

**MARKET AND FEASIBILITY STUDIES:
A HOW-TO GUIDE**

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Introduction

During the 1980's, the halcyon years of real estate development, new projects were developed on an epic scale. Millions of square feet of retail, office and residential space were built in the United States, especially in the Sunbelt states of the south. Loans were easy to come by and interest rates were low. Savings and Loans were handing out funds like candy to trick-or-treaters. Despite the boom, much of this development remained vacant or without buyers and had enormous debt burdens.

The cycle of bad loans and failed projects was evident by the mid-1980's, but it wasn't until the late 1980's that the Savings and Loan crisis broke. Savings and loan institutions were supposed to be safe places for people to keep their money and to obtain moderate home loans, but the 1982 deregulation had allowed these institutions to fund any type of project.

As S & L's crashed, it became evident that a huge bailout would be necessary. The Resolution Trust Corporation was formed for this task. The cost was originally predicted to be \$50 billion, but has risen to between \$500 billion and \$1 trillion dollars. The eventual burden on the taxpayers could be \$2,000 per capita.

What do bad loans and failed banks have to do with market and feasibility studies? Everything. One of the main causes for the S & L debacle is bad loans made without accurate information showing whether a project could succeed. During the 1980's loans were made to developers based on past successes. Instead of a critical look at the project by the lender, loans were granted for the ability to put up buildings quickly and cheaply.

An Example: The McKenzie Sports Arena Market Analysis and Preliminary Feasibility Study

In December of 1996, the Community Planning Workshop (CPW) was hired by Broad Base Programs, Inc. to analyze the market for a large scale multiple sports Arena. The facility would be a large scale quasi-public development. In order to obtain market information CPW performed an extensive study. Throughout this report we will trace the path that CPW took in writing the market analysis. Each gray box will outline a different portion of the study and the process.

Banks are more wary now, and they are required to be. A market and feasibility study will be necessary for almost any development project to obtain funding. Not just a necessity for funding, a market study helps avoid bad projects when used by the development team to design the project and for marketing. Even public projects are requiring more detailed studies for capital projects. Planners often write and review market and feasibility studies for both public and private projects.

This chapter outlines the basics of market and feasibility studies. We will begin by describing what a market and feasibility

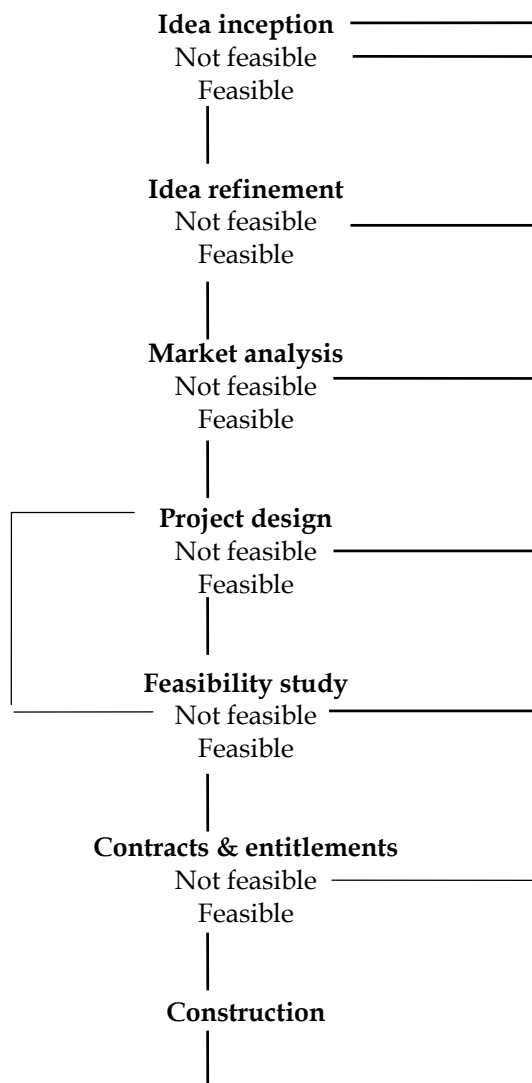
study is and its place in the development process. Next, we will examine who uses these studies, who writes them and what types of market studies exist. Then we will go

through the steps in performing a market study. Next, we provide some advice on delivering the results. We conclude with a look at common errors made in the process.

What Is A Market And Feasibility Study?

Most people lump market and feasibility studies together, but they are two different entities and typically occur at different times in the development process. In general, a market analysis searches for the intersection of demand and supply that will create a market for a product at a given price, and a feasibility analysis tests whether a certain product will meet certain financial or social goals in the market. As Figure 1 shows, a market analysis is performed early in the process, while a feasibility analysis is performed after initial design and during design refinements.

Figure 1
The Real Estate Development Process



Property management

Developers usually have some sense of the market when they first consider a site or development concept. As entrepreneurs, they are constantly following trends, watching other developers and looking for new niches to fill in the market. Based on this knowledge, a developer will identify an opportunity and create a concept for taking advantage of that opportunity. This initial idea will make intuitive sense to the developer, but gut feelings are not a sound basis for investing thousands or even millions of dollars in construction.

The developer needs more detailed information about the market before proceeding even to the preliminary design phase. Here is where the market analysis comes in. The market analysis helps the developer answer a series of questions to refine the project concept. For example a residential developer would want to know answers to the following questions:

- What are the employment trends in the market area?
- What is the population growth rate in the market area?
- What is the best configuration and size of units for the proposed development?
- How many units can the market absorb, at what price and over what length of time?
- What percent of market demand will the project capture and why?
- How should units be marketed to the target customers?
- How much operating revenue or income can this project expect to generate over a certain time?
- What are the regulatory controls placed on this type of development?
- What is the communities position on the potential development in the proposed location? (Miles, 11)

Other types of developers such as commercial and industrial builders will want to answer similar questions. This information is essential for proceeding with design, fund raising and eventually marketing. The developer will share the information with architects, engineers and landscape architects who will develop a more refined site plan. Architects will use the information to decide on building type and amenities, engineers will use the information to plan for infrastructure and landscape architects will design how the buildings should be placed on the site.

The next step is the feasibility study. Based on the designs, the developer will obtain construction and other project costs. The analyst who performs the feasibility study will test whether the expected revenues which were generated in the market analysis sufficiently exceed the expected costs. In most cases, the project is required to generate a dollar return commiserate with the amount of risk involved in order to proceed.

In certain public projects, a policy decision may be made that the projects contribution to the community is more important than making money. For example, many communities build stadiums using debt financing such as bonds. Cities may not expect

to generate profit on their investment, but hope that spin-offs and residual effects of development will increase the community's general well being. While feasibility studies should consider other non-monetary risks and opportunities, for most developers and investors the bottom line is delivered in dollars and cents.

If the feasibility study is positive, the project may move forward. The developer will use the study to obtain funding from investors and developers, contracts will be signed with builders, and marketing efforts will start. If the feasibility study is negative, the developer may decide to abandon the project despite having invested thousands in a study. The developer may also return to the design team and search for ways to make the project profitable. The development team may change the combination of amenities, increase density, obtain better loan rates or even completely switch the type of development. The developer and market analyst will become involved in an information feed-back loop until all the permits are obtained. At this point, it typically becomes too expensive to change the project.

It would seem that the market analysis is no longer necessary once construction has begun, but much of the information can be used in marketing the project. The market analysis defined the market segment and differentiated the project, two tasks necessary to target customers. To keep the information pertinent, the study should be updated throughout the development process.

The market and feasibility study is an integral part of the development process. Done correctly and at the right time in the development process, it can prevent major project failures and locate significant opportunities. Due to the importance and complexity of market and feasibility studies, the client and consultant must be both actively involved in the study process.

Who Uses Market And Feasibility Studies?

Dozens of important development decisions are based on market and feasibility studies. During the development process, many different interests will review sections of the study including members of the development team, public sector representatives and investors or lenders. These people depend on a quality study on which to base very expensive decisions.

Market and feasibility study users include:

- Developers,
- Architects,
- Land planners,
- Engineers,
- Lending institutions and Real Estate Investment Trusts (REITs),
- City planners, and
- Elected officials.

Developers

There are many different types of developers. The developing entity can be a government, a non-profit organization or a private entity. Each type of developer will have different goals. Governments typically do not have profit as their main goal. They are most often looking to increase public benefit by providing a service that the private sector will not provide or won't provide at an appropriate price. Many times a study for a government agency will concentrate on spin-offs and social costs such as increased revenues for nearby business or required infrastructure improvements. Certain mandated projects such as jails may concentrate on locating cost cutting mechanisms or defining the necessary standards for the facility.

Non-profits, a second type of developer, typically wish to provide the community services which they perceive as currently inadequate. The most common example is low-to-moderate cost housing. One of the largest residential developers in the nation is Habitat for Humanity, the non-profit housing organization founded by President Jimmy Carter. Habitat for Humanity's goal is to provide housing to those who might not be able to purchase a home on the regular market. Organizations like Habitat for Humanity would use a market analysis to help identify need and possible sites for development. Other non-profits may wish to develop for their own personal use. In that case they become more like a private entrepreneur, since they must be sure that the costs of development do not exceed the organizational benefits.

While it would be a fallacy to say that private entities which include investment groups, joint ventures, and others are only concerned with making a profit, those who consistently lose money don't remain developers. Risk in development is high compared to other investments opportunities and a positive market and feasibility study can make or break a project. Developers will use market and feasibility studies to describe the extent of demand, physical and social constraints they face in development, the number of units they can hope to rent or sell, what the competition is, and what they can expect to earn in revenue. Market studies will also be used in soliciting loans and investors and in marketing the project to costumers.

Architects

Architects use market and feasibility analyses to help them design projects. The market study will tell the architect what type of units or facilities to design, what scale the units should be, the maximum density that can be placed on a site and the general cost constraints they must design within. If the market segment targeted is wealthy home owners in search of a rural ranchettes, then the architect might include large open rooms with a rustic wood and stone design.

Design of the product will have a significant effect on cost and marketability. If a designer adds to many amenities or places too few units on a site than it will be impossible to generate a profit. If they do not include the correct selection of amenities, the units will be difficult to rent or sell.

The Client: Broad Base Programs, Inc.

The client in the our project was Broad Base Programs, Inc., a local non-profit organized for sole purpose of developing a multiple-use athletics Arena. The Broad Base Programs board of directors is made up of community members who are active in recreation and athletics. None of the board members has any experience in managing a large scale facility and only one member has any experience in development. While the Broad Base board is extremely committed to its vision, their lack of experience serves as an impediment. The group lacks a strategic business plan and does not have a clear picture of the development process.

The group does not wish to create a profit earning business. What they hope to build is a McKenzie Sports Arena which will break-even on operating and maintenance costs. They have acquired a \$1 per year lease for land with an exceptional location from the city and hope to raise capital funds through donations. The City of Springfield has used room tax funds to help Broad Base begin its efforts. The mayor is especially supportive.

In order to continue to acquire economic development funds from the city of Springfield, Broad Base was required to have a market analysis performed. After preliminary negotiations, Broad Base hired the Community Planning Workshop to perform the work.

Land planners and engineers

Land planners and engineers will use market analyses in planning infrastructure and layout of a development. They will also examine general land constraints highlighted in the market analysis. The land planner may also perform the site design and layout. In concert with the architect's ranchette design, for example, the land planner may might create larger lots with view aligned to increase the rural feeling.

Lending institutions and REITs

Lending institutions use market analyses to determine a project's potential for success and the level of risk. In the past, investors with strong resumes could obtain loans based just upon their past successes. After the Savings and Loan debacle, few projects will receive any funding without a detailed independent market analysis. Banks are looking for projects with low risk, and thus view all market studies with skepticism. They are especially wary of overly optimistic predictions.

Real Estate Investment Trust Companies, also known as REITs, are currently some of the largest investors in real estate

projects. REITs are formed by groups of investors to consolidate investment power and reduce risk via portfolio diversification. Some REITs are publicly held, and shares can be bought or sold on exchanges. REITs often make investments outside of the geographic area in which their offices are located. When investing outside of an area of familiarity, risk and dependence on market and feasibility studies are increased. The REIT's analyst may have only a small amount of time to spend on site to check local conditions. The analyst will compensate by spending a great amount of time analyzing the developer's market and feasibility study for competence before recommending an investment.

Government planners

One of the major components of the development process is obtaining entitlements. Government planners, including city and county planners and federal land managers,

will analyze market and feasibility studies for private projects to assess potential community impacts. Planners are typically concerned with the burden that additional development will place on existing transportation systems, water and sewer facilities, schools, fire, police and medical services. The planner will also be checking for conformance with comprehensive plans, zoning rules and other regulations. The market and feasibility analysis may be the basis for the planner's recommendation to the council. A poorly done market analysis will not engender trust from the public sector.

Elected Officials

City councils, county commissioners, planning board members and other elected officials may use market and feasibility studies at times. For example, a planning commission may review a market and feasibility study during the approvals process. Often they will only review staff analysis of the study, but sometimes they will review the entire study. The market and feasibility study helps the commission to decide if the growth impacts of the project exceed potential community benefits. It is often via the commission that community opposition is expressed. A detailed market analysis can help avoid or even dispel conflict about a project.

Who Performs Market And Feasibility Studies?

Market and feasibility studies can be performed by a variety of different individuals in the development process. Independent consultants are being insisted on more and more, but all of the below may perform market and feasibility studies:

- Developers,
- Architectural, engineering and planning firms,
- Lending institutions and other investors,
- Government planners, and
- Market analysts, appraisers, and other real estate consultants.

Developers

Developers will often perform a back-of-the-envelope analysis during the idea inception stage of project development. Developers may even prepare a more formal market analysis. While this may save time and cost, most lenders will desire an independent study. It doesn't make sense for a developer to be overly optimistic when performing a market analysis, since they are risking their own funds or their business reputation. Yet some developers are so taken with a development idea that they are unable to avoid bias, see risks and identify opportunities. Market analyses performed by developers may make good marketing tools, but they are no substitute for an independent analysis.

Architectural, engineering and planning firms

Architectural, engineering and planning firms combine many of the design skills necessary for developing a project. Often these firms will have market analysts on staff

who have experience in performing studies. These types of firms do a large number of market studies. The market analyst may not have any personal connection to the project, but there is still a potential for bias. If their study gives the project a go-ahead, their firm may earn millions during the design stage. While biased studies are rare, internal pressures exist and should be considered. To offset this trend some firms have created wholly owned subsidiary firms which perform their market and feasibility studies. While the perception of bias is reduced in these situations, actual pressures may remain the same.

The Analysts: Community Planning Workshop

Community Planning Workshop (CPW) is an applied planning, public policy and economic development research program at the University of Oregon. CPW works with communities, organizations and agencies to improve social, environmental and economic conditions in the Northwest. While CPW is part of the University of Oregon, it functions as an independent consulting group. The staff leads teams of between 4 and 8 students who work on an average of 20 projects annually. CPW's affiliation to the University insulates the workers from some political pressures and does increase the perception of objectiveness.

In November of 1995, CPW was contacted by Broad Base Programs to perform a market and feasibility study for the McKenzie Sports Arena and prepared a proposal in response to that solicitation. CPW, Broad Base and representatives of the City of Springfield met in December to discuss the proposal and make adjustments to the work plan. CPW proposed a market study that would examine demographic and sports participation trends and the existing and planned supply of sports facilities in the Eugene-Springfield area. A preliminary feasibility study would also develop a pro forma. CPW proposed a six month timeline with a cost of approximately \$20,000. A project manager was chosen and a team of six first year students were assigned to work on the project.

Lending institutions and other investors

Lending institutions and other investors such as REITs often track market conditions and occasionally will perform their own market and feasibility studies. Lenders which fund real estate projects track markets in the areas in which they invest. They follow the number and scale of building permits and starts. This helps them judge market studies for projects in their area. If a lender or investor wants to invest in a new geographical area they will typically do at least cursory site work to understand the political, regulatory and economic conditions of the area.

Since the Savings and Loan crash of the late 1980's, banks and investors have been required to be more careful in investing in real estate projects. In fact, lenders have been placed in a catch-22. They are required to demand a sufficient analysis to prevent a default, but no standard exists for what level of analysis is sufficient. If the loan fails, regulators may fault lenders for not having performed due diligence. To offset this risk, lenders will demand very conservative and detailed assessments or are performing supplementary studies in-house.

Government planners

Federal, state and local government planners may be asked to perform a market analysis for a public project. For example, a city may be considering a new recreational facility. They may ask their planners to assess the demand for such a facility and what amenities would make the facility work best. While most city planners will provide a non-biased study, they do function under a certain amount of political pressure. If the a new facility is the pet project of one of the councilors, the planner may be under significant pressure to find a way to make the project feasible. Planners may also be asked to perform studies of residual and spin-off effects of large private developers. Federal agency planners perform a large amount of cost-benefit analysis. Their assessment of a project's feasibility may mean the difference between obtaining or not obtaining necessary entitlements.

Market analysts and other real estate consultants

As the field of real estate becomes more regulated, objective analysts will become increasingly demanded for market and feasibility studies. Lenders, government agencies and communities will demand information that at least appears objective from which to base their decisions. Also, specialized market analysts may be able to provide more specific expertise to a project than other members of the development team.

Market analysts are found in both small independent firms and large corporate consulting firms. Local market analysts may have a better feel of the local pulse, but larger firms may be able to bring more skills to a project. For example, a difficult site may require an army of consultants including geo-technical engineers, historians, and environmental assessment services. A larger firm which may already have these staff people might reduce costs.

While market analysts have less pressure to approve projects, those who say no to everything find that they rarely have work. Most market analysts attempt to use an iterative process in which the best possible alternative for the developer is pursued.

What Are The Types Of Market And Feasibility Studies?

Just differentiating between a market and a feasibility study leaves too many generalizations. There are several different types of studies performed for real estate development. They range in complexity and type of use. Each of the studies below may be performed separately or may be completed as parts of a larger analysis. The three primary types of studies we will examine are highest and best use studies, market studies and feasibility studies (Miles, 358 and Barnett, 35).

Back of the envelope

Developers will often do a back of the envelope analysis when discussing project ideas. This analysis will be based mostly the developers experience and understanding of local

conditions. By quickly assessing the potential for certain types of development, a developer can quickly rule out those which have little potential for success and concentrate on those which may work out. For example, a developer looking at an urban site may see the possibility for a large office building. By quickly listing the inputs necessary for such a project and comparing those to obvious existing market conditions the developer can decide whether or not to proceed. The back of the envelope analysis is not sufficient to be shared with lenders or investors, but it is a starting point for more research.

Appraisal

Appraisals are performed regularly by real estate agents and other specialists to assess the value of an improved or unimproved site. They are typically based on market prices, the replacement costs of any improvements and present worth. More detailed appraisals will estimate an absorption rate (the rate at which a product is used in the market) for the site and the amount of potential market capture. Appraisals are used to set the value of land being used as collateral or to develop selling prices once the development project has been completed.

Cost-benefit analysis

Most cost-benefit analyses are performed by public agencies to assess the value of a project to the public. For example, will a new bridge decrease traffic sufficiently to warrant the price. These analyses will focus on the amount of public investment and the production of public goods. While dollar values are important, social costs, which can be difficult to quantify, are also weighed. Estimates of investment return, absorption, market capture and timing are created. Private investors may include a cost benefit analysis in their studies.

Analysis of economic base

An analysis of economic base creates projections for near-term growth for a geographic area. Mostly created for use by planning and economic development agencies. Developers often use the figures generated to help assess potential demand for their projects. The analysis will assess trends, potential opportunities and potential trends. Large investment firms such as Goldman Sachs, First Boston and Fidelity may also perform economic base analyses.

Analysis of economic impact

Those responsible for managing growth may perform an analysis of economic impact for large projects. These studies answer the question: how would this project effect the local economy? The study will focus on economic contributions such as taxes and spin-offs and costs such as infrastructure or new services that a project will have in a geographic area. These studies are increasingly necessary to obtain permits for both public and private projects. In the past it was assumed that all growth had a positive economic impact. As these studies have become more refined and have included

previously externalized costs, the results show that some growth may cost more for community than the tax income it provides. For example, a new convention center may provide a windfall for nearby restaurants and hotels and a commensurate increase in tax revenue for the city. The increased prosperity must be weighed against increased infrastructure needs.

Land use study

Land use studies are a tool of land use planners. The study analyzes the geographic pattern of development in an area. Land use studies serve as the basis for many public policy decisions on issues such as land needs and infrastructure requirements. Data might also serve as the basis for zoning and the granting of variances. The information gathered in these studies can also be valuable for developers in that it describes existing market conditions.

Marketability study

Typically a portion of a market analysis, but sometimes performed separately, marketability studies describe the necessary prices, sizes, functions and features required to capture market share. The market study will examine comparables in the study area to see what scale and amenities will increase absorption and capture rates. The marketability study is mainly used to describe what conditions are necessary for the project to be successful. For example, if a developer had proposed luxury condominiums she would want to know how many to build, how many square feet they should be, what she can rent them for and what amenities will be necessary to differentiate the product.

Study of highest and best use

Studies of highest and best use are one of the most common types of market analysis. These studies outline the optimal use of a site. They are typically used when someone has a site, but is not sure how to obtain the highest possible return on their investment. Performed by market analysts for investors, property owners and lenders, these studies concentrate on a specific parcel of land and its relation to the community. Estimates of investment return, value, absorption and market capture are generated. In the past, highest and best use meant what would return the highest profit on the investment, but more developers are also considering social benefits when performing these studies.

The Study Type: A Market Study and a Preliminary Financial Feasibility Study

CPW agreed to perform both a market study and a preliminary feasibility study. In the market study CPW focused on the basketball, volleyball and track markets in the Eugene-Springfield area. We also catalogued local sports facilities. In the feasibility study, we did not consider capital costs in creating a pro forma for the first year of operation. Broad Base felt that donations and other funding measures could be found to cover the total capital costs.

While building design typically follows the market study, Broad Base Programs had already had an architect develop a design. A large amount of effort had been already invested in the design, therefore Broad Base asked CPW to test whether the design was feasible.

Market study

Along with highest and best use studies, general market studies are the most common type of analysis performed. While not exclusively used in real estate, a market study for a development project will assess the existing demand and supply for a certain type of use or property in the market. A market study might ask, how would a hair dresser do in this location or how would industrial development fare in this part of town? Market analysis can be used by or created by any person in the development process. Typically, market studies will assess the potential return on the investment, absorption and market capture rates and the project's timing. In the how-to section of this chapter, we will concentrate on the methods necessary for performing a market study.

Financial feasibility analysis

Financial feasibility analysis is performed to test whether the project's return will exceed opportunity costs. Financial feasibility is tested on all types of projects, but the high risk of real estate development necessitates a successful analysis before proceeding. The financial feasibility analysis is performed once preliminary drawings and construction cost estimates have been developed. By combining the results of the market analysis and the cost estimates, the feasibility analysis will estimate financial returns. Most feasibility analysis include a pro forma which outlines expenses and incomes in a spreadsheet. The feasibility study estimates value based on market prices and the present worth of the site. Some feasibility studies weigh social costs and benefits in addition to monetary values. The feasibility analysis will also outline potential risks and criteria for success. Developers, investors and lenders base many of their decisions on the feasibility study.

How Are Market And Feasibility Analysis Performed?

In this section we explore the market and feasibility analysis process from the practitioner's point of view. We start with project development, followed by the market analysis, then the feasibility study and finish with presentation to the client.

Project development

Project development is important in all projects, but is especially important in a market analysis. During initial meetings and negotiations, the bounds of the study are set and the consultant-client relationship is defined. Making sure that the consultant and the client have a clear vision of the product and process may prevent major problems later on.

Different clients will require different approaches. The more experience the client has, the less the consultant will need to explain the analysis process. If a client is new to development, the consultant should take time to identify the client's needs. For example, does the client have a parcel but no use, or a use which they are not sure will work? Based on those needs the consultant can decide what type of study should be performed. More experienced clients are more likely to know what type of information they need for their project, but the consultant should discuss their research needs.

During project development, the consultant needs to remind the client of the possibility of a negative answer. Both experienced and new developers frequently become wed to their ideas. They tend to act like mother bears around their cubs when someone challenges their plans. This self-belief creates successful developers, but the consultant delivering a no-go conclusion may wish they were less committed. While a forewarning won't prevent disappointment or reduce client pressure for a positive response, it lets the client know that the consultant will be objective. For most projects the consultant can recommend alternatives, but sometimes a project will be abandoned when diagnosed as a money loser.

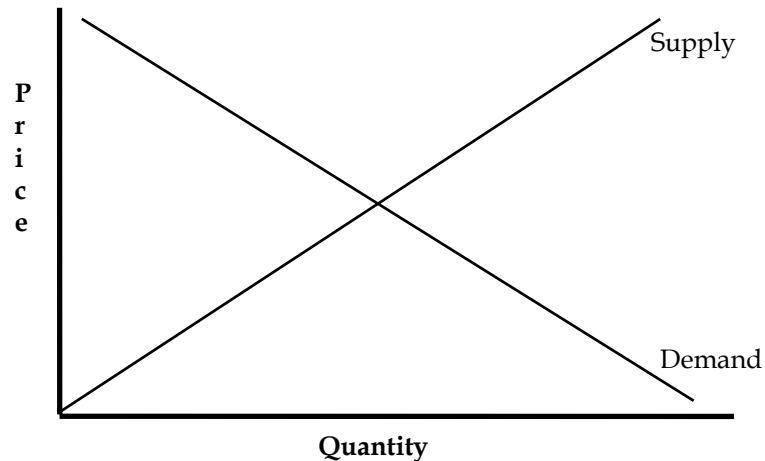
Market analyses may also have significant political implications. A city may decide to float a major bond issue or engage in a particular development project based on a study's positive assessment. The consultant performing the study should be aware of the project's political standing and seek to insulate themselves as much as possible. Political arguments should be about policy decisions and not about the quality of the study. By identifying all of the players and possible political land mines during the project development process, the consultant can avoid becoming embroiled in the debate.

On any project, a client who understands the process, the products and the possible outcomes will be much easier to deal with. On a market analysis, it may save the consultant hours of work and tons of heartache.

The market analysis

The goal of any market study is to find the point where supply and demand intersect to supply the right quantity of a good at the right price. Since the world is complex and dynamic, no economist can ever identify that exact point. A market analyst accumulates information on as many factors as possible to make an educated guess.

Figure 2
Supply and Demand



The educated guess of a market analysis is based on four basic components:

- the project description,
- a demand assessment,
- a review of supply, and
- a synthesis.

The first three steps review detailed market information and note the implications for the proposed project. The final stage draws conclusions from those implications. By using this outline, the consultant maintains the path of logic which lead to the study's conclusions.

Project Description

The first step of a market analysis is the project description. In this section, the writer lays the foundation for a defensible market study. The project description should perform four tasks:

1. Outlining the bounds of the study;
2. Listing the limitations of the study;
3. Describing the potential project; and

4. Assessing indirect economic and site factors.

The first task in any project should be defining the study. The writer should quickly identify what type of analysis is being performed and for whom. Is the project a highest and best use study for a private developer or a market study of a baseball stadium for a municipality? The background provides the readers with a frame of reference for the copious amounts of information they will encounter in the report.

Project Development: The McKenzie Sports Arena

Broad Base Programs proposed an ambitious facility concept. The McKenzie Sports Arena (MSA) would be a large-scale, fully accessible, multi-use facility for sports training, competition and rehabilitation. The facility would be available for spectators and recreational users of all ages and abilities for a wide range of athletic events. It would attract local, national and international sports tournaments and training camps. The primary market area for the arena would range from Salem to Medford and Bend to the Oregon coast. The 201,000 square foot building would have seating capacity for 6,700 spectators.

The arena would be located in the Gateway Area of Springfield, Oregon with excellent access to Interstate Highway 5, the state's major transportation corridor.

The arena would use an innovative flooring system which can be altered to provide space for 12 full-size indoor basketball courts, 20 volleyball courts, or many other activities. The facility would also have weight rooms, a 300 meter Olympic style track and a 200 meter international quality track with hydraulic banked corners. The arena would also be able to support concerts, dances and trade shows. Office space and concessions would also be available.

We made it clear to Broad Base that we thought this facility seemed to large and that they should be prepared to at least reduce their dream based on the results of the study. The assured us that they were aware of that possibility. Once contracts were signed we proceeded.

The analyst should also provide an explanation of the methodology. Depending on the audience, the methods section can be cursory or detailed, but a basic discussion of demand and supply is always worthwhile. A study that may become public should make this section as clear as possible.

Based on the study type and methodology, all study limitations should be explained. For example, most market analyses will assume that market trends will remain constant and will not consider major shifts such as a possible recession. It is also typically assumed that a use will be operated the same as other similar uses. If a study is based on outmoded or insufficiently detailed information, the data's effect on the conclusions should also be noted. Not listing limitations may cause serious misinterpretations of the conclusions.

After setting the procedural background, the analyst should outline the proposed use. In real estate analyses, the lot size, location, current use, ownership pattern, and proposed use should all be described in detail. Some studies may also differentiate the project in this section by outlining its unique qualities and the market niche targeted.

In defining the project, the geographic market area should be defined. The market area is the area in which the project will compete. The market area size will depend on the type of product and the density of existing development.

Commercial projects in a city may have a primary service radius of a half mile in each direction, while housing may compete with projects from an entire county.

The third component of the project description is to address indirect economic and site factors. An analysis should look at all of the following factors:

- zoning,
- soil condition and topography,
- utilities,
- transportation linkages,
- parking,
- environmental impacts,
- government services, and
- prevailing public attitudes.

The analysis should describe the effect each of these factors will have on a proposed use. Both opportunities and constraints should be listed. Plans to remedy constraints such as acquiring a zoning ordinance may also be addressed. While these factors may not have an obvious impact on market value, they answer questions about competitive advantage. For example, a site with easy parking will have higher value for commercial uses than a site with limited parking space. These factors will all be re-examined in the feasibility analysis as well, since any one of them could increase costs above what the market can bear.

The project description can be placed in the first two chapters. The information will frame the demand and supply data and serve as a basis for the synthesis.

Factors affecting demand

The factors affecting demand for a potential development are those which describe the scale and purchase patterns of market participants. By examining the factors, the analyst attempts to quantify the total level of demand. Some aspects of demand are difficult to quantify and may be assumed to remain constant. Demand can be described by the following:

1. population,
2. income,
3. employment,
4. market trends,
5. relative prices,
6. taxes,
7. interest rate,
8. down payment requirements, and
9. future expectations.

Most analysts will concentrate on population, income and employment when performing a study. The number of people, their incomes and the type of jobs they hold will be the most decisive factors in measuring demand. By measuring trends for each we can create a statistical picture of the economy.

Demographic information is typically gathered by the Census. Unfortunately, the Census is only performed every ten years, so the information tends to become out of date. Many other information providers exist, though. Universities and government agencies will track population change and economic growth. In Oregon, Portland State University's Center for Census Research provides population estimates and projections. Economic information is readily available from state and federal economic development or labor agencies.

The market analyst will use demographic indicators such as total population, growth rates and age and sex breakdowns. By comparing information from the market area with a larger area, the analyst can judge whether population is growing rapidly. The analyst can also judge what portion of the population is growing. For example, as the baby boomers age, their large numbers may cause major shifts in the economy.

Many economists feel that population growth is fostered by economic growth which is measured by employment and incomes. The basic indicators of employment include: the civilian labor force, total employment and the unemployment rate. A more in-depth picture will examine the market area by type of employment. In Oregon, for example, a major shift has occurred from farm and forestry to high-technology. The shift will cause a changing demographic with different spending patterns.

Incomes, both per capita and household levels, indicate purchasing power for the market area. An area with higher incomes will have the ability to acquire more upscale products, while more moderate incomes will necessitate a different product. Household income more accurately describes spending power, since many purchasing decisions are made on a household level.

Since general economic indicators can only provide a broad picture of the market area economy and growth trends, it is necessary to assess trends associated with the potential product. Market trends are often tracked by industry groups. For example, the National Real Estate Index Market Monitor provides information on apartment rents. If the development is targeting a specific use, the group which represents industries in that market may serve as a good contact. For example, the National Sporting Goods Association tracks sports participation rates annually. The Urban Land Institute text, *Real Estate Development*, provides a comprehensive appendix of sources for market analysts.

In addition to organizations, more specific information can be gained via surveys and interviews. Surveys can be sent to potential users or to experts in the field. A statistically valid survey delivered to potential users or consumers will provide the most exact information possible about market demand. A survey will allow the analyst to ask the potential purchaser exactly what they want and how much they are willing to pay for a product. Statistically valid surveys are expensive and many developers may not be

willing to pay the cost. Interviews with experts will provide more general but important opinions about trends in the market such as whether buying for a product is increasing or decreasing.

Several demand factors are usually held ceteris paribus including relative prices, taxes, the interest rate, down payment requirements and future expectations. Most of these factors affect the entire market and not just the specific area being tested. They are still extremely important and worth noting, since they will have a major effect on absorption rates and profitability. While they may be adjusted when performing a sensitivity analysis in the feasibility study, they are usually considered implicit in the employment and income indicators.

By comparing all of the above indicators in the market area with state or national trends, the analyst can create a picture of total demand.

Demand: Conflicting Indicators

To determine the demand for the proposed sports facility, CPW explored key socio-economic and sports participation trends, surveyed potential user groups including schools and sports organizations, and surveyed households in the Eugene-Springfield community.

We used the U.S. Census, the Bureau of Economic Analysis, and Claritas Data Services to review socio-economic factors. CPW described population and employment trends and forecasts and present household income data. Demand figures showed increases in population, income and job growth. For example, Lane County, the primary market area, had an average annual population growth rate of 1.3 percent as shown in the table below.

Table: Population Change in Arena Market Areas, 1990-1995

Market Area	1990 Population	1995 Population	AAGR¹
Lane County	282,912	301,900	1.3%
Secondary Market Area ²	818,707	914,300	2.2%
Portland Area Market ³	1,174,291	1,305,100	2.1%
Remaining Oregon Counties	566,411	610,700	1.5%
Oregon Total	2,842,321	3,132,000	2.0%

Source: Center for Population Research, Portland State University, 1996

¹ Annual Average Growth Rate

² Includes Benton, Deschutes, Douglas, Jackson, Josephine, Linn, Marion and Polk Counties

³ Includes Clackamas, Multnomah, and Washington Counties

To narrow the scope of the study we only assessed participation levels for basketball, volleyball and track and field. We used data from the National Sporting Goods Association, local sports providers and survey data. We found that basketball is the most popular team sport in the United States, and that it is growing rapidly. We used national organizations for some data, but also obtained more specific participation data from local groups such as Kidsports which runs basketball leagues for youth. The table below show growth in Kidsports basketball.

Table: Kidsports Basketball Participation, 1990-1996

Year	Participants
1990-1991	4,730
1991-1992	5,546
1992-1993	6,076
1993-1994	6,024
1994-1995	5,605
1995-1996	5,488
Total	33,469
AAGR ¹	3.0%

Source: Kidsports, 1996

¹ Annual Average Growth Rate

We surveyed 480 potential user groups throughout Oregon. These groups included public schools, sports organizations, and other groups that might use the MSA. While this survey is not statistically valid, it provides another indication on the desirability of the MSA. It also helped indicated which amenities are important to potential users.

Due to a lack of detailed sports participation data at the local level, we also conducted a survey of approximately 1,400 households in the Eugene-Springfield area. The survey was designed to gather detailed information on sports participation, amenities desired in sports facilities, potential use of the MSA, and demographics. The survey had an extremely low response rate, but like the groups survey it provides another piece of information.

While sports participation for basketball was increasing, volleyball did not show strong growth and competitive indoor track was almost non-existent. Neither survey showed strong support for the Arena. An increase in population and income increases the facility's probability of success.

Factors affecting supply

The factors affecting supply are those which describe the amount of a product in the market place and the price that product is currently receiving. The supply section of a market analysis analyzes the potential competition that a product will have in the market. Supply is a function of the following factors:

1. existing supply;
2. planned supply;
3. competitive environment;
4. availability of land; and
5. the cost of land, labor and capital.

Like demand, some factors of supply are macro-economic in scope and are rarely examined. The analyst will concentrate on the economic decisions being made in the local market.

The most important part of the supply section is the inventory of existing supply. For most real estate projects, this means identifying comparable properties. Comparable properties are those sites in the market which have a similar set of amenities at a similar scale to the developers proposal. In analyzing the supply of luxury homes, the analyst would identify those homes considered high-end within the market area. For some products which occur rarely in a market area, the search for comparables might extend far beyond the market area. For example, an analyst studying a new baseball stadium for an area would need to search nationally to identify comparables.

Once the type of comparable has been identified the analyst will find the total number of units or square feet in the market area, how much they are being rented or sold for, the vacancy rate and the absorption rate. In describing the existing stock, a basic analysis will just identify the total number of square feet or units available. A more detailed analysis will segment the market by quality, age and any concentration of the existing supply.

Supply: A Lack of Comparables

In analyzing supply, we looked at the total number of existing sports facilities in the area, potential facilities that could be developed in the next ten years and similar types of facilities nationwide.

We identified a total of 165 court facilities within the Eugene-Springfield area, most of which were located in schools. We also identified several new and potential facilities such as the University of Oregon's indoor training facility and the University's planned replacement of its basketball arena which would shrink the MSA's potential market share. We also researched rental rates for these facilities and found that they were very low.

Nationally none of the 19 facilities we identified had all the characteristics and amenities that were proposed for the McKenzie Sports Arena. We identified one facility that was managed by a non-profit organization; however, this facility was affiliated with a university. Further, we could not identify a facility of the size and purpose of the McKenzie Sports Arena in a similar-sized market area. Facilities in smaller markets tended to rely more on local use to generate revenues, while facilities in larger markets relied on both local and non-local use. The lack of a comparable greatly reduces the probability that this venture could be successful. We were able to learn about what amenities are necessary and about management techniques for sports facilities.

Quality segmentation of real estate is based on the amenities a unit provides. The rating is relative to other units in the market area. Luxury homes in Eugene will be very different than those in Beverly Hills. The amenities included in comparable units are important. In examining comparables, the analyst will look for which amenities created the highest demand and what people were willing to pay for specific amenities. While age is often a factor in quality, it may be analyzed separately to show when the supply was introduced into the market.

Concentrations of types of space are also important to identify. For example, a market could have one million square feet of class A office space, but 300,000 square feet of that space might be in one building occupied by a single corporation. Since that occupant is probably not going anywhere, that office space will remain occupied and will not increase the supply of available office space.

Once the total supply has been identified and segmented, the analyst will examine average prices that comparables are charging for sale or rent. Most real estate agents track rental rates for office, commercial and industrial space and can provide a dollar per square foot average.

Home sale prices are also tracked by real estate agents. For homes, prices will be higher based on home size, lot size, and construction details. For commercial and industrial space rental rates will be based on location and quality of space.

Vacancy is a prime indicator of existing supply. If an area has a high vacancy rate, it may mean that there is an overabundance of a type of property in the market. A high vacancy rate will also mean that rental rates are low. An analyst should look for reasons to explain a high vacancy rate and outline the implications for the project.

The absorption rate is of prime interest to the developer, as it provides an idea of time in calculating future financial returns. The absorption rate is the change in the total inventory of a type of square footage over a period of time. The absorption rate includes the introduction of new properties and the deletion of existing properties. Based on the absorption rate the analysts can estimate how long after being built a product will be

fully utilized. For example, new office space may be become absorbed at a rate of 10,000 square feet a month. If the developer is about to introduce 50,000 square feet full absorption could take greater than five months.

One of the major mistakes made by analysts in performing market studies is not identifying the planned supply. While one developer may respond quicker to market pressures, that developer will probably not be the only person to identify an opportunity. Other projects in progress need to be identified. By talking with planning department staff, other developers and realtors, the analyst should attempt to identify any projects which might compete with the proposed project or narrow the proposal's market share.

Planned supply is usually described in terms of building permits and building starts. Building starts is a more accurate measure, since it shows those projects moving forward and not just those with entitlements. When statistics aren't available, analysts depend on conversations with other people in the development field. Planned supply can be difficult to tabulate though and may be described in a less statistical manner. Any inventory of planned supply should at least include the scale, price and an approximate date of availability of potential new units.

Based on the inventory of properties, the analyst will make an assessment of the competitive environment. The analyst will examine the ranges of scale, amenities and prices in the existing and planned stock for a specific type of project. From those ranges the analyst will look for opportunities and risks for the proposed project. For example, are the homes too small, should they include washers and dryers, is the selling price too high?

For most projects the availability of land and the costs of land, labor and capital are not examined. While these are important, they are considered within the realm of the developers entrepreneurial talents. Availability of land may be considered in certain remote locations such as resort areas. Since land may have numerous restrictions on its use, availability may greatly effect existing and future supply. Costs are constant for almost all projects. During the feasibility study, the costs will be more closely examined.

Synthesis

Once the data has been accumulated and analyzed, the analyst will begin to draw conclusions. No single piece of data holds the answer to market demand. In fact, the analyst will need to use a substantial amount of subjective professional judgment to weigh the different details. According to Barrett and Blair, the synthesis section involves answering six basic questions:

- What are the indirect economic constraints?
- What is the size of the future market and what percentage of the overall market can be attracted to the proposed development?
- What is the market-determined price range?

- What type of development is justified by market demand?
- How large should the units be?
- What amenities should be provided?

Most of these questions will have been answered earlier in the document, but the synthesis combines each of the components to form a coherent conclusion.

Synthesis: An Unclear Picture

While local and regional population, incomes and sports participation are all increasing, indicators did not show sufficient demand for the 201,000 square foot MSA. Few local groups expressed need for additional facilities in the survey and in personal interviews. Survey results also indicate that people are not willing to pay the fees necessary to support a large facility.

Current facility use does not indicate a large amount of unmet demand. Also, the Eugene-Springfield area meets the National Recreation and Parks Association standards for basketball and volleyball courts. This does not mean that all local athletic facility demand is being met. Additional facilities being developed or proposed for development will further narrow the MSA's market segment. Nationally, we were unable to locate a facility of similar size in a similar market that was not affiliated with either a university or a local government.

While these results do not provide a strong reasoning for developing the MSA, they do not preclude the construction of some type of facility.

The first question was answered in the project description. In that section, the indirect economic conditions were catalogued. In the synthesis, the indirect factors which are constraints are re-examined. Methods of avoiding or overcoming the obstacles should be described. For example, a developer may wish to build a commercial development in an area zoned for residential. The analyst should explain how going through the zone change process will affect the time schedule and market value of the project.

The second question, market size and capture rate, deals with total demand. The size of the market is based on future population and economic growth and market trends for the specific product. The capture rate is based on a subjective interpretation of the quantitative and qualitative aspects of a project and is usually expressed as a percentage of the overall market that the development can attract. For example, the analyst may determine that 50 new homes are

purchased each month and that the proposed development could be 10 percent of those 50 homes.

Calculating the capture rate involves reviewing the overall size of the market, local population trends, the number of units sold over time in competing units, the absorption rate, the vacancy rate and how long the remaining units will likely be on the market. The analyst will adjust the calculation based upon design quality, managerial capabilities, marketing style and the developers past performances. While it is easy to overestimate the capture rate, this could skew an entire analysis. A high capture rate will yield overly optimistic cash flows. This may help the project obtain funding, but that will be little consolation when the project fails.

The third question deals with price and is based on construction costs, incomes of the target audience and the pricing of competitive projects. The analyst will use data accumulated from comparables to find an accurate rate. Often this data may not be current enough. If construction costs have risen since the most recent comparable was developed, a higher price will need to be charged, thus possibly destroying the project's competitiveness. The analyst should be sensitive to even small changes in price, since they will greatly effect total demand.

The fourth question, what type of unit is desired, is answered by both indirect economic factors and effective demand. For example, zoning may limit the type or scale of development allowed on a site or wetlands may occupy a portion of the site. The most important restriction on development type is effective demand. By analyzing willingness to pay the analyst can determine whether income can exceed costs.

The last two questions which deal with scale and amenities are answered in the supply analysis. By creating a matrix of the existing and planned supply crossed with square footage and amenities, the analyst can decide what mix is needed to make the project competitive. For example, a market analyst reviewing a housing development will determine the number of units, the size of the units, the amenities in those units, the absorption rate of those units and the price to charge for those units.

By answering these six questions, the market analyst will be able to determine the type, amount and price for a product that the market will bear. If the answers do not make economic sense, alternatives must be pursued or the project will be abandoned. If the study is positive, the development team will use the information to move forward.

The feasibility analysis

Once the project team has had adequate time to incorporate the results of the market study into a design, a feasibility analysis is performed. The feasibility analysis will test whether a specific project can be performed. While some consider feasibility to be based on economic measures exclusively, a true measure of feasibility will look beyond dollars and cents.

In his seminal article "A Rational Approach to Feasibility Analysis," James A. Graaskamp presents a comprehensive definition of feasibility.

A real estate project is 'feasible' when the real estate analyst determines that there is a reasonable likelihood of satisfying explicit objectives when a selected course of action is tested for fit to a context of specific constraints and limited resources.
(Graaskamp, 515)

At first glance this definition may seem abstract and unclear, but it accurately explains the breadth of feasibility. All feasibility studies should outline the developers "explicit objectives." For example, is the developer's intent to obtain the highest monetary gain or

do they wish to provide a certain type of experience with their project? Do they want to make their project an example of environmental or social responsibility?

In addition to objectives, the feasibility framework looks at the "context." A feasibility study should examine environmental, time, regulatory and political constraints, as well as the resources available to the developer. The study should answer whether the site is appropriate for the proposed use and whether the developer has the ability to bring the project to fruition.

Finally, the feasibility analysis must examine the developer's process. The analyst should examine whether the developer has a competent plan for making the project work. Does the developers plan provide ways of dealing with possible problems and methods to minimize risk? The analyst should be able to declare a project feasible if the developer's plan can work in the time allotted.

To meet the standards set by Graaskamp, the analyst should look at four different types of feasibility:

- ethical,
- regulatory,
- political, and
- financial.

For each area, the specific constraints should be listed, risks weighed and potential alternatives recommended.

Ethical feasibility is the most commonly ignored component of feasibility. The analyst typically assumes that the developer has looked in the mirror and said, "I feel good about this project." Still, the analyst should take time to enumerate the personal goals of the developer and to test whether the proposed project meets those goals. A developer may believe that a project will provide a service to a community, but the analyst may point out that the service is not desired or already readily exists. Developers have a bad reputation for lacking ethics, and analysts have an opportunity to prove that reputation wrong.

Regulatory feasibility involves examining the legal parameters which the developer will have to operate within. Common rules include zoning restrictions, design standards, utility requirements, systems development charges, and environmental regulations. These standards increase the time and money invested in a project and may cause a project to become too expensive to complete. Some restrictions like zoning are simple to meet, but others such as environmental restrictions may require extensive impact studies or assessments. A good regulatory system will allow developers to be creative in meeting standards, but will still account for external costs.

Political feasibility may be difficult to judge. Only developers who have never had an angry group of residents slow or even stop their projects do not care about local politics. Large public projects are typically political hot potatoes, especially in a time of anti-tax sentiment. Developers who have not considered politics can spend months fighting

opposition to entitlements. Even small projects can face project killing opposition from neighborhood groups or a single unhappy neighbor.

While the other three aspects of feasibility are important, real estate is primarily an investment. Most projects require the investment of a large amount of money at a fairly high risk. If a project is not determined to be financially lucrative or at least financially feasible than most investors will not become involved.

Real estate development is not cheap. Most developers can not afford to pay the entire cost of development nor would they want to. Most use debt financing in order to invest in real estate. Debt financing reduces the minimum investment necessary in any single project so that the investor may diversify into numerous projects. In addition, debt financing increases the percentage of return for the equity investor and allows the tax deduction of interest payments. Unfortunately, debt also has costs. The investor must always cover the monthly debt service payments with project income. If incomes fall below debt service the project risks foreclosure. Debt financing also requires fees which can significantly increase the overall project cost.

To determine whether it makes sense to enter debt, the investor must consider incomes and expenditures in relation to the time value of money. Time value of money is the basic framework in which investment decisions are made. Basically, a dollar received today is worth more than a dollar received in the future. In comparing investments, developers will maintain two preferences.

- More is better than less; and
- Sooner is better than later.

These principles seem obvious, but they are at the basis of determining the quality of an investment. The time value concept of money is shaped by three factors: opportunity cost, inflation and risk.

The Feasibility Analysis: A Major Shortfall

Our feasibility analysis was for first year operating costs and incomes. We used figures developed by Broad Base programs for operating expenses, but indicated that we thought they were too low. Based on survey results, comparables and interviews we developed five broad categories of facility use estimates.

We performed a sensitivity analysis showing three levels of use (see table below). Our high level had the Arena earning a \$100,000 dollar surplus. Our medium and low use estimates showed losses of approximately \$250,000 and \$500,000 for the first year. The large variation was due to the instability of three high risk categories: rental space, display advertising and concessions.

Table: Operating Revenue Estimates

Operating Revenue	Broad Base Pro-Forma	High Use	Medium Use	Low Use
All Day Use	230,000	168,000	129,800	91,500
Partial Day Use	N/A	15,600	10,800	6,100
Drop-In Users	5,000	73,800	48,000	22,100
Gate Fees	240,000	160,000	92,000	24,000
Display Advertising	125,000	125,000	87,500	50,000
Rental Space	125,000	90,000	45,000	-
Snack Concessions	203,000	115,000	70,500	26,000
Daycare	8,000	-	-	-
Other Events	25,000	30,000	22,500	15,000
Other Revenues	32,000	20,000	15,000	10,000
Total Operating Revenue	990,000	797,000	521,100	244,700
Operating Expenses	701,000	701,000	701,000	701,000
Net Revenue	290,740	96,000	- 179,900	- 456,300

Source: Community Planning Workshop, 1996.

Our analysis of local market factors and the proposed McKenzie Sports Arena concept led us to conclude that the facility as proposed faces a high probability of not breaking even on operating and maintenance costs and is too large for the market area served. We did recommend that Broad Base pursue the concept of a smaller facility instead of the 201,000 square foot recreation facility.

Opportunity cost is the income forgone by waiting to receive a dollar. For example, if a dollar is received immediately, a person can invest that dollar to generate interest now. If the investor must wait a year before receiving that dollar, then the interest lost for that year is the opportunity cost. The opportunity cost must be compared with the return. If an investment has a lower return than the opportunity cost other investments should be pursued.

Inflation reduces the buying power of a dollar over time, because as prices increase more money is required for the same product. For example, a gallon of milk used to cost a dime, but today costs over \$2. A successful investment will provide returns that exceed the rate of inflation.

If an investor is waiting to receive a dollar, a possibility exists that the dollar may never be delivered. This is risk. The project may not produce the projected level of return, and returns may not exceed opportunity costs or inflation. The project may even go bankrupt. The investor must decide whether the risk is excessive in deciding to invest in a project.

The primary decision making tools in the economic feasibility study are the pro forma cash flow statement and discounted cash flow model. Both are set against the developer's objective standards for what is an acceptable opportunity cost, investment return and risk level. The pro forma compares incomes and expenditures to generate a potential cash flow. The discounted cash flow model analyzes cash flow in terms of the time value of money.

Three types of pro forma cash flow statements might be generated by a cost estimator: capital, operating and combined. The capital analysis will show whether future income will offset the capital development costs. The operating pro forma will show whether income will exceed expenses related to operations over time. Most pro formas combine the capital and operating pro formas to gain an overall picture of economic feasibility.

Pro formas will typically present an itemized listing of all incomes and expenditures for a project. A summary is also typically included and may have the following components:

- Gross income - This is income generated from operation and includes rents and other payments.
- Vacancy and collection losses - In determining income, it is generally accepted that the analyst will assume some losses due to vacancies or payment delays.
- Operating expenses - These include maintenance costs, salaries and marketing costs.
- Net operating income (NOI) - NOI is gross income minus the vacancy and collection losses and operating expenses.
- Debt service - Debt service is the amount of payment required to cover a loan. Debt service will be paid until a loan is amortized. Amortization is the point at which both the capital and interest on a loan is completely paid. The amortization period fluctuates, but for public projects it is usually 15 to 20 years.
- Before tax cash flow - This is the bottom line for income. This money will be divided between the investors as their return.

The pro forma shows incomes and expenditures in future dollars, but a methodology is needed to determine present value. To do so the analyst uses a discounted cash flow model. Discounting is the opposite of compounding interest. Many texts provide

formulas for discounting single and streams of payments¹. Using computer spreadsheet programs cash flows can easily be discounted.

Many analysts use net present value and internal rate of return calculations to augment their discounted cash flow analysis. Net present value discounts both income and expenses to provide a single total project value in today's dollars. The internal rate of return (IRR) estimates the discount rate. If the discount rate does not exceed the desired return percentage than the project may not be economically feasible. Based on these calculations the analyst can determine whether the project provides ample monetary returns to exceed opportunity cost, inflation and risk.

A complete feasibility study will extend beyond financial feasibility to analyze all aspects of a project. An over-optimistic feasibility study may lead to project failure loan defaults, or even bankruptcy for the participants.

What is the best way to present the results?

Once the analysis has been completed, the results need to be transmitted to the client. Most clients will want to know whether a project is going to work, but some are just looking for further affirmation of their dreams. When a conflict is possible, the consultant must take some basic steps to deliver a clear message to the client.

The format for presenting the results of the study should be outlined during the project development phase. The consultant and the client will determine which information is necessary and what types of recommendations should be made. The consultant can also prepare the client for the possibility of a negative analysis at this point.

During the project the consultant should maintain regular contact with the client. The consultant should provide updates on the progress of the analysis. The consultant may also want to indicate to the client what the outcome may be. The consultant needs to be careful in supplying an answer before completion, since outcomes may change based on unanalyzed data. A general indication of the outcome will prevent the conclusion from being a big surprise to the client.

In writing the report, the consultant should use a simple outline which follows the methodology described above. A clear path of logic will help the report's users understand how conclusions were reached and what they mean. A simple outline will also prevent the consultant from having to answer questions about sources and reasoning.

¹ The Urban Land Institute text listed in the sources section has an excellent explanation of these methods. Also valuable is the Patton and Sawicki text, *Basic Methods in Planning and Public Policy Analysis*.

Delivering the News: An Unhappy Client

Broad Base Programs was obviously unhappy with the results of our study which were presented in the form of a ten page summary. Broad Base needed to create a positive picture for the city council in order to obtain room tax funds. The funds would be used for fund raising efforts and marketing. We held several meetings with Broad Base in which we tried to obtain the most positive spin on the results of our study. At the third meeting, Broad Base presented designs for a 50,000 square foot facility. After several more iterations we were able to present a two page memo which summarized our results, and cautiously endorsed a smaller facility. The memorandum was included in the packet presented to the city council. Six months after CPW's involvement began, Broad Base presented the study results and the facility's architectural design to the city council. While some hard questions were asked, Broad Base received their money and has begun fund raising.

While the meetings with Broad Base were stressful and contentious, we were able to maintain the integrity of our results. Most importantly we prevented Broad Base from building a facility which had no chance of success. Broad Base was happy with the results of our work and believes that the study has value beyond satisfying the council's mandates. In many projects, the consultant would remain involved until construction begins. Broad Base may need to hire another consultant to develop a business plan and to develop a facility management structure. Broad Base Programs hopes to have raised sufficient funds to begin construction by January of 1998.

In writing the conclusions the consultant should stress the usefulness of all the data collected and remind the client to not just read the bottom line dollar figure. Risks should be outlined and explained in detail. The client should see alternatives ideas to feasibility limitations outlined in the document. If no alternative can be provided the consultant should explain why a problem can not be overcome.

Occasionally, a client may pressure the consultant for a more positive analysis. While this doesn't make long range economic sense for the investors, it may occur. Ethically, the consultant needs to remain committed to the results of the study. The client can work with the consultant to best display the results so that the client can move forward with some type of project. The consultant must make sure that any description does not leave room for misinterpretation.

In rare instances, an unhappy client may wish for an outside review. A well performed market study has little to worry about when being reviewed, but the consultant should be able to answer questions about data and conclusions.

Most times the projects end amicably with the client thanking the consultant for their work. In those few occasions where relations are rocky, it is best to be prepared.

What Are Some Common Mistakes In Performing Market And Feasibility Studies?

Most of us will not perform many or any market and feasibility studies during our careers, but many of us will be called upon to analyze a study. Do consultants make major mistakes? Are there any major pitfalls to be wary of? Of course, the answer to both questions is yes.

Market analysis flaws can be divided into three separate areas: consultant methodology, poor data and consultant bias. These categories overlap, but they provide a basic division to consider when reviewing a market analysis.

Consultant methodology

Market analysts are like any other specialist. They have performed a certain operation so many times that they may not spend time analyzing the particulars of a situation. Instead, they may use a cookbook approach which limits the analysis and may miss major factors that are peculiar to the site. Instead of using their experience to better define the question, they may ignore differences in the proposed use to fit it in their methodology.

If the study is being performed by an analyst from outside the area, they may not have time to visit the site area. A study lacking on-site work can miss many important details. For example, without visiting the area the analyst may not know about political biases or won't be able to obtain a flavor for the community.

It is necessary for the market analyst to make assumptions and logical leaps to reach a conclusion, but these steps need to be well documented and reasonable. The reader should find assumptions presented early on in the analysis. The analyst should create a clear path of logic. Each step should flow to the next and be based on the facts acquired or accepted principles of economics.

A cursory feasibility analysis may miss two important steps: sensitivity analysis and an assessment of management. A sensitivity analysis can better present the possible outcomes in the volatile real estate market. By presenting a range of scenarios, the consultant also prevents their conclusion from being taken as gospel. In assessing feasibility, the management quality of the developer is also important. A developer that has a poor development plan and little management experience is much less likely to successfully bring a project to fruition.

Market and feasibility studies are not static. They are dynamic parts of the development process. The analyst should be involved in an iterative process with the developer and should attempt to provide alternatives to constraints. To do so requires that the analyst clearly state their conclusions. If a project should not be performed, the developer

should know at the completion of the study and not after the foundation has been poured.

Poor data

Poor data can destroy the credibility of any study, but in a market study poor data can cost the developer millions of dollars. Often times good data may be difficult to obtain. If the data is lacking the analyst needs to state its limitations and describe why it is still useful.

Data does not age well. Old data can provide an inaccurate picture of current trends and future potential. Data that comes from a boom period may present a more positive picture than actual exists. If there is a lack of relevant data, the analyst will need to use data that best corresponds with the project and then qualify that data. For example, a proposed development may have no true comparable. In this case the analyst may need to base their conclusions on projects which are at best similar.

Data should not be exclusively statistical. While numbers are easier to justify, they do not provide a complete picture. Interviews with experts are important components of any study. Focus groups and surveys of consumers are also important. While a statistically valid sample is wonderful, general surveys can provide a wealth of important anecdotal information.

In performing a market study, the analyst must fully examine the indicators of demand. By ignoring individual aspects an inaccurate conclusion will be reached. The analyst should also examine national, regional and local trends. Ignoring a level of analysis will not create the proper context for evaluating the project.

In analyzing supply, the market analyst needs to accurately assess the comparable supply. Just listing the comparables is not enough. The analyst should also present detailed information on scale, price and available amenities. If there are any peculiarities in the project the consultant should also describe those. One of the most common mistakes is failing to consider planned supply. Real estate is highly dynamic and a project which is planned may change market conditions considerably.

During the feasibility study, two mistakes commonly occur. First, land may be overvalued. If prices are based on comparables in an area where a boom just ended, then land values may be appraised at higher price than is accurate. An overvaluation of land can cause problems when attempting to gain a loan. Second, underestimating infrastructure costs in the break even study can also increase the possibility of failure by creating a more positive cash flow.

Consultant bias

Consultants are often under an enormous amount of pressure to provide a positive assessment of a project. The drive for profits can taint an analysis. Signs of bias include

presenting only best-case figures and misrepresenting data. While an analyst can not ethically be biased, pressure may produce subtle compromises in objectivity. While biased studies are not just produced by neophyte analysts, they are more often done by incompetent staff. In reviewing a report, the reader should attempt to decipher whether it was performed by a principal in the analysis firm or a subordinate. If the person who wrote the study is inexperienced there is a greater potential for bias or for just plain incompetence.

Conclusion

Market and feasibility studies are quite complex. The background provided here will give you a basic understanding of the process. The best way to learn about market and feasibility studies, like most things, is by doing. If you don't have the opportunity to work on a study acquire and review a couple.

The importance of market studies is not going to decrease. Capital is becoming more difficult to acquire and regulatory considerations are becoming more complex. In the competitive world of real estate development, the investor with the best information is going to be the most successful.

Sources

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