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Podpis studentky

Analysis of the development plan's potential

Statutory declaration

I hereby declare that the master's thesis entitled "Analysis of development plan's potential" submitted to Czech Technical University in Prague was written by myself under the guidance of Ing. Radan Tomek, MSc. I have stated all the resources used to elaborate this thesis in conformity with the Methodical guide for ethical development of university final thesis.

Prague, 2nd January 2022

Barbora Macková

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Abstract

The thesis focuses on the analysis of the business plan options of an owner of undeveloped land, who is currently in the decision-making phase. This analysis should help the owner to reach the optimal decision that will be the most profitable from the economic point of view.

Term development is theoretically explained along with its types, participants and different phases. The follow-up chapters discuss a due diligence together with the financing options for development projects. Among other things, financial indicators monitored by the bank in case of granting a loan for financing the construction are described. The chapter on methods of valuation of undeveloped land defines the basic concepts of the issue. Administrative, subdivision development and market comparison approach methods are then explained theoretically and applied practically.

The practical output is then a due diligence checklist for the investor, which is generally suitable for use in the decision-making phase when evaluating whether the land property is suitable for the implementation of a given development project. The determination of the objective market value of the land using valuation methods is followed by an analysis of several different scenarios and their financial cash flow. Those tell the owner what are the opportunities for sales and increases of land value.

Key words

Development, due diligence, real estate valuation, land property

Abstrakt

Práce se zaměřuje na analýzu možností obchodního záměru majitele nezastavěných pozemků, který se právě nachází v rozhodovací fázi. Tato analýza by měla majiteli pomoci dospět k optimálnímu rozhodnutí, které pro něho bude z ekonomického hlediska nejvýnosnější.

Teoreticky je vysvětlen pojem development, jeho druhy, účastníci a také jednotlivé fáze developerského projektu. Navazující kapitola se zabývá due diligence společně s možnostmi financování developerských projektů, kde jsou mimo jiné popsány také finanční ukazatele, které sleduje banka v případě poskytnutí úvěru na financování výstavby. V rámci kapitoly metody ocenění nezastavěných pozemků jsou definovány základní pojmy problematiky. Metody ocenění nezastavěného pozemku – administrativní, investorská a porovnávací metoda jsou teoreticky vysvětleny a následně prakticky použity.

Praktickým výstupem je pak due diligence checklist pro investora, který je obecně vhodný pro použití v rozhodovací fázi při vyhodnocování, zda jsou pozemky vhodné pro realizaci daného developerského záměru. Na zjištění objektivní tržní hodnoty pozemků pomocí ocenění jednotlivými metodami navazuje analýza několika různých scénářů a jejich finančního cash flow, které majiteli napovídají, jaké jsou možnosti prodeje a zhodnocení pozemků.

Klíčová slova

Development, due diligence, oceňování nemovitostí, pozemek

List of abbreviations

DD = due diligence

GC = general contractor

LTC = loan to cost ratio

LTV = loan to value ratio

SPV = special purpose vehicle

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1 Introduction

There are many ways in which an owner can use his land. Of course, everything depends on his time and, above all, financial possibilities. The easiest way may seem to sell the land if the owner does not plan to use it for his own purposes. If the landowner possesses require knowhow/expertise and his time and finances allow it, he can increase the value of his asset. The purpose of this paper, beside preparing a land due diligence, is to value the undeveloped land and analyze several different options and then recommend to the owner the most advantageous option based on his overall possibilities / experience / financial resources.

My motivation to write a thesis on this topic comes from the fact that there is an undeveloped land plot of a great value in my hometowns' neighborhood.

The land is owned by one owner who in the past expressed interest in selling individual plots for the construction of houses, but eventually backed out of the sale just before signing the contract. I have already valued this land as part of my term paper in December 2020, when land prices were not yet affected by COVID-19 market situation and therefore the comparison with the time before is very interesting. Further on, I would also like to compare these amounts with the unit price per square meter for which the owner wanted to sell the land in spring 2020.

In the theoretical part, the concept of development and its types in general will be defined together with stakeholders of development project. Afterwards the individual phases of development project will be also described. This will be followed by a chapter about due diligence, as it is an important part of a pre-development phase of a project and its decision whether the land is suitable for a development or not. As the developer also needs to secure relevant funding for the project, chapter on development projects' financing is included. The sources of financing will be divided traditionally according to the origin of the finance, i.e. equity financing and debt financing. At the end of this chapter, important financial indicators for the bank will be described. Last theoretical and very significant chapter will be on describing three methods of valuation of an undeveloped land. In addition to explaining the basic terminology, three methods of valuation of an undeveloped land will be

described - the administrative method, the subdivision development method and the market comparison approach method.

In the practical part, the land property due diligence checklist will be introduced, as it should help the owner to evaluate and give him the best indication whether the land is suitable for the construction of the intended development project. Then the practical valuation of the land will be carried out using the valuation methods mentioned above. And based on the market value of the land and the development plan defined and valued in the subdivision development method, several scenarios will be created and evaluated. Aim of these scenarios will be to find the one with the highest possible maximizing profit for the owner of the asset.

2 Development and development project participants

Several terms need to be explained in order to understand the whole work. The important topic of development runs throughout this work, so it is important to start with it. Therefore, the first part of this chapter will define the term development and development sectors and will also discuss different stakeholders in a development project. In case of this thesis, in relation to the topic of the practical part, it is necessary to mention in particular who is developer, what the term special purpose vehicle means and who can be sponsor of the intended project.

2.1 Development

A development project is usually a business project involving the construction of a property for the purpose of renting or selling, or a project that involves the purchase of an existing property, its refurbishment or modernization and its subsequent renting or sale. Leasing or selling to third parties is a key feature of property development. It is therefore not the case that the entrepreneur builds or renovates a property for his own use or for the use of related parties. [1]

A development project is a journey from the initial idea through its implementation to its final market placement. The most common types of projects are residential developments of single-family homes and apartment buildings or complexes and commercial spaces such as office buildings, shopping centers and logistics.

A number of entities are involved in the project, in particular the developer, i.e. the entity responsible for the overall implementation of the project, the general contractor, i.e. the construction company, as well as architects, designers, financing institutions, lawyers, consultants and project managers.

At the outset, it is important to analyze the benefits and risks taken by the entity. It is important to distinguish between the position of the final investor and the developer. The difference between the two is that the final investor does not want to

take the risks associated with the construction of the project, but only wants to receive a return on his investment, i.e. rent or money from the sale. Most developers develop projects together with a financial investor or a bank. The financial investor is usually in the position of an equity partner, which provides the developer with finance in exchange for a share of the profits from the project. The investor bears the risk of the construction together with the developer, whereas the bank bears only the risk of the collapse of the entire project by providing a loan for interest.

Here are the three most common situations of a developer's approach to a project:

- A developer buys a plot of land or a building, creates a concept, a study and passes the whole project on. Another developer then develops the project and sells it to the end customer.
- The developer buys the land or building, creates a concept, a study, obtains planning permission and all necessary permits, and then passes the project on to another developer, who develops the project and sells the completed project to the end customer.
- The developer carries out the entire project from the initial idea and sells it to the end customer when completed.

The problem today is the lack of land available for purchase by developers. The current owners do not want to sell their land, but they also do not have the resources to carry out the development project. Apart from buying directly from the owner, there are other ways to realize the project. One is a long-term lease of the property, the purchase of a share in the company that owns the property or the establishment of a new company where the property owner contributes his property and the developer contributes his funds and know-how to implement the project. [3]

2.1.1 Development sectors

Real estate development has 8 main sectors. Each of them targets its own customers and has its own financial profiles:

- **Land development**

These are large areas that can be used in several ways. In this case, the developer then sells the land to the investors who specialize in a particular land use.

In this type of development, it can be, for example, the netting of land, its preparation for construction, etc.

Customers: residential or commercial developers for each project phase who are desired to purchase fully entitled sites. [4]

- **Single-family, detached residential**

This type is mostly associated with low-density suburban housing development. There are a range of different investors in the market, the smallest ones buy a land and build small numbers of houses with high resale values. On the other side are national builders who are building a variety of types from high end luxury homes to lower priced homes in a variety of settings including master planned communities, resorts and retirement communities.

Customers: homebuyers who purchase financed through mortgages who desire customized units. [4]

- **Attached and multifamily residential, for-sale**

This sector includes higher density homes for sale, including townhouses, multi-family condominiums, mid-rise buildings and high-rise buildings.

Customers: homebuyers who purchase financed through mortgages who desire customized units. [4]

- **Multifamily apartments**

Moderate and higher-density residential apartments available for rent are involved in sector of multifamily apartments.

Customers: tenants who desire to move in early and minimize deposit and rent. [4]

- **Retail**

The retail sector involves small, single-user buildings, grocery-anchored neighborhood centers, community shopping centers, power centers, regional malls and a variety of specialty types including outlet, lifestyle and town centers.

Customers: those whose commitment to rent or own is generally necessary to finance the project or smaller tenants who commits after the construction starts. They usually seek to reduce charges and control the center. Important is control of scope and costs of tenant improvements. [4]

- **Office**

Both low-density suburban office buildings and high-density urban high-rise office buildings are included in this sector.

Customers: large tenants whose commitment may be necessary to finance the project or smaller tenants who commits after the construction starts. They usually desire customized space and signage reduce charges. [4]

- **Industrial**

This sector involves suburban warehouse and distribution facilities, research and development facilities and business parks.

Customers: large tenant who will sign a contract for a customized construction or smaller tenants who commits after the construction starts. The usually desire specialized utility and buildings configuration. [4]

- **Lodging**

The lodging sector generally includes two categories – limited-service hotels and full-service hotels. The principle is seasonal utilization, where a period of high production is followed by a period of retrenchment.

Customers: hotel franchise and operation companies who will control project specifications and may have for-sale units as well as nightly occupancy units. The building needs branding and networking for project success. [4]

- **Mixed-use**

Today most of contemporary projects are mixed-use development projects because of the increasing emphasis on urban infill, place making, and the revitalization of “edge cities.” It is also encouraged with changing land use regulations and it is becoming more common so it can be considered as 9th sector. It is challenging for developers because in the past they tended to specialize in single-use product types but now they must understand the customer issues as well as the return, absorption and risk characteristics of multiple sectors.

Customers: homebuyers, retail and office tenants and hotels who deals with frequent conflicts over parking and operations among customer groups. [4]

2.2 Stakeholders of the development project

Stakeholders are the concerned parties of the development process, which can be divided into involved persons and affected persons. The main stakeholder is the developer, who is responsible for the overall project implementation, management of other project participants, financial management, etc. Another entity is the general contractor, i.e. the construction company together with the architects, designers and very important are also the financing institutions, lawyers, consultants and also project managers.

2.2.1 Developer

The term developer or development company can be understood as the manager or investor of a project. It can be a physical or legal person that carries out its activities for the purpose of realizing a project. It is common practice for a general contractor of construction to be a sister company with a separate legal entity, especially in the case of large development companies. The development process may include all phases of a construction project. Starting from the idea of the investment plan before purchase, renovation, construction to the following sale or lease. This can involve undeveloped land, a brownfield site or a standing building that requires investment to increase its market value. The developer must be flexible and open to change. During the permitting process, it is usually necessary to negotiate with adjacent landowners and may need to change some aspects of the project. If the developer is unapproachable, this attitude may also kill the project. Therefore, it takes a certain talent to be able to demonstrate the leadership to communicate and deliver the vision. A successful developer usually has strong opinions, but is also a good listener and collaborator. Throughout the project, the developer bears the greatest risk but takes the greatest profit if the project is successful.

The development company usually consists mainly of employees who are employable for the entire duration of the project, called core employees. These are usually a project manager who handles the technical aspects of the project, an acquisition manager who seeks out new investment opportunities and an analyst who assesses potential investments. Some tasks may be handled by only one employee. Other professions are often outsourced, such as architects or planners. However, if it is a large company that has multiple projects and is therefore able to

provide a stable supply of work, it can afford to have experts on its team. Developers, because of the outsourcing of professionals, are usually relatively small in terms of the number of employees relative to the volume of investment. [5]

2.2.2 Special purpose vehicle

For development projects, it is typical that the developer establishes a separate legal entity for each construction project, called a Special Purpose Vehicle (SPV). This is a company that is established for the only purposes of realizing a specific development project and is usually a limited liability company (Ltd.) or a public limited company (Plc.). This ensures that the liabilities and assets of the SPV are separated from its directors or shareholders and that the project is separated from the risk of bankruptcy of the developer, or otherwise the risk of bankruptcy of the project company. The second case is mainly applied when separating the risks of individual projects, which always have a separate entity but the same shareholder or managing director.

Very closely related to this is financing, where the creation of an SPV separates the finances of the project from the finances of the developer. This gives the investor or the lender (bank) the assurance that the company is not burdened with financial obligations from the past and therefore the capital invested cannot be claimed by another lender. The only source of repayment of the project's financial obligations is the SPV's revenues. The cash flow must therefore be set up in such a way that it can provide sufficient funds to pay the operating costs.

The SPV is the owner of the relevant land and real estate and, as it is implementing the project, it is involved in most of the legal relationships that are key to the project. These are mainly contracts related to financing, acquisition of property and land, design, planning, construction, sale and possibly lease or use. It is typical for an SPV to have no employed staff, only managing directors and responsible persons who are employed by the development company. Therefore, contracts also need to be concluded between the development company as such and the SPV. This can be a single global or management contract, or special purpose contracts such as a project implementation contract, a sales brokerage contract or a management contract. Other operational activities such as accounting, basic administration, contractor coordination, etc. are also handled by the developer.

In addition to risk segregation, another advantage of SPVs is easier transferability of assets. This is mainly used in the sale of commercial property, where the building is transferred as the legal entity that owns the property. The formal owner of the real estate does not change and as a result the buyer is not required to pay real estate acquisition tax as stated in the law. Also, when the entire entity is transferred, its legal obligations such as lease agreements with tenants are not affected. The factors of tax implications, liability of the partners and investors and the possibility of control and influence on the project are important when choosing the organizational structure.

In particular, real estate entities seek to avoid the double taxation of profits that occurs when a project is implemented as a strategic partnership. Therefore, the main advantage of the corporate form of organization is the isolation of investors from personal liability for the operation of the entity. In the case of a project where the properties are sold at the end, typically residential projects, the SPV can be used to provide services to customers after the project is completed and the properties are sold. More often, however, it enters liquidation and subsequently ceases to exist. [3]

2.2.3 Sponsor

This term means a project participant that provides equity capital to the project company. It can be a **developer**, a **financial investor** or a **bank**. In all cases, the sponsor has an interest in the successful completion of the project. A project may have more than one sponsor, each with a different invested equity. The financial investor and the bank are usually in the position of an equity partner, i.e. an entity that provides the project with finance that the developer does not have available at the time. The financial investor provides funds in exchange for a share of the profits of the project and bears a large part of the risk associated with the project. A bank, on the other hand, provides a loan in exchange for a fixed interest rate and bears only the risk of a complete collapse of the project. In some cases, the developer may only serve as a service provider to the financial investor. This is generally the case when the financial investor has the land and a clear investment plan but does not have the necessary know-how to implement it. In this case, the developer is hired to implement the project and is rewarded with a **development fee** and does not put his own money into the project. Financing will be discussed in more detail in Chapter 4. [3]

2.2.4 General contractor

Who will be the contractor is very much related to the delivery system chosen for the method of delivery of the works. There are several methods used and they are mainly related to the following factors:

- type of construction,
- financing method,
- risks that the contractor and the investor (developer) are willing to bear.

The most common method is delivery by way of a general contractor with whom the developer enters into contract for work. The works contract specifies the determination of the construction price. It may be either a fixed amount up front or a guaranteed maximum price. These prices are usually fixed unless changes are made by the investor during construction. It is also important to set the repayment schedule of the price, mainly to ensure that the maturity of the price is in line with the terms of the loan that will finance the project. Other important points are the delivery date of the construction, including penalties for failure to meet the deadline, the performance guarantee, the quality of the work and the retainage. The general contractor then hires and coordinates subcontractors and carries the overall construction guarantee.

Another contractor system may be construction management, where the SPV contracts with a construction manager who takes care of the construction phase. He coordinates the subcontractors but does not carry out the construction himself. There is also a possibility, that the development company employs its own construction manager. [3]

2.2.5 Client

Depending on the type of development, there are several types of end customers. In the case of residential projects, these are mainly private individuals who buy property for their own use. In most cases, a certain percentage (20-30%) of the flats or houses in the project are sold before construction starts. The biggest pitfall of these projects is that the end user may not be known until after the completion, so the project cannot be tailored in terms of design. On the other hand, in the case of commercial real estate, the developer has already signed lease agreements for the space to be developed, the so-called prelease contracts, before the construction

starts, and can thus tailor the construction to the company that will lease the space. In most cases, it is a condition for the granting of bank financing to have these contracts signed in order to make the project sufficiently credible.

2.2.6 Other stakeholder

Other stakeholders enter the project at different stages. Starting with architects and designers, in the permitting phase these are authorities, followed by legal and advisory services, quantity surveyors, construction or project managers. Others are marketing managers and real estate agencies, who may enter either at the beginning of the project in the case of commercial properties, when a tenant needs to be found for upfront financing reasons. In the case of residential projects, these stakeholders enter the construction stage.

2.2.7 Persons concerned

Concerned parties can be either negatively or positively impacted by the project. These include, in particular, concerned public authorities, citizens, owners of neighboring land, etc. It is important to choose the right management and communication with these parties, as they have a major influence on the smooth running of the permitting procedures in particular and the on-time completion of the project.

3 Phases of the development project

To properly understand what a development project actually is, it is necessary to describe its individual phases. This chapter deals with description of the 3 phases. For start, it is good to explain Figure 1 below which shows that as time goes on, the risk of loss decrease and costs increase. The project starts with a predevelopment phase where the costs account for about 5 to 15 percent of project costs, while the majority of project costs are incurred in the development phase during construction. The final phase, the project close-out phase includes the costs of marketing, selling, leasing and managing the project after completion and consumes about 5 to 8 percent of project costs while the risk of loss is lowest.

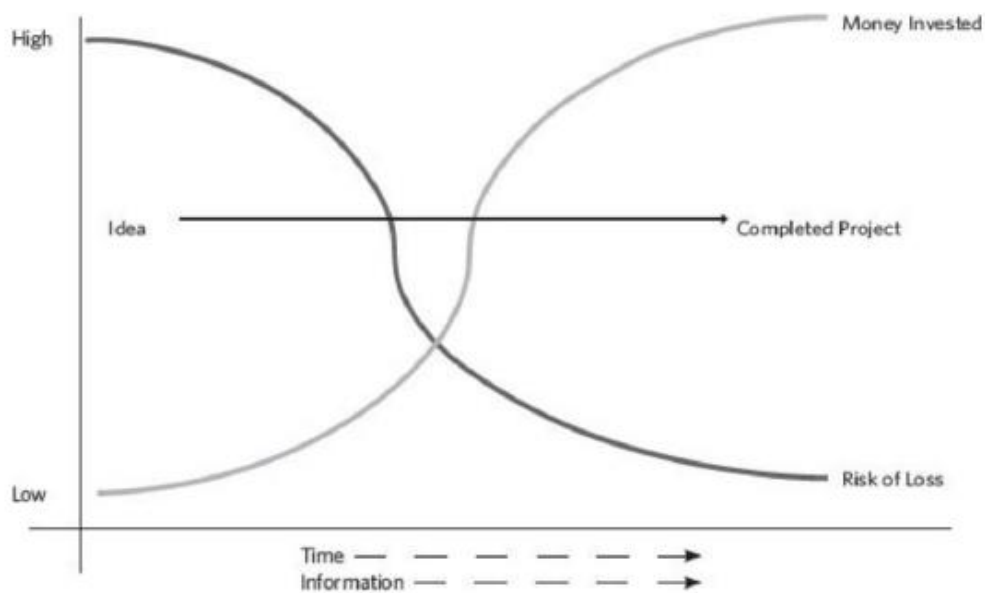


Figure 1: Risk of loss decrease and cost increase. Source: [4].

In a Table 1 is shown a summary of main tasks during each phase which are described in more detail later in this chapter.

Table 1: Breakdown of development project phases. Source: [4], own processing.

Stages	Predevelopment	Development	Close-out
Share of Total Project Budget	5-15%	80-90%	5-8%
TASKS	Site selection	Close on land purchase	
	Negotiate terms of land acquisition and execute purchase contract		
	Due diligence on land		
	Market analysis	Continue to monitor market conditions and financial viability	Leasing or selling
	Preleasing and presales planning	Initiate marketing and lease-up / sale	
	Site analysis	Construction: Implement construction management strategies	Construction close-out, punch list, and tenant move-in
	Design development		
	Project design		
	Preconstruction planning		
	Financing analysis, Financing commitments	Comply with financing source requirements	Provide return to financing sources
	Entitlement	Set up property management	Ongoing project management

3.1 Pre-development phase

The predevelopment phase is when the most important decisions are made and ideas, project concept and plan are created. It is being said that eighty to ninety percent of the project value is created during this phase. Main task at this stage is focusing on designing a product that responds to the market and can be built at a cost that allows an adequate return on investment. The project concept is mainly created according to the investor's requirements and financial possibilities based on the current state of the land - its condition, technical connection, legal regulations. Also a feasibility study which should include the basic idea of the project, its stages, market and marketing analysis, project management structure, financial plan and risk analysis is created. Issues related to the change of the zoning plan, if needed, also

need to be addressed. No final contracts are concluded, but only the basic points of future cooperation. In other words, the tasks in this stage shape what occurs in later phases, including the strategies used to respond to changes in market and financing conditions. [3, 4]

3.2 Development phase

The moment the developer decides to implement the project, next phase is initiated. It starts with the acquisition of the ownership of the land, obtaining all permits for construction, negotiating the terms of cooperation with the project contractor, suppliers, stakeholders and banks. Also a legal due diligence need to be carried out because it may reveal significant legal risks of the project. Technical due diligence is also important and can detect other additional risks. Both due diligence needs to be done in time for the actual purchase of the land to take place.

All the success of the development phase largely depends on the quality of the work done in the predevelopment phase hand-in-hand with due diligences. Usually when something goes wrong during this phase, it is because someone didn't want to spend money earlier or the communication of key information wasn't as clear as needed to be. The earlier the problems appear, the cheaper it is to solve them.

Problems that may occur are, for example, unexpected side conditions such as poor soils or archeological artifacts discovered during excavations which are required by law to be reported by the construction company that find them. This can cause very long delays and increased costs. This is why site analysis needs to be done properly before the construction begins. Another can be unexpected increase in material costs depending on actual market conditions. In this case early ordering of materials can be advantageous but it needs to be carefully considered or as part of financial planning, it is advisable to create a sufficient financial reserve. Problems with unwieldy and costly design can be eliminated with close work of the contractor, architect and marketing consultants during pre-development phase.

The main part of this phase is the construction itself. It includes coordination of construction and other activities and the parallel negotiation of the conditions of future use of the buildings. The construction completion is followed with an

application for an occupancy permit. This phase ends with the takeover of the completed work with a complete occupancy permit. [3, 4]

3.3 Post-completion phase

The goal of development projects is to sell or lease the property outright and then own it as a form of safe capital. It depends on the sector type how the marketing, sale or lease-up of a project occurs. Some projects can be presold or preleased so the investor has the capital sources to fund the construction. Others can be build "on speculation" which means that it will be sold after construction completion. The risks are here that the market will be different and there will be no buyers. Sometimes projects can be phased and can be sold in stages during construction. The aim is to minimize the time after completion and before the lease-up or sale with help of preleasing, presales or marketing campaign. There are different strategies with different types of developed projects. When single-family houses are build up usually a sale occurs. The project construction can be phased so the investor has a capital for the next phase which can start after first sales or the sale can be phased. It helps reducing the risk of having to pay capital carrying costs on unsold units in inventory.

High-density housing must be delivered as completed buildings with a high percentage of presales. Apartments for lease are usually marketed right before the building is completed with move-in shortly after signing the lease agreement. Retail projects usually need to have majority of tenants before the capital sources fund the project and construction starts. Same is with large office and industrial projects. With small retail and office projects it is not necessary to have preleases but aggressive marketing strategy to obtain quick lease-up right after the start of the construction. [4]

In conclusion, this phase covers handover of the project to the users (owners or tenants) and the sale of the project to the final investor. All activities are finalized, defects are settle and client takes over the work and the developer focuses primarily on minimizing time and costs. For commercial buildings is also very important to sign of the building management contract. [3]

4 Due diligence

In general due diligence can be described as the full investigation of a product and transaction before the transaction takes place. It confirms that all details are correct and no important information are left out before the purchase. At the end the potential investor will know if the investment is too risky or costly or not. Buying a property carries certain risks. Investor normally acquires both the property and the problems of the original owner with the property if there are any. The main reason why to do a due diligence as the potential investor is that the seller or the real estate agent are obliged to tell about the property everything they know including providing all documents related to property but they don't tell what they don't know. [9, 12]

Due diligence is primarily used to avoid making a big financial mistake by trying to find out as much information as possible about the property before the actual purchase. In other words, due diligence means investigating fact about the physical and financial condition of the property and the area the property is located in. It should be always a time-consuming and in-depth process which verifies that the investor buys the property and cash flow he is paying for. Otherwise it can help to renegotiate terms of the transaction before purchasing.

The creation of due diligence is also related to the creation of a checklist, which is good to have created before the due diligence begins as a list of points that need to be found out about the property. The main reasons to do the due diligence is when the offered parcel seems to be expensive or too good to be true or when the land should be for a purpose of building a house or another purpose which the investor is not sure about if it is allowed or when the investor is not familiar with the area.

The practical part of this thesis will also include the creation of a checklist, and its application for existing property, for due diligence of development land property. The types of due diligence related to real estate properties will be described in more detail below. The most important for real estate sector are technical due diligence of the building, property or a land and legal due diligence of the seller or buyer of the property. I will describe the technical DD separately for properties in general and for purchase a land property. Another can be financial DD which focuses on business analysis or tax DD which is an extension of financial DD. [8]

4.1 Technical DD

Technical DD, sometimes called technical audit, consists primarily in the assessment of the condition of the building including building structures, materials and technical systems, whether they comply with the legislation, fire-safety inspection and inspection and evaluation of all technical building equipment, installations and networks. At the end the client receives a report about the building with a list of identified defects and recommendations for improvement as well as a financial estimate of repair costs and a time estimate. [12]

4.2 Land purchase DD

Land purchase DD is a name for technical DD for land property. It is recommended to make before the purchase of property so the investor is familiar with all the fact. The main thing should be to map the characteristics of the land which can be for example steepness of the terrain, connection to networks, soil characteristics, measurement of the land, whether the land is in an earthquake zone or flood area etc. The practical part of this thesis is a creation of a checklist for land purchase DD, what all should be the investor aware of before the purchase of property for a certain purpose. Also a part of this particular due diligence is to check if the land is marketable. That means that there is a necessary to confirm whether the person who is selling the property is its owner and holds all the necessary rights to transfer the ownership of the property. [12]

4.3 Legal DD

A part of this due diligence is to check if the title is clear and marketable. That means that there is necessary to confirm whether the person who is selling the property is its owner and holds all the necessary rights to transfer the ownership of the property. It is recommended to contact a lawyer / advocate to get a title documents like title deed (to ensure that the property is in the name of the person from whom the land is purchased) sale deed (to make sure the land doesn't belong to any developer, society or others) and property tax receipts (to check that all previous taxes and payments are cleared) and to obtain a certificate confirming a title of the

vendor. At the end also a check for mortgaged land is necessary, so the land is not mortgaged by the seller or the loan is cleared by the latter even if the land was mortgaged earlier. Another are documents like power of attorney, which is used very often, should be verified as originals to avoid any infringement by a third party. [11]

4.4 Environmental DD

The purpose of the environmental DD is to verify compliance with environmental standards. However, these are mostly sites in the vicinity of businesses whose activities have an impact on the environment such as dump, power plant or some factory. It can be also when purchasing something like an abandoned gas station, junk yard, auto repair site, or when there is an evidence of pollution such as leaking oil. At the property can be done an analysis of contamination in soil or building materials or waste management. [13]

4.5 Financial DD

This due diligence is usually done by the seller about the potential investor to check his financial situation. It is also known as accounting due diligence and means a comprehensive financial analysis of the business if the buyer is a company. The goal is to eliminate risks from improper accounting or financial condition of the business so that the investor is able to pay the price of the property. [13]

5 Financing methods of a development project

In the beginning of a development project, it is necessary to spend a lot of money, especially in the purchase of the property, its refurbishment or construction. These financial resources are then returned to the investor only when the completed or renovated property with the purchase price or in the case of a long-term lease in the form of rent. As the financial costs at the start of a project are very high, the early stages cannot usually be financed from own resources and the question of how else to do it is addressed. One of the most important characteristics of a developer is the ability to secure and moderate capital and debt financing over time to maximize the profitability and cost-effectiveness of the project. To do this, it can use the tool of financial leverage and the related correct choice of capital structure for the project, in other words, the selection of the most advantageous ratio of debt and equity financing. The cost of capital, i.e. the cost of raising, managing and repaying debt, is always key. [3]

5.1 Sources of project funding

Financing of development projects usually consists of two components. These are own resources (equity) and external resources. Own resources can be mainly capital stock, capital funds, current period earnings or retained earnings. These resources are usually provided by the developer or other project sponsor. The sponsor is called an equity investor. In the case of external resources, which are divided into senior loans (long-term loan) and junior loans (bonds, bridge loans, pension funds etc.), the financial investor is a bank or other financial investor who becomes the so-called creditor. To the company, the provision of finance to the developer generates a return in the form of interest rate and fees.

In the case of an equity investor, his profit on a project is based on the performance that the project achieves. Its objective is to maximize the value of its investment, whereas for a creditor the main objective is to avoid losing money by ensuring that the project's cash flows are sufficient to repay all claims. Typically, the

cost of capital provided by the equity investor is higher because the creditor is in a safer position compared to the equity investor and therefore the profits of the equity investor on the whole project are in effect higher than the profits of the creditor. This is the main reason why developers try to use long-term loan financing as much as possible. However, there are also cases where developers are more cautious and prefer to avoid high leverage, which increases with increasing percentage of debt, i.e. LTC or LTV values, and accept a lower rate of return on equity to mitigate the risk of not being able to repay their obligations to the creditor in case of project failure.

The creditors, i.e. the long-term lenders, are the first priority in repaying the debt. If a company borrows money, its priority is to repay the money as soon as possible. These obligations are secured by a lien on the property itself, so that the lender can recover all the money it has invested in the project through foreclosure. Therefore, if the project company defaults on its obligations and the creditor claims the lien, ownership of the mortgaged property or the SPV used for the project may pass to the creditor. The creditor tries to avoid cases of failure of the entire project by having a clearly defined maximum percentage of the project cost that they are willing to provide to the developer. These limits can be either LTV - loan-to-value ratio or LTC - loan-to-cost ratio, which are described in more detail in the chapters below. Typically this is a value of 60-80%, but in some cases the value can go up to 90%.

In addition to long-term financing, there are other sources of funds, which are the so-called junior loans. This is a type of debt financing that becomes the capital of the partners or shareholders and is considered an external source from an accounting point of view. For bank lenders, however, it is the company's own resource and thus counts towards the company's equity. A condition for recognition of a junior loan by a bank is that the repayment of principal and interest to the shareholders is made after the bank debt has been repaid. Thus, the senior loan should have priority in the repayment of debts.

The banks' requirement for a minimum equity stake in the project company is often secured by the junior debt. Its implementation is easier and more profitable than a contribution to the company's equity. The shareholders then receive a return on their contribution based on the success of the project. [3, 4]

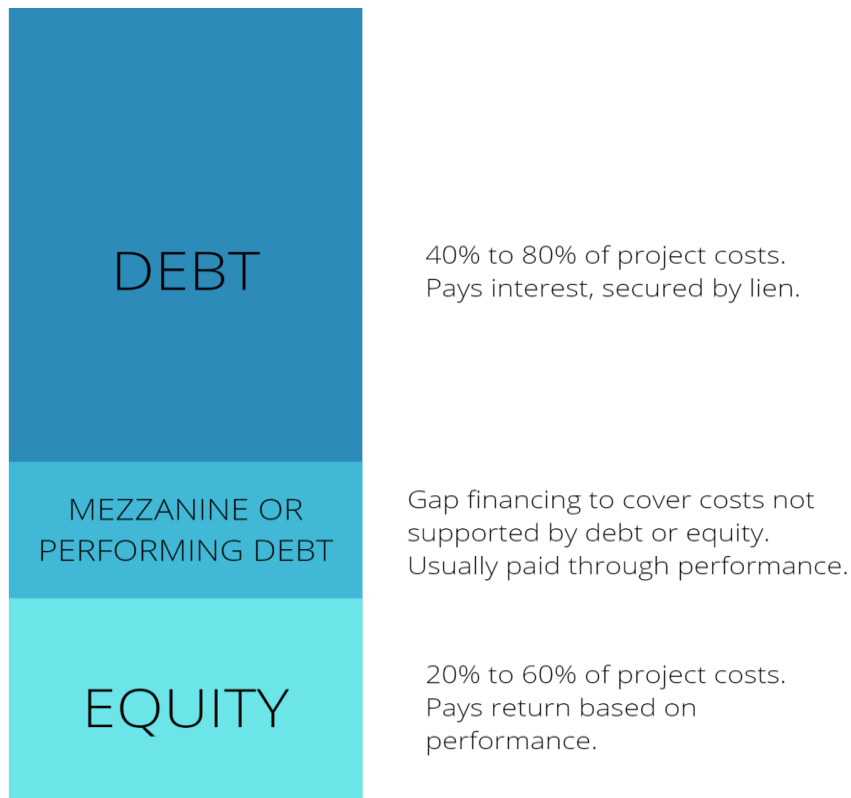


Figure 2: Breakdown of funding sources. Source: own processing.

5.2 Equity financing

The equity is usually provided by the developer or other project sponsor, who becomes the equity investor. They consist primarily of:

- equity,
- capital funds,
- capital stock,
- current period earnings,
- retained earnings from previous years,
- pension funds.

The developer or sponsor contributes funds to the project company usually in the form of an increase in the company's share capital or by contributing to capital funds. In both cases, the equity of the company is essentially increased.

5.3 Debt financing

Lenders are in a senior position to the interest of the equity investor and is secured by underlying real estate. Lender's returns are the interest rate and fees that it charges for the mortgage.

Developers tend to use as much debt as possible when financing a project because the cost of the debt capital is generally much lower than the cost of equity capital. It is because the lender is in a far more secure position than the equity investor.

5.3.1 Senior loans

Senior loans or bank loans are usually one of the cheapest sources of capital for a developer. However, there are many restrictions and requirements associated with it, which arise from the requirements for securing the debt or the previous experience of the applicant. The required ratio of equity to the required loan amount can also be a challenge. The majority of loans granted to commercial companies are so-called corporate loans. However, project loans are more commonly used in real estate financing and differ in part from corporate loans. The main difference is that a project loan is taken out to finance a specific project, often directly to the project company (SPV), whereas corporate loans are mainly for companies with a financial history and may not be used only for a specific project but also for the operation of the whole company.

For project loans, the credit risk is assessed on the basis of the future ability of the project to repay its obligations in the short to long term and the bank therefore emphasizes the quality of the project and the cash flow generated by it, as it is not secured by any material guarantee from the parent company. Often, future economic results are modelled on the basis of pre-agreed sales or rental prices and costs. Then, by working with the principal risks, the likelihood of deviations from the original plan is reduced and longer loan maturities can be worked with.

In contrast, corporate loans are assessed on the basis of economic results, financial statements, covenants and performance over the last few years. Thus, the assessment is primarily based on the historical economic strength of the applicant and, in the event of default, it is within the bank's discretion to release all of the client's

assets. Variants of a possible continuation of a going concern are formed. The higher likelihood of deviations and their impact on the business and assets define the term of the loan. When assessing a loan application, the bank evaluates not only the risks of the project itself, but also the external market environment and its ability to absorb the project in its entirety. Another factor that may be taken into account may be the developer's previous references and experience with projects of a similar size and type or its knowledge of the location. The bank assesses financial viability by means of financial ratios, which must reach a certain value for the bank's approving authorities to be willing to accept the loan. These indicators are described in more detail in Chapter 5.4 Financial indicators monitored by the bank.

- **Types of senior loans**

The type of loan is determined by the purpose of the financing, based on which key risks can be easily identified.

Acquisition loan

In case the client buys specific assets (land, real estate) or shares. The usual loan amount is 70% of the acquisition price. The key risk here is the legal risk; the bank focuses on ensuring the legal soundness of the transaction and limiting procedural and legal risks.

Pre-development loan

If the client buys land without having a development project ready. A frequent purpose of financing is to purchase such land or to secure work on the preparation of a development project. The usual loan amount is usually 50% of the market price of the land. In this case, the key risk is the quality and historical track record of the client and their ability to repay the borrowed funds.

Development loan

When a client organizes the construction of a property. The purpose is to finance the costs associated with the construction of the property, in particular construction costs, engineering, financial costs. The usual loan amount is usually 75% of the project cost and the key risks are the timeliness of construction in quantity and quality and the marketability of the built property.

Investment loan

If the client already operates an operating property and needs to refinance an acquisition or development loan or refinance their own funds. The main features of this type of loan are the long amortization and repayment from the proceeds for the implementation of the own business object. The amount typically reaches 70% of the market price of the property and the key risks are the investor's ability to ensure the long-term sustainability of the project's cost base and long-term sufficient income from rentals and service sales. [3]

- **Interest and interest rate**

The interest rate is the amount that the borrower is required to pay on his debt. It is stated as a percentage over a certain period and is usually fixed or fixed for a certain period. To give an idea, an annual interest rate of 10% means that the creditor receives CZK 0.1 for every CZK that the debtor has borrowed for one year. Its amount is mainly influenced by the LTV, which is the amount to be borrowed, the interest rate fixation period, i.e. the period for which the interest rate agreed in the contract between the bank and the client is valid, the time to repayment and the credibility of the client. [18]

The interest rate consists of the following components

- **The basic reference cost** - since banks finance themselves in the interbank market, the key for them is the effective interest rate, which reflects what the bank will pay other banks for the funds provided. The level of this rate is linked to PRIBOR - Prague Interbank Offered Rate.
- **Capital allocation costs** - for each loan granted, the bank risks a portion of its shareholders' money. To hedge this risk, it must allocate part of its capital
- **Credit risk** - for its loans, the bank assesses the ability of the primary and secondary sources to repay the principal. Accordingly, it also allocates a portion of the interest to provisioning for the repayment of claims arising from outstanding loans.
- **Liquidity costs** - each bank must balance its assets in an optimal relationship with its resources. There is a disproportion between the length of time for which the principal is underwritten and the length of time for which the bank

is entrusted with the funds by the lenders. The bank must therefore balance this disproportion, for which it claims an item in the form of liquidity costs.

The costs associated with capital allocation, credit risk and liquidity costs are project and bank specific. After their assessment, they are added together and the effective interest rate is increased by their sum. This part of the interest rate constitutes the bank's margin. [3]

- **Loan application and conditions of drawdown**

The entire credit application process can be described in the following steps:

- credit application,
- term sheet,
- negotiation of loan terms,
- signing the loan agreement,
- meeting the conditions for drawing the loan,
- drawdown of the loan,
- ongoing monitoring of financial performance and achievement of milestones,
- payment of the interest costs of the loan,
- principal repayments - lump sum, linear or annuity.

The developer can submit the loan application itself as a project sponsor or through a project company. The loan application is generally accompanied by the following documents relating to the project:

- company incorporation documents;
- legal and technical due diligence;
- description of the land;
- extract from the trade register on the parties involved, information on shareholders, managing directors and responsible persons;
- the ownership certificate of the land;
- extract from the land register;
- project documentation;
- valid planning permission and building permit, depending on the project phase;

- contract or draft contract with the general contractor and other contractors
 - architect, building supervisor, etc.;
- pre-purchase agreements, agreements on future purchase contracts in the case of future sales, on future lease contracts in the case of commercial leases;
- budget for construction works.

The complete loan application is reviewed by the department dedicated to the segment and location. In addition to risk and financial analysis of the project, the bank considers the overall commitment to the applicant, the entity's payment record or the applicant's previous experience in the segment. An important factor is also the willingness of the project sponsors to guarantee the increase in project expenditures, i.e. to provide a cost-overrun guarantee. The credit application is further reviewed by the credit department. In parallel, the bank carries out legal and technical due diligence on the project. The risk manager, who is a member of the credit committee that decides whether to grant the loan, has the final say in approving or rejecting the application. On the basis of this decision, the bank draws up a term sheet, which serves as the basic conditions under which the bank is willing to sign a loan agreement with the developer. At this stage, there is the greatest scope for negotiating the terms of the loan if the developer is in a strong enough position to afford to negotiate the terms. The term sheet is a document expressing the bank's intention to grant the loan. It usually contains information on the project, the applicant, investors and lenders, the project cost, the drawdown period, the repayment method, the interest rate, fees, conditions, loan maturity date, etc. It focuses primarily on the economic pitfalls of the project.

After the term sheet is accepted, the developer submits a formal loan application. However, the developer still has no assurance that the bank will sign the loan agreement; the bank can still withdraw from signing the loan. This overlaps with the conditions precedent, which are the conditions that define the bank's requirements that the developer must meet before the first tranche of the loan is released. These conditions may be, for example:

- the establishment of an SPV;
- demonstration of pro-investment of an agreed proportion of own resources in the project;

- confirmation by an independent expert of the realism of the projected budgetary costs of the project;
- technical and legal due diligence;
- a valid planning permission or building permit and its confirmation by an independent expert;
- submission of a works contract with the general contractor
- business plan;
- evidence of a certain percentage of pre-sales or pre-lettings.

The Bank's main objective in the loan approval process is to identify, minimize and cover the risks arising from the project. These include two types of collateral - a lien on the property and a lien on the shares in the project company. Others may be - pledge of receivables, subordination of claims of other creditors, pledge of claims under insurance policies and insurance claims.

The creation of a lien on the project property is a basic requirement of the bank when providing project financing for a development project. The subject matter is both the land on which the development project will be built and the buildings that are being constructed. [3]

5.3.2 Junior loans

Even though junior loans are considered as an own source of financing from the bank's point of view, it is still a debt that needs to be repaid and is therefore classified as debt financing in this thesis. A junior loan is a subordinated debt that is subordinate in certain parameters to other loans. It will also be repaid only if the primary debt to the bank is repaid. However, it depends on whether the investor has sufficient investment funds to create it. Thus, the debt may be provided by the developer of the SPV that is backing the project or it may inject its own capital into the SPV. If the developer does not have sufficient funds, it can approach other investors who can either join the SPV as partners or provide a loan to the developer. [1]

- **Joint ventures**

In general, joint venture is an arrangement based on business interests when two or more parties agree on putting together their resources for the purpose of accomplishing a specific task. In case of this thesis it is a development project. Each

participant is responsible for profits, losses and other costs. However, the joint venture is its own entity and is separated from the participants' other business interests. [19]

Since both the investor and the developer bring a certain added value to the project that the other could not do without - know-how and equity, they usually enter into a joint venture agreement as a first step, which then forms the basis for the SPV, which bears the risk of construction and implementation of the project. The joint venture agreement should contain, in particular, items relating to the basic provisions, the business plan, the participants and their rights and obligations, the method of management and control, the capital structure and the method of distribution of profits and losses. After that the shares in the SPV can vary, depending on the agreement between the investor and the development company. Once the SPV is formed, the investor then provides a loan, i.e. a junior loan, which is subordinated to the senior loan. This is also why a JV is riskier for the investor. If the project is successful, there is a higher profit than if the investor simply provides a loan that is repaid with interest. Therefore, in the event of an unexpected increase in the cost of the project or a lien being filed by a senior creditor, the investor is the last to be repaid and his profit depends on the success of the project. [1]

A joint venture can also be used when a company wants to enter a foreign, local market. This can be advantageous if the company with which the joint venture is formed already has a name in the locality and both companies can profit from it. It can also find use if a company wants to enter a foreign market, as some countries may have restrictions against foreign companies entering the market, so forming a JV with a local entity may be the only way to enter the market. [19]

- **Bonds**

Bonds offer developers another option to supplement their capital structure and to enable the investor to access a bank loan. They offer their own debt security on the market, which then becomes a financial liability of the company. Bonds are loans that differ from bank loans in that they take the form of securities are publicly traded. Borrowers commit to investors that they will repay a sum of money representing the face value of the bond at a specified date and pay interest or in the case of a discount bond (**zerobond**), the bond is sold at a price lower than its face value and the yield for investor is then the difference between the amount the

investor pays when the bond is purchased and the amount he receives when the bond is due. Zerobond is typically used in the development. In case of other bonds, the interest on bonds can be fixed or flexible, with the rate adjusted at regular intervals according to inflation.

The market prices of risky bonds also reflect the risk of the bond not being repaid when due. This is determined by the so-called corporate credit rating; if the rating deteriorates, the market price of the bond falls and vice versa.

Generally, the terms of the bond are set by the company itself, but they need to be designed to make the bond sufficiently attractive to investors. [20]

- **Bridge loan**

A bridge loan is a type of short-term loan that is used when a company has not yet secured permanent financing or paid off another long-term obligation. It therefore allows a company to meet existing obligations by providing immediate cash flow. Unlike regular loans, bridge loans are usually short-term, i.e. for up to one year and have quite high interest rates. This is due to the high risk nature of the loan and for these reasons this type of loan should only be used to provide immediate liquidity before a senior loan can be drawn. The inability to draw down a senior loan at a given time may be due to, for example, the processing of documentation, reports, analyses or legal obligations to third parties that will only be settled after the purchase price has been paid. They are usually secured by some form of collateral, such as real estate or inventory. In other words, bridge loans, or also gap financing or swing loans, bridge the gap during when financing is needed but not yet available. For example homeowner can use bridge loan when they want to purchase new home while waiting for selling the current home. The equity from the current home is used for the down payment on the new home purchase. In real estate development, this type of loan is used to finance the purchase or renovation of a property and remains in place until long-term financing can be secured. [21]

5.4 Financial indicators monitored by the bank

- **Loan-to-value ratio**

Loan-to-value ratio is one of the basic economic indicators monitored by banks when financing a development project. It is the ratio of the loan amount to the market value of the property being financed. This is usually determined according to the internal procedures of the financing bank using either the bank's in-house valuers or independent valuers operating in the relevant market, if the bank accepts their valuations. The estimated price of the property may be significantly lower than the purchase price. This indicator is given as a percentage and says that at 90% LTV the bank is lending money to cover 90% of the property price. The Czech National Bank recommends that this indicator should not exceed the 90% limit for more than 5% of new loans. Higher LTV can usually be obtained by creditworthy clients. In general, the higher the LTV, the higher the interest rate. On the other hand, as the LTV decreases, the interest rate also decreases. Therefore, if an investor wants to lend more money, it is possible to guarantee more properties. This would increase the value of the collateral, reduce the LTV and therefore reduce the interest rate. The LTV decreases as the loan is repaid, the loan agreement usually specifies what the LTV must be at certain points in the loan transaction. In case of non-compliance with this value, the bank may reserve the right in the contract to demand early repayment of the loan. [15, 16]

- **Loan-to-cost ratio**

Loan-to-cost ratio is another basic economic indicator monitored by bank besides loan-to-value ratio. It defines the ratio between the amount of the outstanding portion of the loan and the total budgeted cost of the project. It defines the ratio between the amount of the outstanding portion of the loan and the total budgeted cost of the project.

For this indicator, banks usually require at least 25-35% of own funds as a condition, which corresponds to 65-75% of LTC. [1]

- **Value to cost**

Value to cost is calculated as the ratio between the value of the property (land and building) and the total budgeted cost of the project. This is a similar indicator to

the return on investment monitored by the developer, but in this case the market value is determined by an independent banking expert's estimate. [1]

5.5 Economic evaluation of the project

The economic evaluation of the project is based on an assessment of the economic inputs and outputs of the project together with the inclusion of capital costs and consideration of the time value of money. Key factors in deciding whether or not to proceed with a project are its future cash flow, profitability and payback period, together with potential risks.

- **Cash flow**

For all types of investors, estimating the value of an investment starts with an assessment of the potential cash flow. This is made up of all the income and expenses that the project generates. Determining cash flow is one of the most important, but also one of the most difficult tasks in project evaluation. A cash flow model is essential to accurately estimate the viability and economic efficiency of a project. The main factor here is that cash flow modeling depends on defining and quantifying the impact of many variables that also need to be allocated over time. Variables can be influenced by external factors and in some cases it is not realistic to estimate these factors well in advance, sometimes not at all.

It is typical for development to have only expenses in the first phase. Income does not come in until a later stage, but first after planning permission has been obtained, when sales or leases start to take place and income is generated. In the case of residential projects for sale, it is mainly income from the sale of real estate. It is possible, in order to raise funds during construction, to carry out a so-called pre-sale, where the properties are sold off in stages and a deposit is collected from the future owners at the time of signing the contract in an amount to be determined by the developer. This may be around 30% of the total amount, with the remaining amount to be paid on handover of the completed and certified property. [32]

- **Project profitability**

Profitability is one of the simplest tools for evaluating investments. For a developer, return on equity is usually the most important measure. However, as the

capital structure of a project is usually not yet known at the initiation stage, this tool may not be applicable or may be used to model different scenarios. Another option is to use an assessment tool called return on total capital. Each variant of this tool mentioned above neglects the time value of money and the effect of the gradual investment of funds and the gradual realization of profits. [32]

Return on equity

Return on equity (ROE) is calculated as the ratio of profit to equity that the investor puts into the project. It expresses the percentage of how much profit is attributed to the amount invested by the developer. [32]

Return on investment

Return on investment (ROI) is the value of all the resources that have been invested in a project. This value can be calculated as a ratio where the numerator is either the sum of gross profit with interest or the sum of profit after tax and taxed interest. The denominator is then the total capital that has been invested in the project by all investors. Developers generally require this ratio to be at least 25% when initially assessing an investment project. [32]

- **Payback period**

The payback period expresses the time required to recover the project's capital costs through its future net income. This means that the investor will get back the funds invested in the project over the payback period. Its determination is based on the cash flow over the life of the project and the value is calculated as the ratio of the initial investment and the future cash flow from the project.

This tool is easy to apply and understand, but it does not include the time value of money and ignores the cash flows from the project after the payback period, which determine the profitability of the investment. However, the time value of money can be taken into account using a discounted payback period. Using this method, the payback period will be longer as money loses value over time. The discounted payback period is determined by taking into account the present value of the cash flow in each year until the initial investment is recovered. [32]

6 Methods of valuation of undeveloped land

In order to properly understand the application of the various land valuation methods, it is necessary to start by defining some terms. The main one is the definition of undeveloped land, which is land that is intended for development. The chapter explains the terms land, development property, land parcels and the differences between them and where to find all the information about them. These can be found in the Land Registry, where all the information that is necessary to know for property valuation purposes is available. The second chapter defines a total of three methods of valuation of undeveloped land property. Those are the administrative method, then the subdivision method and the market comparison approach method.

6.1 Land development property

To begin with, it is important to define terms "land" and "land parcel" and the difference between them, along with the types of land as they can be divided for property valuation purposes.

6.1.1 Land

A land is a part of the earth's surface separated from adjacent parts by a zoning unit boundary or a cadastral and a property boundary, a boundary established by a regulatory plan, a planning permit, a joint permit that situates and permits for construction, a zoning approval, or a boundary established by the approval of the proposed project by the building authority. In addition, also the boundary of the lien, the boundary of the extent of the building right, the boundary of the types of land or the boundary of the land use. [15]

For purposes of real estate valuation, the following types of land are distinguished:

- building land;
- agriculture land – registered in the cadaster as arable land, hop-growing land, vineyards, garden, orchard or permanent grassland;

- forest land – registered in the cadaster as forest land or forested non-forest land;
- water reservoirs and rivers;
- other land – unusable and infertile land such as ravine, stone dyke, levee, marsh or swamp. [2]

There are several types of building lands:

- undeveloped land – registered in the cadaster as built-up areas and courtyards or as land for development based on planning permit or regulatory plan, garden or other whole areas or land with building and land registered in the cadaster and with the right of construction;
- build-up land registered in the cadaster as build-up areas and courtyards which are already build on;
- the area of land actually build up with buildings, regardless of the registered status in the land register. [2]

6.1.2 Development property

IVS 410 defines development property as:

“Interests where redevelopment is required to achieve the highest and best use, or where improvements are either being contemplated or are in progress at the valuation date and include:

- a) the construction of buildings,
- b) previously undeveloped land which is being provided with infrastructure,
- c) the redevelopment of previously developed land,
- d) the improvement or alteration of existing buildings or structures,
- e) land allocated for development in a statutory plan, and
- f) land allocated for a higher value use or higher density in a statutory plan.” [17]

6.1.3 Land parcel

A land parcel is a piece of land which geometrics and position are determined and is shown on the cadastral map and at the same time marked with a parcel number. [15]

6.1.4 Real estate cadaster

The real estate cadaster is a public register that contains data about immovable (real estate) property such as its inventory, description, geometric and positional determination and registration of rights to the property. For the valuation of real estate is very important to analyze property rights to the property being valued because they can have a decisive impact on the value of the property. [2]

In cadaster we can find these types of properties:

- a) lands in the form of land parcels;
- b) buildings with an assigned descriptive number;
- c) buildings without a descriptive number;
- d) units defined according to the Civil Code;
- e) units defined according to the Act No. 72/1994 Coll;
- f) the right of construction;
- g) real estate defined with other legislation. [15]

The cadaster contains these information about:

- **Property:**
 - a) geometric and positional determination of real estate and cadastral territories;
 - b) types of land, land number and size, building details;
 - c) price data, data for tax purposes and data enabling interconnection with other information systems related to the content of the cadaster;
 - d) for registered buildings – an indication whether the building is a temporary structure;
 - e) details of rights, including data on owners and persons entitled to other rights which are registered in the cadaster;
 - f) notices if another legal regulation stipulated the obligation to mark the property in the cadaster or they are necessary for the administration of the cadaster;
 - g) declaration of the owner of the division of the right to the house and land into the ownership of the units;
 - h) co-owners' agreements on property management;
 - i) data of detailed positions of point arrays;

- j) local and figurative nomenclature.
- **Physical person:**
 - a) name(s) and surname(s);
 - b) birth identification number or date of birth;
 - c) the address of the place of permanent residence.
- **Juridical person:**
 - a) name or business name,
 - b) identification number if assigned,
 - c) headquarters. [15]

6.2 Valuation of development property

In this chapter I would like to describe theoretically three valuation methods which will be used in practical part of this thesis to evaluate an undeveloped land in Tábor. Methods which will be described are – administrative price of land, the subdivision development method and market comparison approach method.

First mentioned, the administrative price of land is usually used to determine the basis of the tax on the acquisition of immovable property (real estate), gift tax, remuneration of notaries and administrators of inheritance, in some cases compensation in expropriation, in the transfer of state property to other persons and if the "parties" agree.

The subdivision development method is usually applied in the case of planning a development of single-family or apartment houses, subdivision of a commercial zone, development land etc.

The last one, market comparison approach method is a method that values properties by comparing the price value of similar properties that have recently been realized on the market, taking into account differences and time lag.

6.2.1 Administrative price of the land

Building land may be valued according to the building land price map, if one exists and is valid in the municipality. If there is no price map, land is valued at the basic price per 1 m² depending on the size and importance of the municipality.

For the valuation of the undeveloped land, the basic price according to the district in which they are located is used, and this basic price is then multiplied by coefficients O1 - O6 according to the size of the municipality, the rank and administrative importance of the municipality, location, technical infrastructure, transport services and amenities. This is the established – administrative – price of the land.

Firstly an **adjusted basic price** needs to be determined using patterns below:

ZCU = adjusted basic price

ZC = basic price

I = price comparison index

I_T = market index

I_o = index of limiting influences of the land

I_P = location index

$ZCU = ZC * I$

$I = I_T * I_o * I_P$

The tables below are taken from Decree No. 441/2013 Coll., Decree to implement the property valuation act (Valuation decree - **oceňovací vyhláška**), which describes the administrative valuation of land. In the first table is the basic price for a land in city Tábor, in the followings are the values including the formulas on the basis of which the individual indexes are calculated – market index, index of limiting influences of the land, location index. The valuation is done in chapter 8. [14]

In all the tables below, which are taken from the Valuation decree, all the header and descriptions of the coefficients to be worked with in the practical part of the valuation are translated into English, while everything is completely in Czech.

Table 2: *Basic prices of building land. Source: [14], own processing.*

Kraj v členění na okresy, vyjmenované obce, nebo oblasti některých obcí* County divided into districts, enumerated municipalities, or areas of certain municipalities*	Základní cena vyj. obce, okresu, nebo oblasti Kč/m² Basic price ex. municipality, district or area CZK/m²
JIHOČESKÝ KRAJ	
České Budějovice - oblast 1	9492
České Budějovice - oblast 2, 3 a 4	2378
Český Krumlov	2214
Jindřichův Hradec	840
Písek	1070
Prachatice	768
Strakonice	746
Tábor	1166

Table 3: Real estate market index. Source: [14], own processing.

Znak Character		Kvalitativní pásma Qualitative zones		
P _i	Název znaku Character's name	Číslo Number	Popis pásma Zone description	Hodnota Value
1	Situace na dílčím (segmentu) trhu s nemovitými věcmi Situation on a real estate market	I.	Poptávka nižší než nabídka	-0,01 až -0,06
		II.	Nabídka odpovídá poptávce	0
		III.	Poptávka je vyšší než nabídka Demand is higher than supply	0,01 až 0,06
2	Vlastnické vztahy Ownership relations	I.	Pozemek s nemovitou stavbou (rozdílní vlastníci pozemku a stavby)	-0,03
		II.	Pozemek s právem stavby	-0,02
		III.	Pozemek ve spoluvlastnictví (mimo spoluhl. podílu pozemku k jednotce)	-0,01
		IV.	Jednotka ve spoluvlastnictví nebo jednotka bez pozemku nebo stavba ve spoluvlastnictví	-0,02
		V.	Nezastavěný pozemek, nebo pozemek, jehož součástí je stavba (stejný vlastník), nebo stavba stejného vlastníka, nebo jednotka se spoluvlastnickým podílem na pozemku Undeveloped land, or land that includes a building (same owner), or a building of the same owner, or a unit with a co-ownership interest in the land	0
3	Změny v okolí s vlivem na prodejnost nem. věci Changes in the environment affecting the marketability of immovable property	I.**	Negativní	-0,01 až -0,08
		II.	Bez vlivu nebo stabilizovaná území No impact or stabilised areas	0
		III.**	Pozitivní nebo stabilizovaná území v historických jádrech obcí, v lázeňských a turistických střediscích	0,01 až 0,08
4	Vliv právních vztahů na prodejnost (např. prodej podílu, pronájem, právo stavby) Impact of legal relationships on marketability (e.g. share sale, lease, building right)	I.**	Negativní	-0,01 až -0,04
		II.	Bez vlivu No impact	0
		III.**	Pozitivní	0,01 až 0,04

5	Ostatní neuvedené (např. nový investiční záměr, energetická úspornost, vysoká ekonomická návratnost) Other not listed (e.g. new investment project, energy efficiency, high economic return)	I.**	Vlivy snižující cenu	-0,01 až -0,30
		II.	Bez dalších vlivů Without other impacts	0
		III.**	Vlivy zvyšující cenu	0,01 až 0,30
6	Povodňové riziko Flood risk	I.	Zóna s vysokým rizikem povodně (území tzv. 5-leté vody)	0,7
		II.	Zóna se středním rizikem povodně (území tzv. 20-leté vody)	0,8
		III.	Zóna s nízkým rizikem povodně (území tzv. 100-leté vody)	0,95
		IV.	Zóna se zanedbatelným nebezpečím výskytu záplav Negligible flood risk zone	1
7***	Význam obce The importance of the municipality	I.	Katastrální území lázeňských míst typu A ^a) a obce s významnými lyžařskými středisky nebo obce s významnými turistickými cíli.	1,2
		II.	Katastrální území lázeňských míst typu B ^a) a C ^a) a obce s lyžařskými středisky nebo obce ve významných turistických lokalitách	1,1
		III.	Obce s počtem obyvatel nad 5 tisíc a všechny obce v okr. Praha - východ, Praha - západ a katastrální území lázeňských míst typu D ^a) nebo oblíbené turistické lokality Municipalities with a population of over 5,000 and all municipalities in the district. Prague - East, Prague - West and cadastral territory of spa towns of type Da) or popular tourist sites	1
		IV.	Ostatní obce	0,9
8***	Poloha obce Location of the municipality	I.	Katastrální území obce Prahy nebo Brna	1,15
		II.	Obec, jejíž některé katastrální území sousedí s Prahou nebo Brnem nebo Katastrální území vyjmenovaných obcí v tabulce č. 1 přílohy č. 2 (kromě Prahy a Brna)	1,1
		III.	Obec, jejíž některé katastrální území sousedí s obcí (oblastí)	1,03

			vyjmenovanou v tabulce č. 1 přílohy č. 2 (kromě Prahy a Brna)	
		IV.	Obec vzdálená od hranice zastavěného území obce Prahy nebo Brna v nejkratším vymezeném úseku silnice do 20 km včetně	1,06
		V.	Obec vzdálená od hranice zastavěného území vyjmenované obce nebo oblasti v tab. č. 1 přílohy č. 2 (kromě Prahy a Brna) v nejkratším vymezeném úseku silnice do 10 km včetně	1,02
		VI.	Nevyjmenovaná obec o velikosti nad 5000 obyvatel a obec, jejíž katastrální území sousedí s nevyjmenovanou obcí velikosti nad 5000 obyvatel An unnamed municipality of more than 5,000 inhabitants and a municipality whose cadastral territory is adjacent to an unnamed municipality of more than 5,000 inhabitants	1
		VII.	V ostatních případech	0,8
9***	Občanská vybavenost obce Municipal amenities	I.	Komplexní vybavenost (obchod, služby, zdravotnická zařízení, školské zařízení, pošta, bankovní (peněžní) služby, sportovní a kulturní zařízení aj.) Comprehensive amenities (shops, services, medical facilities, school facilities, post office, banking (money) services, sports and cultural facilities, etc.)	1,05
		II.	Základní vybavenost (obchod, ambulantní zařízení a základní škola)	1
		III.	Minimální vybavenost (obchod nebo služby - základní sortiment) nebo žádná	0,9

Index trhu (**Market index**): $I_T = P_6 * P_7 * P_8 * P_9 * (1 + \sum_{i=1}^5 P_i)$

***Features 7 to 9 shall only be considered for a building not forming part of the site and for a unit where

- the building or unit is valued on a cost basis, or
- the building or unit is valued on a comparative basis and is also situated in a municipality not listed in Table 1 with the base prices determined in accordance with the Annex for the type of building or unit being valued.

In other cases of valuation of immovable property, the value of these features for the calculation of the market index shall be equal to 1.

Table 4: Index of land constrains. Source: [14], own processing.

Znak Character		Kvalitativní pásma Qualitative zones		
P _i	Název znaku Character's name	Číslo Number	Popis pásma Zone description	Hodnota Value
1	Geometrický tvar pozemku a velikost pozemku Geometric shape of the plot and plot size	I.	Nevhodný tvar, nebo velikost - omezující jeho využití	-0,01 až -0,03
		II.	Tvar bez vlivu na využití Shape without influence on use	0
2	Svažitost pozemku a expozice Land slope and exposure	I.	Svažitost terénu pozemku nad 15 %; orientace SV, S a SZ	-0,02 až -0,04
		II.	Svažitost terénu pozemku nad 15 %; ostatní orientace	-0,01 až -0,02
		III.	Svažitost terénu pozemku do 15 % včetně; orientace SV, S a SZ	0,00 až -0,01
		IV.	Svažitost terénu pozemku do 15 % včetně; ostatní orientace Slope of the terrain up to and including 15%; other orientations	0
3	Ztížené základové podmínky Difficult foundation conditions	I.	Hladina spodní vody méně než 1 m pod úrovní výchozího terénu	-0,01 až -0,05
		II.	Snížená únosnost základové půdy (složitější způsob zakládání stavby, např. základová deska, piloty apod.)	-0,01 až -0,05
		III.	Neztížené základové podmínky Unconstrained foundation conditions	0
4	Chráněná území a ochranná pásma Protected areas and protection zones	I.	Mimo chráněné území a ochranné pásmo Outside the protected area and buffer zone	0
		II.	Ochranné pásmo ¹⁾	-0,01 až -0,03
		III.	Chráněná krajinná oblast ²⁾ v 1. a 2. zóně, nebo národní park ³⁾ ,	-0,01 až -0,03
		IV.	Národní přírodní rezervace, národní přírodní památka, přírodní	-0,03 až -0,05

			rezervace a přírodní památka ⁴⁾	
5	Omezení užívání pozemku Restrictions on the use of land	I.	Bez omezení užívání No restrictions on use	0
		II.	Stavební uzávěra	-0,01 až -0,05
		III.	Stavba pod povrchem pozemku	-0,01 až -0,05
6	Ostatní neuvedené Other unlisted	I.*	Vlivy snižující cenu	-0,01 až -0,30
		II.	Bez dalších vlivů Without other influences	0
Index omezujících vlivů na pozemek (Index of restrictive influences on the land): $I_0 = (1 + \sum_{i=1}^6 P_i)$				

Table 5: Position index for build-up land. Source: [14], own processing.

Znak Character			Kvalitativní pásma Qualitative zones					
P i	Název znaku Character's name	Číslo Number	Popis pásma Zone description	Druh a účel stavby na pozemku Type and purpose of the building on the land				
				Rezidenční stavby v obcích do 2000 ob. včetně	Rezidenční stavby v ostatních obcích nad 2000 Residential buildings in other municipalities over 2000 inhabitants	Stavby pro rodinnou rekreaci	Budovy pro školství a zdravotnictví	Budovy pro obchod a administrativu
a	b	c	d	e	f	g	h	i
1	Druh a účel užití stavby Type and purpose of use of the building	I.	Druh hlavní stavby v jednotném funkčním celku Type of main building in a single functional unit	1,01	1	0,85	0,55	0,65
2	Převažující zástavba v okolí pozemku a životní prostředí Prevailing built environment in the surrounding	I.	Rezidenční zástavba Residential buildings	0,03	0,04	0,01	0,1	0,08
		II.	Obchodní centra	0,01	0,02	-0,01	0	0,1
		III.	Rekreační oblasti	-0,02	-0,01	0,05	-0,15	-0,05
		IV.	Bez zástavby	-0,03	-0,03	0,02	0	-0,01
		V.	Výrobní objekty - (řemesla, sklady) nerušící okolí	-0,1	-0,1	-0,05	-0,05	0
		VI.	Výrobní objekty - (průmysl - výrobní haly) zatěžující okolí	0 až -0,15	0 až -0,15	0 až -0,20	-0,1	-0,02

	area and environment	VII.	Stavby pro zemědělství a ostatní neuvedené	0 až -0,10	0 až -0,10	0 až -0,05	-0,1	-0,05
3	Poloha pozemku v obci Location of the land in the municipality	I.	Střed obce - centrum obce	0,01	0,03	-0,01	0,1	0,1
		II.	Navazující na střed (centrum) obce Adjacent to the middle (center) of the municipality	0	0,02	0	0,08	0,05
		III.	Okrajové části obce	-0,01	-0,05	0,05	0,02	0
		IV.	Části obce nesrostlé s obcí (mimo samoty)	-0,02	-0,08	0,07	0	-0,03
		V.	Samoty	-0,08	-0,1	0,08	-0,05	-0,1
		VI.	Ostatní neuvedené	-0,03	-0,03	0,03	0,05	0,02
4	Možnost napojení pozemku na inženýrské sítě, které jsou v obci Possibility to connect the land to the utilities that are in the municipality	I.	Pozemek lze napojit na všechny sítě v obci nebo obec bez sítí The land can be connected to all networks in the municipality or municipality without networks	0	0	0	0	0
		II.	Pozemek lze napojit pouze na některé sítě v obci	-0,1	-0,1	-0,05	-0,07	-0,08
		III.	Pozemek nelze napojit na žádné sítě v obci	-	-	-0,15	-	-
5	Občanská vybavenost v okolí pozemku Civic amenities in the surrounding area	I.	V okolí nemovité věci je dostupná občanská vybavenost obce In the vicinity of the property is available civic amenities of the municipality	0	0	0	0	0
		II.	V okolí nemovité věci je částečně dostupná občanská vybavenost obce	-0,02	-0,01	0	0	-0,01
		III.	V okolí nemovité věci není dostupná žádná občanská vybavenost v obci	-0,05	-0,02	0	-0,01	-0,02
6	Dopravní dostupnost k pozemku	I.	Bez možnosti příjezdu motorovým vozidlem	-0,08	-0,08	-0,05	-	-0,1

	Transport accessibility to the land	II.	Příjezd pouze jednostopým vozidlem	-0,07	-0,07	-0,04	-	-0,07
		III.	Příjezd po nezpevněné komunikaci, špatné parkovací možnosti	-0,05	-0,05	-0,03	-0,07	-0,05
		IV.	Příjezd po nezpevněné komunikaci, dobré parkovací možnosti	-0,03	-0,02	-0,02	-0,03	-0,03
		V.	Příjezd po zpevněné komunikaci, špatné parkovací možnosti; nebo příjezd po nezpevněné komunikaci s možností parkování na pozemku	-0,02	0	-0,01	-0,02	-0,02
		VI.	Příjezd po zpevněné komunikaci, dobré parkovací možnosti	0	0	0	0	0
		VII.	Příjezd po zpevněné komunikaci, s možností parkování na pozemku Access by paved road, with parking on the property	0,01	0,01	0	0,05	0,1
		7	Osobní hromadná doprava,* Public transport,*	I.	Zastávka ve vzdálenosti od 1001 m	-0,07	-0,07	-0,01
II.	Zastávka od 201 do 1000 MHD - špatná dostupnost centra obce			-0,01 až -0,06	-0,01 až -0,06	0	-0,01 až -0,03	0,01 až -0,06
III.	Zastávka do 200 m včetně MHD - dobrá dostupnost centra obce, Bus stop within 200 m including public transport - good access to the municipality centre			0 až 0,02	0 až 0,02	0	0 až 0,01	0 až 0,02
IV.	MHD - centrum obce			0,03	0,03	0	0,02	0,03
8	Poloha pozemku nebo stavby z hlediska komerční využitelnost	I.	Nevýhodná pro účel užití realizované stavby	-0,01	-0,01	0	0	-0,03
		II.	Bez možnosti komerčního využití stavby na pozemku	0	0	0	0	0

	i Location of the land or building in terms of commercial availability		No possibility of commercial use of the building on the land						
		III.	Výhodná - možnost komerčního využití pozemku nebo stavby	0,01	0,04	0,01	0,05	0,05	
		IV.	Výhodná - pro pozemek se stavbou s komerční využitelností	0,02	0,08	0,02	0,1	0,1	
9 o	Obyvatelstvo Population	I.	Konfliktní skupiny v okolí v okolních bytech nebo v okolí	0 až -0,30	0 až -0,30	0 až -0,30	0 až -0,30	0 až -0,30	
		II.	Bezproblémové okolí Hassle-free neighborhood	0	0	0	0	0	
1 0	Nezaměstnanost Unemployment	I.	Vyšší než je průměr v kraji Higher than the regional average	-0,02	-0,01	0	0	0	
		II.	Průměrná nezaměstnanost	0	0	0	0	0	
		III.	Nižší než je průměr v kraji	0,02	0,01	0	0	0	
1 1	Vlivy ostatní neuvedené* Other impacts not specified**	I.	Vlivy snižující cenu	0 až -0,30	0 až -0,30	0 až -0,30	0 až -0,30	0 až -0,30	
		II.	Bez dalších vlivů Without other influences	0	0	0	0	0	
		III.	Vlivy zvyšující cenu	0 až 0,30	0 až 0,30	0 až 0,30	0 až 0,30	0 až 0,30	
Index polohy (Location index): $I_p = P_1(1 + \sum_{i=2}^{11} P_i)$									

6.2.2 Subdivision development method

Another method of estimating an undeveloped land value is subdivision development method. This method is also known as land development method, subdivision approach or investment method. Often, the final estimate by subdivision development method is higher than from comparison approach method. When both methods are applied correctly, both estimated prices should be similar.

Execution of subdivision development method:

- Determination of the best use of the land is important for finding out the most relevant information about the land being valued. It is essential to know the information from the zoning plan about the possibility of using the land and information from the land register about the owner of the land, whether a change in the zoning plan is possible and whether it is possible to build anything of the land.
- Creation or affirmation of a subdivision development plan, proposal of the number and size of sub-plots and areas for infrastructure.
- Estimation of costs for:
 - Land division – geodetic survey, negotiations with authorities, land clearance
 - Implementation of the evaluation – project documentation, forecasting and scheduling, permitting, land fund exclusion, construction costs, induced investments, the investor's technical supervision, holding costs – loan interest, taxes and fees, etc.
 - Marketing – sale of evaluated plots, advertising, purchase contracts, fees
 - Developer's profit approximation, reserve.
- Price schedule over time, if it will remain constant or vary.
- Sales price estimation is based on an analysis of the current market offers. This is used for the calculation of the market value of the project. Based on the current listings of similar properties, an average price for a specified unit is determined, which is used to calculate the sales price of the intended development project. Then the anticipated profit the developer would like to make is deducted and after obtaining the net present value and deducting the calculated construction costs, the value of the land before development is determined. This method is very complex, time-consuming and costly to prepare and without reliable market data, cannot be accurate land valuation technique. It can be made in several options. [6, 7]

6.2.3 The market comparison approach of land property

The comparative method is based on comparing the value of the property being valued with the prices of similar properties that have recently been realized on the market. The result is the so-called comparative value, which is equal to the price

of a similar property achieved on the open market, taking into account differences and time lag.

The reliability of the results of this method decreases when the number of differences of the compared properties and their size increases. This method reflects the market situation, so the principle of supply and demand is important in the search for comparative value. Demand is created by the investor and supply is created by the advertised/offered properties. If demand is high, prices increase with it, if demand is low, prices decrease. Therefore, property valuation must be based on market analysis of the area. [2]

The market comparison approach procedure is structured into 3 phases:

- **The preparatory phase**

Collecting of data for application of market comparison approach method. Data are information about selling, bidding or auctioned price and other important information about terms of trade and significant characteristics about the property which affect the price. It is necessary to find suitable properties to compare. [2]

- **The comparative phase**

This phase starts with selecting of property samples for comparison which are suitable to compare. They can be retrieved from participants in a trade or via other market participants. Those are information from real estate agencies, magazines, websites, brochures etc. Several databases exist usable for comparing properties. They should provide information about location, usability, qualitative and quantitative technical characteristics and terms of transaction, property rights and limitations.

There are parameters that all properties being compared need to have in common. Very important is comparability of the valued property and compared property such as size, quality and utility. Also external influences need to be taken into account as comparable parameters. Those can be, for example economic and regional influences, transport accessibility and availability, environment, sunlight, view, infrastructure and service, safety, security, state or municipal regulatory measures. Another is the actuality of the prices being compared, a sufficient number of completed transactions and the same conditions for all properties – area, participants, importance of the location, purpose of the property, size, scope of use, quality, usability, value. It is important to identify these impacts and project both

current and potential threats and opportunities. The final value is objective only when the conditions are comparable.

When choosing properties is advisable to prefer properties from the neighborhood or similar so that parameters are as different as possible. Both worse and better samples should be represented in the selection. At least 3 samples should be used for the valuation by direct comparison and with indirect comparison, at least 20 samples should be considered when making a one sample. These methods are explained below.

- Direct comparison – valued property is compared with every comparable property.
- Indirect comparison – one sample is created to represent a set of properties and compared with valued property.

Important step which needs to be included is choosing the appropriate method and unit of comparison. In the valuation of land property is always used unit of CZK/m² of land.

After that, choosing properties is followed with finding price differences with the help of correction factors. [2]

Correction factors

Pricing differences may be caused by different terms of transactions or by different pricing characteristics of the properties. The greater the differences, the greater the gap between appraised price and the search value of the property being valued. Therefore, the prices of the properties being compared need to be adjusted and corrected appropriately.

There are 3 ways to adjust the price:

- percentage deductions and additions;
- coefficients – multiplication or division;
- deductions or surcharges of absolute amounts. [2]

The rules for these price adjustments are set out in the table below:

Table 6: Price comparison rules. Source: own processing.

The valued property is <i>identical</i> to the sample	PH = CV
The valued property is <i>worse</i> than the sample	PH < CV
The valued property is <i>better</i> than the sample	PH > CV
PH = comparative value of the valued property	CV = sample price

Example: If the property being compared is 5% better than the sample price, the comparison value is calculated by multiplying the sample price by 95% or minus 5% of the price.

Table 7: Sample price adjustment. Sources: own processing.

Evaluation of pricing differentiation	Base	X %	X (coefficient)	Absolute shape in money
The sample is worse by x	CV	CV + x %	CV * (1 + x)	Surcharge
The sample is better by x	CV	CV - x %	CV * (1 - x)	Deduction

Below are described differences which can occur.

a) *Ownership rights to property*

Contractual agreements that pass to the new owner such as a rent level that does not correspond to the normal rent or easements – right of way, right of walk, underground lines, lifetime use etc. [2]

b) *Financial terms of transaction*

These are advance payments or additional payments. Prepayments are used in new construction, where developers obtain cheap capital that grows as risk decreases as the construction is completed. Commissions and fees, such as estate agent commissions, can also be taken into account. [2]

c) *Terms and conditions of sale*

It is a difference if the business transaction is not mutually beneficial or if only the offer prices which are one-sided opinion of the seller, are known. These prices tend to be higher and decrease over time until they disappear from the listing. This usually means that a transaction has taken place and prices have been rebalances. Negotiations can be as low as 10-15%, sometimes as high as 30% with experienced estate agents. [2]

d) Market conditions of the transaction

This relates to the period of time between the sale of the sample and the date on which is made the valuation. This may be influenced by factors such as economic developments, inflation, changes in supply and demand, interest rates, tax laws, etc.

e) Tax terms of transactions

It is necessary to distinguish whether the sample price includes VAT. It is more appropriate to consider the price without VAT.

f) Location of the property

The aim is to select samples that are located close to each other. Within the broader geographic relationships, the following are evaluated:

- Size of the municipality (population, area)
- Location within the country, region
- Importance of the municipality – administration, economy, shops and services, housing, health, education, transport, sport, culture, nature, environment, natural resources, etc.
- In a particular locality, it compares:
 - Location within the municipality
 - Urban relations and surroundings
 - Transport accessibility and parking facilities
 - Land shape, use, orientation to the cardinal points
 - Other environmental influences.

Typically, prices within a municipality increase towards the epicenter of the advantage, which is usually the town center. A price, if the municipality has one, can be used for this purpose. Higher prices are in quiet locations with good transport access. The main thing to look at is the use of the property, in the case of a detached houses, the main points are the distance to a public transport stop and also the ability to access and park a car.

Another distinction may be the boundaries of the land. It can be either solitary, terraced, corner or end orientation. The terrain and its orientation to the cardinal points are important to the usability of the site, the layout of building and access to properties. Flat terrain tends to be preferable for reduced landscaping costs, connection to utilities, and less complicated site furnishing. If the terrain is more

rugged, there tends to be a better view and atmosphere from the site and a more individual opportunity for buildings. Narrow plots or plots with inaccessible boundaries are then cheaper.

Neighborhood influences can be considered if there is, for example, increased construction activity in the surrounding area, heavy traffic in the neighborhood causing noise, dust, smell (landfill, scrapyards), dangerous operations such as laboratories and chemical plants, busy traffic on the roads, near a cemetery, a prison, inadapted neighbors, flood zones, underground areas, protection zones, etc. These may be temporary influences, but they can also be reflected in the price of the property. [2]

g) Technical characteristics

Properties may differ in the following technical characteristics:

- **Quantity**, such as land area, built-up area, floor area of the building, rentable area, usable area, etc.
- **Quality** is difficult to measure, mainly differences in type of construction, building materials, layout, interior fittings, accessories and architecture. It is necessary to compare mainly elements of long-term durability, which are foundations, load-bearing structures, roofing and staircases. It is important to identify possible defects and their sources.
- In case of **age and condition**, it is necessary to compare similarly aged buildings. [2]

h) Economical characteristics

Characteristics that affect the property's net annual yield. Properties may differ, for example, in the size of the leasable area, their quality, lease terms, operating costs or the cost of repairs and renovations. The economics of small and large properties are different. It is important to pay attention to the level of operating and refurbishment costs as they form a significant part of the life cycle costs of a building. For undeveloped land, these factors will not have much influence. [2]

i) Ways and possibilities of use

An analysis of the best and highest use that is the probable, justifiable and legal use of the property. It must be also realistic, technically feasible, financially

reasonable and appreciative of the value of the property. In the case of undeveloped land, it must be based on the land use plan. [2]

j) Non-real estate factors

These are items that are not part of or accessory to the property under the legislation, such as furniture. [2]

- **The final phase**

The market comparison approach results in an estimate of the comparative value of the property. Each property has in the end its comparative value, from which it is then necessary to create one final value. Several criteria can be used to add weights to each sample, such as similarity, timeliness, number and size of price adjustments, etc. Final step is an analysis and evaluation of results and resulting indication of the comparison value. [2]

7 Due diligence checklist

Property development due diligence cannot completely eliminate the risk from a development project but can dramatically reduce the exposure to risk when checking out the opportunity for a development project. That is why there are several points which cannot be forgotten when making a due diligence and have to be done really precisely so it does not come back later during the project. Because then it will cost a lot more money and time.

Table 8: *Due diligence checklist. Source: [44, 45], own processing.*

Due diligence checklist		General description	Description according to property
Location analysis	Transport and public transport	How is the locality accessible with transport and public transport, how long does it take to get to the city center, main bus and train station, work etc.	This is part of the location analysis in chapter 8.
	Schools and education facilities	For residential living is good to be close to schools and other education facilities. Information about what type of education is nearby or in the city are the ones that can be crucial when deciding about buying a property.	This is part of the location analysis in chapter 8.
	Shopping and retail centers	The basic necessities of life need to be provided as close as possible to the future residence. So it is advisable to consider and know the distance to the nearest supermarkets and shops.	This is part of the location analysis in chapter 8.
	Hospitals and healthcare	Health care services in the area are among the basic amenities.	This is part of the location analysis in chapter 8.
	Sport facilities	Leisure activities are sought after by most	This is part of the location analysis in chapter 8.

		people, especially for children to attend sports clubs.	
	Pathway accessibility	Is the location accessible for pedestrians?	This is part of the location analysis in chapter 8.
	Neighborhood quality	As neighborhood quality is understood as tidy streetscape because poorly planned suburb will devalue the property.	Neighborhood quality is very satisfying especially because it is very close to nature. There are trees, woods, a stream, fields, meadows and only single family houses in the vicinity. There is only a class II road nearby. The streetscape is otherwise tidy but the main access road from the main road is an unpaved road so if it is wet it can be dirty.
	Crime rate	Crime is an indicator of safety in a community.	The South Bohemian Region is one of the safest regions in the Czech Republic and crime has been decreasing in recent years. Similarly, the Tábor region is one of the safest districts of the South Bohemian Region.
	Unemployment rate	Unemployment rate shows how is the economy in the location able to generate enough jobs for people seeking work.	In 2019, the unemployment rate was below the average for the Czech Republic, and it is decreasing in the Tábor region, while it is increasing in other districts and municipalities.
Documents and ownership analysis	Analysis of ownership relations	The most important questions according to the ownership of properties is how many owners would be participating when developer would like to buy the property.	All properties have a single owner.
	Land registry information	Information from land registry are of great importance regarding the possibility of using the land.	All properties are registered in land registry as arable land and are part of the agricultural land fund. None of them is loaded by any easement and all of them are owned by one owner.
	Permits	Were there any permits for the property obtained in the past?	There are no information about previous permits.

	Zoning plan	What can be built in the area?	According to zoning plan, low-rise housing can be built on the property.
	Total area	Total area need to be checked carefully in cadastral registry.	Total area of the land property taken from the cadastral registry.
	Usable area	Usually it is necessary for developer to know the usable area so he can decide what type of development would be the most suitable one. It depends on a density and the medium density is about 60% of the total area.	There is no information about the ration of build-up area.
	Recent land surveys, septic reports, water reports	When there were some reports made recently, it could save developers money with making a new ones. Especially when archeology survey is already done it can be a real time and cost saver.	There are no information about recent surveys or reports.
	Easement on the land	An easement on the land can present complications when buying.	There are no easements on any of the land properties based on information from cadastral registry.
Property analysis	Topography	It is necessary to know the topography of the land, specifically the sloping of the site so there is a way for the storm water to run off and there is no need to create new measures.	The topography of this particular land in Tábor-Horky is very favorable as it lies on a hill and the land as a whole is gently sloping, so there is the possibility of storm water to run off into the stream which is located under the meadow that separates the land from the forest on the east side.
	Vegetation	The main task here is whether there are any trees or special vegetation on the site. If there are trees, how many of them are there, what size, could they be removed, and how, how much would it cost? Another question is if there is enough sky for solar energy in case	There is currently only one large tree on the site, but it is located on the boundary of the site, so it should not be a major problem in terms of, for example, the logistics of site equipment. All the plots are recorded as 'arable land' in the land registry and are part of the agricultural land fund. This means that they need to be removed

	there is an idea of placing solar panels in the future.	from the agricultural land fund in order to become developable land. All the land is registered in the Land Registry under the BPEJ code 72911 (Bonitated Soil and Ecological Unit). Because the land is not surrounded by any tall trees, there should not be any problem with placing a solar panels of the buildings in future.
Soil	A soil test should also be performed before starting to determine the type of soil which is present on the development site and whether it is good for the development.	Soil test should be performed.
Storm water	Together with topography and sloping of the site, drainage patterns must be inspected to make sure that the water flows off the property easily.	As said before, the slope of the site is slightly sloping.
Traffic	If there is an easy or difficult access to the property.	The access to the property is very easy from the main road because it is on the boarder of it.
Noise levels	As noise levels can be marked busy roads, children's playgrounds, industrial sites, business and recreational facilities.	The only thing that can be disturbing at the location is a noise from a busy road. The property is close to the class II road so it can be noisy at rush hour when people are driving to work or school, especially on weekday mornings. There is also a children's playground across the street close to a restaurant and that can be noisy over the weekends but it should not have be critical. Otherwise there are no other disturbing elements and the neighborhood should be very quiet.

	Air quality	Air quality is investigated for healthy living.	The property is very close to nature. Forest and a meadow is nearby same as river.
	Availability of services	Availability of services such as phone, water, sewerage, electricity, gas, cable TV services. If they are not available, what are the options for their substitution?	There are all services available on the edge of the property.
	Overhead cables and buried services	Overhead cables and buried services can have essential impact on design of development project.	There are overhead cables of high voltage going in the middle of a property with one column. It should not have big impact on design.
	Waste disposal	What is the regularity of waste collection in the neighborhood, if there is a recycled waste nearby and hard and green waste collection?	Regularity of waste collection is once a week in this locality, same as recycled waste.
	Flood and fire risk	All constructions are susceptible to fire and flooding and some locations can be vulnerable more than others.	The property is on the hill so there is no risk of flooding, same as there is no big risk of fire due to the locality of Czech republic.
	Sightlines	Important information about view from the property, landscape or countryside view is always better than view into a factory.	View from the property is partly into forest and meadow, partly into residential housing and streets.
Final	Intent	Is the property right for my intent after answering all the questions? How much will cost the realization of the project?	The intent is to build 12 single family houses at the property and yes, the property is right for the development idea.

This developer's checklist should be used when developer is buying land for the proposed project or when the owner is looking for a proposal what to do with the land property he already owns. The developer will analyze the ownership, technical and environmental conditions of the land and, if it meets his/her expectations, acquire the land. The securing of the land is usually done on the basis of an exclusivity agreement with the owner for negotiations. At this stage it is important that the developer uses the services of a lawyer, broker or engineering or design organization.

8 Valuation of land property

In order to determine the value of the land, an evaluation of the land is needed, which will then be used to evaluate several alternatives for management options with a final sale of all the land, either in its current condition or in a condition evaluated by either project documentation or the construction of either utility connections or including the construction of single-family homes.

The valuation will be done using the methods already described above - administrative price of the land, subdivision development method and market comparison approach method. These methods have been selected as the most appropriate for the valuation of the undeveloped land. However, first the land will be described in detail, an analysis of the site and the local property market will be carried out and then the valuation itself. The result will be the objective market value of land property in Tábor-Horky.

8.1 Property description

The valued property is a set of undeveloped land with an area of 12,971 m² marked as arable land, which is marked in the zoning plan as an area for low-rise housing, at which is expected to change its use in the future. The whole area is already parceled out and belongs to one owner. The building plots are not connected to any network utilities so in the future before the start of construction it is necessary to connect all land properties to existing network utilities which are now either on the edge of the site or inside roads around. Because the land is registered as arable land in the Land Registry and is part of the agricultural land fund, it is in order for the land to become building land necessary to be removed from the agricultural land fund. In order to simplify the work, a smooth process is foreseen for the removal process. The zoning plan depicts that there is an overhead power line protection zone running through the property. In addition, the safety zone of the VTL gas pipeline also runs through the land, as well as the sewerage system. Both water and sewer lines run in and around the roads. The whole area of the land, including the meadow adjacent to the land, is currently bounded by the development boundary.

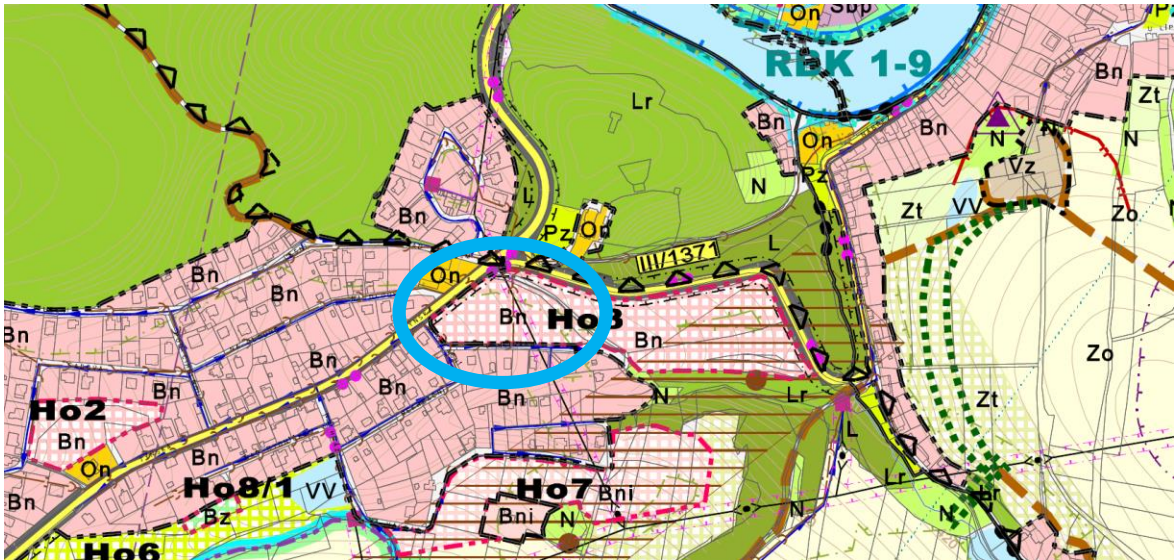


Figure 3: Zoning plan. Source: [43].

The figure shows the cadastral map in which the land valued in this work is marked. The table lists all the land, a total of 21 parcels, which will be subsequently grouped into 13 groups, for a total of 12 developable plots and one road to be sold. The groups will be specified in the valuation by subdivision development method where it is used.

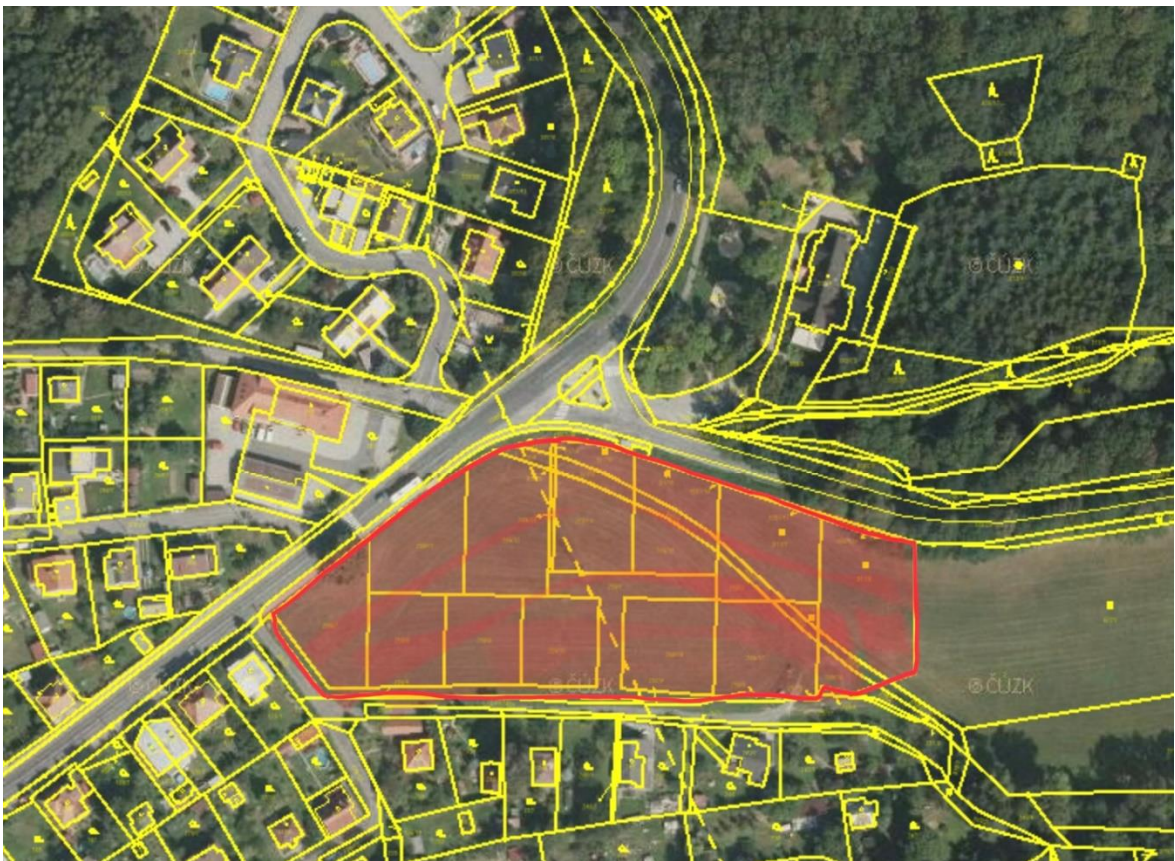


Figure 4: A set of land. Source: [21], own processing.

Table 9: List of parcels. Source: own processing.

Parcel no.	Land area	Parcel no.	Land area	Parcel no.	Land area	Parcel no.	Land area
259/7	903	259/13	49	518/9	89	517/3	28
259/8	748	259/14	712	518/8	52	517/4	7
259/11	924	259/15	437	518/7	82	517/5	207
259/9	720	259/16	891	518/3	118	517/6	377
259/1	1123	259/17	912	518/4	130	517/7	857
259/10	711	259/3	139	518/5	7	517/9	48
259/12	1183	259/18	159	518/6	67	517/8	1291
Total [m²]				12971 m²			

8.2 Local market analysis

The location of the land and the market analysis of the local market are very important in terms of the selling price. The attractiveness of the locality, job opportunities, good infrastructure in the area, accessibility to larger towns, medical care or school facilities are also important aspects that play a big role for potential buyers.

8.2.1 Location analysis

The land property is located in Tábor. It is a city in South Bohemia in a district called Tábor – Horky. It is a residential area close to the old town city center where is a complete system of authorities, services and a wide range of job opportunities close to the central bus and train station. There are regular bus connections from the location Tábor – Horky around the city. By walk people can get to the center in 20 – 30 minutes.

Tábor is a city with approximately 35 000 inhabitants and together with Sezimovo Ústí and Planá nad Lužnicí makes an agglomeration of almost 50 000 residents. These cities have all civic amenities including sports facilities.

- **Transport, public transport and pathway accessibility**

Tábor is a town strategically located between České Budějovice and Prague. A highway now leads to České Budějovice, which allows a driving distance from the

outskirts of the city to the outskirts of the city of less than 30 minutes. The edge of Prague is approximately 1 hour and 15 minutes away. The train journey is now very much faster thanks to the modernization of the corridor, taking around 40 minutes to České Budějovice and 1 hour and 15 minutes to the center of Prague. Other major cities such as Brno or Pilsen are not yet so conveniently connected, but the journey by car takes about 2-2.5 hours, whereas the public transport connections are not very good and the journey can take about 4-5 hours. From Tábor there are very good connections to towns and villages in the vicinity, it is the main transfer station for travelers from Prague. As far as public transport is concerned, there is a public bus service in the City of Tábor. The Tábor-Horky area is very well connected to the city center, with regular bus services from the bus station and regular buses to neighboring towns and villages stopping there. In total, the journey to the bus and train stations takes approximately 10-15 minutes and the city buses run every 30 minutes throughout the day and every 20 minutes in the morning. The bus stop is located on the main road, which is right next to the development site. The walking distance is therefore within 3 minutes from the furthest plot. Public transport in Tábor perfectly connects the agglomeration of 3 cities - Tábor, Sezimovo Ústí and Planá nad Lužnicí. In the second and third mentioned there are many job opportunities in factories and food factories.

- **Schools & education facilities**

As far as school facilities are concerned, Tábor as a district town is one of those with full school facilities up to higher vocational schools. The nearest kindergarten and primary school are less than 1.5 km away on foot in the center of the old town, i.e. within 5 minutes by car and 2 bus stops. There are several types of secondary schools in Tábor. From a general grammar school, an economics school, an agricultural school, an industrial school to a hotel school and all different apprenticeships. There are also two higher vocational schools in Tábor and Sezimovo Ústí. For higher education, the closest possibility of studying is in České Budějovice and Prague.

- **Shopping, retail centers & restaurants**

In addition to the shops located in the city center and especially in the Dvořák shopping center, which is located near the railway station, there is also the possibility of shopping in the Stop Shop, which is a shopping center on the outskirts of Tábor and offers classic small-town retail. There are also several supermarkets and hobby markets in the surrounding area, about 15 minutes by car from Tábor-Horky. On the

other side of Tábor, 10 minutes from the site, there are other supermarkets. There is only a small grocery store and a petrol station close to the land.

There is also a Pintovka restaurant across the main street, while the other restaurants are in the old town center.

- **Hospitals and healthcare**

The hospital is approximately a 10 minute drive from the site, with up to 25 minutes required for public transport access due to a bus change in the city center. There are also other specialist doctors with their own practices in the vicinity of the hospital. There is a polyclinic closer to the site where the bus goes directly.

- **Sport facilities**

In addition to all other amenities, Tábor is also an ideal base for many sports. There is a boating club by the river nearby, several football fields scattered around the city, a hockey hall, a swimming and athletics stadium with a multi-purpose hall, the Jordan Reservoir for various water sports including rowing, tennis courts and a tennis hall for the winter, fitness centers and so on. The city also offers several public comprehensive sports facilities, a cycle path along the river or an airport for sport flying.

8.2.2 Market analysis

Tábor is ideal for someone who is looking for a quiet place to live in a smaller town. Quarter Tábor – Horky perfectly fulfils the idea of a quiet and safe neighborhood close to the center. This district is build up mostly with family houses and cottages and the capacity of the development is almost full. Construction is only expected to take place on the adjacent land of the valued plot. In the neighborhood are mostly single-family homes, which are largely owned by local residents. As the area is largely build up and it is also a very popular location, it is likely that the demand for the purchase of detached houses will certainly outweigh the supply on the market. In the case of undeveloped land, this could be similar, but if the owner of the valued land, who owns the whole property, decided to sell off all the plots, supply could exceed demand. For the market analysis, only the land intended for development was considered. In the municipality of Tábor and its surrounding area, there were 8 land properties available at the time in question with an average price was 4,361 CZK/m² as shown in the table below.

Table 10: *Prices of land properties on market. Source: own processing.*

Property No.	Land area [m ²]	Original price [CZK]	Original unit price [CZK]
1	648	4 790 000 CZK	7 392 CZK
2	1987	4 240 427 CZK	2 134 CZK
3	1833	4 500 000 CZK	2 455 CZK
4	888	3 552 000 CZK	4 000 CZK
5	892	4 290 000 CZK	4 809 CZK
6	843	2 900 000 CZK	3 440 CZK
7	1036	5 990 000 CZK	5 782 CZK
8	964	4 700 000 CZK	4 876 CZK
Average price			4 361 CZK

8.3 Administrative price of land

The coefficients from Tables 2 - 5 in Chapter 6.2.1 Administrative price of the land were used to calculate the administrative price of the land. Those coefficients in each category that are translated into English in this thesis were used. Using the formulas from the tables, the individual coefficients and the resulting administrative price of land have been calculated.

$$ZCU = ZC * I$$

$$I = I_T * I_O * I_P$$

$$ZC = 1166 \text{ CZK/m}^2$$

$$I_T = P_6 * P_7 * P_8 * P_9 * \left(1 + \sum_{i=1}^5 P_i\right)$$

$$I_T = 1 * 1 * 1 * 1,05 * (1 + 0,02 + 0 + 0 + 0 + 0)$$

$$I_T = \mathbf{1,071}$$

$$I_O = \left(1 + \sum_{i=1}^6 P_i\right)$$

$$I_O = (1 + 0 + 0 + 0 + 0 + 0 + 0)$$

$$I_O = \mathbf{1}$$

$$I_P = P_{11} \left(1 + \sum_{i=2}^{11} P_i\right)$$

$$I_P = 1(1 + 0,04 + 0,02 + 0 + 0 + 0 + 0,01 + 0,02 + 0 + 0 - 0,01 + 0)$$

$$I_P = \mathbf{1,08}$$

$$I = 1,071 * 1 * 1,08 = \mathbf{1,157}$$

$$ZCU = 1166 * 1,157 = \mathbf{1349 \text{ CZK/m}^2}$$

The administrative price of the land is determined as **1 349 CZK/m²**.

8.4 Market value determined by the subdivision development method

8.4.1 Introduction of the development intent

The development plan is to implement a residential development project. This involves the consolidation of parcels into individual units as the lots should be grouped for the purpose. It also includes the construction of roads and utility connections. The zoning plan allows for the construction of low-rise residential buildings on these sites, so the lots have been grouped into 12 groups of land properties on which two types of single-family homes intended for permanent family housing will be built. In case of the first type of single-family house called Flexim Drive, it will be a ground-floor four bedroom building with a garage for one car. The second type of the house called Benefit 125 will be a low-energy two-story house with a four bedroom layout. A garage is not included in this type of house, but it can be easily added in the future. The first type of the house will be placed to a plot of larger land area which is bigger than 932 m² and the two-story houses will be because of smaller square meter build-up area, placed on smaller plots. The total amount will be 6 and 6 houses of each type.

Flexim Drive house description:

Living rooms:	4
Usable area:	127 m ²
Build-up area:	153 m ²
Roof pitch:	22°
Energy class:	A0

The project of the family house Flexim Drive is a 4 bedroom bungalow with a garage. The width and layout of the rooms allow the house to be built on narrower plots. This house is of simple construction, which saves funds for construction. The kitchen is easily interchangeable with the living room. [33]



Figure 5: *Flexim Drive house. Source: [33].*

Benefit 125 house description:

Living rooms:	4
Usable area:	121 m ²
Build-up area:	81 m ²
Roof pitch:	30°
Energy class:	A0

Thanks to its compact shape, the Benefit 125 2-storey family house project achieves significant energy and construction savings. The degree of energy class achieved can be influenced by appropriate technology and insulation. In this way, not only a low-energy but also a passive standard can be achieved. Its simplicity also makes it suitable for self-build. It is possible to add a garage on the side. It is also possible to adjust the layout of windows and other building openings. [34]



Figure 6: *Benefit 125 house. Source: [34].*

8.4.2 Proposal for land division

First of all, it is necessary to estimate the number and size of partial plots and areas for infrastructure. The total land area is 12,971 m². The whole set of land is already parceled out, but for simplicity the parcels are grouped together and Table 11 shows how the parcels could be grouped. A total of 13 plots will be created, with plot 1 forming the access road as shown on Figure 7. All plots would be accessed from the newly constructed access road or from existing roads.



Figure 7: *Land division proposal. Source: own processing.*

Table 11: *Grouped parcels. Source: own processing.*

Parcel number (new)	Parcel numbers (before)	Total land area [m ²]
1	259/1	1 123
2	259/7	903
3	259/11	924
4	259/8	748
5	259/12, 518/6, 517/3	1 278
6	259/9	720
7	259/14, 259/13, 518/4, 518/5, 517/4, 517/5	1 112
8	259/10	711
9	259/15, 518/3, 517/6	932
10	259/16	891
11	259/3, 518/7, 517/7	1 078
12	259/17, 518/8, 517/9	1 012
13	259/18, 518/9, 517/8	1 539
Total [m²]		12 971 m²

Table 12: *Area summary. Source: own processing.*

12 plots for single-family houses	11 848 m ²
Service roads – 9%	1 123 m ²
Total Area	12 971 m²

8.4.3 Costs estimation / calculation

Since the land is now parceled out and there is nothing to remove, there is no need to consider the cost of subdividing and clearing the land. To determine the construction costs for the construction of the houses, price indicators from the RTS's company database were used. For the determination of the costs of the road construction the database will be used as well.

Price per 1 m³ of built-up area for single-family houses with vertical load-bearing brick and block structures for the year 2021 was assumed to be 6,595 CZK.

Table 13: *The price system – buildings. Source: [23], own processing.*

Number	Characteristics	Price
803	Buildings for housing	
803.6	Single family houses	
803.6 1.R	Vertical load-bearing structure made of bricks and blocs	6 595 CZK/m ³

Table 14: *Construction costs – single-family houses. Source: own processing.*

Plot	Plot area [m ²]	Built-up area [m ²]	Floor area [m ²]	Built-up area [m ³]	Number of floors	Construction costs
P2	903	81	121	520	2	3 429 400 CZK
P3	924	81	121	520	2	3 429 400 CZK
P4	748	81	121	520	2	3 429 400 CZK
P5	1 278	153	127	585	1	3 858 075 CZK
P6	720	81	121	520	2	3 429 400 CZK
P7	1 112	153	127	585	1	3 858 075 CZK
P8	711	81	121	520	2	3 429 400 CZK
P9	932	153	127	585	1	3 858 075 CZK
P10	891	81	121	520	2	3 429 400 CZK
P11	1 078	153	127	585	1	3 858 075 CZK
P12	1 012	153	127	585	1	3 858 075 CZK
P13	1 539	153	127	585	1	3 858 075 CZK
Total						43 724 850 CZK

As for the calculation of the costs for the construction of houses, the calculation of the costs for the construction of roads will be also carried out according to the RTS price system.

The usual cost of construction of a paved road is 1,022 CZK/m².

Table 15: *The price system – roads. Source: [23], own processing.*

Number	Characteristics	Price
822	Roads and airports	
822.2	Ground road	
822.2 3.R	Paved road	1 022 CZK/m ²

Table 16: *Construction costs – road. Source: own processing.*

Price [CZK/m ²]	Total area [m ²]	Total
1 022	1 123	1 147 706 CZK

It is also important to include the additional budget costs for the construction of houses. These are calculated as a percentage of the basic budget costs, i.e. the cost of the construction itself. It is necessary to determine the costs associated with the location of the building and the costs of landscaping and utility connections.

Table 17: *Additional budget costs. Source: own processing.*

Basic budget costs (all houses)	43 724 850 CZK
Costs associated with the location of the building - 5%	2 186 243 CZK
Landscaping and utility connections - 4%	1 748 994 CZK
Total costs	47 660 087 CZK

8.4.4 Total costs

To calculate the total costs of the construction of all houses there is necessary to include also soft costs which are connected to the construction project. First of them are sales costs which will occur at the post-completion phase when the buildings will be sold or during the construction in case the pre-sale will be initiated during the development phase. Marketing costs go hand in hand with the sales costs, just earlier. Financing costs will occur with the loan which will be necessary. Project management costs will cover all project managers during the construction to have a smooth construction process. Architecture and engineering cost are costs which run throughout the construction period, same as money for reserve.

The percentages are considered as shown in Table 18 and are based on an estimate of how much they should be considering construction costs.

Table 18: *Total project costs. Source: own processing.*

Type of costs		%	Price
Construction costs	Single-family houses		47 660 087 CZK
	Road		1 147 706 CZK
Total construction costs			47 660 087 CZK
Soft cost	Sales costs	3%	1 429 803 CZK
	Financing costs	3%	1 429 803 CZK
	Project management	6%	2 859 605 CZK
	Marketing	1%	476 601 CZK
	Reserve	5%	2 383 004 CZK
	Architecture & engineering	5%	2 383 004 CZK
Total costs			58 621 906 CZK

8.4.5 Calculation of the market value of the project

A market analysis was carried out to determine the sale price of the properties. Since in the given location there are no similar development projects currently under construction, the data used is from projects in other locations in Czech Republic. This is then taken into account by a coefficient that adjusts the price according to the

location. All the selected projects have common features, which are the development of single family houses and the location in a smaller town.

Development project no. 1

Development project for the construction of detached bungalow-type houses in Hluboká nad Vltavou. The family houses will be built on very lucrative plots in a quiet location intended for residential development. The plots are situated towards the south with a view of the countryside equipped with all available utilities. Bungalow type 4 bedroom houses from 118 m² floor area with garage or storage. The price includes a fully equipped turnkey house including two parking spaces. Upon agreement with the contractor, fencing and a rolling gate can be realized, as well as a kitchen including appliances. [36]

Prices of properties:

Property no. 1 – 8 980 000 CZK

Property no. 2 – 8 980 000 CZK

Property no. 3 – 8 980 000 CZK



Figure 8: *Development project no. 1. Source: [36], own processing.*

Development project no. 2

Project for the construction of family houses in a quiet part of the town of Senomaty. A total of 24 modern family houses will be built in three phases. The energy performance of the houses is measured in group B = very economical. Heating of the houses is provided by a heat pump. The houses are connected to new utility

connections (electricity, water, sewerage and storm water drainage). Each house has an access road from the boundary of the plot to the family house. The plots are fenced on 3 sides. There is a choice of 4 types of houses and 24 building plots. Two types of houses are ground floor with hipped roof and two attic with gable roof. It is possible to choose the plot and the type of house to be built on it. The place of the development is very quiet, the surrounding buildings consist of family houses. [37]

Prices of properties:

Property no. 1 – 5 664 803 CZK

Property no. 2 – 4 653 299 CZK

Property no. 3 – 6 737 188 CZK

Property no. 4 – 7 947 944 CZK



Figure 9: *Development project no. 2. Source: [37].*

Development project no. 3

We offer for sale 6 ground-floor detached houses of 5 rooms with a living area of 118 m² in the village of Smědčice. The plots have an area of 670-690 m². The layout offers an entrance hall, hallway, utility room, bathroom, separate toilet, bedroom, children's room, guest room and living room with kitchenette. All houses will be equipped with hot water underfloor heating with connection to an electric boiler or heat pump. The contractor is financing the construction, the future buyer will pay only the reservation deposit and the rest of the price after the building is approved. [38]

Prices of properties:

Property no. 1 – 8 690 000 CZK

Property no. 2 – 8 290 000 CZK

Property no. 3 – 8 590 000 CZK

Property no. 4 – 8 930 000 CZK

Property no. 5 – 8 590 000 CZK

Property no. 6 – 8 690 000 CZK



Figure 10: Development project no. 3. Source: [38], own processing.

Development project no. 4

Construction will take place in 3 stages. In the first stage 19 family houses will be built. The offer includes both detached houses, semi-detached houses and terraced houses with a layout of 2 to 5 rooms with a total living area of 60 - 152 m² and land area of 297 - 593 m². The houses are finished within the standard equipment. There is always a choice of several decors and colors with the possibility of exchanging for superior equipment. [39]

Prices of properties:

Property no. 1 – 7 947 944 CZK

Property no. 2 – 7 558 000 CZK

Property no. 3 – 7 643 000 CZK

Property no. 4 – 7 648 000 CZK

Property no. 5 – 7 808 000 CZK



Figure 11: *Development project no. 4. Source: [39].*

Development project no. 5

Separate and two terraced houses in the village of Lány near Kladno. Currently, a new location of family houses is being built here. Construction of 3 types of family houses: detached houses, detached bungalows and 2 row houses. All in the stage of bare houses (without internal modifications). The site has all civic amenities. [40]

Prices of properties:

Property no. 1 – 11 140 900 CZK

Property no. 2 – 11 750 550 CZK

Property no. 3 – 12 284 850 CZK

Property no. 4 – 11 691 650 CZK

Property no. 5 – 12 294 450 CZK



Figure 12: *Development project no. 5. Source: [40].*

Development project no. 6

Newly built house of 82 m² with separate garage and garden in Mutěnice near Strakonice. This is a low-energy house according to the highest standards. [41]

Prices of properties:

Property no. 1 – 3 599 000 CZK

Property no. 2 – 4 189 000 CZK



Figure 13: *Development project no. 6. Source: [41].*

Development project no. 7

Villa resort Lužické gardens represents exceptional residential living in a private gated community with an emphasis on luxury, security and healthy living. Set in the surrounding countryside with a cycle path on the border of the resort and with a playground nearby, a large central green area and a spectacularly designed infrastructure with visitor parking spaces and modern public lighting, it offers exceptional living without equal. [42]

Prices of properties:

Property no. 1 – 8 867 880 CZK

Property no. 2 – 9 271 530 CZK

Property no. 3 – 8 987 480 CZK

Property no. 4 – 7 929 480 CZK

Property no. 5 – 8 049 080 CZK

Property no. 6 – 8 333 130 CZK



Figure 14: Development project no. 7. Source:[42].

The weight of the land area and the floor area of the house on the final price of the property has been determined.

The influence of the size of the floor area on the price: 90%

The Influence of the plot size on price: 10%

In Table 19 and 20 are average prices per m² of the sales prices of two-story and ground floor single family houses.

Table 19: Price per 1 m² – two-story single family houses. Source: own processing.

Name of the project	Number of floors	Floor area	Plot area	Price	Location coefficient	Calculated price per m ²
Senomaty, Trnková	2	123	900	6 737 188 CZK	0,97	32 561 CZK
Senomaty, Trnková	2	170	900	7 947 944 CZK	0,97	31 726 CZK
Němčice	2	98	566	7 558 000 CZK	0,95	49 586 CZK
Němčice	2	98	555	7 508 000 CZK	0,95	49 635 CZK
Němčice	2	98	583	7 643 000 CZK	0,95	49 562 CZK
Němčice	2	98	584	7 648 000 CZK	0,95	49 561 CZK
Němčice	2	98	616	7 808 000 CZK	0,95	49 517 CZK
Lány	2	186	714	11 140 900 CZK	0,93	43 388 CZK
Lány	2	186	803	11 750 550 CZK	0,93	44 118 CZK
Lány	2	186	881	12 284 850 CZK	0,93	44 716 CZK
Average price per m²						44 437 CZK

Table 20: Price per 1 m² – ground floor single houses. Source: own processing.

Name of the project	Number of floors	Floor area	Plot area	Price	Location coefficient	Calculated price per m ²
Hluboká nad Vltavou	1	118	708	8 980 000 CZK	1,03	52 256 CZK
Hluboká nad Vltavou	1	118	704	8 980 000 CZK	1,03	52 375 CZK
Hluboká nad Vltavou	1	118	730	8 980 000 CZK	1,03	51 615 CZK
Senomaty, Trnková	1	95	750	5 664 803 CZK	0,97	34 236 CZK
Senomaty, Trnková	1	65	650	4 653 299 CZK	0,97	36 548 CZK
Smědčice	1	118	690	8 690 000 CZK	1,02	50 592 CZK
Smědčice	1	118	607	8 290 000 CZK	1,02	50 664 CZK
Smědčice	1	118	670	8 590 000 CZK	1,02	50 588 CZK
Smědčice	1	118	617	8 390 000 CZK	1,02	50 970 CZK
Smědčice	1	118	673	8 590 000 CZK	1,02	50 500 CZK
Smědčice	1	118	688	8 690 000 CZK	1,02	50 650 CZK
Lány	1	171	809	11 691 650 CZK	0,93	46 308 CZK
Lány	1	171	897	12 294 450 CZK	0,93	46 937 CZK
Mutěnice	1	82	180	3 599 000 CZK	1,05	41 165 CZK
Mutěnice	1	82	385	4 189 000 CZK	1,05	39 167 CZK
Libiřany	1	124	902	8 867 880 CZK	0,95	41 747 CZK
Libiřany	1	124	1 037	9 271 530 CZK	0,95	40 910 CZK
Libiřany	1	124	942	8 987 480 CZK	0,95	41 487 CZK
Libiřany	1	104	902	7 929 480 CZK	0,95	40 985 CZK
Libiřany	1	104	942	8 049 080 CZK	0,95	40 717 CZK
Libiřany	1	104	1037	8 333 130 CZK	0,95	40 124 CZK
Average price per m²						45 264 CZK

8.4.6 Determination of potential revenues from the sale of the project

The same weights of land area and floor area are used to determine the market value on the resulting price of valued land properties.

The influence of the size of the floor area on the price: 90%

The Influence of the plot size on price: 10%

Table 21: Sales prices of single family houses. Source: own processing.

Plot	Number of floors	Floor area [m ²]	Plot area [m ²]	Sale price
P2	2	121	903	8 851 864 CZK
P3	2	121	924	8 945 182 CZK
P4	2	121	748	8 163 090 CZK
P5	1	127	1 278	10 958 392 CZK
P6	2	121	720	8 038 666 CZK
P7	1	127	1 112	10 207 011 CZK
P8	2	121	711	7 998 673 CZK
P9	1	127	932	9 392 261 CZK
P10	2	121	891	8 798 540 CZK
P11	1	127	1 078	10 053 114 CZK
P12	1	127	1 012	9 754 372 CZK
P13	1	127	1 539	12 139 780 CZK
Total				113 300 944 CZK

8.4.7 Discounting of revenues

The estimated construction time for the entire project is 3 years at a discount rate of 5% and estimated profit of 15% from the whole project.

Table 22: Net present value of the project. Source: own processing.

Sale of developed land	113 300 944 CZK
Profit deduction - 15%	- 16 995 142 CZK
Net yield	96 305 802 CZK
Development period	3
Discount rate	5%
NPV of revenues	83 192 573 CZK

8.4.8 Determination of land value

Table 23: Determination of land value. Source: own processing.

NPV of revenues	83 192 573 CZK
Total costs	58 621 906 CZK
The value of the land before development	24 570 666 CZK
Unit price [CZK/m²]	1 894 CZK

After subtracting the total costs from the net present value of revenues, the price of the entire land is 24,570,666 CZK. The land has a total area of 12,971 m² and the unit price is therefore 1,894 CZK/m².

8.5 Market value determined by the market comparison approach method

In the case of using the comparative approach method for the valuation of land in Tábor-Horky, similar property means undeveloped land intended for the construction of a family house, which is located in the town of Tábor or in its immediate vicinity and its land area does not exceed 2,000 m². For the purpose of this thesis, 8 properties were selected that meet these parameters. In Table 25 and Table 26 these properties are weighted by coefficients that distinguish their differences.

Table 24: Compared land properties. Source: own processing.

Property No.	Location	Land area [m ²]	Default price [CZK]	Original unit price [CZK]
1	Tábor - Měšice	648	4 790 000 CZK	7 392 CZK
2	Tábor - Záluží	1987	4 240 427 CZK	2 134 CZK
3	Slapy	1833	4 500 000 CZK	2 455 CZK
4	Planá nad Lužnicí - Strkov	888	3 552 000 CZK	4 000 CZK
5	Planá nad Lužnicí - Strkov	892	4 290 000 CZK	4 809 CZK
6	Tábor - Klokoty	843	2 900 000 CZK	3 440 CZK
7	Tábor - Náchod	1 036	5 990 000 CZK	5 782 CZK
8	Planá nad Lužnicí - Strkov	964	4 700 000 CZK	4 876 CZK

Land property no. 1

Land property with a total area of 648 m² in a new residential area in the locality of Tábor – Svatá Anna, intended according to the municipality's zoning plan to build a family house. The land is developed with the possibility of connection to electricity, water and sewerage. The electricity distribution box, the so-called chapel, is already built on the land and ready to be connected. Access is on a paved municipal road. [24]

Land area: 648 m²

Price: 4 790 000 CZK

Price per m²: 7 392 CZK/m²

Location: Tábor – Svatá Anna



Figure 15: *Land property no. 1. Source: [24].*

Land property no. 2

Land property with a total area of 1,987 m², located in the cadastral area of Měšice u Tábora in the village of Záluží. According to the zoning plan of the municipality Záluží is intended for building a low-rise family house of rural type. The slightly sloping land is now used as a garden. The access road is from the first class road. Utilities are in the vicinity of the plot. There is a bus stop directly in the village of Záluží. All civic amenities are in Tábor, about 3 km away. [25]

Land area: 1 987 m²

Price: 3 901 193 CZK

Price per m²: 2 134 CZK/m²

Location: Tábor – Záluží



Figure 16: *Land property no. 2. Source: [25].*

Land property no. 3

Land with a total area of 1,833 m² in the village of Slapy u Tábora. The land is zoned for the construction of family houses. Engineering networks are near the land. [26]

Land area: 1 833 m²

Price: 4 140 000 CZK

Price per m²: 2 455 CZK / m²

Location: Slapy u Tábora

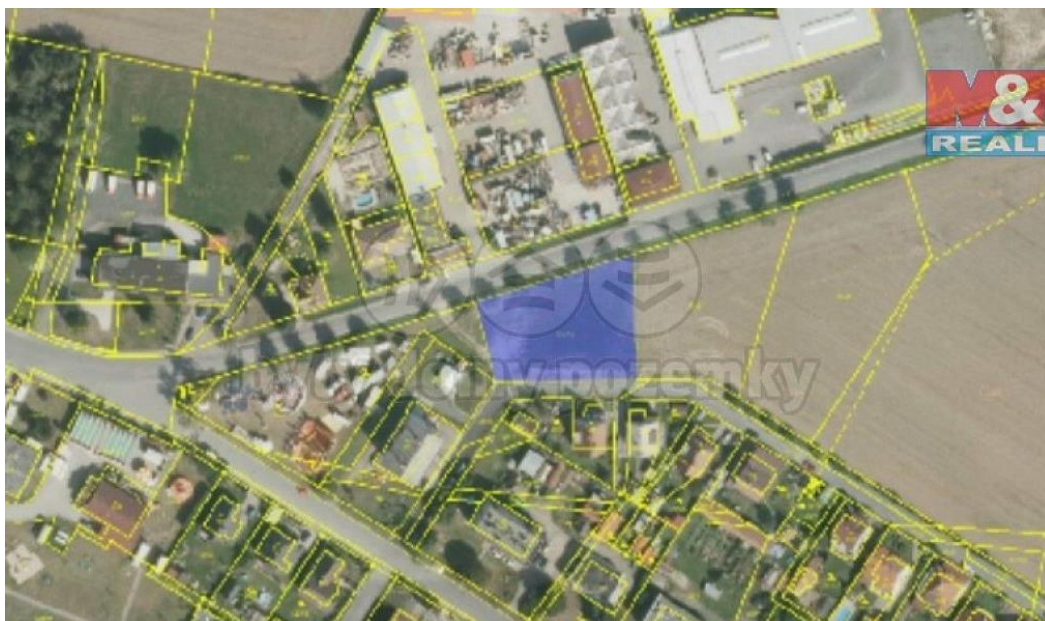


Figure 17: Land property no. 3. Source: [26].

Land property no. 4

Building land with an area of 888 m² in Plana nad Lužnicí - Strkov. The land is connected to the utilities of electricity, water supply and sewerage. The land is rectangular in shape about 20 x 44 m, slightly sloping to the south, access is from the north. [27]

Land area: 888 m²

Price: 3 267 840 CZK

Price per m²: 4 000 CZK / m²

Location: Planá nad Lužnicí - Strkov



Figure 18: Land property no. 4. Source: [27].

Land property no. 5

Building plot including project documentation and building permit. The land plot with an area of 892 m² is located on the outskirts of a residential development in Strkov in Plana nad Lužnicí. On the plot there is a pillar with electrical connection, water meter shaft with water connection, sewerage inspection shaft. On the border of the plot there is a gas pipeline and there is a pillar with the main gas shut-off. The property is not located in a floodplain. The price includes complete project documentation with already issued building permit for a single-story house in the shape of the letter "T" – four bedroom bungalow with garage and terrace, built-up area 183 m², usable area 147 m². The house will be heated by a heat pump (water, air) with underfloor heating. [28]

Land area: 892 m²

Price: 3 946 800 CZK

Price per m²: 4 809 CZK / m²

Location: Planá nad Lužnicí - Strkov



Figure 19: Land property no. 5. Source: [28].

Land property no. 6

Flat land of ideal shape of 843 m² designed according to the zoning plan for the construction of a single-family house in a quiet location Tábor-Klokoty. Land in a quiet part of town with minimal traffic in the newly emerging development of family houses. Access road to the land is municipal. Utilities are not connected to the land. Electricity can be brought immediately. Water and sewerage must be sorted out at your own expense. Currently it is brought about 100 m from the plot. [29]

Land area: 843 m²

Price: 2 900 000

Price per m²: 3 440 CZK / m²

Locality: Tábor - Klokoty



Figure 20: Land property no. 6. Source: [29].

Land property no. 7

Offer for sale of flat land of regular shape in Tábor with a total area of 1,036 m². The land is part of a lucrative complex of new family houses with only local traffic. It is connected to utility networks and very well accessible from the local road. On the land there is an electricity connection, water shaft with water meter and gravity sewer connection. There is also an entrance already built. There is no gas. According to the conditions of the zoning plan, the future building can be basement, story and even with an attic. There are no specific requirements for the appearance of the building. Whole complex is designed with regard to greenery and recreation areas. Excellent accessibility to the center, in close proximity to public transport. Náchod is located in a quiet suburb of Tábor with minimal traffic. Living here is an ideal combination of nature and urban facilities. [31]

Land area: 1 036 m²

Price: 5 990 000 CZK

Price per m²: 5 782 CZK / m²

Locality: Tábor – Náchod



Figure 21: *Land property no. 7. Source:[31].*

Land property no. 8

Exclusively offered flat land, intended for the construction of a family house 964 m² in Karasová street in Planá nad Lužnicí - Strkov. The land is networked - electricity, gas, public water supply and sewerage in the street. Access is on a paved municipal road. There are all civic amenities in Planá nad Lužnicí. Exit from the D3 motorway to Tábor 8km.

Land area: 964 m²

Price: 4 700 000 CZK

Price per m²: 4 876 CZK / m²

Locality: Planá nad Lužnicí - Strkov

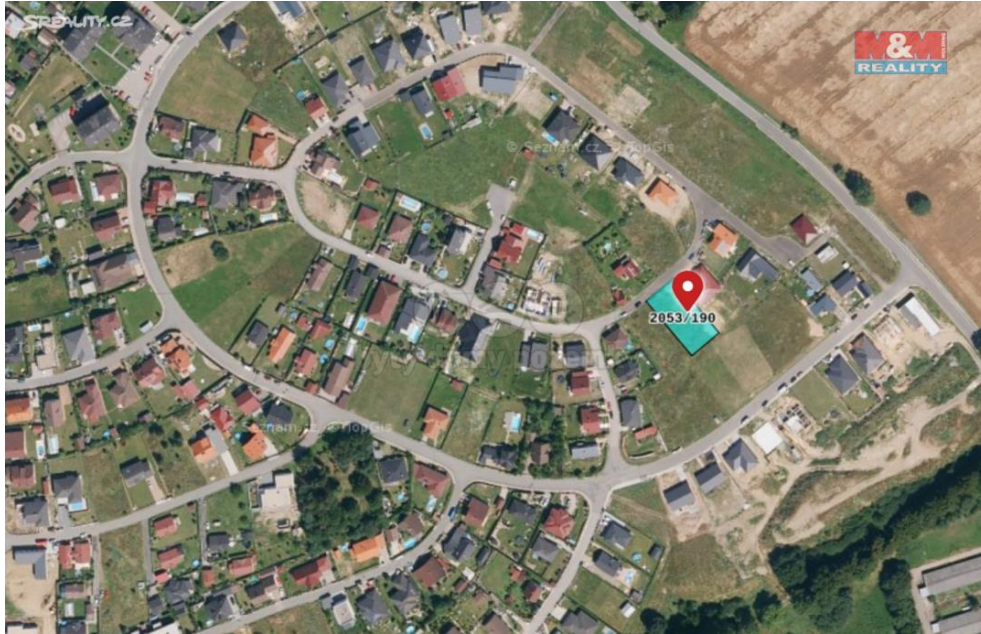


Figure 22: Land property no. 8. Source: [35].

Table 25 shows the use of the comparison method to value undeveloped land. For each property offered on the real estate market, the offered price was first adjusted, i.e. reduced by up to 10%, in order to adjust the price for commission and legal fees and to take into account the amount by which the price of the property could still potentially fall given the date of the advertisement. All the advertisements have been posted recently, therefore it can be assumed that the price may still drop in the future. In the case of properties no. 1 to 5 and 8, the price has been reduced by 8% because the real estate company either stated that only commissions are included or they did not state anything, therefore it can be assumed that commissions are included. Properties no. 6 and 7 also include legal services in the price, therefore the prices are reduced by 10%.

The Table 25 then applies correction factors (coefficients) to compare all undeveloped properties and calculates an average price, which is then rounded and is the assessed price at the valuation date using the comparative method.

Table 25: Market comparison approach method – part I. Source: own processing.

LAND PROPERTY TÁBOR - HORKY	Valued property	Property no. 1	Property no. 2	Property no. 3	Property no. 4
Location	Tábor - Horky	Tábor - Měšice	Tábor - Záluží	Slapy	Planá nad Lužnicí - Strkov
Default price [CZK]		4 790 000 CZK	4 240 427 CZK	4 500 000 CZK	3 552 000 CZK
Note		commission incl.	commission incl.	commission incl.	-
Date of advertisement, actualization of advertisement		25.11.2021	23.12.2021	15.12.2021	18.11.2021
Price correction [CZK]		4 406 800 CZK	3 901 193 CZK	4 140 000 CZK	3 267 840 CZK
Land area [m ²]	12971	648	1987	1833	888
Original unit price [CZK]		7 392 CZK	2 134 CZK	2 455 CZK	4 000 CZK
Unit price after correction [CZK]		6 801 CZK	1 963 CZK	2 259 CZK	3 680 CZK
Location	1	1,01	1,05	1,01	1,05
Availability of public transport	1	1,01	1,04	1,02	1,03
Pedestrian accessibility	1	1,02	1,05	1,02	1,03
Connection to utility networks (at the property boundary)	1	0,95	0,95	0,98	0,95
Slope of the land	1	0,97	1	0,98	0,98
Utilization (single-family house, recreation etc.)	1	1	1	1	1
Local view	1	0,99	1,01	1,01	0,99
Adjacent land (build-up area)	1	0,98	1	1	1
Surroundings - road traffic	1	0,97	1,02	1,01	0,97
Finished project documentation	1	1	1	1	1
Resulting coefficient	1	0,90	1,12	1,03	1,00
Land area [m ²]	12971	648	1987	1833	888
Unit price after correction / comparative value [CZK/ m ²]		6 136 CZK	2 203 CZK	2 325 CZK	3 665 CZK

Table 26: Market comparison approach method – part II. Source: own processing.

LAND PROPERTY TÁBOR - HORKY	Valued property	Property no. 5	Property no. 6	Property no. 7	Property no. 8
Location	Tábor - Horky	Planá nad Lužnicí - Strkov	Tábor - Klokoty	Tábor - Náchod	Planá nad Lužnicí - Strkov
Default price [CZK]		4 290 000 CZK	2 900 000 CZK	5 990 000 CZK	4 700 000 CZK
Note		-	commission and legal service incl.	commission and legal service incl.	-
Date of advertisement, actualization of advertisement		03.10.2021	18.12.2021	16.12.2021	16.12.2021
Price correction [CZK]		3 946 800 CZK	2 610 000 CZK	5 391 000 CZK	4 324 000 CZK
Land area [m ²]	12971	892	843	1036	964
Original unit price [CZK]		4 809 CZK	3 440 CZK	5 782 CZK	4 876 CZK
Unit price after correction [CZK]		4 425 CZK	3 096 CZK	5 204 CZK	4 485 CZK
Location	1	1,05	0,98	1,01	1,05
Availability of public transport	1	1,03	1	1,02	1,03
Pedestrian accessibility	1	1,03	1	1	1,03
Connection to utility networks (at the property boundary)	1	0,95	1	0,95	0,95
Slope of the land	1	0,98	0,96	0,98	0,98
Utilization (single-family house, recreation etc.)	1	1	1	1	1
Local view	1	0,99	1	1,01	0,99
Adjacent land (build-up area)	1	1	0,98	1	1
Surroundings - road traffic	1	0,97	0,96	0,96	0,97
Finished project documentation	1	0,9	1	1	1
Resulting coefficient	1	0,90	0,89	0,93	1,00
Land area [m ²]	12971	892	843	1036	964
Unit price after correction / comparative value [CZK/ m ²]		3 966 CZK	2 740 CZK	4 839 CZK	4 467 CZK

Table 27: Market comparison approach method–part III. Source: own processing.

	Unit price after correction / comparative value [CZK/m ²]	Average price [CZK/m ²]	Unit price at the date of valuation [CZK]	Final price of land property [CZK]
Property no. 1	6 136 CZK	3 793 CZK	3 793 CZK	49 196 445 CZK
Property no. 2	2 203 CZK			
Property no. 3	2 325 CZK			
Property no. 4	3 665 CZK			
Property no. 5	3 966 CZK			
Property no. 6	2 740 CZK			
Property no. 7	4 839 CZK			
Property no. 8	4 467 CZK			

The price determined by the comparative approach method as of the valuation date 25.12.2021 is 3 793 CZK/m².

8.6 Objective market value

The objective market value of the land will be evaluated on the basis of valuation using individual methods - administrative method, investment method and comparison approach method. The final objective market value is determined as a weighted average of these methods, where the weights are chosen in the ratio 10:50:40. The administrative valuation method has the lowest weight because it reflects the current situation on the real estate market the least. The subdivision development method is then weighted more heavily than the comparative method, primarily because the group of land properties offers a great opportunity for a development project and only one person owns all the land and it would certainly be administratively easier for the owner to sell all the land at once to a developer than to sell it to different buyers in stages. Also because this thesis will evaluate the option of a development project in the second part of the practical part, where the profitability of different options for dealing with the land will be determined.

Table 28: *Objective market value of valued land. Source: own processing.*

	Weight	Price per m ²
Administrative method	10%	1 349 CZK
Investment method	50%	1 894 CZK
Comparative method	40%	3 793 CZK
Objective market value		2 599 CZK
Total market value of whole property		33 711 903 CZK
Final total market value of the whole property		33 712 000 CZK

The final determined objective market value of all the plots amounts to 33,712,000 CZK. Table 29 shows total prices of each property as they are going to be grouped together for the final sale.

Table 29: *Price of the land. Source: own processing.*

Plot	Plot area [m ²]	Total price	Plot	Plot area [m ²]	Total price
P1	1123	2 918 701 CZK	P8	711	1 847 904 CZK
P2	903	2 346 916 CZK	P9	932	2 422 288 CZK
P3	924	2 401 496 CZK	P10	891	2 315 728 CZK
P4	748	1 944 068 CZK	P11	1078	2 801 745 CZK
P5	1278	3 321 549 CZK	P12	1012	2 630 209 CZK
P6	720	1 871 295 CZK	P13	1539	3 999 893 CZK
P7	1112	2 890 111 CZK			
Total			12260		33 711 903 CZK

9 Economic evaluation of the development plan options

In this chapter, a total of seven scenarios for managing land will be presented. The first two options are only the sale of all the land, followed by the possibility of obtaining building permits for the construction of standard houses on the land, as well as the netting of the land by all utility connections, including the construction of a road. The other option is a combination of the two previous options, i.e. obtaining building permits for type houses and then netting and building a road. The last option, and the most extensive and time consuming, is the construction of a complete residential development project of single-family houses.

A brief schedule is developed for each option that includes the basic phases of the project. The main ones are the project proposal, obtaining planning and building permits and documentation, the contractor tender procedure, the actual construction phase and obtaining approval and final sale of the property.

For each option, a description of how the costs of applying each option were determined is provided, almost all values are taken from the valuation by subdivision development method. Both in terms of total costs and in terms of percentages of each type of cost. Like the costs of evaluating each alternative, the market values of land are taken from the valuation of land property chapter.

In the case of this work, it is assumed that the developer will only be interested in buying virgin land or white land. It is commonly known, that developers typically prefer to work on the site that has not been developed before because it causes fewer issues than previously developed property. Therefore, only one option is meant to be sold to the developer, the others, because they will be evaluated in some way, are only meant to be sold to individual future owners.

The fundamental issue in this development project is the solution of the land for the road. Different procedures will be used in the different variants, which are described. In any case, the road should always be transferred to the City of Tábor, which will operate the road. This should be taken into account before any negotiations and work commence. At the beginning of the project, the owner should contact the

administration of the City of Tábor and draw up a contract with them as foreseen by the Road Act, on the basis of which the City should then take over the road. Similarly, the zoning decision should clarify whose responsibility it is to build the road and to whom it will then be transferred. It should also be stated whether the road will be transferred to the city free of charge or for a payment of a certain amount. Either the cost of building the road or a higher amount.

As the options need to be compared in some way, for this purpose the work assumes for each of the options to put the money in a term deposit, where the money will be valorized at 3% p.a. every quarter. Each alternative will put money in the term deposit at a different time and hence for a different period. The net present value of each option will then be compared at the end of the 3.5 year period, which will be at the end of June in 2025. After this period, it will be discounted, at a rate of 5% p.a., which will be discounted quarter by quarter. The rate includes inflation, credit risk, capital allocation costs and liquidity costs.

The landowner's profile is such that it can invest up to 15 mil. CZK in the entire project from its own resources. If more funds are needed, a bank loan will be required. Except for the fifth option, nowhere should own funds be drawn down until the construction of the complete development project.

9.1 Scenario 1

The first and the fastest and easiest option from the landowner's point of view is to sell the land as it is. However, this option has 2 possible ways. The first option is to sell all the land directly to a development company, which will then implement the development plan. The second is to sell the individual plots directly to the future owners who will use the land either for the construction of family housing or a cottage / chalet.

The first option shows a model where all the land will be sold at once to the developer. In this case, the total market price of the land is reduced by 10%. This is a discount that is included because it is a sale of the entire package of land and the seller is reducing both the sales costs and the time required to sell the land. It significantly simplifies the sales process by dealing with only one buyer rather than multiple buyers. A conservative discount rate of 10% was chosen for this model.

The price also includes the cost of advertising on real estate servers and real estate agent commissions. In this case, a rate of 3% was chosen because the land is worth over 30 million. It can be assumed that the real estate agency will demand a lower rate than when selling individual plots.

In the second option it is assumed that the land properties will be sold one by one. The sales costs include the fees for placing the advertisement, including 4% real estate agent's commission. This rate is chosen because the sale is for properties up to 3 million, where the normal commission rate is around 4% of the property value. It is assumed that the plots will not be sold all at once, so the situation is modelled in such a way that three plots are assumed to be sold per quarter, i.e. all plots are sold within one year.

While in the first option the plots are sold to the developer as a set, in the case of individual sales it is important to think about what will happen to the land that is intended to be a future road. In this case, the market price of the land would be allocated among the other land and therefore the sale price would be increased. The current owner would then arrange for the construction of a new road and the transfer of the land to the town of Tábor. This option no longer includes the construction of the road by the current owner.

Table 30: Summary – 1.A Cash Flow. Source: own processing.

1.A Cash Flow - selling to developer model	Total
PROJECT FINANCING	
Equity	100 000 CZK
TOTAL FINANCING	100 000 CZK
PROJECT INCOME	
Sales income	30 340 713 CZK
Valorization on term deposit	2 721 643 CZK
TOTAL INCOME	33 062 356 CZK
PROJECT COSTS	
Sales costs	1 313 629 CZK
TOTAL COSTS	1 313 629 CZK
Final NPV (06/2025)	31 697 899 CZK

Table 31: Summary – 1.B Cash Flow. Source: own processing.

1.B Cash Flow - selling to 12 different buyers model	Total
PROJECT FINANCING	
Equity	100 000 CZK
TOTAL FINANCING	100 000 CZK
PROJECT INCOME	
Sales income	33 711 903 CZK
Valorization on term deposit	2 765 288 CZK
TOTAL INCOME	36 477 191 CZK
PROJECT COSTS	
Sales costs	1 448 476 CZK
TOTAL COSTS	1 448 476 CZK
Final NPV (06/2025)	35 086 375 CZK

9.2 Scenario 2

The second option is to sell land with a building permit and a project for the construction of a specific single-family house. Here the question arises whether there would subsequently be interest in buying a plot of land with an already designed family house. Given the financial and time requirements, these would probably be standard houses for which project documentation has already been created and which would just be applied to the land. The house would be selected by the landowner, whose role in selecting this option would also be to secure the design documentation and relevant planning permissions. It would be possible for both to be provided by a commissioned design office, or by a construction company or a company selling standard projects.

The timetable for this option foresees that the whole process will take a total of 18 months. After the three-month preparation of the documentation, the planning and building procedures will be carried out together, which will end at the end of the 9th month with the issuance of the planning consent and building permit. The sale of the individual parcels of land will then follow. It is expected that all properties will be sold within two quarters.

It is important to mention that a rate of 5% has been chosen for the appreciation of a total of the land and the funds invested in obtaining the permits. This rate has been used so that, for comparison with other models, this option is comparable and so that the owner makes a certain profit. The particular 5% was

chosen because it is a number where the project is considered successful in the construction industry.

Immediately after the sale, the plan is to put all the funds into a term deposit, where they would earn quarterly interest at 3% p.a. In this case, they would be held in this term deposit from Q2 2023, a total of 9 months.

The costs are mainly architecture and engineering costs for the preparation of the project documentation and obtaining the necessary permits, which value are taken from the subdivision development method valuation. Sales costs are again made up of 100,000 CZK as a fee for advertising on real estate servers and then 4% commission on each plot for the real estate agency.

For this option it is important to mention that first it would be necessary to make a survey whether there would be any interest in this solution, i.e. already finished project documentation, which will not be subject to major changes, and whether this would raise the price of the land so much that there would be no interest in them and the owner would lose money.

These plots will only be sold separately. If they already have their project documentation, they are no longer as attractive to the developer as they are in the first variation. As written before, for developer is much more interesting to buy a virgin land to start a development project.

As for the price of the road, its market price will be budgeted to the price of the other plots. However, it will not be built, only the project documentation will be created for it. This is no longer part of this consideration, but the possibilities are that an investor will be found who will set up the road and then operate it or hand it over to the city either for free or at a set price. Similarly, the current owner may build the road after receiving money from the sale of individual lots.

Table 32: Summary – 2. Cash Flow. Source: own processing.

2. Cash Flow - permitting + documentation model	Total
PROJECT FINANCING	
Equity	1 393 750 CZK
TOTAL FINANCING	1 393 750 CZK
PROJECT INCOME	
Sales income	37 208 748 CZK
Valorization on term deposit	2 340 633 CZK
TOTAL INCOME	37 208 748 CZK
PROJECT COSTS	
Architecture & engineering costs	1 725 000 CZK
Sales costs	1 588 350 CZK
TOTAL COSTS	3 313 350 CZK
Final NPV (06/2025)	35 952 852 CZK

9.3 Scenario 3

Another scenario is to carry out a certain type of development - land development on the land and sell it ready for construction. In this case, it would involve bringing water, sewerage and electricity to the individual plots. At the moment these connections are in the roads around the land properties and the surrounding development is connected to them, but they need to be brought to the boundary of all the individual parcels. Also included in this section is the construction of the road which would then be sold or turned over to the City of Tábor as described in the introduction of this chapter.

The schedule again starts with 3 months for the project proposal followed by 6 months to process the planning permit documentation along with the permit. Subsequently, construction documents will be prepared and construction will commence 6 months after the tender for the construction contractor. Following this, it is anticipated that the land will be sold within 6 months. In March 2024, the sale proceeds are expected to be placed in a term deposit which will again bear interest at 3% p.a. quarterly for 5 months.

In this case, a rate of 5% appreciation of the land price has again been chosen along with the total of the funds that have been invested in the construction of connections and road. This rate has been used so that, for comparison with other models, this option is comparable and so that the owner can make a certain profit

from it. The specific 5% was chosen because it is the number where the project is considered successful in the construction business.

Construction costs for utility connections and roads are taken from the subdivision development method where they were determined using indicators. As well as the percentage for project management and architecture and engineering costs, which make up 6% and 5% of the total construction costs. Sales costs are again made up of 100,000 CZK as a fee for advertising on real estate servers and then 4% commission on each plot for the real estate agency.

As for the price of the road, its market price will be budgeted to the price of the other plots. This work envisages the separate sale of individual plots, it is assumed that the developer is only interested in white land properties.

Table 33: Summary – 3. Cash Flow. Sources: own processing.

3. Cash Flow - land development model	Total
PROJECT FINANCING	
Equity	3 315 337 CZK
TOTAL FINANCING	3 315 337 CZK
PROJECT INCOME	
Sales income	38 773 602 CZK
Valorization on term deposit	1 316 740 CZK
TOTAL INCOME	40 090 342 CZK
PROJECT COSTS	
Construction costs	
- utility connections	1 748 994 CZK
- road	1 147 706 CZK
Project management	173 802 CZK
Architecture & engineering costs	144 835 CZK
Sales costs	1 650 944 CZK
TOTAL COSTS	4 866 281 CZK
Final NPV (06/2025)	35 933 291 CZK

9.4 Scenario 4

This option is a combination of variants 2 and 3, i.e. all utility connections and roads will be built at the same time as the building permits are obtained together with the documentation for the construction of houses.

The timeline is the same as the previous option, with the lots to be sold at the end of Q1 2024. Subsequently, the sales income would be taken into a term deposit where it would accrue quarterly interest for 5 months at 3% p.a.

The profit rate chosen here is again 5% of the total of the market price of the land and construction costs, project management costs architecture and engineering costs. This is again a rate that is considered successful in the construction project business.

The costs here are determined as the sum of the costs from options 2 and 3, sales cost are also the same, namely 100,000 CZK for advertising and 4% of the sales price of the evaluated land for the real estate agency.

This work assumes that the individual plots are sold separately, it is assumed that the developer is only interested in virgin land. As for the price of the road, its market price will be budgeted to the price of the other plots.

Table 34: Summary – 4. Cash Flow. Source: own processing.

4. Cash Flow - permitting + documentation + land development model	Total
PROJECT FINANCING	
Equity	5 040 337 CZK
TOTAL FINANCING	5 040 337 CZK
PROJECT INCOME	
Sales income	43 986 110 CZK
Valorization on term deposit	1 444 970 CZK
TOTAL INCOME	45 431 080 CZK
PROJECT COSTS	
Construction costs	
- utility connections	1 748 994 CZK
- road	1 147 706 CZK
Project management	173 802 CZK
Architecture & engineering costs	1 869 835 CZK
Sales costs	1 859 444 CZK
TOTAL COSTS	6 799 781 CZK
Final NPV (06/2025)	39 432 615 CZK

9.5 Scenario 5

This scenario follows on from the previous option. It extends it to include the construction of the single-family houses that were valued in the land valuation using the subdivision development method. 12 single-family houses of 2 types would be built on the site - the development plan is described in more detail in the section on land valuation under the subdivision development method.

For the purpose of this alternative, it is assumed that the full 15 mil. CZK is available to the landowner. The final amount will no longer be placed on term deposit, as a comparison of the net present value of each variant will be made at the end of June in 2025, when this variant should be just completed.

The timetable for the two options again provides for a combined planning and construction process which will take 6 months, followed by the creation of construction implementation and assignment documents, then the tender for the construction contractor, followed by construction which will take a total of 18 months. Once the construction is completed, there will either be only a handover of the finished properties or it is expected to take 2 months to sell them.

Two options are again created. The first one assumes that the land will start to be sold from the beginning of the construction and will be sold gradually 2 houses per quarter. A deposit of 20% will be required at the time of booking and the remaining 80% will be paid by the future owners when they take over the houses after completion. This will give the developer cash on hand with which he can comfortably co-finance the construction. At full utilization of 15 mil. CZK available to the investor, a loan from the bank will be needed in this case, which will correspond to about 40% loan to cost value. This amount should not be problematic to obtain from the bank. The interest on the loan will be 4% p.a. and the repayment of the entire loan will be made in one single payment after collecting all money from sales.

The second option is very similar, differing only in that there will be no pre-sale of individual properties, but they will be sold after the completion of the complete project. This will mean that the investor will not receive any cash from future owners during construction and will have to secure full funding through equity, i.e. 15 mil. CZK and a bank loan. In this case, the bank loan is needed for more than 41 mil. CZK, which is 87% of the loan to cost value. This amount of LTC is very high and not very likely to be reached by the investor. The loan will bear interest at 4% p.a. and the repayment of the entire loan will be made in one single payment after successful sale of at least half of the properties, when the investor will have sufficient funds to repay.

All costs for this analysis are taken from the valuation by subdivision development method, where the entire development plan is specified and explained more in detail.

Table 35: Summary – 5.A Cash Flow. Source: own processing.

5.A Cash Flow - pre-sale model	Total
PROJECT FINANCING	
Bank loan	18 737 580 CZK
Loan interest	188 823 CZK
Equity	15 000 000 CZK
TOTAL FINANCING	33 737 580 CZK
PROJECT INCOME	
- deposit 20%	22 660 189 CZK
- additional 80% - after final user permit	90 640 755 CZK
TOTAL INCOME	113 300 944 CZK
PROJECT COSTS	
Construction costs	47 660 087 CZK
Soft costs (without financing costs)	9 532 017 CZK
TOTAL COSTS	57 192 104 CZK
Final NPV (06/2025)	54 459 238 CZK

Table 36: Summary – 5.B Cash Flow. Source: own processing.

5.B Cash Flow - after-sale model	Total
PROJECT FINANCING	
Bank loan	41 397 769 CZK
Loan interest	413 978 CZK
Equity	15 000 000 CZK
TOTAL FINANCING	56 397 769 CZK
PROJECT INCOME	
Sales income	113 300 944 CZK
TOTAL INCOME	113 300 944 CZK
PROJECT COSTS	
Construction costs	47 660 087 CZK
Soft costs (without financing costs)	9 532 017 CZK
TOTAL COSTS	57 192 104 CZK
Final NPV (06/2025)	53 642 485 CZK

9.6 Summary

The solution scenarios are compared in the table below, in particular their net present value at the end of the 3.5 year period when all land sales in each option would be completed. A comparison of the equity that the owner has to invest can be seen here, in cases 1A and 1B it is equity invested only in sales costs, in the others it is the cost invested either in providing project documentation and engineering or in the construction. Only in the case of a residential development project of single-family houses does the owner need to secure a bank loan to manage the construction costs during construction. The total selling prices differ from each other mainly because of

the amount of time and money invested and also the risk that the owner, i.e. the investor, would have to assume.

Table 37: *Economic analysis summary – part 1. Source: own processing.*

SUMMARY	1A	1B	2	3
Total equity	100 000 CZK	100 000 CZK	1 393 750 CZK	3 315 337 CZK
Total loan	-	-	-	-
Total loan costs	-	-	-	-
Total costs	1 313 629 CZK	1 448 476 CZK	3 313 350 CZK	4 866 281 CZK
Total income from sales	30 340 713 CZK	33 711 903 CZK	37 208 748 CZK	38 773 602 CZK
Total income from term deposit	2 721 643 CZK	2 765 288 CZK	2 340 633 CZK	1 316 740 CZK
Date of final sale	Q2/2022	Q3/2022	Q1/2023	Q1/2024
FINAL NPV	31 697 899 CZK	35 086 375 CZK	35 952 852 CZK	35 933 291 CZK

Table 38: *Economic analysis summary – part 2. Source: own processing.*

SUMMARY	4	5A	5B
Total equity	5 040 337 CZK	15 000 000 CZK	15 000 000 CZK
Total loan	-	18 737 580 CZK	41 397 769 CZK
Total loan costs	-	188 823 CZK	413 978 CZK
Total costs	6 799 781 CZK	57 192 104 CZK	57 192 104 CZK
Total income from sales	43 986 110 CZK	113 300 944 CZK	113 300 944 CZK
Total income from term deposit	1 444 970 CZK	-	-
Date of final sale	Q1/2024	Q1/2025	Q1/2025
FINAL NPV	39 432 615 CZK	54 459 238 CZK	53 642 485 CZK

From the point of view of risks, it could be said that the safest option would be Option 1A, i.e. the sale to a development company that would carry out its own development project in the future. However, due to the 10% discount that would be granted, this option is not nearly as profitable as option 1.B, which carries a greater risk, mainly related to the interest of potential buyers of the land. It is also slightly more logistically and time consuming as there would be more than one transaction.

Options 2, 3 and 4 are based more on a theoretical basis. Because there is not much data available to say what profit an owner can get if they appreciate their land, either by developing design documents and obtaining building permits, or by building utility connections and access roads, or both at the same time. Therefore, for the purposes of this paper, a profit of 5% is assumed to make the time and financial investment worthwhile. However, in practice this may not be the case and there is a high risk that there will not be as much interest in the land at the price plus costs and profit due to the high price. It is also uncertain whether there would be any interest in land with design documentation already drawn up for houses if future users could not

decide on the layout of the houses and make major changes. This raises the question of whether there would be interest in such appreciated land at the price the owner anticipates, so as not to cause the owner to lose money on his investment.

Two scenarios were also created for the last option. This is by far the most profitable option, but it also carries the greatest risks. Option 5A foresees a scenario of sales already during construction, which is risky mainly because the evolution of material prices cannot be well predicted and it might not be profitable to sign contracts for the final price of the houses at the beginning and during construction. On the contrary, this risk is eliminated in the second option 5B, where it is assumed that the sale will take place after the completion of the entire construction, precisely because the final sale price can only be determined on the basis of the actual costs of the entire construction. In both options, the owner needs to invest all of his funds, i.e. 15 mil. CZK. The first option is more favorable because it is assumed that the future owners will pay 20% of the total price of the property when signing the contract. This will greatly help the overall cash flow of the project as the investor will not need such a large loan. It should only be less than 40% of the loan to cost value and therefore should not be problematic to achieve. On the other hand, the challenge of the second option is that with the amount of equity of 15 mil. CZK, the loan will not be able to be funded because 87% loan to cost value would be needed. Unfortunately, such a loan amount may not be easy to obtain, banks usually provide such high loans to experienced developers with whom they have good experience in terms of repayment and reliability. Therefore, this option can be considered almost unrealistic unless the investor raises more equity or other financing.

It is therefore up to the owner to decide which option to choose for future action, considering the potential risks of all options, the most effective and advantageous in terms of time and financial requirements seems to be option 1B, i.e. the sale of individual land plots, where the yield is significantly higher than in option 1A. Options 2-4 have a very high risk of failure. The last option has the highest return, but also the highest risk. Whether it is the risk of increased construction costs in the future or the risk that the owner will not be able to obtain a loan from the bank.

10 Conclusion

As mentioned in the introduction to this thesis, the aim was to analyze potential benefits to the landowners assessing several scenarios that range from a simple solution of land's sale to a complex implementation of the residential development project.

In the beginning a land property due diligence checklist was made. It cannot completely eliminate the risk in general connected with a development project but can significantly reduce the exposure to it in the phase of the evaluation of the project feasibility. That is why there are several topics which cannot be forgotten when making a due diligence and have to be dealt with carefully and precisely so it does not cause any problems later in the project. Because usually any neglected issue always costs a lot more money and time when dealt with subsequently. Individual checklist points are divided into three main categories. First one is location analysis which should properly describe the location of the land property and should help with deciding which type of development project can be realized. Second category concentrates on administrative issues, e.g. what can be built in the area, if there are any easements or restrictions in that area, what is total area, analysis of ownership relations etc. Thirdly other aspects of the property are analyzed, e.g. vegetation, topography, storm water drainage solution etc. The checklist can generally apply any landowner. In this thesis it was carried out for the specific conditions of Tábor-Horky project and was evaluated with the results that it is suitable for the development plan of 12 single-family houses.

In order to determine the value of the land, its detailed evaluation was performed with administrative, subdivision development and market comparison approach methods. Within the subdivision development method, the analyzed project was described in detail including the selection of the specific type of houses that would be included. Further details were assessed, including the possible division of the land, the calculation of the construction costs of all single-family houses including the construction of a driveway, both using RTS pricing system indicators. To calculate the selling price of single-family houses within such a development project, various projects implemented in the Czech Republic were selected. Their prices were

adjusted using site coefficients to make them comparable to the Tábor-Horky location. For the comparison approach method, comparable land property advertised in Tábor during last three months was used. The resulting recommended price was set as a weighted average of the three prices found by different methods. The objective market value of a land property was determined to be 2 599 CZK/m².

In general, it is interesting to compare the price of the land valued in autumn of 2021 with autumn of 2020, when the valuation of the land was carried out for the first time. A year ago, the objective market value was set at 1,728 CZK/m². Compared to the current valuation 2,599 CZK/m², this is a difference of 871 CZK/m² in total, which creates a difference in the total price of all the land of approximately 11 mil. CZK. When the owner of the land wanted to sell the land in spring of 2020, it was at a price of 2,700 CZK/ m². His asking price at the time was therefore even higher than the current market price.

Recommendation to the land owner based on the performed analysis is to sell the land individually in order for owner to take minimal risk, invest minimal funds and time in the implementation of the development project. However, should the owner be courageous enough and want to achieve a higher profit, then it is advisable to choose Scenario 5, the construction of a complete residential development project of 12 single-family houses, which is by far the most profitable. Compared to the first recommended option, the yield should be almost 20 mil. CZK higher. Yet, it is also much riskier and would require, in either the pre-sale or after-sale option, high investor's equity. It will also require very advanced owner management skills to manage such a project. Since the current owner has no experience in building development projects, the recommendation is to sell the individual land parcels as suggested in Scenario 1.B.

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Attachment 1: Scenario 1A, 1B – schedule + cash flow

Timetable	Predevelopment phase				Post-completion phase									
	2022				2023				2024				2025	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Sale - to developer														
Sale - to 12 different buyers														
Cash Flow - selling to developer model														
PROJECT FINANCING														
Equity	100 000 CZK	100 000 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
TOTAL FINANCING	100 000 CZK	100 000 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
PROJECT INCOME														
Sales scenario	30 340 713 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
Sales income	2 721 643 CZK	- CZK	217 703 CZK	219 336 CZK	220 981 CZK	222 618 CZK	224 255 CZK	225 892 CZK	227 529 CZK	229 166 CZK	230 803 CZK	232 440 CZK	234 077 CZK	235 714 CZK
Valorization on term deposit	33 062 356 CZK	- CZK	30 340 713 CZK	219 336 CZK	220 981 CZK	222 618 CZK	224 255 CZK	225 892 CZK	227 529 CZK	229 166 CZK	230 803 CZK	232 440 CZK	234 077 CZK	235 714 CZK
TOTAL INCOME	1 313 629 CZK	1 213 629 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
PROJECT COSTS														
Sales costs	1 313 629 CZK	1 213 629 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
TOTAL COSTS	1 313 629 CZK	1 213 629 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
Financial CF	- CZK	29 127 084 CZK	217 703 CZK	219 336 CZK	220 981 CZK	222 618 CZK	224 255 CZK	225 892 CZK	227 529 CZK	229 166 CZK	230 803 CZK	232 440 CZK	234 077 CZK	235 714 CZK
Cumulated financial CF	- CZK	29 127 084 CZK	29 344 787 CZK	29 562 501 CZK	29 780 215 CZK	29 997 929 CZK	30 215 643 CZK	30 433 357 CZK	30 651 071 CZK	30 868 785 CZK	31 086 499 CZK	31 304 213 CZK	31 521 927 CZK	31 739 641 CZK
CF	- 100 000 CZK	29 127 084 CZK	217 703 CZK	219 336 CZK	220 981 CZK	222 618 CZK	224 255 CZK	225 892 CZK	227 529 CZK	229 166 CZK	230 803 CZK	232 440 CZK	234 077 CZK	235 714 CZK
Cumulated CF	- 100 000 CZK	29 027 084 CZK	29 244 787 CZK	29 462 501 CZK	29 680 215 CZK	29 897 929 CZK	30 115 643 CZK	30 333 357 CZK	30 551 071 CZK	30 768 785 CZK	30 986 499 CZK	31 204 213 CZK	31 421 927 CZK	31 639 641 CZK
Discounted CF	- 100 000 CZK	29 127 084 CZK	217 703 CZK	219 336 CZK	220 981 CZK	222 618 CZK	224 255 CZK	225 892 CZK	227 529 CZK	229 166 CZK	230 803 CZK	232 440 CZK	234 077 CZK	235 714 CZK
Cumulated discounted CF	- 100 000 CZK	29 027 084 CZK	29 244 787 CZK	29 462 501 CZK	29 680 215 CZK	29 897 929 CZK	30 115 643 CZK	30 333 357 CZK	30 551 071 CZK	30 768 785 CZK	30 986 499 CZK	31 204 213 CZK	31 421 927 CZK	31 639 641 CZK
Cash Flow - selling to 12 different buyers model														
PROJECT FINANCING														
Equity	100 000 CZK	100 000 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
TOTAL FINANCING	100 000 CZK	100 000 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
PROJECT INCOME														
Sales scenario	33 711 903 CZK	- CZK	P2 - P7	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
Sales income	2 765 388 CZK	- CZK	16 234 785 CZK	17 477 117 CZK	17 719 450 CZK	17 961 783 CZK	18 204 116 CZK	18 446 449 CZK	18 688 782 CZK	18 931 115 CZK	19 173 448 CZK	19 415 781 CZK	19 658 114 CZK	19 900 447 CZK
Valorization on term deposit	36 477 191 CZK	- CZK	16 234 785 CZK	17 477 117 CZK	17 719 450 CZK	17 961 783 CZK	18 204 116 CZK	18 446 449 CZK	18 688 782 CZK	18 931 115 CZK	19 173 448 CZK	19 415 781 CZK	19 658 114 CZK	19 900 447 CZK
TOTAL INCOME	1 448 476 CZK	1 448 476 CZK	649 391 CZK	699 085 CZK	748 779 CZK	798 473 CZK	848 167 CZK	897 861 CZK	947 555 CZK	997 249 CZK	1 046 943 CZK	1 096 637 CZK	1 146 331 CZK	1 196 025 CZK
PROJECT COSTS														
Sales costs	1 448 476 CZK	1 448 476 CZK	649 391 CZK	699 085 CZK	748 779 CZK	798 473 CZK	848 167 CZK	897 861 CZK	947 555 CZK	997 249 CZK	1 046 943 CZK	1 096 637 CZK	1 146 331 CZK	1 196 025 CZK
TOTAL COSTS	1 448 476 CZK	1 448 476 CZK	649 391 CZK	699 085 CZK	748 779 CZK	798 473 CZK	848 167 CZK	897 861 CZK	947 555 CZK	997 249 CZK	1 046 943 CZK	1 096 637 CZK	1 146 331 CZK	1 196 025 CZK
Financial CF	- CZK	15 585 394 CZK	16 718 033 CZK	16 850 672 CZK	16 983 311 CZK	17 115 950 CZK	17 248 589 CZK	17 381 228 CZK	17 513 867 CZK	17 646 506 CZK	17 779 145 CZK	17 911 784 CZK	18 044 423 CZK	18 177 062 CZK
Cumulated financial CF	- CZK	15 585 394 CZK	32 263 427 CZK	32 481 141 CZK	32 698 855 CZK	32 916 569 CZK	33 134 283 CZK	33 351 997 CZK	33 569 711 CZK	33 787 425 CZK	34 005 139 CZK	34 222 853 CZK	34 440 567 CZK	34 658 281 CZK
CF	- 100 000 CZK	15 585 394 CZK	16 718 033 CZK	16 850 672 CZK	16 983 311 CZK	17 115 950 CZK	17 248 589 CZK	17 381 228 CZK	17 513 867 CZK	17 646 506 CZK	17 779 145 CZK	17 911 784 CZK	18 044 423 CZK	18 177 062 CZK
Cumulated CF	- 100 000 CZK	15 485 394 CZK	32 263 427 CZK	32 481 141 CZK	32 698 855 CZK	32 916 569 CZK	33 134 283 CZK	33 351 997 CZK	33 569 711 CZK	33 787 425 CZK	34 005 139 CZK	34 222 853 CZK	34 440 567 CZK	34 658 281 CZK
Discounted CF	- 100 000 CZK	15 585 394 CZK	16 718 033 CZK	16 850 672 CZK	16 983 311 CZK	17 115 950 CZK	17 248 589 CZK	17 381 228 CZK	17 513 867 CZK	17 646 506 CZK	17 779 145 CZK	17 911 784 CZK	18 044 423 CZK	18 177 062 CZK
Cumulated discounted CF	- 100 000 CZK	15 485 394 CZK	32 263 427 CZK	32 481 141 CZK	32 698 855 CZK	32 916 569 CZK	33 134 283 CZK	33 351 997 CZK	33 569 711 CZK	33 787 425 CZK	34 005 139 CZK	34 222 853 CZK	34 440 567 CZK	34 658 281 CZK

Attachment 2: Scenario 2 – schedule + cash flow

Timetable	Predevelopment phase				Development phase				Post-completion phase				
	2022		2023		2024		2025		2024		2025		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Project proposal													
Planning + building permit documentation + approval													
Finalization + sale													
Cash Flow - permitting + documentation model													
Total													
PROJECT FINANCING													
Equity	1 393 750 CZK	431 250 CZK	531 250 CZK	531 250 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
TOTAL FINANCING	1 393 750 CZK	431 250 CZK	531 250 CZK	531 250 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
PROJECT INCOME													
Sales scenario													
Sales income	37 208 748 CZK	- CZK	- CZK	- CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK
Valorization on term deposit	2 340 633 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK
TOTAL INCOME	37 208 748 CZK	- CZK	- CZK	- CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK	19 289 972 CZK
PROJECT COSTS													
Architecture & engineering costs	1 725 000 CZK	431 250 CZK	431 250 CZK	431 250 CZK	431 250 CZK	431 250 CZK	431 250 CZK	431 250 CZK	431 250 CZK	431 250 CZK	431 250 CZK	431 250 CZK	431 250 CZK
Sales costs	1 588 350 CZK	- CZK	- CZK	- CZK	17 918 716 CZK	17 918 716 CZK	17 918 716 CZK	17 918 716 CZK	17 918 716 CZK	17 918 716 CZK	17 918 716 CZK	17 918 716 CZK	17 918 716 CZK
TOTAL COSTS	3 313 350 CZK	431 250 CZK	431 250 CZK	431 250 CZK	1 148 001 CZK	1 148 001 CZK	1 148 001 CZK	1 148 001 CZK	1 148 001 CZK	1 148 001 CZK	1 148 001 CZK	1 148 001 CZK	1 148 001 CZK
Financial CF	- CZK	- CZK	- CZK	- CZK	19 066 777 CZK	19 066 777 CZK	19 066 777 CZK	19 066 777 CZK	19 066 777 CZK	19 066 777 CZK	19 066 777 CZK	19 066 777 CZK	19 066 777 CZK
Cumulated financial CF	- CZK	- CZK	- CZK	- CZK	19 066 777 CZK	38 133 554 CZK	57 200 331 CZK	76 267 108 CZK	95 333 885 CZK	114 400 662 CZK	133 467 439 CZK	152 534 216 CZK	171 600 993 CZK
Cumulated CF	- 431 250 CZK	- 431 250 CZK	- 531 250 CZK	- 531 250 CZK	16 770 725 CZK	16 770 725 CZK	16 770 725 CZK	16 770 725 CZK	16 770 725 CZK	16 770 725 CZK	16 770 725 CZK	16 770 725 CZK	16 770 725 CZK
Discounted CF	- 431 250 CZK	- 431 250 CZK	- 531 250 CZK	- 531 250 CZK	15 377 025 CZK	15 377 025 CZK	15 377 025 CZK	15 377 025 CZK	15 377 025 CZK	15 377 025 CZK	15 377 025 CZK	15 377 025 CZK	15 377 025 CZK
Cumulated discounted CF	- 431 250 CZK	- 862 500 CZK	- 1 393 750 CZK	- 1 393 750 CZK	15 377 025 CZK	33 666 776 CZK	52 043 801 CZK	70 420 826 CZK	88 797 851 CZK	107 174 876 CZK	125 551 901 CZK	143 928 926 CZK	162 305 951 CZK

Attachment 3: Scenario 3 – schedule + cash flow

Timetable	Predevelopment phase								Development phase								Post-completion phase																															
	2022		2023		2024		2025		2023		2024		2025		2024		2025																															
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2																														
Project proposal																																																
Planning permit documentation + approval																																																
Construction execution + assignment documentation																																																
Contractor tender procedure																																																
Construction phase																																																
Final user permit + sale																																																
Cash Flow - land development model	Predevelopment phase																Development phase																Post-completion phase															
Total	2022		2023		2024		2025		2023		2024		2025		2024		2025																															
Equity	3 315 337 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK																													
TOTAL FINANCING	3 315 337 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK																													
PROJECT INCOME																																																
Sales scenario																																																
Sales income	38 773 602 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK																													
Valorization on term deposit	1 316 740 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK																													
TOTAL INCOME	40 090 342 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK																													
PROJECT COSTS																																																
Construction costs																																																
- utility connections	1 748 994 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK																													
- road	1 147 706 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK																													
Project management	173 802 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK																													
Architecture & engineering costs	144 835 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK																													
Sales costs	1 650 948 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK																													
TOTAL COSTS	4 866 281 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK	24 139 CZK																													
Financial CF																																																
Cumulated financial CF																																																
CF	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK																													
Cumulated CF	- 24 139 CZK	- 48 278 CZK	- 72 418 CZK	- 96 557 CZK	- 120 696 CZK	- 144 835 CZK	- 168 974 CZK	- 193 113 CZK	- 217 252 CZK	- 241 391 CZK	- 265 530 CZK	- 289 669 CZK	- 313 808 CZK	- 337 947 CZK	- 362 086 CZK	- 386 225 CZK	- 410 364 CZK	- 434 503 CZK	- 458 642 CZK																													
Discounted CF	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK	- 24 139 CZK																													
Cumulated discounted CF	- 24 139 CZK	- 48 278 CZK	- 72 418 CZK	- 96 557 CZK	- 120 696 CZK	- 144 835 CZK	- 168 974 CZK	- 193 113 CZK	- 217 252 CZK	- 241 391 CZK	- 265 530 CZK	- 289 669 CZK	- 313 808 CZK	- 337 947 CZK	- 362 086 CZK	- 386 225 CZK	- 410 364 CZK	- 434 503 CZK	- 458 642 CZK																													

Attachment 4: Scenario 4 – schedule + cash flow

Timetable	Predevelopment phase								Development phase								Post-completion phase							
	2022		2023		2024		2025		2023		2024		2025		2024		2025							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2						
Project proposal																								
Planning permit documentation + approval																								
Construction execution + assignment documentation																								
Contractor tender procedure																								
Construction phase																								
Final user permit + sale																								
Cash flow - permitting + documentation + land development model																								
Total																								
PROJECT FINANCING																								
Equity	5 040 337 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	1 846 890 CZK	1 846 890 CZK	1 635 251 CZK	1 635 251 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
TOTAL FINANCING	5 040 337 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	1 846 890 CZK	1 846 890 CZK	1 635 251 CZK	1 635 251 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
PROJECT INCOME																								
Sales income	43 986 110 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
Valorization on term deposit	1 444 970 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
TOTAL INCOME	45 431 080 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
PROJECT COSTS																								
Construction costs																								
- utility connections	1 748 994 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	874 497 CZK	874 497 CZK	874 497 CZK	874 497 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
- road	1 147 706 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	573 853 CZK	573 853 CZK	573 853 CZK	573 853 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
Project management	173 802 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	86 901 CZK	86 901 CZK	86 901 CZK	86 901 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
Architecture & engineering costs	1 869 835 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK					
Sales costs	1 859 444 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	100 000 CZK	100 000 CZK	100 000 CZK	100 000 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
TOTAL COSTS	6 799 781 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	3 111 639 CZK	1 846 890 CZK	1 846 890 CZK	1 635 251 CZK	1 635 251 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
Financial CF	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	22 029 883 CZK	22 029 883 CZK	22 029 883 CZK	22 029 883 CZK	22 029 883 CZK	22 029 883 CZK	22 029 883 CZK	22 029 883 CZK	22 029 883 CZK	22 029 883 CZK	22 029 883 CZK					
Cumulated financial CF	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	22 029 883 CZK	44 059 766 CZK	66 089 649 CZK	88 119 532 CZK	110 149 415 CZK	132 179 298 CZK	154 209 181 CZK	176 239 064 CZK	198 268 947 CZK	220 298 830 CZK	242 328 713 CZK					
CF	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 1 846 890 CZK	- 1 846 890 CZK	- 1 635 251 CZK	- 1 635 251 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
Cumulated CF	- 311 639 CZK	- 623 278 CZK	- 934 918 CZK	- 1 246 557 CZK	- 1 558 196 CZK	- 1 870 835 CZK	- 2 182 474 CZK	- 2 494 113 CZK	- 2 678 603 CZK	- 2 863 093 CZK	- 3 047 583 CZK	- 3 232 073 CZK	- 3 416 563 CZK	- 3 601 053 CZK	- 3 785 543 CZK	- 3 970 033 CZK	- 4 154 523 CZK	- 4 339 013 CZK	- 4 523 503 CZK					
Discounted CF	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 311 639 CZK	- 1 869 976 CZK	- 1 869 976 CZK	- 1 655 692 CZK	- 1 655 692 CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK	- CZK					
Cumulated discounted CF	- 311 639 CZK	- 623 278 CZK	- 934 918 CZK	- 1 246 557 CZK	- 1 558 196 CZK	- 1 870 835 CZK	- 2 182 474 CZK	- 2 494 113 CZK	- 2 678 603 CZK	- 2 863 093 CZK	- 3 047 583 CZK	- 3 232 073 CZK	- 3 416 563 CZK	- 3 601 053 CZK	- 3 785 543 CZK	- 3 970 033 CZK	- 4 154 523 CZK	- 4 339 013 CZK	- 4 523 503 CZK					

Attachment 5: Scenario 5 – schedule + cash flow

Timetable	Predevelopment phase												Development phase				Post-completion phase			
	2022			2023			2024			2025			2026			2027				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
Project proposal																				
Planning - building permit documentation - approval																				
Construction execution + assignment documentation																				
Contractor tender procedure																				
Construction phase																				
Final user permit + sale																				

Cash flow - pre-sale model	Predevelopment phase												Development phase				Post-completion phase			
	2022			2023			2024			2025			2026			2027				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
Total																				
PROJECT FINANCING																				
Bank loan																				
- loan balance																				
- repayment of principal without interest																				
Loan interest																				
- interest payment																				
Equity																				
- equity balance																				
TOTAL FINANCING																				
PROJECT INCOME																				
Sales income scenario																				
- deposit 20%																				
- additional 80% - after final user permit																				
TOTAL INCOME																				
PROJECT COSTS																				
Construction costs																				
Soft costs (without financing costs)																				
TOTAL COSTS																				
Financial CF																				
Cumulated financial CF																				
Cumulated CF																				
Discounted CF																				
Cumulated discounted CF																				

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Cash flow - after-sale model	Predevelopment phase												Development phase				Post-completion phase			
	2022			2023			2024			2025			2026			2027				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		
Total																				
PROJECT FINANCING																				
Bank loan																				
- loan balance																				
- repayment of principal without interest																				
Loan interest																				
- interest payment																				
Equity																				
- equity balance																				
TOTAL FINANCING																				
PROJECT INCOME																				
Sales income scenario																				
- deposit 20%																				
- additional 80% - after final user permit																				
TOTAL INCOME																				
PROJECT COSTS																				
Construction costs																				
Soft costs (without financing costs)																				
TOTAL COSTS																				
Financial CF																				
Cumulated financial CF																				
Cumulated CF																				
Discounted CF																				
Cumulated discounted CF																				

P8 - P13