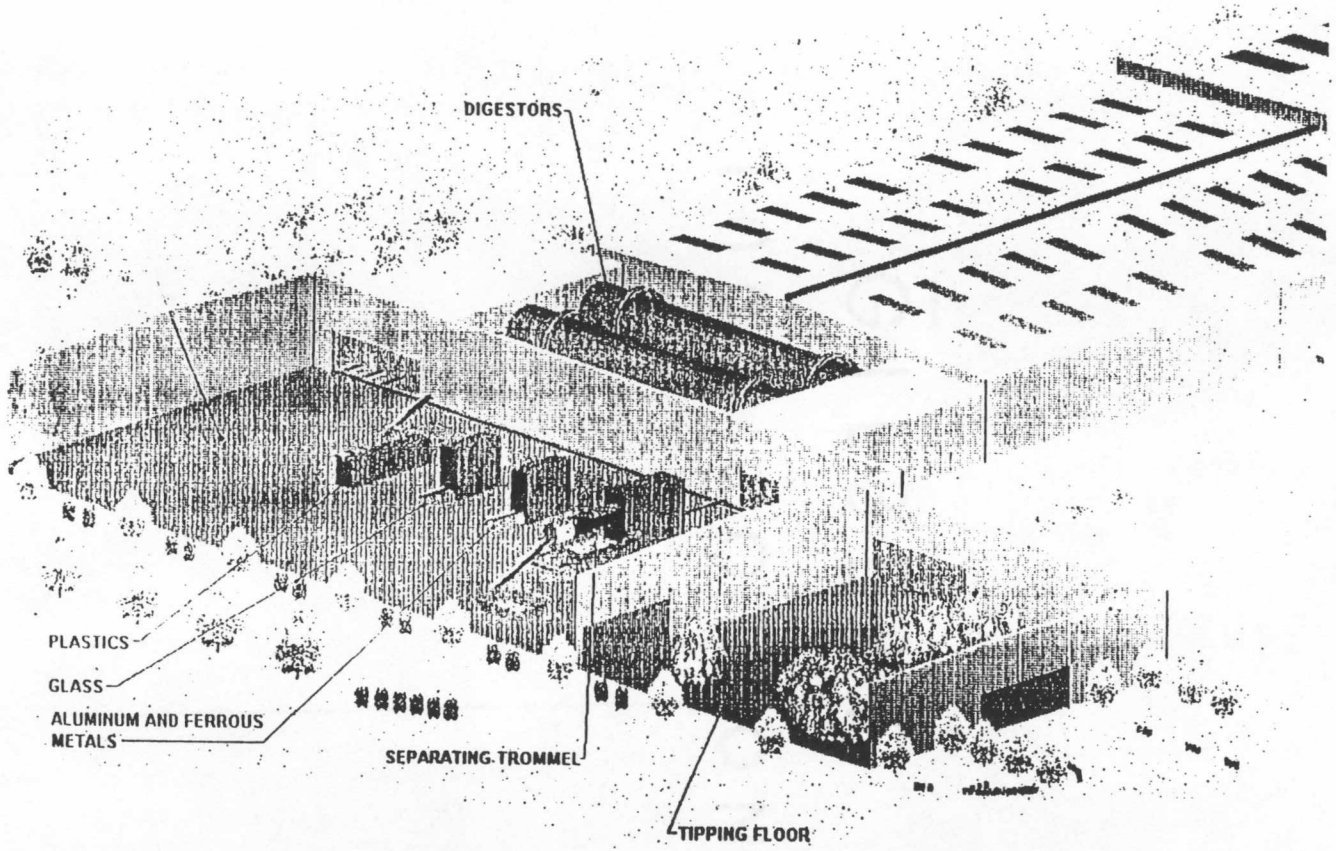


Figure 6: Interior View of the Recycling Section of the Proposed Facility

Source: Ryan, Charles. Charles Ryan Associates. Charleston, West Virginia. Brochure. June 1996.

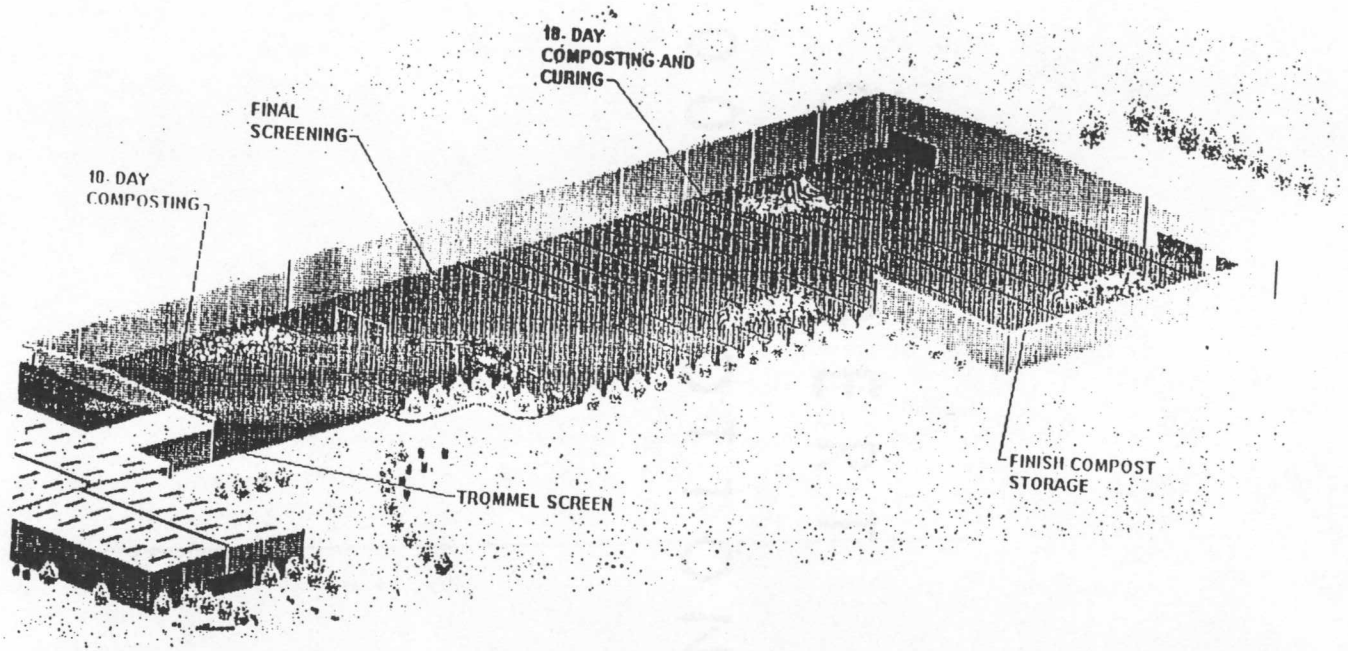


Figure 7: Interior View of the Composting Section of the Proposed Facility

Source: Ryan, Charles. Charles Ryan Associates. Charleston, West Virginia. Brochure. June 1996.

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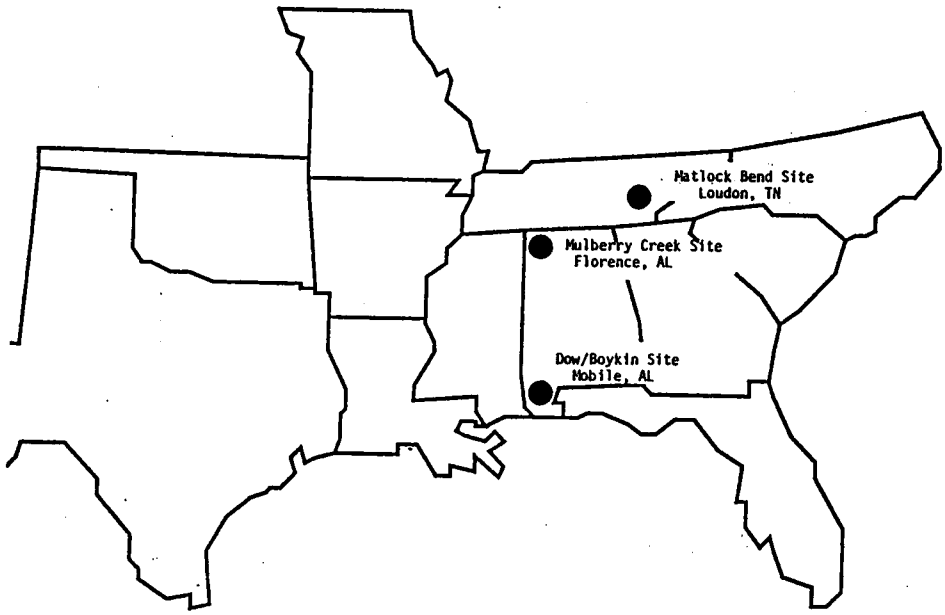


Figure 8: Eastman's Top-Three Potential Sites for a Chemical Plant

Source: CRS Sirrine Architects, Inc. Advance Planning Group. Master Land Use Planning Program: Program and Planning Alternatives for Eastman Chemical Company, Loudon County, Tennessee. Houston, Texas. May 1991.

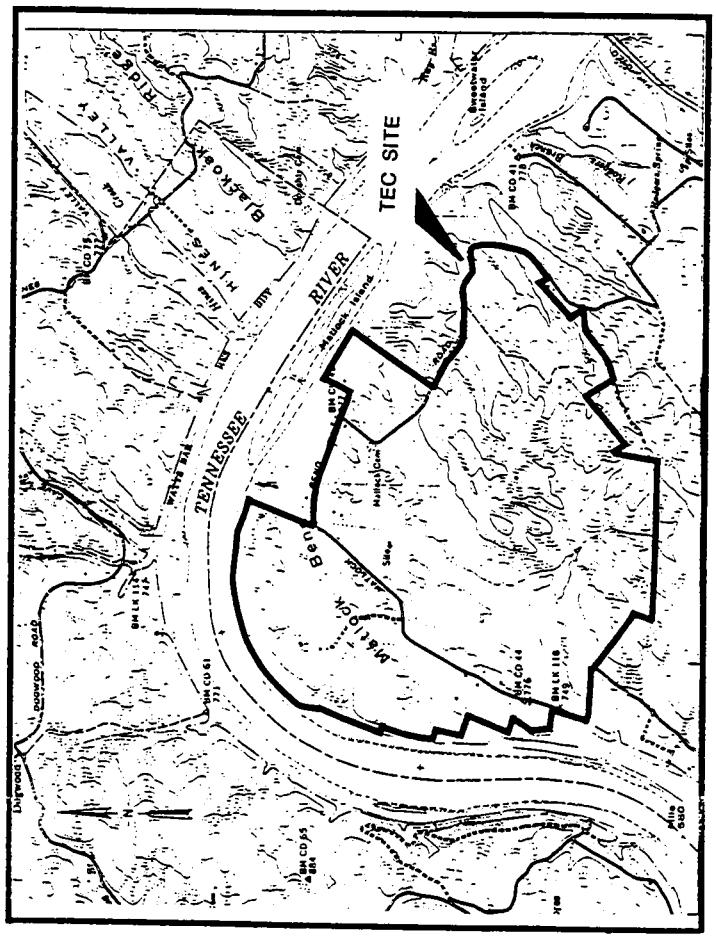


Figure 9: Tennessee Eastman Company Site-Matlock Bend, Tennessee

Source: CRS Sirrine Architects, Inc. Advance Planning Group. Master Land Use Planning Program: Program and Planning Alternatives for Eastman Chemical Company, Loudon County, Tennessee. Houston, Texas. May 1991.

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