Revitalization Of Areas Along A Movement Corridor Connecting Two Important Urban Nodes And Passing Through A Suburban Rail Transit Hub:

Case Application At Dumdum, Kolkata, West Bengal

M.ARCH UD THESIS 2023

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PREFACE

This thesis aims to identify parameters, inquire existing problems and intervene through urban design guidelines & solutions to revitalize areas along movement corridors that connect two important urban nodes and pass-through suburban rail transit hubs around the area in the neighbourhood of South Dumdum Municipality, based on different parameters which include the first impression of the overall urban context of movement corridor from Chiriamore to Nagerbazar area and its evolution and urban transformation, built use and land development, hidden infrastructure, ground reality, existing streetscape and road network.

Any neighbourhood is the smaller version of the city where it belongs. Hence at some point, it is very much necessary to connect the neighbourhood with the city connected by the movement corridors and its transit hubs. The thesis also talks about the city level public realm, job opportunity, transportation and housing choices and availability. It provides a thorough analysis of the chosen site to understand it's redevelopment pattern and potential as a residential neighbourhood around a sub-urban rail transit hub. The area has been mapped on GIS software for detailed analysis. The thesis also comprises several data and analysis based on the primary survey, personal interviews and information collected from the South Dum Dum Municipality.

The thesis aims to find conclusions that provide urban design guidelines for similar projects and areas with sporadic neighbourhood growth due to major nodes in movement corridors connected through a sub-urban rail transit hub and urban design solutions for the same, to make the city life more livable and breathable in the longer run.

ACKNOWLEDGEMENT

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Thanking All,
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CONTENTS

5.0 CASE APPLICATION STUDY

5.1 AREA LEVEL

5.1.1 Selection Of The Area
5.1.2 Delineation
5.1.3 Description
5.1.4 Survey
5.1.5 Proposals
5.1.6 Identification Of The Intervention Zones

5.2 ZONAL LEVEL

5.2.1 ZONE 1

5.2.1.1. Delineation
5.2.1.2. Description
5.2.1.3. Survey
5.2.1.4. Proposals & Schemes
5.2.1.5. Identification Of The Intervention Zones

5.2.2 ZONE 2

5.2.2.1. Delineation
5.2.2.2. Description
5.2.2.3. Survey
5.2.2.4. Proposals & Schemes
5.2.2.5. Identification Of The Intervention Zones

5.2.3 SELECTION OF SITES

5.3 SITE LEVEL

5.3.1 SITE 1

5.3.1.1. Delineation
5.3.1.2. Description
5.3.1.3. Survey
5.3.1.4. Proposals & Schemes
5.3.1.5. Design Guidelines

5.3.2 SITE 2

5.3.2.1. Delineation
5.3.2.2. Description
5.3.2.3. Survey
5.3.2.4. Proposals & Schemes
5.3.2.5. Design Guidelines

6.0 DESIGN IMPLEMENTATION

6.1 DESIGN OF SITE 1

6.2 DESIGN OF SITE 2

7.0 CONCLUSION

8.0 REFERENCES & BIBLIOGRAPHY

1.0 INTRODUCTION

THIS CHAPTER ELABORATES ON DEFINITIONS, RELEVANCE TO THE PROJECT, AIM & OBJECTIVES, METHODOLOGY, SCOPE OF WORK AND LIMITATION ON THE PROJECT.

1.1 DEFINITION

1.1.1 REVITALIZATION

- Revitalization is a set of initiatives aimed at reorganizing an existing city structure, particularly in neighborhoods in decline due to economic or social reasons. (World Bank, 2014)

- Revitalization means a comprehensive program of planning, conservation, rehabilitation, clearance, development and redevelopment, preservation, and historic restoration. (The Fort Monmouth Economic Revitalization Planning Authority, 2006)

- Revitalization in direct translation means that something should "come to existence" regardless of the fact that the structure might obtain a new use. In that sense, conversion is the subject of revitalization. (Casopis, 2015)

RE ----------> **VITALIZE**

TO RESTORE SOMETHING EXISTING

ADDING NEWNESS (TO OUTGROW NOSTALGIA) & STRENGTH TO GROW VITALITY

PILLARS OF COMMUNITY REVITALIZATION FOR A SUSTAINABLE NEIGHBOURHOOD

(Source – Reliance Foundry)

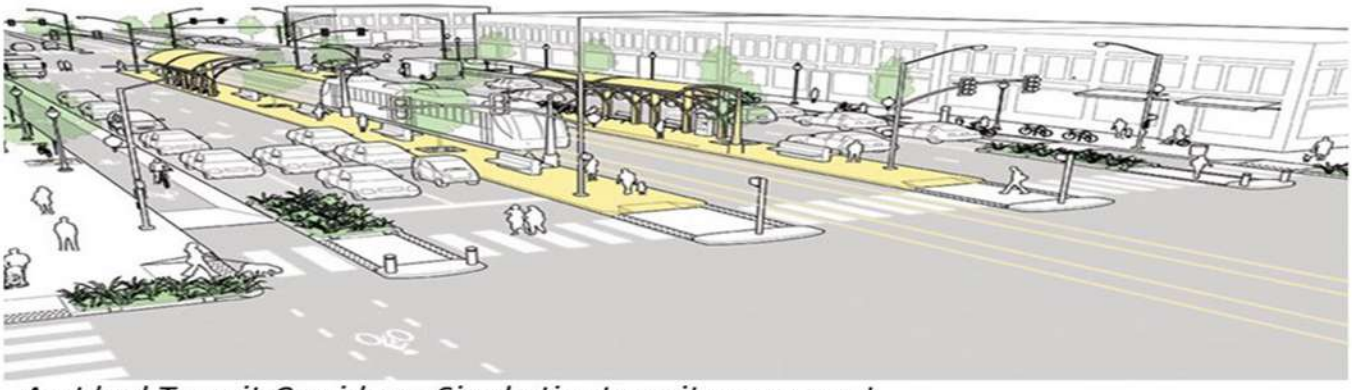
1.1 DEFINITION

1.1.2 MOVEMENT CORRIDOR

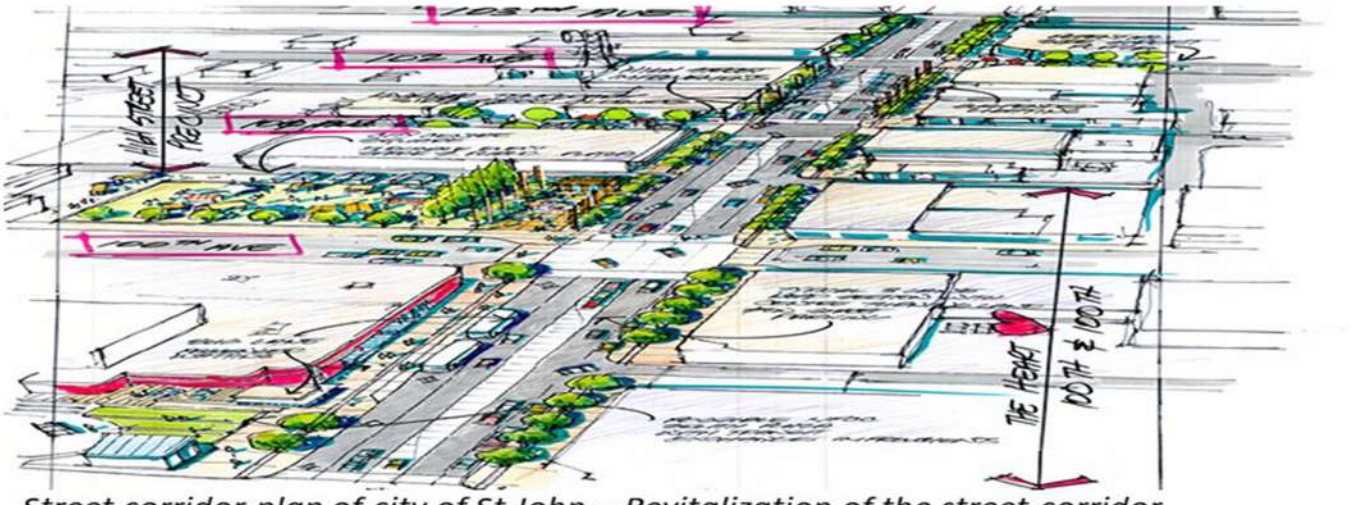
- A movement corridor is a generally linear area that is defined by one or more modes of transportation crossing the limits of more than one city or county like highways, railroads or public transit which share a common destination. (Roberts M, 2019)

- Movement corridors also known as Transit corridors are coordinated transport networks that enable such access and can facilitate faster, smoother and more efficient transit and enhance regional connectivity. (United Nations, 2020)

- Movement corridor or Transportation corridors means the street and road rights-of-way owned by the County and located within the District Property, together with all paving, lighting, landscaping, hardscaping and other improvements located therein. (Neocity, 2022)



An Ideal Transit Corridor – Single tier transit movement
(Source – National Association of City Transportation Officials)



Street corridor plan of city of St.John – Revitalization of the street corridor
(Source – Fort St.John)

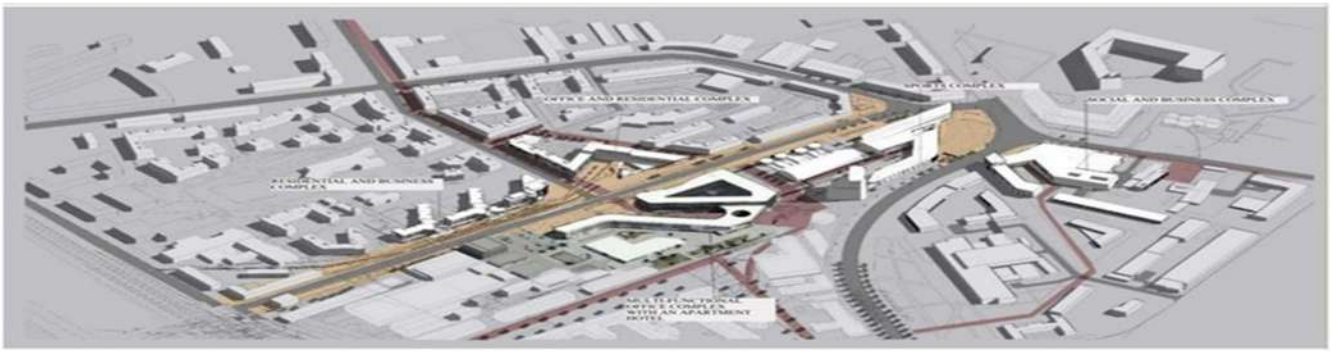
1.1 DEFINITION

1.1.3 URBAN NODE

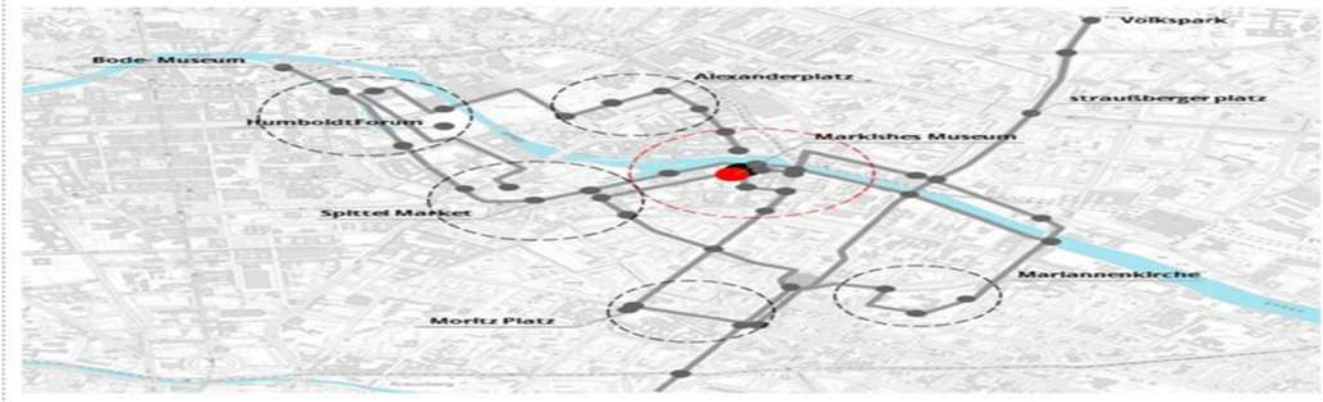
- Nodes are the strategic foci into which the observer can enter, and which are the intensive foci to and from which he is travelling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of paths. (Lynch, 1960)

- Urban Nodes are interaction of several components that serve travel, neighborhood, cargo and traveler movement and an arrangement of transport procedures. (Rodrigue JP, 2015)

- Nodes are central or connecting points in a neighborhoods that have a mix of residential, commercial and institutional buildings, such as shopping areas, community centers, libraries and medium to high density housing. (Geulph, 2012)



Urban planning node based on formed public spaces. *(Source- FV Perov,2020)*



The surrounding urban Nodes with the proposed networking over the Märkisches Museum. *(Source – Kawale S,2019)*

1.1 DEFINITION

1.1.4 SUB-URBAN RAIL TRANSIT HUB

What is a Sub-Urban Rail?

- Commuter rail, or suburban rail, is a passenger rail transport service that primarily operates within a metropolitan area, connecting commuters to a central city from adjacent suburbs or commuter towns. Generally commuter rail systems are considered heavy rail, using electrified or diesel trains.

- The term can refer to systems with a wide variety of different features and service frequencies, but is often used in contrast to rapid transit or light rail.

- Suburban trains are passenger trains that cover short distances of up to 150 km. These trains help in facilitating movement of passengers within cities and suburbs.

(Transportation Research Board, 1989)

Kolkata Sub Urban Railway line – Dumdum Jn *(Source- Moore C)*

View of Bengaluru Cantonment Railway Station *(Source – Google)*

1.1 DEFINITION

1.1.4 SUB-URBAN RAIL TRANSIT HUB

What is a Transit Hub?

- A Transit/Transport hub is a place where passengers and cargo are exchanged between vehicles and/or between transport modes. Public transport hubs include railway stations, rapid transit stations, bus stops, tram stops, airports and ferry slips.

- Intermodal passenger transport hubs in public transport include bus stations, railway stations and metro stations, while a major transport hub, often multimodal (bus and rail), may be referred to as a transport center or, in American English, as a transit center.

- Sections of city streets that are devoted to functioning as transit hubs are referred to as transit malls. In cities with a central station, that station often also functions as a transport hub in addition to being a railway station.

(Tri-Met,2010)

Pragati Maidan, Delhi Metro Rail Transit Hub *(Source- Google)*

Budapest's New Nyugati Railway Station *(Source – Google)*

1.1 DEFINITION

1.1.4 SUB-URBAN RAIL TRANSIT HUB

SUB-URBAN RAILWAY + TRANSIT HUB

SUB-URBAN RAIL TRANSIT HUB

- A Sub-Urban Rail Transit hub is defined as a rail, light rail, or commuter rail station, ferry terminal along with the facilities of
- Bus transfer station served by three or more bus routes (i.e., a bus stop with no supporting services does not qualify),
- Local transportation vehicles, public toilets, public spaces, nearby markets,
- Non-motorized transport for local accessibility and
- Provides an impact in the land use of the area engaging in the economic and commercial growth of the city.

Portland Transit Mall with BRTS and MRTS *(Source- Google)*

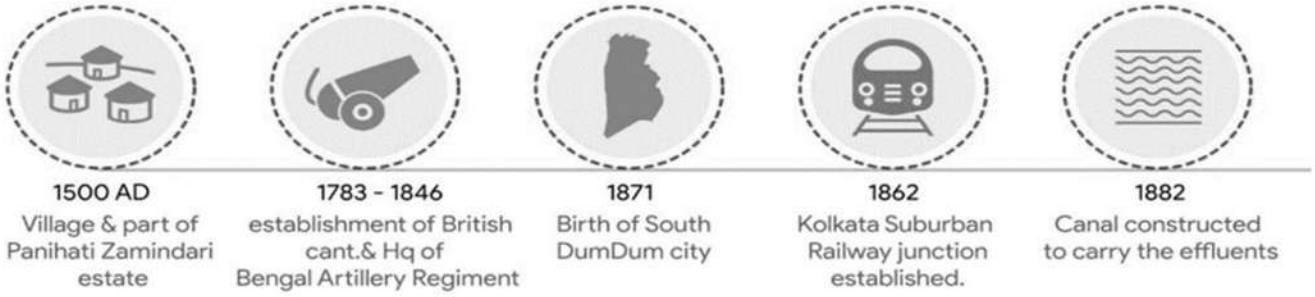
Beijing's mega underground transportation hub *(Source – Google)*

1.1 DEFINITION

1.1.5 DUMDUM, KOLKATA

- **Dum Dum** is a city and a municipality of Kolkata district in the Indian state of West Bengal. It is a part of Kolkata urban area and also a part of the area covered by Kolkata Metropolitan Development Authority (KMDA).
- Dum Dum is bounded by North Dumdum (Municipality) on the north and partly on the west, Bidhannagar Municipal Corporation area on the east and South Dumdum (Municipality) on the south and partly on the west.
- Per the 2011 Census of India, Dum Dum had a total population of 114,786, of which 58,566 (51%) were males and 56,220 (49%) were females. Population below 6 years was 8,259.

Historical Evolution of the City



MAP OF WEST BENGAL DEMARCATING DUMDUM

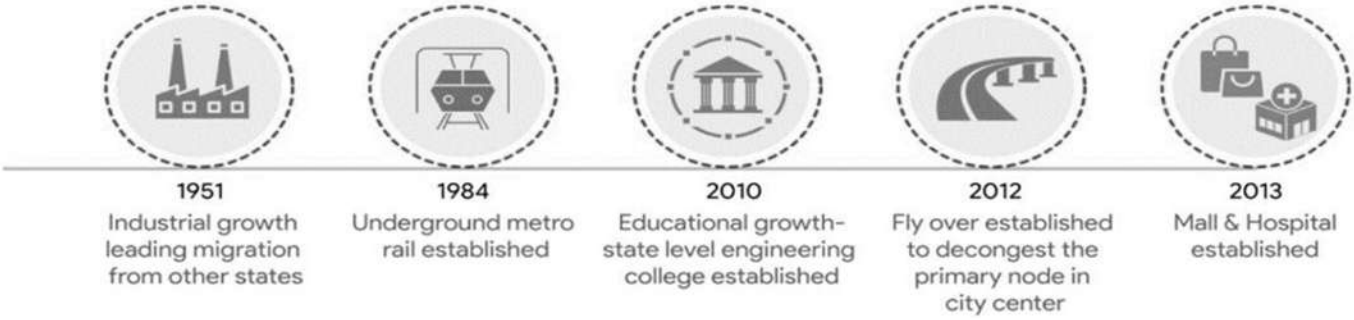
1.1 DEFINITION

1.1.5 DUMDUM, KOLKATA

- Area - 9.73 Km^2
- Elevation - 11 m

- Dum Dum municipality is included in the Kolkata Metropolitan Area for which the KMDA is the statutory planning and development authority.

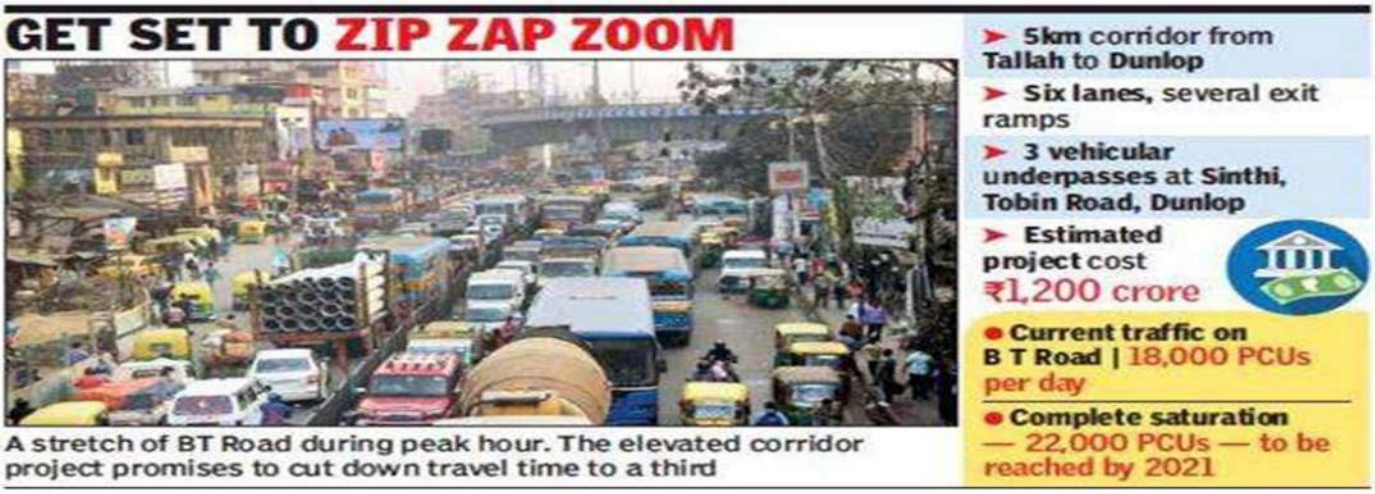
- There are a plenty of blue-yellow private buses, mini-buses and taxis, as well as a few WBTC buses in Dum Dum. Autos are plentiful and can be used for short stretches. In addition, there are taxis: Nagerbazar and Dum Dum Airport are the largest taxi stands. The other popular means of travel over short distances is the rickshaw, newly battery operated rickshaws/e-rickshaws (locally called Totos) can also be seen.

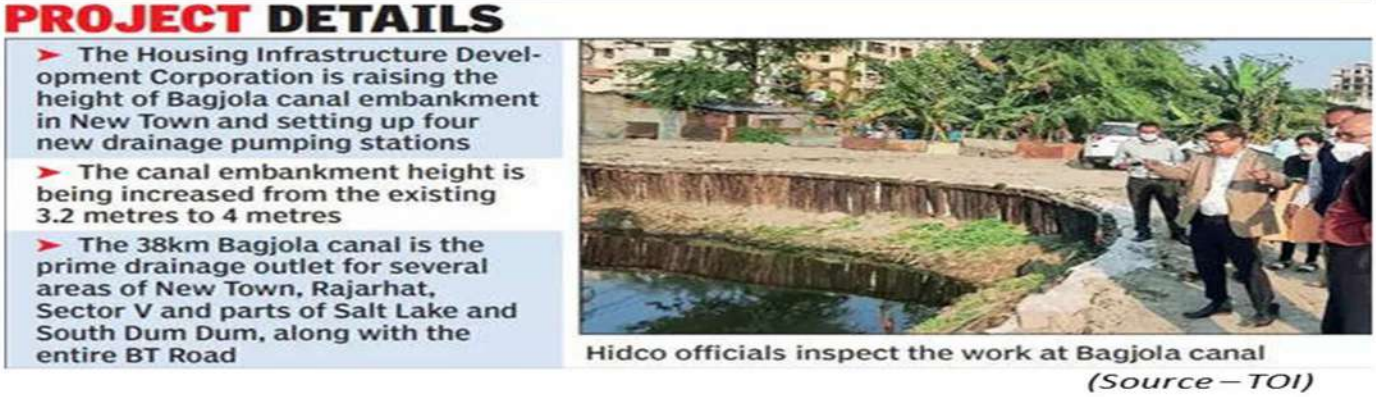


MAP OF WEST BENGAL DEMARCATING DUMDUM

1.2 RELEVANCE

- Live Projects ongoing in and around the area of Dumdum, Kolkata.
- Impact of other projects is seen in the selected site area including the Redevelopment of Khalpar (Bagjola Canal connector) on Dumdum Road.
- Falls under a decayed movement corridor that needs immediate solution and revitalization for the following effects :
  - Decongestion of traffic
  - N-S linear city (Kolkata) with E-W Transit Corridors getting vulnerable due to sporadic growth and uncontrolled population density due to MRTS.





(Source – TOI)

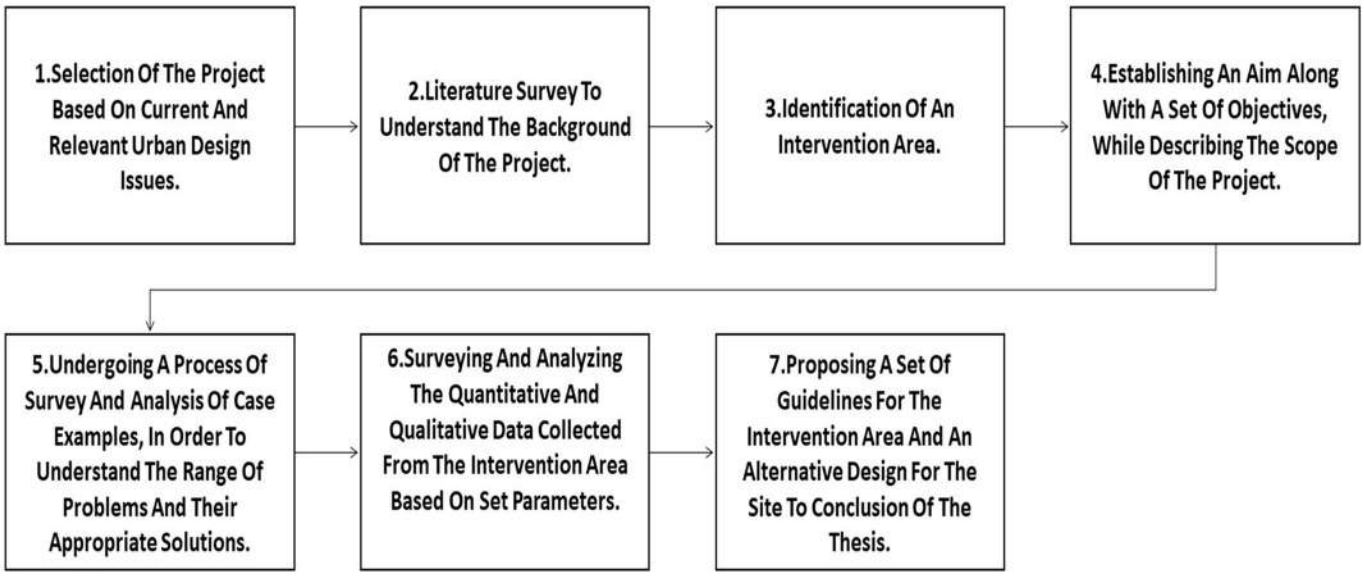
1.3 AIM

The aim of this thesis is to identify parameters, inquire existing problems and intervene through urban design guidelines & solutions to revitalize areas along movement corridors that connect two important urban nodes and pass-through suburban rail transit hubs.

1.3 OBJECTIVES

- To identify the **parameters leading to the need of revitalization** in transit corridors.
- To identify **transit corridors whose existing conditions meet the concerned problem** and analyse the nodes.
- To understand the **urban form developed around the transit corridors** and provide solutions based on existing framework of the area.
- To provide **design interventions of selected transit corridors to decongest and create breathable public spaces thriving with socio-economic activities**.
- To apply **concepts of place-making in public spaces** to create better areas near the transit corridors.
- To provide design guidelines and parameters that can be used to **identify such transit corridors in future MRTS-BRTS** based urban areas.

1.4 METHODOLOGY



1.5 SCOPE OF WORK

- The mapping of the current scenario of such a movement corridor (CHIRIAMORE-NAGERBAZAR connecting DUMDUM ROAD) shall be considered with the role of shaping new urban form.
- Create sets of recommendation as design guidelines for new urban development to resist uncontrollable development growth leading to this **generic pattern of vulnerable/blighted** areas. Implementing design guidelines to create alternative proposals. Primarily working on market areas and public spaces – bus depot, auto stands, etc.
- Seamless connectivity between different modes of transit.
- Prioritizing public transport by increasing accessibility in precinct and decongesting by management and provide active frontage to the building.
- Improving quality of public realm and addressing street informalities and making precinct legible with safety measures for users.
- Integrating public spaces between neighbourhood to strengthen the character of built environment.


IDEAL MOVEMENT CORRIDOR IN SINGAPORE

PRESENT SCENARIO OF MOVEMENT CORRIDOR IN DUMDUM

1.6 LIMITATION

- Work only the selected study area and choose the intervention zones which are highly vulnerable and blighted from selected zones.
- Design solutions & guidelines will be based on available data & assumption, it may differ in reality.
- Study will be done purely based on parameters.
- Design intervention proposals will be given keeping in mind the existing Urban Form with minimal demolition (Revitalizing the chosen sites)
- Impact only on physical environment will be studied.

2.0 LITERATURE STUDY

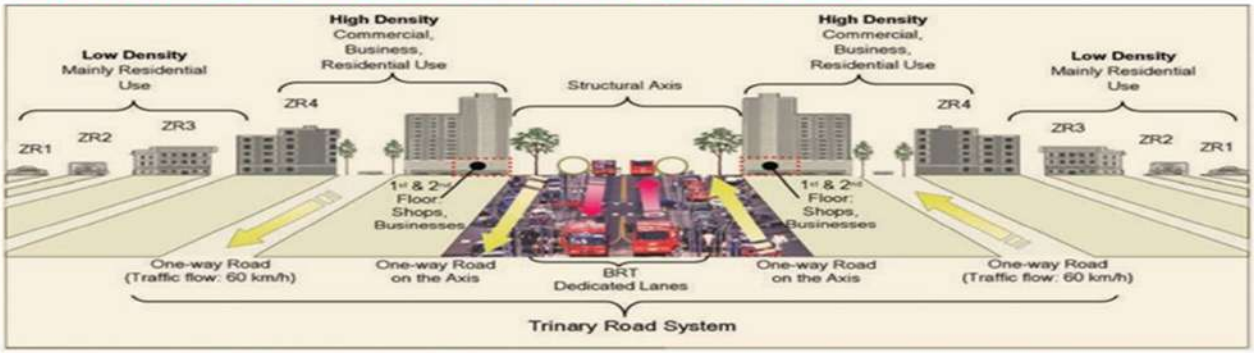
THIS CHAPTER ELABORATES ON BACKGROUND, EXISTING CONCEPTS AND PARAMETERS RELEVANT TO THE PROJECT.

2.1 BACKGROUND

- Peter Calthorpe codified the concept of Transit-Oriented Development (TOD) in the late 1980's and, while others had promoted similar concepts and contributed to the design, TOD became a fixture of modern planning when Calthorpe published "The New American Metropolis" in 1993.

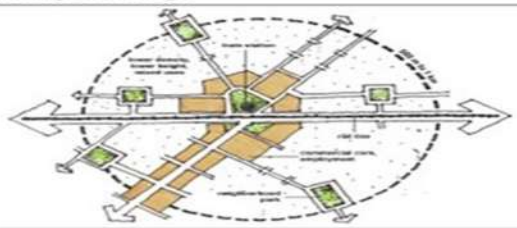
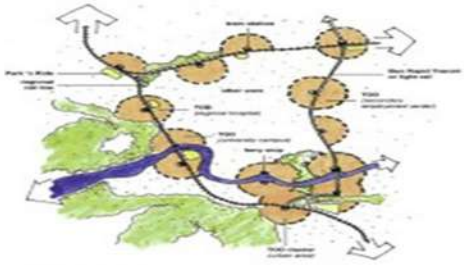
- TOD has been defined generally as "a mixed-use community that encourages people to live near transit services and to decrease their dependence on driving." Calthorpe saw it as a neo-traditional guide to sustainable community design.

- Beyond its definition of built form, it was also a community design theory that promised to address a myriad of social issues.



Ideal situation of an MMI transport system

(Source – World Bank)

Type	Key characteristics	Example of design
Single-node TOD	• Single neighborhood based around heavy rail stations • Development in circular pattern around a train station • Urban or suburban location • Optimal radius of 0.5 km (walkable distance to station)	
Multi-node TOD	• Regional network of nodes around heavy rail stations • Urban or suburban location • Circular or semi-circular nodes • Typical 'beads-in-a-string' pattern • Complementary rather than competing nodes • Work specialization at nodes (e.g., higher education node, health care node, etc.)	
Corridor TOD	• Based around Light Rail Transit or Bus Rapid Transit stops • Urban location • Linear or ribbon-like development pattern along transit line(s) • Applicable to existing urban areas or planned urban extensions (i.e., along fingers or lobes)	

Different types of TOD typologies as evolution concepts

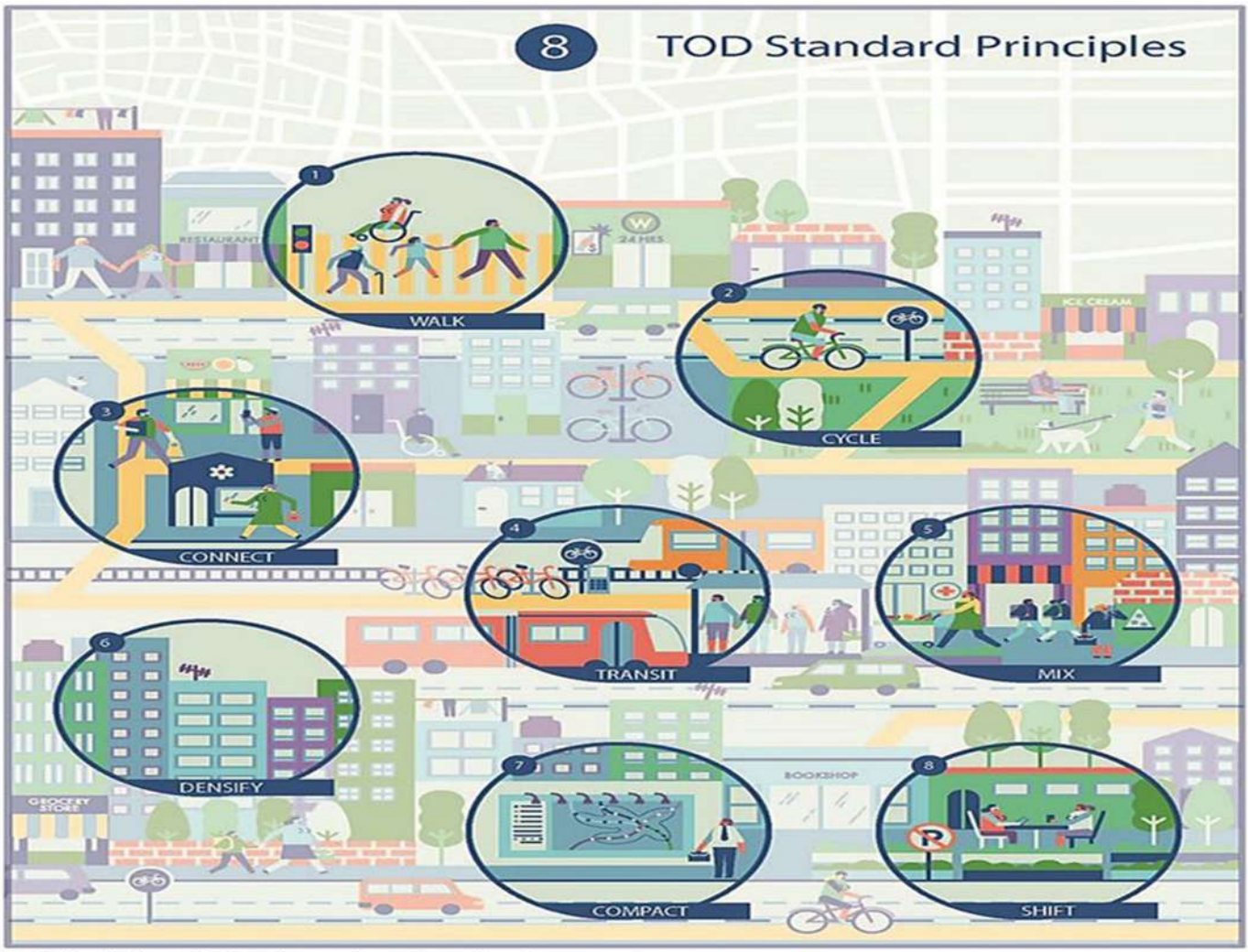
(Source – Google images)

2.2 EXISTING CONCEPTS

- In order to understand relationship between transport and the urban environment, some basic principles were needed to explain on what TOD depends on for our study in transit corridors:

- Eight basic principles of sustainable and equitable transport in urban life:

  - **WALK** - Develop neighborhoods that promote walking
  - **CYCLE** - Prioritize non-motorized transport networks
  - **CONNECT** - Create dense networks of streets and paths
  - **TRANSIT** - Locate development near high-quality public transport
  - **MIX** - Plan for mixed use
  - **DENSIFY** - Optimize density and transit capacity
  - **COMPACT** - Create regions with short commutes
  - **SHIFT** - Shift away from car dependency and increase mobility by regulating the use and reducing the supply of parking and roadway space.

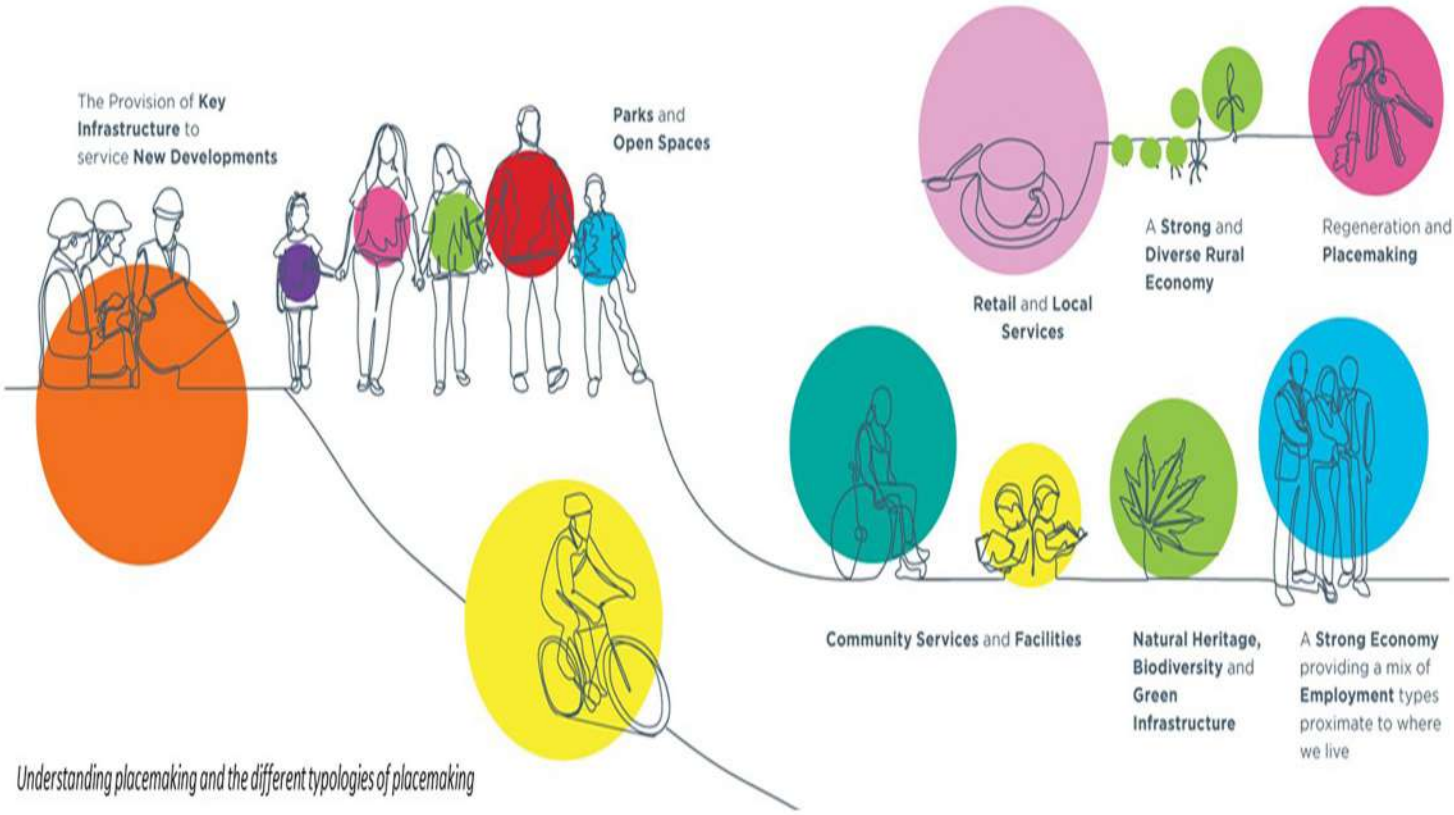


Principles of TOD, based on Standard concepts

(Source – ITDP)

2.2 EXISTING CONCEPTS

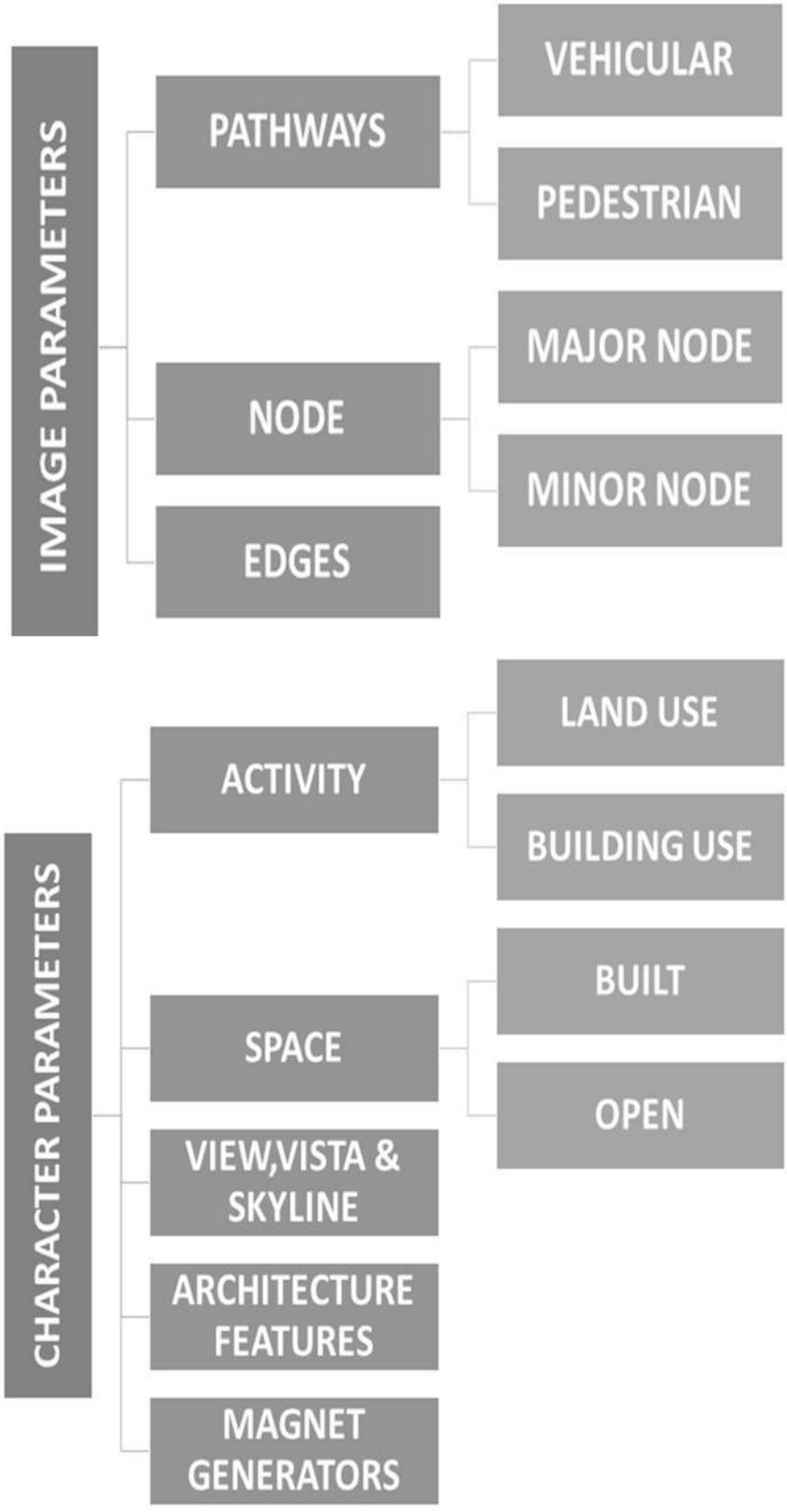
- Placemaking is creating interesting places where people want to spend time – is a proven economic development strategy, but is often an amorphous concept.
- The three types of placemaking outlined below all focus on creating an authentic sense of place, but differ in how they achieve those results.
- Knowing the different types of placemaking strategies will allow urban designers to choose the correct method to design community areas.



Understanding placemaking and the different typologies of placemaking

2.3 PARAMETERS

- Some Urban Design parameters have been identified from the Introduction & Literature Study chapters, based on the parameters of Image study & Characteristics study (With reference to "The Image of the city" by Kevin Lynch,1960; "Townscape" by Gordon Cullen,1961; Spreiregen,1965). Further studies have been done based on these parameters.



3.0 REGULATIONS, CODES & STANDARDS STUDY

THIS CHAPTER EXPLORES THE EXISTING REGULATIONS, CODES AND STANDRADS RELEVANT TO THE PROJECT.

3.0 REGULATIONS, CODES & STANDARDS STUDY

- As per Time Saver Standards Urban Design 2011 Guidelines,

Changing stances in European urban design theory have offered guidance for urban design that is not fully adequate to the American context. Most of the theories seem to assume a central government with the political and economic power to implement the envisioned development. We do not argue with existing European-based concepts. In fact, we recommend, pragmatically adopting many European urban values. But it is the values and not the forms associated with them that we commend. The following design principles derived from European cities and European-based urban design theories constitute the basis of good urbanism, not only in Europe but also in America.

1. Mixed activities are basic to cities.
2. Buildings (and the spaces they form) are the natural increments of urban growth.
3. New urban growth must recognize the context provided by past construction.
4. A major goal of urban design is the shaping of public open space, including meaningful street space.
5. Streets must accommodate various forms of transit and enhance pedestrian activity and movement.
6. Transportation systems should be rational.
7. Urban places should be varied to enhance the activities associated with them: housing, neighborhood shopping, major retail, civic, and so forth.
8. Citizens should have a role in shaping urban settings.

Urban design for center cities, instead of being conceived as the process of implementing one or another ideal image of the city, using various available tools, is more appropriately thought of as a process of arranging catalytic reactions. There should be no ultimate vision for the urban center, either functionalist, humanist, systemic, or formalist. Rather, there should be a sequence of limited, achievable visions, each with the power to kindle and condition other achievable visions. Visions for the new urban center should be modest and incremental, but their impact should be substantial, in contrast to the large visions that have been the rule, with their minimal or catastrophic impact.

A catalyst is an urban element that is shaped by the city (its "laboratory" setting) and then, in turn, shapes its context. Its purpose is the incremental, continuous regeneration of the urban fabric. The important point is that the catalyst is not a single end product but an element that impels and guides subsequent development.

Credits: This article is adapted by the authors from their book *American Urban Architecture: catalysts in the design of cities*, University of California Press, 1989.

Time-Saver Standards for Urban Design **5.9-1**

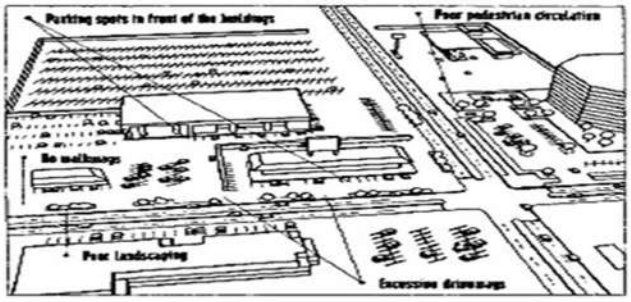


Fig. 7. Auto-oriented commercial district unfriendly to pedestrians and transit users.

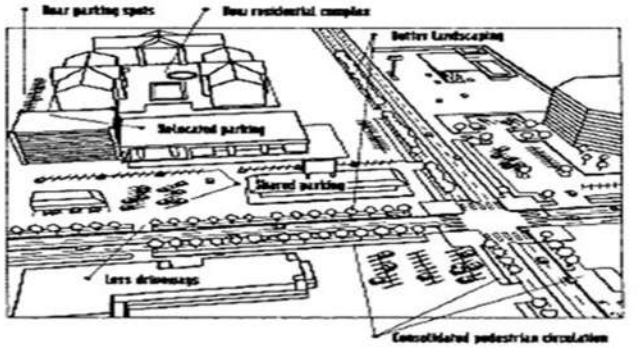


Fig. 8. Initial improvements friendly to pedestrians and transit users.

and attractive to pedestrians. In the early stages, less expensive things could be done: installing sidewalks and street lighting, improving pedestrian crossings, and consolidating driveways. The public improvements ideally would be enough to increase property values and spark a renewed interest in the area. This might lead to the intensification of uses, including the addition of housing. Fig. 8 portrays how the setting might look after such measures as relocating parking, consolidating driveways, integrating walkways, improving the landscape, and filling in the main street with more neighborhood-oriented uses like restaurants and specialty retail shops are accomplished.

The final stage of transformation is depicted in Fig. 9. A light rail line penetrates the neighborhood. Flanking it is a public plaza that ties into a community complex. Courtyards, tree-canopied walkways, and further landscaping improvements enhance the setting. Additional housing increases the density of the neighborhood even more. The end result is the transformation of an auto-oriented commercial strip into a mixed-use neighborhood more conducive to walking and transit riding.

5 PRINCIPLES FOR TRANSIT VILLAGE IMPLEMENTATION

New rail investments, by themselves, do not automatically translate into significant land-use changes.

Among metropolitan areas in the United States, the introduction of a regional rail network has not by itself significantly affected urban form and property values. This is in good part because rail has been added during an era of high automobile accessibility and freeway development. Many localized factors can affect land-use outcomes. Among these are a healthy local real estate environment, community support, and attractive physical and social environment, and prodevelopment public policies.

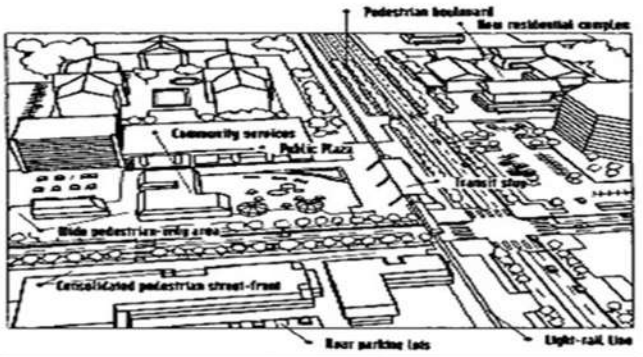


Fig. 9. Transformation into a transit-oriented neighborhood.

Time-Saver Standards for Urban Design **5.8-7**

3.0 REGULATIONS, CODES & STANDARDS STUDY

- As per Urban Street Design Guidelines,Pune (2016),

2.3

STREET ELEMENTS

All people should be able to move safely, smoothly and conveniently

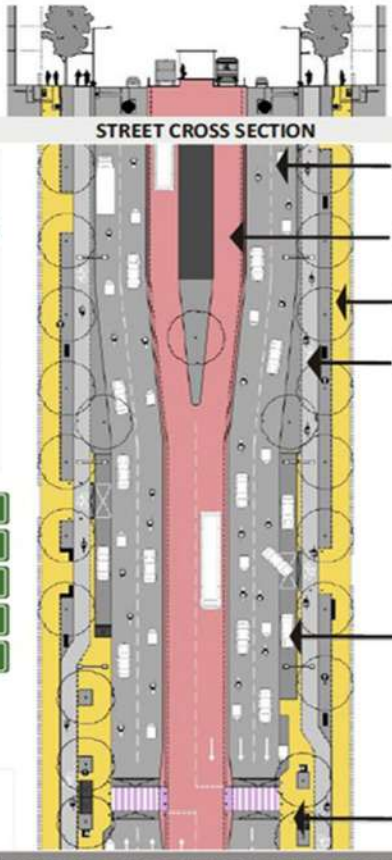
Make streets safe, clean, attractive and comfortable for people to walk and drive

Streets to reduce impact on natural and built environment. To have green streets in the city.

- Footpath - clear walkway
- Cycle Track - NMT Lane
- Bus stops
- BRT lanes
- Carriage way - MV lane
- Shoulders
- Parking

- Pedestrian Crossings
- Traffic calming measures
- Speed breakers
- Traffic Signals
- Central Medians
- Railings
- Bollards
- Street lights
- Street furniture
- Signage, markings

- Plantation
- Utility and services
- Storm water management
- Garbage containers
- Public toilet



The sketch is only an illustration indicating various street elements and not its technical design'.

6

5.1

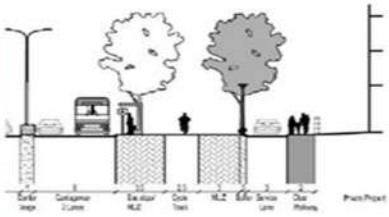
MULTI UTILITY ZONE

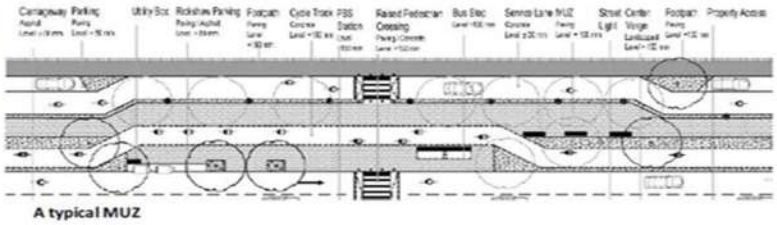
- MUZ is a new and highly appreciated concept which has been successfully implemented in the city of Nanded in Maharashtra.
- Taking its cognizance the latest IRC for pedestrians 103 – 2012 and the Urban Street Design Guidelines for Delhi have made it as a mandatory element on Urban streets.
- The concept is very simple and workable. All the stationary elements on the street are organized in a dedicated space which results in obstruction free streets.
- Stationary elements like trees, hawkers, bus stops, underground and overhead utilities like electric supply, light poles etc, parking and such other elements are organized in a space on shoulders between footpath / cycle track and motor vehicle lane.
- This concept has brought in high efficiency and improvement in streets.

A MUZ will have space provisions for following functions:
- Bus stops
- Tree plantation
- Street furniture
- Auto Rickshaw stands
- Parking
- Hawkers
- Public toilets, information kiosks
- Underground and overhead Utility services like Electricity, Water, telephone, gas etc.

- MUZ is recommended on all streets based on the character of the street as recommended in USDG reference template.
- The surface of MUZ shall have removable pavement or have green cover but has to be demarcated by curb stones.
- Location of common utility ducts and duct banks should be coordinated with the location of plantation so that trees are not required to be disturbed during repairing and maintenance of service lines.
- Demarcated spaces for 2W and 4W parking, hawkers, bus stops, trees, signage, utilities etc have to be done by activity mapping, surveys and stake holder consultations.
- All activities and stationary elements like hawkers, trees, bus stops, parkings, kiosks, temples etc need to be mapped. All underground utilities need to be mapped in order to shift them over or underneath MUZ. After doing this the MUZ has to be designed.


MUZ for streets in Nanded.





A typical MUZ

3.0 REGULATIONS, CODES & STANDARDS STUDY

- As per Station & Station Design Guidelines (2014),

The planning procedure for station plazas is indicated in the following flow.

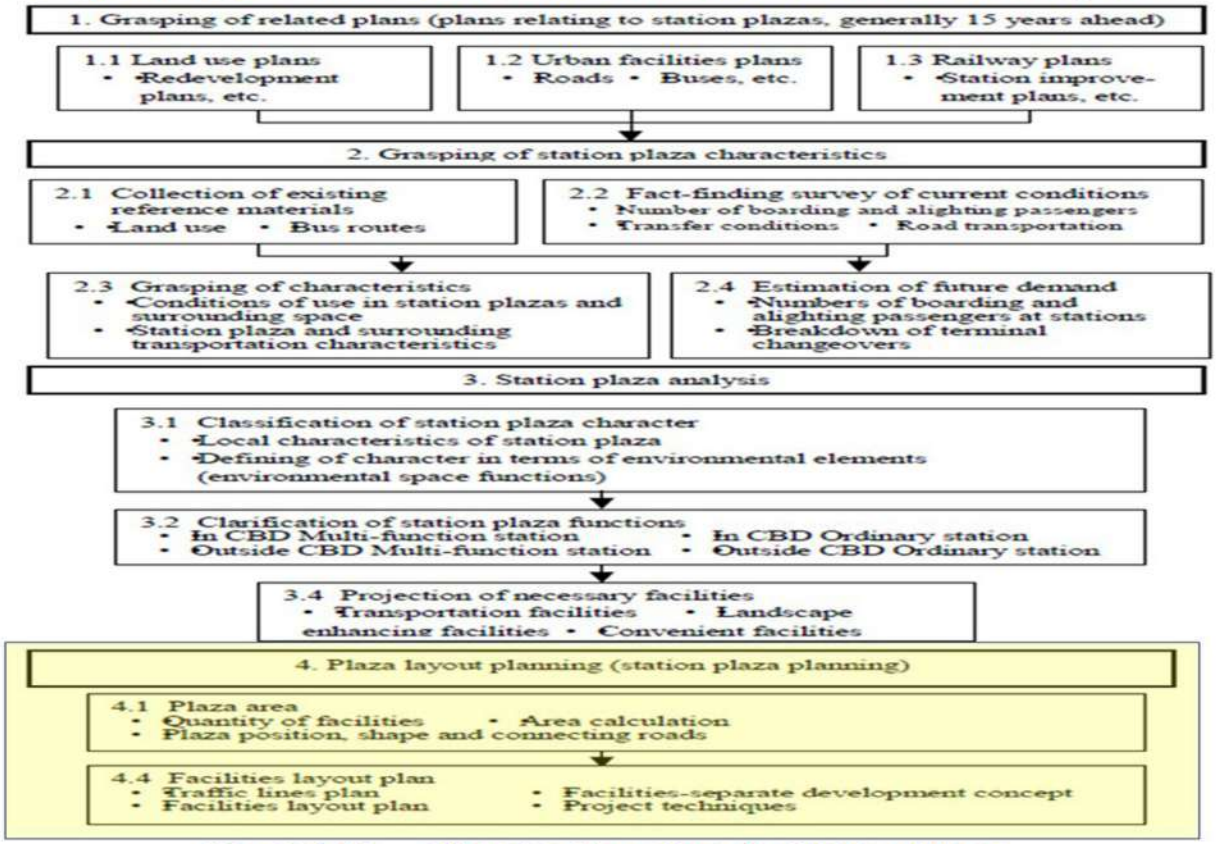


Fig. 6.2.13 Planning Procedure for Station Plazas

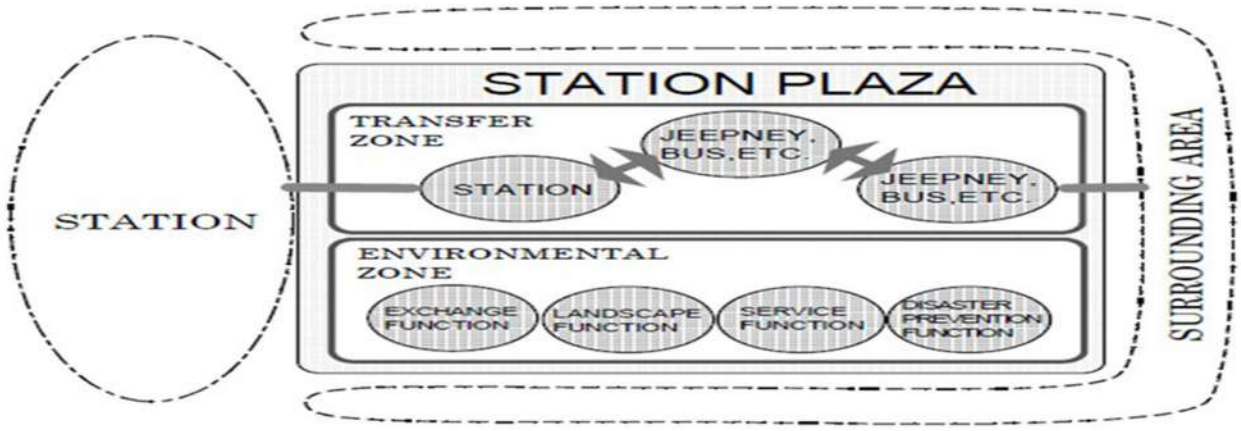


Fig. 6.2.14 Zoning and Functions at station plaza

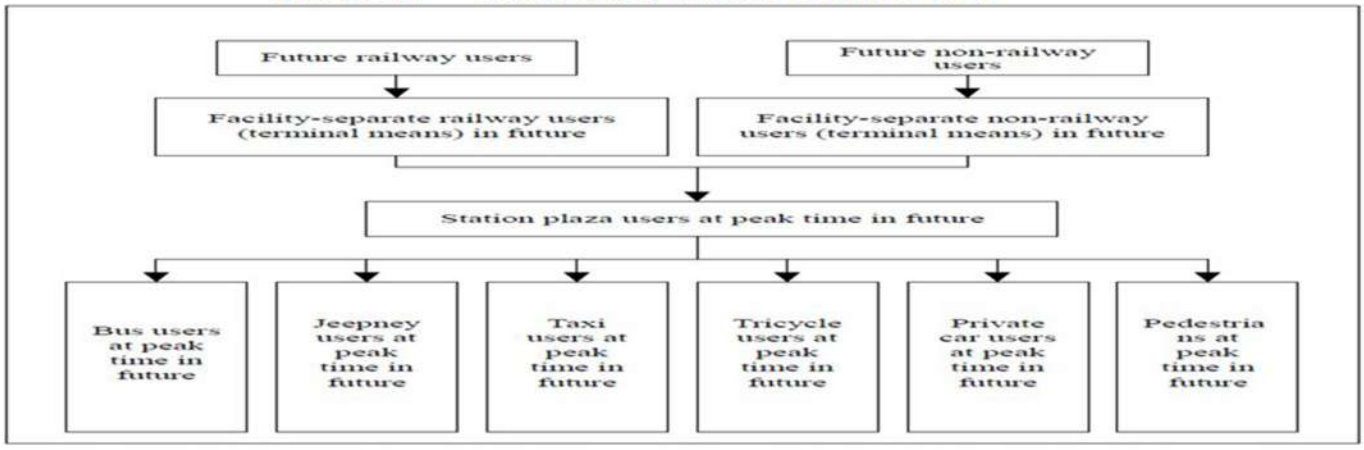
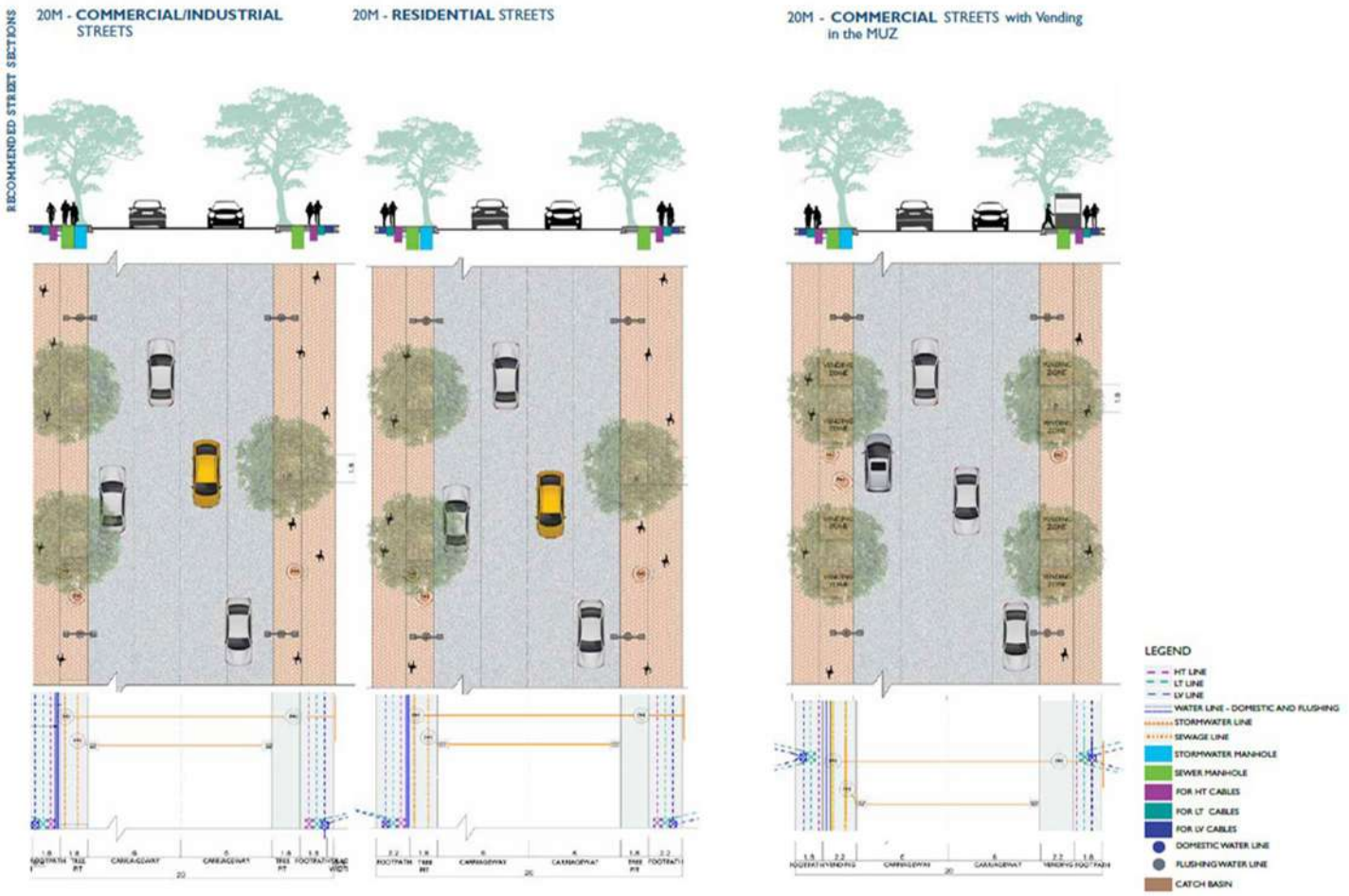


Fig. 6.2.15 Flow for Projecting the Number of Station Plaza Facilities

3.0 REGULATIONS, CODES & STANDARDS STUDY

- As per Street Design Guidelines, DUAC (2019),



3.0 REGULATIONS, CODES & STANDARDS STUDY

- As per Bus Rapid Transit Service Design Guidelines, VTA Transit Policy (2007),

Figure 46 Typical BRT Route, Operating on Primary Arterials and Making Fewer Stops than Local Bus Service

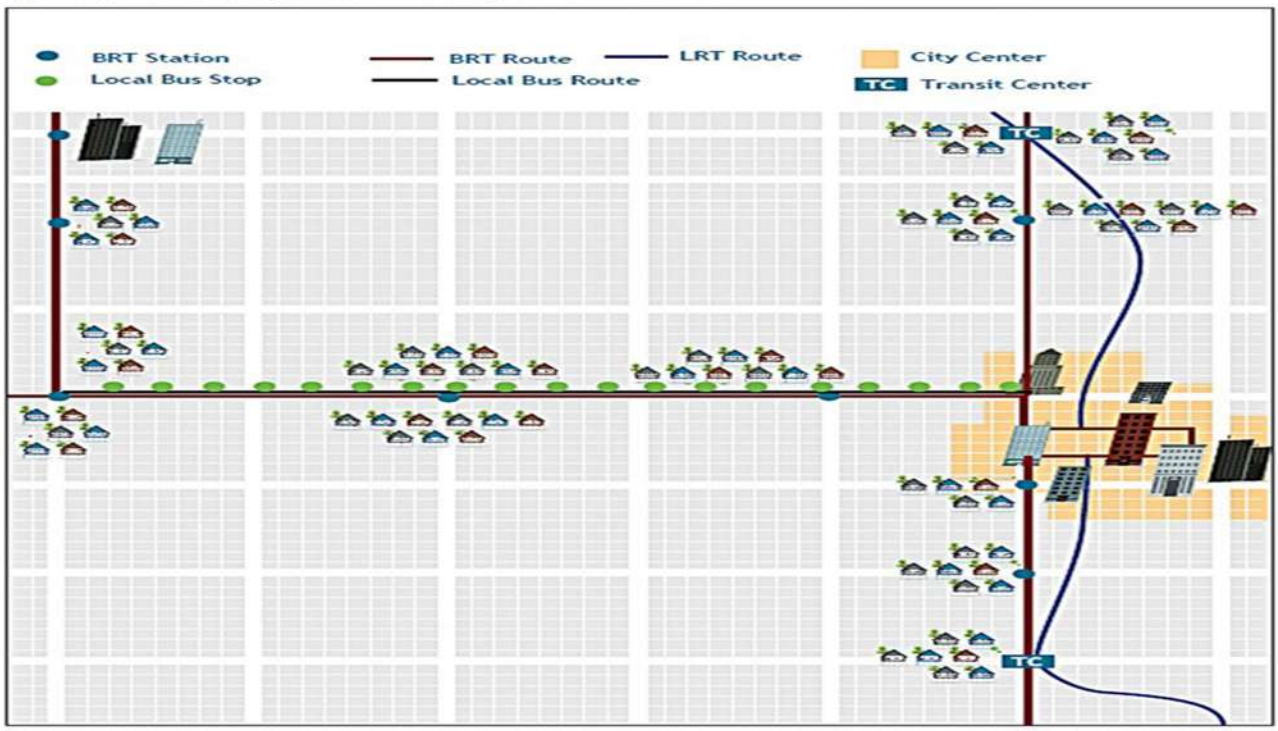
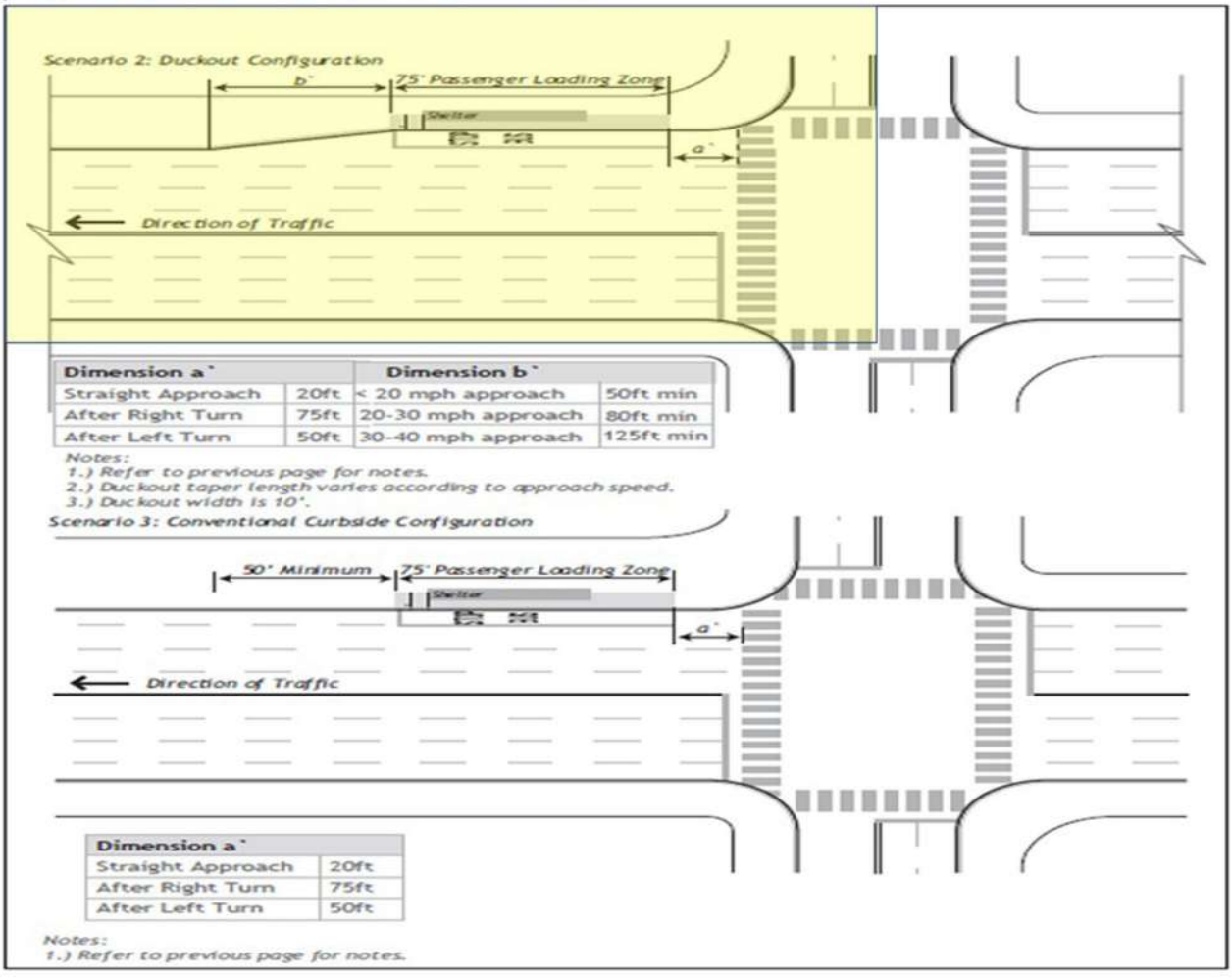


Figure 48 Typical Far Side BRT Station Configuration (continued)



Dimension a'		Dimension b'	
Straight Approach	20ft	< 20 mph approach	50ft min
After Right Turn	75ft	20-30 mph approach	80ft min
After Left Turn	50ft	30-40 mph approach	125ft min

Notes:
1.) Refer to previous page for notes.
2.) Duckout taper length varies according to approach speed.
3.) Duckout width is 10'.

Dimension a'	
Straight Approach	20ft
After Right Turn	75ft
After Left Turn	50ft

Notes:
1.) Refer to previous page for notes.

4.0 CASE EXAMPLE STUDY

THIS CHAPTER ELABORATES ON EXISTING CASE EXAMPLES TO STUDY BASED ON PARAMETERS AND ANALYSE THEM TO GATHER INFERENCES RELEVANT TO THE PROJECT.

4.1 SELECTION OF CASE EXAMPLES

Three case examples have been selected based on Aim & Objectives of this Urban Design thesis. Two are selected from inside Indian context and third is selected from outside Indian context.

- **Inside India**
  - **Bellasis Road, Mumbai**

  - **Pondy Street Bazaar, Chennai**

- **Outside India**
  - **Donghaochong Greenway, Guangzhou City, China**

SELECTION CRITERIA –

- TO STUDY AN E-S MOVEMENT CORRIDOR OVERLAPPING A N-S TRANSIT CORRIDOR AND ITS DEVELOPMENT.
- TO UNDERSTAND MARKET AREAS IN AND AROUND MOVEMENT CORRIDORS.
- TO UNDERSTAND URBAN DESIGN INTERVENTIONS IN AREAS OF MOVEMENT CORRIDOR, URBAN CANALS & ELEVATED CORRIDORS AS PUBLIC SPACES.

4.2 CASE EXAMPLE 1 (INSIDE INDIA) - BELLASIS ROAD, MUMBAI

DESCRIPTION

- Mumbai is a city of pedestrians, with 51% of the total daily trips being walk trips. Taking this into account, the Municipal Corporation of Greater Mumbai (MCGM) joined the global movement to improve pedestrian experience in August 2018, and announced the redesigning of Bellasis Road, a stretch between Nagpada and Mumbai Central Junction, in Byculla's neighbourhood, to make it a 'model street'.
- Originally built in 1793, Bellasis Road is an 823-meter-long street, stretching between Nagpada Junction and Mumbai Central Station Junction. It is an ongoing live project.
- The **street is an important east-west urban connector**, with ground floor retail frontage along the corridor, which generates high pedestrian and vehicle volumes every day.
- The common issues observed on this road included lack of walkable footpaths, vehicular congestion, bottlenecks, multiple layers of street side parking and poor pedestrian crossing infrastructure.

- **Main Focus of this Study -** Street scape, Public realm, open spaces, activities, view-vistas-skyline, Landmark, Redevelopment on existing sub-rail transit corridors, Decongestion addressed.

MAP OF MUMBAI DEMARCATING BELLASIS ROAD

Bellasis Rd
Mumbai, Maharashtra

(Source – WRI India)

4.2 CASE EXAMPLE 1 (INSIDE INDIA) - BELLASIS ROAD, MUMBAI

SURVERY & ANALYSIS

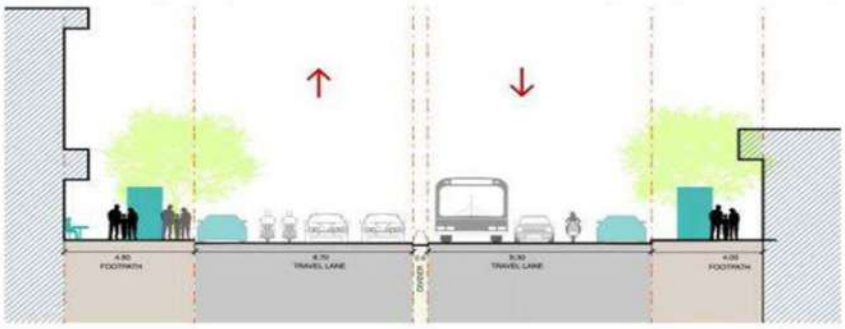
IMAGE PARAMETER - PATHWAY

OBSERVATION

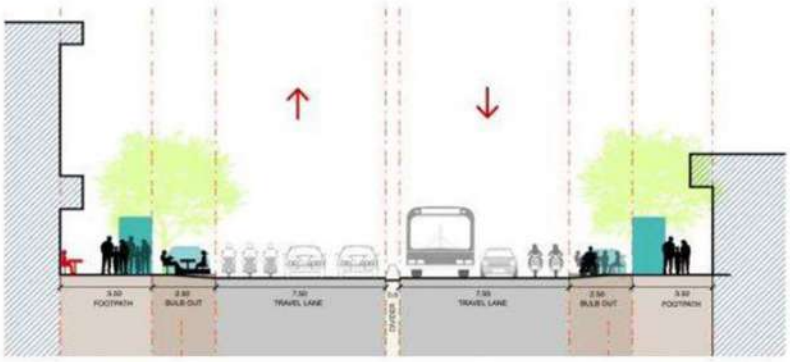
- Streets are visually permeable and have visual accessibility.
- The proposed scheme suggests bulb out which helps in traffic decongestion.
- Pedestrian movement is segregated with proper traffic calming measures.

ANALYSIS

- Streets are divided into zones for decongested traffic movement in proposed scheme.
- Bus route is a part of typical lane.



EXISTING SCHEMATIC SECTION



PROPOSED SCHEMATIC SECTION

(Source – WRI India)

4.2 CASE EXAMPLE 1 (INSIDE INDIA) - BELLASIS ROAD, MUMBAI

SURVERY & ANALYSIS

IMAGE PARAMETER - NODE

OBSERVATION

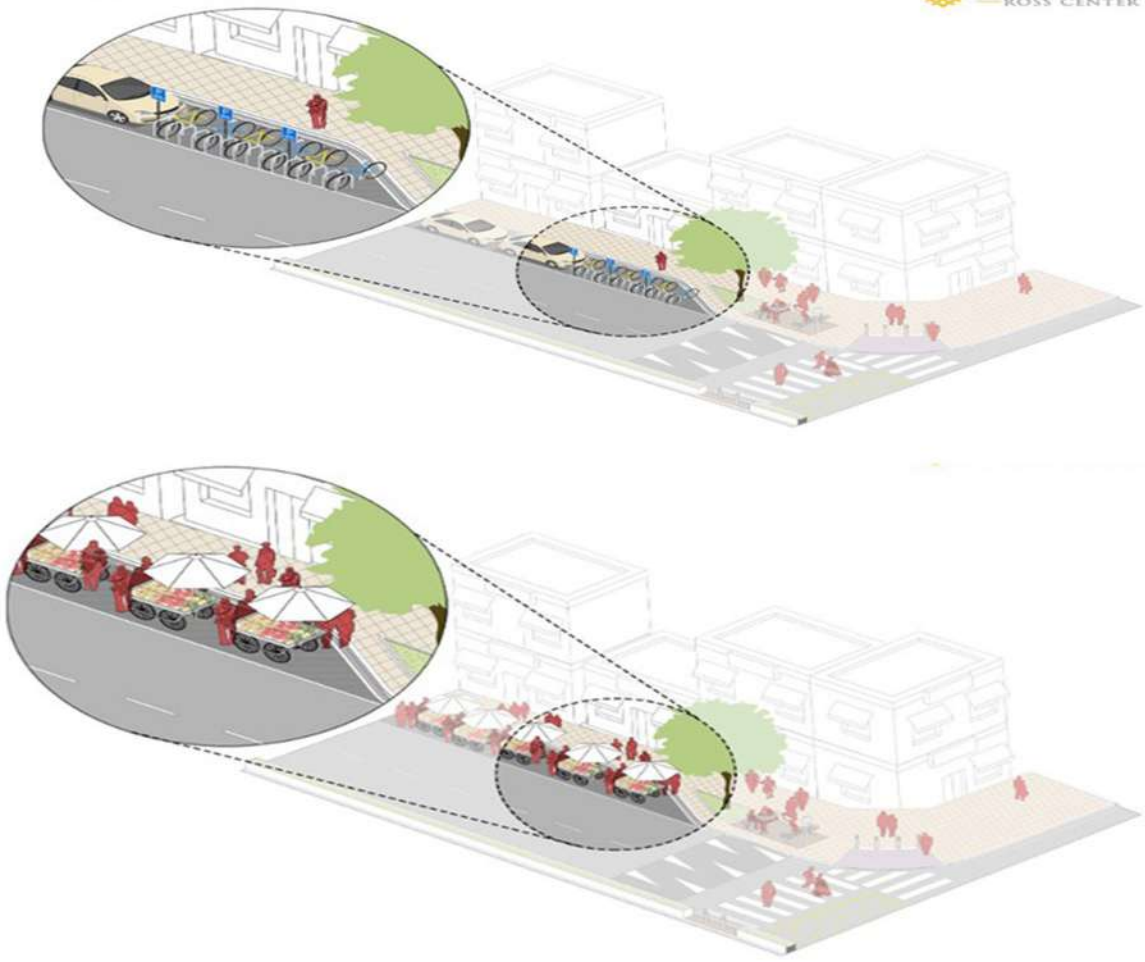
- Nodes area used as a separate demarcation.
- Nodes are converted into public spaces as Multi Utility Zones – Parking & weekly markets.

ANALYSIS

- Use of street nodes as MUZ creating placemaking through strategy and intervention on existing condition.

MUZ OPTION 1: PARKING

WRI INDIA ROSS CENTER



MUZ OPTION 2: WEEKLY MARKET

WRI INDIA ROSS CENTER

4.2 CASE EXAMPLE 1 (INSIDE INDIA) - BELLASIS ROAD, MUMBAI

SURVERY & ANALYSIS

IMAGE PARAMETER – EDGES

OBSERVATION

- Linear edges with mixed land use.
- Edges act as hub of activity zones.
- The edges act as barrier of the movement corridor.

ANALYSIS

- The edges give a sense of visibility.
- Grid-iron pattern which allows ease of movement.

CHARACTER PARAMETER – ACTIVITY

OBSERVATION

- Streets act as pedestrian plazas with lush green belt surrounding.
- Mixed-use development allows for commercial activity as well as a zone for traffic movements from Mrts areas.
- Commercial buildings provides the area to act as a business center as well.

ANALYSIS

- Thriving with public spaces and integration of residential, commercial and mixed landuse throughout the Bellasis road.
- Streets act a public plazas which act as bus stops, waiting zones, toilet facilities etc.

(Source – WRI India)

4.2 CASE EXAMPLE 1 (INSIDE INDIA) - BELLASIS ROAD, MUMBAI

SURVERY & ANALYSIS

CHARACTER PARAMETER – SPACES

OBSERVATION

- Mixture of built and open spaces – public open spaces in frontages of the street.
- Maximized functional spaces and open spaces act as plazas.

ANALYSIS

- To provide multi functional open spaces, and functional built spaces integrated with the existing framework.

CHARACTER PARAMETER – VIEW, VISTA & SKYLINE

OBSERVATION

- Clear views.
- Vista leading up to landmarks and Highrise buildings.
- Skyline is varied and not regular, visually appealing due to presence of green pockets.

ANALYSIS

- The skyline although varied creates a sense of calmness due to presence of green pockets.
- Clear vistas and streets acting as public zones with proper demarcation.

(Source – WRI India)

4.2 CASE EXAMPLE 1 (INSIDE INDIA) - BELLASIS ROAD, MUMBAI

SURVERY & ANALYSIS

CHARACTER PARAMETER – ARCHITECTURAL FEATURES

OBSERVATION

- Features of mixed variations of old classic chawls of Mumbai to high-rise commercial building.
- Urban fabric is contemporary with ground floor activity zones – shops, parking, informal shops, pedestrian ways etc.

ANALYSIS

- Integrated land use and architectural development as per function – residential buildings have the old Bombay charm whereas commercial and mixed use areas are of modern architectural facia.

CHARACTER PARAMETER – MAGNET GENERATORS

OBSERVATION

- Streets converted into activity zones which act as magnet to the public.
- Any negative space or open space is converted into public plaza or waiting zone or informal market zone.
- Presence of public toilets with well lit streets creating safe environment as well.

ANALYSIS

- Street furniture plays a huge role as a magnet generator in this study.
- Curbs and bulb out spaces act as parking or market zones to generate activity that acts as magnet for this area.

Bellasis Road ongoing construction

(Source – WRI India)

4.3 CASE EXAMPLE 2 (INSIDE INDIA) - PONDY BAZAAR PEDESTRIAN PLAZA

DESCRIPTION

- The Pondy Bazaar Pedestrian Plaza, one of Greater Chennai Corporation's most anticipated projects, was launched on the 13th November, 2019, by the Hon. Chief Minister of Tamil Nadu, Thiru Edappadi K. Palaniswami.

- Spanning over 700m on Sir Thyagaraya Road, the plaza has successfully transformed one of Chennai's busiest and car-centric shopping streets into a pedestrian promenade by prioritizing people over vehicles, and opening up new ways of experiencing the space.

- With wide and safe pedestrian walkways on both sides, ample shaded seating, beautiful landscape, and colorful play elements, the plaza was designed as a space accessible for all, including women, children, senior citizens and people with disabilities.

- **Main Focus of this Study -** Street scape, Public realm, open spaces, activities, view-vistas-skyline, Landmark, Decongestion addressed in market areas as well as organized parking zones.

MAP OF CHENNAI DEMARCATING PONDY BAZAAR

(Source – ITDP)

4.3 CASE EXAMPLE 2 (INSIDE INDIA) - PONDY BAZAAR PEDESTRIAN PLAZA

SURVERY & ANALYSIS

IMAGE PARAMETER - PATHWAY

OBSERVATION

- Streets are visually permeable and have visual accessibility.
- The pathways are pedestrian rich i.e. the entire street has boulevard like pedestrian plazas with only two-lane vehicular movement.

ANALYSIS

- Streets are well designed as per urban design guidelines, with pedestrian safety norms as well as demarcated vehicular movement.
- Linear pathway with clear visibility & accessibility.

IMAGE PARAMETER - NODE

OBSERVATION

- Streets have junction nodes which act as activity breakers and create zones of permeability to other areas.
- Main nodes are between the Panagal park and Ana Salai Junction connecting to metro.

ANALYSIS

- Grid iron pattern of the streets create nodes in a linear path.
- Each node is accessible to the other.
- Nodes act as activity separators.

(Source – TTDP)

4.3 CASE EXAMPLE 2 (INSIDE INDIA) - PONDY BAZAAR PEDESTRIAN PLAZA

SURVERY & ANALYSIS

IMAGE PARAMETER - EDGE

OBSERVATION

- The edges are of mixed use buildings with the ground floor entirely shopping area and the upper floors as office or residential areas.
- There is a green belt separating the vehicular pathway with the pedestrian way acting as a green edge.

ANALYSIS

- Green edges as a solution to reduce pollution in congested market areas.
- Huge frontage infront of built areas for grade separation.

CHARACTER PARAMETER – ACTIVITY

OBSERVATION

- Vibrant street activity – street vendors with proper shops, pedestrian plaza, separate parking zones, traffic calming measures as well as well lit streets.
- Market zones with proper visibility and access.

ANALYSIS

- Street furniture act as a part of the pedestrian plaza.
- Multi purpose use of the plaza as per seasonal markets and festivals.
- Decongested activity zones.

(Source – ITDP)

4.3 CASE EXAMPLE 2 (INSIDE INDIA) - PONDY BAZAAR PEDESTRIAN PLAZA

SURVERY & ANALYSIS

CHARACTER PARAMETER – SPACE

OBSERVATION

- The ratio of built – open spaces is addressed as an ideal urban design principle. The open spaces are visible and has ease of access with permeability.
- The built spaces are functional and do not clutter the open spaces.

ANALYSIS

- Breathable streets with multi use of open spaces.
- Parking areas are marked without hampering pedestrian routes.
- Green spaces in abundance.

CHARACTER PARAMETER – VIEW, VISTA & SKYLINE

OBSERVATION

- Almost linear skyline and views.
- Clear vista and a clean serial vision.
- Variance in skyline only due to presence of trees and landscape on streets.
- These trees act as shades on the pedestrian plaza itself.

ANALYSIS

- Clear image and uniformity in skyline, views and a linear vista.
- Activities are also identified easily due to clean vista.
- The interesting murals on street act as a eye catcher for the pedestrians.

(Source – ITDP)

4.3 CASE EXAMPLE 2 (INSIDE INDIA) - PONDY BAZAAR PEDESTRIAN PLAZA

SURVERY & ANALYSIS

CHARACTER PARAMETER – ARCHITECTURAL FEATURES

OBSERVATION

- Vibrant art murals and street furnitures act as beautiful architectural features on the streets.
- Use of bollards as activity separators and planters spread out evenly throughout the street.
- The building are a combination of modern and contemporary architecture.

ANALYSIS

- Murals and street furnitures appear as a part of the street creating a scenic view.
- Urban design elements as eye catching feature tools in this street design.

CHARACTER PARAMETER – MAGNET GENERATORS

OBSERVATION

- The market is the biggest magnet generator.
- The multi use of the pedestrian plaza as play area for children to free walkway for the old, it is varied in functionality and suited to all public.

ANALYSIS

- The markets eventually thriving better and increased decongestion due to proper planning of the streets give street vendors places of income.
- Seasonal functions and festivities attract the crowd as a center of activity.

(Source – ITDP)

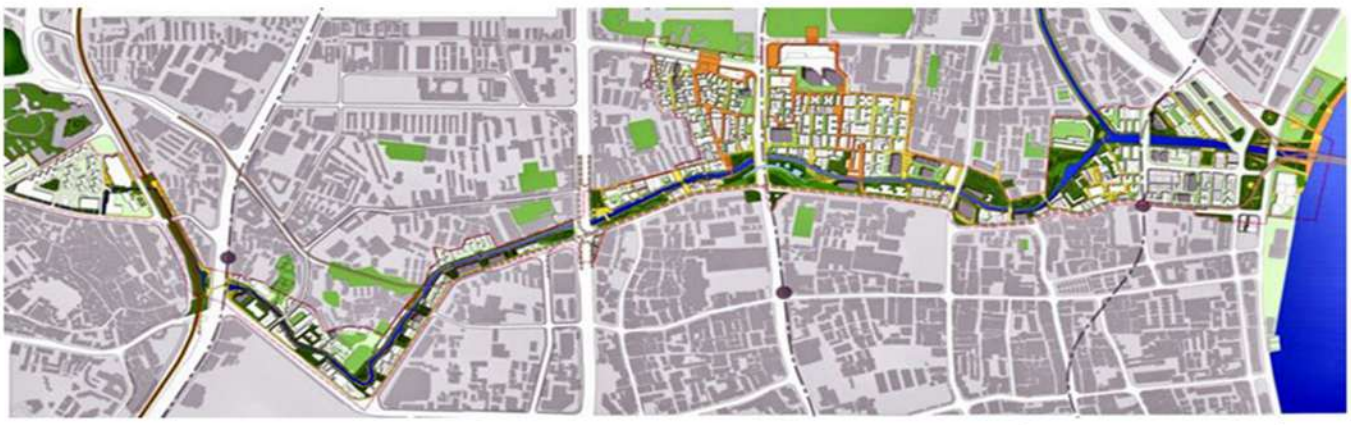
4.4 CASE EXAMPLE 3 (OUTSIDE INDIA) - DONGHAOCHONG GREENWAY , GUANGZHOU CITY

DESCRIPTION

- Of the 3 ancient canals that brought water from the Baiyun Mountains to Guangzhou since the Song Dynasty, only the Donghaochong was never buried. Until recently, it was a polluted ditch running mostly under an elevated expressway and uncontrolled urban development had encroached on the banks of the canal, spilling sewage sometimes into adjacent residential and commercial properties. Periodically, the buildings were flooded when waters overflowed the banks of the canal. Starting in 2009, over 7 hectares of land along the Donghaochong were cleared and turned into a greenway, with world class walking and cycling facilities (walk, cycle).

- The sewers had to be connected to sewer pipes and the entire canal dredged and cleaned. Ten new bridges across the canal were built, 5.4 km of new pedestrian walkways, 1.3 km of new bike paths, and 3.2 km of new road works make up the first phase of development. In the surrounding area over 329,000 m2 of new commercial real estate were developed.

- **Main Focus of this Study -** Street scape, Public realm beside urban canals, open spaces, activities, view-vistas-skyline, Landmark.



(Source – FareastM)

4.4 CASE EXAMPLE 3 (OUTSIDE INDIA) - DONGHAOCHONG GREENWAY , GUANGZHOU CITY

SURVERY & ANALYSIS

IMAGE PARAMETER - PATHWAY

OBSERVATION

- Streets are divided with green belt separators, and a continued bicycle way.
- Entirely pedestrian friendly pathway if not connecting to an arterial street.
- The local streets are all pedestrian only.

ANALYSIS

- Pathways are sustainable and breathable.
- Following universal design guidelines and provide a sense of enclosure with clear accessibility.

IMAGE PARAMETER - NODE

OBSERVATION

- The nodes act as activity hubs with play areas, parks or fountains to create break in the pathways.
- The nodes are filled with lush green areas and provide public spaces for all ages.

ANALYSIS

- The elevated corridor and the curvilinear urban canals break into these nodes and a green pocket is created amidst the busy streets.
- Concept of park integrated with streets.

(Source – FareastM)

4.4 CASE EXAMPLE 3 (OUTSIDE INDIA) - DONGHAOCHONG GREENWAY , GUANGZHOU CITY

SURVERY & ANALYSIS

IMAGE PARAMETER - EDGE

OBSERVATION

- The edges comprise of residential housing areas.
- The edge is detailed with green belt surrounding the pathways.

ANALYSIS

- Sense of enclosure is minimum with clear views and level of safety is enhanced.
- Beautiful edge with breathable zones create a pedestrian friendly environment.

CHARACTER PARAMETER – ACTIVITY

OBSERVATION

- The activity of these areas is recreation, leisure, break from city uniformity, decongestion from the busy streets of the main city.
- Reuse of an urban canal with activity oriented and social gathering.
- Highly sustainable and preserves the environmental balance of the city.

ANALYSIS

- Use of an urban canal as an activity zone for all ages.
- Landscape elements and street furniture integrated with nature creating a clean sustainable area.
- Break from city symmetry and congestion.

(Source – FareastM)

4.4 CASE EXAMPLE 3 (OUTSIDE INDIA) - DONGHAOCHONG GREENWAY , GUANGZHOU CITY

SURVERY & ANALYSIS

CHARACTER PARAMETER - SPACE

OBSERVATION

- The built and open spaces in the entire greenway is 60-40%. The entire greenway is enveloped with a dense community and spaces of transit hubs to the main streets.
- The greenway is entirely open space with a elevated corridor running through the edge of the urban canal.

ANALYSIS

- Sustainability is the core of this urban design.
- Spaces are created solely for ease of pedestrian access along green belted corridors to break symmetry from a densely crowded neighborhood.

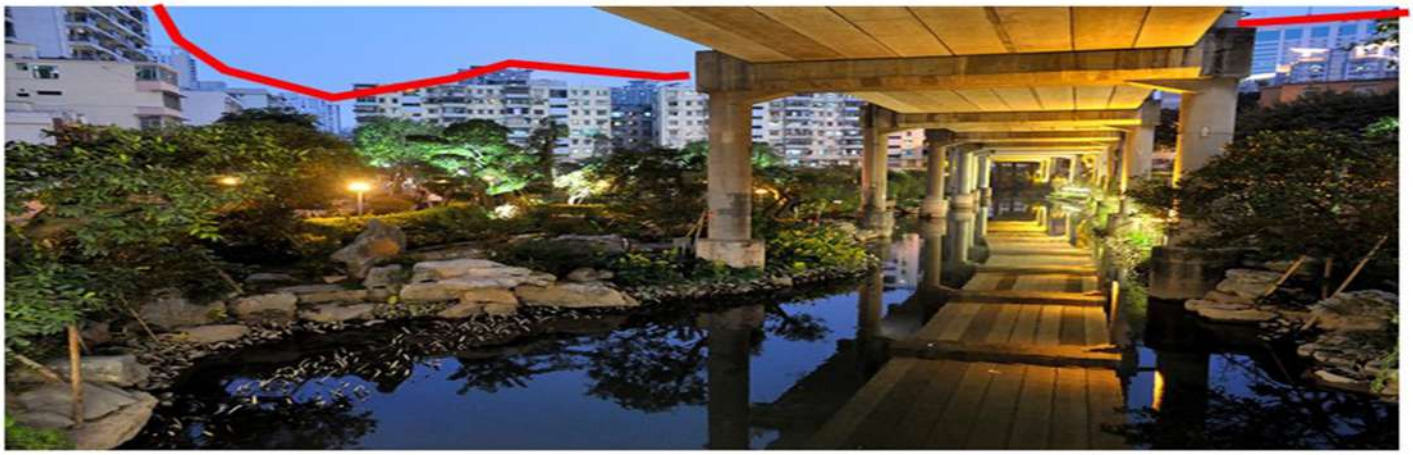
CHARACTER PARAMETER – VIEW, VISTA & SKYLINE

OBSERVATION

- The skyline is almost linear since it comprises of residential communities.
- The views and vistas are levelled i.e. due to the elevated corridor, the canal underneath creates a different view and vistas as compared to that from the neighborhood.

ANALYSIS

- The skyline does not impact the views and vista of the greenway.
- The vista is a beauty in the core of a densely crowded neighborhood.
- Scenic and picturesque views are created with lush green pockets with landscaped pathways amidst the urban canal.



(Source – FareastM)

4.4 CASE EXAMPLE 3 (OUTSIDE INDIA) - DONGHAOCHONG GREENWAY , GUANGZHOU CITY

SURVERY & ANALYSIS

CHARACTER PARAMETER – ARCHITECTURAL FEATURES

OBSERVATION

- The landscape is the prime feature of the greenway.
- With level differences and interesting corridors surrounded with green pockets all throughout, the architecture of the greenway is immersed with nature.

ANALYSIS

- Sustainability is the core of this urban design.
- Landscape elements such as soft scapes and hardscapes are beautifully separated.
- Universal design guidelines have also been followed.

CHARACTER PARAMETER – MAGNET GENERATORS

OBSERVATION

- The urban canal itself now acts as a magnet for public space of recluse and recreation.
- New approach to canals within the cities, and pedestrianized plaza gives opportunity for people and bikers to use internal pathways instead of the congested main roads.

ANALYSIS

- A green break from the city monotony.
- An unused dirty urban canal revitalized into a public space and greenway for pedestrians.
- Enhancing community building and sustainable street design practices.

(Source – FareastM)

5.0 CASE APPLICATION STUDY

THIS CHAPTER ELABORATES ON THE AREA LEVEL ANALYSIS CHOOSING THE ZONES, ZONAL LEVEL ANALYSIS CHOOSING THE SITES AND SITE LEVEL ANALYSIS TO DERIVE THE ACTION AREAS FOR THIS THESIS PROJECT.

5.1 AREA LEVEL

5.1.1 SELECTION OF THE AREA

- The site is selected on the context of an E-S Transit Corridor, with a Sub-Urban Rail Transit hub as the Central Node (DUMDUM SUBURBAN RAIL JUNCTION & METRO STATION).
- The limitations to the site is demarcated by two Major Nodes connecting further with N-S Movement Corridors.
- The site is inclusive of several ongoing Live projects as discussed in Relevance.
- The Live Project of an existing Urban Canal Redevelopment (Khalpar-Bagjola canal connector) is also taken into the Case Application Area.
- Congested movement corridor with highly dense population, the area is chosen as per identification of daily users, Multiple transportation networks and sporadic informal area development occurring inorganically and uncontrolled traffic that requires immediate intervention.

SITE AREA - 3.92 km²

SITE PERIMETER - 10.53 km

DUMDUM ROAD LENGTH FOR MOVEMENT CORRIDOR STUDY - 3.71km (approx.)

CENTRAL NODE – DUMDUM STATION

1 MAJOR NODE – CHIRAMORE NODE

2 MAJOR NODE – NAGERBAZAR NODE

MINOR NODE – KHALPAR NODE

N

5.1 AREA LEVEL

5.1.1 SELECTION OF THE AREA

CENTRAL NODE –
DUMDUM STATION

MAJOR NODE 1 –
CHIRIAMORE CROSSING

MAJOR NODE 2 –
NAGERBAZAR CROSSING

MINOR NODE –
KHALPAR CONNECTOR

5.1 AREA LEVEL

5.1.3 DESCRIPTION


CHIRIAMORE CROSSING


KV COSSIPORE SCHOOL


DUMDUM SUBURBAN RAIL & METRO STATION


INDIRA MAIDAN


MOTIJHEEL COLLEGE


UPSCALE RESIDENTIAL-AANGAN


NAGERBAZAR BUS DEPOT


SEVEN TANKS GUN SHELL FACTORY


DumDum Road Govt. Sponsored High School for Girls


DUM DUM MARKET


HANUMAN MANDIR


KHALPAR CROSSING


MOTIJHEEL GIRLS HIGH SCHOOL

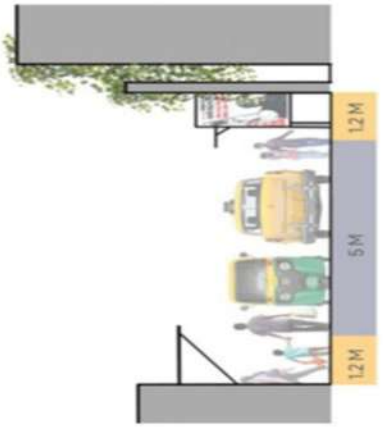

NAGERBAZAR MARKET

5.1 AREA LEVEL

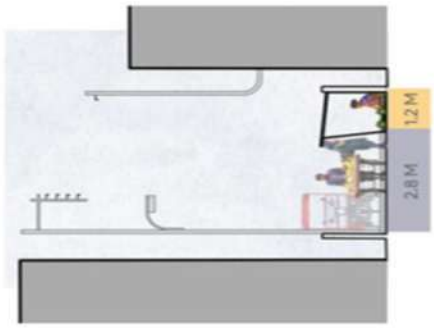
5.1.6 IDENTIFICATION OF INTERVENTION OF ZONES

EXISTING STREET CONDITION

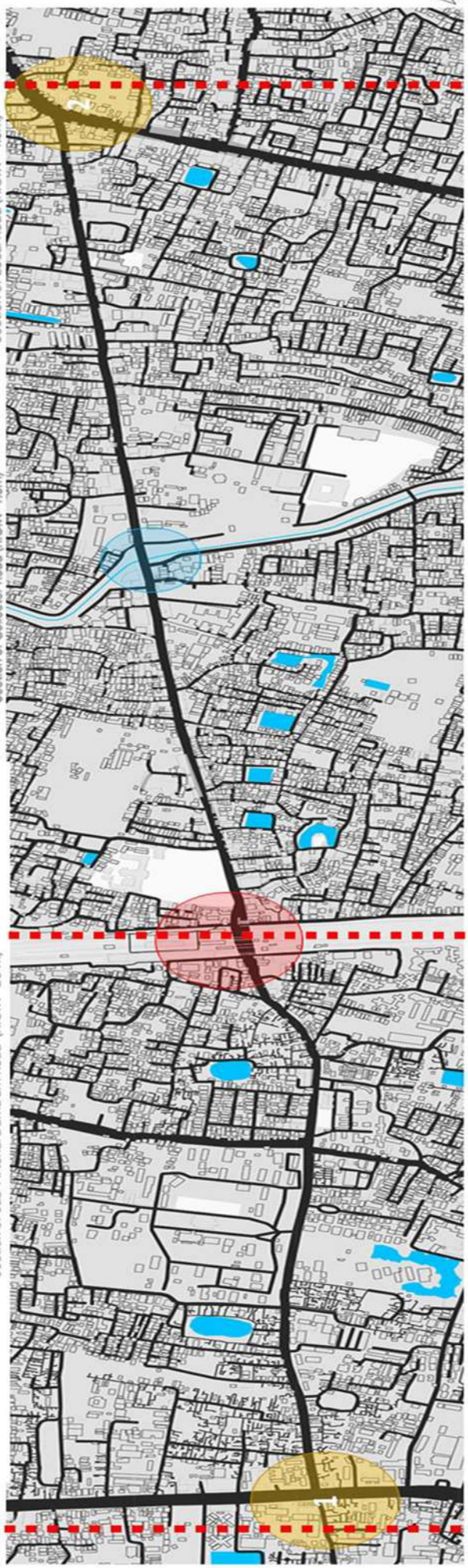
Section of Sub-Arterial DumDum Road (R.O.W- 20 m)



Section of Collector Road (R.O.W- 7.5m)



Section of Local Road (R.O.W- 4.5m)



PRELIMINARY ZONE DIVISION BASED ON VISUAL SURVEY & NODE TO NODE DIVISION OF SITE AT AREA LEVEL STUDY.

5.2 ZONAL LEVEL

5.2.1 ZONE 01

5.2.1.1 DELIENATION

ZONE AREA – 0.88 km² ZONE PERIMETER – 4.58 km

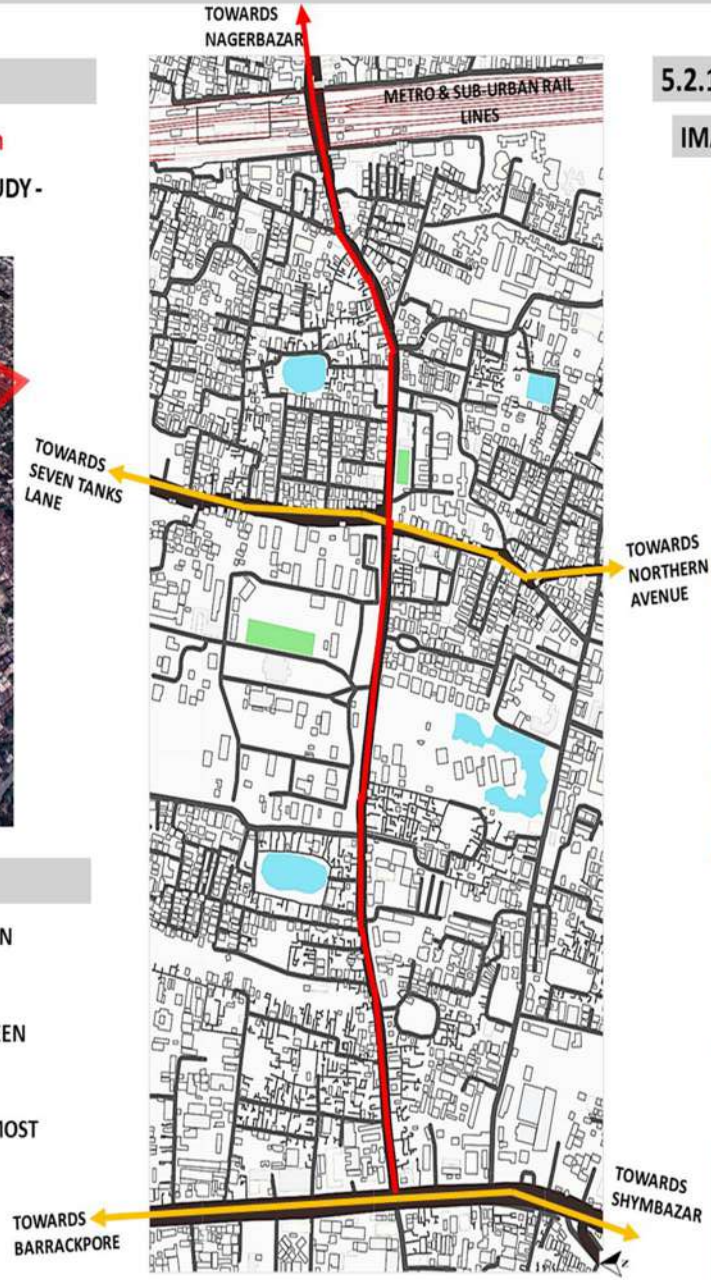
ZONE ROAD LENGTH FOR MOVEMENT CORRIDOR STUDY - 1.66 km (approx.)

5.2.1.2 DESCRIPTION

THE STRETCH FROM CHIRIAMORE TO DUMDUM SUB-URBAN RAIL TRANSIT HUB IS CHOSEN AS ZONE -1.

COMPRISING IN THIS ZONE THE PARAMETER STUDY HAS BEEN DONE.

THE ZONE WILL FURTHER BE ANALYZED ON THE BASIS OF MOST BLIGHTED AND VULNERABLE AREA WITH ANY RELEVANT IMPORTANCE TO BE CHOSEN AS THE SITE FOR FURTHER STUDIES.



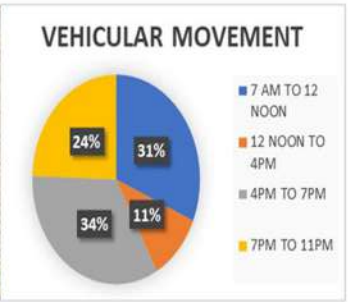
PLAN AT ZONE -1

5.2.1.3 SURVEY & ANALYSIS

IMAGE PARAMETER – PATHWAY (VEHICULAR)

- MAJOR ARTERIAL ROW IS 24M.
- LOCAL ROAD WIDTH IS 5-6M.

THE VEHICULAR MOVEMENT ON THESE PATHWAYS COMPRISES OF – BUS, AUTOS, NMTS, PRIVATE CARS, TAXI, RICKSHAW, TWO WHEELERS, CYCLES, CARTS, TRUCKS, ETC.



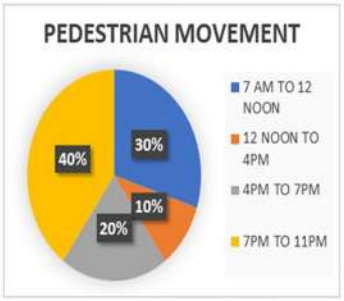
5.2 ZONAL LEVEL

5.2.1 ZONE 01

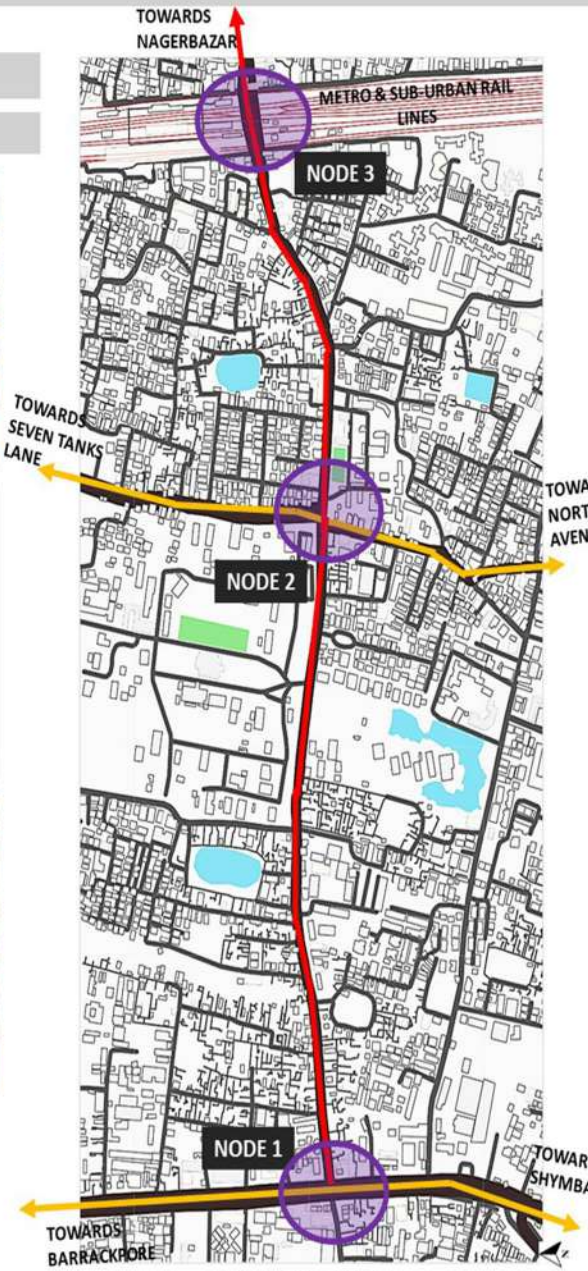
5.2.1.3 SURVEY & ANALYSIS

IMAGE PARAMETER – PATHWAY (PEDESTRIAN)

- THE PEDESTRIAN PATHWAYS ARE MOSTLY THE FOOTHPATHS – 2M TO 3M IN VARIED WIDTH.
- DILAPIDATED AND UNEVEN FOOTPATH WITH AREAS WHERE A PEDESTRIAN MIGHT FALL IN THE DRAIN.



- THE FOOTPATHS ALSO COMPRISE OF LOCAL STREET VENDORS ENCHROCHING ON PUBLIC PATHWAYS.

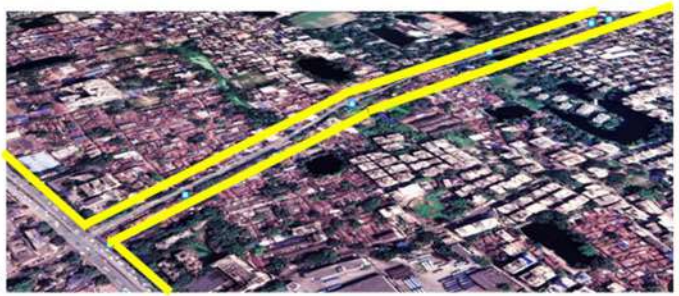


PLAN AT ZONE -1

5.2.1.3 SURVEY & ANALYSIS

IMAGE PARAMETER – NODE

IMAGE PARAMETER – EDGES



- E-W MOVEMENT CORRIDOR AS THE EDGE ROUTE FOR THE ZONE.
- VARIED EDGE WITH BUILT AND OPEN SPACES ALIKE – ABSENCE OF WATER BODY, PRESENCE OF GREEN POCKETS ON EDGES.

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5.2 ZONAL LEVEL

5.2.1 ZONE 01

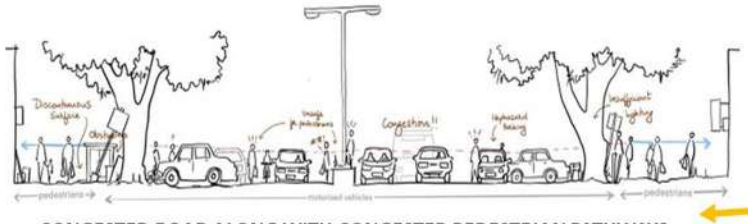
5.2.1.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – ACTIVITIES

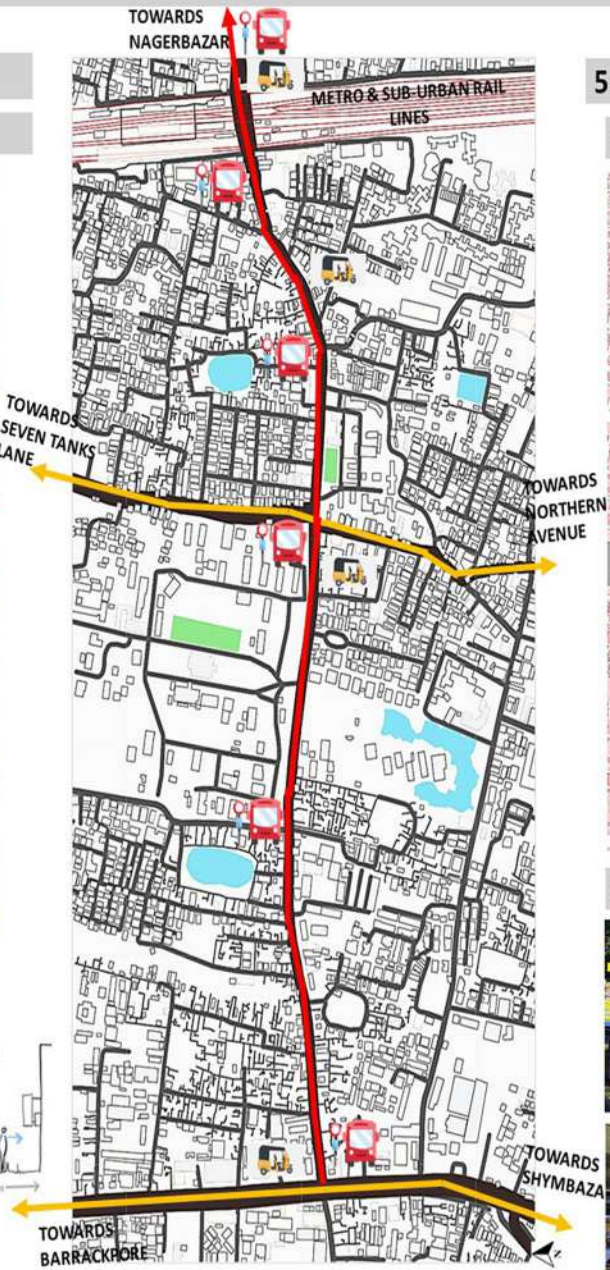
MOST OF THE FOOTPATH IS ENCHROCHED WITH INFORMAL SHOP

UNORGANIZED AUTO AND BUS STOPS. NO TRANSPORT LANE.

GROUND FLOOR CONSISTS OF MIXED USE ACTIVITIES – FORMAL & INFORMAL SHOPS



CONGESTED ROAD ALONG WITH CONGESTED PEDESTRIAN PATHWAYS, CREATING ZERO BREATHABLE AND WALKABLE SPACES.

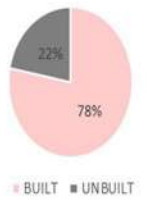


PLAN AT ZONE -1

5.2.1.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – SPACES (BUILT & OPEN SPACES)

REVERSE FIGURE-GROUND MAP SHOWCASING THE BUILT-OPEN SPACE RATIO, AND VARIATION IN HEIGHT OF THE BUILT SPACES.



CHARACTER PARAMETERS – VIEW, VISTA, SKYLINE

INCONSISTENT VIEWS, VISTA & SKYLINE AT ARTERIAL AND LOCAL ROAD AREAS

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5.2 ZONAL LEVEL

5.2.1 ZONE 01

5.2.1.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – ARCHITECTURAL FEATURES

- EVERY TREE ON SIDEWALK WITH A TEMPLE.
- CORINTHIAN-STYLE INFLUENCE ON OLD BUILDINGS AND ARMY AREA SIDE (SEVEN TANKS COMPOUND)
- VARIED GREEN POCKETS OVERLAPPING ON LOWER LEVEL BUILT AREAS.

CHARACTER PARAMETER – MAGNET GENERATORS

SEVEN TANKS ESTATE

DUMDUM METRO STATION

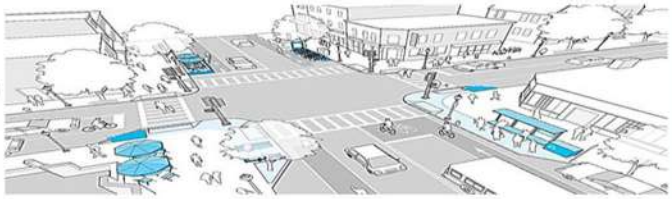
CHILDREN'S PARK/ PUJA GROUND

DUMDUM STATION MARKET

PLAN AT ZONE -1

5.2.1.4 PROPOSAL & SCHEMES

- DEDICATED BUS LANE IS NEEDED TO AVOID CONGESTION ON STREET.
- REDESIGN OF SIDEWALKS FOR BETTER PEDESTRIAN WALKWAYS.
- CONSERVATION OF BUILDINGS OF HISTORICAL IMPORTANCE.
- PLANNED RATIO OF STREET VENDOR AND PEDESTRIANS ON THE SIDEWALKS.
- PROPER DESIGNATED PARKING AREAS INSTEAD OF SCATTERED PARKING ON ROAD.
- CURB AND MEDIAN TO BE WELL DEFINED.
- TO ACHIEVE IDEAL STREET CONCEPT AND USE OF STREET FURNITURE TO CREATE PLACEMAKING.
- USING EXISTING LANDUSE AND CREATING INTERESTING PUBLIC SPACES IN NEGATIVE AREAS.



5.2.1.5 IDENTIFICATION OF INTERVENTION ZONES

- AS PER ANALYSIS, 2 SITES IN ZONE-1 HAVE BEEN IDENTIFIED AS IMMEDIATE ACTION AREAS.

5.2 ZONAL LEVEL

5.2.2 ZONE 02

5.2.2.1 DELIENATION

ZONE AREA – 0.43 km² ZONE PERIMETER – 4.87 km

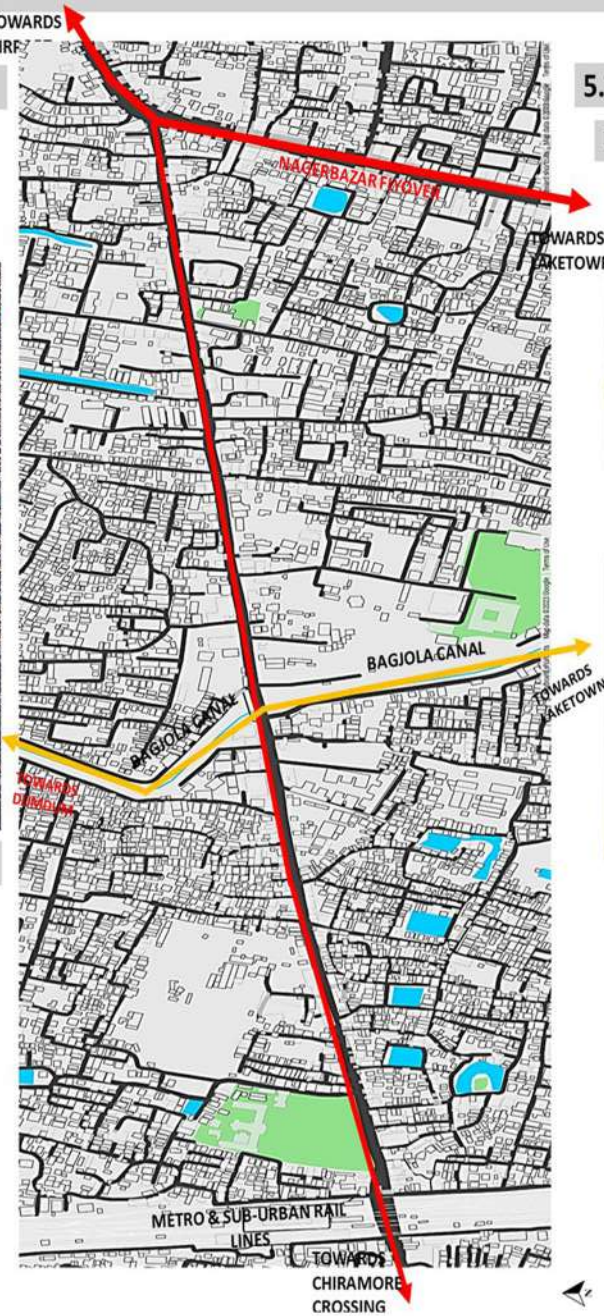
ZONE ROAD LENGTH FOR MOVEMENT CORRIDOR STUDY - 2.15 km (approx.)

5.2.2.2 DESCRIPTION

THE STRETCH FROM DUMDUM SUB-URBAN RAIL TRANSIT HUB TO NAGERBAZAR MORE IS CHOSEN AS ZONE -2.

COMPRISING IN THIS ZONE THE PARAMETER STUDY HAS BEEN DONE.

THE ZONE WILL FURTHER BE ANALYZED ON THE BASIS OF MOST BLIGHTED AND VULNERABLE AREA WITH ANY RELEVANT IMPORTANCE TO BE CHOSEN AS THE SITE FOR FURTHER STUDIES.

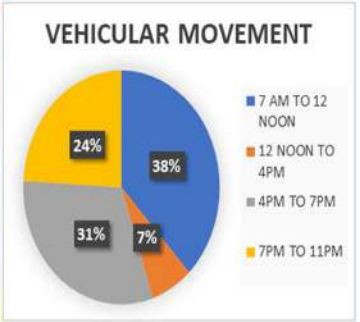


5.2.2.3 SURVEY & ANALYSIS

IMAGE PARAMETER – PATHWAY (VEHICULAR)

- MAJOR ARTERIAL ROW IS 20M.
- LOCAL ROAD WIDTH IS 6M.

THE VEHICULAR MOVEMENT ON THESE PATHWAYS COMPRISES OF – BUS, AUTOS, NMTS, PRIVATE CARS, TAXI, RICKSHAW, TWO WHEELERS, CYCLES, CARTS, TRUCKS, ETC.



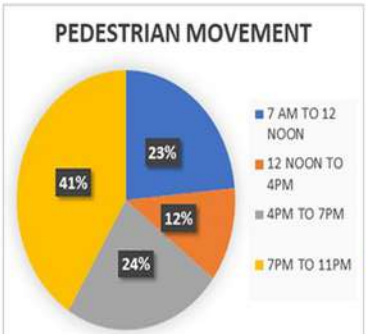
5.2 ZONAL LEVEL

5.2.2 ZONE 02

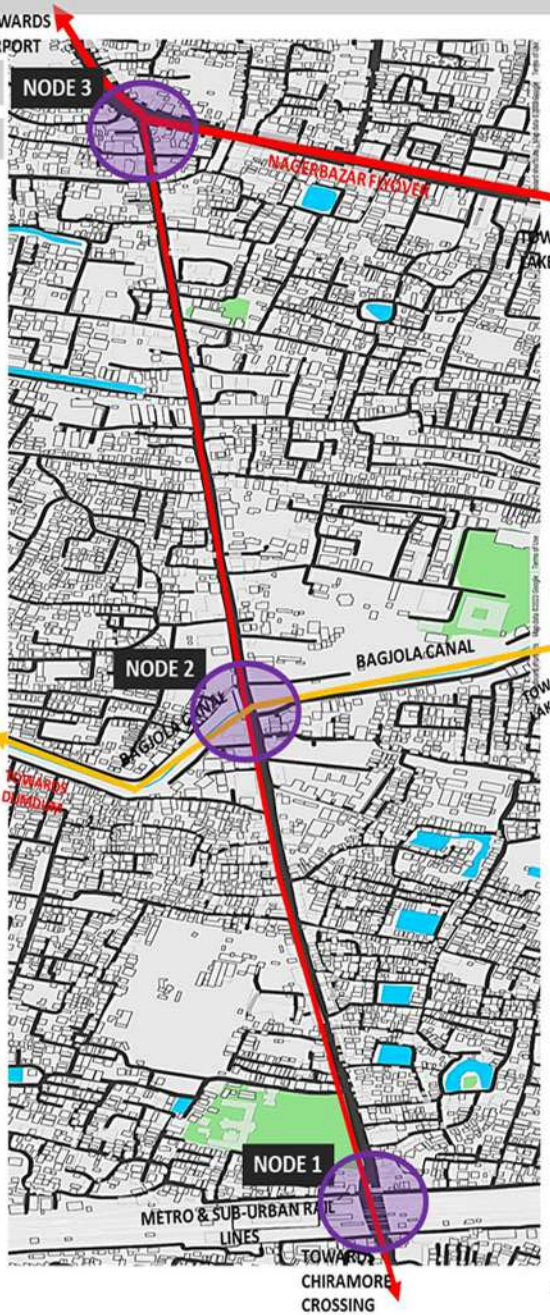
5.2.2.3 SURVEY & ANALYSIS

IMAGE PARAMETER – PATHWAY (PEDESTRIAN)

- THE PEDESTRIAN PATHWAYS ARE MOSTLY THE FOOTHPATHS – 1M.
- NO WELL DEFINED FOOTPATH.
- ABSENCE OF KERBS AND HEIGHT VARIATION FROM CARRIAGE WAY AND SIDEWALK.
- FOOTPATHS FLUSHED AT ROAD HEIGHT.



- NO DEFINED FOOT WALKWAY FOR PEDESTRIANS TO WALK ON THE KHALPAR ROAD.
- NO BOUNDARY TO SEPARATE THE CANAL AND THE CANAL ROAD.
- DILAPIDATED AND BLIGHTED CONDITION OF THE KHALPAR AREA, LEADING TO FLOODING ON THE STREETS DURING RAINFALL.



5.2.2.3 SURVEY & ANALYSIS

IMAGE PARAMETER – NODE

IMAGE PARAMETER – EDGES

- E-W MOVEMENT CORRIDOR AS THE EDGE ROUTE FOR THE ZONE.
- KHALPAR – URBAN CANAL ACTING AS AN EDGE FOR RESIDENTIAL AND MIXED USE BUILDINGS.
- VARIED GREEN POCKETS ACTING AS AN EDGE.

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5.2 ZONAL LEVEL

5.2.2 ZONE 02

5.2.2.3 SURVEY & ANALYSIS

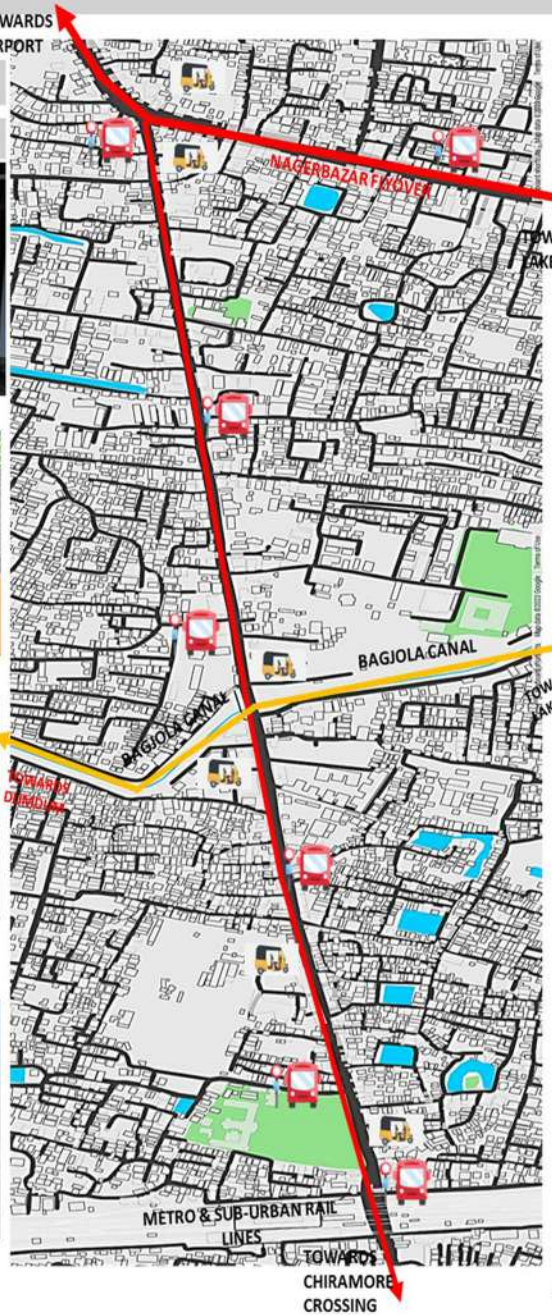
CHARACTER PARAMETER – ACTIVITIES

UNORGANIZED AUTO AND BUS STOPS. NO TRANSPORT LANE.

DUMPING CANS ON THE SIDE OF THE ROAD DAMAGING FOOTPATH

GROUND FLOOR CONSISTS OF MIXED USE ACTIVITIES – FORMAL & INFORMAL SHOPS

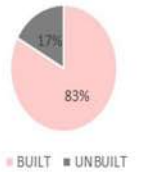
IGNORED EDGE AT KHALPAR, WHICH IS AN ACTIVITY ZONE FOR LOCAL FISHERMAN, SCOPE OF CREATING PUBLIC SPACES.



5.2.2.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – SPACES (BUILT & OPEN SPACES)

REVERSE FIGURE-GROUND MAP SHOWCASING THE BUILT-OPEN SPACE RATIO, AND VARIATION IN HEIGHT OF THE BUILT SPACES.



CHARACTER PARAMETERS – VIEW, VISTA, SKYLINE

INCONSISTENT VIEWS, VISTA & SKYLINE AT ARTERIAL AND KHALPAR ROAD AREAS

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5.2 ZONAL LEVEL

5.2.2 ZONE 02

5.2.2.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – ARCHITECTURAL FEATURES




- OLD HOUSES THAT AFFECT THE FABRIC OF THE AREA TO BE CONSERVED.
- EXISTING STREET FURNITURES DILAPIDATED – REDESIGN OF SPACES.
- TRIDENT STREET LIGHTING IN AN UNPLANNED LAYOUT.
- STREET SCULPTURES AT CROSSINGS FROM ARTERIAL TO LOCAL ROADS.

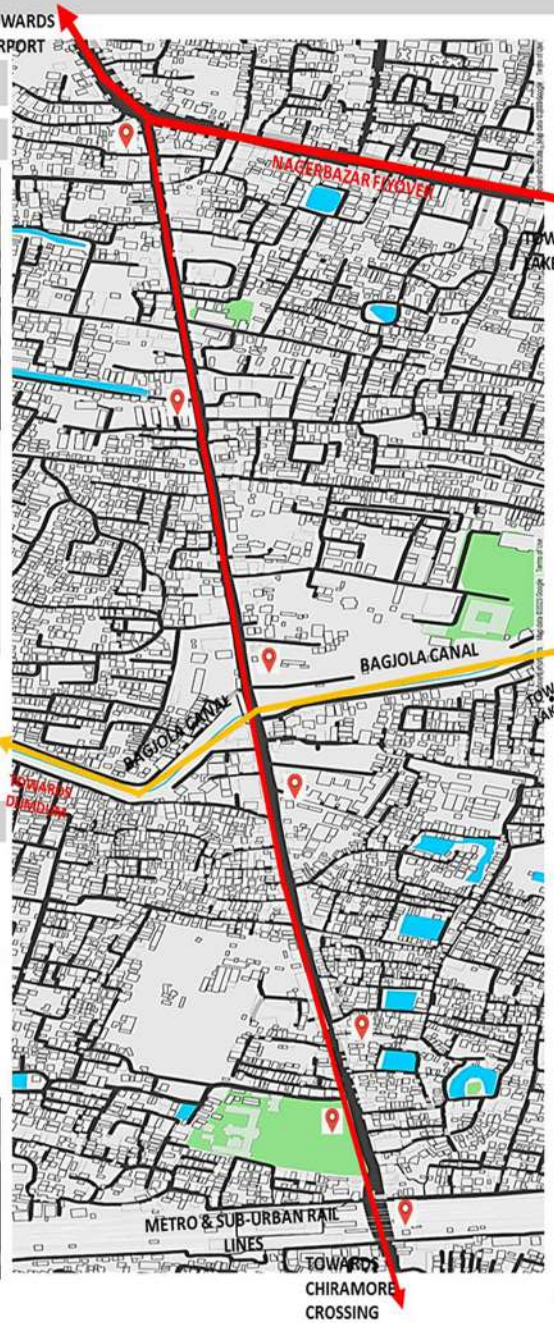
CHARACTER PARAMETER – MAGNET GENERATORS


HANUMAN MANDIR


INDIRA MAIDAN (MELA GROUND)


KHALPAR AREA FOR RECREATION


MULTIPLE STREET FOOD PLACES AT GL

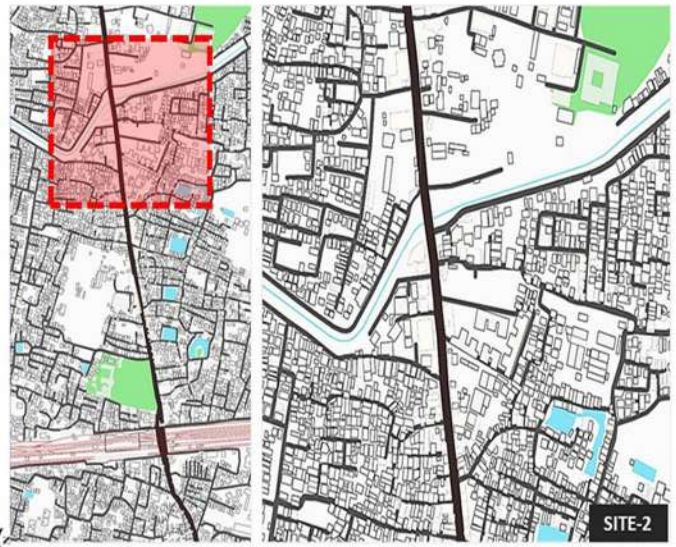


5.2.2.4 PROPOSAL & SCHEMES

- DEDICATED BUS LANE IS NEEDED TO AVOID CONGESTION ON STREET.
- REDESIGN OF SIDEWALKS FOR BETTER PEDESTRIAN WALKWAYS.
- URBAN CANAL REDEVELOPMENT AS A RESULT OF BAGJOLA CANAL'S HISTORICAL IMPORTANCE TO BAIDYADHARI RIVER EXTENSION.
- PLANNED RATIO OF STREET VENDOR AND PEDESTRIANS ON THE SIDEWALKS.
- CURB AND MEDIAN TO BE WELL DEFINED.
- TO ACHIEVE IDEAL STREET CONCEPT AND USE OF STREET FURNITURE TO CREATE PLACEMAKING.
- USING EXISTING LANDUSE AND CREATING INTERESTING PUBLIC SPACES IN NEGATIVE AREAS AND PROPOSING GUIDELINES.
- CREATING PUBLIC SPACES ON SIDEWALKS AND GREEN POCKETS.

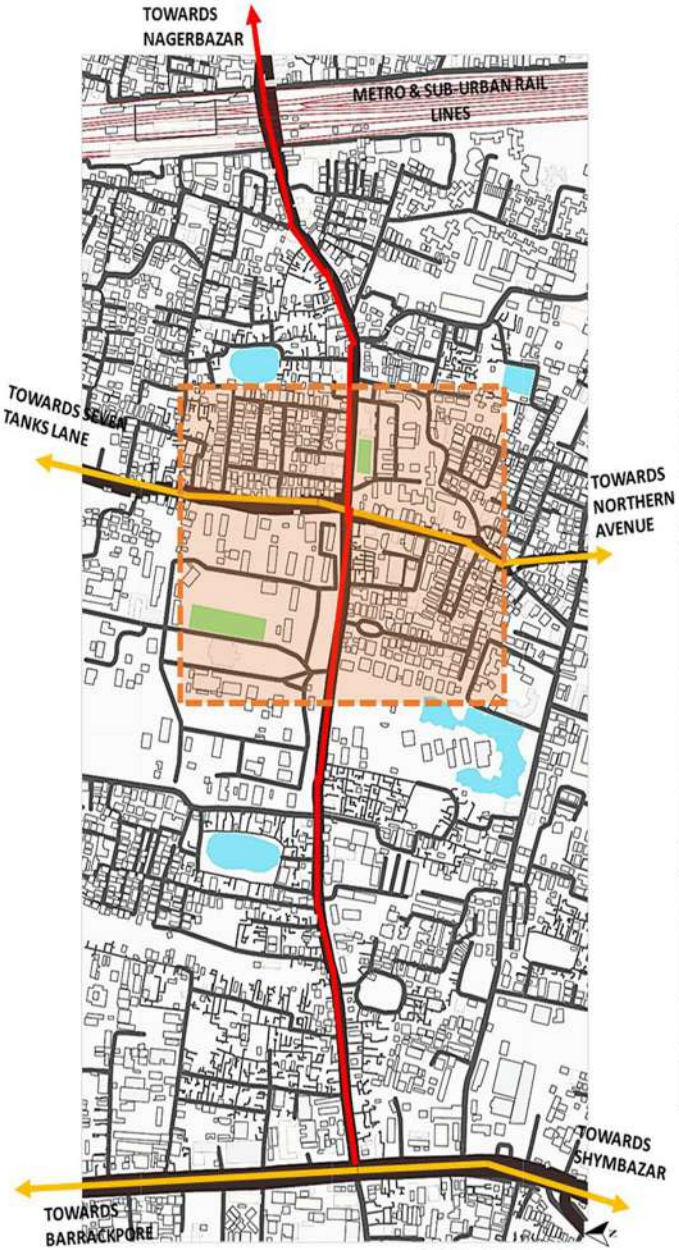
5.2.2.5 IDENTIFICATION OF INTERVENTION ZONES

AS PER ANALYSIS, 2 SITES IN ZONE-2 HAVE BEEN IDENTIFIED AS IMMEDIATE ACTION AREAS.

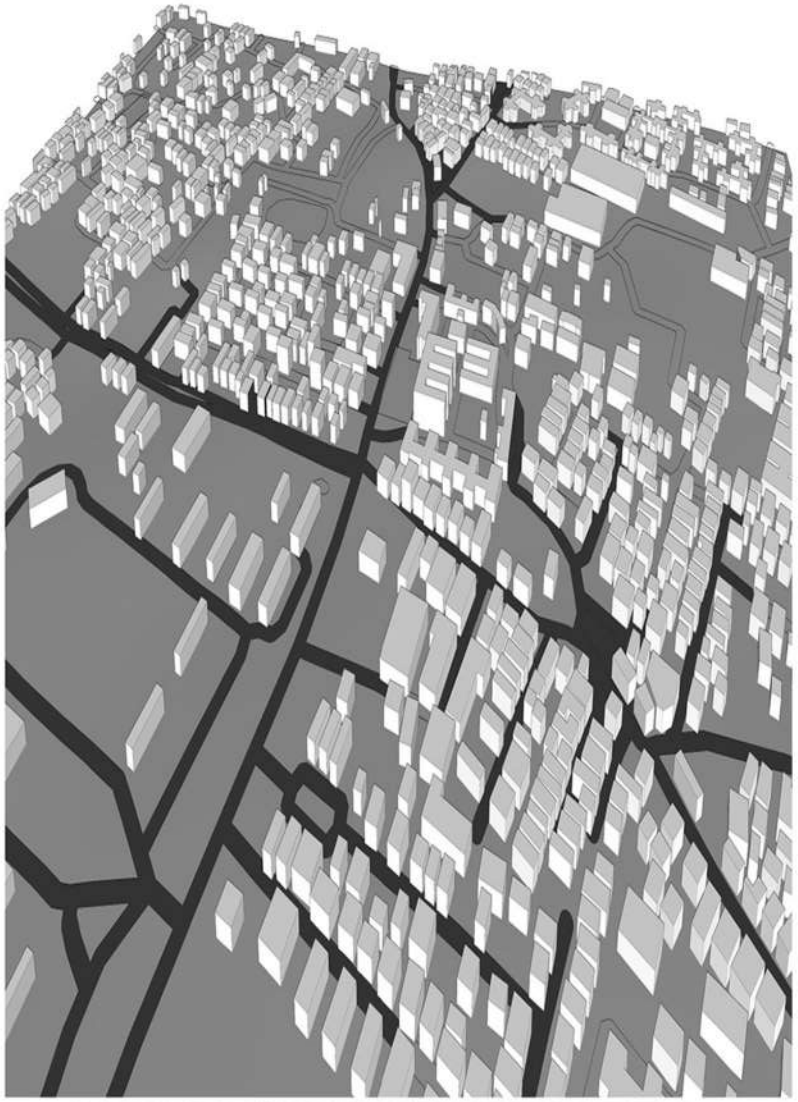


5.2 ZONAL LEVEL

5.2.4 SELECTION OF SITE – ZONE 1



PLAN AT ZONE -1



BUILDING HEIGHT & URBAN DESNITY FRAMEWORK AT SITE -1

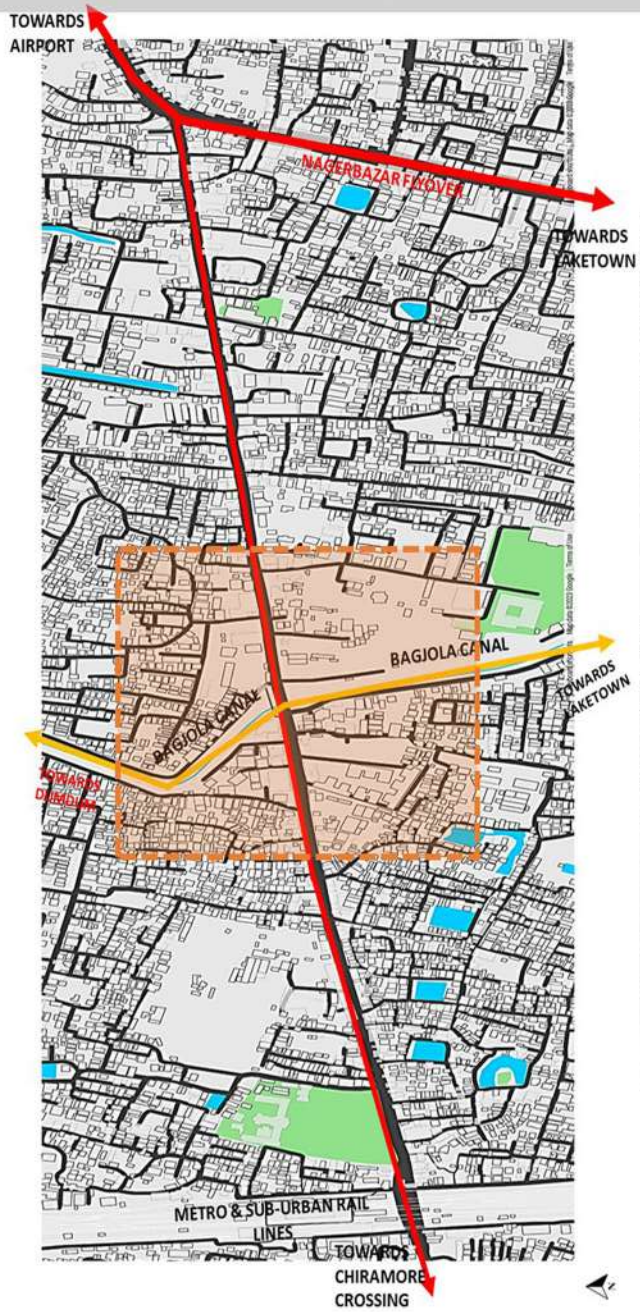
TENTATIVE MARKING FOR SITE -1

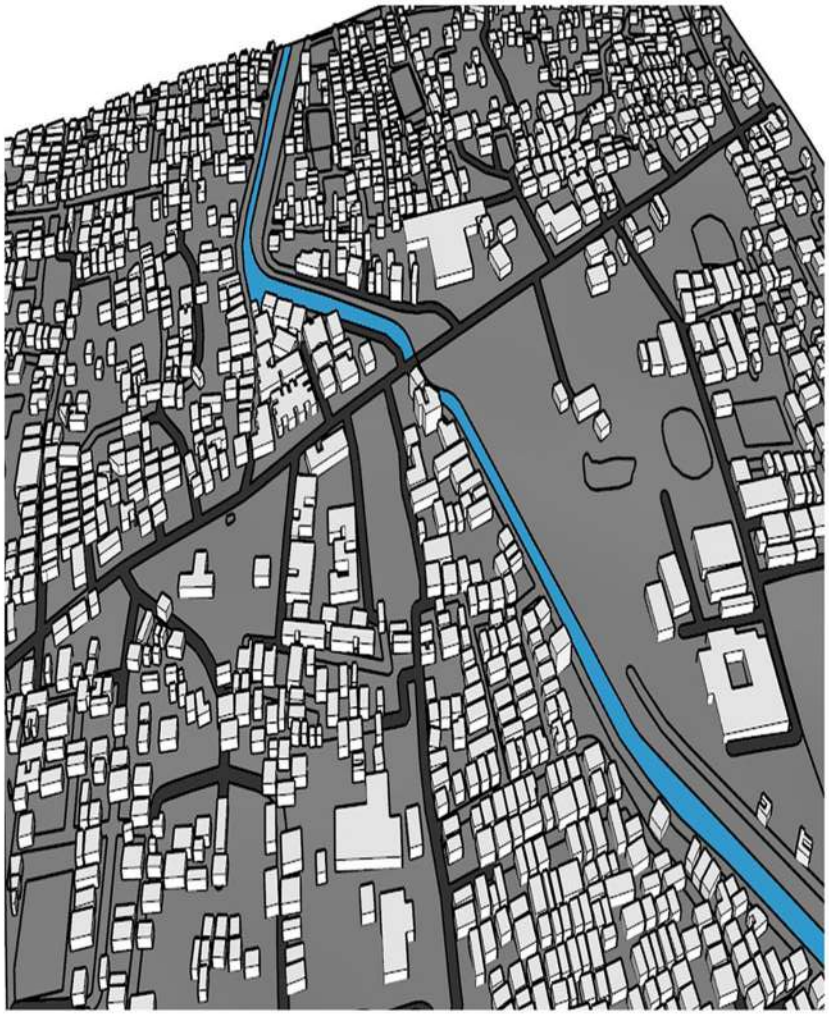
SITE LEVEL STUDY WILL BE FURTHER DONE ON THE BASIS OF THE PARAMETERS, FROM WHICH THE FINAL DESIGN IMPLEMENTATION WILL BE DONE.

FROM ZONE – 1, AS PER VISUAL ANALYSIS, SITE – 1 IS SELECTED FOR FURTHER SITE LEVEL ANALYSIS.
SITE – 01 IS AVOIDING AS IT COMES UNDER METRO STATION AREA (WHICH IS BEYOND SCOPE OF WORK)

5.2 ZONAL LEVEL

5.2.4 SELECTION OF SITE – ZONE 2





BUILDING HEIGHT & URBAN DESNITY FRAMEWORK AT SITE -2

TENTATIVE MARKING FOR SITE -2

SITE LEVEL STUDY WILL BE FURTHER DONE ON THE BASIS OF THE PARAMETERS, FROM WHICH THE FINAL DESIGN IMPLEMENTATION WILL BE DONE.

FROM ZONE – 2, SITE -2 IS SELECTED FOR FURTHER SITE AREA LEVEL STUDY, AS IT GIVES SCOPE TO WORK UNDER URBAN CANAL DEVELOPMENT AND PUBLIC PLACEMAKING.

5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.1 DELIENATION

SITE AREA – 101.08 ac SITE PERIMETER – 2.57 km

SITE ROAD LENGTH FOR MOVEMENT CORRIDOR STUDY - 0.75 km (approx.)

5.3.1.2 DESCRIPTION

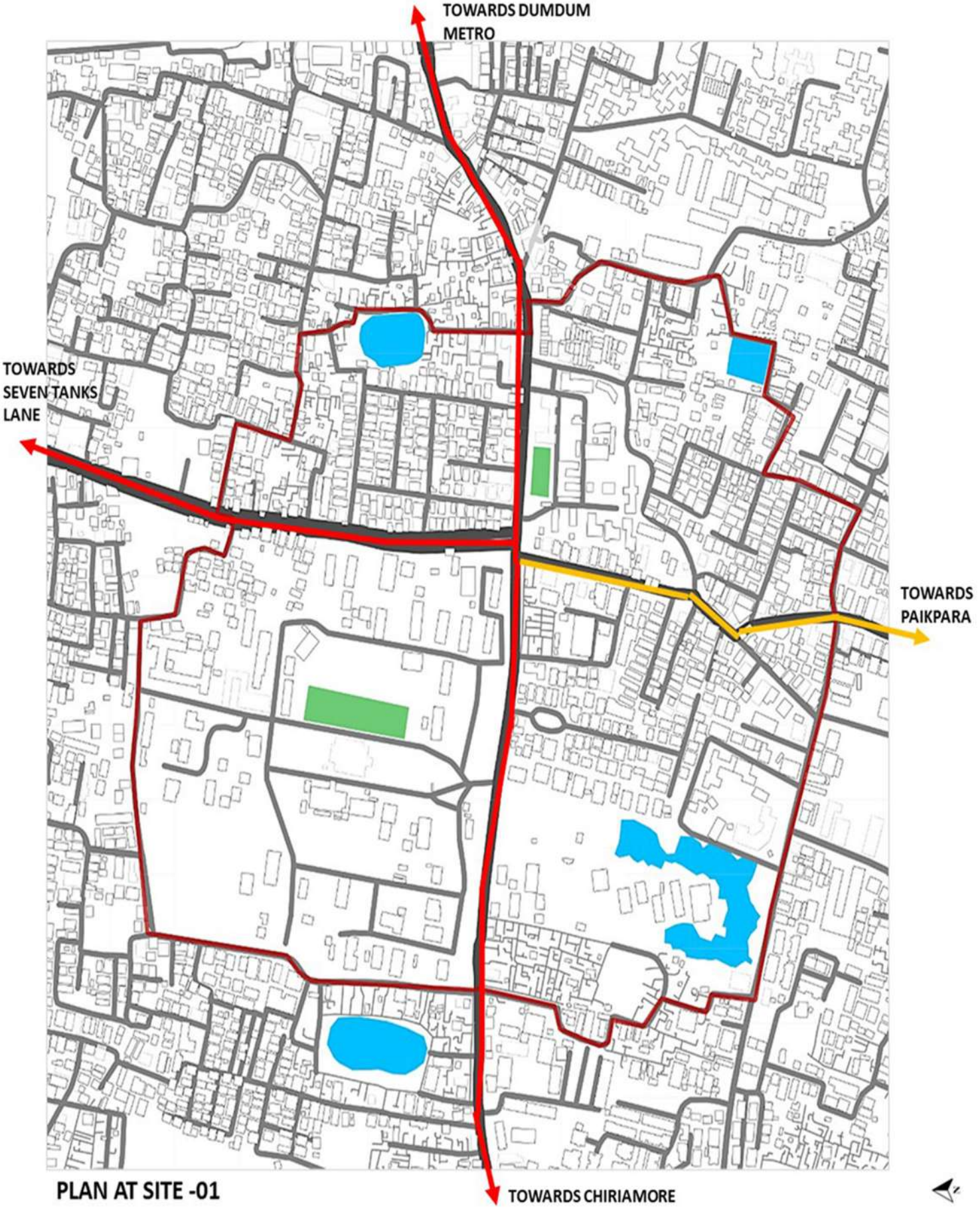
THE STRETCH FROM DUMDUM ROAD CONNECTING SEVEN TANKS AND PAIKPARA IS CHOSEN AS SITE -1.

COMPRISING IN THIS SITE THE PARAMETER STUDY HAS BEEN DONE.

THE SITE WILL FURTHER BE ANALYZED ON THE BASIS OF MOST BLIGHTED AND VULNERABLE AREA WITH ANY RELEVANT IMPORTANCE TO BE CHOSEN AS THE DESIGN IMPLEMETATION AREA FOR FURTHER STUDIES.

5.3 SITE LEVEL

5.3.1 SITE 01



PLAN AT SITE -01

5.3 SITE LEVEL

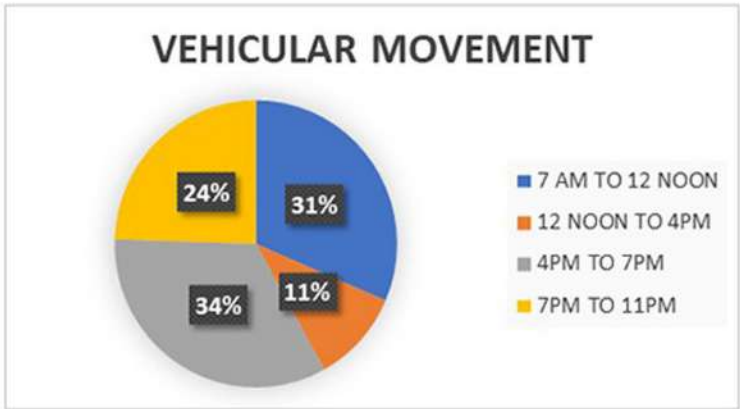
5.3.1 SITE 01

5.3.1.3 SURVEY & ANALYSIS

IMAGE PARAMETER – PATHWAY (VEHICULAR)

- MAJOR ARTERIAL ROW IS 24M.
- LOCAL ROAD WIDTH IS 5-6M.

THE VEHICULAR MOVEMENT ON THESE PATHWAYS COMPRISES OF –
BUS, AUTOS, NMTS, PRIVATE CARS, TAXI, RICKSHAW, TWO WHEELERS, CYCLES, CARTS, TRUCKS, ETC.



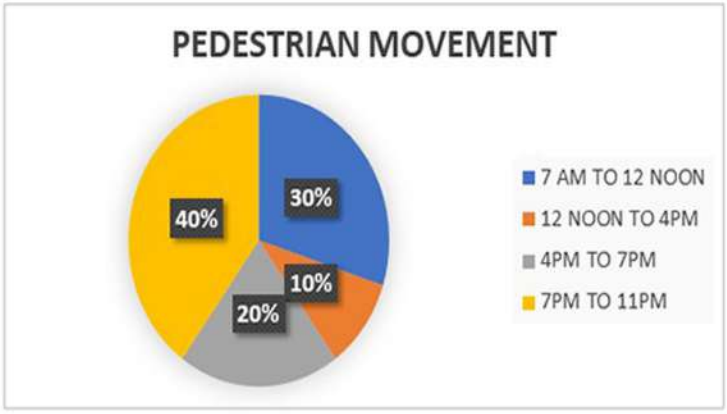
5.3 SITE LEVEL

5.3.1 SITE 01

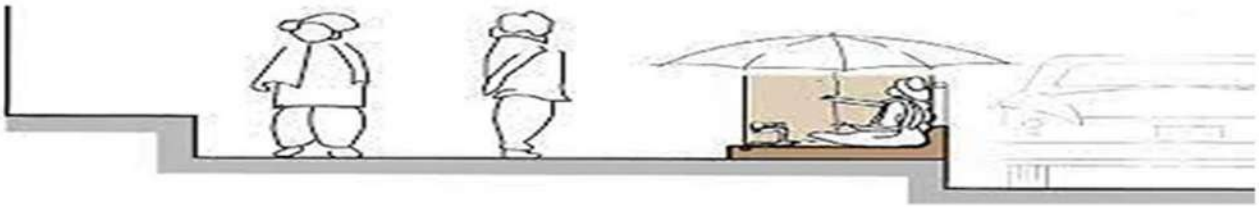
5.3.1.3 SURVEY & ANALYSIS

IMAGE PARAMETER – PATHWAY (PEDESTRIAN)

- THE PEDESTRIAN PATHWAYS ARE MOSTLY THE FOOTHPATHS – 2M TO 3M IN VARIED WIDTH.
- DILAPIDATED AND UNEVEN FOOTPATH WITH AREAS WHERE A PEDESTRIAN MIGHT FALL IN THE DRAIN.



- THE FOOTPATHS ALSO COMPRISE OF LOCAL STREET VENDORS ENCHROCHING ON PUBLIC PATHWAYS.



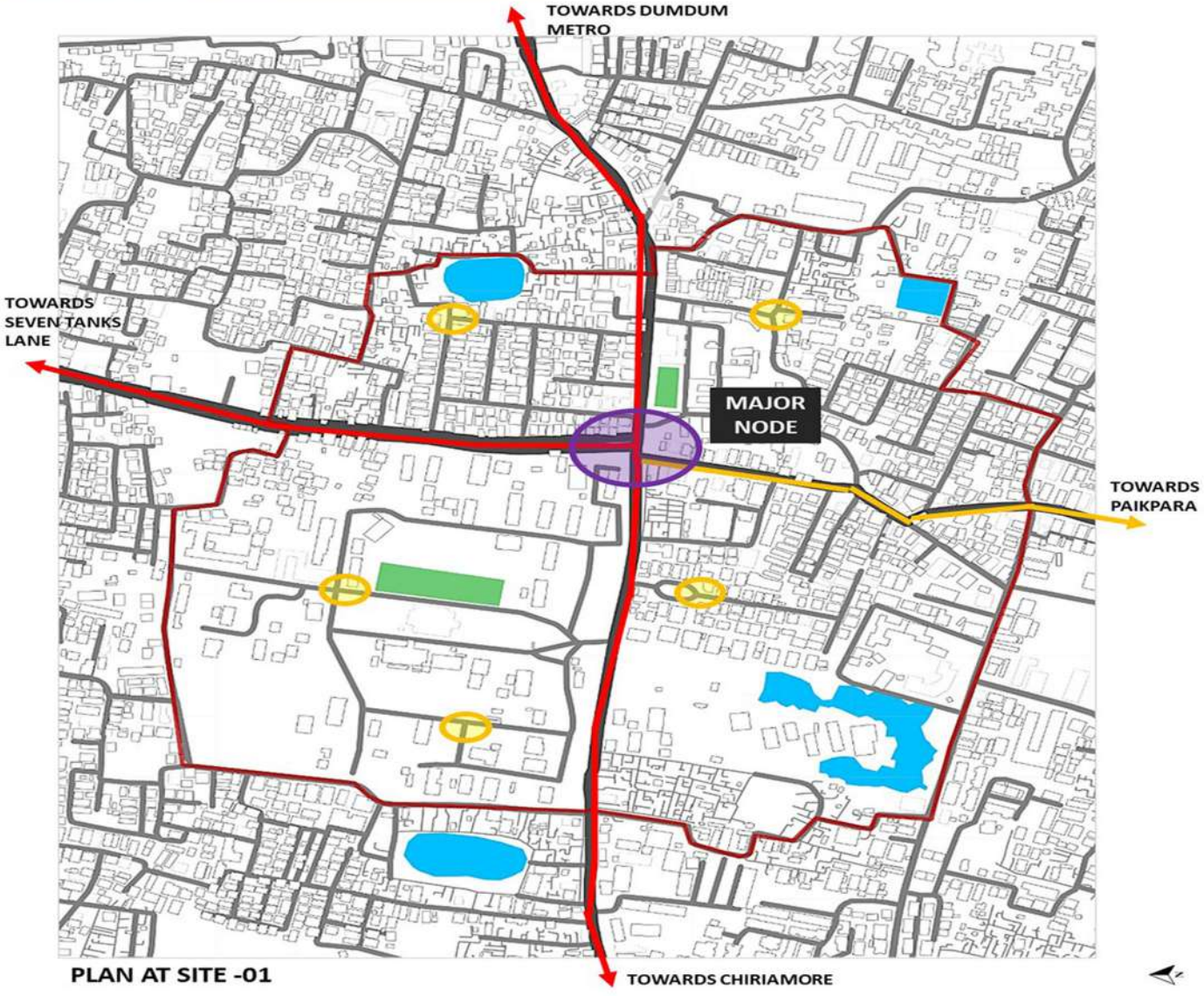
5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.3 SURVEY & ANALYSIS

IMAGE PARAMETER – NODE

MAJOR NODE – SEVEN TANKS CROSSING LANE



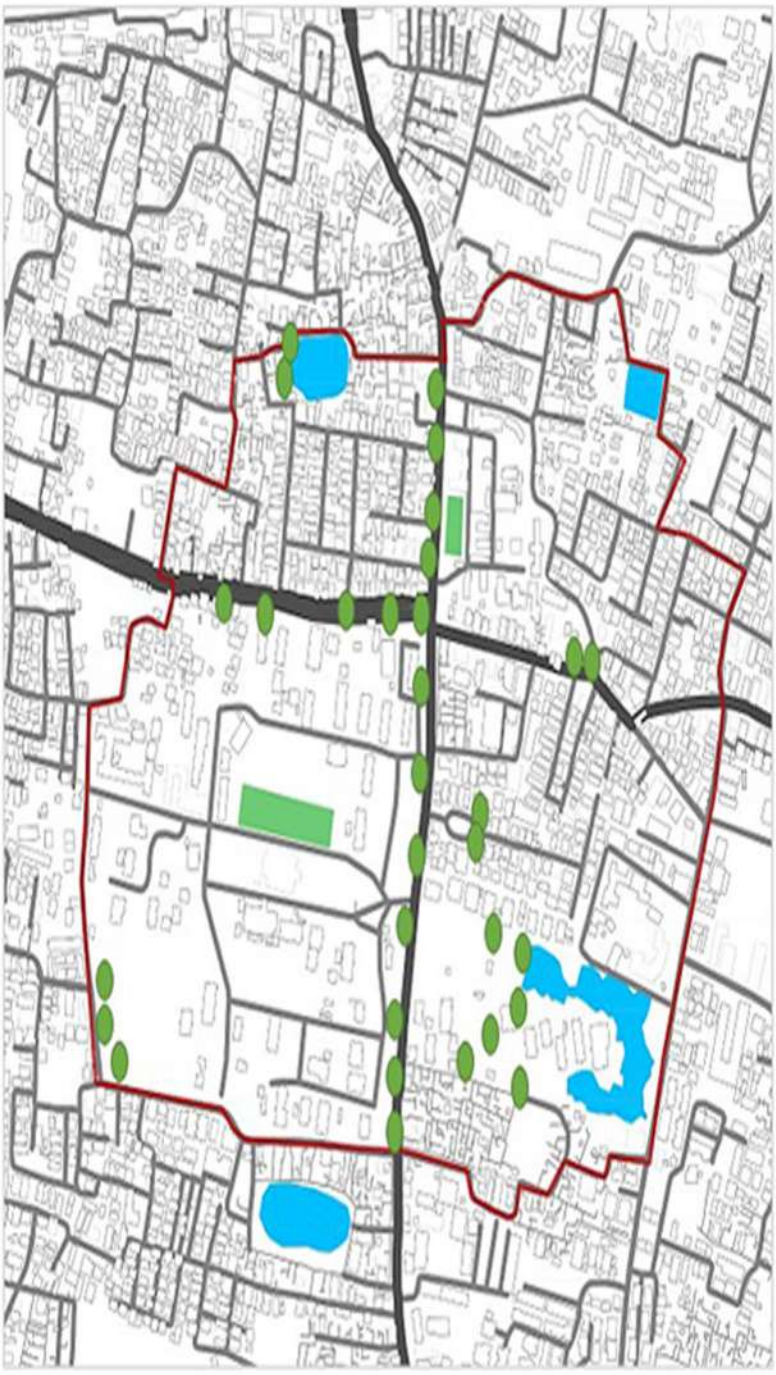
PLAN AT SITE -01

5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.3 SURVEY & ANALYSIS

IMAGE PARAMETER – EDGES



- E-W MOVEMENT CORRIDOR AS THE EDGE ROUTE FOR THE SITE.
- VARIED EDGE WITH BUILT AND OPEN SPACES ALIKE – PRESENCE OF WATER BODY, PRESENCE OF GREEN POCKETS AT EDGES.
- EDGE DEFINED MOSTLY BY MIX OF RESIDENTIAL AND MILITARY GROUNDS.

5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – ACTIVITIES

PARKING ON ROAD

UNORGANIZED AUTO AND BUS STOPS. NO TRANSPORT LANE.

MOST OF THE FOOTPATH IS ENCHROCHED WITH INFORMAL SHOP

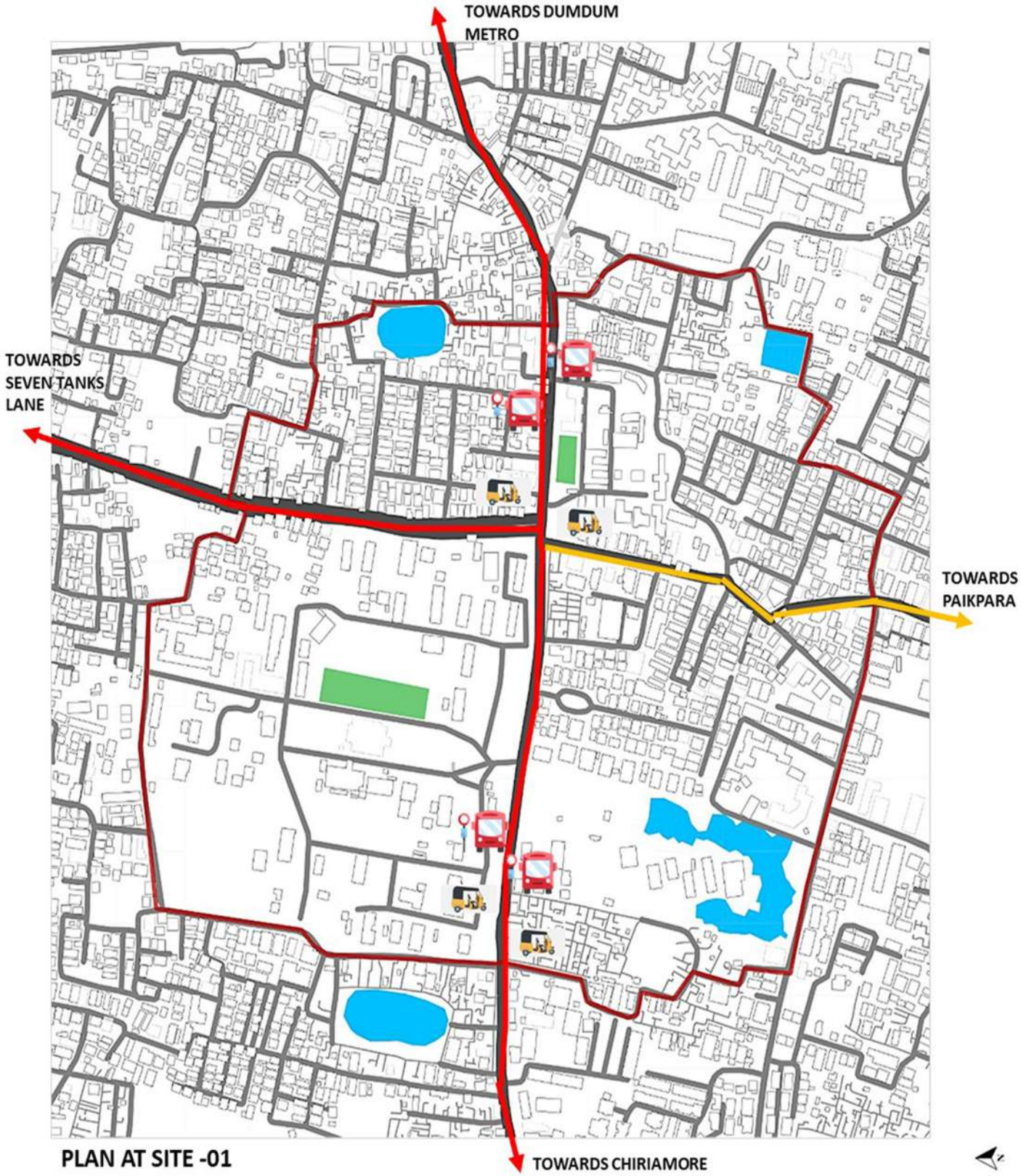
CONGESTED ROAD ALONG WITH CONGESTED PEDESTRIAN PATHWAYS, CREATING ZERO BREATHABLE AND WALKABLE SPACES.

5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – ACTIVITIES



PLAN AT SITE -01

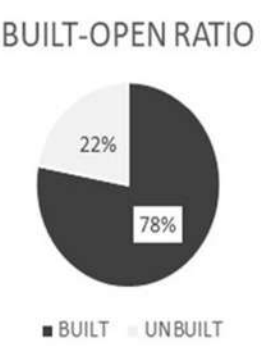
5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – SPACES (BUILT & OPEN SPACES)

REVERSE FIGURE-GROUND MAP SHOWCASING THE BUILT-OPEN SPACE RATIO, AND VARIATION IN HEIGHT OF THE BUILT SPACES.



CHARACTER PARAMETERS – VIEW, VISTA, SKYLINE

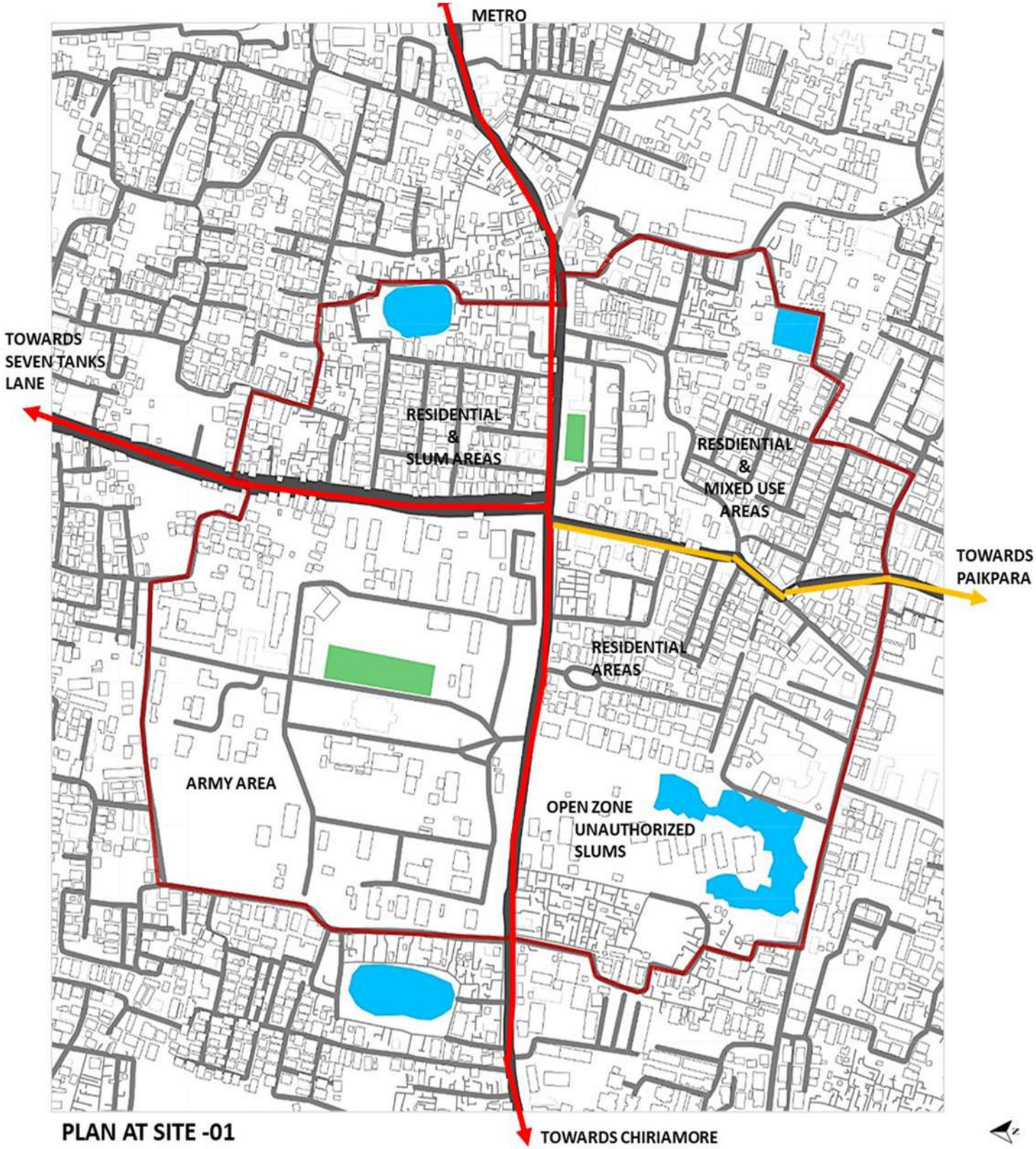
CONSISTENT VIEWS, VISTA & SKYLINE AT ARTERIAL AND LOCAL ROAD AREAS

5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – SPACES (BUILT & OPEN SPACES)



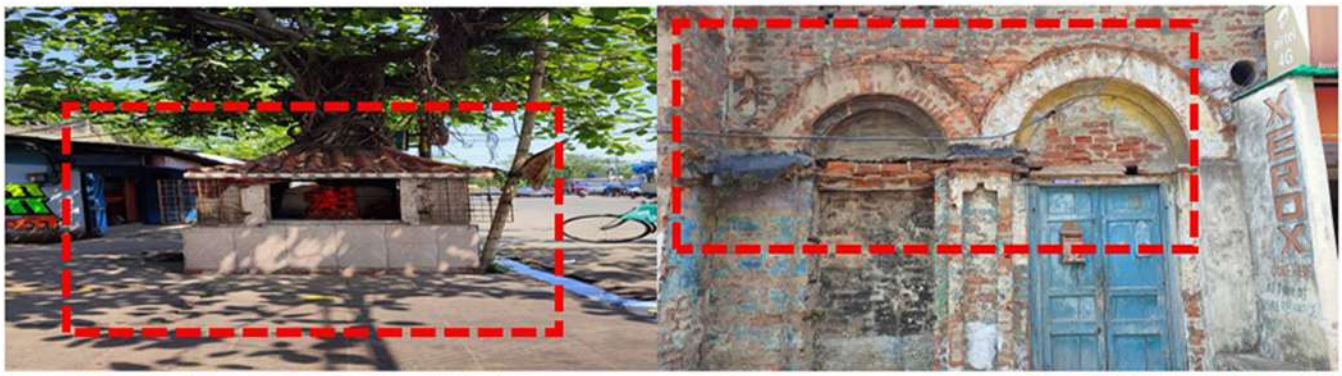
PLAN AT SITE -01

5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – ARCHITECTURAL FEATURES



- EVERY TREE ON SIDEWALK WITH A TEMPLE.
- CORINTHIAN-STYLE INFLUENCE ON OLD BUILDINGS AND ARMY AREA SIDE (SEVEN TANKS COMPOUND)
- VARIED GREEN POCKETS OVERLAPPING ON LOWER LEVEL BUILT AREAS.

CHARACTER PARAMETER – MAGNET GENERATORS

SEVEN TANKS ESTATE

CHILDREN'S PARK/ PUJA GROUND

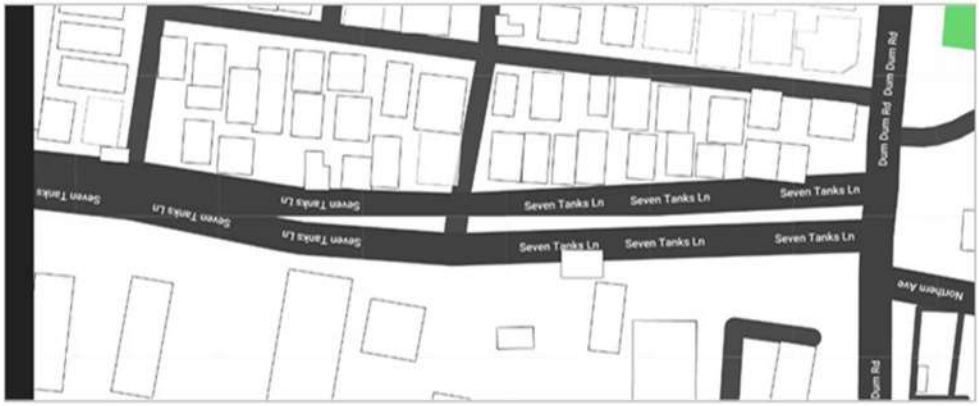
5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.4 PROPOSAL & SCHEMES

- DEDICATED BUS LANE IS NEEDED TO AVOID CONGESTION ON STREET.
- REDESIGN OF SIDEWALKS FOR BETTER PEDESTRIAN WALKWAYS.
- CONSERVATION OF BUILDINGS OF HISTORICAL IMPORTANCE.
- PLANNED RATIO OF STREET VENDOR AND PEDESTRIANS ON THE SIDEWALKS.
- PROPER DESIGNATED PARKING AREAS INSTEAD OF SCATTERED PARKING ON ROAD.
- CURB AND MEDIAN TO BE WELL DEFINED.
- TO ACHIEVE IDEAL STREET CONCEPT AND USE OF STREET FURNITURE TO CREATE PLACEMAKING.
- USING EXISTING LANDUSE AND CREATING INTERESTING PUBLIC SPACES IN NEGATIVE AREAS.

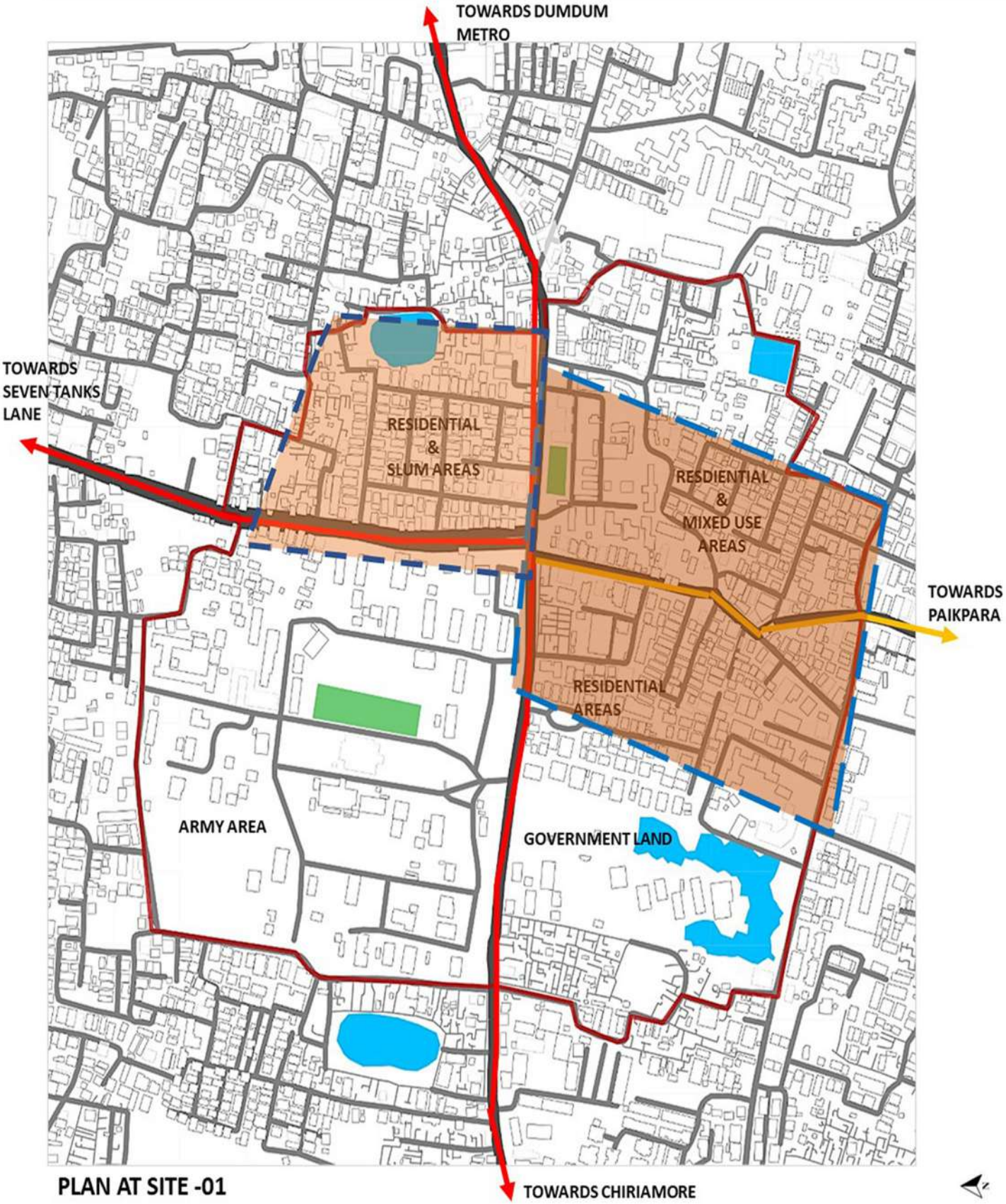
5.3.1.5 IDENTIFICATION OF INTERVENTION ZONES



5.3 SITE LEVEL

5.3.1 SITE 01

5.3.1.4 PROPOSAL & SCHEMES



PLAN AT SITE -01

5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.1 DELIENATION

SITE AREA – 71.66 ac SITE PERIMETER – 2.04 km

SITE ROAD LENGTH FOR MOVEMENT CORRIDOR STUDY - 0.53 km (approx.)

5.3.2.2 DESCRIPTION

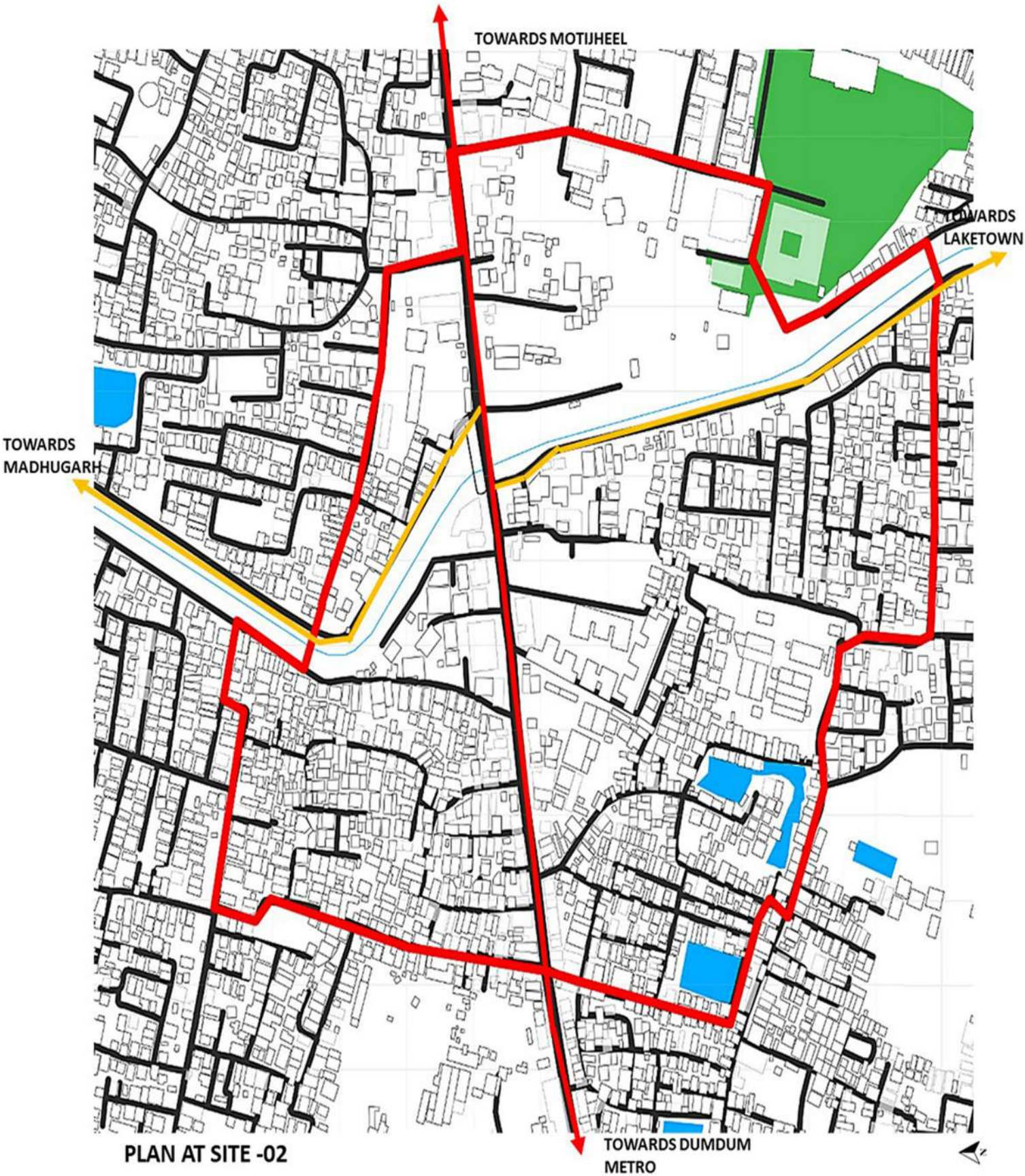
THE STRETCH FROM DUMDUM ROAD CONNECTING CANAL ROAD TO MOTIJHEEL NODE IS CHOSEN AS SITE -2.

COMPRISING IN THIS SITE THE PARAMETER STUDY HAS BEEN DONE.

THE SITE WILL FURTHER BE ANALYZED ON THE BASIS OF MOST BLIGHTED AND VULNERABLE AREA WITH ANY RELEVANT IMPORTANCE TO BE CHOSEN AS THE DESIGN IMPLEMETATION AREA FOR FURTHER STUDIES.

5.3 SITE LEVEL

5.3.2 SITE 02



PLAN AT SITE -02

5.3 SITE LEVEL

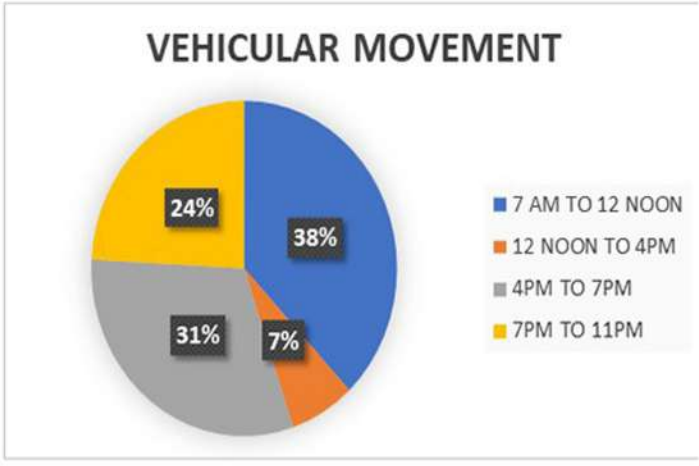
5.3.2 SITE 02

5.3.2.3 SURVEY & ANALYSIS

IMAGE PARAMETER – PATHWAY (VEHICULAR)

- MAJOR ARTERIAL ROW IS 20M.
- LOCAL ROAD WIDTH IS 6M.

THE VEHICULAR MOVEMENT ON THESE PATHWAYS COMPRISES OF –
BUS, AUTOS, NMTS, PRIVATE CARS, TAXI, RICKSHAW, TWO WHEELERS, CYCLES, CARTS, TRUCKS, ETC.



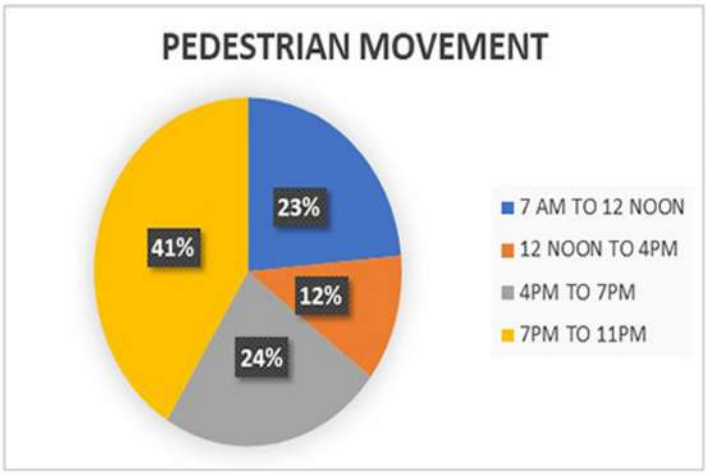
5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.3 SURVEY & ANALYSIS

IMAGE PARAMETER – PATHWAY (PEDESTRIAN)

- THE PEDESTRIAN PATHWAYS ARE MOSTLY THE FOOTHPATHS – 1M.
- NO WELL DEFINED FOOTPATH.
- ABSENCE OF KERBS AND HEIGHT VARIATION FROM CARRIAGE WAY AND SIDEWALK.
- FOOTPATHS FLUSHED AT ROAD HEIGHT.



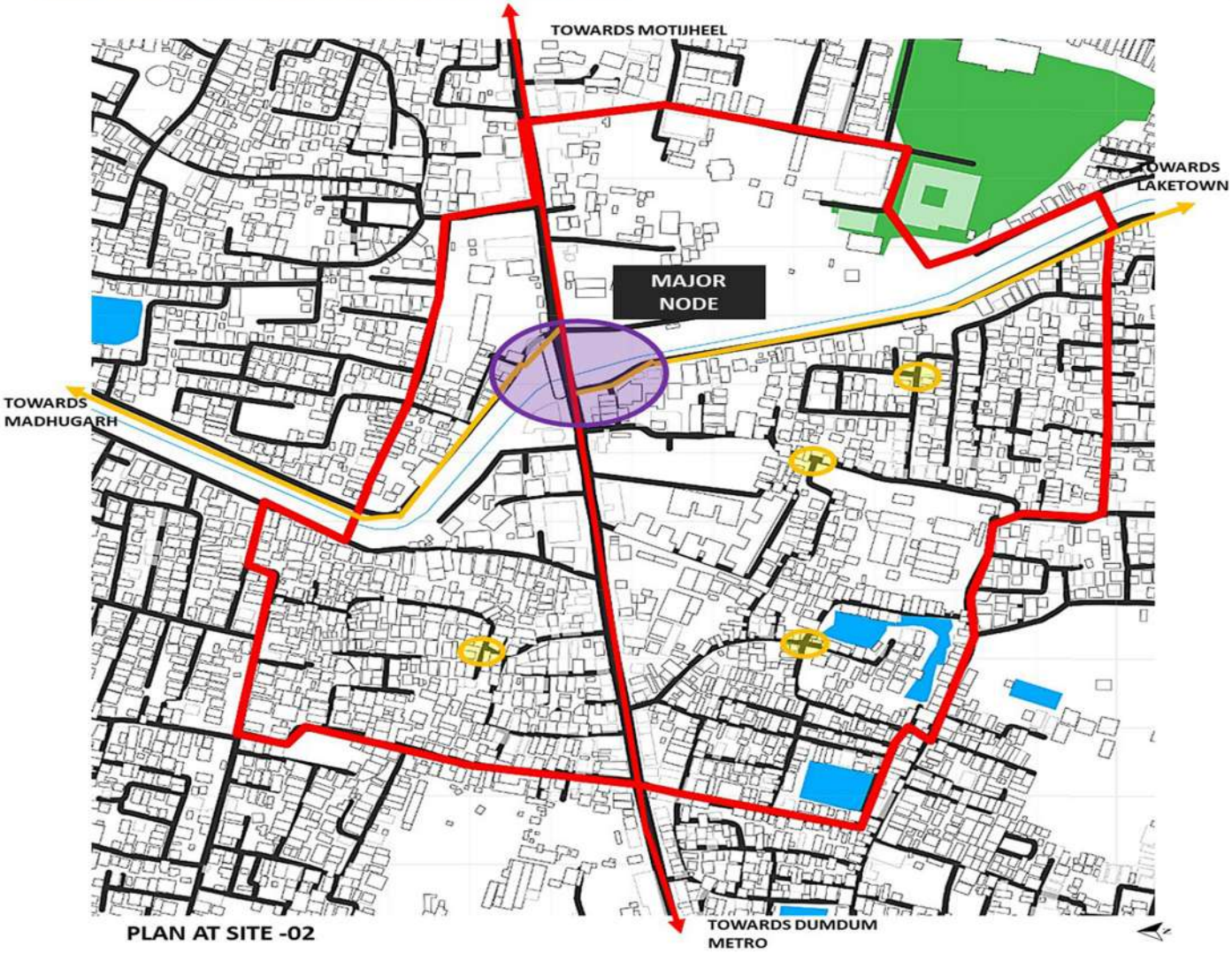
- NO DEFINED FOOT WALKWAY FOR PEDESTRIANS TO WALK ON THE KHALPAR ROAD.
- NO BOUNDARY TO SEPARATE THE CANAL AND THE CANAL ROAD.
- DILAPIDATED AND BLIGHTED CONDITION OF THE KHALPAR AREA, LEADING TO FLOODING ON THE STREETS DURING RAINFALL.

5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.3 SURVEY & ANALYSIS

IMAGE PARAMETER – NODE



PLAN AT SITE -02

5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.3 SURVEY & ANALYSIS

IMAGE PARAMETER – EDGES

- E-W MOVEMENT CORRIDOR AS THE EDGE ROUTE FOR THE ZONE.
- KHALPAR – URBAN CANAL ACTING AS AN EDGE FOR RESIDENTIAL AND MIXED USE BUILDINGS.
- VARIED GREEN POCKETS ACTING AS AN EDGE.

5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – ACTIVITIES

BIRYANI & FAST FOOD STALLS ENCROACHING ON THE STREET – TAKING UP PEDESTRIAN SPACES.

ILL-DEFINED NODE, ONGOING BRIDGE CONSTRUCTION, AND BLIGHTED CONDITION OF THE ROAD

GROUND FLOOR CONSISTS OF MIXED USE ACTIVITIES – FORMAL & INFORMAL SHOPS

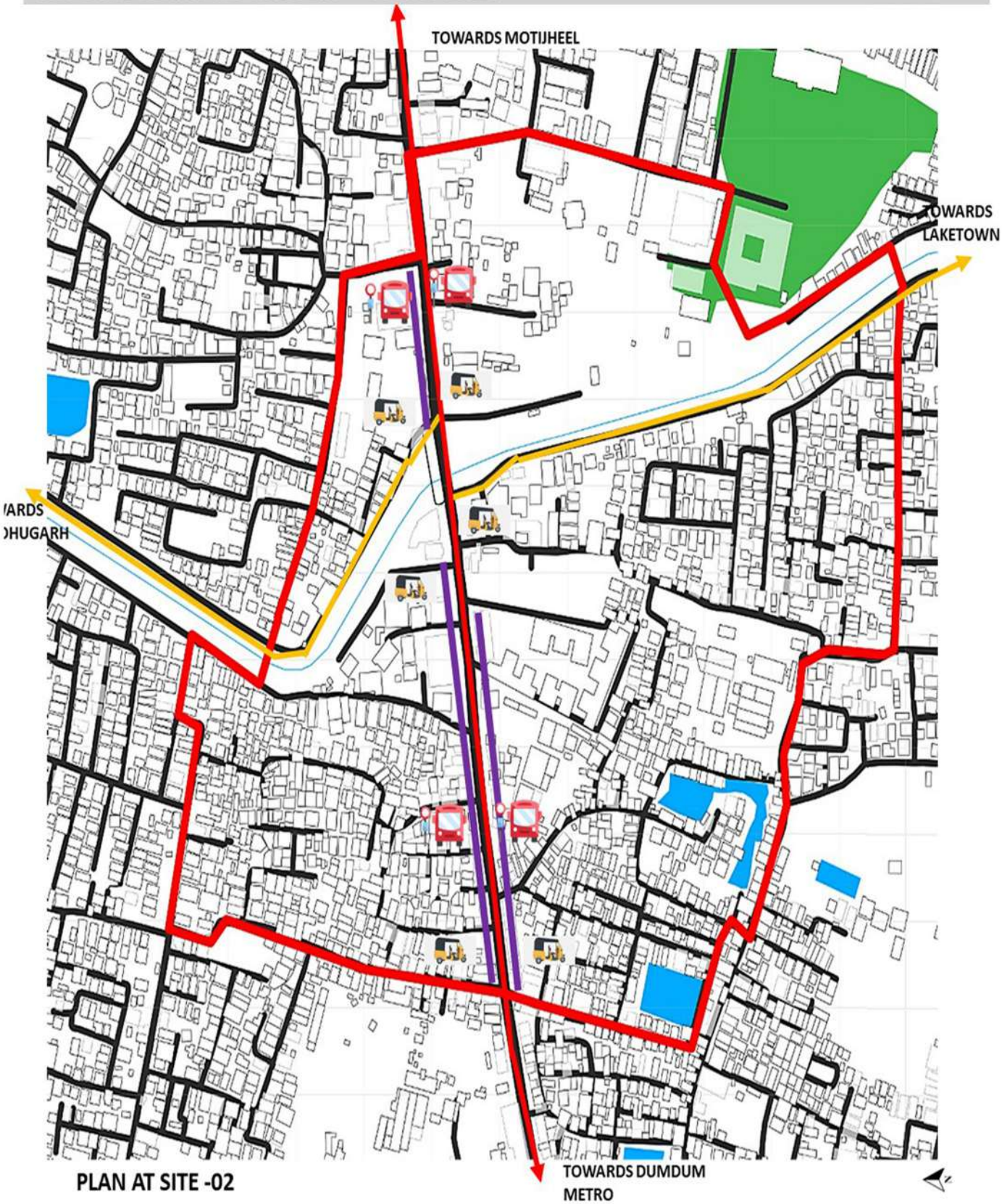
IGNORED EDGE AT KHALPAR, WHICH IS AN ACTIVITY ZONE FOR LOCAL FISHERMAN, SCOPE OF CREATING PUBLIC SPACES.

5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – ACTIVITIES



PLAN AT SITE -02

5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – SPACES (BUILT & OPEN SPACES)

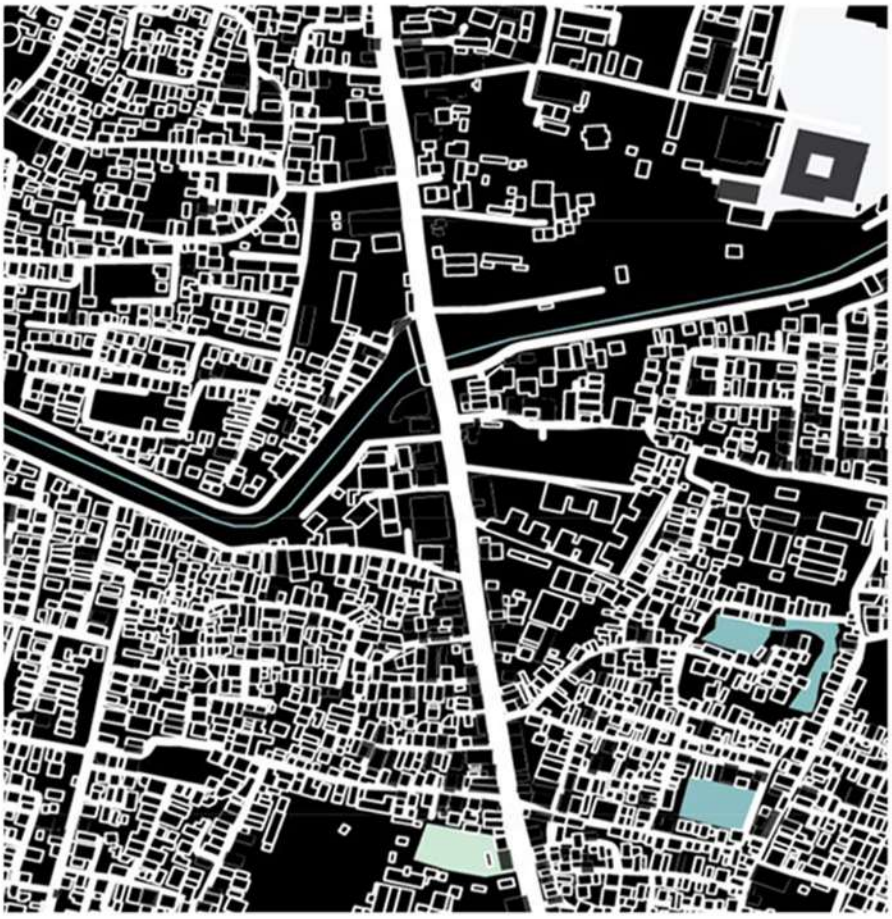
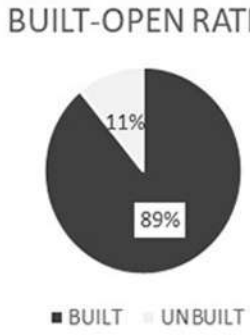
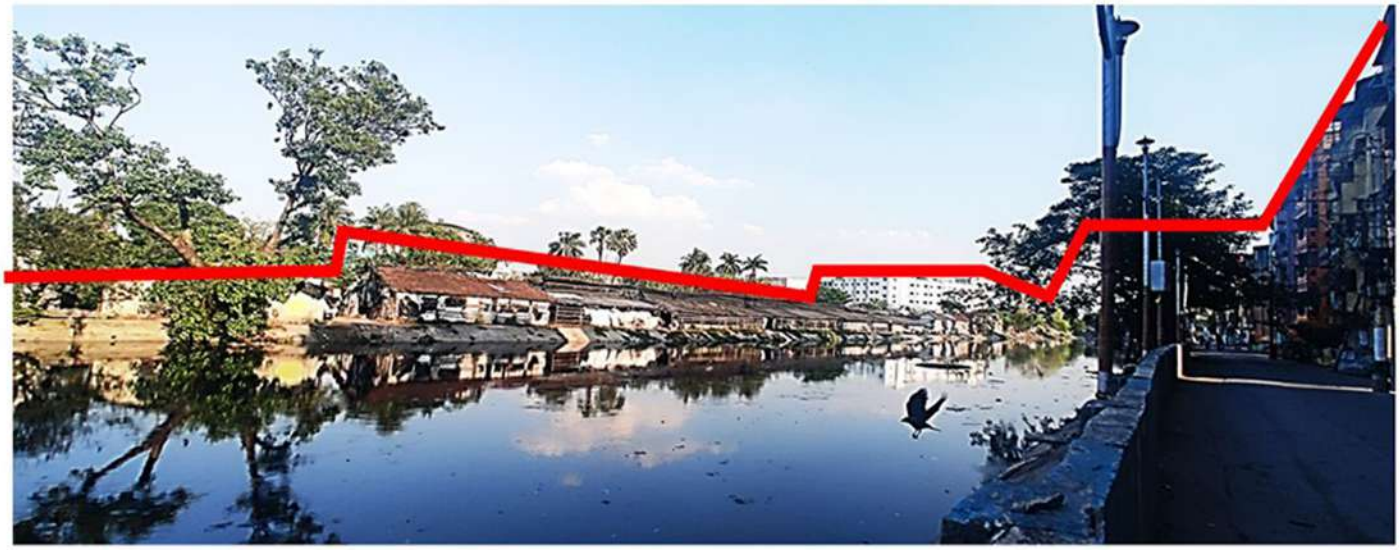


FIGURE-GROUND MAP SHOWCASING THE BUILT-OPEN SPACE RATIO, AND VARIATION IN HEIGHT OF THE BUILT SPACES.



CHARACTER PARAMETERS – VIEW, VISTA, SKYLINE

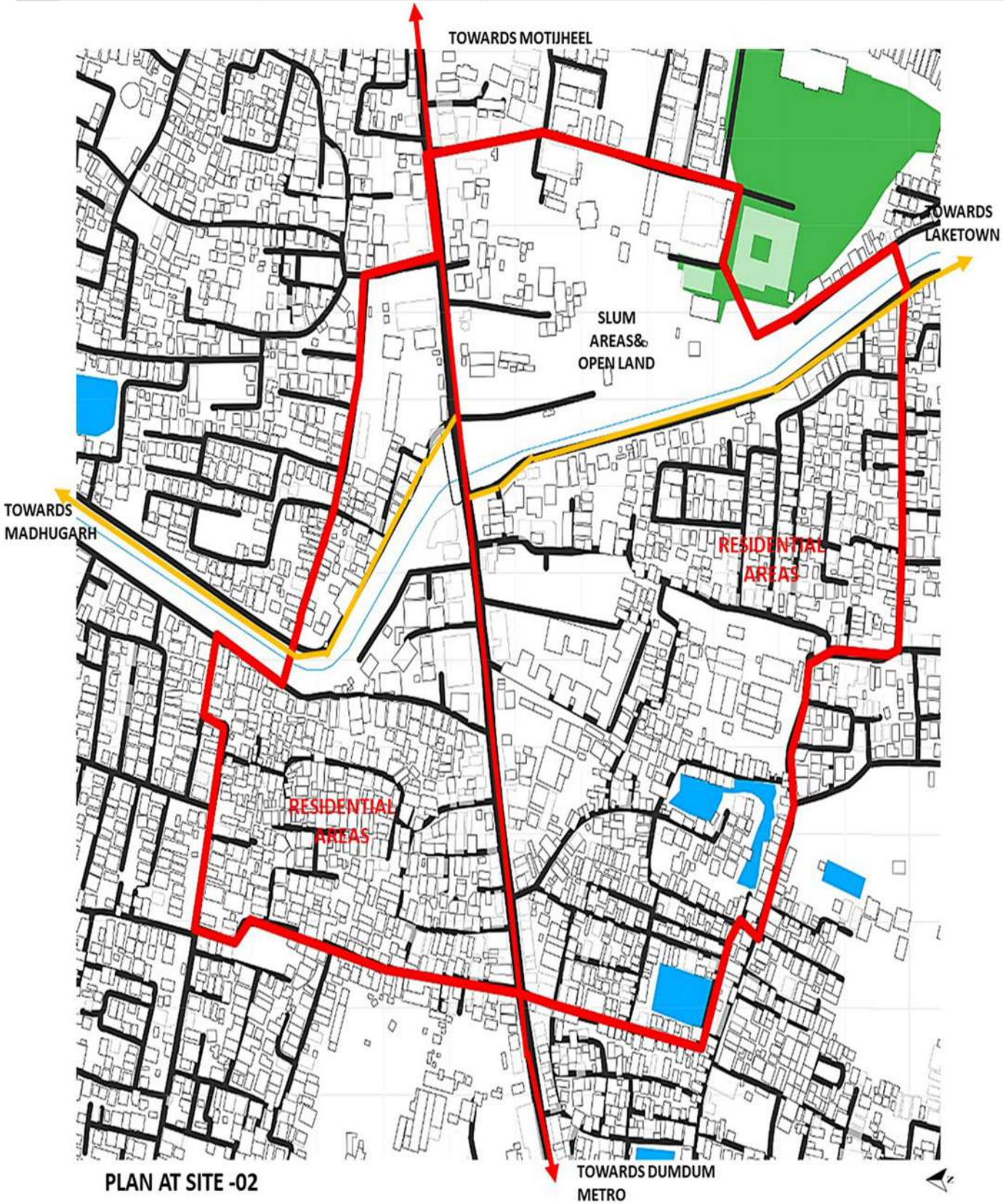


5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – SPACES (BUILT & OPEN SPACES)



PLAN AT SITE -02

5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.3 SURVEY & ANALYSIS

CHARACTER PARAMETER – ARCHITECTURAL FEATURES

- OLD HOUSES THAT AFFECT THE FABRIC OF THE AREA TO BE CONSERVED.
- EXISTING STREET FURNITURES DILAPIDATED – REDESIGN OF SPACES.
- TRIDENT STREET LIGHTING IN AN UNPLANNED LAYOUT.
- STREET SCULPTURES AT CROSSINGS FROM ARTERIAL TO LOCAL ROADS.

CHARACTER PARAMETER – MAGNET GENERATORS

HANUMAN MANDIR

KHALPAR AREA FOR RECREATION

MULTIPLE (ALMOST 45) STREET FOOD PLACES AT GL

5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.4 PROPOSAL & SCHEMES

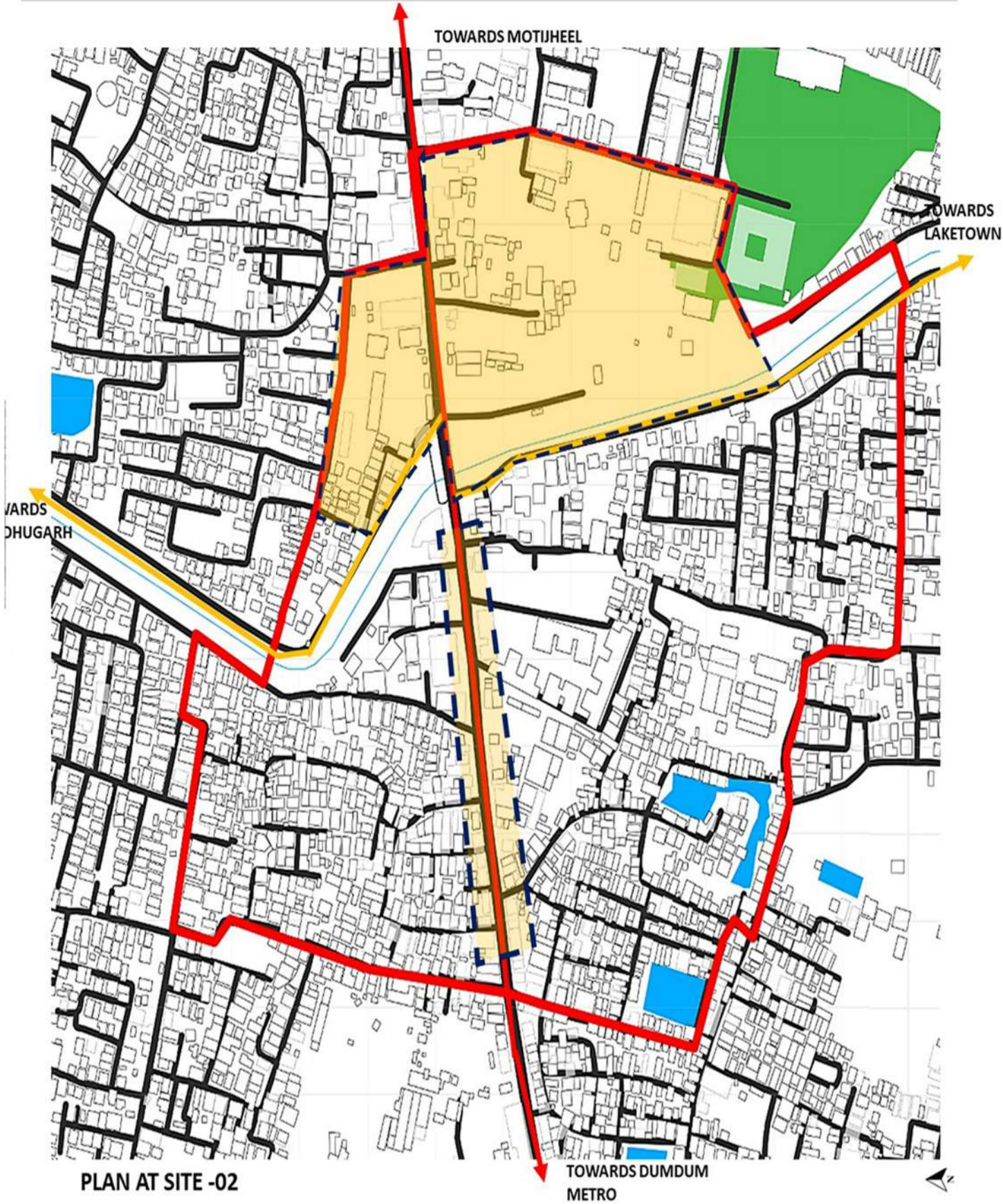
- DEDICATED BUS LANE IS NEEDED TO AVOID CONGESTION ON STREET.
- REDESIGN OF SIDEWALKS FOR BETTER PEDESTRIAN WALKWAYS.
- URBAN CANAL REDEVELOPMENT AS A RESULT OF BAGJOLA CANAL'S HISTORICAL IMPORTANCE TO BAIDYADHARI RIVER EXTENSION.
- PLANNED RATIO OF STREET VENDOR AND PEDESTRIANS ON THE SIDEWALKS.
- CURB AND MEDIAN TO BE WELL DEFINED.
- TO ACHIEVE IDEAL STREET CONCEPT AND USE OF STREET FURNITURE TO CREATE PLACEMAKING.
- USING EXISTING LANDUSE AND CREATING INTERESTING PUBLIC SPACES IN NEGATIVE AREAS AND PROPOSING GUIDELINES.
- CREATING PUBLIC SPACES ON SIDEWALKS AND GREEN POCKETS.

5.3.2.5 IDENTIFICATION OF INTERVENTION ZONES

5.3 SITE LEVEL

5.3.2 SITE 02

5.3.2.4 PROPOSAL & SCHEMES



PLAN AT SITE -02

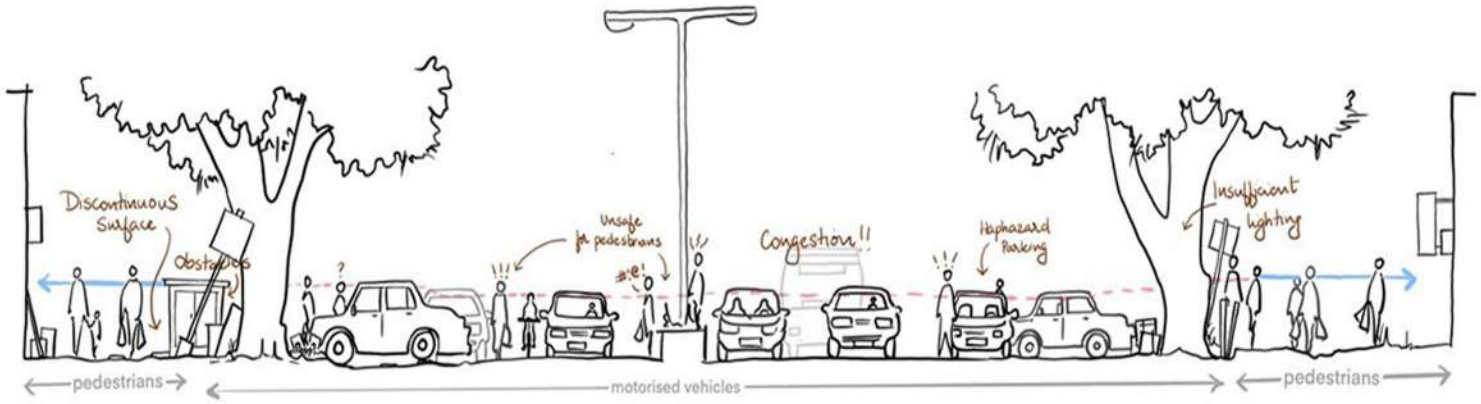
6.0 DESIGN IMPLEMENTATION

THIS CHAPTER CONCLUDES OUR THESIS PROJECT PROVIDING DESIGN GUIDELINES AND URBAN DESIGN SOLUTIONS FOR THE FINAL CHOSEN SITES AND DESIGN PROPOSALS BASED ON THESE GUIDELINES ARE DERIVED AND PLANNED WITH URBAN DESIGN DETAILS AND PLANNING AT MACRO AND MICRO LEVELS.

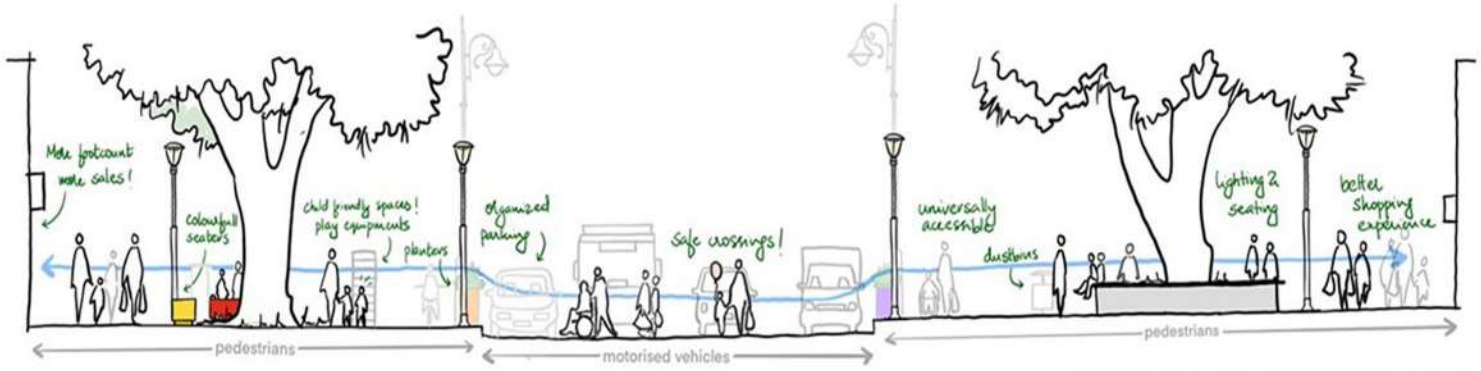
6.0 DESIGN IMPLEMENTATION

6.1 SITE 01

6.1.1 CONCEPTS



EXISTING STREET



PROPOSED CONCEPT FOR STREET

SLUM AREAS TO BE REDEVELOPED AND HEALTH HUBS TO BE INTRODUCED

AREAS NEAR THE LAKE TO BE REDEVELOPED WITH STREET FURNITURES AND SEATING

6.0 DESIGN IMPLEMENTATION

6.1 SITE 01

6.1.1 CONCEPTS

PROPOSING LINEAR SKYLINE IN THE NEIGHBOURHOOD AREAS (SLUMS MAINLY), WITH COURTYARD GENERATION FOR RECREATION AND PLAYING AREAS FOR CHILDREN.

BUILDINGS ABANDONED IN MIXED FABRIC TO BE DEMOLISHED AND CREATE AREAS FOR HEALTH HUBS AND STREET VENDOR SHOPS.

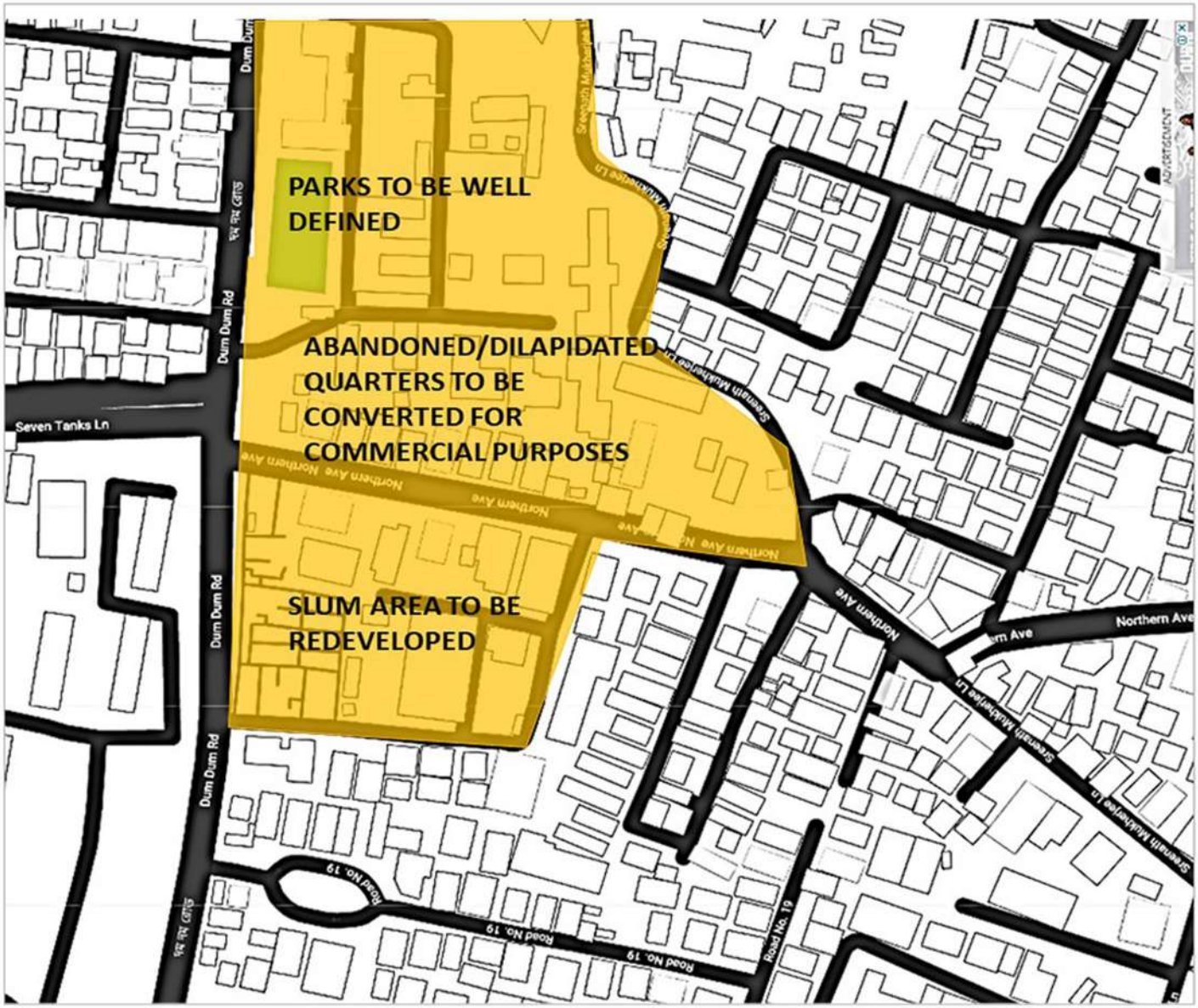
CREATING SPACES OF SEATING UNDER TREE SHADE, DEFINED PEDESTRAIN ZONE, AND DEDICATED PARKING AREAS IN THE STREETS.

6.0 DESIGN IMPLEMENTATION

6.1 SITE 01

6.1.1 CONCEPTS

EXISTING PLAN OF THE STREET

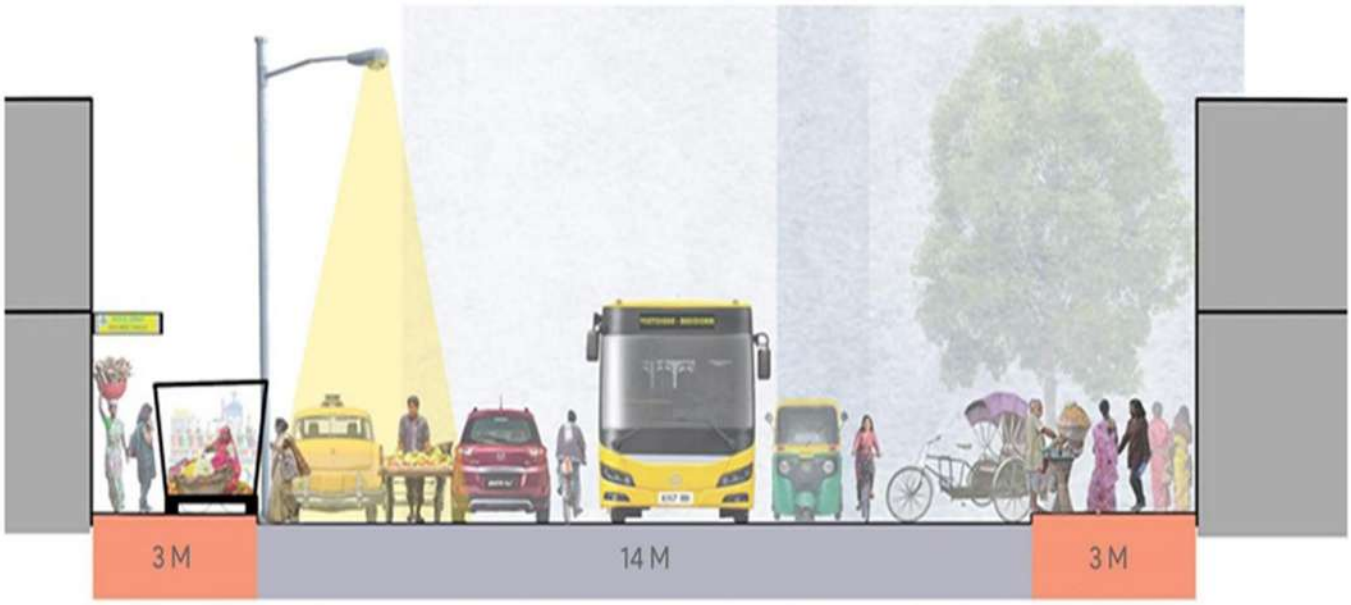


EXISTING PLAN OF THE SLUM AREA SURROUNDED WITH GROUND FLOOR ACTIVITY

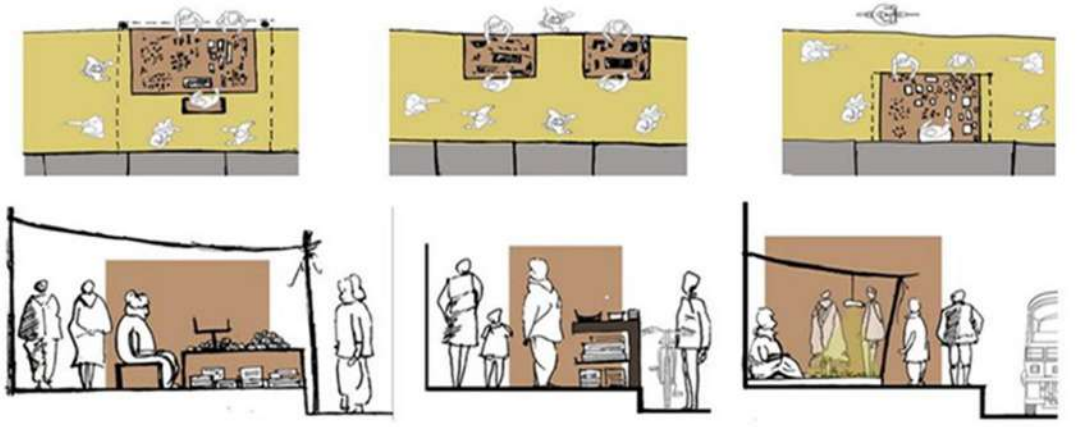
6.0 DESIGN IMPLEMENTATION

6.2 SITE 02

6.2.1 CONCEPTS



EXISTING SECTION OF DUMDUM SUB-ARTERIAL ROAD – (R.O.W. – 20M)



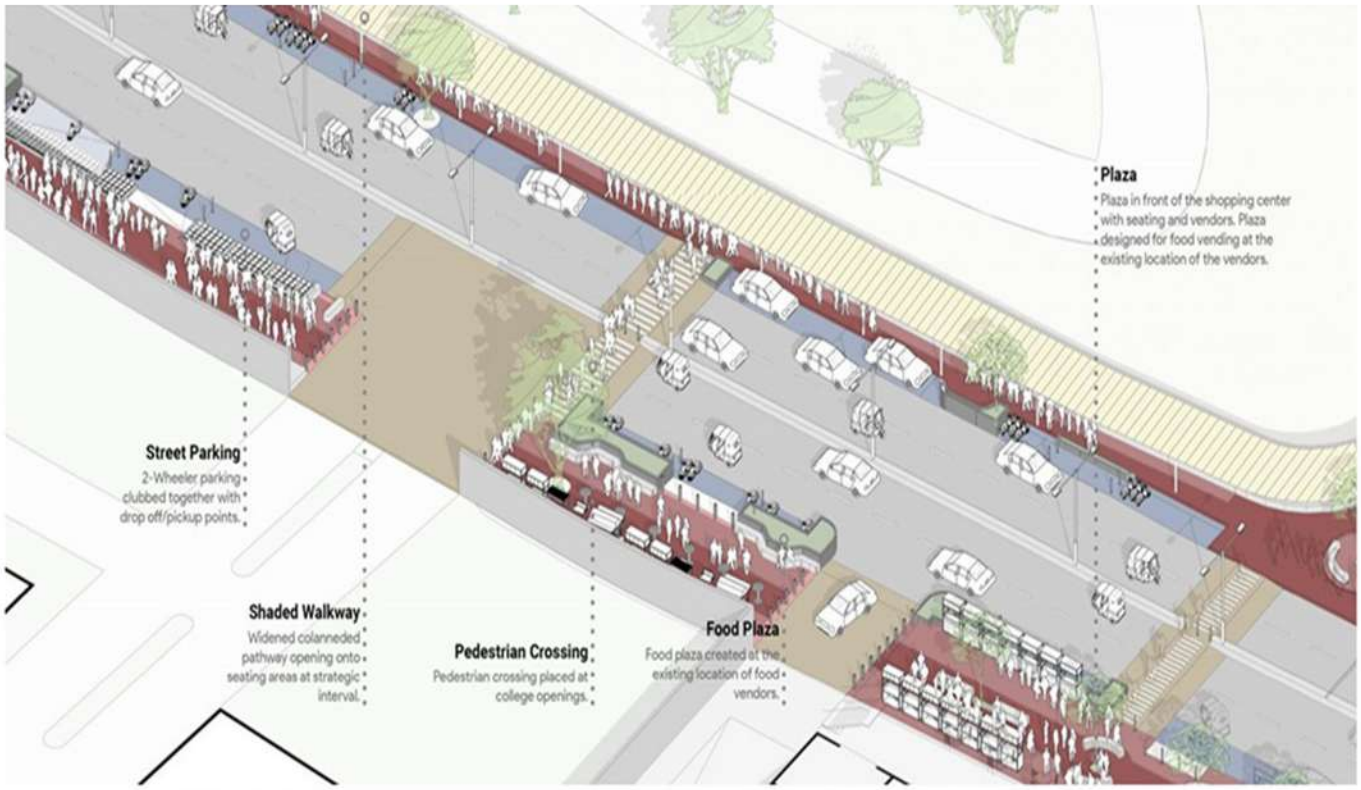
DIFFERENT KINDS OF EXISTING STREET VENDOR ACTIVITIES IN THE STREET TO BE RELOCATED

THE STREET EDGED WITH GROCERY VENDORS AND FOOD STALLS ON THE ROW.

6.0 DESIGN IMPLEMENTATION

6.2 SITE 02

6.2.1 CONCEPTS



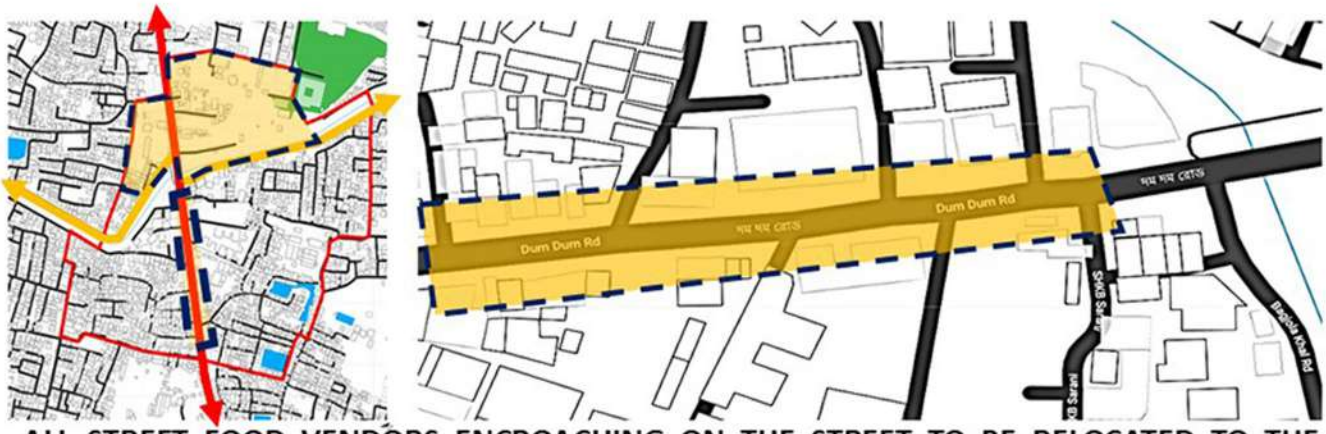
TO CREATE DEDICATED LANES ALONG WITH EXPANDED PEDESTRIAN PATHWAYS, AND ORGANISED STREET PARKING ZONES.

PROPOSING A COMMERCIAL AND FOOD PLAZA OVERLOOKING THE CANAL, WITH STEPPED SEATING TO ACCESS THE CANAL FRONT PLAZA. (PROPOSED)

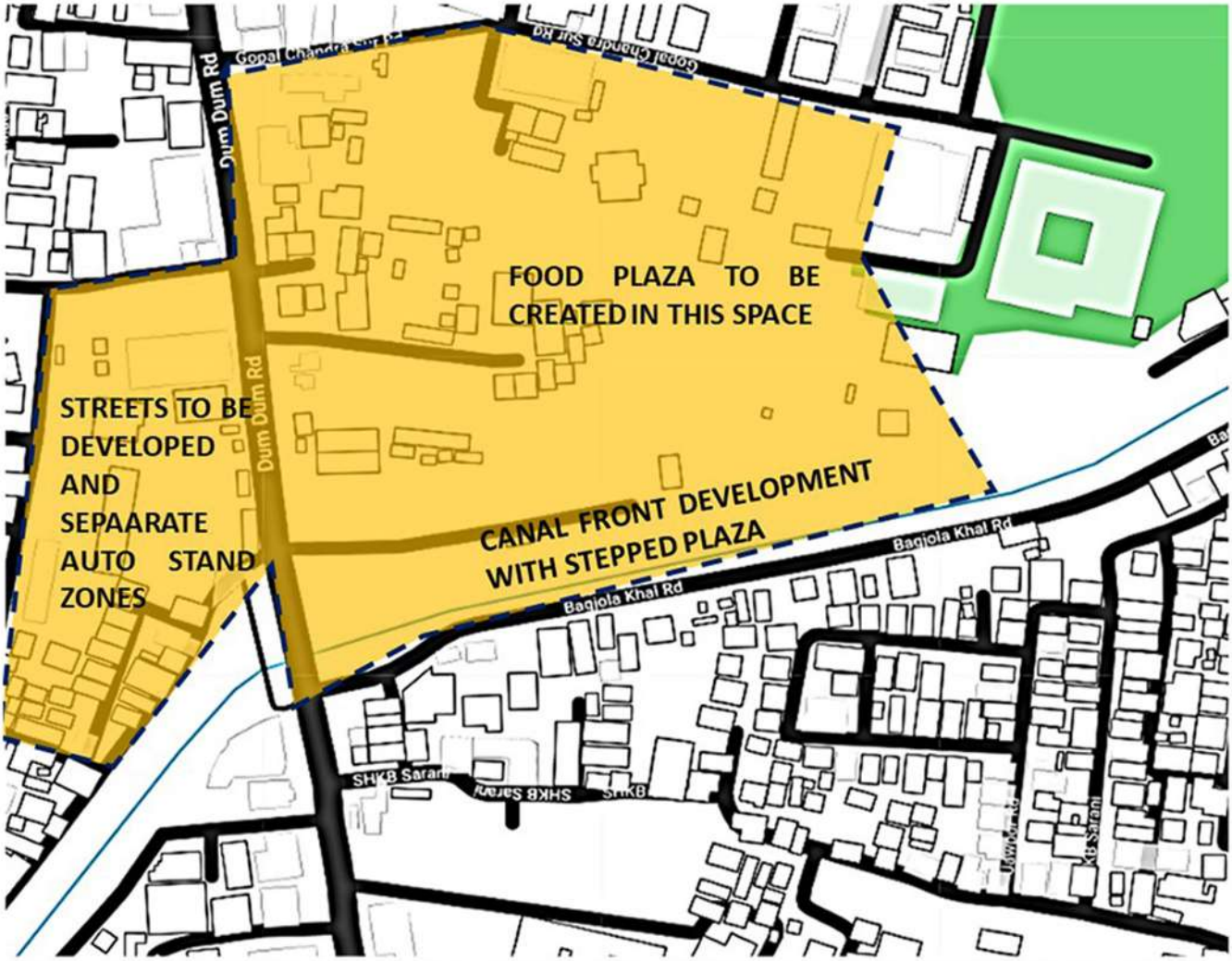
6.0 DESIGN IMPLEMENTATION

6.2 SITE 02

6.2.1 CONCEPTS



ALL STREET FOOD VENDORS ENCROACHING ON THE STREET TO BE RELOCATED TO THE PROPOSED FOOD HUB CREATED NEAR THE CANAL FRONT AREA. STREET TO BE REDESIGNED VIA PLACEMAKING TOOLS (STREET FURNITURES, PLAZA, SEATING, BRT LANE,ETC.



AREA PROPOSED TO BE A FOOD PLAZA AND RECREATION ZONE WITH CANAL FRONT DEVELOPMENT AND SEATING AREAS ABETTING TO THE CANAL USAGE AS A RECREATION ZONE.