

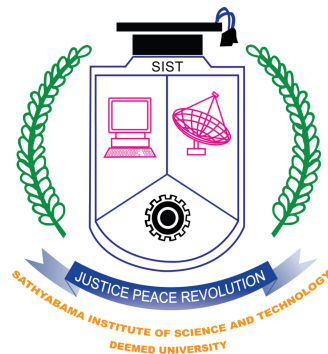
MANAGEMENT OF INVESTMENT RISK IN REAL-ESTATE MARKET FOR COMMERCIAL SPACES

A Thesis

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

by

AGHALYA DIVYA JYOTHI (39840002)



**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

JANUARY 2021

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DEPARTMENT OF ARCHITECTURE

BONAFIDE CERTIFICATE

This is to certify that this Report is the bonafide work of **AGHALYA DIVYA JYOTHI (39840002)** who carried out the Thesis entitled "**MANAGEMENT OF INVESTMENT RISK IN REAL-ESTATE MARKET FOR COMMERCIAL SPACES**" under our supervision from January 2021 to May 2021.

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I wish to express my thanks to Parents and all Teaching and Non-teaching staff members of the Department of Architecture who were helpful in many ways for the completion of this Thesis.

ABSTRACT

In commercial real estate investing, risk is unavoidable .The trick to maximizing the chance for a positive return isn't to avoid risk, but to identify it prior to making a purchase and proactively implementing strategies to manage or minimize them. Commercial real estate risks and returns are closely correlated .The higher the risk, the higher the potential return and vice versa. Commercial real estate prices are influenced by a variety of economic factors such as inflation, interest rates, pandemic and unemployment and many other factors .The effects are not felt equally in all markets and all places. There are many methods of risk analysis to help managers make to help out the investors to make a wise decision, In my thesis I am going to do Risk Analysis in Capital Investment by measuring the multitude of risks involved in each situation emphasizing the nature and process of the data to be collected and specific variables like cash flow, return on investment , social-economic factors ,feasibility of the project ,impact of it will be identified. By analyzing the variables I shall predict and generate a report for the project.

Key words : Risk , Risk Analysis , Capital investment , social-economic , feasibility , cash flow , return.

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CHAPTER 1

INTRODUCTION

1.1 AIM

Protecting the value of the investment by minimizing the risk and maximizing the positive Return by proactive ways.

1.2 NEED FOR THE STUDY

In this fluctuating real-estate market due (man-made and natural reasons) , investment is a big deal and risk, it needs certain guidance and it will much easier for the investors if there are certain set of principles to follow before investing in a commercial space , During this pandemic period, some of the investors who is dealing with commercial projects are facing many financial problems ,So INVESTMENT in a commercial building a challenging task and in my thesis I am going to study and analyze the risks involved in investment.

By adapting to adapting circular model becomes more advantages likewise one projects waste become other projects resource and hence increasing the efficiency by doing more with less and reducing the pressure on the environment.

Circular economy offers investors a framework for achieving social and environmental goals and also delivers a better economic performance.

The principles of a circular economy, establishing an urban system that is regenerative, accessible and abundant by design, thus supporting human well-being and natural system

1.3 OBJECTIVE OF THE STUDY

During this pandemic period, some of the investors who is dealing with commercial projects are facing many financial problems ,So INVESTMENT in a commercial building a challenging task and in my thesis I am going to study and analyze the risks involved in investment.

1.4 SCOPE AND LIMITATIONS OF THE STUDY

SCOPE:

- identifying the investor
- determining the risk involved in the real-estate market
- mitigation and precautions with a principle or model

LIMITATIONS:

- the area of my study will be concentrated in the pre-construction phase itself so that the investment **is secured beforehand**

1.5 RESEARCH QUESTIONS

- What is circular economy ?
- Why real estate needs circular principles?
- Driving and enablers for CE ?
- Barriers in Each business models?
- What are the lost values in current market?
- How circular model would be more beneficial for investors?

1.6 METHODOLOGY

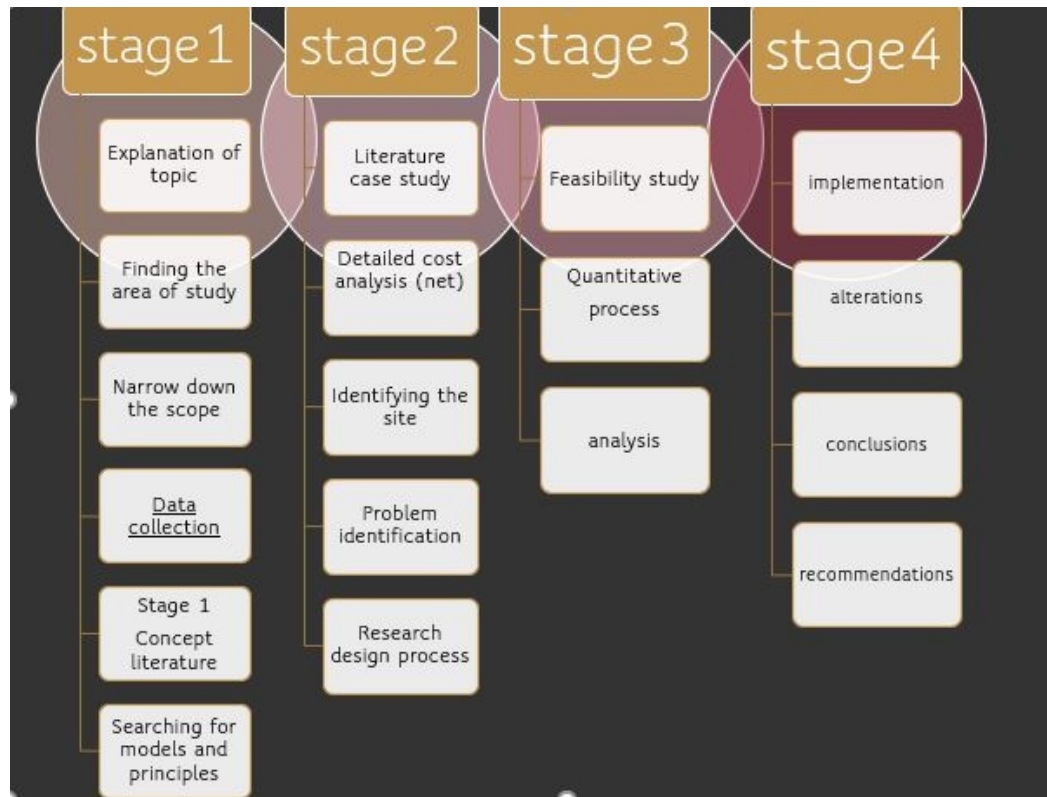


Figure 1.1 methodology

CHAPTER 2 LITERATURE REVIEW

2.1 RESEARCH PAPERS

2.1.1 Research paper - 01

- **Real estate investment project risk analysis**

(ISSN : 0975-7384 CODEN(USA) : JCPRC5 School of Economics & Law, University of Science and Technology Liaoning, Anshan, China School of Business Administration, University of Science and Technology Liaoning, Anshan, China)

ABSTRACT

In recent years, with the rapid development of national economy, real estate industry also begins to develop rapidly and presents a good momentum of development. However, at

the same time, the risk of the real estate investment increases higher and higher. Therefore, decisions about the real estate project investment should not only consider the benefits, but also predict the risk accurately. The benefits and risks exist at the same time, the greater the benefit, the greater the corresponding risk. Many domestic and foreign scholars and economists are very concerned about this problem. This paper introduces the mature theory and method of the real estate investment risk, which can provide some valuable help for the real estate investors to their investment decisions.

Research purpose and meaning in this paper:

Real estate investment is an important influence factor to the country and the government economic development, so it is important to make a study of real estate investment risk analysis. Real estate investment is a comprehensive, professional, and highly technical activity actively. Except constantly changing market conditions, how to guarantee the stability and growth rate of return on investment, it must be the quantitative and qualitative analysis of the risk factors of real estate investment project, it is the key to the investors to make rational choice too. The analysis and prediction of real estate investment risks will provide more channels for real estate investors scientific judgment, which is helpful for investors to make the right economic decisions, and conducive to the development of the real estate **market**.

Analysis of real estate investment risks



Real estate investment risk identification

The real estate investment risk analysis of commonly used methods

The financial index analysis

The quantitative evaluation method

The break even analysis



Real estate investment risk control methods

CONCLUSION:

The existence of the real estate investment risks is great threat for investors and enterprises, and in this competition intense society, an enterprise to develop well, the development project must be succeed, must does a good job of risk management. Investors should be more rational when they treat problems, analyze and solve problems. And, risk management is not just a thing, the government should also actively involved, finally find suitable regulation and control policy of our country, through two parties work together to achieve the steady development of real estate market.

2.1.2.RESEARCH PAPER 2:

Economic Feasibility Study for Affordable Housing in Kalyan, MH.January (2019DOI: 10.13140/RG.2.2.34007.11686

Abstract:

This report has been prepared to deliver economic feasibility of affordable housing in Kolivali village, Kalyan. It would be delivering a total of 1200 housing flats with 1000 parking spaces, 100 commercial spaces in which three phases are there. Three phases divided into constructing 400 units in each phase. Total value of project is around 200 crores. If approved, then sanctioning of the loan for next 400 units of second phase will be done. For sanctioning of project, developer must meet with local factors like Kalyan Dombivali municipal corporation, national banks as well as private financial sectors for financing the project. Due to migration of LIG and MIG groups into suburban areas like Kalyan, construction of affordable housing is necessary. Affordable housing refers to housing units that are affordable by the median household income group peoples with basic amenities like water, power, etc

Project Context:

The project affordable housing in Kalyan described below in more details;

a. Objectives and beneficiaries of the project:

The main objective for providing the affordable housing in Kalyan to the population which cannot acquire satisfactory houses due to less supply and affordability gap. The project increases housing supply in Kalyan with 1200 housing units and 300 commercial spaces. The project will target two social groups LIG and MIG respectively. The project is beneficial according to affordable housing as it will give 1200 housing spaces with various amenities.

b. Socioeconomic context:

Kalyan city is around 140 squares kilometer located in Thane district near to the financial capital of India, Mumbai. As per census 2011, its population around 12,50,000. the income group in this city is of mainly in-between LIG and MIG, as population which will migrate from Mumbai and Thane to Kalyan increasing demand for residential spaces, GDP growth rate for India is currently 7.1% which is continuously increasing due to affordable houses.

Project details are as follows:

Name of Project :Pearl City

Location of Project :Kolivali, Kalyan, MH Details of Project

- Plot Area: 70000 sq. m
- Carpet Area: 73500 sq. m
- FSI: 1.5
- No. of housing Units: 1200
- Parking's: 1000

After finding the construction cost and revenue:cost benefit analysis is done

Cost Benefit Analysis:

Cost benefit analysis used to check whether project is economically feasible or not. If the ratio of total revenue generated in project to total investment is greater than one then one can say project is feasible.

Risk assessment and risk mitigation measures are taken

Conclusions:

- a) Affordable housing being a part of real estate sector it helps in growth of GDP in Indian economy.
- b) Project revenue and risk can be analyzed by performing economic feasibility study.
- c) Affordable housing is beneficial to urban poor and population in between LIG and EWS. There are various government subsidiary policies.
- d) Affordable housing increases employment and infrastructure development.

2.1.3.RESEARCH PAPER 3:

Market Analysis and Feasibility of Shopping mall in the Micro-market of Whitefield, Bangalore

Prof. Shekhar Nagargoje

National Institute of Construction Management and Research, Pune IOSR Journal of Business and Management (IOSR-JBM)

e-ISSN: 2278-487X, p-ISSN: 2319-7668 PP 73-77

Abstract:

Whitefield emerged as an IT Hub in late 1990s and the initial impetus was provided with formulation of Karnataka Industrial Areas Development Board (KIADB) promoted the Export Promotion Industrial Park (EPIP) in 1994. Further, development of International Technology Park Bangalore (ITPB) catalyzed IT development in this micro-market. Sizeable IT/ITES population, availability of land and connectivity to other parts of the city are the primary reasons driving residential development in this micro-market further leading to speculative retail developments within the micro market. This study aims to explore the nature of relation and effect between market analysis and feasibility of establishing new shopping mall development in Whitefield. Different variables were identified for market analysis: location, demand, product mix and competitors. The study area consisted of approximately 16 square kilometers for analysis and primary survey. Basic mapping tool is used to understand and estimate the population, type of developments and land use which was based on primary study within the micro market. The study made a number of conclusions, most important of which is: there is a significant supply of organized retail space in Whitefield for a limited demand offering various product mixes.

Objective

The primary objective of this study is to analyze Whitefield micro-market and check the potential of developing a new mall or organized retail space within the micro-market and to estimate the market base based on demographics.

Existing Supply

Consumers prefer visiting malls that are within a 30-minute drive from their residences, unless a particular mall has some striking features not seen in other malls. But overall a

mall design is more or less similar and rigid in nature. Hence the competitive factor remains constant. The malls that are present in Whitefield area are as follows; Forum Value Mall of 4,70,000 Sq.ft, The Cosmos Mall of 1,40,000 Sq.ft, In orbit Mall of 3,39,000 Sq.ft, Ascendas Park Square of 6,00,000 Sq.ft, Brigade Arcade of 80,000 Sq.ft,

The Forum Mall of 11,00,000 Sq.ft., Phoenix Market City of 11,50,000 Sq.ft, Total Mall of 1,50,000 Sq.ft, Xander Mall of 4,20,000 Sq. ft, totaling to around 44,49,000 Sq.ft. (i.e. 4.45 million sq.ft).

Analysis and Conclusions

The above demand and supply analysis clearly shows that there is over supply of mall space in Whitefield area by almost 40 times. The reasons observed and the conclusions derived are as follows;

- Mall space in Whitefield has developed on the speculation of IT growth and rapid premium residential developments.
- An important observation made in the study is that almost 22% area is under low density housing i.e. villas, row houses and bungalows limiting the no. of persons in the area.
- 35% area is open land and water bodies giving clear indication of land use distribution between developed and un-developed areas.
- Re-positioning of Mall in context with the neighborhood. Local stores & food to be introduced.
- More dynamic product mix offering should be made that offers something to everybody.
- Active & Passive entertainment facilities should be developed to pull more customers and to develop it as a destination center.
- Variety in food should be added at the food court with more fine dining options and local flavors.
- Aggressive competitive strategies should be incorporated to retain the existing customers and to deal with the potential business threats from the competition.

- Sustenance of malls in the future will depend on the services that each mall offers and the buying experience within the mall.

From the research papers

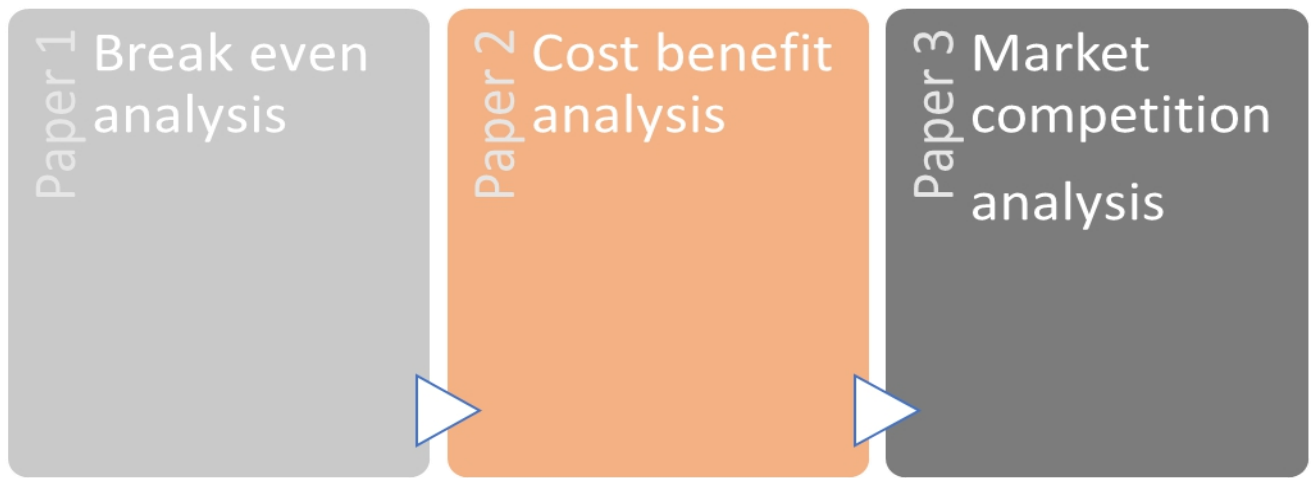


Figure 2.1:Analysis from research papers

2.2.LITERATURE STUDY

Commercial property in real estate

- Commercial is property that is used exclusively for business-related purposes or to provide a workspace rather than as a living space
- commercial real estate is leased to tenants to conduct income-generating activities. This broad category of real estate can include everything from from a single storefront to a huge shopping center.

- Commercial real estate includes several categories, such as retailers of all kinds, office space, hotels & resorts, malls, restaurants, and healthcare facilities.
- Commercial real estate 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.-
- Investing in commercial real estate usually requires more sophistication and larger amounts of capital from investors than does residential real estate
- thus more investment and more risk



Fig.2.2.1:Real estate flow

Commercial real estate is typically categorized into four classes, depending on function:

1. office space;
2. industrial use;
3. Multi-family rental; and
- 4.Retail/mall

Individual categories may also be further classified. Office space, for example, is often characterized as class A, class B or class C.

- Class A represents the best buildings in terms of aesthetics, age, quality of infrastructure, and location.
- Class B buildings are usually older and not as competitive—price-wise—as Class A buildings. Investors often target these buildings for restoration.
- Class C buildings are the oldest, usually over 20 years of age, located in less attractive areas, and need for maintenance.

Investing in Commercial Real Estate:

Direct Investment

-Investors can use direct investment where they become landlords through the ownership of the physical property.

-Commercial properties are a high-risk, high-reward real estate investment. Such an investor is likely to be a high-net-worth individual since CRE investing requires a considerable amount of capital.

Direct Investment

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RISK

Risk is a critical factor in commercial real estate, comes in many forms, making it difficult to identify much less quantify and manage.

Generally , Difference between expectations and realizations

it is a measure of the uncertainty surrounding a current or future event or state of nature.

Risks are some prediction or assumption about what will occur in the future turns out to be wrong.



Fig.2.2.2:Changes in risks

CAUSES:

- DATA COLLECTION
 - INACCURATE DATA
 - INADEQUATE INFORMATION
 - INVALID PREDICTIE MODELS
 - LACK OF UNDER STANDING THE MARKET
- CHANGES OCCURING
 - CHANGES IN RE LAWS
 - OTHER REGULATORY CHANGES
 - ENVIRONMENTAL COMPETITIVE CHANGES
 - OTHER UNFORSEEN CHANGE
- **Ideology derived for risk assessment of a project.**

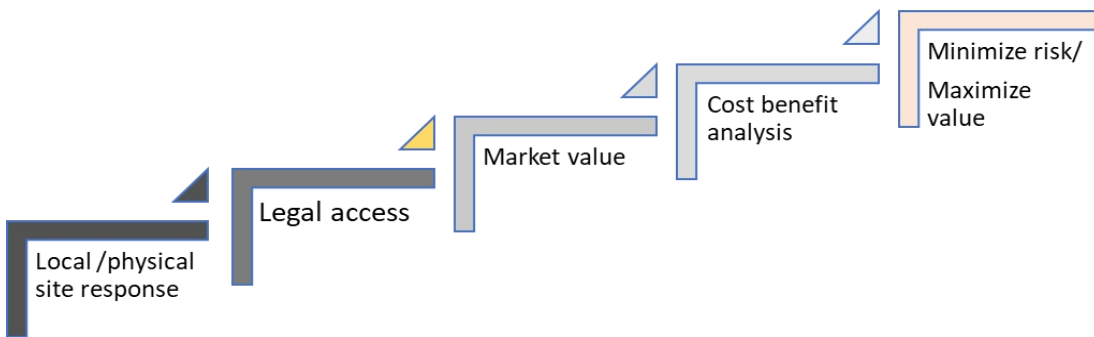


Figure 2.2.3: Ideology derived for risk assessment for a project

2.3. EMPIRICAL LITERATURE:

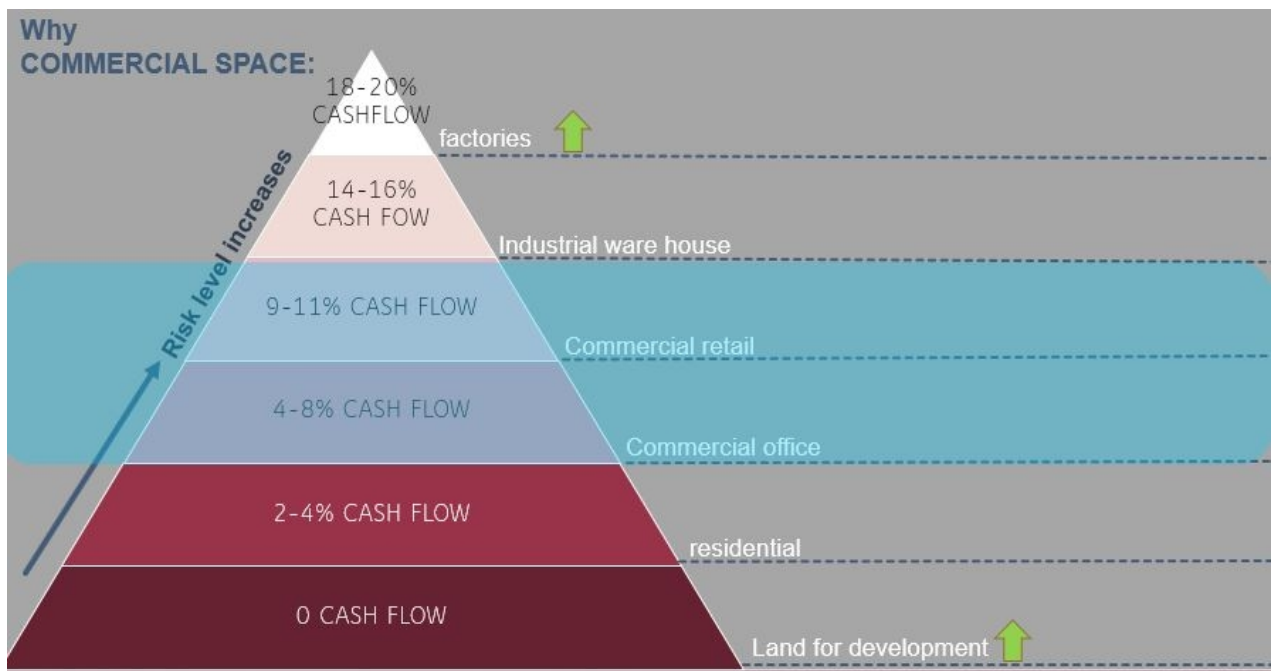


Figure 2.3.1: Why commercial space.

2.3.1 WHICH COMMERCIAL SPACE:

-Real estate has always been one of Indians' most favoured investments.

People invest in real estate for price appreciation as well as rental income.

the residential sector has been going through a tough phase over the past few years, there has hardly been any price appreciation across markets

On the other hand, commercial real estate (CRE) has been doing well over the past few years and experts believe that despite the covid-19 setback, the sector is likely to recover early and may prove to be a good investment option over the long term

Commercial real estate comprises various segments including office, warehouse, data centre, etc. Office is the biggest segment of commercial real estate and are graded based on their location and facilities, with Grade A being the most premium. It has done well in the past few years with Grade A offices touching a net absorption of 46.5 million square feet (sq. ft)

The office segment has been a favourite of institutional investors. Despite the pandemic, the office segment in India has seen investments of \$3.1 billion in 2020 compared to \$2.8 billion investments in 2019, as per a India Real Estate Outlook, A Growth Cycle, report by JLL.

What is feasibility study?

feasibility analysis is used to determine the viability of an idea, such as ensuring a project is legally and technically feasible as well as economically justifiable.

-It tells us whether a project is worth the investment.

- a **feasibility study** allows the project manager to determine all the positive and negative points of the project.
- **Feasibility study is an Important Prerequisite for Real Estate Developments**

A feasibility study will outline the requirements needed in order to successfully navigate the many issues that arise in real estate development

-it will determine if the project is even 'feasible' or worth the time and money to continue

2.3.2.TYPES FEASIBILITY STUDY WHICH IS RELATED TO TYPE OF RISK:

Structural Risk:

Technical Feasibility Study:

-The engineering feasibility of the project is viewed in the technical feasibility

-In this Certain important engineering aspects are covered which are necessary for the designing of the project.

-fuel availability, geography, topography, infrastructure support and other problems

Delay risk:

Managerial Feasibility Study:

-Managerial feasibility is ascertained by certain key elements like employee involvement, demonstrated management availability & capability and commitment.

-The managerial and organizational structure of the project is addressed by this feasibility .

-whether is operation is feasible or not

Asset-Level Risk

Economic Feasibility Study:

-Economic feasibility refers to the feasibility of the considered project to produce economic benefits.

-A benefit-cost analysis is needed.

-the economic feasibility of a project can also be evaluated by breakeven analysis.

Leverage Risk

Financial Feasibility:

-The ability of the project management to raise sufficient funds required to implement the proposed project is included in the financial feasibility.

-In this creditworthiness, loan availability, equity, and loan schedule.

availability, geography, topography, infrastructure support and other problems.

Market level risk/Idiosyncratic Risk

Cultural Feasibility Study:

-The compatibility of the proposed project with the cultural environment of the project is included in the cultural feasibility.

-Planned operations should be integrated with the local cultural beliefs and practices in labor-intensive projects.

Market level risk.

Social Feasibility Study:

-The effect that a proposed project may have on the social system in the project environment is addressed in the social feasibility

-The influence on the social status of the participants by the project should be evaluated in order to guarantee compatibility.

Environmental Risk

Safety/Environmental Feasibility study:

-Safety feasibility involves the analysis of the project in order to ascertain its capacity to implement & operate safely with the least unfavorable effects on the environment.

-The ability of the project to timely acquire the required permits, licenses and approvals at a reasonable cost should also be included in this area.

Idiosyncratic Risk

Political Feasibility Study:

- The directions for the proposed project are mostly dictated by political considerations.
- This is for large projects that may have important political implications and government inputs.
- the current objectives of the political system is required in the political feasibility analysis.

General Market Risk

Market Feasibility Study:

- The potential influence of market demand, competitive activities and available market share should be considered in the market feasibility analysis.
- he potential influence of market demand, competitive activities and available market share should be considered in the market feasibility analysis.

CHAPTER 3

LIVE CASE STUDY

3.1.DEVELOPMENT OF CIRCULAR SHAPE AUTOMATIC/ROBOTIC TYPE MULTI LEVEL CAR PARKING, INCLUDING ROOF TOP RESTAURANT, COMMERCIAL UNITS, DRIVE IN RESTAURANT, CHILDREN'S PARK AND BUS PARKING BAY, AT SIRUSERI NEAR SIPCOT JUNCTION IN OMR, CHENNAI

3.1.1.PROJECT DESCRIPTION: In order to reduce the on-street parking along the Old Mahabalipuram Road and also to make a smooth traffic flow in IT corridor region, TNRDC has proposed to construct Circular Shape Automatic / Robotic

Type Multi Level Car Parking on DBFOT basis in OMR Road.



Figure 3.1.1: Proposed site



Figure 3.1.2: Building view

3.1.2SITE APPRECIATION:

- TNRDC has identified site for the construction of circular shape automatic \ robotic Multi-level car parking at Siruseri, Chennai
- earmarked 4.91 acres for the development of multi-level car parking complex to accommodate 632 ECS under DBFOT basis.
- The site is surrounded by many IT companies. The proposed site for the development of the Multi-Level Car Parking including Roof top Restaurant, Commercial Units, Drive in Restaurants, Bus Parking Bay, Security Shelter, etc., is near the junction of the OMR and the First Main Road for the SIPCOT IT Park.

- The terrain of the site is a sloping gradually downwards from the entrance road towards the pond (almost at the middle of the Land) and thereon the terrain is relatively flat.
- The site is located at the beginning of the IT Park making it a significant location for the development of such a structure incorporating all the parking needs, bus stop requirement of the Park and making it an attractive commercial destination in the area.

3.1.3.STATUS OF THE LAND:

The site for Multi – Level Car Parking along with its other components is under Tamil Nadu Rural Development Company. The site is free from air traffic zone. In terms of height restriction no barriers are found.

3.1.4.SITE APPROACH:

Table 3.1.4:Site approach

Entry & Exit Point	The entry and exit to the site is through OMR Road.
Land Use	At project site, the predominant land use is for commercial purpose.

3.1.5.SURVEY ANALYSIS

The following are the parking surveys conducted:

- Parking Space Inventory
- Parking Usage Survey by Patrol
- Questionnaire type parking usage survey
- Cordon Count

3.1.6.PARKING SPACE INVENTORY

This survey was carried out at a radius of 2 km all around Siruseri & OMR keeping the Site location as the centre. The first steps in deciding the types and locations of the parking surveys are to collect data with a simple parking space inventory survey.

The data on parking facilities were recorded on the plans using suitable symbols,

- * Length of the Kerb
- * Number of Parking Spaces
- * Street Width
- * Location of Bus Stops, bus bays, etc.
- * Traffic management measures in force

PARKING USAGE SURVEY BY PATROL:

- This survey is also carried out at various locations in and around Siruseri & OMR.
- The purpose of this survey is to obtain data on the existing parking facilities mainly on-street type.
- This survey also constitutes taking readings for the duration of parking for each of the vehicles parked within the selected locations. In addition to the above, details of the capacity of off-street parking including the duration of parking were taken down from the representatives of each of the companies with the SIPCOT-Siruseri Campus.

3.1.7 QUESTIONNAIRE TYPE PARKING USAGE SURVEY

- The Questionnaire type of Parking Usage Survey has been carried out in and around SIPCOT Siruseri.
- The Willingness to Pay Survey was carried out on a random sample basis and the feedback was also received for the various project components.

Various questions/queries were made including the rates comfortable for the sample to pay for parking a car.

The feedback obtained helps in the decision making for each of the project components.

- Address of origin of the trip
- Address of destination of the trip
- Trip purpose
- Time of arrival at the parking place
- Time of departure from the parking place
- Type of parking space used
- Type of vehicle.

3.1.8 CORDON COUNT

This survey has been carried out at 2 km radius keeping the Site location as the center thereby covering most of SIPCOT-Siruseri.

A team had been allocated at each of the locations and the team noted the numbers of each of the vehicles passing (both in & out) the location at the same time interval for a period of 12 hrs.

The main objective of the survey is to determine the volume of vehicles retained within the cordon lines for a specific hour.

3.1.9 PARKING DEMAND & SUPPLY ANALYSIS

Total Turnover from 8 a.m. to 8 p.m. on OMR Road = 884

Vehicles Total Turnover from 8 a.m. to 8 p.m. inside SIPCOT Roads = 438 Vehicles

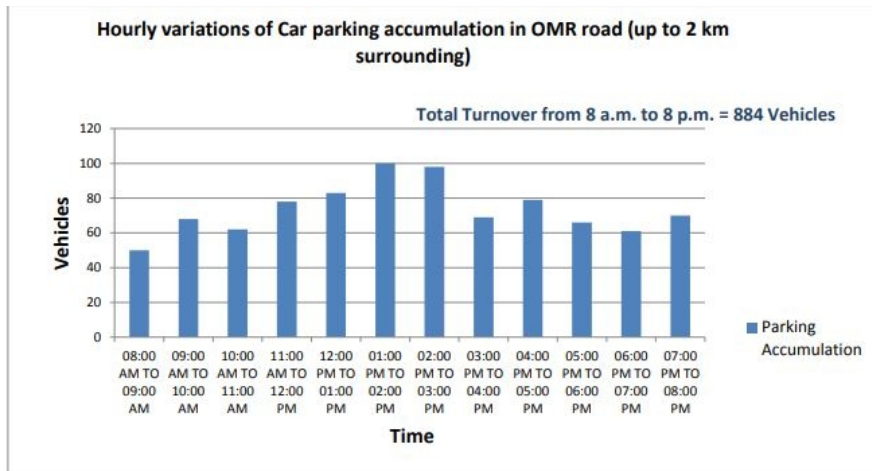


Figure 3.1.3:Traffic analysis in OMR road

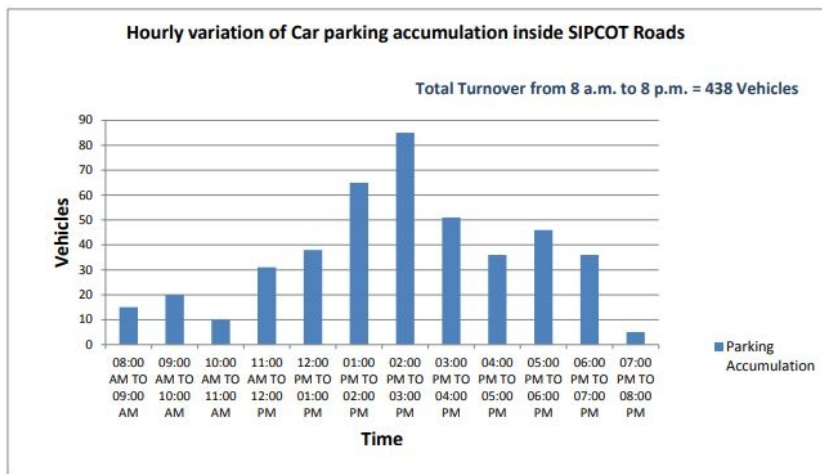


Figure 3.1.4:Traffic analysis in Sipcot road

Table 3.1.2:Percentage of visitors in Siruseri

S. No.	Activity	No. of Samples	Percentage	Remarks
1.	Official Business (Other than IT Staff)	60	60 %	These are outsiders visiting IT Companies in SIPCOT, Siruseri/neighbourhood.
2.	Shopping	10	10 %	-
3.	Business	10	10 %	-
4.	Personal Affairs	2	2 %	-
5.	To eat in restaurants	5	5 %	-
6.	School/College/University	10	10 %	-
7.	Service Passenger	3	3 %	-
Total		100	100 %	-

From the above table, it may be seen that nearly 60% of all visitors to Siruseri are outsiders. This shows promise that users require car parking cum commercial

3.1.10 CONFORMANCE TO BYE-LAWS:

Bidders shall ensure that the design of entire parking facility confirm to the provisions of Development Control Rules for Chennai Metropolitan Areas, Bye-laws, requirements of all statutory/regulatory bodies in respect of fire hazard, ventilation & lighting requirement safety, security, evacuation during disaster, alarm etc.

3.1.11 STANDARDS TO CHECK:

- to adhere to the development control norms as per the prevailing Master Plan and Building Bye-laws of Development Control Rules for Chennai Metropolitan Areas and take approvals from all local authorities.
- building plans, utilities, firefighting and any other statutory approval required for this project after the drawings and plan have been duly approved by TNRDC.

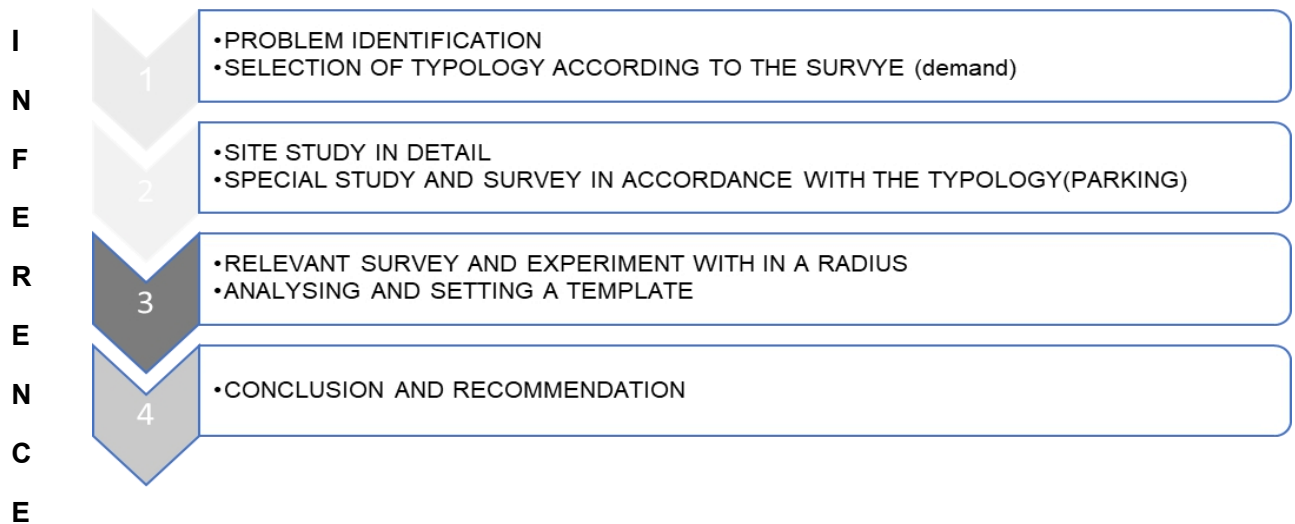
- appropriate design conforming to approved development control norms (Development Control Rules for Chennai Metropolitan Areas) & by adopting good national and international standards & best practice for parking facility.
- firefighting arrangements should conform to the National Building Code, Development Control Rules for Chennai Metropolitan Areas and Fire Safety (Fire Prevention) Rules, Building Codes and Good Industry Practice, Observance of safety and security measures at site, etc.

3.1.12 FINANCIAL VIABILITY

- commercial complex is estimated to be 187.26 Crs approximately
- Basic assumptions for estimation of the project cost are as follows:
 - - Provision for Price Escalation @ 5% of the project cost.
 - - Provision for Project Management Consultancy charges @ 3% of the project cost.
 - - Provision for contingencies @ 3% of the construction cost.
 - - Interest during construction is @ 12% payable monthly.
 - - Total construction period 24 months
 - - Loan draw down @ 60% for the first year and 40% for the second year.

Internal Rate of Return: As per the financial calculations, the internal rate of return for a 20 year period works out to about 12.05 % (Twelve point Five Percentage).

3.1.13 CONCLUSION: The Techno-Financial Proposal has been found to be viable and the same may be followed by the selected bidder.



3.2.CASE STUDY 2

TIDEL Park was one of the first IT developments in the country ,by the Government.

The development was instrument al to mark the start the IT revolution in the city in 2000.



Figure 3.2.1:Tidel Park

Competition: nil

So,The demand was 100%

Location : 9/10 had easy accessibility

TIDEL Park, Chennai has been developed as a joint venture between TIDCO & ELCOT in 2000.

-marked the beginning of commercial office space activity along ‘Rajiv Gandhi Salai’

-The IT park comprises of a built up area of approx. 1.2 million sft

-The key objective of TIDEL Park was to provide necessary infrastructure for IT/ITeS clients thereby promoting the IT/ITeS industry in the city.

-TIDEL park had achieved 100% occupancy post 3 months of its inauguration only because of the demand and new venture for the investors

Occupancy:

-Approx. 20% of the commercial space developed was strata sold to nine companies

-approx. 820,000 sft of commercial space was leased out to 30 – 35 corporates.

-In the initial phase, the development witnessed absorption from 6 – 7 corporates who took up approx. 50% of the leasable area ranging between 35,000 – 100,000 sft per corporate.

Rental details:



Figure 3.2.2:Rental details

-The building has been designed as 4 blocks and 8 modules with large common areas reusing in an efficiency of 60 – 65%

-The market average of efficiency of 80 – 85%

-witnessed that approx. 75% of the tenants (INautix, TCS, Ajuba Solutions, Cognizant, etc.) who are currently present in TIDEL Park have occupied the development from 2000 – 2001

-The tendency to stay at TIDEL over a long period owing to locational and rental advantage

TIDEL has maintained a 100% occupancy for most part of its existence.

Mainly due to the location

-was provided when there was 100% demand

3.3 INFERENCE FROM THE CASE STUDY

Site in search of a use

-Profile site

- Identify alternative uses and users
- Match most probable user to site

Use in search of a site

- Profile user and establish real estate needs
- Identify alternative sites
- Match site to user

Investor in search of involvement

Profile investor

Establish investment criteria

Identify alternatives

Match investor to alternatives

1. What are the employment trends in the market area?
2. What is the population growth rate in the market area?
3. What is the best configuration and size of units for the proposed development?
4. How many units can the market absorb, at what price and over what length of time?
5. What percent of market demand will the project capture and why?
6. How should units be marketed to the target customers?
7. How much operating revenue or income can this project expect to generate over a certain time?
8. What are the regulatory controls placed on this type of development?
9. What is the communities position on the potential development in the proposed location?
10. What will be the response towards the people and environment?

4.1 LIVE STUDY

4.1.1 GENERAL STUDY ABOUT CHENNAI

REALESTATE in Chennai City:

-Chennai, the capital of the state of Tamil Nadu is located along the eastern sea coast in the south of India.

-population of 8.65 million

-The Chennai Metropolitan area spans 8,989 sq.km covering the districts of Chennai, Kancheepuram, Thiruvallur and parts of Vellore district.

- The development in the Chennai Metropolitan area is regulated by the Chennai Metropolitan Development Authority (CMDA).

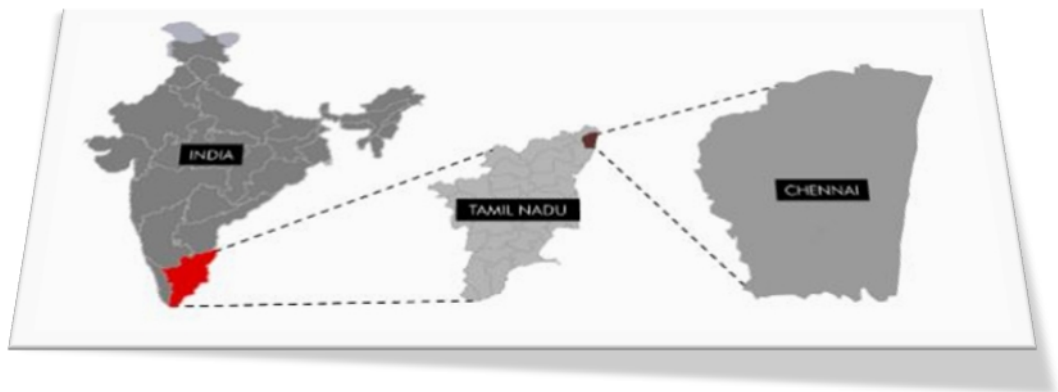


Figure 4.1.1.1: Real estate in Chennai city

-the state has witnessed moderate growth and the GDP growth rate at constant prices in 2017 – 2018 is estimated to be 8.03%

-It is also anticipated that the economy will grow faster and thereby enabling the State to reach 9% growth rate in 2018-2019.

-Chennai, in the year 2016 – 2017 was a key contributor to the nation's GDP, contributing approx. USD 66 billion.

-The economic base of the city is primarily constituted by Automobile Manufacturing, IT/ITeS enabled services and Banking & Finance sectors.

LIFE LINE ROADS -THE ORIGIN OF BUSINESS DISTRICT

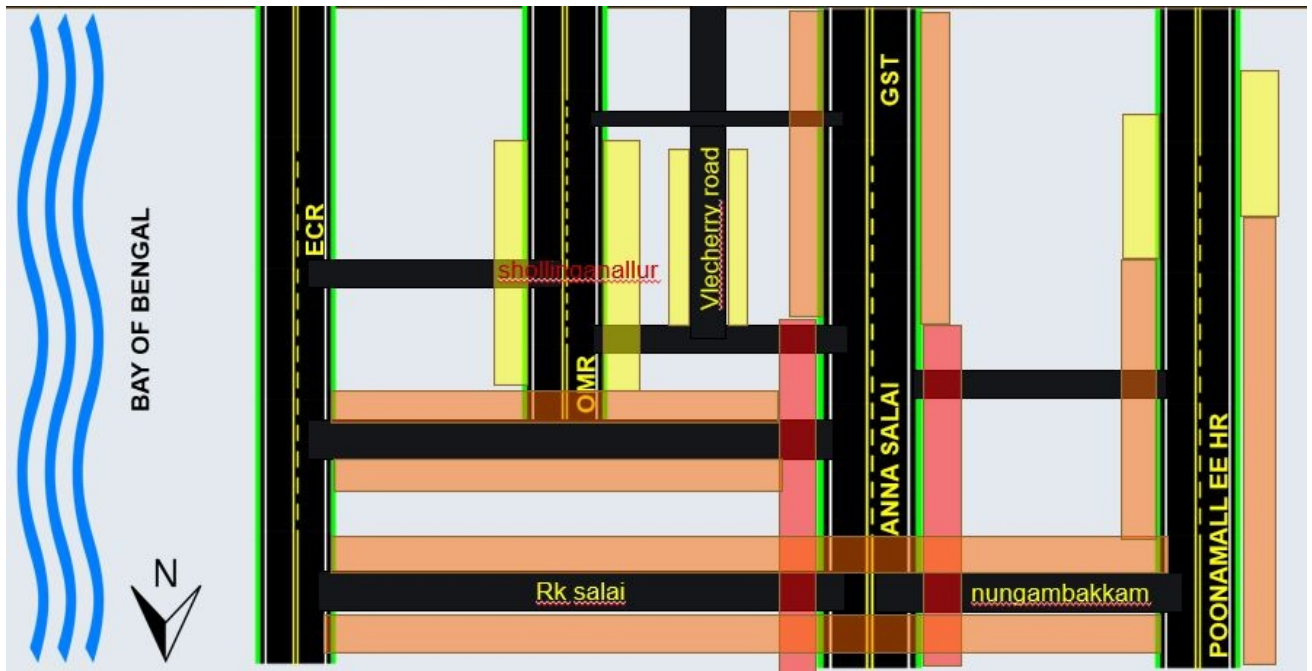


Figure 4.1.1.2:Origin of CBD Zones

4.1.2 SITE SELECTION

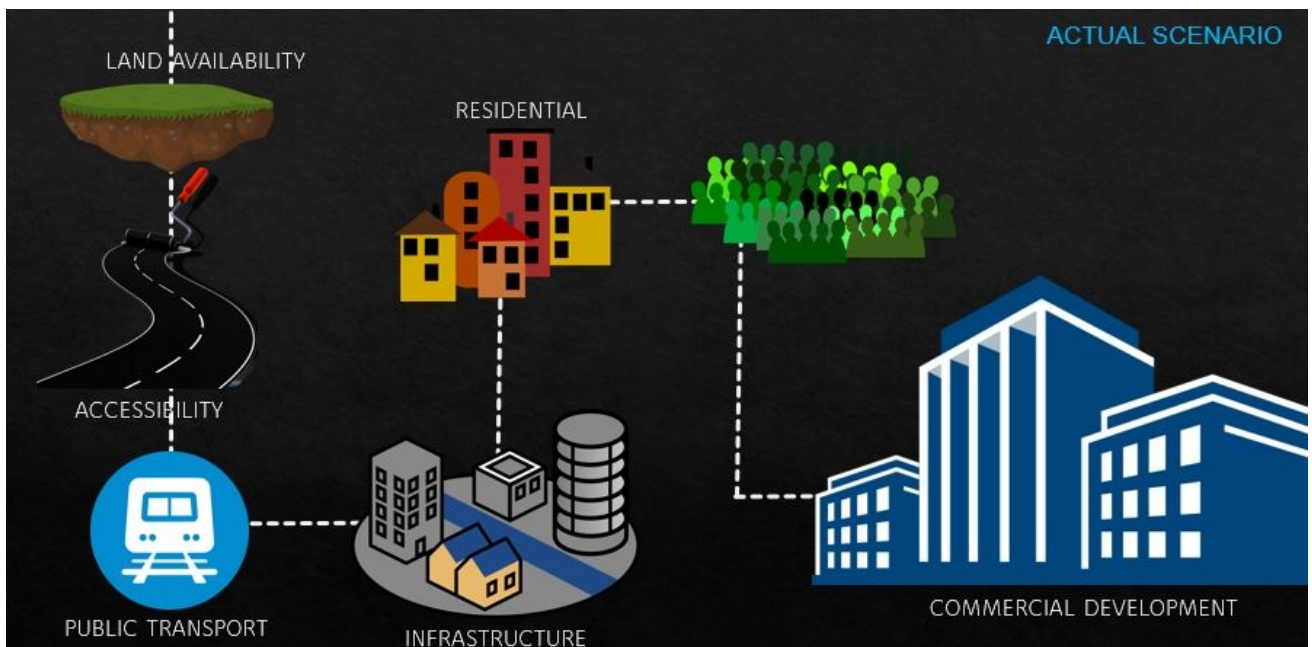


Figure 4.1.2:Actual Scenario of development

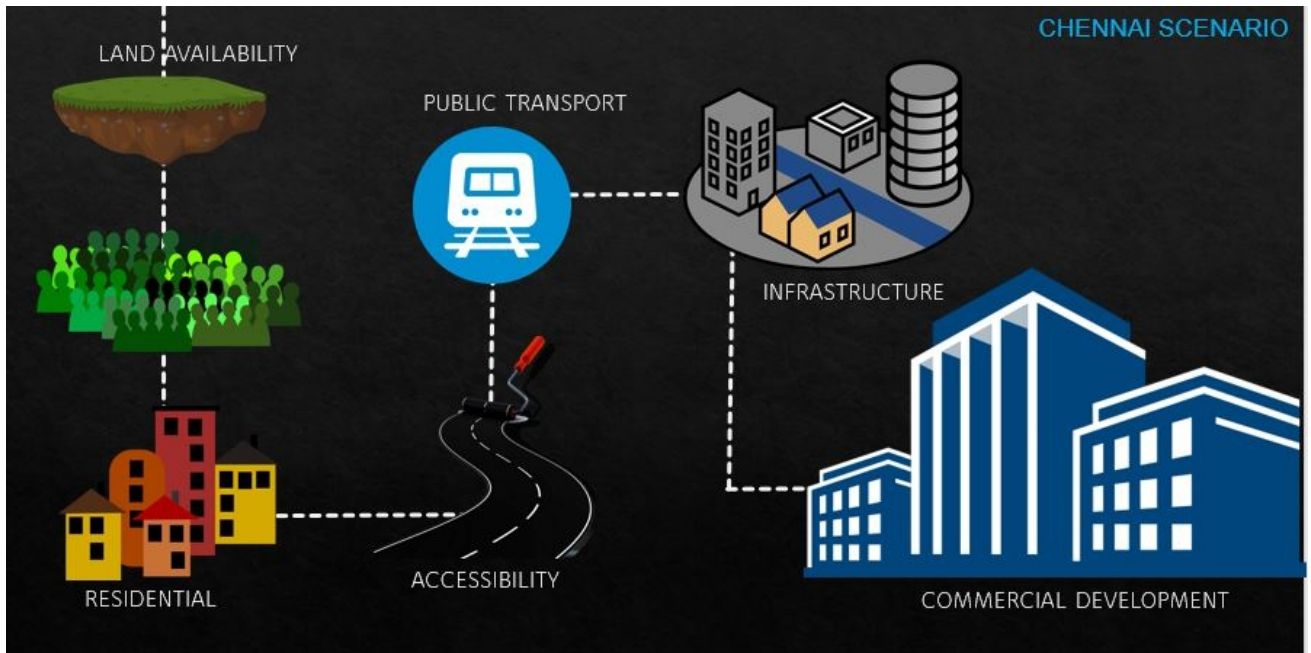


Figure 4.1.3:Chennai scenario of development

SO, FOR COMMMECIAL DEVELOPMENT SITE SELECTION CRITERIA INCLUDES

ACCESSIBILITY,

PUBLIC TANSPORT,

AVAILABILITY OF LAND PARCEL



Figure 4.1.4:Major criteria for site selection for commercial development

SITE SELECTION STARTED FORM:

DIFFERENT ZONES BASED ON BUSINES DISTRICT:

CBD ZONE

Anna salai

R.K. salai

NungambOMR 1 akkam

T.Nagar

Chetpet

OFF CBD

Guindy

Vadapalani

MRC Nagar

Adyar

SBD

OMR 1

Taramani

Perungudi Kandanchavadi

MPR

Mannapakkam

Mount

Ponnamallee road

PBD

OMR 2

Thoraipakkam

Shollinganallur

OMR 3

Navalur

Padur

Siruseri

GST

Ambattur

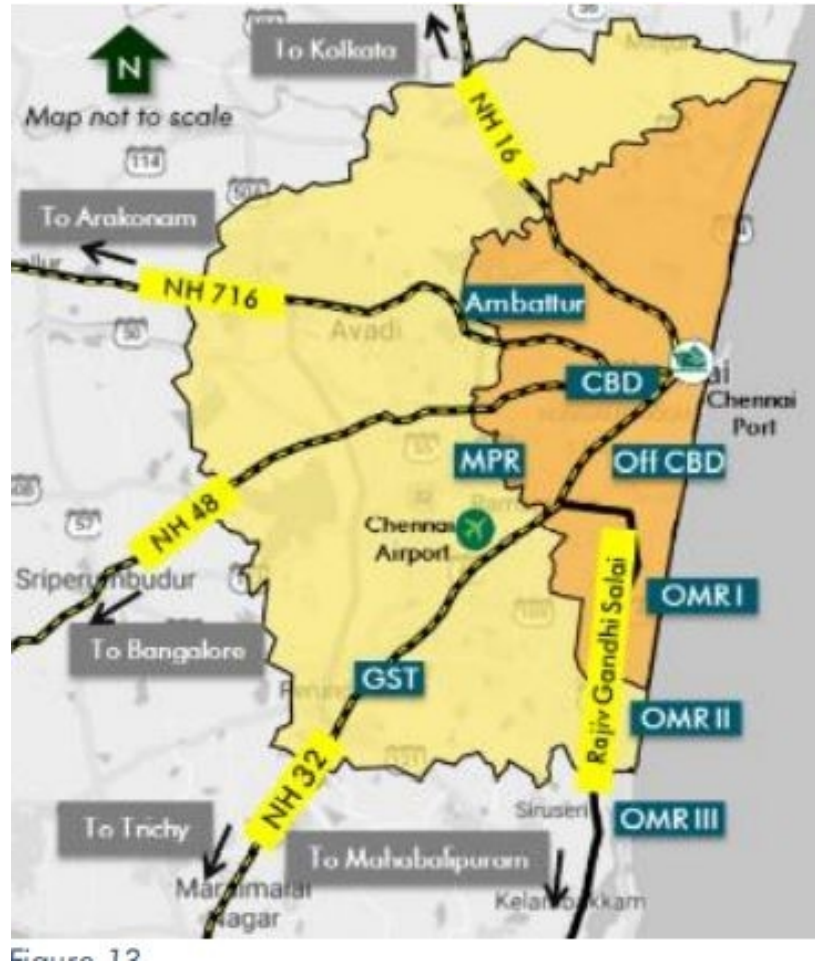


Figure 4.1.5: Different Zones based on business district

4.2 SIX SITES

SITE 1 and 5 (CBD)

- Site 1-Acre:1.85
- Site 5-Acre:2.9
- land parcel located on north side of Anna Salai Fairly regular in shape
- Currently land is ready with foundation ,it is in the same position for many years.

- It is about to take over for a commercial space and a bank
- The primary access for the land parcel is via Anna Salai
- The land is located at a distance of 100 m from the Nandanam metro station, and site 5 near DMS metro

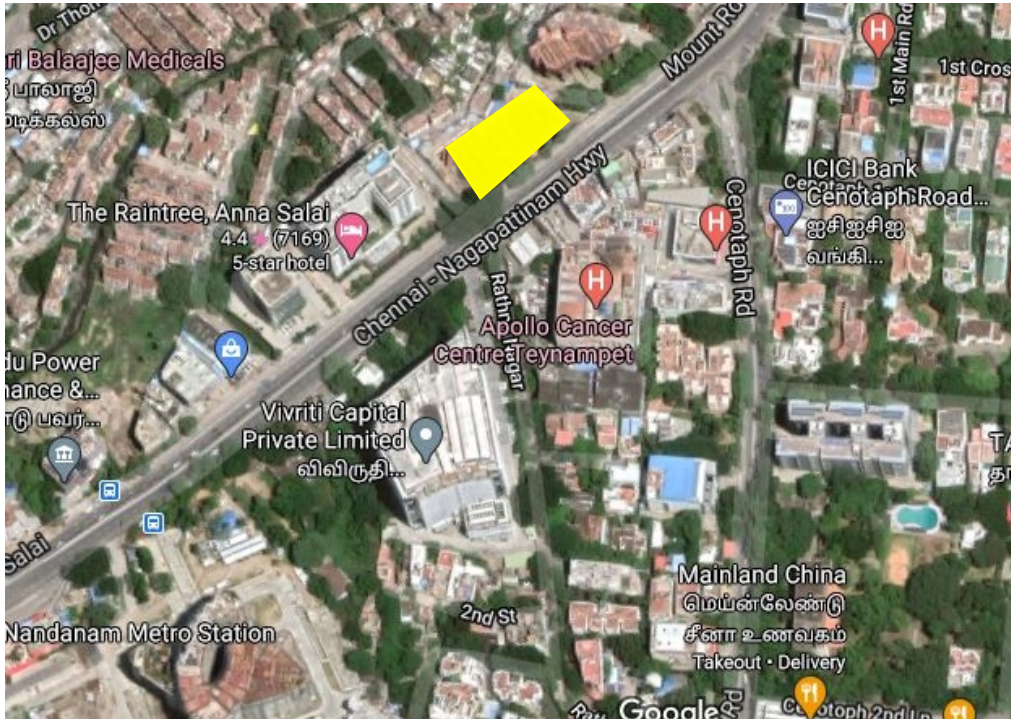


Figure 4.2.1: Site 1 (CBD)

SITE 5 (CBD)

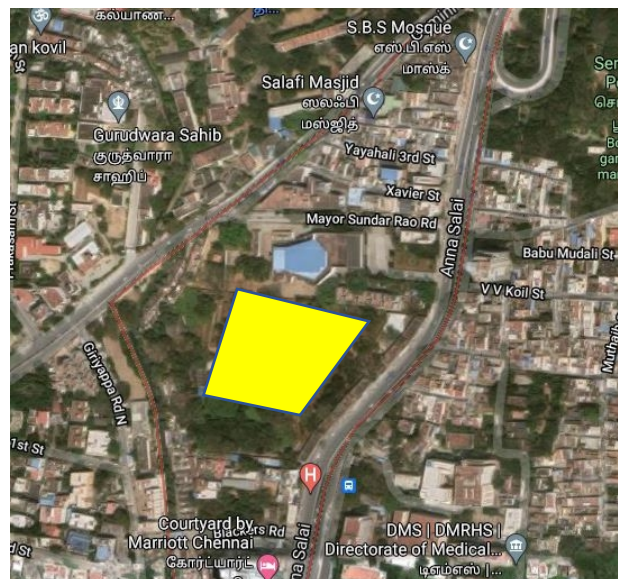


Figure 4.2.2: Site 5 (CBD)

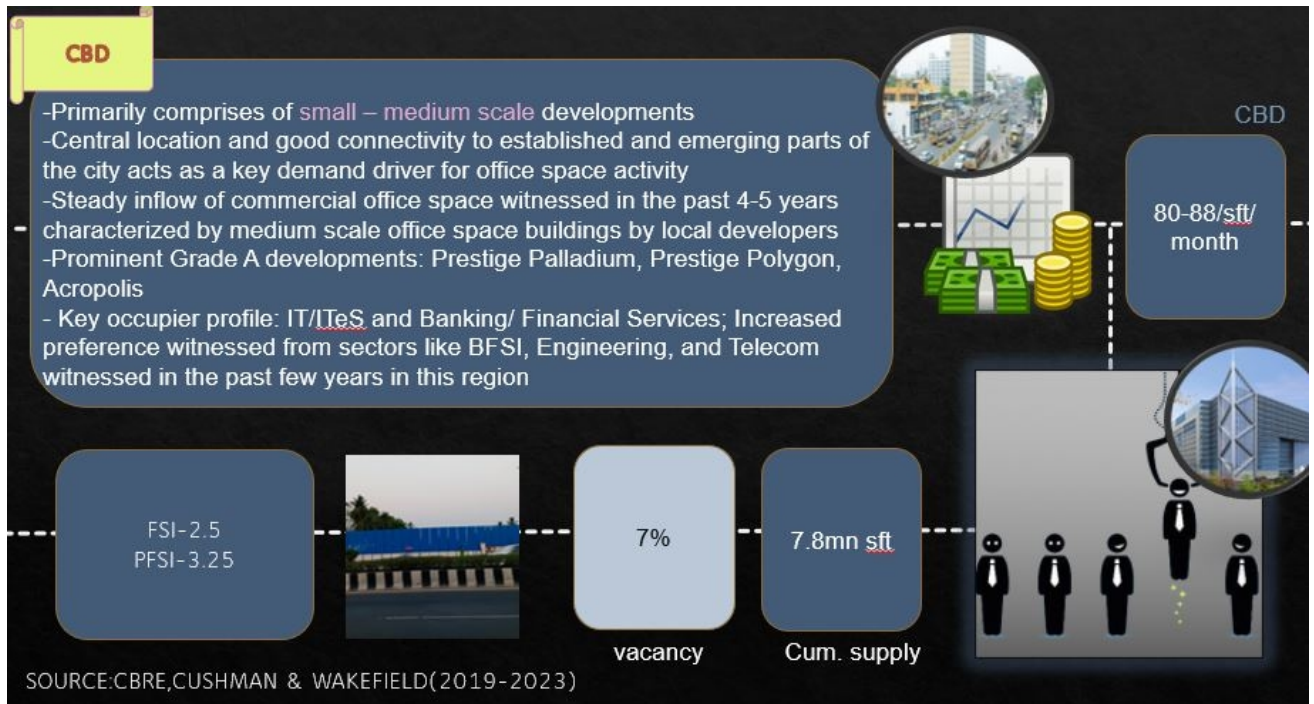
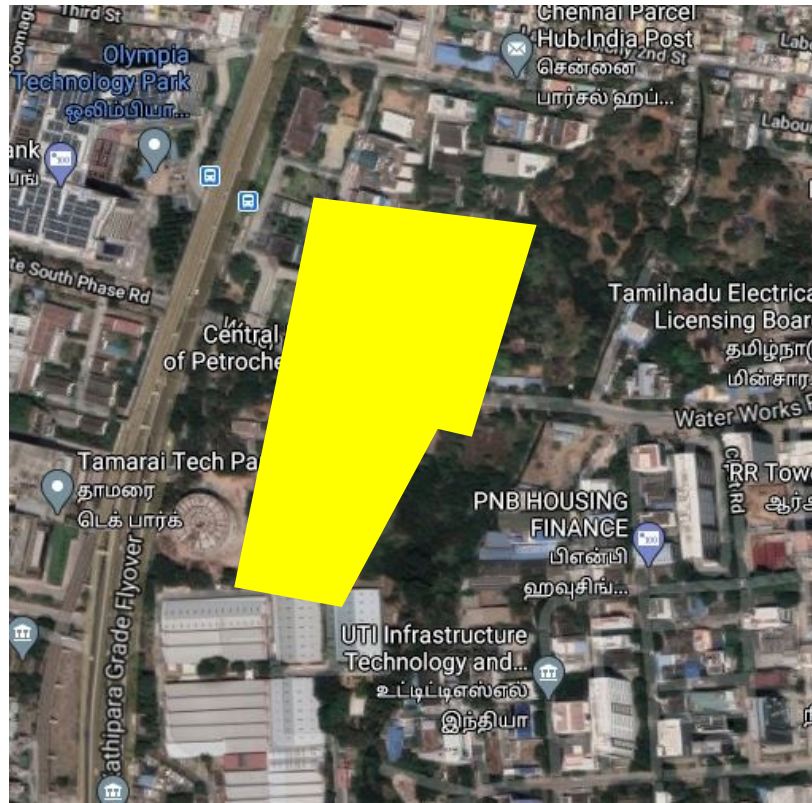


Figure 4.2.3:CBD zone

SITE 2 and SITE 6 (off CBD)

- SITE 2-Acre:5.4
- SITE 6 – Acre:7
- Site 2:Land parcel is a NON CONTIGUOUS divided by the water works road located opposite to thamari tech park
- Site 6: contiguous large land parcel near toll plaza
- Currently land vacant
- The primary access for the land parcel is via Jawaharlal nehru road through water works road
- The land is located at a distance of 70 m from the eekatuthangal metro station
- The land is fairly large land for a commercial hub.



SITE 2 (off CBD)

Figure 4.2.4:Site 2 (Off CBD)



SITE 6 (OFF CBD)

Figure 4.2.5:Site 6 (Off CBD)



Figure 4.2.6:OFF CBD

SITE 3 (SBD)

- Acre:24
- land parcel located on OMR
- Currently land is vacant
- It is about to take over for a commercial space
- The primary access for the land parcel is via OMR
- The land parcel is fairly large space for a development
- The land is located at a distance of 100 m from the perungudi toll plaza



SITE 3 (SBD)

Figure 4.2.7:Site 3 (SBD)



Figure 4.2.8:About OMR

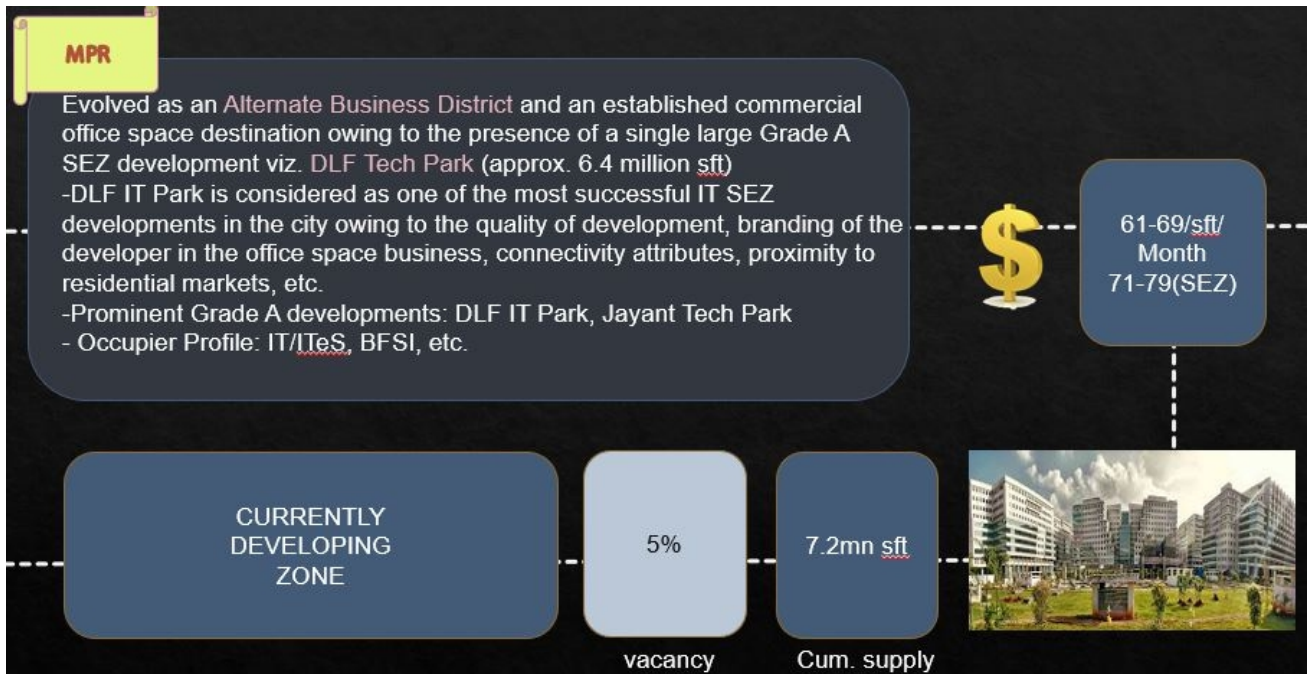


Figure 4.2.9:About Mount Poonamalle road

SITE 4 (PBD)

- Acre:2.62
- land parcel located on OMR main road
- Currently land is vacant
- It is about to take over for a commercial space
- The primary access for the land parcel is via OMR
- The land parcel is fairly large space for a development
- The land is located next to navalur bus stop



Figure 4.2.10:Site 4 (PBD)

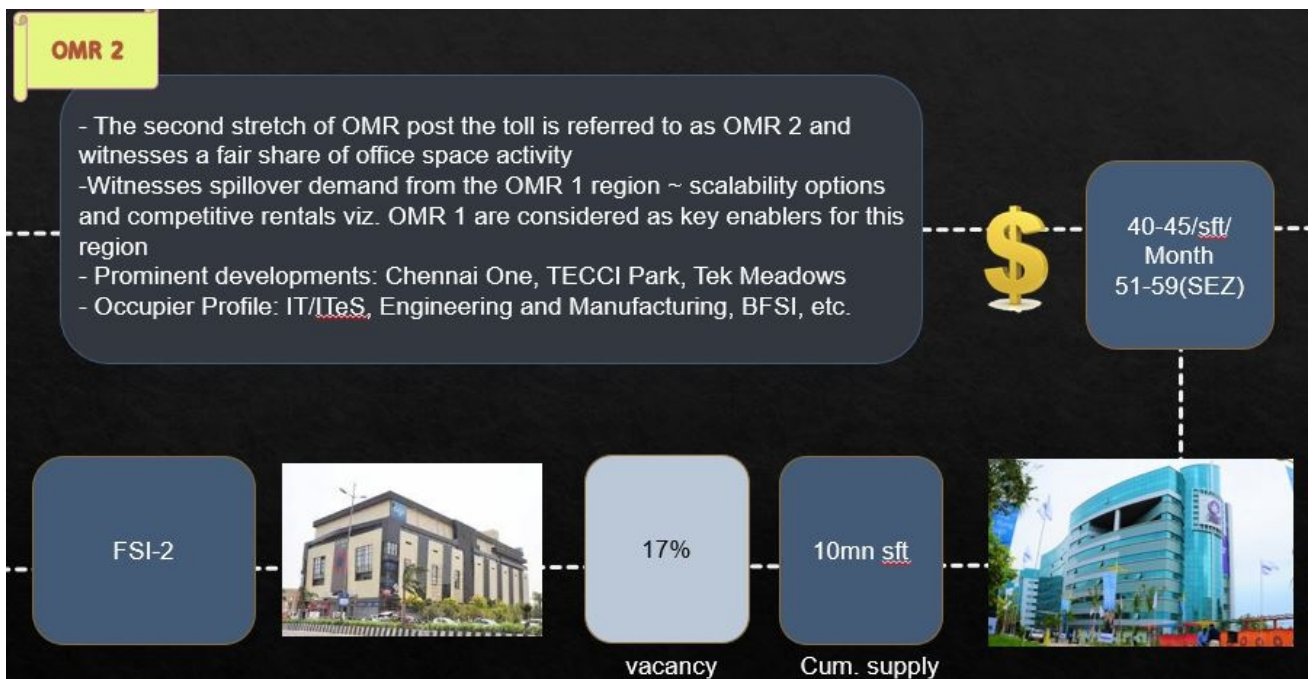


Figure 4.2.11:About OMR 2

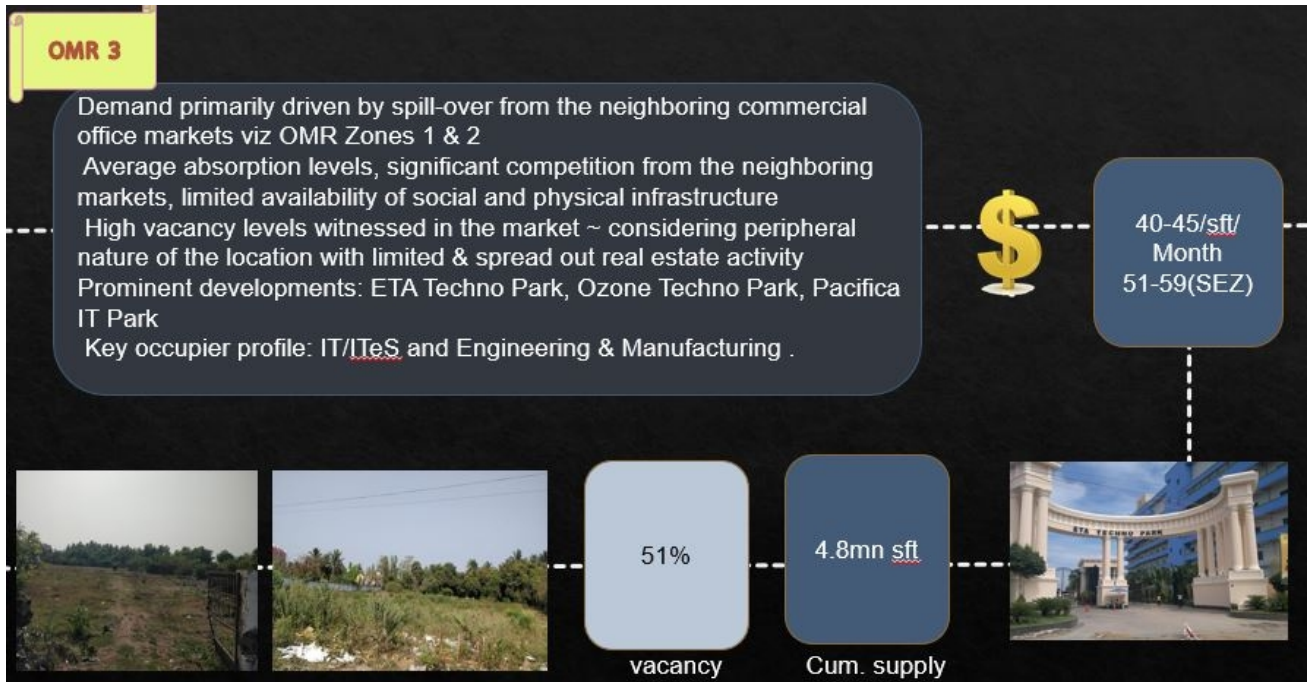


Figure 4.2.12:About OMR 3

4.3 SITE SELECTION CRITERIA:

4.3.1 SIZE OF THE LAND /TOTAL BUILT-UP SPACE ,FSI,

SITE 1:

SITE AREA -Acre:1.8

MID RISE: ROAD WIDHT 23m MAX FSI:2

FRONTAGE:4.5m SIDE REAR:3m

Height not exceeding 18.03m

TOTAL BUILTUP AREA :24,928sqm

BUILDING FOOT PRINT: 6232sqm

NO.OF FLOORS: 4

Tab 4.3.1.1:DCR for commercial spaces

Sl No	Description	Continuous Building Areas	Other areas	
1	2	3	4	
A	Minimum road width	9.0 m		
B	Maximum Height	18.30 m		
C	Maximum FSI	2.0		
D	Minimum Set backs	Where Street Alignment/new road is prescribed, it shall be from that street alignment/ new road line. In the case of others, it shall be from the property boundary.		
i)	Front set back	Abutting road width		FSB
		from 9.0m. upto 18m.		3.0m.
		More than 18m. upto 30.5m		4.5m.
		More than 30.5m.		6.0m.
ii)	Side Set back / Rear Set back	Nil	Height of the building	SSB / RSB
			Upto 7m.	1.0m.
			More than 7m. upto 12m.	1.5m.
			More than 12m. upto 16.0m.	2.5m.
			More than 16m. upto 18.30m.	3.0m.

HIGHRISE:ROAD WIDTH 23m MAX FSI:3.25

FRONTAGE:7m SIDE REAR:7m(upto 30m building)

MAXIMUN COVERAGE 50%

BUILD FOOT PRINT:3743sqm

TOTAL BUILTUP AREA: 26201Sqm

NO.OF FLOORS: 7 FLOORS

SHAPE: REGULAR

SPACE FOR SITE EXPANSION:nil

Tab 4.3.1.2:Office space which exceeds 300 sq m

Sl. No	Description	All Areas		
A.	Min. Road width	12m.	15m.	18m.
B.	Maximum FSI	2.0	2.5	3.25
C.	Maximum Coverage	50%		
D.	Minimum set back all around	Height of the building above ground level	Minimum required setback space from the property boundary	
		Upto 30m.	7m.	
		Above 30m.	For every increase in height of 6m or part thereof above 30m minimum extent of setback space to be left additionally shall be one meter subject to the maximum setback of 20m.	
E.	Spacing between blocks in case of more than one block of High Rise building	Height of the building above ground level	Minimum required spacing between blocks	
		Upto 30m.	7m.	
		Above 30m.	For every increase in height of 6m. or par thereof above 30m. space to be left additionally shall be one metre subject to the maximum setback of 20m.	

4.3.2 PROXIMITY AND LAND USE PATTERN

Site 1

1. Location :anna salai
2. Abutting road main road 23 m
3. Main entry and exit form the main road
4. Visible 100% directly form the main road
5. 900m nandhanam metro
6. 800 nandhanam bus stop

Site 5

Location :anna salai dms

Abutting road main road 23 m

Main entry and exit form the main road

Visible 80% directly form the main road

550m dms metro

5 min tenampet bus stop

Anna Salai owing to its location attributes of being in the city of the city with excellent connectivity and accessibility has evolved into one of the coveted and busy real estate corridors in the city witnessing commercial and retail activity.

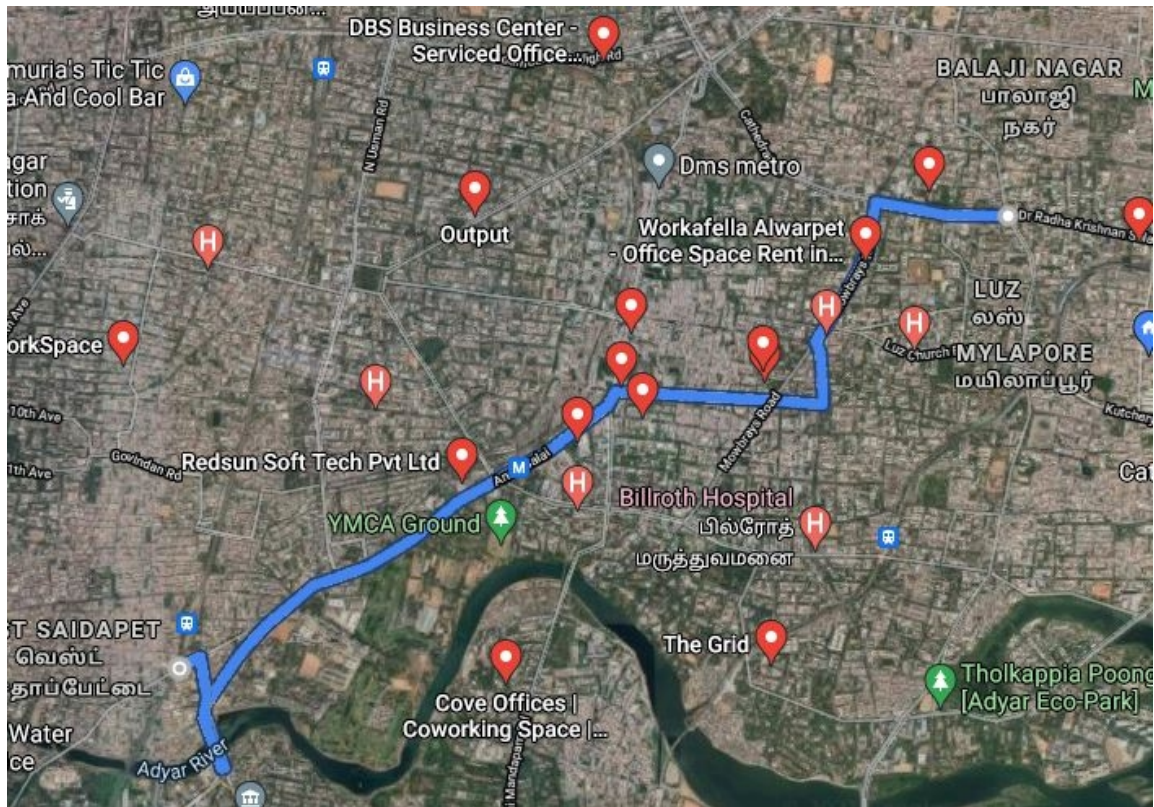


Fig. 4.3.2: Annasalai

WORKAFELLA, TENAMPET

- SPACES ,EA
- UR SQUAREFEET,ANNA SALAI
- REGUS,ANNA SALAI

- CUSHMAN&WAKEFIELD
- KARYA SPACE
- VATIKA BUSINESS CENTRE
- MOSERVE REAL ESTATE
- TEMPLE STEPS
- COVE OFFICES
- AMARASRI BUILDING
- EPK CENTRE
- INSPIRE WORKSPACE

Site 4

1. Location :OMR 2(it express way)
2. Opposite to vivira mall
3. Abutting road main road 40 m
4. Main entry and exit form the ABOVE road
5. Visible 100% form the main road
6. Next to navalur bus stop
7. Upcoming metro

COMMERCIAL SPACE AROUND SITE 4:

- Ozone tect park-120m
- Bayline infocity -40m
- Infosydid limited-710
- Alpha city -780
- Vitrusa-1km
- Marina mall-2.5km

- Tcs-3.11km
- Sipcot-2.9km
- Elcot(sez)-5km
- Hcl-3km

Site 5

- -Location :OMR 1(it express way)
- -Near toll plaza
- -Abutting road main road 40 m
- -Main entry and exit form the ABOVE road
- -Visible 100% form the main road
- -Next to toll bus stop
- -Upcoming metro

COMMERCIAL SPACES NEAR SITE 5:

- ASV-2.2km
- Chandiliya tower-3km
- Cognizant-3.5km
- Cts-5.3km
- Prince infocity-800m
- Global infocity-1.5km
- Regus-2.2km
- Tidal park-4.5km

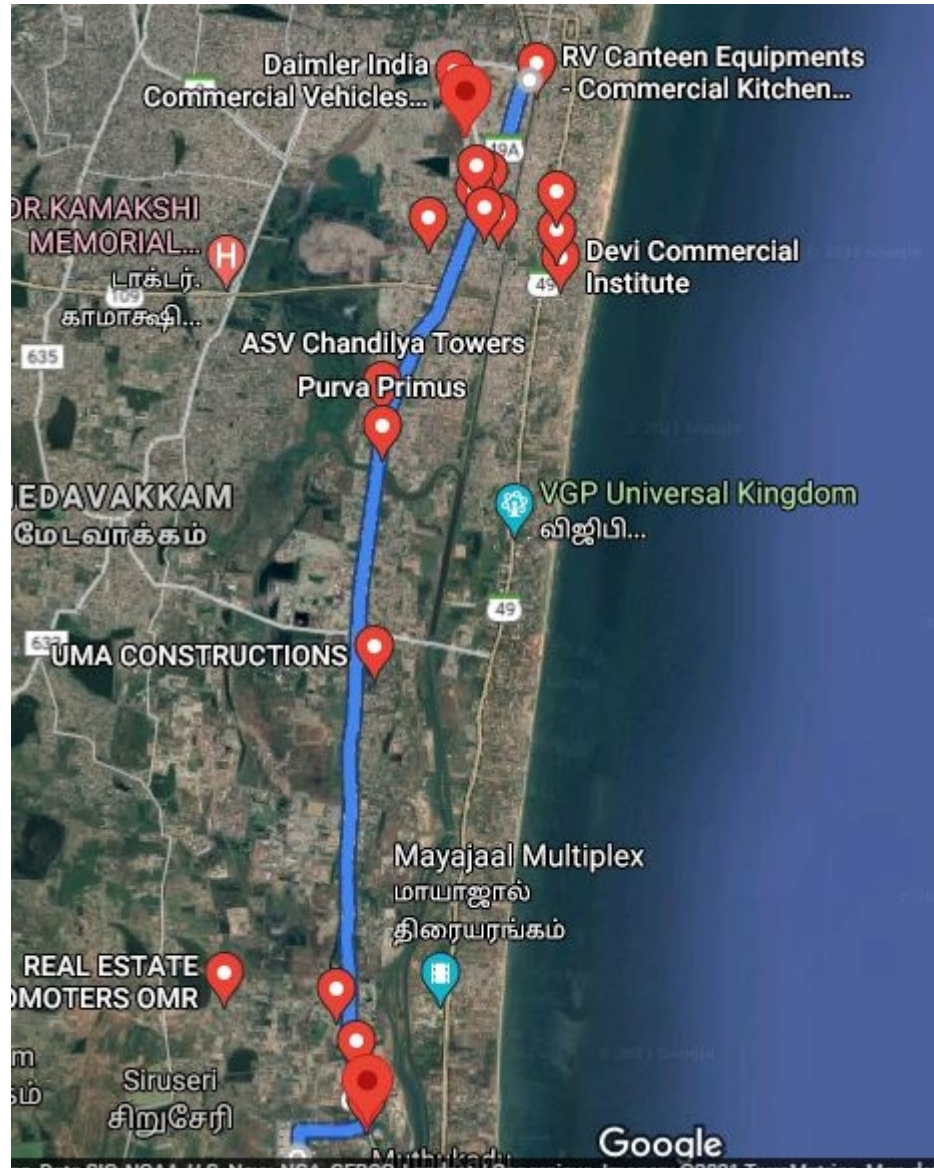
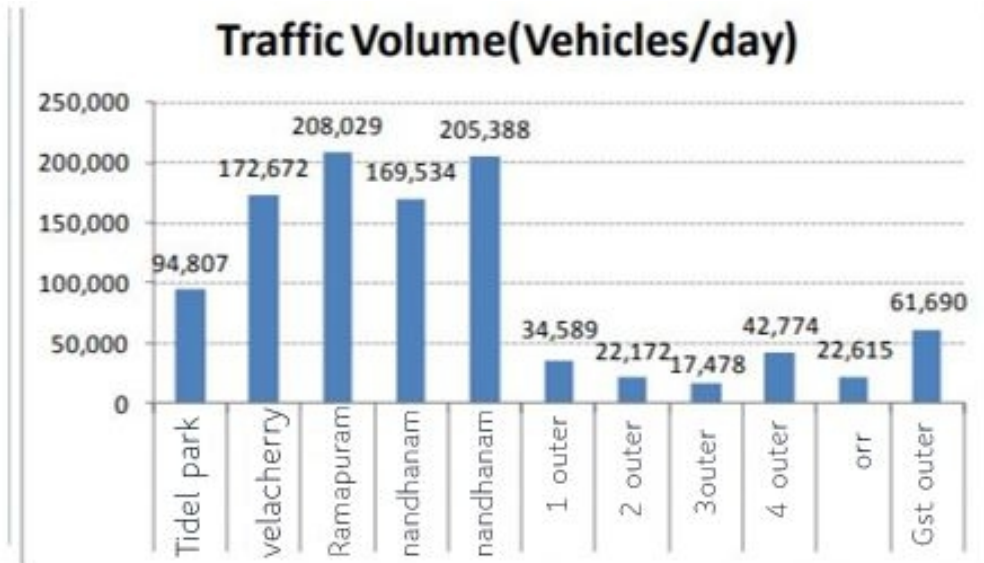


Fig. 4.3.2: Site 4 and 5 Map

4.3.3 TRAFFIC VOLUME



CMDA ROAD AND TRNSPORT-2019

Fig. 4.3.3.1:Traffic volume (CMDA)

ANNA SALAI HAS E REDUCED IN TRAFFIC VOLUME(SINCE IT INCLUED RESIDENTIAL AND COMMERCIAL)

OMR SEEMS TO BE NOT MUCH OF DIFFERENCE

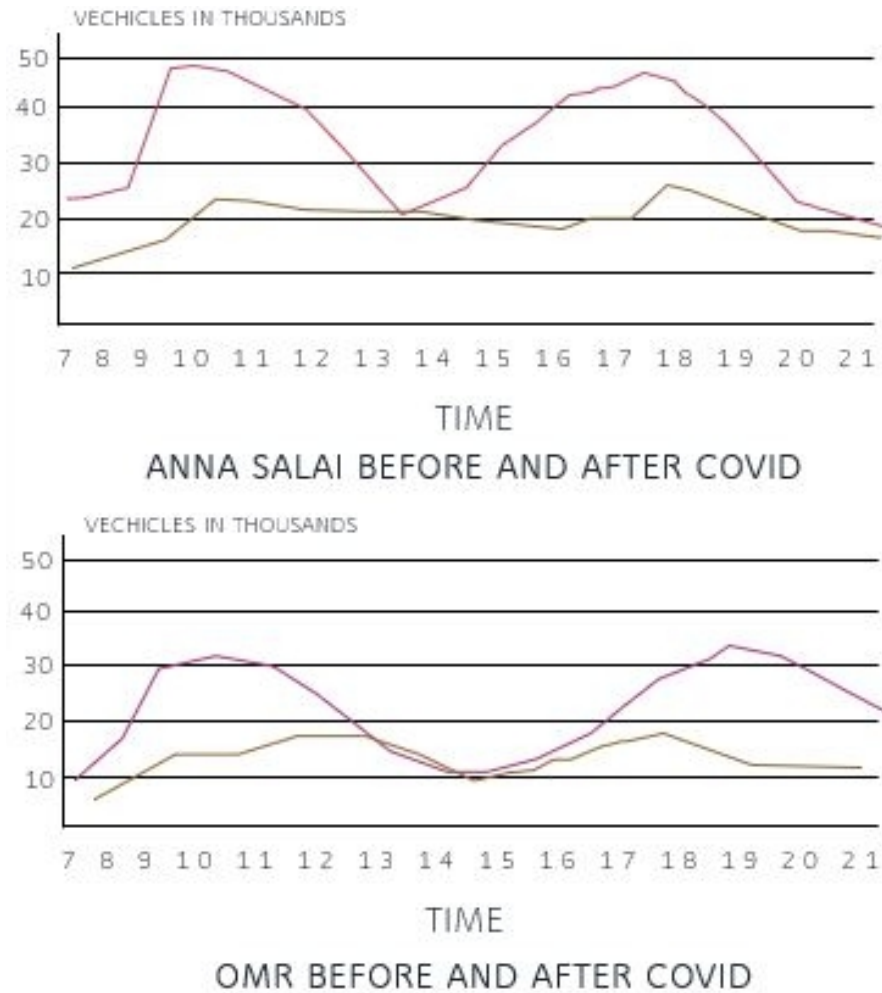
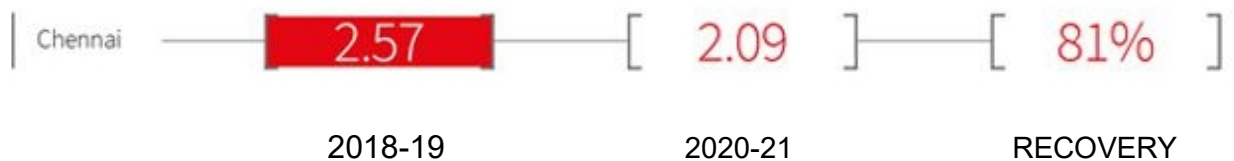


Fig. 4.3.3.2:Annsalai and OMR Traffic Analysis

4.4 CURRENT SECNARIO ABSORPTION COMMERCIAL



4.4.2: RETRUN IN INVESTMENT:

Tab. 4.4.2:Return on Investment DATA By JLL(2019-2021)

Top Location	Availability (No. of Properties)	Under Construction (Selling Price / Sqft)	Leased Property (Selling Price / Sqft)	Lease Rate (Per Month)
Old Mahabalipuram Road	272	₹ 5192	₹ 5644	₹ 32
Nungambakkam	231	₹ 12226	₹ 13435	₹ 50
T Nagar	212	₹ 8909	₹ 9790	₹ 64
Anna Salai	171	₹ 7338	₹ 8064	₹ 65
Guindy	164	₹ 8156	₹ 8865	₹ 51
Mount Road	155	₹ 3299	₹ 10311	₹ 84
Egmore	132	₹ 8579	₹ 9427	₹ 60
Perungudi	94	₹ 5620	₹ 5916	₹ 65
Adyar	72	₹ 10768	₹ 11833	₹ 40
Ashok Nagar	59	₹ 13015	₹ 13994	₹ 27
Mylapore	53	₹ 14109	₹ 15170	₹ 62
Velachery	45	₹ 9803	₹ 10098	₹ 50
Kilpauk	43	₹ 14492	₹ 15255	₹ 32
Tambaram	42	₹ 2758	₹ 2903	₹ 16
Guindy Industrial Estate	41	₹ 10202	₹ 11089	₹ 64
Chetpet	40	₹ 11366	₹ 12222	₹ 52
Porur	37	₹ 4940	₹ 5200	₹ 18
Ekkatuthangal	35	₹ 6975	₹ 7500	₹ 28
Dr Radha Krishnan Salai	33	₹ 13458	₹ 14166	₹ 82
Nandanam	29	₹ 20700	₹ 22500	₹ 131
Nelson Manickam Road	29	₹ 9278	₹ 9976	₹ 39
Creams Road	28	₹ 5854	₹ 6433	₹ 45

4.5 SURVEY ANALYSIS

BUILDERS AND ARCHITECTS

Freelance
Freelance
black studio

Beaver Construction Company
Etc.thedesignstudio
TeamDesign
Dtd studio
Dot4 architects
vsp homes
Freelance architect
sree sai foundations
Agara architects
FIND architects
Redcube studio
L.P.A
DTD STUDIO
Arann Architects

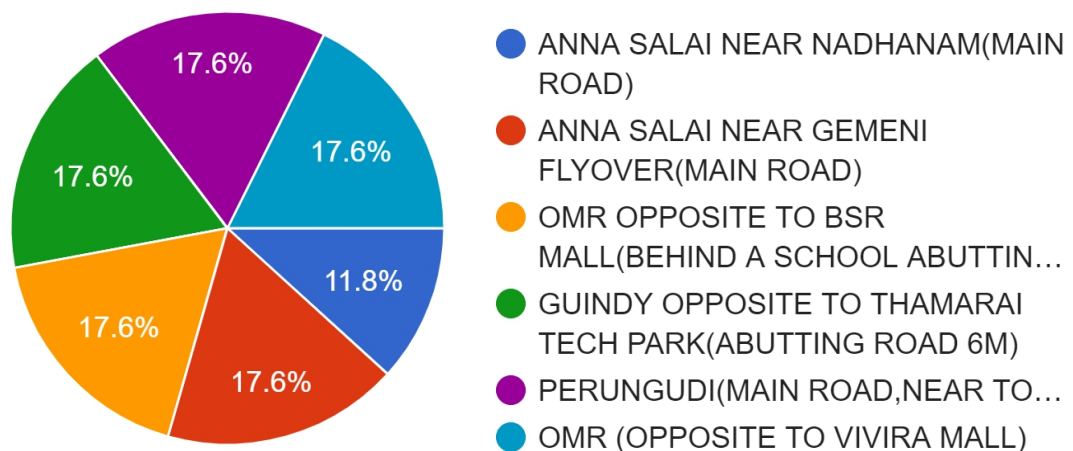


Fig: 4.5.1:Selection of site survey

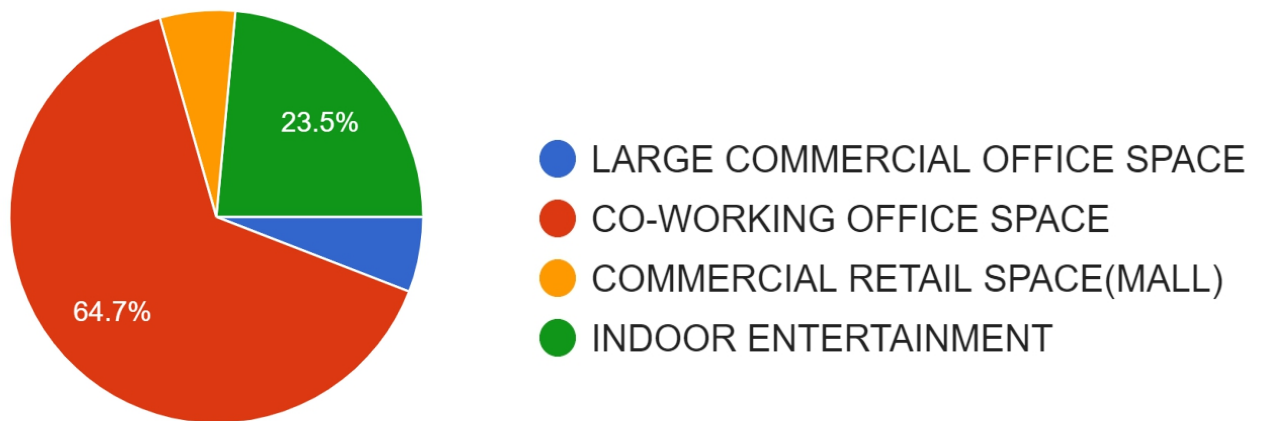


Fig: 4.5.2: Selection of typology survey

Real-estate consultant

Spacio real –estate consultant
Kaaviya real-estate and homes
Teja real-estate
Beaver Construction Company
DTD studio
Arunan real-estate consultant
CRN.Ravi
Swetha-Cushman&wakefield
vsp homes and real-estate consultant
Vishwanathan v3 realestate

A SURVEY TAKEN FROM THE USER PERSPECTIVE WITH OPTION

- LARGE COMMERCIAL SPACES
- CO-WORKING SPACE(EMERGING)
- MALL
- ENTERTAINMENT

FROM A SAMPLE FOR 30

OWN BUSINESS(19)

- 15 CHOOSES CO-WORKING
- 8 OPT ANNA SALAI DUE ACCESSIBILITY)
- 7 OPT OMR DUE TO AFFORDABILITY)
- 4 CHOOSES ENTERTAINMENT
- anna salai
- omr

WORK IN A COMPANY (11)

- 4 CHOOSES CO-WORKING
- 3 OPT ANNA SALAI
- 1 OPT OMR DUE
- 7 CHOOSES ENTERTAINMENT
- 4 anna salai
- 3 omr

ACCORDING TO CHENNAI DEMOGRAPHICS 40% OF THE WORKING POPULATION WORK UNDER A OFFICE FOR SALARY AND 60% OF THE WORKING POPULATION DO THEIR OWN BUSINESS

-SURVEY REPORT-THE HINDU

Tab: 4.5.1:Site selection criteria

	SUMMARY		GOOD	BETTER	BEST		
	Land parcel	site 1 (anna salai)	site 2 (guindy)	site 3(omr1)	site 4(omr 2)	site 5(anna salai)	site 6(omr 1)
1	Site area(acre)	1.8	5.4	24	2.62	2.9	7
2	Building footprint area/ plot coverage ratio and	6232sqm	-	-	5300sqm(50%)	5340sqm(40%)	11,500sqm
3	FSI	2	-	-	3.21	3.3	3.5
4	No.of floors	4(mid rise)	-	-	9	9	9
5	Abutting road width	23m	6m	5m	40m	23m	40m
6	Frontages in m	4.5	-	-	7m	7m	7m
7	Site location/topography	City centre	industrial hub	IT Corridor	IT corridor	commercial	IT Corridor
8	Site services available	no	no	no	yes	yes	yes
9	exposure	100%	30%	20%	100%	100%	100%
10	Expansion space and surplus land	no	yes	yes	yes	yes	yes

	Accessibility						
1	Boundaries	bounded with grade A,grade B commercial Zones,south side by a 2 m road,north side by a commercial buildig ,west side by housing board	ALL side surrounded by commercial and industrial hub ,small 5m abutting road	surrounded by residential and institutional	surrounded by residential and commercial	surrounded by commercial and 2 large road on both sides of the site	surrounded by commercial and residential and toll
2	Entry & Exit	the entry and exit is through the main anna salai road,the longer side faces the main road	the entry and exit is through the 5m road (waterways)	the entry and exit is through the 5m road next to the government school	the entry and exit is through the main omr road	the entry and exit is through the main anna salai road,the longer side faces the main road,there is a G.N road rear side of the site	the entry and exit is through the main omr road

3	Parking availability	no	better	better	low	best	good
4	Traffic circulation	high	high	medium	low	medium	high
5	Accessibility	bettter	nil	nil	better	best	good
	Demand analysis	high	medium	medium	medium	high	high
	survey from builder,architect,real-estate consultant	best	best	best	better	best	best
	survey from user perspective	better	better	better	good	best	good
	return on investment	better	better	good	good	best	best

Rental value	75-85	70-76	55-70	40-45	75-85	55-70
Cum. Supply in mn sft	7.8	7.6	18.6	10	7.8	18.6
Vacancy	7%	14%	13%	17%	7%	13%

SITE 5: ANNA SALAI (CBD ZONE) TENAMPET HAS MORE ADVANTAGES TO GET DEVELOPED

4.6 DETAILED SITE STUDY

4.6.1 Overview of Anna salai

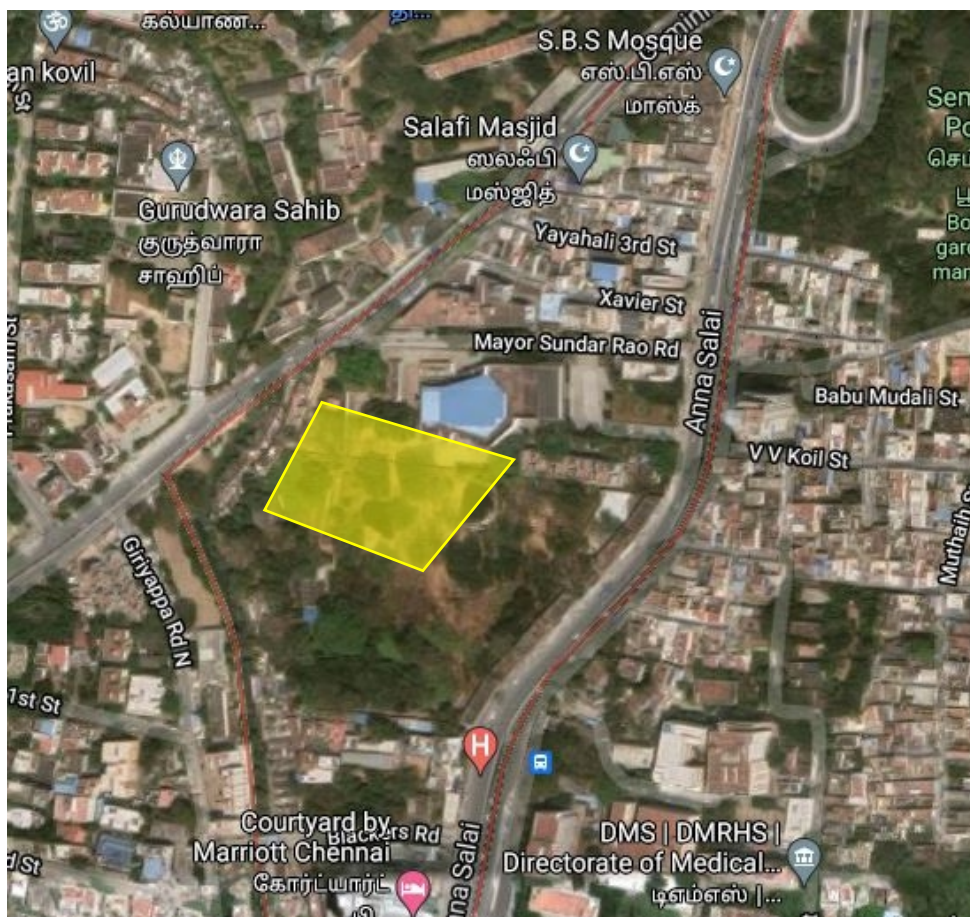


Fig.4.6.1.1: Overview of site



Fig.4.6.1.2:site images

- Anna Salai originates at Fort St. George and runs up till Kathipara Junction,
- splits into two roads viz. Mount Poonamalle Road and Grand Southern Trunk Road.
- Key micro markets along the corridor include Teynampet, Nandanam, Saidapet etc.
- Further, the neighboring 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.

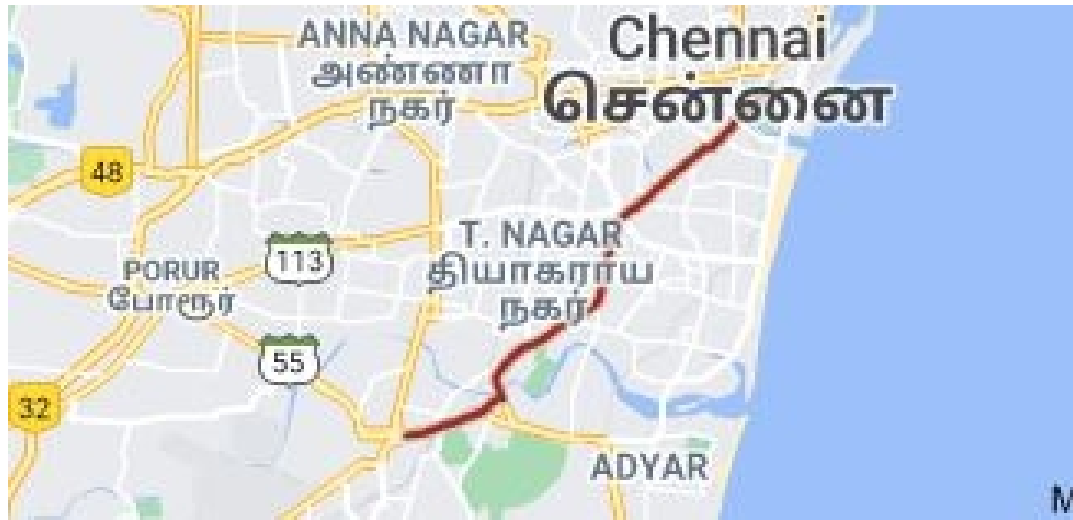


Fig. 4.6.1.3: Annasalai Map

4.6.2.CONNECTIVITY:

- The subject properties are located along Anna Salai in the teynampet micro market.
- 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.
- 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 corporate/ business houses.

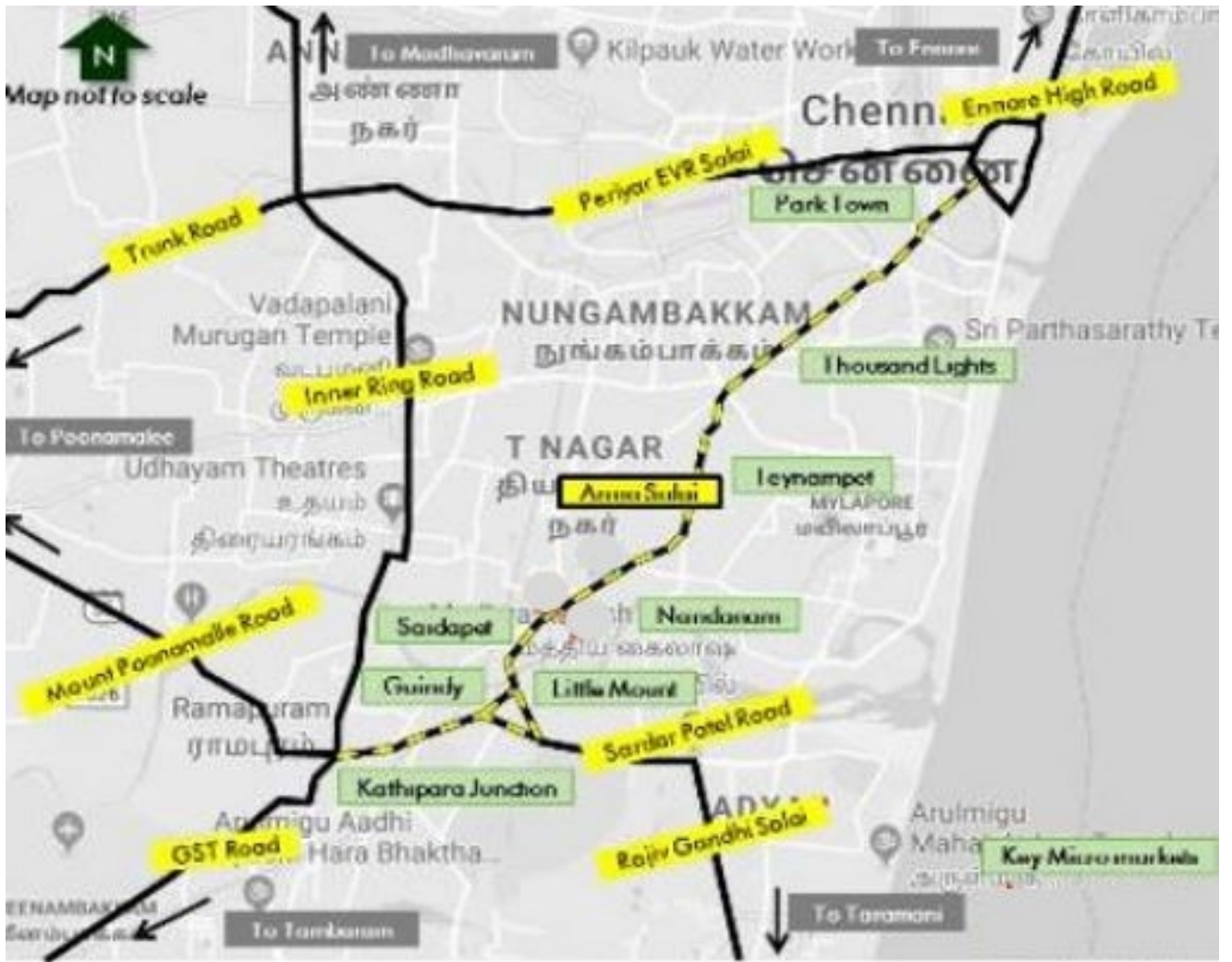


Fig. 4.6.2:Connectivity to Annasalai

4.6.3. DEMAND ANALYSIS

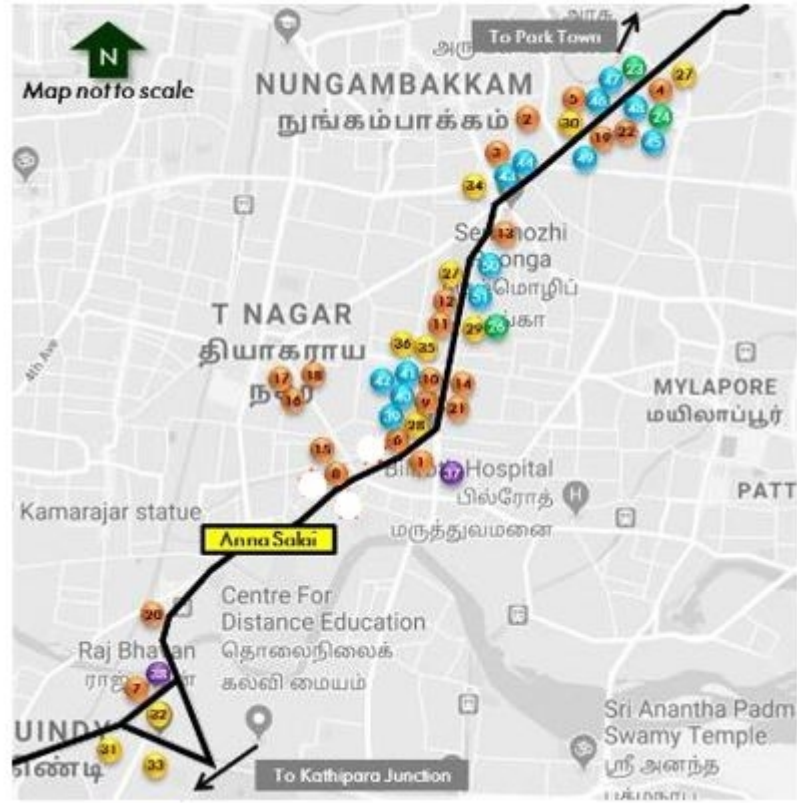


Fig. 4.6.3.1:Demand Analysis

 Commercial Office Space	 Hospitality Developments
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	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	 Residential Apartment
23. Spencers Plaza 24. Express Avenue 25. Ramee Mall	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: 4.6.3.2. List of developments in Annasalai

The Anna Salai owing to its location attributes of being in the city of the city with excellent connectivity and accessibility has evolved into one of the coveted and busy real estate corridors in the city witnessing commercial and retail activity.

Commercial office space activity

– Majority of development activity in the corridor is characterized by commercial office space developments.

A fair share of developments in the region are old, and hence are categorized as Grade B developments. However, new supply additions in the market are typically Grade A developments.

A few investment grade developments in the vicinity of the subject property are Prestige Palladium, Prestige Polygon, etc.

A premium image is associated with the micro market considering visibility, connectivity and accessibility of the region. Additionally, the region also witnesses the presence of a few individual campuses/office developments of large corporates like MRF, TVS, Balmer & Lawrie, Sundaram Group, etc.



Fig. 4.63.3.Commercial office space in Annasalai

The Anna Salai owing to its location attributes of being in the city of the city with excellent connectivity and accessibility has evolved into one of the coveted and busy real estate corridors in the city witnessing commercial and retail activity.

Retail office space activity

- Spencer plaza on Anna Salai marked the development of organized retail mall activity in the city in early 2000s; Currently the location witness's presence of retail mall Express Avenue .

- Additionally, the lower floors of commercial office developments are used as street retail area catering to banks, auto showrooms, food and beverage, etc.

Hospitality activity

- Anna Salai contributes to approx. 20% of hospitality in the city catering to both business and leisure segment travelers. Anna Salai is home to national and international hotel brands in the city like ITC Grand Chola, Park Hyatt, Hyatt Regency etc.

Residential real estate activity

- The region is densely populated and is mostly characterized by independent dwelling units located in the

central part of the city. Further, there is also a considerable supply of unorganized residential apartments in

the region. A few under construction residential developments in the region are Olympia Goodwood Residences, Casa Grande Monte Carlo, etc.

This region has established into a self-sustained economic hub with presence of evolved real estate activities across segments.

4.6.4 PROXIMITY and CONNECTIVITY

-The subject region, being centrally located and along one of the key transportation corridors (Anna Salai) enjoys good connectivity with different parts of the city via road.

-The subject region is located approx. 7 – 8 kms from Guindy (nearest commercial office market), approx.

-8 – 9 kms from Taramani (key commercial office market), approx.

-8 – 9 kms from Chennai Port, approx.

-6 – 7 km from Chennai Central Station and approx.

-10 – 11 km from Chennai Airport.

The subject properties are located along

the underground stretch of Corridor 1 of

the metro corridor (on Anna Salai)



Fig:4.6.4:Metro accessibility in Annsalai

4.6.5. SUPPLY AND DEMAND ANALYSIS:

- Chennai is the 4th largest commercial office space market in India with a cumulative supply of approx. 63 million sq ft.
- The total occupied stock is approx. 54.6 million with a vacancy of 13%.
- Growth in the IT/ ITeS sector post the 2000's coupled with inherent regional dynamics have transformed Chennai into a prominent investment destination for multinational corporates and industrial groups.

Tab 4.6.5.1:Chennai commercial office space overview

Chennai commercial spaces overview:	
Cumulative stock (mn sft)	63
Occupied (mn sft)	54.6
Current vacancy	13%
Growth in stock (2017-2020)	4.01%
Development pipeline (till 2021)	15mn sft

The supply-demand trends of commercial office space activity in Anna salai Chennai has witnessed a steady phase primarily controlled by the supply additions introduced into the market and vacancy levels at various intervals.

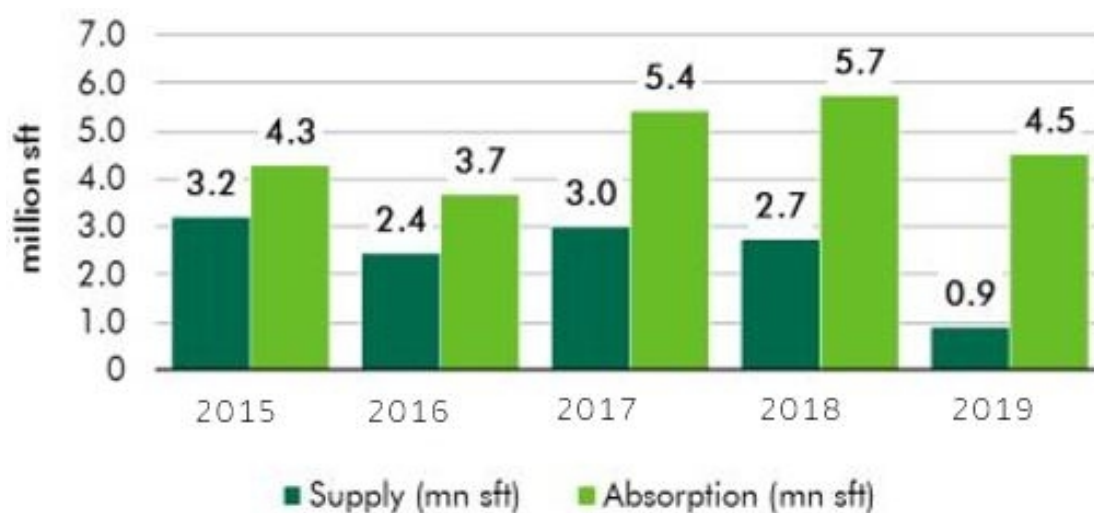


Fig:.4.6.5.1.Supply and demand of commercial office space

2020,had a recovery growth of 79% of supply from 0.9 to 1.3 mn sq ft

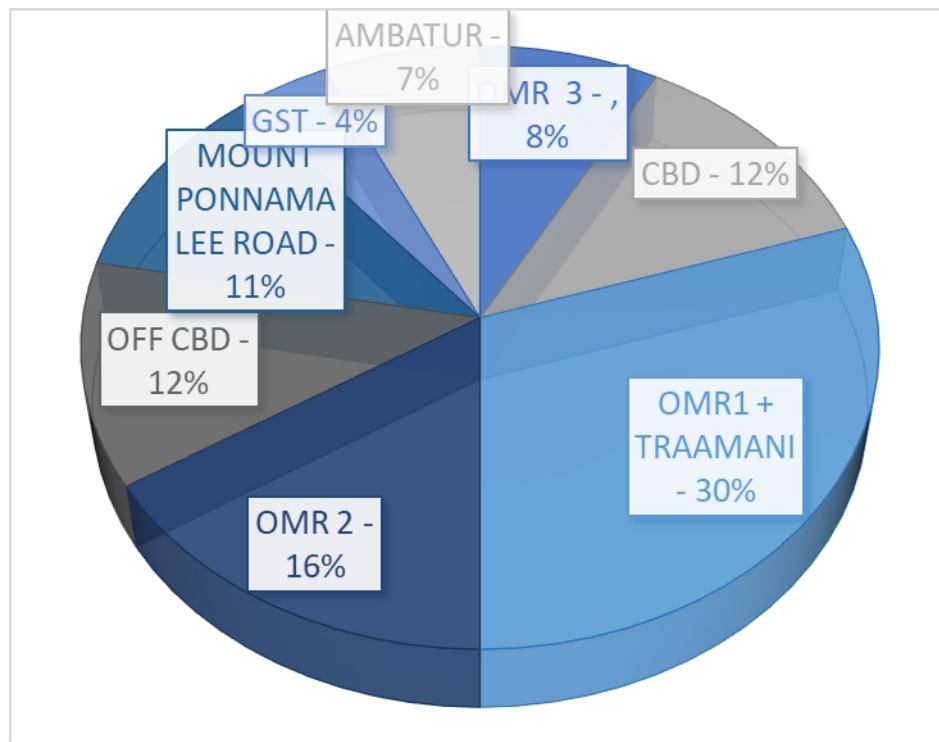


Fig. 4.6.5.2. Supply of office space cumulative

Split of Cumulative supply by region (total 63 mn sft commercial office spaces excluding other commercial)

- Anna salai witnesses average supply additions of approx. 800,00 sft shared by 2-4 small to medium scale developments.
- Prevailing land values, paucity of developable land and challenges in terms of scalability has prohibited large scale developments in the region.
- Further, the absorption in this CBD over the last few years has remained steady with approximately 800,000 - 950,000 sft per annum mostly indicating the expansion of existing client, fresh offtake from newer businesses entering the city and churn in the market.
- This region continues to be a preferred office space destination for Non-IT corporate clients. and front offices of large IT Corporate.
- The current vacancy is at approx. 7.1% which is comparable to the overall vacancy levels in the city.
- Majority of the vacancy in the market is reflective of newer development completions ,vacancy in older buildings that are not attractive for clients.

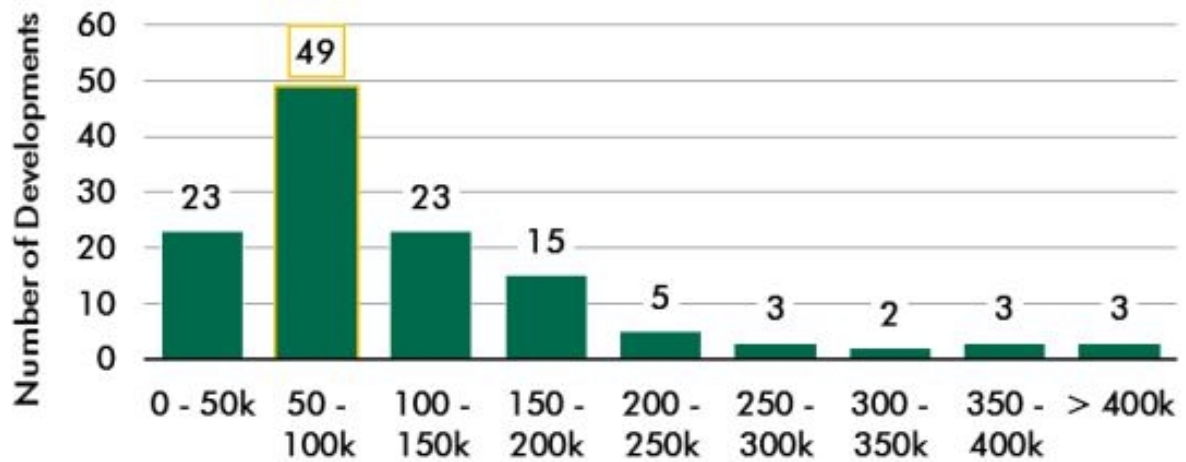


Fig.4.6.5.3.Scale of Developments - By number of developments & size in sq ft

0-150k sft 76%

10-300k sft 18%

Above 300k sft 6%

Grade of development is typically reflective of the specifications and amenities offered, age of the building, parking, professional building and facilities management, maintenance and upkeep, etc.

Considering the location, availability of land, prevailing land values and development potential, small to medium scale buildings are predominant in this region.

The exhibit below represents the occupier profile of tenants located in the commercial office space developments in the CBD Anna salai region.

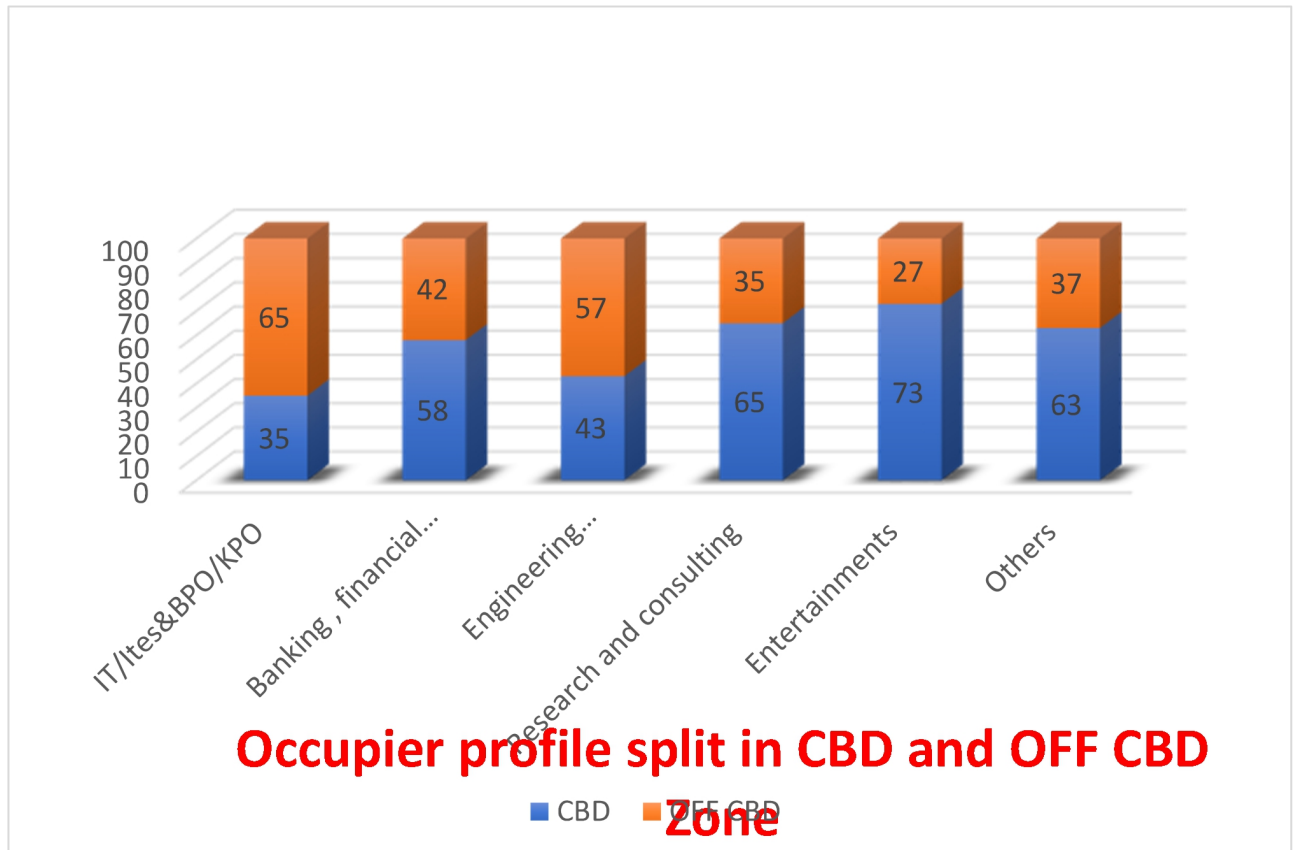


Fig.4.6.5.4.Occupier profile in CBD and OFF CBD zone

the Non IT tenant categories driving demand for office space include BFSI, Engineering and Manufacturing, Research & Consulting, Media and logistics. We also understand, that these occupiers typically are present in the CBD Region.

-< 5,000 sft: Key absorption witnessed in Media, Logistics,entertainment, Research & consulting occupier segments

-5,000 – 10,000 sft: Majority of these transactions comprise of tenants in the IT/ITeS, BFSI & Engineering segments

- 10,000 – 15,000 sft: Approx. 50% of occupiers in this size segment are IT/ITeS occupiers; further, majority of them are located in the off CBD owing to availability of IT developments, large floor plates, etc. are present in the off CBD region

Development Name	Company Name	Area transacted (sft)	Rentals (psft / month)
CBD			
Prestige Palladium	Pfizer	16,000 sft	INR 75
Prestige Polygon	Gigamon	17,000 sft	INR 82
Arihant Nitco Park	Benteler	7,700 sft	INR 60
Prestige Polygon	Toray Industries	5,500 sft	INR 75
Lebera Towers	BAF	4,500 sft	INR 65
Off CBD			
Kochar Bliss	Apex Knowledge Solutions	9,000 sft	INR 63
TVH Beliciaa towers	CAMS	29,000 sft	INR 60

Fig.4.6.5.5.Rental in surrounding spaces

the Non IT tenant categories driving demand for office space include BFSI, Engineering and Manufacturing, Research & Consulting, Media and logistics. We also understand, that these occupiers typically are present in the CBD Region⁴

Cost of construction of Commercial developments

The typical cost of construction for a Grade A commercial office space development is witnessed to be approx. INR 2,800 to 3,500 per sft including the External Development Costs, cost of utilities, warm shell office spaces. Further, the following are a few benchmarks to understand the unit cost of construction incurred for a few commercial developments.

Development Name	Cost of Construction	CBRE Comments
Ramanujan IT Park Phase 2, Chennai	~3,000	Exclusive of utilities provided (was constructed as part of phase 1)
RMZ One Paramount, Chennai	4,600	LEED Certified
Gateway IT Park, Chennai	3,340	Cost as of 2017
World Trade Center, Chennai (Under construction)	3,500	Built as per the WTC standards adjusted to Chennai market expectation
Embassy Tech Zone, Chennai	3,500 – 4,000	Bought existing structure and worked over it, LEED Certified
World Trade Center, Bangalore	3,500	Cost as of 2012

Fig.4.6.5.6.Various commercial development and construction cost

Note: Cost of construction mentioned in the table above is based on information available as part of CBRE internal databases and not an actual estimation based on Bill of Quantities.

Emerging trends in commercial office space

Shared Office Spaces – Business centers, Co-Working spaces & Incubators / Accelerators

A shared office space is a work-place that brings together individuals/ groups of people working towards varied focuses to work on a common floor. Shared office space is a recent trend that is witnessed, providing a complete range of work spaces, often accompanied by a variety of support services.

Key Demand Drivers for Shared office spaces:

Affordability: Shared office spaces offer cost-effective alternatives to traditional office spaces, along with access to a diverse range of amenities. Further, there are negligible capex requirements

Flexibility: The option of working from multiple offices within the same city helps to ease traffic woes – a key factor in all top Indian cities – this is key demand driver for corporate evaluating and leasing shared office spaces

Community and collaboration: Entrepreneurs/startups can benefit from the shared office environment due to 'shared-knowledge' opportunity offered

Advances in Technology: Technology advances have enabled people to work independently from any location and at any time, thereby encouraging shared office space demand

The Startup Boom: Startups are among the major users of shared office spaces, with India estimated to have 11,500 startups¹⁸ by 2021

TYPOLGY

Flexy Hub: The Flexy hub would comprise of an Office /entertainment space which could be one of the kind in the city. This should bring the synergies of the business, the corporate together In to the flexible office space and lead the way into future innovations and technologies.

Scale of development: The initial phase of this start up hub ~ 50,000 – 75,000 sq ft, with options of scalability in the future - Subject Site II which ad measures approx. 1.8 acres.

Components: office / entertainment space, co-working / shared working spaces, meeting rooms, open spaces, etc.

flexible entertainment indoor zones,mini-theater (10 occupancy)

Indoor gaming zone with excellent ambience

70% flexible office ,30% others

Development strategy & pricing: as follows

4.7 FINANCIAL FEASIBILITY:

Tab:4.7.1 Project and land details

project details	
Project name	flexy hub
developer	own
typology	Mixed use
year of construction	2021

Land details	
Land area(in acres)	2.9
land area (in sq feet)	1,43,748
Land price	2800-19000
stamp duty	7%

registration charges	4%
Brokerage	2%
survey charges	—

Tab:4.7.2 Approval details

approval details	
plot coverage	40%
FSI	2
PFSI/5000 per sq ft	
Planning approval cost inr/sqfeet	1.5
Building approval cost	25
other fee inr/sq ft	950
electricity per kw inr / sq ft	
sewage	7500
water	7500

Architect fee/sq ft	25
consultant fee /sq ft	10
other consultant /sq ft	10
construction cost / sq ft	3400

Architect fee/sq ft	25
consultant fee /sq ft	10
other consultant /sq ft	10
construction cost / sq ft	3400

land cost	1,43,748	9,000	1,293,732,000
soft cost			169243290
hard cost			1650242400

The initial investment of the project is 181,94,85,690 (hard cost and soft cost)

Tab:4.7.3Area of each space and revenue

spaces	sq feet	revenue	cost
office space	362118		
services	36211		
common spaces	48886		

rentable spaces	277021	250	69255250
-----------------	--------	-----	----------

per desk 80sqft	Rs.7500-12000 monthly
per sqft	Rs.250

mini-theater	10760	1,350,000	1,350,000
packed food shop	12000	540000	540000
services,storage,kitchen	52968		
common spaces	21449		
flexible enterntainment zone	48432	216000	216000
total/per month revenue			71,361,250

one theater area	1076sqft	
revenue one day	rs.4500	
monthly rent (food)	rs.45/sqft	
area of one zone with storage	8076sqft	1200 per day

Tab:4.7.4.Revenue and expenses

	85%	70%	65%	90%
revenue	60,657,063	49,952,875.00	46,384,812.50	
expenses	36,394,238	29,971,725	27,830,887	
	q1(85%)	q2(70%)	q3(65%)	q4(90%)
operating cost 18%	6,550,962.84	5,394,910.50	5,009,559.66	6,936,313.50
maintance cost 16%	5,823,078.08	4,795,476	4,452,941.92	6,165,612
wages for staff 13%	4,731,250.94	3,896,324.25	3,618,015.31	1457619
marketing 6%	2,183,654.28	1,798,303.50	1,669,853.22	2,312,104.50
eqipment 6%	2,183,654.28	1,798,303.50	1,669,853.22	2,312,104.50
others 7%	2,547,596.66	2,098,020.75	1,948,162.09	2,697,455.25
total expenses for 1 month	24020197.08	19781338.5	18368385.42	21881208.75
total expenses in 3 months	72,060,591	59,344,014	55,105,155	65,643,624

excluding the rent 34%	
In real estate, the operating expense ratio (OER) is a measurement of the cost to operate commercial property, compared to the income brought in by the property. The ideal OER is between 60% and 80%	
total revenue per year	663,659,625
total expenses per year	252,153,384

Tab:4.7.5.Cash flow

S.no	year 1	year 2	year 3	year 4	year 5
occupancy efficiency	80%	89%	90%	90%	75%
revenue generated	663659625	787828188	822081588	873461676	770700900
expenses	252153384	480575194	509690584	550280855	493248576
NET CASH FLOW	411506241	307252994	312391004	323180821	277452324

year 6	year 7	year 8	year 9	year 10
79%	75%	75%	72%	72%
830644908	822081552	847771596	847762576	873461640
539913190	542573524	568006969	576478551	602688531
290731718	279508028	279764627	271284025	270773109

the revenue generated is assumed escalation of 12% for every 4 years(ref from case study of a project of Tamil Nadu road development corporation.CMDA

the operating expense ratio (OER) is a measurement of the cost to operate commercial property, compared to the income brought in by the property. The ideal OER is between 60% and 80%, The operating and maintenance cost increases 2% every year

INITIAL INVESTMENT	1819485690
	3023844891
	10
CUM.CASH FLOW	302384489.1
PAY BACK PERIOD	6.017126392
	6 YEARS

SO FOR FLEXIBLE SPACES THE PAY BACK PERIOD IS 6 YEARS

Tab:4.7.6.Financial feasibility of traditional office

spaces	sq feet	revenue	cost
office space	362118		
services	36211		
common spaces	48886		
rentable spaces	277021	75	20776575
mini-theater	10760	1,350,000	1,350,000
packed food shop	12000	540000	540000
services,storage,kitchen	52968		
common spaces	21449		
flexible enterntainment zone	48432	216000	216000
total/per month revenue			22,882,575

	75%	60%	55%	70%
revenue	17,161,931	13,729,545.00	12,585,416.00	
expenses	10,297,158	8,237,727	7,551,249	
	q1(75%)	q2(60%)	q3(55%)	q4(70%)
operating cost 15%	1544573	1235659.05	1132687	1681870
maintance cost 16%	1647545	1647545	1647545	1647545
wages for staff 13%	1338630	1070904	981662	1457619
marketing 5%	514857	411886	377562	560623
equipment 5%	514857	411886	377562	560623
others 7%	720801	8237727	528587	784872
total expenses for 1 month	6281263	13015607.05	5045605	6693152
total expenses in 3 months	18843789	39046821	15136815	20079456
excluding the rent 39%				
In real estate, the operating expense ratio (OER) is a measurement of the cost to operate commercial property, compared to the income brought in by the property.The ideal OER is between 60% and 80%				
total revenue per year	178484082			
total expenses per year	93106881			

INITIAL INVESTMENT	1819485690
	748835973
	10
CUM.CASH FLOW	74883597.3
PAY BACK PERIOD	24.29751983
	24 YEARS

THE THE TRADITIONAL OFFICE SPACES PAY BACK PERIOD IS 4 TIMES GREATER THAN THE FLEXIBLE SPACES

SO ,CURRENTLY IT IS BETTER AND HAVE NO RISK IN INVESTING IN FLEXIBLE OFFIC SPACES

4.8 SWOT Analysis:

STRENGTH:

Scale advantage:Size is approx. 3 acres opportunity to introduce a large scale or a medium scale development

Contiguity: contiguous land parcel allows for development of one or two distinguished components

Frontage and accessibility : boosts the visibility of the site

Enjoys frontage and accessibility along Anna Salai & other 60 feet road rear to the site

Presence of metro :at approx. 500m; major advantage

Location:

Located on Anna Salai which is an established mix use hub comprising of commercial, retail and hospitality – ecosystem for commercial office space is currently existent

Anna Salai is one of the key arterial roads of the city ~ good connectivity; further, the metro would boost accessibility to the sites

WEAKNESS:

Shape: Irregular shape of the North side land parcel : could hamper development potential

Cost involved in site development : owing to presence of Site situation

Accessibility :the U turn provided to go the other side of the road is longer and difficult to reach

OPPORTUNITIES:

Entertainment hub would act as a key enabler in increasing value ~ helping the development reach an iconic status

The flexible hub would be a great way to minimise the rate of vacancy and helps to provide a startup affordability space with good ambience

Large land parcel size provides an opportunity to introduce large scale commercial office supply in the market ~ currently not prevalent in the CBD zones.

THREATS

- Trees are covered all over the site, which to be noted
- Competition from SBD market as it is increasingly
- Traffic congestion during peak hours would act as a dampener for the development

4.9 CONCLUSION:

The proposed hub has been designed considering the following which will be a successful development

Creating an iconic landmark for the city in the CBD zone

Developing a futuristic project with flexible design features and required amenities and specifications

Act as a role model for the upcoming projects

Generate employment, improve visibility and create a better way to the investors in the future projects

Thus the investors have a better way for investing

SURVEY FROM THE BUILDER AND DESIGNER PERSPECTIVE FOR THE UPCOMING PROJECTS

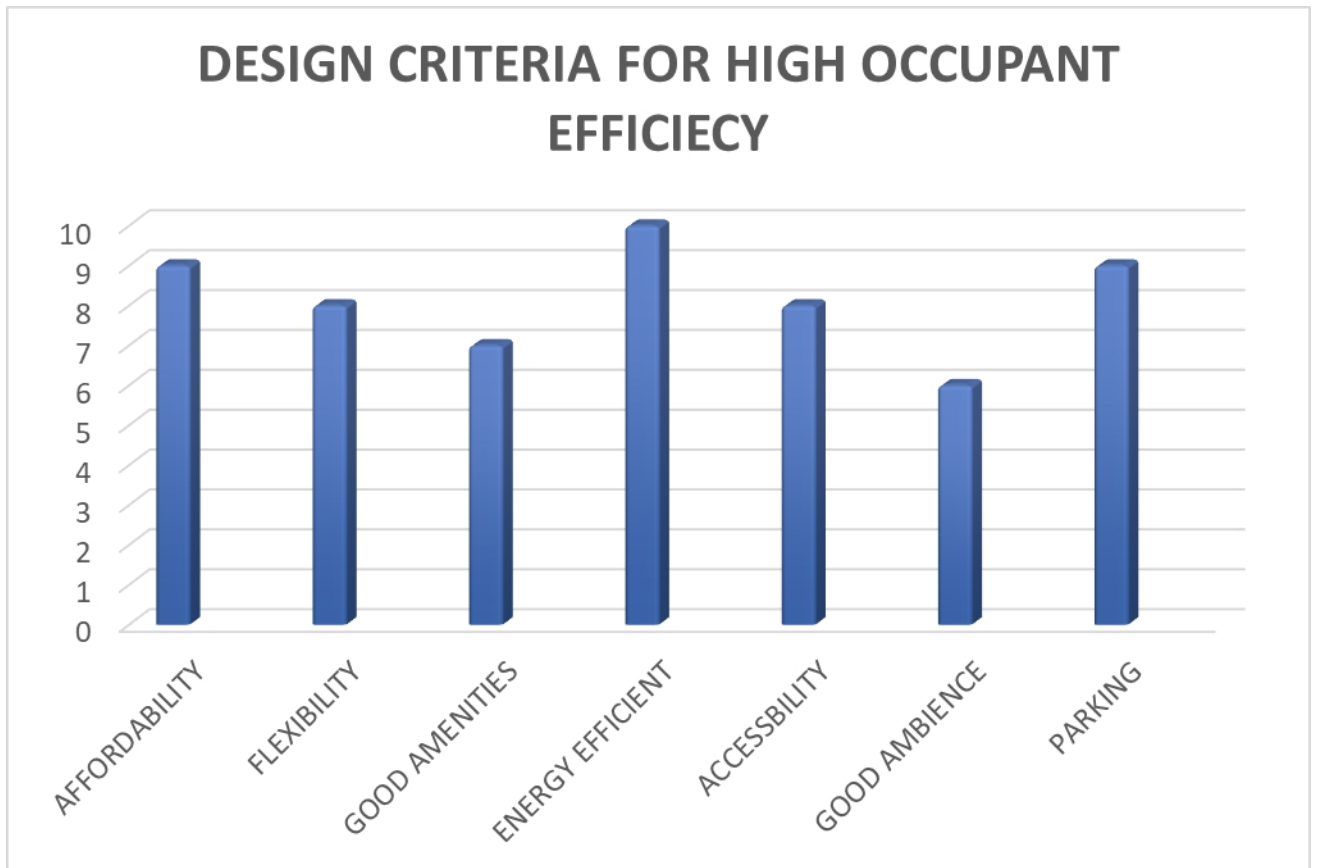


Fig.4.9.Design criteria for high occupant efficiency

4.10.RECOMMENDATIONS:

-INVEST IN OWN LAND FOR THE CURRENT SITUATION

-SCALE OF THE PROJECT

-DESIGN FEATURES -TERGRATED AND DIFFERENTIATED,FLEXIBLE OFFEREING

-FUTURISTIC , SO ENERGY EFFICIENT

- AFFORBALBE AND COMPETITIVE PRICING
- BRANDING
- CONNECTIVITY
- AMENTITES OFFERED
- GOVERNMENT INVOLVEMENT
- VISIBILITY

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