

**REDEVELOPMENT OF AREAS AROUND THE  
MAJOR RAILWAY STATION IN A CITY;  
CASE APPLICATION:  
AREAS IN AND AROUND PATNA JUNCTION RAILWAY  
STATION AREA**

**A Thesis Project Report  
Submitted in a partial fulfilment of the requirements  
For the Post Graduate Degree of  
Master of Architecture (Urban Design)  
By Jadavpur University, Kolkata**

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## **\*\* ATTACHMENTS WITH THE REPORT**

- **SURVEY CONDUCTED THROUGH QUESTIONNAIRE**
- **NEW REDEVELOPMENT FOR THE CASE APPLICATION: DESIGN SHEETS**

## 1.0 INTRODUCTION

Every city has its own character through its heritage, culture and infrastructure. It speaks about the amalgamation of every individual human thought which is depicted through its own urban fabric. Urban fabric of important old cities has its own unique characteristic coming from ancient times to the era of technology which reminds me of the quotation:

**"Another world is not only possible, she's on the way and, on a quiet day, if you listen very carefully you can hear her breathe."**

**- Arundhati Roy,**

Indian author and activist.

This quote encapsulates the transformative potential of urban design projects to create inclusive and sustainable communities. Urban design projects have the potential to transform market and slum areas near major railway stations in old cities into vibrant, inclusive, and sustainable urban neighbourhoods. By embracing principles of mixed-use development, TOD, infrastructure upgrades, public space enhancement, community participation, and economic revitalization, these projects can create positive change and improve the quality of life for residents while preserving the unique character and heritage of the city.

This urban design thesis explores the multifaceted process of revitalizing the areas surrounding Patna Junction, a major railway station in the heart of the city. The research investigates the potential of comprehensive redevelopment strategies to transform the existing urban fabric and to serve the future demand. The study begins by analysing the historical context of Patna Junction and the nearby market area having two landmark religious sites- Hanuman mandir: the temple and Jama Masjid: the mosque. By examining the current challenges and opportunities within the station's vicinity, the research aims to identify key areas for improvement. Emphasis is placed on creating an integrated urban environment that accommodates diverse functions, including commercial activities, public spaces, slum area developments and transportation.

## UNDERSTANDING THE THESIS TITLE:

The pulsating heart of any city lies in its transportation nodes, and among them, major railway stations stand as pivotal junctions that connect people, culture, and commerce. In the context of Patna, the capital city of Bihar, the significance of the Patna Junction Railway Station cannot be overstated. Serving as a vital conduit for passengers, goods, and economic activities, the station not only reflects the city's historical roots but also presents an unparalleled opportunity for transformative urban design.

Patna Junction railway station being the major entry point to the capital city of Bihar for regular commuters as well as occasional visitors, there is a need to establish an imageability and sense of place.

The theoretical premise will be based on

Kevin Lynch's Imageability:

Node: a point of access to trains, i.e., Patna Junction

and increasing to the other transportation networks, i.e., public vehicle parking area  
(example: auto, buses)

& private parking for 4 wheelers & 2 wheelers

Landmarks: the two religious' buildings on site:

HANUMAN MANDIR, the temple & JAMA MASJID, the mosque

A major railway station identifies itself as a place too- creating Edges, Paths & Districts:

A specific section of the city with a concentration of diversified collection of buildings. The commercial space: nearby old market area, the green open spaces such as the Harding park & Buddha Smriti park near the station & the slum area which provides layman workforce to the station.

Jane Jacob's place - making:

The need of primary mixed uses near a major railway station: diversified market area and the public vehicle parking which will leave people to their respective destination in or outside the city.

Un-slumming & slumming –

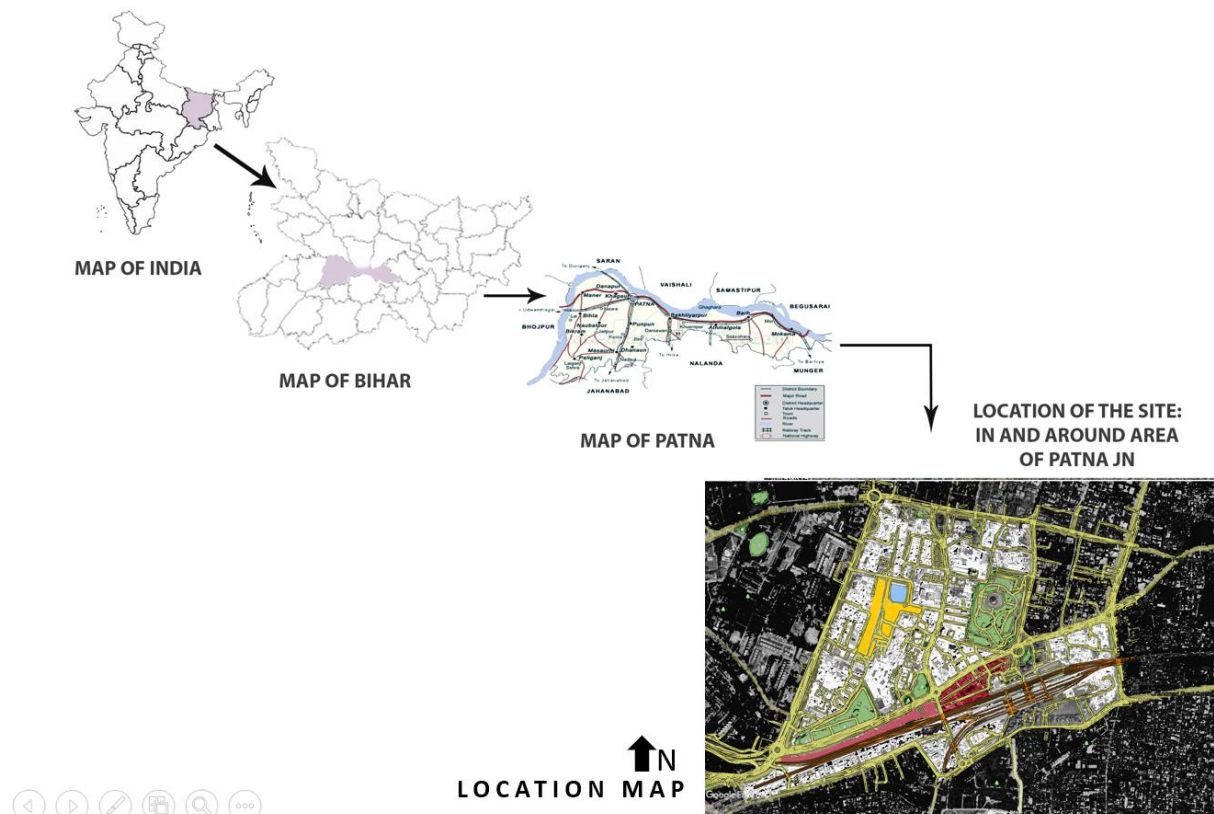
the slum area which provides the continuous need of working-men for the station area

How responsive is the environment(people) towards the design by Ian Bently & others

Permeability of the railway station arises a big question to the increasing congestion in the heart of the city: Patna Junction due to the urban agglomeration.

# 1.1 BACKGROUND

## LOCATION MAP



## AREA OF RESEARCH:

### KEYWORDS:

- **REDEVELOPMENT:** Refers to the process of renovating or revitalizing an existing area with the aim of improving its functionality, aesthetics, and overall quality.
- **Areas:** Indicates the specific locations or zones surrounding the major railway station that are being considered for redevelopment.
- **Major Railway Station:** Denotes a significant transportation hub within a city, typically serving as a central point for various train routes and accommodating a high volume of passenger traffic.
- **City:** Refers to an urban settlement that is larger in size and population compared to towns or villages, characterized by a higher level of economic, cultural, and social activities.

## **1. Urban Revitalization and Redevelopment:**

- Assessing the physical condition and functional efficiency of existing buildings and infrastructure surrounding the railway station.
- Developing strategies for the adaptive reuse or restoration of historic structures to preserve cultural heritage while accommodating modern needs.
- Exploring approaches for urban regeneration, including the redevelopment of underutilized or blighted areas, to improve the overall urban fabric and quality of life.

## **2. Transportation Planning and Integration:**

- Studying the existing transportation infrastructure around the railway station and assessing its efficiency, capacity, and connectivity.
- Analyzing the integration of different modes of transportation (such as buses, taxis, auto-rickshaws, bicycles) with the railway station to improve accessibility and reduce congestion.
- Examining the potential for pedestrian-friendly design.

## **3. Land Use and Zoning:**

- Investigating the current land use patterns and zoning regulations in the vicinity of the railway station.
- Identifying opportunities for mixed-use development, which combines residential, commercial, and recreational spaces, to create vibrant and sustainable neighbourhoods.
- Exploring strategies to optimize land utilization, such as vertical development or infill projects, to accommodate increased demand and maximize available space.

## **4. Socio economic and Cultural Impact:**

- Analyzing the socioeconomic dynamics and demographics of the surrounding areas to understand the needs and aspirations of the local population.
- Assessing the potential economic impacts of the redevelopment, such as job creation, increased property values, and tourism opportunities.
- Incorporating cultural and heritage elements into the design to preserve and showcase the local identity, traditions, and history of the area.



## AREA OF INTEREST:

### Public Space Enhancement:

- Identifying opportunities to enhance public spaces surrounding the railway station, such as plazas, parks, and streetscapes, to create attractive and inclusive environments for people of all ages and backgrounds.
- Designing spaces that encourage social interaction, community engagement, and cultural activities, thereby fostering a sense of place and belonging.



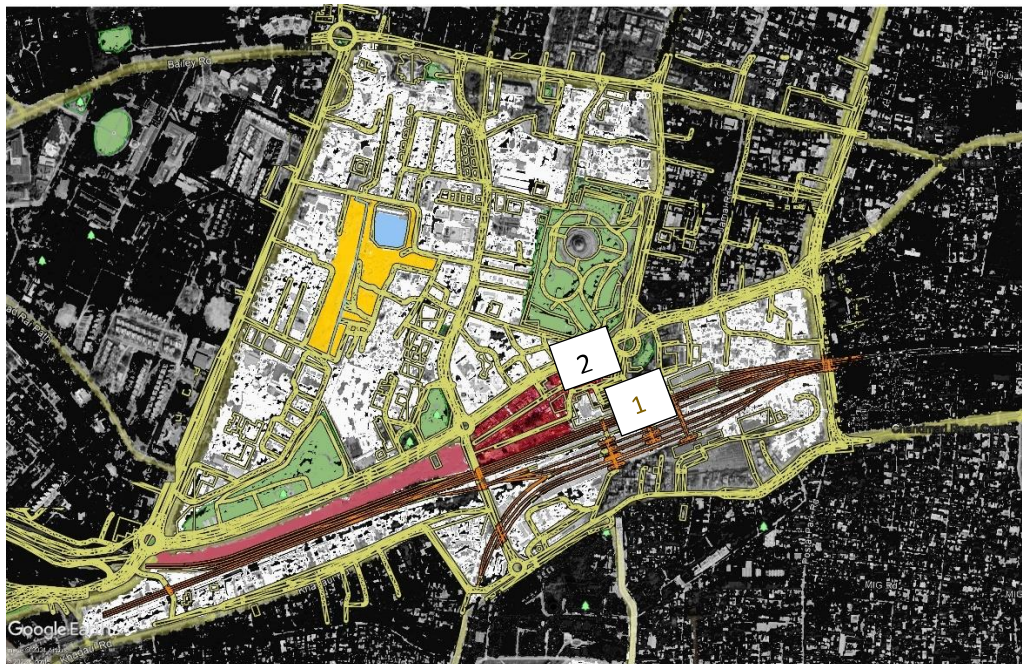
**Unorganized  
market area  
shop height is  
approx. 3m**



## 1.2 CONTEXT

Market areas around railway stations often experience fluctuations influenced by economic factors, urban development projects, and changes in local business dynamics. These areas are typically vibrant hubs with a mix of commercial activities, retail establishments, and informal markets; **which gives rise to poor infrastructure due to expansion.**

Patna Junction, with its historical significance, has likely undergone various changes and developments over the years. The station has a rich history dating back to the British colonial era when the railway network was expanding in India. Patna Junction railway station was opened in 1862 as Bankipore Junction in [Bankipore](#) (Bankipur) town, headquarters of the division and Patna district in [Bengal, British India](#). The construction of railway line through Patna was started in 1855 and was completed and opened in 1862. Prior to that the transport of raw materials and finished goods was done through the [Ganga river](#). The Danapur Division came into existence on 1 January 1925. The present Divisional Railway Managers' office building was built in 1929



**PATNA JN. RAILWAY STATION:**  
MAJOR RAILWAY STATION IN PATNA, BIHAR



**MITHAPUR CHIRAIYATAND  
FLYOVER**



## 1.3 JUSTIFICATION FOR THE SELECTION OF THE TOPIC:

**1. SIGNIFICANCE OF RAILWAY STATIONS:** Major railway stations play a vital role in urban transportation and serve as key nodes for passenger movement within a city. They attract a significant influx of people, create economic opportunities, and act as catalysts for urban development.

Therefore, focusing on the redevelopment of areas around a major railway station is relevant and important in the context of urban design.

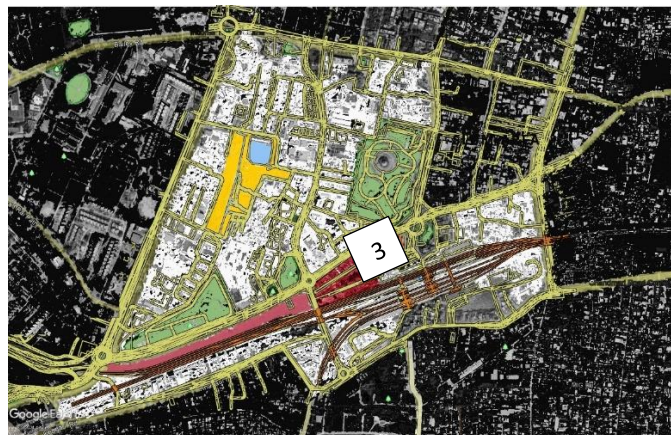
**2.URBAN GROWTH & INFRASTRUCTURE CHALLENGES:** Many cities around the world, including Patna, are experiencing rapid urbanization, resulting in increased pressure on existing infrastructure. Redeveloping areas

around a major railway station can help address infrastructure challenges, optimize land use, and promote sustainable development in growing urban centres.

**3. CASE APPLICATION:** Selecting Area in and around Patna Junction Railway Station as a case application allows for a specific and focused analysis of a real-world urban design scenario. Patna, being the capital city of Bihar and a major economic and cultural centre, provides a suitable context for studying the challenges, opportunities, and outcomes of redeveloping areas around a significant railway station.

### 4. ECONOMIC REVITALIZATION:

- The redevelopment of areas around Patna Junction can stimulate economic activities. Well-designed urban spaces attract businesses, leading to increased employment opportunities and economic growth in the region.
- The market area around Patna Jn. is most unorganized which actually hampers the whole permeability of the station. The entry-3 to the station is hampered too.



**ENTRY-3 TO THE  
RAILWAY STATION IS  
FROM MARKET AREA  
THROUGH UNORGANISED  
& UNHYGIENIC NARROW  
LANE**



- The unorganized and unhygienic scenario stops many buyers from entering the market area.

## 5. HERITAGE AND CULTURAL CONSIDERATIONS:

- Patna has a rich cultural and historical heritage. The research can address the preservation of heritage sites and ensure that redevelopment plans integrate with the cultural fabric of the city, promoting a sense of identity and pride among the residents.



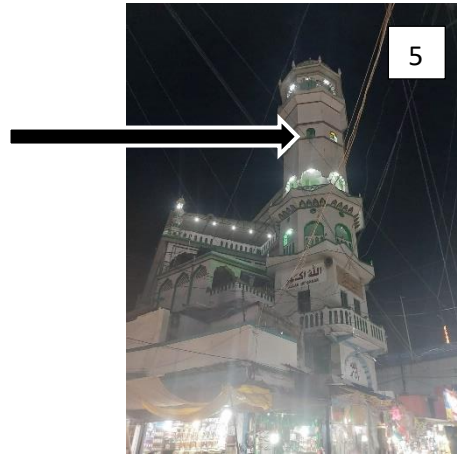
- **The Mahavir Mandir** (commonly known as Hanuman Mandir) located in between the main entry of the railway station and the market area has a historical importance in shaping the urban facade of Patna. It is one of the major visual of the skyline near the Patna junction

As per the [Patna High Court](#) judgment in 1948 the temple has existed since time immemorial. This temple gained popularity in 1947 with large number of Hindu [refugees](#) coming to [Patna](#) after the [partition of India](#). Subsequently, the temple was rebuilt as a concrete house, which was [demolished](#) in 1987 to construct a huge marble temple. The idol of [Sankat-Mochan](#), an avatar of Hanuman, stands in it.



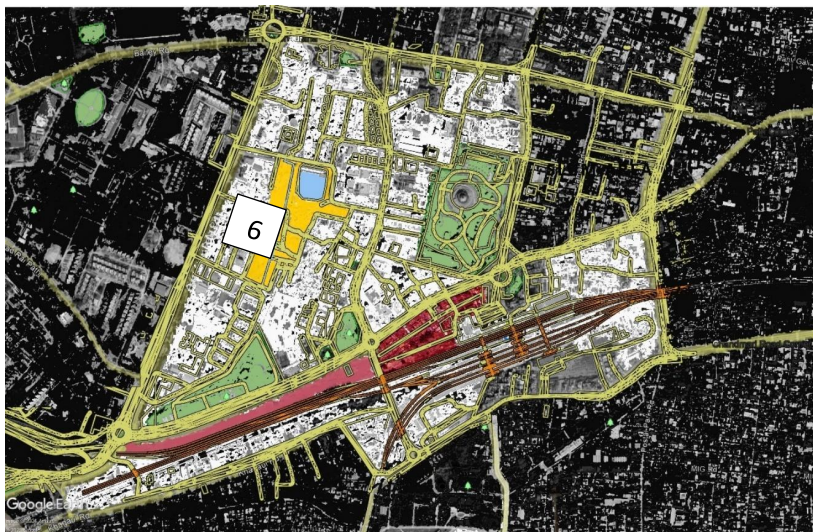


- **Jama masjid Patna, the mosque** is one off the most visited place in Patna by Muslims. It is situated near Patna railway station at exit gate no 3. The height of the Minar you can see far from the distance. It is one of the major visual of the skyline near the Patna junction.



## 6. SOCIAL INCLUSION AND PUBLIC SPACES:

- Urban design should prioritize inclusivity. The research can investigate ways to create public spaces that cater to diverse demographics, fostering a sense of community and ensuring that the benefits of redevelopment are accessible to all.
- The slum area near the railway station- **Veer Chand Patel road** has a key role in providing the manpower to the station. The redevelopment of slum area can bring a better life to them and would encourage community engagement.

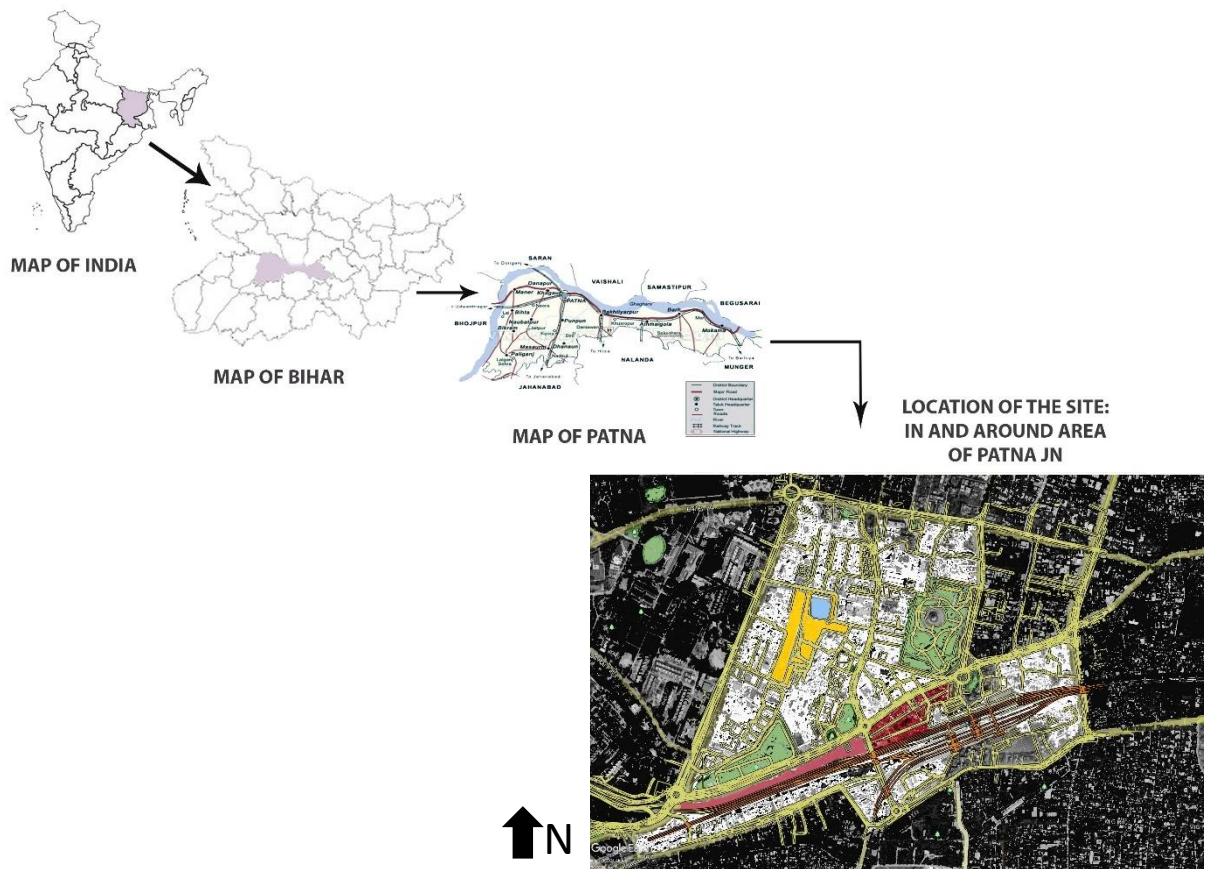


**STREET SCHOOL IN SLUM AREA  
RUN BY NGO- RCF.**

**THE CLASSES TAKES PLACE IN  
DAILY BASIS. WORKSHOPS,  
AWARENESS PROGRAMME,  
HEALTH CAMPAIGN TAKES PLACE  
IN MONTHLY BASIS.**

## 1.4 SITE ANALYSIS

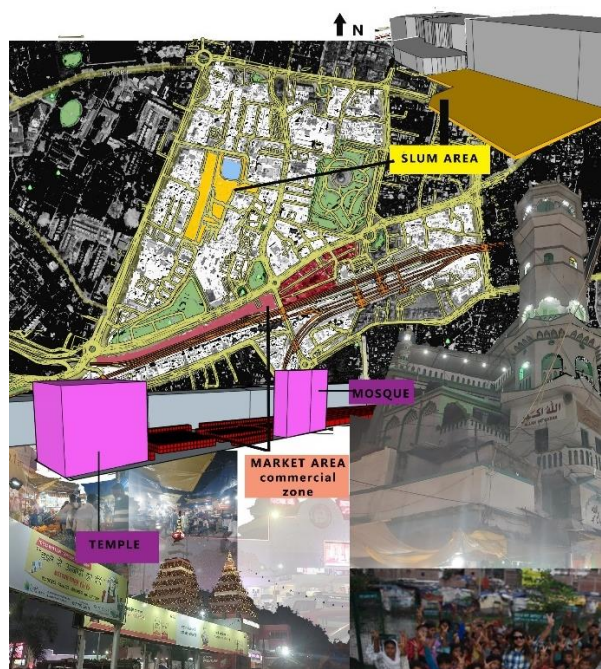
### • LOCATION MAP



### • AREA MAP

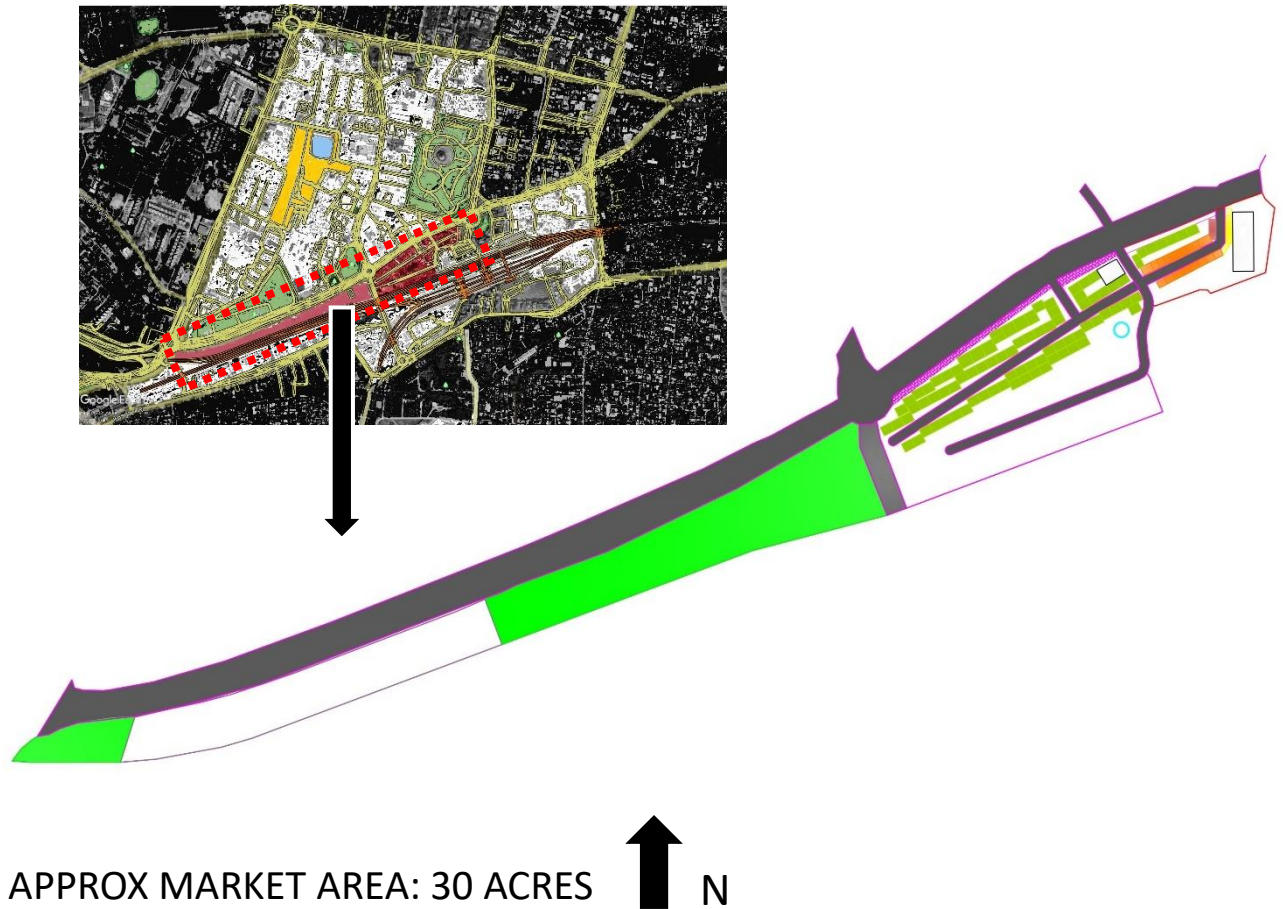
THE URBAN DESIGN INTERVENTION FOR REDEVELOPMENT OF AREA IN AND AROUND PATNA JN. RAILWAY STATION IS DIVIDED IN TWO ZONES:






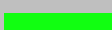

- MARKET AREA
- SLUM AREA





- **DIFFERENT SITE LEVEL MAP IN THE AREA MAP:**



SL NO.	COLOUR CODE	BUILDING TYPOLOGY
1		FLOWER SHOP – FL. HEIGHT-3M
2		BOOK SHOPS– FL. HEIGHT-3M
3		FOOD(SWEET & SMALL DHABA SHOPS)– FL. HEIGHT-3M
4		MISCELLANEOUS SHOPS
5		RELIGIOUS BUILDINGS-FL HEIGHT-12M
6		GREEN ZONE
7		SHARE AUTO PARKING



## 1.5 AIM

The aim of the project, "Redevelopment of Areas around the Major Railway Station in a City," is to revitalize and enhance the areas surrounding a prominent railway station to improve infrastructure in market which is causing congestion, amenities, slum development through street furniture for street and common gathering and overall urban development and minimize traffic congestion and make the station more permeable. The objective would be to transform the immediate vicinity of the station into a vibrant and well-planned urban space.

### Identifying the problems area around Patna junction:

#### Congestion and Traffic Gridlock:

High population density and vehicular congestion contribute to traffic gridlock around major railway stations, making it difficult for pedestrians and vehicles to navigate efficiently.

#### Inadequate Infrastructure:

The lack of proper infrastructure, including roads, footpaths, and public spaces, can hinder the smooth flow of traffic and impact the overall accessibility of the area.



### **Poor Sanitation and Hygiene:**

Some areas around railway stations may face challenges related to inadequate sanitation facilities, leading to issues of hygiene and cleanliness.

### **Informal Settlements (Slums):**

The presence of informal settlements or slums is a common issue around major railway stations, leading to challenges related to housing, sanitation, and overall living conditions.

### **Inefficient Land Use:**

Inefficient land use, including the presence of derelict or underutilized spaces, can contribute to a suboptimal urban environment and hinder economic development.

### **Informal Street Vendors and Hawkers:**

While street vendors contribute to the local economy, their unregulated presence can lead to congestion, littering, and challenges in maintaining a clean and organized urban space.



**The functionalities of Patna Junction are diverse**, encompassing a range of services and facilities to meet the needs of passengers and facilitate smooth railway operations. Some key functionalities of Patna Junction include:

#### **Train Operations:**

Patna Junction serves as a major railway terminus, facilitating the arrival and departure of a large number of trains. It is a crucial hub for both long-distance and regional train services.

#### **Connectivity:**

The station plays a vital role in connecting Patna with various cities and towns across the country. It serves as a gateway for travelers arriving in or departing from Patna.

#### **Passenger Services:**

Patna Junction provides a range of passenger services, including ticketing, reservation counters, and information services to assist travelers with their journey.

#### **Freight Services:**

In addition to passenger services, the station facilitates the movement of freight and goods. It serves as a hub for the transportation of goods, contributing to the economic activities of the region.

#### **Parcel and Luggage Services:**

Patna Junction offers parcel and luggage services, allowing passengers to send and receive goods through the railway system.

#### **Integration with Other Modes of Transportation:**

Patna Junction is often integrated with other modes of transportation, such as bus services, auto-rickshaws, and taxis, facilitating seamless connectivity for passengers.

## **1.6 OBJECTIVE**

**The objective of the project, "Redevelopment of Areas around the Major Railway Station in a City," particularly in the case of Patna Junction Railway Station in Patna, Bihar, India, can be summarized as follows:**

- **Enhance Connectivity:** Improve the transportation infrastructure around Patna Junction to enhance connectivity within the city and beyond. This may involve upgrading roads, creating dedicated lanes for public transportation, improving pedestrian pathways, and integrating various modes of transport.
- **Urban Renewal:** Revitalize the areas surrounding Patna Junction through urban renewal initiatives. This includes improving the overall aesthetics, cleanliness, and functionality of the streets, public spaces, and buildings in the vicinity.
- **Upgrade Station Facilities:** Upgrade the railway station facilities to provide a better experience for passengers. This may involve renovating waiting areas, ticketing

counters, platforms, restrooms, and other amenities to ensure convenience, comfort, and accessibility for travellers.

- **Stakeholder Engagement:** Involve all relevant stakeholders, including local communities, businesses, government agencies, and railway authorities, in the planning and decision-making process. Their active participation and feedback are crucial for the success and sustainability of the project.

## 1.6 SCOPE & LIMITATIONS

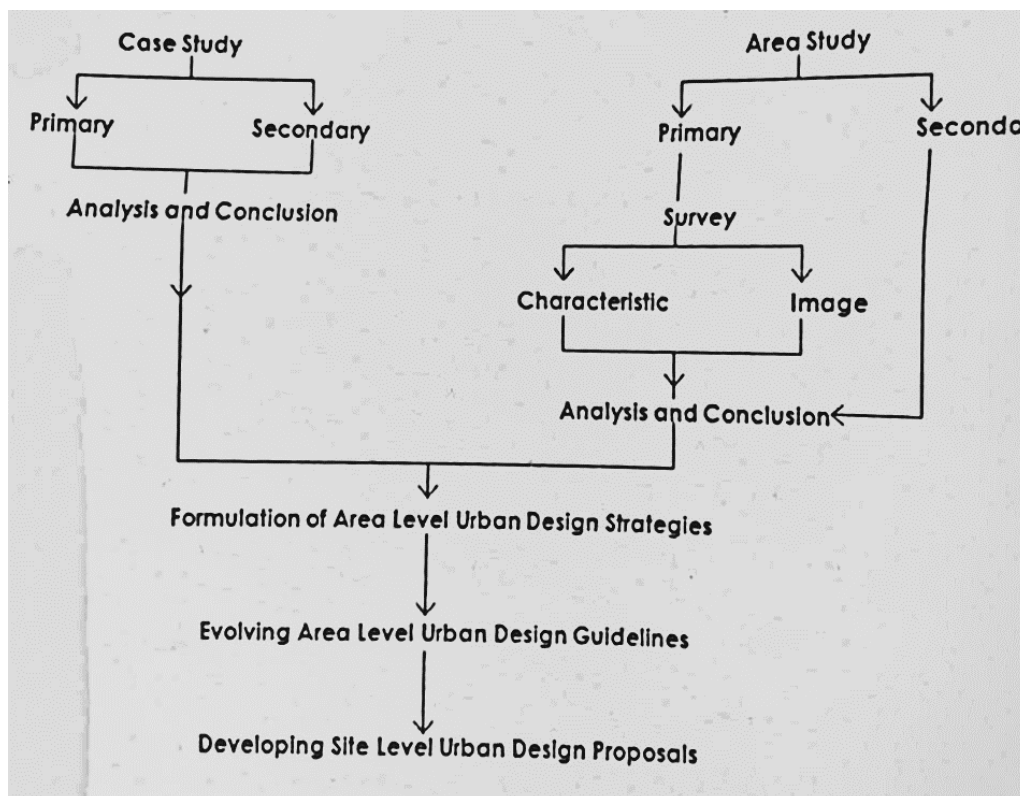
### SCOPE:

- CIRCULATION PATTERN
- MARKET AREA REDEVELOPMENT
- SLUM AREA REDEVELOPMENT
- CLEAR PEDESTRIAN NETWORK
- INCREASE LEGIBILITY OF THE PLACE

### LIMITATIONS:

- RELIGIOUS SITE IN THE MARKET AREA
- POLITICAL PARTY OFFICES IN THE FRONT SETBACK OF THE SLUM AREA

## 1.7 METHODOLOGY



## 2.0 CASE EXAMPLE

### 2.1 CASE STUDY-1:

One example of a good urban design work in India for a major railway station is the redevelopment of the Habibganj Railway Station in Bhopal, Madhya Pradesh.

The Habibganj Railway Station redevelopment project aimed to transform the station into a world-class transportation hub and a model for sustainable development. Here are some key features of this urban design work:

- **Modern Infrastructure:** The station was redesigned with state-of-the-art infrastructure, including upgraded platforms, waiting areas, and ticketing systems. The station building was revamped with contemporary architecture and improved facilities.
- **Multi-modal Integration:** The redevelopment project focused on seamless integration with other modes of transportation. It included the development of a dedicated bus terminal, auto-rickshaw stands, and taxi services in close proximity to the railway station, providing convenient intermodal connectivity.
- **Commercial Complex:** A commercial complex was built adjacent to the station, featuring a shopping mall, restaurants, and retail outlets. This addition aimed to enhance passenger experience and create a vibrant commercial environment.
- **Green Spaces and Landscaping:** The surroundings of the station were adorned with well-maintained green spaces, landscaped gardens, and tree plantations. These elements not only improved the aesthetics but also promoted environmental sustainability and a pleasant ambiance.
- **Barrier-Free Design:** The station was designed to be accessible to all, including the differently-abled. Barrier-free pathways, ramps, and elevators were incorporated to ensure easy movement for passengers with disabilities.
- **Energy Efficiency:** The redevelopment project incorporated energy-efficient technologies and practices. Solar panels were installed to generate renewable energy, and energy-efficient lighting systems were implemented throughout the station premises, reducing environmental impact.
- **Artistic Installations:** The station showcased various art installations, murals, and sculptures, adding aesthetic appeal and cultural value. These artistic elements contributed to the overall ambiance and reflected the local culture and heritage.
- **Passenger Amenities:** The redevelopment project focused on improving passenger amenities. Facilities such as clean restrooms, waiting lounges, luggage trolleys, and information displays were provided to enhance the comfort and convenience of travelers.



### 1. OLD CITY

- Old city is the oldest area of Bhopal started growing since 11th Century and later on after independence many new posh colonies (Idgah Hills, Koefiza, etc) are developed around it.

### 2. BHEL, BHOPAL

- BHEL Plant established in August 1959, later on the township was made for their employees of around 20 sqkm includes all the neighborhood and community facilities.

- Population is of 1.5 lakh people.

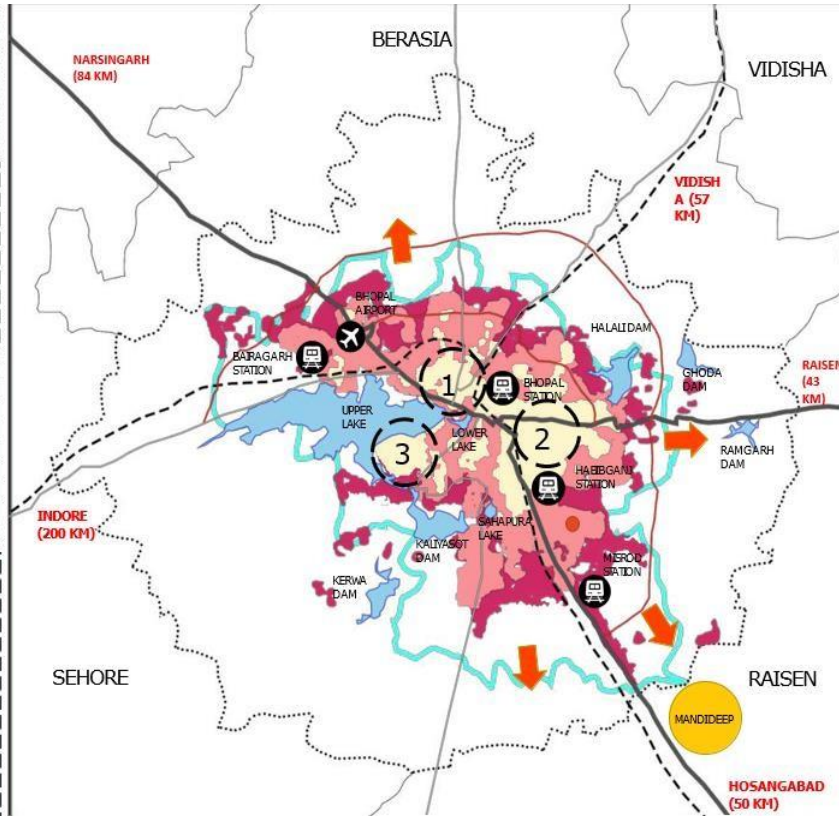
### 3. T.T NAGAR (NEW BHOPAL)

- Established in 70's for all the upcoming small and large scale businesses and industries. later on the government headquarters houses the central Bhopal and the employer housing took the major chunk.

- In 1979 in the need of second railway station **Habib Ganj railway station** was formed.

- Many posh colonies formed around Habib Ganj railway stations like arera colony (One of the expensive colonies of Bhopal). (25,000 / sqft)

- After that many colonies took place along the national highway. Mainly Real estate properties.



Urban Sprawl of Bhopal, Madhya Pradesh

## ORIGIN AND GROWTH OF REAL MARKET

### (1947 – 1960)

After Independence Bhopal was formed as a state capital with secretariate and many people are attracted to city because of cotton mills. So new residential colonies are formed which are now known as idgah hills, koefiza, Shyamla hills, etc.

Later on those areas converted into Posh colonies. Majorly Villas and bungalow typologies are present there now.



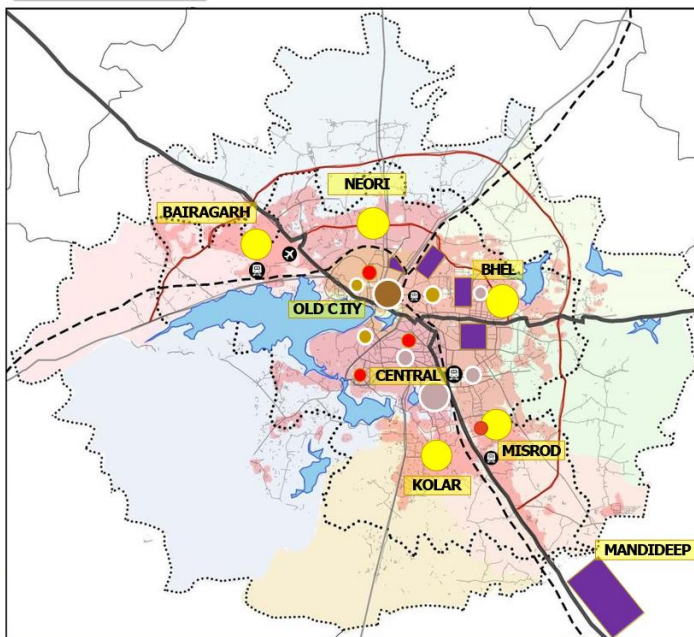
### (1960 – 1990)

BHEL established in 1960 and for their employees they have made townships. Majorly the centre area occupies the employer housing. Arera colony, Chuna Bhatti and Shahpura are the areas in which first gated communities and real estate market start taking place. (All villas and plotted developments)



### OLD CITY (11<sup>th</sup> to 19<sup>th</sup> century)

Bhopal was found by Raja Bhoj in 11<sup>th</sup> century and after that Dost Mohammad kha developed the city in grid iron pattern, Which is now known as Old city. The areas are mainly planned as mixed commercial and residential.



Bhopal Map



**MACRO MARKET - INTRODUCTION**

1. Bhopal is Tier 2 city and capital city of Madhya Pradesh.
2. Bhopal houses the largest number of national importance institutes like MANIT, NLIU, IISER, AIIMS, IIFM, SPA and IIT
3. Habib Ganj Railway station which is in under construction status is going to be the first Indian world class level railway station.


**Growth Drivers in Bhopal**




**BHEL PLANT**



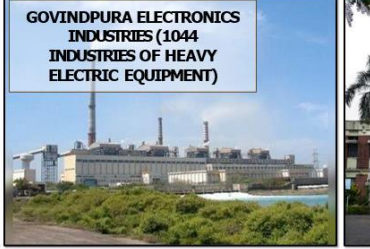
**CRMS TRAIN COACH INDUSTRY**




**MANDIDEEP INDUSTRIAL TOWN**  
HINDUSTAN ELECTRO  
  
GRAPHITE (LARGEST IN INDIA)  
(Electronics, FMCG and Pharma factories)



**MANIT - NATIONAL IMPORTANCE INSTITUTES**



**GOVINDPURA ELECTRONICS INDUSTRIES (1044 INDUSTRIES OF HEAVY ELECTRIC EQUIPMENT)**




**HABIBGANJ FIRST WORLDCLASS RAILWAY STATION OF INDIA**

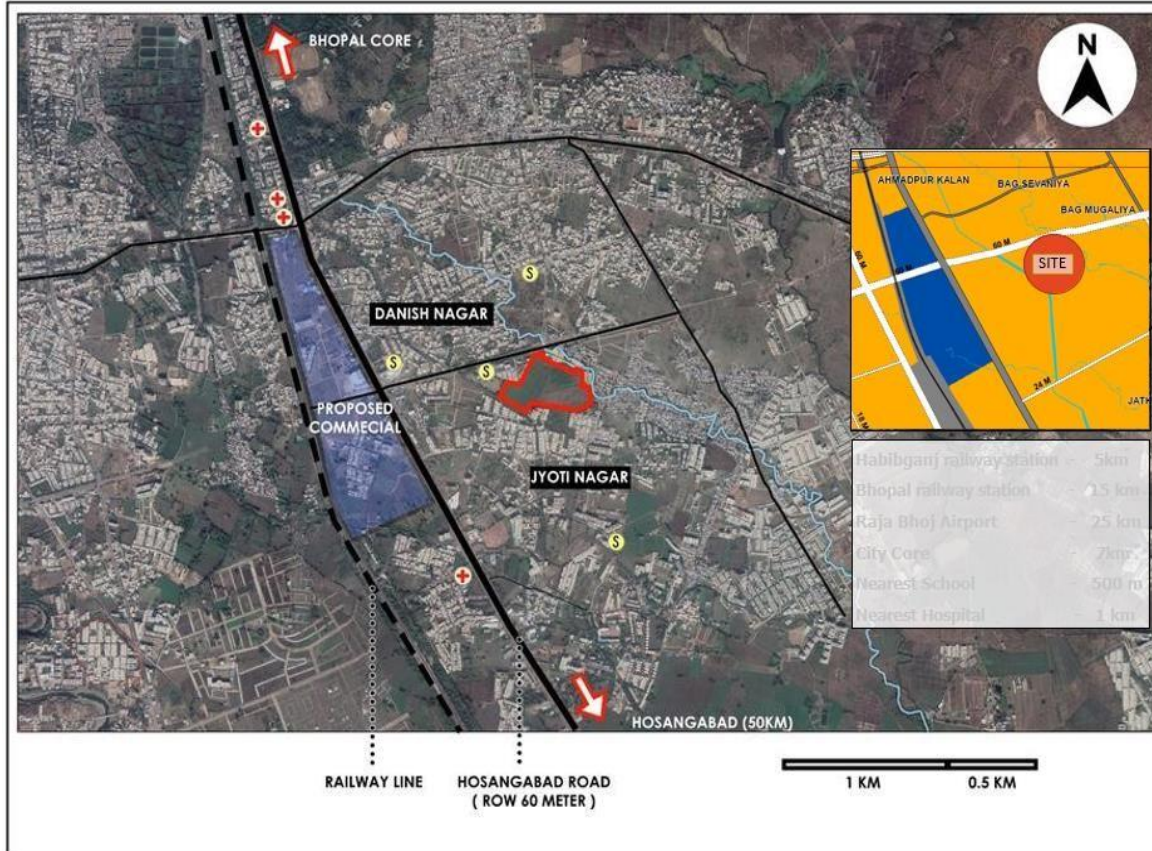
- 1 INTRODUCTION TO REAL ESTATE MARKET OF BHOPAL.
- 2 ORIGIN AND GROWTH
- 3 FACTORS AFFECTING THE MARKET OF BHOPAL
- 4 COMPARISION WITH THE OTHER TIER 2 CITIES
- 5 MAJOR DEVELOPERS AND PROJECTS



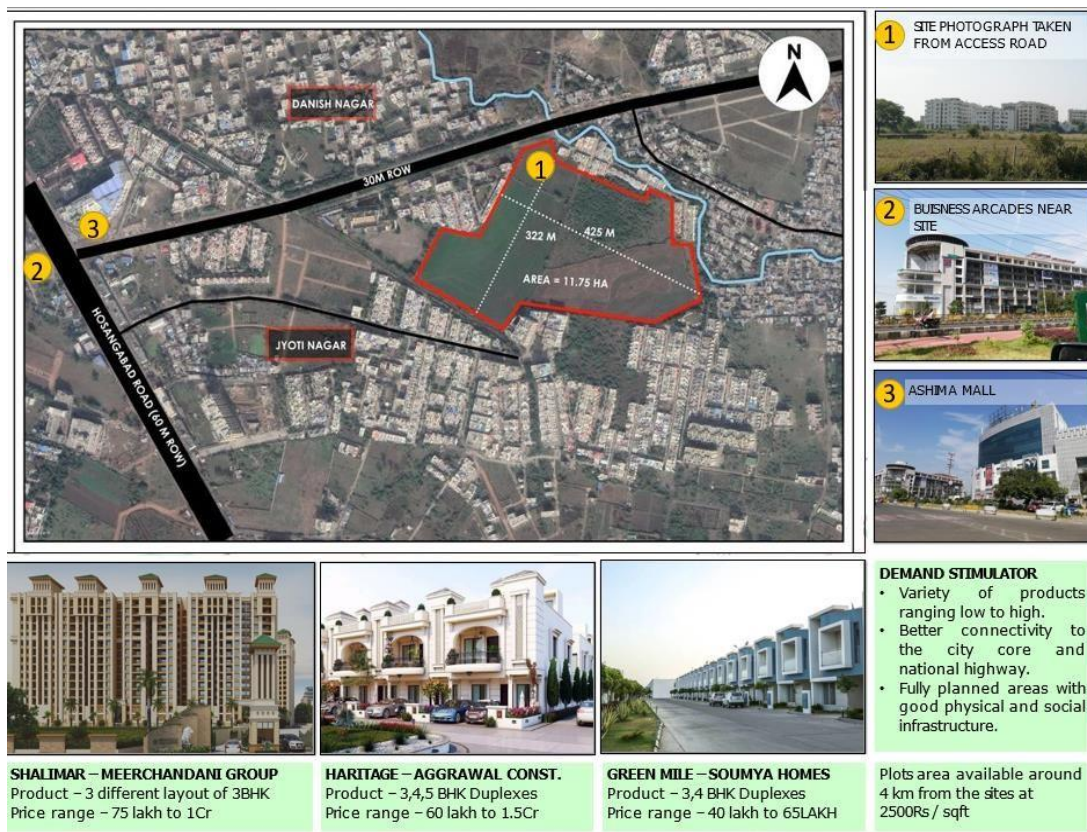
**BHOPAL METRO PROJECT**



**BRTS, BHOPAL**







## 2.2 CASE STUDY-2

### Surat Railway Station Area Redevelopment (Gujarat):

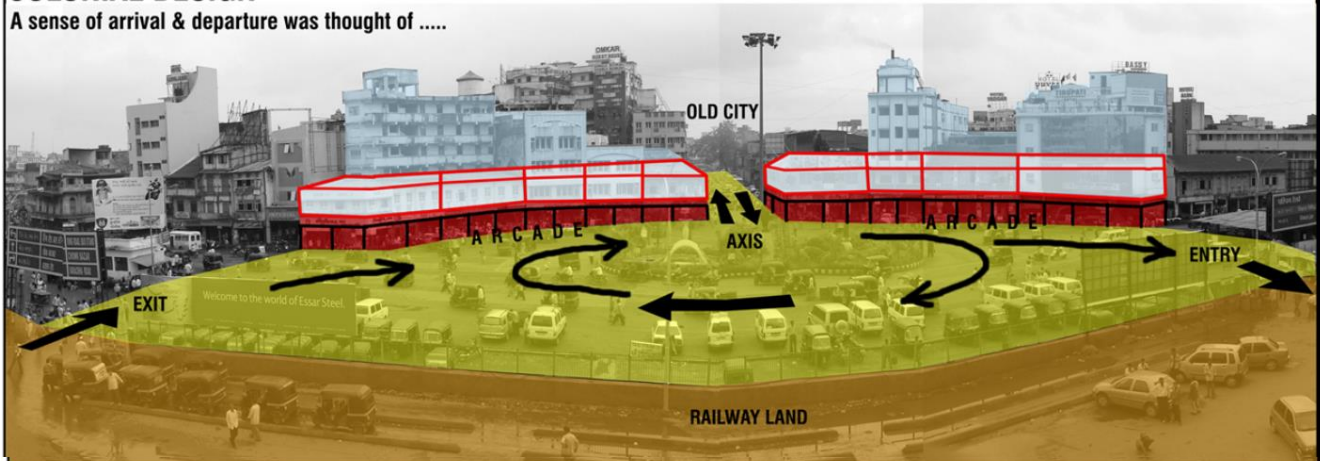
The Surat Railway Station Area Redevelopment project focuses on transforming the surroundings of Surat Railway Station. It includes plans for improved transportation infrastructure, pedestrian-friendly zones, and the integration of commercial and recreational spaces. The goal is to create a more efficient and livable urban environment.





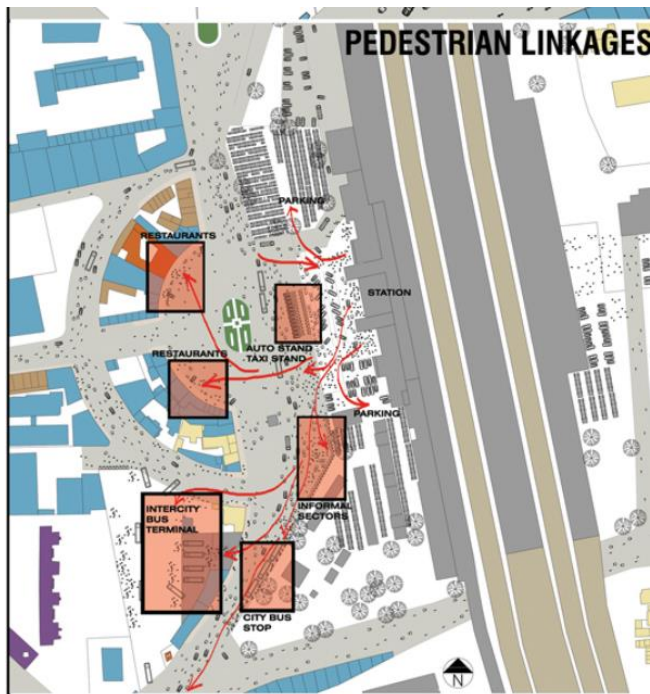
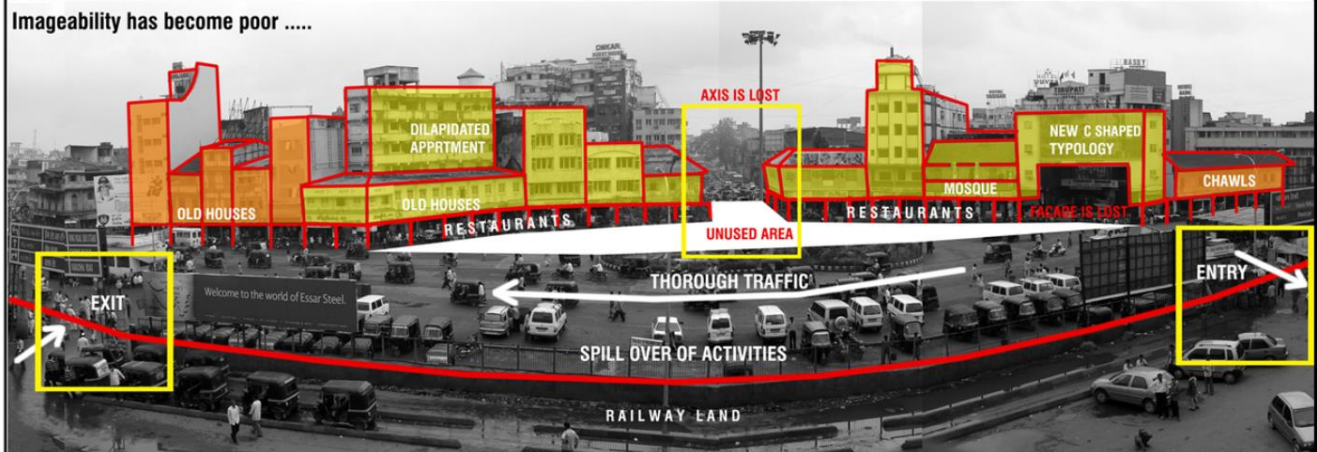
## COLONIAL DESIGN

A sense of arrival & departure was thought of .....



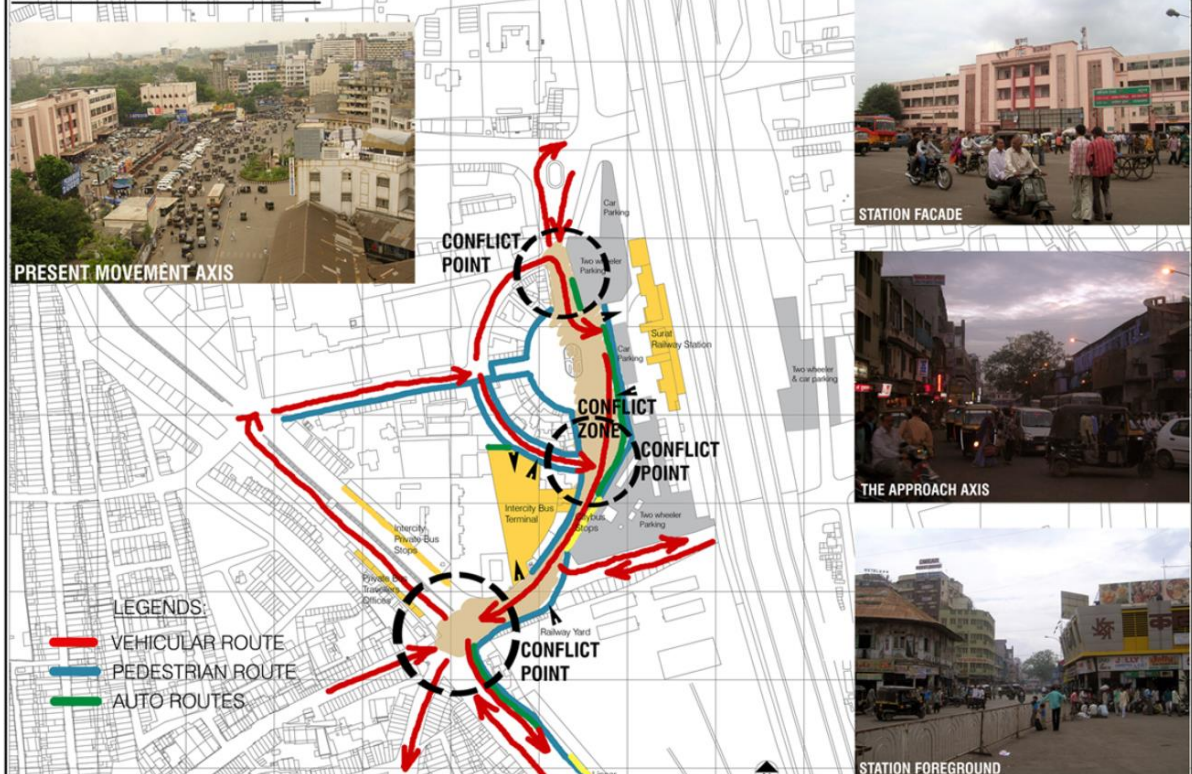
## PRESENT SITUATION

Imageability has become poor .....

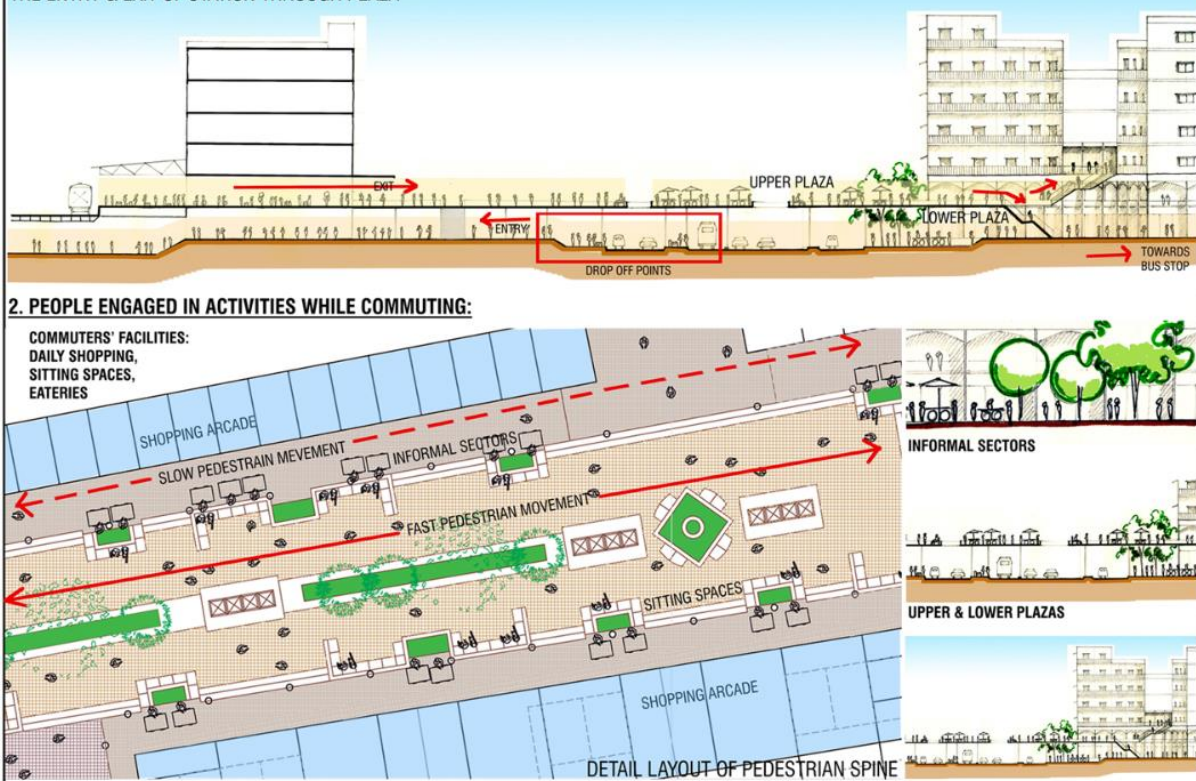




## INTENSE TRANSITION ROUTES



## THE ENTRY & EXIT OF STATION THROUGH PLAZA



## 2.3 INFERENCES FROM CASE EXAMPLES:

<u>ISSUES / CONCERNS</u>	<u>OBJECTIVES</u>	<u>STRATEGIES</u>
<b>I. TRANSPORTATION</b>		
<b>1. Chaos and artificial overcrowding</b> (due to disorganization of activities, spill over of movement from the station on the road and encroachments)	1. To organize activities and resolve the chaotic conditions.	1. Insertion of public plaza (An act of place making - organizing and linking activities in one large common space)
<b>2. Movement pattern &amp; circulation</b> (conflicting movement patterns and lines of circulation)	2. To improve the circulation and movement pattern at the place.	2. (i) Segregating entry and exit of the station. (ii) Making pedestrian linkages between different activity generators. (iii) Using grade separators to resolve traffic
<b>II. BUILT ENVIRONMENT</b>		
<b>1. Physical space constraints</b> (There is a need to create sufficient spaces to accommodate all activities)	1. To create spaces required for different needs and make the spaces responsive to the basic human needs.	1. Creating vertical levels to split activities like pedestrian movement, informal sectors, parking and public amenities.)
<b>2. Typology of Railway station</b> (There is a need to question the typology of Railway station since it is not just an architectural entity but has implications at urban scale)	2. To change the typology of railway station building and make it more responsive to the surrounding urban fabric.	2. (i) Change of one building concept to a space that is integrated to the plaza in front and the surrounding fabric. (ii) Use of lateral surfaces to bring in a different circulation within the station.
<b>3. Imagability</b> (It is important to consider the imageability of the place)	3. To build up imageability of the place. Reviving the colonial axis & altering the built form & activities.	3. (i) Establishing vision lines and orientation (ii) Built form guidelines: building use at different levels, facade controls, continuous pedestrian linkage at g.f.
<b>4. Fragmentation of plots &amp; built form</b> (due to fragmentation of the plots, there is change of building use like chawls and hence under utilization of FAR)	4. To achieve desired built form and its use.	4. (i) Change of desired building use (According to present DP of Surat, the area should have commercial land use.) (ii) Proper utilization of FAR

- **MARKET AREA REDEVELOPMENT**
- **ORGANISING THE POOR INFRASTRUCTURE**
- **MAKING THE PLACE PERMEABLE: THE STATION**
- **SOLUTION TO THE INCREASING CONGESTION**
- **CLEAR MOVEMENT IN MARKET AREA AND THE STATION COMPLEX**
- **SLUM AREA COMMUNITY DEVELOPMENT**

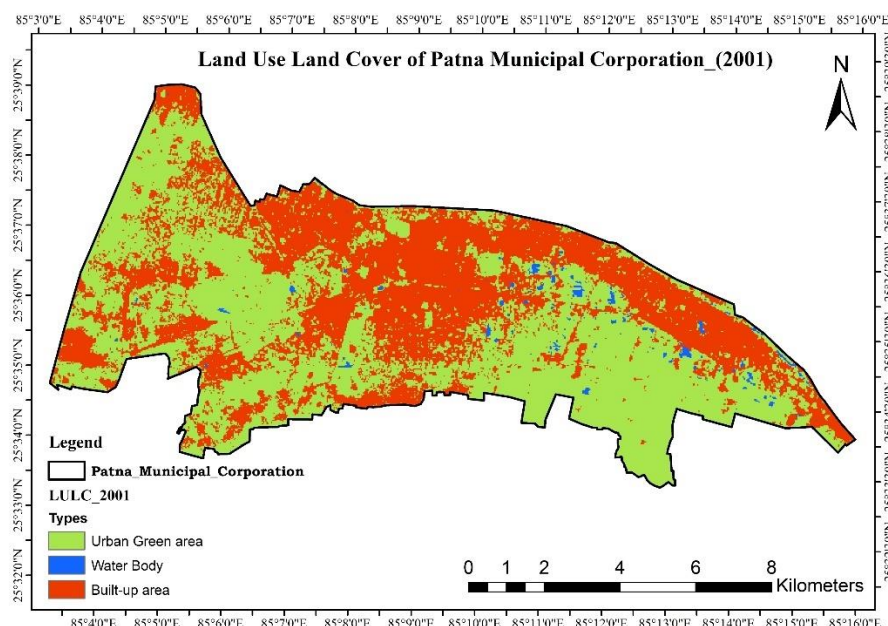
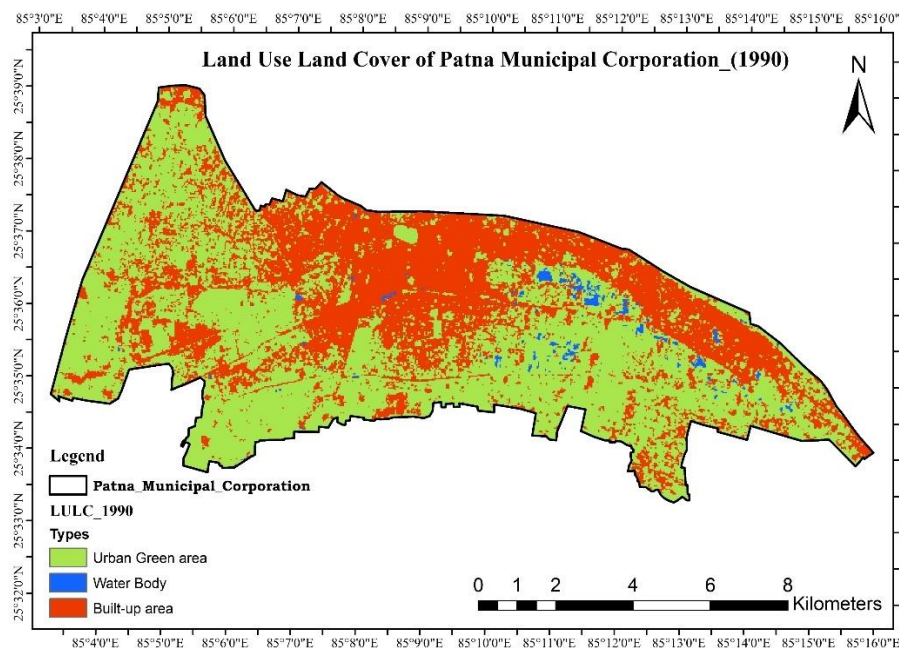


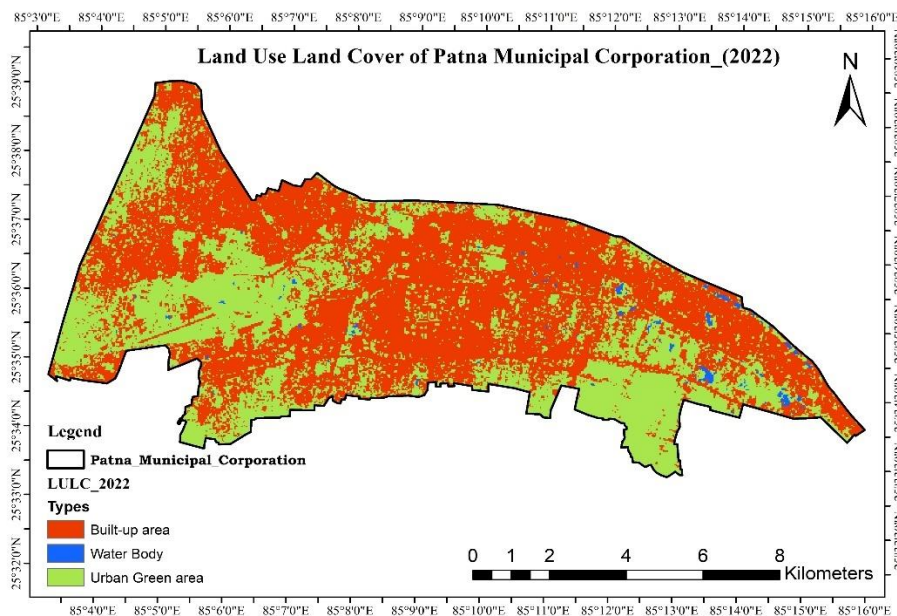
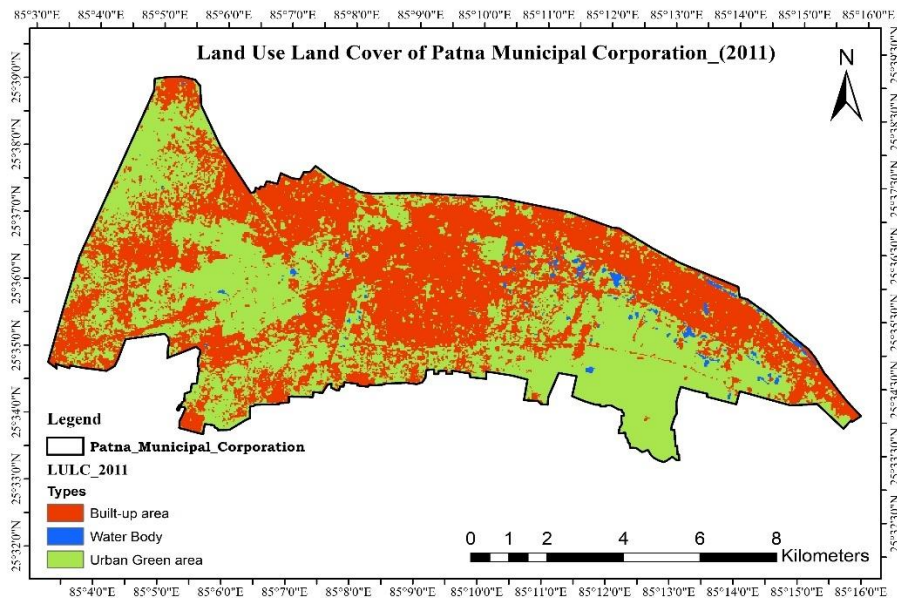
### 3.0 AREA LEVEL STUDY

TO ANALYSE THE SOCIO –ECONOMIC, CULTURAL AND OTHER SIGNIFICANCES:

#### 3.1 PHYSICAL CHARACTERISTICS:

Patna is the capital and largest city of the state of Bihar in India. According to the United Nations, as of 2018, Patna had a population of 2.35 million, making it the 19<sup>th</sup> largest in India. Covering 250 square KM (97 sq mi) and over 2.5 million people, its urban agglomeration is the 15<sup>th</sup> largest in India. The city is approximately 35 KM (22 mi) in length and 16 to 18 KM (9.9 to 11.2 mi) wide. (PMC (1990-2022)-LULC Analysis)





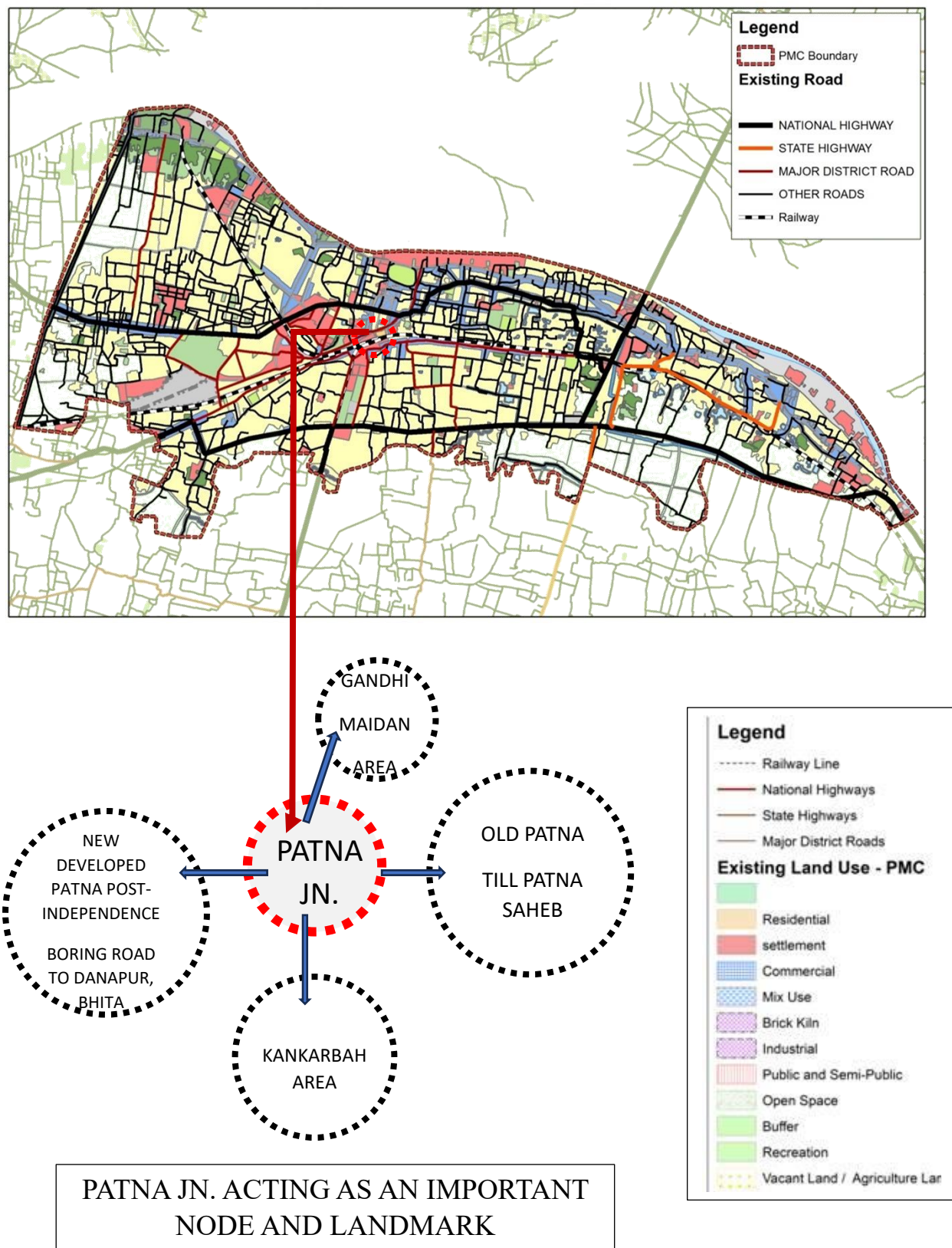
LULC features	1990		2001		2011		2022	
	Area (Km)	%	Area (Km)	%	Area (Km)	%	Area (Km)	%
Urban green area	58.82	58.35	56.13	55.68	48.68	48.29	39.61	39.29
Built-up area	40.86	40.54	43.77	43.43	51.09	50.68	60.44	59.96
Waterbodies	1.12	1.11	0.90	0.89	1.03	1.02	0.75	0.74
Total	100.8	100	100.8	100	100.8	100	100.8	100

## Findings

- ✓ The built-up area, which was 40.86 sq. km in 1990, has increased to nearly 47.92% in 2022 to 60.44 sq. km

## 3.2 EXISTING PMC ROAD NETWORK-

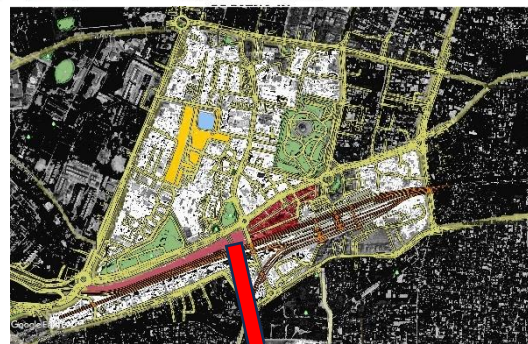
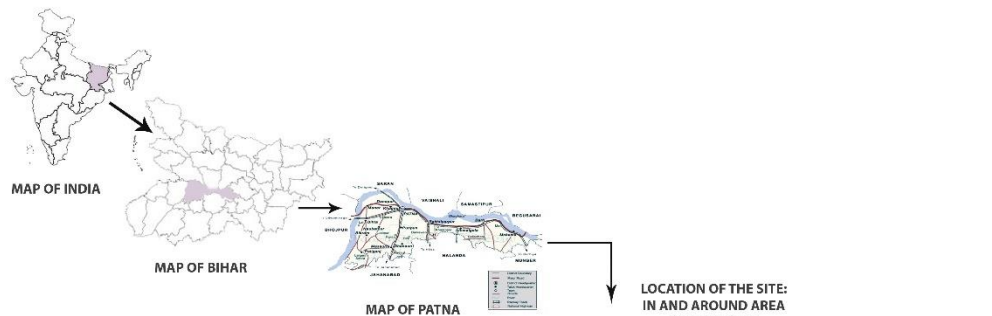
### Routes & Physical characteristics:



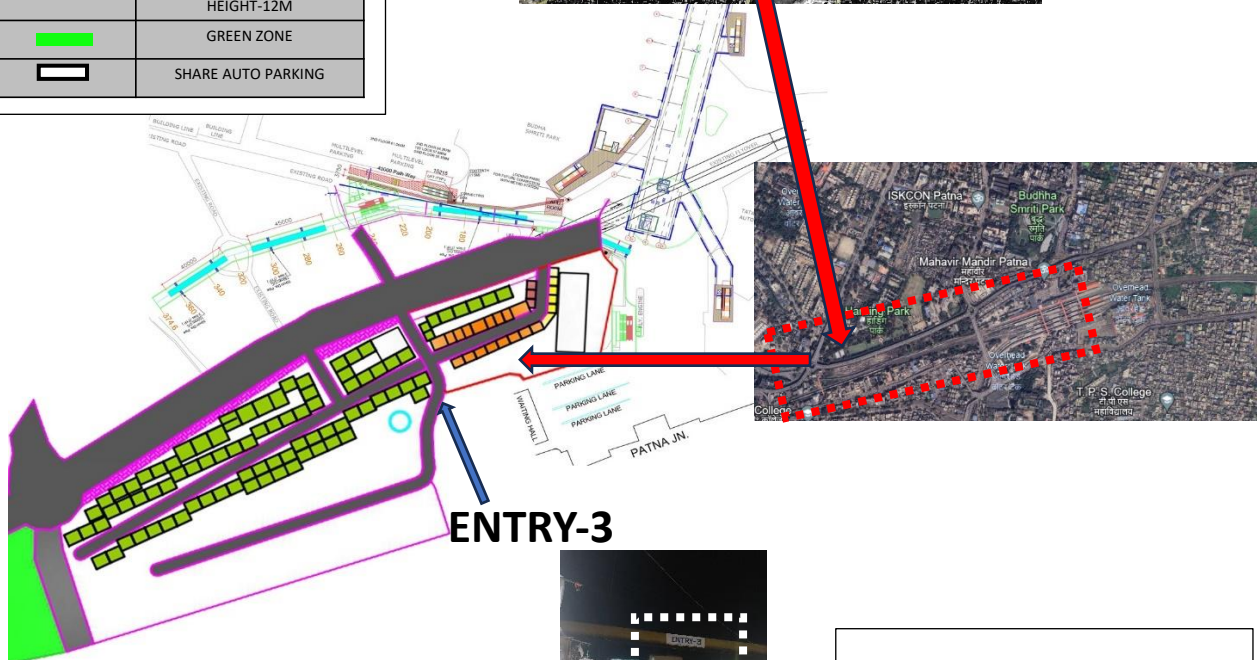


### 3.3 LOCATION MAP WITH LAND-USE MAP OF ZONE-1:

Patna Junction railway station was opened in 1862 as Bankipore Junction in [Bankipore](#) (Bankipur) town, headquarters of the division and Patna district in [Bengal](#), [British India](#). The construction of railway line through Patna was started in 1855 and was completed and opened in 1862.<sup>[1]</sup> Prior to that the transport of raw materials and finished goods was done through the [Ganga river](#). The Danapur Division came into existence on 1 January 1925. The present Divisional Railway Managers' office building was built in 1929.



SL NO.	COLOUR CODE	BUILDING TYPOLOGY
1		FLOWER SHOP – FL. HEIGHT-3M
2		BOOK SHOPS– FL. HEIGHT-3M
3		FOOD(SWEET & SMALL DHABA SHOPS)– FL. HEIGHT-3M
4		MISCELLANEOUS SHOPS
5		RELIGIOUS BUILDINGS-FL HEIGHT-12M
6		GREEN ZONE
7		SHARE AUTO PARKING



LAND-USE MAP OF MARKET AREA



APPROX MARKET  
AREA: 30 ACRES



### 3.4 ACTIVITY OF ZONE-1

#### Trade and Commerce Roots:

Historically, market areas around major transportation hubs, like Patna Junction, often evolved to cater to the needs of travelers, traders, and local residents. These areas might have initially developed as trade centers due to the influx of people using the railway station.

#### Economic Impact of Railway Connectivity:

The presence of a significant railway station contributes to economic activities. The market area may have developed as a result of increased economic opportunities, with businesses, shops, and markets serving both the local population and transient visitors.

#### Expansion Over Time:

Over the years, the market area near Patna Junction may have expanded and diversified to meet the changing demands of the population. As the city grows and the railway station continues to be a major transportation hub, the market area is likely to have witnessed gradual expansion.

#### Infrastructure Improvements:

Infrastructure improvements in and around Patna Junction, including roads, pathways, and transportation facilities, could have influenced the development and accessibility of the market area. Improved infrastructure often attracts more businesses and visitors.

- ✚ The redevelopment of areas around Patna Junction can stimulate economic activities. Well-designed urban spaces attract businesses, leading to increased employment opportunities and economic growth in the region.
- ✚ The market area around Patna Jn. is most unorganized which actually hampers the whole permeability of the station. The entry-3 to the station is hampered too, which is the actual pedestrian movement from the station to the surrounding area and vice - versa.
- ✚ The unorganized and unhygienic scenario stops many buyers from entering the market area.



**ENTRY-3 TO THE  
RAILWAY STATION IS  
FROM MARKET AREA  
THROUGH  
UNORGANISED &  
UNHYGIENIC  
NARROW LANE**





**Unorganized market area shop height is approx. 3m**

### Public Space Enhancement:

- Identifying opportunities to enhance public spaces surrounding the railway station, such as plazas, parks, and streetscapes, to create attractive and inclusive environments for people of all ages and backgrounds.

Designing spaces that encourage social interaction, community engagement, and cultural activities, thereby fostering a sense of place and belonging.

## 3.5 LANDMARKS

### Heritage and Cultural Considerations: Acting as Landmarks

- Patna has a rich cultural and historical heritage. The research can address the preservation of heritage sites and ensure that redevelopment plans integrate with the cultural fabric of the city, promoting a sense of identity and pride among the residents.



**The Mahavir Mandir** ( commonly known as Hanuman Mandir ) located in between the main entry of the railway station and the market area has a historical importance in shaping the urban facade of Patna. It is one of the major visual of the skyline near the Patna junction

As per the [Patna High Court](#) judgment in 1948 the temple has existed since time immemorial. This temple gained popularity in 1947 with large number of Hindu [refugees](#) coming to [Patna](#) after the [partition of India](#). Subsequently, the temple was rebuilt as a concrete house, which was [demolished](#) in 1987 to construct a huge marble temple. The idol of [Sankat-Mochan](#), an avatar of Hanuman, stands in it.





**Jama masjid Patna, the mosque** is one off the most visited place in Patna by Muslims. It is situated near Patna railway station at exit gate no 3. The height of the Minar you can see far from the distance. It is one of the major visual of the skyline near the Patna junction

## 3.6 CONCLUSION FOR ZONE-1

### ISSUES IDENTIFIED

#### Identifying the issues of the area around Patna junction:

##### **Congestion and Traffic Gridlock:**

High population density and vehicular congestion contribute to traffic gridlock around major railway stations, making it difficult for pedestrians and vehicles to navigate efficiently.

##### **Inadequate Infrastructure:**

The lack of proper infrastructure, including roads, footpaths, and public spaces, can hinder the smooth flow of traffic and impact the overall accessibility of the area.

##### **Poor Sanitation and Hygiene:**

Some areas around railway stations may face challenges related to inadequate sanitation facilities, leading to issues of hygiene and cleanliness.

##### **Inefficient Land Use:**

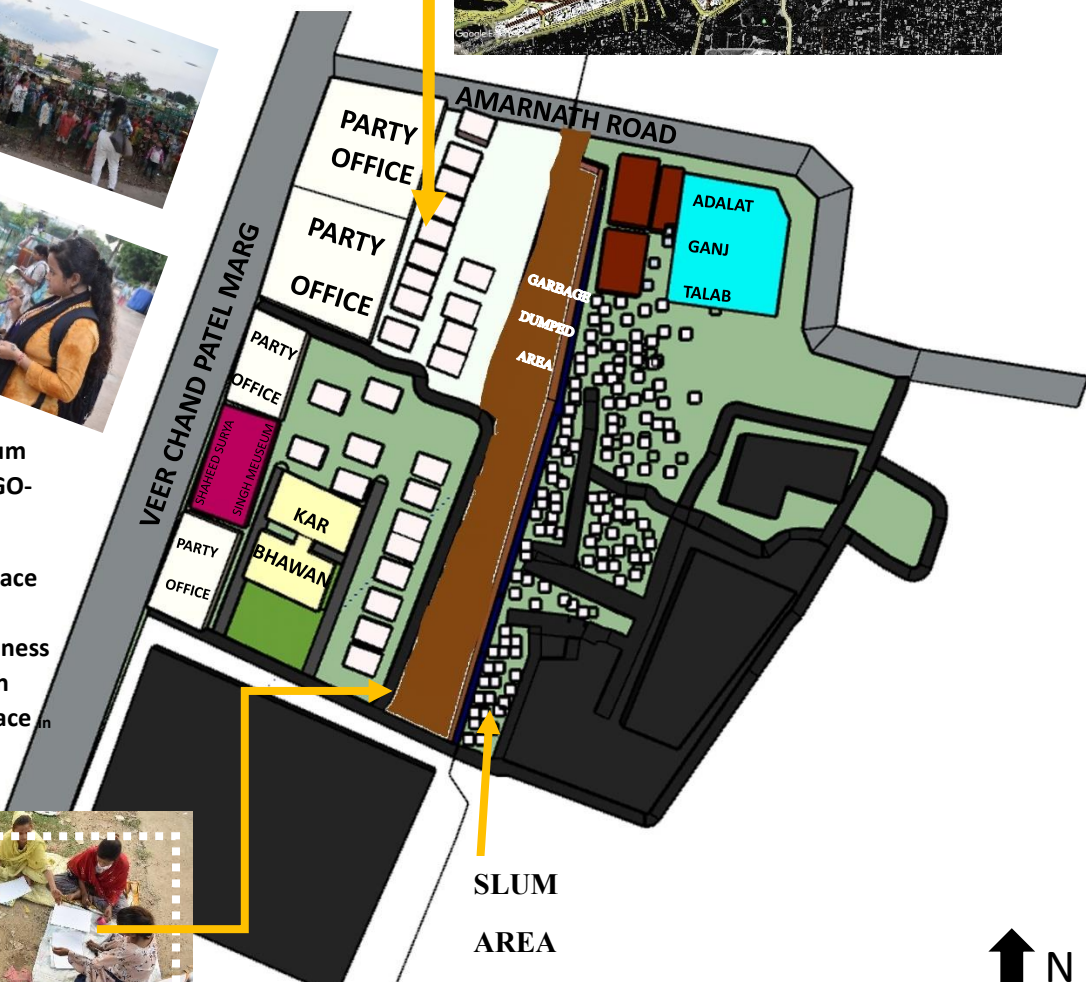
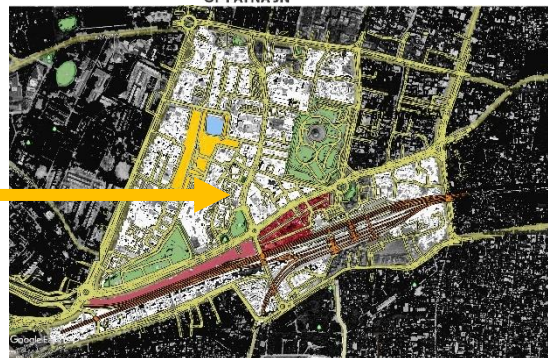
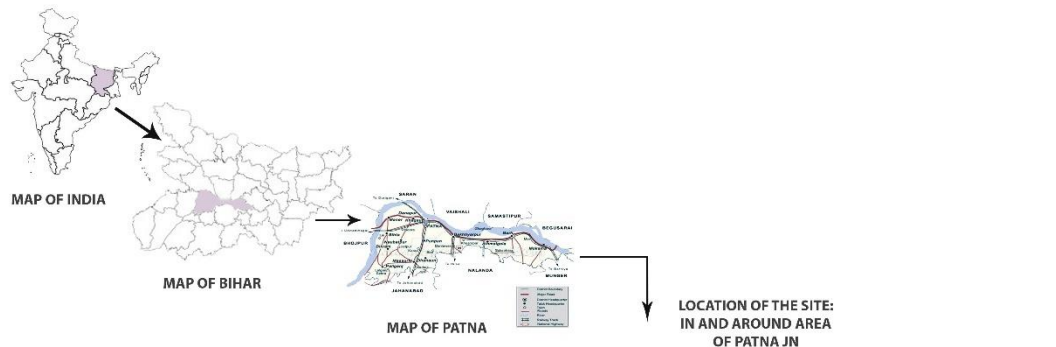
Inefficient land use, including the presence of derelict or underutilized spaces, can contribute to a suboptimal urban environment and hinder economic development.

### Informal Street Vendors and Hawkers:

While street vendors contribute to the local economy, their unregulated presence can lead to congestion, littering, and challenges in maintaining a clean and organized urban space.



### 3.7 LOCATION MAP WITH LAND-USE MAP OF ZONE-2:



Street school in slum area run by the NGO-RCF.

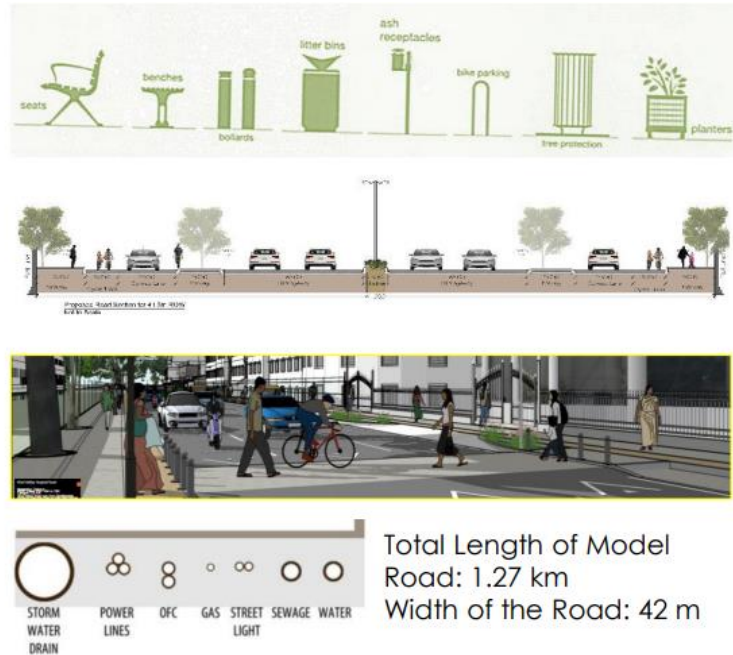
The classes take place in daily basis.  
Workshops, awareness programme, health campaign takes place in monthly basis.



APPROX AREA FOR SLUM: 13 ACRES



## Present Service Road Conditions



### Community engagement:

The slum area near the railway station- **Veer Chand Patel Marg** has a key role in providing the manpower to the station. The redevelopment of slum area can bring a better life to them and would encourage community engagement. Veer Chand Patel Marg as modal path.

- Street Furniture
- Smart Poles
- Smart Bus Stops
- 1 FOB (from other interventions)
- Dedicated Track for NMT and BUS
- Cycle Tracks
- Footpaths Improvement
- Median Development
- Underground Utilities
- Information Signage
- Surveillance cameras
- WiFi Hotspots
- Pollution Sensors

## 3.8 ACTIVITY OF ZONE-2

- Involving residents in the urban design process to understand their needs, preferences, and challenges, and incorporating their input into planning and decision-making.
- Ensuring access to essential social services like healthcare, education, and community centres within proximity to the slum area to enhance the quality of life for residents. There is a NGO named RCF which runs a street school for educating the people of Veer Chand Patel slum area in daily basis

- The political party offices are on the front setback of the zone and ISKCON temple and shopping complexes is on the rear setback. The slum area lies in between.
- Assessing the infrastructure such as water supply, sanitation, electricity, and waste management in and around the slum area to ensure basic services are available to residents.

## 3.9 CONCLUSION OF ZONE-2

### ISSUES IDENTIFIED

- **Poor Sanitation Facilities:** Inadequate access to clean water and proper sanitation facilities can lead to health hazards such as waterborne diseases.
- **Overcrowding and Congestion:** Slum areas often suffer from overcrowding, with multiple families living in small, cramped spaces, leading to congestion and lack of privacy.
- **Inadequate Housing Conditions:** Many households may live in makeshift shelters or poorly constructed houses with insufficient protection from the elements, posing safety risks.
- **Limited Access to Education:** Children living in slum areas may have limited access to quality education due to a lack of nearby schools, inadequate resources, or the need to contribute to family income. The street school run by NGO-RCF has minimum infrastructure to meet the minimum standard of a street school.
- **Unemployment and Poverty:** Slum dwellers often face challenges in accessing stable employment opportunities, leading to poverty and economic vulnerability.
- **Healthcare Disparities:** Limited access to healthcare facilities and services can exacerbate health issues within the community, leading to untreated illnesses and higher mortality rates.
- **Environmental Pollution:** Slum areas may suffer from environmental pollution due to improper waste disposal practices, lack of green spaces, and exposure to industrial pollutants.
- **Social Exclusion and Discrimination:** Residents of slum areas may face social stigma and discrimination, limiting their access to essential services and opportunities for social mobility.

## 4.0 URBAN DESIGN STRATEGIES

### DESIGN STRATEGIES FOR ZONE-1: MARKET AREA

- **Pedestrian-Friendly Infrastructure:** Design pedestrian pathways and crossings to prioritize pedestrian safety and convenience. Ensure proper lighting, signage, and accessibility features such as ramps and tactile paving for people with disabilities.
- **Mixed-Use Development:** Encourage mixed-use development to create a vibrant and diverse urban environment. Incorporate commercial spaces, residential units, offices, and public amenities within the area to promote round-the-clock activity.
- **Public Spaces and Plazas:** Create inviting public spaces and plazas within the market area for social interaction, relaxation, and community events. Incorporate seating, greenery, public art, and water features to enhance the attractiveness of these spaces.
- **Integration with Transit:** Design the market area to seamlessly integrate with the Patna Junction Railway Station and other transit modes. Provide convenient access points, bicycle parking facilities, and designated drop-off zones for commuters.
- **Market Infrastructure:** Design market stalls, kiosks, and shops to optimize space usage and facilitate efficient movement of goods and shoppers. Provide covered areas to protect vendors and shoppers from the elements.
- **Heritage Preservation:** Preserve and celebrate the heritage and architectural character of the area, especially if there are historic buildings or landmarks nearby, i.e., **THE HANUMAN MANDIR & THE JAMA MASJID** next to Patna Jn. Railway station. Incorporate design elements that pay homage to the local culture and history.
- **Green Infrastructure:** Integrate green infrastructure elements such as street trees, rain gardens, and green roofs to improve air quality, manage stormwater runoff, and enhance the visual appeal of the market area.
- **Safety and Security Measures:** Implement design features such as clear sightlines, surveillance cameras, and well-lit areas to enhance safety and security within the market area, especially during evening hours.
- **Wayfinding and Signage:** Install clear wayfinding signage to help visitors navigate the market area and locate key destinations such as transportation hubs, parking facilities, and points of interest.
- **Community Engagement:** Involve local stakeholders, including residents, business owners, and community organizations, in the design process to ensure that the market area reflects the needs and aspirations of the community.

By incorporating these urban design strategies, the market area near Patna Junction Railway Station can become a dynamic, attractive, and sustainable urban destination that serves the needs of residents, commuters, and visitors alike.

## DESIGN STRATEGIES FOR ZONE-2: SLUM AREA

- **Upgrading Infrastructure:** Invest in upgrading basic infrastructure such as water supply, sanitation, and electricity to improve living conditions and promote public health.
- **Housing Redevelopment:** Implement housing redevelopment projects to replace dilapidated structures with safe, durable, and affordable housing units. Incorporate designs that prioritize space efficiency, natural ventilation, and disaster resilience.
- **Community Spaces:** Create communal gathering spaces within the slum area, such as parks, playgrounds, and community centres, to foster social interaction, recreation, and cultural activities.
- **Pedestrian Pathways:** Design pedestrian-friendly pathways and alleys within the slum area to improve connectivity and accessibility for residents. Ensure that pathways are well-lit, paved, and accessible to people with disabilities.
- **Green Infrastructure:** Integrate green infrastructure elements such as urban gardens, green roofs, and permeable surfaces to enhance environmental sustainability, mitigate heat island effects, and promote biodiversity.
- **Livelihood Opportunities:** Support the establishment of small-scale businesses and micro-enterprises within the slum area to create income-generating opportunities for residents. Provide training, resources, and access to markets to support entrepreneurship and economic empowerment.
- **Healthcare Facilities:** Improve access to healthcare services by establishing health clinics or mobile health units within the slum area. Collaborate with local healthcare providers and NGOs to deliver essential healthcare services, preventive screenings, and health education programs.
- **Education Initiatives:** Enhance access to education by establishing informal learning centres, tutoring programs, and scholarships for children living in the slum area. Partner with educational institutions and NGOs to provide educational resources and support. **Urban infrastructure that will act as convertible space to run street school and bridging the gap between communities.**
- **Waste Management:** Implement community-based waste management systems to promote cleanliness, hygiene, and environmental sustainability within the slum area. Provide training on waste segregation, composting, and recycling to residents.
- **Participatory Planning:** Engage residents in the planning and decision-making process to ensure that design interventions reflect their needs, preferences, and aspirations. Foster a sense of ownership and pride within the community by involving residents in project implementation and maintenance.

By implementing these urban design strategies, the slum area in Veer Chand Patel Marg near Patna Junction Railway Station can be transformed into a more liveable, resilient, and inclusive urban environment that improves the quality of life for its residents.

## 5.0 URBAN DESIGN GUIDELINES

### ZONE-1: MARKET AREA

- **Functional Layout:** Design the market area with a clear layout that facilitates efficient movement of pedestrians and goods. Ensure that pathways are wide enough to accommodate crowds and provide designated areas for loading and unloading.
- **Mixed-Use Zoning:** Encourage mixed-use development to create a vibrant and diverse urban environment. Allow for commercial spaces, residential units, offices, and public amenities within the market area to promote round-the-clock activity.
- **Public Spaces:** Incorporate inviting public spaces and plazas within the market area for social interaction, relaxation, and community events. Provide seating, greenery, and shade to enhance the comfort of visitors.
- **Accessibility:** Ensure that the market area is accessible to people of all abilities. Design pedestrian pathways with proper ramps, curb cuts, and tactile paving. Provide designated parking spaces for bicycles and vehicles.
- **Infrastructure:** Invest in infrastructure improvements such as reliable water supply, sanitation facilities, and electricity to support the needs of businesses and residents in the market area.
- **Heritage Preservation:** Preserve and celebrate the heritage and architectural character of the area, especially if there are historic buildings or landmarks nearby. Incorporate design elements that pay homage to the local culture and history.
- **Safety and Security:** Implement design features to enhance safety and security within the market area, including well-lit streets, clear sightlines, and surveillance cameras.

### ZONE-2: SLUM AREA

- **Basic Services:** Ensure access to basic services such as clean water, sanitation, healthcare, and education within the slum area. Collaborate with local authorities and NGOs to provide essential services to residents.
- **Livelihood Opportunities:** Support the establishment of small-scale businesses and micro-enterprises within the slum area to create income-generating opportunities for residents. Provide training, resources, and access to markets to support entrepreneurship.



- **Green Infrastructure:** Integrate green infrastructure elements such as urban gardens, green roofs, and permeable surfaces to enhance environmental sustainability and improve the quality of life for slum residents.
- **Participatory Planning:** Involve residents in the planning and decision-making process to ensure that design interventions reflect their needs, preferences, and aspirations. Foster a sense of ownership and empowerment within the community.
- **Upgrading Informal Settlements:** Implement incremental upgrading strategies to improve living conditions in informal settlements while minimizing displacement and disruption to residents' livelihoods.

## 5.1 GUIDELINE FOR NEW DEVELOPMENT FOR AREA IN AND AROUND PATNA JN. RAILWAY STATION

### 5.1.1 DESIGN OBJECTIVE

#### **ZONE-1: Market Area:**

- **Enhanced Functionality:** Improve the layout and infrastructure of the market area to enhance its functionality, facilitating smooth pedestrian and vehicular movement, as well as efficient loading and unloading of goods.
- **Economic Vitality:** Foster economic vitality by supporting diverse businesses, promoting entrepreneurship, and attracting visitors. Create an environment that encourages local economic growth and contributes to the prosperity of the surrounding community.
- **Social Interaction:** Design public spaces within the market area that encourage social interaction, community engagement, and cultural exchange. Provide amenities such as seating, greenery, and public art to enhance the attractiveness of these spaces.
- **Accessibility and Inclusivity:** Ensure that the market area is accessible to people of all abilities, including those with disabilities and elderly individuals. Design pathways, amenities, and signage with universal design principles in mind to promote inclusivity.
- **Heritage Preservation:** Preserve and celebrate the heritage and cultural identity of the market area, incorporating design elements that reflect its history and architectural character. Ensure that any redevelopment respects and enhances the area's heritage value.

#### **ZONE-2: Slum Area:**

- **Improved Housing Conditions:** Improve housing infrastructure within the slum area to provide safe, dignified, and affordable housing for residents. Upgrade housing units while preserving the social fabric and sense of community within the settlement.
- **Access to Basic Services:** Ensure access to essential services such as clean water, sanitation, healthcare, education, and electricity within the slum area. Implement initiatives to address the health, education, and economic needs of residents.
- **Community Empowerment:** Empower residents through participatory planning and decision-making processes. Involve community members in identifying priorities, implementing projects, and managing resources to build a sense of ownership and agency.
- **Environmental Sustainability:** Integrate green infrastructure and sustainable design principles into the slum area to improve environmental quality and resilience. Promote initiatives such as waste management, green spaces, and energy efficiency to enhance the well-being of residents.
- **Livelihood Opportunities:** Create opportunities for income generation and economic empowerment within the slum area. Support the development of small-scale businesses, vocational training programs, and access to markets to improve livelihoods and reduce poverty.
- **Social Cohesion:** Foster social cohesion and community resilience within the slum area by promoting mutual support, cooperation, and solidarity among residents. Facilitate the creation of community spaces and networks that strengthen social ties and foster a sense of belonging.

## 5.1.2 DESIGN PHILOSOPHY

### ZONE-1: MARKET AREA

- **Community Engagement:** Foster active engagement and participation of stakeholders, including local residents, businesses, and community organizations, in the design and planning process. Incorporate their input to ensure that the market area reflects their needs, aspirations, and cultural identity.

- **Economic Empowerment:** Promote economic vitality and entrepreneurship by providing opportunities for local businesses to thrive. Support small-scale entrepreneurs, artisans, and vendors, and prioritize the creation of spaces that facilitate economic exchange and innovation.

- **Social Inclusivity:** Design the market area to be inclusive and accessible to people of all backgrounds and abilities. Ensure that public spaces, amenities, and services cater to the diverse needs of the community, fostering social cohesion and interaction.

- **Environmental Sustainability:** Integrate sustainable design practices and green infrastructure into the market area to minimize environmental impact and enhance resilience. Prioritize measures such as energy efficiency, waste reduction, and green spaces to create a healthier and more sustainable urban environment.

- **Cultural Celebration:** Celebrate the cultural heritage and identity of the community by incorporating elements of local art, architecture, and traditions into the design of the market area. Create spaces that serve as platforms for cultural expression, exchange, and celebration.

## **ZONE-2: SLUM AREA**

- **Community Empowerment:** Empower residents to take an active role in shaping their environment and improving their living conditions. Foster community-led initiatives, participatory decision-making processes, and capacity-building programs to build a sense of ownership and agency among residents.

- **Social Inclusion:** Create an inclusive and supportive environment that values the contributions and diversity of all community members. Promote social cohesion, mutual support, and solidarity among residents to strengthen community bonds and resilience.

- **Environmental Justice:** Address environmental inequalities and injustices within the slum area by prioritizing environmental sustainability and resilience. Implement measures to improve access to clean water, sanitation, and green spaces, and mitigate the impacts of environmental hazards.

- **Livelihood Opportunities:** Create pathways to economic empowerment and livelihood security for slum residents through skill development, vocational training, and access to employment opportunities. Support the growth of micro-enterprises and informal economies to enhance economic resilience and reduce poverty.

- **Rights-Based Approach:** Adopt a rights-based approach to urban development that recognizes and upholds the fundamental rights of slum residents, including the right to adequate housing, water, sanitation, health, education, and participation. Ensure that urban interventions prioritize the fulfilment of these rights for all residents.

## **5.2 PEDESTRIAN MALL DESIGN GUIDELINES FOR THE MARKET AREA NEXT TO THE STATION**

- **Pedestrian Priority:** Prioritize pedestrians by restricting vehicular access to the area. Designate the pedestrian mall as a car-free zone or limit vehicular traffic during specific hours to create a safe and comfortable environment for walking.

- **Clear Pathways:** Design wide, clear pathways that accommodate the flow of pedestrians, including those with disabilities or mobility aids. Ensure smooth, level surfaces with tactile paving for the visually impaired and maintain clear sightlines to enhance safety.

- **Seating and Rest Areas:** Provide seating and rest areas along the pedestrian mall for visitors to relax and enjoy the surroundings. Incorporate benches, seating walls, and shaded areas with landscaping to create inviting spaces for socializing and people-watching.

- **Street Furniture and Amenities:** Install Street furniture and amenities such as trash bins, bike racks, and informational kiosks to enhance the functionality and comfort of the pedestrian mall. Ensure that these elements are durable, low-maintenance, and aesthetically pleasing.

- **Landscaping and Greenery:** Integrate landscaping and greenery to soften the urban environment and provide visual interest. Incorporate trees, planters, and flower beds along the pedestrian mall to improve air quality, reduce heat, and create a pleasant atmosphere.

- **Public Art and Sculptures:** Enhance the pedestrian mall with public art installations, sculptures, and murals that reflect the local culture and heritage. Use art to create focal points, spark curiosity, and enrich the pedestrian experience.

- **Street Lighting:** Install adequate street lighting to ensure visibility and safety during evening hours. Use energy-efficient LED fixtures that provide uniform illumination while minimizing glare and light pollution.

- **Event Spaces:** Designate flexible event spaces within the pedestrian mall for cultural performances, street markets, festivals, and community events. Incorporate features such as stage areas, power outlets, and temporary infrastructure to support diverse activities.

- **Wayfinding and Signage:** Install clear wayfinding signage to help visitors navigate the pedestrian mall and locate key destinations such as landmarks, shops, and public facilities. Use maps, directional signs, and interpretive panels to enhance orientation and information accessibility.

- **Accessibility:** Ensure that the pedestrian mall is accessible to people of all abilities. Design pathways with gentle slopes, ramps, and curb cuts to accommodate wheelchair users and strollers. Provide accessible seating, restrooms, and amenities to promote inclusivity.

- **Safety and Security:** Implement design features to enhance safety and security within the pedestrian mall, including CCTV cameras, emergency call boxes, and well-lit spaces. Ensure that pathways are free of obstacles and obstructions to minimize tripping hazards.

- **Maintenance and Management:** Establish a maintenance and management plan to ensure the ongoing upkeep and cleanliness of the pedestrian mall. Assign responsibility for maintenance tasks such as cleaning, landscaping, and repairs to a dedicated team or agency.



## IMPORTANT FEATURES INCORPORATED

- Market area organised as mall area giving vertical height to the space.
- Seating arrangement in terrace with seating arrangement nearabout in the mid height of the building to get a clear view of the city which was obstructed due to flyover
- Underpass is developed to create overcrowding for road crossing which will be pedestrian friendly.
- Open space is created **NEAR HANUMAN MANDIR AND JAMA MASJID** to conserve the heritage site.
- **Entry no. 3 is cleared for pedestrian movement** to-and-fro of the station.
- Parking area is dedicated just next to the market area.

## POINTS TO AVOID

- **DEAD SPACES**
- **INTROVERTED BUILDINGS:** architectural designs that prioritize inward-focused spaces and limited interaction with the surrounding environment.
- **MORE GROUND COVERAGE FOR BUILT-UP SPACES**
- **HAWKERS MOVEMENT ON ROAD**

## **6.0 URBAN DESIGN VISION**

**The urban design vision for both the market area and slum area near Veer Chand Patel Marg, adjacent to Patna Junction Railway Station, envisions a transformative approach that fosters inclusivity, vibrancy, and resilience within the community. For the market area, the vision is to create a bustling urban hub that celebrates local culture, fosters economic vitality, and provides a vibrant social space for residents and visitors alike. Through thoughtful design interventions, such as pedestrian-friendly infrastructure, mixed-use development, and vibrant public spaces, the market area will become a dynamic destination that promotes entrepreneurship, cultural exchange, and community engagement. Meanwhile, the vision for the slum area is centred around improving living conditions, empowering residents, and promoting social equity. By prioritizing initiatives such as upgraded housing infrastructure, access to basic services, and community-led development programs, the slum area will be transformed into a thriving neighbourhood that enhances the well-being and dignity of its residents. Together, these visions for the market and slum areas near Veer Chand Patel Marg seek to create inclusive, resilient, and vibrant urban environments that reflect the aspirations and needs of the local community.**

## 7.0 DESIGN BRIEF

The market area and slum area near Veer Chand Patel Marg, adjacent to Patna Junction Railway Station, outlines a holistic approach to revitalizing both spaces while addressing the distinct needs of their communities. For the market area, the brief emphasizes the creation of a vibrant commercial hub that enhances economic opportunities, fosters social interaction, and celebrates local culture. Key objectives include pedestrian-friendly infrastructure, mixed-use development, and the integration of public spaces to promote community engagement. Meanwhile, the brief for the slum area prioritizes improving living conditions, providing access to essential services, and empowering residents through participatory planning and development initiatives. It focuses on upgrading housing infrastructure, enhancing access to healthcare and education, and promoting economic empowerment to uplift the quality of life for slum residents. By aligning with these objectives, the urban design interventions for both the market and slum areas near Veer Chand Patel Marg aim to create inclusive, resilient, and sustainable urban environments that benefit the entire community.

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- ✓ **Mall with vertical height for shops, seating arrangement, cineplex and offices**
  - ✓ **More green open spaces**
  - ✓ **Pedestrian friendly movement**
  - ✓ **Creation of underpass for level crossing**
  - ✓ **Dedicated parking area for common public vehicles**
  - ✓ **Convertible space for street school infrastructure and seating arrangement in slum area**
  - ✓ **Small children park which will act as bridging the gap between communities.**
  - ✓ **Food Stalls near the access road of the slum area and Amarnath road which is connecting the Veer Chand Patel Marg and Buddha Marg which can be a minor source of income.**
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## 8.0 CONCLUSION

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**In conclusion, the urban design thesis on redevelopment of area in and around Patna junction railway station: the urban design intervention is done in two zones: for the market area and slum area near Veer Chand Patel Marg, adjacent to Patna Junction Railway Station, underscores the importance of a comprehensive and inclusive approach to urban development. Through rigorous analysis and design exploration, it has been demonstrated that revitalizing both spaces requires tailored strategies that address the unique challenges and opportunities presented by each context. For the market area, emphasis has been placed on creating a vibrant commercial hub that promotes economic vitality, social interaction, and cultural exchange. Meanwhile, for the slum area, the focus has been on improving living conditions, providing access to essential services, and empowering residents through community-led initiatives. By integrating these objectives into the urban design interventions, we aim to create resilient, equitable, and sustainable urban environments that enhance the quality of life for all residents while preserving the distinct identity and character of the surrounding community. Through collaboration, innovation, and a commitment to social justice, we can work towards creating a future where both the market and slum areas near Veer Chand Patel Marg thrive as integral parts of a vibrant and inclusive cityscape.**

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## **9.0 BIBLIOGRAPHY**

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