FINANCIAL FEASIBILITY ANALYSIS OF LAND DEVELOPMENT IN THE PRACTICE OF LANDSCAPE ARCHITECTURE

By

FRANK O'BRIEN THEIS
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Approved by:

Robert L Page
Major Professor

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CHAPTER ONE

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Introduction

Land development planning is one of the primary services provided by landscape architects in private practice. This service may include physical analysis of the site to determine buildability and appropriate land use, analysis of governing laws, regulations and policies to determine legal, social and political feasibility of a planned development, and financial feasibility analysis of the projected costs and return of the development as well as providing detailed layout and design of a real estate development. Of these several components of land development planning, financial feasibility analysis is practiced the least by landscape architects. This thesis explores the process of land development financial feasibility analysis and the potential for increased participation by landscape architects (ASLA-PPI, 1985).

The basic hypothesis is if landscape architects include the analysis of financial feasibility as a part of the real estate development planning process, then the following will result:

1) Site planning, design and construction cost analysis will be performed more efficiently.

2) A real estate development's pro forma and cash-flow analysis will be assembled and tested more efficiently.

3) Data will be transferred from each successive stage of the planning process and between all participants in a more compatible and efficient manner.

4) There will be a reduction of the potential for conflict between a client's financial goals and the landscape architect's design objectives.

5) Justification for specific design decisions will be documented in a more comprehensive form.

6) With the additional capability of performing financial feasibility analysis, landscape architects will have a more attractive land planning service to offer their clients.

Objectives

This thesis will attempt to demonstrate a direct benefit to the profession of landscape architecture if practitioners participate in the financial feasibility analysis of real estate development. However, due to the speculative nature of much real estate development, it is anticipated that many of the developers who are interviewed will not be interested in these professional services, preferring to do all analysis, if any, themselves.

The overall efficiency of the land planning process could be improved markedly, simply by reducing the number of plan revisions required by so-called "budget-engineering". Likewise, the client-consultant relation-

ship could prove to be better due to less conflict over the number and type of plan revisions required.

Therefore, the main objective of this study is to provide proof of an increase in the overall quality of services of landscape architects who practice and understand financial feasibility analysis of land developments instead of just providing physical planning and design services.

Methodology

A bibliographic search for reference materials involving real estate financial feasibility analysis has been conducted as an initial step in the subject research. A reference inventory has been compiled through the Kansas University and University of Missouri, Kansas City libraries. Additional references have been identified through the American Society of Landscape Architects, the American Planning Association and the Urban Land Institute.

The thrust of the hypothesis is the increased efficiency of the land planning and development process resulting from the participation of landscape architects in financial feasibility analysis. Two direct methods of testing this hypothesis have been employed: (1) interviews with professional planners, landscape architects, bankers and developers; (2) case studies are

documented including some with landscape architects' participation in feasibility analysis and some without.

Subjects for interviews are professionals from the Kansas City metropolitan area. The interviews explore potential benefits as well as potential problems presented by the hypothesis. Developers are questioned to determine what benefits they foresee by employing landscape architects to assist in determining development feasibility. They also help identify obstacles to such planning assistance and areas of expertise which they feel best qualified to handle themselves.

Planners and landscape architects in private practice have been interviewed to determine if they currently offer their clients any assistance in determining financial feasibility. These same professionals have been questioned concerning their interest in expanding their services to include feasibility analysis, and whether or not they see any benefits to their overall efficiency.

A variety of case studies have been examined to compare the results from different levels of involvement of the land planning professional in the feasibility analysis. Case studies are compared in terms of the efficiency of the planning process and developers' satisfaction.

The effects of varying interest rates, loan/equity ratios and other financing conditions have a direct impact on the financial feasibility of any real estate development (Mader, 1983). The case studies have also been used to investigate the interrelationships between financing, market conditions, construction costs, land costs and planning methodology as well as how all of these factors ultimately effect a real estate development's financial feasibility.

Different methodologies for financial feasibility analysis have been compared and analyzed to determine the strengths and weaknesses of each. These methodologies have been identified through both research of literature in the field and interviews with development professionals. Special attention is given to identifying the processes and methods which are best suited to the feasibility analysis of a land development.

Scope of the Study

The scope of the research has been restricted to development of raw land and the analysis of such developments. It does not include financial feasibility analysis of real estate investments in existing buildings such as apartments or offices.

All interviews and case studies focus on subdivisions which are primarily single-family

residential developments. Income property development, such as apartments, retail commercial or industrial buildings, have not been studied in this thesis. All feasibility analysis researched is concerned with land development only, not building construction for sale (condominiums, custom homes, etc.).

The site analysis process can affect the determination of a project's financial feasibility with regard to buildability and the suitability of particular land uses. Normally the site analysis is not undertaken independent of any financial concerns of the developer. This thesis does not include any in-depth study of site analysis methodology.

Real estate market analysis is another determining factor in projecting financial feasibility. The results of a market analysis (size of potential market, type of demand, target price ranges, etc.) are of critical importance to feasibility analysis but should be obtained independently to avoid the influence of the owner's and/or planner's preconceptions. Market analysis is not researched beyond its direct application to financial feasibility analysis.

All necessary construction cost data have been collected from the most current construction cost estimation guides (Means, Kerr, 1986). Certain general

categories of site construction have been addressed including:

1) Clearing and grubbing
2) Rough grading
3) Storm drainage
4) Sanitary sewers
5) Other utility installation
6) Road construction
7) Sidewalks, curbs and gutters
8) Street and pedestrian lighting
9) Signage
10) Seeding and sodding
11) Landscaping
12) Special site amenities (pools, tennis courts, etc.)

Special types of construction costs will not be investigated except in specific case studies. Construction costs for commercial or residential structures are not included in this thesis.

Importance of the Study

Real estate subdivision planning and design is a service provided by many landscape architecture firms. Landscape architects typically provide their clients with construction cost data, but seldom perform any more detailed and comprehensive financial analysis (ASLA-PPI, 1985). As a result of the limited role of the land planning consultant, an adversarial relationship can develop between the client and consultant when planning and design modifications are necessary to achieve financial feasibility.

If landscape architects participated in the complete

process of financial feasibility analysis, a greater understanding of their clients' financial concerns and limitations could guide the planning and design process with less potential for conflict. This would include the determination of land acquisition costs, the financing capabilities of a client, desired rates of return, desired tax consequences, anticipated market results as well as the desired design quality and character.

Historically, landscape architects have not participated in the analysis of a project's financial feasibility beyond the estimation of site development construction costs. However, as developers become more sophisticated, so must their consultants, especially in the determination of financial strengths and weaknesses. Land planning professionals are often in the best position to perform an early analysis of a land development project's financial feasibility. Landscape architects could provide their clients with comprehensive financial analysis if they would become familiar with methods of financial feasibility analysis, including the application of computer analysis techniques.

Feasibility analysis of income property developments (apartments, offices, industrial, etc.) has become a relatively sophisticated process, largely due to the increasing numbers of real estate limited partnerships

offered for sale and the information on financial feasibility required by potential investors. On the other hand, the analysis of the financial feasibility of land development for sale is relatively crude and often purely speculative.

The costs related to speculative land development are often confined to areas of expertise of landscape architects such as site development construction costs. This thesis investigates land development planning techniques and applies these tools to a comprehensive methodology for land development feasibility analysis including dynamic cash-flow modeling and calculation of rates of return.

Chapter Outline

The following chapter describes the general nature of real estate development. Who is involved, what major steps are involved in developing land, the importance of timing, market analysis, planning/design, financing and feasibility analysis. Specific terminology, which is used throughout the thesis, is defined and qualified.

The process of financial feasibility analysis and the landscape architect's role in the land development process are examined in detail in the next chapter. It is intended to provide an adequate background for the subsequent study. A review of pertinent literature is

included throughout the chapter.

The third chapter examines some specific case studies of land developments which employed some form of financial feasibility analysis. The case studies involve similar types of development (residential subdivisions of raw land intended for re-sale lots only) which used differing methods of feasibility analysis. The results are compared in light of the type of feasibility analysis employed and the extent to which landscape architects are involved.

The fourth chapter, "A Model for Feasibility Analysis", reviews the participants and their roles in analyzing financial feasibility of land development using an actual case study. The areas of participation of the land planner is focused on as well as areas of potential for increased participation. A specific system of feasibility analysis is examined in terms of effective application to land development. Methods of interpreting results and testing options are explored for a real subdivision development.

The next chapter reviews the current levels of participation of the different professionals involved in the financial feasibility analysis process. It also examines prevailing attitudes of bankers, developers and planning/design professionals towards an increase of

participation of landscape architects. The results of professional surveys are outlined in this chapter.

The last chapter concludes with a summary of results of this research. Specific conclusions about the original thesis correctness or incorrectness are described in this chapter. Comments on the appropriate role of a landscape architect in the financial feasibility analysis of a land development are included.

CHAPTER TWO

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Background/Literature Review

Land Development

In general, the term real estate or land development may refer to any type of division of real property, construction, reconstruction, conversion, relocation, or enlargement of any structure. This thesis restricts its focus to unimproved land which is defined as land in its natural state before development (Moskowitz & Lindbloom, 1981). The type of development which is being researched is restricted to division and subdivision of unimproved land as well as any site improvements necessary to develop structures on the land.

Land development may be undertaken for any type of land use: industrial, commercial (offices, retail), public or residential uses. This study focuses on land development for residential uses, primarily single-family dwelling lots for re-sale. A single-family, detached dwelling is designed for and occupied by not more than one family and surrounded by open space or yards and is not attached to any other dwelling by any means (Moskowitz & Lindbloom, 1981). Other types of residential development, such as townhomes, apartments or

patio-homes, are not developed for lot sales but for the sale or lease of the structures developed on site. This study does not investigate the construction of any structures or buildings except as special amenities.

The land development process begins with the land owner who may have purchased the land for development or decided to develop the land after using it for agricultural purposes or having held it in a natural state. There are several reasons for a land owner to decide to develop his* land including:

1) land values have increased beyond what is economically feasible to use for agricultural purposes.

2) Utility and/or road improvements on or adjacent to the land have caused large monetary assessments to be extracted from the land owner to pay for the improvements thus making it financially unfeasible to continue farming the land or letting it stay in a natural state.

3) Urban growth pressures create unfilled demand for new development on the land.

4) City or county plans indicate a special use on the land which is highly desirable.

5) The landowner is interested in developing his land on the speculation that it will gain him more from resale than it cost to develop. In other words--pure profit motive.

The process of development of unimproved land includes preparation of a preliminary plan for the property, the acquisition of the proper zoning for the

* The male pronouns are used throughout this study when referring to an undefined gender.

property, surveying the property, platting the subdivision, designing and engineering necessary on-site and off-site improvements (utilities, roads, etc.), contracting for construction of the improvements, supervising construction and marketing the developed lots (Urban Land Institute, 1980).

Two general categories exist for developers of unimproved land for residential lots. There are those with prior experience in land development and knowledge of the process. This type of developer requires varying degrees of assistance from planning/design consultants, attorneys, surveyors, engineers, accountants, and bankers, but experienced developers usually try to minimize their costs by minimizing the employment of consultants. On the other hand, inexperienced developers often require a great deal more assistance from consultants in order to succeed.

PRELIMINARY PLAN.

A preliminary development plan is an investigation of the potential development pattern/road layout, utility locations, access to existing streets and analysis of physical features affecting buildability and land use such as slopes, soil types, prevailing winds, solar exposure, existing vegetation, ground water, drainage,

and underlying geology. An accurate base map is required to document this analysis and subsequent plan which may be submitted to the governing jurisdiction for zoning approval and/or preliminary plat. This type of preliminary plan is usually developed by a registered land surveyor, a civil engineer, a landscape architect, a planner, or any combination of these professionals (Higson, 1984; Lynch & Hack, 1984).

MARKET ANALYSIS.

A real estate market analysis is often undertaken simultaneously or even prior to the preliminary development plan in order to identify the supply and demand for potential land uses in the area. The market analysis often determines the ideal type or mix of development on a property as well as establishing a plan for phasing development which should meet estimated demand. Real estate market analyses are most often undertaken by accountants and/or real estate agents.

In the case of unimproved land development for residential use, land owners often do their own market research, if any is done at all. Often this type of land development project is undertaken purely on the speculation that adequate demand exists with no market research to support such speculation. The main products

of a market analysis for this type of development are the projected lot sales prices and the projected absorption rate which is defined as the penetration of a project into the existing market (Moskowitz & Lindbloom, 1981), expressed in lots sold per month, quarter or year (Bailey, Spies & Weitzman, 1977).

FINAL PLAN APPROVAL.

Whether researched or speculative, market demand assumptions dictate the appropriate mix of types of land use, number of residential dwelling units which could be absorbed by the market, the type of units most desirable and extent to which a project should be phased over time. All of these factors are reflected in a site plan which is prepared as a document for final approvals (Planned Unit Developments usually require a detailed, final site plan for zoning approval and preliminary plat) and for the final plat of the property. A final plat is usually prepared by a registered land surveyor or engineer and it includes a legal boundary description, dimensioned lots, existing and proposed topography, building setbacks, sidewalks, street layout and dimensions, utility locations and any easements or rights-of-way through the property (Simonds, 1983).

CONSTRUCTION PLANS.

The plans having been approved with appropriate zoning and a final plat on file, the developer is in a position to begin construction of any site improvements necessary prior to selling lots. In large lot, minor subdivisions a minimum of improvements may be required depending on local subdivision regulations governing road improvement standards, water availability and sewage requirements. In a major subdivision providing for standard sizes of single-family, detached residential lots (1/4 to 1/2 acre), construction of roads curbs, gutters, sidewalks, utility lines and any necessary site grading and clearing has to occur prior to marketing lots ready for home construction. A set of typical construction plans for contract would include a site layout and dimension plan, a rough grading plan, a drainage improvements plan, a utility plan, a street and sidewalk plan, construction details, a fine grading and seeding/sodding plan and possibly a tree and shrub planting plan, signage/entry plan, lighting plan and construction plans for any special amenities (pool, club-house, fountains, etc.). These documents are normally prepared by both a civil engineer and a landscape architect (Simonds, 1983).

FINANCING CONSTRUCTION.

Up to the point of contracting for construction, most developers absorb the cost of planning and design. A construction loan from a bank or other lending institution is normally used to finance construction. The lender may require the developer to provide a detailed plan for development including some form of financial feasibility analysis or cash flow model prior to approving a construction loan (Richards, 1983).

CONTRACTING FOR CONSTRUCTION.

Upon approval of construction financing, a contract may be awarded for construction. Depending on the size of the project, a developer may or may not wish to act as general contractor (organizing all grading, paving, utility and landscape contractors and supervising construction, coordination and implementation). Either way he chooses, one or many construction contracts must be obtained. Such contracts, again depending on their size, may be either fixed price or cost-plus contracts. There is also the choice of bidding for the contract or selecting a contractor without competitive bid. All of these decisions are usually made in consultation with the developer's planning and design consultants be they surveyors, civil engineers and/or landscape architects

(Urban Land Institute, 1980).

MARKETING.

As soon as construction has begun on a subdivision, active marketing efforts have usually begun (if not much sooner). Sales and marketing are normally handled by a real estate agent who is hired by the owner, works under a commission agreement or may actually be the owner/ developer (Urban Land Institute, 1980).

The Landscape Architect's Role

As mentioned in the introduction, of all the professional services commonly provided by landscape architects to developers, financial feasibility analysis is practiced the least (ASLA-Professional Practice Institute, 1985). In a typical landscape architecture practice the services offered to land developers include location analysis, site analysis, land use analysis, site planning, securing government approvals, detailed site design, construction cost estimation, handling construction bidding, contracting and supervision as well as financial feasibility analysis. Chapter five provides a more detailed profile of landscape architecture firms and the services they provide in the ASLA Survey of Planning/Design Professionals. The aforementioned

typical services and the landscape architect's role in the land development process are described below.

LOCATION ANALYSIS.

Closely tied to real estate market analysis, a location analysis determines the best location for a development in a situation where there are several to choose from. Location analysis or site selection are not very common as a service employed by land developers or land speculators. They normally have purchased the property to be developed prior to retaining a land planner.

In some situations, such as when a developer purchases an option to buy land, a landscape architect is employed to advise him as to the strengths and weaknesses of a particular site. This usually entails a thorough site analysis to determine availability of necessary utilities, access to the site, available regional and community services (fire, schools, police, etc.), buildability of the site, special features, major detractions and government restrictions. In a situation where more than one site is being considered a matrix or list of the criteria for purchase is often assembled (Simonds, 1983).

A market analysis is often undertaken by the developer as part of his criteria to decide on purchasing

a parcel of land. Landscape architects, more often than not, are left out of the market analysis process. If, however, the landscape architect is going to be involved in financial feasibility analysis, it may be helpful for him to participate in site selection and market analysis. One benefit of participating in a market analysis is the familiarization of the landscape architect with similar types and sizes of developments in the area under consideration. The land plan developed can and perhaps should be influenced by successful competition as well as failed developments in the area.

Most of the tasks involved in location analysis can be accomplished by a developer or real estate agent, and a base map is usually already available from a survey of the property. The physical analysis of a site is an area of expertise of the landscape architect which may require his participation in the site selection process.

SITE ANALYSIS.

"To analyze is to separate a whole into simpler components and to understand each of those components on an individual basis before attempting to understand them in relationship to one another and to the whole" (Todd, 1985). The process of site analysis is integral to understanding the capabilities and restrictions of the

land when designing a single-family subdivision. Todd lists the following major factors or components of a site analysis in her book Site, Space, and Structure (1985).

Table 2.5

SITE ANALYSIS FACTORS

I. Man-Made or Manufactured Factors

1. Circulation
2. Utilities
3. Zoning Requirements
4. Structures and Paving
5. Pollutants

II. Natural Factors

1. Sun and Shade
2. Wind
3. Temperature
4. Water and Precipitation
5. Vegetation
6. Wildlife
7. Soils/Geology
8. Topography/Drainage

III. Social/Psychological/Cultural Factors

1. Attitude Toward Environment
2. Social Influences
3. Sociability of Site and Surroundings
4. Sensory Perception
5. Scale
6. Balance

IV. Quality and Aesthetic Factors

1. Views and Vistas
2. Form and Shape

A simpler way of categorizing site analysis factors is by the major areas of concern.

1. Regional Influences or the site context in terms of adjoining land use, access to major roads, climate, available utilities, and governmental restrictions and requirements.

2. The Project Site as regards existing improvements, topography, drainage patterns, soils, geology, vegetation, wildlife and views.

Major sources of information for a site analysis include aerial photos, U.S.G.S. topography maps, existing surveys of the site, S.C.S. soil surveys, utility maps, zoning, plat and land use maps, regional meteorological services, zoning ordinances, tax records, comprehensive plans and subdivision regulations. After collecting the available information some surveys and/or testing may be required to complete it. These might include soil tests, core sampling, photographic surveys, a land use survey, traffic counts, ground water testing, survey of adjacent ownership, crime occurrences, fire response and possibly interviews of a survey of surrounding neighborhoods. The congregate of this information creates a data base for the site and development project.

A site analysis map is usually prepared for the client along with a summary of conclusions and important data either in a letter or report. The map usually shows areas of concern such as steep slopes or poor soils for

construction, both good and bad views, ridge lines and drainage ways and existing vegetation and man-made improvements. Of utmost concern to a developer and his planner is to minimize his risk by identifying areas of concern or hazards (McHarg, 1969). By avoiding building roads on untreated expansive soils or locating home lots on actively eroding land or locating access points without safe site distance, the developer avoids costly mistakes, lost sales and potentially damaging liability.

Of equal importance to the land planner or landscape architect is the information provided by the site analysis which aids in properly designing the site. Utilizing the best views, locating access at the best spots, aligning roads to accent the natural beauty of a site and locating amenities where they will be best utilized all are dependent on a thorough site analysis.

SITE PLANNING.

"Site planning is the art of arranging structures on the land and shaping the spaces between, an art linked to architecture, engineering, landscape architecture, and city planning. Site plans locate objects and activities in space and time." Thus, Kevin Lynch introduces Site Planning, a book widely used for over two decades and recently republished in 1984 with revisions by Gary Hack.

The role of landscape architects in site planning varies widely, especially in single-family subdivisions. Often site plans are prepared by surveyors or civil engineers solely, without any input from landscape architects. Nevertheless, when a developer desires a more "artistic" approach to site planning, he often retains a landscape architect.

The site plan for a single-family subdivision on unimproved land primarily requires establishing a road layout showing individual home lots and any special amenities. The foremost considerations in the site planning process are the physical limitations and opportunities of the site, the subdivision regulations (both documented in the site analysis) and the program for development desired by the client/owner.

The physical conditions affecting site planning most are existing topography, drainage patterns, soil conditions, geology (if shallow rock), and existing vegetation. The grades of proposed roads should not exceed 5% to 8% both by design and regulation (this is especially true in colder climates where icing may occur). Expansive or improperly compacted soils can destroy paved surfaces in a very short period of time, but expensive sub-soil treatments or rock excavation can add unacceptable expenses to a project. Extensive

drainage improvements such as culverts, concrete channels or detention ponds may be required on some sites adding additional costs to development. Existing vegetation may require expensive clearing operations or it may provide very desirable homesites. All of these factors are considered when laying out roads and lots, not to mention views, solar orientation, winds and social interaction.

Subdivision regulations are normally very specific concerning layout dimensions such as required lot sizes, lot depth to width ratioes, building setbacks, street widths/radii, park strips, sidewalks and open space requirements. Restrictions on the number and location of access points, the length of cul-de-sacs and required off-street parking are also usually very specific. With this extensive set of guidelines to follow, site planning begins to become as much a science as an art.

One option to following strict subdivision regulations is to seek a Planned Unit Development zoning which allows for substandard street widths and setbacks as well as other site planning which does not conform to the local subdivision regulations. However, a P.U.D., as they are often known, allows for little or no revision of the approved plan, often requires streets and their maintenance to remain the developer's responsibility, and is usually much harder to gain government approval for.

The owner's program for the development can have the greatest impact on the site planning process. If an owner requests a layout for large lots on winding streets with no other conditions, the site planning becomes relatively simple. Relatively simple, that is, compared to an owner's program which might require an average of 3.5 dwelling units per acre with a centrally located pool and clubhouse, 100 off-street parking spaces scattered throughout the site and no cul-de-sacs.

The developer's criteria may derive from experience, personal desires or market research, but, in any case, they usually have to be met by the landscape architect. Often a great deal of interaction is necessary between the landscape architect and client at this time in order to prepare a plan for approval which satisfies the client's needs and does not have to be changed (Todd, 1985).

A preliminary site plan typically includes a reasonably accurate property boundary (if not based on a boundary survey), some depiction of adjacent roads, utilities and improvements, any easements or rights-of-way through the property, existing improvements, existing grades, proposed rough grade, proposed road layout/ parking, proposed lot lines with typical dimensions, major drainage, any special amenities and existing and

proposed vegetation (Lynch & Hack, 1984; Todd, 1985).

This plan becomes the basis for any economic analysis such as a financial feasibility analysis both for cost estimation, phasing and sales inventory.

Figure 2.1 illustrates a preliminary site plan for a single-family subdivision. This plan is virtually ready to be submitted for re-zoning of the property (if necessary) and then preliminary plat approval.

GOVERNMENT APPROVALS.

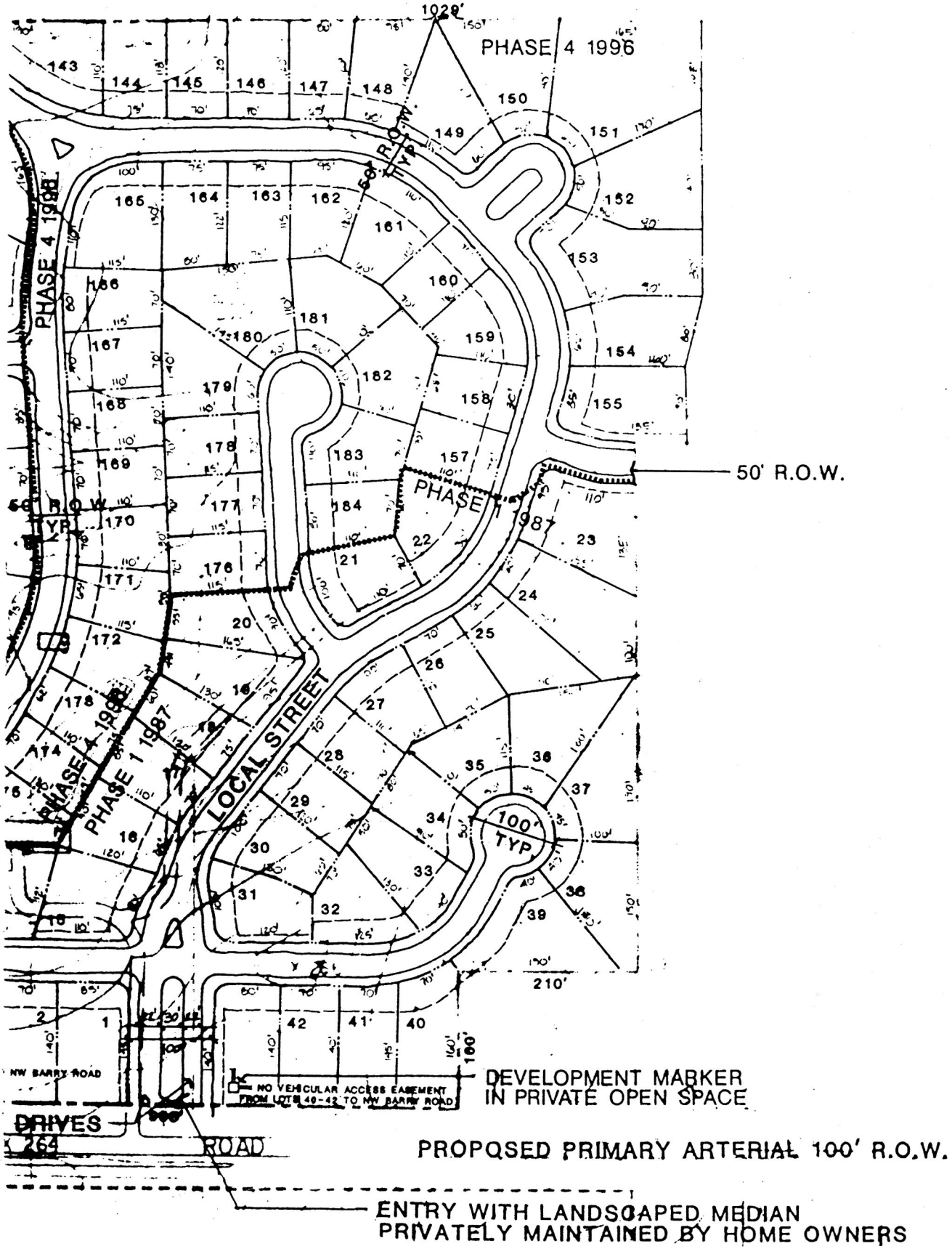
Any development of unimproved land requires some form of governmental approval. The following diagram illustrates the different levels of approval necessary in a typical municipality or county.

A landscape architect's role in the approval process usually is active up through the application for final plat. Final plat and building permits are typically acquired by a registered land surveyor, civil engineer and/or the construction contractor.

If an amendment to the local master plan or land use plan is necessary, the land owner must present a convincing case for changing the intended use. This presentation is usually heard by a city or county plan commission which controls any changes to the land use plan. Landscape architects are often employed at this

FIGURE 2.1

TYPICAL PRELIMINARY SITE PLAN



stage of the approval process to prepare and present an analysis and conceptual plan of the site in question supporting the proposed change in land use. Since the only land uses considered to be less intensive than single-family residential are agricultural and park/ recreation uses, it is not very difficult to acquire an amendment to a land use plan for single-family residential unless the site is in an area with inadequate supporting infrastructure such as roads, sewers, water, fire and police protection.

The zoning ordinance of a county or city is the specific, legally binding guide to what can or cannot be built at any given site. A fairly specific site development plan which shows building locations, street layout and lot sizes is sometimes required for a rezoning approval. Presentations are usually required to both the local plan commission, which recommends either approval or denial, and then to the city council or a county court for final approval. A public hearing is usually required to hear any objections or support by adjacent land owners and other interested parties. The zoning ordinance usually allows for a legal protest by adjacent property owners and referendum by petition against any decision by the city council or county court. These opportunities for public scrutiny and protest often influence a

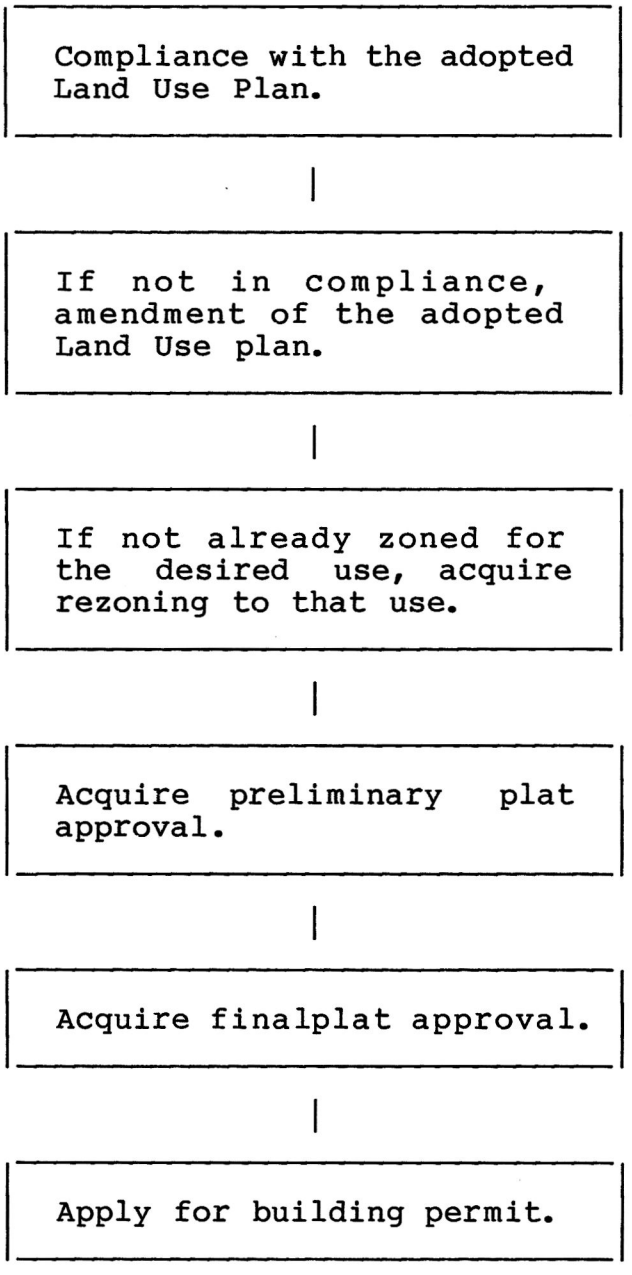
developer's approach to a site which requires re-zoning. In the case of re-zoning from agricultural to low-density residential (normally designated R-1), re-zoning approval is usually possible with little need for elaborately detailed plans (Figure 2.2).

The preliminary plat approval is contingent on submitting a plan to the commission and council or court which demonstrates compliance with the local subdivision regulations. These regulations are very specific regarding street standards, building setbacks, lot sizes, densities, required amenities, required public improvements (required from the developer), signage, utility locations and other design guidelines. A preliminary plat has to show very specific information as illustrated in figure 2.3. Such as plan is often prepared by a landscape architect and it represents the final design of the site (Lynch & Hack, 1984; Greenstreet & Greenstreet, 1984).

The planning staff responsible for review and recommending approval or denial to the plan commission and council or court is of utmost importance to the land planning consultants. Meeting with city or county staff to review plans and requirements prior to submitting for approvals can save the developer and his consultants many

Figure 2.2

THE APPROVAL PROCESS



revisions and re-submittals.

After preliminary plat approval a civil engineer usually prepares a final plat based on an accurate boundary survey and, if there are no significant changes, it is approved by the council or court. Building permits (even for roads, sidewalks and utilities) have to be issued by the local public works department. These permits are usually acquired by the contractor but, because they are based on engineering/design drawings, sometimes input from the project engineer and landscape architect is required. The following section describes the preparation of construction documents (Simonds, 1983).

CONSTRUCTION DOCUMENTS.

Up to this point in the development process, the developer has not spent very much relative to the overall development costs. He may not have even purchased the land until he had acquired re-zoning approval. Now that the development is essentially approved, he must commit to completing a set of construction documents before a building permit can be issued and a contractor hired to build the improvements.

At this time most developers would like some assurance that the project is economically feasible

before proceeding. It is often the landscape architect's role to provide the owner with a preliminary cost estimate based on the preliminary plat. A project pro forma analysis (Barrett & Blair, 1982) is prepared based on the preliminary cost estimate (including soft costs-fees, permits, taxes, etc.), estimated total revenues and constant dollars. This pro forma gives the developer a look at potential profitability or loss without spending a great deal on design or detailed analysis.

Construction documents for a single-family subdivision normally consist of plans and specifications for clearing and grubbing, rough grading, road and amenity layout, utility layout, drainage plan, construction details, finish grading, seeding/sodding and landscaping. A landscape architect usually prepares the seeding/sodding and landscaping plans and specifications, and sometimes prepares the grading and layout plans. A civil engineer usually prepares all road and utility construction detailing.

Upon completion of the construction documents, the landscape architect and civil engineer can prepare final cost estimates and bid documents. Bid documents consist of the plans and specifications as well as instructions to bidders, contract forms, general provisions, bid forms and unit cost breakdown sheets. This bid package is only

prepared for competitive bid by contractors. If a general contractor is pre-selected, plans, specifications, general provisions and a construction contract is all that is required. The cost estimate is usually prepared prior to bidding, so it may be used as a guide for contractor comparison and selection (Todd, 1985).

CONTRACTING AND CONSTRUCTION.

The landscape architect is usually involved in reviewing bids and recommending contractors to the developer, at least for the work which he prepared the construction documents for. Occasionally the landscape architect oversees the entire bidding procedure which includes:

1) Reviewing all cost estimates, bid documents and a list of potential bidders with the developer.

2) Contacting bidders and distributing construction bid documents.

3) Responding to all questions and concerns of bidders.

4) Receiving all bids in his office by the specified deadline.

5) Opening and reviewing bids with the developer.

6) Recommending a contractor to the developer and/or negotiating and preparing a final contract for construction.

Once a contractor is under contract, the consultant who handled bidding procedures usually goes on to handle

construction supervision. This includes keeping all records of pertinent documents (Performance Bonds, Contracts, Permits, etc.), receiving and processing the contractor's requests for payment, inspecting and approving construction progress, and approving the completed construction after any specified guarantee period. If not responsible for all of these tasks, the landscape architect is normally involved in inspecting plant materials and approving seeding, sodding and landscaping as installed (Todd, 1985).

Financial Feasibility Analysis

The success or failure of any development to be profitable is contingent on controlling costs, the amount and rate at which lots are sold and the terms of the project financing. All of these factors are carefully examined in a financial feasibility analysis, except in the most speculative developments.

Analysis models exist in a variety of forms for real estate financial feasibility. These models vary depending on the type of real estate development, the legal structure (sole proprietor, joint venture, limited partnership, etc.) and the methodology being used. Most limited partnership offerings include a thorough analysis of financing, tax effects, income and cash flow including

an inflation factor for both future construction costs and future sales prices. But most limited partnerships are income property developments (apartments, office buildings, warehouses, etc.) not unimproved land subdivision for re-sale.

Financial feasibility analysis for a single-family subdivision is usually prepared by the developer in the form of a Project Pro Forma (see Chapter 5). The bank or lender often requires that this analysis be repeated by a registered real estate appraiser. Occasionally the developer or lender will prepare a dynamic cash flow analysis which differs from a pro forma in that it examines the project's cash flow over time (either monthly, quarterly or annually).

A Project Pro Forma is a simplified, static picture of the estimated costs and revenues of a development. It includes estimates of acquisition cost, hard costs and soft costs. Hard costs refers to costs incurred in the process of actually building something. Soft costs include such things as financing engineering/design fees, permit costs, attorneys fees, sales commissions and other non-tangibles. A Project Pro Forma still serves as the basis for evaluating the profitability of any development. A Project Pro Forma is normally developed and studied prior to preparing a dynamic cash flow model,

if a cash flow analysis is used at all.

In the book How to Conduct and Analyze Real Estate Market and Feasibility Studies (1982), Vincent Barrett and John Blair explore a basic methodology which can be applied to virtually any land development project. The Barrett and Blair model is structured as a basic cash flow analysis with several possible ways of calculating rates of return. The following is a somewhat simplified version of the Barrett and Blair dynamic cash flow model.

The DISCOUNTED RATES OF RETURN in this cash flow model are calculated both on cumulative basis as well as annually. The "discounted rate" refers to discounting the future income by a given rate to account for potential loss on either the total investment or equity investment. The Discounted Rate of Return is used as a gauge of profitability of a project. It is also commonly known as an Internal Rate of Return (IRR) expressed as an average annual profit (or loss) by percentage of return on investment over the life of the project.

Table 2.1

CASH FLOW MODEL EXAMPLE FROM BARRETT AND BLAIR

Section I. Inputs

1. Estimated Acquisition Price
2. Initial Equity
3. Mortgage Interest Rate
4. Years of Mortgage
5. Cost of Construction
6. Construction Equity
7. Construction Loan Interest Rate
8. Construction Loan Payback Schedule
9. Method of Depreciation
10. Income Tax Percentage
11. Planning/Design Costs
12. Market Absorption Rate Assumptions
13. Achievable Sales Price Assumptions
14. Inflation Rates
15. Developer's Required Rate of Return

Section II. Cash Flow Analysis

Description	Year				
	1986	1987	1988	1989	1990...
DEVELOPMENT COSTS					
Land Purchase					
Streets					
Utilities					
Site Preparation					
Other Expenses					
Sub Total					
Engineering					
Planning/Design					
TOTAL DEVELOPMENT COSTS					
OPERATING EXPENSES					
Real Estate Taxes					
Sales Expense					
TOTAL OPERATING EXPENSES					

Table 2.1 [continued]

Description	Year				
	1986	1987	1988	1989	1990...
FINANCING					
Proceeds					
Principal Payments					
Interest Payments					
TOTAL DEBT SERVICE					
REVENUE					
Lots Sold					
Unit Price in Dollars					
TOTAL REVENUE					
CASH FLOW STATEMENT					
Total Revenue					
Less Operating Expenses					
Less Debt Service					
Pretax Cash Flow					
Less Federal Income Tax					
After Tax Cash Flow					
CUMULATIVE CASH FLOW					
TAX STATEMENT					
Pre-Tax Cash Flow					
Plus Principal Payment					
Less RK Value of Lots Sold					
Net Taxable Income					
Income Tax at X Percent					
DISCOUNTED RATES OF RETURN					
PROJECT PRESENT WORTH					

The Project Present Worth, also known as the Net Present Value (NPV), is another gauge of profitability

which gives the developer some sense of the current value prior to purchasing the land. The NPV is usually discounted to account for potential loss.

Such projected rates of return or statements of profitability are based on several assumptions mentioned in the Inputs Section of Barrett and Blair's model. The most critical of these assumptions are the inflation rates, absorption rates and achievable sales prices. The other assumptions involved can usually be predicted with a great deal of accuracy, but these three are often nothing more than guesswork due to such unknowns as the future of the national and local economy. Nevertheless, the financial feasibility model offers developers a method to test various results from different potential economic and market conditions. Usually several scenarios are constructed, such as a "worst case" or "break-even," and the sensitivity of the project to changing economic conditions is tested.

Other types of financial feasibility analysis vary the inputs and assumptions used to calculate rates of return. Four different rates of return are often looked at based on the level of inputs or assumptions.

1) Net income to total project cost (before leverage, tax shelter and sale).

2) Cash Flow After Financing - Cash flow to equity (after leverage).

3) After-Tax Cash Flow - Cash flow to equity (after leverage and tax sheltering).

4) Internal Rate of Return - Overall cash flow to equity including any holding and sales not previously accounted for.

Depending on the developers' or investors' income tax situation, an Internal Rate of Return after tax (IRR) may show a profit when the Cash Flow After Financing (CFAF) shows a loss. Obviously, there is greater risk for the developer or investor in assuming that their tax status will remain constant in order to make a profitable investment instead of investing in a development which has projected profitability prior to tax benefits. In order to minimize risk, most developers do not count on tax benefits to assure profitability (Mader, 1983).

A developer cannot avoid the risk of making assumptions concerning the real estate market, but the risk can be minimized by conducting some form of market analysis. The easiest form of market analysis is to simply apply current absorption rates and sales prices of similar land developments in close proximity. Inflation factors should be applied to both the sales price as well as future construction. Much more in-depth market research is often available from real estate consultants (Bailey, Spies & Weitzman, 1977).

The method of depreciation is usually not of importance in the development of unimproved land for resale, because only improvements can be depreciated, not land. Ideally, a developer of unimproved land sells (or gives away in the case of public streets and utilities) any improvements he constructs prior to having an opportunity to deduct depreciation from his taxes. There are cases, however, in which developers hold certain improvements for extended periods of time (club house, pool, golf course, etc.). In these situations depreciation can effect the ultimate profitability of a project.

The calculation of capital gains taxes is extremely important to a land speculator who buys and sells land but does not put any improvements on it. In such a case profits are taxed as capital gains, and therefore at a much lower rate than regular income. Once a developer begins improving subdivided property with roads and utilities, the profits from the sale of lots are treated as regular income. This point may become moot as the tax law changes.

Another example of a land development financial feasibility model is shown below. It is from the 1983 book <u>The Dow Jones Guide to Real Estate Investing</u> by Chris Mader.

Table 2.2

CASH FLOW MODEL EXAMPLE FROM MADER

Land and development property--no depreciation (per $1,000)

KEY OPERATING FACTORS ARE ---

TOTAL PROJECT COST	MORTGAGE TERMS AMOUNT	MORTGAGE TERMS % INTR	MORTGAGE TERMS LIFE	OPERATING & INFLATION ASSUMPTIONS NET RESALE PRICE	% INFL	GROSS INCOME	% INFL	OPERATING EXPENSE	% INFL	DEPRECIATION AMOUNT	DEPRECIATION LIFE	DEPRECIATION RATE	TAX RATES INCOME	TAX RATES CAP GAIN
1000	800	10.00	10	900	5	0	0	20	10				50%	20%

PRE-OPERATING SUMMARY ---

EQUITY AMOUNT	MORTGAGE TERMS % DEBT	MORTGAGE TERMS MONTHLY	MORTGAGE TERMS YEARLY	% NET RESALE TO COST	% INCOME TO COST	GROSS RENT MULT	% EXPENSE TO INCOME	% NOI TO COST	% DEPREC TO COST
200	80.00	11	127	90.0	0.0	0.0	0.0	-2.0	0.0

OPERATING RESULTS

	HOLDING RESULTS BEFORE INCOME TAXES						HOLDING RESULTS AFTER TAXES					OVERALL RESULTS IF SOLD AT YEAR END					
YR	GROSS INCOME	OPERATE EXPENSE	MORTGAGE INTR	MORTGAGE AMORT	CASH FLOW	% RE TURN	DEPREC IATION	TAXABLE INCOME	TAXES DUE	CASH FLOW	% RE TURN	SALE PRICE	DEBT REPAY	TAXES DUE	CASH FLOW	TOTAL PROFIT	% IRR
1	0	20	78	49	-147	-73.4	0	-98	-49	-98	-49.0	945	751	-11	205	-93	-46.4
2	0	22	73	54	-149	-74.4	0	-95	-47	-102	-50.8	992	697	-2	297	-102	-22.6
3	0	24	67	60	-151	-75.5	0	-91	-46	-105	-52.7	1042	637	8	397	-108	-13.4
4	0	27	61	66	-153	-76.7	0	-87	-44	-110	-54.9	1094	571	19	504	-110	-8.7
5	0	29	54	73	-156	-78.1	0	-83	-42	-115	-57.3	1149	498	30	621	-108	-5.8

Table 2.2 [continued]

INFLATION OF SALE PRICE, INCOME, AND EXPENSE AT 15-0-10% ANNUALLY

OPERATING RESULTS

	----HOLDING RESULTS BEFORE INCOME TAXES----						----HOLDING RESULTS AFTER TAXES-----					----OVERALL RESULTS IF SOLD AT YEAR END-----					
	GROSS	OPERATE	--MORTGAGE--		CASH	% RE	DEPREC	TAXABLE	TAXES	CASH	% RE	SALE	DEBT	TAXES	CASH	TOTAL	%
YR	INCOME	EXPENSE	INTR	AMORT	FLOW	TURN	IATION	INCOME	DUE	FLOW	TURN	PRICE	REPAY	DUE	FLOW	PROFIT	IRR
1	0	20	78	49	-147	-73.4	0	-98	-49	-98	-49.0	1035	751	7	277	-21	-10.4
2	0	22	73	54	-149	-74.4	0	-95	-47	-102	-50.8	1190	697	38	455	56	10.8
3	0	24	67	60	-151	-75.5	0	-91	-46	-105	-52.7	1369	637	74	658	153	15.2
4	0	27	61	66	-153	-76.7	0	-87	-44	-110	-54.9	1574	571	115	889	274	16.2
5	0	29	54	73	-156	-78.1	0	-83	-42	-115	-57.3	1810	498	162	1151	421	16.3

INFLATION OF SALE PRICE, INCOME, AND EXPENSE AT 25-0-10% ANNUALLY

OPERATING RESULTS

	----HOLDING RESULTS BEFORE INCOME TAXES----						----HOLDING RESULTS AFTER TAXES-----					----OVERALL RESULTS IF SOLD AT YEAR END-----					
	GROSS	OPERATE	--MORTGAGE--		CASH	% RE	DEPREC	TAXABLE	TAXES	CASH	% RE	SALE	DEBT	TAXES	CASH	TOTAL	%
YR	INCOME	EXPENSE	INTR	AMORT	FLOW	TURN	IATION	INCOME	DUE	FLOW	TURN	PRICE	REPAY	DUE	FLOW	PROFIT	IRR
1	0	20	78	49	-147	-73.4	0	-98	-49	-98	-49.0	1125	751	25	349	51	25.5
2	0	22	73	54	-149	-74.4	0	-95	-47	-102	-50.8	1406	697	81	628	229	39.6
3	0	24	67	60	-151	-75.5	0	-91	-46	-105	-52.7	1758	637	152	969	464	38.8
4	0	27	61	66	-153	-76.7	0	-87	-44	-110	-54.9	2197	571	239	1387	772	36.5
5	0	29	54	73	-156	-78.1	0	-83	-42	-115	-57.3	2747	498	349	1900	1170	34.5

This Cash Flow or Feasibility analysis is clearly adapted from a model for income properties, hence the columns for depreciation, rent multiplier and gross income from holdings. Although not as elaborate as the Barrett and Blair example, this example demonstrates the importance of sensitivity testing. In this case the rate of inflation of sale price is varied from 0% to 15% to 25% annually. The results vary from a negative 46% IRR at 0% inflation to a positive 25.5% IRR at 25% inflation in the first year. Obviously, the rate of inflation would have a dramatic influence on the profit or loss of this hypothetical land development. The initial market assumptions of sales price and absorption rates can have just as dramatic of an effect. The following chart shows that the differing rates of return based on varying percentages mortgaged, interest rates and inflation factors.

The simplification of the Mader example is due to the use of computer analysis. The details of the cash flow calculations are programmed in the computer and need not be printed. Just the basic inputs and resulting profit/loss per year are printed. There is a danger though in not being able to understand and double check the process of the cash flow calculations.

Table 2.3

EFFECTS OF CASH FLOW VARIABLES

Percent Mortgaged	Percent Mortgage Interest Rate	Percent Year 5 Rates of Return		
		0-5-10% Inflation	15-0-10% Inflation	25-0-10% Inflation
60	10	- 2.5	13.2	27.2
60	15	- 5.2	11.3	25.8
60	20	- 8.1	9.3	24.2
80	10	- 5.8	16.3	34.5
80	15	-11.2	12.9	31.9
80	20	-17.2	9.2	29.0

(Mader, 1983)

Computers are being used commonly now for financial feasibility analysis, especially dynamic cash flow models. A great deal of computer software (programs) is available for feasibility analysis. But, due to the subtle and often major differences in each real estate development project, pre-prepared analysis models often don't fit the specifics of a project. Basic spread sheet programs can be used to set up cash flow diagrams and calculate changes across the time line. The great advantage of such computer analysis is the ability to quickly and easily test the effects of changing variables without having to completely recreate the cash flow diagram.

Recently developed computer programs have become

readily available for real estate investment analysis and these programs are easily applied to use on micro-computers (Ferguson, Heizer & Hayden, 1986). However, programs available are virtually all designed for income property analysis, not land development for re-sale.

Adapting computer programs from one use to another may result in improper analysis. The following is an example of an After-Tax Cash Flow model which is presented with a computer program in the book Real Estate Investment and Management (1986) by Ferguson, Heizer and Hayden.

In order to adapt this cash flow model to land development for resale, almost all of the income and expense variables would have to be changed as well as the computer's calculations at each step of the cash flow process. The danger lies in inadvertently leaving a calculation in the program which is peculiar to income properties, such as Adjusted Rental Income. The error might not show itself in a simplified result printout such as the example in Table 2.2

The only way to assure oneself of the accuracy of a cash flow analysis is to be completely familiar with the model and all calculations involved. In chapter four a cash flow model specifically for development of unimproved land for resale is presented. That model

Table 2.4

AFTER-TAX CASH FLOW MODEL FOR INCOME PROPERTY

After-Tax Cash Flow Model The Fred Smith Investment, 1985-1987

ITEM	1985	1986	1987
1. Gross rental income	$30,000	$31,500	$33,075
2. Minus vacancy and uncollectable rent	1,500	1,575	1,654
3. Adjusted rental income	$28,500	$29,925	$31,421
4. Minus operating expenses	9,470	9,935	10,432
5. Net operating income	$19,030	$19,990	$20,989
6. Minus debt service	16,785	16,785	16,785
7. Before-tax cash flow	$ 2,245	$ 3,205	$ 4,204
8. Plus tax benefits	3,558	2,677	1,696
9. After-tax cash flow	$ 5,803	$ 5,882	$ 5,900
Tax benefits:			
Net operating income	$19,030	$19,990	$20,989
Minus:			
Interest	$15,560	$15,547	$15,323
Commitment fee	66	66	66
Cost recovery	12,300	11,070	9,840
	27,926	26,683	25,229
Operating loss	($ 8,896)	($ 6,693)	($ 4,240)
Tax benefit (at 40%)	$ 3,558	$ 2,677	$ 1,696

might be simply modified to apply to most land development for resale projects.

CHAPTER THREE

* * * * * * * * * *

Case Studies

The first case represents a financial analysis as prepared by a relatively small-scale developer of single-family subdivisions. The second case outlines the feasibility analysis process followed by a very large real estate development company for a single-family subdivision. The last case reviews a development plan and feasibility analysis prepared by a land planner for a non-developer property owner.

All of these case studies represent actual people and developments in the greater Kansas City metropolitan area. All are current to 1984-1986. Some of the names of the companies, their sub-divisions and individuals have been changed at their request.

The Thomas Property

The developer, Mr. Thomas, is an experienced developer who has done quite a lot of single-family subdivision development previously. He has also developed some apartments and condominiums.

Mr. Thomas usually uses the services of a surveyor, civil engineer and landscape architect when developing a

single-family, detached subdivision. he likes to handle any government approvals by himself as much as possible. He also handles most contracting himself with documents prepared by the civil engineers and landscape architects.

Mr. Thomas does some marketing and promotion for the subdivisions he develops, but in this case it will be handled by five builders whom he has selected to build out the project. In other words, these selected builders will buy lots from Mr. Thomas as they sell lots and their home building services to new owners. Thus, Mr. Thomas avoids the problems of marketing the lots and assures himself of quality builders in his subdivision.

Mr. Thomas finances both the land purchase and development costs through a bank of which he is a member of the board of directors. Because of his successful track record in development, the bank is willing to finance his projects 100% at an interest rate which floats 1.25% above prime rate. Therefore Mr. Thomas is able to begin development with the minimum of personal financial risk. His repayment schedule is based on a fixed amount for every lot sold.

The Site

Mr. Thomas purchased 80 acres of land in an affluent suburb which is primarily a single-family community. It

was zoned agricultural, but both sewers and water are on-site. A major street abutts the property on the east and it was under construction to become a four-lane street.

Mr. Thomas paid $1,000,000 for the property or $12,500 per acre which is typical for the area. It is a slightly rolling parcel with some large trees near the major street and an overgrown fencerow (Figure 3.1). The property seemed ideal for residential development. So, assuming he would have no problems with rezoning, Mr. Thomas arranged the financing, acquired the property and immediately began planning the development.

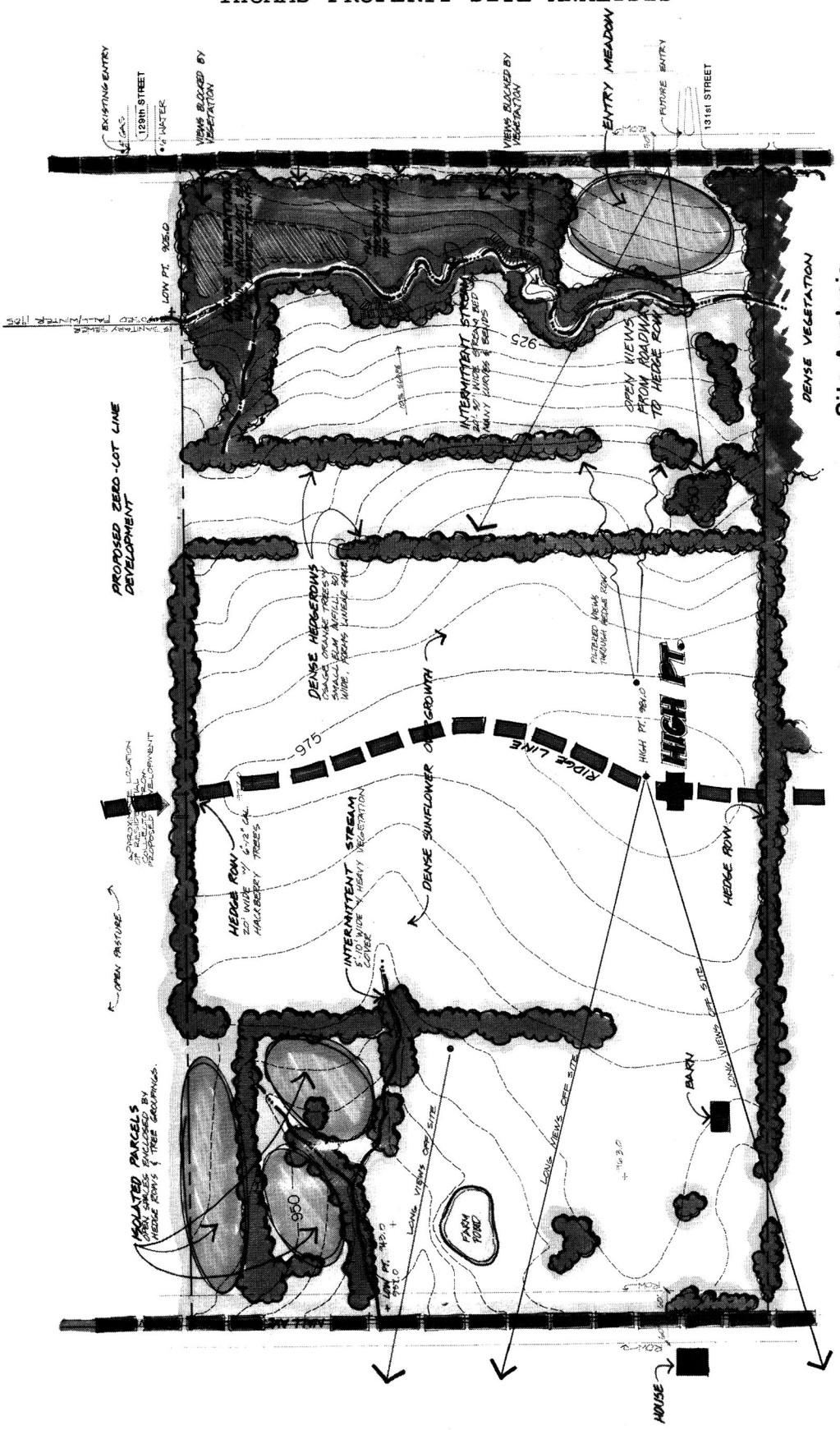
The Preliminary Plans

Mr. Thomas retained a Civil Engineering firm which also did land surveying to prepare a boundary survey with topography, existing utilities, existing trees and all easements and rights-of-way shown. Then he retained the landscape architecture firm, OH&H, to prepare a preliminary plan for the property showing mainly single-family lots with some townhomes or apartments. He also wanted to incorporate a clubhouse with pool and tennis courts.

First, the staff at OH&H completed assembling the site data which had not been obtained by the engineers/ surveyors such as the type of existing vegetation, views,

FIGURE 3.1

THOMAS PROPERTY SITE ANALYSIS



adjacent land uses, zoning requirements, soils information and existing neighborhood organizations. They then prepared a detailed site analysis which illustrates the key physical features affecting development (Figure 3.1).

A preliminary plan was developed and approved by the city for 177 lots of detached, single-family residential and 8.1 acres of multi-family residential. Mr. Thomas was unsure of the market for apartments or townhomes in this area due to his experience on a previous project, so he asked OH&H to develop a second plan with all 80 acres in single-family lots (Figure 3.2).

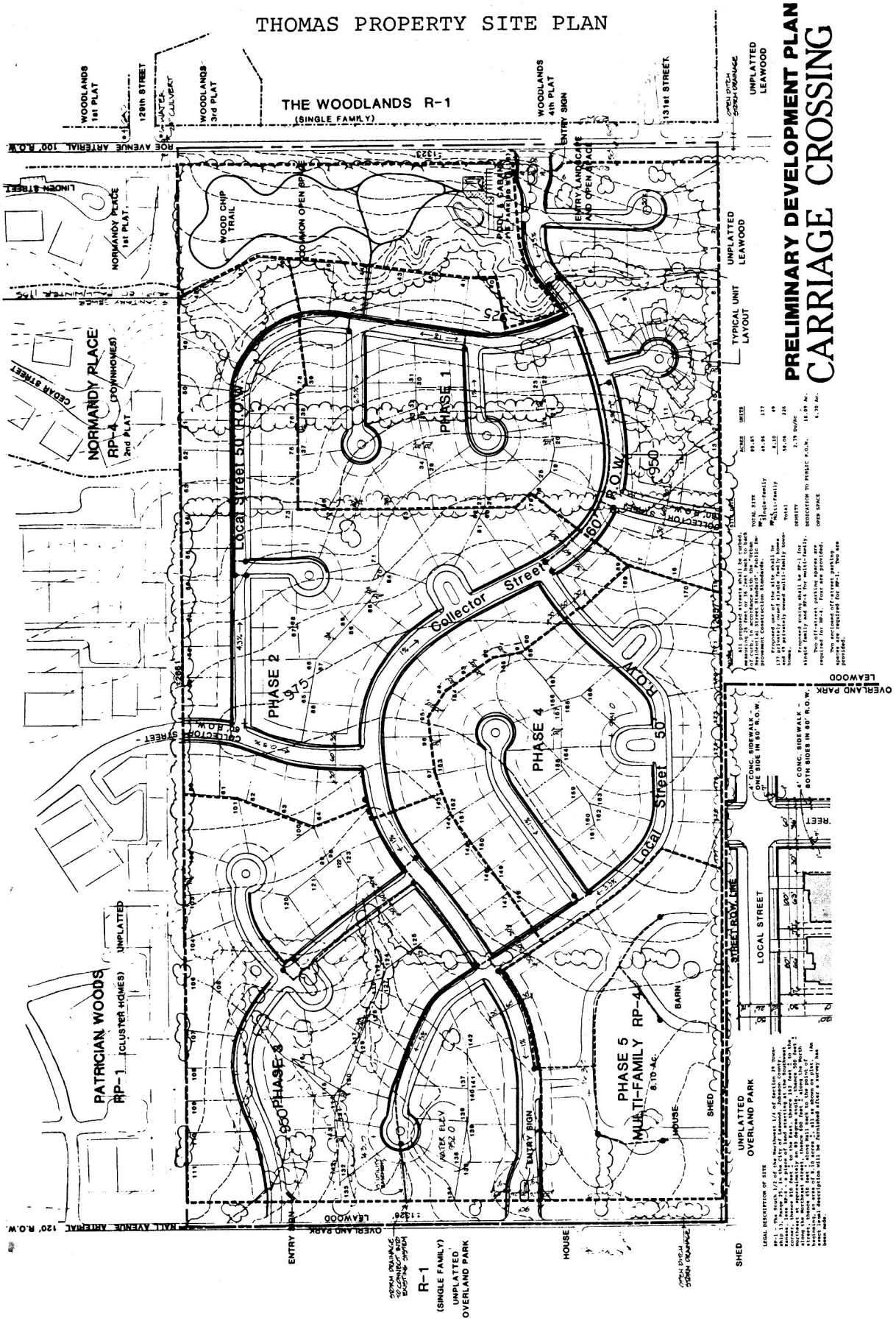
The Pro-Forma

Based on his previous experience developing subdivisions in the immediate area, Mr. Thomas developed a pro-forma to determine appropriate lot sales prices and phasing of the development. He used two scenarios for development; one with 177 lots and 8.1 acres of multi-family residential, and one with 199 lots (2.5 lots/acre). Table 3.1 shows his expense budget for both scenarios using estimates based on similar development.

Mr. Thomas was sure that he could see all the project completed and sold within four years. Table 3.2 shows the potential profit based on various lot sales

FIGURE 3.2

THOMAS PROPERTY SITE PLAN



prices. Based on this rudimentary pro-forma Mr. Thomas decided to pursue the option of developing the entire 80 acres in single-family lots. This decision was obviously not based entirely on profit projections, but was tempered by Mr. Thomas' understanding of the market. He did not think the multi-family development would proceed quickly, and he was afraid it would reduce the value of the single-family lots.

Table 3.1

THOMAS PROPERTY PROJECT EXPENSE BUDGET	OVERALL PROJECT BUDGET 177 LOTS .4AC./LOT	OVERALL PROJECT BUDGET 199 LOTS .4 AC./LOT
LAND	1,000,000.00	1,000,000.00
FINANCIAL COSTS ON LAND & DEV.	37,500.00	
ORIGINATION FEE (1-1/4%)	60,000.00	60,000.00
MORTGAGE POLICIES	7,000.00	7,000.00
MORTGAGE REGIS. TAXES	10,000.00	10,000.00
RECORDING FEES	13,000.00	13,000.00
INTEREST - COLLEGE BLVD. BANK	1,000,000.00	1,000,000.00
INTEREST - MONEY PD BEFORE DRAWS	10,000.00	10,000.00
INTEREST - C. BRISBOIS ON NOTE	33,000.00	33,000.00
INTEREST - ON LAND TILL CLOSING	8,022.56	8,022.56
COMMISSION ON LAND	50,000.00	50,000.00
LEGAL	20,000.00	20,000.00
INSURANCE - LIABILITY, ETC.	10,000.00	10,000.00
PROPERTY TAXES	100,000.00	100,000.00
ZONING-TITLE WORK-FEES	16,000.00	16,000.00
ENGINEERING	177,000.00	199,000.00
LAND PLANNING & ARCHITECTS	20,000.00	20,000.00
SANITARY-STORM SEWERS	1,009,000.00	1,135,000.00
BOX CULVERT	80,000.00	80,000.00
CHANEL GRADE	40,000.00	40,000.00
STREETS-CURBS-CLEARING-GRADING	875,265.00	984,000.00
REMOVE TREES	100,000.00	100,000.00
ROE & NALL IMPROVEMENTS - CITY	192,000.00	192,000.00
PROJECT UTILITIES	439,845.00	494,000.00
WATER		
GAS		
ELECTRICAL		
UTILITIES-EXTRA BRING TO SITE (W&S)	130,000.00	130,000.00
STREET LIGHTS	100,000.00	112,429.38
ENTRANCE MARKERS, SIGNAGE, ETC.	50,000.00	50,000.00
TREES & LANDSCAPING	30,000.00	30,000.00
SOD	30,000.00	30,000.00
MAINTENANCE - GROUNDS & CLEARING	15,000.00	15,000.00
AMENITY PACKAGE - POOL, CABANA, ETC.	170,000.00	170,000.00
OVERHEAD FOR DEVELOPMENT	234,000.00	265,000.00
MISCELLANEOUS	10,000.00	10,000.00
SUBSIDIZE AMENITIES	20,000.00	20,000.00
SUBSIDIZE BUILDERS	15,000.00	15,000.00
	6,074,132.56	6,428,451.94

Table 3.2

THOMAS PROPERTY PRO-FORMA

Number of Lots	Average Sales Price of Lot Over 4 Yrs.	Total Gross	Total Cost of Development 199 Lots	Profit
199	33,000	6,567,000.00	6,428,451.94	138,548.06
199	34,000	6,766,000.00	6,428,451.94	337,548.06
199	35,000	6,965,000.00	6,428,451.94	536,548.06
199	36,000	7,164,000.00	6,428,451.94	735,548.06
199	37,000	7,363,000.00	6,428,451.94	934,548.06
199	38,000	7,562,000.00	6,428,451.94	1,133,548.06
199	39,000	7,761,000.00	6,428,451.94	1,332,548.06
199	40,000	7,960,000.00	6,428,451.94	1,531,548.06

Number of Lots	Average Sales Price of Lot Over 4 Yrs.	Sale of RP4 8.10 Acre Multi-Family (49 units)	Total Gross	Total Cost of Development 199 Lots	Profit
177	33,000	353,000.00	6,194,000.00	6,074,132.56	119,867.44
177	34,000	353,000.00	6,371,000.00	6,074,132.56	296,867.44
177	35,000	353,000.00	6,548,000.00	6,074,132.56	473,867.44
177	36,000	353,000.00	6,725,000.00	6,074,132.56	650,867.44
177	37,000	353,000.00	6,902,000.00	6,074,132.56	827,867.44
177	38,000	353,000.00	7,079,000.00	6,074,132.56	1,004,867.44
177	39,000	353,000.00	7,256,000.00	6,074,132.56	1,181,867.44
177	40,000	353,000.00	7,433,000.00	6,074,132.56	1,358,867.44

Mr. Thomas' method of financial feasibility analysis has many weaknesses which, due to his experience, he was aware of. Nevertheless he did not consider preparing a cash flow analysis or any further financial analysis because of his confidence in the project's marketability. In his experience the feasibility analysis projections are always wrong to a degree and the market factors make or break the project.

The greatest potential for mistakes in this type of analysis stems from the lack of accounting for changes over the life of a project. It is virtually impossible to compare the difference in profit/loss between a four year sell-out period and a six year sell-out period which could be disastrous financially. Also, no accounting for construction inflation, changing interest rates and/or changing sales prices is reflected in a simple pro forma. All of these factors can be addressed in a cash flow analysis as demonstrated for this same project in the next chapter.

The J.C. Nichols Company

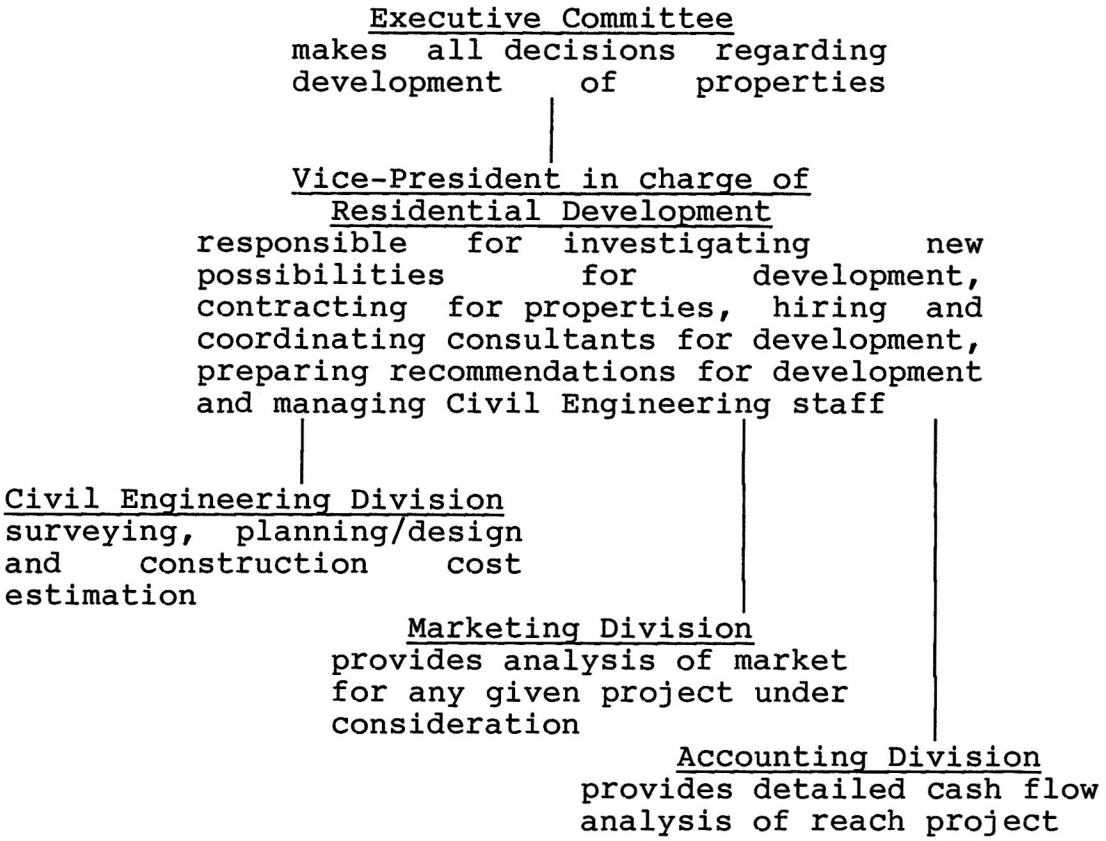
The J.C. Nichols Company is a large, multi-faceted real estate company which is over seventy years old. Their activities include retail and office commercial development, rental apartment development, condominium/

townhouse development and sales, single-family subdivision development and sales, and property management. They have developed over 10,000 acres of single-family subdivisions in the Kansas City area, most of which were very successful financially.

The methodology developed by the Nichols Company for financial feasibility analysis varies in some respects depending on the type of development but the basic organizational structure shown below is the same.

Figure 3.3

J.C. NICHOLS COMPANY ORGANIZATIONAL CHART



In the case of a single-family subdivision development, the vice-president in charge of residential development is responsible for assembling all information to be presented to the executive committee including the financial analysis. The first step in this process would be the contracting for a piece of property which would require a preliminary site analysis prepared by the engineering staff. This analysis includes soil and sub-soil testing, a topographic survey, a slope analysis and a survey of available utilities and road benefit districts. The preliminary site analysis answers two basic questions:

1) Is the property suitable for the construction of a single-family subdivision without inordinate on-site construction costs?
2) Are the off-site construction costs prohibitive for the sizes of the development?

If both on-site and off-site construction costs seem reasonable the vice-president will present the property to the executive committee for a decision on purchasing the property. If the vice-president in charge of marketing thinks that the price is acceptable and a good market exists in that location, the committee will probably decide to have the marketing division negotiate a preliminary purchase agreement.

Two things occur simultaneously as the property is being put under contract. Usually the marketing division prepares a market analysis to identify the best product for the market, price ranges and projected absorption rates. At the same time the engineering division is preparing several alternative site plans for the property. At the J.C. Nichols Company different design alternatives are always prepared by different people.

After refining the plan alternatives based on information from the marketing division, the vice-president in charge of residential development prepares pro formas for each of the most likely alternatives. These pro formas include the following basic information.

1) Total development costs prepared by the engineering department using prices inflated for the estimated time of construction.

2) Total revenues based on the "most likely" market prices and absorption rates provided by the marketing department.

3) Gross profit and a pre-tax internal rate of return.

The vice-president compares the alternatives and usually selects one for presentation to the executive committee. The plan is refined by the engineering staff and presentation plans prepared on both topographic survey and an aerial photo of the site. A cash flow analysis is prepared by the accounting department based

on information from the engineering and marketing departments. The cash flow analysis is usually set up on an annual basis.

At the executive committee review the vice-president of residential development presents t he final plans for the subdivision as well as any alternatives which the committee would like to see. The vice-president of accounting then presents the cash flow analysis for the project. The executive committee discusses the project and then either approves it, rejects it as unfeasible or sends it back to engineering for changes.

The J.C. Nichols Company bases these decisions on many different factors but primarily on the projected rate of return. The executive committee will usually not approve a project unless it shows a 40% or greater annual rate of return in the cash flow analysis prepared by the accounting department. This rate of return is computed as Cash Flow After Financing (page 41) which is a ratio of profit to equity.

Although the J.C. Nichols Company finances their own projects (at least subdivisions), the financing department acts as a separate entity which requires on equity investment from the residential development department just as a bank would. This allows for a basic Cash Flow After Financing calculation to determine

financial feasibility. Tax consequences are usually not even considered on individual projects.

The greatest benefit of the Nichols Company's methodology is the series of checks and balances inherent in the system. From the inception of a project the marketing department and residential development department are checking the feasibility from department perspectives. The development professionals are not allowed to make their own assumptions about market price or demand. Nor are they allowed to make assumptions regarding interest rates or inflation rates since the accounting department prepares an independent cash flow analysis with financing assumptions provided by the financing department. The heads of each of these departments presents their own departments' opinions and inputs to the executive committee of which they are members. Thus a well-informed decision is made based on a time-honored bottomline criterium--a minimum 40% annual return after financing.

The Meadows

The final project presented as a case study was planned by a landscape architecture firm for a property owner who was not a developer. The final product of the planning effort was a comprehensive development plan

including a financial feasibility analysis. This development plan was then used by the property owner as a prospectus for potential buyers or joint venture partners.

THE OWNER.

The property owner in this case was actually a group of doctors who purchased the property as an investment in the early 1970's. Several members of the group decided that they would like to sell the property over ten years later. Unfortunately they discovered that they could not get as much for the property as they paid for it. Therefore they decided to try to increase the property's value by having a development plan prepared and acquiring rezoning for the property. There was some divided opinion among the group whether they should sell the planned and rezoned property or use the plan to attract a joint venture development partner.

THE SITE.

The property is an irregularly shaped parcel of 235 acres of rolling pasture. It is located on a cloverleaf interchange with 2200 feet of frontage on an access road. There is no direct access from the freeway, although it was highly visible.

The property is located five miles from Kansas City International Airport and fifteen miles from downtown, all on freeways.

One of the biggest deterrents to development of the property is a lack of sewers. The City had not developed sewers in the watershed and had no immediate plans to do so. The City had recently adopted a policy against permitting anything other than 40 acre single-family tracts to be developed on septic systems. Therefore a large lot subdivision with septic tanks was not a viable alternative.

PRELIMINARY PLANS

The owner group requested a proposal of services from a land planning firm to prepare a development plan for the property. The land planning firm proposed the following basic tasks to develop a plan:

1) Conduct a market analysis to determine the highest and best use for the property. Also determine specific prices and absorption rates for use in financial analysis.
2) Prepare a site analysis.
3) Prepare several alternative plans for development of the property. Prepare preliminary pro formas for each alternative and review with the client group.

4) Prepare a cash flow analysis for the final development plan and project the rate of return.

5) Put the market analysis, site plans, pro forma, cash flow and descriptive text into a report form suitable for a development prospectus.

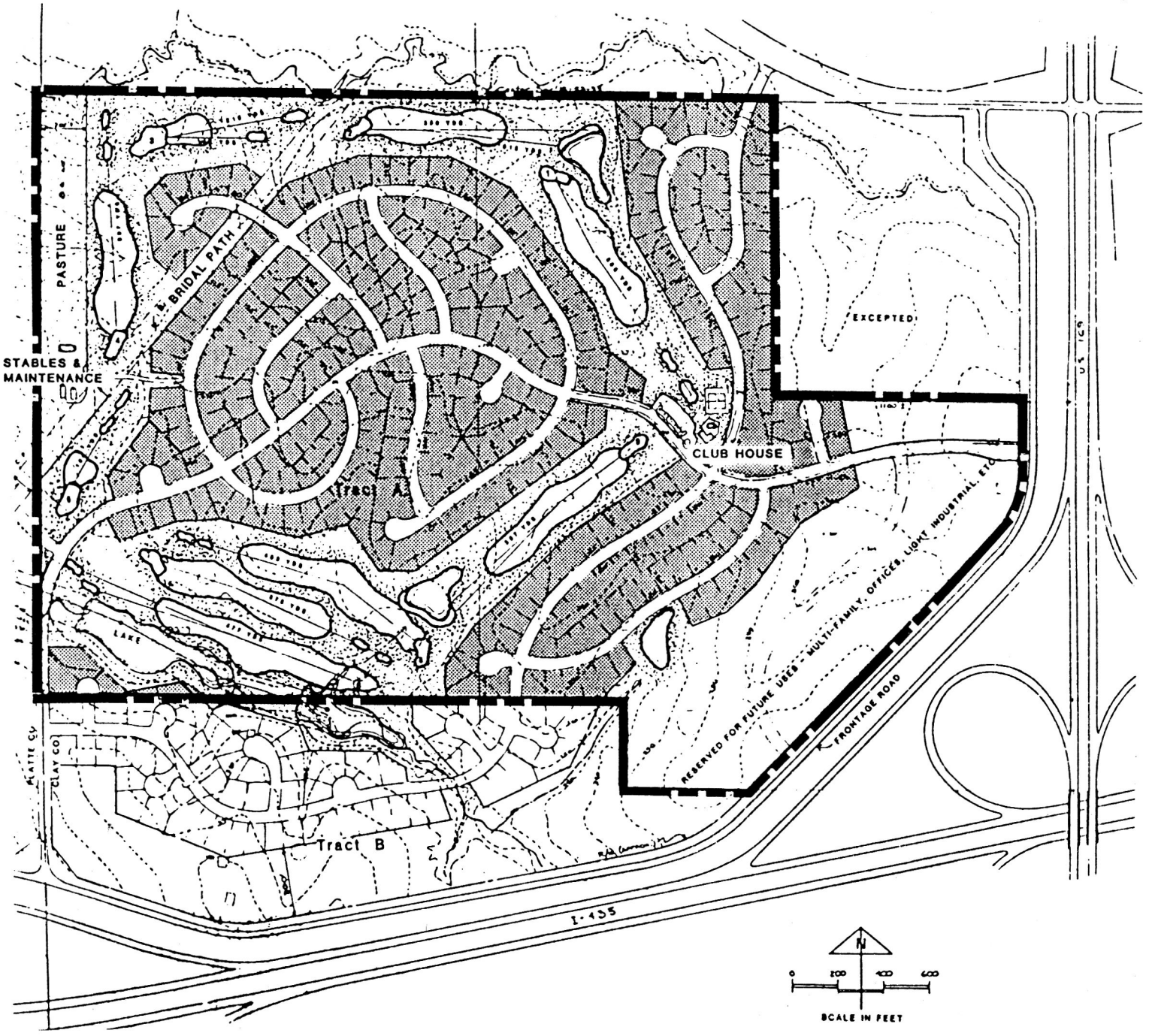
The owner group agreed to the proposed services and gave the land planner permission to proceed. The land planner then assembled the market data and site information and analyzed both which resulted in a well-defined set of development criteria including specific market assumptions. Based on these criteria the land planner prepared several alternative plans and presented them to the owners. The plan which they selected to use for the final development plan included a nine-hole golf course surrounded by a single-family subdivision with the highway frontage property reserved for commercial development. The final plan is shown in Figure 3.4 on the following page.

DEVELOPMENT COST ESTIMATE

The land planner examined the financial feasibility of the development plan in the following manner. Presented first are the development cost estimates for the project. Next, sales forecasts are incorporated into a multi-year cash flow model. Rate of return is

FIGURE 3.4

THE MEADOWS SITE PLAN



SCHEDULE	TRACT A	TRACT B
TOTAL AREA	235± AC.	56± AC.
AREA IN GOLF COURSE	80± AC.	4± AC.
AREA IN STABLES, PASTURE, ETC.	8± AC.	—
AREA IN FRONTAGE USES	23± AC.	27± AC.
AREA IN SINGLE FAMILY LOTS	109± AC.	25± AC.
NO. OF LOTS	325	69
INTERIOR STREET LENGTH	21,000±LF	4,000±LF
BRIDLE PATH LENGTH	7,500± LF	1,600±LF

Site Plan
THE MEADOWS

calculated. Finally, sensitivity analysis is performed to determine the project break even point.

Elements of cost considered were land, pre-development costs, real estate development expenses including off-site improvements, and golf course development.

Land Cost

Since the site had been owned by the development group for a number of years, land cost was assumed to $400,000 (approximately $1650 per acre).

Pre-Development Costs

Certain costs would be incurred prior to obtaining construction financing. These were estimated as follows:

Accounting	$ 1,400	Planning	$40,000
Legal	14,000	Zoning/ Platting	25,000
Insurance	1,000	Design Engineering	16,900
Advertising	10,000		
TOTAL			$108,300

Real Estate Development Costs

The basic cost of developing an individual lot (clearing and grubbing, grading, street paving, sanitary sewer, and other utilities) was estimated at $11,000. In

addition, certain cost items were associated with each phase of development (such as off-site improvements). Illustrated in Figures 3.5 and 3.6 are the phases of development, the sanitary sewage system proposed, and required off-site water main construction.

Presented below is the cost breakout for each phase. These costs were developed in conjunction with a civil engineer using 1984 unit costs.

(1) Phase I Development Cost (89 lots)

Off-site street, 940' @ $55/ft. + $10,000 Entrance Sign	$ 61,700
Sewage Treatment Plant	300,000
Lift Station	25,000
740' of 6" force main @ $18.00/ft. (compared to water main w/o hydrants)	13,300
1960' if Phase II sanitary sewer @ $15/ft.	29,400
8" off-site water main - 6", 3640' @ $20/ft. (no hydrants)	72,800
Water tap to 24" high pressure main	15,000
Future phase water main - 6", 340' @ $20/ft. '	6,800
Total extras - Phase I	$ 524,000
Develop 89 lots @ $11,000/lot	979,000
TOTAL PHASE I COST	$1,503,000

(2) Phase II Development Cost (66 lots)

Develop 66 lots @ $11,000/lot	$ 726,000
Less Phase I already built	<29,400>
	$ 696,600

(3) Phase III Development Cost (78 lots)

Develop 78 lots @ $11,000/lot	$ 858,000
2nd lift station	30,000
1520' of 8" force main @ $20/ft.	30,400
1860' of 8" off-site water @ $20/ft. plus $15,000 tap	52,200
720' of off-site street @ $50/ft.	36,000
	$1,006,600

(4) Phase IV Development Cost (92 lots)

Develop 92 lots @ $11,000/lot	$1,012,000
Less previous water main	6,800
	$1,005,200

Golf Course Development Costs

Included as a part of golf course development were also the costs of clubhouse, tennis courts and pool. The overall breakout follows:

(1) Planning/Design (7%)--Golf Course

Preliminary Plans (25%)	$ 9,387
Final Plans & Specifications (75%)	28,193
	$ 37,580

(2) Construction

Clearing and Grubbing	$ 26,400
Rough Grading (Cut & Fill)	46,000
Lakes and Drainage	50,000
Shaping	50,000
Green Structuring	70,000
Irrigation-Pumping & Distribution	165,000
Turfing	18,000
Cart Paths and Bridges	30,000
Landscaping	20,000
	$ 475,400

Construction Management (8%)	$	38,032
Contingency (10%)		47,540
Sub-total	$	594,250
Bringing-in-cost (10 months)		80,000
TOTAL GOLF COURSE CONSTRUCTION	$	674,250

(3) Maintenance Building

1,600 SF @ $25/SF	$	40,000
Utilities		8,000
A&E (7%)		3,360
	$	51,360

(4) Maintenance Equipment

Full complement of golf course maintenance equipment	$	161,360
Contingency (10%)		16,136
	$	177,496
TOTAL FOR GOLF COURSE	$	851,746 (assume $850,000)
(5) Clubhouse	$	150,000
(6) Swimming/Pool/Patio		50,000
(7) Two Tennis courts		50,000
TOTAL GOLF COURSE/CLUB FACILITIES		$1,100,000

Horse Riding Facilities Development Costs

Horse riding facilities included a building for storage and stables for forty horses. Approximately 7.5

acres of pasture was to be fenced with a decorative rail fence.

(1) Stable Building

10,000 SF @ $20/SF	$ 200,000
Utilities	18,000
A&E (7%)	15,260
	$ 233,260

(2) Fencing

Stone column with rails, 2000 LF @ $10/LF	$ 20,000
Rail fence, 2000 LF @ $3.37/LF	6,740
TOTAL FOR HORSE FACILITIES	$ 260,000

FIGURE 3.5

THE MEADOWS PHASING PLAN

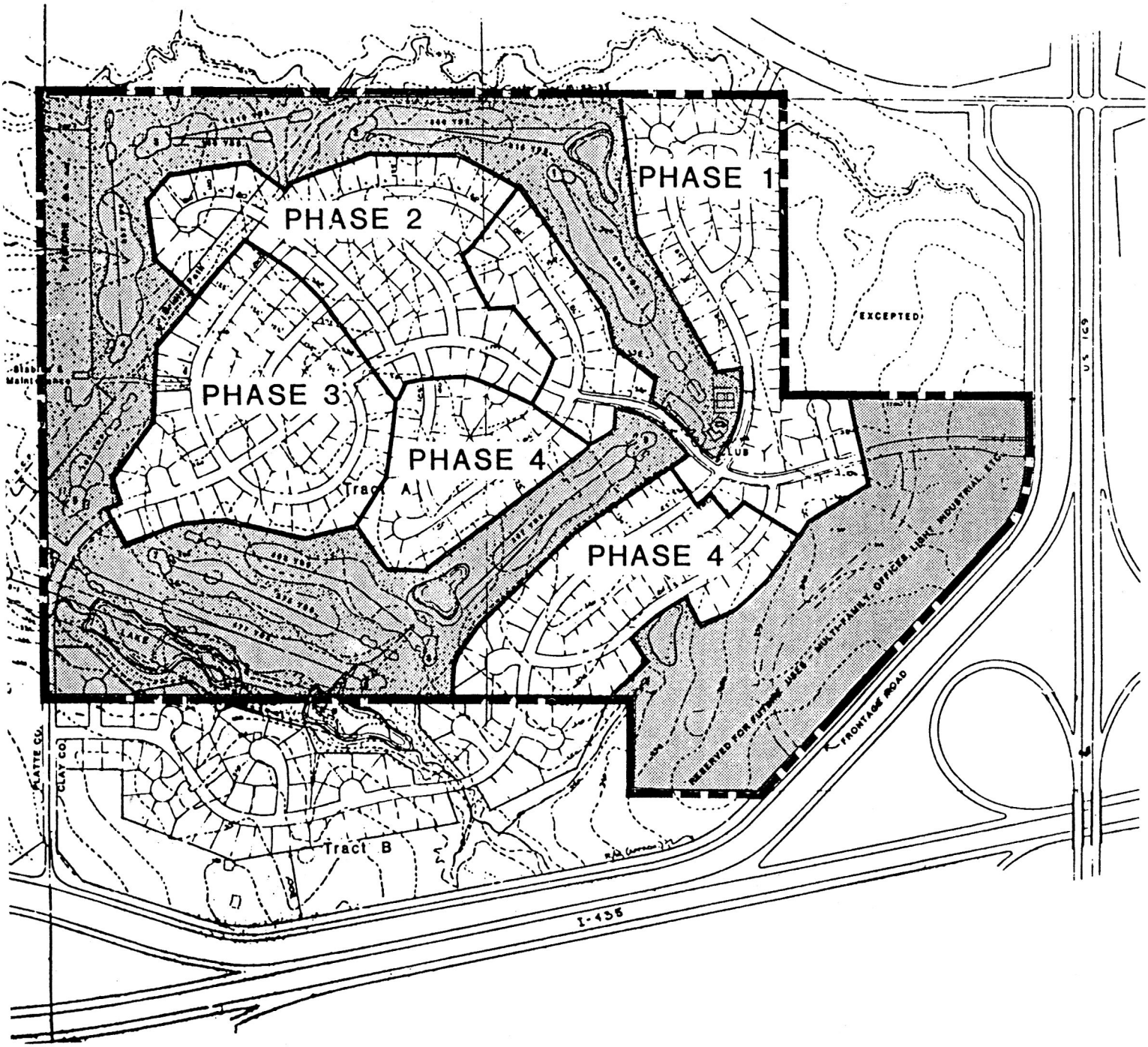
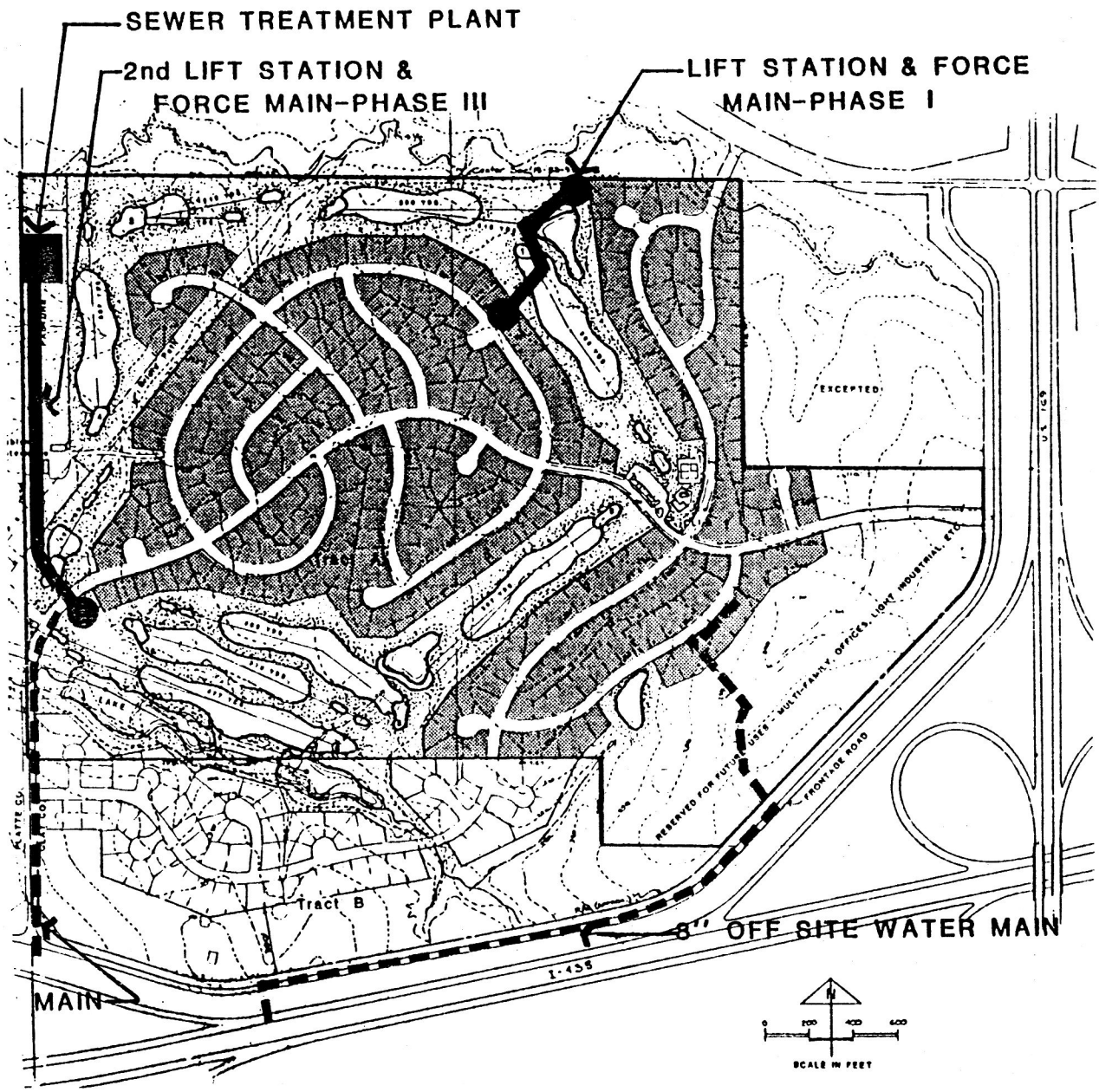


FIGURE 3.6

THE MEADOWS UTILITY PLAN



MULTI-YEAR CASH FLOW MODEL

Assumptions

Several assumptions had to be made concerning the sales and financing for this development. The most probable sales assumptions, based on the Market Analysis, included an average lot price of $27,500 and 35 lots sold per year. It was assumed that the commercial frontage property could sell for $3.00/square foot in 1994. The golf course, club facilities and stables are scheduled to be sold to the homeowners in 1994 for cost plus inflation.

Financial assumptions for this development include:

1) A 20% owner equity to 80% construction loan ratio.
2) Construction loan interest rate of 14%.
3) Construction loan principle payback of $13,200 per lot sold or 120% of the per lot construction costs ($11,000).
4) An inflation rate of 6% per year for the life of the project.

Rate of Return

The Internal Rate of Return (I.R.R.) shown on the top of each cash-flow model was based on a pre-tax annual rate of return on the project. The 54.8% IRR does not account for tax effect, which could not be estimated

TABLE 3.3
CASH FLOW MODEL 1 (most probable)

THE MEADOWS

Development Loans - cost per lot:	11,000 (Borrow 80%)		Sale price per lot:	27,500	
Phase 1:	1,503,000	# of Lots: 89	Rate Annual Cost & Income Inflation:	6% Per year	
Phase 2:	696,600	# of Lots: 66	Internal Rate of Inflation:	54.8%	
Phase 3:	1,006,600	# of Lots: 78	Golf Course and Stables Cost:	1,400,800	(1,360,000 * 1.03)
Phase 4:	1,005,200	# of Lots: 92	Borrowing:	1,120,640	(80%)
			10 year amortization	214,842	annual payment

		EQUITY Start-up Costs Jan 85(0)		Year end Total 85 1	1986 2	1987 3	1988 4	1989 5	1990 6	1991 7	1992 8	1993 9	1994 10
(Inflation factor)				1.00	1.06	1.12	1.19	1.26	1.34	1.42	1.50	1.59	1.69
INCOME													
Lots Sold				15	35	35	35	35	35	35	35	35	30
Lot Sale Price				27,500	29,200	30,900	32,800	34,700	36,800	39,000	41,300	43,800	46,500
Lot Sales				412,500	1,022,000	1,081,500	1,148,000	1,214,500	1,288,000	1,365,000	1,445,500	1,533,000	1,395,000
Commercial Land - 1,023,000 sf at: 1.50													3,069,000
Sale of Golf Course and Stables													2,367,352
Dev. Loan Proceeds (80% of cost)	20%	300,600	80%	1,202,400		626,160		1,016,647		1,140,716			
Golf Course Loan amount 280,160	20%	280,160	80%	1,120,640									
TOTAL INCOME		580,760		2,735,540	1,022,000	1,707,660	1,148,000	2,231,147	1,288,000	2,505,716	1,445,500	1,533,000	6,831,352
COSTS													
Repay Dev. Loan - Lot release ratio:	1.2			243,000	567,000	392,400	352,780	273,420	547,430	469,170	401,730	520,760	218,210
Repay Golf Course Loan (14% - 10 yr)				214,842	214,842	214,842	214,842	214,842	214,842	214,842	214,842	214,842	214,842
Construction Costs - Cost per lot:	11,000			979,000		726,000		858,000		1,012,000			
Extra - off-site expenses				524,000				148,600					
Future development done now						-29,400				-6,800			
Golf Course & Stables				1,400,800									
Interest on Develop. Loan (14%):	Phase 1			117,800	94,600	27,500							
	Phase 2					32,100	48,800	19,100					
	Phase 3							45,100	104,000	56,300			
	Phase 4									50,600	138,000	48,700	48,700
Development loan interest balance				117,800	94,600	59,600	48,800	64,200	104,000	106,900	138,000	48,700	48,700
Accountant		1,400		4,000	4,000	4,000	5,000	5,000	5,000	6,000	6,000	1,000	1,000
Legal		14,000		3,000	3,000	4,000	4,000	5,000	5,000	6,000	3,000	3,000	3,000
Insurance		1,000		5,000	6,000	7,000	7,000	7,000	7,000	6,000	2,000	1,000	1,000
Advertising & Sales (6% of lot sales)		10,000		24,800	61,300	64,900	68,900	72,900	77,300	81,900	86,700	92,000	83,700
Planning & start-up		40,000											
Zoning/Platting		25,000											
Design Engineer (6% of Phase cost)		16,900		67,600	0	41,800	0	60,400	0	60,300	0	0	0
Financing fees (Golf Course only - in loan)		[Shown above]											
Maintenance				2,000	2,400	2,400	2,600	2,600	2,800	2,800	1,400	1,000	1,000
Management fees (3% of lot sales):	Phase 1			12,380	30,700	32,400	3,900						
	Phase 2					0	30,500	36,400					
	Phase 3							0	38,600	41,000	9,900		
	Phase 4									0	33,500	45,990	41,850
Management fees balance				12,380	30,700	32,400	34,400	36,400	38,600	41,000	43,400	45,990	41,850
Golf course maintenance					47,500	44,800	7,100	-18,100	-30,800	-6,000	-31,200	-60,720	
Land at purchase price		400,000											
TOTAL COST		508,300		3,598,222	1,031,342	1,564,742	745,422	1,730,262	971,172	1,994,112	865,872	867,572	613,302
Net Annual Cash Position		-1,089,060		226,378	217,036	359,954	762,532	1,263,417	1,580,245	2,091,850	2,671,478	3,336,906	9,554,956

TABLE 3.3 [continued]
CASH FLOW MODEL 1 (most probable)

DEVELOPMENT LOAN PAYBACK AMOUNT CALCULATIONS	Year end:	1986	1986	1987	1988	1989	1990	1991	1992	1993	1994
Land development loan amount:	Phase 1:	959,400	392,400	0	0	0	0	0	0	0	0
	Phase 2:			626,160	273,380	0	0	0	0	0	0
	Phase 3:					1,016,647	469,217	47	0	0	0
	Phase 4:							1,140,716	738,986	218,226	16
Land development loan(s) balance:		959,400	392,400	626,160	273,380	1,016,647	469,217	1,140,764	738,986	218,226	16
Current phase payback amount per lot:		16,210	16,210	11,380	11,380	15,641	15,641	14,879	14,879	14,879	14,879
Number of lots subject to payback:		15	35	35	31	35	35	35	27	35	30
Payback amount x # of lots sold in year:		243,150	567,350	398,300	352,780	547,426	547,426	520,762	401,731	520,762	446,367
Loan balance first or prior phase:		1,202,400	959,400	392,400	626,200	273,420	1,016,600	469,170	1,140,700	738,970	218,210
Payback amount (above amount or loan balance if less)		243,000	567,000	392,400	352,780	273,420	547,430	469,170	401,730	520,760	218,210
Cumulative total number of lots sold:		15	50	85	120	155	190	225	260	295	325
Number of prior (or first) phase lots unsold:		74	39	4	35	78	43	8	65	30	0
DEVELOPMENT LOAN INTEREST CALCULATIONS											
Development loan amount for phase:		1,202,400	959,400	626,160	626,160	1,016,647	1,016,647	1,140,716	1,140,716	738,986	218,226
Adjusted loan balance for phase:		67,334	392,400	17,532	10,019	21,350	104,011	23,955	36,571	0	0
Estimated amount interest paid:		50,442	94,626	14,610	38,822	23,722		26,617	101,448	51,661	11,779
Interest on devel loan for phase for year:		117,776		32,143	48,840	45,071	104,011	50,572	138,019	48,746	48,746
Rounded amount:		117,800	94,600	32,100	48,800	45,100	104,000	50,600	138,000	48,700	48,700
Prior phase loan balance:				392,400		273,380		56,306			
Estimated amount interest paid:				27,468		19,137		56,306			
Rounded amount:				27,500		19,100		56,300			

INTERNAL RATE OF RETURN CALCULATIONS
Iteration Model 9

		CASH FLOWS
Enter assumed IRR Rate:	1.00%	
Calculated IRR Rate:	54.80%	
Net Present Value:	-0.01004787	-1,089,060
Test NPV Amount:	-2,330,540	226,378
		217,036
	1%	359,954
		762,532
		1,263,417
		1,580,245
	50,000%	2,091,850
		2,671,478
	TRUE	3,336,906
		9,554,956

realistically due to the variables of financing structure. It was assumed that the development profits would be taxed as ordinary income with the possibility of off-setting depreciation of the golf course, stables and sewage treatment plant.

Sensitivity Analysis

In order to better understand development feasibility, two additional cash flow models were constructed to test the effects of changes in assumptions. These cash flow models demonstrated two specific points, 1) how sensitive the IRR is to a lower sales price than first assumed, and 2) at what sales price will the owners break even.

The first model assumes a sales price of $25,000 per year, a 10% reduction from our original assumed sales price. In addition, the sales price for the commercial land is reduced by 50% to $1.50/square foot, and the golf course, clubhouse and stables are sold at cost without any inflation. The resulting IRR is 43.5% per year.

The second cash flow model solves for the sales price per lot at 0% IRR. The commercial land is kept at $1.50 per square foot, and golf course, clubhouse and stables at cost. The resulting sales price is $17,900 per lot to achieve a 0.2% IRR.

TABLE 3.4
SENSITIVITY MODEL 1

THE MEADOWS
Development Loans - cost per lot: 11,000 (Borrow 80%)

Phase 1:	1,503,000	# of Lots:	89	Rate Annual Cost & Income Inflation:	6%	Per year	
Phase 2:	696,600	# of Lots:	66	Internal Rate of Return:	43.5%		
Phase 3:	1,006,600	# of Lots:	78	Golf Course and Stables Cost:	1,400,800	(1,360,000 * 1.03)	
Phase 4:	1,005,200	# of Lots:	92	Borrowing:	1,120,640	(80%)	
Sale price per lot:	25,000			10 year amortization	214,842	annual payment	

		EQUITY Start-up Costs Jan 85(0)		Year end Total 85 1	1986 2	1987 3	1988 4	1989 5	1990 6	1991 7	1992 8	1993 9	1994 10
(Inflation factor)				1.00	1.06	1.12	1.19	1.26	1.34	1.42	1.50	1.59	1.69
INCOME													
Lots Sold				15	35	35	35	35	35	35	35	35	30
Lot Sale Price				25,000	26,500	28,100	29,800	31,600	33,500	35,500	37,600	39,800	42,200
Lot Sales				375,000	927,500	983,500	1,043,000	1,106,000	1,172,500	1,242,500	1,316,000	1,393,000	1,266,000
Commercial Land - 1,023,000 sf at: 1.50													1,534,000
Sale of Golf Course and Stables													1,400,800
Dev. Loan Proceeds (80% of cost)	20%	300,600	80%	1,202,400		626,160		1,016,647		1,140,716			
Golf Course Loan amount 280,160	20%	280,160	80%	1,120,640									
TOTAL INCOME		580,760		2,698,040	927,500	1,609,660	1,043,000	2,122,647	1,172,500	2,383,216	1,316,000	1,393,000	4,200,800
COSTS													
Repay Dev. Loan - Lot release ratio:	1.2			243,000	567,000	392,400	352,780	273,420	547,430	469,170	401,730	520,760	218,210
Repay Golf Course Loan (14% - 10 yr)				214,842	214,842	214,842	214,842	214,842	214,842	214,842	214,842	214,842	214,842
Construction Costs - Cost per lot:	11,000			979,000		726,000		858,000		1,012,000			
Extra - off-site expenses				524,000				148,600					
Future development done now						-29,400				-6,800			
Golf Course & Stables				1,400,800									
Interest on Develop. Loan (14%):	Phase 1			117,800	94,600	27,500							
	Phase 2					32,100	48,800	19,100					
	Phase 3							45,100	104,000	56,300			
	Phase 4									50,600	138,000	48,700	48,700
Development loan interest balance				117,800	94,600	59,600	48,800	64,200	104,000	106,900	138,000	48,700	48,700
Accountant		1,400		4,000	4,000	4,000	5,000	5,000	5,000	6,000	6,000	1,000	1,000
Legal		14,000		3,000	3,000	4,000	4,000	5,000	5,000	6,000	3,000	3,000	3,000
Insurance		1,000		5,000	6,000	7,000	7,000	7,000	7,000	6,000	2,000	1,000	1,000
Advertising & Sales (6% of lot sales)		10,000		22,500	55,700	59,000	62,600	66,400	70,400	74,600	79,000	83,600	76,000
Planning & start-up		40,000											
Zoning/Platting		25,000											
Design Engineer (6% of Phase cost)		16,900		67,600	0	41,800	0	60,400	0	60,300	0	0	0
Financing fees (Golf Course only - in loan)		[Shown above]											
Maintenance				2,000	2,400	2,400	2,600	2,600	2,800	2,800	1,400	1,000	1,000
Management fees (3% of lot sales):	Phase 1			11,250	27,800	29,500	3,600						
	Phase 2					0	27,700	33,200					
	Phase 3							0	35,200	37,300	9,000		
	Phase 4									0	30,500	41,790	37,980
Management fees balance				11,250	27,800	29,500	31,300	33,200	35,200	37,300	39,500	41,790	37,980
Golf course maintenance					47,500	44,800	7,100	-18,100	-30,800	-6,000	-31,200	-60,720	
Land at purchase price		400,000											
TOTAL COST		508,300		3,594,792	1,022,842	1,555,942	736,022	1,720,562	960,872	1,983,112	854,272	854,972	601,732
Net Annual Cash Position		-1,089,060		192,308	96,966	150,684	457,662	859,747	1,071,375	1,471,480	1,933,208	2,471,236	6,070,304

TABLE 3.4 [continued]
SENSITIVITY MODEL 1

DEVELOPMENT LOAN PAYBACK AMOUNT CALCULATIONS	Year end:	1986	1986	1987	1988	1989	1990	1991	1992	1993	1994
Land development loan amount:	Phase 1:	959,400	392,400	0	0	0	0	0	0	0	0
	Phase 2:			626,160	273,380	0	0	0	0	0	0
	Phase 3:					1,016,647	469,217	47	0	0	0
	Phase 4:							1,140,716	738,986	218,226	16
Land development loan(s) balance:		959,400	392,400	626,160	273,380	1,016,647	469,217	1,140,764	738,986	218,226	16
Current phase payback amount per lot:		16,210	16,210	11,380	11,380	15,641	15,641	14,879	14,879	14,879	14,879
Number of lots subject to payback:		15	35	35	31	35	35	35	27	35	30
Payback amount x # of lots sold in year:		243,150	567,350	398,300	352,780	547,426	547,426	520,762	401,731	520,762	446,367
Loan balance first or prior phase:		1,202,400	959,400	392,400	626,200	273,420	1,016,600	469,170	1,140,700	738,970	218,210
Payback amount (above amount or loan balance if less)		243,000	567,000	392,400	352,780	273,420	547,430	469,170	401,730	520,760	218,210
Cumulative total number of lots sold:		15	50	85	120	155	190	225	260	295	325
Number of prior (or first) phase lots unsold:		74	39	4	35	78	43	8	65	30	0
DEVELOPMENT LOAN INTEREST CALCULATIONS											
Development loan amount for phase:		1,202,400	959,400	626,160	626,160	1,016,647	1,016,647	1,140,716	1,140,716	738,986	218,226
Adjusted loan balance for phase:		67,334	392,400	17,532	10,019	21,350	104,011	23,955	36,571	0	0
Estimated amount interest paid:		50,442	94,626	14,610	38,822	23,722		26,617	101,448	51,661	11,779
Interest on devel loan for phase for year:		117,776		32,143	48,840	45,071	104,011	50,572	138,019	48,746	48,746
Rounded amount:		117,800	94,600	32,100	48,800	45,100	104,000	50,600	138,000	48,700	48,700
Prior phase loan balance:				392,400		273,380		56,306			
Estimated amount interest paid:				27,468		19,137		56,306			
Rounded amount:				27,500		19,100		56,300			

INTERNAL RATE OF RETURN CALCULATIONS
Iteration Model 8

		CASH FLOWS
Enter assumed IRR Rate:	1.00%	
Calculated IRR Rate:	43.49%	
Net Present Value:	-0.00561346	-1,089,060
Test NPV Amount:	-3,080,216	192,308
		96,966
	1%	150,684
		457,662
		859,747
		1,071,375
	50,000%	1,471,480
		1,933,208
	TRUE	2,471,236
		6,070,304

TABLE 3.5
SENSITIVITY MODEL 2

THE MEADOWS
Development Loans - cost per lot: 11,000 (Borrow 80%)

Phase 1:	1,503,000	# of Lots:	89	Rate Annual Cost & Income Inflation:	6%	Per year	
Phase 2:	696,600	# of Lots:	66	Internal Rate of Return:	0.2%		
Phase 3:	1,006,600	# of Lots:	78	Golf Course and Stables Cost:	1,400,800	(1,360,000 * 1.03)	
Phase 4:	1,005,200	# of Lots:	92	Borrowing:	1,120,640	(80%)	
Sale price per lot:	17,900			10 year amortization	214,842	annual payment	

			EQUITY Start-up Costs Jan 85(0)		Year end Total 85	1986	1987	1988	1989	1990	1991	1992	1993	1994
					1	2	3	4	5	6	7	8	9	10
(Inflation factor)					1.00	1.06	1.12	1.19	1.26	1.34	1.42	1.50	1.59	1.69
INCOME														
Lots Sold					15	35	35	35	35	35	35	35	35	30
Lot Sale Price					17,900	19,000	20,100	21,300	22,600	24,000	25,400	26,900	28,500	30,200
Lot Sales					268,500	665,000	703,500	745,500	791,000	840,000	889,000	941,500	997,500	906,000
Commercial Land - 1,023,000 sf at: 1.50														1,534,500
Sale of Golf Course and Stables														1,400,800
Dev. Loan Proceeds (80% of cost)		20%	300,600	80%	1,202,400		626,160		1,016,647		1,140,716			
Golf Course Loan amount	280,160	20%	280,160	80%	1,120,640									
TOTAL INCOME			580,760		2,591,540	665,000	1,329,660	745,500	1,807,647	840,000	2,029,716	941,500	997,500	3,841,300
COSTS														
Repay Dev. Loan - Lot release ratio:	1.2				243,000	567,000	392,400	352,780	273,420	547,430	469,170	401,730	520,760	218,210
Repay Golf Course Loan (14% - 10 yr)					214,842	214,842	214,842	214,842	214,842	214,842	214,842	214,842	214,842	214,842
@onstruction Costs - Cost per lot:	11,000				979,000		726,000		858,000		1,012,000			
Extra - off-site expenses					524,000				148,600					
Future development done now							-29,400				-6,800			
Golf Course & Stables					1,400,800									
Interest on Develop. Loan (14%):		Phase 1			117,800	94,600	27,500							
		Phase 2					32,100	48,800	19,100					
		Phase 3							45,100	104,000	56,300			
		Phase 4									50,600	138,000	48,700	48,700
Development loan interest balance					117,800	94,600	59,600	48,800	64,200	104,000	106,900	138,000	48,700	48,700
Accountant			1,400		4,000	4,000	4,000	5,000	5,000	5,000	6,000	6,000	1,000	1,000
Legal			14,000		3,000	3,000	4,000	4,000	5,000	5,000	6,000	3,000	3,000	3,000
Insurance			1,000		5,000	6,000	7,000	7,000	7,000	7,000	6,000	2,000	1,000	1,000
Advertising & Sales (6% of lot sales)			10,000		16,100	39,900	42,200	44,700	47,500	50,400	53,300	56,500	59,900	54,400
Planning & start-up			40,000											
Zoning/Platting			25,000											
Design Engineer (6% of Phase cost)			16,900		67,600	0	41,800	0	60,400	0	60,300	0	0	0
Financing fees (Golf Course only - in loan)			[Shown above]											
Maintenance					2,000	2,400	2,400	2,600	2,600	2,800	2,800	1,400	1,000	1,000
Management fees (3% of lot sales):		Phase 1			8,060	20,000	21,100	2,600						
		Phase 2					0	19,800	23,700					
		Phase 3							0	25,200	26,700	6,500		
		Phase 4									0	21,800	29,925	27,180
Management fees balance					8,060	20,000	21,100	22,400	23,700	25,200	26,700	28,300	29,925	27,180
Golf course maintenance						47,500	44,800	7,100	-18,100	-30,800	-6,000	-31,200	-60,720	
Land at purchase price			400,000											
TOTAL COST			508,300		3,585,202	999,242	1,530,742	709,222	1,692,162	930,872	1,951,212	820,572	819,407	569,332
Net Annual Cash Position			-1,089,060		95,398	-238,844	-439,926	-403,648	-288,163	-379,035	-300,530	-179,602	-1,509	3,270,459

TABLE 3.5
SENSITIVITY MODEL 2

DEVELOPMENT LOAN PAYBACK AMOUNT CALCULATIONS	Year end:	1986	1986	1987	1988	1989	1990	1991	1992	1993	1994
Land development loan amount:	Phase 1:	959,400	392,400	0	0	0	0	0	0	0	0
	Phase 2:			626,160	273,380	0	0	0	0	0	0
	Phase 3:					1,016,647	469,217	47	0	0	0
	Phase 4:							1,140,716	738,986	218,226	16
Land development loan(s) balance:		959,400	392,400	626,160	273,380	1,016,647	469,217	1,140,764	738,986	218,226	16
Current phase payback amount per lot:		16,210	16,210	11,380	11,380	15,641	15,641	14,879	14,879	14,879	14,879
Number of lots subject to payback:		15	35	35	31	35	35	35	27	35	30
Payback amount x # of lots sold in year:		243,150	567,350	398,300	352,780	547,426	547,426	520,762	401,731	520,762	446,367
Loan balance first or prior phase:		1,202,400	959,400	392,400	626,200	273,420	1,016,600	469,170	1,140,700	738,970	218,210
Payback amount (above amount or loan balance if less)		243,000	567,000	392,400	352,780	273,420	547,430	469,170	401,730	520,760	218,210
Cumulative total number of lots sold:		15	50	85	120	155	190	225	260	295	325
Number of prior (or first) phase lots unsold:		74	39	4	35	78	43	8	65	30	0
DEVELOPMENT LOAN INTEREST CALCULATIONS											
Development loan amount for phase:		1,202,400	959,400	626,160	626,160	1,016,647	1,016,647	1,140,716	1,140,716	738,986	218,226
Adjusted loan balance for phase:		67,334	392,400	17,532	10,019	21,350	104,011	23,955	36,571	0	0
Estimated amount interest paid:		50,442	94,626	14,610	38,822	23,722		26,617	101,448	51,661	11,779
Interest on devel loan for phase for year:		117,776		32,143	48,840	45,071	104,011	50,572	138,019	48,746	48,746
Rounded amount:		117,800	94,600	32,100	48,800	45,100	104,000	50,600	138,000	48,700	48,700
Prior phase loan balance:				392,400		273,380		56,306			
Estimated amount interest paid:				27,468		19,137		56,306			
Rounded amount:				27,500		19,100		56,300			

INTERNAL RATE OF RETURN CALCULATIONS
Iteration Model 4

		CASH FLOWS
Enter assumed IRR Rate:	1.00%	
Calculated IRR Rate:	0.21%	
Net Present Value:	1.49688E-06	-1,089,060
Test NPV Amount:	-21,471,963	95,398
		-238,844
	1%	-439,926
		-403,648
		-288,163
		-379,035
	50,000%	-300,530
		-179,602
	TRUE	-1,509
		3,270,459

The Meadows case study demonstrates an indepth financial analysis of a single-family subdivision development. The cash flow analysis answered very important questions for the client group.

Of special importance in this case is the calculation of the estimated Net Present Value (NPV). This gave the owners an estimate of the potential value of the property to a developer. It was clearly demonstrated that the NPV was much greater than the market value estimated by local realtors and appraisers.

The IRR calculation gave a clear picture of the profit potential to developers who reviewed the prospectus. Virtually every developer who reviewed the cash flow analysis reworked the calculations using different assumptions and calculations. Nevertheless it provided the basis for them to consider looking at it--a very attractive projected rate of return.

The greatest criticism of this financial feasibility analysis was its complexity. The client group found it very difficult to understand the cash flow analysis and sensitivity analysis. Even the developers who reviewed it were used to much simpler forms of analysis. The answer to this criticism seemed to lie in the simplification of the presentation of results, so the reader would not have to understand the entire cash flow

analysis in order to compare results.

CHAPTER FOUR

* * * * * * * * * *

A Model for Financial Feasibility Analysis

The analysis model or process which is developed in this chapter maximizes the participation of the landscape architect/land planner. It by no means excludes the essential roles of other professionals such as attorneys, accountants, surveyors and civil engineers, but it does emphasize the landscape architect's role as the coordinator of the process.

A development of unimproved land for a single family residential subdivision is used as an example for the feasibility analysis model. This project was described in the previous chapter along with the developer's feasibility analysis. It used is an ideal model in the sense that it does not include any unusual features or problems which almost any development does include. It is of a medium size with typical land cost and development costs for the greater Kansas City metropolitan area.

Feasibility Analysis

The Thomas property pro forma is presented in the previous chapter as well as a description of the project.

Mr. Thomas agreed to provide information about his project so that further analysis could be done as a part of this study. A dynamic cash flow model has been developed for the project based on his market assumptions. It was agreed that the cash flow analysis would provide him with a quarterly cash flow statement for the life of the project. The following assumptions were provided by Mr. Thomas:

1) Each of four phases would sell out in one year. Therefore the project would be completed and sold out in five years from beginning construction.

2) Construction costs would inflate at a rate of 4% per year.

3) Lot sales prices would average 35,000 in the first year and inflate at 5% per year.

4) All on-site utilities' costs would be evenly spread over the four phases.

5) The club house facilities would not be depreciated.

6) The Corporation Tax would be applied at 33% on income to derive an after tax cash flow. (In reality this was one of many projects which would all affect the Corporation's taxes.)

Many other details were discussed concerning quarterly phasing and sales. Construction costs were

refined to better reflect current costs and the specifics of the approved plan. The following Cash Flow Analysis was considered the most likely case (Table 4.1).

After reviewing the first cash flow analysis, Mr. Thomas outlined two more scenarios to check. The "Worst Case" scenario developed over a period of seven years with lower average sales prices (Table 4.2). The "Best Case" scenario explored the return on the highest lot sales prices which seemed likely with no change in the four-year phasing (Table 4.3). These alternatives were actually produced during a one-hour meeting with Mr. Thomas by simply changing the variables in the computer program for his project. Table 4.2 and 4.3 are presented in a summary form to be more easily interpreted. It is interesting to compare the long form (Table 4.1) to the summary form (Tables 4.2 and 4.3) in terms of understandability.

In comparing these three alternatives certain facts become very clear. Mr. Thomas' development project could provide a profit in excess of 1.5 million dollars over a five year period if it sells quickly and at a high market value. If the project takes six years to sell out, it would probably lose money.

The key lines to compare are the Cumulative Cash Position and the After Tax Cash Flow. The totals of

TABLE 4.1
THOMAS PROPERTY - MOST LIKELY SCENARIO
Cash Flow Forecast #1 - May 23, 1986

Assumptions:	1986	1987	1988	1989	1990	1991	1992	Totals
Lots Constructed:	51	50	50	48	0	0	0	199
Sales Forescast:	0	51	50	50	48	0	0	199
Initial Lot Sales Price:	$34,000							
Price Inflation:		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
Cost Inflation:		4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	
Development Loan Interest:	9.75%	9.75%	9.75%	9.75%	9.75%	9.75%	9.75%	

Year:	1986				1987				1988			
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
REVENUE												
Lots Sold	0	0	0	0	15	20	10	6	15	20	10	5
Unit Price in Dollars	34,000	34,000	34,000	34,000	34,000	35,000	36,000	36,000	36,450	36,906	37,367	37,834
TOTAL REVENUE	0	0	0	0	510,000	700,000	360,000	216,000	546,750	738,113	373,669	189,170
DEVELOPMENT COSTS												
Land Acquisition												
Land Purchase	1,000,000	0	0	0	0	0	0	0	0	0	0	0
Commission on Land	50,000	0	0	0	0	0	0	0	0	0	0	0
Utilities												
*Project Utilities	0	24,000	50,000	50,000	0	24,960	52,000	52,000	0	25,958	54,080	54,080
Off-site Utilities (W & S)	0	0	40,000	0	0	0	0	0	0	0	45,000	0
Site Preparation												
*Sanitary - Storm Sewers	0	100,000	144,000	40,000	0	104,000	149,760	41,600	0	108,160	155,750	43,264
Box Culvert	0	0	80,000	0	0	0	0	0	0	0	0	0
Channel Grade	0	0	20,000	20,000	0	0	0	0	0	0	0	0
*Street Lights	0	0	0	28,000	0	0	0	29,120	0	0	0	30,285
Entrance Markers, Signage	0	0	30,000	10,000	0	2,500	2,500	0	0	2,500	2,500	0
Trees & Landscaping	0	0	10,000	10,000	0	0	5,000	0	0	0	2,500	0
Sod	0	0	20,000	0	0	0	5,000	0	0	0	2,500	0
*Street/Curbs/Clearing/Grading	0	40,000	120,000	80,000	0	41,600	124,800	83,200	0	43,264	129,792	86,528
Remove Trees	0	30,000	20,000	0	0	40,000	10,000	0	0	0	0	0
Roe & Nall Improvements - City	0	0	0	90,000	0	0	0	0	0	0	0	0
Amenities												
Amenity Package (Pool/Cabana)	0	0	0	0	0	0	0	0	0	80,000	80,000	10,000
Subsidize Amenities	0	0	0	0	0	0	0	0	0	0	1,000	1,500
Professional Services												
Engineering	10,000	36,000	5,000	0	10,000	35,000	5,000	0	10,000	35,000	5,000	0
Land Planning/Architecture	10,000	10,000	0	0	0	0	0	0	0	0	0	0
Zoning-Title Work-Fees	1,000	5,000	4,000	0	2,000	0	0	0	2,000	0	0	0
TOTAL DEVELOPMENT COSTS	1,071,000	245,000	543,000	328,000	12,000	248,060	354,060	205,920	12,000	294,882	478,122	225,657
Annual Development Costs:				2,187,000				820,040				1,010,662

* denotes cost inflation

TABLE 4.1 [continued]
THOMAS PROPERTY - MOST LIKELY SCENARIO
Cash Flow Forecast #1 - May 23, 1986

Year:	1989				1990				
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	Totals
REVENUE									
Lots Sold	15	20	10	5	14	19	9	6	199
Unit Price in Dollars	38,307	38,786	39,271	39,761	40,259	40,762	41,271	41,787	
TOTAL REVENUE	574,604	775,716	392,706	198,807	563,619	774,473	371,441	250,723	7,535,793
DEVELOPMENT COSTS									
Land Acquisition									
Land Purchase	0	0	0	0	0	0	0	0	1,000,000
Commission on Land	0	0	0	0	0	0	0	0	50,000
Utilities									
*Project Utilities	0	26,997	56,243	56,243	0	28,077	58,493	58,493	671,624
Off-site Utilities (W & S)	0	0	0	45,000	0	0	0	0	130,000
Site Preparation									
*Sanitary - Storm Sewers	0	112,486	161,980	44,995	0	0	0	0	1,205,996
Box Culvert	0	0	0	0	0	0	0	0	80,000
Channel Grade	0	0	0	0	0	0	0	0	40,000
*Street Lights	0	0	0	31,496	0	0	0	0	118,901
Entrance Markers, Signage	0	0	0	0	0	0	0	0	50,000
Trees & Landscaping	0	0	2,500	0	0	0	0	0	30,000
Sod	0	0	2,500	0	0	0	0	0	30,000
*Street/Curbs/Clearing/Grading	0	44,995	134,984	89,989	0	0	0	0	1,019,151
Remove Trees	0	0	0	0	0	0	0	0	100,000
Roe & Nall Improvements - City	0	0	0	102,000	0	0	0	0	192,000
Amenities									
Amenity Package (Pool/Cabana)	0	0	0	0	0	0	0	0	170,000
Subsidize Amenities	1,500	2,500	2,500	1,500	1,500	2,500	3,000	2,500	20,000
Professional Services									
Engineering	10,000	33,000	5,000	0	0	0	0	0	199,000
Land Planning/Architecture	0	0	0	0	0	0	0	0	20,000
Zoning-Title Work-Fees	2,000	0	0	0	0	0	0	0	16,000
TOTAL DEVELOPMENT COSTS	13,500	219,978	365,707	371,223	1,500	30,577	61,493	60,993	5,142,672
Annual Development Costs:				970,408				154,562	

* denotes cost inflation

TABLE 4.1 [continued]
THOMAS PROPERTY - MOST LIKELY SCENARIO
Cash Flow Forecast #1 - May 23, 1986

Year:	1986				1987				1988			
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
OPERATING EXPENSES												
Property Taxes	0	0	0	20,000	0	0	0	20,000	0	0	0	20,000
Insurance - Liability, etc.	500	500	500	500	500	500	500	500	500	500	500	500
Legal	1,000	3,000	3,000	3,000	500	500	500	1,000	500	500	1,000	1,000
Maintenance - Ground & Cleaning	0	0	0	750	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Overhead for Development	15,000	25,000	30,000	30,000	20,000	15,000	15,000	15,000	15,000	15,000	10,000	10,000
Other												
Miscellaneous	0	0	0	0	0	2,500	0	0	0	2,500	0	0
Subsidize Builders (show lots)	0	0	0	5,000	2,500	2,500	0	1,000	1,000	0	0	500
TOTAL OPERATING EXPENSES	16,500	28,500	33,500	59,250	24,500	22,000	17,000	38,500	18,000	19,500	12,500	33,000
FINANCING OPERATIONS												
Financial Costs on Land & Development												
Origination Fee (1.25 %)	7,500	20,000	10,000	0	0	0	0	0	0	0	0	0
Mortgage Policies	0	7,000	0	0	0	0	0	0	0	0	0	0
Mortgage Regis. Taxes	1,000	5,000	4,000	0	0	0	0	0	0	0	0	0
Recording Fees	2,000	11,000	0	0	0	0	0	0	0	0	0	0
Interest												
College Blvd. Bank (@ 9.75 %)	38,876	28,589	37,610	52,921	63,650	53,660	44,488	45,842	47,652	36,218	26,772	30,275
Money Paid Before Draws	5,000	5,000	0	0	0	0	0	0	0	0	0	0
C. Brisbois on Note	13,000	20,000	0	0	0	0	0	0	0	0	0	0
On Land Until Closing	8,023	0	0	0	0	0	0	0	0	0	0	0
Payback on Lot Sales ($32,000/lot)	0	0	0	0	480,000	640,000	320,000	192,000	480,000	640,000	320,000	160,000
TOTAL FINANCING COSTS	75,399	96,589	51,610	52,921	543,650	693,660	364,488	237,842	527,652	676,218	346,772	190,275
CASH FLOW STATEMENT												
Total Revenue	0	0	0	0	510,000	700,000	360,000	216,000	546,750	738,113	373,669	189,170
Less Development Costs	1,071,000	245,000	543,000	328,000	12,000	248,060	354,060	205,920	12,000	294,882	478,122	225,657
Less Operating Expenses	16,500	28,500	33,500	59,250	24,500	22,000	17,000	38,500	18,000	19,500	12,500	33,000
Less Financing Costs	75,399	96,589	51,610	52,921	543,650	693,660	364,488	237,842	527,652	676,218	346,772	190,275
QUARTERLY CASH FLOW	(1,162,899)	(370,089)	(628,110)	(440,171)	(70,150)	(263,720)	(375,548)	(266,262)	(10,902)	(252,487)	(463,725)	(259,762)
DEVELOPMENT LOAN DRAW	1,172,899	370,089	628,110	440,171	70,150	263,720	375,548	266,262	10,902	252,487	463,725	259,762
DEVELOPMENT LOAN BALANCE	1,172,899	1,542,988	2,171,099	2,611,269	2,201,419	1,825,139	1,880,686	1,954,948	1,485,850	1,098,337	1,242,062	1,341,824
CUMULATIVE CASH POSITION	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
INVENTORY												
Lots Constructed	0	0	0	51	0	0	0	50	0	0	0	50
Lots Sold	0	0	0	0	15	20	10	6	15	20	10	5
LOTS FOR SALE	0	0	0	51	36	16	6	50	35	15	5	50

TABLE 4.1 [continued]
THOMAS PROPERTY - MOST LIKELY SCENARIO
Cash Flow Forecast #1 - May 23, 1986

Year:	1989				1990				
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	TOTALS
OPERATING EXPENSES									
Property Taxes	0	0	0	20,000	0	0	0	20,000	100,000
Insurance - Liability, etc.	500	500	500	500	500	500	500	500	10,000
Legal	1,000	1,000	1,000	1,000	500	0	0	0	20,000
Maintenance - Ground & Cleaning	1,000	1,000	1,000	1,000	1,000	750	500	0	15,000
Overhead for Development	10,000	10,000	10,000	5,000	5,000	5,000	5,000	0	265,000
Other									
Miscellaneous	0	2,500	0	0	0	2,500	0	0	10,000
Subsidize Builders (show lots)	1,000	0	0	500	1,000	0	0	0	15,000
TOTAL OPERATING EXPENSES	13,500	15,000	12,500	28,000	8,000	8,750	6,000	20,500	435,000
FINANCING OPERATIONS									
Financial Costs on Land & Development									
Origination Fee (1.25 %)	0	0	0	0	0	0	0	0	37,500
Mortgage Policies	0	0	0	0	0	0	0	0	7,000
Mortgage Regis. Taxes	0	0	0	0	0	0	0	0	10,000
Recording Fees	0	0	0	0	0	0	0	0	13,000
Interest									
College Blvd. Bank (@ 9.75 %)	32,707	21,007	8,339	8,188	13,273	2,353	0	0	592,419
Money Paid Before Draws	0	0	0	0	0	0	0	0	10,000
C. Brisbois on Note	0	0	0	0	0	0	0	0	33,000
On Land Until Closing	0	0	0	0	0	0	0	0	8,023
Payback on Lot Sales ($32,000/lot)	480,000	640,000	320,000	160,000	448,000	96,537	0	0	5,376,537
TOTAL FINANCING COSTS	512,707	661,007	328,339	168,188	461,273	98,890	0	0	6,087,478
CASH FLOW STATEMENT									
Total Revenue	574,604	775,716	392,706	198,807	563,619	774,473	371,441	250,723	7,535,793
Less Development Costs	13,500	219,978	365,707	371,223	1,500	30,577	61,493	60,993	5,142,672
Less Operating Expenses	13,500	15,000	12,500	28,000	8,000	8,750	6,000	20,500	435,000
Less Financing Costs	512,707	661,007	328,339	168,188	461,273	98,890	0	0	6,087,478
QUARTERLY CASH FLOW	34,897	(120,269)	(313,840)	(368,604)	92,846	636,257	303,949	169,230	19,200,943
DEVELOPMENT LOAN DRAW	0	120,269	313,840	368,604	0	0	0	0	
DEVELOPMENT LOAN BALANCE	861,824	342,093	335,933	544,537	96,537	0	0	0	
CUMULATIVE CASH POSITION	44,897	44,897	44,897	44,897	137,744	774,001	1,077,949	1,247,179	1,237,179
INVENTORY									
Lots Constructed	0	0	0	48	0	0	0	0	199
Lots Sold	15	20	10	5	14	19	9	6	199
LOTS FOR SALE	35	15	5	48	34	15	6	0	

TABLE 4.1 [continued]
THOMAS PROPERTY - MOST LIKELY SCENARIO
Cash Flow Forecast #1 - May 23, 1986

Year:	1986				1987				1988			
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
ACTIVITY												
Cash Flow	0	0	0	0	0	0	0	0	0	0	0	0
Tax (@ 33 %)	0	0	0	0	0	0	0	0	0	0	0	0
AFTER TAX CASH FLOW	0	0	0	0	0	0	0	0	0	0	0	0

Year:	1989				1990				
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	TOTALS
ACTIVITY									
Cash Flow	34,897	0	0	0	92,846	636,257	303,949	169,230	1,237,179
Tax (@ 33 %)	11,516	0	0	0	30,639	209,965	100,303	55,846	408,269
AFTER TAX CASH FLOW	23,381	0	0	0	62,207	426,292	203,646	113,384	828,910

NET PRESENT VALUE ANALYSIS

Before Tax Cash Flow (@ 20 %)	$507,457
After Tax Cash Flow (@ 20 %)	$339,996

RETURN ON RISK

Cum Cash Position/Max Loan Balance	
Return (Not discounted)	47.76%
Return (Discounted @ 20 %)	21.88%

TABLE 4.2
THOMAS PROPERTY - WORST CASE SCENARIO
Cash Flow Forecast #2 - May 23, 1986

Assumptions:	1986	1987	1988	1989	1990	1991	1992	Totals
Lots Constructed:	51	50	50	0	48	0	0	199
Sales Forecast:	0	46	32	32	32	32	25	199
Initial Lot Sales Price:	$34,000							
Price Inflation:		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Cost Inflation:		4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	
Development Loan Interest:	9.75%	10.00%	10.25%	10.50%	10.75%	11.00%	11.25%	

Year:	1986				1987				1988			
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
CASH FLOW STATEMENT												
Total Revenue	0	0	0	0	510,000	510,000	340,000	204,000	204,000	408,000	272,000	204,000
Less Development Costs	1,071,000	245,000	543,000	328,000	12,000	248,060	354,060	205,920	12,000	294,882	478,122	225,657
Less Operating Expenses	16,500	28,500	33,500	59,250	24,500	22,000	17,000	38,500	18,000	19,500	12,500	33,000
Less Financing Costs	75,399	96,589	51,610	52,921	545,282	535,076	370,455	244,493	248,186	437,167	308,130	251,068
QUARTERLY CASH FLOW	(1,162,899)	(370,089)	(628,110)	(440,171)	(71,782)	(295,136)	(401,515)	(284,913)	(74,186)	(343,549)	(526,753)	(305,725)
DEVELOPMENT LOAN DRAW	1,172,899	370,089	628,110	440,171	71,782	295,136	401,515	284,913	74,186	343,549	526,753	305,725
DEVELOPMENT LOAN BALANCE	1,172,899	1,542,988	2,171,099	2,611,269	2,203,051	2,018,187	2,099,702	2,192,615	2,074,800	2,034,349	2,305,102	2,418,827
CUMULATIVE CASH POSITION	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
INVENTORY												
Lots Constructed	0	0	0	51	0	0	0	50	0	0	0	50
Lots Sold	0	0	0	0	15	15	10	6	6	12	8	6
LOTS FOR SALE	0	0	0	51	36	21	11	55	49	37	29	73
ACTIVITY												
Cash Flow	0	0	0	0	0	0	0	0	0	0	0	0
Tax (@ 33 %)	0	0	0	0	0	0	0	0	0	0	0	0
AFTER TAX CASH FLOW	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 4.2 [continued]
THOMAS PROPERTY - WORST CASE SCENARIO
Cash Flow Forecast #2 - May 23, 1986

Year:	1989				1990				1991			
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
CASH FLOW STATEMENT												
Total Revenue	204,000	408,000	272,000	204,000	204,000	408,000	272,000	204,000	204,000	408,000	272,000	204,000
Less Development Costs	1,500	2,500	2,500	103,500	13,500	219,978	366,207	270,223	1,500	2,500	3,000	1,500
Less Operating Expenses	13,500	15,000	12,500	28,000	8,000	9,250	6,500	27,000	7,500	9,000	6,500	26,500
Less Financing Costs	255,494	444,200	307,529	238,136	238,526	426,871	295,219	234,979	239,725	427,675	289,972	219,687
QUARTERLY CASH FLOW	(66,494)	(53,700)	(50,529)	(165,636)	(56,026)	(248,099)	(395,926)	(328,202)	(44,725)	(31,175)	(27,472)	(43,687)
DEVELOPMENT LOAN DRAW	66,494	53,700	50,529	165,636	56,026	248,099	395,926	328,202	44,725	31,175	27,472	43,687
DEVELOPMENT LOAN BALANCE	2,293,321	1,963,021	1,757,550	1,731,186	1,595,212	1,459,311	1,599,237	1,735,439	1,588,164	1,235,338	1,006,810	858,498
CUMULATIVE CASH POSITION	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
INVENTORY												
Lots Constructed	0	0	0	0	0	0	0	48	0	0	0	0
Lots Sold	6	12	8	6	6	12	8	6	6	12	8	6
LOTS FOR SALE	67	55	47	41	35	23	15	57	51	39	31	25
ACTIVITY												
Cash Flow	0	0	0	0	0	0	0	0	0	0	0	0
Tax (@ 33 %)	0	0	0	0	0	0	0	0	0	0	0	0
AFTER TAX CASH FLOW	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 4.2 [continued]
THOMAS PROPERTY - WORST CASE SCENARIO
Cash Flow Forecast #2 - May 23, 1986

Year:	1992				
Quarter:	1st	2nd	3rd	4th	TOTALS
CASH FLOW STATEMENT					
Total Revenue	136,000	340,000	272,000	102,000	6,766,000
Less Development Costs	1,500	2,500	3,000	1,500	5,014,610
Less Operating Expenses	6,500	9,000	6,500	27,500	541,500
Less Financing Costs	152,145	341,224	268,582	101,553	7,697,893
QUARTERLY CASH FLOW	(24,145)	(12,724)	(6,082)	(28,553)	20,020,003
DEVELOPMENT LOAN DRAW	24,145	12,724	6,082	28,553	
DEVELOPMENT LOAN BALANCE	754,643	447,367	197,449	130,003	
CUMULATIVE CASH POSITION	10,000	10,000	10,000	10,000	
INVENTORY					
Lots Constructed	0	0	0	0	199
Lots Sold	4	10	8	3	199
LOTS FOR SALE	21	11	3	0	
ACTIVITY					
Cash Flow	0	0	0	0	0
Tax (@ 33 %)	0	0	0	0	0
AFTER TAX CASH FLOW	0	0	0	0	0

RETURN ON RISK -4.96%
(NOT DISCOUNTED)

TABLE 4.3
THOMAS PROPERTY - BEST CASE SCENARIO
Cash Flow Forecast #3 - May 27, 1986

Assumptions:	1986	1987	1988	1989	1990	1991	1992	Totals
Lots Constructed:	51	50	50	48	0	0	0	199
Sales Forecast:	0	51	50	50	48	0	0	199
Initial Lot Sales Price:	$35,000							
Price Inflation:		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
Cost Inflation:		4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	
Development Loan Interest:	9.75%	9.75%	9.75%	9.75%	9.75%	9.75%	9.75%	

Year:	1986				1987				1988			
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
CASH FLOW STATEMENT												
Total Revenue	0	0	0	0	525,000	720,000	370,000	222,000	561,938	758,616	384,049	194,425
Less Development Costs	1,071,000	245,000	543,000	328,000	12,000	248,060	354,060	205,920	12,000	294,882	478,122	225,657
Less Operating Expenses	16,500	28,500	33,500	59,250	24,500	22,000	17,000	38,500	18,000	19,500	12,500	33,000
Less Financing Costs	75,399	96,589	51,610	52,921	543,650	693,294	363,626	236,715	526,351	674,651	344,668	187,867
QUARTERLY CASH FLOW	(1,162,899)	(370,089)	(628,110)	(440,171)	(55,150)	(243,354)	(364,686)	(259,135)	5,586	(230,418)	(451,241)	(252,099)
DEVELOPMENT LOAN DRAW	1,172,899	370,089	628,110	440,171	55,150	243,354	364,686	259,135	0	230,418	451,241	252,099
DEVELOPMENT LOAN BALANCE	1,172,899	1,542,988	2,171,099	2,611,269	2,186,419	1,789,773	1,834,459	1,901,594	1,421,594	1,012,012	1,143,253	1,235,351
CUMULATIVE CASH POSITION	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	15,586	15,586	15,586	15,586
INVENTORY												
Lots Constructed	0	0	0	51	0	0	0	50	0	0	0	50
Lots Sold	0	0	0	0	15	20	10	6	15	20	10	5
LOTS FOR SALE	0	0	0	51	36	16	6	50	35	15	5	50
ACTIVITY												
Cash Flow	0	0	0	0	0	0	0	0	5,586	0	0	0
Tax (@ 33 %)	0	0	0	0	0	0	0	0	1,843	0	0	0
AFTER TAX CASH FLOW	0	0	0	0	0	0	0	0	3,743	0	0	0

TABLE 4.3 [continued]
THOMAS PROPERTY - BEST CASE SCENARIO
Cash Flow Forecast #3 - May 27, 1986

Year:	1989				1990				
Quarter:	1st	2nd	3rd	4th	1st	2nd	3rd	4th	TOTALS
CASH FLOW STATEMENT									
Total Revenue	590,566	797,264	403,615	204,330	579,275	795,986	381,759	257,688	7,746,509
Less Development Costs	13,500	219,978	365,707	371,223	1,500	30,577	61,493	60,993	5,142,672
Less Operating Expenses	13,500	15,000	12,500	28,000	8,000	8,750	6,000	20,500	435,000
Less Financing Costs	510,112	658,412	216,632	164,661	400,304	0	0	0	5,797,461
QUARTERLY CASH FLOW	53,454	(96,126)	(191,225)	(359,554)	169,471	756,660	314,266	176,195	19,121,643
DEVELOPMENT LOAN DRAW	0	96,126	191,225	359,554	0	0	0	0	
DEVELOPMENT LOAN BALANCE	755,351	211,477	191,225	390,779	0	0	0	0	
CUMULATIVE CASH POSITION	69,040	69,040	69,040	69,040	238,511	995,171	1,309,437	1,485,632	
INVENTORY									
Lots Constructed	0	0	0	48	0	0	0	0	199
Lots Sold	15	20	10	5	14	19	9	6	199
LOTS FOR SALE	35	15	5	48	34	15	6	0	
ACTIVITY									
Cash Flow	53,454	0	0	0	169,471	756,660	314,266	176,195	1,475,632
Tax (@ 33 %)	17,640	0	0	0	55,926	249,698	103,708	58,144	486,959
AFTER TAX CASH FLOW	35,814	0	0	0	113,546	506,962	210,558	118,050	988,673

RETURN ON RISK 56.89%
(NOT DISCOUNTED)

these lines in the final column reveal the projected cash return on the development after paying all expenses and repaying all financing. In the worst case scenario the Cumulative Cash Position subtracted from the Development Loan Balance reveals a $120,003 debt after selling the last lot in the subdivision.

One of the benefits to the developer is to use the Cash Flow Forecast to predict a failing development in time to take remedial action. In this case if Mr. Thomas sees a situation developing like the worst case scenario, he could have quit construction after Phase Two, sell his entire inventory of lots and the remaining forty acres. This course of action would show a slight profit compared to an eventual loss of $120,003.

It is also revealing to compare Mr. Thomas' original pro-forma to the Cash Flow Forecasts. The pro-forma for an all single-family development showed a $1,133,548 profit at an average lot sales price of $38,000. The "Most Likely" cash flow forecast predicts a $1,237,179 profit at the same average lot sales price. The "Worst Case" scenario predicts a loss of $120,003 at an average lot price of $34,000 over six years. Whereas the pro-forma predicted a $337,548 profit at an average sales price of $34,000 over four years. The static nature of the pro-forma could easily have fooled the developer into

investing in a losing proposition.

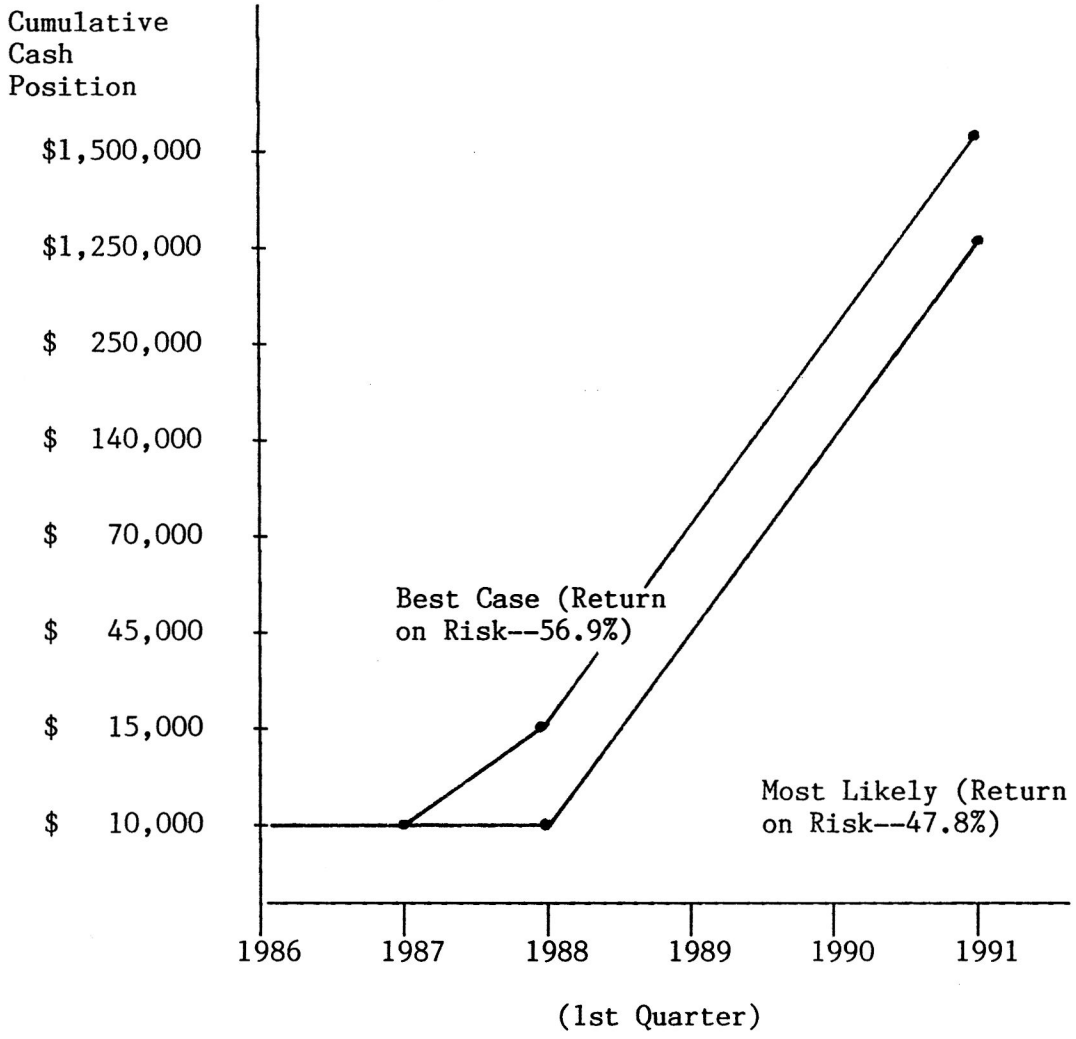
The Net Present Value Analysis is a value placed on the property based on a certain profit margin. In this case it was calculated for 20% return. In other words, if the cash flow at the project's end represents a 20% annual profit then the present value of the property is $611,068 in Table 3.5. This tells Mr. Thomas that he is paying too much for the property to make an average 20% profit annually, even in the most optimistic case.

Projecting an annual rate of return or an Internal Rate of Return is not feasible in this case because Mr. Thomas has literally nothing invested to calculate return against. In such cases a calculation called Return on Risk is sometimes substituted for IRR. Return on Risk compares the final Cumulative Cash Position with the Maximum Loan Balance. In the most likely forecast (Table 3.3) Mr. Thomas' Return on Risk is 47.76% per year.

A direct comparison can be made between the most likely and the best case scenarios because only one variable is changed. The initial lot sales price is increased $1,000 in the best case scenario. The following graph illustrates the effect of this variable.

Figure 4.1

LOT SALES PRICE EFFECT ON RETURN



Similar effects are caused by changes in absorption rate, inflation and interest rates. It becomes apparent that these market factors have a much greater influence on development return than land and construction prices.

CHAPTER FIVE

* * * * * * * * * *

Professional Surveys

The surveys outlined in this chapter were taken to establish both the extent to which land planners participate in the financial feasibility analysis process and the potential demand for them to do so.

The first survey was taken from all the landscape architects in the Kansas City area who offer real estate/ subdivision planning as a professional service. It demonstrates the level of professional expertise and the perceived demand for those services among those surveyed.

The second and third surveys both were used to determine the potential demand for land planners to participate in financial feasibility analysis. They surveyed the demand among developers and lenders. The questions to these two groups were necessarily different. Therefore two surveys were required.

Indirectly all three groups surveyed were asked if they think the market exists for land planners to do financial feasibility analysis. The following summarizes their answers.

Table 5.1

PROFESSIONAL SURVEY SUMMARY

Group	Yes	No
Landscape Architects (question 5)	50%	50%
Developers (question 4)	50%	50%
Lenders (question 3)	71%	29%

These surveys indicate that a market does exist. They are, however, far from conclusive as to the size of the market and the share which land planners could capture.

Survey of Landscape Architects

There were eight landscape architecture firms in the Kansas City area which provided land planning services as of August, 1986. All of them were contacted and asked the following questions:

1) Does your firm provide construction cost estimates as a part of your land planning services?
2) Does your firm prepare project pro formas for any subdivision developments?
3) Does your firm prepare cash flow analysis for any subdivision developments?
4) How often does your firm participate in a project's

financial feasibility analysis? often, occasionally or never?

5) Do you think that you could successfully market financial feasibility analysis services?

6) If you offered financial feasibility analysis as a part of a land planning service package, would it help to sell those services?

In response to the first question all eight firms or individuals answered that they did provide construction cost estimates for subdivisions when asked by their clients. Three of the eight subjects have civil engineers in their organization, and all of those firms used their engineers more often than landscape architects for construction cost estimation.

Only three firms provided project pro formas for their clients. Those three firms all said that it was a service which was only asked for occasionally. All firms agreed that experienced developers almost always did their own pro formas. There were a few comments about lending institutions requiring more information along these lines recently and one firm was actively employed by a savings and loan institution to prepare pro formas for subdivisions.

All but one of the firms said that they did not prepare cash flow analyses for subdivisions. The reasons

given were that they did not know how to prepare a cash flow analysis and a lack of interest in financial feasibility analysis. Several said that they did not think it was appropriate for landscape architects to provide what they perceived as accounting services. The one firm that provided cash flow analysis as a service commented that it was not a primary service but ancillary to the overall land planning services of the firm. They provided the service much more often since they had hired a full-time computer programmer operator.

The fourth question produced a weak response. Virtually all of the firms said that they "occasionally" participated in a project's financial feasibility analysis. None of those questioned said that they were often involved in this process, and only one firm said that they were never involved in financial feasibility analysis. This same firm, however, said that they did prepare cost estimates and pro formas, so their response is a matter of interpretation.

The group was evenly divided over the fifth question. Half said that they thought that they could successfully market financial feasibility analysis for subdivisions. The other half said that they did not think they would succeed in marketing such services. There was no apparent correlation between this response

and the services provided by the firm.

The last question produced a 75% positive response. Six of the firms interviewed felt that including financial feasibility analysis as part of a package of land planning services would help to market those services. The two firms that responded negatively were also the least interested and knowledgeable in financial analysis.

By comparison, a national survey prepared by the Professional Practice Institute (PPI) of the American Society of Landscape Architects in 1984-85 had only 30% (45 out of 150) of the firms claiming any expertise in financial analysis. Virtually all of the firms surveyed by PPI did list site planning as an area of expertise. Financial analysis was listed next to least often out of over twenty categories of expertise. The category listed least often in the PPI survey was computer-assisted analysis and planning (30 out of 150, or 20%). The next categories ranked above financial analysis were mine reclamation (35%), energy conservation (38%), and cemetery design (39%).

The PPI survey correlates closely with the professional survey in this thesis. All but one of the firms contacted said that they offered site planning as a service. Thirty-three percent or three of the nine firms

contacted expressed any expertise in financial analysis compared to thirty percent in the PPI survey.

Survey of Subdivision Developers

Ten real estate developers, all of whom develop single-family residential subdivisions, were surveyed regarding their method of financial feasibility analysis. They were specifically asked about their interest in using a land planner to prepare a project's financial analysis. All of them were asked the following questions.

1) Do you prepare a financial feasibility analysis for each subdivision you develop? If so, is it in the form of a project pro forma, a pre-tax cash flow analysis or an after-tax cash flow analysis?
2) Do you ever retain a professional consultant to help prepare a financial feasibility analysis for a subdivision development? If so, what type of consultant (accountant, planner, engineer, landscape architect)? and for what purpose?
3) Does your bank or lender require a financial analysis of a project prior to approving a construction loan or mortgage? If so, do they require a pro forma, pre-tax cash flow analysis or after-tax cash flow analysis?

4) If your land planner could provide you with a detailed after-tax cash flow analysis as part of his services, would you consider using that service?

All ten developers said that they did prepare a financial feasibility analysis for each of their subdivisions. Eighty percent of the developers prepare a cash flow analysis for each project but most of those indicated that the decision to proceed was based on a pro forma. The cash flow analysis was often prepared to satisfy a lender. Only three of the developers prepared After-Tax Cash Flow analyses, and those were smaller, unincorporated businesses.

Seven of those surveyed said that they did not retain consultants to help prepare financial feasibility analyses. They did their own analysis in-house. Two developers retained accountants to assist them. Only one of those surveyed uses a land planner to help compile his project's financial feasibility analysis. The majority of those who prepare analyses in-house used staff accountants and civil engineers.

Half of the developers said that their lenders required a form of financial analysis. All but one of those said that a pre-tax cash flow analysis was required by their lenders. Those that replied negatively to this question were all large, experienced developers who

either provided their own financing (such as the J.C. Nichols Company) or had such good track records with their lenders that no analysis was required.

Half of the developers said that they would consider using their land planner to prepare a financial feasibility analysis of their subdivisions. All but one of these said that they were unaware of any land planners that provided such a service. All but one of those that answered negatively prepared their own financial analyses. It appears that those that do regularly retain outside planning consultants would often consider using them to aid in analyzing their projects' feasibility if the land planners were capable of such a service.

Survey of Lenders

Over twenty lending institutions were contacted for this survey and only seven provided conclusive answers to the following questions:

1) Do you require proof of a residential development's financial feasibility prior to approving financing?
2) If so, what type of analysis do you like to see?
3) Would you accept a cash flow analysis prepared by the developer's land planner as adequate financial feasibility analysis?

All of the lenders said that they require proof of

financial feasibility for a subdivision development prior to approving any financing. Five of the seven said that they require a pre-tax cash flow analysis for all real estate projects. The other two said that a pro forma was usually acceptable if the developer had a successful track record.

Two of the lending institutions said that they would only accept cash flow analyses prepared by certified accountants or appraisers. The other five agreed that they could accept an analysis prepared by a land planner, but most of those qualified that answer by saying that market data would have to be reviewed by an appraiser. They also commented that any cash flow analyses considered would have to be prepared in a format which they were used to seeing.

CHAPTER SIX

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Summary and Conclusions

In summary, the original hypothesis is compared to the information obtained through bibliographic research, interviews, case studies and surveys. The hypothesis stated that if landscape architects include the analysis of financial feasibility as a part of the real estate planning process, then six specific things would result. These six points are reviewed below in light of the findings of the research.

1. Site planning, design and construction cost analysis will be performed more efficiently.

This statement does not appear to be proven or disproven by the research in a clear cut way. Nevertheless interviews with and surveys of developers and landscape architects indicate a desire by both client and consultant to try to use land planners in the financial feasibility process. One of the reasons indicated in interviews was the simplification of the process by removing one of many participants such as an accountant or appraiser. This would represent an increase in the efficiency of the overall development planning process.

In the case studies it is apparent that the cash flow statements prepared by a land planner were much more detailed and comprehensive than those prepared by a developer's staff. This comprehensive quality could also represent an increase in efficiency by compiling the resultant data of the overall land planning process in one product.

2. A real estate development's pro forma and/or cash flow analysis will be assembled and tested more efficiently.

This definitely appears true in light of the case studies presented. In the cases where a land planner was not directly involved in the financial analysis, revisions in the data and testing alternatives required the reworking of plans and analyses by several different actors in the process as well as careful coordination by the developer. Whereas the assembly of data and testing of the financial analysis model was handled within one office in the cases where the land planner prepared a cash flow analysis.

Also realistic revisions could be tested almost immediately by land planners using computer cash flow models based on their plans. A change in lot layout and density could be entered into the computer and a new rate of return for the project calculated within minutes.

3. Data will be transferred from each successive stage of the planning process and between all participants in a more compatible and efficient manner.

Here again the research appears to support the hypothesis. Most obvious is the reduction of time required of the developer to transfer plans and information from his land planner to his accountant, appraiser, or attorney as well as the time required interpolating plans into hard data for accountants. By learning the process of financial analysis the land planner automatically learns the language of accountants and bankers and can therefore transmit data to them in an understandable form.

4. There will be a reduction of the potential for conflict between a client's financial goals and the landscape architect's design objectives.

In the cases examined where a land planner was responsible for the financial feasibility analysis, the need to achieve feasibility was an objective in the very beginnings of the site planning process. Design criteria did not always outweigh financial criteria in importance. Also plan revisions were often accomplished by the land planner in order to achieve financial feasibility without client direction.

5. Justification for specific design decisions will be documented in a more comprehensive form.

The case studies also appear to support this hypothesis. In cases where the land planner not only prepares the site plan but also prepares cost estimates and a cash flow analysis, the land planner is aware of the actual financial impact of any one design decision on the overall project's feasibility. He could test any case in question and, if necessary, document fiscal impact for his client.

6. With the additional capability of performing financial feasibility analysis, landscape architects will have a more attractive land planning service to offer their clients.

This hypothesis is tested directly in the surveys of landscape architects, developers and lenders. Seventy-five percent of the land planners surveyed said that their land planning services would be more attractive and marketable with the addition of financial feasibility analysis. Of the developers surveyed who hired consultants to prepare financial analysis, 80% said they would consider using their land planners if the land planner could perform financial analysis. Last but not least, 71% of the lenders surveyed said they would accept financial feasibility analyses prepared by a land

planner.

The general conclusions from this research are as follows:

1) The hypothesis is basically correct.

2) There is some market available for landscape architects to provide financial analysis services, but it is not a very large market and is in direct competition with other professions.

3) There will be an ever-increasing demand for land planners to understand and provide financial feasibility analysis services as the land development business becomes less speculative and more scientific.

4) There will be an increase in conflict between design principles and financial return to the developer as housing markets demand more efficiency. Those that understand the process of financial feasibility analysis will suffer the least from such conflict.

5) Many landscape architects are adverse to learning about financial methodology. This seems to reflect a dichotomy in the profession between "artistic" and "scientific" professional self-images.

6) There is less reluctance among development professionals to use land planners for financial analysis than most professional land planners perceive.

7) Development planning including financial

feasibility analysis is fast becoming a new specialty within the profession of landscape architecture which may demand increased special programs in advanced degrees.

8) A great opportunity exists for landscape architects to emerge as leaders in the development process, if they understand the financial intricacies of real estate development. By providing a project's initial planning, gaining approvals and assembling the financial plan for development, the landscape architect may prove to be the best informed professional to assemble a project's planning and design team and shepherd it through construction, thus filling a role traditionally held by architects.

9) The understanding of financial feasibility analysis can benefit landscape architects in areas of specialization other than real estate development. Park planners, natural resource planners, urban designers and even garden designers could benefit from a better understanding of financial analysis.

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FINANCIAL FEASIBILITY ANALYSIS OF LAND DEVELOPMENT IN THE PRACTICE OF LANDSCAPE ARCHITECTURE

By

FRANK O'BRIEN THEIS

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Land development planning is one of the primary services provided by landscape architects in private practice. This service may include physical analysis of the site to determine buildability and appropriate land use, analysis of governing laws, regulations and policies to determine legal, social and political feasibility of a planned development, and financial feasibility analysis of the projected costs and return of the development as well as providing detailed layout and design of a real estate development. Of these several components of land development planning, financial feasibility analysis is practiced the least by landscape architects. This thesis explores the process of land development financial feasibility analysis and the potential for increased participation by landscape architects.

The basic hypothesis is if landscape architects include the analysis of financial feasibility as a part of the real estate development planning process, then the following will result:

1) Site planning, design and construction cost analysis will be performed more efficiently.

2) A real estate development's pro forma and cash-flow analysis will be assembled and tested more efficiently.

3) Data will be transferred from each successive stage of the planning process and between all participants in a more compatible and efficient manner.

4) There will be a reduction of the potential for conflict between a client's financial goals and the landscape architect's design objectives.

5) Justification for specific design decisions will be documented in a more comprehensive form.

6) With the additional capability of performing financial feasibility analysis, landscape architects will have a more attractive land planning service to offer their clients.

This thesis demonstrates a direct benefit to the profession of landscape architecture if practitioners participate in the financial feasibility.

The overall efficiency of the land planning process could be improved markedly, simply by reducing the number of plan revisions required by so-called "budget-engineering". Likewise, the client-consultant relationship could prove to be better due to less conflict over the number and type of plan revisions required.