

Site Selection:

How to Choose the Best Location for a New Plant or DC

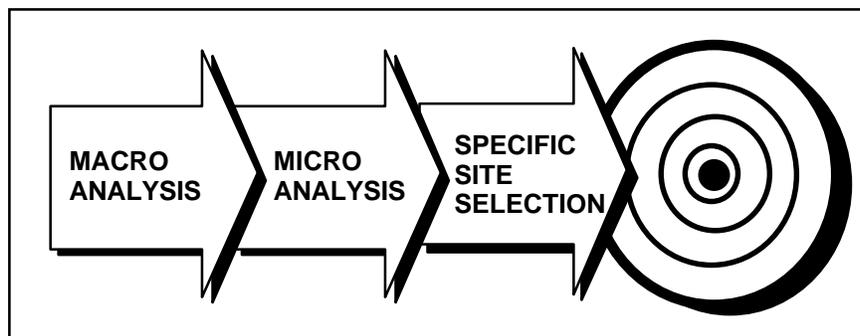
Introduction

Site selection is one of the most challenging assignments ever faced by a logistics manager. To the inexperienced, it may appear to be a simple task — just a matter of real estate prices and availability.

In reality, the job is much more complex. Selecting a site for new distribution facilities has a major impact on logistics costs and operational efficiency, and even on a company's overall marketplace success. It also involves a web of related but difficult decisions.

Fortunately, approaching this task with a solid understanding of how to get and use the right information for making decisions can make the task much easier and more efficient. Contrary to the old saying that there are only three important factors in real estate decisions ("location, location, and location"); intelligent selection of distribution sites involves many other factors. They can be classified into three categories:

- **Macro analysis**
- **Microanalysis**
- **Specific site selection**



Site Selection Components

What is the "right" location? How many and what type of facilities are needed? What size and what function should they perform? All of these are strategic questions, which must be answered before any real estate considerations whatsoever can enter into the discussion. In each of the major decision areas, there are numerous issues to be examined.

Issues

The site selection process involves the solution of three problems in a particular order:

1. **Macro-analysis:** defining the number of facilities and in what parts of the country they should be located
2. **Micro-analysis:** defining a geographic area of the country in which to locate the facility (within a metropolitan area, and/or more specifically within a section of that metropolitan area)
3. **Specific site selection:** Identifying a particular location where the facility will be.

The location selection process begins at the highest strategic (macro) level and works down to the tactical level, where a specific real estate parcel is chosen.

This article is based upon the "Warehouse Site Selection" chapter of the soon to be published book The Logistics Handbook The Free Press New York, NY. Mr. Freese has gained his knowledge in this area through numerous site selection efforts, over fifteen years of experience as a line manager responsible for living with site selection decisions, and ten years of experience as a consultant leading site selection and third party warehouse searches for clients.

Facility Site Selection

One of a company's toughest decisions is choosing the best place to establish a new production or warehousing facility. No manager wants to be remembered for locating the company's state-of-the-art plant or distribution center (DC) in the vicinity, say, of a ghost town or a toxic waste dump. Fortunately, however, with the right approach, this task offers an excellent opportunity to enhance a company's profitability, growth potential, and marketplace success.

"Why" and "What" Are More Important Than "Where"

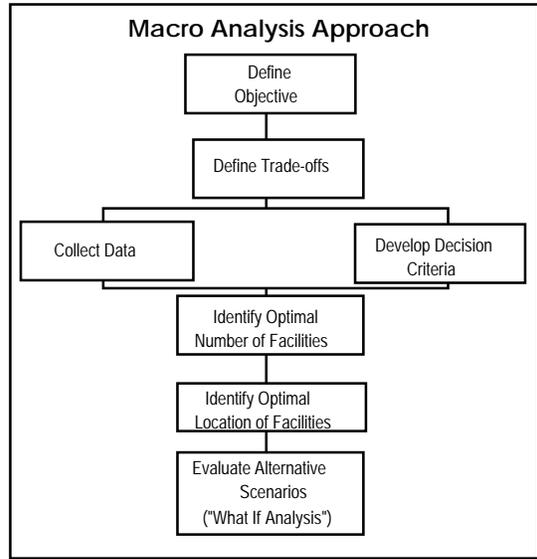
Despite the maxim that only three factors are important in any real estate decision ("location, location, and location"), deciding *where* to establish a new facility should generally be the last step in the process. The first priority should be to analyze and determine the facility's *real mission*, now and during its useful life. To understand that mission, it's helpful to use a three-part approach: macro analysis, microanalysis, and specific site selection.

Macro Analysis: Seeing the Big Picture First

Long before contacting a real estate broker (in fact, long before considering even a general location for the new facility), the company needs to assemble a dedicated facility planning team, each member of which has a stake in — and can contribute to — the success of the project. The team should include senior managers who understand the firm's core functions, from purchasing and manufacturing through distribution, finance, marketing, customer service, administration, and legal affairs. The team's initial job is to define the factors that will influence the choice of *where* to place the new facility, including service requirements, transportation and labor economics, material handling capabilities, fixed and ongoing costs, and inventory costs and policies.

This opening phase of the project presents a good opportunity to challenge the "business-as-usual"

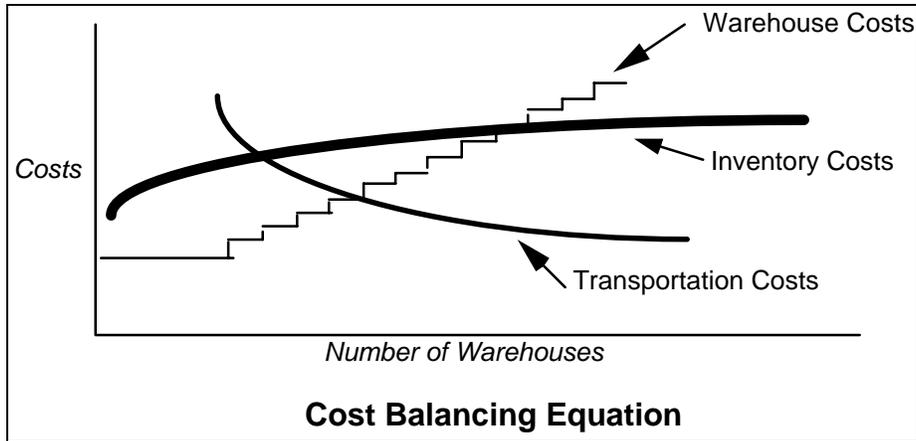
complacency, which plagues most companies. By clarifying the fundamental nature of a company's customers, products, services, and production/distribution operations (both today and



over a reasonable planning horizon), the team can identify and eliminate false assumptions and outdated viewpoints. Rather than addressing such questions as "How much will it cost us to build a DC to serve our New England corporate customers?" this early phase of the process may help show that such a move is totally unnecessary.

The macro analysis uses a multi-step, well-defined process to define "big-picture" trade-offs and constraints. Because the factors and data to be considered (including product demand data, freight rates, facility costs, labor content and costs, production/distribution capacities, and customer service requirements) can quickly become complex and unwieldy, a company can benefit significantly from the use of a computerized mathematical model.

Many such models are commercially available today, including spreadsheet cost calculators, network simulators, and mathematical optimizers. An optimization model is the most sophisticated (and generally the hardest to use); it can rapidly address a large number and complex variety of "what-if?" scenarios in terms of plant or DC locations, costs, and service levels. With the growing power of personal computers, however, a simpler but equally effective tool may be a simple computerized spreadsheet analysis which helps analyze cost/benefit trade-offs, as shown in the simple graph below:



Regardless of the specific tools or methods used, the macro analysis will fail unless the project team has clearly defined the company's implementable, real-world production/distribution alternatives and based the analysis on accurate, comprehensive data. No amount of bells-and-whistles analysis can compensate for a lack of solid, up-to-date facts about products and customers and a clear understanding of the customers actual needs, wants and requests in order to provide the best products and service at the lowest possible cost.

The outcome of the macro analysis should be a set of several production/distribution scenarios, each of which offers certain advantages and disadvantages in light of current and projected economic and marketplace realities. It should also result in the identification of a region or regions, which will, in general, meet the company's objectives. The team will use these alternative scenarios and a statement of the firm's cost/service strategy as the basic input for the next phase of the project.

Micro Analysis: Moving Closer to the Target

While the first phase focuses on high-level, long-range questions about a company's production, marketing, and distribution strategy, the second addresses the trade-offs involved in comparing two or more potential sites within a geographic region. In this phase, the project team weighs such factors as overall labor demographics, taxes and zoning laws, government investment incentives, highway congestion, accessibility to air and rail transportation, utility services, land values, and the general commercial and competitive climate.

Information for the microanalysis can be derived from reports published by regional development authorities, chambers of commerce, commercial real estate brokers, the business and trade press, city and state directories, and government statistical bulletins. As always in such research, it is important to

"consider the source" when evaluating the objectivity and completeness of this information. Obviously, the first priority of a real estate broker, no matter how competent or ethical, is to bring buyer and seller together, not to provide totally professional, unbiased advice. Similarly, a state or regional development agency, like a gas or electric utility, is dedicated to attracting investment, not to compiling neutral statistics. For this reason, it may be wise to seek independent outside counsel from a specialist who can act as his client's expert advocate in such matters.

Choosing the Best Site

Once the project team has settled on a general location for the new facility (usually in a particular section of a large metropolitan area), the team's next job is to define the requirements to be met by a specific site. The first decision is, of course, to determine whether it is best to erect a new structure or to adapt an existing one. Either choice must meet certain criteria.

The available **labor pool**, for instance, should be researched in light of commuting distance — and competition from other companies — for potential workers; the strength or weakness of relevant unions is also an important consideration. Any location needs good access to reliable, up-to-date **utilities and communications facilities**; the actual time required to hook up gas, water, or electrical services, as well as their available capacity, must be understood long before a site is selected. Current and anticipated **zoning regulations** will also have an impact; the presence of similar facilities in the area under consideration usually indicates that the new facility will fit into the neighborhood. Another factor to weigh is the quality of **local support services** such as waste disposal, proximity of maintenance vendors, fire protection, and sanitation services. An obvious consideration is the **tax structure** for businesses and individuals; a local accounting or legal specialist may be needed to analyze the impact of taxes on

corporations, personal property, inventory, and employees.

Buy vs. Build

Existing structures offered for lease or sale should be evaluated even if the company prefers a “fresh-start” approach to its facility needs. Such an approach may reveal a more cost-effective alternative or may offer negotiating leverage in planning a new structure. If the company does decide to build a new structure, the planning team should be aware that land conditions differ greatly from one region of the country to another. Soil compaction, drainage, groundwater levels, annual rainfall or snowfall, freeze-thaw cycles, earthquake incidence, and similar factors have a major influence on site preparation and building requirements and thus on the time and cost involved in completing a new facility.

A few cautionary tales may help convince skeptical or hurried managers of the value of such planning:

- A manufacturer in the Minneapolis area learned about the risks of poor planning when the roof on its new \$4.5 million regional distribution center collapsed only six months after completion. The firm had failed to provide adequate roof supports to withstand the heavy snows common in that climate.
- Material flow patterns in a large DC built by a California toy manufacturer were severely disrupted when shear walls and fire walls had to be added to meet local code requirements *after* completion of the facility. The company had neglected to consider these regulations fully in planning the facility.
- A major manufacturer of consumer goods on the East Coast had been operating its new \$6.2 million distribution center only a few months before discovering a costly defect: inadequate soil compaction to cope with severe freeze/thaw cycles resulted in the sinking or rising of its truck pads, thus putting its loading docks at the wrong level. The company had to spend several hundred thousand dollars rebuilding the pads.
- Most local fire codes require a company to plan carefully for installation of proper emergency sprinkler systems, especially in facilities where highly flammable goods are stored and handled. A plastic goods manufacturer in the Midwest paid a high price in construction cost overruns when it had to reconfigure its new plant to incorporate booster pumps and water reserves before starting up the new facility.
- In Denver, a maker of grocery sundries found out too late that its new DC was poorly positioned on

site. The firm incurred excessively high annual costs for roof maintenance and snow removal because it overlooked simple, common sense principles that would take advantage of natural shade and sunshine.

- A large new plant built by a medical goods manufacturer in Ohio seemed to promise everything the firm hoped for – more efficient operations and better service to customers. Unfortunately, the company had to pay significant sums to correct ground floor collapse problems when it discovered too late that poor roof and foundation drainage caused severe erosion of the new facility’s base.

While we lack the space here to discuss all site selection and building considerations in detail, one point should be clear: **a site selection and facility preparation project involves significant complexity and risk.** However, a firm can be much more confident about its new facility if it bases its plans on comprehensive research, accurate data, and a skillful professional approach. (Although entrepreneurial firms may pride themselves on bold and rapid decision-making, they may also make the costliest mistakes in this process.)

As in all successful business planning, the key is to balance opportunism with prudence. Firms that can best maintain that balance are the ones whose new plants or DC’s will provide the most competitive service at the lowest cost — for many years to come.

About the Author

Thomas L. Freese is principal of Freese & Associates, Inc., a management and logistics consulting firm in Chagrin Falls, Ohio. Mr. Freese received his B.S. in business administration and marketing, and an M.B.A. with a concentration in business logistics from The Ohio State University. His experience spans a wide spectrum of products and industries from bulk chemicals to consumer goods, frozen fruit, and fresh poultry. He has consulted to numerous manufacturers, wholesalers, distributors, and retailers.

Before establishing Freese & Associates, Inc., he served as Manager of Physical Distribution for Parker-Hannifin Corporation, and in numerous line and staff distribution positions for Unocal. He is past president of the Northeastern Ohio Warehousing Education and research Council (WERC) chapter, and an active member of the Council of Logistics Management (CLM), the International Customer Service Association (ICSA), and WERC. He is a frequent speaker at professional conferences and seminars and has contributed articles to the *Journal of Business Logistics*, *Traffic Management*, *Food Business*, and *Distribution Center Management*. His chapter on “Warehouse Site Selection” appears in *The Logistics Handbook*.