

# **A Literature Review On The Impact of Municipal Density-related Strategies on the Feasibility of Real Estate Developments**

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## **Abstract**

This paper is a literature review on the importance and impact of municipal density-related strategies on real estate developments. Developers focus on maximizing profit. Therefore a feasibility should be conducted and the profitability assessed. Municipalities have an influence on the development opportunities as urban spacial planning and land use management indicates the density permitted. The density of developments in turn affects the feasibility of developments in some way, whether through delays, extended timeframes or policy amendments. Further research will follow, analysing the feasibility of development projects, testing the impact of various densities for each project.

## **Keywords**

Density, feasibility, property development, municipal strategies, risk

## **1. Introduction**

Density determines the coverage that may be constructed on a specific site. In order to determine whether density-policy change is considered a significant and determinable risk in the feasibility of residential developments, it is important to grasp the background of property development, understand at which point it is a risk in the property development process and understand how a change in density can affect the feasibility of a residential development.

### **1.1 Property development background**

Phyrr et al. (1989) noted that property development is a process aimed at increasing the value of an existing property, either developed or undeveloped, through the application of resources such as material resources, human resources and capital resources.

Collier noted that “most development occurs because of the potential for added value to be obtained from the process but the risks are still high and often factors which are outside the control of developers can spell disaster” (Collier, 1995).

Ratcliffe et al. (2009) described the property development industry as both complex and diverse. The complexity of the property development industry originates from the multitude of agencies (i.e. public versus private, large versus small) that undertake development as various legal entities. The diversity of the development industry results from the multitude of businesses across a wide range of sectors with varying development objectives.

Ratcliffe et al. (2009) also noted that the property development industry is risky, cyclical, highly regulated and lengthy in production and acknowledged that the increasing intricacy of the property development industry “has led to the need for a deeper understanding of public policy, the real estate development process, physical planning, municipal

regulation, market research, the legal framework, site appraisal, economic evaluation, financial arrangements, contractual procedures, building design, construction techniques and marketing strategy dimensions of a development scheme, together with a much more professional approach towards the management of projects in terms of time, quality, cost and asset value” (Ratcliffe, et al., 2009).

The nature of development is such that it entails varying degrees of risk, influenced by numerous factors, including inter alia the scale of a development, the availability of resources, the developer’s objectives, etc. Measures can be put in place at specific phases in the development process to mitigate the risks to some extent.

Huxham (2010) reiterates the viewpoint of Pisani and Pisani (1989) that developers seek to create wealth, which, if not great enough for a particular development, will not be pursued by the developer. Therefore, a developer will strive towards a development with the type, quality and quantity of space on a site that maximises profits. Developers understand that the value of a completed development is determined by the potential rental income, which is a function of the condition of property rental markets. The developer, therefore compares the costs and returns of various development alternatives in order to choose the most profitable development option (Pisani & Pisani, 1989).

## 1.2 Property development process

Ratcliffe et al. (2009) assert that the development process is not a single sequential process, but a set of interrelated processes. Further, although a set of stages in the development process can be identified and reflected as a flowchart, it does not mean that the steps are necessarily concurrent. In order to be successful, a developer must maintain an overall perspective of the entire process in order to modify the aspects of the development in response to changes and continually negotiate with other participants in the development process.

Pisani and Pisani (1989) noted that, at each step of the development process, the developers must decide whether to continue with the development and that each step is not carried out in isolation of the other steps. It is important for developers to make current decisions, not only for the immediate next step, but also based on the implications of these decisions on the following phases of the development.

Whilst acknowledging that various participants of the development process could delineate the sequence of the steps differently and that the process is not linear, Miles et al. (2007) identified eight stages in the development process:

- inception of an idea
- refinement of the idea
- testing the feasibility
- negotiation of the necessary contracts
- making formal commitments
- construction of the project
- completion and formal opening
- property, asset and portfolio management

Cadman and Topping (1995) also noted that the stages of development do not always follow the exact sequence and often overlap. They identified eight main stages: initiation, evaluation, acquisition, design and costing, permissions, commitment, implementation and letting/management/disposal.

Huxham (2010) cites Birrell and Shi Bin (1997), who identified fourteen phases or activities in the development process and noted that the phases have “sequential relationships, different levels of importance and different permutations of work in each phase such as a) Quality thinking, b) Consuming duration and c) Spending capital”. The phases include opportunity/site identification, market analysis, site investigation, feasibility study, professional appointments, financing stage, planning application, site assembly/purchase, design, tendering/contracting, construction, marketing, letting and sale. Birrell and Gao (1997, cited by Fisher 2005) cited ‘letting’, ‘market analysis’, ‘feasibility survey’, ‘design’ and ‘opportunity/ site selection’ as the top five most important phases identified by developers.

Fisher (2005) noted that the problem with a sequenced approach, is that it implies a speculative developer-centre approach, whilst the process should be iterative. Fisher (2005) uses the example of ‘planning’ which is posed as a developer’s hurdle, rather than a legitimate, independent force.

It is evident that the development process entails a number of steps/phases, which sequence, relevance and importance could differ, dependent on a particular development, the characteristics of the property and the market conditions. The development process is not a linear process, but an iterative process, which involves adaptation.

A broad, compacted version of the development process can therefore be identified as:

The pre-development phase – often considered the phase with the longest duration, carrying the greatest and most varied risks, which includes market analysis, feasibility studies, land acquisition or securing option rights to acquire the land, surveying, aligning property zoning and acquiring permits, construction design, cost analysis and redesigns. Construction/development phase – often considered the costliest phase, which should be closely monitored to ensure that regulations are being followed, development is on schedule and budgets are kept to.

Post-development phase – the sale or lease of the development, including ongoing marketing and property management

Sobieraj (2017) stated that most project management methodologies focus on the implementation phase, whilst overlooking the important pre-investment phase, which is fundamental for the design of a successful housing development. The elaboration and adoption of the spatial development conditions and local spatial development plans is important in this phase, especially with the knowledge that realisation of the pre-investment phase is relatively less expensive compared to the other development phases, such as the implementation phase. Sobieraj (2017) contends that it is possible to abandon a development during the pre-investment phase should the risks for the developer be too high (i.e. if the financial capacity of the developer is exceeded or the development is not economically substantiated).

### 1.3 Property development risks and risk management

Manaf et al. (2006) stated that the development process is susceptible to a number of risks at the various stages of development and it is important to manage the risks prior to their occurrence. The identification, analysis and management of risks through appropriate actions is important for the success of any development. Risk management, according to Manaf et al. (2006), “is the process of measuring or assessing risks and then developing strategies to manage them”.

Two factors can play a role in the risk of a development and could alter the steepness of the risk curve (figure 1):

The project type – a “build-to suit” (BTS) development, with secured tenants, carries a much lower risk than a speculative development.

The stage of the development process - as each step in a development project is finalised, overall project risk incrementally abates

Based on their ‘Eight Stages of Development’, Miles et al. (2007) developed a comprehensive property development

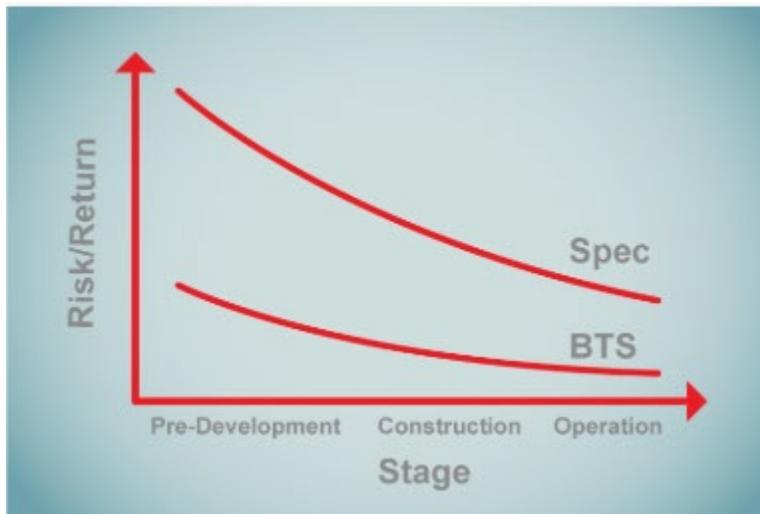


Figure 1: Risk curve across the project cycle (Formigle, 2016)

risk management technique according to the most likely stages where risks could occur and proposed actions that could be taken:

Avoidance of risk by stopping in stages one, two or three before considerable money is committed

Completion of a more substantial study in stage three so as to improve knowledge of possibilities

Employment of some form of 'loss prevention', such as the appointment of a competent development team in stages four and five

Transferring of potential loss to other role-players through the contracts negotiated in stage four

Combine and diversify in order to reduce the impact of large losses through the purchase of insurance for stages six, seven and eight.

Even after employing the aforementioned risk management strategies, the developer must assume some level of residual risk

Newell and Steglick (2006) noted that the majority of development studies focus on measuring property development risk, rather than prioritising significant risk elements in the property development process. In their study, the importance of key risk factors was assessed by identifying key risk factors in five chronological phases of the property development process (i.e. preconstruction stage, contract negotiation stage, formal commitment stage, construction stage and post-construction stage). The most significant risk factors are reflected in Table 1. The pre-construction, contract negotiation and construction stages were considered to be the riskiest stages of development based on the risk schedule.

Table 1: Top 10 property development risk factors

<b>Risk factor</b>	<b>Average risk rating</b>
1st : Environmental risk	4.25
2nd : Time delay risk	4.14
3rd : Land cost risk	3.88
4th : Acquisition terms risk	3.75
5th : Approvals risk	3.63
5th : Cost increases risk	3.63
7th : Political risk	3.50
7th : Experience risk	3.50
7th : Engineering risk	3.50
10th : Market risk	3.38
10th : Delivery timing risk	3.38

(Newell & Steglick, 2006)

Newell and Steglick (2006) concluded that of the 84 risk management strategies identified by the developers in their study, the key strategies to mitigate risk throughout the property development process were:

- in-house management of critical processes
- quality assurance procedures
- contractually allocating risk to other parties.

Hargitay and Yu (1993) and Brown and Matysiak (2000) defines risk in the context of property investment as “total risk” which is divided into two main categories, unsystematic (or specific) risk and systematic risk. Unsystematic (or specific) risks are specific to individual projects and the causes and consequences of these risks can be controlled by developers to an extent as they are mostly due to internal factors, whilst systematic risks are risks that affect the entire market and other investment markets that are generally out of the developers control since they are caused by broader economic and political issues.

Similarly, P2P Residential Limited (2018), a London-based property development and investment firm, also divides the risks into systematic and unsystematic risks and lists the following risks that should be identified, assessed, controlled and mitigated in property development:

In order to understand the impact of density changes on a real estate development, the components of the financial feasibility (i.e. total capital outlay, gross income, operating expenses and the vacancy factor) and the factors that affect these components must be understood. Should a market analysis reflect that an increased number of dwelling units will be absorbed by the market, the gross income can be increased by increasing the number of dwelling units, which consequently reduces a component of the total capital outlay (i.e. the land cost) by reducing the land cost per dwelling unit or square metres. However, an increase in density is usually associated with an increase in height, which would have cost implications in terms of engineering services, services such as lifts and structural requirements. It is therefore important to determine the breaking point with regards to the potential income from additional units and the marginal increased cost of the construction thereof.

It is evident that the product of the development process is a result of the coordinated effort of various professionals. During each phase of the development process, the developer works with officials in the public sector in order to obtain in principle support, approvals, building regulations, infrastructure, etc. Public policy is therefore a key determinant in the feasibility of a development, particularly in the pre-development stage. The amendment of strategic planning documents whilst a development application is being assessed is of particular concern, especially if the developer has proceeded with construction of the development without final approvals in place.

## 2. Conclusion

It can be concluded from the literature study that the amendment of strategic plans, which could include density-related strategies, is considered a valid risk, which is mostly present in the pre-development stage of the development process. Furthermore, the scale and nature of the development will affect the degree at which the amended density will impact the feasibility of a residential development.

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