

Residential Property Development: A Framework for Successful Developments

by

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Executive Summary

E.T construction is a property development company situated in Centurion. This family orientated business is in the property development business for the last 25 years.

Midstream Estate, a security village was started six years ago and is currently in the developing stage. E.T Construction has developed a great number of residential luxury real estate houses in this estate. After passing the gateway, you enter a unique village which will have three residential estates, sport facilities, private schools, village shopping centre and community services. E.T Construction's latest project is the development of five luxury real estate houses in Midfield Estate which is one of the three estates.

Resulting from the great risks involved in property development, E.T Construction wishes to set up a framework for successfully developing these five houses.

This study will state the different aspects that could influence this problem and also focus on the best possible project approach so that everyone will benefit from this project.

The aim will be to evaluate all the different alternatives, and finally setting up a framework for a successful residential property development, and to determine all the positives and negatives of the decision that will be made.

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1. Introduction and Background

E.T Construction is a privately owned construction company situated in Centurion. Theo and Elize Altona started this company in 1980 as a small construction business. Today E.T Construction is one of the leading property development companies in the Gauteng region. E.T Construction develops not only industrial but also residential developments. However their main focus over the years was and still is residential property developments.

E.T Construction's project for late 2008/09 is a residential property development in Midfield Estate, Midrand. This project consists of five luxury residential houses. This project is currently in the idea inception phase.

Due to the risks involved in the property development business it is of utmost importance that the necessary framework for successfully developing a property development needs to be put in place before the project starts.

A complete Study will be conducted which will give insight into the following:

- A Framework for a Property Development.
- Requirements for a Successful Property Development.
- Project Objectives and Strategies.
- Types of Property Developments.
- Property Development Feasibility.
- Property Development Market Analysis.
- Risk Management.
- Financing Property Developments.
- Project Team.
- Property Development Design.
- Property Development Construction.

2. Project Aim and Scope

2.1 Specific Objectives

The following objectives will have to be completed to achieve the aim of the project:

- Research on all the alternatives will have to be done to determine the key requirements.
- Discussions with potential clients and stake holders to establish their perspectives.
- Review and evaluate all the different solutions that might be implemented and executed.
- Review and evaluation of all the different implementation strategies/plans.

2.2 Deliverables

The following will be tangible deliverables of the project:

- A framework for a successful residential property development (All of E.T Construction's requirements will be fully integrated into this framework).
- A final report document detailing all the findings and conclusions of the project.

2.3 Project Team

The following roles are defined for the project:

Ivor Altona:

Manage all activities, perform necessary tasks and do all research to develop the framework required.

Pro K Adendorff:

Project supervisor and leader.

Theo Altona:

Project owner whom will provide all necessary information.

2.4 Scope

The scope of this project can be divided into two main categories:

- *Geographic:*
This project will only focus on Midfield Estate in the Midrand area.
- *Functional:*
A framework for the selected solution.

3. Literature Study

3.1 Introduction to Property Development

Property development, according to Wurtzebach and Miles (1995:630), is a process starting with an idea or concept that is brought to successful execution in bricks and space with associated services. It is an intricate process that requires the combined knowledge and expertise of many professionals. Sources of financing must be attracted by the promise of sharing the cash flow generated by development in a manner that properly balance risk and return. The construction of the development requires the integration of skills and knowledge of the engineers, architects and contractors. Local government must approve the legality of the development. It is of utmost importance to satisfy the customer's needs. The developer needs to identify the market segment in which adequate efficient market demand will exist for the type of development to be created. Property development takes place in a dynamic world with an immense number of risks and benefits for all the parties involved.

Property development is a cyclical activity (Kennedy, 1998:18). The North American economic boom in the 1970's led to a vast increase in property supply. Following the cycle of over development, a period followed where little space was contracted for development which caused rents to rise. In the 1980's commercial space increased with 6% annually. This exceeded demand and lead to another financial crises and a decrease in property developments.

Newly designed developments will require feasibility studies to measure market demand and to ensure project viability. According to Turkel (2000), to make the feasibility studies more realistic, a fresh look at the methodology needs to be considered which includes the following issues:

- Occupancy and average daily rate projections should reflect the real volatility in the marketplace.
- There should be a genuine analysis of the tradeoffs inherent in the yield management decisions as they pertain to both market penetration and revenue maximisation.

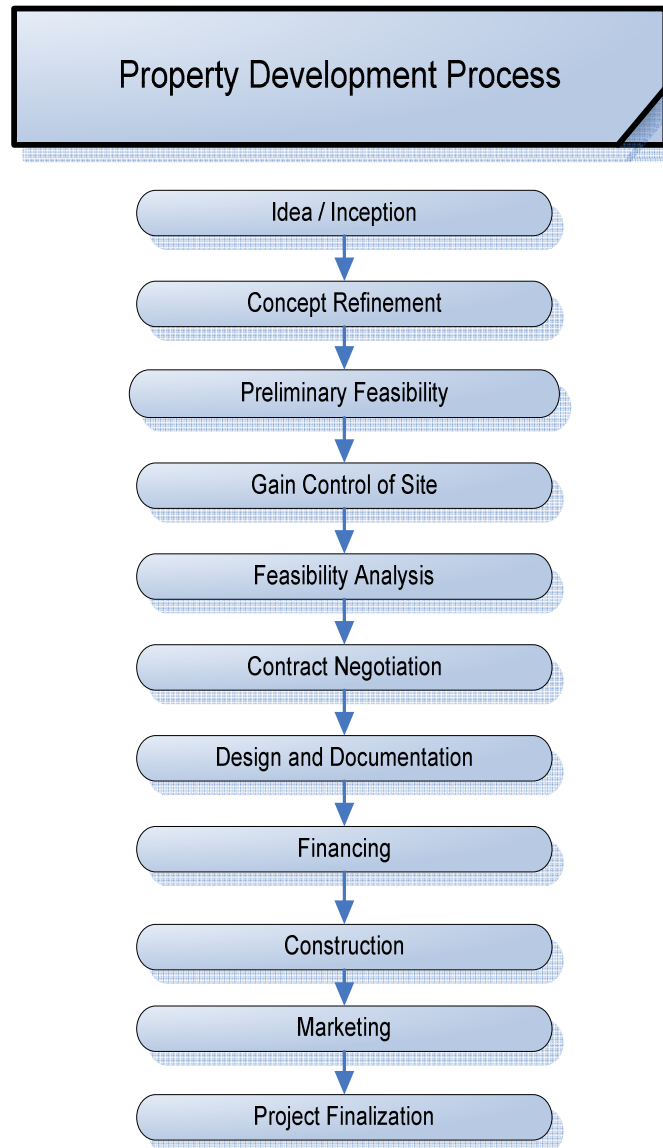
Property development takes place in an extremely complex and dynamic environment. The above mentioned facts reinforce the necessity of a framework for property development and that it is of great importance for any developer. Companies that are successful in business management, consider real estate to be an asset and base the management of their real estate on an ongoing review of its relation to the company's business units and strategic plan (Lawson, 1997).

3.1.1 Property Development Framework

As a brief introduction to the process of property development the following framework illustrates the approach suggested for a developer to undertake.

Illustration 3.1.1: Property Development Framework

(Sources: Adapted from Ivan Venter, 2006)



3.1.2 Requirements for a Successful Property Development

According to Cloete (1998: 116) success factors for property developments, which are controllable even if only in the sense that the developer is able to choose between alternatives, are:

- Type and quality of product
- Factors regarding location
- Price, interest and costs
- Time and advertising.

Cloete (1998: 118) summarises the different requirements for successful property development as:

- Adequate demand for the product at a cost that justifies investment.
- Identification of a cost structure that will ensure the optimum net profit.
- The architect's ability to design the product that will meet the demands of the cost structure and also ensure maximum demand.
- The development of the project in a area with a superior location.
- The developer's ability to:
 - Manage the production costs.
 - Run the development efficiently.
 - Finance the development economically.
 - Lease or sell the property effectively.

3.2 Property Development

"Property development is the process directed at the increase in value of an existing property (underdeveloped or developed) by the application of resources (material human and capital)" (Cloete, 1998: 109).

Four development situations which each presents the developer with different development options by Wurtzebach and Miles (1995):

- *A site looking for a use:*
This is the most common situation, where a developer buys or owns land and wants to develop without having a development plan.
- *A use looking for a site:*
This situation is where the developer identifies the demand in a certain area and then looks for the appropriate land for the development.
- *Capital looking for an investment opportunity:*
This is when an investor has cash which he/she wants to invest.

- *An existing development:*
This is where an existing structure may be re-developed.

“Although all four situations are common in practise, the second alternative is the most efficient way to turn ideas into reality. The site looking for a use is in some sense putting the cart before the horse. Capital looking for an investment should involve looking at all investment opportunities, not just property development”
(Wurtzebach, 1995: 630).

3.2.1 Property Development Process

According to Wurtzebach and Miles a property development process consists of eight stages. Their process represents the real flow of operations during a development. Although it is not always exactly followed, it does provide a useful framework for analysing the process of a property development.

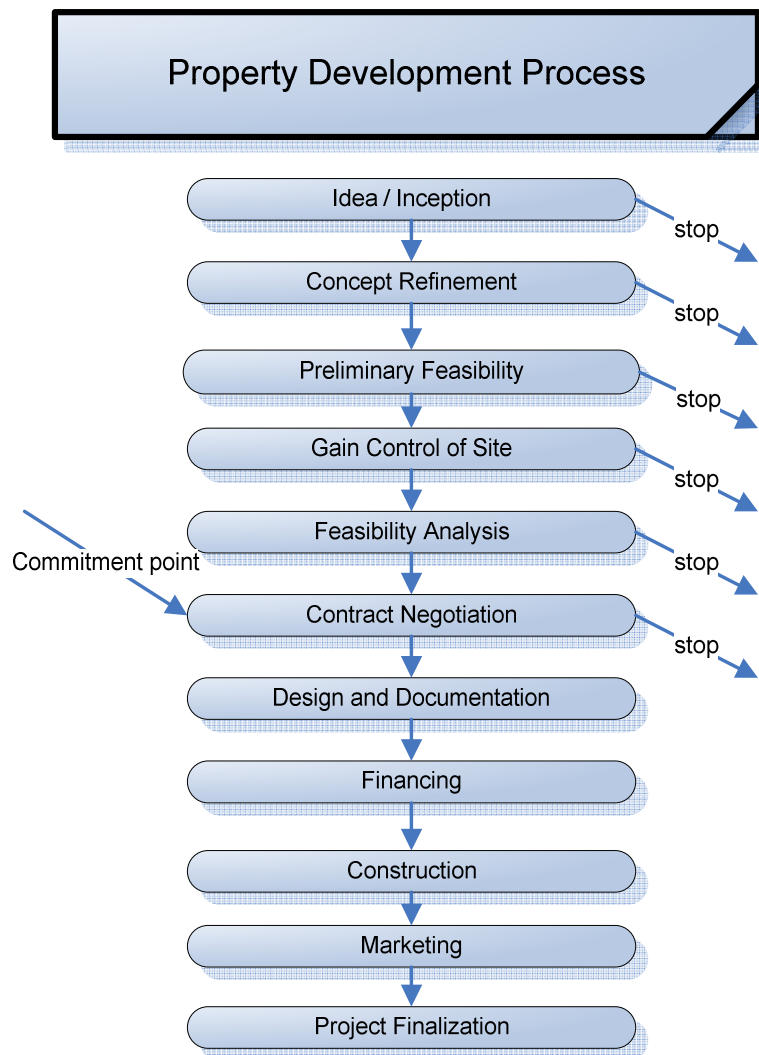
Wurtzebach’s eight – stage property development model includes the following stages:

1. Idea / inception
2. Idea refinement
3. Feasibility
4. Contract negotiations
5. Commitment point
6. Construction
7. Initiation of operations
8. Asset management over time

There are quite a number of different approaches and viewpoints on this subject. The point is that the development process is not rigid but rather a flexible process that could be adapted according to any developer’s needs.

Figure 3.2.1: Property Development Process

(Sources: Adapted from Ivan Venter, 2006)



Stage 1: Idea / Inception

Most developments initiate with an idea. Generating ideas is a creative thinking process which is usually influenced by aspects such as reading, looking, listening and thinking. All ideas are combined to come up with ideas to satisfy tomorrow's needs. The developer would typically consider the possible market segment, geographical market area, location, development size, infrastructure and possible sources of financing, to name a few. It is important that the development is market driven to ensure that the market needs are fulfilled.

Stage 2: Concept Refinement

After stage one the idea becomes a concept which is then again evaluated, refined and tested. The developer must make sure that the area chosen for development has the appropriate zoning. There must be access to suitable transportation arteries, and required municipal services must be available. It is of utmost importance to consider what the final product will look like. Usually this factor is considered during the design phase where the architect works in conjunction with the developer.

Adding more detail to this stage, Baltin et al (1999) explains that the developer should achieve the following tasks:

- Establish financial, development, and operational objectives.
- Identify the major development issues.
- Formulate a development concept, and
- Hire a professional financial and development advisor and establish a timetable to guide the durations allowed for the feasibility analysis, anticipated design phases, commercial and contract documentation, construction phase and all pre-opening activities.

“Seasoned real estate professionals allocate a generous amount of time and resources for this phase. The objectives established and the plans made at this time will serve as a framework by which they could measure the subsequent progress and success of the development process. In some cases, too little effort goes into the concept-planning phase, due to restricted budgets, time constraints and a strong desire to get started. But the result of cutting corners here is likely to be a development that performs poorly.

The first question we need to ask is: ‘Why are we developing this property?’ The reason can range from pure economics to pure emotion – the lure of having a world class place of ones own in which to entertain or be entertained. There are many strategic reasons for developing. Once having identified a compelling reason for a development, the developer must proceed to validate the vision” (Baltin, 1993: 30).

The concept refinement stage is of great importance to the developer and requires the exercise of careful judgment about whether to go ahead, to rework the idea or to completely start over.

Stage 3: Preliminary Feasibility

The developer will perform a rough cost and income analysis. Factors such as construction cost, contractor’s fees, finishing cost, land cost, local authority fees etc. needs to be considered. The market segment targeted will determine the type of development. With the above mentioned. The developer will determine an estimate of the revenue stream that the project will generate. Subtracting the cost

of providing the necessary services, from the estimated revenues, the developer will obtain the net operating income (NOI).

From this income stream a rough project value can be established based on current market rates.

The developer needs to prepare schematic architectural layouts and determine if the project is physically feasible. The developer must do soil tests to determine the load – bearing capacity of the ground, examine the grade and configuration of the site and consider any other unique physical characteristics. The architect must determine if the project's type and size can be placed on the land. The development must not compromise the overall look of the site or its functionality which is important for marketability and operations.

Stage 4: Gaining Control of Site

The developer needs to gain control of the land. The developer must not necessarily purchase the land otherwise the developer will be reluctant to invest large sums of money without knowing if the project will realize. The objective at this time is to arrange for an option on the land, a long - term lease or a low down payment with no personal liability. This will prevent premature investment.

Stage 5: Feasibility Analysis

The actual feasibility studies commences in stage five which is the pre - commitment stage. Once stage four is completed successfully a detailed feasibility study can be undertaken. (The detail however, depends on the project and the developer.) Legal analysis will tell the developer how much space may be legally developed. Site analysis will give the developer some insight on the type of materials that need to be used and any special construction requirements. Market research is the key in determining the size and type of real estate that will be developed. Preliminary drawings must be done, which will trade off an aesthetic market appeal against the cost of the relevant project. From these drawings more cost estimates will be made.

A clear statement of all aspects regarding local and regional authorities must be conducted. This will include permits and public services. It is important to note that this study may lead to one developer's acceptance of the project and another's rejection. Acceptance or rejection depends on each developer's individual or project requirements.

If the detailed feasibility study does not comply with all of the developer's objectives, the project must be abandoned and the developer must either go back a few stages and make the necessary changes or reject the project completely and start at stage one again.

Stage 6: Contract Negotiations

This stage is where written agreements with all participating parties are entered into the project. At this point a permanent loan, if the case, will be obtained by the developer for the premise. The developer will then convince the construction lender that the project will be completed on time according to all schedules and obtain a construction loan, to be funded in stages as the project is built. The developer must decide if he/she wants to include a money partner to share the development risks? Will the project be sold in advance?

All construction contactors must then be appointed. Their contracts must stipulate all necessary legal obligations they must comply to. The developer must also decide whether these construction contracts will be awarded through a tender process or on a one – to – one basis. The developer must decide whether the architect will supervise the construction process or if a project manager must be appointed?

This is the commitment point off all information obtained from stages one through five and the developer must ask the principle question - Do we proceed or not?

Stage 7: Design and Documentation

A development budget should be developed as an aid to determine if all objectives will be obtained by maintaining project cash control and preventing budget overruns. Not meeting deadlines could result in project failure. The extra interest costs could impinge on profitability.

“Time control should also be established by scheduling all the activities of the parties involved by means of a Gantt chart to ensure project optimization and that all deadlines will be adhered to” (Ivan Venter, 2006).

Detail design starts now with a process called design development, which is a fluid and flexible process in which all operational requirements, aesthetics, local authority requirements, image, ergonomics etc. are all coordinated into a practical, optimal and appealing environment. When the developer and stakeholders approve the designs, it will be submitted to the detailed design process. The finalized drawings are then sent to all participating corresponding construction contractors, whom will proceed in the construction phase. All contractual documentation is also started. These contracts include aspects such as tender documentation, the building contract and bill of quantities just to name a few.

The general construction contractor is assigned during this stage.

Stage 8: Financing

In this stage all the preliminary financing negotiations will be finalized. Any difference between the initial loan and the cost of the development will have to be paid upfront.

Stage 9: Construction

This is the stage in which the facility is built. Large sums of money are being spent and the developer tries to reduce the time it takes to complete the project. The sub – contractors submit invoices to the project manager whom then submit these invoices to the developer for the necessary payments. The developer adds all relevant costs and sends a final report to the development lender. If the lender is satisfied with the request for money, funds will be deposited into the developers account to perform the necessary payments.

All work must be inspected and where necessary, certified before any payments are made. This procedure protects all parties involved in the project. If work by sub – contractors do not require certified inspections a process called retention must be undertaken. This is where a certain percentage of the total amount will be withheld until all work is done. This process will protect the developer and lender against incomplete or defective work.

All parties involved in the project work closely together during this stage. It is the project manager's duty to ensure that all specifications and schedules are adhered to during this time.

Stage 10: Marketing

Marketing at this stage consists of major marketing campaigns. The idea of the marketing is to develop awareness of the development.

Marketing a development starts at an early stage of the process. (Concept stage) When the construction is underway, serious marketing will start. This is a critical aspect of the process. Without proper marketing no development can be a success.

Generating cash as early as possible will help with the cash flow of the project. Some projects take years to reach a breakeven point and many projects fail during this phase. In the case where a development will be sold, it is of utmost importance because of the loan that needs to be repaid to the lender.

Stage 11: Project Finalization

The completion of any building project is always a difficult process. In this stage there are several operational and finishing activities which have to be coordinated and completed.

Practical completion must be achieved, as it is an important contractual milestone, which marks the end of the developer's possession of the project. The project is then handed over to the client and the project then becomes the client's responsibility. This handover should only occur if all the relevant practical issues have been addressed by the developer for the successful completion of the project.

It is rare for a project to be totally complete, so therefore it can be arranged that certain areas may be addressed after handover in a phased way. *“Such arrangements, whilst not ideal, can be beneficial to both parties, but they need to be managed carefully. Whether taking full or partial possession of the site, handover requires a schedule of incomplete items, which should be of a minor nature only, must be recorded and arrangements made for the contractor for such remedial work to be done whilst the project is operational”* (Ransley and Ingram 2000: 173).

After handover the developer remains responsible for certain defects for a specified period of time. This is known as the 'defects liability period'. Defects should be of minor nature.

When this period expires and the client is satisfied with all aspects of the project, the project is certified as complete.

3.2.2 Project Objectives and Strategies

The following questions will give answers to the developer in terms of the projects objectives (Adapted Baltin et al. 1990: 30):

“Financial Objectives:

Is long – term value appreciation an objective? Is the creation of an operating entity an objective? Are development profits being sought? What are the priorities of the developer regarding these goals? How much equity the development partners can invest? Can the developer obtain financing for a project of magnitude? What return on investment will be acceptable to the developers and the potential financing partners? How much time, money and resources can be committed by all the parties involved?

Development Objectives:

Does the site present development constraints? Development opportunities? Is the site free of toxic contamination? Are the surrounding land uses (existing and proposed) compatible with the project? Who will serve as the developer? How familiar is the developer with the developing process? Is making a special statement an objective (through distinctive design, for example)? Will government policies encourage or discourage development of a site? Are appropriate public financing incentives available? How will the public react to the proposed development? How long will the necessary approval process take?

Operational Objectives:

What type of management will be the best – franchise, affiliate, or owner/manager? Can the owner/developer manage the process, or will the service of a professional be required? What level of owner/developer involvement in the project is desirable or even possible?”

The developer must in the early stages of the project identify positive and negative factors that might influence the project. Early consultations with various parties such as engineers, architects, lenders, bankers etc. must be initiated in the very early stages of the project to ensure financial feasibility. Important questions need to be answered regarding development issues.

3.2.3 Types of Property Developments

Property development covers a wide range of property types, including single family homes, townhouses, commodities, manufactured, mobile etc. The different types are very important in how they are listed and marketed throughout the various listing services used by real estate professionals. It is important that a developer differentiate between the types of real estate before a project is undertaken. There are mainly two types namely:

“Residential Property Development:

Residential Property development is just property designed as living space. Any property zoned as living space for between one and four families is considered residential real estate. The most common type of residential property is the single family home (SFH), but duplexes, triplexes, and four - plexes (Multi – Family Residences) are also common investment vehicles for those interested in residential property.

Commercial Property Development:

Commercial property covers a wide range of property development types. First, it covers any multi – family residence with five or more units, such as apartment building or apartment complexes. Commercial property also covers office space, retail space, industrial space, or space used for medical or educational facilities” (Three types, 2007).

3.2.3.1 Single Family Homes vs. Multi - Family Residence

The most common type of property development is single family homes (SFH). Many developers choose single family homes for their projects because the public is quite familiar with a family home and the demand is large because of population.

Larger properties or projects are sometimes outside the scope of the developer’s budget or expertise and therefore does not contribute a large demand to the market.

- On the supply and demand side single family homes outnumber multi – family residences. This provides the developer with a wider range of options in terms of size, types and values to name a few. Because multi – family residences are fewer and farther – between, developers who chooses this type of real estate have to be flexible in their developing criteria.
- Because single family homes are so common it is easy for the developer to do the cost analysis by comparing current projects to others. Multi – family residences are not so common and requires large sums of money, planning and is more exposed to risk.
- Single family homes tend to more liquid than multi – family properties. This means that it is much easier to sell single family homes than multi family properties which reduce risk for the developer. It is safer for new developers to invest in single family homes rather than multi – family properties because of the low risk factor. For the larger more experienced developers there are quite a number of advantages for developing multi – family properties.

3.2.3.2 Benefits and Drawbacks of Different Properties

Duplexes, Triplexes, and 4 – Plexes:

These are the smallest of the multi – family properties, between two and four units. Major benefits include:

- They qualify for residential loans, meaning it is easier for the developer to get a loan.
- These properties can in general qualify as a primary residence if the developer/owner chooses to live in one of the units and keeping the others for investment purposes.
- Two – Four unit properties are moderately liquid, meaning that the market is relatively good when wanting to sell. With larger developments it might take time for it to sell and this can influence profitability because of interest rates.
- For investors one of the major disadvantages is that a smaller property's value relies on the real estate market whereas a larger property's value can be controlled through good management.

Five + Unit Properties:

Properties with five or more units are considered as commercial properties, and require commercial loans. These properties are referred to as apartments. Apartments are divided into sub categories consisting of small, mid - size, and large. Small apartment buildings usually consist of 50 or fewer units, mid – size 50 – 150 units, and large more than 150 units.

- *Small Apartment Buildings/Complexes:*
The main advantage for the developer is that these units are usually inexpensive so there should be a market for these units. Another advantage is that the developer can make relatively big profits if the project is successful. The major disadvantage is the scope of the project which requires a great amount of input in terms of funds, planning, managing etc.
- *Mid – Sized Apartment Complexes:*
These complexes have the advantage of greater economies – of – scale, both in terms of profit and expenses. The disadvantage is that full time on site management will be required and the developer must be well equipped with all the necessary skills and knowledge to make the project a success.
- *Large Apartment Building Complexes:*
The major advantage of the larger complexes is great profits. These types of developments usually form what they call the make – or – break projects. If the project fails, the developer and/or investors will generally become bankrupt. The reason for this is the significant amount of funds needed for a project of this magnitude.

3.3 Property Development Feasibility

It is recommended by Cloete (1995, 90) that it is crucial to do a feasibility analysis to establish the changes in the execution of a successful development. This study involves the association of the cost benefit relationships of alternatives over definite time periods. Cloete (1995, 91) further says that the main purpose of a feasibility study is to determine if a project can be executed successfully. A successful development is when all objectives of the developer and all customer demands are met.

Cloete (1995: 91) includes Graaskamp's generic definition of feasibility study which he defines as the following:

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

The main reason for executing feasibility studies is to provide objective, independent opportunities and information to the client to decide if a project should advance and if, in what manner.

Ransley and Ingram (2000: 60) categorize feasibility studies into five different groups:

- The support of an application for finance.
- The support of an application for planning permission.
- The attraction of potential operators.
- To define the optimal site use.
- To define a concept.

Some of the secondary purposes include:

- To provide marketing information.
- The identification of market opportunities.
- The analysis of operational aspects, such as labour laws.
- The identification of potential financing sources.

In the table that follows Lawson (1996: 109) includes multiple considerations and dimensions a feasibility study should consist of.

Table 3.3: Property Development Feasibility

(Source: Adapted from Organisation of Market Feasibility Studies by Lawson, 1996: 109)

Feasibility Stages	Marketing and Operations	Economic & Financial Analysis	Location & Development
Organisational Identity & Policies ↓	Market Definition - Target market - Market characteristics - Viability - Potential growth	Investment Sourcing - Economic climate - Trends - Price: earnings ratios - Source of financing - Conditions of financing	Location Identification - National and regional patterns of development - Optimum location for development
Areas ↓	Local Data Analysis - Catchment areas - Socio economics trends - Business activities - Tourism demands	Funding Considerations - Development incentives - Location incentives - Location benefits	Potential Areas Survey - Location advantages - Planning conditions - Traffic - Future developments - Transportation
Sites ↓	Competition Assessment - Location - Main Markets - Advantages - Weaknesses	Labour Availability - Employment in area - Wage rates - Services available	Site Requirements - Area - Access - Car parking - Infrastructure
Plans ↓	Demand Analysis - Segmented categories - Projection over period - Sensitivity to change	Operating Forecast - Business mix - Average building rate	Building Needs - Number - Type of real estate - Range of facilities - Net and gross area
Feasibility	Operating Needs - Organisation - Contract arrangements - Staff requirements - Procedures	Investment Feasibility - Construction cost model - Budgets - Revenues - Costs - Profit and loss forecast - Sensitivity analysis	Initial Planning - Client's brief description - Facility programming - Schematic plans - Options for development

Similarities between strategic management and property feasibility studies according to Ivan Venter (2006) taken from Cloete (1995: 90) and Pierce and Robinson (1995: 4) are:

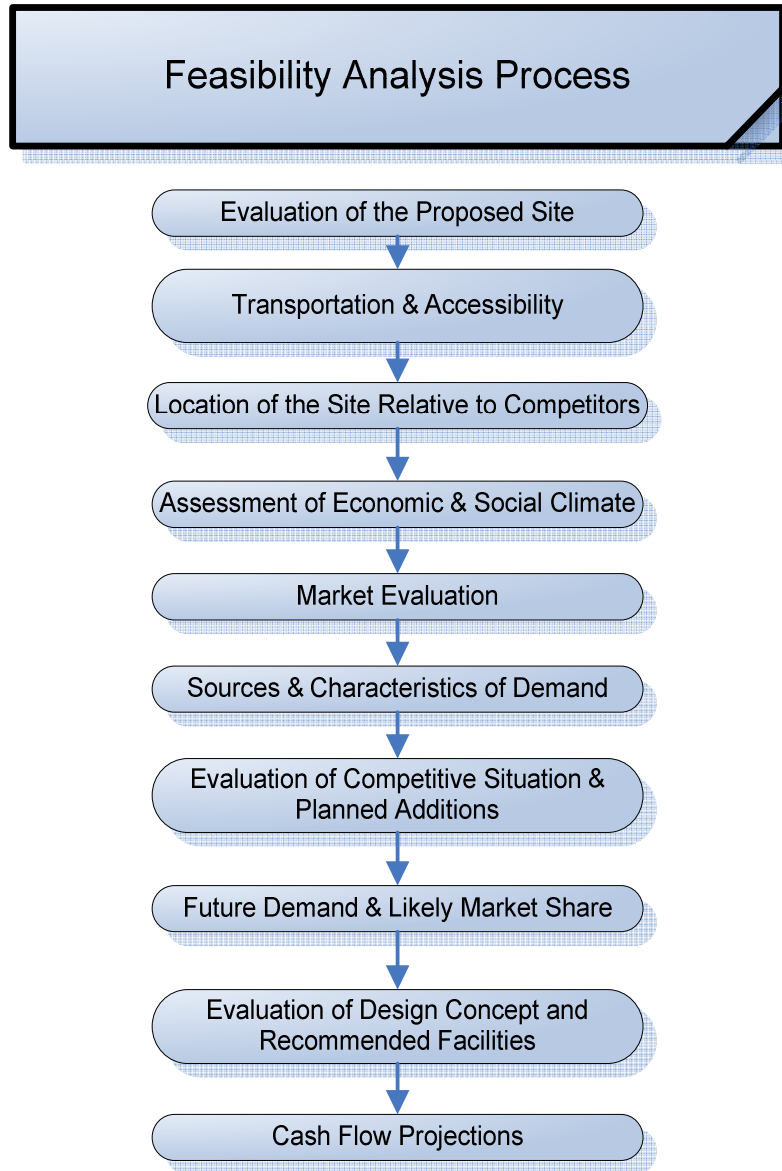
- *“Require top – management involvement and decisions.*
- *Organisation and developer’s objectives should be met, for property development to be rendered successful.*
- *Require large amounts of the firm’s resources.*
- *Often affect the firm’s long term prosperity.*
- *No single optimal solution normally exists.*
- *Limited by the resources available.*
- *Should conform to the external constraints.”*

3.3.1 Feasibility Analysis Process

Various approaches to feasibility study exist, depending on the purpose of the study. The approaches differ because of the emphases which are placed on different components.

Figure 3.3.1: Feasibility Analysis Process

(Sources: Adapted from Ransley Ingram, 2001: 68)



3.4 Property Development Market Analysis

A market study will typically offer performance projections for a proposed project based on the analysis of existing developments. The proposed performance measurements will give the developer some insight on the economical feasibility of the project. The Facilities Recommendation section of the study can assist the developer in refining the architect's designing program for a development. The cash flow projections forecast are usually compared to the financial forecasts of existing real estate developments to determine the optimal site usage. A successful market study can be an extremely useful tool in assessing the risk of a project.

3.4.1 Property Development Market Study Framework

Raleigh and Roginsky (1999: 138) define a well – documented market study with the following seven sections, as follows:

1. Introduction
2. Area Review
3. Site/Neighborhood Evaluation
4. Supply and Demand Analysis
5. Recommended Facilities
6. Subject Property Penetration Analysis
7. Financial projections of the Subject Property.

3.4.2 Performing a Property Development Market Study

Based on the framework in section 3.2.1 the following study process and components are suggested by Raleigh and Roginsky.

- Introduction and Assignment Definition
- Macro Property Development Market Review
- Micro Property Development Market Supply and Demand Analyses
- Proposed Property Development and Facilities Suitability Recommendations.

3.5 Risk Management

“Risk management is a process used by the project teams to reduce the impact of risks on the outcome of a project, through identification, appraisal and management of potential risk events throughout the life of the project” (Ransley and Ingram, 2000: 138).

It is very clear that construction projects potentially involve a great deal of risk. This is because of a development’s long program cycle and all the uncertainties of on – site operations. It is important to do risk management to ensure the successful completion of projects. Risk management will improve management of a project and ensure that all project and client objectives are achieved.

The principle benefits of risk management defined by Ransley and Ingram, 2002: 148 are:

- Greater certainty of project outcomes.
- Risk improvement through pre – planning and early remedial action.
- Encouragement of ‘right first time ’thinking through pre – planning of responses to risk.
- Allocation of responsibility for risk mitigation to the party best placed to manage the risk.
- Implementation of cost – effective risk mitigation measures.
- Effective control of the contingency sum.

The principle stages in the risk management process are (Ransley and Ingram 2001: 149):

1. Information gathering: Understanding the project and setting up the scope of the risk management process.
2. Identifying risk: Risks are identified by questionnaire, interview or brainstorming. All the relevant risks are entered into a register and then it is prioritized. The most significant risks are selected and further analyzed.
3. Analyzing risks: Risks are then analyzed to calculate risk allowances for their time and cost consequences. There is a wide range of techniques available to the Quantity Surveyor, which varies in complexity, transparency and dependence on proprietary computer software applications.
4. Managing risks: Management concerned with risks must be identified. The options available to the project team to manage risk are:
 - Avoidance: Changing the project to prevent the risk occurring.
 - Reduction: Altering the design, specification or working method to minimize the impact of the risk, should it occur.
 - Transfer: Reallocating risks to other parties, through insurance or through the terms of a building contract.

- Acceptance: Continuing management of risks without any pre – emptive action.
- Reviewing the register: A review is important to monitor progress on risk mitigation measures and to update the risk register to account for new risks, expired risks and changing assessments of existing risks.

3.5.1 Types of Risk

Wurzebach and Miles (1995) define the risks of real estate investment as follows:

- Purchasing power risk.
- Business and related market risk.
- Financial risk.
- Liquidity risk.

According to Echavarren (2001) the following risks are defined for a real estate project:

- Inflation risks: Money buys less in future.
- Financial risks: Does net operating income cover total debt?
- Business risks: Does the development's cash flows justify the investment?

3.5.2 Property Development Risks

“Based on our experience of the review of property development projects, the most common risks of property development are as follows” (Echavarren, 2001: 4).

- Lack of vision and objectives in the project.
- Unrealistic objectives.
- Inadequate project specifications.
- Insufficient market analysis.
- Inadequate design for the objectives pursued.
- Design prevails over functionality and feasibility.
- Conflict of interest with local authorities.
- Inadequately planned administration.
- Management of zoning and urban development aspects not based on adequate procedures
- Official formalities based on good relationship with authorities.
- Insufficient breakdown of project units.
- Incomplete documentation of contracts.
- Inadequate contractual provision for future disputes.
- Unrealistic or inadequate estimates of cost and/or deadlines.
- Inadequate planning of the project.

- Lack of procedures.
- Non – existent marketing plan.

It is obvious that all developments have a series of risks that will dramatically influence the success or failure of a project. Therefore it is of utmost importance that all risks must be minimized to ensure economic success.

3.6 Financing Property Development Projects

Developers compete for a constantly changing pool of funds and they have to deal with increasingly complex terms and conditions for the use of those funds.

“During the relatively stable decades of the 1960’s and 1970’s [in the USA], real estate financing remained an orderly, standardized process for matching developers with investors and lenders. Inflation and interest rates fluctuated only slightly. The one wish developers had, was for a speeding process. During the late 1970’s and early 1980’s, real estate financing, stimulated by tax incentives and high inflation rates, increasingly involved financial institutions becoming equity or quasi – equity partners. These institutions sought both income and equity participation. Income participation included sharing in the effective gross revenue, net operating income, cash flow after debt service, or income above a base income. Equity participation included sharing in the proceeds of the sale or refinancing, or sharing in the tax benefits” (Baltin et al, 1999: 55).

In stringent economic times the supply of real estate outweigh the demand and financial institutions become reluctant to finance developments due to a great number of risks involved

3.6.1 Sources of Property Development Financing

Property development financing can be obtained from a wide range of traditional sources. Ransley and Ingram, (2000: 76) provides the following sources:

- *“Retained profits; the reinvestment of profits derived from trading.*
- *Issue of more shares for cash; this will require an increase in share dividends to be paid even if the dividend remains at the same rate for all the investors.*
- *Long – term borrowing; raising funds through the capital markets in the form of debentures or from institutional loan providers (either of these methods will increase the levels of annual interest to be paid and as a result will raise the gearing of the business).*
- *Short – term borrowing; this may be available by delaying payments to creditors or by raising the level of overdrafts. However long – term investments funded from short – term sources are clearly risky and should be avoided.”*

Ranley and Ingram (2000) expand the above mentioned sources by the means in which they have recently been funding projects by the following:

- Property development investment trusts (REITs): The modern REIT originates from the USA and is a property development mutual fund permitting small investors to participate in large real estate projects. This real estate trust shares provide an effective way of maintaining liquidity.
- Management contracts: Developers with little operational experience invests in property development projects, laying fertile ground for management companies to offer their expertise. These management companies receive a fee based on the gross operating profit levels.

Some of the major sources of financing in the USA according to Baltin et al (1999: 56) are:

- Life Insurance Companies.
- Savings and Loan Associations.
- Commercial Banks.
- Credit Companies.
- Property Development Mortgage Investment Conduits.

3.6.2 Property Development Financing Methods

“Developers will look in vain for standard methods of financing lodging properties, or for standard financing packages. They do not exist. In fact, financing conditions change almost daily. The ability to analyze, interpret and predict trends in the equity and debt financing markets is essential for success in developing real estate projects. A project team’s ability to select a proper method depends on its experience and on its understanding of the dynamic characteristics of available financing mechanisms. Today, developers and operators commonly turn to specialists in the field of real estate finance for an explication of a project’s financing alternatives and a program for obtaining the best financing package” (Baltin et al, 1999: 56).

Financing methods can be grouped into three categories, i.e. long – term debt, equity structures and short to intermediate term debt. Developers use short to intermediate debt when permanent financing does not cover the entire project cost. The most common short to intermediate term debt instruments are (Baltin et al, 1999: 56):

- Construction Loans.
- Combined Construction and Term Loans.
- Term and Bullet Loans.
- Convertible Mortgages.
- Land Sale – Leasebacks.
- Permanent Loans.

- Mortgages with a Kicker.
- Wraparound Mortgages.
- Seller Financing.
- Exchanges.
- Second Mortgages.

On the equity side:

- Joint Ventures.
- Limited Partnerships.
- All – Equity Financing.

3.6.3 Preparing a Loan Package

Lenders require the following documents according to Baltin et al, (1999: 57) in order to prepare a loan package:

- A transmittal letter to the lender from the project team that clearly states the loan amount requested.
- A one – page fact sheet which describes the project, type of ownership, its size, operating characteristics, location and design.
- A preliminary site plan and general design specifications.
- A formal Market Study done by professionals.
- Cash flow projections.
- Letters of agreement.
- Financial statements on the project's owners and developers.
- Deed, title policy, or lease agreement for the site.
- All documents that effect the project.
- Environmental assessment reports.
- Environmental impact reports.

This document should be well organized and presented in a professional fashion.

3.7 Project Team

The necessary members of a property development team may vary from project to project, depending on the complexity of the project. A complex project may require dozens of professionals whereas a small project may require only a few.

Some of the parties that might be involved in property development projects are:

- *Accountant:*
The Accountant is responsible for maintaining the projects financial accounts. In smaller projects it might not be necessary if the developer has some experience in this field.
- *Architect / Designer:*
The Architect is responsible for designing the building in accordance with the developer's brief and the building authority's regulations.
- *Building Surveyor:*
The Building Surveyor's responsibility is for certifying the building permit plans and that constructed work conform to all regulations relevant.
- *Building Contractor:*
The Building Contractor's responsibility is the construction of the project in accordance with the building contract, approved plans and project specifications.
- *Buyers Agent:*
The responsibility of the Buyers Agents is for the sourcing of the developments site on behalf of the developer and project owners.
- *Finance Broker:*
The Finance Broker's responsibility is for sourcing an appropriate financing package for the project.
- *Acoustic Engineer:*
The responsibility of the Acoustic Engineer is recommending certain building designs or construction methods to minimize the effects of noise pollution.
- *Development manager:*
The Development Manager's is responsible for the management of the entire real estate development process.
- *Civil Engineer:*
The Civil Engineer is responsible for the designing of the drainage, earthwork, road work, sewer and water reticulation in accordance with the relevant regulations.
- *Electrical Engineer:*
The Electrical Engineer's responsibility is to design electrical and telecommunication plans in accordance with the building permit application.

- *Environmental Engineer:*
The Environmental Engineer is responsible for assessing features of the environment and developing methods for controlling the impact of related features.
- *Geotechnical Engineer:*
The Geotechnical Engineer is responsible for analyzing the composition of the soil and making sure that all specifications are met.
- *Surveyor:*
The Surveyor is responsible for assessing the land and reporting the necessary geographic information.
- *Town Planner:*
The Town Planner is responsible for ensuring that the use of land conforms to the local authority's codes, policies and regulations.

3.7.1 Selecting a Team

The developer must search for similar projects that have been completed successfully and make enquiries as to which professionals were engaged on these projects.

This process will usually take considerable time but is necessary to get an adequate professional team that suits the developer's project objectives and needs. The project's economical feasibility depends on a combination of different parties whom is all professionals in their specific fields.

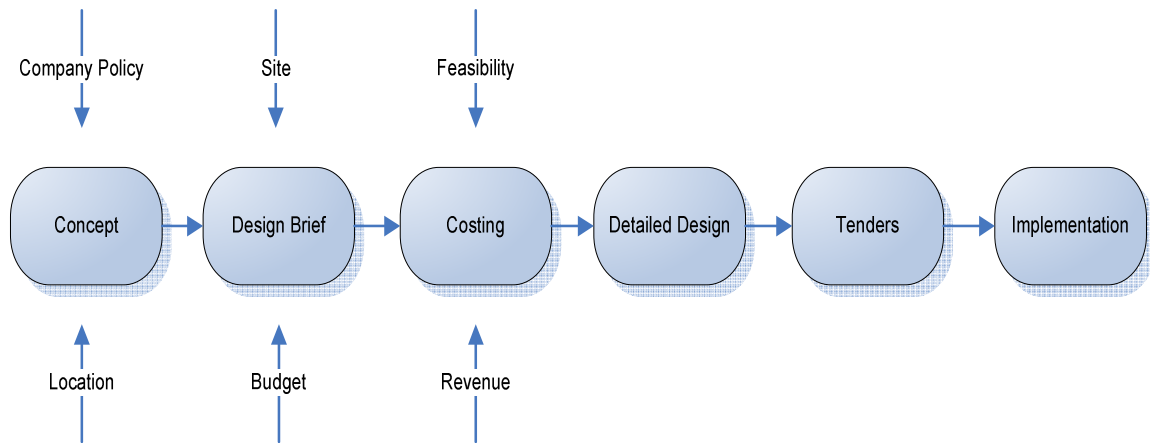
3.8 Property Development Design

"The design process [refer to illustration 3.8] begins with a desire on the part of the property managers or owners to [establish or] change the tangible product. Initially, there will be some discussion within the organisation about what form this development should take and the approximate resources that might be allocated to fund it. At this stage, a designer would be appointed to explore the idea with the organization and develop the idea for a new concept.

The next stage is the development of a design brief that will be produced according to the characteristics of the site and within budget guidelines. Subsequently, the design can be costed and feasibility studies carried out as to the effects of the proposed change on revenue, costs and profit. If these meet the needs of the organisation, a detailed set of design specifications may be produced and tenders invited by contractors to implement the design" (Ransley and Ingram, 2000: 8).

Illustration 3.8: A Model of the Property Development Design Process.

(Sources: Ransley and Ingram, 2000: 9)



The elements contained in illustration 3.8.1 have previously been defined in this text. Please refer to sections 3.2.1, 3.3, 3.6 and 3.7.

3.9 Property Development Construction

According to Ransley and Ingram (2000) the client will always be one of the two contractual parties to the building contract. The selection of the building contractor is a major decision to make in a development project. It is essential to consider the criteria which influence this decision. The key considerations are:

- Time.
- Cost.
- Quality.
- Flexibility.
- Risk.
- Responsibility.

“Construction companies have changed from being producers, to being providers of management and co – ordination service /skills; hence they no longer directly employ a workforce” (Ivan Venter, 2006).

“Consequently, a number of alternative routes have evolved to facilitate the procurement of building work or construction process, and these fall broadly into two categories:

- *‘Multipoint accountability’ whereby several individual organisation are separately responsible to the client for design and for construction.*
- *‘Single – point accountability’ whereby a single organisation is responsible to the client for all aspects of design and construction.*

Whilst there is much ongoing debate about which process serves the client best, the evolution of new skills such as risk management and value management are encouraging greater collaboration between client, designers, managers of the building process and suppliers. Referred to as ‘partnering’, such methods encourage a life cycle approach to the design, construction and usage of the built form” (Ransley and Ingram, 2000: 161).

3.9.1 Construction Contract Options

Baltin et al (1999) explains that the building contract has much to do with the delivery time, cost and quality of the project. There are three types of contracts that are used in the development arena:

- *Design – Award – Build:*
This is the traditional method for building. Despite the time it takes to first design and specifies the building, it is still the best contracting option (Baltin et al, 1999). This method emphasizes tight construction management procedures to avoid budget and schedule overruns. It begins with the design and clear construction documents. Then a bidding process results in a maximum – price contract that should provide a high – quality project.
- *Fast Track:*
With this process the design is still underway whilst construction is taking place. *“Generally, for reasons of economic or availability, major decisions on structure, material, mechanical systems and vertical circulation elements, are made early and imposed on the preliminary design as finalized”* (Baltin et al, 1999). As a result items with long lead times can be ordered before the design is completed, accelerating the delivery process. If orders are changed or get cancelled it can have major consequences. Project managers are often appointed to help with the coordination of subcontractors required on a complex and fast – track project.

- **Design/Build:**
“Design/build has evolved from efforts to reduce the delivery time of projects. It assigns the design and construction responsibilities to a single entity. This approach best serves projects in which the design needs and solutions are known, and the owner is comfortable with the contractor relationship. By using this option, the owner can often do without the services of an independent architect and, as well, without the services of a contractor manager. The contractor is responsible for providing design services and for managing the construction process. Design/build does not function as well when the development objective is an innovative product” (Baltin et al, 1999: 101).

Table 3.9.1: Comparative Advantages and Disadvantages of Construction Contracts

(Sources: Baltin et al, 1999: 102)

	Design – Award - Build	Fast - Track	Design/Build
For the Client			
Advantages	<ul style="list-style-type: none"> • Professional advice on contract and construction quality issues. • Good industry understanding of how method operates. • Budgets most accurately resemble actual costs. • Easier guaranteed maximum price negotiations. • Clear penalties for cost overruns. 	<ul style="list-style-type: none"> • Shorter project delivery time. • Lower project costs. • Professional advice on contract and construction quality issues. • Clearly defined sharing of cost overages and underages. 	<ul style="list-style-type: none"> • Shorter project delivery time. • Lower project costs. • Single responsible party. • Inventive design/construction solutions. • Reduced project management stress. • Reduced number of claims. Single fee to pay.
Disadvantages	<ul style="list-style-type: none"> • Long start - to - finish time. • Multiple fees to pay. 	<ul style="list-style-type: none"> • Project management stress. • Decision – making responsibilities blurred. 	<ul style="list-style-type: none"> • No independent professional design advice
For the Contractor			
Advantages	<ul style="list-style-type: none"> • Definitive plans and specifications on which to base bids. • Role clearly understood by all parties. 	<ul style="list-style-type: none"> • Difficulty in establishing guaranteed maximum price. • Early completion bonuses. • Easier to recommend substitutions. 	<ul style="list-style-type: none"> • More control over project. • Minimum risk and uncertainty. • Improved design. • Opportunity to increase profits.
Disadvantages	<ul style="list-style-type: none"> • Less flexibility for substitution of materials, equipment, and systems. • Adversarial relationships with design professionals. 	<ul style="list-style-type: none"> • Coordination failures result in delay. • Penalties. • Gaps in insurance coverage. 	<ul style="list-style-type: none"> • Responsibility for the design. • Responsibility for design errors and omissions.

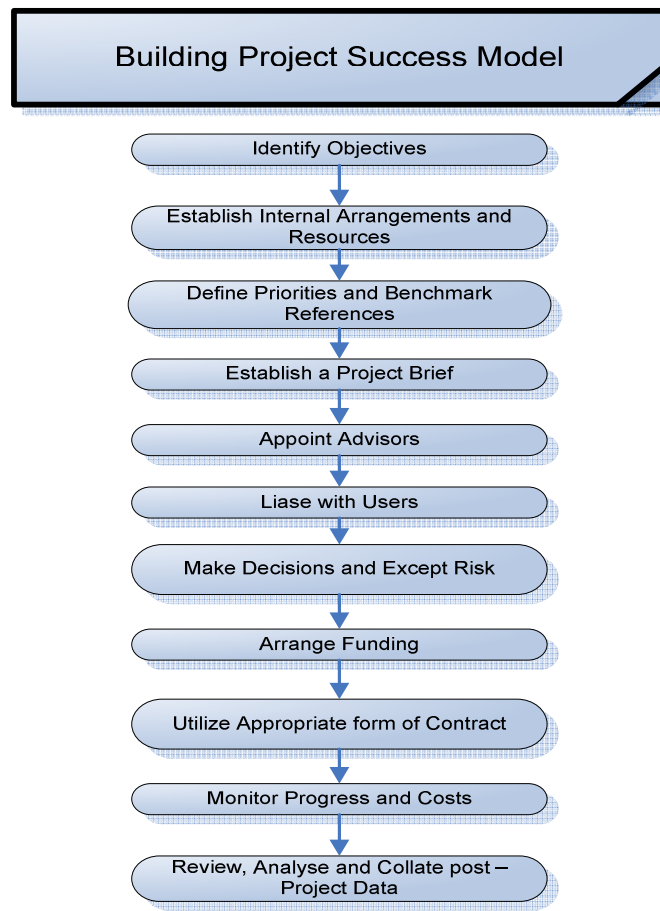
For the Designer Advantages	<ul style="list-style-type: none"> • Greater control over design construction quality. • Role clearly understood by all parties. 	<ul style="list-style-type: none"> • More involvement in the field. • Quick decisions by all parties. 	<ul style="list-style-type: none"> • More control over project quality. • Opportunity to increase profits. • Field experience. • Greater credibility with clients. • Reduced number of claims for contractor.
Disadvantages	<ul style="list-style-type: none"> • Adversarial relationships with contractors. 	<ul style="list-style-type: none"> • Decision – making responsibilities blurred. • Priorities blurred. • Timeliness more important than quality. • Coordination stress. 	<ul style="list-style-type: none"> • Responsibility for errors and omissions of the contractor.

3.9.2 Management of the Construction Process

The client should maintain ownership of the project, and to ensure this he/she should follow the main steps of building projects success (Ransley and Ingram, 2000: 165):

Figure 3.9.2: Building Project Success Model

(Sources: Adapted from Ransley Ingram, 2000: 165)

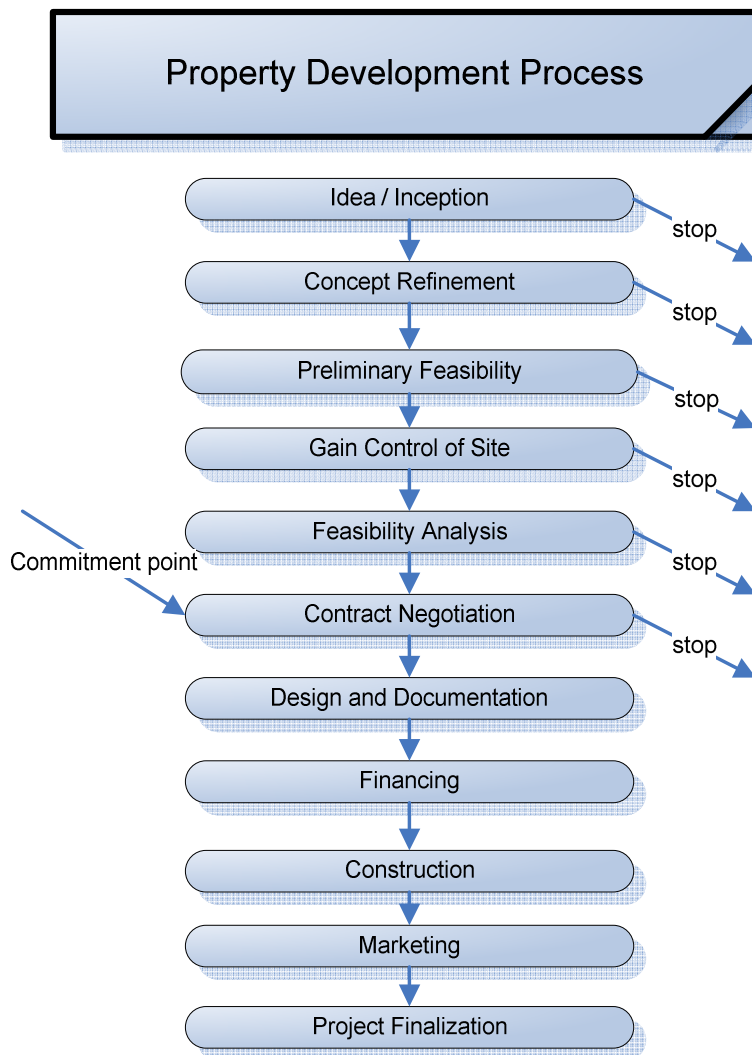


4. Empirical Study

4.1 Introduction

The aim of this empirical study is to determine the validation of the literature study that has been conducted in section three. By implementing section three the feasibility of the project can now be determined. Large sums of money will be spent once the project reaches the contract negotiation phase and therefore the successful completion of this section is of utmost importance.

This empirical study will mainly focus on the following framework:



4.2 Idea / Inception and Concept Refinement

E.T Construction has been developing luxury residential properties in Midrand Estate for the past five years. The idea / inception is to develop five luxury residential properties in Midlands Estate which is one of Midrand Estate's latest extensions. E.T Construction has considered factors such as possible market segments, geographical market areas, location, development size, infrastructure and possible sources of financing.

All of E.T Construction's previous developments in Midrand Estate have been a success. Midrand Estate consists of three different estates. The first two is already sold out and the last is now being marketed. Midrand Estate is fast becoming one of the most popular luxury residential estates that offer its residents a superb lifestyle. Shopping Centers, Schools, Parks, Indoor Pools, Stadiums and a Golf Course is just a few of the facilities within Midrand Estate.

The idea of this development soon became a concept. Midrand Estate has the appropriate zoning and transportation arteries, and all required municipal services are already available. The aesthetics of the development are determined by the Home Owners Association of Midrand Estate. The HOA's objective is to promote, advance and protect the communal interest of its members and consequently to ensure a safe, high quality lifestyle to owners and occupants by managing the appropriate development of residences and related facilities as well as communal facilities. (Refer to Appendix A for details.) E.T Constructions main objective is profitability.

4.2.1 S.W.O.T Analysis

Background

Midrand Estate is a luxury residential estate south of Centurion. This estate is being developed by Bondev developments that have developed similar successful developments in the past. The first two estates are already sold out. E.T Construction's development will be developed in the third estate, Midlands.

Strengths

1. E.T Construction has successfully developed similar projects in Midstream Estate in the past.
2. The land has been bought at a developer's price in 2007 and grew considerably in value since.
3. E.T Construction has a 100% selling record in Midstream Estate.
4. Midstream Estate is situated close to Centurion, Midrand, Menlym, Sandton and Johannesburg.
5. Midrand Estate offers a wide range of facilities.
6. Midrand Estate offers security of high quality.
7. High aesthetic requirements set up by the Midrand Home Owner Association protect the value of the development.

Weaknesses

1. Midrand Estate is not fully developed, therefore Centurion and Pretoria is not fully accessible due to unfinished roads.
2. Midrand Estate forms part of the Ekurhuleni Metro which implies that municipal costs are greater than with Tshwane.
3. Midlands Estate is still in the development stage and therefore the full potential of the Estate will only be realized in three years time.
4. High Interest rates in 2008 would be an influential factor.
5. Luxury houses will be developed and therefore the cost of the property will be higher than average.

Opportunities

1. The development of high quality houses presents the opportunity to obtain large contracts with other firms.
2. The fact that Midlands is in its early phases of development, it offers the opportunity to further develop in the forthcoming years.

Threats

1. Supply might start to outweigh demand because of the great demand in the past few years.
2. Weak economic conditions, higher inflation and a sudden rise in Interest rates.
3. A rise in building and material costs could imply that the price of the property is too high for the average buyer.

From the S.W.O.T analysis it is clear that the strengths and opportunities outweigh the weaknesses and threats. According to this analysis E.T Construction can continue with this particular project. Historical success forms part of the key factors in the development of this project.

4.3 Preliminary Feasibility

4.3.1 Rough Cost Analysis

Table 4.3.1: Rough Cost and Income Analysis (Units in R)

Land		
Stand 2382, 654 m ²	<u>395,000.00</u>	<u>395,000.00</u>
Municipal Services		
Water	2,400.00	
Electrical	<u>250.00</u>	<u>2,650.00</u>
Professional		
Architect	17,837.00	
Quantity Surveyor	0.00	
Land Surveyor	1,368.00	
Civil Engineering	3,500.00	
Building Plan Approval Bondev	1,000.00	
Plan Approval Municipality	<u>2,063.65</u>	<u>25,768.65</u>
Attorney		
Registration & transport documents	5,100.00	
Tax	714.00	
Deeds office	340.00	
Property tax	8,331.16	
Levies	2,637.80	
Electrical Levies	554.20	
Sundries	390.00	
Tax	54.00	
FICA	350.00	
Tax	<u>49.00</u>	<u>18,520.76</u>
Construction		
Site Cleaning	354.00	
Site Establishment	925.00	
Building deposit	<u>3,000.00</u>	<u>4,279.00</u>
NHBRC		
Stand 2382	11,633.32	
Geotechnical	513.00	
Facilitator	<u>850.00</u>	<u>12,996.32</u>

Monthly Expenditures		
Site rate per month	660.00	
Levi per month (electrical)	160.00	
Electrical usage	<u>400.00</u>	<u>1,220.00</u>
Total Cost of Stand		460,434.73

A rough cost analysis has been done in the table above. Factors such as construction cost, contractor's fees, finishing cost, land cost, local authority fees etc. have been considered. A total amount of R 460,434.73 has been incurred at this point in time. All of the above costs are initial costs that have been spent on the preparation of the land. At this point in time no income is generated.

The project is physically feasible due to E.T Construction's previous successful projects in Midrand Estate. E.T Construction possesses the necessary expertise to successfully execute this project in terms of the physical construction of this project. Similar design and implementation strategies will be followed to ensure that there are no violations of the HOA act.
(Refer to appendix A for details)

4.4 Gain Control of Site

The developer needs to gain control of the land. E.T Construction has already bought the five stands in Midlands Estate and therefore has full control over the land. To reduce the risks involved only one of the five stands will be developed. By implementing this strategy E.T Construction will determine if they are fulfilling the required market needs and if Midlands Estate is a successful extension of the Midrand Estate development.

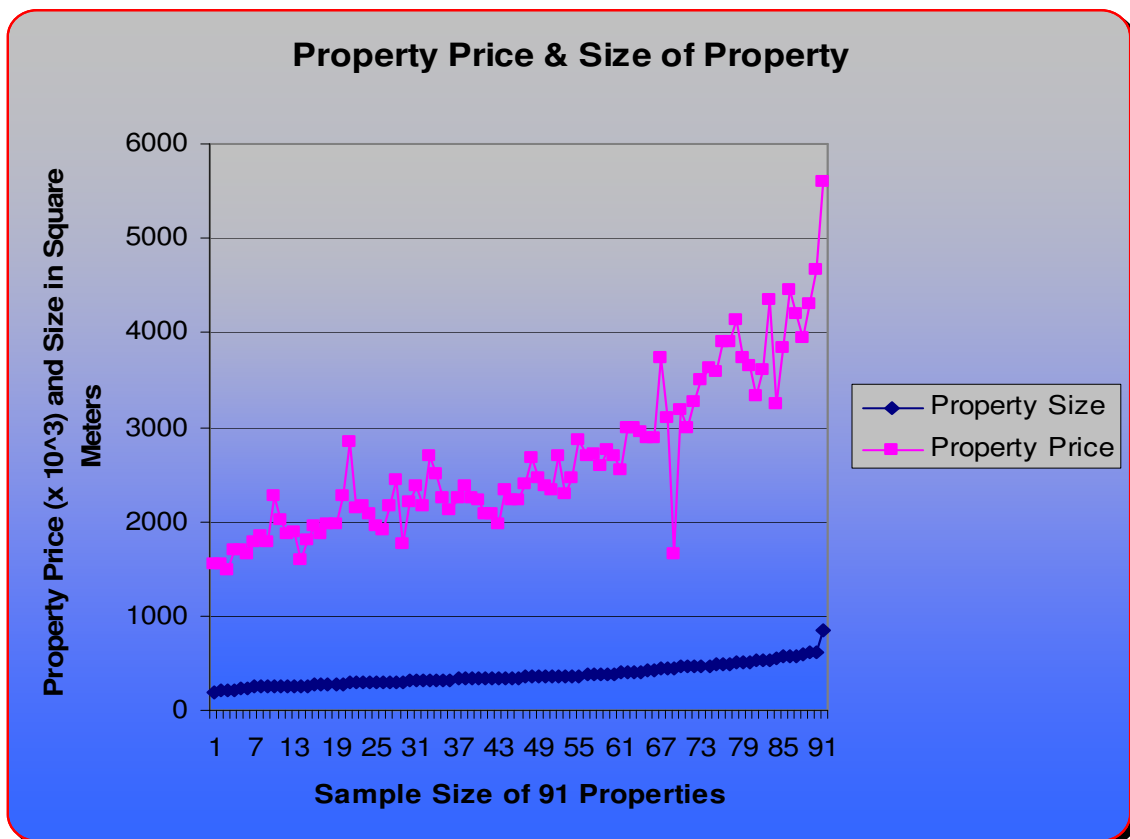
4.5 Feasibility Analysis

4.5.1 Market Research

Market Research had to be conducted to determine the average property price and size in Midrand Estate. It was of utmost importance to determine the average selling price of the properties in Midrand Estate. Midteam is one of the top Estate Agent companies whom sell properties in Midrand Estate. Data on ninety one properties were collected and then analyzed.

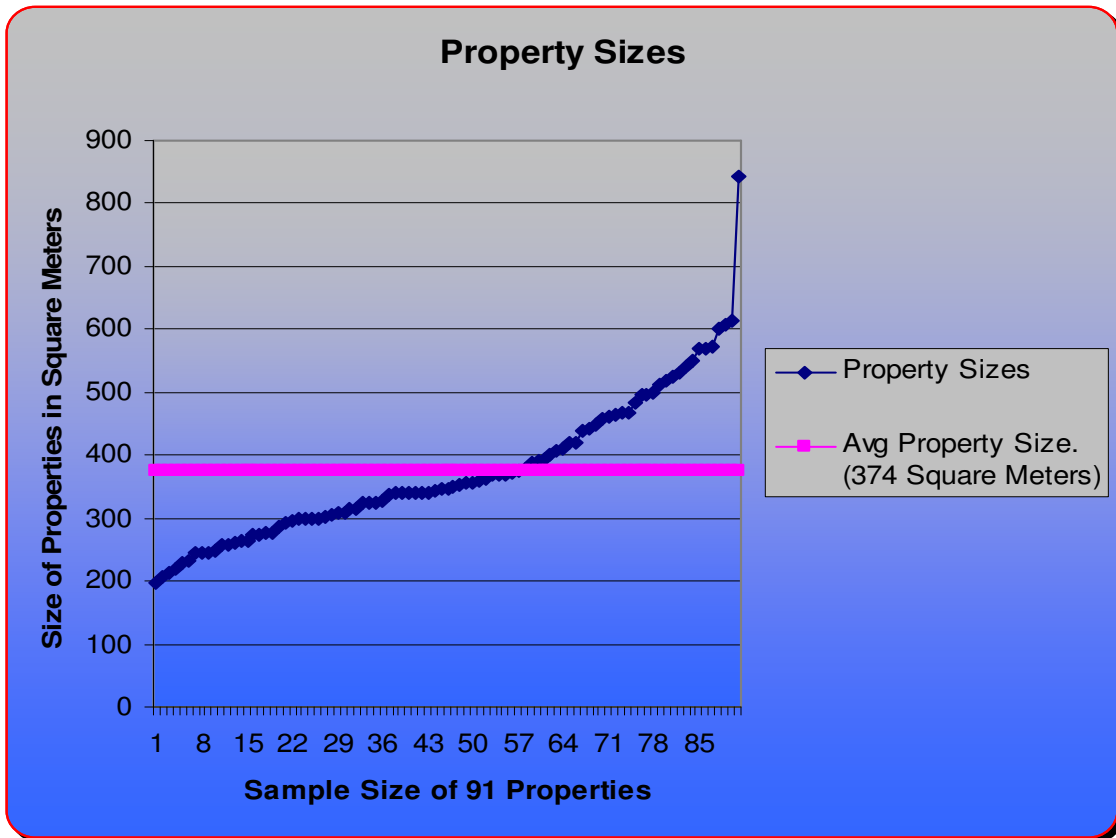
The First Graph clearly illustrates that the price range and sizes of the properties vary extensively. The range varies between R 1,458,000.00 and R 5,590,000.00. It also shows that there are a direct correlation between property size and price which is expected for residential property developments. The range of the sizes varies between the smallest which is 197 m² and the largest which is 842 m².

Graph 1:



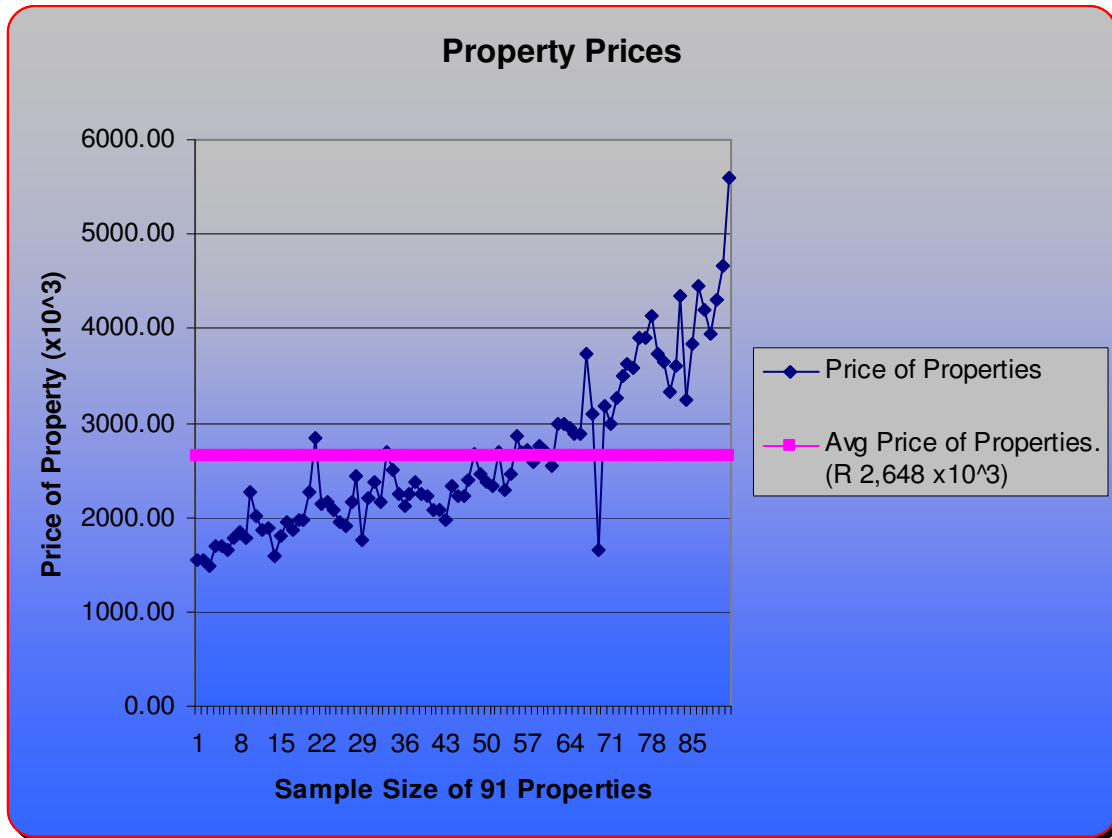
With the second graph, the variation in sizes of the properties is more clearly indicated. The average size of the properties is indicated on the graph which is 374 m².

Graph 2:



The third graph clearly indicates the variation in property prices. The average price of the properties is also plotted which is R 2,648,000.00.

Graph 3:

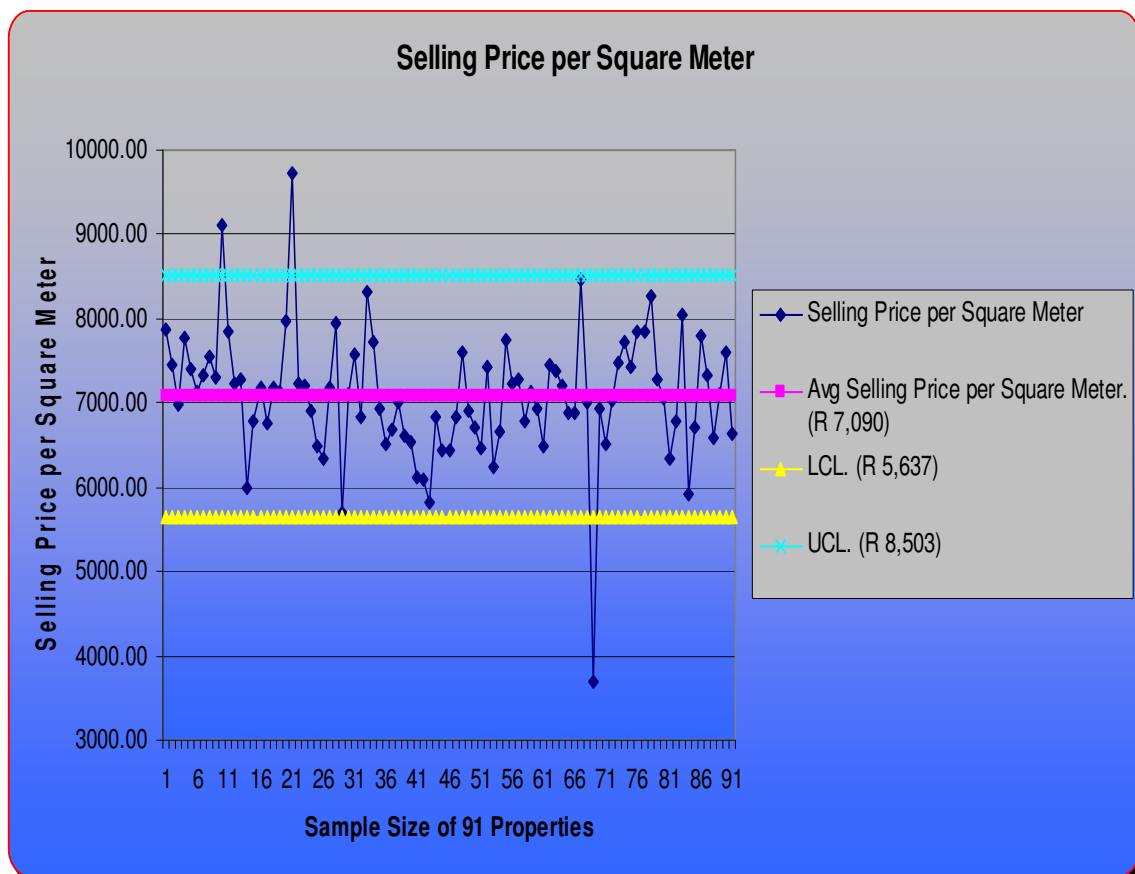


A Count Chart was set up to analyze the average selling prices of the properties. Upper and lower Control Limits were determined to examine causes of variation.

The selling prices per square meter were calculated for each of the 91 samples. These prices vary extensively with the lowest price at R 3,688.00 per square meter and the highest at R 9,726.00. These selling prices per square meter were then used to calculate the average selling price per square meter. This average selling price per square meter will serve as a benchmark figure in determining the prices for which E.T Construction can sell their properties.

The first Chart clearly indicates that there are three out of control data points. The data points above the Upper Control Limit represent the particular properties that were sold for R 9,726.00 and R 9,112.00 per square meter respectively, which is way above the average selling price for a property in Midrand Estate. This high selling price might be due to expensive finishing or that the seller's profit margin is too high. The data point below the Lower Control Limit represents the property that was sold for R 3,688.00 per square meter. This low selling price might be due to cheap finishing, a lower than average profit margin, incompleteness of the project or even bankruptcy.

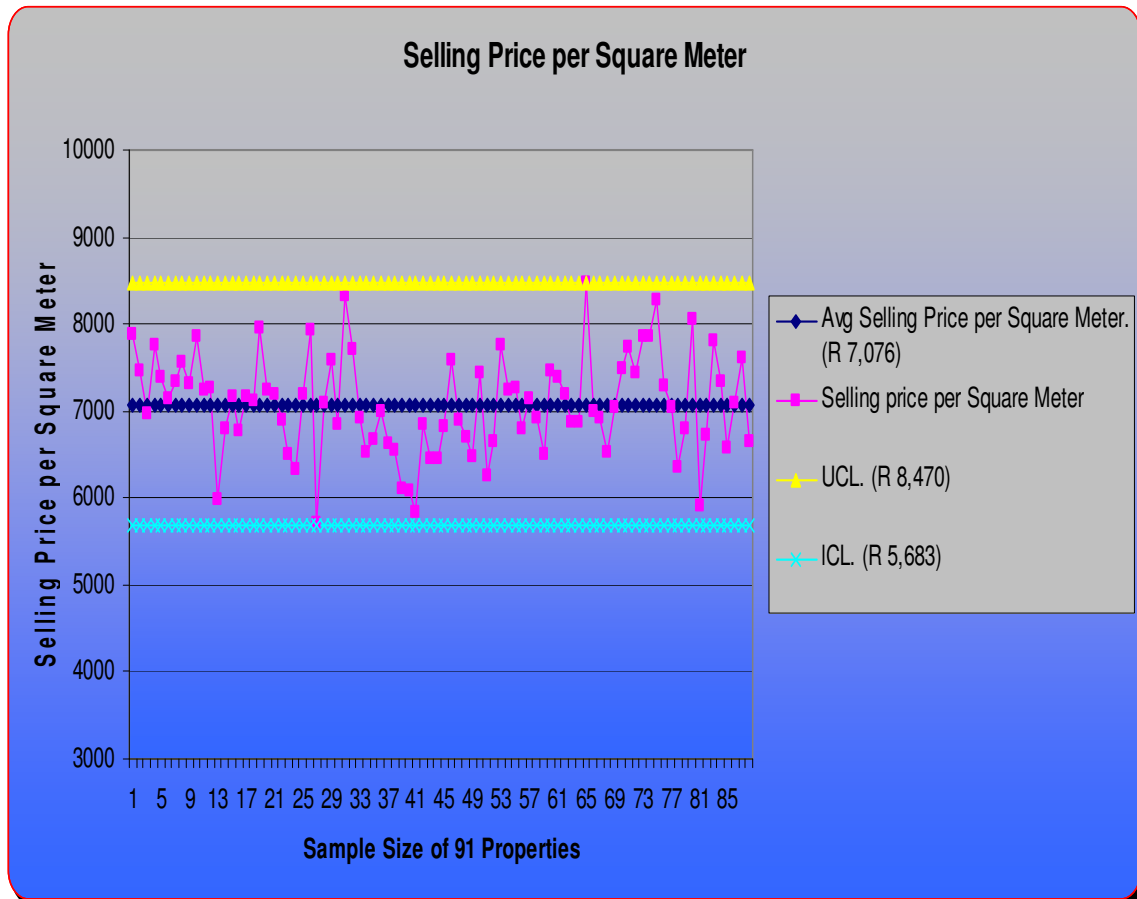
Chart 1:



These three out of control data points were then removed from the data set to eliminate inequalities and to generate more accurate outputs.

Chart 2 indicates the new average selling price of R 7,076.00 per square meter and the new range of selling prices between R 5,683.00 and R 8,470.00 per square meter.

Chart 2:



Thus the developer should sell for no less than R 5,683.00 and no higher than R 8,470.00 per square meter. The developer should sell a property in Midrand Estate for the recommended approximate average selling price of R 7,076.00 per square meter.

4.5.2 Detailed Cost Analysis on Stand 2382

As mentioned before, only one of the five Stands will be developed in late 2008. Therefore the preliminary feasibility and the detailed cost analysis will only be implemented on the project on Stand 2382. The four other properties are almost identical and therefore the costs can be forecasted to ensure maximum profitability.

Andre Naude from Arch-Studio in Garsfontein is a qualified Architect and is registered at Midrand Estate as a Professional Senior Architectural Technologist, which is one of the requirements for a residential design stipulated by the Home Owners Association of Midrand Estate.

Arch-Studio analyzed and evaluated E.T Constructions design requirements and needs and developed conceptual drawings with all of these requirements fully integrated into the design. (Refer to Appendix B for Conceptual Plans) These drawings were approved by the Aesthetical Committee of Midrand Estate and by the Project Engineer J.G Claasen.

After the Conceptual Drawings have been approved a detailed cost analysis of the project had to be conducted to determine the feasibility of the project and if the outcome of the feasibility study complied with all of the developer's objectives. The Conceptual Drawings was analyzed to determine the Bill of Quantities. Bill of Quantities were drawn up, specified and prepared in advance to take into account the works required for the project. After the Bill of Quantities were determined the detailed cost analysis were set up. Profit and cash flow analysis also had to be determined to analyze feasibility.

4.5.2.1 Bill of Quantities

The Bill of Quantities were set up by analyzing the Conceptual Plans and implementing quantity surveying techniques. Some of the quantities were determined by quotations of Sub - Contractors and by consulting with E.T Construction.

Table: 4.5.2.1 Bill of Quantities

<u>Item</u>	<u>Units</u>	<u>Quantity</u>
<u>Bricks</u> Stocks Bricklayer Perimeter Walls	Item m ² Lin m	95 000 310 120
<u>Cement</u> Cement	Bags	850
<u>Ready Mix Concrete</u> Foundation Floor Retaining Walls First Floor Slab Stair Column / Beam	m ³ m ³ m ³ m ² Item Item	10 17 10 122.08 1 1 See appendix C for Details
<u>Sand</u> Building Plaster River Filling	m ³ m ³ m ³ m ²	85 50 30 50
<u>Roof</u> Roof Trusses Roof Tiles	m ² m ²	138 138 See Appendix D for Details
<u>Ceiling</u> Ceiling Cornice	m ² Lin m	138 256 See Appendix E for Details
<u>Waterproofing</u> Balcony DPC (40 m rolls)	m ² item	19 5

<u>Item</u>	<u>Units</u>	<u>Quantity</u>
<u>Windows</u>		
PTT 1515	Item	5
PT 129	Item	1
PT 99	Item	7
PT 69	Item	2
Fixed	Item	2
Folding Doors	Item	2
		See Appendix F for Details
Mirrors	Item	3
<u>Preparation</u>		
Site Hut	Item	1
Site Toilet	Item	1
<u>Earthworks Equipment</u>		
Tlb	hr	5
<u>Tiles</u>		
Floor Tiles	m ²	210
Walls	m ²	145
Mosaics	Sheets	44
Stair	Lin m	20
<u>Carpets</u>		
Carpets	m ²	50
<u>Sanitary</u>		
Taps	Item	15
Pressure valves	Item	1
Shower Doors	Item	4
Towel Rails	Item	4
Towel Rings	Item	4
Toilet Roll Holders	Item	4
Soap Dishes	Item	6
<u>Electrician</u>		
Distribution Box	Item	1
Sub Supply	Item	1
Ripple Box	Item	1
Cable	Item	15
Light Points	Item	35
Single Plug Points	Item	23
Double Plug Points	Item	2

<u>Item</u>	<u>Units</u>	<u>Quantity</u>
Geyser Points	Item	1
Stove/Oven Supply Point	Item	1
Television Point	Item	6
Telephone Point	Item	2
Two Way Switch	Item	2
Cable Joint	Item	1
Extractor Point	Item	1
Internal Light Fittings	Item	30
External Light Fittings	Item	5
Oven	Item	1
		See Appendix G for Details
<u>Balustrades</u>		
Inside	Lin m	5
Outside	Lin m	12
<u>Kitchen</u>		
Kitchen	Item	1
		See Appendix H for Details
<u>Painting</u>		
Walls (Internal & External)	m ²	310
Garden Walls	Lin m	120
<u>Paving</u>		
Outside & Driveway	m ²	217
<u>Small Plant Hire</u>		
Grinder	Days	1
Whacker	Days	2
<u>Steel</u>		
Reinforce Steel Y12	6m	114
Mesh	Sheets	14
Strips R08	Item	158
<u>Plumbing</u>		
Baths	Item	2
Basin	Item	4
WC	Item	4
Shower	Item	4
Geyser	Item	1
Sink	Item	1

<u>Item</u>	<u>Units</u>	<u>Quantity</u>
Drains	m	35
Gulley	Item	1
Rodding Eye	Item	5
Vents	Item	2
Prep Bowl	Item	1
Flashing	Item	2
Water Pipe	Lin m	67
Outside Taps	Item	3
Masterflow	Item	2
Waste	Item	2
		See Appendix I for Details
<u>Carpentry</u>		
Skirtings	Lin m	40
Curtain Track	Lin m	30
<u>Sundries</u>		
Brickforce	20 m rolls	60
Brushes	Item	8
Roofwire	Rolls	9
Plasterkey	5L	3
Lintols 0.9	m	2
Lintols 1.2	m	6
Lintols 1.5	m	2
Lintols 1.5	m	4
Lintols 2.1	m	2
Lintols 2.4	m	8
Lintols 3.0	m	5
Lintols 3.6	m	2
Lintols 4.2	m	4
Lintols 5.4	m	6
Lentols 6.0	m	2
<u>Plastering</u>		
Walls	Lin m	114
Screeds	m ²	310
Ceilings (Rhinolite)	m ²	103
<u>Doors & Frames</u>		
813 Frames	Item	11
813 Stable	Item	1
Front Door	Item	1
Fire Door	Item	1

<u>Item</u>	<u>Units</u>	<u>Quantity</u>
<u>Site Cleaning</u> Rubble Removal	m ³	50
<u>Sundries</u> Weather Bars	Item	2
<u>Garage Door</u> Happy Door	Item	1
<u>Locksets</u> 4 Lever 2 Lever Front Door Lock	Item Item Item	2 11 1
<u>Cupboards</u> Main Bedroom Bedroom 2 Bedroom 3 Linen Servants Bedroom	Lin m Lin m Lin m Lin m Lin m	3.8 2.5 1.7 1.8 1
<u>Vanities</u> Main Bathroom Second Bathroom	Lin m Lin m	1.7 1
<u>Steelwork</u> Yard Gates Washlines	Item Item	3 1
<u>Braai</u> Homefires (1m)	Item	1

This Bill of Quantities can be used as a reference by any developer for the process of developing residential properties. Although the developer must have extensive knowledge in analyzing the Conceptual plans, this list will still contribute a great deal of insight to the developer. It is also possible for the developer to use the expertise of a Quantity Surveyor for greater projects.

4.5.2.2 Detailed Budget of Materials and Labour

The methods for estimating, which was used in the early stages of the cost planning process, depended on reliable historical cost data and an analytical approach which was based on applying current prices for resources to a well – developed design. Quotations were also used as a guide in the detailed cost analysis.

There are mainly two benefits of cost planning:

- To ensure tenders received do not exceed the budget. This implies that early design decisions will be made. Changes made early in the design phase will prevent budget overruns and will minimize costs.
- It reduces risks involved in the developing process and it improves the quality of cost data for future projects.

It is of utmost importance to realize that final construction costs may vary from the forecast, for many reasons namely:

- The extent of the project may be difficult to predict.
- The effects of competition in the markets.
- The amount and quality of historical data available.
- The amount of design information available.
- The performance of the contractors.
- The nature of the workplace in terms of weather, resource prices etc.
- The estimator's skill and method used.

The detailed Budget of Material and Labour for the new development on stand 2382 follows.

4.5.3 Profitability Analysis

4.5.3.1 Cost - Price Analysis

The Cost – Price per square meter had to be determined in order to estimate the total cost of the project. The Cost – Price per square meter also serves as the basis in determining profitability. Bondev developments also express the suggested building and selling prices in terms of Cost – Price per square meter. The total cost of the project on stand 2382 was determined by adding the total cost of the stand in section 4.3.1 to the total material and labour costs in section 4.5.2.2. The Cost – Price per square meter were then determined by dividing the Total Cost of the project by the overall size in square meters of the residence.

Total Cost of Stand (Section 4.3.1):	R 460,434.73
Total Material and Labour Costs (Section 4.5.2.2):	R <u>1,072,989.34</u>
Total Cost of Project (30% Tax inclusive):	R 1,533,424.07

Total Developed Residence: 309.33 m²

Thus the Cost - Price per Square Meter: **R 4,957.24**

A developer should be able to develop a luxury residential property in Midrand Estate for the Cost – Price of R 4,957.24 per square meter.

4.5.3.2 Profit Margin Analysis (Excluding Estate Agent Commission)

E.T Construction has been working on a profit margin of 30% for the past five years. The Profit Margin per square meter is determined by multiplying the Cost Price per square meter with 30%. The Selling Price is then determined by adding the Profit Margin per square meter to the Cost – Price per square meter. Once the Selling Price per square meter has been determined it is possible to determine the Total Selling Price of the project by multiplying the Selling Price per square meter with the Total Developed Residence in square meters. This will give the developer an estimated Selling Price of the property. The Total profit that the developer will make can be determined by subtracting the Total Cost of the Project from the Selling Price of the Property.

Profit Margin per Square Meter:	R 1,487.17
Selling Price per Square Meter:	R 6,444.41
Selling Price of Property:	R 1,993,449.34
Total Profit:	R 460,025.27

A developer should be able to make a profit of 30% on a luxury residential property development. In this case the property should sell at a price of R 1,993,449.34 excluding Estate Agent commission. The Estate Agent's commission is usually stipulated by means of a contract or determined by the developer and can be added or subtracted from the Selling Price depending on the developer. A margin of 5 – 10% of the Selling Price is suggested.

Profit Margin of Estate Agent per Square Meter: **R 644.44**
(10% of Selling Price per Square Meter)

Thus the Total Selling Price per Square Meter: **R 7,088.85**
(Including Estate Agent Commission)

4.5.3.3 Profit Correlation

- According to the Market Research in section 4.5.1, the recommended selling price per square meter is between R 5,683.00 and R 8,470.00.
- According to the Market Research in section 4.5.1 the average selling price is R 7,076.00 per square meter.
- E.T Construction has been selling similar luxury residences in Midrand Estate at a price of R 7,000.00 per square meter for the past five years.
- Bondev Developments suggests a selling price of R 7,500.00 per square meter for the year 2008.

All of the above states that the Selling Price of R 7,088.85 calculated in section 4.5.3.2 is a true and feasible estimate of the property on stand 2382. The calculated Selling Price can now be used to estimate the Total Project Cost and Profit consisting of the five luxury residential properties in Midlands Estate. It is of utmost importance to note that these figures are determined at current rates and that it might change due to interest rates, inflation and economic times.

4.5.3.4 Total Cost and Profit

By multiplying the Cost – Price per square meter with the area in square meters of each of the five properties the estimated building and selling prices were determined per property. A total income and cost analysis were conducted by adding all the Total Profits per Stand together and all the Total Cost per Property together to verify the feasibility of the development.

Note that these costs are only estimates and might change due to inflation, interest rates, building costs etc. These calculations exclude Estate Agent commission. The Estate Agent commission will have no significant impact on the profit made by the developer as the 10% commission is added to the Selling Price.

Stand 2382 (309.33 m²):

Total Cost of Property (30% Tax inclusive):	R 1,533,424.07
Selling Price:	R 1,993,449.34
Total Profit:	R 460,025.27

Stand 2328 (273.25 m²):

Total Cost of Property (30% Tax inclusive):	R 1,354,565.83
Selling Price:	R 1,760,935.03
Total Profit:	R 406,369.20

Stand 2329 (267.50 m²):

Total Cost of Property (30% Tax inclusive):	R 1,326,061.70
Selling Price:	R 1,723,879.67
Total Profit:	R 397,817.97

Stand 2327 (275.50 m²):

Total Cost of Property (30% Tax inclusive):	R 1,365,719.62
Selling Price:	R 1,775,434.95
Total Profit:	R 409,715.33

Stand 2383 (344.50 m²):

Total Cost of Property (30% Tax inclusive):	R 1,707,769.18
Selling Price:	R 2,220,099.24
Total Profit:	R 512,330.06

The Total Estimated Cost of the Development:	R 7,287,540.37
The Total Estimated Profit of the Development:	R 2,186,257.83

From the figures above it is clear that this development will generate a relatively large income given that the costs incurred during the execution of this project are

relatively high. E.T Construction should generate a 30% profit given that all relevant influential external and internal factors stay constant during the lifespan of this development.

4.6 Contract Negotiations

As mentioned in previous sections E.T Construction has already acquired the land on which the five residential properties will be developed. A Transfer and Offer to Purchase Contract were set up by Tim Du Toit attorneys which stipulates all relevant legal information such as transfer dates, proclamation dates, services and approval of township, place of payment, possession and occupation, sellers rights outstanding balances and necessary agreements just to name a few. This contract protects the seller and the buyer of the land. (Refer to Appendix J for details)

The National Home Builders Registration Council also issues a Residential Unit Enrolment Certificate to the developer which entitles the housing consumer to apply to the NHBRC fund for assistance to rectify any major structural defects in certain circumstances as laid down by section 17 of the act. (Refer to Appendix K for details)

E.T Construction award contracts to contractors on a one – to – one basis. E.T Construction has their own permanently employed site managers whom will manage the construction processes.

All contractors must sign E.T Constructions Agreement Contract. This Contract stipulates all necessary legal obligations that all contractors must comply to. This Contract protects all legal rights of both parties involved. Once these Contracts have been signed E.T Construction is committed to the project. (Refer to appendix L for details)

There are a number of registration forms for contractors, architects, domestic and garden workers, estate agents, etc. All relevant parties must be registered to comply with all the rules and regulations that must be adhered to as prescribed by the Home Owners Association Act of Midrand. (Refer to Appendix M for details)

4.7 Financing Options

4.7.1 Option 1: ABSA Development Bond

ABSA Bank is willing to provide E.T Construction with a Development Bond for the services and development of four of the five properties. The terms are as follows:

- The first stand must be paid in full and must be registered in the name of E.T Construction. E.T Construction has already bought all of the stands and stand 2382 is already registered in the name of E.T Construction.
- An interest rate of prime plus two percent is offered by ABSA Bank.
- E.T Construction must sell at least 60% of the project beforehand.
- A once of facility fee of R 57,800.00 must be paid in advance.
- All Risk Building insurance must be in place at an additional cost of R 30,000.00.
- The development must be completed within the given timeframe of six months.

Cost – Price of Development: (Calculated in Section 4.5.3.4) Interest Rate of 17% annually 6 Month Period	R 7,287,540.37
Bond Payment per Month:	R 1,275,519.38
Total Bond Payment:	R 7,653,116.29
Total Financing Costs: (Interest Paid over 6 Months)	R 365,575.92
Facility fee and Risk Building Insurance per Stand:	R 17,560.00
Total Financing Cost per Property:	R 90,675.18

A cost of R 90,675.18 per property will be incurred and therefore the profit will decrease dramatically. Minimal Working Capital is required and a high production tempo can be maintained since capital availability is not a factor.

The following two options acts only as examples to illustrate what the impact on costs incurred would have been. E.T Construction has already bought the five stands with their working capital.

4.7.2 Option 2: Own Financing

The development will have to be divided into different phases. A bond on one stand can be registered in the companies name but is required to be paid in full, before the first property can be registered in the new owner's name.

- A bond on a stand can be obtained at an interest rate of prime minus 1.5%.
- Depending on a company's Working Capital, a development must be divided into phases accordingly.

Cost of Stand:	R 460,434.73
Interest Rate of 13.5% (Prime minus 1.5%) 3 Month Period	
Bond Payment per Month:	R 156,944.38
Total Bond Payment:	R 470,833.14
Total Financing Cost per property: (Interest Paid over 3 Months)	R 10,398.41

Although financing costs are minimized at a cost of R 10,398.41 per property, a high working capital is required by the developer. Financial risks are high due to high input costs. Therefore developments must be well coordinated to minimize risks.

4.7.3 Option 3: Bond on Land

A bond on one stand and a bond on two of the properties which covers the building costs.

- These Bonds can only be registered on two properties at a time.
- Bonds are registered for total building costs excluding profit.
- Interest rate of prime minus 1.5%

Cost of Stand:	R 460,434.73
Interest Rate of 13.5% (Prime minus 1.5%) 3 Month Period	
Bond Payment per Month:	R 156,944.38
Total Bond Payment:	R 470,833.14
Total Financing Costs: (Interest Paid over 3 Months)	R 10,398.41

Building Cost of Two Properties:	R 2,020,826.07
Interest Rate of 13.5% 3 Month Period	
Bond Payment per Month:	R 688,821.40
Total Bond Payment:	R 2,066,464.20
Total Financing Costs: (Interest Paid over 3 Months)	R 45,638.13

Total Financing Costs:	R 56,036.54
Total Financing Cost per Property:	R 28,018.27

A total financing cost of R 28,018.27 per property will be incurred. Only Bonds on two properties at any given time can be registered and therefore accurate coordination of a development is required. This financing option can influence production dramatically.

These financing options act just as expected. The more financing a company undertake, the higher the interest payable. In contrast profit will decrease accordingly. However a tradeoff exists between risk and the amount of financing to undertake. Developers must determine the best form of financing before a project is executed.

4.8 Construction

Construction planning is generally concerned with completing a contract in the shortest possible time compatible with economy, and quality. Prior consideration must be given to the plan of campaign so that the client can be given the intended completion or hand – over dates, and suppliers and sub – contractors may be notified when their goods or services will be required. Moreover the developer himself must know what his future commitments will be for staff, labour and plant. It is of the greatest importance that an adequate period, before starting site operation, is made available for the proper planning of equipments and methods, ordering of materials, and preparation of a balanced programme. Obviously the time necessary will vary with the size and nature of the project, but this essential preliminary can effect the whole course of the job.

4.8.1 Flow of Construction Activities (Gantt Chart)

The Gantt chart system of presenting a programme had been introduced to the manufacturing industry some fifty years before the construction industry adopted it as their original method of programming

A Gantt chart was set up in order to assist E.T Construction in the planning and controlling of the project. Another function of the chart was to assist E.T Construction to bring logical sequence in the described activities necessary to complete the project.

A Gantt chart also assists in indicating milestones, events or activities in a time order. E. T Construction has never before made use of this technique and therefore the integration of Gantt charts will add great value in the flow of the processes for future developments of E.T Construction.

The suggested Chart follows which clearly indicates the flow of activities during the lifecycle of the project. The chart was only implemented on the first property that E.T Construction is developing.

5. Conclusion

Given that the property development industry is one of the major leading industries in the world today, it is surprising how limited the availability of relevant property development text and expertise are.

This Study, called Residential Property Development: A Framework for Successful Developments, contributes to the lack of available text in three ways. The first contribution is the literature review that culminates substantial property development information into a single document. The second contribution is the property development framework for developers, which defines the crucial routes to developing successful property developments. The third contribution is the empirical study which illustrates the structured and sequential process of property development on a project of a property development company, E.T Construction.

This Study consists of various techniques which serve as a road map, action plan and tool for the successful development of a residential property and will ensure that all relevant aspects and alternatives are covered during the process of property development.

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