

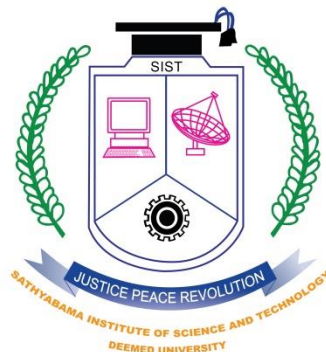
QUALITATIVE AND QUANTITATIVE APPROACH FOR CALCULATING REVENUE POTENTIAL FOR OFFICE CUM SHOPPING COMPLEX AT MOGAPPAIR EAST

A Thesis

Submitted in partial fulfilment of the requirements for the award of
Master of Architecture degree in Building Management

By

NIDHI R A (40840010)



**DEPARTMENT OF ARCHITECTURE
SCHOOL OF BUILDING AND ENVIRONMENT**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A" by NAAC
JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119**

MAY 2022



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This is to certify that this Report is the Bonafide work of **NIDHI RA (40840010)** who carried out the Thesis entitled "**QUALITATIVE AND QUANTITATIVE APPROACH FOR CALCULATING REVENUE POTENTIAL FOR OFFICE CUM SHOPPING COMPLEX AT MOGAPPAIR EAST**" under our supervision from January 2022 to May 2022

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I **NIDHI R A** hereby declare that the Thesis Report entitled “**QUALITATIVE AND QUANTITATIVE APPROACH FOR CALCULATING REVENUE POTENTIAL FOR OFFICE CUM SHOPPING COMPLEX AT MOGAPPAIR EAST**” done by me under the guidance of **Ar. RAM KUMAR** (Internal) and **Mr. S. KAVIN KUMAR** (External) at Sathyabama Institute of Science and Technology is submitted in partial fulfilment of the requirements for the award of Master of Architecture degree in Building Management.

DATE: 03.05.2022

PLACE: CHENNAI

A handwritten signature in blue ink, appearing to read 'R. Anji', is written over a faint rectangular grid background.

SIGNATURE OF THE CANDIDATE

ACKNOWLEDGEMENT

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ABSTRACT

The valuation of real estate is expected when calculating the market value of a property according to its qualitative characteristics. Based on the basic needs of human housing, real estate prices increase day by day as the population increases. However, predicting the approximate rate will be a very complex problem. Since then, all states have many different characteristics due to the location and use of it. Therefore, the calculation of the exact valuation of any property is becoming a prerequisite.

On other hand analysing revenue potential of any property plays an important role. This can be done by using suitable valuation models. Aspects to be covered in calculating revenue potential of property are calculating IRR, Payback period, Capitalization rate, ROI and project feasibility. However this can be done during project planning stage or during preparation of feasibility study.

In this project I have evaluated various valuation models and choose specific model that will help government in calculating revenue potential and profit recovered from investment. I have also explored and created framework that has various qualitative and quantitative factors, which can be used by Government for any of its project based on its typology, scale and purposes.

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LIST OF SYMBOLS AND ABBREVIATIONS

Sq. ft	-	Square Feet
KM	-	Kilometres
mts	-	Metres
ROI	-	Return on Investment
IRR	-	Internal Rate of Return
GDP	-	Gross Domestic Product
VAT	-	Value Added Tax
Go TN	-	Government of TamilNadu
CBD	-	Central Business District

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION:

- Mogappair (also known as Dr.J. J. Nagar) is a residential neighbourhood in north-western Chennai, India. There are industrial estates to the north and west namely Padi and Ambattur.
- The abundance of highly reputed schools, specialized hospitals and the recent influx of IT offices in the industrial estates in and around it have catapulted Mogappair into a **strategic location for business**.
- Tamil Nadu Housing Board launched a project (Office cum shopping complex) in this neighbourhood by demolishing an existing unused library. The chosen site has various scopes for commercial activity because of its location, amenities, site ambience and several other facilities.
- Development of Valuation is the process used for properties or buildings which are required to be renovated by making alterations, additions, improvements etc. The value is calculated based on the anticipated net income generated from the building after renovation work is complete.

1.2 AIM OF RESEARCH:

- The main aim of the research is to analyze and evaluate if the project is economically and technically feasible.
- And also to forecast potential revenue that will be generated from this subject property using various valuation models.
- To study the efficient return on investment and any risks to the success of the proposed project.

1.3 OBJECTIVE OF RESEARCH:

- To study different methods of feasibility pertaining to Economic, Legal, Operational and Scheduling.
- Identify and incorporate suitable valuation method for site area spanning up to 6000sq ft.
- Analyse various prevailing market strategies in commercial real estate field.

1.4 JUSTIFICATION OF PROJECT:

- Commercial real estate is one of the most evolving fields. It refers to properties used specifically for business or income-generating purposes .The four main classes of commercial real estate include: office space; industrial; multi-family rentals; and retail. Commercial real estate **provides rental income as well as the potential some capital appreciation for investors**.

- TamilNadu Housing Board has launched an office cum shopping complex proposal in Mogappair east. Mogappair is one of the unnoticed evolving business hubs in North Chennai. Since the subject property is located in business potential area, it can constantly generate income for the government. The layout of shops proposed varies with respect to size, rental policies and also the purposes.
- Earlier the site had an unused library that led to garbage dumping and public nuisance. After launch of this proposed shopping complex the livelihood of the locality has changed. Apart from constant income for the government the subject property has various advantages like increasing the scope (commercial) for this unnoticed business hub, attracting various stakeholders for investment in locality, Development of the neighbourhood and Increasing livelihood of people.

1.5 SITE JUSTIFICATION:

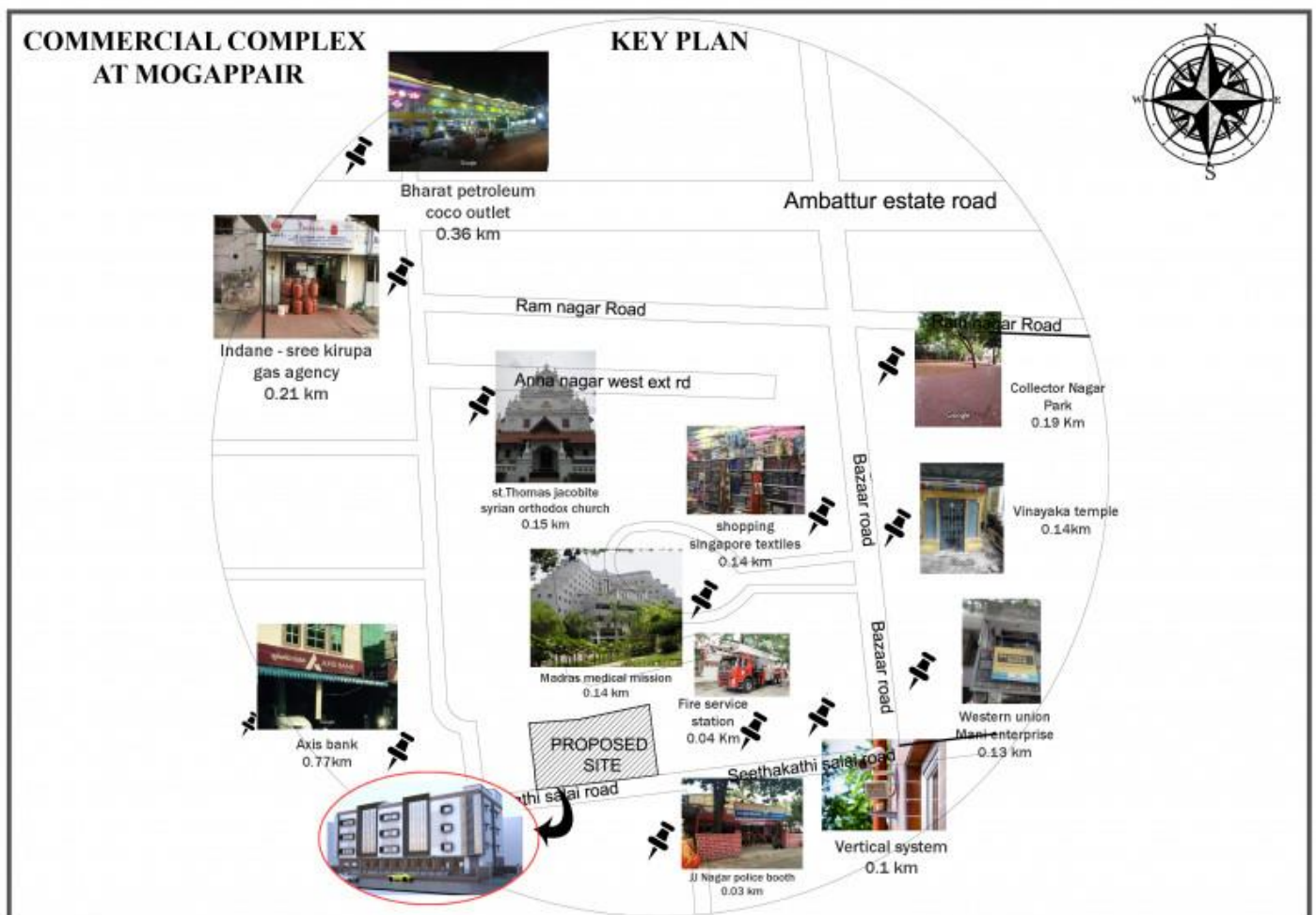
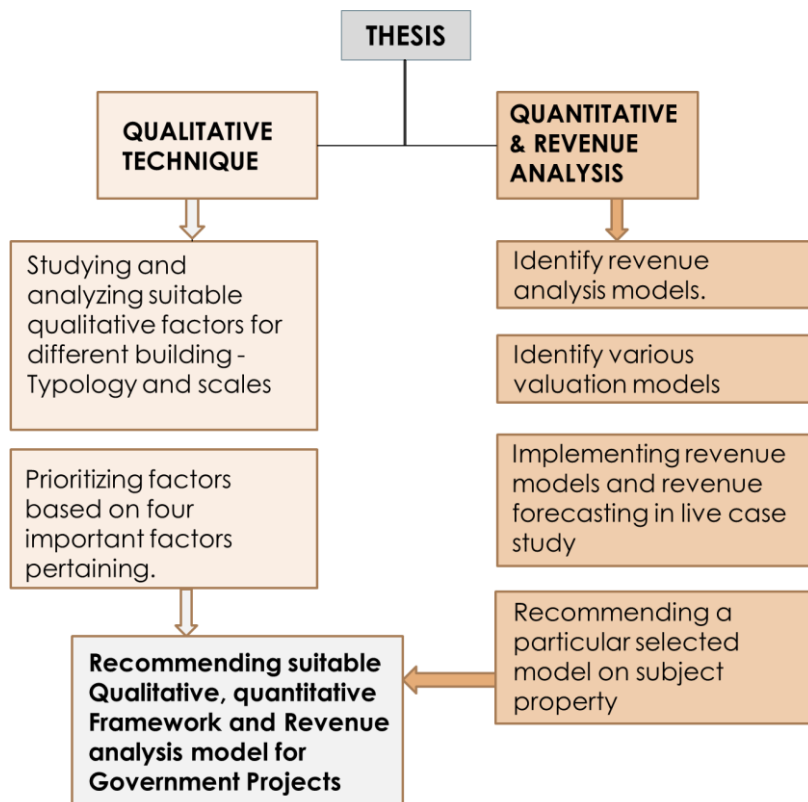


Fig 1.1 Site map of proposed development

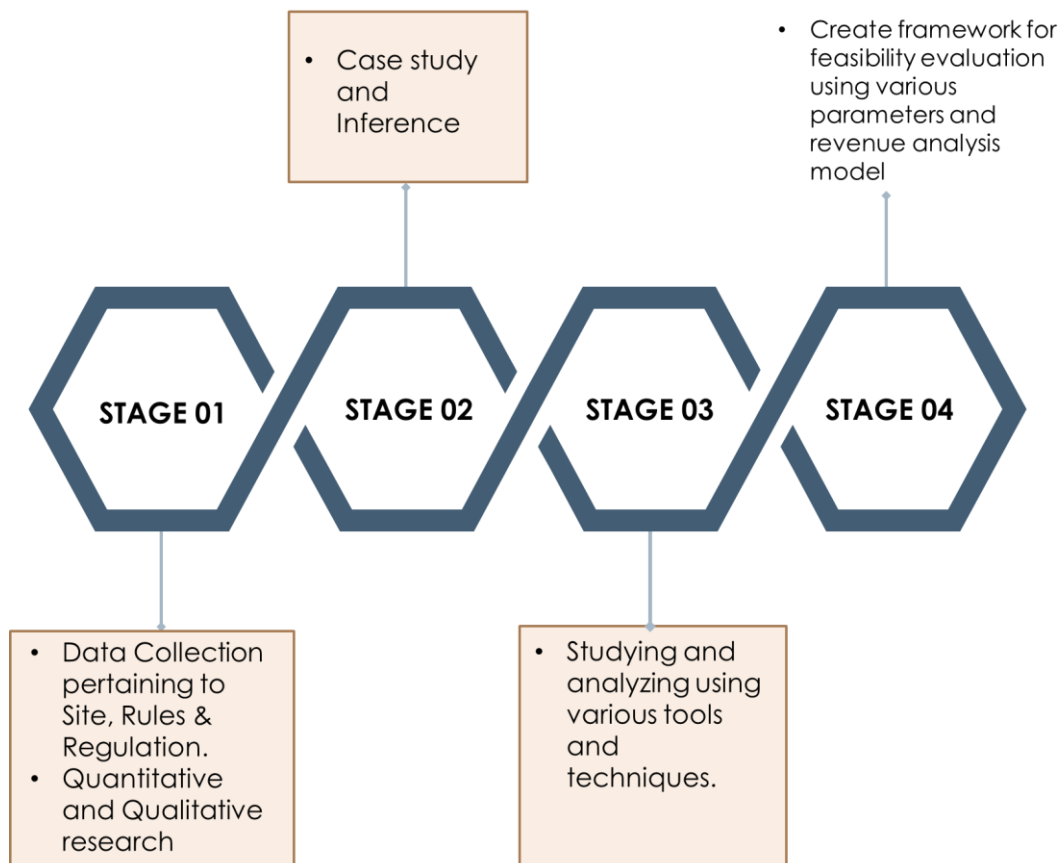
- The land has not been allotted to public and it belongs to government. The proposed site is located amidst Ambattur Railway station (near by 6.8 KM), Koyambedu Bus Terminus nearby (6.0 KM), J.J.Nagar East bus stand (near by 0.5 KM), Nearby Madras Medical Mission Hospital and Nearby J.J.Nagar East Police station & Fire Station.
- The entire stretch of subject property spanning to 300 mts is a commercial stretch.
- With launch of this project the scope of entire stretch can be uplifted.

1.6 RESEARCH METHODOLOGY:

1.6.1 METHODS-DETAILED PROJECT OUTLINE



1.6.1 METHODS - PROJECT METHODOLOGY



1.6.2. TOOLS AND TECHNIQUES:

- Study and analyse valuation method to know the potential return.
- Studying different types of feasibilities.
- Studying similar feasibility reports and drawing inference.

1.6.3. DATA COLLECTION METHODS:

QUALITATIVE METHOD-

- Literature Case study.
- Site observations.
- User needs and activities (commercial).
- User group one on one interviews to know if the proposal is really useful for public.

QUANTITATIVE METHOD-

- Questionnaire pertaining to necessary facility among users.
- TNHB similar proposals (To know feasibility of similar projects)
- Consequences of government commercial complexes over private owners in the same locality.

1.6.4. DATA ANALYSIS METHODS:

- Comparative analysis of case studies.
- Using various valuation methods and selecting one best suited method for the chosen site.
- Preparing feasibility report.

1.7 CONCLUSION:

- Study and analyse various methods to evaluate feasibility of any Government project both qualitatively and quantitatively
- Study and analyse various methods to calculate potential revenue any Government project
- Create framework for using suitable qualitative and quantitative factors for any government projects.
- Create framework for calculating revenue potential for any government projects by using suitable valuation models

CHAPTER 2

LITERATURE STUDY

2.1 TYPES OF FEASIBILITY STUDY AND THEIR IMPORTANCE BY SANJAY VYAS.

2.1.1 Reason for choosing this paper:

- This paper is chosen to understand meaning, scope and importance of feasibility study.

2.1.2 Aim of the research:

- A feasibility study is simply a detailed analysis of the practicality of a proposed plan or project.
- The author also states that detailed feasibility study comprises an in-depth analysis of the historical background of the business or project, including but not limited to the descriptions of the products or service, accounting statements, details of the operation and management, market share and policies, financial data, legal requirements, tax obligations, etc.

2.1.3 Research methodology:

The author says that feasibility study should be conducted based on the following research methodology,

- **Technical Feasibility** - This study entirely focuses on the technical resources that are available to the organization. It helps businesses determine whether the technical resources meet the capacity and whether the team is skilled enough to convert the ideas into actually working systems.
- **Economic Feasibility** - This assessment typically includes a cost/ benefit analysis of the project. The goal of this study is to help organizations determine the viability and the probable cost and benefits associated with the project before the allocation of the final resources.
- **Legal Feasibility** - This assessment thoroughly analyses whether any aspect of the project is conflicting with the legal requirements like zoning laws, data protection acts, social media laws, etc.
- **Operational Feasibility** - This assessment involves conducting a study for the purpose of analysing and determining whether the needs of the organization can be met after the completion of the project.
- **Scheduling Feasibility** — this assessment involves undertaking a study in order to analyse and determine whether the project will be completed within time. In scheduling feasibility, the organization calculates how much time the project will take to complete

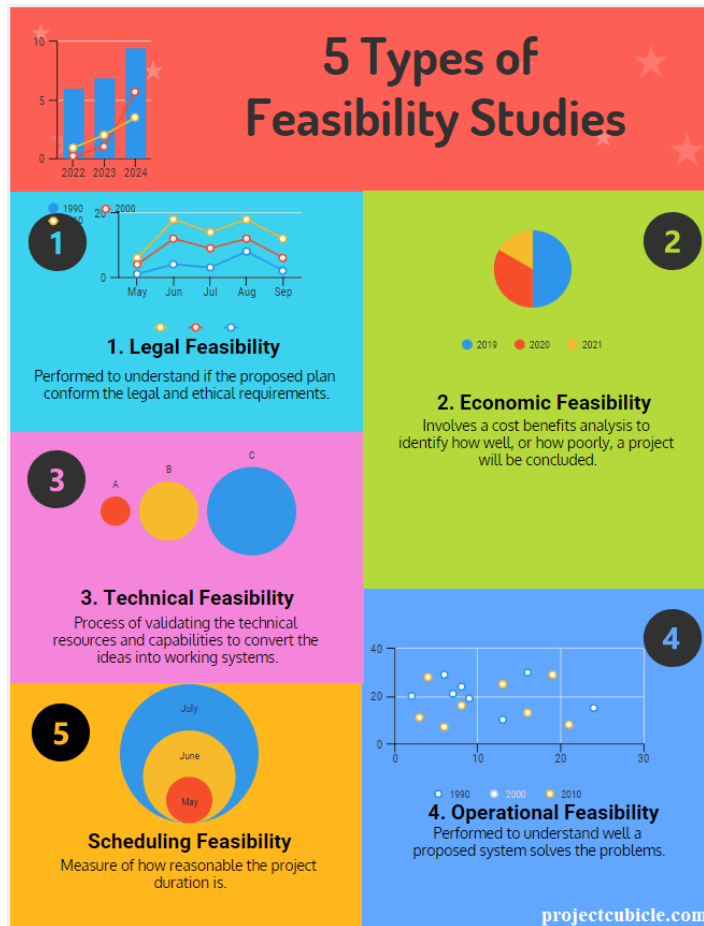


Fig 2.1 Types of feasibility

2.1.4 Conclusion:

- Feasibility studies are one of the most vital aspects of business development. Most importantly, it provides a deep insight into the amount of funding it will need to keep the business up and running by considering factors like expenditure, technology and tools necessary to complete the project, and expected ROI.

2.2 PROPERTY DEVELOPMENT FEASIBILITY GUIDE - HOW TO DETERMINE THE BEST FINANCIAL FEASIBILITY MODEL FOR DEVELOPMENT PROJECT BY ALTUS GROUP.

2.2.1 Reason for choosing this paper:

- This paper is chosen to explore financial feasibility study (one of the important component in feasibility report).

2.2.2 Aim of the research:

The main aim of the researcher is to explore all three stages of financial feasibility for a successful project. The three stages of feasibility are as follows:

- High-level feasibility -The very first feasibility step sometimes called a preliminary analysis explores ideas and considers pluses and minuses of the development site. You may make assumptions based on attributes and constraints and make some guesses about local supply and demand.
- Static feasibility- The assumptions you made during the high-level feasibility study will become grounded in more solid facts and you'll have a clear understanding of the highest and best use for the site.
- Cash flow feasibility -Finally, at this stage, you get down to the granular detail, especially around project financing and funding requirements.

2.2.3 Tools and techniques used:

- Development margin approach
- Discounted cash flow analysis (DCF)

2.2.4 Conclusion:

- From these paper different types of financial feasibility is explored. There are many different feasibility models, but there are two commonly used in the property development the development margin approach and discounted cash flow analysis.

2.2.5 Reference:

<https://www.altusgroup.com/argus/insights/property-development-feasibility-guide-part-1-how-to-determine-the-best-financial-outcome-for-your-next-development-project>.

2.3 BEST REVENUE FORECASTING MODELS: TYPES AND EXAMPLES BY RAHUL KUMAR

2.3.1 Reason for choosing this paper:

- This paper is chosen **to know in detail about revenue forecasting models.**

2.3.2 Aim of the research:

- A revenue forecast involves looking at your entire business, rather than only activities and quotas executed by your sales team. Compared to a sales forecasts, revenue forecasts tend to be more holistic. Forecast revenue is important for all businesses, as it helps strategize how quickly or how much you want to scale your business. However, it's also one of the most difficult things to estimate.

2.3.3 Tools and techniques used:

- Straight Line Forecast Method
- Moving Average Forecast Method
- Time Series Forecast Method
- Linear Regression Forecast Method

2.3.4 Conclusion:

- Revenue forecasting helps resolve most of the questions. There are various revenue forecast methods that provide accurate projected revenues for upcoming months and quarters. Revenue forecasting important because getting to know what will happen in future helps make informed decisions.

2.3.5 Reference:

<https://www.aviso.com/blog/revenue-forecasting/>

2.4 GUIDELINES FOR THE PREPARATION OF FEASIBILITY STUDY FOR FINANCING COMMERCIAL REAL ESTATE PROJECTS BY APIF BANK, DUBAI.

2.4.1 General Factors

Table 2.1 General factors for Feasibility preparation

Economy	• Basic economic indicators: GDP and GDP growth rate, central bank discount rate, commercial bank prime lending rate, etc. • Project city • Taxation: Overview of taxes like income tax, VAT, withholding tax, property tax or any other tax relevant to Real Estate Investment
Real Estate Market	• Overview of the Sector and sub-sectors (residential, retail, office, storage/ industrial etc.) • Sector size and growth (focus on the project subsector if already decided according to zoning). • Current demand and supply. • Forecasted demand/supply over the next 5-10 years for and the basis for projections. • Land and property price trends. • Rental and occupancy rates for different types of buildings. • Regulations of the real estate sector: ownership and tenancy regulations, building permits, etc.

Table 2.1 General factors for Feasibility preparation

2.4.2 The Project Overview.

Project Objective	• Rationale, concept and objective of the project
Project Land and Location	• Geographical location - advantages and disadvantages • Zoning regulations • Description of the site – area, shape and description of any available structure • Location – accessibility (roads and transport) • Land valuation and basis of valuation • Land deed, liens, encumbrances, free or lease hold and terms of lease • Class of neighbourhood – Upper, middle ,low • Amenities available
Project Scope	• Project construction works, renovation of current property or purchase of new property • Consultancy services (design, supervision, and legal.) • Statutory fees
Building Description	• Civil works, electromechanical and other facilities • Description of the building– number of storeys, offices, shops, size per unit, common areas, parking facilities, landscaping etc. • Area statement • Technical Description of Finishing and electromechanical systems (e.g. heating & air-conditioning, fire fighting & fire alarm, elevators and security features, etc.
Building Materials and Labour	▪ Availability. ▪ Type, sources, quality and prices

Supply	▪ Current construction cost per sq. for different classes of finishing e.g. Deluxe, Ordinary, Low cost housing etc
Construction, Design and Supervision	▪ Availability of consultants (project design & supervision and project management) ▪ Availability of contractors locally and class of contractor required for the project ▪ Capacity of beneficiary to manage the project
Environmental Considerations	▪ Environmental impact assessment and mitigating measures ▪ Health and safety of employees, soil erosion, noise, solid waste disposal, sewerage disposal, storm water drainage etc.
Project Cost	▪ Cost of Construction per square meter ▪ Basis of cost estimates and provision for contingencies ▪ Comparison of cost with other recent/current projects

Table 2.2 Project overview criteria

2.4.3 Project Justification

Social justification	• Social causes to be served by the project, e.g. poverty alleviation, education, health, etc.
Market justification	• Marketing strategy: competition, pricing, market share, marketing channels etc. • The impact of the project on the area, etc.
Financial justification	Basic assumptions underlying the project financial projections. • Rental rates • Tenancy agreements' period and rate of increase of rentals • Estimated occupancy rates over a 20-year period. • Depreciation rates. • Taxation: Calculation of all taxes applicable to the project such as income tax, property tax, VAT, withholding tax, etc. • Operational expenses: breakdown for costs of admin. & marketing, property management, maintenance, security, cleaning, utilities, insurance, etc. • Service charges (if there are service charges collected from tenants to cover part of the operational costs)

Tab 2.3 Justification criteria

2.4.4 Risk Analysis

- Potential risks
- Design and construction risks
- Sectoral and business risks
- Cost overrun risk
- Time overrun risk
- Operating and management risks
- Currency risks

2.5 INFERENCE FROM JOURNAL PAPERS

	REASON FOR CHOOSING THE PAPER	AIM OF THE RESEARCH	TOOLS AND TECHNIQUES INVOLVED	CONCLUSION
TYPES OF FEASIBILITY STUDY AND THEIR IMPORTANCE BY SANJAY VYAS.	• Understand meaning, scope and importance of feasibility study.	• To explore types of feasibility.	• Technical feasibility • Financial feasibility • Operational feasibility • Scheduling feasibility	• Importance of feasibility and its typologies are understood.
PROPERTY DEVELOPMENT FEASIBILITY GUIDE– HOW TO DETERMINE THE BEST FINANCIAL FEASIBILITY MODEL FOR DEVELOPMENT PROJECT BY ALTUS GROUP.	• To explore financial feasibility study (one of the important component in feasibility report).	• To choose appropriate financial feasibility model.	• Development margin approach • Discounted cash flow analysis (DCF)	• Different feasibility models are explored.

BEST REVENUE FORECASTING MODELS: TYPES AND EXAMPLES BY RAHUL KUMAR	• To know in detail about revenue forecasting models	• Forecast revenue is important for all businesses, as it helps strategize how quickly or how much you want to scale your business. However, it's also one of the most difficult things to estimate.	• Straight Line Forecast Method • Moving Average Forecast Method • Time Series Forecast Method • Linear Regression Forecast Method	• Since forecasting is very important for revenue analysis various models and its procedure has been understood.
GUIDELINES FOR THE PREPARATION OF FEASIBILITY STUDY FOR FINANCING COMMERCIAL REAL ESTATE PROJECTS BY APIF BANK, DUBAI.	• To understand framework involved in preparation of financial feasibility report.	• This paper covers all aspects that had to be utilised in calculating financial feasibility.	NA	• Important aspects that are to be followed in report preparation are understood.

Tab 2.4 Comparative analysis

2.6 LITERATURE CASE STUDY - TAMIL NADU INFRASTRUCTURE FUND MANAGEMENT CORPORATION FEASIBILITY STUDY FOR TAMIL NADU COMMERCE HUB LOCATED ON ANNA SALAI, CHENNAI BY CBRE. (APRIL 2018).

2.6.1 PROJECT INTRODUCTION

The Tamil Nadu Infrastructure Fund Management Corporation Ltd [TNIFMC], (hereinafter referred to as the client) is an asset management company formed under the Tamil Nadu Infrastructure Development Board (TNIDB).

Under the vision 2023 of GoTN and decongestion of residential areas in Chennai city - An iconic, modern commercial office space development christened 'Tamil Nadu Commerce Hub' (hereinafter referred to as the subject development) has been envisaged to accommodate public and private sector entities.

The same is proposed to be developed on two land parcels along Anna Salai:

- Land Parcel 1 (Subject Property 1) – Comprises for 2 non-contiguous land parcels located on either side of Anna Salai, Nandanam admeasuring approx. 9.65 acres
- Land Parcel 2 (Subject Property 2) – Comprises for 1 contagious parcel located of Anna Salai, Teynampet admeasuring approx. 1.4 acres.

2.6.2 KEY OBJECTIVES

The key objectives for the envisaged development (Tamil Nadu Commerce Hub) are:



Fig 2.2 Objectives of TNCH by CBRE

2.6.3 CHENNAI OVERVIEW

2.6.1 Brief overview of Chennai City

- Chennai, the capital of the state of Tamil Nadu is located along the eastern sea coast in the south of India. As per census 2011, Chennai houses a population of 8.65 million and is the fourth largest urban agglomeration in the country in terms of population.

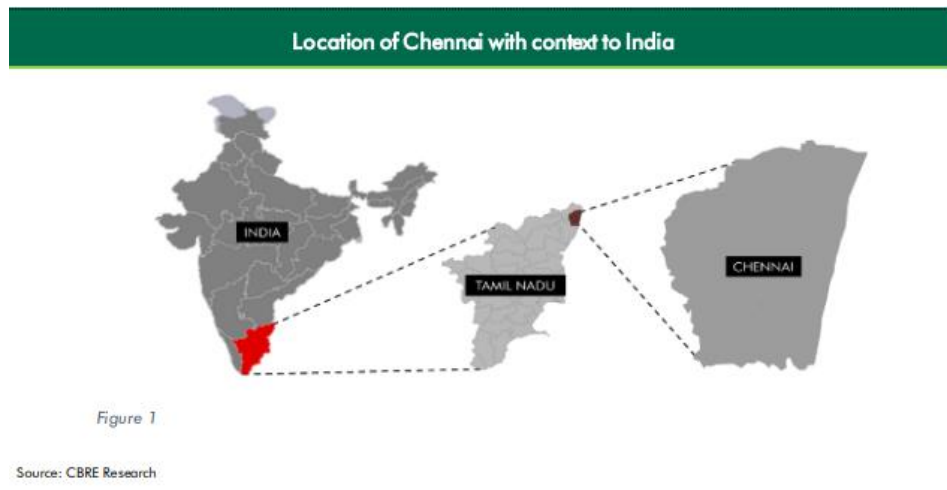


Fig 2.3 Site location map

2.6.2 Spatial Spread of Chennai City

The city is segregated into 5 zones namely North, East, South, West and Central for the purpose of understanding the spatial spread of activity:

- **Central:** Key micro markets in this zone are Nungambakkam, Egmore, Gopalapuram, Royapettah, Nandanam, Teynampet. **Central region is an established residential and commercial zone.**
- **North:** Key micro markets in this zone include Perambur, Royapuram, Kolathur, Madhavaram, etc. In the recent past this location has witnessed a spurt in residential activity on the backdrop of competitive land pricing and improving infrastructure.
- **West:** Key micro markets in this zone include Anna Nagar, Porur, Ambattur, and Oragadam. **This region witnesses the presence of mid to high-end residential developments** concentrated around Porur and Anna Nagar regions which are located in proximity to the central regions of the city.
- **East:** Key micro markets in this zone include Alwarpet, Santhome, MRC Nagar, etc. Considering the premium-ness of the location owing to the proximity to sea and the CBD areas, **the region has evolved into a luxury/ high end residential vector.**
- **South:** Key micro markets in this zone are Adayar, Velachery, Taramani, Shollingnallur, and Semmancheri. Both Rajiv Gandhi Salai (designated IT/ITeS corridor) and the Grand Southern Trunk (GST) Road **have been key vectors and contribute to majority share of supply and absorption from a residential and commercial front.**



Fig 2.4 Spatial spread of Chennai city

2.6.4 REGION AND SITE ASSESSMENT

2.6.4.1 Region Assessment

- The subject properties are located on one of the most prominent arterial roads of the city. This module is aimed to provide a comprehensive profiling of the Anna Salai region and its immediate surroundings in order to understand the inherent challenges and opportunities.

2.6.4.1.1 Overview of Anna Salai:

- Anna Salai originates at Fort St. George and runs up till Kathipara Junction, post which it splits into two roads viz. Mount Poonamalle Road and Grand Southern Trunk Road. Key micro markets along the corridor include Teynampet, Nandanam, and Saidapet etc. Further, the neighbouring micro-markets to the subject region are Egmore, Mylapore, Nungambakkam, T. Nagar, Alwarpet etc. which are premium in nature is typically characterized by residential/ commercial developments.

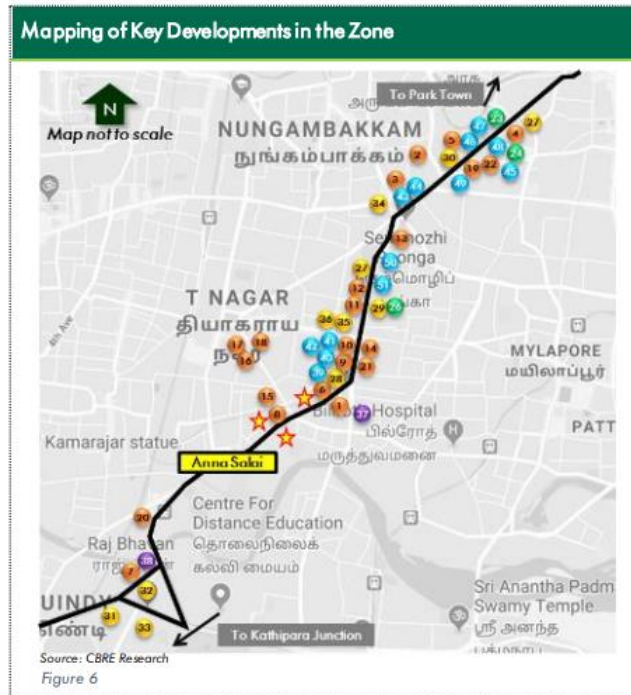
2.6.4.1.2 Zone Profiling:

- The subject properties are located along Anna Salai in the Nandanam micro market. By virtue of being located on Anna Salai, the micro market enjoys

excellent connectivity to various parts of city. The subject region is characterized by the limited availability of large sized developable land parcels.

2.6.4.1.3 Mapping of key developments:

- Development activity in the corridor has been classified under the heads of commercial office spaces, retail mall developments, hospitality developments and independent office building by corporates/ business houses.



Commercial Office Space 1. Prestige Polygon 2. Prestige Palladium 3. Rajkamal Suites 4. Cooper building 5. Seethakathi 6. Shechalam center 7. Temple steps 8. Temple towers 9. Karumuthu Centre 10. Chaitanya Imperial 11. Chaitanya Capitale 12. Century Plaza 13. Lebara Towers 14. Guna Complex 15. ASV Ramana Towers 16. Ramaniyam Oval 17. Boscon Futura Tech Park 18. Kochar Towers 19. VST Commercial Space 20. Panagal Maligai 21. Amarasri Building 22. Khazana Commercial	Hospitality Developments 26. Taj Club House 27. Courtyard Marriott 28. Rain tree – Anna Salai 29. Hyatt Regency 30. IBIS City Center 31. ITC Grand Chola 32. Ramada Inn 33. Park Hyatt 34. The Park 35. Grand by GRT Hotels 36. Residency Towers
Retail Developments 23. Spencers Plaza 24. Express Avenue 25. Ramee Mall	Residential Apartment 37. Good Wood residences 38. Casa Grande Monte Carlo
	Individual Developments 39. IOC 40. Balmer Lawrie 41. Air India 42. Voltas 43. Chettinad 44. VBJ 45. Sundaram Corporate 46. HDFC Bank 47. IOC Bank 48. TVS Group 49. United India Insurance company 50. Directorate of Medical Sciences 51. Kalaignar TVc

Fig 2.5 Key developments along the corridor

2.6.4.2 Site Assessment

This section provides a detailed understanding of the subject land parcels and the various attributes it possesses that determine the development potential at the subject site. A detailed overview of the subject land parcels has been enumerated below:

Land parcel 1 (9.65 acres):

Parameter	Detail	CBRE Comments
Area	9.65 acres (North side parcel: 8.15 acres ³ , South side parcel: 1.50 acres)	Fairly large sized land parcel located on Anna Salai; There is limited availability of similar sized developable land parcels in the CBD region
Contiguity & Shape	Two non-contiguous land parcels located on either sides of Anna Salai North side land parcel is irregular in shape and cut across by multiple roads. However, based on client inputs, we understand that certain adjustments to the existing roads will be made to derive a large continuous developable area. Additionally, the secondary access for the SP of the North side land, further divides the land parcel into smaller chunk of < 1 acre South side land parcel is fairly regular in shape	Non contiguous nature would help us develop a distinguished product mix where there would be an opportunity to segregate / zone / asset classes based on proposed best use on each of the sites, however still function as a single unit
Current Usage	The North side land parcel currently houses Periyar EVR building, HIG apartments, TNHB staff quarters, TNHB land (with built up structure for varied use). The South side land parcel currently houses the TNHB head office	We understand that applicable compensations will be made to existing occupiers ; However, we feel that it is a great opportunity to house key government departments in the proposed development
Access Roads	The primary access for the subject properties is via Anna Salai . The North side land parcel enjoys a secondary access via Model Hutment Road (situated off Anna Salai)	Excellent connectivity and accessibility from one of the key arterial roads of the city; Additional roads provide opportunity in ease of

2.6.5 SUBJECT PROPERTY DETAILS

2.6.5.1 Property Map



Fig 2.7 Subject property

2.6.5.2 Property Layout

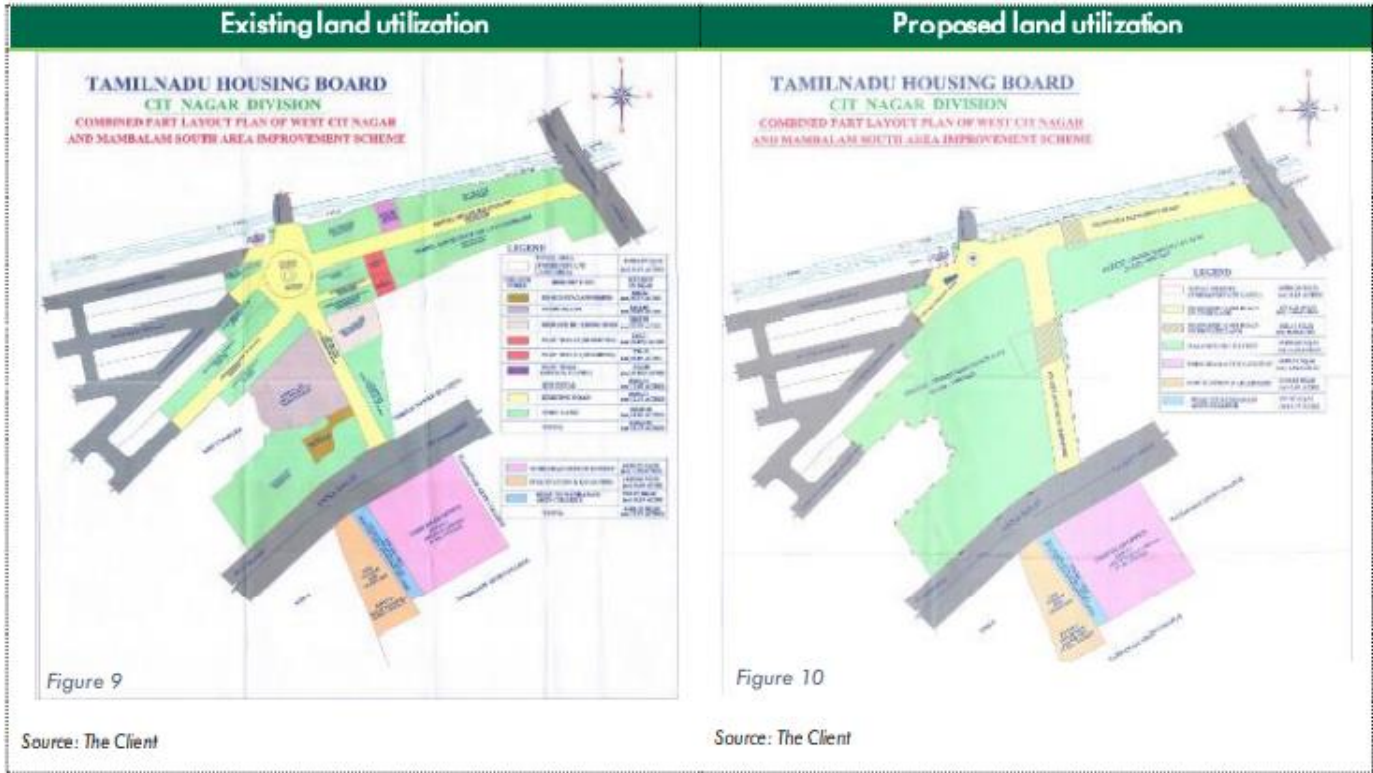


Fig 2.8 Land utilization map

On-ground photographs of the property:



Primary Access



Existing Use ~ North Site



Existing Use ~ South Site



Secondary Access ~ North Site



Existing Use ~ North Site



Existing Use ~ North Site

Fig 2.9 Site photos

2.6.6 COMMERCIAL OFFICE MARKET ASSESSMENT

2.6.6.1 India Commercial Office Market Overview

- Commercial office space market continues to be the bright spot for the real estate sector in the country. Steady lease rentals, high absorption levels and global investor interest continue to bring life into India's commercial real estate sector.
- The total commercial office space stock in India is contributed to by 9 major cities.
- The year 2017 was landmark year for commercial real estate in India; by the end of the year, gross leasing activity crossed the 40 million sft mark and reached about 42.3 million sft.
- Bangalore and Delhi NCR remained the most attractive markets, accounting for more than half of the overall space take-up. Bengaluru, Mumbai, NCR and Chennai contribute to 75% of the office space supply in the country

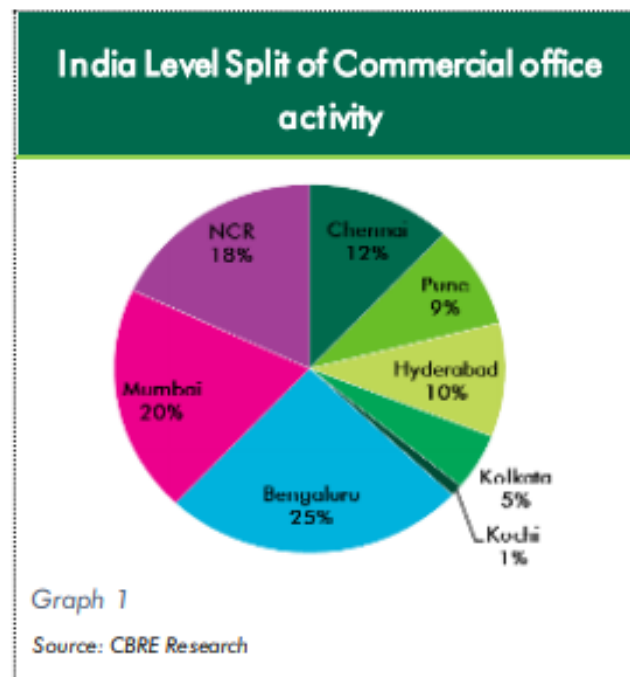


Fig 2.10 Commercial activities split up all over India

2.6.6.2 Chennai Commercial Office Market Overview

- Chennai is the 4th largest commercial office space market in India with a cumulative supply of approx. 63 million sft. Further, the total occupied stock is approx. 54.6 million with a vacancy of 13%.

2.6.6.3 Spatial spread of Commercial activity in Chennai

The commercial office market space in Chennai is divided into the following vectors

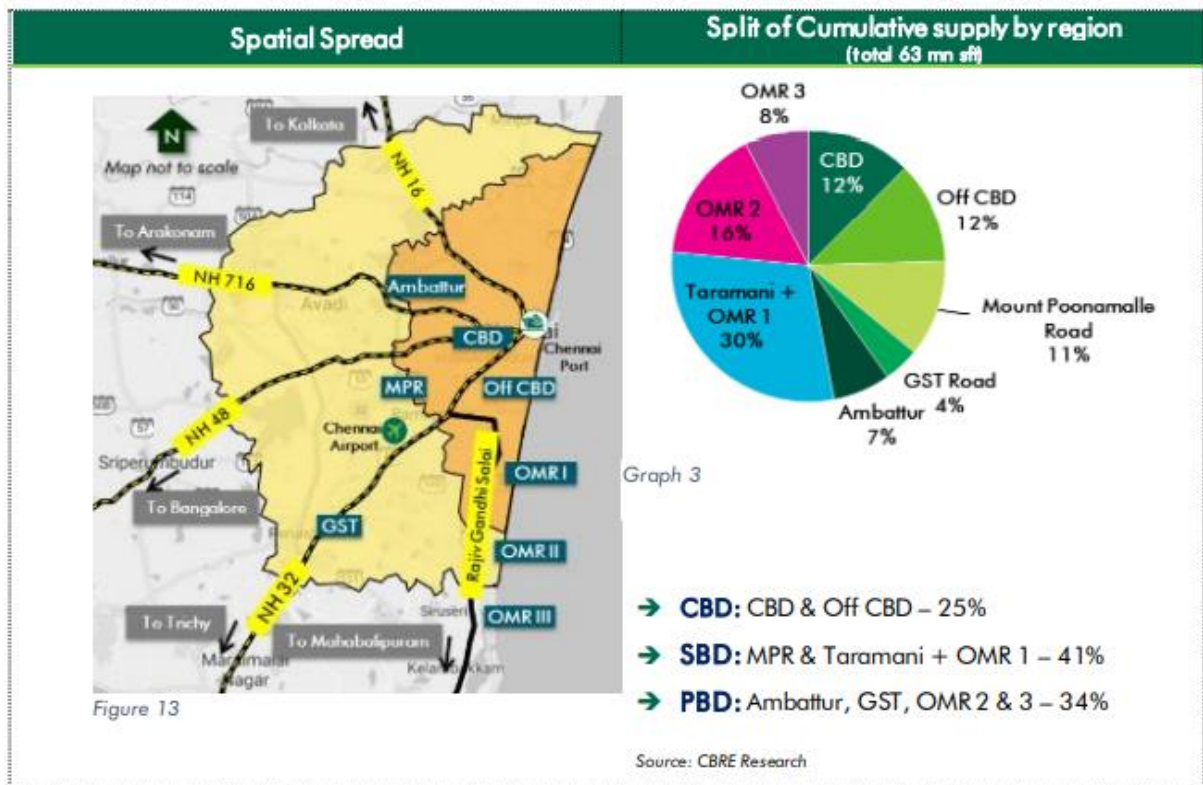


Fig 2.11 Commercial activities split up in Chennai

2.6.7 OTHER FACTORS TO BE CONSIDERED FOR FEASIBILITY REPORT

2.6.7.1 Analysis of Occupiers

- Typical Occupier Profile
- Scale of transactions

2.6.7.2 Rental Trends

2.6.7.3 Cost of construction of Commercial developments

2.6.7.4 Emerging trends in commercial office space

2.6.7.5 Opportunity Assessment

- Supply
- Absorption
- Occupier Profile
- Emerging trends
- Benchmarking – City Level
- Case Studies – Other cities

2.6.7.6 Demand Assessment

- Overview of the overall supply, demand, churn and vacancy trends witnessed in the organized office space market in Chennai over the decade
- Review of the CBD/ Off CBD level supply, demand, churn and vacancy trends witnessed in the organized office space market
- Identification of key demand drivers for the CBD/ Off CBD market
- Assessment of future supply and expected absorption levels

2.6.7.7 SWOT & Conclusion

CHAPTER 03

RESEARCH METHODOLOGY

3.1 VIRTUOUS RETAIL MALL AT THIRUMANGALAM, CHENNAI.

3.1.1 INTRODUCTION

Virtuous Retail mall is located at Thirumangalam in Chennai.

Opening date	18 June 2018
Developer	Virtuous Retail
Management	Virtuous Retail
Owner	Virtuous Retail
Builder	Virtuous Retail south Asia Pvt. Limited.
Architect	MYVN Architect
Structural Consultant	CRN Architects

Table 3.1 Consultant details

3.1.2 SITE ASSESMENT

3.1.2.1 JUSTIFICATION

The reason for choosing the project is as follows:

- Scope for Analyzing of valuation is more.
- Various valuation factors can be explored.
- By learning Valuation procedure for large scale properties, valuation for small scale properties will be easy.

3.1.2.2 LOCATION



Fig 3.1 VR Mall Location

3.1.2.3 SITE AMBIENCE



Fig 3.2 Subject property

3.1.3 SUBJECT PROPERTY DESCRIPTION

SI NO.	CRITERIA	REMARKS
ABOUT THE SUBJECT PROPERTY		
1	Location	Anna Nagar.
2	Ambience of the neighbourhood	Good.
3	Strength of locality of subject property	Satisfying
4	Threats to locality of subject property	No Possible threats
5	Age of the property	3.5 years
6	Scale of the subject property	1,840,000 square feet built-up area
7	Influence of any important landmarks	Thirumangalam metro station & Metro zone
FACILITIES		
8	Transport facilities to the mall	Metro, Buses Auto.
9	Socio economic factor of the neighbourhood	Lower class/Middle class/Posh
10	Infrastructure facilities	The mall has 240 retail stores.
11	Safety and surveillance	Fully secured
12	Parking space availability	1,000,000 sq. ft
SPECIFIC DETAILS TO BE NOTED		
13	Builder Name	Virtuous Retail
14	Legal requirements	Satisfied
15	Quality of service provided	Satisfied
16	Quality of construction	Good
17	Nature of shops and multiplex	Good
18	Business hours	9.00 am-9.00pm
19	Area and size of each prototypes of shops in the mall	From 100 – 50000 Sq.
20	Overall quality of entertainment provided by subject property to its locality	Excellent
Source: J.Jaya Ruban- Land Valour in Tamilnadu.		

Table 3.2 Subject property description

3.1.4
3.1.4.1

TIME VALUE OF MONEY
RENTAL CALCULATION - GROUND FLOOR



Fig 3.3 Ground floor plan

RENTAL CALCULATION OF GROUND FLOOR - RETAIL SPACES.

			PROTOTYPE 1- CLOTHING STORE PROTOTYPE 2-ACCESSORY STORES PROTOTYPE 3-RESTAURANTS PROTOTYPE 4- GROCERY STORE PROTOTYPE 5-TECHNOLOGY STORES				
PROTOTYPE	SHOP NUMBER	AREA SQFT	VACANCY STATUS	RENT/LEASE	RENT PER SQUARE FEET	RENT AMOUNT PER MONTH(RS.)	ANNUAL RENT(RS.)
CLOTHING STORES	G1	20847	OCCUPIED	RENT	125	2605875	31270500
	G2	3704	OCCUPIED	RENT	125	463000	5556000
	G3	1542	OCCUPIED	RENT	120	185040	2220480
	G4	21673	OCCUPIED	LEASE (WEST SIDE)	AR+10%(125)		2,932,350.00
	G5	2063	OCCUPIED	RENT	120	247560	2970720
	G6	769	OCCUPIED	RENT	125	96125	1153500
	G7	816	OCCUPIED	RENT	125	102000	1224000
	G8	988	OCCUPIED	RENT	125	123500	1482000
	G9	846	OCCUPIED	RENT	125	105750	1269000
	G10	853	OCCUPIED	RENT	125	106625	1279500
	G11	915	OCCUPIED	LEASE(HIDESIGN)	AR+10%(120)		125810
	G12	1286	VACANT	NA	NA	0	0
	G13	471	OCCUPIED	RENT	125	58875	706500
	G14	242	OCCUPIED	RENT	120	29040	348480

ACCESSORIES STORES	G15	468	OCCUPIED	RENT	120	56160	673920
	G16	784	OCCUPIED	RENT	125	98000	1176000
	G17	886	OCCUPIED	RENT	122	108092	1297104
	G18	886	VACANT	NA	NA	0	0
	G19	1587	OCCUPIED	RENT	120	190440	2285280
	G20	11802	OCCUPIED	RENT	125	1475250	17703000
	G21	6949	OCCUPIED	RENT	120	833880	10006560
	G22	537	OCCUPIED	RENT	125	67125	805500
	G23	1821	OCCUPIED	RENT	120	218520	2622240
	G24	6502	OCCUPIED	LEASE (NYKAA)	AR+1 0%(120)		858,264
	G25	270	OCCUPIED	RENT	125	33750	405000
	G26	1574	OCCUPIED	RENT	120	188880	2266560
	G27	1570	OCCUPIED	RENT	120	188400	2260800
	G28	1491	OCCUPIED	RENT	120	1491	17892
	G29	1597	OCCUPIED	LEASE(C LINIQUE)	AR+1 0%(120)		210,804
	G30	1333	OCCUPIED	RENT	120	159960	1919520
	G31	1425	OCCUPIED	RENT	120	171000	2052000
	G32	1482	OCCUPIED	RENT	120	177840	2052000
	G33	2398	VACANT	NA	0	0	0
	G34	1511	OCCUPIED	RENT	120	181320	2175840
	G35	3179	OCCUPIED	RENT	120	381480	4577760
GROcery STORE AND GIFT SHOPS	G36 & G37	4507	OCCUPIED	RENT	120	540840	6490080
	G38	705	OCCUPIED	RENT	120	84600	1015200
	G39	11967	OCCUPIED	LEASE (SPAR HYPERMART)	AR+1 0%(125)		1,645,462
	G40	704	OCCUPIED	RENT	120	84480	1013760
	G41	665	OCCUPIED	RENT	120	79800	957600
	G42	868	OCCUPIED	RENT	120	104160	1249920
RESTAURANT AND FOOD OUTLETS	G43	861	OCCUPIED	RENT	120	103320	1239840
	G44	862	OCCUPIED	RENT	130	112060	1344720
	G45	862	VACANT	NA	0	0	0
	G46	868	OCCUPIED	RENT	130	112840	1354080
	G47	1343	OCCUPIED	RENT	130	174590	2095080
	G48	802	OCCUPIED	LEASE(S TARBUCKS)	AR+1 0%(130)		110,275
	G49	539	OCCUPIED	RENT	130	70070	840840
	G50	849	OCCUPIED	RENT	130	110370	1324440
	G51	1267	OCCUPIED	RENT	130	164710	1976520
	G52	1510	OCCUPIED	RENT	130	196300	2355600
	G53	344	OCCUPIED	RENT	130	44720	536640
	G54	585	OCCUPIED	RENT	130	76050	912600
	G55	1253	OCCUPIED	LEASE (MC	AR+1 0%(13		172,287

				DONALD S)	0)		
	G56	1136	OCCUPIED	RENT	130	147680	1772160
	G57	760	OCCUPIED	RENT	130	98800	1185600
	G58	849	OCCUPIED	RENT	130	110370	1324440
TECHNOLOGY	G59 & G60	2323	OCCUPIED	RENT	123	285729	3428748
	G61	2138	OCCUPIED	RENT	123	262974	3155688
	G62	1271	OCCUPIED	RENT	123	156333	1875996
	G63	481	OCCUPIED	RENT	123	59163	709956
	G64	753	OCCUPIED	RENT	123	92619	1111428
TOTAL RENTAL VALUE GENERATED FROM GROUND FLOOR IS FOURTEEN CRORE NINETY ONE LAKHS THIRTY THOUSAND EIGHT HUNDRED AND FOURTY FOUR ONLY.							149103844

Table 3.3 Ground floor rental calculation

3.1.4.2 RENTAL CALCULATION - FIRST FLOOR



Fig 3.4 First floor plan

RENTAL CALCULATION OF FIRST FLOOR - REATIL SPACES

RENTAL CALCULATION OF FIRST FLOOR - REATIL SPACES							
			PROTOTYPE 1- CLOTHING STORE PROTOTYPE 2-ACCESSORY STORES PROTOTYPE 3-RESTAURANTS PROTOTYPE 4- GROCERY STORE PROTOTYPE 5-TECHNOLOGY STORES				
PROTOTYPE	SHOP NUMBER	AREA SQFT	VACANCY STATUS	RENT/ LEASE	RENT PER SQUARE FEET	RENT AMOUNT PER MONTH(RS.)	ANNUAL RENT(RS.)
CLOTHING STORES	F1	20847	OCCUPIED	RENT	125	2605875	31270500
	F2	3704	VACANT	NA	NA	0	0
	F3	1542	OCCUPIED	RENT	125	192750	2313000
	F4	21673	OCCUPIED	LEASE (	AR+10%(125)		2,980,037
	F5	2063	OCCUPIED	RENT	125	257875	3094500
	F6	769	OCCUPIED	RENT	125	96125	1153500

	F7	816	OCCUPIED	RENT	125	102000	1224000
	F8	988	OCCUPIED	RENT	125	123500	1482000
	F9	846	OCCUPIED	RENT	125	105750	1269000
	F10	853	OCCUPIED	RENT	125	106625	1279500
	F11	915	OCCUPIED	RENT	125	114375	1372500
	F12	1286	VACANT	NA	NA	0	0
	F13	471	OCCUPIED	RENT	125	58875	706500
	F14	242	OCCUPIED	RENT	125	30250	363000
	F15	468	OCCUPIED	RENT	125	58500	702000
	F16	784	OCCUPIED	RENT	125	98000	1176000
	F17	886	OCCUPIED	RENT	125	110750	1329000
	F18	886	OCCUPIED	RENT	125	110750	1329000
	F19	1587	OCCUPIED	RENT	125	198375	2380500
	F20	11802	OCCUPIED	LEASE (NACH AAS)	AR+10%(125)		1,622,775
	F21	6949	OCCUPIED	RENT	125	868625	10423500
	F22	537	OCCUPIED	RENT	125	67125	805500
	F23	1821	OCCUPIED	RENT	120	218520	2622240
	F24	6502	OCCUPIED	RENT	125	812750	9753000
ACCESSORIES STORES	F25	270	OCCUPIED	RENT	120	32400	388800
	F26	1574	OCCUPIED	RENT	120	188880	2266560
	F27	1570	OCCUPIED	RENT	120	188400	2260800
	F28	1491	OCCUPIED	RENT	120	178920	2147040
	F29	1597	OCCUPIED	RENT	120	191640	2299680
	F30	1333	OCCUPIED	RENT	120	159960	1919520
	F31	1425	VACANT	NA	NA	0	0
	F32	1482	OCCUPIED	RENT	120	177840	2134080
	F33	2398	OCCUPIED	RENT	120	287760	3453120
	F34	1511	OCCUPIED	RENT	120	181320	2175840
	F35	3179	OCCUPIED	RENT	120	381480	4577760
	F36 & F37	4507	OCCUPIED	RENT	120	540840	6490080
RESTAURANTS AND FOOD OUTLETS	F38	705	OCCUPIED	LEASE (CCD)	AR+10%(120)		93,060
	F39	2323	OCCUPIED	RENT	125	290375	3484500
	F40	704	VACANT	NA	NA	0	0
	F41	665	OCCUPIED	RENT	130	86450	1037400
	F42	868	OCCUPIED	RENT	130	112840	1354080
	F43	861	OCCUPIED	RENT	130	111930	1343160
	F44	862	OCCUPIED	RENT	130	112060	1344720
	F45	862	OCCUPIED	RENT	130	112060	1344720
	F46	868	OCCUPIED	RENT	130	112840	1354080
	F47	1343	OCCUPIED	RENT	130	174590	2095080
	F48	802	OCCUPIED	RENT	130	104260	1251120
	F49	539	VACANT	NA	NA	0	0
	F50	849	OCCUPIED	RENT	130	110370	1324440
	F51	1267	OCCUPIED	RENT	130	164710	1976520
	F52	1510	OCCUPIED	RENT	130	196300	2355600
GROCERY STORE AND GIFT SHOPS	F53	344	OCCUPIED	RENT	125	43000	516000
	F54	585	OCCUPIED	RENT	125	73125	877500
	F55	1253	OCCUPIED	RENT	125	156625	1879500

	F56	1136	OCCUPIED	RENT	125	142000	1704000
	F57	760	OCCUPIED	RENT	125	95000	1140000
	F58	849	OCCUPIED	RENT	125	106125	1273500
	F59 & F60	11967	OCCUPIED	LEASE (SPAR HYPE RMAR T)	AR+10%(125)		1,645,462
	F61	2138	OCCUPIED	RENT	125	267250	3207000
TECHNOLOGY	F62	1271	OCCUPIED	RENT	120	152520	1830240
	F63	481	OCCUPIED	RENT	120	57720	692640
	F64	753	OCCUPIED	RENT	120	90360	1084320
	TOTAL RENTAL VALUE GENERATED FROM FIRST FLOOR IS FOURTEEN CRORE SIXTY NINE LAKHS SEVENTY THREE THOUSAND FOUR HUNDRED AND SEVENTY FOUR .						146973474

3.1.4.3 RENTAL CALCULATION - SECOND FLOOR

Fig 3.5 Second floor plan

			PROTOTYPE 1- CLOTHING STORE PROTOTYPE 2-ACCESSORY PROTOTYPE 3-RESTAURANTS PROTOTYPE 4 -TECHNOLOGY STORES OFFICE SPACE				
PROTOTYPE	SHOP NUMBER	AREA SQFT	VACANCY STATUS	RENT / LEASE	RENT PER SQUARE FEET	RENT AMOUN T PER MONTH (RS.)	ANNUAL RENT(RS.)
CLOTHING STORES	S1	21058	OCCUPIED	LEASE (LIFESTYLE)	AR+10% (125)		2,957,350
	S2	34003	OCCUPIED	LEASE(HOM E CENTRE)	AR+10% (125)		4,675,412
	S3	1542	OCCUPIED	RENT	125	192750	2313000
	S4	21673	OCCUPIED	RENT	125	2709125	32509500
	S5	2063	OCCUPIED	RENT	125	257875	3094500

	S6	769	OCCUPIED	RENT	125	96125	1153500
	S7	816	OCCUPIED	RENT	125	102000	1224000
	S8	988	OCCUPIED	RENT	125	123500	1482000
	S9	846	OCCUPIED	RENT	125	105750	1269000
	S10	853	OCCUPIED	RENT	125	106625	1279500
	S11	915	OCCUPIED	RENT	125	114375	1372500
	S12	1286	OCCUPIED	RENT	125	160750	1929000
	S13	471	OCCUPIED	RENT	125	58875	706500
	S14	242	OCCUPIED	RENT	125	30250	363000
	S15	468	OCCUPIED	RENT	125	58500	702000
	S16	784	OCCUPIED	RENT	125	98000	1176000
	S17	886	OCCUPIED	RENT	125	110750	1329000
	S18	886	OCCUPIED	RENT	125	110750	1329000
	S19	1587	OCCUPIED	RENT	125	198375	2380500
	S20	11802	OCCUPIED	RENT	125	1475250	17703000
	S21	6949	OCCUPIED	LEASE(NAC HAAS)	AR+10%(125)		955,487
	S22	537	OCCUPIED	RENT	125	67125	805500
ACCESSORIES STORES	S23	1821	OCCUPIED	RENT	120	218520	2622240
	S24	6502	OCCUPIED	LEASE(SUPER 99)	AR+10%(120)		858,264
	S25	270	OCCUPIED	RENT	120	32400	388800
	S26	1574	OCCUPIED	RENT	120	188880	2266560
	S27	1570	OCCUPIED	RENT	120	188400	2260800
	S28	1491	OCCUPIED	RENT	120	178920	2147040
	S29	1597	OCCUPIED	RENT	120	191640	2299680
	S30	1333	OCCUPIED	RENT	120	159960	1919520
	S31	1425	OCCUPIED	RENT	120	171000	2052000
	S32	1482	OCCUPIED	RENT	120	177840	2134080
	S33	2398	OCCUPIED	RENT	120	287760	3453120
	S34	1511	OCCUPIED	RENT	120	181320	2175840
	S35	3179	OCCUPIED	RENT	120	381480	4577760
OFFICE ROOM	RECEPTION, WAITING ROOM, MEETING ROOM, CONFERENCE ROOM, FINANCE ROOM, PANTRY, SERVER ROOM, CABIN - 3 NOS., DOCUMENT STORE, TERRACE	4000	OCCUPIED	LEASE	AR+10% (100)		440000
RESTAURANT	S38	705	OCCUPIED	RENT	130	91650	1099800

TS AND FOOD OUTLETS	S39	11967	OCCUPIED	LEASE(F&B AND BAR)	AR+10%(130)		1,711,281
	S40	704	OCCUPIED	RENT	130	91520	1098240
	S41	665	OCCUPIED	RENT	130	86450	1037400
	S42	868	OCCUPIED	RENT	130	112840	1354080
	S43	861	OCCUPIED	RENT	130	111930	1343160
	S44	862	OCCUPIED	RENT	130	112060	1344720
	S45	862	OCCUPIED	RENT	130	112060	1344720
	S46	868	OCCUPIED	RENT	130	112840	1354080
	S47	1343	OCCUPIED	RENT	130	174590	2095080
	S48	802	OCCUPIED	RENT	130	104260	1251120
	S49	539	OCCUPIED	RENT	130	70070	840840
	S50	849	OCCUPIED	RENT	130	110370	1324440
TECHNOLOGY	S51	1267	OCCUPIED	RENT	120	152040	1824480
	S52	1510	OCCUPIED	RENT	120	181200	2174400
	S53	344	OCCUPIED	RENT	120	41280	495360
	S54	585	OCCUPIED	RENT	120	70200	842400
	S55	1253	OCCUPIED	RENT	120	150360	1804320
	S56	1136	OCCUPIED	RENT	120	136320	1635840
	S57	760	OCCUPIED	RENT	120	91200	1094400
	S58	849	OCCUPIED	RENT	120	101880	1222560
	S59	2323	OCCUPIED	LEASE(RELIANCE DIGITAL)	AR+10%(120)		306,636
	S60	2138	OCCUPIED	RENT	120	256560	3078720
	S61	1271	OCCUPIED	RENT	120	152520	1830240
	S62	481	OCCUPIED	RENT	120	57720	692640
	S63	753	OCCUPIED	RENT	120	90360	1084320
TOTAL RENTAL VALUE GENERATED FROM SECOND FLOOR IS FOURTEEN CRORE SEVENTY FIVE LAKHS NINTY THOUSAND TWO HUNDRED AND THIRTY ONLY.							147590230

Table 3.5 Second floor rental calculation

3.1.4.4 RENTAL CALCULATION – THIRD FLOOR

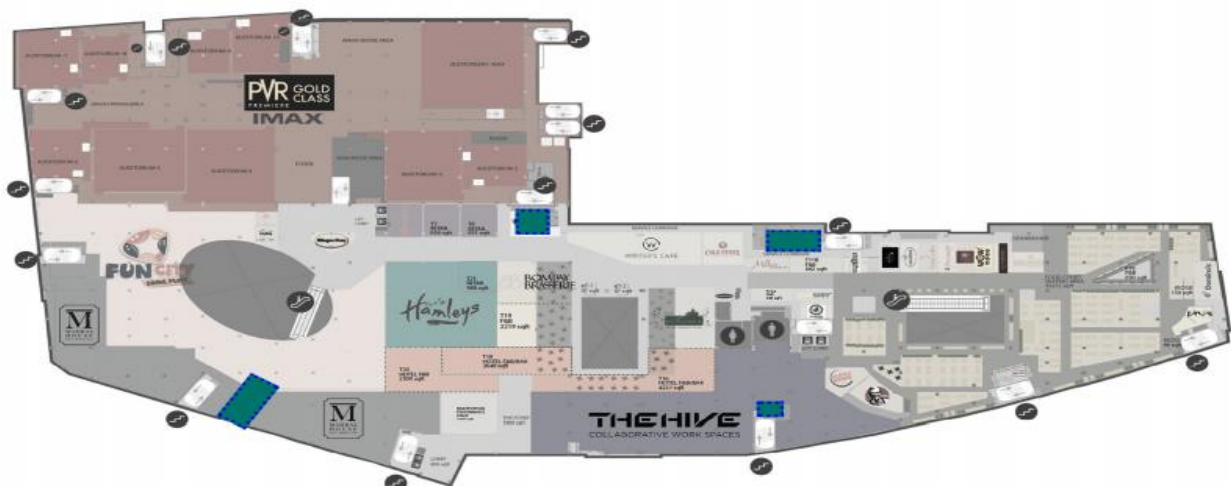


Fig 3.6 Third floor plan

THIRD FLOOR - MULTIPLEX , CO-WORKING SPACE AND FOOD COURT							
PROTOTYPE	SHOP NUMBER	ARE A SQF T	VACANCY STATUS	RENT	RENT PER SQUARE FEET	RENT AMOUNT PER MONTH(R S.)	ANNUAL RENT(RS.)
FOOD COURT AND SEATINGS	T1	705	OCCUPIED	RENT	130	91650	1099800
	T2	11967	OCCUPIED	RENT	130	1555710	18668520
	T3	704	OCCUPIED	RENT	130	91520	1098240
	T4	665	OCCUPIED	RENT	130	86450	1037400
	T5	868	OCCUPIED	RENT	130	112840	1354080
	T6	861	OCCUPIED	RENT	130	111930	1343160
	T7	862	OCCUPIED	RENT	130	112060	1344720
	T8	862	OCCUPIED	RENT	130	112060	1344720
	T9	868	OCCUPIED	RENT	130	112840	1354080
	T10	1343	OCCUPIED	RENT	130	174590	2095080
	T11	802	OCCUPIED	RENT	130	104260	1251120
	T12	539	OCCUPIED	RENT	130	70070	840840
	T13	849	OCCUPIED	RENT	130	110370	1324440
	T14	769	OCCUPIED	RENT	130	99970	1199640
	T15	816	OCCUPIED	RENT	130	106080	1272960
	T16	988	OCCUPIED	RENT	130	128440	1541280
	T17	846	OCCUPIED	RENT	130	109980	1319760
	T18	853	OCCUPIED	RENT	130	110890	1330680
	T19	915	OCCUPIED	RENT	130	118950	1427400
	T20	1286	OCCUPIED	RENT	130	167180	2006160
	T21	471	OCCUPIED	RENT	130	61230	734760
	T22	242	OCCUPIED	RENT	130	31460	377520
	T23	468	OCCUPIED	RENT	130	60840	730080
	T24	784	OCCUPIED	RENT	130	101920	1223040
	T25	886	OCCUPIED	RENT	130	115180	1382160
	T26	886	OCCUPIED	RENT	130	115180	1382160
	T27	802	OCCUPIED	RENT	130	104260	1251120
	T28	539	OCCUPIED	RENT	130	70070	840840
	T29	849	OCCUPIED	RENT	130	110370	1324440
	T30	344	OCCUPIED	RENT	130	44720	536640
	T31	585	OCCUPIED	RENT	130	76050	912600
	T32	760	OCCUPIED	RENT	130	98800	1185600
	T33	849	OCCUPIED	RENT	130	110370	1324440
	T34	481	OCCUPIED	RENT	130	62530	750360
	T35	753	OCCUPIED	RENT	130	97890	1174680
	T36	537	OCCUPIED	RENT	130	69810	837720
	T37	886	OCCUPIED	RENT	130	115180	1382160
	T38	802	OCCUPIED	RENT	130	104260	1251120
	T39	539	OCCUPIED	RENT	130	70070	840840
	T40	784	OCCUPIED	RENT	130	101920	1223040
PVR MULTIPLEX	AUDITORIUMS(10nos.), TICKET	64131	OCCUPIED	LEASE			500000

CO WORKING SPACE		50000	TO BE OCCUPIED BY HIVE	VACANT	NA	NA	NA
TOTAL RENTAL VALUE GENERATED FROM THIRD FLOOR IS SIXTY FIVE CRORE FOURTY ONE LAKHS NINTY FOUR THOUSAND ONLY.							65419400

Table 3.6 Third floor rental calculation

3.1.4.5 GROSS INCOME CALCULATION

STEP 1- DETAILS OF MAJOR RENT SHOPS AND CRU

Description	No. of Shops	Area (sq m)
Ground Floor	50	146939
First Floor	50	146539
Second Floor	40	143139
Third Floor	30	147139

Description	No. of units	Area (sq.m)
Ground Floor	13	1200
First Floor	15	1800
Second Floor	24	5000
Third Floor	10	1000

Table 3.7 Major rent calculation

STEP 2-CALCULATION OF POTENTIAL GROSS INCOME

Description	Total Area	Rent
Ground Floor	148139	149103844
First Floor	148139	146973474
Second Floor	148139	147590230
Third Floor	148139	65419400
Potential Gross income PGI)		₹ 509,086,948

Table 3.8 Potential Gross income calculation

STEP 3 -CALCULATION OF EFFECTIVE GROSS INCOME

Description	Total
Potential Gross income(A)	509086948
Vacancy - 4.5% (B)	22908913
Other source income from mall - Lease spaces (10%) C	5090869
Effective Gross Income EGI(A+C-B)	₹ 537,086,730

(Five hundred thirty-seven million eighty-six thousand seven hundred thirty)

Table 3.9 Effective Gross income calculation

STEP 04- NET OPERATING EXPENSES CALCULATION

NET OPERATING EXPENSES	
INSURANCE 12%	64450408
OPERATING EXPENSES 40%	214834692
MAINTENANCE CHARGES 30%	161126019
CLEANING 10%	5370867
NET OPERATING EXPENSES	₹ 445,781,986

NET CONTRIBUTION	
RECOVERABLE EXPENSE	
TAXES 8%	42966938
MANAGEMENT FEES	107417346
PROMOTION 10%	5370867
NON-RECOVERABLE	
ADMIN & MARKETING 20%	107417346
NET CONTRIBUTION	₹ 1,154,736,470

Table 3.10 Net Operating Expenses calculation

3.1.4.6 PROFIT CALCULATION

CALCULATION OF CAPITAL RATE

$$\text{Capital rate calculation} = \frac{\text{Total value}}{\text{Net operating income}} = \frac{1046173678}{445781986}$$

Capital rate calculation	=	3.35%
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Capitalization rate is a formula used to estimate the potential return an investor will make on a property. Cap rates falling **between 3% and 20% are generally considered “good”** for retail properties.

CALCULATION OF PROFIT

Annual Profit	=	Total Income - Net operating expenses
----------------------	----------	--

Profit generated by this retail property per year amounts to **Rs.60,03,91,692** (After deducting all annual expenses like Taxes, Insurances, Fund and Repair & maintenance cost)

3.1.4.7 PAYBACK PERIOD AND IRR CALCULATION

VALUE BREAKDOWN		
Site area in sq. ft.	2000000	
Land value per sq.ft	20000	
Land value(Rs)	40000000000	Forty billion
Built up area in sq.ft	1840000	
Construction rate per sq.ft	3500	
Building value(Rs)	6440000000	Six billion four hundred and forty four million
Total cost (Rs)	46440000000	Forty-six billion four hundred forty million

YEAR	REVENUE	COST	NET CASHFLOW	CUMMULATIVE CASHFLOW
1	537086730	445781986	91304744	91304744
2	554536730	385781986	168754744	260059488
3	599961730	435781986	164179744	424239232
4	622911730	355781986	267129744	691368976
5	656810690	305781986	351028704	1042397680
6	676810690	275781986	401028704	1443426384
7	718115434	255871896	462243538	1905669922
8	732415434	225871896	506543538	2412213460
9	756455434	205871896	550583538	2962796998
10	775235434	185871896	589363538	3552160536
11	795874236	15871896	780002340	4332162876
12	816932548	13871896	803060652	5135223528

Table 3.11
Payback period
and IRR
calculation

Therefore **Payback period will be 11.58 years**, approximately after Twelve years the payback amount received would be Rs.46440000000

IRR = 21.29%

3.1.5 INFERENCES.

Applying income approach method for valuation of speculation it is inferred that Investing in a project like VR mall is a profitable one .It is declared as such because of its good cap rates, Payback period and IRR.

CHAPTER 04

ANALYSIS AND RESULTS

4.1 QUALITATIVE APPROACH

4.1.1 REGIONAL ASSESSMENT AND ZONE PROFILING

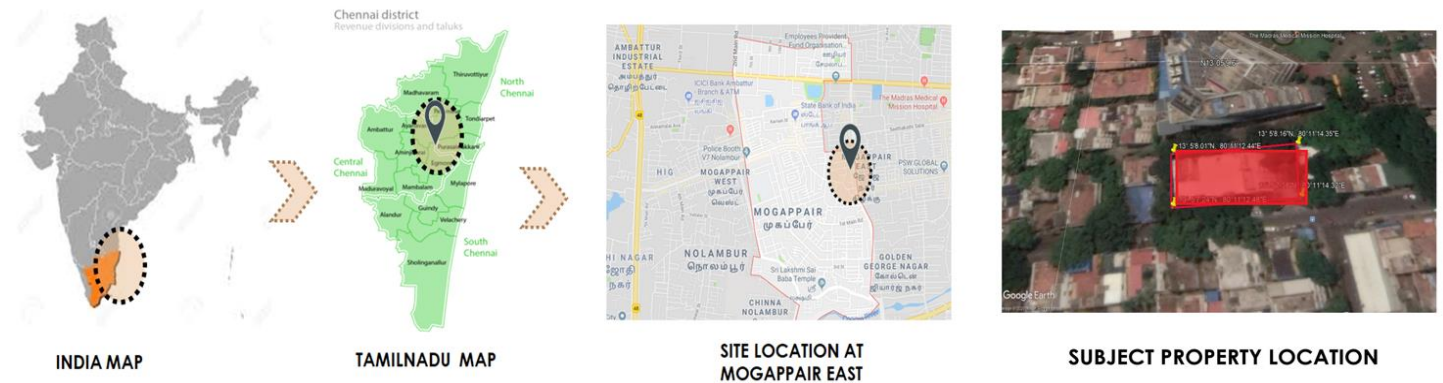


Fig 4.1 Location details

4.1.2 PROJECT AND SITE JUSTIFICATION

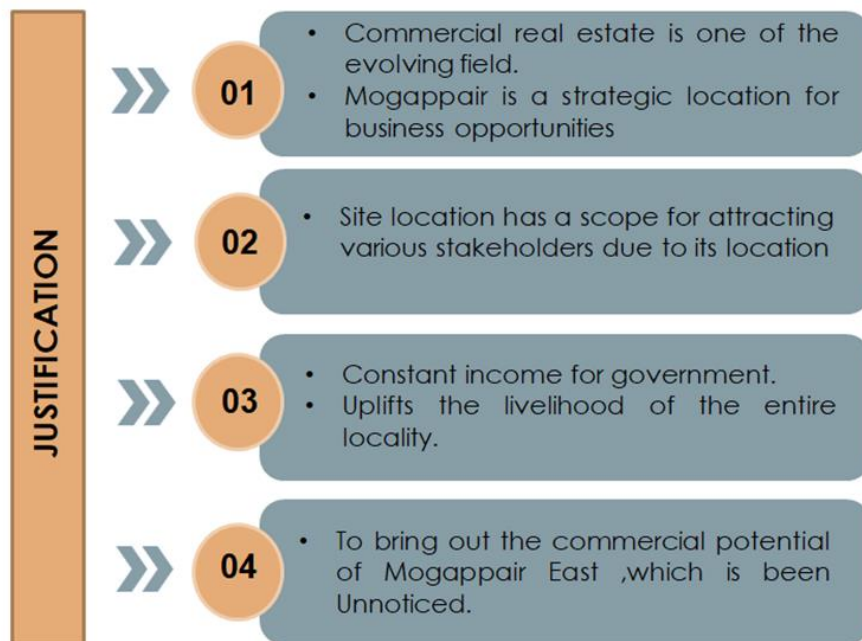


Fig 4.2 Project Justification

- The land has not been allotted to public and it belongs to government. The proposed site is located amidst Ambattur Railway station (near by 6.8 KM), Koyambedu Bus Terminus nearby (6.0 KM), J.J.Nagar East bus stand (near by 0.5 KM), Nearby Madras Medical Mission Hospital and Nearby J.J.Nagar East Police station & Fire Station.
- The entire stretch of subject property spanning to 300 mts is a commercial stretch.

- With launch of this project the scope of entire stretch can be uplifted.

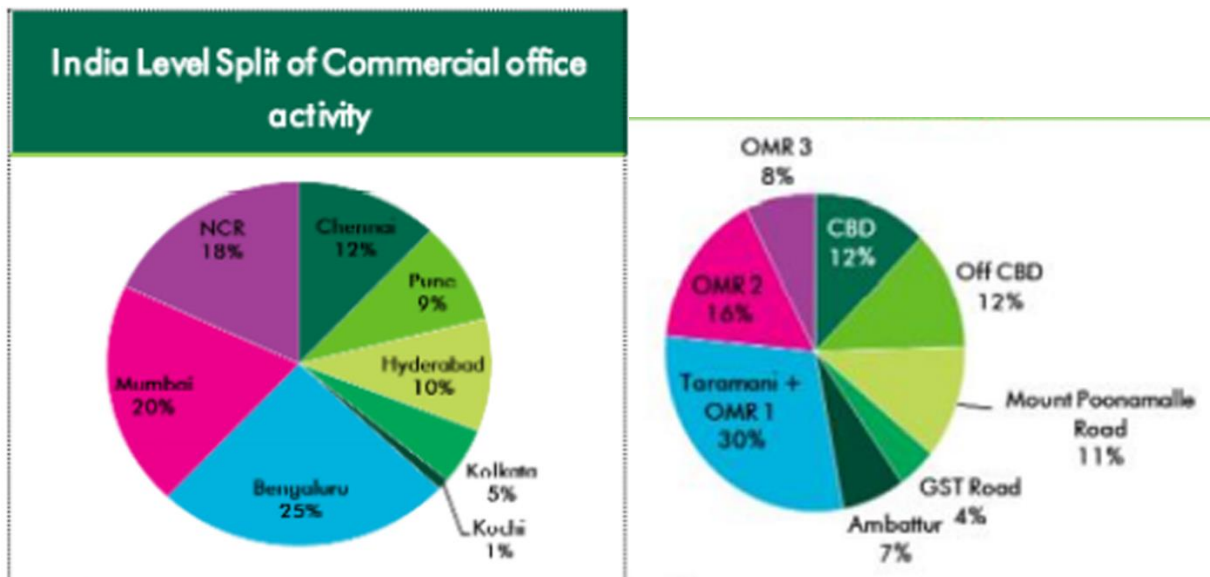


Fig 4.2 Commercial Activities split up

Commercial real estate is one of the most evolving fields. It refers to properties used specifically for business or income-generating purposes. The four main classes of commercial real estate include: office space; industrial; multi-family rentals; and retail. **Commercial real estate provides rental income as well as the potential some capital appreciation for investors.**

4.1.3 STUDY AREA PROFILING

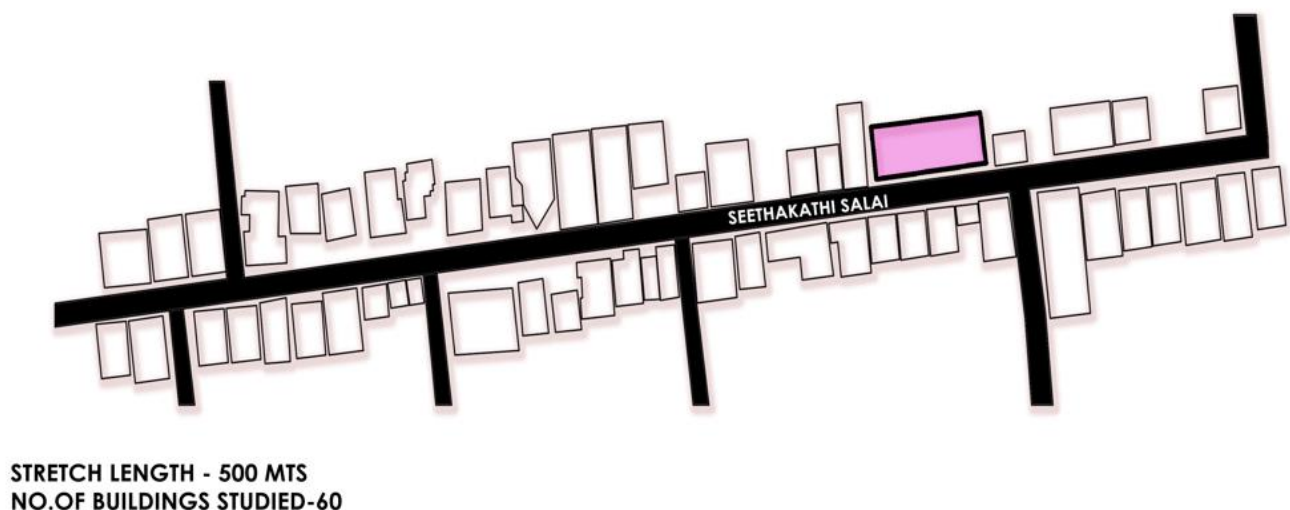


Fig 4.3 Study area profile



Fig 4.4 Landmarks around the site

4.1.4 BUILDING DOCUMENTATION

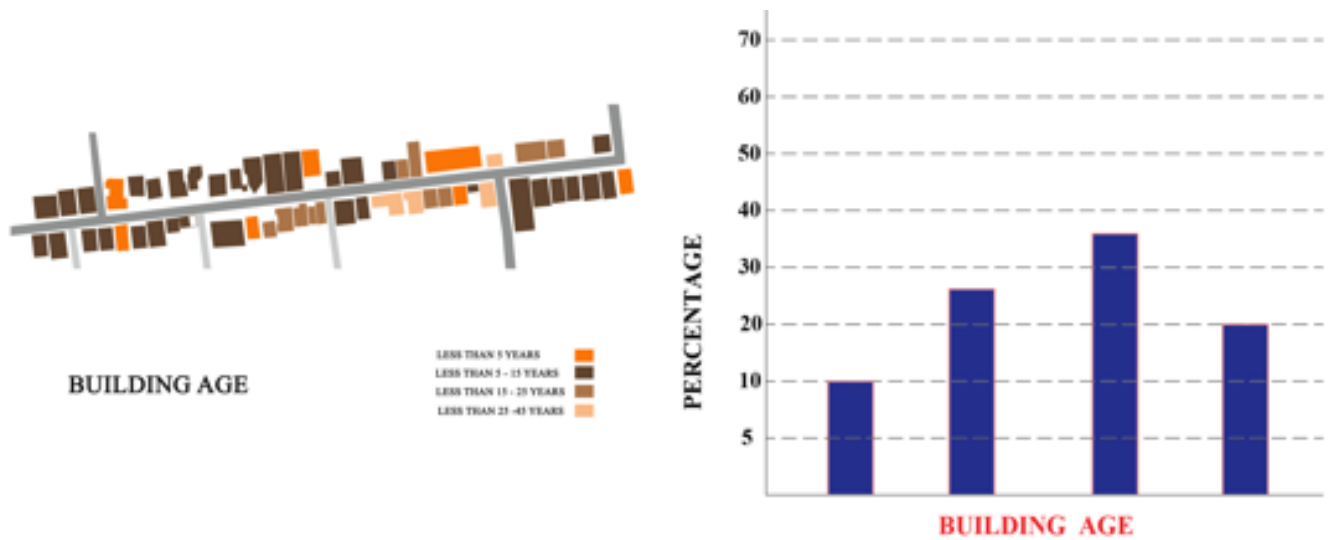


Fig 4.4 Building age documentation

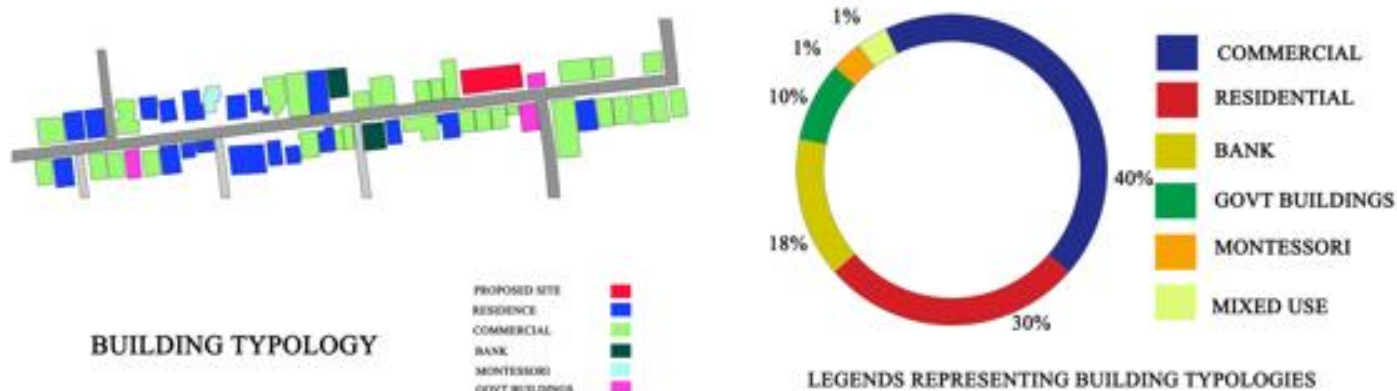


Fig 4.5 Building typology documentation

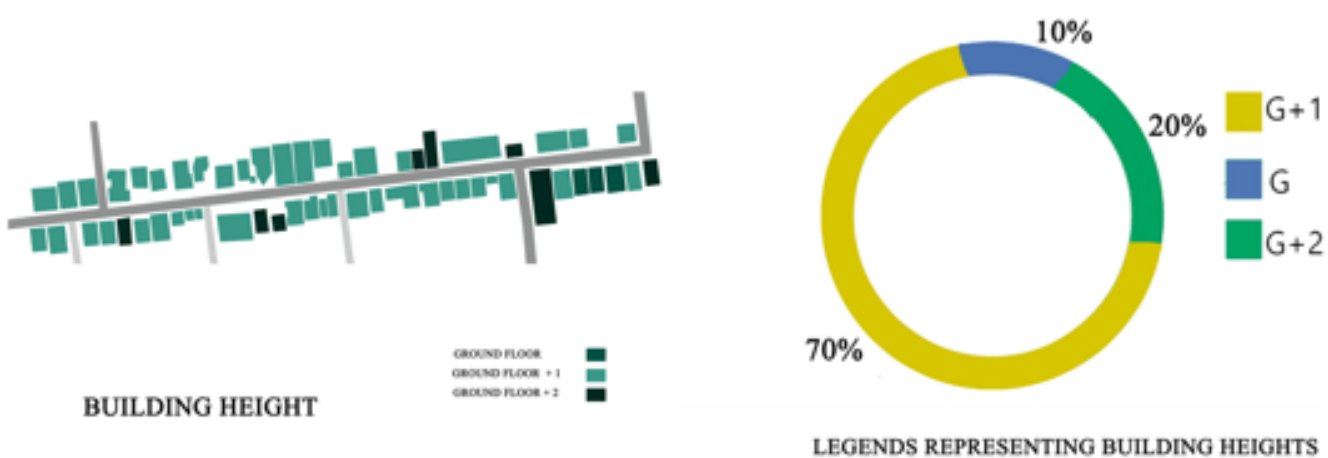


Fig 4.6 Building height documentation

4.1.5 ACCESSIBLTY DOCUMENTATION

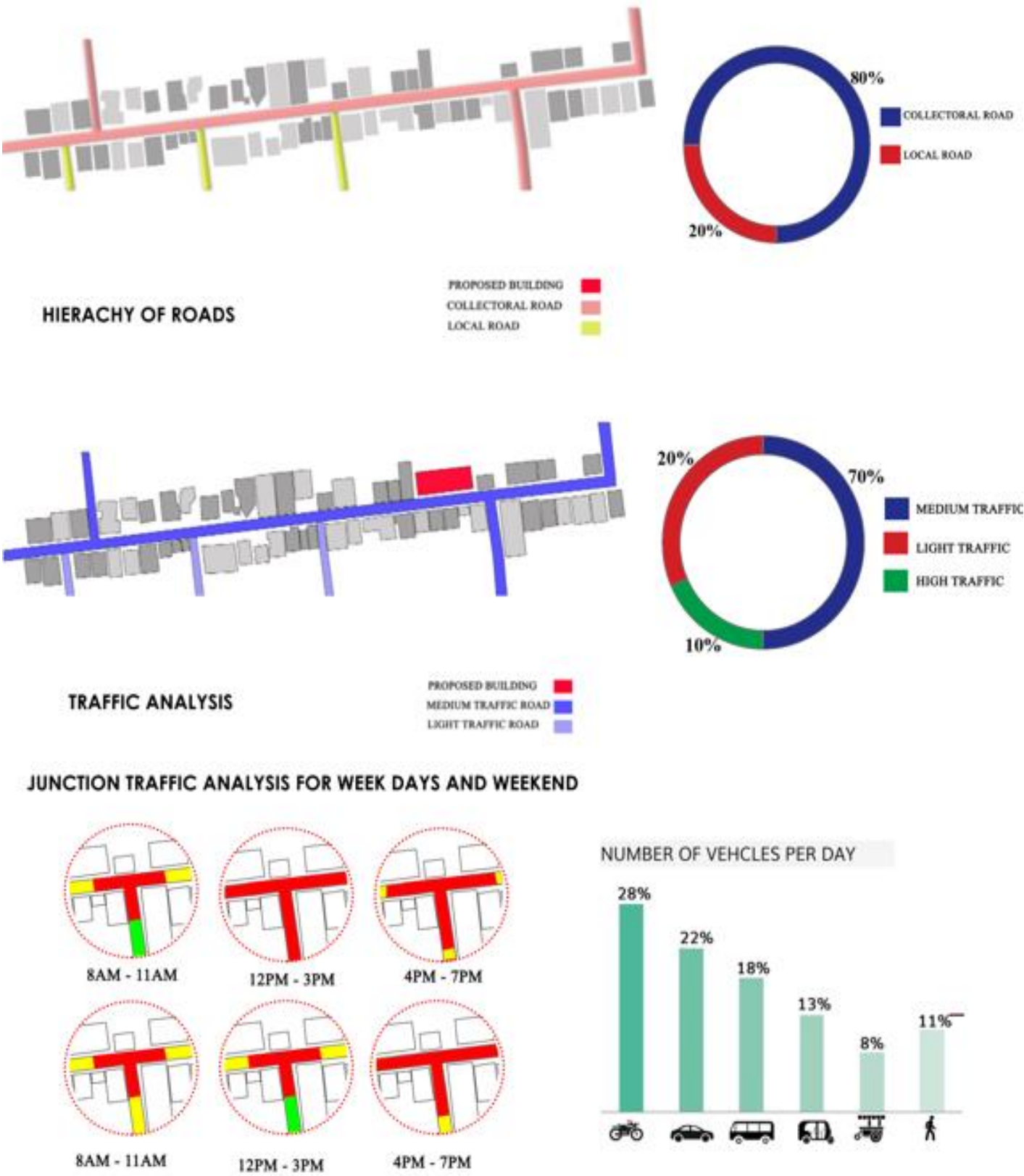
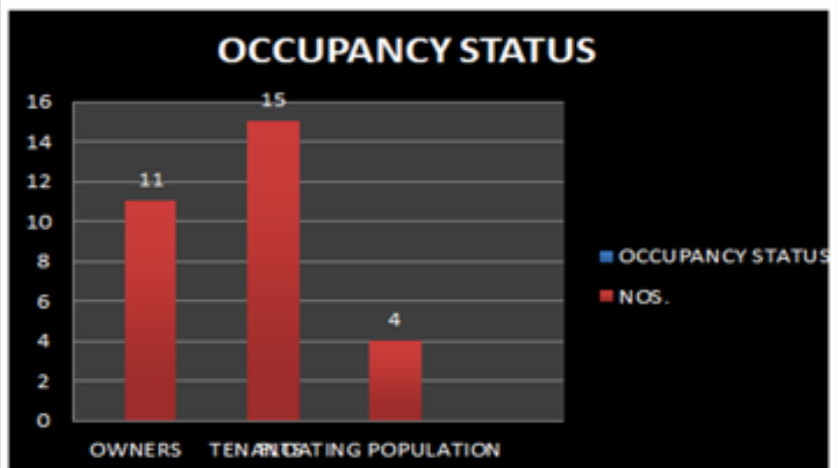
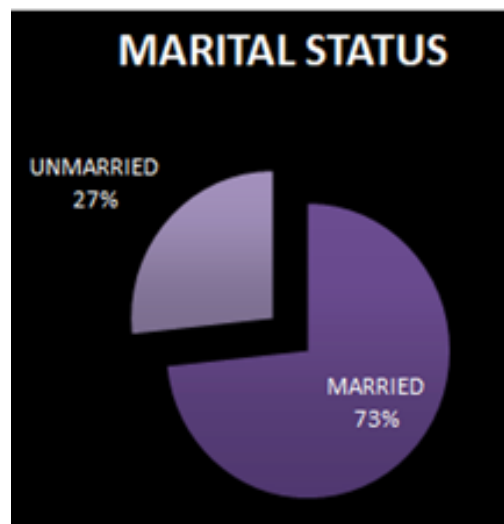
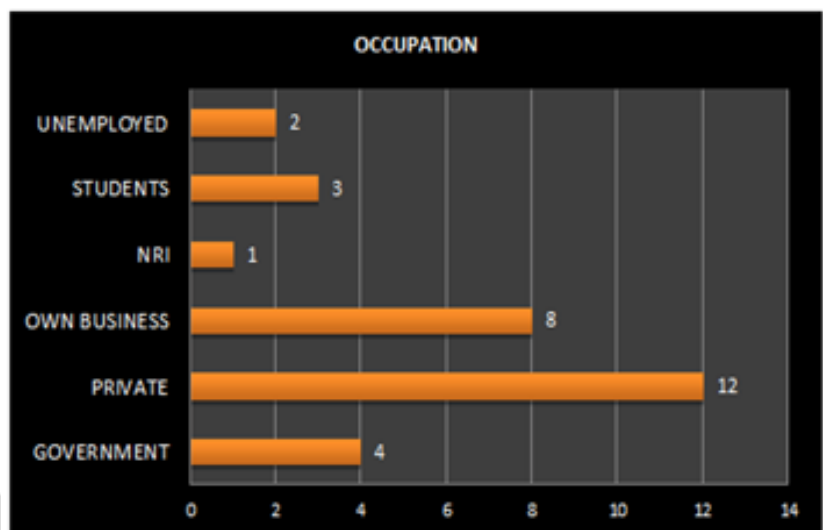
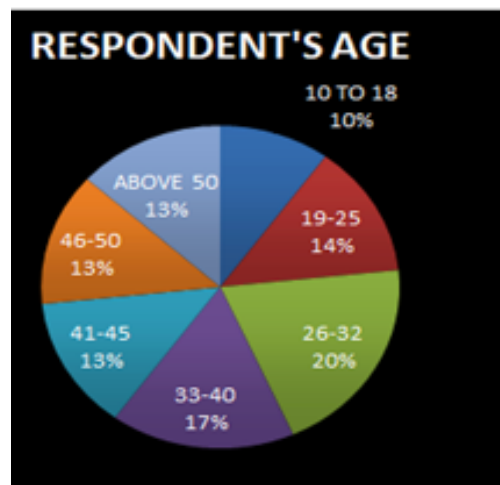
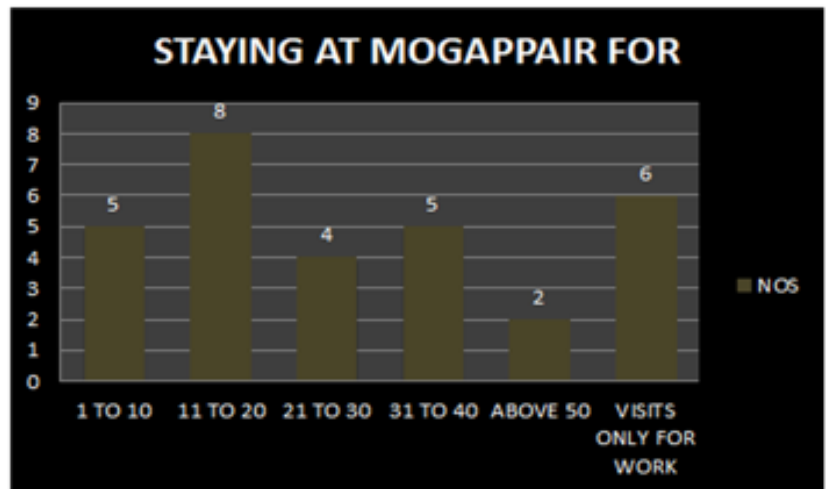
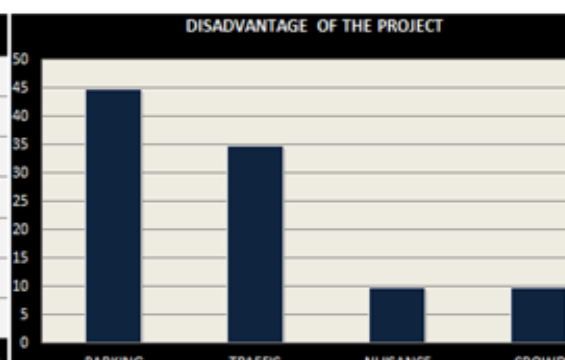
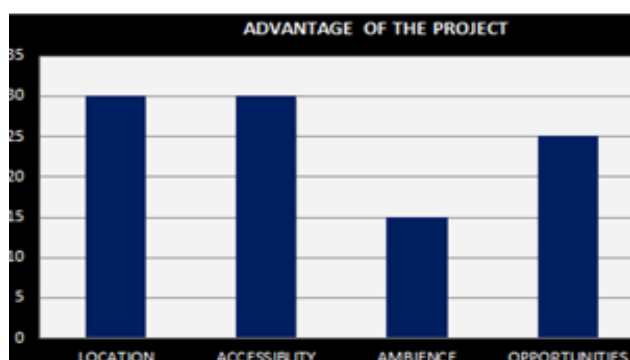
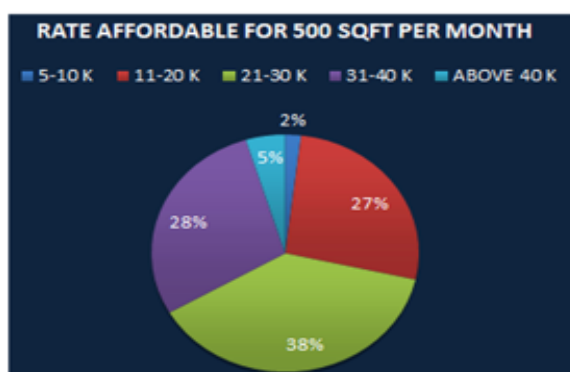
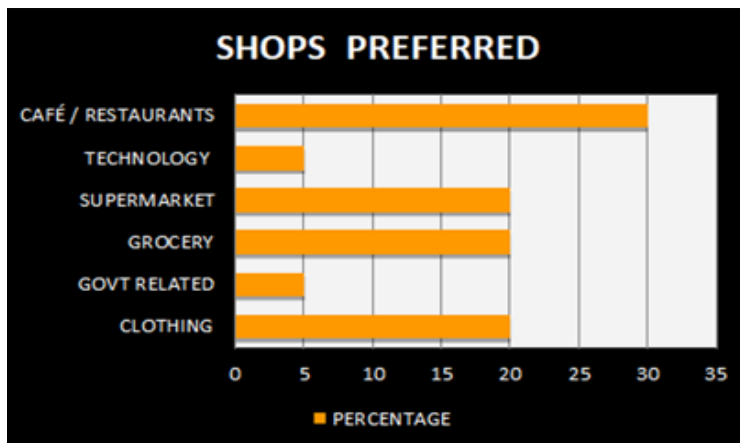


Fig 4.7 Traffic and Accessibility documentation

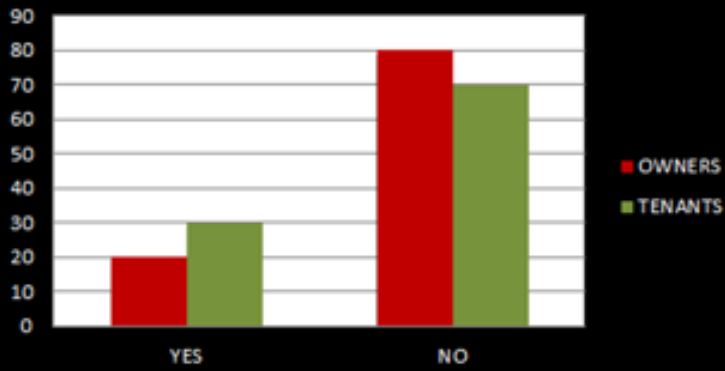
4.1.4 USER ANALYSIS AND INFERENCE

30 RESPONDENTS WERE CHOSEN RANDOMLY AND QUESTIONS WERE RAISED TO UNDERSTAND THE USER EXPECTATION AND IMPACT OF SUBJECT PROPERTY. THIS IS THE MOST IMPORTANT STAGE TO BE CONSIDERED BEFORE START OF EVERY PROJECT.





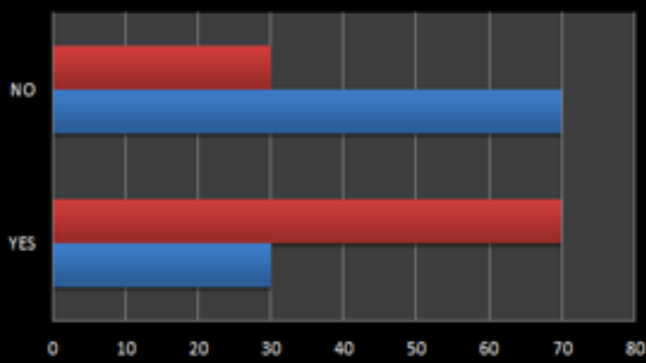
IMPACT OF SUBJECT PROPERTY ON OTHER COMMERCIAL PARTIES



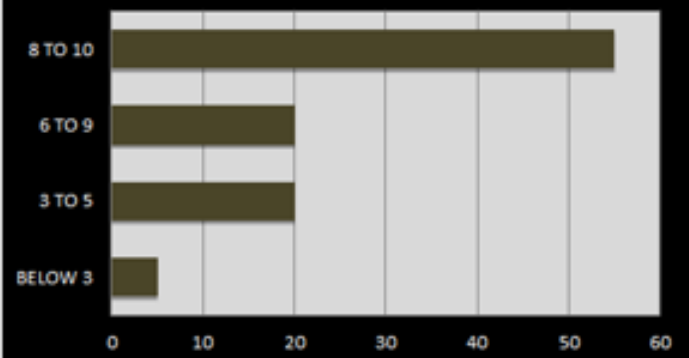
INFERENCE :

FROM THE SURVEY CONDUCTED IT WAS VERY USEFUL TO UNDERSTAND PEOPLE'S EXPECTATION. WITH IMPLEMENTATION OF THESE QUALITATIVE FACTOR NEGATIVE EFFECT ON QUANTITATIVE FACTOR CAN BE SORTED OUT.

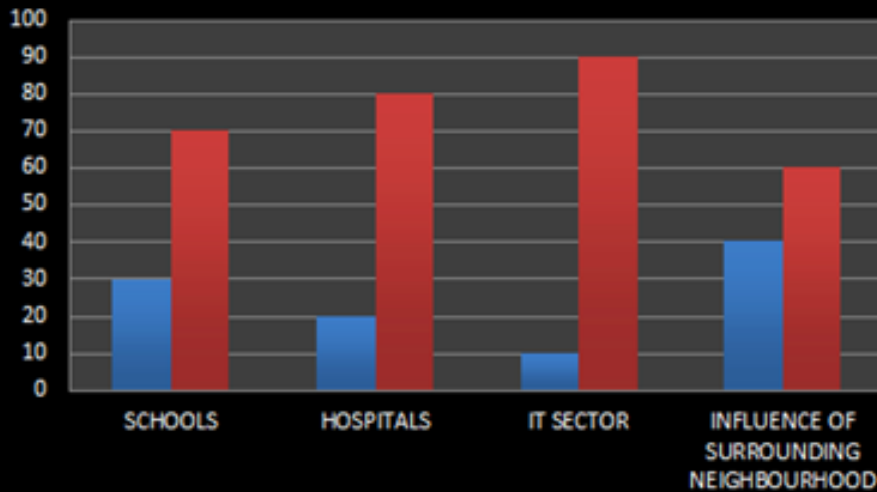
PROJECT BENEFIT



PROJECT RATING



FACTOR INFLUENCING LAND PRICE



4.2 QUANTITATIVE APPROACH

4.2.1 TIME VALUE OF MONEY

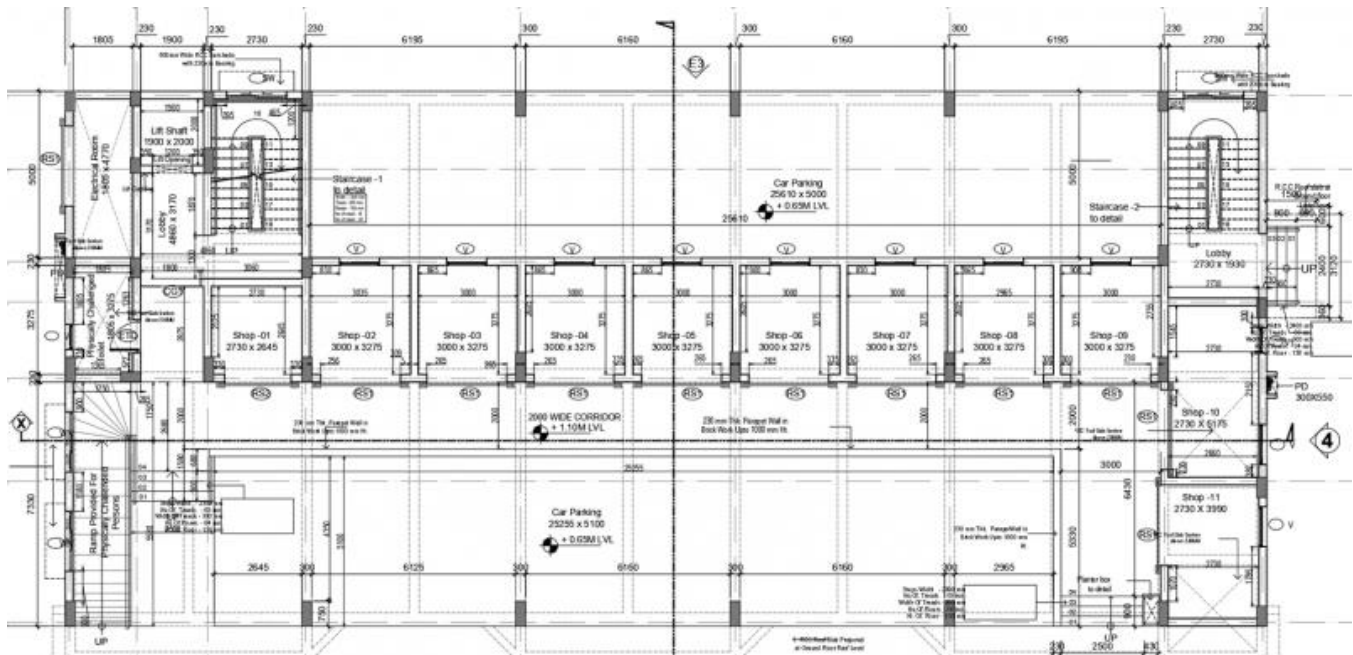


Fig 4.8 Ground Floor Plan

RENTAL CALCULATION OF GROUND FLOOR - PARKING AND SHOPS.						
SHOP NUMBER	AREA SQFT	VACANCY STATUS	RENT/ LEASE	RENT PER SQUARE FEET	RENT AMOUNT PER MONTH (RS.)	ANNUAL RENT (RS.)
1	72	OCCUPIED	RENT	110	7920	95040
2	105	OCCUPIED	RENT	110	11550	138600
3	105	OCCUPIED	RENT	110	11550	138600
4	105	OCCUPIED	RENT	110	11550	138600
5	105	UNOCCUPIED	RENT	NA	0	0
6	105	OCCUPIED	LEASE	AR+10% (110)		159,390
7	105	OCCUPIED	RENT	110	11550	138600
8	105	OCCUPIED	RENT	110	11550	138600
9	105	OCCUPIED	RENT	110	11550	138600
10	182	OCCUPIED	RENT	110	20020	240240
11	115	OCCUPIED	RENT	110	11550	138600
TOTAL	1209					₹ 1,464,870.00

Table 4.1 Ground Floor Rental Calculation

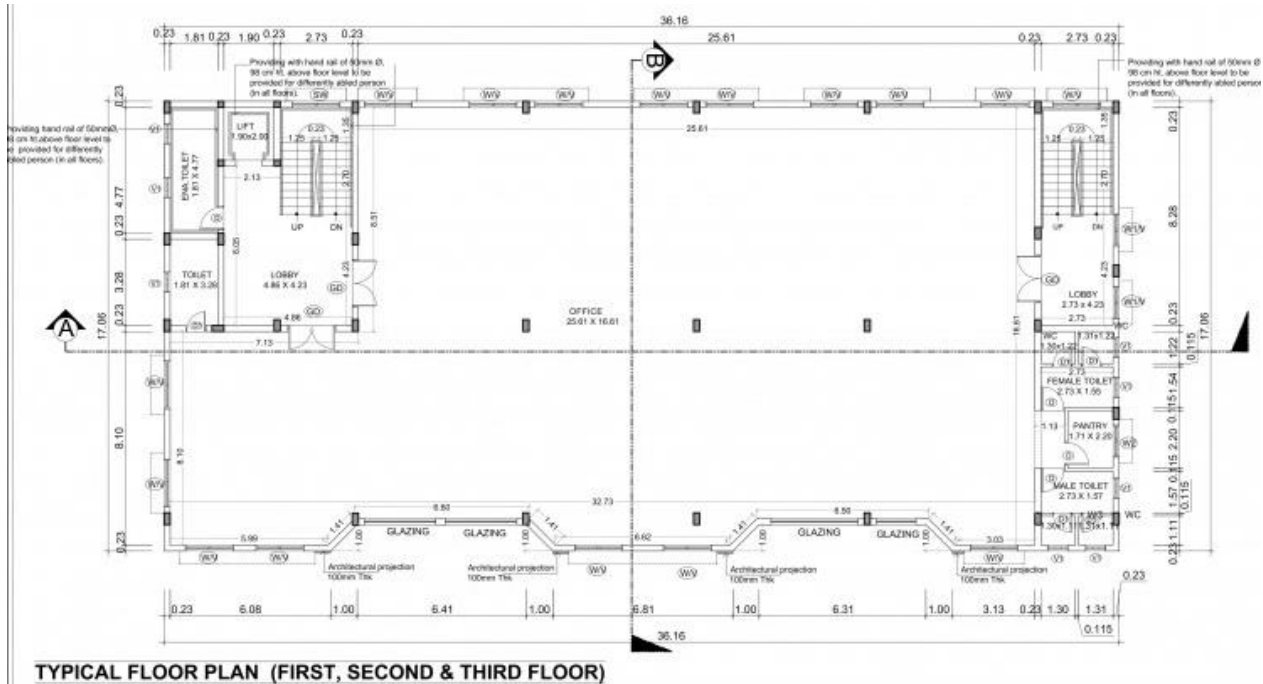


Fig 4.8 Typical Floor Plan

RENTAL CALCULATION OF FIRST FLOOR - OFFICE SPACE.						
SHOP NUMBER	AREA SQFT	VACANCY STATUS	RENT/ LEASE	RENT PER SQUARE FEET	RENT AMOUNT PER MONTH(RS.)	ANNUAL RENT (RS.)
OA 1	4533	OCCUPIED	RENT	120	543960	6527520
TOTAL						₹ 6,527,520.00

RENTAL CALCULATION OF FIRST FLOOR - OFFICE SPACE.						
SHOP NUMBER	AREA SQFT	VACANCY STATUS	RENT/ LEASE	RENT PER SQUARE FEET	RENT AMOUNT PER MONTH (RS.)	ANNUAL RENT (RS.)
OA 2	4533	OCCUPIED	LEASE	AR+15% (120)	NA	₹ 7,506,648.00
TOTAL						₹ 7,506,648.00
RENTAL CALCULATION OF SECOND FLOOR - OFFICE SPACE.						
SHOP NUMBER	AREA SQFT	VACANCY STATUS	RENT/ LEASE	RENT PER SQUARE FEET	RENT AMOUNT PER MONTH(RS.)	ANNUAL RENT (RS.)
OA 3	4533	OCCUPIED	RENT	120	543960	6527520
TOTAL						₹ 6,527,520.00

Table 4.2 Typical Floor Rental Calculation

Details of Major rental units		
Description	No. of Shops/Office	Area (sqft)
Ground Floor	11	1209
First Floor	1	4533
Second Floor	1	4533
Third Floor	1	4533
		14808

Table 4.4 Potential Gross income calculation

Potential Gross income-Per year		
Description	Total Area	Rent
Ground Floor	1209	₹ 1,464,870.00
First Floor	4533	₹ 6,527,520.00
Second Floor	4533	₹ 7,506,648.00
Third Floor	4533	₹ 6,527,520.00
Potential Gross income (PGI)		₹ 22,026,558.00

Table 4.5 Effective Gross income calculation

Effective gross income	
Description	Total
Potential Gross income(A)	₹ 22,026,558.0
Vacancy - 2% (B)	₹ 440,531.2
Other source income from units - Lease spaces (10%) (C)	₹ 2,202,655.8
Effective Gross Income EGI(A+C-B)	₹ 23,788,682.6

Table 4.6 Net Operating Expenses calculation

NET OPERATING EXPENSES	
Insurance 12%	₹ 2,643,186.96
Operating Expenses 30%	₹ 8,810,623.20
Maintenance Charges 20%	₹ 4,405,311.60
Non Recoverable Expenses 4%	₹ 881,062.32
NET OPERATING EXPENSES	₹ 16,740,184

CALCULATION OF CAPITAL RATE

$$\text{Capital rate calculation} = \frac{\text{Total Value(PGI+EGI)}}{\text{Net operating Expenses}}$$

$$\frac{\text{₹ 45,815,240.64}}{\text{₹ 16,740,184}}$$

Capital rate calculation =	2.74%
----------------------------	--------------

Capitalization rate is a formula used to estimate the potential return an investor will make on a property. Cap rates falling **between 3% and 20% are generally considered “good”** for retail properties. Since the CR is below 3% it is estimated that potential returns on the property is subjected to **marginal profit**.

CALCULATION OF PROFIT

Annual Profit =	Total Income - Net operating expenses
-----------------	---------------------------------------

$$45815240.64 - 16740184.08$$

$$\text{₹ 29,075,056.56}$$

Profit generated by this retail property per year amounts to Rs.29,075,056.56 (After deducting all annual expenses like Taxes, Insurances, Fund and Repair & maintenance cost)

VALUE BREAKDOWN CALCULATION

Table 4.7 Value breakdown calculation

Site area in sq. ft	4800
Land value per sq.	4000
Land value(Rs) A	19200000
Built up area in sq.ft	14808
Construction rate per sq.ft	2500
Building value(Rs) B	37020000
Total cost (Rs) A+B	56220000

CALCULATION OF PAYBACK PERIOD

YE A R	REVENUE (+10% EVERY YEAR)	COST (+5% EVERY YEAR)	NET CASHFLOW	CUMMULATIV E CASHFLOW
1	23788683	16740184	7048499	7048498
2	26167551	17577193	8590358	15638856
3	28784306	18456053	10328253	25967109
4	31662737	19378856	12283881	38250990
5	34829010	20347798	14481212	52732202
6	38311911	21365188	16946723	69678925
7	42143102	22433448	19709655	89388580
8	46357413	23555120	22802293	112190872

Table 4.8 Payback calculation

Therefore **Payback period will be 5.58 years**, approximately after Eleven years the payback amount received would be Rs. 56092469 (Recovering Initial amount)

CALCULATION OF NET PRESENT VALUE

YEAR	REVENUE	COST	NET CASHFLOW	NET PRESENT VALUE
1	23788682.64	16740184.00	7048498.64	6860520.38
2	26167550.90	17577193.2	8590357.70	8138270.59
3	28784305.99	18456052.86	10328253.13	9523754.45
4	31662736.59	19378855.5	12283881.09	11024968.52
5	34829010.25	20347798.28	14481211.98	12650482.90
6	38311911.28	21365188.19	16946723.09	14409481.86
7	42143102.41	22433447.6	19709654.80	16311807.53
8	46357412.65	23555119.98	22802292.67	18368006.50
9	50993153.91	24732875.98	26260277.93	20589379.84
10	56092469.30	25969519.78	30122949.52	22988036.61
11	61701716.23	27267995.77	34433720.46	25576951.16

₹ 166,441,660.35

**Table 4.9 NPV
calculation**

$PV_1 =$	7048498.64	7048498.64	
FV_1			6860520.38
$(1+r/100)^1$	$(1+2.74/100)^1$	1.027	
$PV_2 =$	8590357.704	8590357.704	
FV_2			8138270.59
$(1+r/100)^2$	$(1+2.74/100)^2$	1.056	
$PV_3 =$	10328253.13	10328253.13	
FV_3			9523754.45
$(1+r/100)^3$	$(1+2.74/100)^3$	1.0845	

PV ₄ =			
FV ₄	12283881.09	12283881.09	11024968.52
(1+r/100) ⁴	(1+2.74/100) ⁴	1.1142	
PV ₅ =			
FV ₅	14481211.98	14481211.98	12650482.9
(1+r/100) ⁵	(1+2.74/100) ⁵	1.1447	
PV ₆ =			
FV ₆	16946723.09	16946723.09	14409481.86
(1+r/100) ⁶	(1+2.74/100) ⁶	1.1761	
PV ₇ =			
FV ₇	19709654.8	19709654.8	16311807.53
(1+r/100) ⁷	(1+2.74/100) ⁷	1.2083	
PV ₈ =			
FV ₈	22802292.67	22802292.67	18368006.5
(1+r/100) ⁸	(1+2.74/100) ⁸	1.2414	
PV ₉ =			
FV ₉	26260277.93	26260277.93	20589379.84
(1+r/100) ⁹	(1+2.74/100) ⁹	1.2754	
PV ₁₀ =			
FV ₁₀	30122949.52	30122949.52	22988036.61
(1+r/100) ¹⁰	(1+2.74/100) ¹⁰	1.3104	
FV ₁₁	34433720.46	34433720.46	25576951.16
(1+r/100) ¹¹	(1+2.74/100) ¹¹	1.3463	

Net Present Value = 166441660.34 - 23788682.64
142652977.71
Therefore ,the project is feasible.

CALCULATION OF INTERNAL RATE OF RETURN (IRR)

The internal rate of return (IRR) is the interest rate received for an investment with payments and income occurring at regular intervals (i.e. monthly, annual).

IRR= 17.72% p.a

4.2.2 MARKET RENT CALCULATION

	Ground floor	First floor	Second floor	Third floor	TOTAL
Base Rent (A) (B-1 %)	1,450,221	6,462,244	7,431,581	6,462,244	21,806,292
1% Of Overage rent	14,648	65,275	75,066.48	65,275.20	
Overage Rent(B)	1,464,870	6,527,520	7,506,648	6,527,520	22,026,558
Inducements					
Leasehold improvements(5%)	138,600.00	NA	7,506,648	NA	7,645,248
Periods of free rent(In months annually)	01 Month rent as part of unexpected leasehold improvements (138600)				
Common Area Maintenance (CAM) Charges - 20 % of PGI	4,405,311.60				4,405,311.60
Market Rent = Base Rent + Overage Rent - Inducement + CAM Adjustment					40,592,914
Contract Rate (3 %of market rent)	43,946.10	195,825	225,199	195,825	660,796

Table 4.10 Market rent calculation

4.2.3 LIFECYCLE COST ANALYSIS (LCC)

DESCRIPTION	ANALYSIS RESULT
Site area	₹ 14,808.00
Initial cost of the asset(Purchase cost)	₹ 19,200,000.00
Total cost (Purchase + Construction cost + 30%)	56220000+16866000 =730860000
Salvage value(comparable approach)20 years	₹ 154,254,936.00
Estimated useful life of the asset (Assumption)	15 years
Depreciable Cost = (Total cost - salvage value) / useful life)	₹ 65,373,253.20
Cost of asset disposal = Depreciated cost-Original cost	₹ 46,173,253.20
Residual value = (estimated salvage value) – (cost of asset disposal)	₹ 108,081,682.80
Life Cycle Costing Formula = Initial Cost + Operation & Maintenance cost – PV of Residual Value	

Table 4.11 LCC formula

PV OF RESIDUAL VALUE				
PV ₁₅	=	FV ₁₅	108081682.8	108081682.8
		(1+r/100) ¹⁵	(1+2.74/100) ¹⁵	1.500007467
				₹ 72,054,096.54

PV OF OPERATION & MAINTENANCE COST				
PV ₁₅	=	FV ₁₅	18502308.72	18502308.72
		(1+r/100) ¹⁵	(1+2.74/100) ¹⁵	1.500007467
				₹ 12,334,811.08

Initial Cost	₹ 19,200,000.00
Operation & Maintenance cost(Current + 40%)	₹ 18,502,308.72
PV of Operation & Maintenance cost	₹ 12,334,811.08
PV of Residual Value	₹ 72,054,096.54
Life Cycle Costing Formula = Initial Cost + PV Operation & Maintenance cost – PV of Residual Value	-₹ 40,519,285.46

Table 4.12 LCC Analysis

Life Cycle Costing s, a negative value means that there is a value associated with the building at the end of the study period. That is building would still be profitable after the considered study period (15 years)

4.2.4 COST BENEFIT ANALYSIS (CBA)

APPLYING MONETARY VALUE TO THE COST

CRITERIA	COST
Direct cost	
Construction cost	37020000
Land cost	19200000
Indirect Cost	2000000
Marketing cost	20000
Other expenses	1000000
TOTAL COST OF THE PROJECT	59,240,000

Table 4.13

**Cost
calculation
(CBA)**

APPLYING MONETARY VALUE TO BENEFIT

YEAR	REVENUE (+10% EVERY YEAR)	COST(+5% EVERY YEAR)	NET INCOME	TOTAL GAIN ON INVESTMENT = NET INCOME - INITIAL INVESTMENT	ROI = $\frac{\text{NET INCOME}}{\text{INITIAL INVESTMENT}}$	
1	23788683	16740184	7048499	-52191501.36	-88.10%	ROI stands for return on investment, which is a comparison of the profits generated to the money invested. A negative ROI means the investment lost money
2	26167551	17577193	8590358	-50649642	-85.49%	
3	28784306	18456053	10328253	-48911747	-82.56%	
4	31662737	19378856	12283881	-46956119	-79.26%	
5	34829010	20347798	14481212	-44758788	-75.55%	
6	38311911	21365188	16946723	-42293277	-71.39%	
7	42143102	22433448	19709655	-39530345	-66.72%	
8	46357413	23555120	22802293	-36437707	-61.50%	
9	50993154	24732876	26260278	-32979722	-55.67%	
10	56092469	25969520	30122950	-29117050	-49.15%	
11	61701716	27267996	34433720	-24806280	-41.87%	
12 TO 17	92552574	34084995	58467580	-772420	-1.30%	A positive ROI indicates a profit,
18	101807832	35789244	66018587	6778587	11.44%	
19	111988615	37578707	74409908	15169908.29	16.74%	
20	123187476	39457642	83729834	24489834	23.57%	
ROI on the commercial property should be in the range of 6-10%, which is considered a great one by the real estate experts. <i>Source : assetmonks</i>						

Table 4.14 Money calculation (CBA)

4.3.5 BREAKEVEN POINT ANALYSIS

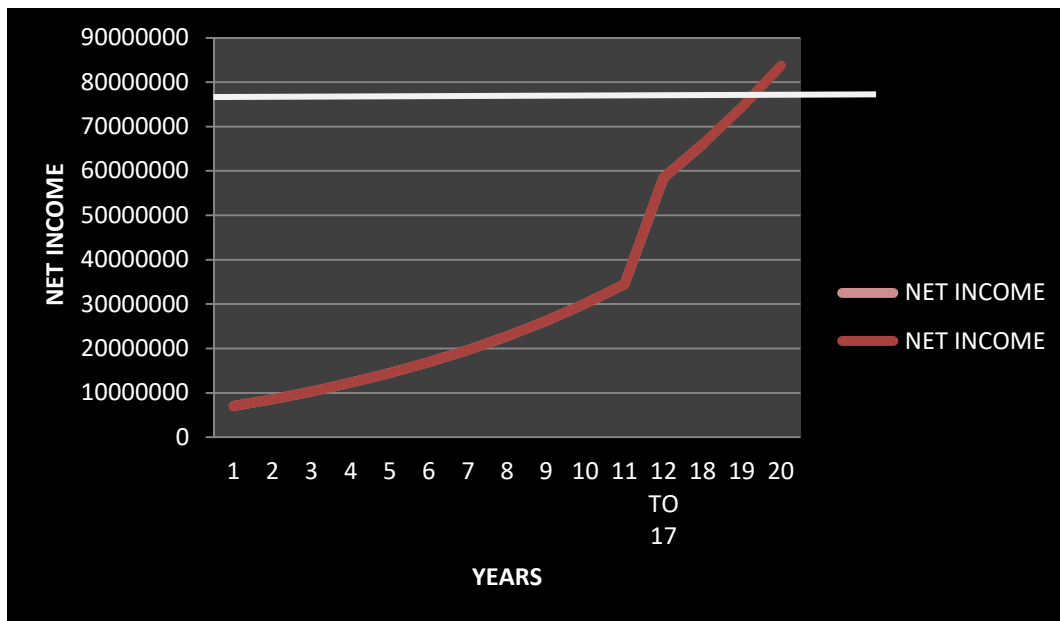


Fig 4.10 Breakeven Point

4.4 INFERENCE

Initial investment will be recovered within six months, but overall investment will be recovered only after 18 years.

Alike most of the government projects failure of major thumb rule cost > benefit(Monetary)

By using various factors like Capital Rate Calculation, ROI And IRR it is concluded the project will only be marginally profitable and will generate potential revenue only after 18 years.

However this can be sorted out by implementing qualitative findings that has influence in increasing potential revenue

CHAPTER 05

SUMMARY AND RECOMMENDATION

5.1 FRAMEWORK FOR QUALITATIVE APPROACH

5.1.1 FRAMEWORK USING VARIOUS QUALITATIVE FACTORS FOR VARIOUS BUILDING TYPOLOGIES AND BUILDING SCALES

QUALITATIVE FACTORS TO BE CONSIDERED BASED ON BUILDING TYPOLOGY								
DESCRIPTION		TYPOLOGY						
SI NO	FACTORS TO BE CONSIDERED	RESIDENTIAL	COMMERCIAL	MIXED USE	RETAIL	VACANT LANDS	UNDEVELOPED LANDS	IMPORTANCE OF THE FACTOR
SITE SPECIFIC FACTORS								
1	LOCATION	✓	✓	✓	✓	✓	✓	100
2	REGIONAL ASSESSMENT	✓	✓	✓	✓	✗	✗	80
3	ZONE PROFILING	✓	✓	✓	✓	✓	✓	100
4	LANDMARKS STUDY	✗	✓	✓	✓	✓	✓	90
5	SITE OBSERVATIONS							
5.1	TRAFFIC	✓	✓	✓	✓	✓	✓	100
5.2	ACCESSIBLTY	✓	✓	✓	✓	✓	✓	100
5.3	AMBIENCE	✓	✓	✓	✓	✓	✓	100
5.4	POLLUTION	✓	✓	✓	✓	✗	✗	60
5.5	MICRO CLIMATE	✗	✓	✓	✓	✗	✗	50
6	SITE HISTORY	✓	✓	✓	✓	✓	✓	100
DEMOGRAPHIC FACTORS								
7	DEMOGRAPHY	✓	✓	✓	✓	✓	✓	100
8	USER BELIEF	✓	✓	✓	✓	✓	✓	100
9	USER EXPECTATIONS	✓	✓	✓	✓	✓	✓	100
10	USER ATTITUDE	✓	✓	✓	✓	✗	✗	80
11	USER AFFORDABILITY	✓	✓	✓	✓	✓	✓	100
PROJECT SPECIFIC FACTORS								
12	PROJECT LAUNCH AFTERMATH	✓	✓	✓	✓	✓	✓	100
13	STUDY OF VARIOUS INVESTMENT MODELS	✓	✓	✓	✓	✓	✓	100
14	SIMILAR PROPERTY STUDY	✓	✓	✓	✓	✗	✗	75
15	STUDY OF SUITABLE MODEL(BUY/RENT/LEASE)	✓	✓	✓	✓	✓	✓	100
RESEARCH FACTORS								
16	NECESSITY OF GROUNDED THEORY	✓	✓	✓	✓	✗	✗	60

Table 5.1 Framework Using Various Qualitative Factors For Various Building Typologies

QUALITATIVE FACTORS TO BE CONSIDERED BASED ON BUILDING SCALE					
DESCRIPTION		SCALE			
SI NO	FACTORS TO BE CONSIDERED	SMALL	MEDIUM	LARGE	IMPORTANCE OF THE FACTOR
SITE SPECIFIC FACTORS					
1	LOCATION	✓	✓	✓	100
2	REGIONAL ASSESSMENT	✗	✓	✓	90
3	ZONE PROFILING	✓	✓	✓	100
4	LANDMARKS STUDY	✗	✓	✓	80
5	SITE OBSERVATIONS				
5.1	TRAFFIC	✓	✓	✓	100
5.2	ACCESSIBILITY	✓	✓	✓	100
5.3	AMBIENCE	✓	✓	✓	100
5.4	POLLUTION	✗	✓	✓	60
5.5	MICRO CLIMATE	✗	✗	✓	40
6	SITE HISTORY	✗	✓	✓	75
DEMOGRAPHIC FACTORS					
7	USER AFFORDABILITY	✓	✓	✓	100
8	USER BELIEF	✗	✓	✓	90
9	USER EXPECTATIONS	✓	✓	✓	100
10	USER ATTITUDE	✓	✓	✓	100
11	DEMOGRAPHY	✗	✓	✓	80
PROJECT SPECIFIC FACTORS					
12	PROJECT LAUNCH AFTERMATH	✗	✓	✓	70
13	STUDY OF VARIOUS INVESTMENT MODELS	✗	✓	✓	70
14	SIMILAR PROPERTY STUDY	✓	✓	✓	100
15	SUITABLE MODEL(BUY/RENT/LEASE)	✓	✓	✓	100
RESEARCH FACTORS					
16	NECESSITY OF GROUNDED THEORY	✓	✓	✓	100

Table 5.2 Framework Using Various Qualitative Factors for Various Scales

5.1.2 RECOMMENDATIONS QUALITATIVE FACTORS FOR VARIOUS BUILDING SCALES AND SCALES

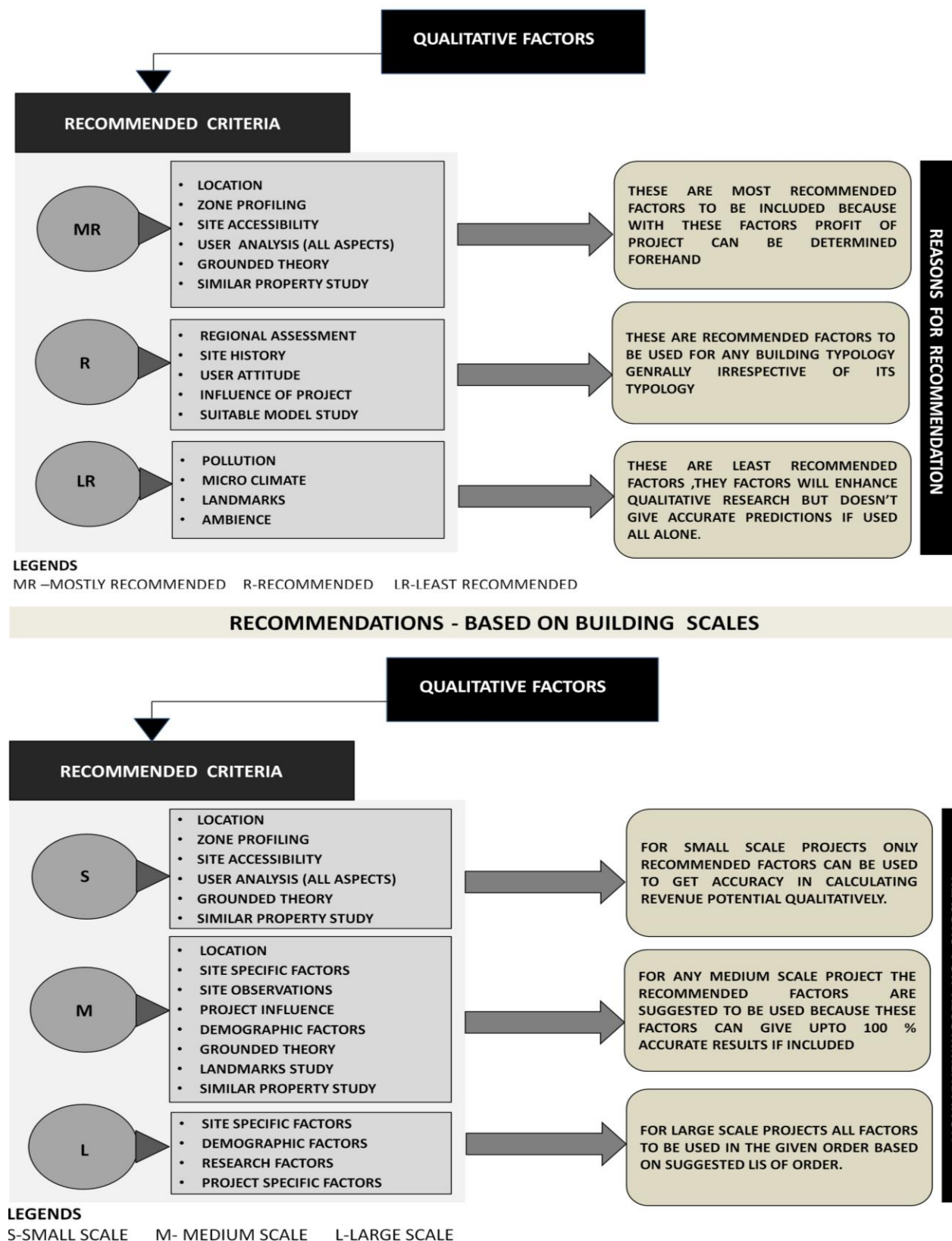


Fig 5.1 Recommendations Qualitative Factors For Various Building Scales And Scales

5.2 FRAMEWORK FOR QUANTITATIVE APPROACH

5.2.1 FRAMEWORK USING VARIOUS QUANTITATIVE FACTORS FOR VARIOUS BUILDING TYPOLOGIES AND SCALES

QUANTITATIVE FACTORS TO BE CONSIDERED BASED ON BUILDING TYPOLOGY								
DESCRIPTION		TYPOLOGY						IMPORTANCE OF FACTORS
SI NO	FACTORS TO BE CONSIDERED	RESIDENTIAL	COMMERCIAL	MIXED USE	RETAIL	VACANT LANDS	UNDEVELOPED LANDS	
1	RENTAL CALCULATION-FLOORWISE	✓	✓	✓	✓	✗	✗	100
2	PROFIT CALCULATION	✓	✓	✓	✓	✓	✓	100
3	CAPITAL RATE CALCULATION	✗	✓	✓	✓	✓	✓	100
4	PAYBACK PERIOD	✓	✓	✓	✓	✓	✓	90
5	TIME VALUE OF MONEY	✓	✓	✓	✓	✓	✓	100
6	LIFECYCLE COST ANALYSIS	✗	✓	✓	✓	✓	✓	75
7	MARKET RENT CALCULATION	✗	✗	✗	✗	✓	✓	20
8	COST BENEFIT ANALYSIS	✗	✓	✓	✓	✓	✓	70
9	BREAKEVEN POINT ANALYSIS	✓	✓	✓	✓	✓	✓	100

QUANTITATIVE FACTORS TO BE CONSIDERED BASED ON BUILDING SCALE					
DESCRIPTION		SCALE			IMPORTANCE OF FACTORS
SI NO	FACTORS TO BE CONSIDERED	SMALL	MEDIUM	LARGE	
1	RENTAL CALCULATION-FLOORWISE	✓	✓	✓	100
2	PROFIT CALCULATION	✓	✓	✓	100
3	CAPITAL RATE CALCULATION	✓	✓	✓	100
4	PAYBACK PERIOD	✓	✓	✓	90
5	TIME VALUE OF MONEY	✓	✓	✓	100
6	LIFECYCLE COST ANALYSIS	✗	✓	✓	75
7	MARKET RENT CALCULATION	✓	✗	✗	20
8	COST BENEFIT ANALYSIS	✗	✓	✓	70
9	BREAKEVEN POINT ANALYSIS	✗	✓	✓	100

Table 5.3 Framework Using Various Quantitative Factors For Various Building Typologies And Scales

5.2.2 RECOMMENDATIONS QUANTITATIVE FACTORS FOR VARIOUS BUILDING TYPOLOGIES AND SCALES

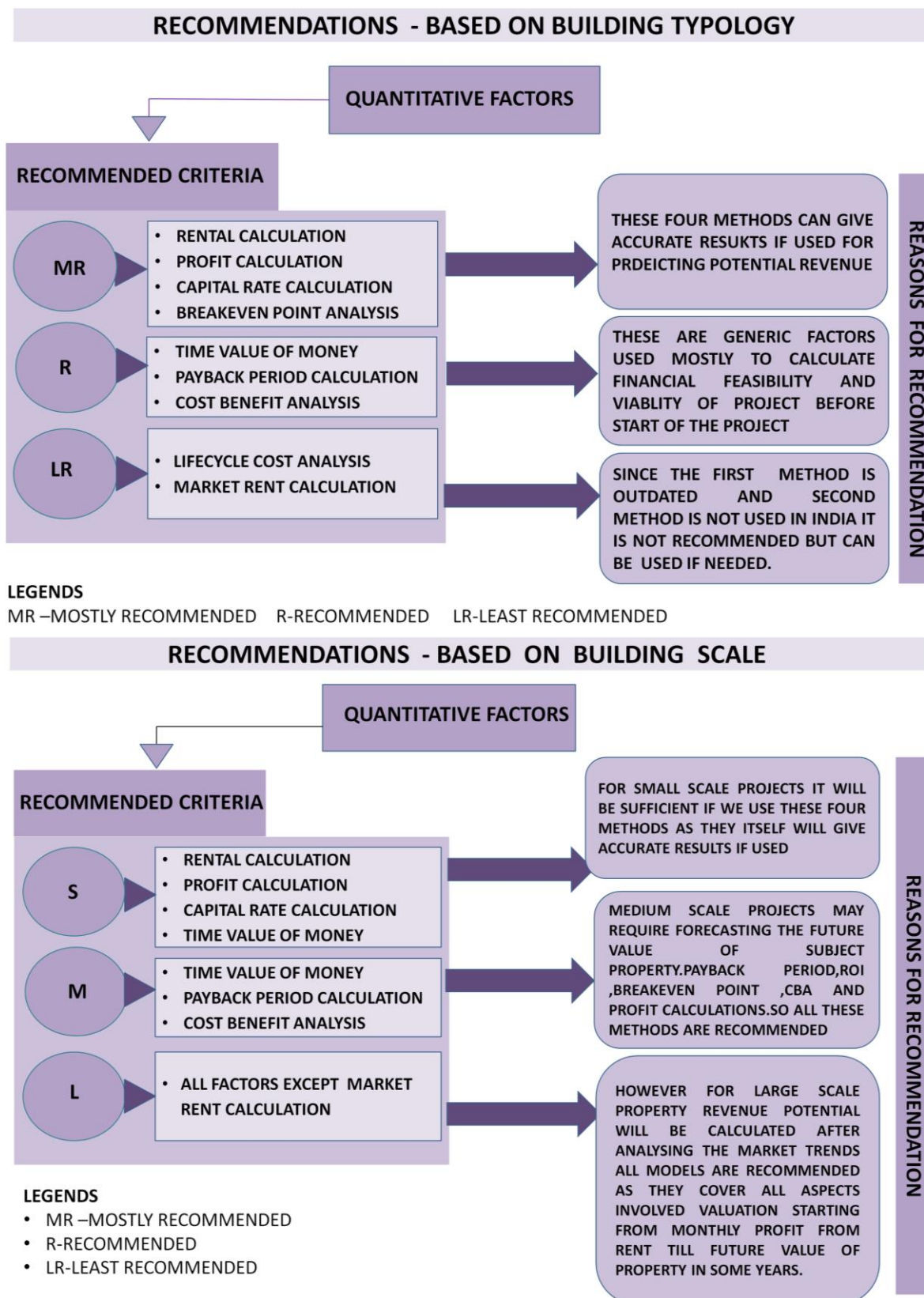


Fig 5.2 Recommendations Quantitative Factors For Various Building Typologies And Scales

5.3 FRAMEWORK FOR USING REVENUE POTENTIAL MODELS

5.3.1 FRAMEWORK FOR VALUATION BASED ON BUILDING TYPOLOGY AND BUILDING SCALES (REVENUE POTENTIAL CALCULATION)

REVENUE POTENTIAL CALCULATION MODEL - BASED ON BUILDING TYPOLOGY							
VALUATION MODEL TO BE USED FOR CALCULATING TVM							
SI NO	VALUATION MODEL	RESIDENTIAL	COMMERCIAL	VACANT LAND	PUBLIC BUILDINGS	INSTANT VALUATION	ACCURACY OF RESULTS
1	DEPRECIATION METHOD OF VALUATION	✗	✓	✗	✓	✗	90
2	VALUATION BASED ON PROFIT	✓	✓	✗	✓	✗	85
3	RENTAL METHOD OF VALUATION	✓	✓	✗	✓	✗	75
4	DIRECT COMPARISON WITH CAPITAL VALUE OR SALES COMPARISON	✓	✓	✓	✗	✓	50
5	HYPOTHETICAL DEVELOPMENT OF LAND	✗	✗	✓	✗	✗	40

REVENUE POTENTIAL CALCULATION MODEL - BUILDING TYPOLOGY					
VALUATION MODEL TO BE USED FOR CALCULATING TVM					
SI NO	VALUATION MODEL	SMALL	MEDIUM	LARGE	ACCURACY OF RESULTS
1	DEPRECIATION METHOD OF VALUATION	✓	✓	✓	95
2	VALUATION BASED ON PROFIT	✓	✓	✗	70
3	RENTAL METHOD OF VALUATION	✓	✓	✓	70
4	DIRECT COMPARISON WITH CAPITAL VALUE OR SALES COMPARISON	✗	✓	✗	40
5	HYPOTHETICAL DEVELOPMENT OF LAND	✗	✗	✓	20

Table 5.4 Framework for Valuation Based On Building Typology and Building Scales

5.3.2 RECOMMENDATIONS VARIOUS QUANTITATIVE FACTORS FOR VARIOUS BUILDING TYPOLOGIES AND SCALES (REVENUE POTENTIAL CALCULATION)

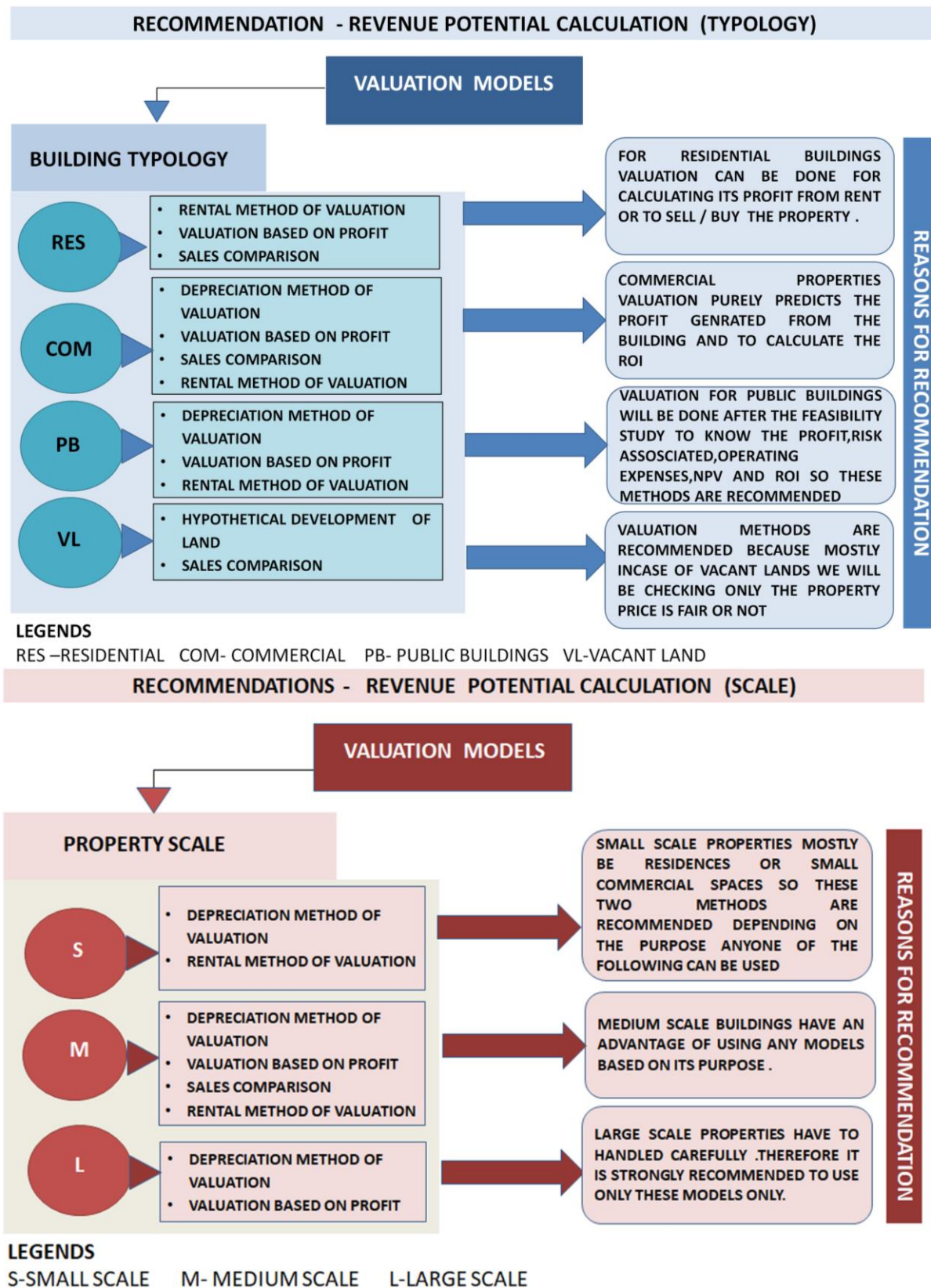


Fig 5.3 Recommendations Quantitative Factors for Various Building Typologies and Scales

5.3.3 FRAMEWORK FOR VALUATION BASED ON VALUATION PURPOSES (REVENUE POTENTIAL CALCULATION)

REVENUE POTENTIAL CALCULATION MODEL - BASED ON PURPOSES						
VALUATION MODEL TO BE USED FOR CALCULATING TVM FOR SPECIFIC PURPOSES						
SI NO	VALUATION MODEL	BUY	SELL	SPECULATION	RECOMMENDED FOR	ACCURACY OF RESULTS
1	DEPRECIATION METHOD OF VALUATION	✓	✓	✓	ALL PURPOSES	100
2	VALUATION BASED ON PROFIT	✓	✓	✓	ALL PURPOSES	100
3	RENTAL METHOD OF VALUATION	✗	✓	✓	BUYER AND STAKEHOLDERS	80
4	DIRECT COMPARISON WITH CAPITAL VALUE OR SALES COMPARISON	✗	✓	✓	SELLER ONLY	50
5	HYPOTHETICAL DEVELOPMENT OF LAND	✓	✗	✓	BUYER ONLY	40

OVERALL RECOMMENDATION FOR USING MODELS						
SI NO	VALUATION MODEL	BASED ON TYPOLOGIES	BASED ON SCALES	USAGE IN CURRENT REAL ESTATE MARKET BY VALUERS	CALCULATION COMPLICATIONS	OVERALL REVIEW
1	DEPRECIATION METHOD OF VALUATION	EXCEPT RESIDENTIAL AND VACANT LANDS	ALL SCALES APPLICABLE	MAJORLY USED DUE TO ACCURATE RESULTS	HIGH	HIGHLY RECOMMENDED
2	RENTAL METHOD OF VALUATION	EXCEPT AND VACANT LANDS	EXCEPT LARGE SCALE	AVERAGELY USED	LESS	RECOMMENDED
3	VALUATION BASED ON PROFIT	EXCEPT VACANT LANDS	EXCEPT SMALL SCALE	MAJORLY USED	MEDIUM	RECOMMENDED
4	DIRECT COMPARISON WITH CAPITAL VALUE OR SALES COMPARISON	SUITABLE ONLY FOR RESIDENTIAL AND VACANT LANDS	ONLY FOR MEDIUM SCALE	USED BY ALL FOR INSTANT CALCULATION. BUT LESS USED IN CASE OF ACCURATE VALUATION	NO COMPLICATION	RECOMMENDED ONLY FOR ROUGH VALUATION
5	HYPOTHETICAL DEVELOPMENT OF LAND	SUITABLE ONLY FOR VACANT LANDS	ONLY FOR LARGE SCALE	NOT PRACTICED IN INDIA	COMPLICATED IF NO DATA ARE AVAILABLE	NOT RECOMMENDED

Table 5.5 Framework for Valuation Based On Purposes and overall recommendation

5.3.4 RECOMMENDATION FOR VALUATION FOR VARIOUS PURPOSES AND OVERALL VALUATION (REVENUE POTENTIAL CALCULATION)

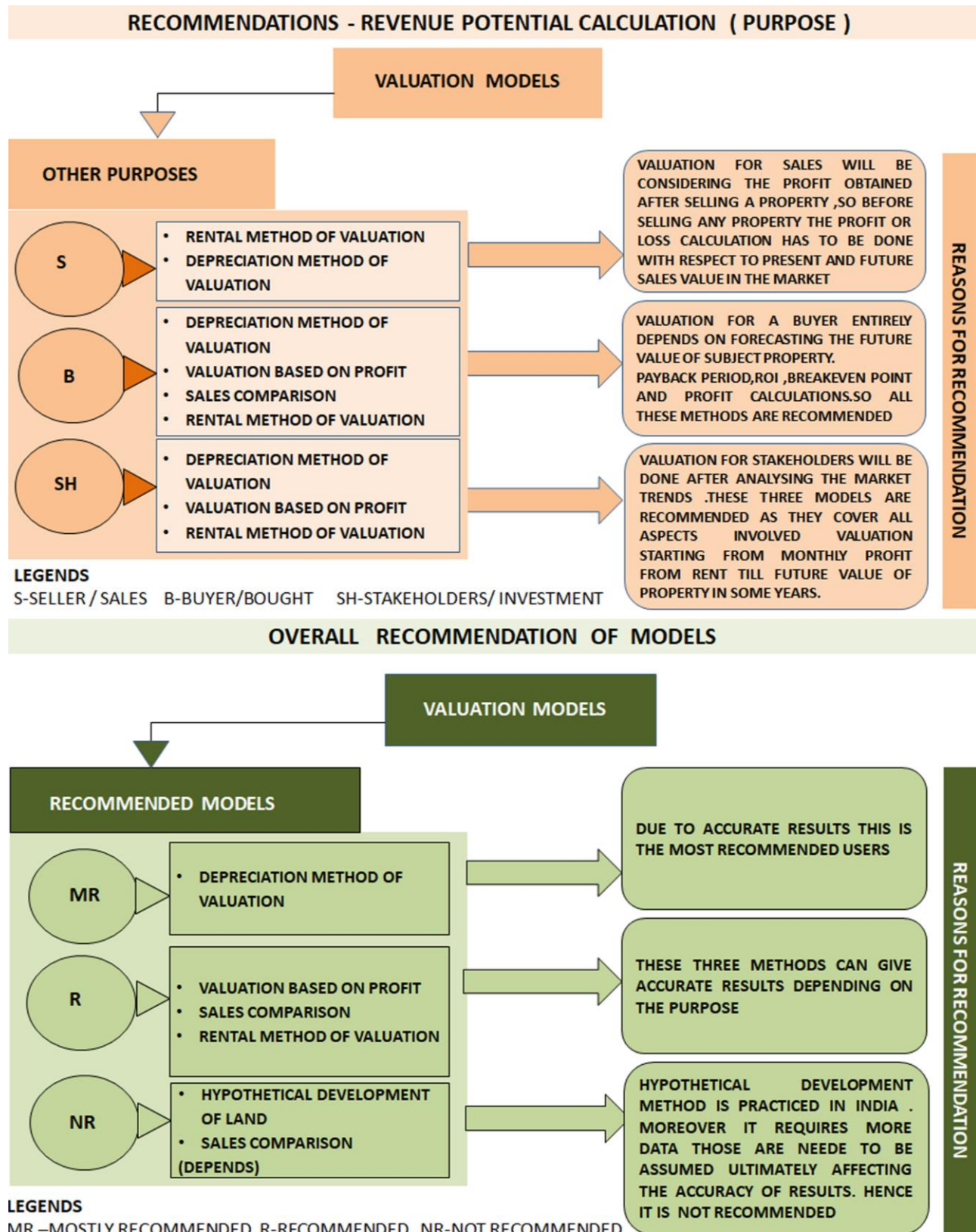


Fig 5.4 Recommendation for Valuation For Various Purposes And Overall Valuation

CHAPTER 06

CONCLUSION

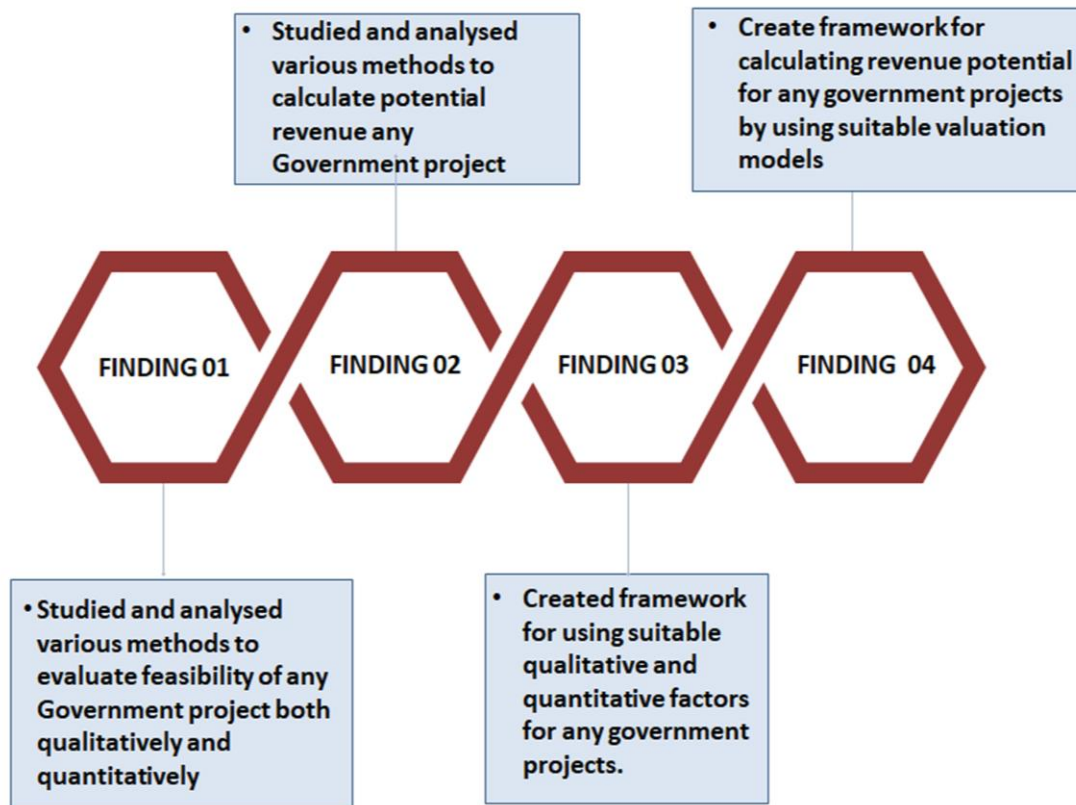


Fig 6.1 Project findings and conclusions.

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