

# REJUVENATION OF HARDING PARK AND STATION ROAD, PATNA

## A DISSERTATION

*Submitted in partial fulfilment of the  
requirements for the award of the degree*

*of*  
**MASTER OF ARCHITECTURE**

*By*  
**NITISH CHANDRA**  
**12510011**



**DEPARTMENT OF ARCHITECTURE AND PLANNING**  
**INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE**  
**ROORKEE-247667 (INDIA)**  
**JUNE, 2014**

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## CERTIFICATE

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Certified that report entitled **“REJUVENATION OF HARDING PARK AND STATION ROAD, PATNA”** which has been submitted by **Mr. NITISH CHANDRA**, for partial fulfilment of the requirement for the award of the degree of **Master of Architecture**, in Department of Architecture and Planning, Indian Institute of Technology- Roorkee, is the student’s own work under my supervision and guidance. The matter embodied in this dissertation has not been submitted by her for the award of any other degree of this or any other institute.

Date:

Place: Roorkee

**Prof. Pushplata**

Professor  
Department of Architecture and Planning  
Indian Institute of Technology- Roorkee  
Roorkee, Uttrakhand state, India

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## CANDIDATE'S DECLARATION

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I hereby declare that this report entitled **"REJUVENATION OF HARDING PARK AND STATION ROAD, PATNA"** which has been submitted in partial fulfilment of the requirement for the award of the degree of Master of Architecture, in Department of Architecture and Planning, Indian Institute of Technology- Roorkee, is an authentic record of my own work carried out during the period from July 2013 to June 2014, under supervision and guidance of PROF. PUSHPLATA , Department of Architecture and Planning, Indian Institute of Technology, Roorkee, India.

The matter embodied in this dissertation has not been submitted by me for the award of any other degree of this or any other institute.

Date:

Place: Roorkee

(NITISH CHANDRA)

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This is to certify that the above statement made by the candidate is correct to the best of my knowledge and belief.

### **Prof. Pushplata**

Professor  
Department of Architecture and Planning  
Indian Institute of Technology- Roorkee  
Roorkee, Uttrakhand state, India

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Nitish Chandra

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## ABSTRACT

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A city is more than an agglomeration of building, roads, parks & people. Instead, it is made of variety of spaces catering to diverse function and people. Open spaces gives a personality to a city & provides medium through which communication n a city takes place. Public spaces are integral part of social infrastructure of an urban area. There are various elements which form these public spaces and provide a character to it. Each city has its own unique image & tradition, expressed through the character of public spaces. It is unique from different places as the nature of its fabricated surroundings makes it the place where one can enjoy and want to be there.

The fast populace development and urbanization is prompting genuine decrease in the nature of assembled environment in just about all urban areas of India. A preparatory observational investigation and irregular example review has helped in deciding the issues and variables in charge of the corruption. The concepts, theories, and methods given by a handful of key thinkers, in respect to the identified issues, forms the base of relationship between the quality of built environment and people oriented space designs. They have shown that city core is the most influential part of the city and comprehends the entire city image; thus bringing a positive change in quality of public realm of the city core would upgrade the quality of city built environment. Several case studies have helped in analysing the approach towards solution to the problems. A set of parameters has been extracted from these theories and case studies and the study context is examined in its respect.

This thesis is an attempt to contribute towards addressing the problems related to quality of built environment of a densed commercial street. The major part of study is on quality of public spaces and the commercial setup within a rapidly urbanising city context. The study provides an analysis of activity and circulation patterns, spaces and its uses and visual qualities through surveys, observations and interviews and shows the traffic congestions, lack of open spaces, aesthetic disorders and ineffective planning responses are contributing factors to deteriorating the quality of the public realm and the escence of the street shopping culture. Hence, the development of appropriate measures for the improvement of its built environment for a organised commercial zone with proper

infrastructure which will take care of all class of the society is the essential element of this thesis.

The study area selected is Patna in the state of Bihar in India and the applicability of measures is confined to the city's most affected area i.e. the harding park and station road area. An integrated approach has been used with redevelopment of some pocket areas, main street and its traffic replanning, connectivity between open spaces and public places, revitalizing and improvement of pedestrian facilities. The solutions are offered in form of design proposals and design guide lines for identified areas of interventions.

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# 1. INTRODUCTION

## 1.1 BACKGROUND

“We go back to some streets more often than to others... maybe a street unlocks memories or offers expectation of something pleasant to be seen...streets are places of social and commercial encounter and exchange...a place to be comforted by the presence of others.”

From Great Streets by Allan B Jacobs

**Rejuvenation** - bringing new life into activity and prominence

Action area has been prepared because we are conscious that commercial streets in Patna lacking the qualities that are valued in streets of established commercial areas, and we want to address this. Streets perform certain fundamental capacities in the assembled environment, for example, giving courses to vehicles and open transport, and pleasing utility administrations and drainage system. The design of a road influences how fruitful it is in performing these facilities, and it can additionally imperatively influence the urban character of a city and impact how individuals utilize the road and collaborate with one another on it.

The way of a street and its affiliations can impact whether people choose to walk or cycle, or take the auto. It can impact whether people feel safe. Its character can affect whether people choose to walk or surge through, and whether they leave their front window decorations open for the duration of the day or not.

Urban design is the specialty of place making for individuals and it involves the way places work and matters, for example, group wellbeing, and also how they appear. It is the key to connect different places to people.

Urban design is a key to making maintainable improvements and the conditions for a thriving investment life, for the sensible use of normal stakes and for social progression. Great outline can make exuberant and fiery spots with distinctive character; boulevards and open spaces that are shielded, accessible, enchanting to use and human inside scale; and places that develops because of the imaginative capability and affectability of their stakeholders.

## 1.2 NEED OF THE STUDY

Patna is one of the fastest growing cities, with the increase in population and consequently the area of town. The city was started developing along the bank of Ganga River and spreads over a large area in the linear form. All kind of trading and commercial activity including the industrial setup are near to the river bank because of the transportation factor. When railway enters to the city, it was located in the outskirts of the city, eventually it becomes the CBD area for whole city because of the ease of transportation, easy land availability and central location to the newly developed area which were well connected to the new railway station.

The rate of urbanization is leading to many problems for the different sectors of society. The commercial, industrial and residential development has taken place during this period, most of the developments within the existing built up area and within the city core has been haphazard and necessary infrastructure has not been provided particularly roads and public transportation, public facilities and open spaces, resulting in over-burden on the city core and results to poor quality of built environment. There are developments of new area such as satellite township, commercial and institutional buildings but the old town and the central area where the major section of society lives, works and visit, are being neglected, resulting in overcrowding, traffic congestion, parking problems, poor condition of public buildings and spaces, which results to poor quality public realm. The streets of core city are vibrant but have aesthetically unattractive built environment, water-logging, narrow roads, traffic congestion, footpath encroachments, problems related to sanitation are prevalent in the area. Hence there is a need to give proper attention to the central city for making it into a place for good city life.

## 1.3 AIM

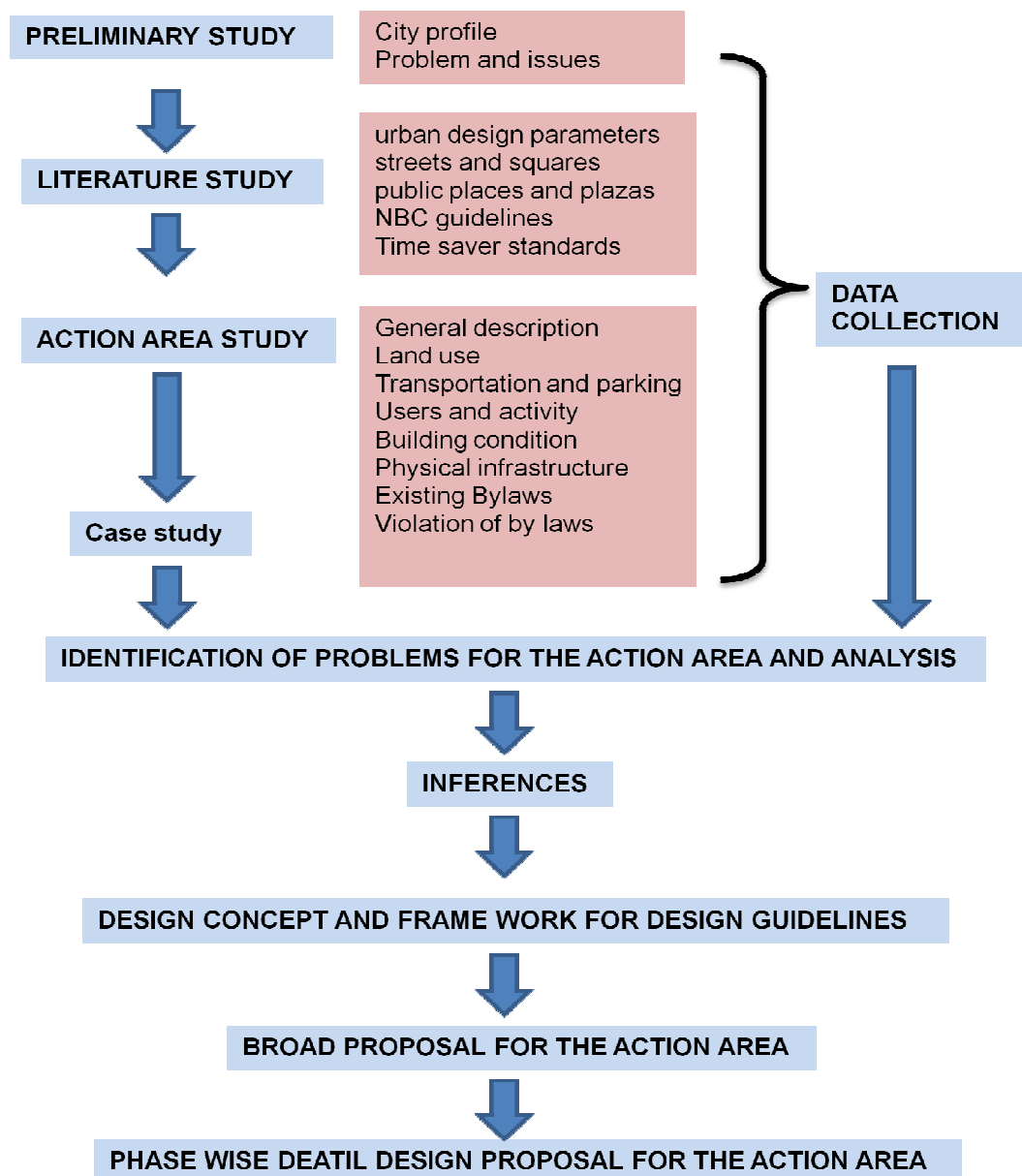
The overall purpose of this study is to analyse the built environment of the core area of Patna and find the different problems and issues at Harding park area and the surroundings. And finally propose solutions through urban design interventions.

## 1.4 OBJECTIVES

In order to achieve the above stated aim the objectives of the proposed research are:

- To revitalize the street shopping area at New Market Bakri Bazzar.
- Decongest and beautify area surrounding Patna Junction
- Study and analysis of the street shopping near Harding Park area
- Strengthening the transportation system and the parking facilities
- providing better physical infrastructure

## 1.5 METHODOLOGY



## 1.6 SCOPE OF THE STUDY

- Better infrastructure will lead to good quality of life style
- Planned new market will cater all kind of retail and other commercial activities
- Planned entry and exit points and sufficient parking facilities at Patna junction
- Open space and green area for landscaping
- To create a community focal point and rejuvenate the surrounding areas.

## 1.7 LIMITATION

Architectural details for individual buildings will not be provided and over all framework of study will be limited to urban design principles such as built form, traffic movement pattern public spaces, streets, physical infrastructure and the aesthetic aspect of the action area.

Religious buildings can not be relocated or demolished.

## 2. PRELIMINARY STUDY: CITY IN CONTEXT

### 2.1 CITY PROFILE

Patna, the capital of Bihar state, is a city with an ancient past. The history and tradition of Patna goes back to the earliest dawn of civilization. The original name of Patna was Pataliputra or Patalipattan and its history makes a start from 600 B.C. The city with every new chapter in its history has gone through various names like Kusumpur, Pushpapur, Pataliputra and Azeemabad. Pataliputra was the most enduring of all as it saw the emergence as well as the departure of the major India empires. The city had been ruled by some of the most famous rulers for 1000 years, like Ajatshatru, Chandragupta Maurya, Ashok, Guptas, Palas, Shershah Suri and Azimush-Shan grandson of Mughal emperor Aurangzeb, who renamed it Azeemabad.

#### LOCATION

Patna is found between Latitude: 25° 37' North and Longitude: 85° 12' East, and lies on the

south bank of the Ganga River. Patna has a long stream line, and it is encompassed on three sides by waterways the Ganga, Sone, and Poonpun. Simply to the north of Patna over the stream Ganga streams into the waterway Gandak making it a remarkable spot having four biggest waterways in its region. The extension over the waterway Ganga, named after Mohandas Gandhi, is 5850m long is said to be the longest single stream scaffold on the planet.

Today Patna is a vital business focal point of eastern India. It is additionally an entryway to the Buddhist and Jain journey focuses of Vaishali, Rajgir, Nalanda, Bodhgaya and Pawapuri. This shows that Patna had vital impact socially as well as profoundly. Separated from drawing ready to go class individuals the city of Patna likewise welcomes a ton of travelers

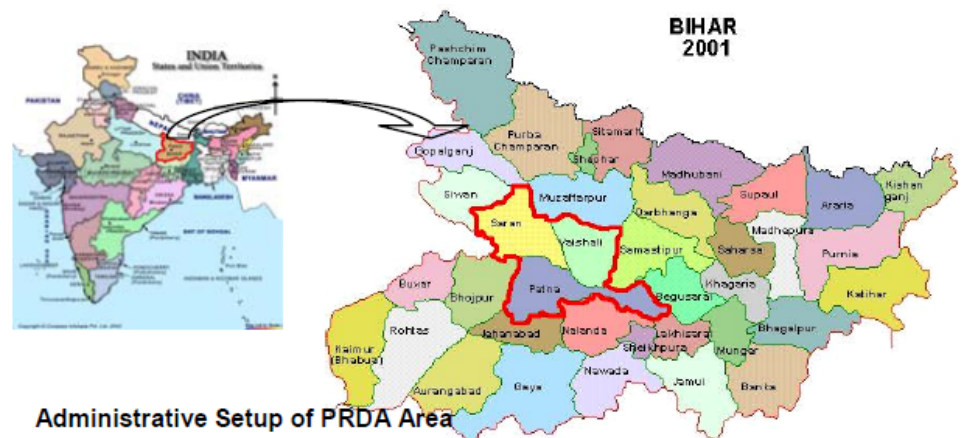


Figure 1 Location of Patna, Bihar

to the city on the grounds that it demonstrates as a door to the world celebrated Buddhist and Jain journey focus

### **CLIMATE AND RAINFALL**

The climate of Patna varies from 43 °C – 30 °C during the summers and 21.4 °C – 5 °C during the winters. The precipitation in Patna is 1,100 mm during the months of June to September. It receives medium to heavy rainfall in the monsoon. Relative humidity can go up to 100% during summer.

### **NATURAL HAZARDS**

Patna lies in zone IV of the earthquake zones, which is a high risk zone and is liable to earthquakes. Therefore the development controls in the area should be made for earthquake resistant buildings and proper enforcement should be done. Patna also falls at the risk zone for floods. A series of bund/embankments have been constructed along River Punpun to control the floodwaters. During the monsoons the spill over from River Ganga tends to flood Patna and cause spread of diseases. Therefore there is a need to channelise the river and devising and implementation of a proper disaster mitigation plan. Apart from being flood prone Patna is also at risk of cyclones and it lies in the wind high damage risk zones.

### **AREA AND POPULATION**

<b>NAME OF PLACE</b>	<b>AREA (in SQ.KM)</b>	<b>POPULATION (in LAC)</b>
Patna Regional Development	234.70	21.40
Patna Urban Agglomeration	135.79	16.97
Patna Municipal Corporation	99.45	13.66

## **2.2 LAND USE ASSESSMENT**

The Patna Urban Agglomeration Area has been facing various problems in the recent years due to rapid urbanization and other reasons. Some of the major problems identified are:

- The old city, which is in the eastern part of Patna Urban Area is congested, with narrow lanes, and has crucial traffic congestion problems.
- Substantial parts of the city are unplanned.
- Drainage is the most crucial problem of Patna and its surrounding areas. It is the root cause of many other physical and environmental problems.
- Incompatible land uses side by side, in some areas has lead to unplanned development.

The existing land use break up of Patna Urban Agglomeration Area in the Interim MPD 2021 has been shown in the table below:

S.No	Land Use	Area (in Ha)	Total Area (In Ha)	Percentage
1	Residential		8230	60.88 %
	Residential Planned	438		
	Apartments	202		
	Residential Organic/Unplanned	7548		
	Slums	42		
2	Commercial		298	2.20%
	Commercial	134		
	Commercial (Predominant Ribbon development)	155		
	Agricultural Marketing Yard	9		
3	Public-Semi Public		651	4.82 %
	Administrative	211		
	Educational	236		
	Medical	154		
	Religious	32		
	Grave Yards and Cremation Grounds	18		
4.	Recreational		212	1.56%
	Clubs, Cinemas			
	Parks and Playground			

### **DISTRIBUTION OF VARIOUS LAND USE IN PATNA URBAN AGGLOMERATION AREA**

The most densely populated wards are essentially along the bank of stream Ganga. They shift from 301 to 900 persons for every ha. The wards with lower thickness are along the southern and western side and their thickness fluctuates from 100 to 300 persons for every ha. The prevalent area use in PUAA is private which constitutes 60.88 % of the aggregate territory. Far beyond that 91.7 % of the local location is unplanned. Something like 52 % of the business area utilization is transcendent strip improvement along the real streets ordinary natural development in unplanned zones as we discover in the greater part of the

India urban areas. Inside the Patna Municipal Corporation region it has trademark blended area use along all the real blood vessel streets.

The vast majority of the Government and other Public Sector Undertakings authoritative business locales are spotted to the Western some piece of city. There is a prevalence of Educational area and Social framework offices like healing facilities, which plainly demonstrates the expanding tertiary division character of the city. Recreational utilization constitutes just 1.56%, which is to a great degree low.

Additionally modern utilization is a pitiful 1.76%. The second real Land utilization is horticulture, which is 18.88 % of the aggregate area, uncovering the country normal for the zones encompassing the urban regions in the PUAA

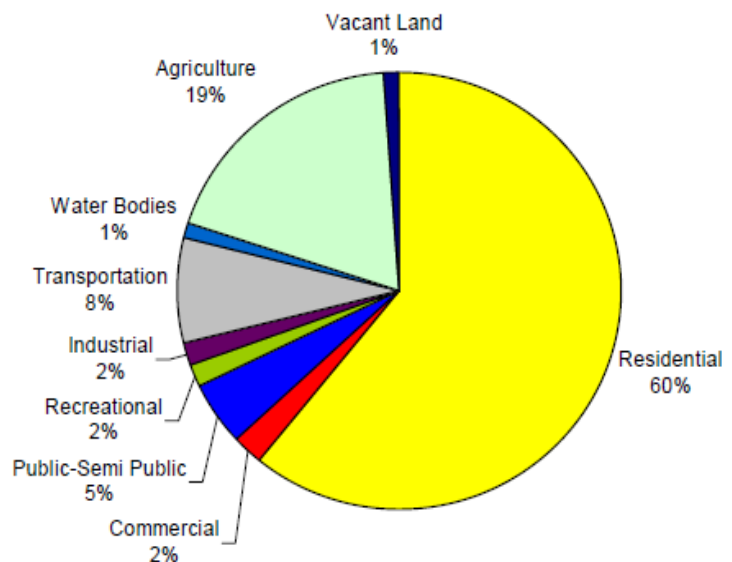


Figure 2 mixed land use at major arterial roads



Figure 3 mixed land use along the major arterial road



## 2.3 PROBLEM AND ISSUES

The growth and expansion of city in terms of area and population is having both positive and negative aspects. The quality of built environment in the core of the city is deteriorating. The major issues of improper land-use, lack of open spaces for public use, poor road network, traffic congestion and infrastructure services.

### **THE PROBLEMS AND ISSUES AT CITY LEVEL**

- Improper land use pattern
- Organic development without consideration of physical infrastructure
- Poor infrastructure
- Lack of open spaces
- Unplanned neighbourhood
- Narrow road width
- Poor condition of public transport

### **THE PROBLEMS AND ISSUES AT CORE OF THE CITY**

- Traffic congestion
- Organic street pattern with less width
- No parking space
- Encroachment of footpath
- Encroachment of govt. land for commercial activity
- Poor infrastructure
- Lack of open spaces
- Poor condition of buildings
- Unplanned daily market
- No building by laws considerations

## 2.4 INFERENCES

It is clearly depicted that city lacks 'goodness', 'liveability' and an 'attractive image'. Though substantial commercial, industrial and residential development has taken place during this period, most of the developments within the existing built up areas has been haphazard and necessary infrastructure has not been provided particularly roads and public transportation, public facilities and open spaces, resulting in over-burden on the existing infrastructure and poor quality of built environment.

There are developments of new area such as satellite township, commercial and institutional buildings but the old town and the central area where the major section of society lives, works and visit, are being neglected, resulting in overcrowding, traffic congestion, parking problems, poor condition of public buildings and spaces, which results to poor quality public realm. The streets of core city are vibrant but have aesthetically unattractive built environment, water-logging, narrow roads, traffic congestion, footpath encroachments, problems related to sanitation are prevalent in the area. Hence there is a need to give proper attention to the central city for making it into a place for good city life.

Since these problems are maximum in the core area and affect a large number of people, the focus or study area will be the core.

### 3. LITERATURE STUDY

#### 3.1 URBAN DESIGN PRINCIPLES

Urban design is the procedure of outlining and forming urban areas, towns and towns. Though building design concentrates on individual structures, urban outline address the bigger scale of gatherings of structures, of avenues and open spaces, entire neighborhoods and regions, and whole urban areas, to make urban territories useful, alluring, and economical.

Urban design is a disciplinary subject that unites all the developed environment reasons for living, including urban arranging, scene structural planning, building design, common and city building. It is essential for specialists in all these controls to practice in urban arrangement. In later times different sub-strands of urban layout have climbed, for instance, crucial urban configuration, scene urbanism, water-sensitive urban setup, and practical urbanism.

#### **URBAN DESIGN CAN SIGNIFICANTLY INFLUENCE**

The economic success and socio-economic composition of a locality – whether it encourages local businesses and entrepreneurship; whether it attracts people to live there; whether the costs of housing and travel are affordable; and whether access to job opportunities, facilities and services are equitable;

The physical scale, space and ambience of a place. As such, it affects the balance between natural ecosystems and built environments, and their sustainability;

The social and cultural nature of a locality: how people interact with each other, how they move around, and how they use a place.

A national urban policy for a productive sustainable and liveable future presents a national framework to guide policy development and public and private investment in cities. It articulates a set of goals, objectives and underlying principles to guide decision making.

[www.majorcities.gov.au](http://www.majorcities.gov.au)

Goals	Objectives	Principles
Productivity	To harness the productivity of Australia's people and industry, by better managing our use of labour, creativity and knowledge, land and infrastructure	Efficiency
	1. Improve labour and capital productivity	Value for money
	2. Integrate land use and infrastructure	
3. Improve the efficiency of urban infrastructure		
Sustainability	To advance the sustainability of Australia's natural and built environment, including through better resource and risk management	Innovation
	4. Protect and sustain our natural and built environments	Adaptability
	5. Reduce greenhouse gas emissions and improve air quality	
	6. Manage our resources sustainably	Resilience
7. Increase resilience to climate change, emergency events and natural hazards		
Liveability	To enhance the liveability of our cities by promoting better urban design, planning and affordable access to recreational, cultural and community facilities	Equity
	8. Facilitate the supply of appropriate mixed income housing	Affordability
	9. Support affordable living choices	
	10. Improve accessibility and reduce dependence on private vehicles	
11. Support community wellbeing		
Governance	To progress the goals of productivity, sustainability and liveability through better governance, planning and management	Subsidiarity
	12. Improve the planning and management of our cities	Integration
	13. Streamline administrative processes	
	14. Evaluate progress	Engagement

## 3.2 URBAN DESIGN OBJECTIVES

### Legibility

A clear and simple development pattern within a city and neighbourhood enables residents and visitors to understand how an area is organised and to make their way around. This type of development pattern is generally delivered through a grid or modified grid network of streets. The 'grid' allows for easy navigation and provides a block pattern that creates increased connectivity,

### Character

A recognisable image can identify a city or neighbourhood to its residents or visitors. This image can include, historic buildings, village precincts, buildings with a distinct architecture, public art and public spaces to name a few. Also, a development pattern created by a regular grid of streets and blocks reinforced by buildings that form a continuous, enclosing street wall, creates a strong foundation for establishing such a recognisable image.

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## **Diversity**

Successful neighbourhoods within a city provide for diversity and choice through a mix of compatible housing and building types and land uses. Through these measures residents of a neighbourhood have the opportunity to age in place; going through all of their various lifecycles without having to leave their original neighbourhood and breaking the social networks they have formed.

## **Continuity and Enclosure**

A continuous built form street frontage is needed throughout an area of the city or neighbourhood to allow users to easily understand where they are, directions to where they need to go and the purpose of the street (i.e. is the street a village main street or is it a residential arterial). In doing this, development will assist in creating the proper enclosure of space and delineate the private and public realms.

## **Ease of Movement**

Older neighbourhoods within cities are usually configured for maximum convenience as the area has high connectivity and it is a place for pedestrians. A compact urban form, a legible urban structure (i.e. grid network of streets), short blocks, pedestrian priority and a built form that is transit and pedestrian oriented ensures an area has maximum convenience for movement. In newer neighbourhoods, the street systems are usually curvilinear in nature with larger blocks, which reduces overall convenience and frustrates ease of movement for pedestrians

## **Adaptability**

Cities and neighbourhoods are constantly changing. The success of these places are directly related to the ability of the form and pattern of development to adapt over time to changing social, technological and economic conditions.

## **Quality Public Realm**

The public realm is one of the most important components of any city or neighbourhood. As such, the built form and streetscape treatments should provide an attractive, safe and comfortable pedestrian environment, while maintaining the overall visual cohesiveness of

the area. This can be achieved through a variety of design responses, which include, but are not limited to, ground level facade treatments (i.e. transparent glass that shares the interior activities with the street), architectural details, paving patterns, shade, seating, adequate sidewalk widths and other features.

Illustrated urban design principles -city of london

### 3.3 STUDY OF QUALITY OF PUBLIC SPACES AND STREETS

#### **PUBLIC SPACES**

Public spaces and public life goes hand in hand, they are shaped and molded by one another.

“Urban design is essentially about place-making, where places are not just a specific space, but all the activities and events which made it possible.” Peter Buchanan (1988, p. 33)

Quest: what attract people most to urban spaces?

- Cultural activity and cultural exchange
- Social activities
- Public gatherings
- Festival celebration
- Markets/ shopping,
- Exchange of human thoughts and activities

Urban space is the "void" between buildings such as streets, plazas and parks that enable movement and outdoor activities of the general public. It is considered as the "scene" of the city life and has been the center of different theories of urbanism and city planning through history.

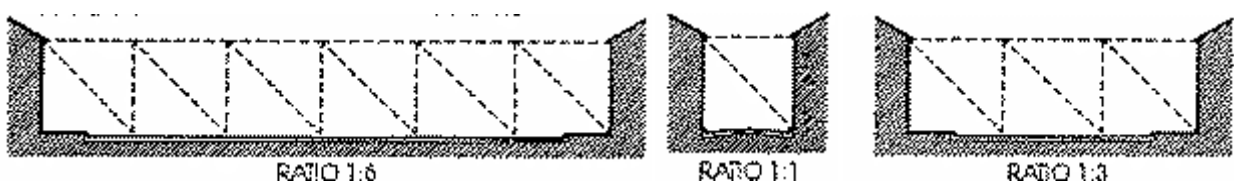
The quality and the success of urban spaces such as public plazas is generally investigated either by looking for how comfortable are these spaces in term of ambience characteristics.

### Relation between built fabric and street continuity and enclosure

- The height to width ratio of any space generates spatial enclosure that is related to the physiology of the human eye.
- The relationship between buildings on a street, and between buildings and the street
- If the width of a public space is such that the cone of vision encompasses less street wall than sky opening, the degree of spatial enclosure is slight.
- Buildings that are adjacent to street walk, forms a street wall; that frames the street and narrows the driver's vision.
- Strong street walls create sense of enclosure.
- Pedestrians feel more comfortable walking on streets with sense of enclosure
- Spatial enclosure is important on all streets but is particularly important for shopping streets

### Height / width ratios: general principles

- Height needs to be considered in terms of its proportion in relation to the size of the space it defines / encloses.
- The height of a street frontage should provide sufficient sense of enclosure, natural surveillance and maximise the potential development opportunity of a site.
- 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
- 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



## **SOCIAL INTERACTIONS IN URBAN PUBLIC PLACES**

In town centers and local neighborhoods, public spaces provide social arenas for all kinds of people – residents, workers, shoppers, visitors, and children at play. Different age groups tend to use public spaces at different times of day and g p p p y for different reasons. Older people and children in particular appeared to be influenced by the presence of other age groups. Older people are frequently absent from public places, especially after dark. In addition to the social \ function of public spaces, some people use them for privacy or to support a sense of territorial ownership – this particularly applies to groups of young people and marginalized groups. Places acquire reputations (fairly or unfairly) that persist and affect whether and how people use them. But people are drawn to spaces that offer interest, stimulation, comfort and amenity. These aspects can positively change reputation and overcome the physical barriers experienced by some users. Regulatory approaches range from strong intervention to light touch, reflecting different emphases on security and reputation. But there is also a need for spaces that are unregulated. Issues are not solved by moving on people and activities that are deemed undesirable or out of place – this merely moves the perceived problem somewhere else and discourages integration. The researchers conclude that public spaces retain a democratic and civic function, alongside commercially driven uses. They suggest that policy-makers can support this by encouraging diversity and harnessing people's tendency to 'self-regulate' to avoid conflict: over-regulated environments are not conducive vibrancy and integration.

## **HOW PEOPLE USED THEIR PUBLIC SPACES**

People of different ages, ethnicities, cultures and class were often seen at the same time in the town-centre market squares and the high street. While most residents and visitors used these places to encounter both difference and familiarity, there could be disincentives for some groups. In particular, older people and many under-18s were discouraged from using the cobbled market square and redeveloped piazza-style square at night because of the dominance of bars and clubs based around these areas. Two town-centre shopping malls provided protection from the weather: people used them all year round for shopping, leisure and meeting others. At predictable times of the working day, people also passed through on their way to and from work, school, and other



business. These were the town's most highly regulated publicly accessible places – certain groups were encouraged and others discouraged. Although young people were drawn to these centres, they were often asked to leave by security guards because they tended to socialise in large groups.

### **PUBLIC SPACES AS DEMOCRATIC PLACES**

This study showed that different social groups often co-existed in the same spaces without paying much attention to each other. Yet apart from people passing through, the most common activities in all the observed spaces were sitting, waiting, watching and chatting. The public spaces provided opportunities for all individuals and groups to see and be seen by others. People who would not otherwise routinely share space could do so in the town centre.

### **MARKETS AS SOCIAL SPACES**

Markets were important sites of social interaction for all groups in the community, but most significantly for older people, especially women. Markets also represented important social spaces for mothers with young children, young people, and families with children, particularly at weekends.

Markets had a significant social inclusion role, as places to linger, particularly for older people and young mothers. Some markets also appeared to be inclusive of disabled people, although in other places this was less evident.

The social life of traders played a significant role in creating a vibrant atmosphere in markets, and in forging social bonds and links in the trading community as well as with shoppers.

### **MARKETS AS SPACES OF SOCIAL INTERACTION**

The markets operated as social spaces in different ways, varying across the sites and between different social groups. The social life of traders played a significant role in creating a vibrant atmosphere, and in forging social ties in the trading community, especially in Ridley Road and Ludlow.

Interactions between traders and shoppers were also a crucial component of social life, particularly for older people who regularly visited markets for the pleasure of these relationships. The markets also had a social inclusion function. For many customers, particularly those more marginalised in cities, chatting with traders might be their only chance to talk to someone all day.

Markets were sites of social interaction for all groups - even younger people, despite a common perception that they have disappeared from markets. However, there were differences among various groups. Markets represented a crucial site for social interaction for older people, especially women, across all the sites. For this group, features such as access to transport and seating were very important; some markets (notably Rotherham) were better placed to serve this group than others. Markets were also important social spaces for families with children, particularly at weekends, when market shopping was a time to bump into friends, shop and chat at leisure. For markets to work socially, they needed to attract people but also encourage them to linger. The two most important physical attributes for markets to succeed as spaces for social interaction were a café (or food vans) and somewhere for people to sit down (whether seating or a wall). In markets with cafés, overall time spent lingering was extended, providing greater opportunities for friends to gather or to bump into one another.

If markets' social inclusion function is seen as a more limited form of social interaction (simply 'co-presence'), places to linger a while take on greater significance. In the study the three groups for whom markets were most significant in this respect were older people, disabled people and young mothers.

## **PRINCIPLES OF GOOD PUBLIC PLAZA**

Every successful public space must respond to:

- Its physical context – adjacent buildings and uses
- Its local climate – sun, shade, wind, rain
- Its own history
- Its users

It must include the elements that are attractive to people – activity, beauty, safety, focal point(s)

Urban space design should be carefully done by the study of people and their different activities in socialism, their cultural exchange, etc

### Factors affecting public spaces

- Function
- Character
- Environmental factors
- Shopping
- Exhibitions
- Food
- Trade
- Gathering spaces/sitting
- Access and circulation

To create an urban plaza, it is necessary to know, where to place it, how to design it to provide a humanizing contribution to urban life. Contemporary plaza types include the street plaza, corporate foyer, the urban oasis, the transit foyer, and the grand public place. Design recommendations on all these types are reviewed including location, size, visual complexity, activities, microclimate, boundaries, circulation, seating, planting, public art, paving, and related amenities.

**Street plaza** - widened sidewalk, bus-waiting spaces, arcaded plaza.

**Corporate foyer** - decorative porch, impressive forecourt, primary entrance to large building.

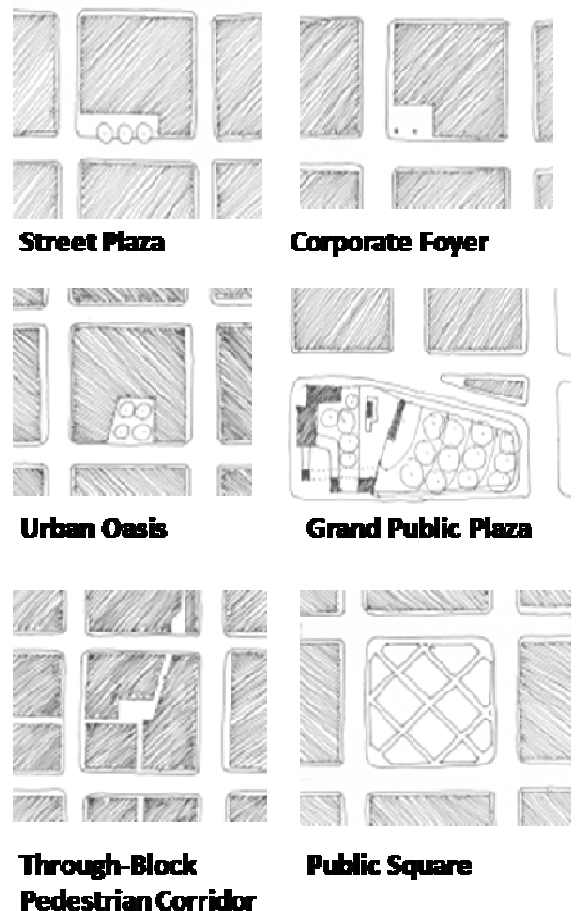
**Urban oasis** - sheltered plaza with high concentration of planting and shade.

**Grand public plaza** - city wide plaza for concentrated public use and gatherings.

**Pedestrian mall** - widened sidewalks both sides of street, transit / rail corridor, common attraction.

**Through-block pedestrian corridors** - means of travelling across the block  
At ground level.

**Public square** - the four original squares of any city.



## JAN GEHL ANALYSIS METHOD FOR PUBLIC SPACES

To encourage the effective design of public space, Gehl has made a checklist of twelve qualities that public spaces should aspire to. These, he clusters under the categories of "Protection", "Comfort" and "Delight".

PROTECTION	PROTECTION AGAINST VEHICULAR TRAFFIC	PROTECTION AGAINST CRIME AND VIOLENCE	PROTECTION AGAINST UNPLEASANT SENSORY EXPERIENCES
	<ul style="list-style-type: none"> <li>• Traffic accidents</li> <li>• Pollution, fumes, noise</li> <li>• Visibility</li> </ul>	<ul style="list-style-type: none"> <li>• Well-lit</li> <li>• Allow for passive surveillance</li> <li>• Overlap functions in space and time</li> </ul>	<ul style="list-style-type: none"> <li>• Wind/draft</li> <li>• Rain/snow</li> <li>• Cold/heat</li> <li>• Pollution</li> <li>• Dust, glare and noise</li> </ul>
COMFORT	INVITATION FOR WALKING	INVITATION FOR STANDING AND STAYING	INVITATION FOR SITTING
	<ul style="list-style-type: none"> <li>• Room for walking</li> <li>• Accessibility to key areas</li> <li>• Interesting facades</li> <li>• No obstacles</li> <li>• Quality surface</li> </ul>	<ul style="list-style-type: none"> <li>• Attractive and functional edges</li> <li>• Defined spots for staying</li> <li>• Objects to lean against or stand next to</li> </ul>	<ul style="list-style-type: none"> <li>• Defined zones for sitting</li> <li>• Maximize advantages</li> <li>• Pleasant views, people watching</li> <li>• Good mix of public and cafe seating</li> <li>• Resting opportunities</li> </ul>
	INVITATIONS FOR VISUAL CONTACT	PLAY, RECREATION & INTERACTION	DAY/EVENING/NIGHT ACTIVITY
	<ul style="list-style-type: none"> <li>• Coherent way-finding</li> <li>• Unhindered views</li> <li>• Interesting views</li> <li>• Lighting (when dark)</li> </ul>	<ul style="list-style-type: none"> <li>• Allow for physical activity, play, interaction and entertainment</li> <li>• Temporary activities (markets, festivals, exhibitions etc.)</li> <li>• Optional activities (resting, meeting, social interaction)</li> <li>• Create opportunities for people to interact in the public realm</li> </ul>	<ul style="list-style-type: none"> <li>• 24 hours city</li> <li>• Variety of functions throughout the day</li> <li>• Light in the windows</li> <li>• Mixed-use</li> <li>• Lighting in human scale</li> </ul>
	AUDIO & VERBAL CONTACT		VARYING SEASONAL ACTIVITY
	<ul style="list-style-type: none"> <li>• Low ambient noise level</li> <li>• Public seating arrangements</li> </ul>		<ul style="list-style-type: none"> <li>• Seasonal activities (skating, Christmas market)</li> <li>• Extra protection from</li> </ul>

	conductive to communicating		unpleasant climatic conditions • Lighting
DELIGHT	DIMENSION AT HUMAN SCALE	POSITIVE ASPECTS OF CLIMATE	AESTHETIC & SENSORY
	• Dimension at buildings & spaces in observance of the important human dimensions in related to séances, movements, size & behaviour	• Sun/shades • Warmth/coolness • Breeze/ventilation	• Quality design, fine detailing, robust materials • Views/vistas • Rich sensory experiences.

## STREETS

“If we can develop and design streets so that they are wonderful, fulfilling places to be – community building places, attractive for people - then we will have successfully designed about one-third of the city directly and will have had an immense impact on the rest.”

Allan Jacobs

Streets are the veins of urban areas and neighborhoods. A place's prosperity can rely on upon how well it is associated with neighborhood administrations and the more extensive city. In the course of recent decades the configuration of lanes have regularly revolved around moving individuals, via auto, starting with one point then onto the next. Actually, roads have numerous different capacities.

Places and boulevards that have stood the test of time are those where movement and different exercises have been incorporated effectively, and where structures and spaces, and the needs of individuals, not simply of their vehicles, shape the region. The road is, by definition, a multi-useful space, giving walled in area and action and also development. Its primary capacities are:

- Circulation, for pedestrians, cyclists and vehicles;
- Transit access;
- Access to buildings, and the provision of light and ventilation for buildings;

- A route for utilities;
- Storage space, especially for vehicles;
- Public space for human interaction; everything from parades and gatherings to experience.

Virtually all streets in urban areas perform these functions, and often the balance between them will vary along the length of a street. Ideally, all these facets of the street can successfully coexist, but all too often it is one function (especially the movement of vehicles) which has been allowed to dominate.

The main indicators of quality, which are the test of a successful streetscape, can be listed under six headings:

- Comfortable and safe for pedestrians and the disabled;
- A street designed to accommodate all sorts of functions, not dominated by any one function;
- Visually simple, and free of clutter. Regardless of whether a street is a straightforward or complex space, what matters is the simplicity and clarity of its paving, street furniture, lighting and landscaping;
- Well cared for, and where utilities or advertising/signage are subordinate to all other street functions;
- The design and detail of a street is sympathetic to local character and the activities.
- Making appropriate provision for access, deliveries and storage of vehicles.

The general population domain ought to be intended to sway the exercises expected to occur inside it. Roads ought to be intended to oblige a reach of clients, make visual investment and luxury and support social collaboration. The spot capacity of boulevards may parallel or exceed the development capacity. This might be fulfilled by giving a mix of roads of different measurements, squares and yards, with cohorted pocket parks, play spaces, resting places and sanctuary. The key is to contemplate the extent of alluring exercises for nature's domain being made and to change plans to suit each.

### 3.4 IMAGEABILITY – IT'S ROLE IN BUIL ENVIRONMENT

Imageability is the nature of a place that makes it unique, conspicuous, and paramount. A spot has high imageability when particular physical components and their course of action catch consideration, bring out emotions, and make an enduring impression.

#### **What do expert says?**

“Generic places with no character have no imageability”

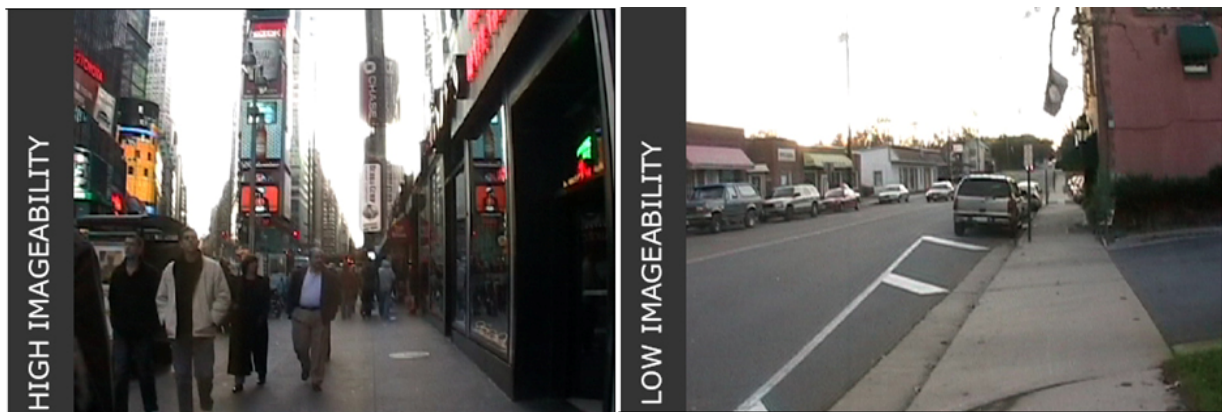
“Really imageable places are recognizable and memorable”

“Distinct views can make an otherwise ordinary place very imageable”

“Architecture that suggests importance, presence of historical buildings and landmarks” are imageable

#### **Ask yourself “is the place unique?”**

A highly imageable place in the peculiar sense would seem well formed, distinct, and remarkable, it would invite the eye and ear to greater attention and participation. The sensuous grasp upon such surrounding would not merely be simplified, but also extended & deepened. The perceptive & familiar observer could absorb new sensuous impacts without disruption of this basic image and new impact would touch upon many pervious elements.



The concept of imageability does not necessarily connote something fixed, limited, precise, unified or regularly ordered, although it may sometimes have these qualities. The total environment to be patterned is highly complex, while obvious image is soon boring & can point to only a few feature of living world.

The only purpose is simply to consider the need of identity and structure in our perceptual world & illustrate the special relevance of this quality to particular case of complex, shifting environment.

## 4. CASE STUDY

### 4.1 STREETScape AND BUILT FORM GUIDELINES BY OTTAWA CITY COUNCIL

1. Align street wall buildings with the existing built form or with the average setback of the adjacent buildings in order to create a visually continuous streetscape



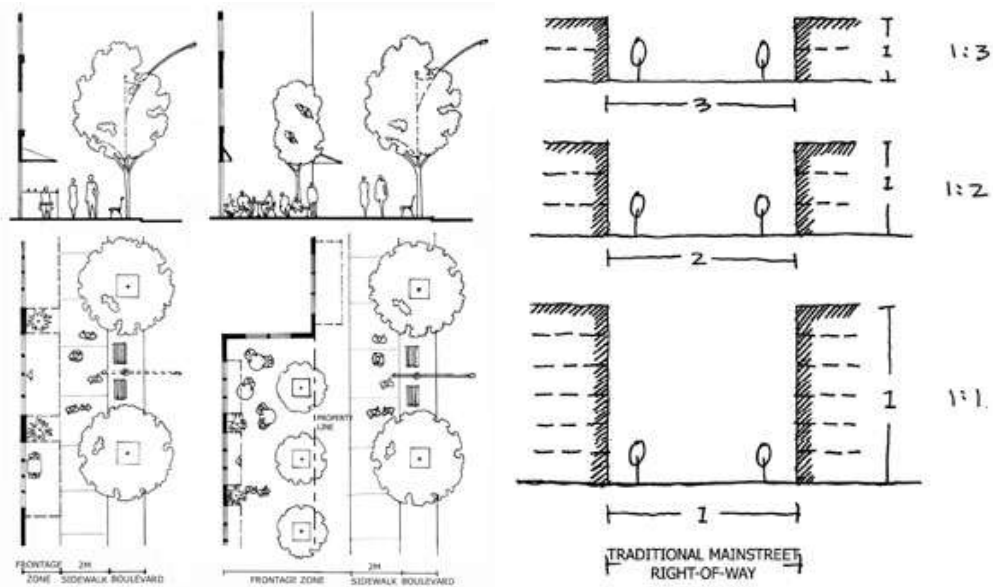
2. Provide or restore a minimum 2.0 metre wide concrete sidewalk and locate to match approved streetscape design plans for the area. Where there is no approved streetscape plan, match the existing context. Provide a boulevard for street furniture, trees, and utilities; next to the sidewalk where possible.

3. Provide an area adjacent to storefronts for canopies, outdoor patios or special merchant displays (the frontage zone). Create wider sidewalks for locations with high pedestrian volumes such as along traditional main streets in core urban areas

4. Use periodic breaks in the street wall or minor variations in building setback and alignment to add interest to the streetscape and to provide space for activities adjacent to the sidewalk

5. Locate streetscape elements in the boulevard clear of the unobstructed 2.0 metre sidewalk, including trees, paving, benches , newspaper boxes, bicycle parking, and parking meters.

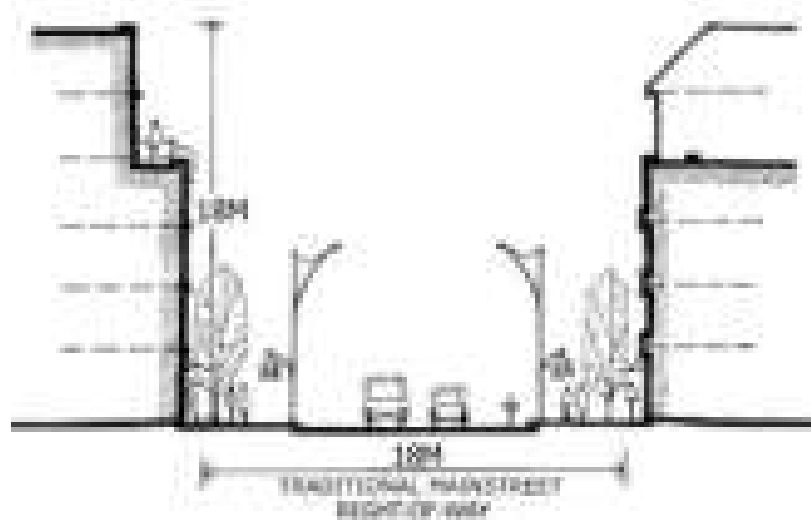




6. Ensure sufficient light and privacy for residential and institutional properties to the rear by ensuring that new development is compatible and sensitive with adjacent uses with regard to maximizing light and minimizing overlook

7. Design street sections with a ratio of building height to road corridor width of between 1:1 and 1:3. A ratio of 1:1 is appropriate for urban core areas, while a ratio of 1:2 to 1:3 is ideal for other traditional main streets

8. Set back the upper floors of taller buildings to help achieve a human scale and more light on the sidewalks



9. Locate mixed-use development by concentrating height and mass at nodes and gateways

10. Highlight buildings on corner sites, where two public streets intersect, with special treatment such as a corner entrance. Continue the same level of architectural detailing around both sides of the building

11. Provide pedestrian weather protection such as colonnades, individual canopies, awnings and balconies



### Comparison

- The code and the city by laws are very much in alignment.
- The congested inlets show that there is no check by the officials on the illegal encroachments and practices. Regular vigilance is required from RDA
- The Ottawa city council and several countries talk about dedicated streetscape plans prioritizing the community and pedestrians.
- The already existing unmaintained and unregulated gaps need to be properly utilized by applying appropriate variation and break up techniques
- Street Elements can enhance the public interaction with the street
- A proper usage of street space is required to make the best potential of the existing state.

### Observations

- The Main Road and the other secondary roads along the complete stretch have fair degree of enclosure of space and spatial dimension of the built fabric and streets gives a comfortable and safe sense to the pedestrians

- However, the main issue lies with the very congested and narrow inlets in between the stretch with not even one meter width. This presents an urban blight in the whole market area.
- The probable reason can be the undefined and unmaintained gaps in between the two buildings which are further used by the people for regular traffic movements.
- At several places these areas showcases the poor sanitation conditions for the area and piles of rubbish gives bad odor which further affects the public space.
- The Inlets with a smaller access being used by pedestrian and two wheelers to reach the inner residential areas receive minimum light and ventilation renders interiors in blight.
- The inner shops do not receive natural light and depend on artificial sources for lighting.
- The inlets leading inside do not have adequate artificial lighting which causes difficulty in night, also gives rise to social evils.

## 4.2 URBAN SQUARE-KASTURJAN PARK, NAGPUR

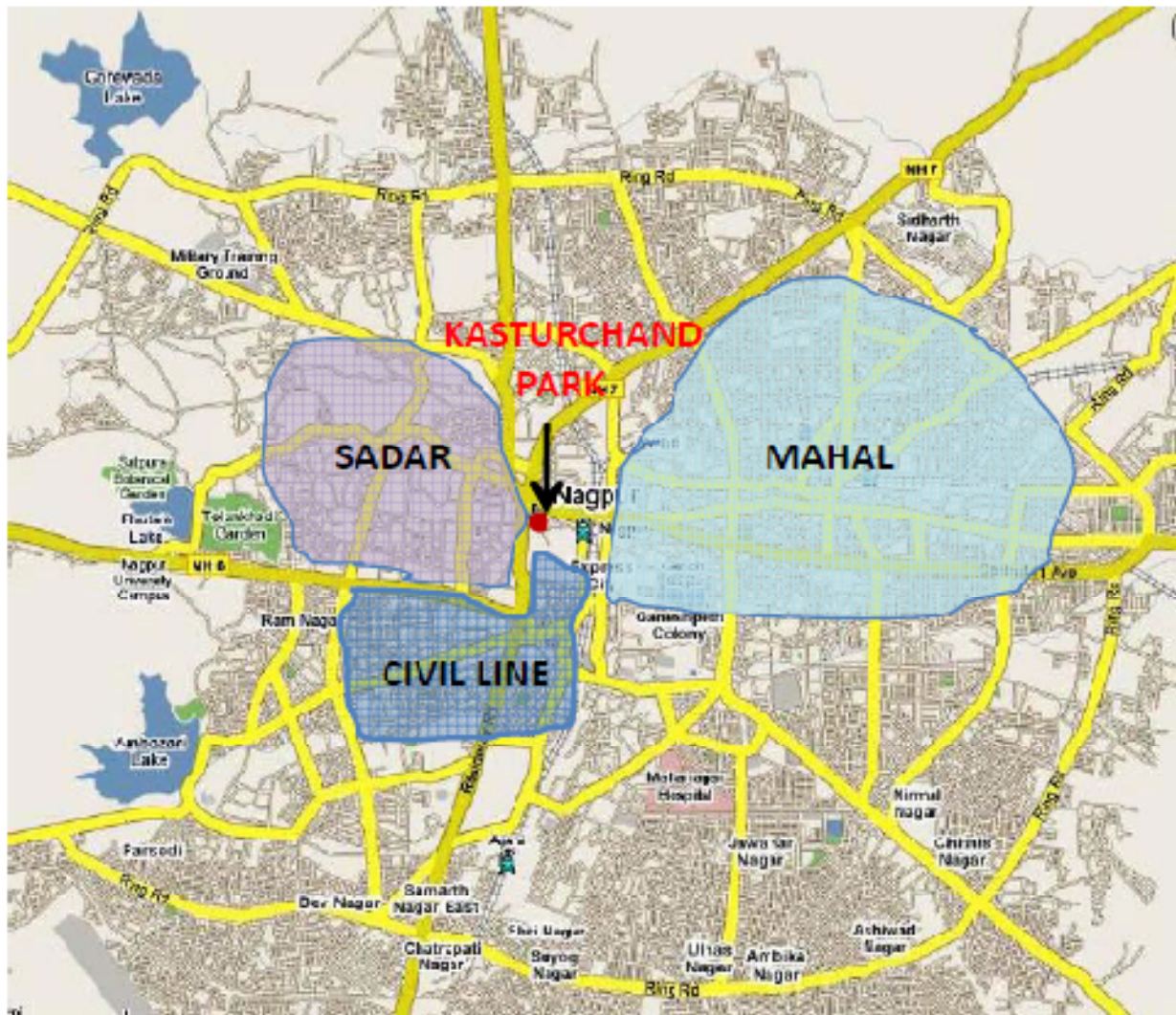


Figure 4 Map of Nagpur

- kasturchand park is a urban square at Nagpur at the intersection of two main roads which cross it that is NH-6 and NH-7.
- It has historical importance.
- Its located to intersection of old are Sadar, Mahal, civil line and new Nagpur are.
- It's a cultural palace.

## CONTEXT

RBI building(landmark)

Main Railway station

Kasturchand Park( node)

Three side road

Park is surrounded by commercial  
by  
government building

## MOVEMENT

Main entry points for Suder and  
civil line from Railway station.

Rounded movement occur along  
the park and defining edge.

## ACTIVITIES IN PARK

It's a flexible space with no  
vegetation which make it  
multifunctional space. It's a local  
children playground during day  
time .

Park used for may exhibitions  
Example- book fair. Cultural  
activities

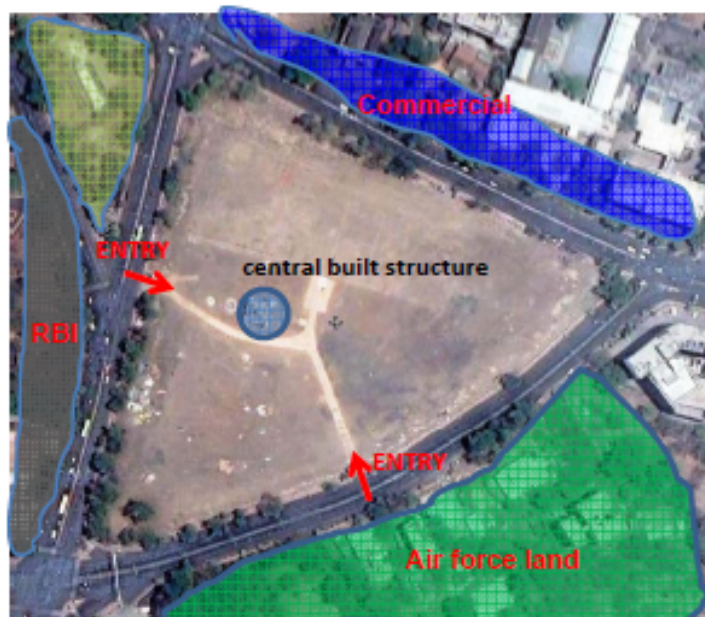
Ex Ravan Dahan Dasher



RBI building



Central focal point



## CONCLUSION

- Urban square should always associate with some public activities. Commercial Office or Mixed Uses with Cultural and/or Educational uses Street-level retail with a cultural/educational emphasis such as art galleries emphasized the urban square
- The public square is probably still the most important element in city design; it is the chief method by which a town or city is both decorated and given distinction.
- It is the natural setting for the most important civic and religious buildings, a place for fine sculpture, fountains and lighting and, above all else, a place where people meet and socialize.
- When such public places are designed according to some fairly basic principles and are imbued with a sense of place, they take on an added symbolic meaning.
- The most important physical quality of such spaces is enclosure. The methods of enclosure are many though the principles are few.

## 5. STUDY AND ANALYSIS OF ACTION AREA

### 5.1 GENERAL DISCRIPTION

Patna the state capital of Bihar lies within 30 miles radial distance in its region. It offers better job opportunity, better educational and health facilities as well as proximity to state level offices and government institutions. All these urban centers are located on a rail-road axis and within 1-hour travel time-distance from Patna. The nodal point of interaction land use planning is the main hub of urban development.

Figure 5 map of Patna

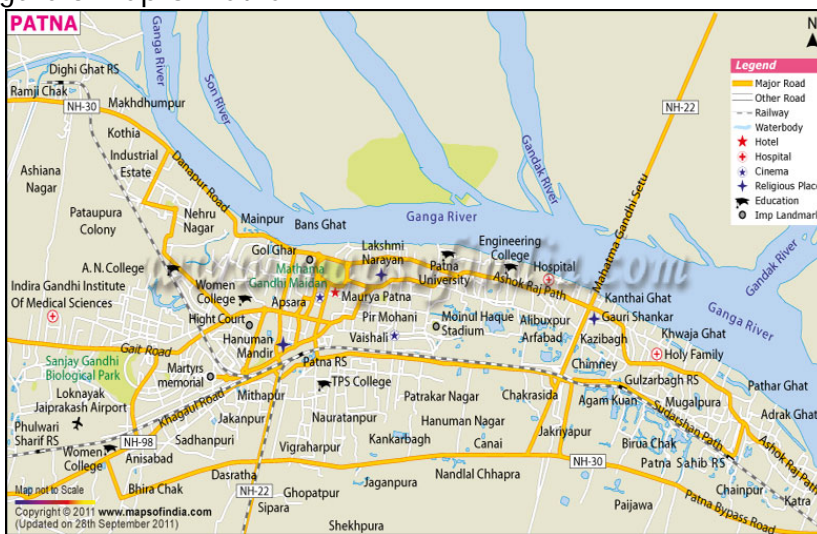


Figure 6 map of India



Figure 7 google image of the action area



## ABOUT HARDING PARK AREA

It is a large chunk of open land, in the busy central business district area near to the Patna railway station. Earlier being the interstate bus terminal it was well connected to all the major parts of the city. Due to relocation of the interstate bus terminal, the nearby commercial setup gradually shifted toward the railway station. There was already a large area occupied by the retail shops and wholesale market named as new market in front of the station premises and on the other side of the road adjacent to the station premises the fruit market and daily market was established known as Bakri Bazaar. Increasing population and increased pressure on railway station, the near by area gradually develops into a dense commercial zone and mixed land use with no consideration of building by-laws and aesthetic sense which declines the architectural character and beauty of the main entry point of the city.

## SIGNIFICANCE

- Railway station being an important entry point which is to be convenient, appealing, hygienic and should have adequate parking for the visitors. It should be properly planned and free from traffic congestion.
- To provide open space that offers delight - surprise - rest - enlightenment - amusement for a wide variety of user over the course of the day, week and year
- For socializing - eating - resting - bus waiting - exhibitions - open air marketing - which add to the quality of city living and working,
- Business development



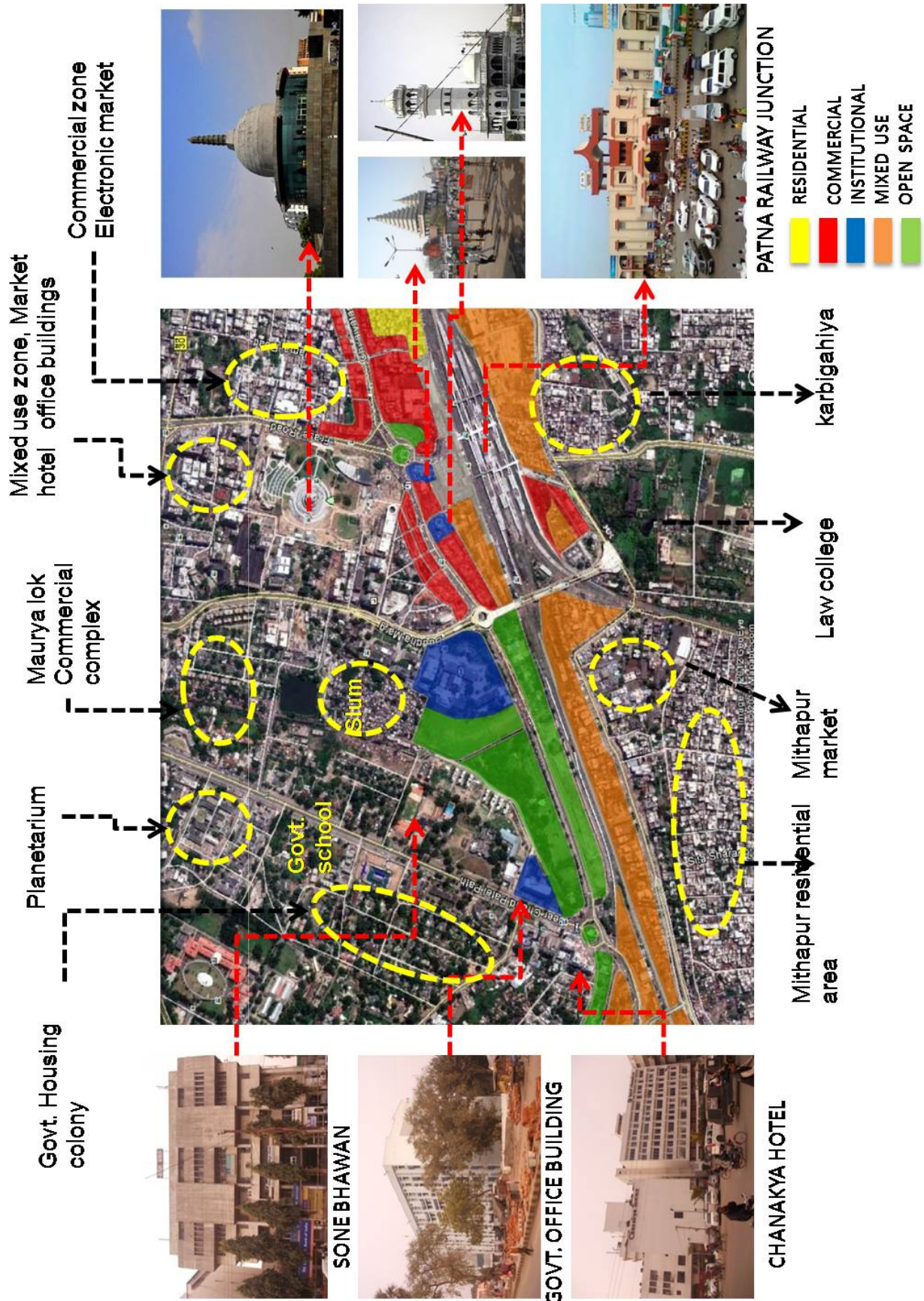


Figure 8 General dicription surrounding of action area

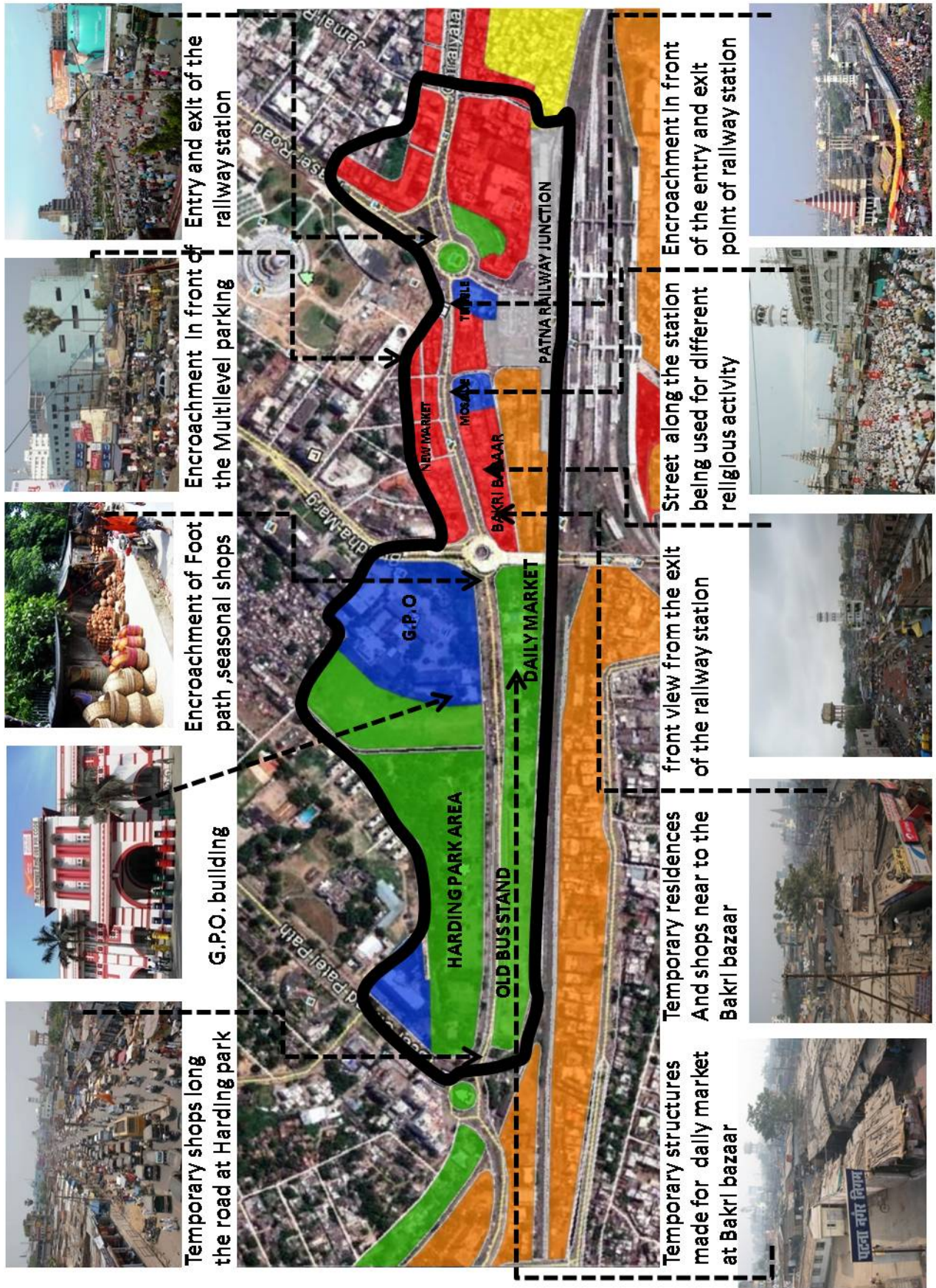


Figure 9 general discription of harding park and station road, Patna

## 5.2 LAND USE

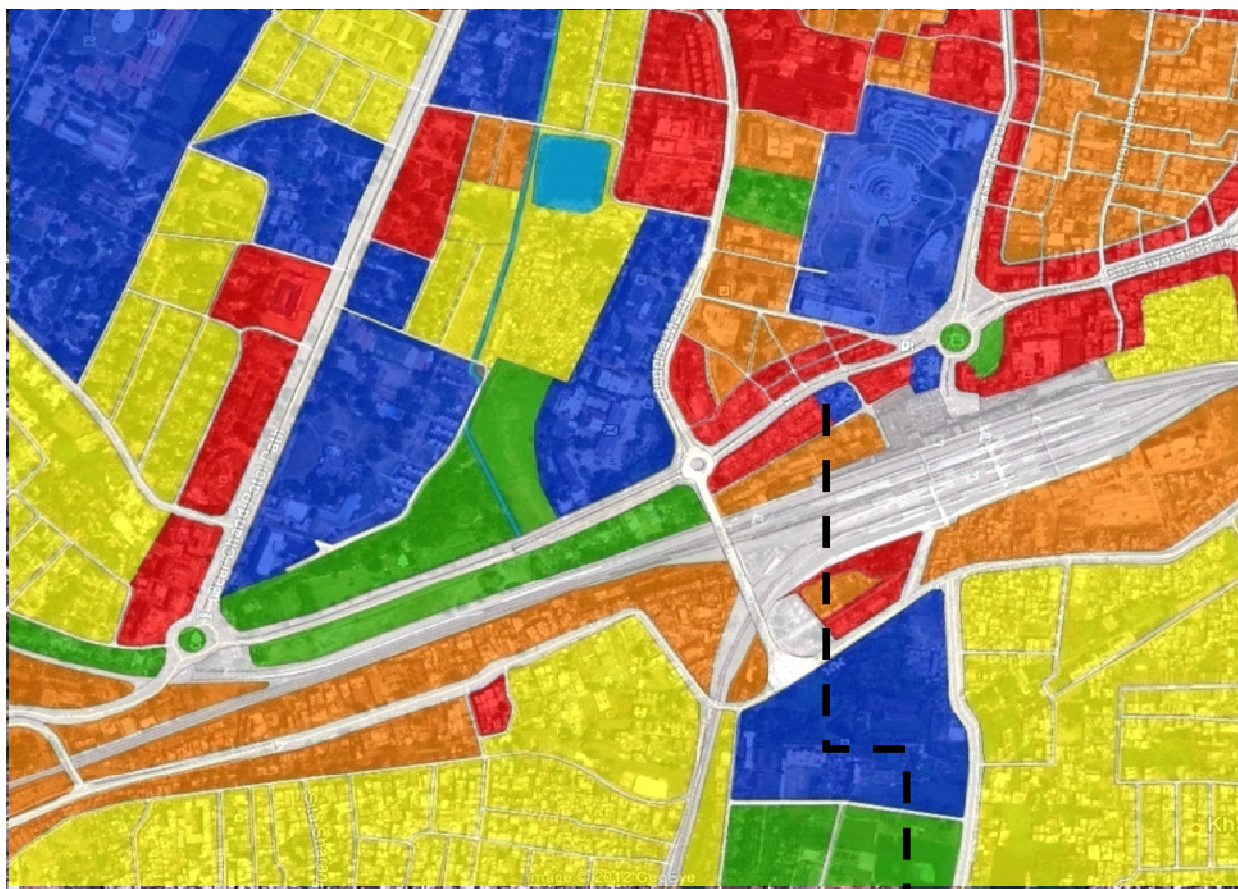
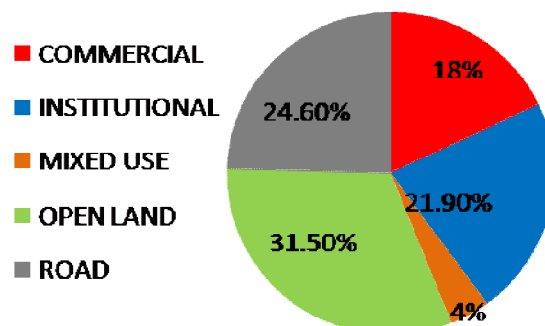


Figure 10 Land use map



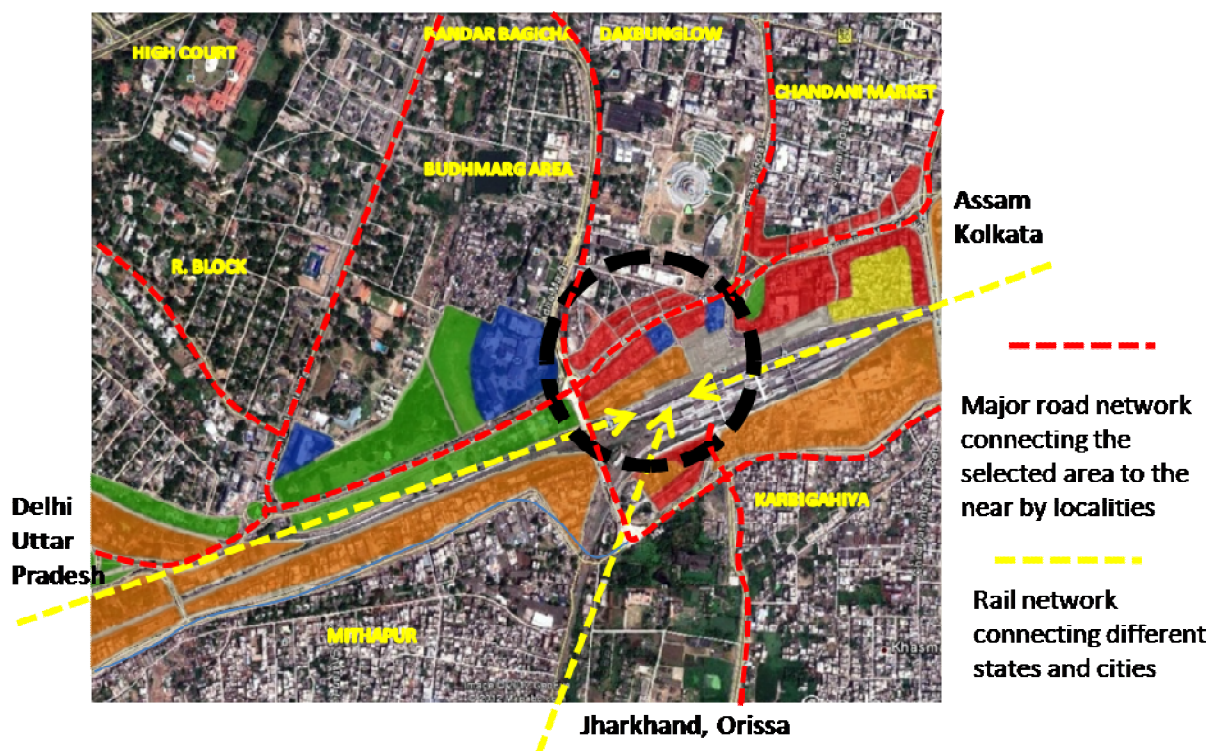
Figure 11 land use map of action area

- Un planned land use results in unorganized and chaotic situation
- Mixed use illegal development
- No public place or breathing space in busy urban core area for public amenities is less

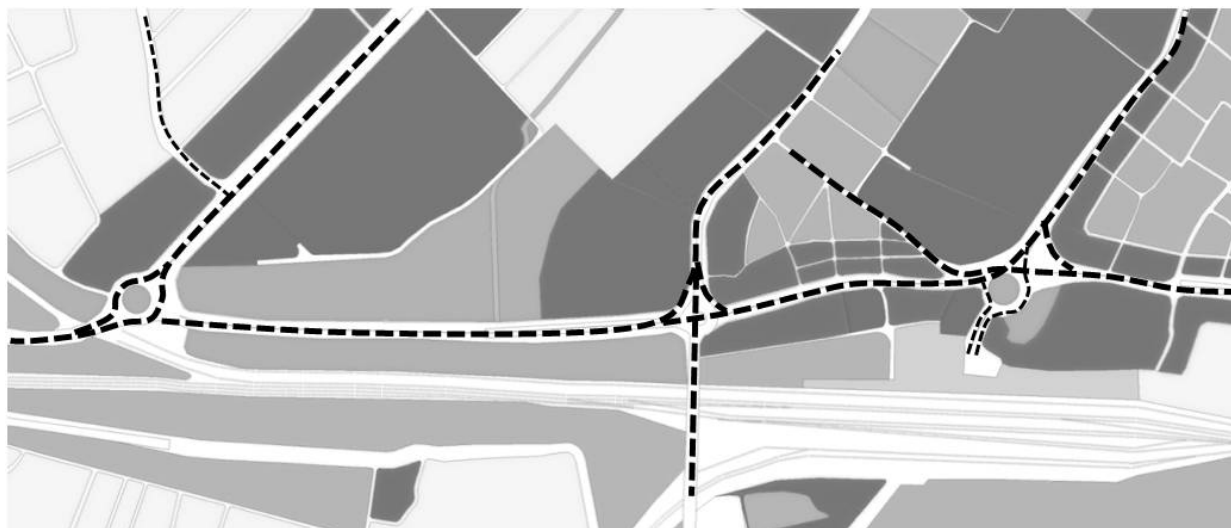


### 5.3 TRANSPORTATION AND PARKING

#### ACCESSIBILITY AND CONNECTIVITY



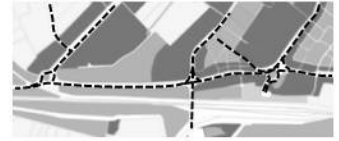
#### TRAFFIC FLOW DIRECTION



Two way traffic flow

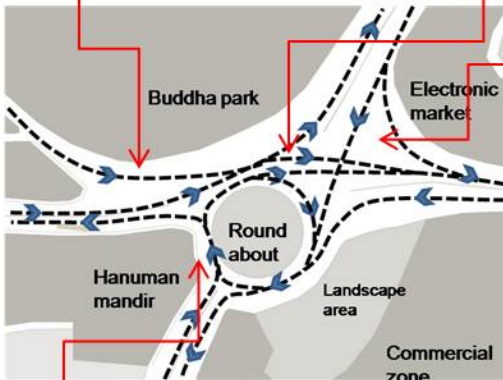
- No traffic regulation
- Insufficient parking for railway station
- No parking space for market area
- No bus stop , auto stand or rickshaw stand

### TRAFFIC CONGESTION ZONES



Key plan

On road parking and bus waiting creates congestion at the exit of the railway station



traffic movement plan at entry/exit of station



Auto stand near the entry point on railway station



Pedestrian movement at the round about



Traffic conjection near the flyover due to less width of road



traffic congestion in station road



traffic movement plan G.P.O. golamber



traffic congestion near harding park road



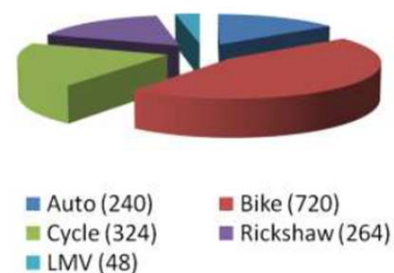
traffic congestion near new market

Equivalent PCU Factor	Type of Vehicle	Count	PCU
2	Auto	240	480
0.75	Bike	720	540
0.5	Cycle	324	162
2	Rickshaw	264	528
1.4	LMV	48	67.2
	<b>Total</b>	<b>1596</b>	<b>1777.2</b>

Equivalent PCU Factor	Type of Vehicle in Opp. Direction	Count	PCU
0.75	Bike	612	459
0.5	Cycle	180	90
2	Rickshaw	192	384
2	Handcart	108	216
	<b>Total</b>	<b>1092</b>	<b>1149</b>

Total Capacity of Road (IRC Standard) = 1500  
 Volume/Capacity = 1.18  
 Total PCU (2-way) = 2926.2  
 Capacity of Road (excluding on street parking space) = 1200  
 Volume/Capacity = 2.44

Vehicle Share (per hr.)



## ISSUES

Insufficient parking for railway station and narrow entry and exit leads to congestion  
 Congestion due to Irregular - roadside parking  
 no defined space for bus and auto parking  
 no uniform road width  
 Poor storm water drainage; the intake points are mostly choked  
 Width and height of the footpath varies from place to place  
 Unnecessary structures on the road creates bottle necking  
 Encroachment of vendors covering the footpaths

## 5.4 USERS AND ACTIVITY

USERS	ACTIVITY	SOCIAL ACTIVITY
TRADER OR SELLER	SHOPPING	DHARNA OR RAILIES
CUSTOMER	PARKING	RELIGIOUS FESTIVALS
<b>ON INCOME PROFILE -</b>	RIKSHWA STAND	WEDDING FUNCTIONS
SELF EMPLOYED	AUTO STAND	MELA OR EXHIBITIONS
GOVT SERVICE	BUS WAITING	
PRIVATE SERVICE		
DAILY WAGES		

### MAJOR USERS AND THEIR ACTIVITY ON THE STREET ADJOINING THE ACTION AREA

FULL TIME	PART TIME	FAMILY BUSINESS
AUTO RIKSHWA DRIVERS	HAWKERS	TAILORING
SMALL SHOPS OR STALLS	FLOWERIST	CLOTHING SHOPS
STREET VENDORS	PAPER VENDOR	CARPENTERS
RESTAURANTS	VEGITABLE/FRUITS VENDOR	POTTERY
GARAGES	MAINTAINANCE STAFF	WHOLESALE SHOPS
MERCHANT SHOPS		SMALL SCALE INDUSTRIES



## USER SURVEY CHART

USERS	ABOUT THE PRESENT CONDITION	SUGGESTION OR RECOMMENDATION ABOUT IT	DEMAND FROM THE CITY	DEMAND FROM THE SITE	WHAT ABOUT DEVELOPING A MALL OR COMMERCIAL HUB	WHAT ABOUT ENCOURAGING AND DEVELOPING THE SITE WITH THE CONTEXT AND ITS CHARACTER
LOCAL PEOPLE RESIDING NEARBY THE SITE	CHAOTIC SITUATION	TO REMOVE AUTOWAL AND THE HAWKERS FROM ROAD	A GOOD OPEN PLACE AND ORGANIZE MARKET AREA	TO BE FREE SPACE	NO SUCH IDEA.... BUT NO MALL BECAUSE OF CONGESTION	AVERAGE RESPONSE
TRADER/ CUSTOMER BUSINESS MAN	UNSAFE AREA NO SERVICES	PROVISION OF SERVICES AND SAFETY MEASURES TO BE APPLIED	SAFE MARKET PLACE WITH ANCILLIARY SERVICES	TO BE MARKET HUB OR OPEN AREA	COULD BE AN OPTION	GOOD RESPONSE
HIGH INCOME GROUP PEOPLE	CONGESTED AREA, NO PARKING ZONE	ORGANISATION OF TRAFFIC CIRCULATION	BETTER HANGOUT PLACE	MALL	GOOD RESPONSE	AVERAGE
MID INCOME GROUP PEOPLE	NO RULE REGULATION	REMOVAL OF HAWKERS AND AUTOWALA..	OPEN AREA	TO BE GREEN AREA	AVERAGE RESPONSE	GOOD RESPONSE
LOW INCOME GROUP PEOPLE	ALL CHAOTIC CONDITION	NO IDEA	MORE JOB OPPORTUNITY	PLACE FOR WEEKLY MARKET	NO	AVERAGE
DISTANT VISITORS/ CASUAL VISITOR	TRAFFIC JAM NO GOOD MARKET	TRAFFIC CIRCULATION SHOULD BE IMPROVED	NO IDEA	NO IDEA	COULD BE an option	GOOD RESPONSE
ARCHITECTS/ ARCHITECTURE STUDENT	PERIODICAL CHANGES AND DETORRIATION OF PLACE	MARKET AND HAWKERS SHOULD BE ORGANIZED	HANG OUT PLACE	ORGANIZED MARKET ZONE AND STUDENT HANGOUT AREA	NO	APPRECIATED THE THOUGHT AND



ACTIVITY PATTERN



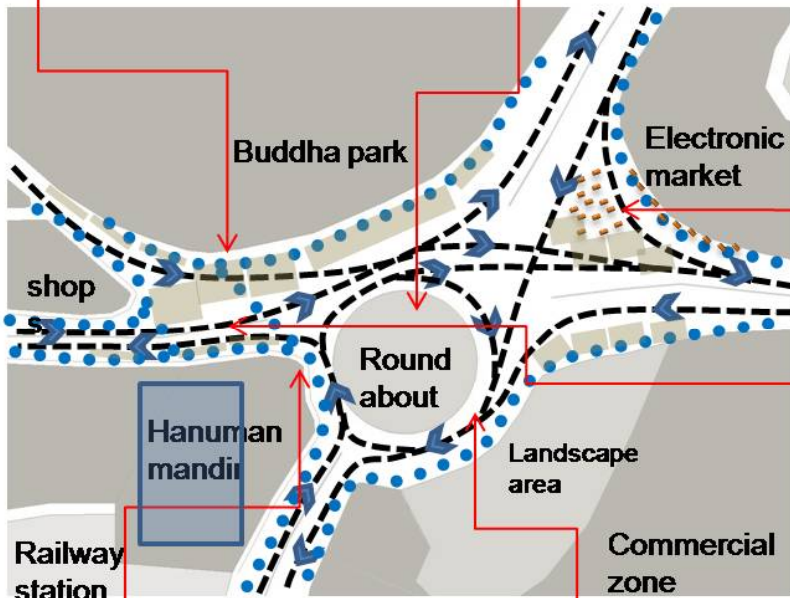
On street parking, street shopping and vendors



Encroachment of govt. land in front of the railway station for commercial activity



- Vehicular traffic
- Pedestrian traffic
- Parking
- Venders stall



Auto stand and vendors at the entry poin of station



Religious activity at festival season and on week days



Shopping and parking at the exit point of railway station



No segregation of pedestrian and vehicular traffic

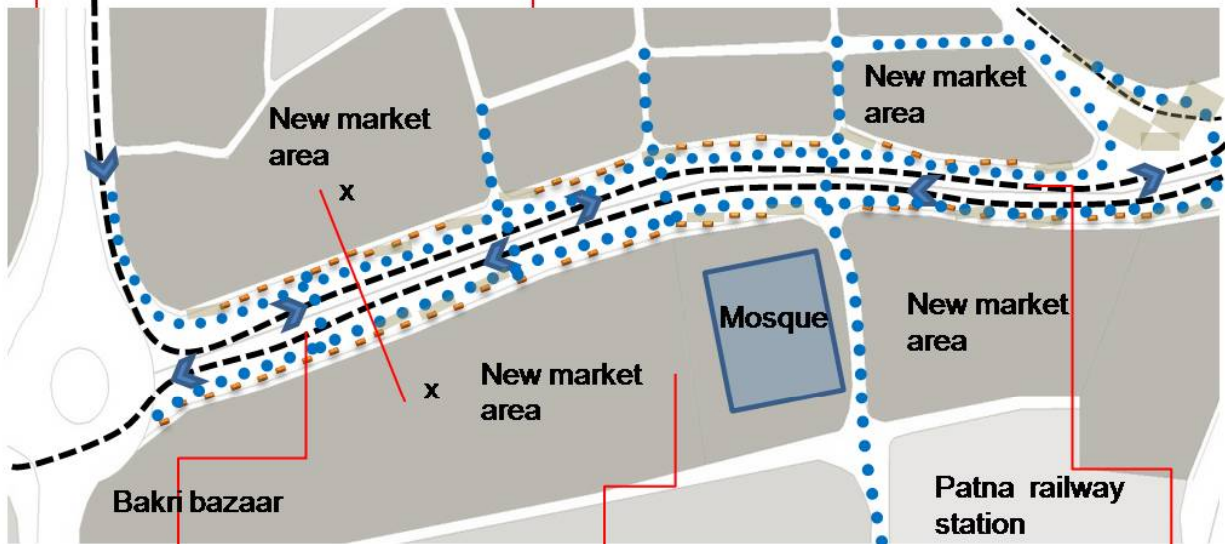
**ACTIVITY PATTERN**



The vehicular and pedestrian traffic along the station road



Religious function and festival celebration on the station road



Vegetable sellers on the footpath near the bakri bazaar



settlement of new market and bakri bazaar area



Section at x - x



The different activity on the road side and on the footpath

ACTIVITY PATTERN



Footpath encroachment by the local vendors

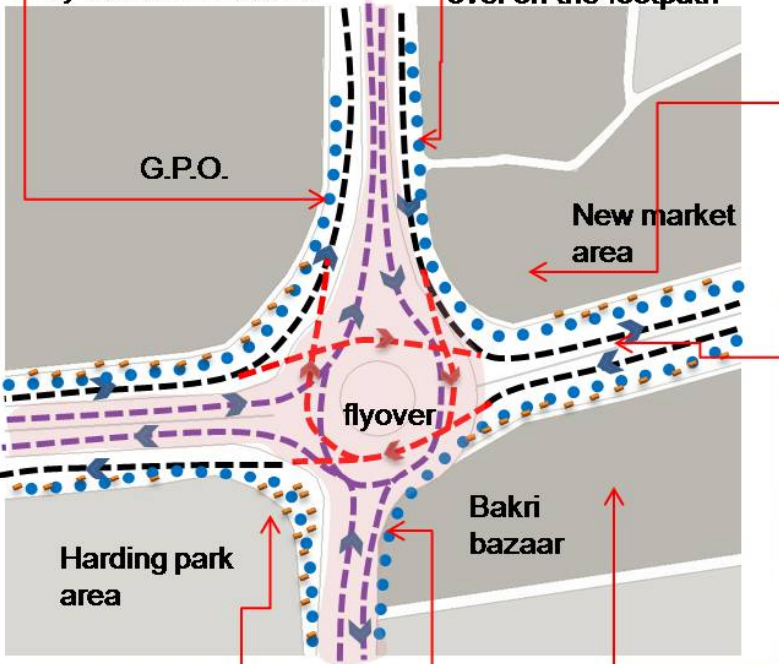


Temporary stall and spill over on the footpath



KEY PLAN

- Vehicular traffic
- Pedestrian traffic
- Parking
- Venders stall



Area view of new market area



People crossing the divider of the road



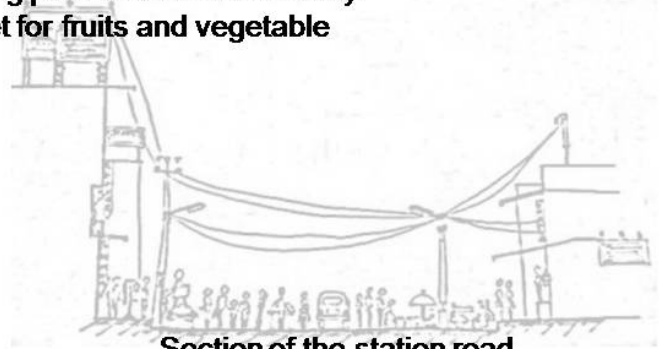
Harding park area used for daily market for fruits and vegetable



Road side vendors



Area view of bakri bazaar



Section of the station road



Traffic jam near the flyover

## 5.5 BUILDING CONDITION

Degenerated building conditions can be found in pockets all over the area, majorly comprising government property. Private ones like work shops and retail shops near railway station, are in deteriorating condition.

Due to the encroachment on the govt. land all buildings are of a single storey built with temporary shades and low quality material. As the daily market is near the railway station the owners and the workers both are residing at the same place having the shop in front and the backyard is used as temporary residence. Some have become slum pockets.



Figure 12 Temporary structures of single storey on the both side of road without considering the building by laws



Figure 13 Temporary structures of single storey in the front of railway station on the govt. land

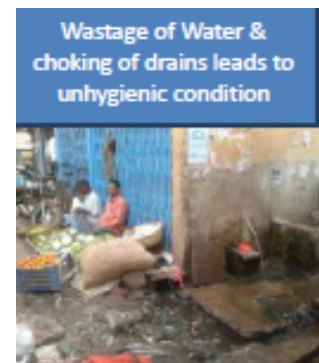
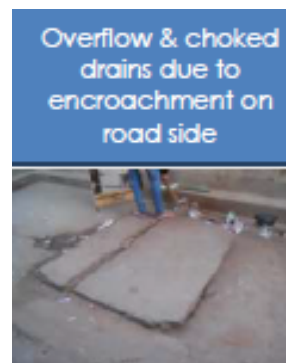
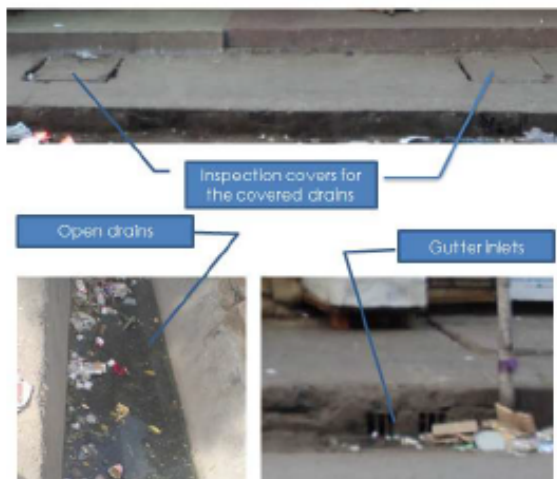


Figure 14 The temporary shops and the visual chaos and aesthetic disorder clearly seen in front of the entry and exit point of the railway station

## 5.6 PHYSICAL INFRASTRUCTURE

### Drainage:

- There are closed drains along the Commercial road and open drains along the internal roads.
- Presence of drain inlets to channelize rain water from the main road and from roof tops through drain pipes
- Provision of inspection covers



### Issues:

- Clogging of open drains by solid waste
- Covering of gutter inlets from the road side by the shop keepers and choking of the same by solid waste
- Lack of maintenance



*Clogging of drain and improper maintenance*



*Bad state of Open drain*



*Covering of Open drain*

### **Solid Waste Management:**

Issues:

- Absence of community waste bins.
- Dumping of waste on road and footpath.
- Collection of waste once a day.
- Rotting of organic waste and smell.
- Blockage of drain holes.



**Figure 15** absence of dustbin on the road side

## 5.7 STUDY OF BUILDING BY LAWS

### EXISTING BY LAWS

#### Comparison between National Building Code 2005 and PRDA Bylaws

National Building Code	PRDA Building By laws
<p>The maximum height shall be limited according to the width of the street as follows:</p> <p>a) The <b>maximum height of building shall Not exceed 1.5 times the width of road</b> abutting plus the front open space and 2.3 for commercial areas</p> <p>b) If a building abuts on two or more streets of different widths, the building shall be <b>deemed to face upon the street that has the greater width and the height</b> of the building shall be regulated by the width of that street</p>	<p>Commercial &amp; Storage buildings- In case of plots with more than 500 sq. m. area,</p> <p><b>The open spaces around the building shall be not less than 4.5m.</b></p> <p>The <b>maximum height of a building shall in no case exceed 1.5 times X the width of the road on which the plot abuts + the minimum required front setback.</b></p> <p>However, higher height on account of <b>premium FAR may be permitted with the approval of the Authority.</b></p>

**TABLE-1: LAND USES PERMITTED/PROHIBITED IN DIFFERENT USE ZONES**

Use Zone	Uses/Activities Permitted	Uses/Activities Permitted on application to the Competent Authority	Uses/Activities Prohibited
<b>(a) Commercial Use Zone</b>	<ol style="list-style-type: none"> <li>1. Retail business, mercantile</li> <li>2. Business and Professional Offices</li> <li>3. Government/ institutional offices, and semi Government offices</li> <li>4. Shops</li> <li>5. Services</li> <li>6. Restaurants, hotels</li> <li>7. Hostels/Boarding houses, social and welfare institutions</li> <li>8. Convenience/ neighbourhood shopping centre, local shopping centres, weekly/ formal markets, bakeries and confectionaries</li> <li>9. Cinema hall/theatre, banquet halls, auditoriums</li> </ol>	<ol style="list-style-type: none"> <li>1. Place of entertainment and recreational uses</li> <li>2. Place of worship</li> <li>3. Service garage provided they do not directly abut the main road</li> <li>4. Printing presses employing not more than 10 persons.</li> <li>5. 20 bed hospitals not treating contagious diseases and mental patients</li> <li>6. Wholesale storage yards.</li> </ol>	<ol style="list-style-type: none"> <li>1. Polluting industries.</li> <li>2. Large scale storage of hazardous materials excepting in area, specifically earmarked for the purpose</li> <li>3. Dwellings except those of essential watch and ward personnel</li> <li>4. Heavy, extensive, noxious, obnoxious,</li> </ol>

## VIOLATION OF BY-LAWS

In case of plots with more than 500 sq. m. area, the open spaces around the building shall be not less than 4.5m.

The FAR and other parameters shall conform to that specified for commercial buildings.



Figure 16 image showing violation of building bylaws

No building exceeding 11 meters in height shall be allowed to be constructed as a shop-cum-residence plot, unless so permitted under the zonal development plan, provided that, the shop-cum residence shall have 2/3<sup>rd</sup> of the total floor area used for shops.

Road width in m.	FAR for Residential/ commercial building	FAR for II/IIES/ Corporate buildings
Up to 6	1.0	--
Above 6 m & up to 9 m	1.5	--
Above 9 m & up to 12 m	1.50	--
Above 12 m & up to 15 m	2.00	2.00
Above 15 m & up to 18 m	2.00	2.00
Above 18 m & up to 30 m	2.25	2.25
Above 30 Mtr.	2.50	2.50



## 5.8 INFERENCES

The action area faces different problems related to movement of people and vehicles, parking, public realm and visual chaos, building condition, encroachment of land, which has to be improved in its quality of built environment and open spaces which is difficult for the core of city as well as proper functioning as a place for public activities and become a public realm.

In order to get the users' feedback and find out specific issues and problems and their perception of space, a survey of few persons was conducted which was categorised under age group, occupation and income work. The survey showed that the area is visited mostly by middle income group people for work in government offices and commercial establishments located in the area and the local vendors. Most of the people come to the area in their privately owned vehicles, major of which comprises two-wheelers. There is a serious problem of poor footpath and difficulty in movement pattern along with the pedestrian where there is no skywalk or road crossing and poor signal facility. Major problem is analysed as the entry and exit location of the railway station and the insufficient parking for the station visitors along with the infrastructure problems, lack of open spaces, lack of public places, criminal activities and other. Whereas a large majority desired qualitative changes; improvement in circulation and traffic, parking facilities and open spaces are the main issues where immediate action needs to be taken. Preference for street shops over hawkers, malls and offices in the area was also expressed by the majority of people.

Hence it becomes essential for the area to improve the living condition and the built environment to provide better infrastructure and pleasant visual image along with the existing essence of the shopping culture and the context of the area.

## 5.9 SWOT ANALYSIS

The commercial activities are located along the station road. Heavy congestion due to organic growth & no specific movement pattern for the pedestrian and vehicular traffic. Unplanned growth of commercial & religious activities has created chaos and congestion. High concentration of commercial activities due to the transport linkages. Since there is no defined movement axis, especially in the whole sale market area, there is a lot of traffic congestion. Markets developed along the road side and at the entry and exit point of railway station where footpath and one fourth of the road width is encroached by street shops and hawkers.

### **Strength:**

- It Has good location advantage (developed along the transportation lines)
- Most of the income is from whole sale & retail market
- Concentration of activities like old bus-stand, vegetable market, whole sale & retail markets, and entertainment.
- Apart from commercial activities, CBD has strong religious attachment (hanuman mandir, mosque and buddha smriti park) which promises social integration.
- It can sustain further expansion of commercial activities (if planned properly)

### **Weakness:**

- lack of defined axis of movement.
- Lack of enforcement of law (Violations in every aspect)
- No infra structure facilities like drinking water, public toilets, drainage system etc.
- Uneven distribution of activity density

### **Opportunities:**

- Revitalization of commercial, development of overlooked area and proper planning will result to a vibrant, safe and multiutility public place which also enhance the CBD activities.

### **Threats:**

- Maximum violation of regulations can decay the buildings, activities & spaces.
- There are no fire safety precautions.
- Noise & air pollution is beyond tolerable level of humans.
- Unauthorized spaces, high land value, congestion & lack of social responsibility can make left over areas, a hideout place for social evils.

## 6. BROAD GUIDELINES AND PROPOSAL

### 6.1 DESIGN GUIDELINES

ISSUES	SOLUTIONS (DESIGN AND MANAGERIAL)
Traffic congestions	<ul style="list-style-type: none"> <li>• Revision of traffic routes, redesign of junctions</li> <li>• Facility of public transport</li> <li>• Pedestrian controlled signals installations, Proper signage catching people's attention</li> </ul>
Poor and inadequate parking facilities	<p>On street parking</p> <ul style="list-style-type: none"> <li>• Appropriate markings for parking</li> <li>• Strict regulation against illegal on street parking</li> </ul> <p>Off street parking</p> <ul style="list-style-type: none"> <li>• Multilevel parking structures</li> <li>• Strict orders against encroachment on public parking spaces</li> <li>• Separate entry and exit of railway station parking</li> </ul>
Poor pedestrian pathway	<ul style="list-style-type: none"> <li>• Pedestrian pathways min. 2m,</li> <li>• non skidding pavement surface; tree line treatments</li> <li>• Ramps to take care of height differences and easy access</li> <li>• Bollards for obstructing vehicles on footpaths</li> <li>• Vendors to be shifted to a separate place off the roads</li> </ul>
Lack of open spaces and public places	<ul style="list-style-type: none"> <li>• Provision of public parks</li> <li>• Transforming left over plots into urban plaza</li> <li>• Road widening and front setback should be increased.</li> </ul>

## 6.2 BROAD PROPOSAL

Based on the analysis, the proposals being projected are provided in three phase

PHASE 01- The first major proposal is redevelopment of the Harding park area and the old bus stand as they are vacant land , to create new retail space, and extra parking space for four wheelers and two wheelers. This would solve a two-fold purpose of decongesting the vehicular traffic generated due to the Sabji Mandi, and the street shopping near at station road which will cater all category of shops and also hawkers zone will be provided to accommodate the street vendors.

PHASE 02-The different degrees have been considered for the stretch of 600 m of action area, based on the varied existing situations of the structures/ buildings in the stretch.

- Road widening
- Clearance of front setback area
- Façade treatment
- Rehabilitation
- Complete demolition and Reconstruction

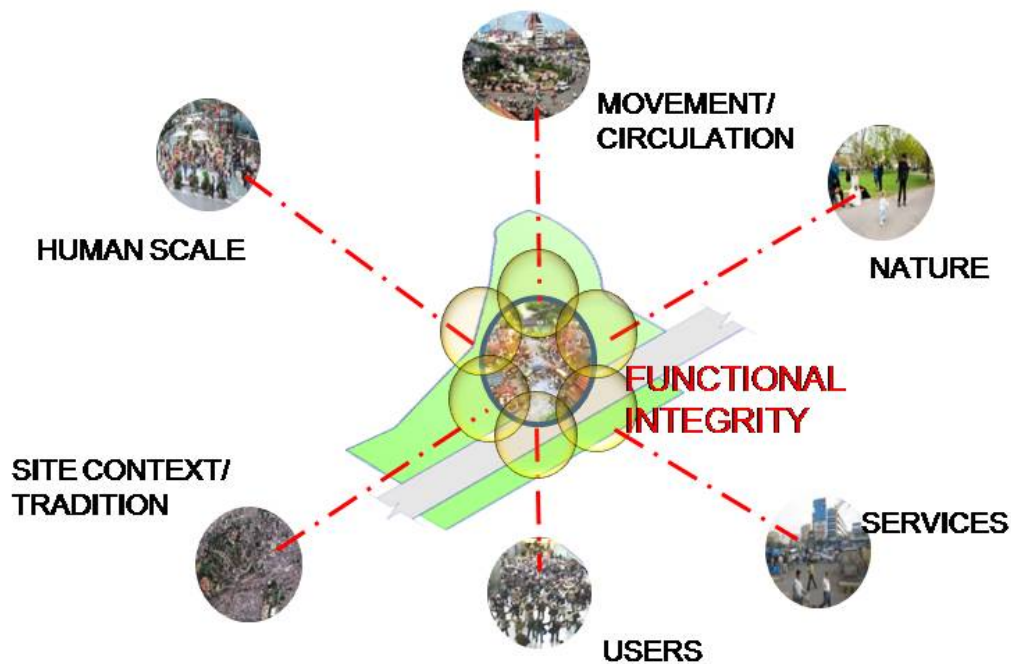
PHASE 03- An extra parking area has to be created at Patna railway station and separate entry and exit gates should created to overcome the problem traffic jam at the single entry and exit point of railway station.



### 6.3 DESIGN PROPOSAL FOR PHASE 1

Phase 1 will consist of the development of a commercial complex in the vacant land near the GPO which will accommodate almost all the shops existing in the new market and Bakri Bazaar. The complex will have a hawkers zone and street shops which will be fully dedicated to the registered hawkers and vendors and it will help in clearing the footpath and the encroachment on the road side.

#### CONCEPT



#### BALANCE WITH NATURE

Providing open spaces, that nurture the environment.

#### BALANCE WITH TRADITION AND SITE CONTEXT

Architectural character of Patna is to be conserved. Bazaar/market concept is restored by providing haat. Location of haat is such that architectural character can be enhanced.

#### BALANCE WITH MOVEMENT/ CIRCULATION PATTERN

Control over traffic congestion by proper segregation of pedestrian and vehicular movement, proper provision of parking spaces.

#### HUMAN SCALE

Promotes the personal visibility of places moving on foot at eye level.

#### EFFICIENCY OF SERVICES

Provision of building services and public amenities using solar power as alternate energy.

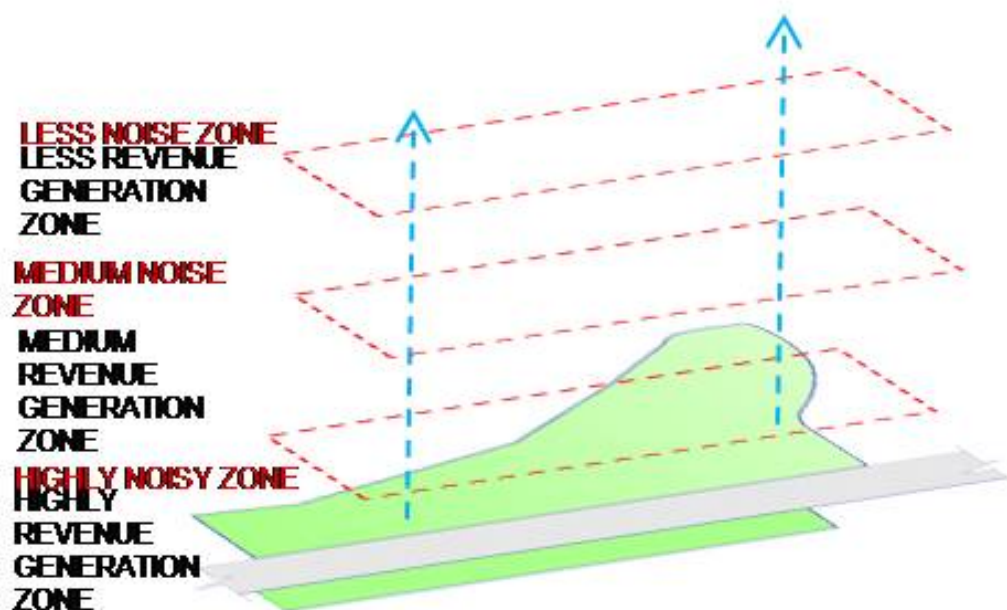
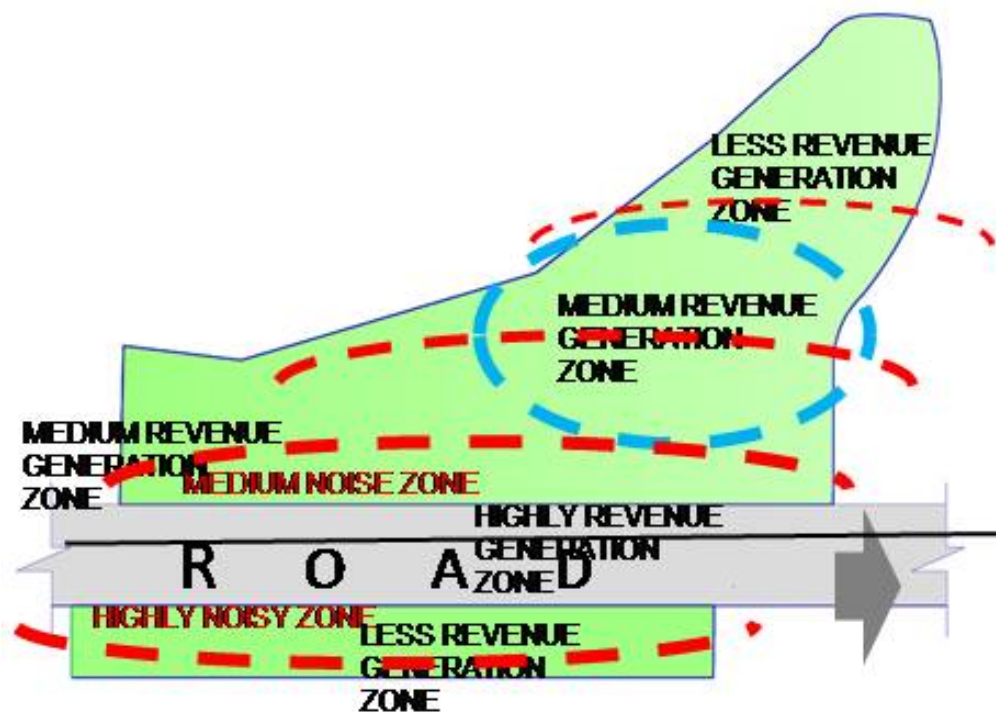
## ZONING

### HORIZONTAL ZONING

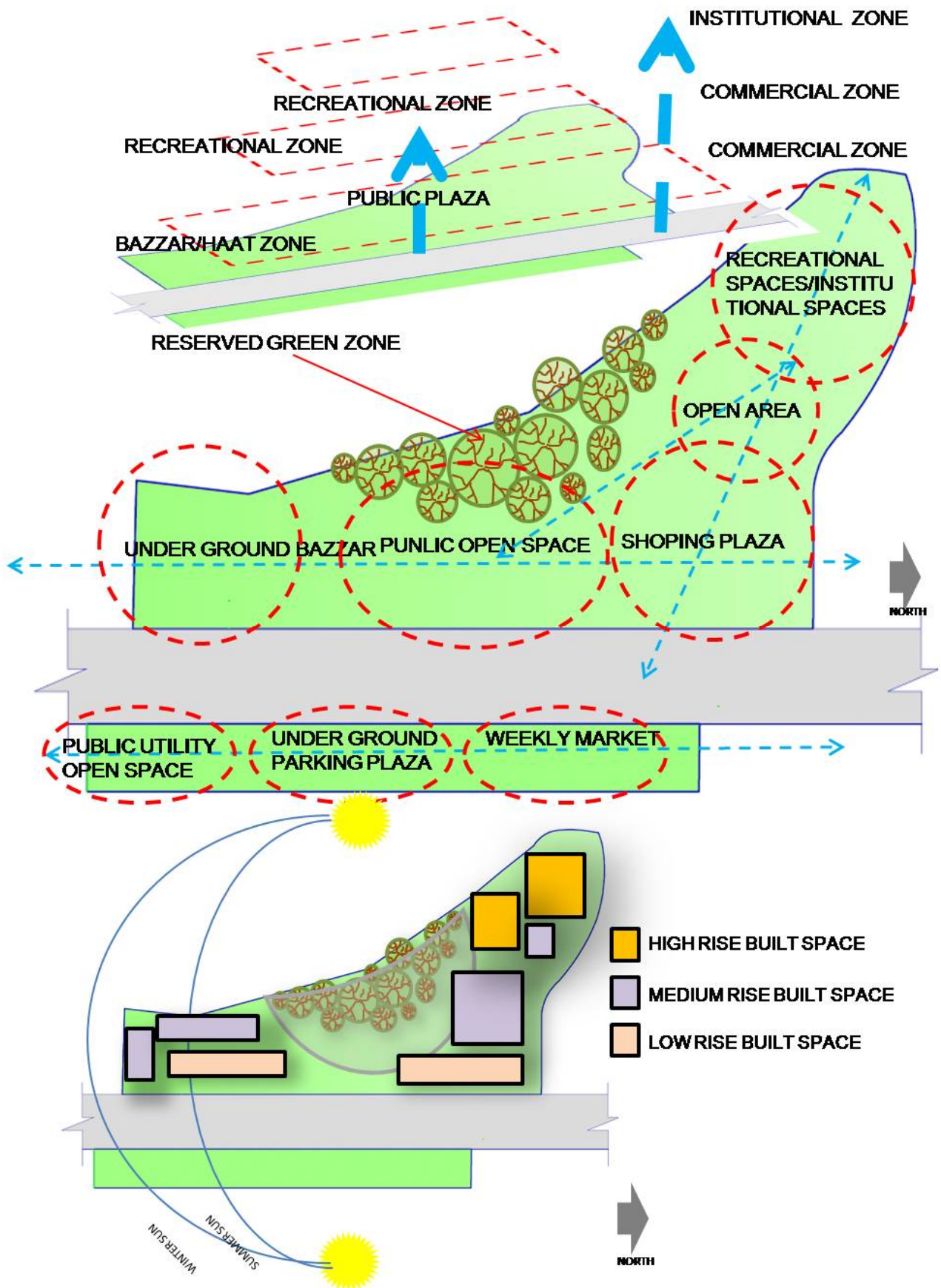
- NOISE LEVEL
- REVENUE GENERATION

### VERTICAL ZONING

- NOISE LEVEL
- REVENUE GENERATION



ACTIVITY ZONING



**AREA PROGRAMING**

TOTAL PLOT AREA = 70310 SQ.M

F.A.R. = 1.0

TOTAL ALLOWABLE BUILTUP AREA = 1 X 70310 = 70310 SQ.M

GROUND COVEAGE = 30%

=21093 SQ.M

**COMMERCIAL COMPLEX AREA PROGRAMING**AREA OF DIFFERENT CATEGORY OF SHOP SIZES

TOTAL SMALL SHOP AREA = 9350 SQ.M

TOTAL MEDIUM SHOP AREA = 7220 SQ.M

TOTAL LARGE SHOP AREA = 4300 SQ.M

TOTAL SERVICES AREA = 3910 SQ.M

FLOOR WISE BUILT UP AREA

GROUND FLOOR AREA = 6520 SQ.M

FIRAT FLOOR AREA = 6210 SQ.M

SECOND FLOOR AREA = 7150 SQ.M

THIRD FLOOR AREA = 4900 SQ.M

ROAD AREA = 4520 SQ.M

PARKING AREA = 19620 SQ.M

650 FOUR WHEELER

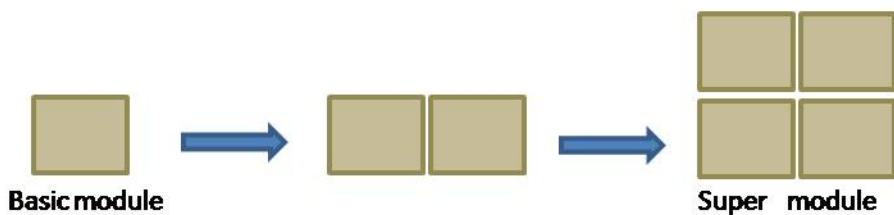
500 TWO WHEELER

OPEN PATHWAY/PLAZA AREA = 14700 SQ.M

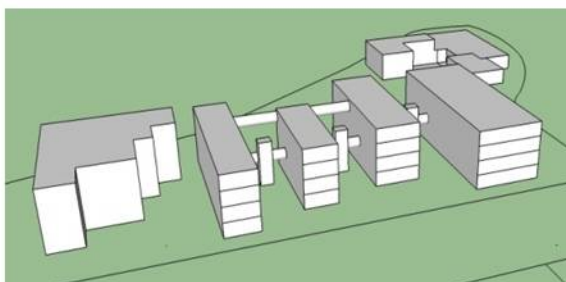
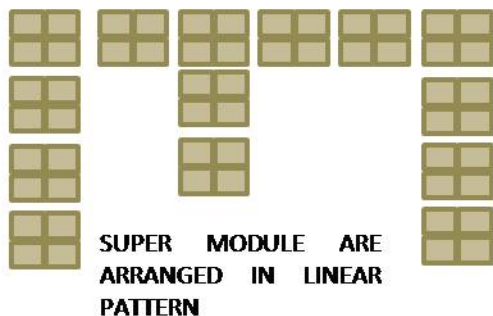
OPEN GREEN AREA = 17960 SQ.M



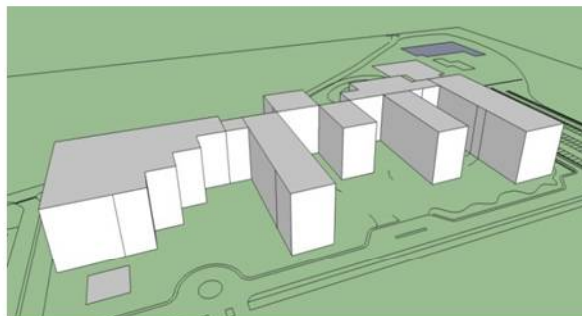
**DESIGN PROCESSES**



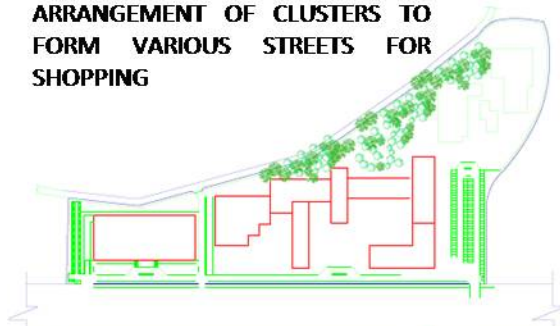
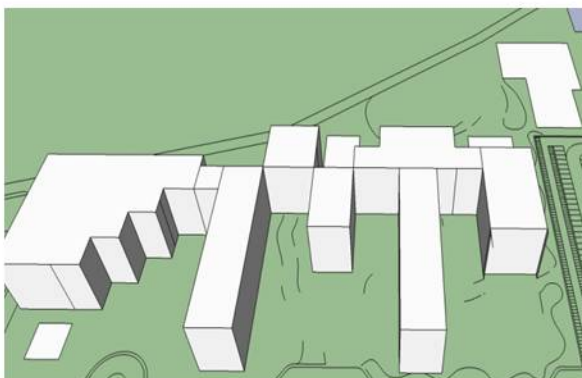
**CLUSTERING OF MODULE**



**ARRANGEMENT OF CLUSTERS TO FORM VARIOUS STREETS FOR SHOPPING**



**ARRANGEMENT OF CLUSTERS TO FORM VARIOUS STREETS FOR SHOPPING**



**CLUBBING OF DIFFERENT OPEN SPACES TO FORM LARGE CENTRAL OPEN SPACE AS PUBLIC PLAZA**



## MASSING & FORM DEVELOPMENT

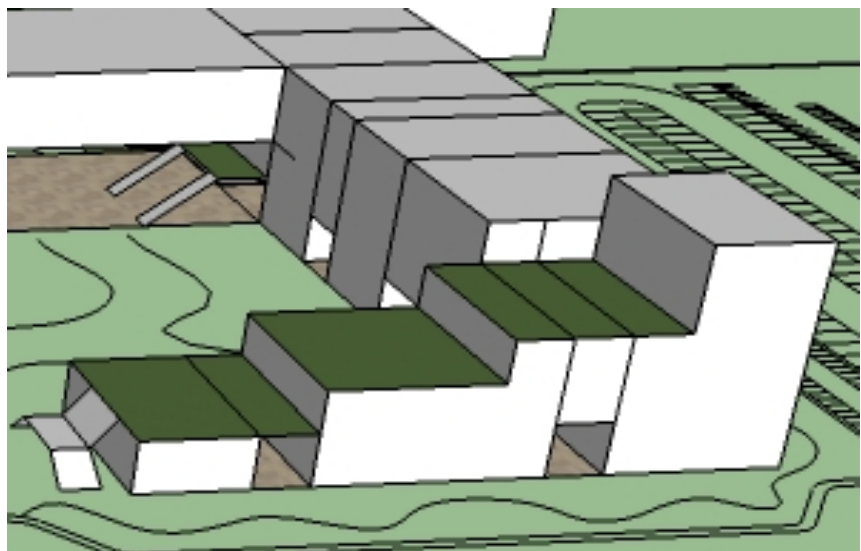
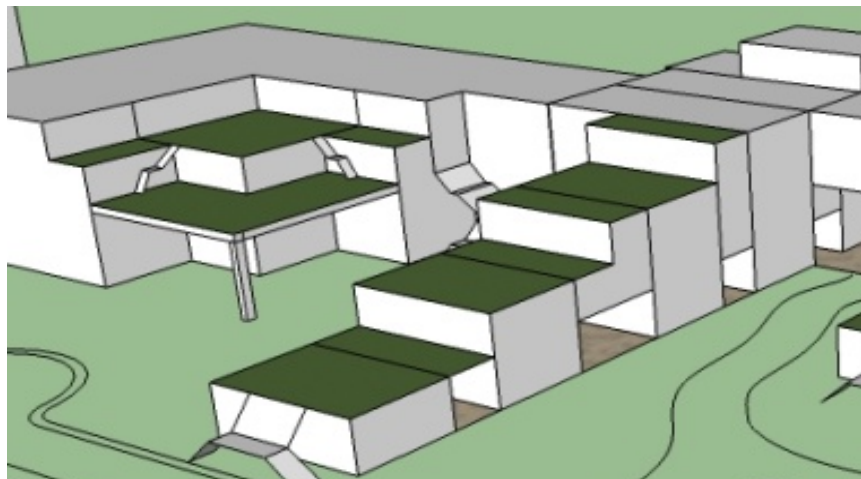
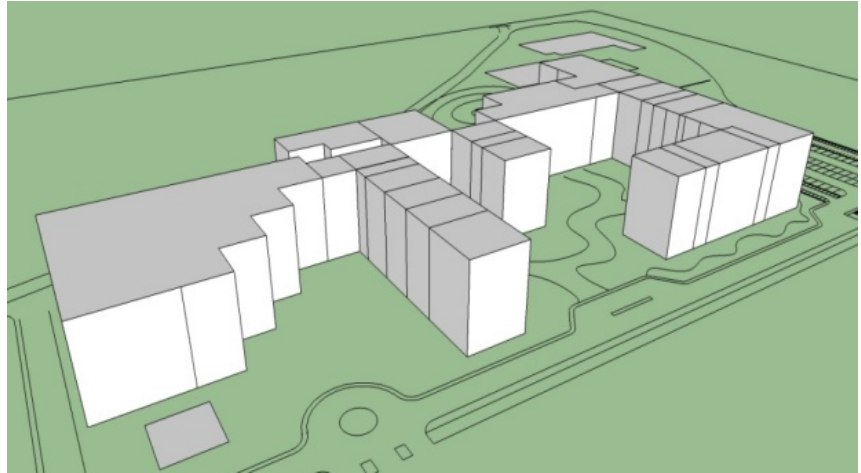
Arrangement of blocks are done in such a way that there is strong relationship between built space and open area.

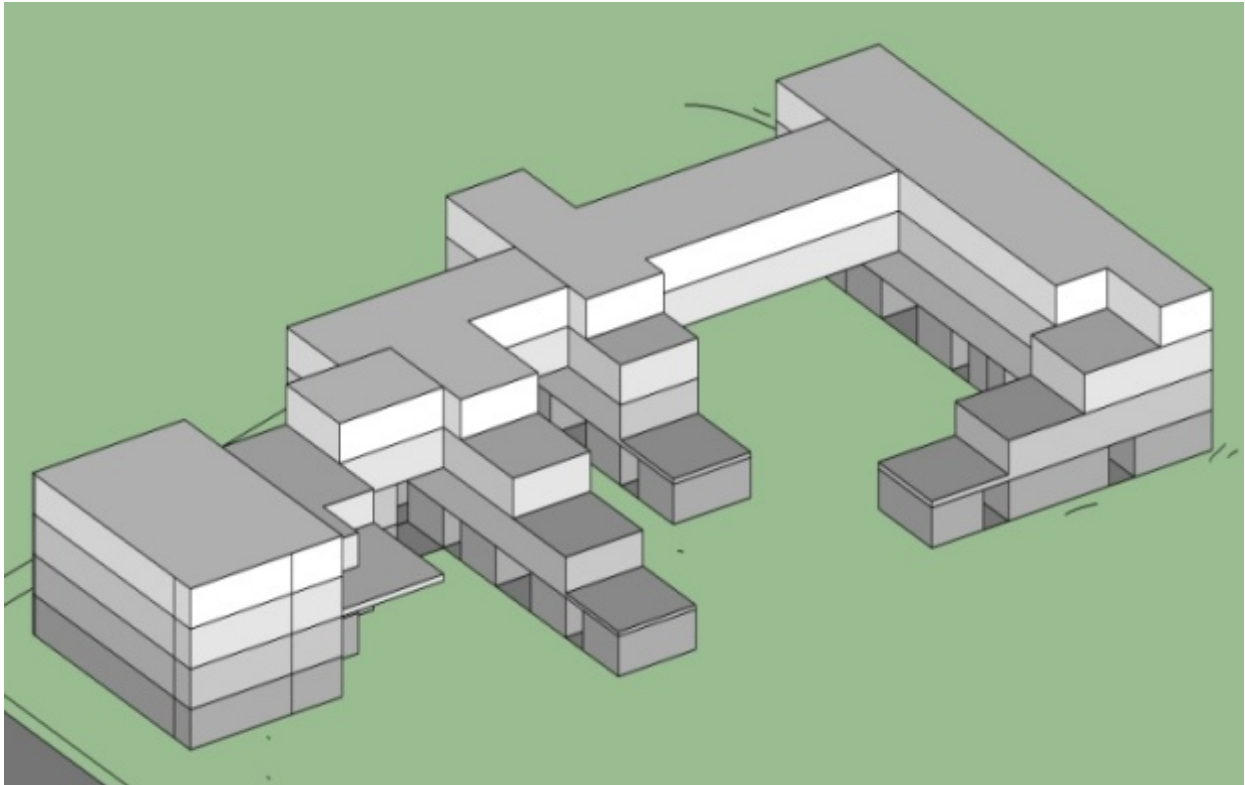
Front area is less utilized so as to create public plaza and to facilitate

maximun no of people to walk and interact in the open plaza. It will provide a single space for multiple activities.

The ground floor has punctures which is providing direct acess to one side of buil space to the other side and creates higher degree of visual connectivity from one point to the other.

The upper floors of the blocks are staggerd so as to maintain the skyline of the surrounding and it also provide visual connectivity to the spaces which are far from the road side.



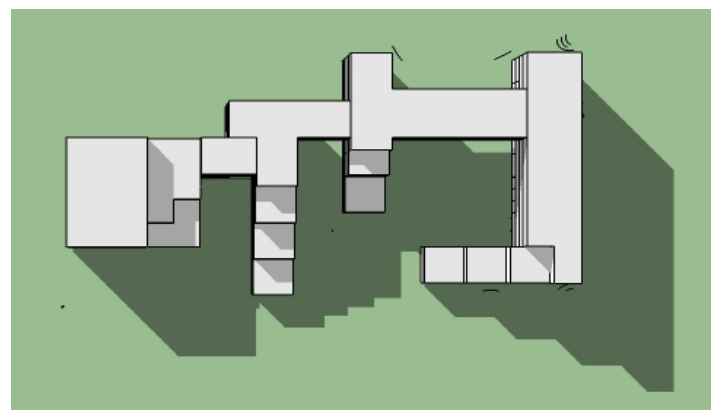
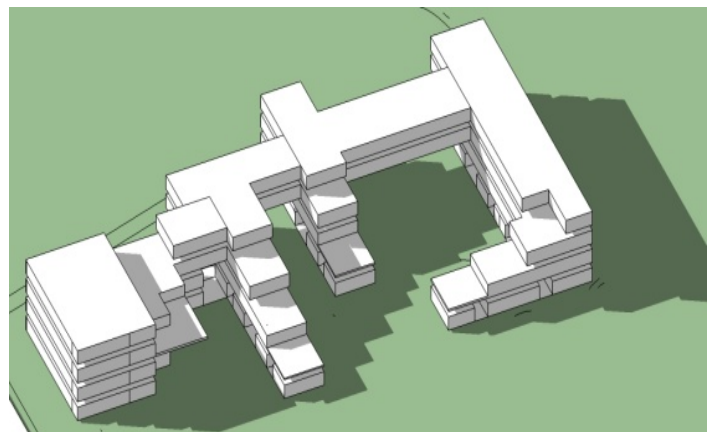


### SHADOW PATTERN

The blocks are arranged in such a way that the central courtyard and the front public plaza will always be in shade which will enhance the microlevel environment in the premises.

Plaza area remain in shade at prime time.

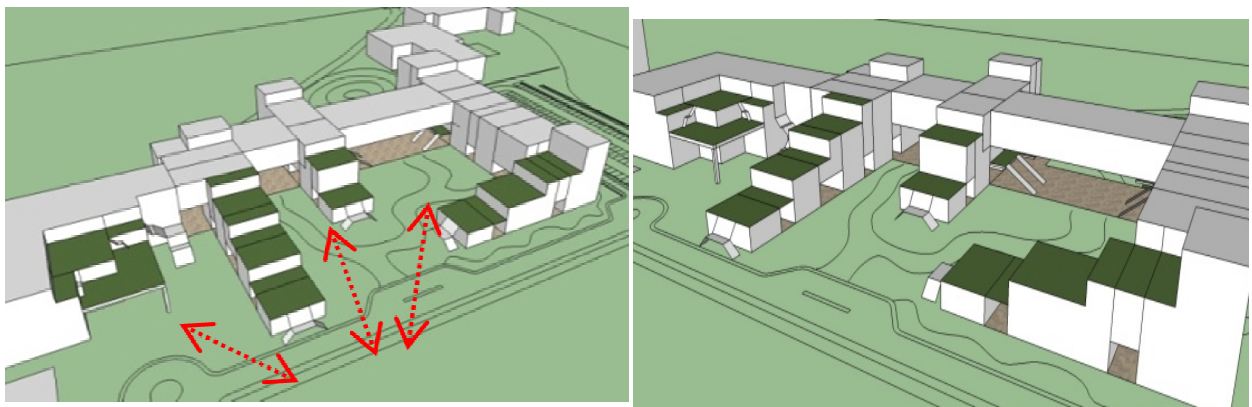
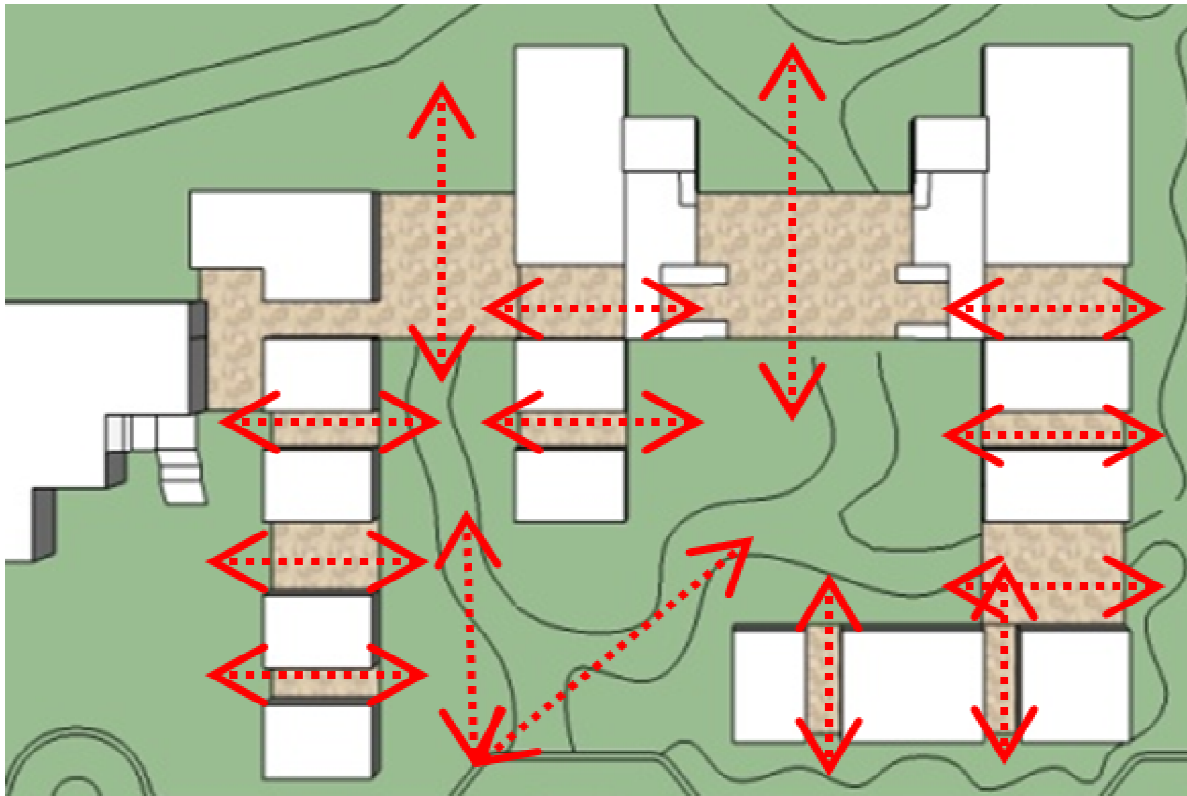
Double height opening allow cross ventilation in the open plaza area.



## VISUAL CONNECTIVITY

Intermediate modules are removed at lower level for visual connectivity to different spaces.

Backyard green area is linked with the central open plaza with removing the ground floor area between the two blocks

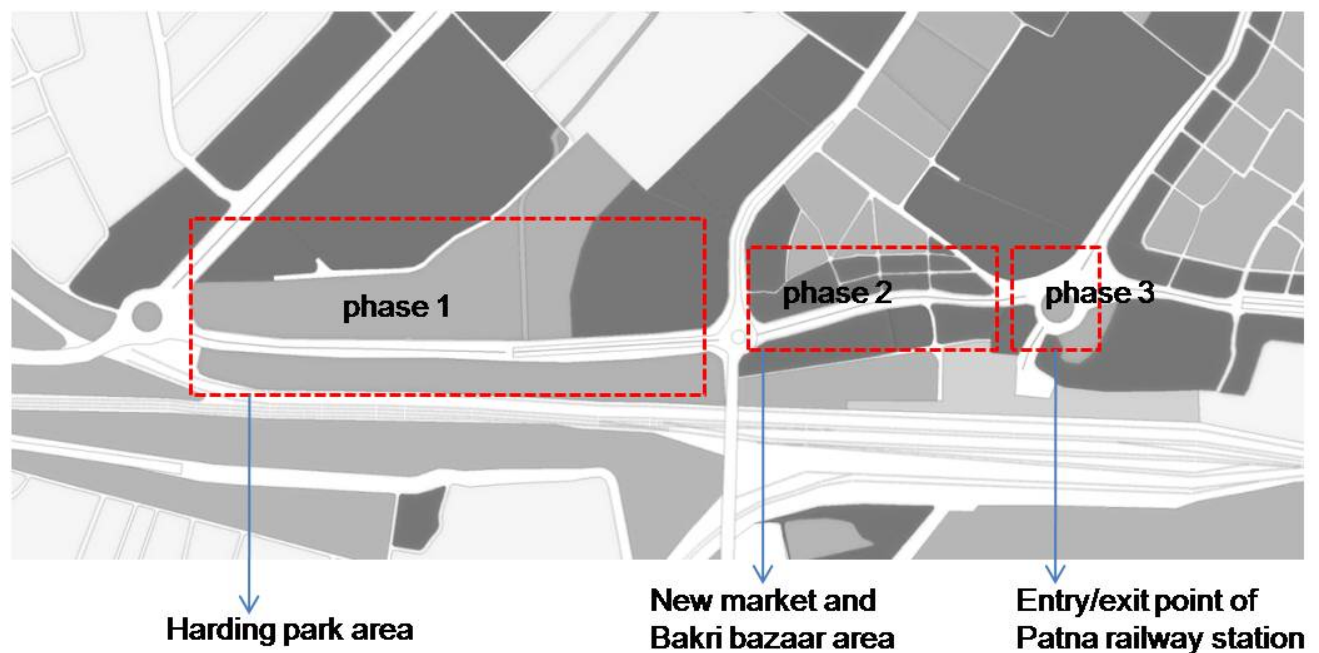


The visual connectivity increases due to the staggered form of the building which also increases the commercial value of the space that are far from the road side.



## 6.4 DESIGN PROPOSAL FOR PHASE 2

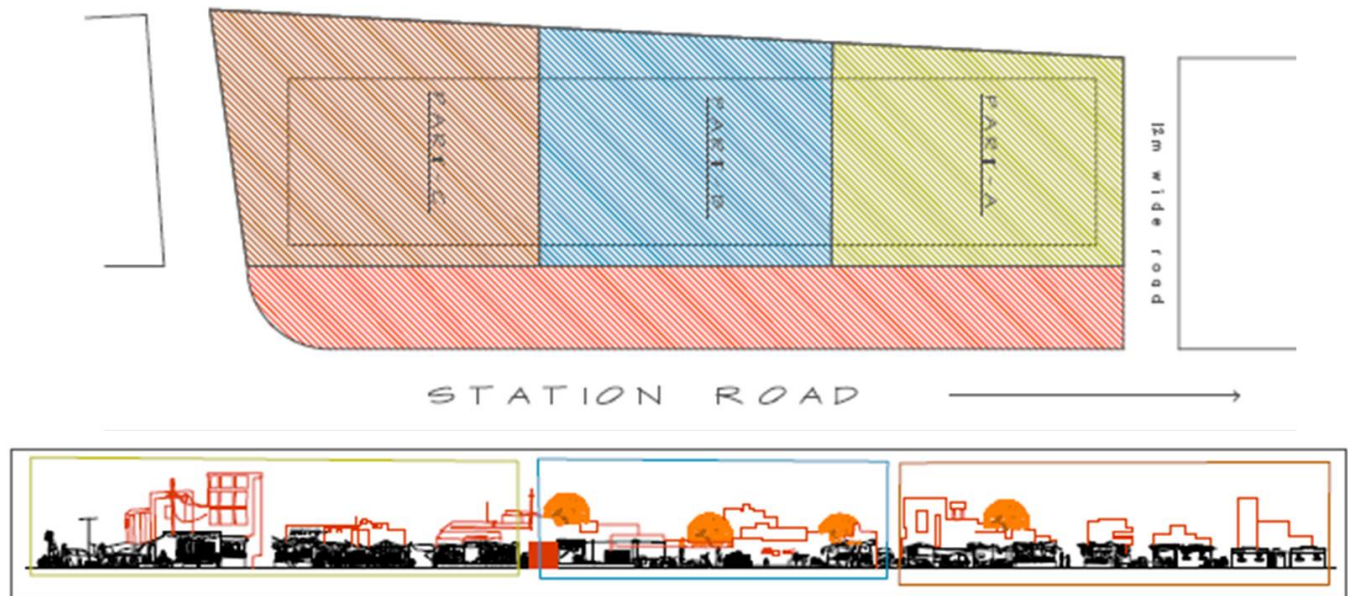
Phase 2 of the design proposal will consist of the design and development of the local vegetable market in the available land near bakri bazaar. The market will cater all the vegetable, meat and wholesale market. The site will be provided with the better infrastructure facilities such as water supply and drainage system. The structure will have very low skyline and will be based on low cost techniques and material. It will be directly connected to the railway station and separate entry and exit for the trucks and trollies near to the loading and unloading area in the market.



### OBSERVATION

#### Present condition:

- activities staggered and fudged with each other
- no space for vehicular parking within site for users
- street congestion
- blocked drainage
- physiological no sense/presence of open space within open to sky platform.
- negative spaces; since most of the central platforms are unoccupied by any vendor/seller.
- hawkers movement within site contribute to congestion of space

**ZONE A**

- As the fruit market is abutting the lane, the majority of the crowd enters through this portion.
- The width of the road in this zone is more and so it accommodates more number of people than ZONE A.
- The refuse created throughout the day is collected in the dustbins allotted behind their stalls.
- As the roofing covers almost the whole width of the lane, the lane remains in shade through out the day.
- As the stall owners do not reside in the lane they park their individual vehicles beside their stalls which turn out to be convenient and safe for them.

**ZONE B**

- As the area lies beyond convenient distance to be covered by the pedestrians this area is mainly the dead part of the street with very low user density.
- Also it accommodates the commodities which are not of daily requirement.

**ZONE C**

- As the non-veg buyers approach the non-vegetarian market on restricted days, hence this zone remains dead for half of the week.
- only non- vegetarian crowd contributes to the area.
- The street becomes even more narrow because of the encroachment of hawkers along the street on market days..

**CONCEPT**

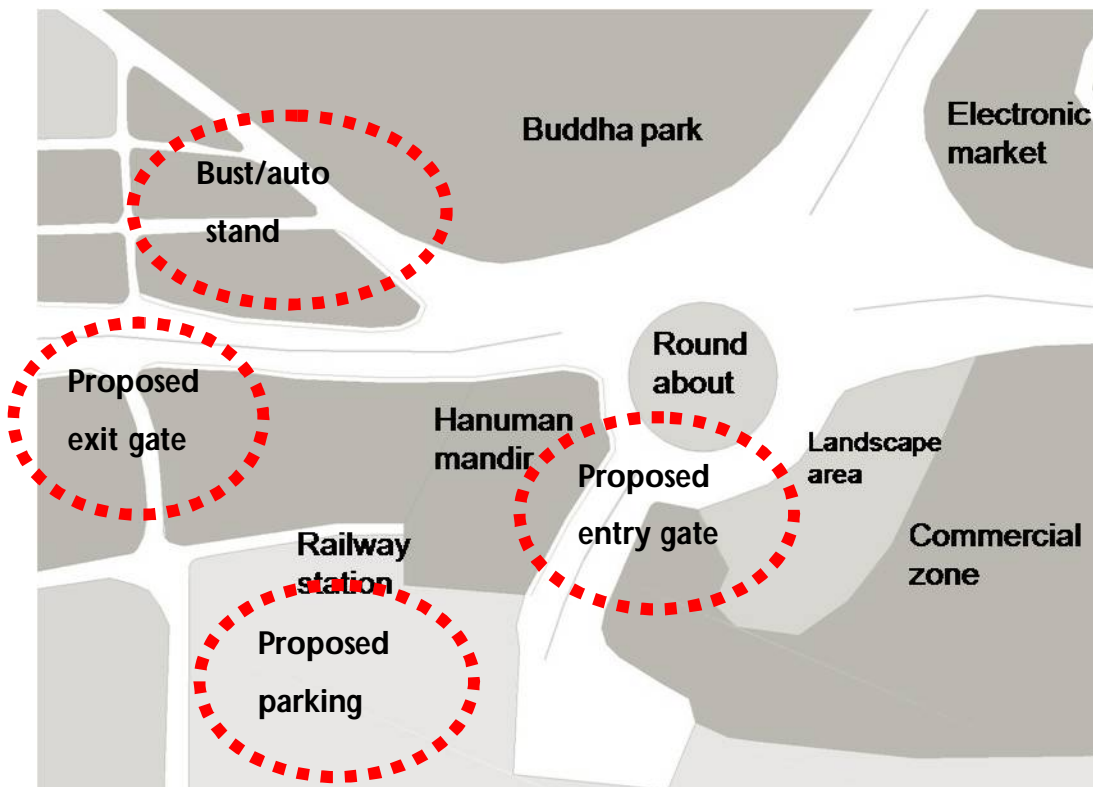
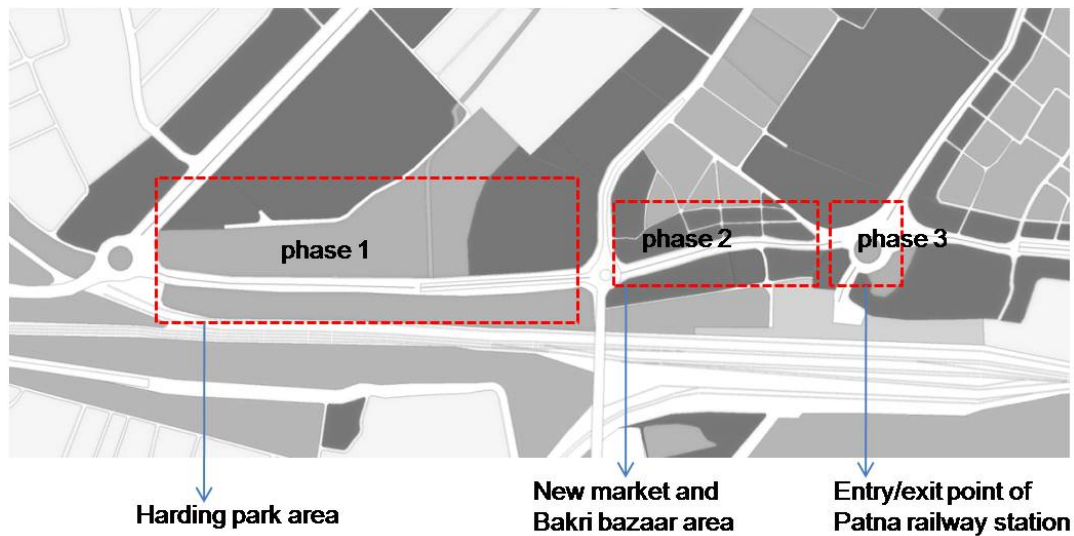
- linking the site through a series of courtyard; which are on same axis and variably provide large amount of open/ public space of congenial environment.
- insertion of vehicular parking within site till a restricted area; reducing congestion on streets.
- facilitating the preexisting hawkerzone with perforated entrance and acute pavement
- providing equal exposure for all the selling platforms so that no central platform is left unoccupied.
- dividing the site into 4 parts instead of 3; based on four major sections of materials: fruit, vegetable, meat, and accessories.





## 6.5 DESIGN PROPOSAL FOR PHASE 3

Phase 3 of the design proposal will concentrate on the beautification of the railway station complex and the surrounding. The proposal will include the planning and design of separate entry and exit gate for the railway station and sufficient parking lot at the premises. It will also include the beautification of the vacant area in the new market and bakri bazaar. This will solve the problem of traffic congestion in front of the entry point of the railway station. In this phase transportation system and its facility will be worked out and parking for auto, rikshwa and bus will be proposed in front of the railway station near the new market area and also pedestrian facilities will be enhanced.





## 6.6 CONCLUSION

The holistic strategy of rejuvenating a city's public spaces must rely on a balanced development of all the economical, ecological and social criteria. Our approach proposes to avoid the excessive one way development and social and ecological unbalances resulted by focus only on the economical development, be it based on service or entrepreneurs. This should be a major objective in any city management program.

Urban public spaces should always associate with some public activities. Retaining the small city charm along with measures for smooth flow of vehicular traffic and pedestrian movement, adequate parking, provision of adequate and attractive public spaces, interesting landscaping and illumination, attractive public art and aesthetically attractive streetscape and a distinct architectural character will result in an area that is vibrant, is people-friendly and a place to be in.

The proposals are made to satisfy the need of the selected area and also the future demand of the surrounding areas. Phase wise proposals for the commercial setup will help the people to adapt the new space and better infrastructure without hampering their local business and also the essence of the existing market culture.

**BIBLIOGRAPHY**

- I. Lynch, K. *The image of the city*. Cambridge, MA: Technology Press and Harvard University Press, 1960.
- II. Alexander C. *A pattern language: towns, buildings, construction*. New York: Oxford University Press, 1977.
- III. Tibbalds F. *Making people-friendly towns: improving the public environment in towns and cities*. New York: Spon Press, 2001
- IV. Appleyard D. *Livable streets*. Berkeley, CA: University of California Press, 1981.
- V. Whyte WH. *The social life of small urban spaces*. Washington, DC: Conservation Foundation, 1980.
- VI. Marcus, C. C., & Francis, C. *People Places - Design Guidelines for Urban Space*. New York: John Wiley & Sons Inc. 1997
- VII. Urban design: street and square by Cliff Moughtin
- VIII. Indian cities in aried west foreword by Dr. Carl Crusha Kulbhushan Jain & Minakshi Jain
- IX. Joseph Rowntree foundation social interactions in urban public places April 2007  
-<http://www.jrf.org.uk/>
- X. <http://www.architeacher.org/aesthetics/archi-elements1a.html>
- XI. <http://www.colour-journal.org/2008/2/081contents.htm>
- XII. [http://www.EwingClemente\\_WalkableUrbanDesignFieldManual\\_093005.htm](http://www.EwingClemente_WalkableUrbanDesignFieldManual_093005.htm)
- XIII. <http://www.arlingtonva.us/departments/CPHD/planning/docs/pdf/file71311.pdf>
- XIV. [different principles of urban design pdf - Google Search](#)
- XV. [http://www.rudi.net/files/Urban\\_Design\\_Standards.pdf](http://www.rudi.net/files/Urban_Design_Standards.pdf)
- XVI. [www.urbandesign.org](http://www.urbandesign.org) Elements of Urban Design
- XVII. [www.resilientcity.org](http://www.resilientcity.org) Urban Design Principles | ResilientCity

- XVIII. [Design of Urban Space at Pedestrian Scale: A Method for Parameterization of Urban Qualities | Antje Kunze - Academia.edu](#)
- XIX. [www.academia.edu](http://www.academia.edu)
- XX. [www.geagindia.org](http://www.geagindia.org)
- XXI. [www.design3.org](http://www.design3.org)
- XXII. [www.patnanagarnigam.org](http://www.patnanagarnigam.org)

**ANNEXURE****I. SURVEY QUESTIONNAIRE**

The general questionnaire about city core and the action area (esp. station road, Harding park, new market, Patna railway station, ad Bakri bazaar)

- Name of the participant:
- Age :
- Gender :
- Occupation :
- address :

Is your staying place far or near from areas mentioned above?

- A. Far B. near

Approx. how far? Or how much time it takes to reach these places from your staying place?

\_\_\_\_\_

How do you move/travel to these areas?

- A. On foot B. Bicycles C. Two wheeler(scooters/ bikes)  
D. Four wheeler E. Taxi/ auto F. Rickshaw  
G. Any other

Do you find easy moving in these areas?

- A. Yes B. No

How would you rate condition of these areas?

- A. Bad B. Good  
C. Excellent D. Don't know

What do you like most here in these areas?

\_\_\_\_\_

What do you dislike most here?

\_\_\_\_\_

Do you want a change for this area/city core?

- A. Yes, definitely/ much of change                      B. Yes, but only a bit  
C. No need

Which category you consider most important where change is must:

- A. Road/ transportation network                      B. Green open areas/ parks                      C. Public/ community places  
D. Parking                      E. Pedestrian facility                      F. Any other

All changes together is time-taking, which should be done first?

What are your economic priorities (that you would prefer) for this area?

- A. Street shops                      B. Hawkers  
C. Malls                      D. Offices

What is the major issue in this area?

- A. Infrastructure problems                      B. Lack of social/public places                      C. Lack of green/open areas  
D. Streets improvement                      E. Criminal activities                      F. Any other

## **PUBLIC PLACES**

Is it easy or confusing to find your way in this area?

- A. Easy                      B. Confusing

What do you think about the public spaces in this area?

- A. To be improved                      B. New places to be added  
C. Are enough                      D. More than needed

What kind of public space you want in this area?

- A. More of green open areas ( e.g. parks, lawns etc.)                      B. Covered gathering spaces  
C. Street side meeting places                      D. Mutistorey multi-use places  
E. Open air theatres                      F. Any other

**THE STREETS**

Do you find difficult or dangerous to cross the roads? A. yes B. No

What can be done to make safer conditions?

- A. Reducing the speed of traffic
- B. Providing alternative routes
- C. Separating the users from traffic
- D. Most of movement on foot inside market areas

What is the condition of lighting for streets?

- A. Less
- B. Enough
- C. More than needed
- D. Enough but not working properly

Should hoardings be reduced? A. yes B. No

**BUILDINGS and PARKS**

What kind of built environment you need for this area?

- A. High-rise
- B. Low-rise

What kind of parks you need in this area?

- A. Few, large parks
- B. Many, small ones scattered

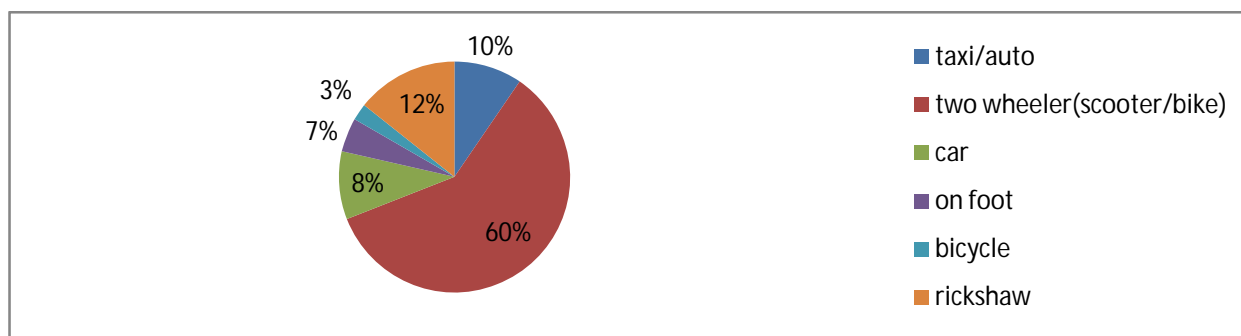
What do you think about vacant land near the GPO and Harding Park? What type of development can be proposed?

Any kind of suggestion you would like to address which may not be asked in the questionnaire.

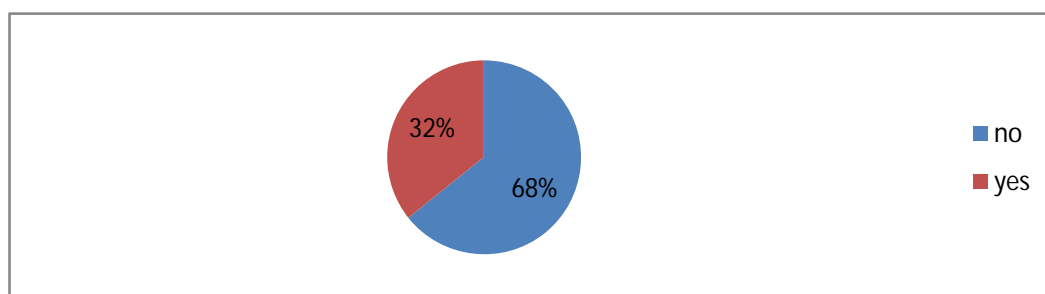


## I. SURVEY REPORT

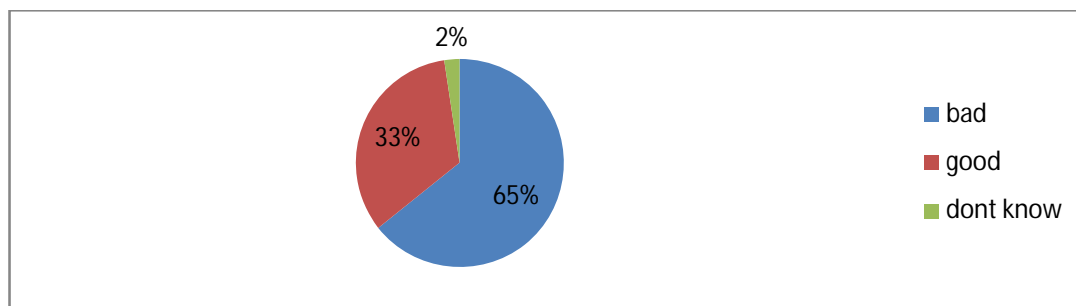
How do you move/travel to these areas?



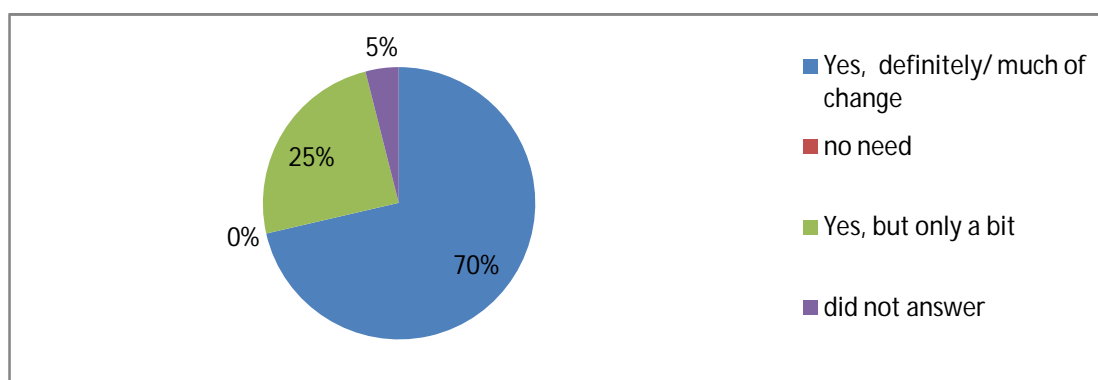
Do you find easy moving in these areas?



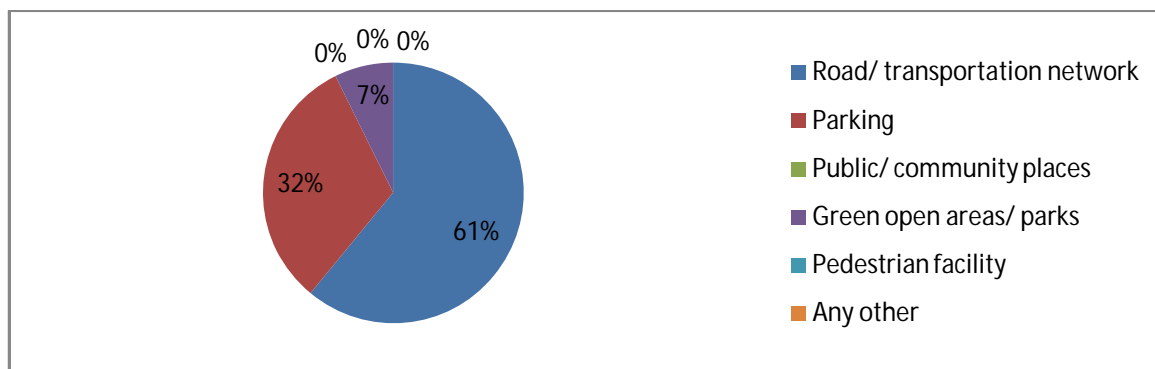
How would you rate condition of these areas?



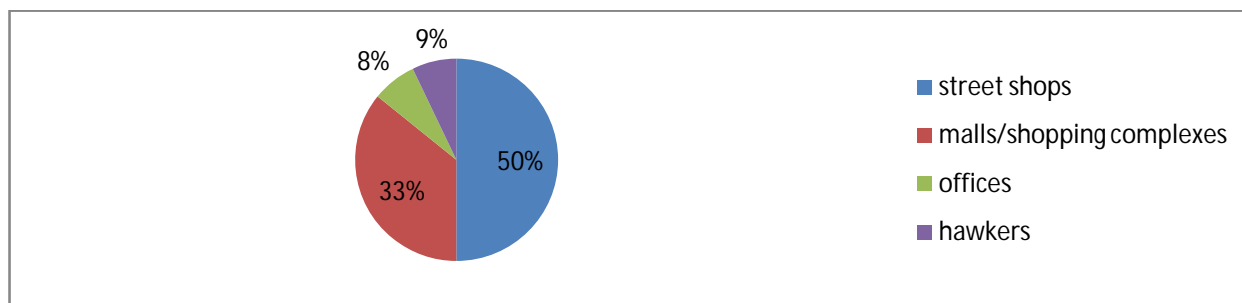
Do you want a change for this area/city core?



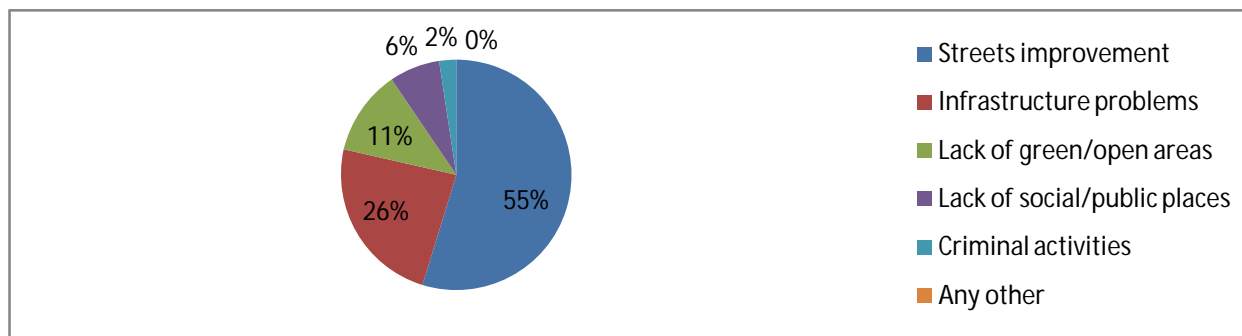
Which category you consider most important where change is must?



What are your economic priorities (that you would prefer) for this area?

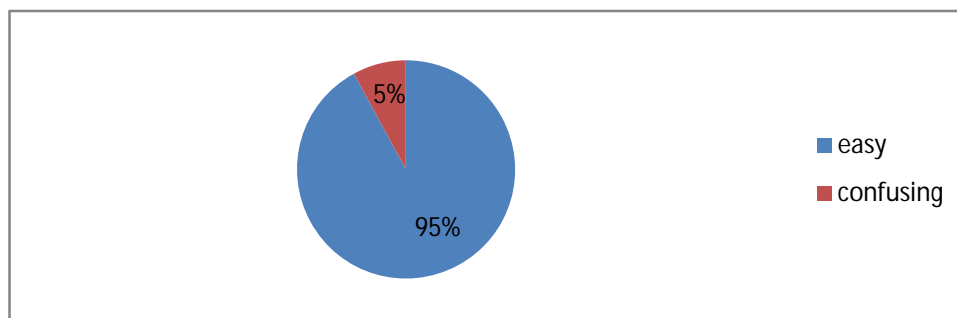


What is the major issue in this area?

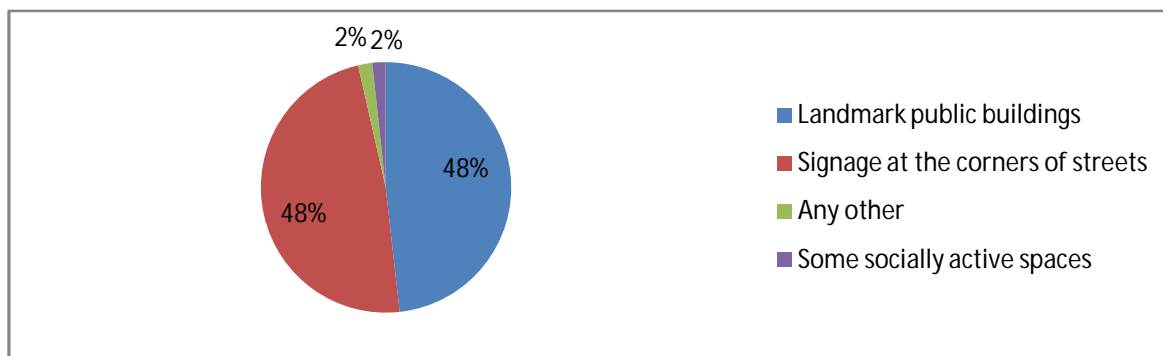


**PUBLIC PLACES**

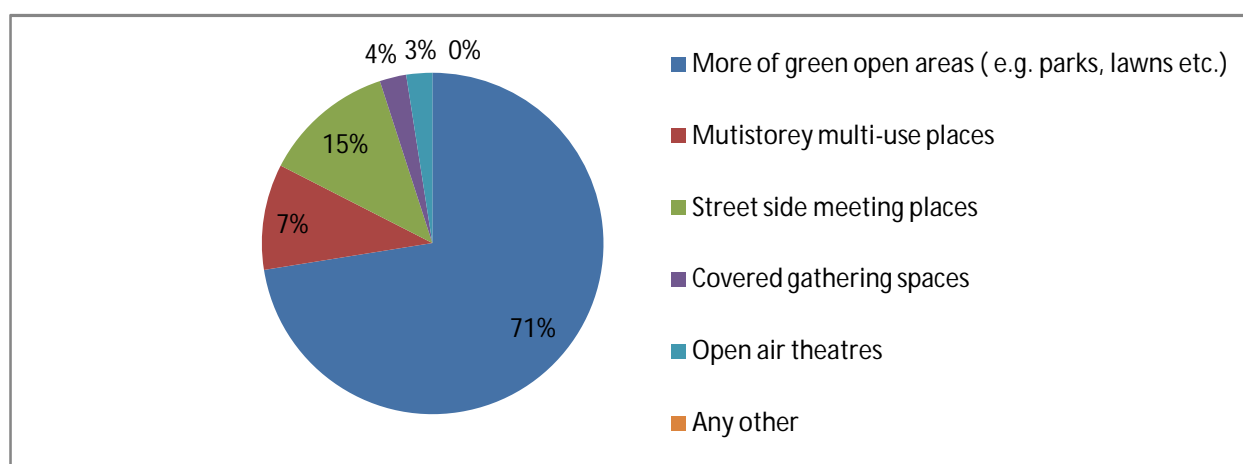
Is it easy or confusing to find your way in this area?



How can it be made easier?

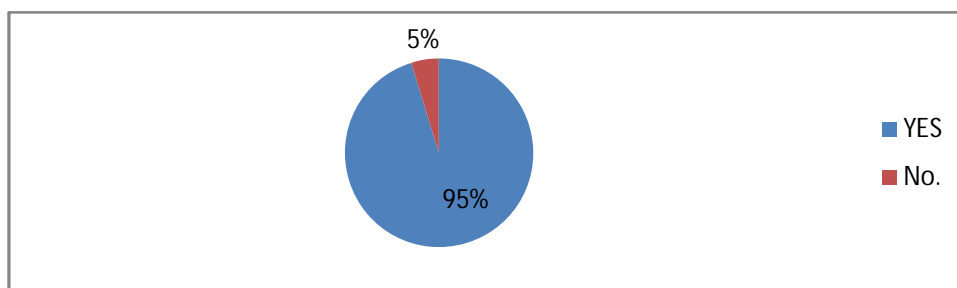


What kind of public space you want in this area?

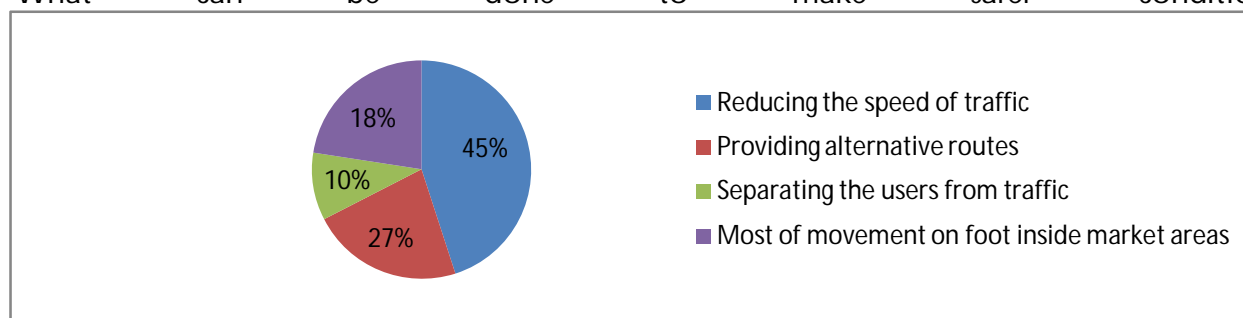


**THE STREETS**

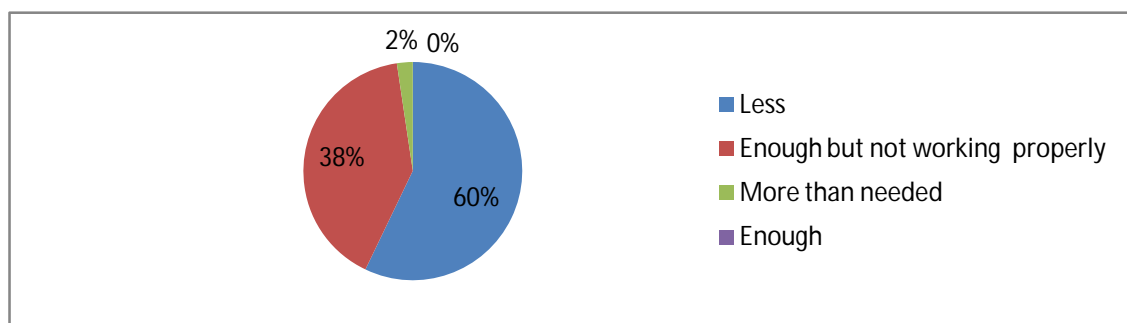
Do you find difficult or dangerous to cross the roads?



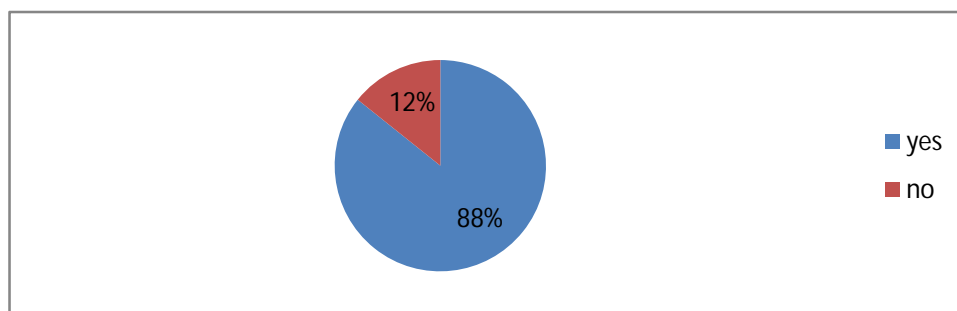
What can be done to make safer conditions?



What is the condition of lighting for streets?

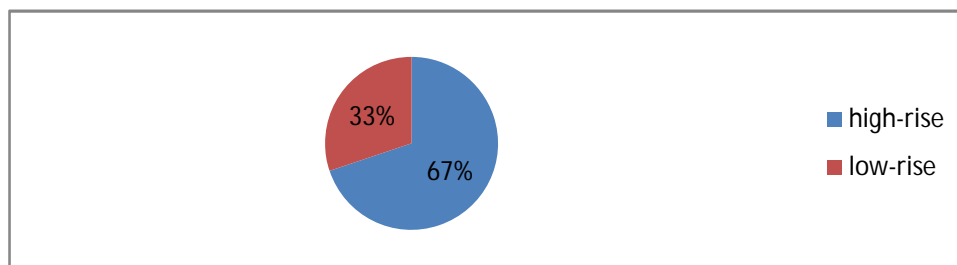


Should hoardings be reduced?



## BUILDINGS and PARKS

What kind of built environment you need for this area?



What kind of parks you need in this area?

