

PLANNING FOR RENEWAL OF CBD AREA OF GHAZIABAD CITY

A DISSERTATION

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By

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CHAPTER
01

INTRODUCTION



The objective of this chapter is to set the need of the study and to formulate the Aim and objectives of the research with reference to the same.

To do the same this chapter covers the literature regarding CBDs and the planning theories related to it, the related terminologies, and summarize the functions of CBDs as well

1 INTRODUCTION

This chapter gives an overview of what the thesis contains and how the author will be dealing with the topic. It also provides a reading on the terms CBD and renewal and the background concepts involved.

1.0 AIMS, OBJECTIVES, SCOPE & LIMITATIONS

Aim: “Planning for Renewal of CBD (Central Business District) area of Ghaziabad City, with emphasis on Rejuvenation of the Old Core”

Objectives:

To:-

- Study existing conditions of the Study area & trace its historical development and degeneration over time.
- Study the developmental problems that the core area is facing and the subsequent impacts.
- To identify the existing scenario and issues by employing appropriate planning techniques.
- To evolve a set of plausible policy planning guidelines for possible renewal strategies.

Scope:

The CBD in the Old core of Ghaziabad city has the potential to be redeveloped and shall be an important step towards evolving a Development Plan for the area. The Author hopes that if recommended & implemented in the system, possible strategies for renewal can be formulated.

Limitations:

The research will be confined to particularly selected areas only, namely: Navyug Market, Raj Nagar District Centre and Ghantaghar area of Ghaziabad. Moreover, the proposals will be focused only on the renewal and upliftment of commercial areas.

1.1 NEED OF THE STUDY

The idea of CBD's is quite new in the Indian Context, in the medieval towns of India, City centers existed, which were commercial centers as well. Ghaziabad, being one of the prime cities in the NCR, has seen a rapid boom in urbanization and plotted development. However, while the fringe areas of the city have developed at a rapid rate, the core city of Ghaziabad is giving way to decay and congestion.

The Northern Central Region Planning Board, has proposed a number of projects in and around the core area, the NCRPB is also the funding agency for the projects. NCRPB had commissioned M/s Willbur Smith Associates to prepare detailed proposals and reports for some projects in the central area of Ghaziabad, one of them being proposal of a Multi-level parking at the existing bus stand area. Also, the Ghaziabad Master Plan identifies a certain portion in the core city with the heavy commercial use as the Central Business District of Ghaziabad. *The existing bus stand in Ghaziabad is located in the centre of the city at Navyug Chowk. The is major centre and is CBD of Ghaziabad busy with various activities; in addition to the bus stand, a number of commercial establishments, markets, government offices (Ghaziabad Nagar Nigam and Ghaziabad Development Authority) situated here.* (Volume V-D1: DPR for Multi-level Parking Facility at Ghaziabad, Main Report, Wilbur Smith Associates). With this background, the CBD area needs to be studied for a proper analysis of the existing problems in the core area. Ghaziabad, being an important town in NCR, is also one of the important centers for commerce, trade and industry. Hence, it is very vital that a renewal should be proposed in the core city area, so that a plausible model can be formulated for the renewal of other areas with similar characteristics and urban fabric.

1.2 BACKGROUND

The Dynamics of an Urban Metropolis changes over time, as said through years, time and tide waits for none, and so Cities transform themselves over a period of time, this metamorphosis is brought upon by a number of social, spatial, cultural, economic and ecological factors. The crux of the change lies in the fact that nothing is permanent and change is bound to happen. Cities are the spaces in which we thrive, we live and breathe and it is essential to analyze and scrutinize the reasons for why change happens.

“Unlike their western counterparts, Indian cities didn’t have the fortune or misfortune of being demolished in the world war. Most of the Indian cities are built in layers bearing testimony to various rulers during different periods of time and amalgamated to give the present shape. The term Urban renewal and redevelopment which are often used as synonyms have definite meaning and application depending upon the context.” In a diverse country like India, it’s quite difficult to expect uniformity in Urban Sprawl and subsequent growth of the cities, which at times, leads to degeneration and degradation of Infrastructure. Medieval cities were never meant for vehicular circulation, yet the cities have succeeded and in a way, have failed to adapt to these changes. Hence the concept of renewal when it comes to Indian cities is multifaceted.

As planning process begins, the focus shifts from the inner city to the outskirts and new urban areas to accommodate the ever growing Indian population, Hence, the inner city is often neglected. Urban Growth and Urban Sprawl are two sides of the same coin. While the outer city grows rapidly in terms of infrastructure, the inner city crumbles and gives way to congestion. Degeneration of old urban areas pose one of the most important planning challenges in the modern world. Planning intervention through renewal of physically and culturally degenerating areas can produce rewarding results in terms of upgrading and preserving their physical and socio-economic identity. Many old cities in India need serious Planning Intervention and Ghaziabad, being one of the oldest cities, needs rejuvenation of the core area in order to combat decay, degeneration, chaos and to restore the aesthetics.

The continuous degeneration of the Old commercial Core of Ghaziabad is a consequence of rapid urbanization, ignorance, haphazard growth, lack of awareness and encroachments.

Other negative consequences include congestion in the core city, traffic chaos, loss of open spaces, inefficient infrastructural services, rise in anti-social activities, etc. This project aims to study & analyze these problems in detail & evolve some plausible measures for eradicating the same.

As time passes, the city cores transform itself into historic urban centers or into inner city region. The inner city is stained by several problems like inadequate and obsolete infrastructure facilities, inadequate use of buildings, lack of open spaces, traffic congestion, a mix of conflicting non-conforming land uses, poor dwellings and unhygienic conditions, environmental dispossession, social malice, unemployment and poverty. *The core city falls into neglect, often as an unintended by-product of rapid urbanization.* These historic urban centers represent opportunity for growth and economic generation. Thus, renewal of the inner city is very important and makes sense from multiple perspectives. Generally, successful inner-city renewal strategies bring together major private and public players in a setting that accentuates the benefits of renewal projects likely to accrue to its participants. *In the study the term inner city area refers to the historic urban core of the region which is identified as the Central Business District(CBD) of the city and other important surrounding areas like the main bus stand and railway station area & the major bounding arterial roads.*

1.3 THE TERM CBD IN GENERAL

“A Central Business District (CBD, also called a central activities district) is the commercial and often geographic heart of a city.”(Wikipedia) The alternative term City Centre is used in United Kingdom and Ireland. In the US, Historic sections of a central business district may be referred to as "old town", while decaying parts of the centre city are commonly referred to as the "inner city". City centre is commonly used in Australia, Canada, Ireland and the United Kingdom. It may also be called a central activities district.

CBDs contribute to a number of factors like GROWTH OF THE TOWN, ECONOMIC FACTORS & SPACE UTILIZATION. Often, apart from being the commercial heart of the city, CBDs are also a centre and prime focus of social and cultural activities, which become the Identity of a city in the long run. A CBD can be a part of a planned development, as in the case of new towns such as Chandigarh, or often, the old city centers are identified as CBDs, as in the case

of many medieval European towns like Prague. The term CBD is often not found in the case of Indian Planning scenario as Indian towns are comparatively old and are like a palimpsest over which layers and layers of thought, planning and reverie has been established. However there may be contradictions, a City center may not be essentially the CBD of a city, which brings upon an important question: Are CBDs and City centers essentially the same or different?

Do CBDs have Development Control Norms different from the rest of the City which allow them to be built densely (high density environments) and have iconic tall buildings?

- *Although Central Business District and geographic City Centre often are the same* (or, nearby located); in case of Delhi, the Walled City and its Extension, Connaught Place is considered to be the Commercial Hub of the City; whereas the City Centre is believed to be currently located along the India Gate – Presidential Estate Axis. Gentrification is a phenomenon associated to Downtowns, which indicated the trend of rich Affluent class emigrating out and economically weaker sections filling in. For eg. Delhi. Post-Independence Planned Development of Delhi proposed multiple planned commercial centers (eg. District Centers at Nehru Place and Bhikaji Cama place) across the City as against the Metropolitan City Centers of Karol Bagh and Old Delhi(Chandni Chowk). Given Below is the Five-Tier Hierarchy of Commercial Centers as prescribed by Master Plan for Delhi:

Tier	I	II	III	IV	V
Population		About 5 lakhs	About 1lakh	About 10,000	About 5,000
	Metropolitan City Centre (Pertains to already developed Central Business District)	District Centre	Community Centre	Local Shopping Centre	Convenience Shopping Centre
Area (Ha.)	-	40	4.0	0.3	0.1

- In

case of Kolkata, Dalhousie Square is traditionally the Administrative CBD of the City, whereas the Commercial Hub is located in adjoining Barrabazar (Retail and Wholesale Trade) . With the growth of IT & ITeS Sector in the Sub City of Salt Lake, the IT-Hub there has become an additional CBD (Service Sector).

This study takes an insight in the above mentioned contradictions and the subsequent impacts of Planned and Unplanned Development on a city, highlighting the term CBD and the associated vocabulary in terms of Urban Geography and in general.

The Study began with studying the basic concept of CBD's with background readings on various Planning Theories proposed by authors over due course of time, like the Concentric Zone Model by Ernest Burgess(fig.2) , the Concentric Zone Model by Ernest Burgess places the CBD at the Geographical centre of the city. This theory may or may not hold true

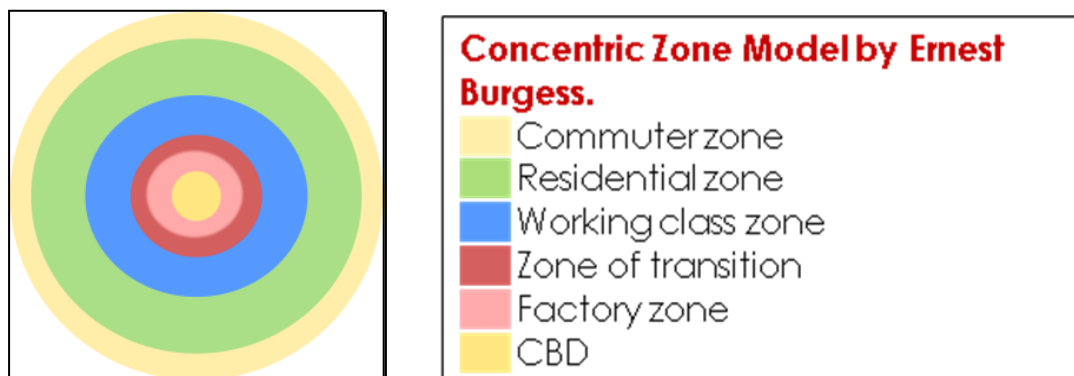


Figure 1 Concentric Zone Model by Ernest Burgess

Every time as the location of CBD depends upon a number of factors, such as the feasibility of CBD at a certain location. Depending upon which, a CBD might be located at the outskirts of the city too, at times, to minimize the transportation costs. Also, the residential zones and the working class zones need not fall into the same concentric order as illustrated in the figure. Depending on the location of CBD, various other models exist and can be proposed in Planning Theory.

1.4 FUNCTIONS OF THE CBD

Besides being the economic centre of a city, a CBD also has important functions which can be summarized as under:

1. Shops:

- CBD at top of shopping hierarchy in a city.
- Has widest range of shops and the largest department stores.
- Shops mainly sell comparison goods and high order goods
- Draw customer from a wide sphere of influence
- Highest land costs in the centre

2. Offices:

Banks, building societies, solicitors, insurance companies and government offices occupy high rise office blocks or the upper floors above shops in the CBD.

3. Culture and entertainment:

Theatres, cinemas (although now increasingly out of town), clubs, bars and restaurants.

4. Transport:

- CBD is usually very accessible.
- The focus of roads.
- Usually train station and bus station nearby
- Largest urban areas have underground systems
- Trams are being reintroduced into some city centers

1.5 LAND VALUES IN THE CBD

Land users, whether they be retail; office; or residential, **all compete for the most accessible land within the CBD.**

The inner core is very valuable because it is traditionally the most accessible location for a large population. This large population is essential for department stores, which require a considerable turnover.

The Cities in Germany usually had their commercial centers at the geographical heart of the city, like in Karlsruhe, the planning objective was to develop the main attractions of the town near the major axis and the “Schloss” i.e. the palace, although most of the main street was destroyed during the world wars, yet it was rebuilt keeping the old world charm of the city intact.

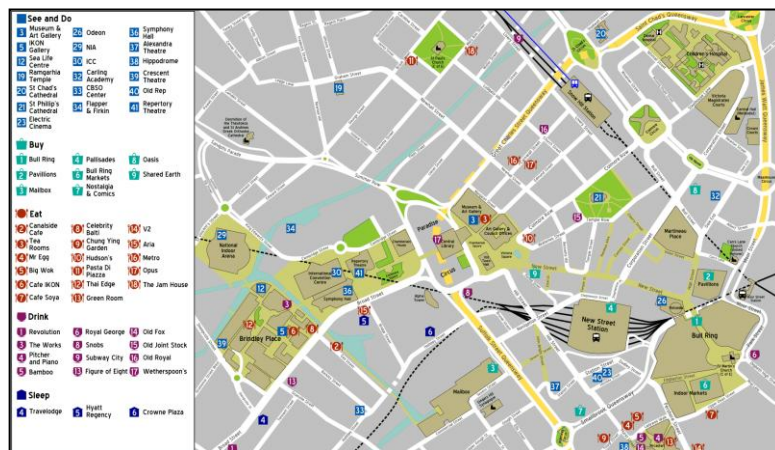


Figure 2 City centre of Stuttgart,Source: Google

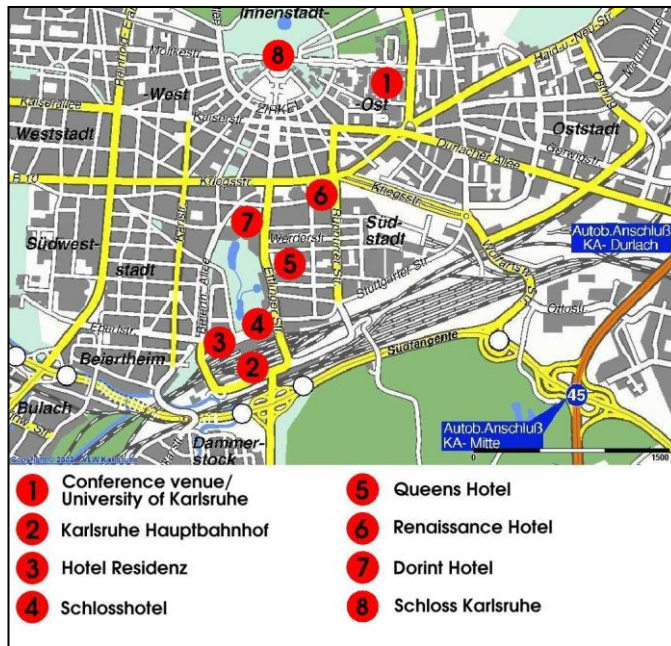


Figure 4 Map of the City Centre of Karlsruhe

1.6 CITY CENTRES IN URBAN GEOGRAPHY

“The CBD has no fence around it, no wall as there was around the city in Europe in the Middle Ages. You will never see a sign, “You are entering the CBD,” although there may be signs directing you to the city’s downtown area. However, the district can be conceptualized and its position outlined on a map on the basis of this mental construct. How can this best be done?”(Raymond E. Murphy, Editor of *Economic Geography*, 1971, p.2)

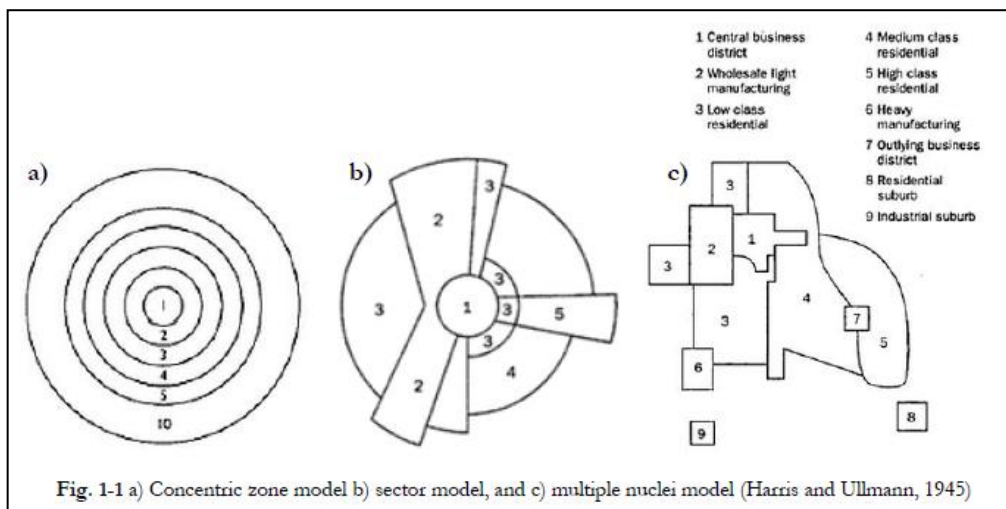


Figure 5 Various planning theory models,Source: Internet

The term CBD was used to describe the downtown of American Cities, where the term originated in the industrial towns during 19th century (Pitzl, 2004) but was implied in the western world in the coming decades. The CBD is quite difficult to define as usually there is no boundary demarcating or indicating the CBD area, the CBD area is delineated based on a number of factors if any documentation is required. Hence, CBD cannot be defined in technical terms for it is more of a spatial identity in planning terminology, and often, there is no quantitative definition which can be used to describe CBDs.

Definitions are qualitative such as the CBD is “the nucleus ... of an urban area that contains the main concentration of commercial land use” (McColl, 2005, p. 159) or a “unique area of massive concentration of activities and focus for the polarisation of capital, economic and financial activities in cities” (Drozd and Appert, 2010, p.2).

Tab. 1-1 Qualitative features of CBDs (Murphy, 1971; Waugh, 2000; Haggett, 2001; Heineberg, 2001)	
<i>Qualitative feature</i>	
-	main concentration of commercial land use;
-	main concentration of the city's offices and high employment density;
-	dominance of tertiary sector activities;
-	peak land values;
-	tallest buildings within a city;
-	high degree of accessibility and traffic density;
-	high daytime vs. low night-time population and low resident population.

Figure 6 Qualitative features of CBD, Source: Murphy 1971

The above figure highlights the factors as given by Murphy, Waugh, Haggett and Heineberg according to which the spatial extents of a CBD can be determined. The subsequent contents of this dissertation aim to delineate the CBD area in Ghaziabad city based upon the above factors. The Qualitative features to be considered are the vital aspects in area delineation, out of which the most important factor being the main concentration of commercial land use in the city. The factors may or may not be valid for CBDs in general, for eg. But an attempt has been made to identify certain qualitative aspects in order to delineate the CBD area for better documentation.

The above mentioned features are often contorted or degenerated over a period of time due to problems like congestion resulting from population explosion and urban sprawl or conversion of land uses.

Literature on the temporal development of CBDs provides recent discussions about the decline of existing CBDs (Coffey *et al.*, 1994) in favor of new business districts in peripheral locations and therefore, functional separation (Baerwald, 1978; Borusso and Procceddu, 2009). Hence, business districts remain important for the distribution of functional spaces within cities.

Fig. 5 shows the Planning Theory models as proposed by various authors. Ernest Burgess's model places the CBD at the geographical centre, with the residential zones and zone of transition at the outer concentric circles, emphasizing upon the fact that Urban Growth is a process of expansion of the inner zones to expand in the outer zones with preceding conversion and expansion of land uses.

While Burgess's model places the industrial zone close to the CBD, the sector model by Homer Hoyt, places the factories to be concentrated along rivers, canals, rail lines or roads.

(fig.7)

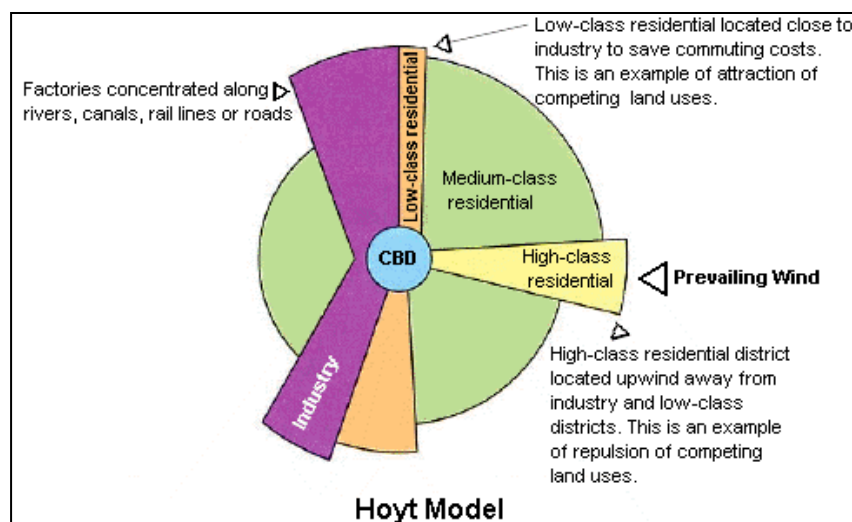


Figure 7 Hoyt Model, Source: Internet

The Hoyt model was criticized on the fact that most zones contain more than one type of land use and was too generalized.

The Multiple Nuclei theory by Harris and Ullman contradicts the Hoyt's and Burgess's models and states that a city grows from several independent points rather than one Central Business District, and each point acts as a growth center. As these points expand, they combine to form a single urban area and the CBD is not the

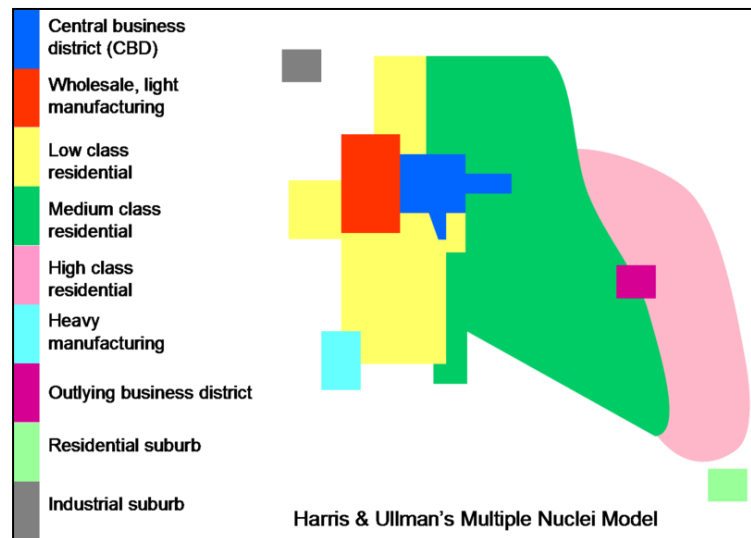


Figure 8 Harris & Ullman's Multiple nuclei model,Source: Google

only generator of change. All the above mentioned theories were essential in the author's study in order to understand the spatial dynamics of the CBD and the interaction of Cities among themselves. Several permutations and combinations are possible to illustrate the manner in which cities grow and expand. However, the above mentioned theories may not be valid as each city is different in terms of Urban Growth and Geography. Hence, similar examples to Ghaziabad were studied for a better analysis of existing problems and area delineation of CBD.

1.7 THE TERM RENEWAL AND ITS RELEVANCE IN THE INDIAN CONTEXT

The definition of Renewal encompasses various aspects related to a city. The dynamism of a city lies in the fact that a city always undergoes metamorphosis at various levels.

“Urban Renewal is a dynamic term; which is evolved with reference to transformations of a city and its economy. It refers to various attempts to reverse the decline in the cities that have been worst hit by the capitalist urbanization.” (Exploring the Concept of Urban Renewal in the Indian context, Preeti Onkar, Krishna Kumar Dhote & Ashutosh Sharma, ITPI Journal).

Every city is affected by the changes or the process of transformation. In urban planning, the term decline means changes which are not desirable, or which pose a threat to the city's

future and may eventually lead to a collapse. Urban renewal is targeted at various levels and dimensions. The approach to renewal is holistic and its main targets being the facets of economic and culture, Rehabilitation and cohesion of cities.

1.7.1 DIMENSIONS OF URBAN RENEWAL

Source: EXPLORING THE CONCEPT OF URBAN RENEWAL IN THE INDIAN CONTEXT,ITPI Journal, Preeti Onkar, Dr. Krishna Kumar Dhote & Dr. Ashutosh Sharma.

Different dimensions of urban renewal have been identified, such as:

- Physical renewal, which leads to the betterment of urban fabric.
- Social renewal, which is essential for community living and housing.
- Cultural renewal, which promotes and enhances the local culture and background.
- Economic renewal which generates economy and revenue.
- Environmental renewal which minimizes ecological imbalance.

The cities are severely affected by large, plagued areas with the infrastructure aged, and declining services. Businesses are also affected, and the cities are afflicted with the stress on the existing services and infrastructure. Historically significant areas of the city are now degenerating and now they contribute very little to the economy. At present, the maintenance has become quite difficult as the returns are low.

Changing Perspectives: Historically, while renewal helped in improving the built environment of many cities, it was often at a very huge cost to the present communities, and it has failed in many cases. Urban renewal has also been touted as being a total failure by many planners and architects, hence it has been reinstated with a focus on existing communities. Many cities link the revitalization of the Central Business District and gentrification of residential neighborhoods to earlier renewal programs. In due course of time, urban renewal has undergone a metamorphosis with the result being a focus on renovation rather than complete redevelopment.

In Europe, it was mainly concerned with the improvement of physical infrastructure. Now, there are many facets and complexities which should be dealt with. Over the years and with experience, experts have suggested that there is need for a new set of policy planning guidelines to be followed and studied during the process of renewal, one of them being involving and integrating people in the planning process right from the conception stage. As it is becoming multi-dimensional in nature, it has to cater the balance between its various dimensions. As the aims increase, there is a need to prioritize them. Efforts need to be made at a local level for implementing the agendas. The new strategies which are being formulated now focus on neighborhood development programs, as intervention should be done at a basic level first.

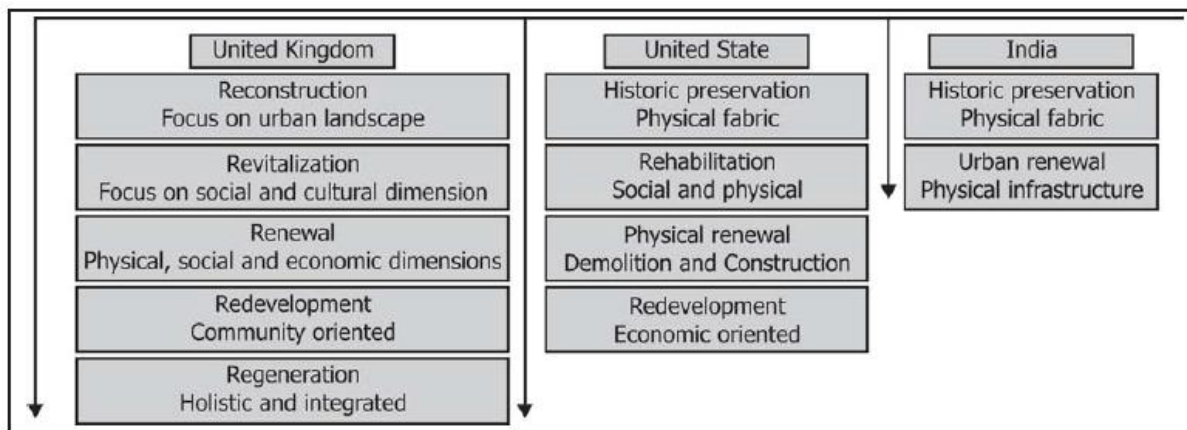


Figure 9 Paradigm Shifts: Concept of Urban Renewal in Developed and Developing Nations, Source: ITPI Journal

It is being tried to give a new definition to renewal again and the recognition of communities and the need to intervene is being taken into consideration. Figure 9 shows the paradigm shifts in the concept of renewal in developing nations. In UK, the main focus was on urban landscape, while in United States and India, the focus is on conservation and maintaining the architectural heritage.

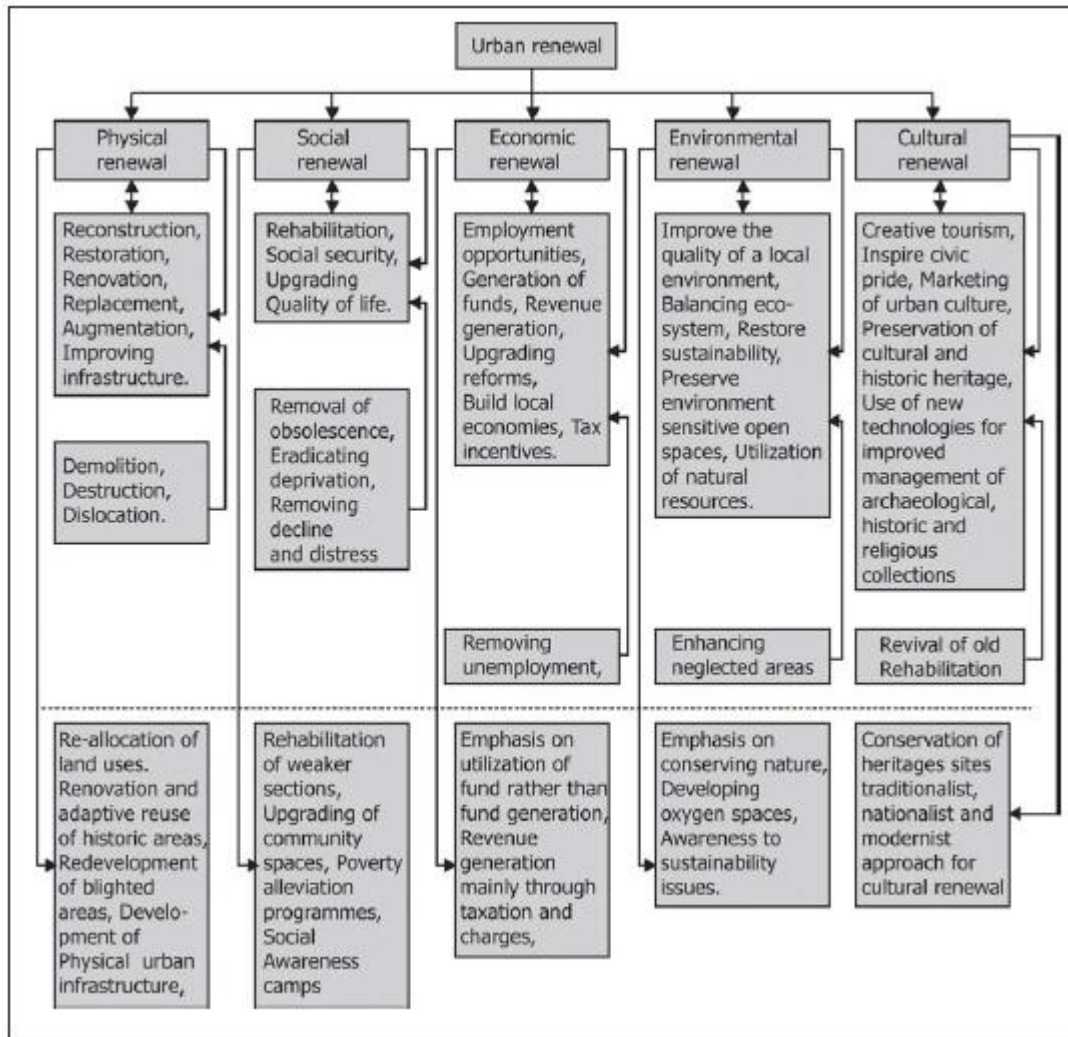


Figure 10 Dimensions of Urban Renewal in Indian context, Source: ITPI Journal

Relevance in the Indian Context: Indian cities are altogether different from their western counterparts. The historical context of the cities emerges with two prominent characteristics- a highly dense population within a relatively small space and secondly, a dominantly nonagricultural, precisely non-cultivating population. The National Commission on Urbanization Reports suggested major proposals to change the paradigm of planning to be responsive towards existing conditions in the urban area, but there was no success. In India, urban renewal is relatively recent and new. Albeit several cities are making a considerable attempt towards renewal through JNNURM(Jawahar Lal Nehru Urban Renewal Mission), the diversity of Indian cities restricts in the formulation of specific guidelines for renewal, because cities may vary in scenario. This is completely opposite to the situation in the western counterparts. So, basically it can be at macro level like

redevelopment of the city core or at a local level like transportation plan, conservation, upgradation which eventually depends upon the issues and characters of a city.

The integrated and holistic approach to understand the term renewal is missing. The six dimensions of urban renewal as illustrated before should focus at improving the quality of life. The present planning methodologies and tools such as Master Plan does not include the concept of renewal at an integrated level.

In early town planning efforts, the focus was restricted to conservation of heritage areas in the master plan. Even the present renewal missions are more focused towards providing infrastructure rather than renewal. For the success of urban renewal missions, proper diagnosis and identification of issues is needed. Since, there is no measurement scale for urban decline, upcoming threats to a city cannot be foreseen. Proper understanding of the term renewal is essential in order to formulate plausible renewal strategies at all levels and dimensions.

An understanding of the evolution of Urban renewal through decades can help in understanding the term better and to identify the shortcomings at various levels of development.

Period	1950's	1960's	1970's	1980's	1990's	1990's to date
Policy Type						
Major strategy and orientation	Reconstruction and extension of older areas of towns and cities often based on a Master Plan, suburban growth	Continuation with some early attempts of rehabilitation	Focus on institutional and neighborhood schemes in continuation to development of peripheries	Many major schemes of development and redevelopment projects	Move towards a more comprehensive form of policy and practice more emphasis on integrated treatments	Focus on urban living quality
Key actors and stake holders	National and local government private sector developers	Move towards a greater balance between public and private sectors	Growing role of private sector and decentralization of local government	Emphasis on private sector and special agencies, growth of partnership	Devolution of power to the local authorities. Community empowerment	Public private partnership, Governments, semi public
Spatial activity level	Local and site level	Regional level and activity emerged	Local emphasis	Site level	Strategic perspective, growth of regional activity	City and regional level
Economic focus	Public sector investment with some private sector involvement	Private investment	Economic renewal Resource constraints in public sector and growth of private investment	Private sector dominant with selective public funds	Greater balance public, private and voluntary funding	Private sector taxation
Social context	Improvement and housing and living standards	Social and welfare improvement	Community based action and greater empowerment	Community self help with very selective state support, High rise housing for displaced citizens Became centers of social ills	Emphasis on the role of community	Emergence of new social organization, community participation
Physical context	Replacement of inner areas and peripheral development Gentrification in UK	Rehabilitation of existing areas	More extensive renewal of older urban areas	Major schemes or replacement and new development	Heritage and retention	Revitalization, comprehensive renewal
Environmental approach	Landscaping and some greenery	Selective improvements	Environmental improvement with some innovation	Growth of concern for wider approach to environment	Introduction of broader idea of environmental sustainability	Environmental sustainability impact assessments.

Figure 11 Evolution of Urban Renewal, Source: ITPI Journal

CHAPTER
02CBD IN THE INDIAN
CONTEXTTHE GREAT INDIAN
BAZAAR

YAHAN SAB KUCH BIKATA HAI!



The Dynamics of an Urban Metropolis changes over time. As said through years, time and tide waits for none, and so Cities transform themselves over a period of time, this metamorphosis is brought upon by a number of social,spatial,cultural,economic and ecological factors. This chapter examines the context of CBDs in Indian Scenario, and the background theories related to them. The chapter also includes the case studies done by the author in order to frame the methodology to be followed in the research.

2 CBD IN THE INDIAN CONTEXT

In this chapter, CBDs in the Indian context have been discussed relating them with the historic city centers. This Chapter also covers the studies carried out in the Indian context which helped in deriving the methodology for further analysis.

2.0 CBD IN THE INDIAN CONTEXT: THE TRANSITION AND EVOLUTION

The idea of CBDs never existed in the Indian scenario, the city centre became the commercial core and it was identified as the centre for Trade and Commerce as well. The Urban Sprawl generated a wave of transportation corridors and hence, there was a need to establish designated CBDs with all the public amenities at one place, commerce, institution and services. Gradually, the concept of District centers soaked in, and various district centers emerged all over developing cities. One good example of this transition phase is Delhi, where Chandni Chowk was once the commercial centre, and then Lutyen's Delhi and Connaught place was developed, eventually, various district centers like Nehru Place, Bhikaji Cama place were built, changing the face and skyline of New Delhi.

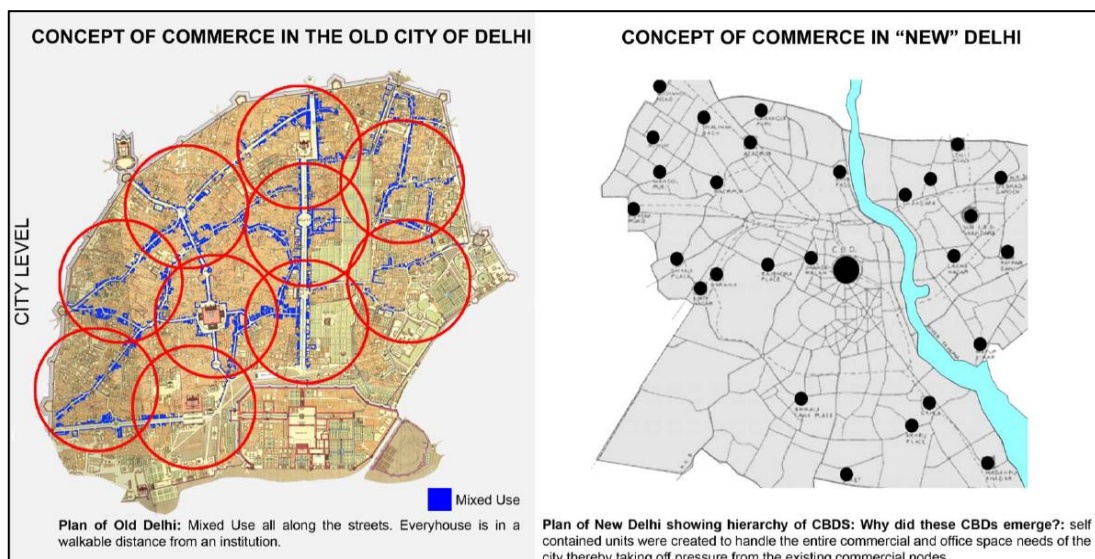


Figure 13 Maps showing concept of Commerce in Old and New Delhi, Source: Le Ateliers Studio

The above figure shows the plans of Old Delhi(Shahjahanabad) and Chandni Chowk area and Edwin Lutyen's New Delhi which came up in the 1920s. In Old Delhi, Mixed use was found primarily all along the streets and every house is at a walkable distance from an Institution.

The question is Why did CBDs emerge in New Delhi ? These were self contained units created to handle the entire commercial and office space needs of the city, hence, taking off pressure from the existing commercial nodes. This case study was done in 2011 by Les Ateliers Studio where an attempt has been made to trace the development of CBDs in the Indian Context and the subsequent impacts on Indian commerce. The figure shows the concept of commerce at a city level, the former being the medieval and traditional “street” market of Chandni Chowk, and the latter being a part of the colonial planned Development. Similar studies were undertaken at a zone level and at the unit level.(fig) In order to understand the bridging gap between Architecture and Planning, i.e. Urban Design, studies should be undertaken starting from the micro-level to the macro-level i.e. at City or a District Level.

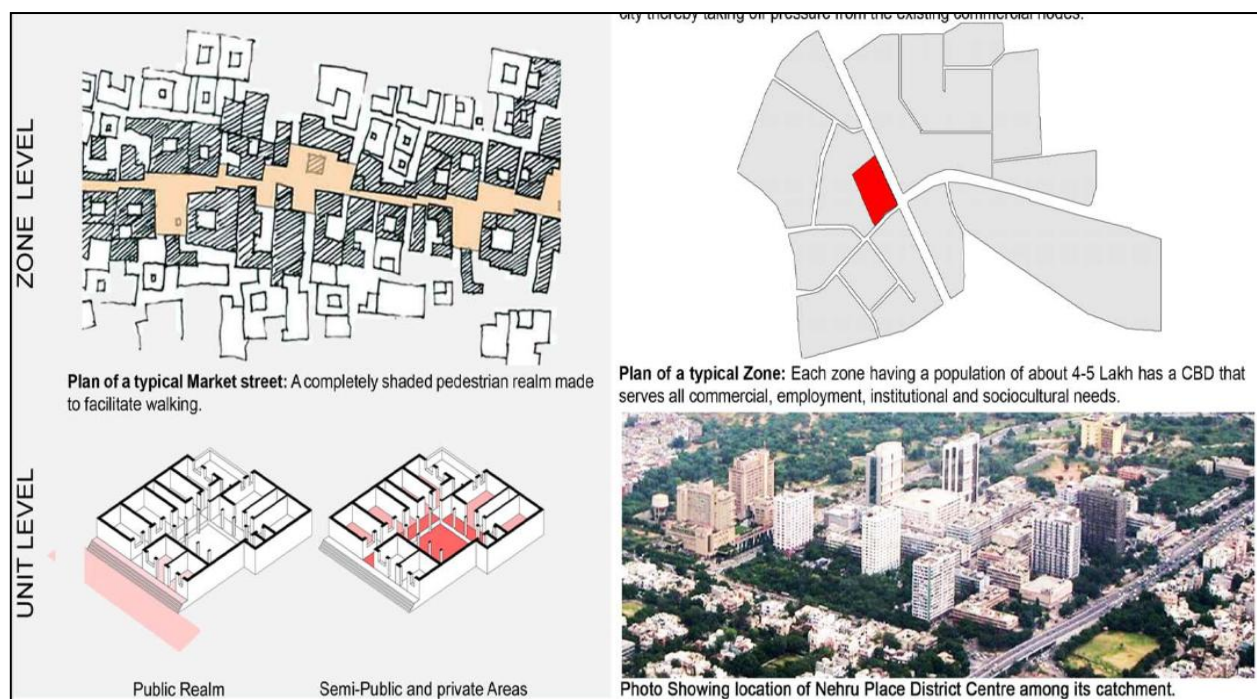


Figure 15 Concept of Market at a zone and at a unit level,Source: Le Ateliers Studio

At a zone level, a completely shaded pedestrian street facilitates walking and makes a place easy to move around, as a lot of people even today prefer street shopping over shopping malls. New Delhi was divided into zones, and each zone having a population of about 4-5 lakhs has a CBD serving all commercial, employment, institutional and socio-cultural needs. At a unit level, segregation of semi-public and private areas is of primary importance.

In the Indian context, the old commercial areas have some peculiar features:

- ❖ Often, the Old Core of the City with maximum commercial land use is identified as the CBD
- ❖ The Geographical and commercial “Heart” of the City
- ❖ Geographical Centre of the City
- ❖ ORGANIC DEVELOPMENT IS SEEN in and around the CBD area
- ❖ Often, the area is historically significant part of the city.
- ❖ Mixed land use is also seen.
- ❖ Often, the old city Centre is under decay and giving way to congestion.

For further analysis of CBDs in the Indian context, many studies in the Indian scenario were selected, which were similar to Ghaziabad city, and which helped in deriving the methodology to be followed in the study. It is essential to demarcate the CBD area for analysis as quite often the CBD has no geographical and defined boundary, as Raymond Murphy says:

“The CBD has no fence around it, no wall as there was around the city in Europe in the Middle Ages. You will never see a sign, “You are entering the CBD,” although there may be signs directing you to the city’s downtown area. However, the district can be conceptualized and its position outlined on a map on the basis of this mental construct. How can this best be done?”(Raymond E. Murphy, Editor of Economic Geography, 1971, p.2)

2.1 STUDIES IN THE INDIAN CONTEXT

2.1.1 PATTERN OF SPACE UTILIZATION IN A PART OF CENTRAL BUSINESS DISTRICT-DEHRADUN

Source: ITPI Journal 1 (2007) 51 – 57, Dr. Sadhana Jain, Amit Kumar, Sachin Sharma

In this study, an attempt has been made to analyze the space and land use pattern in ward no.36, Dhamwala, Dehradun, which is located in the Indian state of Uttarakhand. About 50% of the total commercial area is associated with mixed use, and 25% of the area comes under residential land use. In order to Quantify the stress on existing infrastructure, Quantitative determination of space use is carried out to understand the distribution of various commercial and residential activities.

The study started with the argument that although segregation of land uses is very vital in the approach to urban Planning, yet, it is really difficult to segregate the land uses, especially in case of mixed uses. Delhi Laws Bill 2006, generated the need to review the policies pertaining to space utilization and land use in small and medium towns along with metro cities. The paper also discusses about land use conversions in Indian cities and the stress generated due to it on the existing infrastructure. Mixing of land uses is of major concern as it directly contributes to the depleting infrastructure and it also contributes to the basic elements of physical form and space use.

The study area selected for the study is ward no. 6 Dhamawala, which is located in the central part of Dehradun City ,it comprises a part of the main commercial area, Paltan Bazaar. As seen in

today's scenario, the area is effected by three major problems Depleting Old Developments,

Traffic congestion in narrow streets and Parking problems. This study was selected as the

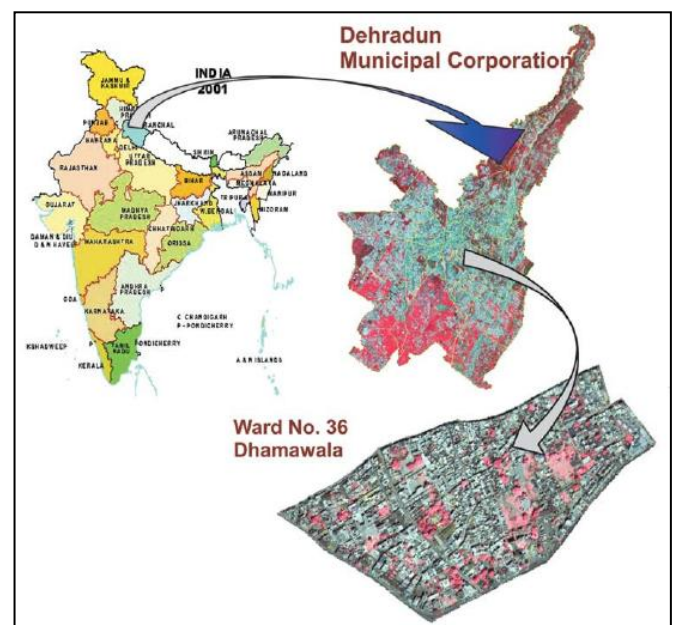


Figure 17 Location of Dehradun,Source: ITPI Journal

problems and the area was very much similar to Ghaziabad in terms of background, age, and context.

This ward covers an area of about 26Ha and has a population of about 7654 persons, the population density being 300ppha(persons per hectare).It is in very close proximity to the railway station and the Old bus stand is also within the municipal limit of this ward, due to this prime location, it has big hotels and commercial complexes.

For policy making in planning especially for urban renewal as well as management, **detailed map is needed on the morphology and functional space use** of settlements.

2.1.1.1 DATA USED AND METHODOLOGY

The methodology can be divided into three major steps namely Pre-field Interpretation, Field Verification and Primary Data Collection and Post field Updation.

Pre-Field Interpretation includes taking images from IKONOS imagery and the spatial variations and spectral responses as well as spatial arrangements of buildings, roads and various types of land covers have been used to prepare base map from the IKONOS merged product.

Field Verification involved the actual data collection from the ward to understand the space uses in a detailed manner.

Post Field Updation was carried out to correct the discrepancies (if any) between the collected data and the prepared base map. These corrections are done on the base map.

2.1.1.2 RESULTS AND DISCUSSIONS

Changes observed during field survey were incorporated in the base map prepared and information collected during the field was linked with the base map. The updated map has been used to visualize the existing scenario related to the space use. Mainly, it was observed that the commercial activities are situated along the main road. Analysis is done floor-wise for space use pattern. Some of the important observations are as follows:

- (i) The study reveals that despite being centrally located, almost 32% of the area on the ground floors is having residential use. Most of the areas are old developments and

are accessed through narrow lanes, and have the potential to become major commercial establishments in near future.(Fig.19)

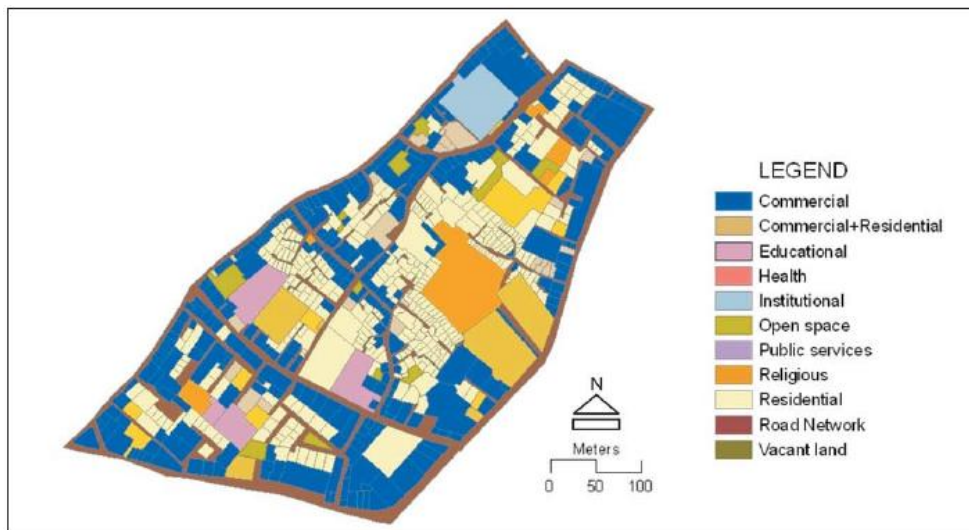


Figure 19 Land Use at ground floor level of Dehradun CBD,Source: ITPI Journal

(ii) The dominating use on the first floor is residential as it occupies almost 9Ha area, which is about 61% of the area of the first floor, and commercial activities comprise

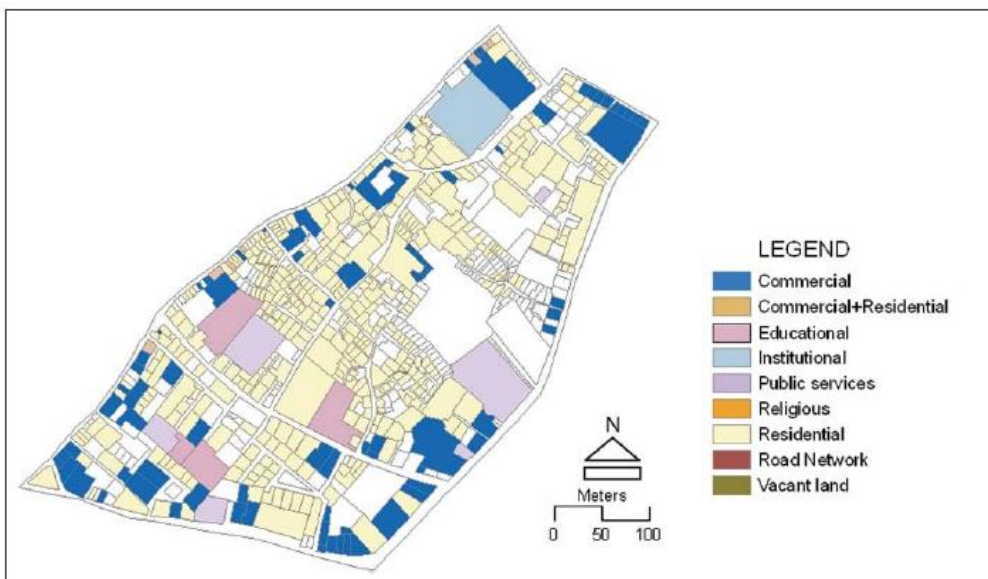


Figure 21 Land Use at first floor level of Dehradun CBD,Source: ITPI Journal

of 21% of the area. (Fig.21)

(iii) On the second floor and above, residential and commercial activities occupy almost equal space, and the commercial activities are mainly distributed along the main road. (Fig.23)

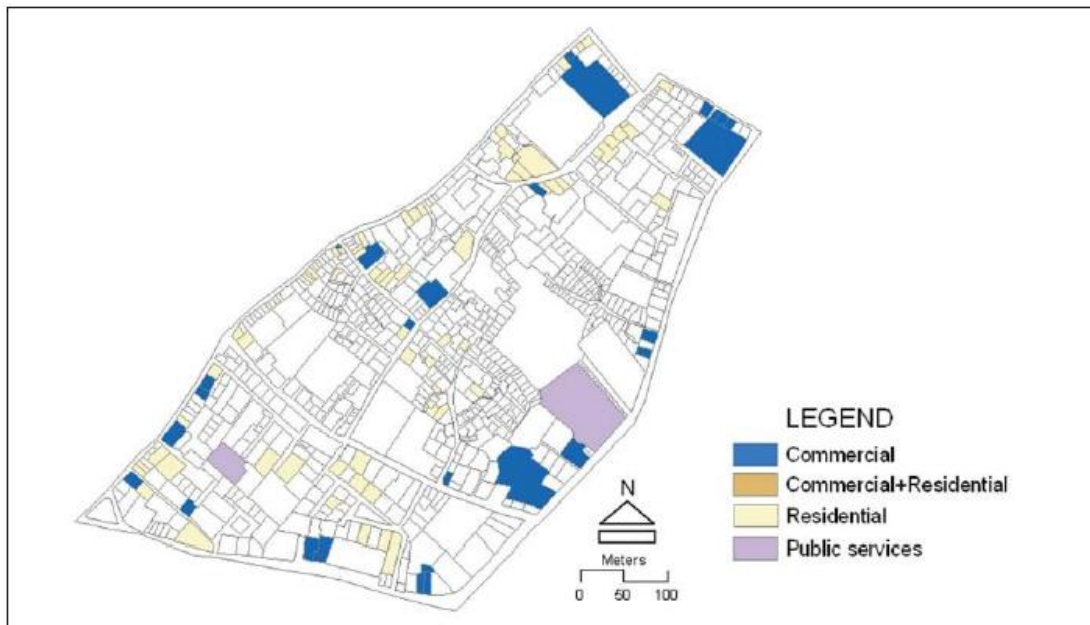


Figure 23 Land Use at upper floors of Dehradun CBD,Source: ITPI Journal

(iv) Space utilization on the first floor is residential while on the ground floor it is mainly commercial, and there is an interest of the general public to stay near the workplace, as many shopkeepers have their shops on the ground floor and residences on the upper floors, which is similar to the area identified in the case of Ghaziabad City.

2.1.1.3 INFERENCES

With the aid of the above mentioned results and discussions, some important inferences were drawn which were eventually helpful to understand the scenario of old commercial areas in Indian scenario and subsequent comparison with the area selected in Ghaziabad city. The area selected by the author and the area studied in Dehradun are quite similar in context, as both cities have a commercial core, which is centrally located and similar land use pattern was observed in both cases.

- (i) The old cities of India suffer from the problem of unplanned land use, and this eventually leads to some major problems like loss of open spaces, lack of parking spaces and traffic chaos and pollution. Hence, it is important to identify the kind of intervention required at various levels.
- (ii) The conversion of land use from one to another effects the supply of basic services.
- (iii) Flexibility needs to be provided, to ensure mixed land uses in the development plan, so that proper infrastructure can be provided.
- (iv) Stricter bye-laws need to be implemented in order to regulate the land use in commercial areas.
- (v) An in-depth analysis of land uses can help in a better understanding for future renewal strategies to be implemented.

2.1.2 IDENTIFICATION OF CBD IN A CITY: A CASE OF UDUPI, KARNATAKA

Source: Institute of Development Studies, University of Mysore.

Udupi is the headquarters of Udupi district in the Karnataka state. Udupi district was created in August 1997. The three northern taluks, Udupi, Kundapur and Karkala, were separated from Dakshina Kannada district to form Udupi district. Now, Udupi is the district headquarters for Udupi, Kundapura and Karkala taluk. Udupi, also known as Rajata Peetha and Shivalli, a centre of pilgrimage, is situated about 58 km north of Mangalore and about 422 km north-west of Bangalore.

This study was done by the students of Institute of Development Studies, University of Mysore. An attempt has been made in the study to delineate the CBD based upon some qualitative factors. Similar attempt has been followed by the author to delineate his area of concern in Ghaziabad.

In the previously approved Master Plans of Udupi Malpe area, the authorities haven't identified any CBD, so the students identified a CBD area, based upon the following factors:

- ❖ Contains the highest percentage of shops i.e. maximum amount of commercial land use.
- ❖ Physical Characteristics Such as, High Density, FAR
- ❖ Heart of an urban area
- ❖ Within a relatively small area, there is a high concentration of business activities.
- ❖ Retail and service center of a community
- ❖ High land values because of high accessibility

Location: This area is located adjacent to SH-65 (Malpe-Hebri-Molakalmur) and near to NH-66 (Kochi-Mumbai), it includes Major Business area (Retail, wholesale shops and Banks), Inter City Bus stand, Intra City Bus stand and Sri Krishna temple.

The study began with tracing the Developmental phases of the CBD from 1951 to 1981, and the analysis of the present scenario in terms of land use and existing problems.

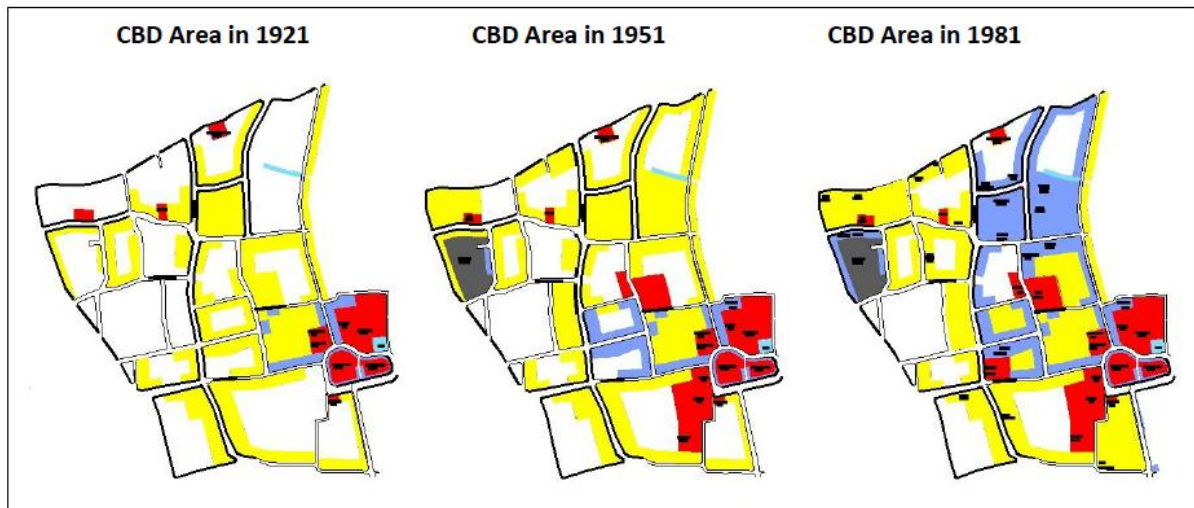


Figure 24 Development phases of Udupi CBD, Source: Institute of Development Studies, Mysore

Fig. 24 shows the gradual development of the CBD area which was mainly along one commercial road. In Phase II, the commercial area loses prominence as a lot of residential settlements began evolving nearby. Phase III shows the subsequent increase in density, after a bus stand was developed in the area, and due to vehicular growth, this also led to increase in vehicular and pedestrian movement.

Based on the above developmental analysis, following issues were identified in the CBD:

- ❖ The CBD has both the inter city and the intra city bus stands within it, hence, this has increased heavy vehicular circulation.
- ❖ Organic growth, heavy congestion & no specific movement axis for the public.
- ❖ No Designated parking spaces for private and public vehicles.
- ❖ Maximum congestion is inflicted by the vegetable market.
- ❖ There are no loading and unloading spaces in the market areas which further leads to congestion.
- ❖ Absence of basic infrastructure facilities.

A primary survey was carried out for identifying the land uses in the area and the land uses were tabulated as follows:

Land use	Area (ha)	Percentage
Residential	11.56	25.57
Commercial	18.78	41.54
Public & Semi Public	8.99	19.89
Roads	4.48	9.92
Bus stand & Parking	1.31	2.90
Water bodies	0.09	0.20
Total Area	45.20	100

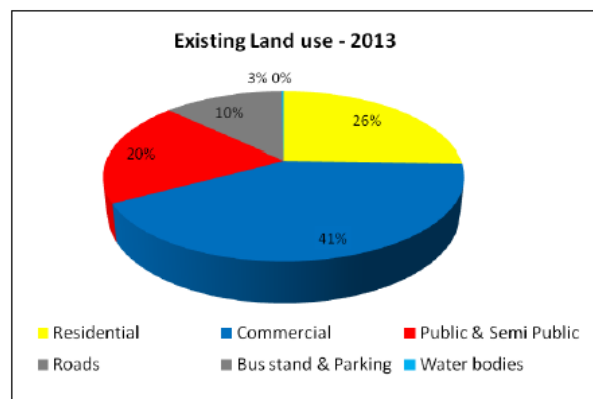


Figure 25 Existing land use, Source: Institute of Developmental Studies, Mysore

Major land use is that of commercial activities, i.e. 41%, which clearly indicates that this is the main center for commerce and trade in the city. However, it was observed that the CBD is giving way to congestion and decay, with one of the major problems being that of parking. Due to inadequate parking spaces, a lot of on-street parking is seen.(Fig.26)



Figure 26 On street and off Street parking, Source: Udipi Municipality

2.1.2.1 FORMULATED STRATEGIES FOR RENEWAL

In the recent years, there has been a lot of unplanned growth in these areas in terms of commercial and religious activities which has led to chaos and congestion. The main impact is due to lack of a movement axis, which affects the traffic severely.

VISION:

"Provision of adequate infrastructure facilities in responsibility of comfort, safety & growth of business"

STRATEGIES:

- ❖ Zoning regulations need to be revised and monitored.
- ❖ Improvement of the transport system, and the need to augment para transit.
- ❖ To reduce noise & air pollution.
- ❖ To enhance commerce and trade.

PROPOSALS:

- ❖ Increasing road width of kalinga mardhana road to 9 m.
- ❖ Shifting of intra city bus stand from CBD to NH junction.
- ❖ Proposing of commercial complex in intra city bus station location
- ❖ Revising the zoning regulations for CBD area.
- ❖ Provision of off street parking near to CBD area.

2.1.2.2 INFERENCE

The above mentioned study of Udupi was selected as it was quite similar in context to Ghaziabad, the commercial hearts of both cities have given way to eventual congestion resulting from vehicular growth. In both cases, a lot of off-street and on street parking is observed; a comparison of both the areas can lead to a set of similar design interventions.

Also, the study is indicating towards formulating a development plan for the zone, which is one of the aims of this dissertation. The study helped in highlighting how intervention can be helpful in case of Indian commercial centers, as the scenario of most old Indian cities is quite the same, where the old commercial core is eventually declining. One of the most important findings being that there is a need to revise the zoning regulations of the area and the related emphasis on bye-laws should be implemented in the master plan.

2.1.3 REGENERATION AND RENEWAL OF OLD DELHI(SHAHJAHANABAD)

Source: ITPI Journal 2004 ,A.K.Jain

2.1.3.1 OVERVIEW

Proposing authority: Municipal Corporation of Delhi

Principal architects: Abhimanyu Dalal Architects

In this paper, the author tries to identify the problems due to which the Chandni Chowk area of Old Delhi (Shahjahanabad) is becoming congested. Once, the most graceful and aesthetically appealing part of the Old Walled city, Chandni Chowk is plagued now with congestion, poor traffic circulation, parking problems and over-crowded. The author has tried to analyze the existing conditions and thereby formulating some strategies which would be eventually helpful.

2.1.3.2 HISTORY

It was built in the 1650s and was designed as a ceremonial axis, where the famous Delhi Durbar was held. Originally, it had about 1500 shops and households, and the Paradise canal flowed through the centre. Culturally, Historically and Socially, Chandni Chowk is of prime importance in Delhi as it adheres to the typical “Street Shopping” culture of India. This was the ‘City-Centre’ of the walled city and a focal point for Shahjahanabad where processions used to take place.

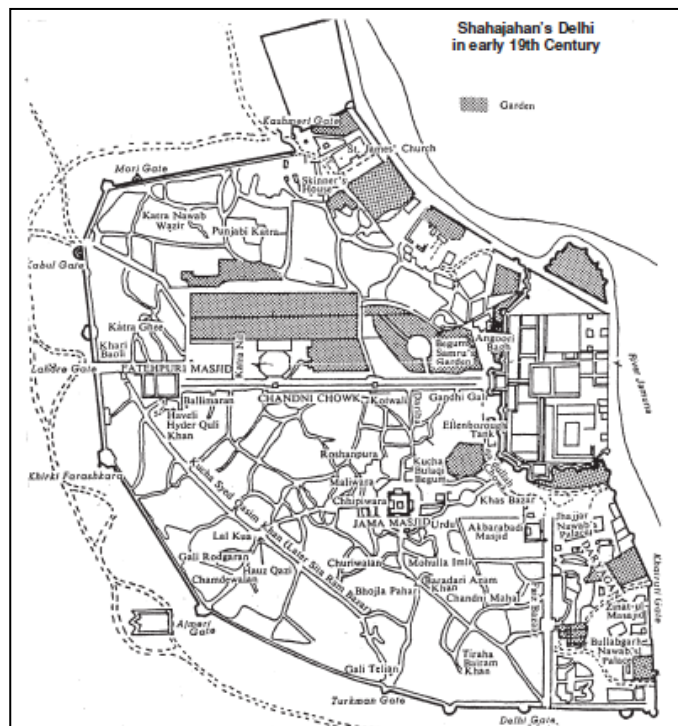


Figure 27 Shahjahan's Delhi in early 19th Century, Source: Survey of India

2.1.3.3 PRESENT SCENARIO

The walled city of Delhi is suffering from a decline in population, as the population went down from 4.2 lakhs in 1961 to 2.35 lakh in 2001. This decline has been caused by encroachments and subsequent interference with the commercial activities in this area. Hence, the living conditions are also deteriorating. Trade and commerce have led to an enormous congestion of the area. Also, it suffers from other perils such as loss of rich architectural heritage, for which a major conservation plan is essential to be formulated.

Type of trade	Percentage
Wholesale	60
Retail	25
Informal	28

Figure 28 Percentage wise trade in Chandni Chowk, Source: ITPI Journal 2004

The old city is the centre of the wholesale trade activities with almost every commodity. The percentage-wise trade is mentioned in figure 19. The walled city covers a total area of 569Ha, with fairly distributed land use as shown in figure 29:

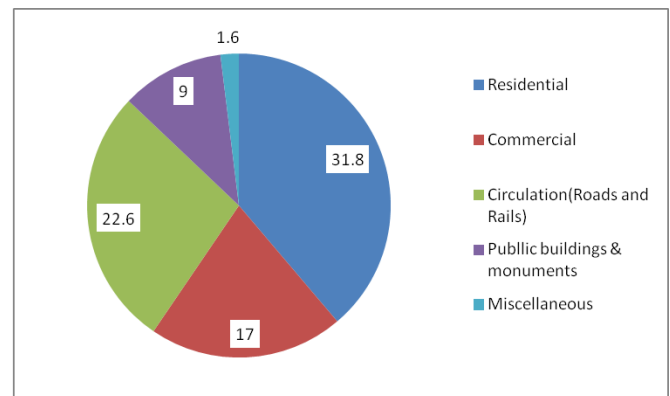


Figure 29 Land use percentage, Source: ITPI Journal 2004

The congestion is a result of the increase in the density of commercial units, increase in the density of workers and a major part of circulation giving way for railway establishments.

The old city is also significant archaeologically. It is rich in heritage buildings and historical monuments. Out of 1208 Historical monuments in Delhi, 411 are in the old city. There have been many proposals for the renewal of Chandni Chowk and old Delhi area, including the proposals in Delhi Master Plan 2001.

2.1.3.4 MAIN ISSUES AND CHALLENGES

- Lack of control
- Chaotic, unmanaged and erratic traffic
- Over-crowded and congested
- Disintegrating building structure
- Visual chaos due to hoardings, overhung electric wires
- Encroachment on to the footpath
- Insensitive modifications of facades of historical buildings
- Poor public amenities
- Lack of proper place for hawkers and informal sectors
- Loss of visual and sensory appeal

2.1.3.4 PROPOSALS IN DELHI MASTER PLAN 2001

The walled city is one of the “special areas” as designated by the MPD(Fig.30). In this context, the following strategies are being proposed for the overall renewal and conservation of the Old City:

- Limiting non residential activity with shifting of hazardous industries and trades as a priority.
- Upgrading infrastructure at all levels.
- Regulating traffic and transportation
- Restoration and conservation of Heritage buildings
- Renewal of existing residential areas.

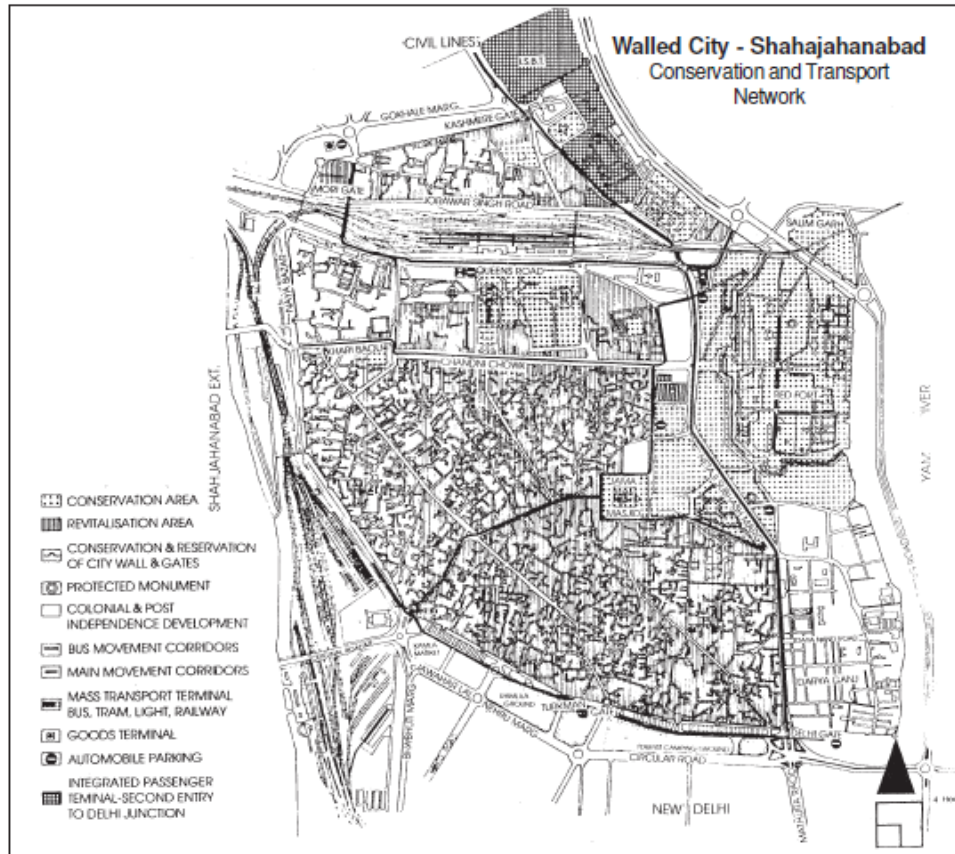


Figure 30 Conservation and Transport network of Old Delhi, Source: Survey of India

2.1.3.5 OTHER PROPOSALS AND VISIONS

The MPD Delhi has commissioned Abhimanyu Dalal architects for making a proposal for the Chandni Chowk area. Their vision includes making Chandni Chowk a priority for pedestrians and other proposals to decongest the area as shown in figure 31.

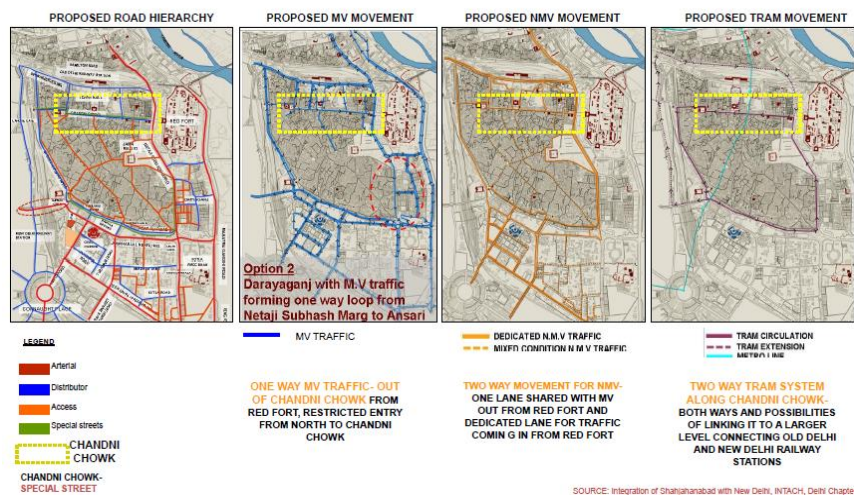


Figure 31 Road network proposals for Chandni Chowk area,Source: Abhimanyu Dalal Architects

- To formulate procedural and legal reforms pertaining to participation of private sector and setting up organizations for the same.

2.1.3.7 INFERENCES

- Strategies need to be formulated both at policy and at a design level.
- In all the studies done, including this one, design strategies are being made making pedestrians a priority, in case of traffic circulation.
- There is a desperate need to revive the traditional street market system in India as these areas are the centre of wholesale and other trade activities, and account for the economy of the city.
- There is a need to involve private sector participation and investments.
- Creating a separate organizational setup for activities pertaining to renewal.
- Conservation should be given importance both at a Planning and at an Architectural level.
- Bye laws and zoning regulations should be revised and strictly implemented.

2.1.4 URBAN RENEWAL OF THE SADAR BAZAAR AREA IN PUNE CANTONMENT

Source: Proceedings of International Conference on Advances in Architecture and Civil Engineering (AARCV 2012), 21st – 23rd June 2012, Arati S. Petkar, G.R. Diwan and P. Tikhe Tushar

2.1.4.1 INTRODUCTION

The Sadar Bazaar area of the Pune Cantonment was planned in order to provide provisions and amenities for the British officers who didn't prefer the traditional and dingy markets. Ironically, Sadar Bazaar, which was intended to be a planned commercial development, is now highly disorganized and congested. This study highlights the importance of urban renewal in the Indian context, and how some specific strategies can be formulated for the same. The area was planned for Indian traders. The basic goals of the study being to eliminate and replace old and damaged urban areas with new developments, to promote conservation of heritage buildings and improvement of local places of architectural and historical interest which are also important for tourism.

2.1.4.2 PRESENT SCENARIO AND HISTORY

During colonization, wherever the British occupied a considerable part of territory, they established their military cantonments and subsequently, for the cantonments, new market areas were developed to provide the military with basic amenities. The British had their own isolated existence, which had little to do with "real India".

The Pune cantonment was setup in 1818, planned in a grid iron pattern, it suited all the military requirements. For Indian traders, a separate area was designated known as Sadar Bazaar, which provided the army with daily needs in a fairly good manner as opposed to the unhygienic conditions of the local markets. The cantonment has three well-defined areas (Fig. 33):

- The bazaar area where residential and commercial activities take place.
- Bungalow area which is purely residential zone.

- The operational military area.

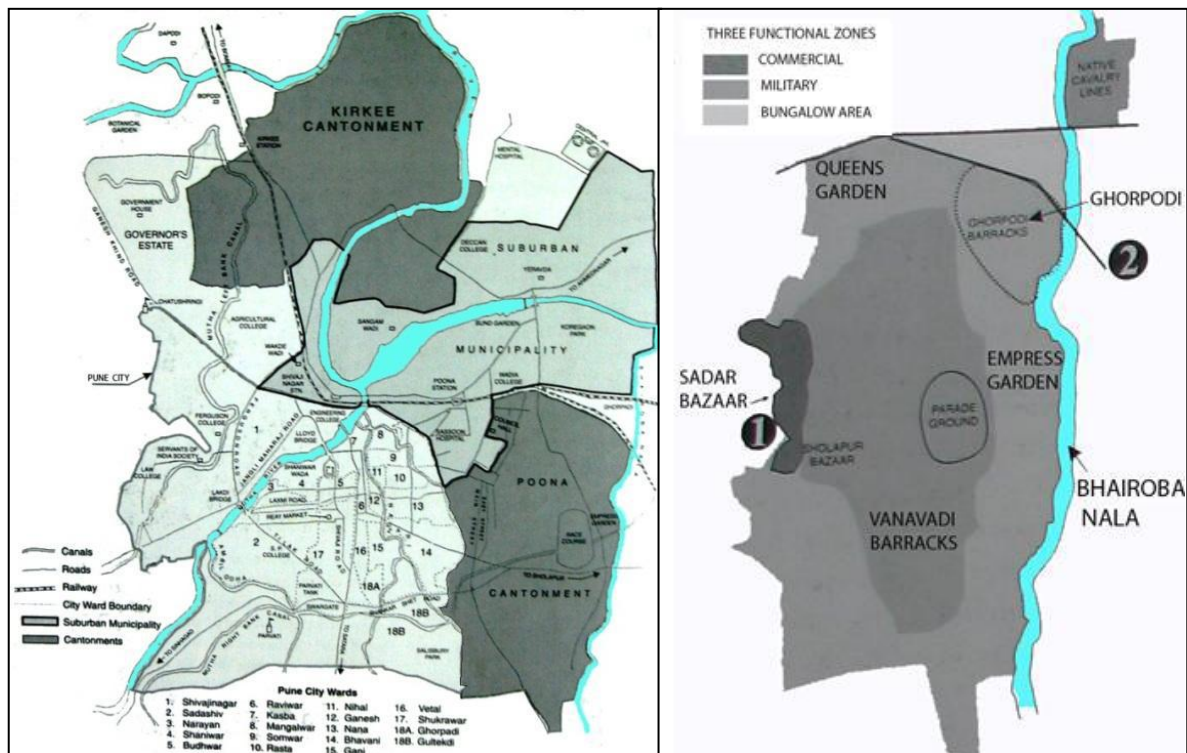


Figure 33 Map of Pune cantonment with Pune city and Pune cantonment with three zones, Source: *Urban Renewal of the Sadar Bazaar Area in Pune Cantonment*, Arati S. Petkar, G.R. Diwan and P. Tikhe Tushar

2.1.4.3 NEED FOR RENEWAL

The study was selected as it had many aspects similar to the city of Ghaziabad, which are in fact, the main factors for the decay and congestion of the inner city. The Urban Sprawl caused by the increasing urbanization has made the inner city to congest quickly. The area, being a centre of commercial activities, sees a huge footfall. Although pedestrianization has been adopted at some places, the problems are being seen throughout the week. Shivaji market which was supposed to be planned and hygienic, is now weighed down by increasing population, and the waste management is poor. Some of the main issues identified are as follows:

There is a change of land use and the existing infrastructure is unable to cope up with it.

Transportation and traffic requirements, which are ever increasing.

Inadequate infrastructure and services.

2.1.4.4 ANALYSIS

Zoning has become necessary in this area because land use conversion is taking place, in terms of conversion of residential activities into commercial ones. Also, a number of houses in the Kamathipura are in bad condition(Fig. 34) and need immediate intervention in terms of conservation. In order to strengthen the Architectural and Heritage potential of the area, renewal is very vital.

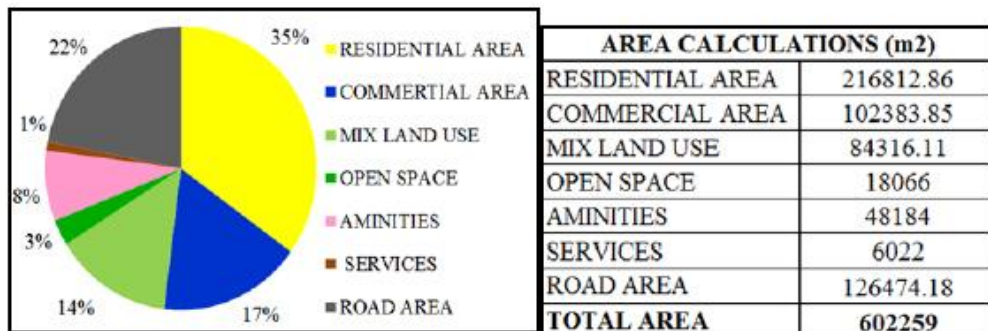


Figure 34 Land use Analysis of study area, Source: *Urban Renewal of the Sadar Bazaar Area in Pune Cantonment*, Arati S. Petkar, G.R. Diwan and P. Tikhe Tushar

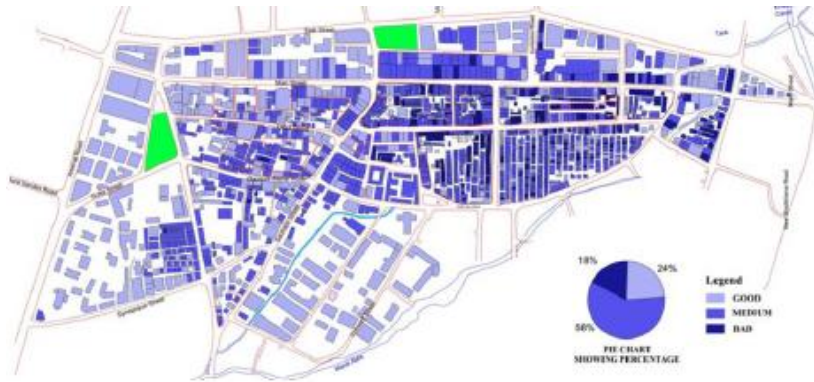


Figure 35 Building Condition map of the study area, *Source: Urban Renewal of the Sadar Bazaar Area in Pune Cantonment ,Arati S. Petkar, G.R. Diwan and P. Tikhe Tushar*

2.1.4.5 ISSUES AND CHALLENGES

- Pedestrians: Due to the uneven width(0.9m-1m) of the footpaths, pedestrians are seen walking on the roads, which creates conflict between vehicular and pedestrian traffic.
- Traffic and transport: Enormous traffic congestion on M.G.Road and Shivaji market due to commercial establishments and daily activities. Also, people are using this road to travel to their workplace.
- Parking Problems: The basements of all the buildings are used for all types of commercial activities, an intelligent use would be to use these basements for the parking of the respective buildings, which would decrease on-street parking.
- Visual Pollution: The aesthetical beauty of a structure is disturbed due to a lot of Hoardings, Advertisements and overhead wires which needs to be checked. Also, there are hawkers on the roads obstructing the flow of traffic.

2.1.4.6 PROPOSALS FOR IMPROVEMENT

- Demarcating zones for different land uses.
- To accommodate the housing population, various housing schemes were proposed.
- Segregation of vehicular and pedestrian movement by providing uniform width footpaths all along the roads.
- Increasing the carriage width of Primary roads and proposing parallel parking to reduce on street parking.
- Hoardings should be allowed only at specific junctions with space to accommodate them. Also, in case of mixed land use, uniform size of hoardings should be proposed. This will eliminate the visual chaos of the Bazaar.
- A conservation committee shall be setup by Pune Cantonment Board for protection and preservation of heritage monuments.
- Hawkers shall be licensed and given proper space.
- Due to the above recommendations, pedestrians shall also benefit as it will ease pedestrian movements on the roads.

2.1.4.7 INFERENCES

An urban renewal exercise needs very elaborate and comprehensive planning scheme and should be made to meet people's needs.

Innovative ideas like TDR(Transfer of Development Rights) and exchange of FSI(Floor Space Index) shall be evolved , so that this decreases the burden on the local authorities.

People's participation shall be of prime importance as it will help in generating resources.

Existing planning standards and building bye laws need to be suitably oriented to promote efficient land use and cost of the project.

2.2 METHODOLOGY DERIVED FROM THE STUDIES

The above studies helped in deriving the required methodology to be followed in the author's study, and is illustrated in Fig. 35.

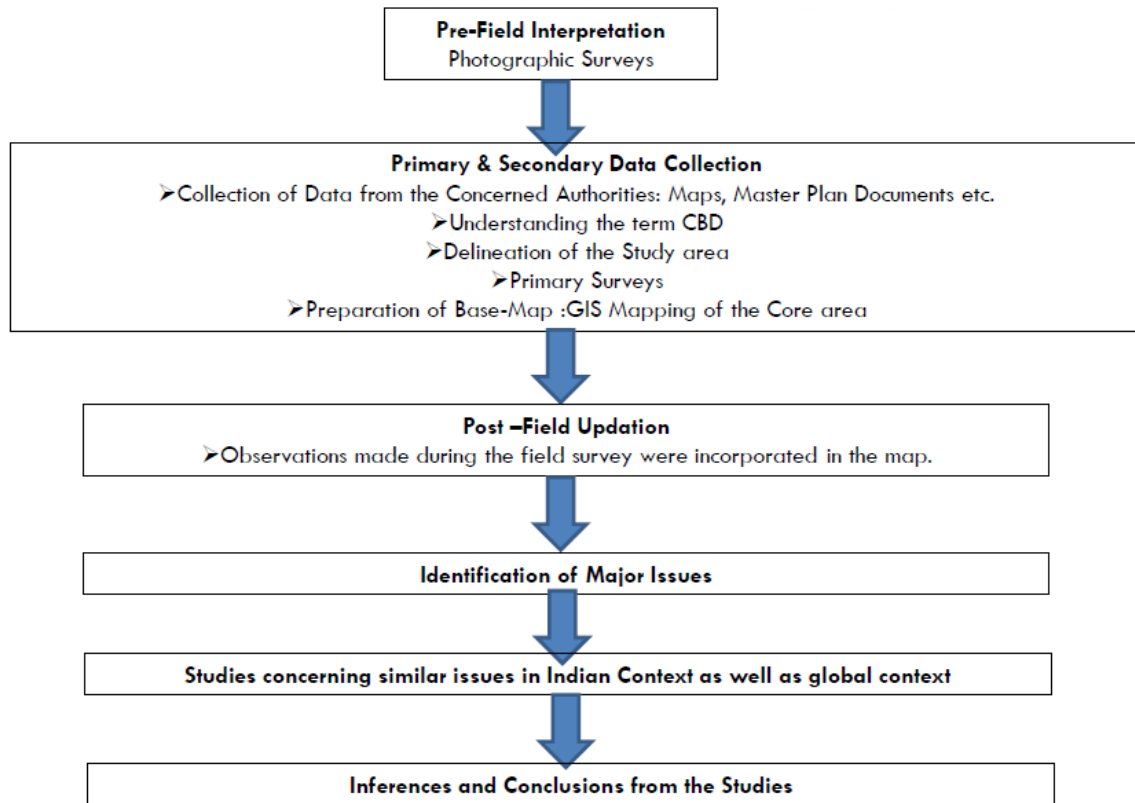


Figure 36 Methodology derived from the studies, Source: Author

CHAPTER
03THE STUDY AREA:
GHAZIABAD

The objectives of this Chapter are to give an introduction about the study area in Ghaziabad including the background and history, the regional setting of Ghaziabad and subsequent delineation of the study area. This chapter also includes the major issues and challenges going on in the CBD area and highlights these problems in detail.

3 THE STUDY AREA: GHAZIABAD

3.1 HISTORICAL BACKGROUND OF THE CITY

Ghaziabad was established in 1870s by Vazir Ghazi-ud-din who was a minister in the court of Ahmadshah and Alamgir, and he named the city as Ghazi-ud-din Nagar. He then built an enormous structure consisting of 120 rooms with arches. According to historical records, the city was confined to four gates, namely Delhi Gate, Dasna Gate, Sihani Gate and Shahi Gate. (fig. 37)

The role of 1857 mutiny: During the 1857 revolt, Ghaziabad was a major centre of war and thus, like many old towns, the old city of Ghaziabad was also severely affected. The hindon river, was the sight of many fights between British armies and Indian troops.



Figure 37 The Old city of Ghaziabad with the location of four gates, Source: Wikipedia and Author

3.2 LOCATION AND REGIONAL SETTING

Ghaziabad is one of the major cities of the NCR, and is currently booming with major construction projects. Its close proximity to Delhi was one of the prime reasons for its development, as there was a “push” factor from Delhi and a “pull” factor from Ghaziabad. Delhi became overpopulated, so the focus of development shifted towards Ghaziabad and Noida, and major industries were setup to attract more population to other NCR cities.

It was a part of Meerut till 1976, when it was carved out as an independent district and plotted development began in full swing. It is bounded by Meerut, Noida, Delhi, Bulandshahar and Gautam Budhdh Nagar. (Fig.38 & 39). It is an important trading and industrial region in NCR. NH-24 connects the city with Lucknow and Moradabad, while NH 58 and NH 91 connect it to Meerut and Bulandshahar respectively.

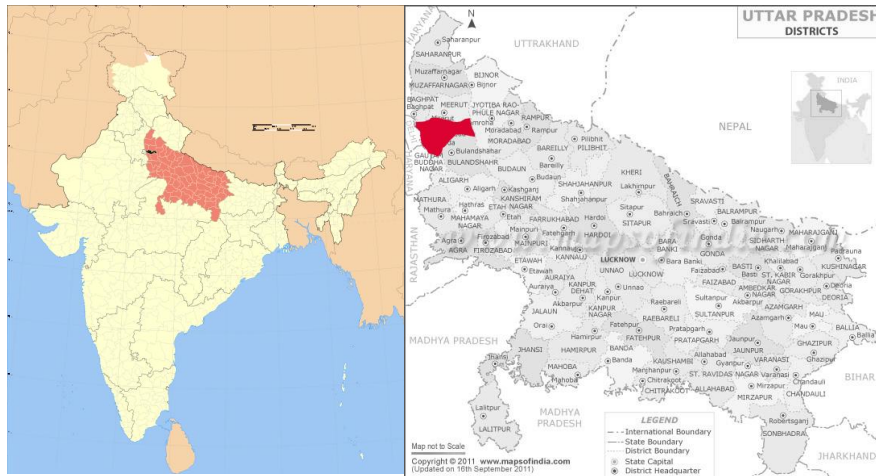


Figure 38 Location of Ghaziabad as highlighted in District map of Uttar Pradesh, Source: Maps of India

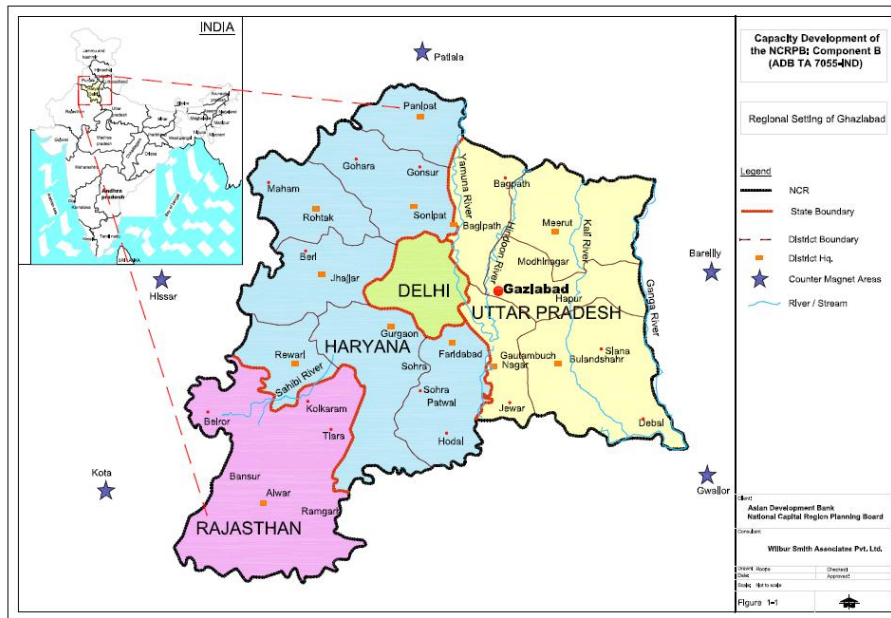


Figure 39 Regional setting of Ghaziabad showing the counter magnets, Source: Wilbur Smith Associates

Trans-Hindon and Cis-Hindon areas: The District of Ghaziabad is divided by the river Hindon into two parts, Trans-Hindon and the Cis-Hindon areas. Figure 40 shows Cis-Hindon areas comprising of the oldest portions of the city and the Geographical heart, while the areas beyond river hindon are known as Trans-Hindon areas



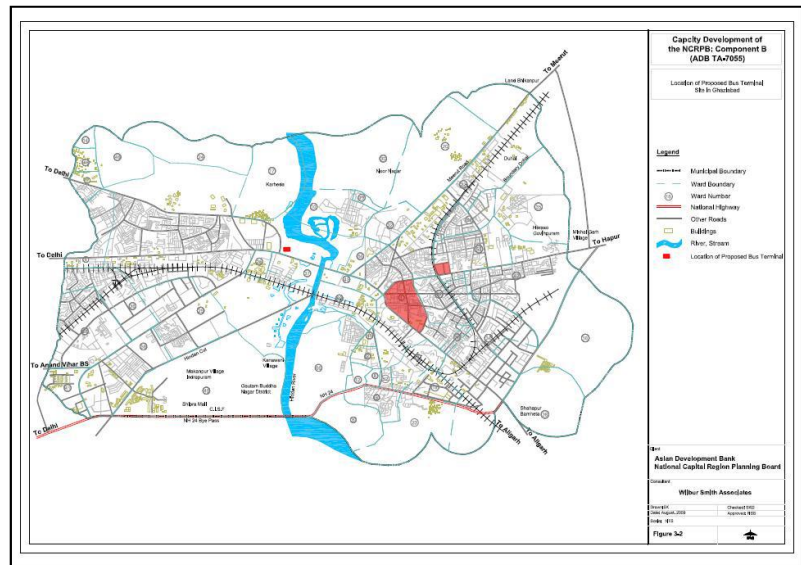
Figure 40 Trans Hindon and Cis Hindon areas, Source: Author

namely Mohan Nagar, Sahibabad, Vaishali, Vasundhara & Kaushambi.

3.3 STUDY AREA

Ghaziabad is a planned industrial city in the Indian state of Uttar Pradesh. It is 19 km East of Delhi and 46 km Southwest of Meerut. The city houses the headquarters of the Ghaziabad district.

Total Area of District: 2590 sq.km



TOTAL AREA OF CONCERN
414 ACRES, 167 HA, 1.67 sq.km

Figure 41 Area of Study as highlighted in Ghaziabad municipal ward map, Source: Master Plan Ghaziabad 2021 & Author

3.4 DELINEATION OF THE STUDY AREA

The term CBD was used to describe the downtown of American Cities, where the term originated in the industrial towns during 19th century (Pitzl, 2004) but was implied in the western world in the coming decades. The CBD is quite difficult to define as usually there is no boundary demarcating or indicating the CBD area, the CBD area is delineated based on a number of factors if any documentation is required. Hence, CBD cannot be defined in technical terms for it is more of a spatial identity in planning terminology, and often, there is no quantitative definition which can be used to describe CBDs.

Definitions are qualitative such as the CBD is “the nucleus ... of an urban area that contains the main concentration of commercial land use” (McCull, 2005, p. 159) or a “unique area of massive concentration of activities and focus for the polarization of capital, economic and financial activities in cities” (Drozd and Appert, 2010, p.2).

The factors as given by Murphy, Waugh, Haggett and Heineberg according to which the spatial extents of a CBD can be determined are: main concentration of land use, main concentration of city's offices, dominance of tertiary sector activities, peak land values, tallest buildings, high degree of accessibility and traffic density and high daytime vs. low nighttime population and low resident population. The subsequent contents of this report aim to



Figure 42 Delineated area and the surroundings, Source: Google maps satellite image, Area delineated by the Author

delineate the CBD area in Ghaziabad city based upon the above factors. The Qualitative features to be considered are the vital aspects in area delineation, out of which the most important factor being the main concentration of commercial land use in the city. The factors may or may not be valid for CBDs in general, for eg. but an attempt has been made to identify certain qualitative aspects in order to delineate the CBD area for better documentation.

The above mentioned features are often contorted or degenerated over a period of time due to problems like congestion resulting from population explosion and urban sprawl or conversion of land uses.

On the basis of above features, the CBD area of Ghaziabad city has been delineated using GIS as a mapping and analysis tool.(Figure 42)

Out of the selected areas, the oldest ones are the Market areas of Ghantaghar, Turabnagar & Chopla. In the 1980s, as planned Development started in full swing, other fully planned commercial centers like Navyug Market and Raj Nagar District Centre. The existing district centre has been selected to study the trends in shop keeping in the current scenario. Figure 42 shows the chronological development of the study area.

While the areas of Ghantaghar are primarily mixed use in nature, other areas are fully commercial. Oldest areas comprise of residences on the upper floors and shops on the lower floors. Some of the shops being handed over and being run through 2-3 generations.

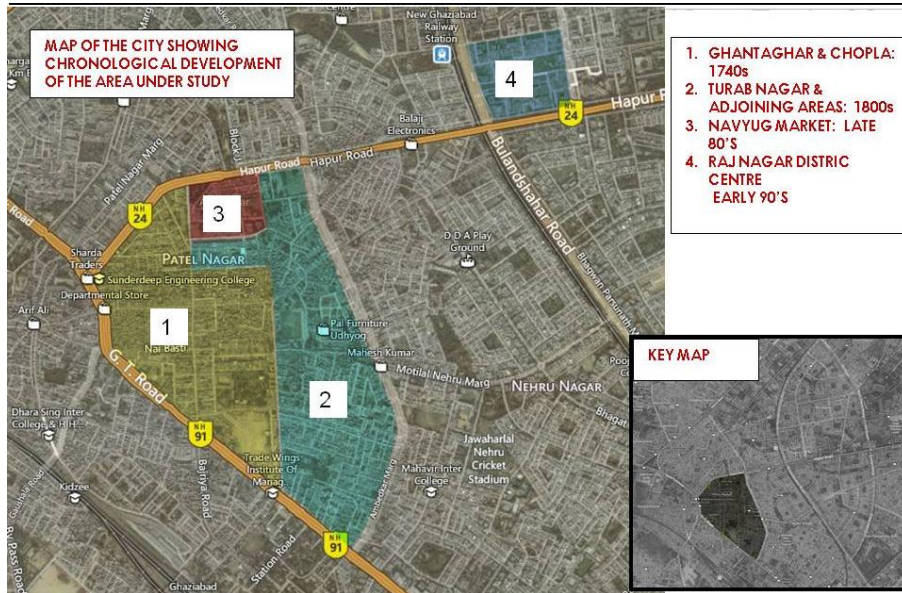


Figure 43 Chronological development of the area under Study, Source: Author

Figures 43 & 44 show the delineated area and the land use at a macro level respectively, in the CBD area and the surroundings including the main Bus stand and the Railway Station. It also shows the Raj Nagar District Center developed around early 90s to cater the needs of residents of Raj Nagar and nearby colonies. In the north of the CBD area, Navyug Market is located which houses the main establishments in this area. Detailed land use map was prepared based on photographic and field survey observations.

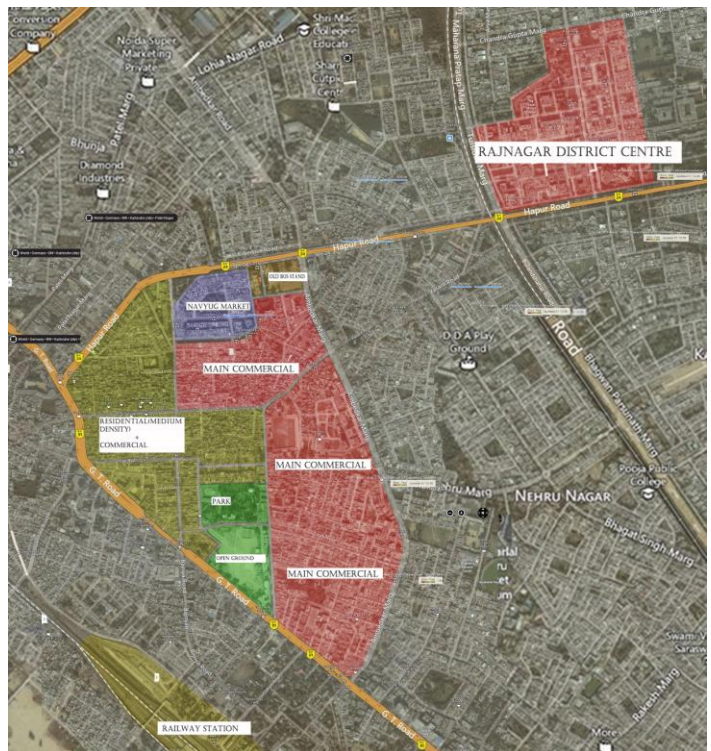


Figure 44 Delineated area with the surroundings, Source: Author

Wards under study

TOTAL AREA OF CONCERN					
	1675747 SQ.M	414 ACRES,167 HA			
WARD NUMBER	AREA SQ.KM(AREA UNDER STUDY)	POPULATION 2001	POPULATION 2009	POPULATION 2011	POPULATION 2021
1	0.69	12341	17665	19228	29604
76	0.63	2818	4033.75	4390.5	6760
53	0.33	1056.9	1512.9	1646.7	2535.3
TOTAL	1.65	16215.9	23211.65	25265.2	38899.3

Figure 45 Wards under study with Population details, Source: Ghaziabad Master Plan 2021

Figure 45 shows the wards in the study area and the respective area covered by them, the table shows that the population has increased by 55% since 2001, consequently, the CBD area is becoming congested and the load on the existing infrastructure is increasing, which leads to many issues which will be highlighted

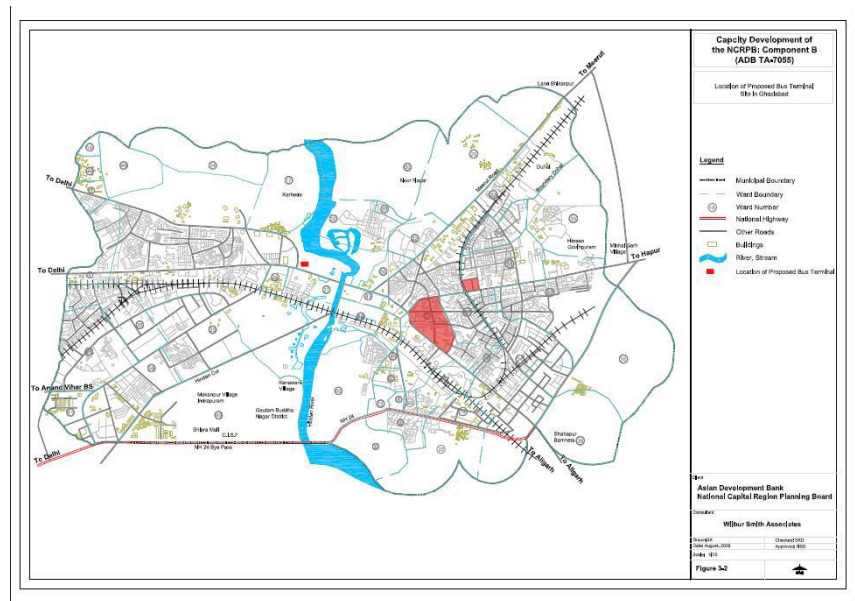


Figure 46 Highlighted wards, Source: Ghaziabad Master Plan 2021

later on in this report. The wards are highlighted in the municipal ward map of Ghaziabad as shown in figure 46.

The District of Ghaziabad is divided by the river Hindon into two parts, Trans-Hindon and the Cis-Hindon areas. Figure 40 shows Cis-Hindon areas comprising of the oldest portions of the city and the Geographical heart, while the areas beyond river hindon are known as Trans-Hindon areas namely Mohan Nagar, Sahibabad, Vaishali, Vasundhara & Kaushambi. Out of the total development area of Ghaziabad, 3.22 % (274 Ha) is being used for commercial and business activities. The main commercial areas are situated in the heart of the city,i.e. Cis-Hindon areas.

The main commercial areas include Sahibabad Sabji Mandi i.e. Vegetable Maret (Trans hindon areas) , and the Vegetable Market in Govindpuram and old bus stand areas. About

54 Ha is devoted to main commercial area for vegetable vendors. In the trans-Hindon areas, the commercial areas have been developed based only on the user needs, for high end commercial areas, people still prefer to go to Delhi or to the core of the Ghaziabad city. The old city has Ghantaghar, Jawahar Gate, Sihani Gate, Dasna Gate and Delhi Gate, which was once, the walled city of Ghaziabad, has the old market areas. Also, Turab Nagar market is also a part of these old market areas, amongst the fairly new developed commercial areas include portions along the G.T.Road, Ambedkar Marg and the commercial areas of Navyug Market and Raj Nagar District centre which were developed during 80s and 90s as a part of the plotted development. The old city portion, being highly congested with narrow lanes, poses a serious problem for transportation and mobility, and due to a rapidly increasing population in nearby areas, it is also facing a problem of inadequate parking spaces. While delineating the area, the key objectives were to identify the land use at a macro and micro level and to identify the commercial areas and to see whether the concept of CBD is applicable to Ghaziabad city.

3.5 SIGNIFICANCE OF THE STUDY

The continuous degeneration of the CBD in the old core of Ghaziabad is a consequence of rapid urbanization, ignorance, haphazard growth, lack of awareness and encroachments. Other negative consequences include congestion in the core city, traffic chaos, loss of open spaces, inefficient infrastructural services, rise in anti-social activities, etc. This project aims to study & analyze these problems in detail & evolve some plausible measures for eradicating the same.

Ghaziabad also has a major historical significance as it played a witness to the First War of Independence. The old city has slowly given way to numerous perils like encroachments, haphazard land use and loss of public spaces. Other issues include lack of parking spaces & congestion on the arterial roads. People have started moving their bases to the outskirts of the city. The once charming CBD in the Urban core of the city is Crumbling and degenerating, which is directly the consequence of rapid urbanization as highlighted in the Ghaziabad Master Plan 2021.(Figure 47)

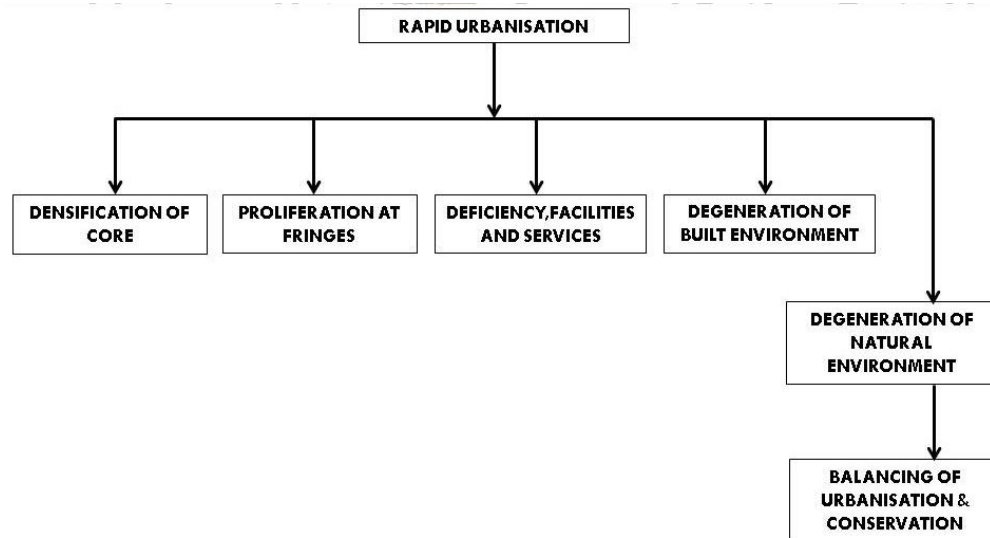


Figure 47 Consequences of rapid urbanisation in Ghaziabad, Source: Ghaziabad Master Plan 2021

The densification of the core area is one of the major problems in Ghaziabad city which needs immediate intervention. Further studies can be done in order to explore the problems faced by the CBD including the inner city. If further analysis is done, plausible recommendations can be made to eradicate the problems usually faced by congestion of the inner city, and a model can be developed for renewal of inner city areas and CBDs. However, to implement such a model, proper understanding of the term renewal is required and it should be considered on individual merit of city to city, as there are variations in terms of Urban Fabric of each city.

Ghaziabad became an independent district in 1976, but since then, the focus has been primarily on the development of fringe areas like Vaishali, Kaushambi, Vasundhara and Indirapuram, due to which, the inner city has been neglected and the core is becoming dense and congested. Hence, it is important that the potential of this core area should be realized and some renewal strategies should be proposed after conducting a thorough study.

An excerpt from Wilbur Smith Associate identifies the area concerned in the study as CBD of Ghaziabad. *The existing bus stand in Ghaziabad is located in the centre of the city at Navyug Chowk. The is major centre and is CBD of Ghaziabad busy with various activities; in addition*

to the bus stand, a number of commercial establishments, markets, government offices (Ghaziabad Nagar Nigam and Ghaziabad Development Authority) situated here. (Volume V-D1: DPR for Multi-level Parking Facility at Ghaziabad, Main Report, Wilbur Smith Associates).

In this context, it becomes a major area of concern that the CBD is slowly giving way to decay and congestion. Hence, there is an immediate need of a detailed study to be conducted to analyze the existing scenario and major issues and challenges.

CHAPTER
04DATA COLLECTION
& ANALYSIS

The objectives of this Chapter are to analyze the Primary and Secondary data collected through various sources and to identify the main issues in detail. This chapter also illustrates the existing problems through the aid of different maps generated through GIS and serves as a prequel to the final recommendations and conclusions.

4 DATA COLLECTION AND ANALYSIS

4.1 INTRODUCTION

When planning process begins, it becomes very essential to analyze the existing scenario of a city or a place, which is a prerequisite before one proceeds to framing policies and frameworks. The Ghaziabad CBD has a typical old world charm of a gone era. Street shopping has been deep rooted in the Indian commercial scenario since the very beginning, when the traders and shop owners had their shops on the ground floor and their residences on the upper floors. The street markets were characterized by colorful shops and narrow lanes, and were meant for only pedestrian circulation. Over the years, vehicular growth has increased and this had led to the depletion of the existing infrastructure in these areas. The areas which were the glory and the centre of attraction of the old city now lie in neglect. Hence, these areas must be studied in detail to analyze the perils and to prevent future threats. The main commercial areas in the study area are Ghantaghar area, Turab Nagar, Navyug Market. However, the comparatively new Raj Nagar District Centre (developed in the 90s) was also studied in order to see the upcoming shop keeping trends. The markets in the old city area are a centre of wholesale, retail and other commercial activities, recently a number of malls have come up in the surrounding areas, which are providing a new facelift to the core city of Ghaziabad. Figure 48 shows the area under study and its chronological development alongwith the major transportation networks.

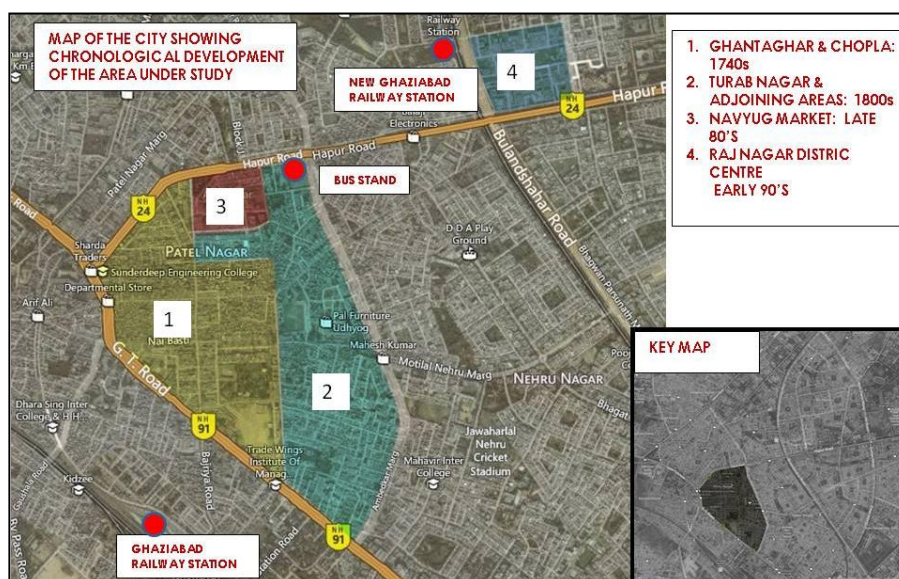


Figure 48 Chronological Development of the Area under study, Source: Map prepared by Author

Basic planning methodology was followed while conducting the study which is as follows:

- (i) Primary Data collection through photographic and field surveys and observations. This helped in understanding the exact scenario of the study area. Also, questionnaires were prepared separately for people and shopkeepers and people for conducting interviews both online and offline.
- (ii) Secondary Data collection through a thorough study of the master plan and relevant literature.
- (iii) Identification of major issues with the aid of above mentioned data.
- (iv) Framing recommendations and relevant proposals accordingly.

Mapping was done using GIS as a mapping and analysis tool. However there were several limitations faced while GIS mapping which are illustrated in figure 49 along with the methodology followed.

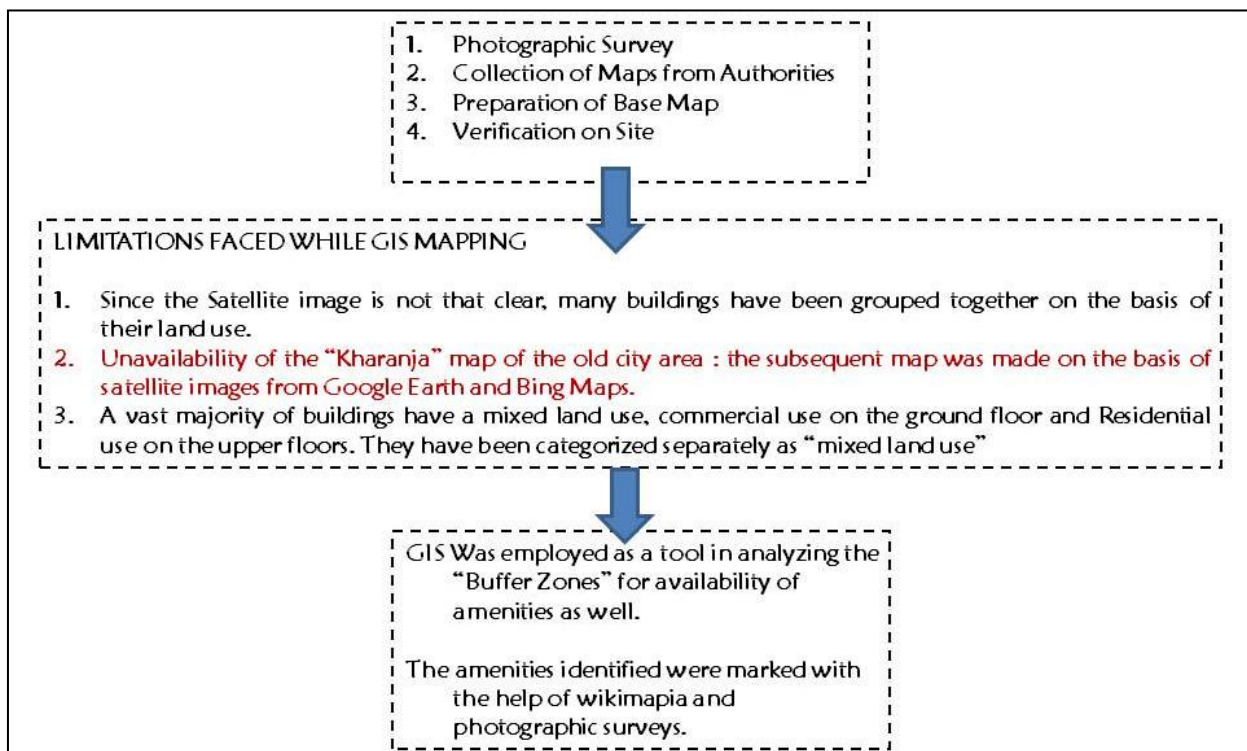


Figure 49 Methodology chart of the study with limitations faced while GIS mapping, Source: Author

4.2 PRIMARY DATA

4.2.1 PHOTOGRAPHIC SURVEYS AND OBSERVATIONS

(a) **Figure Ground Analysis:** After the preparation of the base map on GIS, it was noted that the buildings are densely packed and there is little or no space left between the buildings as such, which shows that perhaps bye-laws have been violated and there are illegal establishments or encroachments at places. Figure 50 shows the existing built form of the area with the open spaces shown in green.

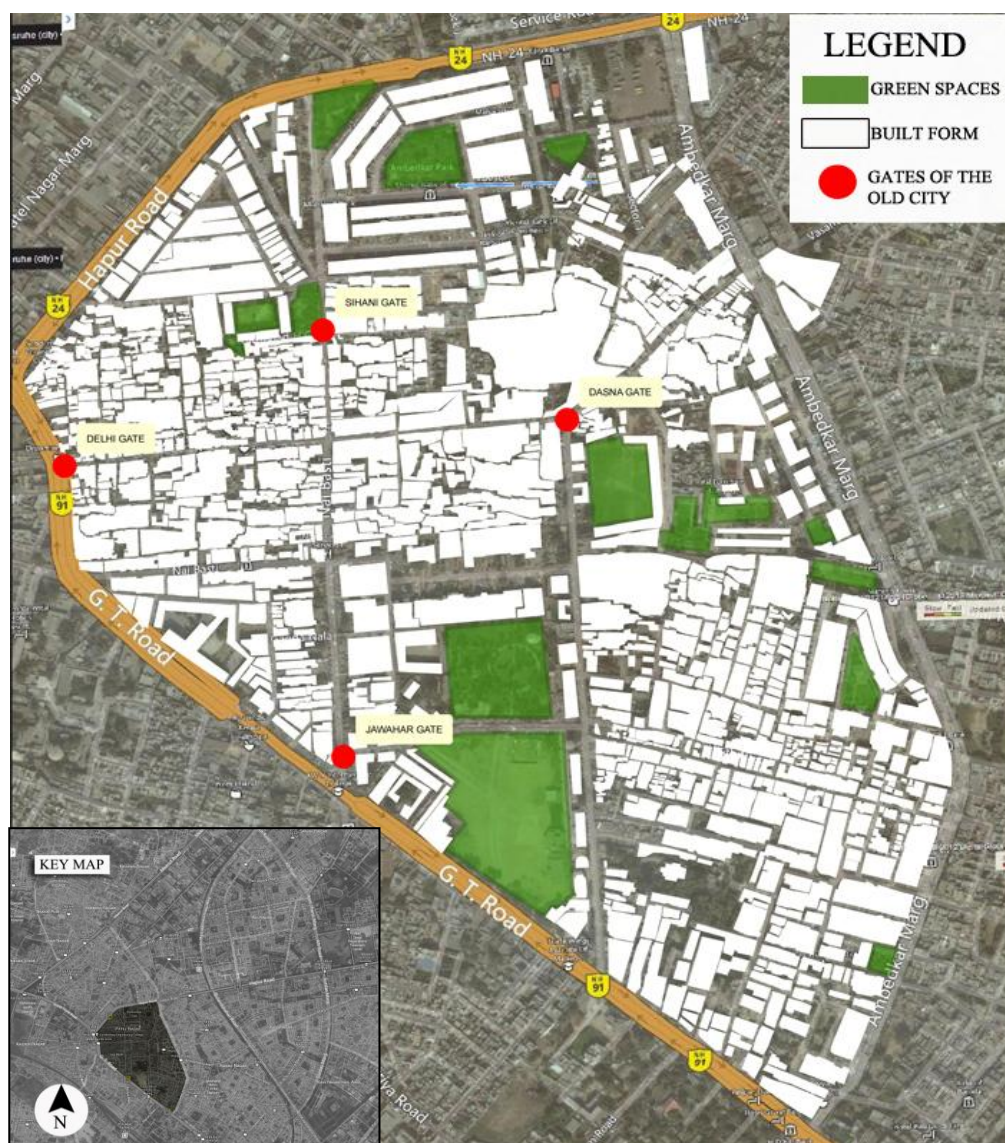


Figure 50 Map of the study area showing the built form in relation with the open spaces, Source: Author

From the figure ground analysis as shown in Fig. 51, following observations were noted:

- The buildings are densely packed with little or no space between them.
- There are some open abandoned spaces which can be developed into potential urban spaces.
- Apart from the abandoned spaces, there is a lack of open spaces in the study area which leads to visual chaos and deterioration.



Figure 51 Figure ground map of the study area, Source: Author

GIS was employed as a mapping tool to create the building footprints and the buildings were grouped according to their density. Due to the lack of clarity of the satellite image, buildings with same land use and which were densely packed were grouped together to create a built mass to give an idea of the whole built form. Also, it can be clearly seen that there is no particular movement axis in the area.

(b) Character of the study area: The study area is characterized by typical narrow lanes colorful shops and old, dilapidated buildings which are peculiar features of Indian old cities. The CBD is a centre of wholesale and commercial activities and generates huge revenues. Apart from the old buildings, the CBD has relatively new and well planned commercial complexes and plotted developments like Navyug Market. In this area more whole sale activities are happening in Vegetable and Fruit market which is near to Bus stand. In CBD area Fabrics, Electronics, Electricals, Food Products, Vegetables, fruits and others wholesale & retail activities can be seen. (Figure 52 to 55). The overview of the scenario of the study area is illustrated in figure 56.



Figure 52 Left: Shops in Turab Nagar, Right: Entrance to Ghantaghar area, Source: Author



Figure 53 Left: Encroachments in Chopla area, Right: One of the narrow lanes, Source: Author



Figure 54 One of the examples of Old Architecture, Source: Author



Figure 55 Left: Shops in Navyug Market; Right: Vegetable Market; Source: Author

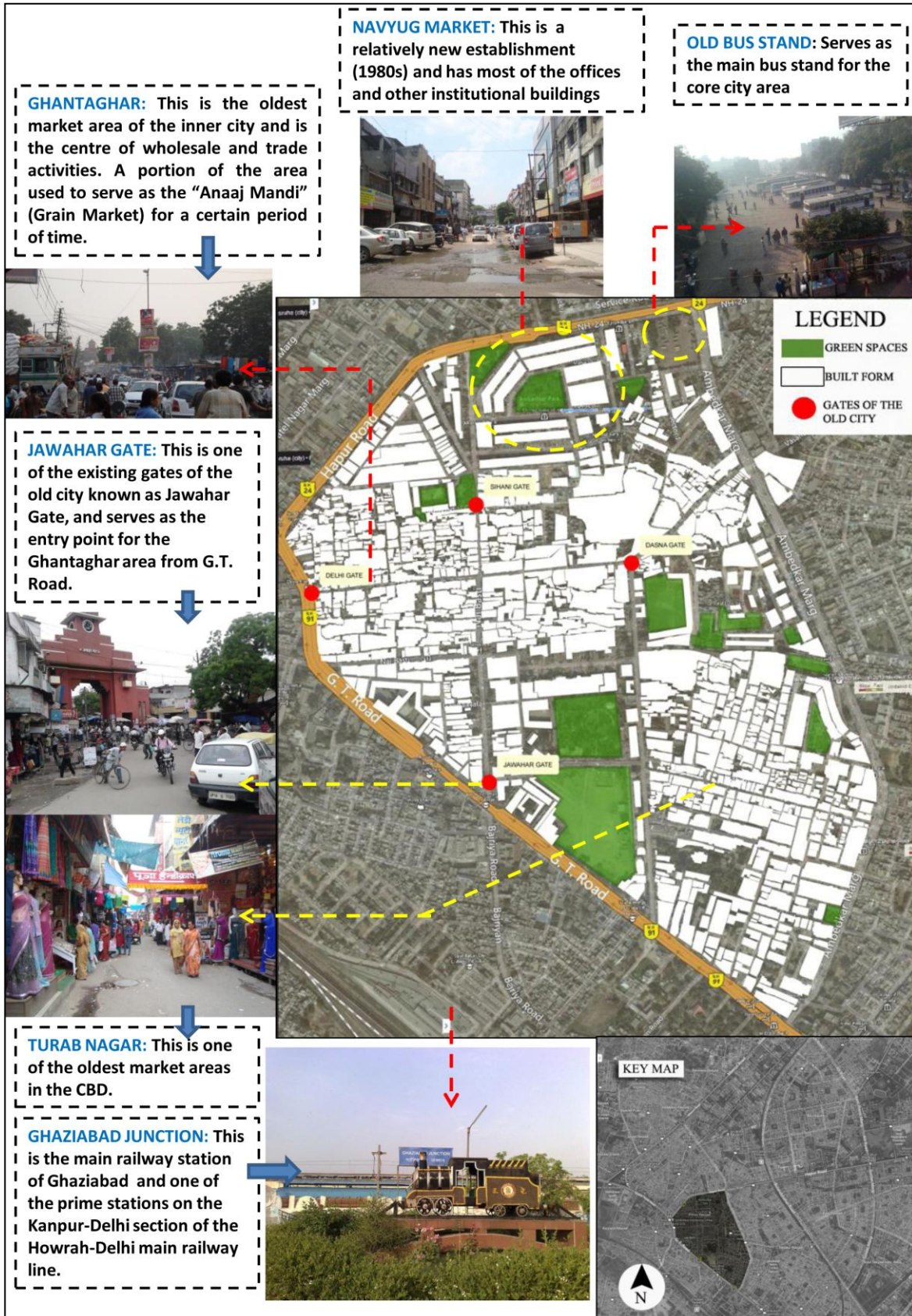


Figure 56 Overall scenario of the study area, Source: Author

(c) Lack of open spaces and poor maintenance of existing green spaces: During photographic survey, it was found that there are many existing green spaces which are not properly used and are not well maintained. These spaces have the potential to become proper landscaped gardens and urban spaces which will enhance the aesthetics of the area.



Figure 57 Poor maintenance of existing green and open spaces, Source: Author

Figure 57 shows two prominent open spaces which can be used efficiently, the bottom right corner shows the land of Urvashi theatre which is now abandoned as is used as parking illegally. The land belonged to the single screen theatre Urvashi, but after Multiplex culture soaked in, it was demolished and lies abandoned now.

(d) Congestion on the arterial roads: The two prominent axial roads in the Ghantaghar area are plagued with heavy congestion and lack of movement, a lot of vendors can be seen in the spaces meant for pedestrians. Also, the road width is not sufficient enough for heavy vehicles. Haphazard parking on the axial roads leads to reduction in the effective Right of Way (RoW) too. The axial roads are the main roads for traversing through this area, both sides of which, there are commercial establishments. The chaotic situation is illustrated in figure 58.



Figure 59 Congestion on the arterial roads in Ghantaghar area, Source: Author

(e) Traffic and Transportation: Traffic and transportation of every city is its lifeline. Quite often, the inner cities are faced with serious traffic and transportation problems which need to be addressed immediately, before the situation becomes a threat to the city. As analyzed

from the photographic surveys, a lot of violation of traffic rules is also seen especially near the old bus stand area.(Figure 59). The lack of traffic control due to improper supervision of traffic police is the main cause for vehicular congestion. Also, a lot of vendors and on street



Figure 58 Traffic Congestion near old Bus stand area,Source: Author

parking, no segregation between vehicular and pedestrian traffic is seen in the area around Ambedkar road. (Figure 60).



Figure 60 Situation on Ambedkar road, Source: Author

(f) Haphazard Parking: Haphazard parking is observed at a lot of places, including on-street and off street parking. This is due to the lack of planned parking spaces in the area. The general trend is, people park their vehicles on the main street and then go for shopping in the areas. This results in reduction of the effective Right of Way of the streets as seen in figure 61. Further analysis done by the author and Wilbur Smith Associates in their report shows the exact spots where the problem is severe.(figure 62). Wilbur Smith associates is proposing a multi level parking in this area to overcome parking demand which will be later analyzed in this report.

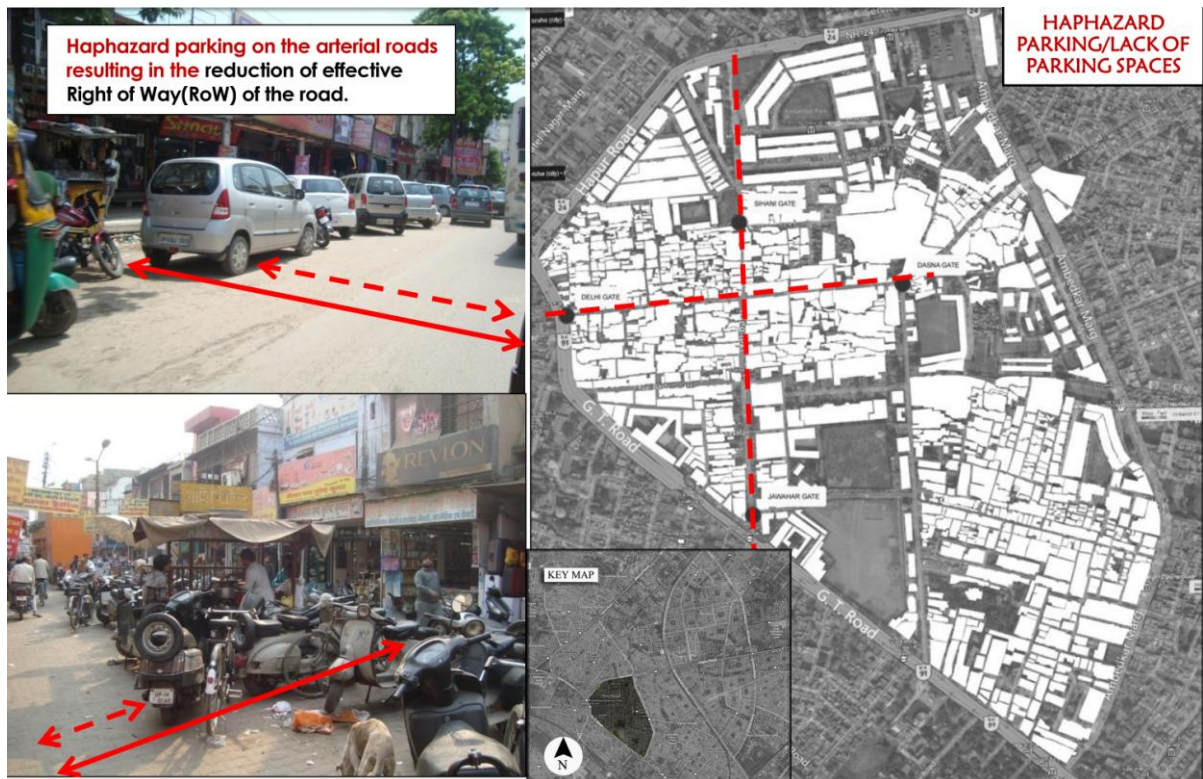


Figure 61 Haphazard Parking reduces the RoW, Source: Author



Figure 62 On Street and off Street Parking, Source: Wilbur Smith Associates

(g) No proper spaces for vendors: The CBD area has designated Vegetable markets but they are poorly maintained and a lot of vendors can be seen encroaching the main roads (Figure 63) due to lack of proper spaces and vendor licenses. The existing vegetable markets near bus stand area and inside Ghantaghar serves a number of people from the nearby residential areas. However, proper planning intervention is needed in order to reinstate them.

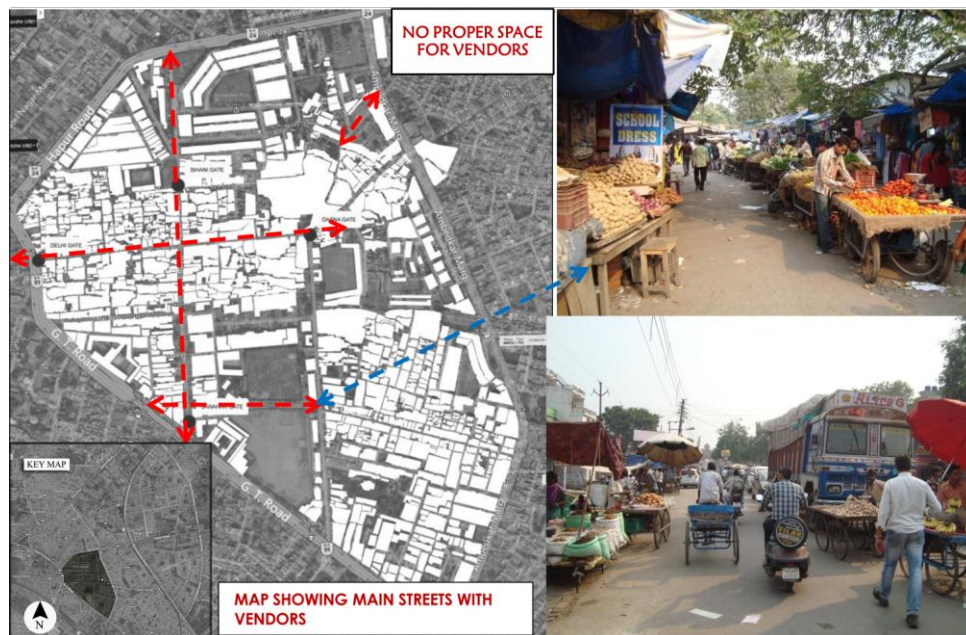


Figure 63 Vegetable market and vendor encroachments, Source: Author

(h) Loss of traditional Architectural Elements: A number of structures with traditional architecture of those times (1760s), are in a dilapidated state. Moreover, improper size of hoardings and advertisements add to the visual chaos in the area. In order to create a unique urban space, aesthetics should be as important as planning intervention. Hence, it is very vital that these traditional structures must be restored. (Fig. 64)



Figure 64 Traditional Architectural Elements in the area, Source: Author

- (i) **Illegal dumping of solid waste:** Solid waste management is also one of the major problems in the area. Though Wilbur Smith Associates have drafted a plan for Solid waste management of Ghaziabad, the implementation is yet to be seen. Ironically, the prime institutional area responsible for such tasks i.e. Ghaziabad Nagar Nigam is in the same vicinity. (Fig. 65)



Figure 65 Illegal dumping of solid waste in the area, Source: Author

- (j) **Land Use:** Figure 66 shows that the delineated CBD which has an area of 414 acres, i.e. 167Ha, out of which 29% is of Commercial Land use, 16% being Mixed land use with residences on the upper floors and commercial establishments on the lower floors, followed by 27% residential land use which is mostly in the interior areas. The detailed land use map was prepared mostly on field survey data using GIS, however, there were some limitations faced while GIS mapping:

- (a) Since the Satellite image is not very clear, many buildings have been grouped together on the basis of their land use.
- (b) Unavailability of the map of the old city area: therefore the map was made on the basis of satellite images from Google Earth and Bing Maps.

(c) A vast majority of buildings have a mixed land use, commercial use on the ground floor and Residential use on the upper floors. They have been categorized separately as “mixed land use”.

On the basis of above analysis, it is seen that major percentage of land in the concerned area has Commercial use i.e. 45% (29% Commercial+16% Mixed use).

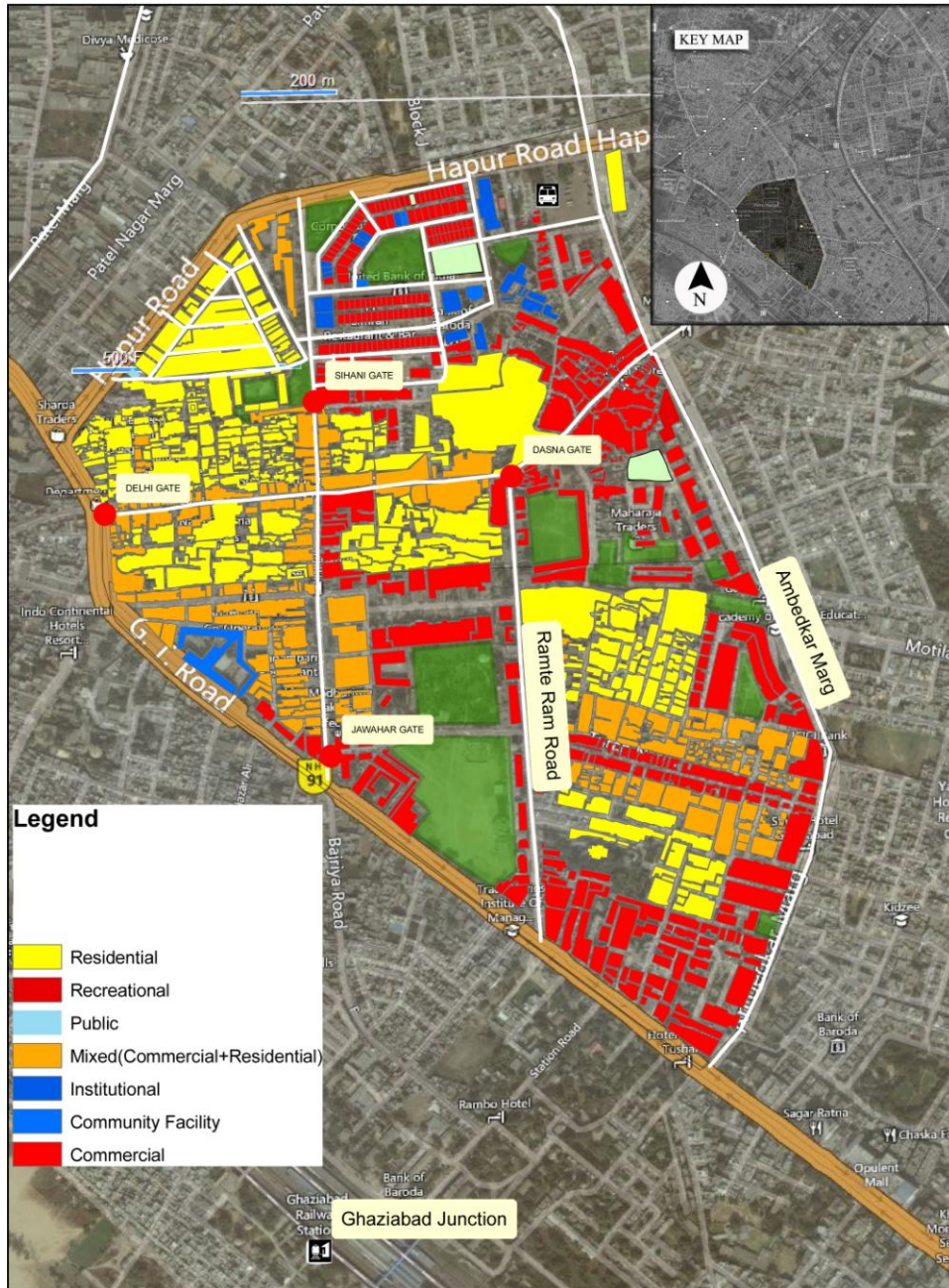


Figure 66 Land use analysis

(j)

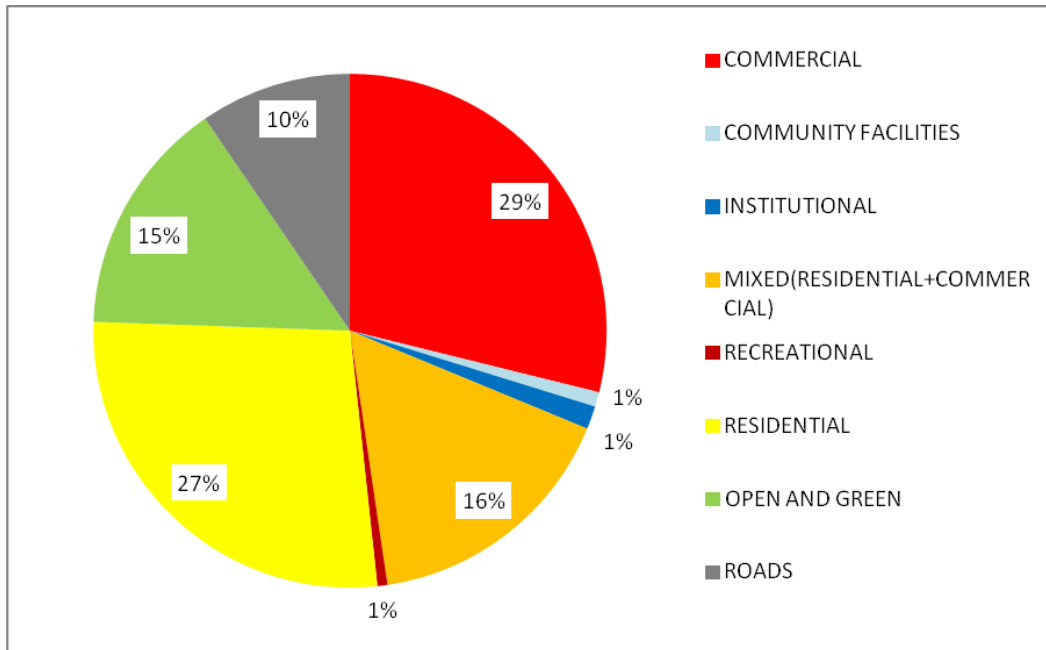
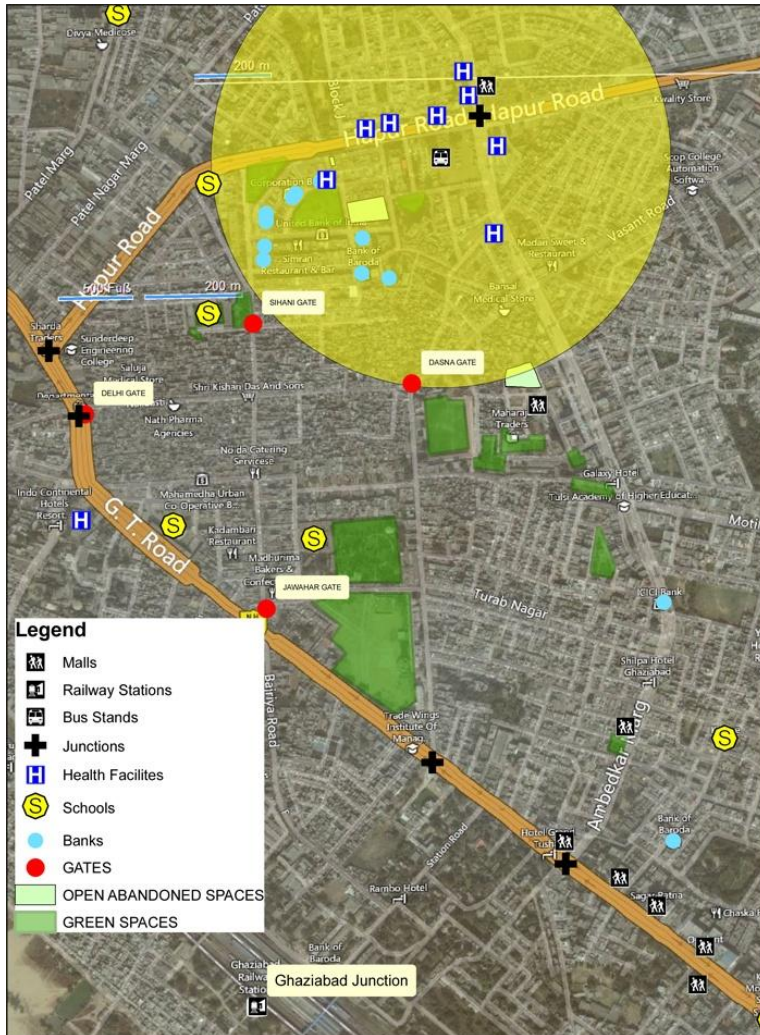


Figure 67 Land use Chart of the Study area

Mapping of Various facilities: Mapping of various facilities was done on the base map with the aid of GIS. Buffer zones with a radius of 500m were created. This helped in analyzing the influence zone of various facilities and whether pedestrianization in these areas would be feasible or not.

- Local bus stands:



Buffer radius: 500m

The existing local Bus stand is located nearby Navyug Market. Buses are available for nearby areas like Noida, Greater Noida, Anand Vihar, Mohan Nagar, Sahibabad and areas till Meerut. Apart from the local buses, the other modes of transport available are Shared autos and cycle rickshaws. NCRPB has made a proposal to relocate this bus stand to another site demarcated near Loni and a multi level parking is to be proposed at this site.

Figure 68 Influence zone for bus stand

- Railway Stations: Buffer Radius : 250m

Ghaziabad Junction: Through trains started running on the East Indian Railway Company’s Howrah-Delhi line in 1866. The railway line between Meerut and Delhi was constructed in 1864. The Sind, Punjab and Delhi railway completed the 483-kilometre-long (300 mi) Amritsar–Ambala–Saharanpur–Ghaziabad line in 1870

Figure 69 Influence zone for bus stand

connecting Multan (now in Pakistan) with Delhi. The Ghaziabad-Moradabad link was established by Oudh and Rohilkhand Railway in 1900.

New Ghaziabad Railway Station: The New Ghaziabad Railway station serves only local trains running on the Meerut Saharanpur route. Local trains are also available till Delhi and a number of people use it for their daily commute to work.

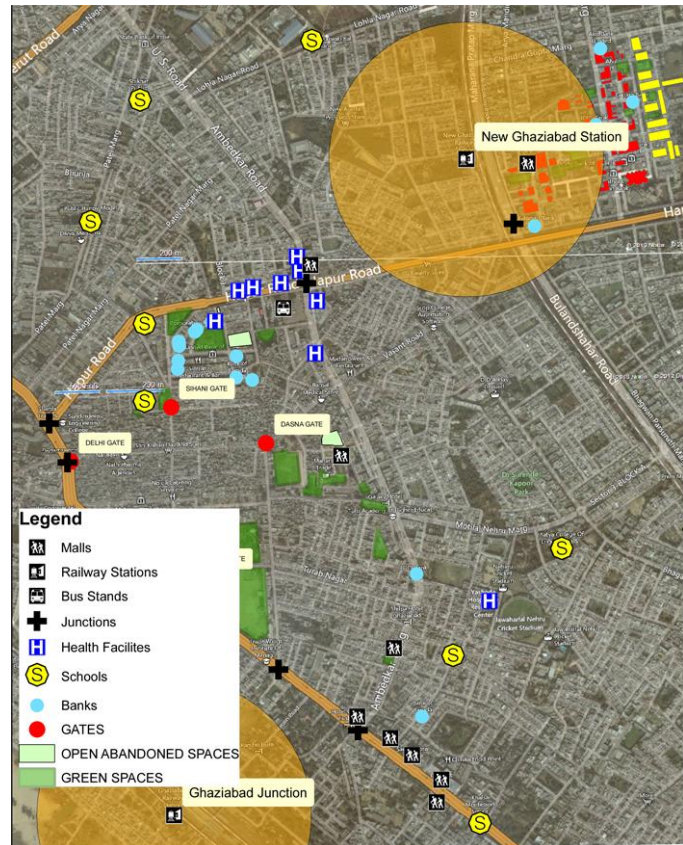


Figure 70 Influence zone for railway stations

- **Road Hierarchy:** Three types of roads were identified in the area

Primary Roads which include G.T.Road(NH-91) and Hapur Road

Secondary roads like Ambedkar Marg and Dasna marg, which act as collector roads for the Ghantaghar area

Local Roads which are plagued by encroachment, and are not wide enough for vehicular movement

Major Issues:

- On-Street Parking resulting in a reduction of Right of Way(RoW)
- Encroachment by Vendors
- Lack of Infrastructure at some points

- Congested Junctions
- Lack of pedestrian sidewalks.



Figure 72 Road hierarchy map

- **Educational Facilities: Buffer radius: 250m**
 - A number of schools are located near by and inside the area indicating that there is a significant amount of floating population moving to and fro from the CBD area.
 - Therefore, there is a need to augment and improve the existing Infrastructure facilities.

- Education facilities are adequate according to the study carried out.
- Required facilities are present at various levels and in various areas

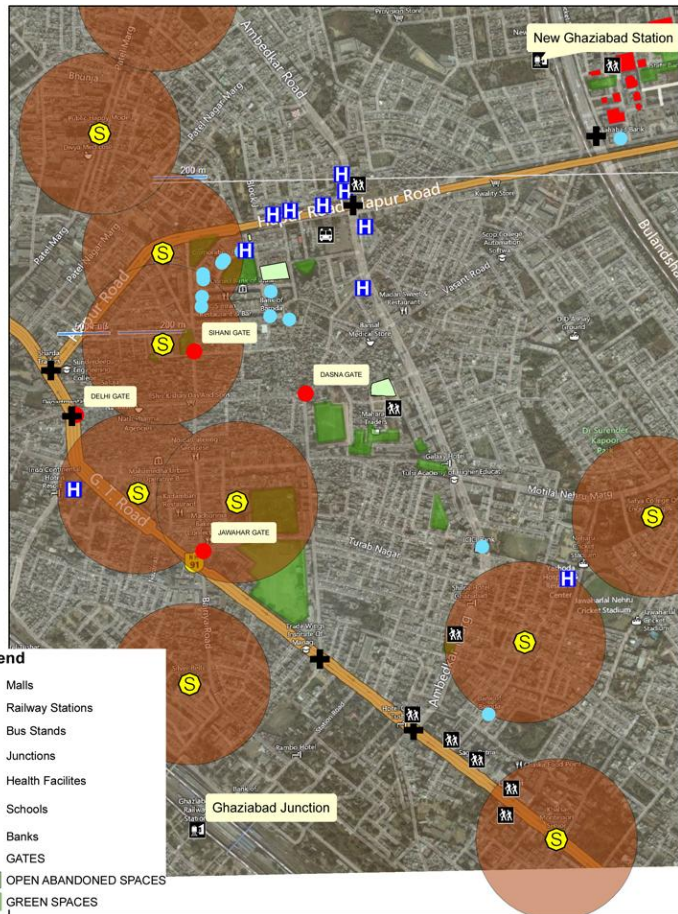


Figure 73 Influence zone for educational facilities

• Health Facilities:

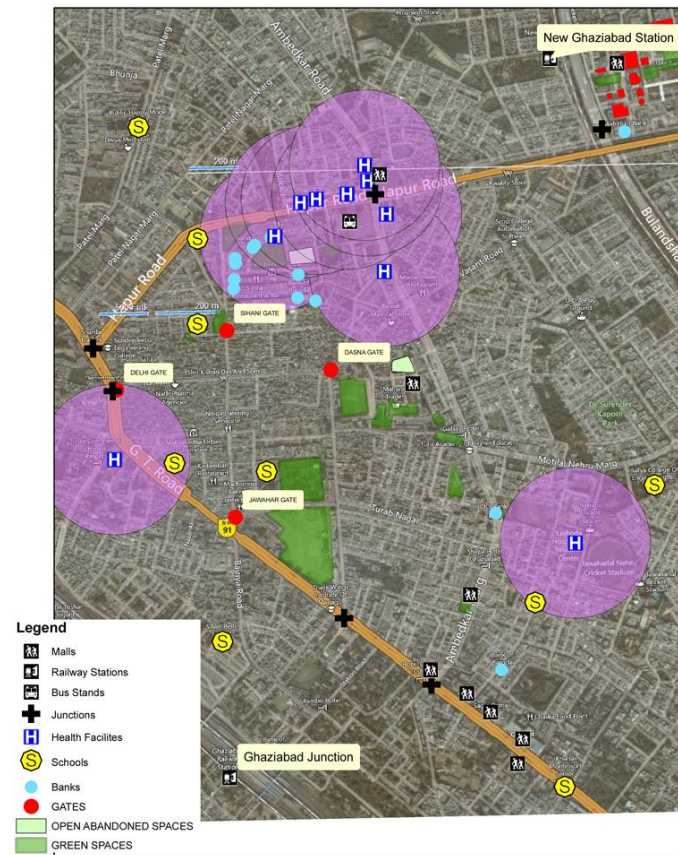


Figure 74 Influence zone for health facilities

- **Shopping malls and commercial complexes and overlap of all influence zones.:**
 - **Buffer Radius : 250m**
 - There is an increasing trend of favorability over Malls instead of Street shopping, which poses an economical threat to the existing street shops. *Depleting infrastructure of the street shops. Traffic Chaos is the primary concern.*
 - An overlap of all the influence zones created shows that although the facilities are quite adequate, there is a stress on the existing infrastructure, and at times, new developments pose a threat to the economics of the existing shops. *Eg. People prefer shopping in malls despite the availability of all things in the street market.*

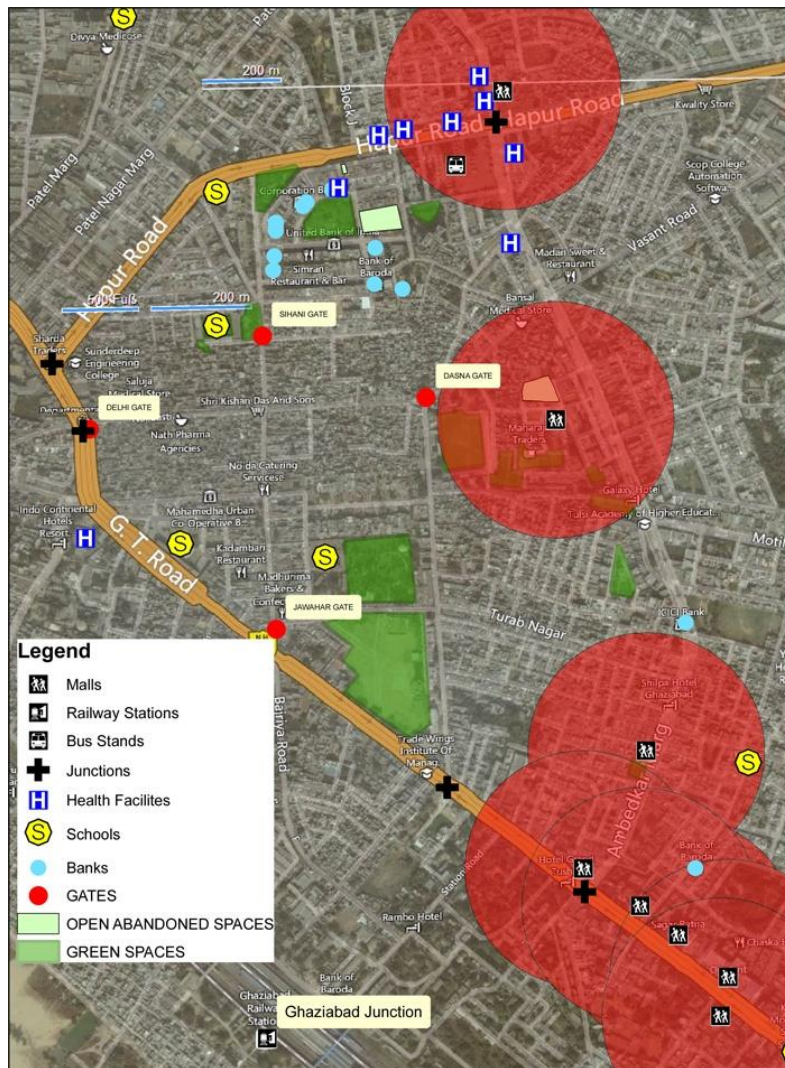


Figure 75 Influence zone for shopping malls

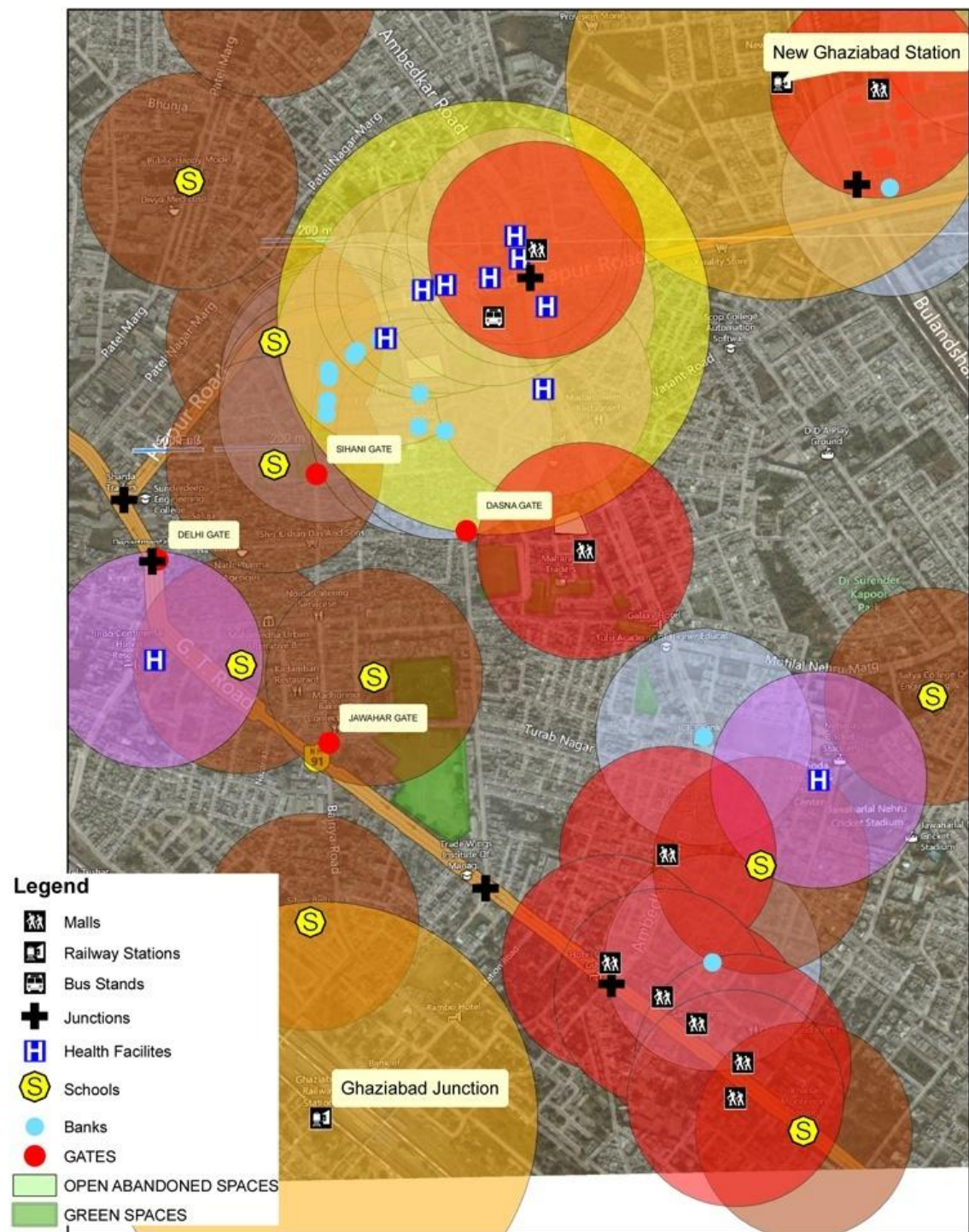


Figure 76 Influence zone for overlap of all the facilities

4.2.2 PRIMARY SURVEYS

Detailed survey questionnaires were prepared for **residents and shopkeepers** and the questionnaires had various questions with respect to social behavior, shopping trends and infrastructure. The surveys were conducted both online and onsite and the questions were framed keeping in mind the view of the local residents and the residents who are frequent visitors of the area. Since the main concern is that of infrastructure, the questions were framed accordingly. (Annexure 1 & 2)

4.2.2(A) PRIMARY SURVEYS: RESIDENTS & VISITORS

Total Number of respondents (online and on-site): 183

(a) User behavior:

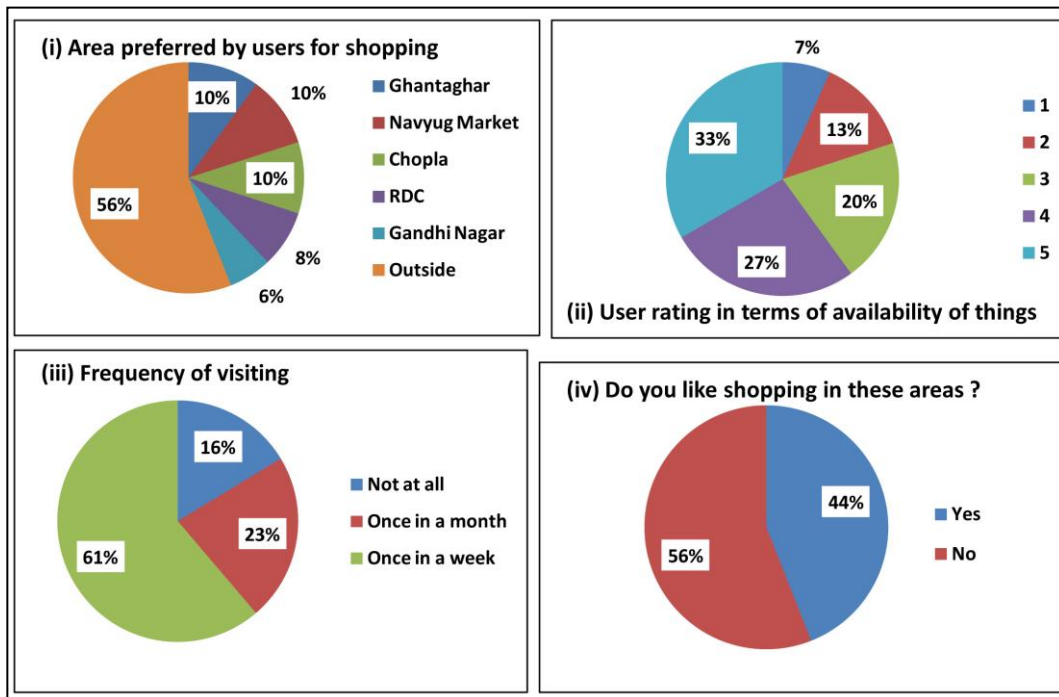


Figure 77 General user behavior in the area (i) to (iv), Source: Author

Inferences:

- From (i) & (ii), it can be seen that almost a majority of people (33 %) have rated the market area in term of availability of things as 5, on a scale of 1 to 5, yet, almost 56% of the people go for shopping outside the CBD area, as seen in (i), the people who go

to the CBD area for shopping is 44%. Hence, it can be concluded that apart from availability of things, quality of a public space is also preferred by the user.

- From (iii) & (iv) , it is observed that a majority of people do not like to shop in these areas , although they visit the area quite frequently.i.e. at least once a week for household chores.
- Hence, it can be concluded that although the availability of goods in the CBD area is good, but the Quality of public realm needs to be checked.

(b) Views on Public spaces:

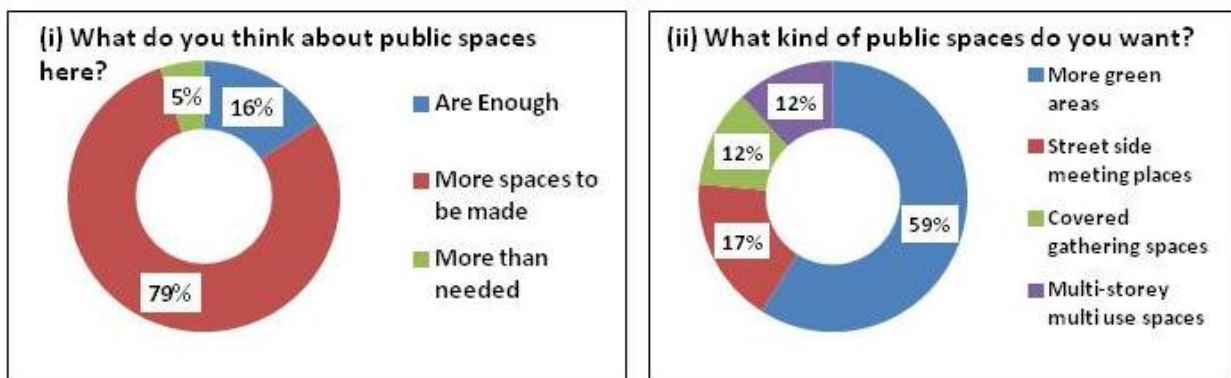


Figure 78 Views on public spaces

Inferences:

From Figure 78 (i) it is clear that people want more open spaces to be created and from 78(ii) it is seen that people want more green areas to be built in the area. Hence, planning intervention becomes necessary.

(c) Traffic and Transportation:

Traffic and transportation is the lifeline of any city and the key to successful Urban Planning. However, the CBD area is plagued by a lot of traffic and transportation problems as observed from the field survey and primary survey. The results of which are illustrated in Figure79 (i) to (vi). It is seen that people are aware of the ongoing problems and are ready to participate if needed in the planning process.

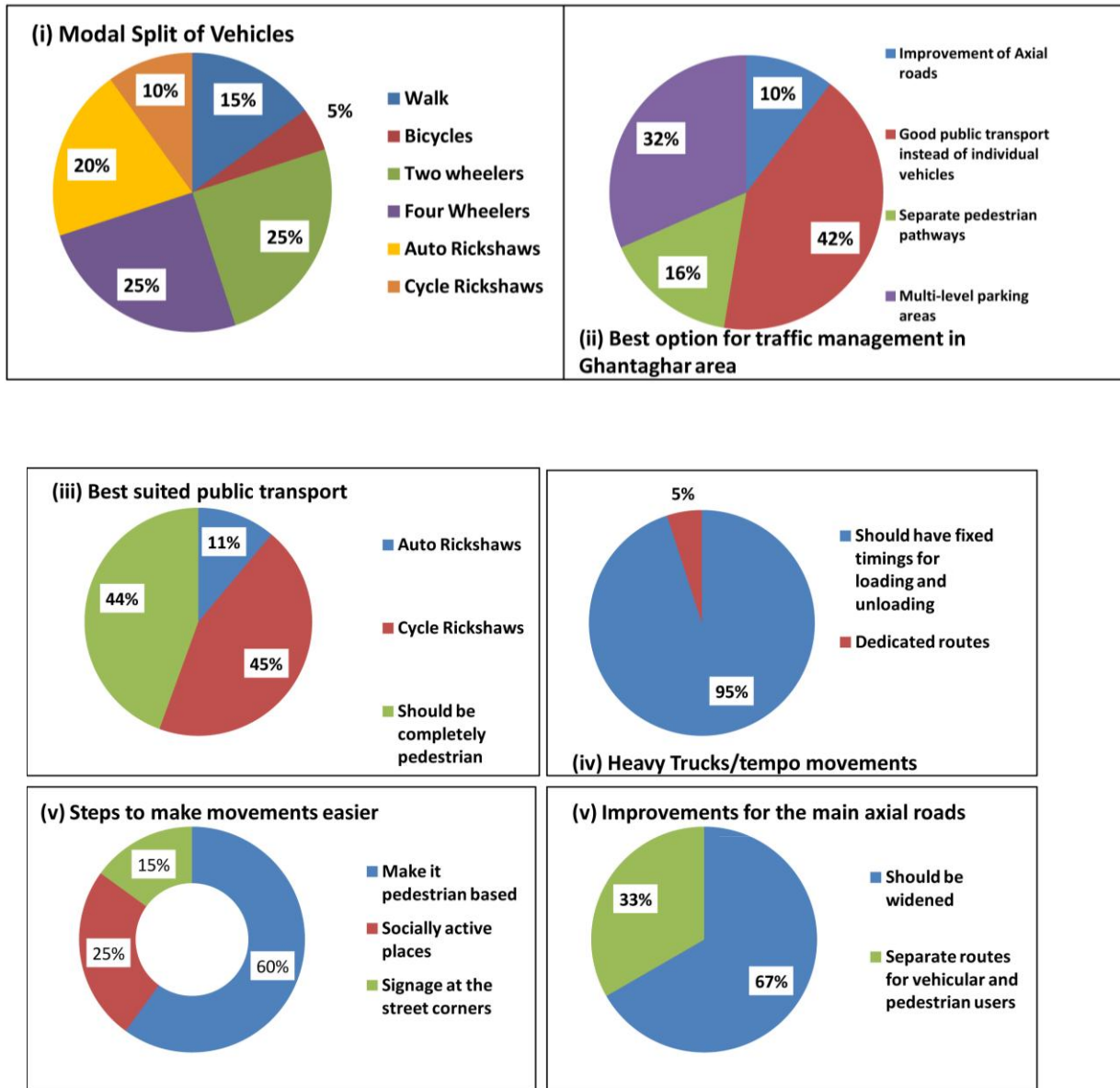


Figure 79 (i) to (vi) People's views regarding transportation

Inferences:

❖ As per the primary survey, it has been found that a large percentage (about 50%) of buyers / customers take their private vehicles, whereas only 5% walk upto the CBD; and a mere 30% use Public Transport to it. Hence, owing to a large percentage of customers using private modes of transport to access the Market, finding adequate space for parking of private modes within the market premises is a challenge. This is due to drastic increase in the number of vehicles. [Fig. 79(i)]

- ❖ The people realize the importance of a good Traffic management plan as seen in Fig. 79(ii), 42% say that if good public transport is provided, it could solve a lot of issues because people are willing to use public transport instead of private vehicles. Also, best suited public transport according to people would be cycle rickshaws [Fig. 798(iii)]. Hence, Battery-operated shared rickshaws can serve as a good mode of public transport to ease the ongoing congestion.
- ❖ The need for making a pedestrian based street was also highlighted during the survey as about 60% people say that it's the best option to ease congestion in the prime areas of Ghantaghar.[Fig. 79(v)].Also, heavy trucks and tempo movements should be restricted to a certain time period during the day.
- ❖ People prioritize the need to widen the main axial roads and this is the probable option for their improvement.

(d) People’s priority for improvement:

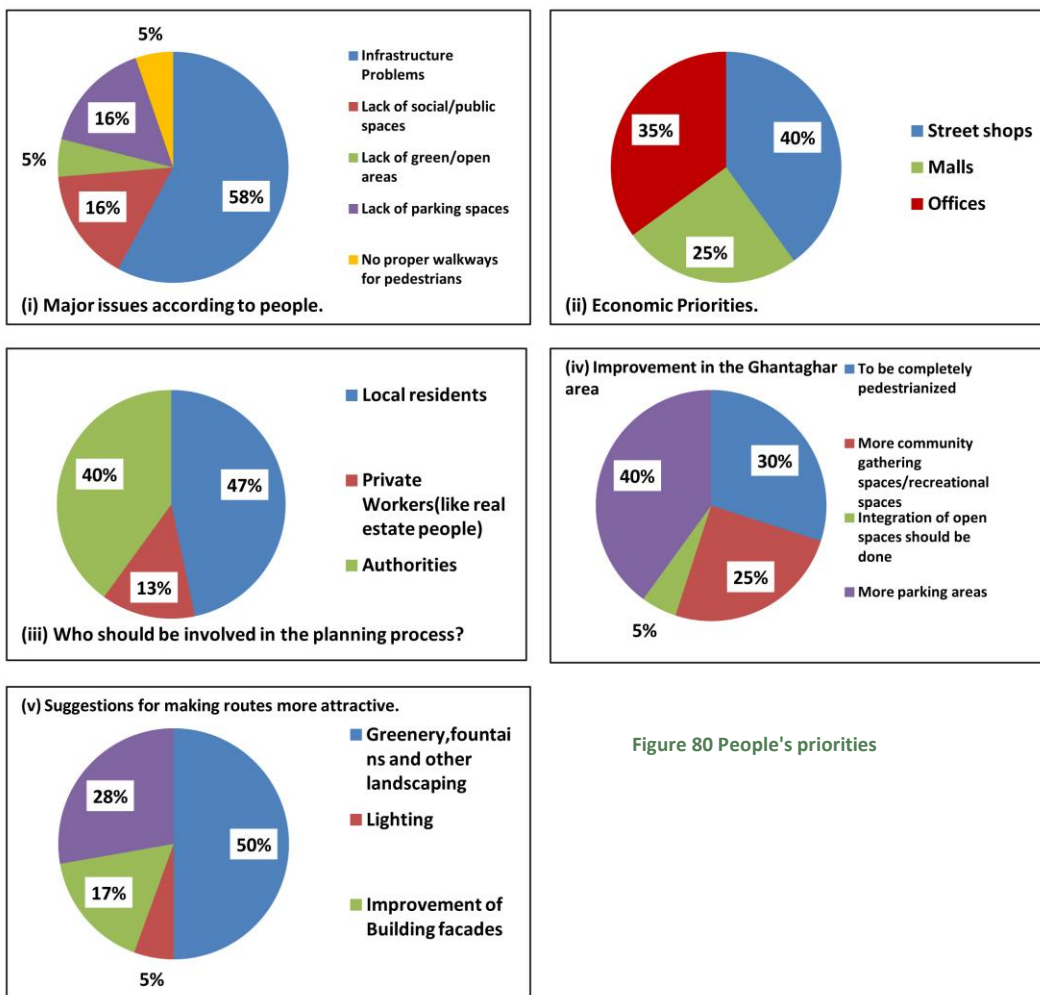


Figure 80 People's priorities

Inferences: From the results of the primary survey for people’s priorities, a prioritization of the examined aspects was calculated and tabulated on a scale as follows:

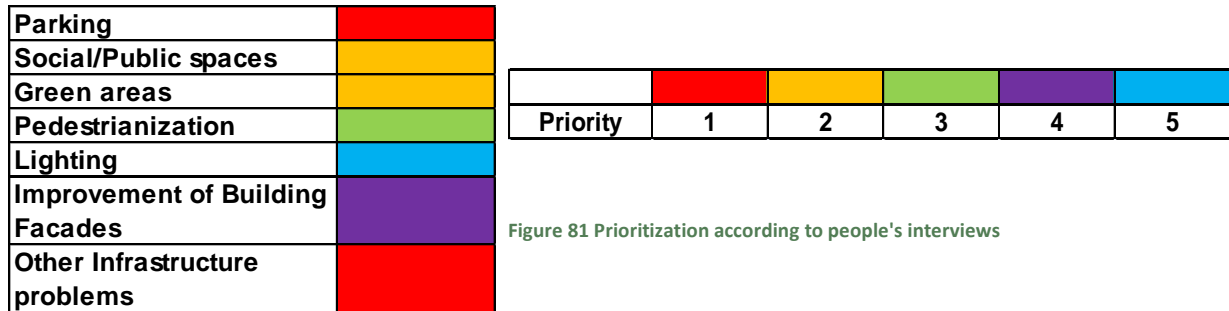


Figure 81 Prioritization according to people's interviews

- ❖ From figure 80, it is seen that people’s main concern is lack of Parking spaces in the area, and other infrastructure problems related to roads. Hence, it is essential that creating more parking spaces should be the key objective during planning intervention. This is followed by an immediate need to create open public spaces and green areas.
- ❖ The street shopping character of the area should be restored as almost 40% of the people listed it as the top economic priority.
- ❖ From Figure 79(iii) it is clear that probably a collaborative setup should be established between people and authorities for the planning intervention.

(e) Safety:

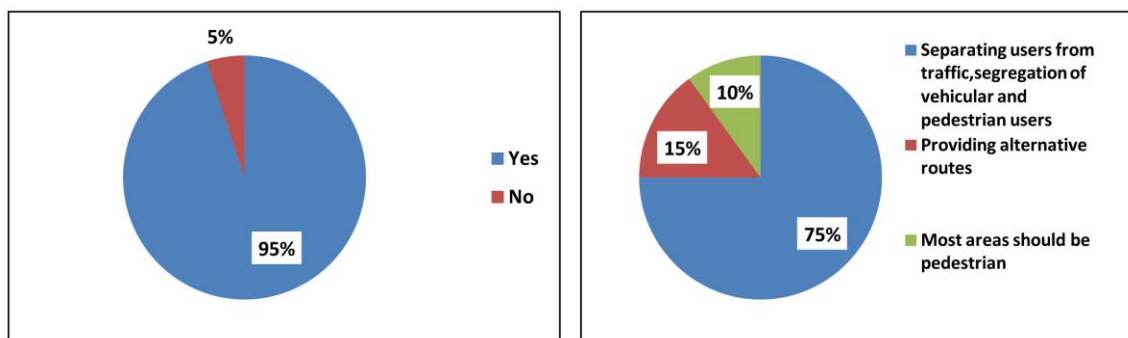


Figure 82 Left: Whether people feel safe while crossing the roads & Right: What can be done to make safer conditions

Figure 82 shows whether people feel safe when they cross the roads, and the result was 95% don’t feel safe while crossing the roads, and according to them the segregation of vehicular and pedestrian traffic is the best solution to make the conditions safer.

(f) Street infrastructure and Quality of public realm: The integral part of the survey questionnaire contained random questions regarding street infrastructure and the aesthetic and visual appeal of the area. The results of which are shown in figure 83.

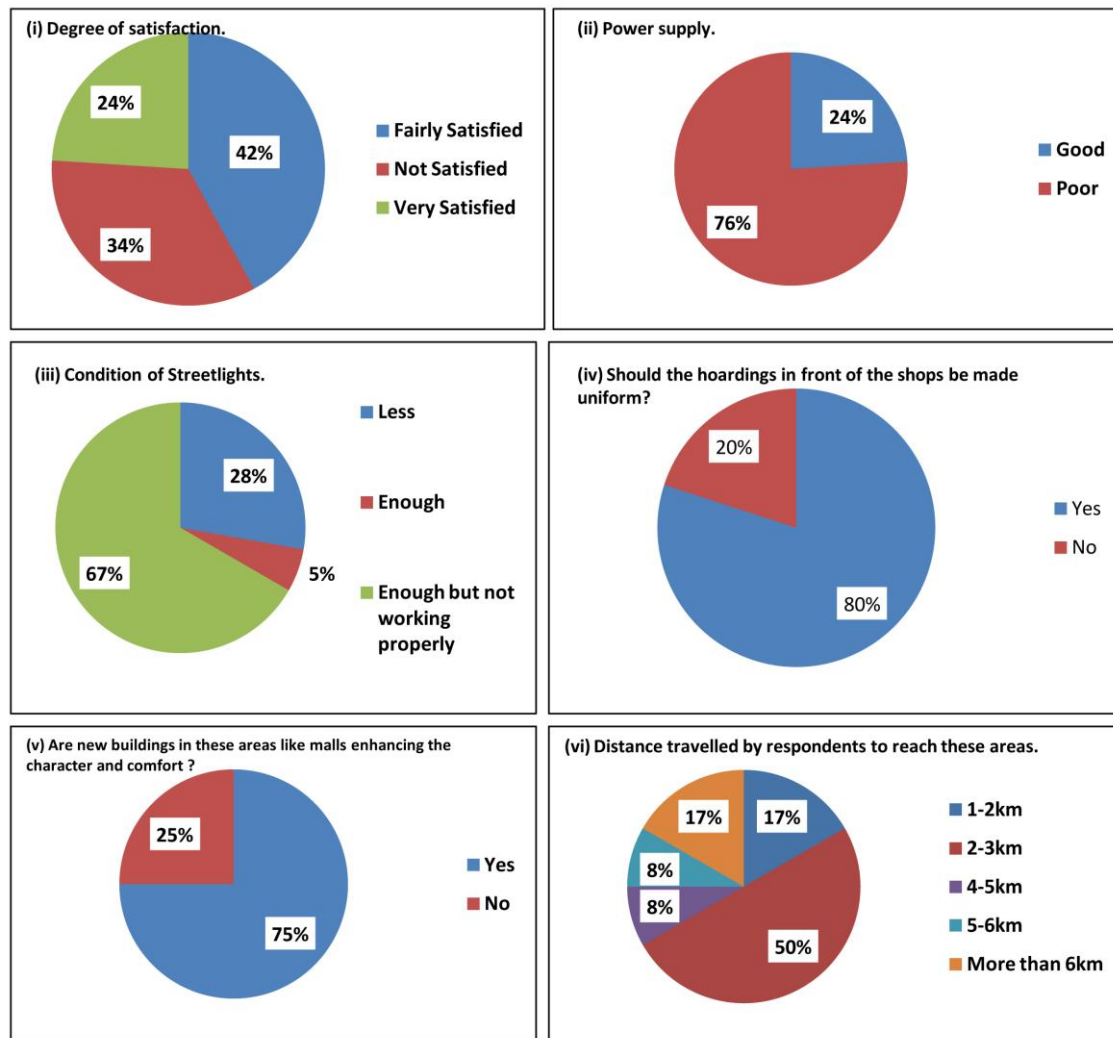


Figure 83 Street infrastructure and Quality of public realm

Inferences:

- ❖ The power supply is not regular and it has been noted that there are 6-8 hours of power cut everyday in these areas.
- ❖ Moreover, there is a desperate need to improve the street infrastructure for improving the aesthetics and social security of the place as 67% of the respondents said that although there are enough streetlights, but they are not working properly. Hence, it is noted that there is a lack of maintenance.

- ❖ To enhance the character and comfort in these areas, people believe that the opening of new malls in the adjoining areas has helped in improving the quality of the place, and it has given them a feasible option with “all goods at one place”. Moreover, the hoardings in the front of the shop are not appealing visually to the people. Hence, they can be maintained in a standard size and shape lending an overall uniform look to the facades of the shops.
- ❖ Most of the respondents/customers were within 2-3 km range of the study area. Hence, if analyzed thoroughly, a walkable community can be created within the CBD area for the people so that vehicular congestion is reduced and there is more emphasis on pedestrians.

4.2.2(B) PRIMARY SURVEYS: SHOPKEEPERS

The Shopkeepers survey was grouped according to the the old and relatively new areas:

For the analysis, the old areas were grouped together i.e. Ghantaghar and Turab Nagar and similarly the new areas: Navyug Market and Raj Nagar District Centre were grouped together.(Figure 84).

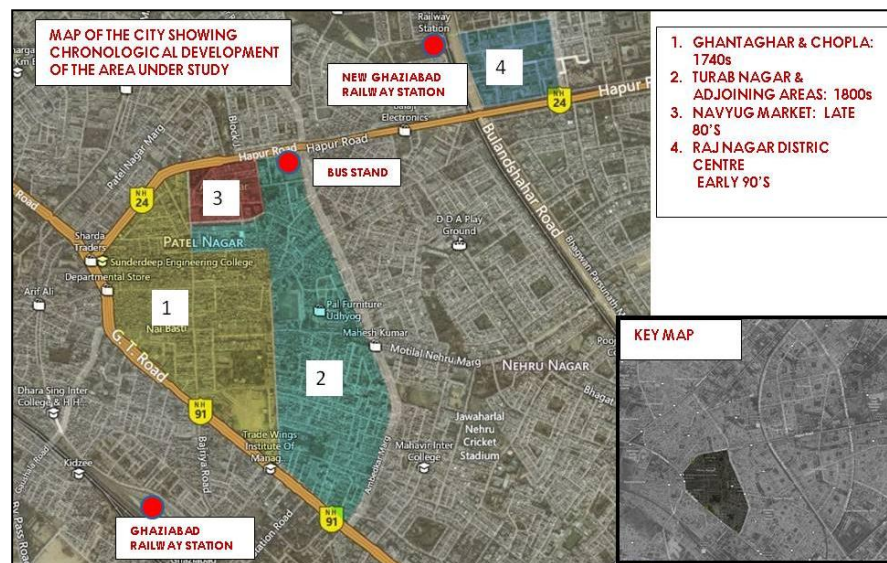


Figure 84 Commercial areas in the CBD,Source: Author

The analysis helped in comparison of the market trends and the problems faced by the shopkeepers in the areas.

(a) Reasons for locating the shops

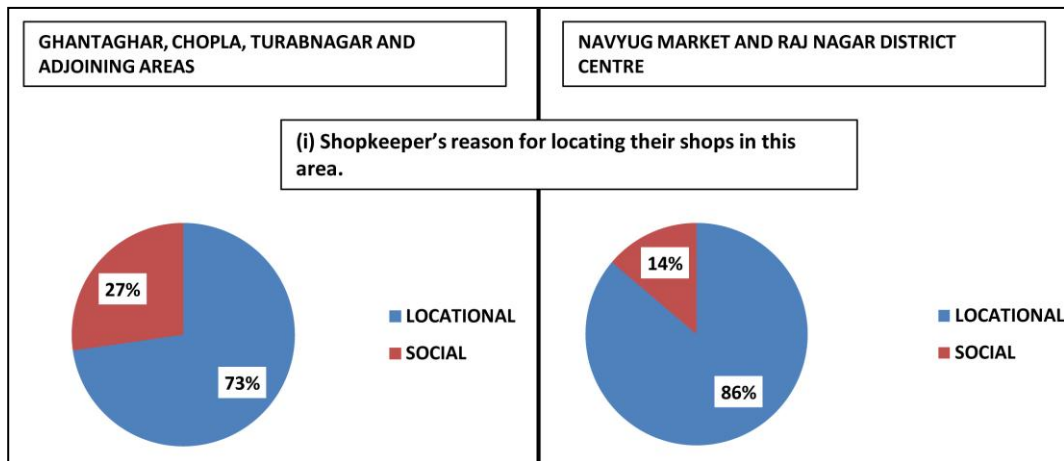


Figure 85 Reasons for location of the shops

From figure 85, it is noted that the CBD area has a strong locational advantage as it is the geographic centre of the city and it is easily accessible, and this helps in attracting more customers. If proper planning intervention is stressed upon, this area could become a urban hub for commercial activities, as the area clearly has a lot of potential.

(b) Area, rent and land values:

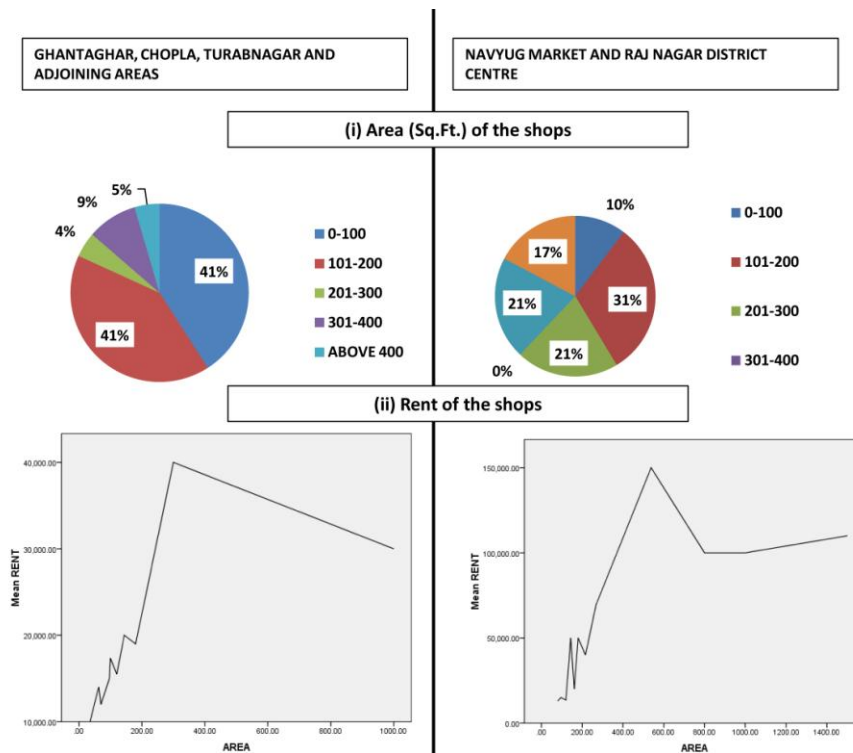


Figure 86 (i) Area of the shops & (ii) correlation between areas and rents of the shops

Inferences:

- For figure 86(i) Graph between the rent and area of the shops show that the rent increases upto 400 sq.ft and then the rent is relatively stable for shops of areas between 500-1000 sq.ft . while For figure 86(ii) Graph between the rent and area of the shops show that the rent increases upto 600 sq.ft and then the rent is relatively stable for shops of areas between 800-1400 sq.ft , hence it can be concluded that the rent is more in the newly developed areas of Navyug Market and RDCs and the shops are becoming more compact in the developing district centre.
- The land rates in general are about Rs.7000 per sq.ft. which is quite high. Although people are willing to locate their shops in these areas, but due to poor infrastructure in the core area, the preference for locating the shops is shifting towards shopping malls.

(b) Land ownership and footfall per day:

Inferences:

- Most of the shops in the old city as well as the new markets are on rent; this is due to the increasing land prices in the areas.
- Most of the shops have relatively low footfall as

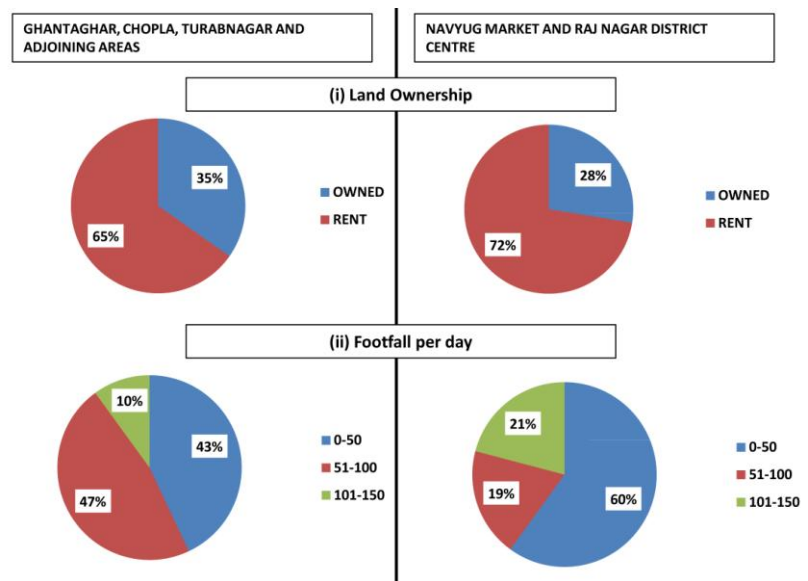


Figure 87 (i) Land Ownership & (ii) Footfall per day

seen from figure 87(ii) which is as low as 0-50 persons on a weekday. This is likely due to the poor infrastructure conditions as observed during the primary survey for residents.

(c) Shopkeeper’s priority for improvement:

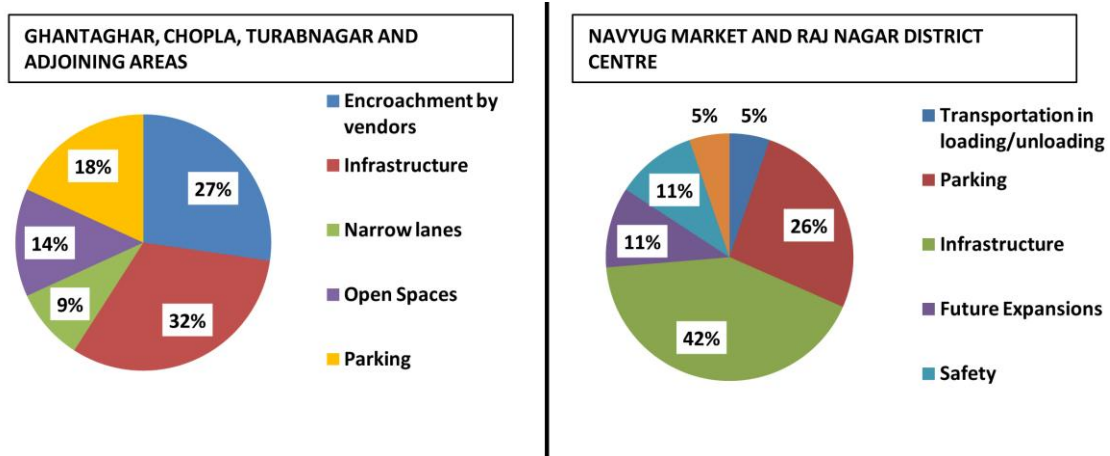


Figure 88 Shopkeeper's priority

The shopkeeper’s priority for improvement and major issues of concern have been rated on a scale of 1 to 5, 1 being the topmost priority for improvement and 5 being the least priority for improvement. (Figure 89)

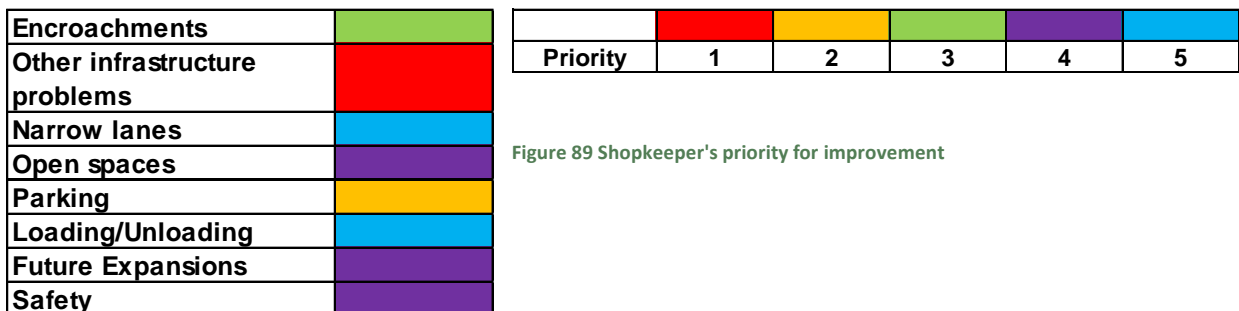


Figure 89 Shopkeeper's priority for improvement

It is seen that the shopkeepers are most concerned about the infrastructure problems like condition of roads and street infrastructure. Parking is another major concern for the shopkeepers as well as the residents and visitors.

(d) Type of vehicle used for loading/unloading:

Out of the total number of respondents, a huge number of shopkeepers use their personal vehicles for loading and unloading in the CBD area, which acts as a catalyst for the vehicular growth in the area as the area is already posed with serious parking problems. The modal split up for type of vehicles used for loading and unloading is illustrated in figure 90.

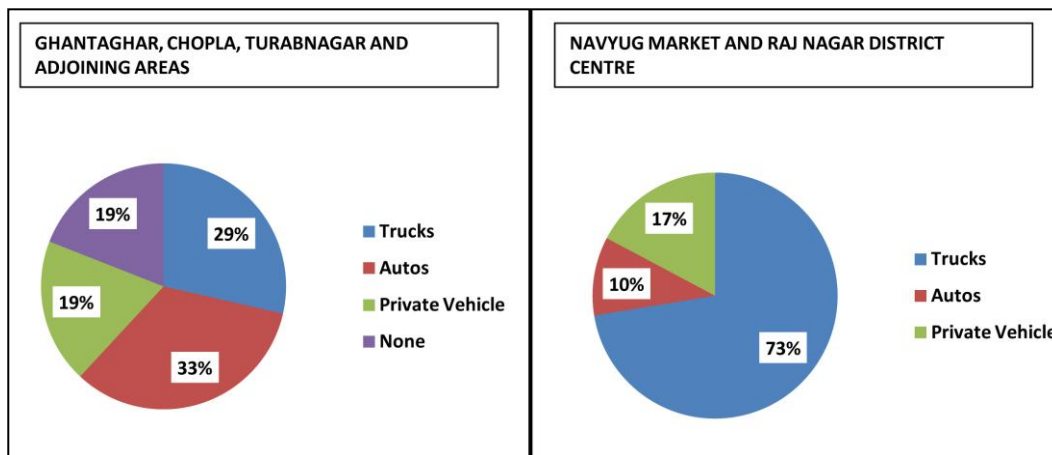


Figure 90 Vehicles used for loading and unloading

(e) Age of the shops:

- The shops located in the older areas see a continuous trend of 'buying' and 'selling', though the owners of the residences are living there since 2-3 Generations, many people have sold out their shops and engaged in other businesses. Many shopkeepers are relocating their shops to malls and outskirts of the city owing to the infrastructure problems in these areas.
- Most of the shops in RDC and Navyug Market are still new but the area has scope for serious intervention. Developed in late 80's and early 90's the area attracts consumers from all over Ghaziabad because of its locational advantages. If a little emphasis is stressed on achieving a better Quality of public realm, this area has the potential to become a major hub in the coming years. [Figure 91(i)]

(f) Area of the shops:

- The shops which are relatively new (refurnished or rebuilt) are having lesser areas as compared to the older shops which shows that the old city doesn't have adequate space for new shops. Hence, there is a need to rebuild and revitalize the existing infrastructure to improve the Quality. [Figure 91(ii)]

- The areas of these shops are relatively similar in size, all these shops have come up in or after the 1980s, since the areas were a part of the 'planned development' the areas were standardized. In this case, the Urban Intervention should be emphasized more upon creating more public spaces for the people, and improving the infrastructure at Design Level for eg. Fountains, green belts etc. can be incorporated.

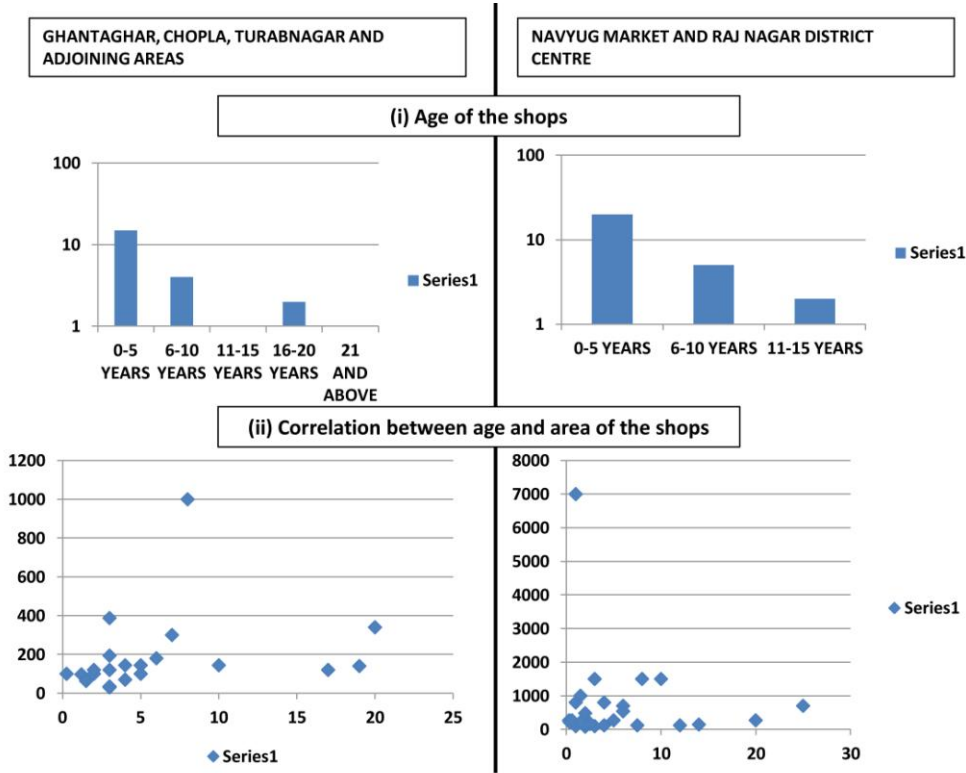


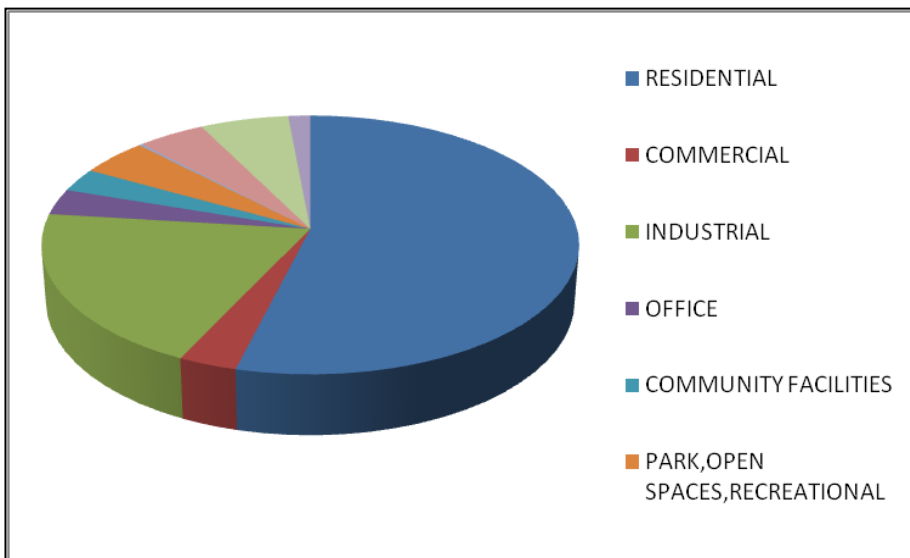
Figure 91 (i) Age of the shops & (ii) correlation between age and area of the shops

4.3 SECONDARY DATA: FINDINGS FROM THE GHAZIABAD MASTER PLAN 2021 & OTHER LITERATURE

Out of the total development area of Ghaziabad, **3.22 % (274 Ha)** is being used for **commercial and business activities**. The main commercial areas are situated in the heart of the city, and due to large portion of Trans-Hindon areas being under Industrial use, a commercial business centre is not being developed.

The main commercial areas include Sahibabad Sabji Mandi(Trans hindon areas) , and the Sabji mandis is Govindpuram and old bus stand areas. About 54 Ha is devoted to main commercial area for vegetable vendors.

In the trans-hindon areas, the commercial areas have been developed based only on the user needs , *for high end commercial areas, people still prefer to go to Delhi.*



Existing landuse: Ghaziabad, 2003

S.No.	Landuse Category	Area(Hectares)	Percentage
1	Residential	4670.00	55.03
2	Commercial and Trade	274.00	3.22
3	Industrial	1710.00	20.16
4	Office	280.00	3.30
5	Community Facilities	253.00	3.00
6	Park, Open Space, Recreation including Green Belt	399.50	4.71
7	Undefined Areas	16.55	0.20
8	Railways	232.55	4.71
9	Roads/Bus Stands/Depots	520.30	6.13
10	Others	129.00	1.52
	TOTAL	8455.00	100.00

Source: Master Plan of Ghaziabad 2021

Figure 92 Land use of Ghaziabad District: Source: Ghaziabad Master Plan 2021

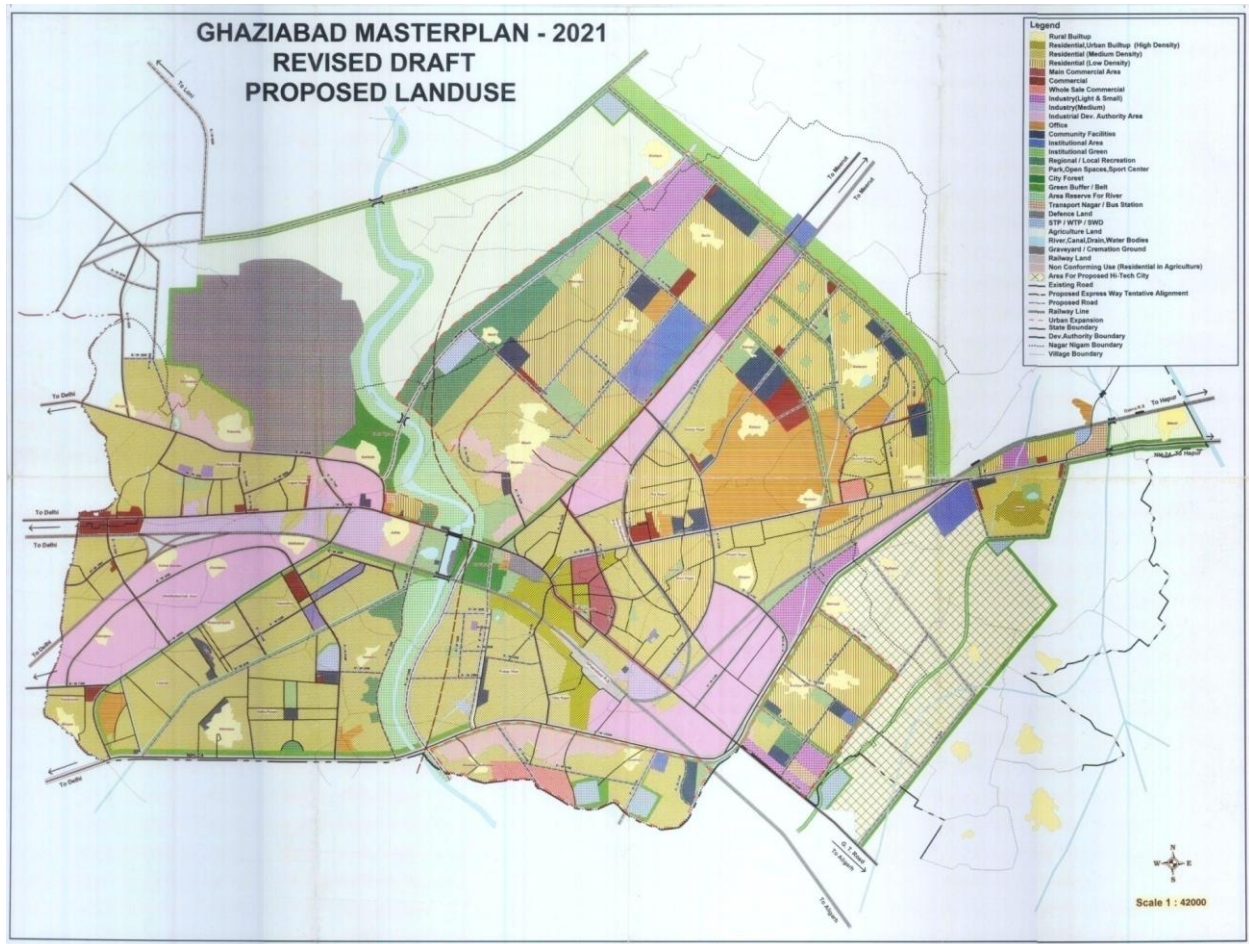


Figure 93 Land Use Plan of Ghaziabad District, Source: Ghaziabad Master Plan 2021

4.3.1 PROBLEMS AS HIGHLIGHTED IN THE MASTER PLAN

- ❖ The old city portion, being highly congested with narrow lanes, poses a serious **problem for transportation and mobility**, and due to a rapidly increasing population in nearby areas, it is also facing a **problem of inadequate parking spaces**.
- ❖ **Shops have come up on the setbacks of the homes, a clear violation of the by-laws, This needs to be checked.**
- ❖ Although there have been a steady increase in number of malls, shopping complexes within the vicinity of the old city area, but due to the narrow roads, and inadequate parking, these complexes pose a major problem to these areas.

- ❖ Hence, the activities in these areas need to be organized in a pretty fair manner and also commercial development should be restricted in areas meant for other purposes.
- ❖ Inadequate and poor condition of internal roads
- ❖ Virtually **non-existent intra-city public transport.**
- ❖ Bus Stand with **inadequate facilities**
- ❖ **Inadequate pedestrian facilities**
- ❖ **Inadequate parking facilities** resulting in haphazard on-street parking
- ❖ **Absence of Truck Terminal parking** areas.
- ❖ Inadequate facilities for non-motorized modes of transport
- ❖ **Inadequacy of roadways**
- ❖ Absence of intra-city public transport:
- ❖ Inadequate pedestrian facilities
- ❖ Deficient Junctions
- ❖ Lack of Traffic Control Devices
- ❖ **Improper location of Bus Stops**
- ❖ Loading and unloading of goods at unauthorized places, obstructing the traffic and pedestrians alike
- ❖ Absence of Truck Terminal
- ❖ Inadequate facilities for non-motorized modes of transport
- ❖ Intermixing of Regional and local traffic.

TRANSPORTATION ISSUES AS NOTED IN MASTER PLAN

Statistics:

- Daily trips are more with **41% followed by alternate days and weekly trips with about 25% and 14% respectively.**
- Trips are for **business purpose averaging about 43% comparing with 23% of work, 18% social and recreation, 8% tourism, 7% of education and 19% other trips respectively.**
- The majority of people are using their own transport for commuting to their work place.

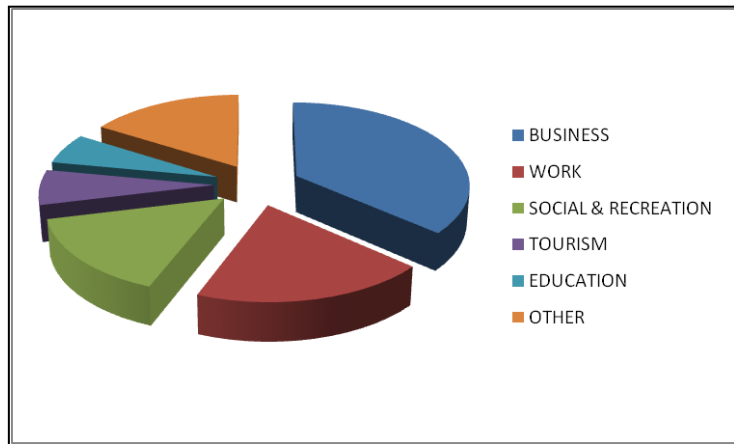


Figure 94 Daily trip statistics in and around the CBD area, Source: Wilbur Smith Associates

Results of the Road Side Interview Survey Conducted at NH-24, NH-58 & NH-91 : A road side interview at the bounding roads of the CBD i.e. NH-24 and NH-91 was conducted by Wilbur Smith Associates for identification of traffic problems, and there are a huge number of people who are not satisfied by the existing traffic infrastructure and public transport as seen in figure 95 & 96.

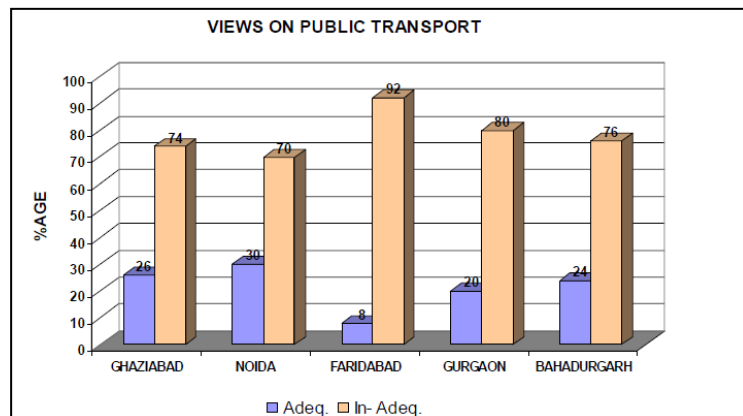


Figure 95 Road side Interview results, views regarding public transport

Factor	% of people who are not satisfied by the existing conditions			
	Non-slum Households	Slum Households		
Road Conditions	20	47		
Services of Street Lights	30	20		
Drainage facilities along roads	77	65		
Vehicular Parking Facilities	75	94		
parking space	78	84		

Figure 96 Percentage of people who are not satisfied by existing conditions, Source: Economical & Financial Analysis DPR for Multi-Level Parking facility in Ghaziabad : Willbur Smith Associates

Improvement proposals

- A grade separator
- Road widening on a corridor stretch
- A multi-level parking facility
- A bus terminal.

Thus the main project rationale lies for **the rehabilitation of the Transport system** for Ghaziabad city in filling the demand – supply gap.

4.4 SWOT ANALYSIS OF THE STUDY AREA

Before understanding the problems in detail, a SWOT analysis is essential as it gives a brief idea of the present scenario and eventually helps in formulating policies and framework for the concerned area.

Strengths:

- Proximity to Delhi: **Locational Advantage** , also, the CBD area is bounded by two national highways, hence it's a major transition point attracting huge number of commuters every day.
- Major Developments like Metro Rail soon to be seen in the inner areas.

- A good number of Industrial estates and commercial establishments help in generating economy, commerce and trade.

Weaknesses:

- Lack of a proper Rapid Transit system.
- Lack of “Maintenance” in the core areas.
- The focus has always been towards the Trans-Hindon areas, and the Cis-Hindon areas are in a time warp.
- Major transportation and infrastructure problems

Opportunities:

- New Developments like Delhi Metro soon to cover inner areas as well.
- The Existing core city area has all the facilities in terms of availability, if a little rejuvenation is stressed upon, the area could develop into a potential hub.

Threats:

- Increasing Urban Agglomeration
- Stress on Existing Infrastructure
- **Decay of the City Core**
- Increasing Industries attract more population but also a threat to the existing ecosystem.
- The burden of population coupled with strain on city’s infrastructure has to be shared by the DMA cities/towns.

4.5 IDENTIFICATION OF MAJOR ISSUES

With the aid of the primary and secondary data analysis, the following main issues were identified under various parameters as shown in the table below. A summarization of the issues identified by the shopkeepers and residents/visitors/customers is needed to extract some important inferences.

ISSUES	OBSERVATIONS	PRIORITY	SUGGESTED INTERVENTIONS
Parking	Inadequate parking spaces, Congestion, On street parking resulting in reduction of RoW, Parking in front of the shops	HIGH	Multi-level parkings, parking charges, designated parking zones.
Narrow Lanes in the inner city area	Congestion in the narrow lanes	MEDIUM	Road widening, making innermost lanes totally pedestrian
Open spaces/Green spaces/Public spaces	Lack of open spaces, absence of green spaces, open abandoned spaces	HIGH	Green densification, proper utilization of open spaces, abandoned spaces can be used to make urban hubs
Loading/unloading in market areas	No fixed timings for loading/unloading in certain areas, Heavy use of private vehicles for loading and unloading	HIGH	Fixed timings for loading and unloading & discourage the use of private vehicles.
Public Transport	Though public transport is available, it is inefficient, and virtually non-existent intra city public transport	HIGH	Extension of Delhi metro to the inner city areas, Para-transit system
Solid waste management	Illegal dumping of solid waste	MEDIUM	A solid waste management plan has been drafted by Wilbur Smith Associates

Facilities for pedestrians	No proper sidewalks or footpaths, no disabled friendly spaces, no safety while crossing roads	HIGH	Need to integrate pedestrian movement facilities with the main routes, segregation of vehicular and pedestrian traffic
Encroachment by Vendors	There are vendor markets held once or twice a week which encroach the space in front of the shops	MEDIUM	Proper licensing of vendors, Providing a “planned” space, Relocation
Violation of Bye-laws	Shops have come up in the setbacks, Illegal extension of shops	HIGH	Strict bye laws and zoning regulations to be followed
Traffic Circulation	No Segregation between Vehicular and Pedestrian Traffic	MEDIUM	Grade Separators, Segregation of Vehicular and Pedestrian Traffic

CHAPTER
05

RECOMMENDATIONS



The objectives of this Chapter is to summarize the whole content of the dissertation and to identify some key questions and objectives, thereby framing some important recommendations at policy and design level and suggest some vital interventions necessary for renewal.

5 RECOMMENDATIONS

5.1 KEY QUESTIONS AND OBJECTIVES

On the basis of Chapter 4, 4.5, some key questions were framed which was a prerequisite for framing recommendations and making proposals. The key questions were also framed taking into account the priorities of shopkeepers and visitors. The challenges faced by the CBD area poses some serious questions which are, in a way, global in context:

- CAN THE CORE AREA OF THE CITY BE DEVELOPED TO DECREASE CONGESTION?
- HOW FAR CAN THE PLANNING INTERVENTION BE SUCCESSFUL
- ARE THERE ANY FURTHER EXAMPLES SIMILAR TO THE IDENTIFIED CASE?
- WHAT ASPECTS OF URBAN PLANNING & DEVELOPMENT CAN BE STUDIED FROM OTHER EXAMPLES?
- HOW CAN THE POTENTIALS OF THE STUDY AREA BE EXPLORED FURTHER?
- WHAT ARE THE PROBLEMS THAT THE CORE AREA OF A CITY FACES AND WHAT ARE ITS IMPACTS?
- CAN A SUCCESSFUL MODEL FOR RENEWAL OF COMMERCIAL CENTRES BE ACHIEVED THROUGH THE STUDY?
- WHERE ARE THE GREEN SPACES DISAPPEARING?

As per the parameters and issues identified in Chapter 4, recommendations were framed at a broader level with some plausible planning guidelines. Since the selected area is relatively small, solutions were based on opinion surveys and the author has tried to provide some practical solutions for them. Effort has been made to tackle the issues according to the priority levels. Since it is not possible to implement the required changes at once, it is necessary that proper phasing should be done as a prerequisite.

5.2 RECOMMENDATIONS AND PROPOSALS

5.2.1 PARKING

Background study and statistics: At present, the vicinity of the old bus stand has developed into a commercial hub and it also has a number of Government Establishments like GDA (Ghaziabad Development Authority) and GNN (Ghaziabad Nagar Nigam). As per the primary survey, it was found that there is a lot of on-street and off-street parking as seen in figure 98. Also, the modal split fig.97 indicates that a lot of people (50%) are using their private vehicles for commuting, whereas only 15% walk to the CBD area and the share of bicycle users is even less(only 5%). This results in encroachment of the carriage way and the effective width is reduced from almost **30m to 20m** at many places because a part of road is occupied by vehicles parked on street. In addition to this, shopkeepers have their own vehicles too which they park in front of their shops. This has led to a rapid increase in the number of

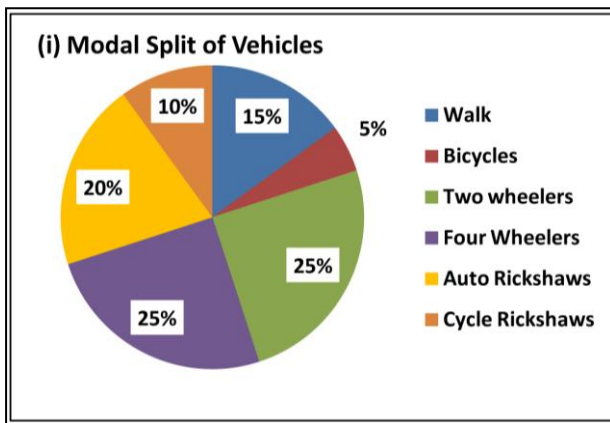


Figure 97 Modal Split,Source: Author

vehicles in the CBD area.



Figure 98 On street and off street parking,Source: Wilbur smith associates

Suggested Recommendations:

- (a) Some of the open and abandoned spaces can be used to make multi level parkings.
- (b) Designated parking zones can be established.
- (c) Parking District Management Plan shall be prepared to look at the parking issues comprehensively. Area shall be pooled to build off-street parking structures in the neighborhood. Parking pricing shall be revised so as to price the large cars more as compared to small ones.
- (d) Some of the potential sites for multi level parking were identified which are marked in figure 98.

1. Existing old Bus Stand area:

This land in Navyug Market is the land of Urvashi Cinema which was demolished recently. Illegal parking is observed in this site; hence this site can be also used for multilevel or underground parking which will ease the congestion in Navyug Market and adjoining areas. Moreover, this site has been identified in the Master Plan for



Figure 99 Identified sites for multi level parking

constructing a multi level parking and subsequent shifting of the Old Bus stand to Loni.

2. Abandoned Land of Urvashi Cinema: This land was the location of the single screen theatre called Urvashi which was demolished recently, after the demolition, the land still lies vacant and a lot of illegal parking is observed in this area. A multilevel parking with a commercial complex in this land can ease the congestion in the Navyug Market area and the adjoining areas.

3. Ramlila Maidan: Out of the two Ramlila grounds in the city, this is the ground in the CBD area, another ground in Kavi Nagar is the more preferred one, and hence a part of this ground can be used for multi level or underground parking.

(e) Unauthorized Parking near Ghaziabad Development Authority and Nagar Nigam uses up the capacity of the roadway, thus affecting the flow of traffic. Parking needs to be prohibited in this area.

Recommendation by NCRPB: THE NATIONAL CAPITAL REGION PLANNING BOARD, constituted in 1985 under the provisions of NCRPB Act, 1985, is a statutory body functioning under the Ministry of Urban Development, Government of India. NCRPB has a mandate to systematically develop the National Capital Region (NCR) of India. It is one of the functions of the Board to arrange and oversee the financing of selected development projects in the NCR through Central and State Plan funds and other sources of revenue.

NCRPB has proposed the relocation of the current Bus Stand to Loni and construction of a multi level parking area at the existing bus stand area. The details of which are given in figure number 100

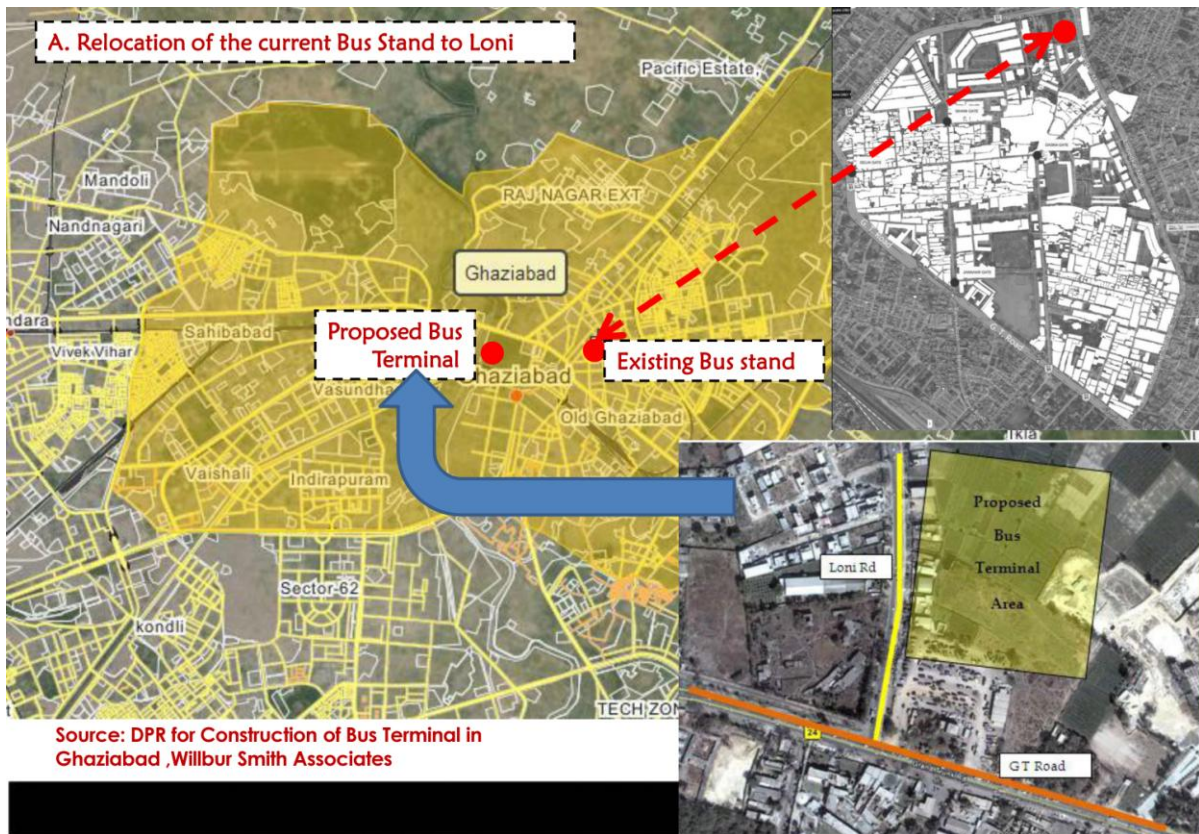


Figure 100 Relocation of Current Bus Stand and Identified site for multi level parking,Source: DPR for Multi Level Parking Facility in Ghaziabad ,Willbur Smith Associates

However, the author has tried to identify some **shortcomings** of the proposed project, and there can be other alternatives to the suggested proposals by NCRPB.

- ❖ The new bus stand is intended to be located in Loni, which will increase the commuting distance for the residents in the core city area.
- ❖ If the current bus stand is relocated, there will be an immediate need for a rapid transit system for the people in and near the CBD area to reach the new Bus Terminal.

- ❖ The existing bus stand is located at the geographic centre of the city which is easily accessible from all areas of Ghaziabad. Relocation might not be a good option in such cases.

Benefits: The construction of a multi level parking can ease the congestion in the area and also, areas around and in Navyug Market can be made totally pedestrian since there is no residential land use and the area is easily walkable.

Parking Demand Analysis and Forecast:

Ghaziabad Development Authority has conducted trip surveys to calculate the modal split in and around the CBD area. It was revealed that work trips are more with 87% (Car users) and 83 % (Non-car users) followed by shopping trips about 6 % (Car users) and 9% (Non-car users). The details of journey purpose are presented in figure 101.

Trip Purpose	Car Users (%)	Non-Car Users
Work	87%	83%
Shopping	2%	6%
Leisure	6%	9%
Others	5%	2%
Total	100%	100%

Figure 101 Trip purpose details, Source: Ghaziabad Development Authority

The survey also included the willingness to pay survey of the likely users. The survey indicates that users are willing to pay a charge in the range of Rs. 10 – 25 for a closed and secured parking.

Based upon the data obtained from GDA, parking demand forecast was done for the year 2030.

Vehicular Growth rate: 6%

Base year parking demand for the year 2010: 650

Base year Parking Demand	Projected Parking Demand (No. of vehicles)
Base year 2010	650
2010 – 2020	723
2020 – 2025	805
2025 – 2030	896

Hence, the future parking demand is around 900 PCU's.

5.2.2 OPEN SPACES, PUBLIC SPACES AND GREEN AREAS

Figure 101 shows the existing green and open spaces in the area:

1. Miscellaneous patches of green lands: These lands are presently in a bad state and are numerous in the area. Landscape plans can be initiated for these areas which could boost up the number of well maintained green spaces in the area.

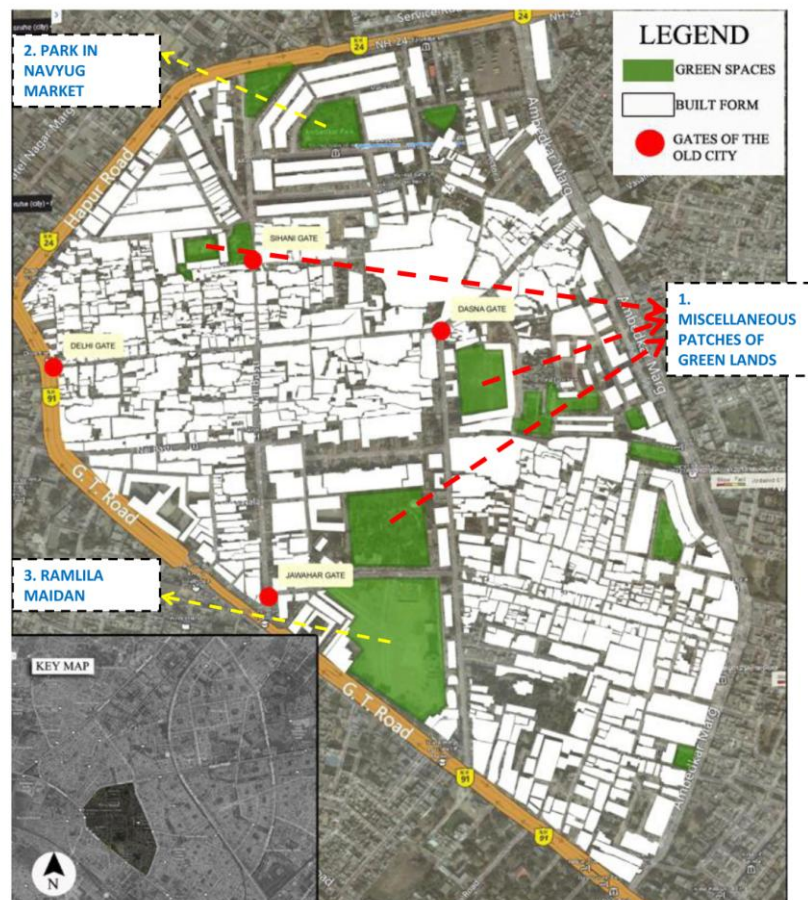


Figure 102 Existing green spaces in the area, source: Author

2. Ambedkar Park in Navyug Market: Navyug market has a high density of offices and commercial establishments. It has a park situated in the centre which is not well maintained and sees a low footfall. A green, urban hub with recreational centers like cafeterias can be provided in this park integrating them along with well maintained landscaped spaces.
3. Ramilla Maidan: As already mentioned above, the ramlila ground in Kavi Nagar area is more preferred as the space is more. Hence, the existing ramlila ground can either be utilized to make an underground parking with a landscaped area above or can be partially used to make commercial hubs.

Green Densification Concept:

Green densification can be done in the area by identifying potential spaces and creating green corridors. Space can be acquired by demolishing abandoned and buildings which are in bad condition. A suggested scheme is given in figure 103.

Green Densification

The Objective is to achieve a green network and to make a positive use of abandoned spaces, and to improve the existing green spaces.

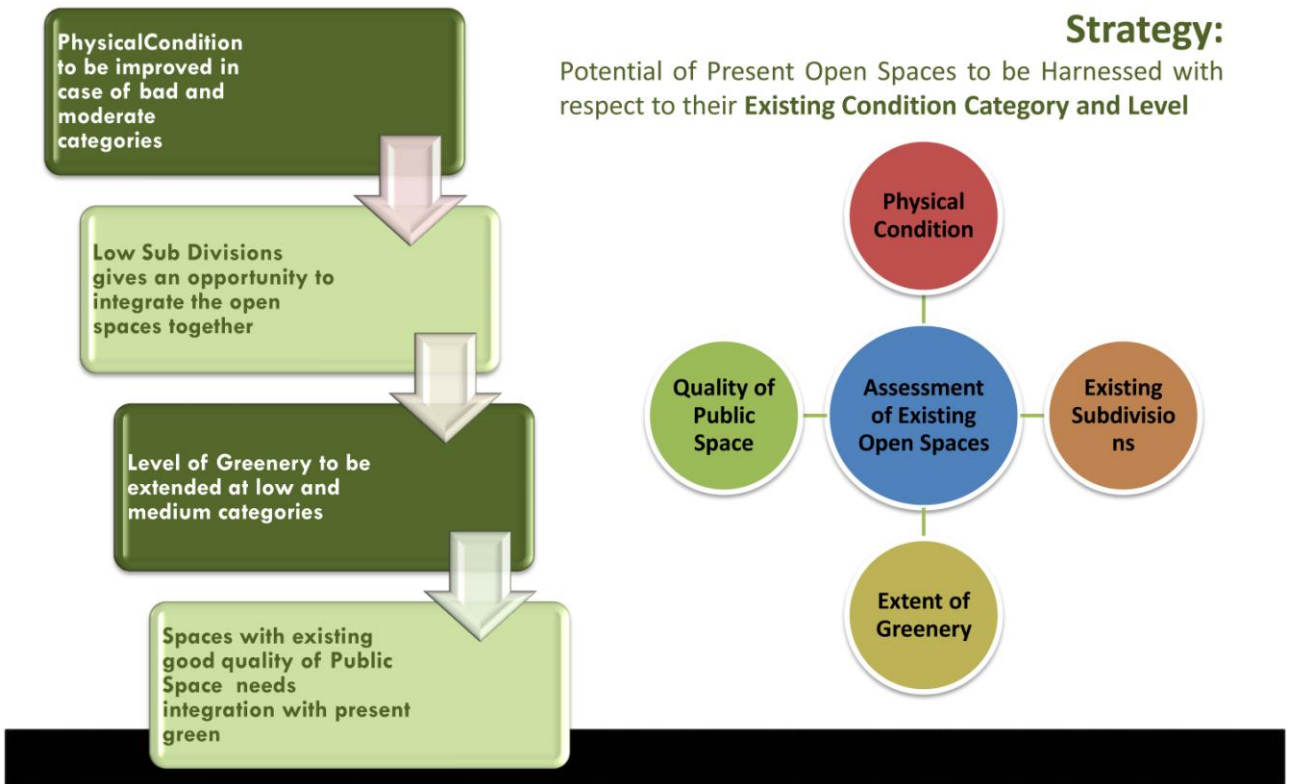


Figure 103 Green Densification Scheme, Source: Author

An attempt has been made to explore the potential of existing green spaces in the CBD area in order to suggest some plausible greening measures.(Figure 104). The assessment shows that most of the open spaces in the area are in moderate or poor condition and need to be properly landscaped and alternatives must be provided to boost their potential as gathering spaces, parks, recreational hubs and public spaces.

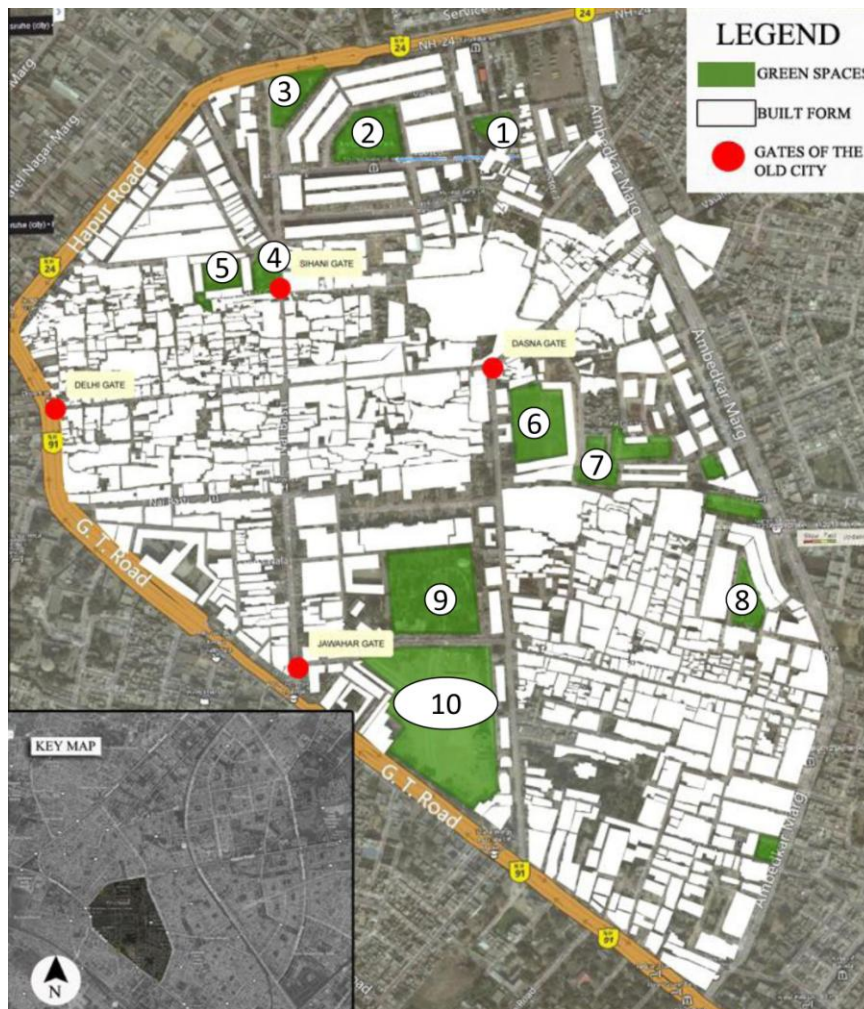


Figure 104 Map for assessment of green spaces, Source: Author

SPACE	REMARKS	PHYSICAL CONDITION	EXTENT OF GREENERY	QUALITY OF SPACE
1	Abandoned Land of Urvashi cinema	Poor	Medium	Poor
2	Ambedkar Park	Moderate	Medium	Moderate
3	None	Poor	Low	Poor
4	None	Moderate	Low	Poor
5	None	Moderate	Low	Poor
6	None	Moderate	Medium	Moderate
7	Abandoned space	Moderate	Medium	Moderate
8	Abandoned space behind commercial complex	Poor	Nil	Poor
9	Park	Good	High	Good
10	Ramlila Maidan	Good	Nil	Poor

Figure 105 Assessment of green spaces

5.2.3 PUBLIC TRANSPORT

NEED TO AUGMENT PARA TRANSIT & MORE EMPHASIS ON IMPROVING PUBLIC TRANSPORT:

For instance, to appraise how people commute to the Market Place, As per the primary survey, it was found that there is a lot of on-street and off-street parking as seen in figure 98. Also, the modal split fig.97 indicates that a lot of people (50%) are using their private vehicles for commuting, whereas only 15% walk to the CBD area and the share of bicycle users is even less(only 5%).

Hence, owing to a large percentage (about 50-60%) of customers using private modes of transport to access the Market, finding adequate space for parking of private modes within the market premises is a challenge.

Hence, the planning objective would be to augment use of public transport for trips to market. Simultaneously, private-transit may be restricted to peripheral limits of the market-area, and rest of the trip shall be made by shared para-transit (battery operated e-rickshaw, cycle-rickshaw, public bike sharing – PBS) and/or by walking. The

possible peripheral limits of the market area are shown in figure 105.

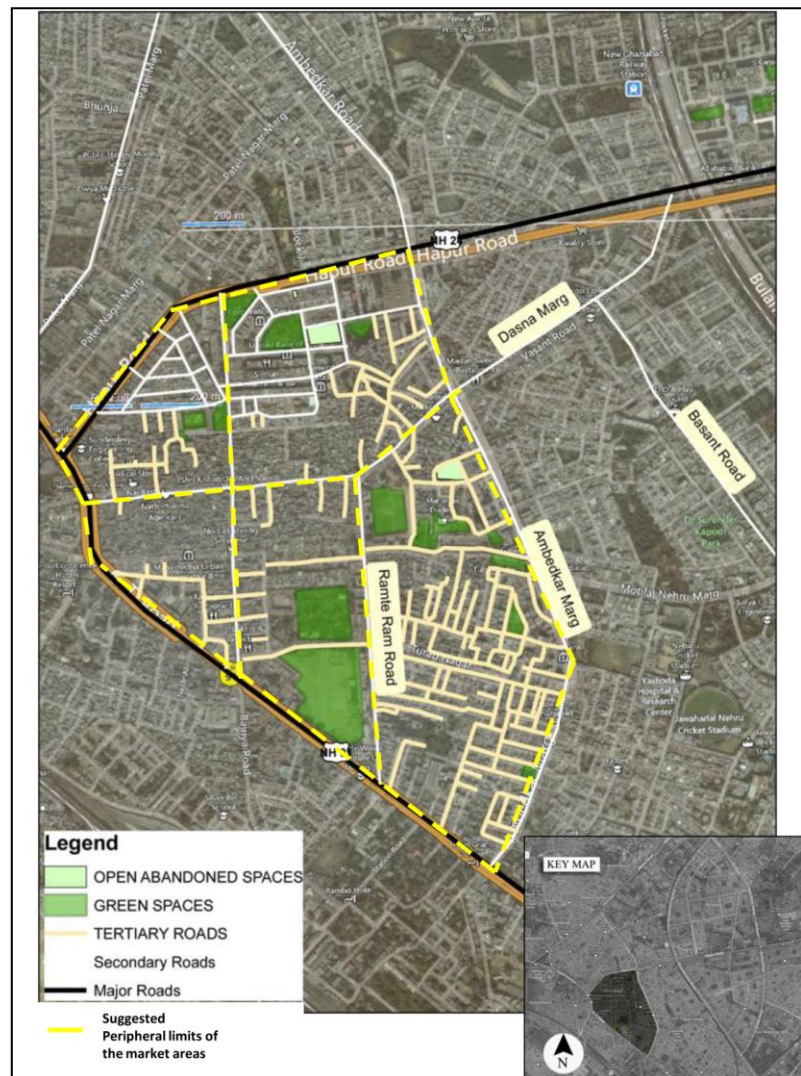


Figure 106 Suggested Peripheral Limits for Public Transport

- ❖ The stoppage time for the public transport should be limited to 5 minutes and designated parking areas should be provided for them.
- ❖ The axial roads need to be freed from public vehicles and only public transport should be allowed inside.
- ❖ The public transport to be limited to the network as shown in figure 106 and innermost lanes to be kept free of vehicles.

Some cases similar to the suggestions are:

Case-I: Public transit on a particular stretch of the Mall Road in Mussoorie is barred, whereas private vehicles of the residents and shop-owners are only permitted to ply on the road. Mall Road is a major tourist destination lined with shops and residences. Commuters may ride cycle rickshaws or walk. The end-points of the designated stretch of the road are manned by the City Police

Case-II: Vikram Nagar Colony next to Kotla Firozshah in Delhi. It is a dense informal residential colony which had mushroomed around the ruins of the Fort of Firozshah Tughlaq in Delhi. Under the Delhi Police's Neighbourhood Watch Scheme, Vikram Nagar Residents' Welfare Association (RWA) has ensured that only the vehicles belonging to the residents (identified by stickers pasted on the vehicles) shall be allowed to park inside the colony. Entrance Points to the Colony are manned by vigilant guards appointed by the RWA. Although it is an example of a residential neighbourhood, still one may extend the concept of restricted access to mixed-use settlements too, provided suitable parking arrangements are made at the entrance points. (For example, DDA Parking lot at the entrance to Hauz Khas Village in Delhi – a busy hub for fine dining and fashion-label stores.)

Case-III: Chandni Chowk, Delhi: Few years back, no auto-rickshaws and private vehicles were allowed to ply on the busy stretch of Chandni Chowk in Old Delhi. Only low-capacity buses /RTV-s ('Green Sewa') and cycle-rickshaws were permitted. Presently, no such dedicated paratransit is operational, but cycle-rickshaws dominate the trips made on this stretch between the Red Fort and the Fatehpuri Mosque. Here, even the count of cycle-rickshaws and/or rickshaws plying on the main street need be regulated, since a

plethora of these rickshaws generate clutter on the main carriageway. Moreover, to ensure pedestrian safety and facilitate it, one needs to ensure that pedestrians get their share of the road-space for commuting.

5.2.4 LOADING/UNLOADING

- ❖ As observed in the shop-owners' survey, loading / unloading of utilities generate chaos and disrupt traffic in the area. Hence, **loading / unloading operations shall be restricted to certain hours of the day (early morning and/or late night). Loading / unloading space** shall be arranged within the plot in case of redevelopment and/or new projects.
- ❖ It has also been observed from the shop owner's survey that a majority of shop owners use their private vehicles for loading/unloading. Hence, this needs to be avoided as it will only increase the vehicular congestion. A possible alternative could be a collective and centralized Transport centre where loading/unloading vehicles are provided.

5.2.5 ENCROACHMENT BY VENDORS

Vendors encroach upon the pedestrian-way and even on the carriageway. Hence, vending zones shall be demarcated. Only registered vendors shall be permitted to ply their shops in the zone. Relocation of vendors to areas away from the CBD will hamper the commerce, and impede their livelihood. Hence, instead of irrelevant relocation; planned readjustment shall be sought so as to plan the space for informal commercial activity. Vendors shall be made responsible for maintaining

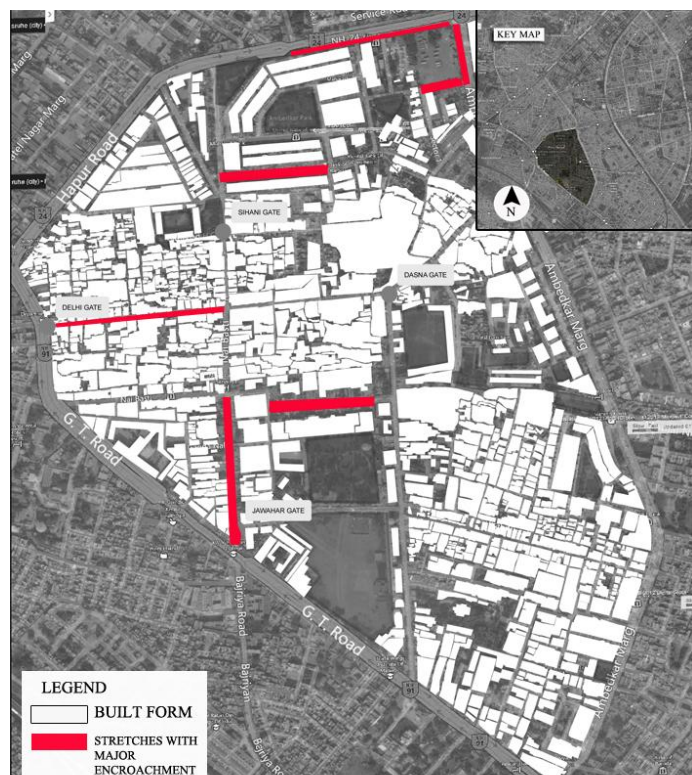


Figure 107 Vendor Encroachments

cleanliness around the area. This will help reduce the burden on the local body. The areas with major concentration of vendors are illustrated in figure 107. As per the Customer and Shopkeeper survey, around 27% of the shopkeepers have listed it as the major problem. The vendors have weekly or daily markets and encroach the road space which hampers their businesses. At times, the whole space in front of the shops is occupied by the vendors making it difficult for the visitors to reach the shops.

5.2.7 NARROW LANES AND ROAD WIDENING

To keep the narrowest lanes free from congestion, they should be made vehicle free. The lanes in the old city are as narrow as 2.5m at certain places. Hence, if designated parking areas are provided for the residents and shopkeepers alike, a pedestrian zone can be created and the innermost lanes can be kept free from congestion. The local roads (Fig. vary in width from 2m to 7m and the encroachment takes up about an average of 1.5m from both sides of the road. The encroachment by vendors should be discouraged specially in the innermost lanes and they should be pedestrianized.



Figure 108 Road Hierarchy in the study area, Source: Author

Road widening proposal by NCRPB: NCRPB in association with Wilbur Smith Associates has proposed road widening for one of the abutting roads of the CBD area i.e. NH 91. Because a number of commercial establishments about the corridor and one lane is used for parking, the capacity of the roadway is considerably reduced resulting in congestion. The volume capacity ratios are at unacceptable levels and would further increase in the future years. The details of the same are given in figure 109.

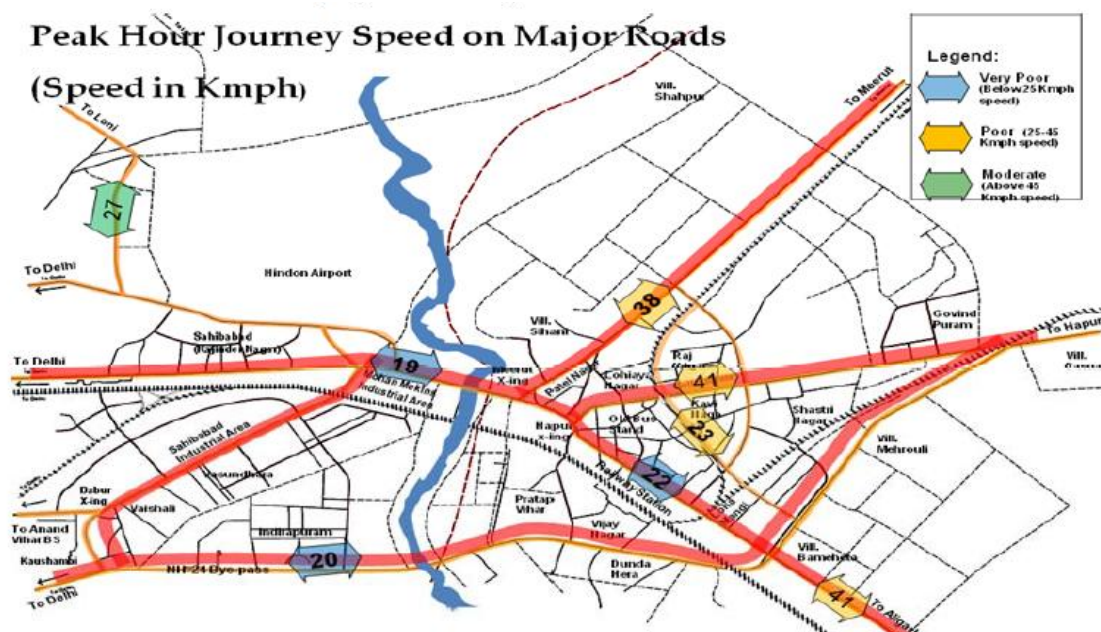


Figure 109 Road widening proposal and study by NCRPB, Source: Wilbur Smith Associates

Similar road widening proposals can be suggested for Ambedkar Road and Meerut Road as well, which will increase the traffic capacity of the roads and thereby improve traffic circulation.

5.2.8 FACILITIES FOR PEDESTRIANS

As per the findings from the Primary Survey, the visitors have complained about the absence of sidewalks/pedestrian pathways. Hence, the key objective during suggesting traffic circulation lies in integrating pedestrian pathways in the existing road infrastructure.

- ❖ Wide and comfortable environment friendly pathways in front of each shop so that customer can approach the shop conveniently. For instance, the shops in Navyug Market can be connected by pedestrian pathways connecting the shops, if the area is made car-free. And since it is easily walkable, it will enhance the walkability index of the area.
- ❖ Uniform width Footpaths should be provided all over the roads with separation of pedestrian and vehicular movement.

- ❖ Fully pedestrian zones can be created. As analyzed from the mapping of facilities, all the required amenities are within walkable distance (500m-1000m) in the CBD area.(figure 110)
- ❖ Due to the lack of proper infrastructure in the CBD area, people don't prefer to walk to the CBD, This is clear from the primary survey which indicates that only 15% of the total respondents prefer walking as a commuting mode. If proper infrastructure is provided, this percentage is likely to increase in near future.

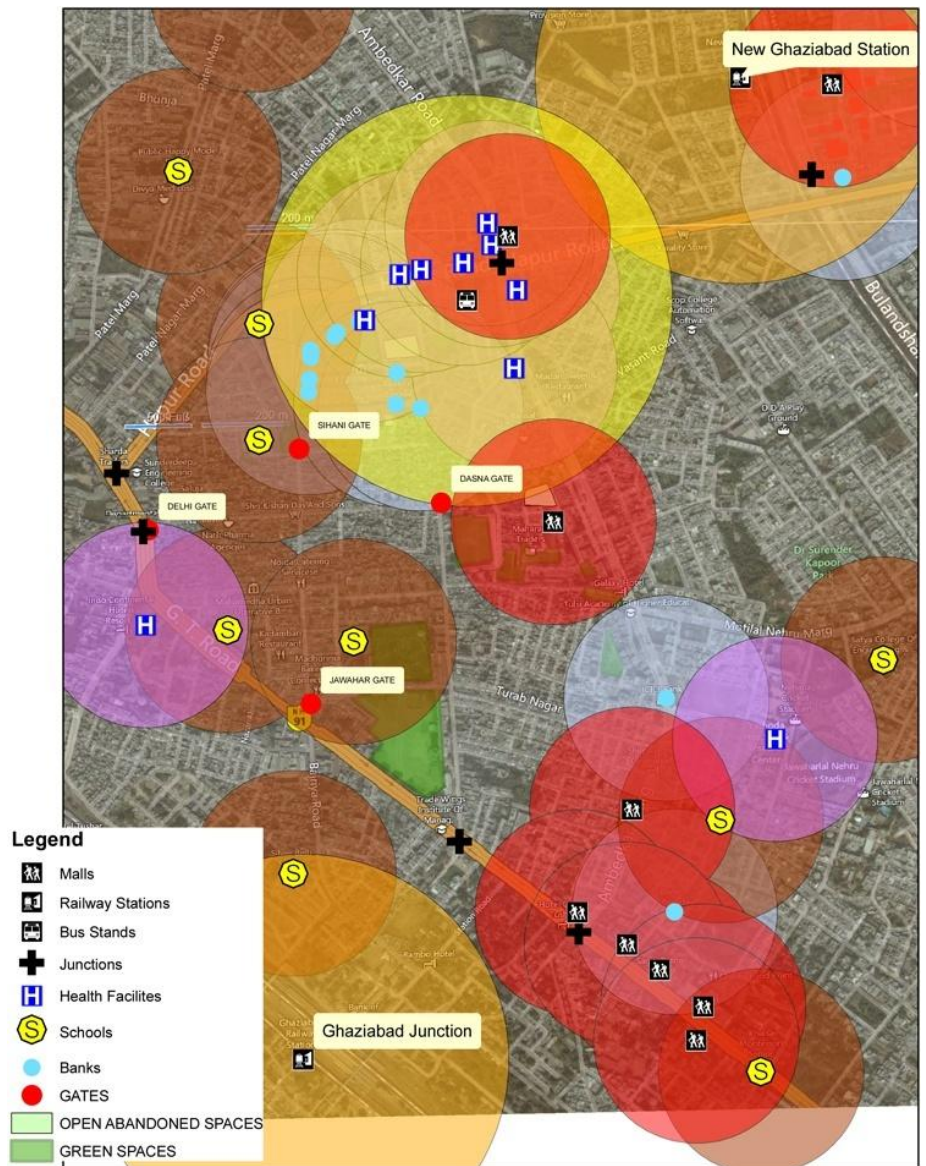


Figure 110 Mapping of Facilities, Source: Author

❖ **Possible Pedestrian Zones:**

Figure 111 shows the possible pedestrian zones in the area, where a peripheral loop for the public transport can be provided, making the innermost lanes totally pedestrian based. This can create a vehicle free zone which eventually helps in decongesting the area. The map in figure 111 shows circles with a radius of around 200metres indicating the possible walkable zones if a peripheral public transport loop is created.

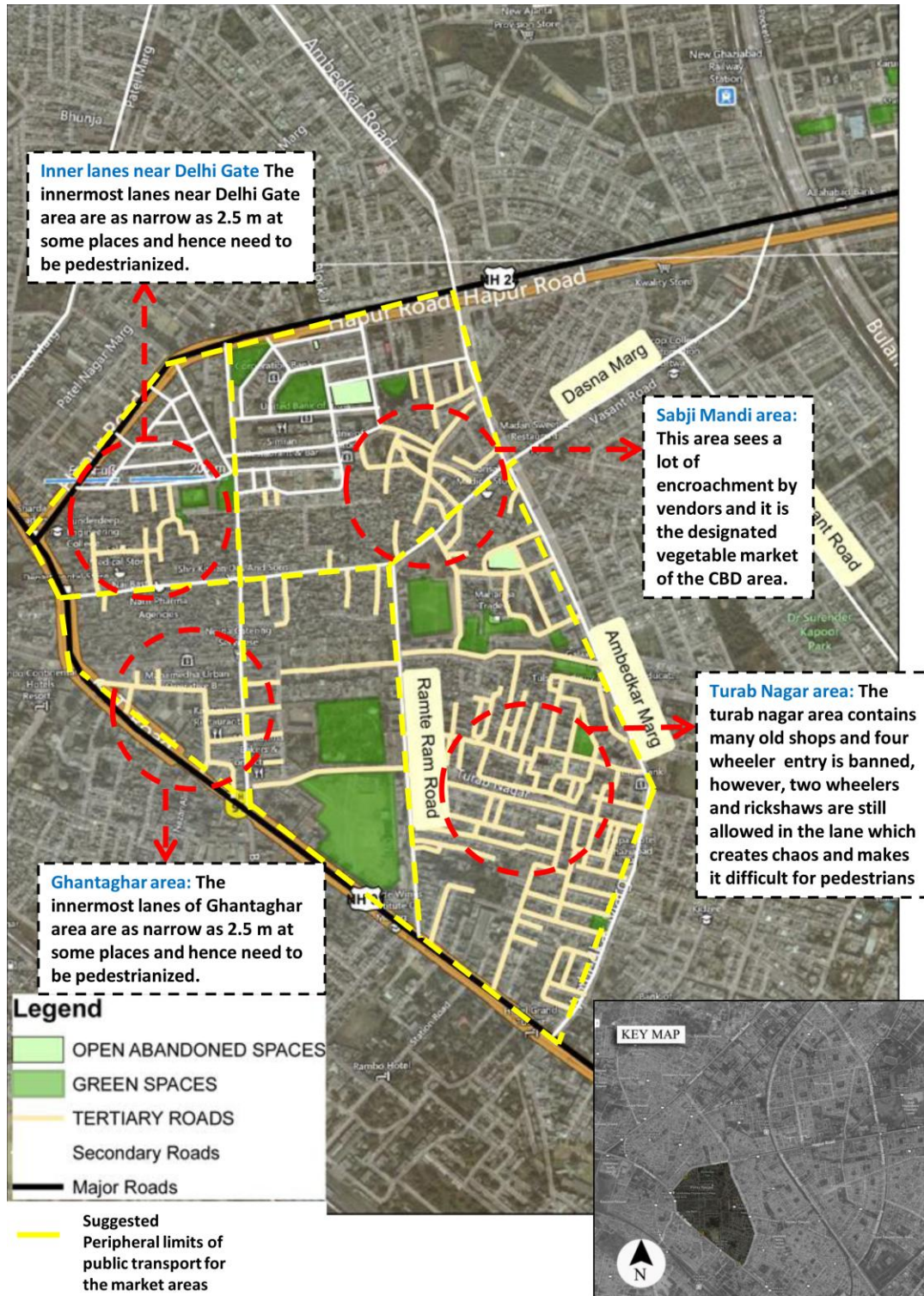


Figure 111 Suggested Pedestrian Zones,Source: Author

5.2.9 VIOLATION OF BYE-LAWS AND BUILDING REGULATIONS

It has been observed in the CBD area that there is a clear violation of bye-laws and shops have encroached the setback spaces, especially in the older market areas of Ghantaghar and Turab Nagar.

- ❖ The average plot size of the buildings in these areas is 150sq.m and according to GDA Building Bye laws the minimum **setbacks for such buildings should be 3m in the front and 1.5 m in the rear**. However, this is not seen in the CBD areas, where the shops have encroached the setbacks and thereby reduce the effective RoW of the streets by a great extent. The standards for commercial areas are given in the GDA bye-laws which are illustrated in figure 112. An analysis of the encroachments is

S.No.	Use	Maximum Ground Coverage	Max. FAR	Max. Building Height(In metres)
1	Convenient Shopping Centre	40%	80	15
2	Sector Shopping	40%	120	15
3	Subdistrict centre, shopping along street and other shopping centres	30%	150	15
4	Wholesale market	30%	130	30

Figure 112 Building Bye laws for commercial areas,Source: Ghaziabad Development Authority

given in figure 113.

- ❖ As seen in figure 113, a lot of shops have extended their activities beyond the permissible space , i.e. in the setbacks. This needs to be checked immediately and stricter bye-laws should be observed. In order to make the area pedestrian friendly, this is essential as it will give the pedestrian users more space for a walkable area.
- ❖ **Built area vs open areas:** As per the landuse analysis, it is found that the built forms in the area occupy about 75% and the open areas occupy only about 25%. The percentage of open spaces can be increased if stricter bye-laws are followed in the area.



Figure 113 Encroachments in the setbacks, Source:Author

❖ **FAR & Building Height:** The permissible building heights according to GDA Bye-laws for shopping centers and wholesale markets are 15m and 30m respectively. However, the existing building heights in the CBD area are not uniform and the height varies from as low as 3m to as high as 10m in certain places. Hence, the desired FAR of 80-150 is not achieved at all places. Therefore, there is a scope for more shops to be constructed over the existing ones,(Figure 115) especially in the newly developed commercial centres of Navyug Market and RDC. However, this will affect the Height/Width ratios considerably. Some general principles to be followed for maintaining proper Height/Width ratios are:

1. Height needs to be considered in terms of its proportion in relation to the size of the space it defines / encloses.

2. The height of a street frontage should provide sufficient sense of enclosure, natural surveillance and maximize the potential development opportunity of a site.
3. Schemes where the height exceeds the width of the street will not normally be acceptable if they cause a canyon effect and inhibit sufficient light and air reaching the buildings and street below
4. As a general rule, the tighter the ratio, the stronger the sense of place. Very tight relationships of one to one can create special pedestrian places

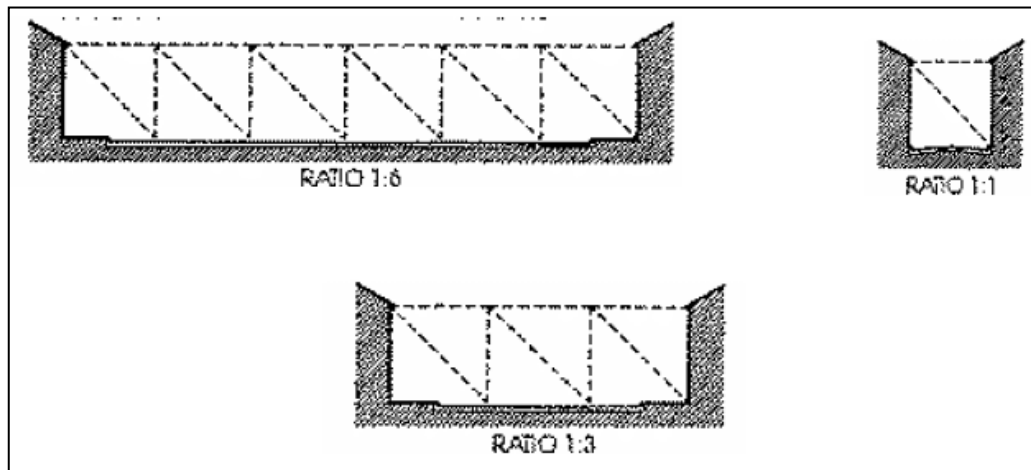


Figure 114 Height to Width Ratio

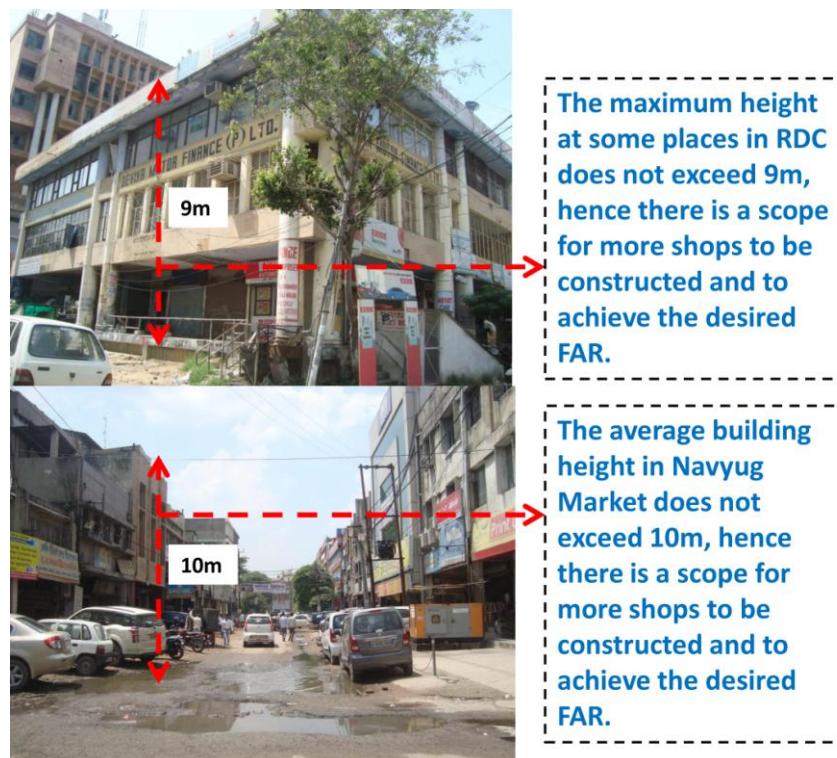


Figure 115 Building heights in RDC and Navyug Market, Source: Author

5.2.11 TRAFFIC CIRCULATION

The above mentioned recommendations will eventually help in improving the traffic circulation in and around the CBD area. Apart from the proposal of NCRPB for road widening of NH 91, several other improvement proposals have been suggested in the master plan, for instance, grade separators at crucial junctions. An analysis of the existing traffic circulation, identified junctions for improvement, and proposed grade separators as per the master plan are illustrated in figure 116.

In addition to this, setting a peripheral limit for public transport as stated above and integrating pedestrian facilities with the existing road infrastructure can help in decongesting the area upto a great extent.

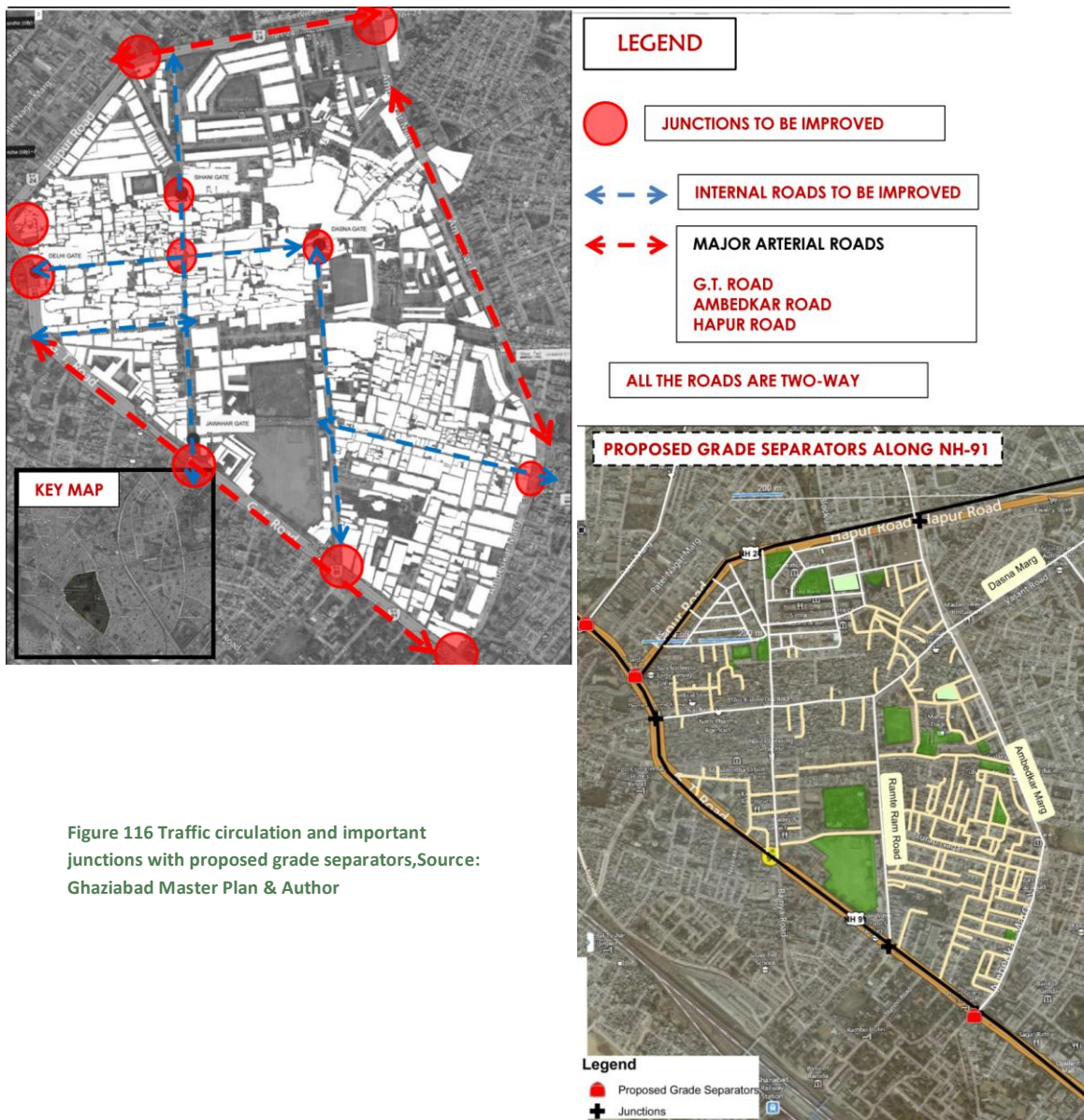


Figure 116 Traffic circulation and important junctions with proposed grade separators,Source: Ghaziabad Master Plan & Author

5.3 DESIGN LEVEL INTERVENTIONS

- **Norms for Standardizing the signage, hoardings and advertisements**

As per the primary survey, the visitors have noted the fact that irregular and haphazard hoardings create a visual chaos, 80% of the people suggested that the hoardings in front of the shops should be reduced to make them uniform.

- **Addition / Alteration to built structures**

As with other old CBD-s, buildings have been irresponsibly altered and many unauthorized additions have been appended to the built structures which render the buildings unsafe and unlivable. Regular monitoring of buildings for structural safety shall be conducted by the local body.

- **Preservation of Old Edifices**

Adaptive reuse could be a solution to preservation of old structures and architecture.

- **Green Belt, Dividers for segregating and regulating pedestrian traffic, Porous pavements will help in enhancing the quality of public realm.**
- **Construction of Mobile kiosks for licensed vendors.**
- **Traffic poles can be integrated with the landscape with the road dividers.**
- **Fountains, Street furniture to be provided to enhance the aesthetic appeal of the place.**

Pedestrian Movement

As per the findings from the Primary Survey, the visitors have complained about the absence of sidewalks/pedestrian pathways. Hence, the key objective during suggesting traffic circulation lies in integrating pedestrian pathways in the existing road infrastructure.

Redevelopment

Redevelopment of existing built-area may be undertaken so as to unleash the potential of land and reorganize the built-structures (residential and commercial) so as to accommodate the informality which had crept into the building Stock. Redevelopment shall be incentivized by permitting additional FAR and/or ground coverage.

Annexure A :

Survey questionnaire about city core(esp. zones along Ghantaghar,Navyug Market,Railway Station, Old Bus stand and RDC)

1. Name of the Participant
2. Age of the Participant
3. Gender
4. Occupation
5. Place of Residence
6. Is your place near or far from the above mentioned areas ?
7. Approximately how far ?
8. How do you move/travel to these areas ?
9. Do you find easy in moving in these areas ?
10. Which category you consider most important for change?
11. All changes together is time taking,supposing that a Development is proposed categorized into Phases, what should be the first thing to change?
12. What are your economic priorities(that you would prefer) for this area?
13. Who should be involved for improvement in this area?
14. What is your vision for this area? (can mention name of any similar place in India or out of India)
15. What is the major issue in this area according to you?
16. Which option do you consider best for management of traffic problems in this area?(esp. Ghantaghar area)
17. What kind of public spaces do you want in this area?
18. Do you find it difficult or dangerous to cross the roads?
19. What can be done to make safer conditions?
20. Best option to make routes more attractive
21. Are the new buildings in these areas improving the character and comfort ?
22. What do you think about the Ghantaghar area ?
23. What do you think about the vacant land of Urvashi Cinema ?How can it be used?

Annexure B :*Survey questionnaire for shopkeepers*

DATE:

Interviewer:

Interviewee:

1. Type of the shop: _____
2. Age of the shop: _____
3. Area of the shop: _____
4. Is the shop owned or rented? _____
5. If rented then what is the rent? _____

6. Why you located your shop here? Financial reasons, social reasons, or locational reasons?

7. What are the advantages or disadvantages of being here?

8. Who are your major costumers? From inside the locality or outside?

9. What is the daily footfall and average transaction per customer?

10. Do you need any loading unloading vehicle or facilities? Or are their any?

11. What are the major problems faced to you and your costumers in terms of physical infrastructure?

12. What are your feelings about the non-regularization of non- residential uses?

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