

ADAPTING URBAN MARKETPLACES: PERFORMANCE INDICATORS FOR SUSTAINABLE PUBLIC SPACE DEVELOPMENT

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Abstract

A city is a collection of activities that must cater to the requirements of its citizens and exist because of them. A city's ability to support public life and make user interactions with public spaces valuable is what makes it what it is. Residents frequently use local areas such as streets, marketplaces, etc. More attention should be paid to the details of public areas than to the architecture of famous buildings if the city is to become a better place to live. Over time, urban areas' built environments have seen continuous expansion and development, but their inability to adjust and maintain themselves in the face of these changes is causing degradation of the cities. An ideal public area should be sustainable and flexible enough to accommodate shifting social, cultural, economic, and environmental trends. The built environment is made up of a number of characteristics that serve as performance indicators when examining a particular region. In order to investigate and assess a typical Indian market place in Ranchi, the state capital of Jharkhand, this research identifies these indicators using the literature studies that have been completed. The study's main goal is to investigate how urban public spaces might be made more environmentally, economically, and socio culturally sustainable. Keywords: Urban spaces, public spaces, environment, economic, culture.

Keywords: environmentally, economically, market place

INTRODUCTION

Despite being the most basic public areas, streets are also the most disputed and disregarded. The street must be paramount in a city. It is the city's original institution. By agreement, the street is a shared space, a chamber whose walls belong to the contributors and which is given to the city for its collective use. Among the fundamental tenets of public space are the significance of recovering it as walkable, livable, and communitybased. Anyone can enter a public area without even a notice indicating their right of entry. It has the power to bring people back together and create positive connections that promote harmony and development in the neighbourhood. The planning and engineering principles we use to build and control our streets as places—both an organising concept and strategy—can help make room for these changes, despite the fact that our values and demographics have changed significantly over the past 70 years.

“Public spaces play vital role in social and economic life of communities. They act as self-organizing public spaces, a shared resource in which experience and value are created.”

Joseph Rowntree Foundation

Public areas serve as a gallery for showcasing the customs and culture of the city. Depending on the time of day, day of the week, or month of the year, different activities take place in public spaces. With the aid of local identity and ties, every public area contributes to the growth of a feeling of community inside the city.

Introduction to Ranchi & its Public spaces

The capital of the recently established state of Jharkhand is Ranchi, a city on the Chotanagpur plateau in the country's east. Originally established as an administrative hub during British rule in 1834, Ranchi was formerly known as Kishanpur. In order to sustain its administrative foundation, it has been expanding in all directions ever since. Its development in industry, education, and healthcare has also been aided by the great mineral resources of the neighbouring districts. However, the region's natural wealth, art, and culture have all been significantly impacted by this relentless growth.

The city is expanding quickly, and there is a strong demand for travel, as well as increased traffic, delays, accidents, pollution of the environment, and related energy expenses. To guarantee that the city becomes competitive and productive, it is essential to have the right infrastructure for its expansion and sustainable Development.

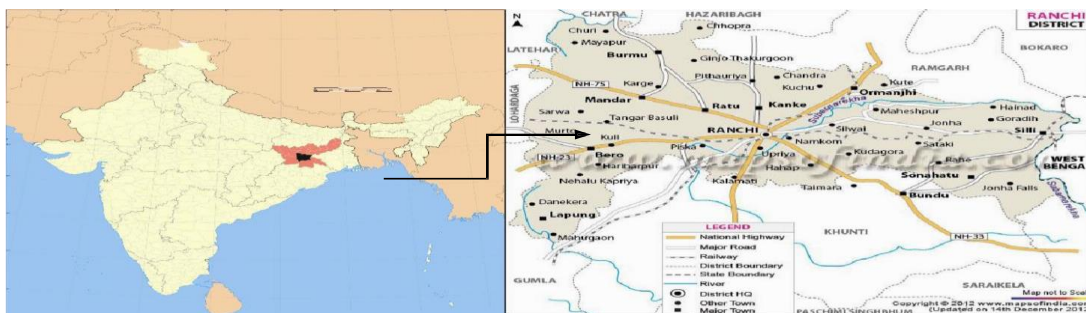


Fig. 1: Location map of Ranchi Source: mapsofindia.com

Ranchi's main public areas are the streets. The majority of the main public events are held at these locations. They are places where people congregate and engage with one another, as well as shops and stores that serve their needs and places for relaxation and amusement after a long day. These include places of worship, parks, public gardens, restaurants, food outlets, and market locations, among others. Although the streets support all social events and encourage interpersonal communication, they are poorly planned, poorly equipped, poorly organized, and poorly managed.

The majority of the streets are occupied by commercial recreational activities and retail establishments, but they lack calm, green areas where people of all ages, including young children and the elderly, can relax. They don't have a safe environment where people may wander the streets without fear. Later in this research, a full analysis of this public area is provided to bolster the aforementioned findings.



Fig. 2: Streets of Ranchi being used as public spaces Source: author

Aim

○ To comprehend the City of Ranchi's public spaces' current built environment and offer ideas for improving its usability.

Objectives

- To research Ranchi's public spaces' constructed environment. to comprehend the sociocultural interactions that are now in place.
- To give recommendations on ways to improve the built environment of public areas so that current sociocultural activities can continue.

Limitations

The evaluation of the external built environment, which comprises the streets, open spaces, exterior facades, trees, green areas, and other elements of one of Ranchi's oldest public spaces, is the exclusive focus of this study. The urban conditions of the selected study area are the main focus of the investigation. People's perceptions have been the primary basis for evaluating the built environment.

LITERATURE REVIEWS

A few design theorists and practitioners, including Lynch, Jacobs, Appleyard, and others, have sought to identify desirable aspects of successful urban design as part of the place-making tradition. Because people cannot travel far to view all of the structures in an urban setting, they are more likely to notice the spaces between buildings and architectural elements like facades, windows, thresholds, and entrances. This means that well-maintained details that are visually and aesthetically appropriate are important. Inviting public open areas, such as covered arcades, pedestrian walkways, open walkways, and courtyards for gatherings, in order to encourage social interaction and give users a feeling of place. Interactive edges to help close the gap between the social fabric and the physical place. The distinction between public and private areas is blurred by the use of architectural features such as vibrant thresholds. Increased use of non-motorized vehicles for local transportation. Mobile workspaces are ones that a range of people can utilise to carry out different tasks. Numerous amenities and services that are well-connected. Flexibility in

the layout of building blocks, short building blocks that allow for frequent turning, overlapping functions that ensure the necessary services are within reachable limits, a balanced envelope enclosing the street, a wide variety of environmentally friendly transport options, adequate personal connections between users and the city through signage, lighting, and installations, a wide range of experiences to keep users interested, physical and visual connectivity/accessibility. A city can have a unique character by establishing a well-defined urban perimeter and preserving similarities in building heights, building lines, roof slopes, window types, etc. The massing of blocks, roof shapes, building heights, and other factors determine the structures' prominence and create the skyline, hence determining the skyline's character.

Buildings should enclose streets, squares, parks, and other open areas in proportion to their width and significance. The parking, landscaping, lighting, direction, shelter, signage, street furniture, how it is overlooked, and the routes that go through it all affect how good the public realm—which includes streets, parks, squares, and arcades—is. Well-planned public areas should be accessible to all users, including the elderly, young people, and those with disabilities, and should be useful components of the pedestrian network. Streets and intersections become more convenient if they serve as public areas rather than merely channels for traffic. Street lighting's significance can be determined by its kind and quantity. Plants, biodiversity zones, and other features can serve as a public space's focal point. Features like windows, colonnades, and other exterior elements can pique the interest of onlookers. Incorporating artistic creations and thoughtfully designed street furniture into public areas contributes to a sense of place and identity. Access to subterranean facilities, resistance to vandalism, and maintenance requirements should all be considered while designing a streetscape.

A system of connected roads and areas for both cars and people. Minor roads, shortcuts, and well-established pathways can serve as the foundation for long-lasting connections. Short, connected streets can improve accessibility and promote bicycling and walking. An essential component of design should be the appropriate placement of buildings and spaces, as well as physical traffic-calming techniques. Public transit accessibility may be improved by the design and density of buildings. Systems of public transit ought to be planned as an essential component of the public space. Additionally, it contributes to the creation of secure pedestrian areas. Planting can be used to highlight pedestrian pathways.

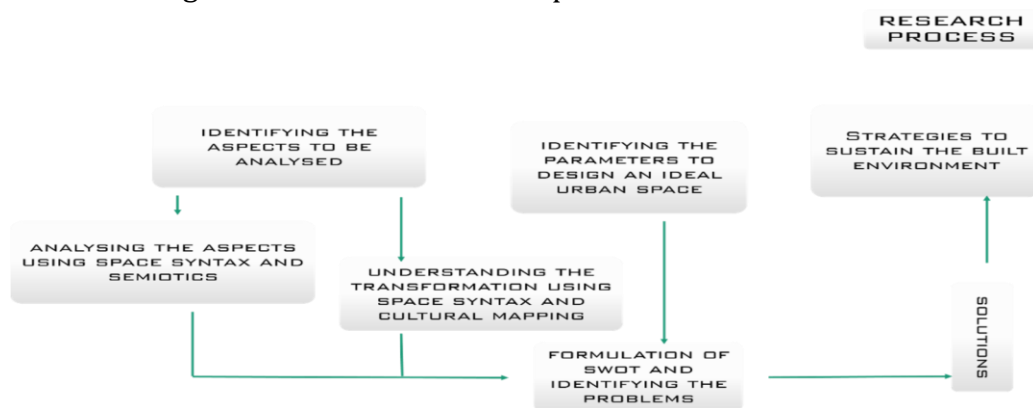
In order to make the space easier to grasp, the main entrances should be clearly marked. Putting corner buildings higher than nearby structures will highlight their significance because they offer identification and points of orientation. Public use stores that are positioned on the corners of busy streets promote local identity and activity. Road ought to be constructed in accordance with flexible standards in order to accommodate a wider range of future applications. The four characteristics that characterise a user-friendly city are readability, legibility, imageability, and memorability. Legibility can be characterised as the way the city is perceived by its residents and how easily they can navigate and identify it. The ease with which residents can move about the municipal borders is known as readability. how simple it is for users to navigate and comprehend the city. A physical thing is said to be imageable if it has a high likelihood of

conjuring up a powerful image in the mind of any viewer. A well-designed, unique, and highly imageable city encourages increased participation and attention from the human senses. A sustainable public space has several qualities, such as being accessible to all users, which promotes equity; accommodating multiple uses; providing interesting vistas and pleasing visual experiences; being safe and welcoming; reflecting local culture and history; protecting and enhancing the environment and natural features; creating a sense of place among users by being readable and memorable; being visually appealing and interesting; and being economically valuable to the rest of the Built Environment. The quality of the global environment is significantly impacted by the development of the urban environment. It is well known that the process of urbanisation causes significant alterations to the local environment. Microclimates with varying degrees of comfort are produced by varied layouts.

III. RESEARCH METHODOLOGY

The literature mentioned above has been used to comprehend the significance of environmental, social, and cultural sustainability in urban space design and to determine a set of design metrics that are essential for evaluating a public space's sustainability quotient. The several elements of the urban built environment that together make up its essential component and aid in determining its state are known as these urban parameters. The location is studied by visual observation, surveys, photography, videography, and interview techniques. Maps, tables, and graphs are used to illustrate the observations. Every performance indicator has a performance criterion that is used to analyse a certain element. The performance criteria for assessing the state of the current public space are contrasted with the observed observations. Following an evaluation of the current situation, improvisational methods are suggested.

The following flow chart elaborates the process followed in the research:



Chosen Performance Indicators:

- Microclimate
- Resource management
- Ecology Greenery and Landscape
- Range of Uses

- Organization of spaces
- Transport systems
- Urban Interactions
- Mental Image and Ease of Recognition
- Intensity of Development
- Built Forms and Visual Relationships
- Culturally induced movements

Illustrated --The oldest public space of Ranchi

The four major junctions in the CBD known as Firayalal chowk, Sarjana Chowk, Shaheed Chowk and Gandhi Chowk connect the street which is the oldest public space of Ranchi. This forms the center of the municipal area of Ranchi.

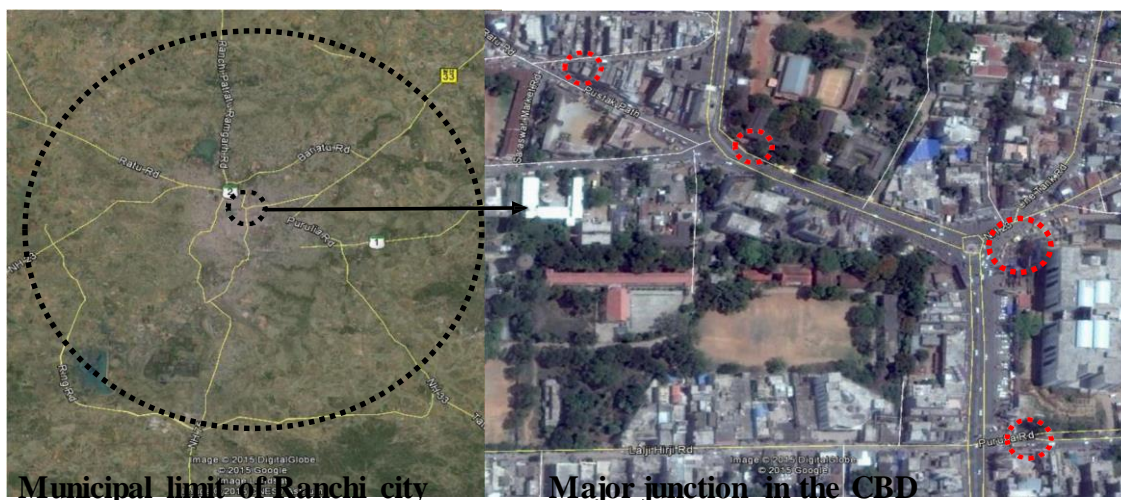


Fig. 3: location of the public space of Ranchi chosen for the study Source: author

Together, these make up one of Ranchi's oldest and most important commercial areas. The intersection of the Mahatma Gandhi Road and the Hazaribagh Highway, along with three more connecting roads, occurs here. On the outskirts of the blocks are mixed-use buildings with apartments on the upper floors, as well as retail and wholesale establishments. These blocks' interiors are made up of public semi-public structures including banks and phone offices as well as institutional buildings like Sadar Hospital, Zilla School, St. Xavier's College, and Ranchi University. The road is the site of all other activities, such as driving, walking, moving non-motorized

vehicles, hawking, waiting, interacting with people, and parking.



Fig. 4: land-use and typology map Source: author



Fig. 5: An Aerial view of Firayal junction Source: author



Fig. 6: Descriptive map to illustrate the visual observations Source: author

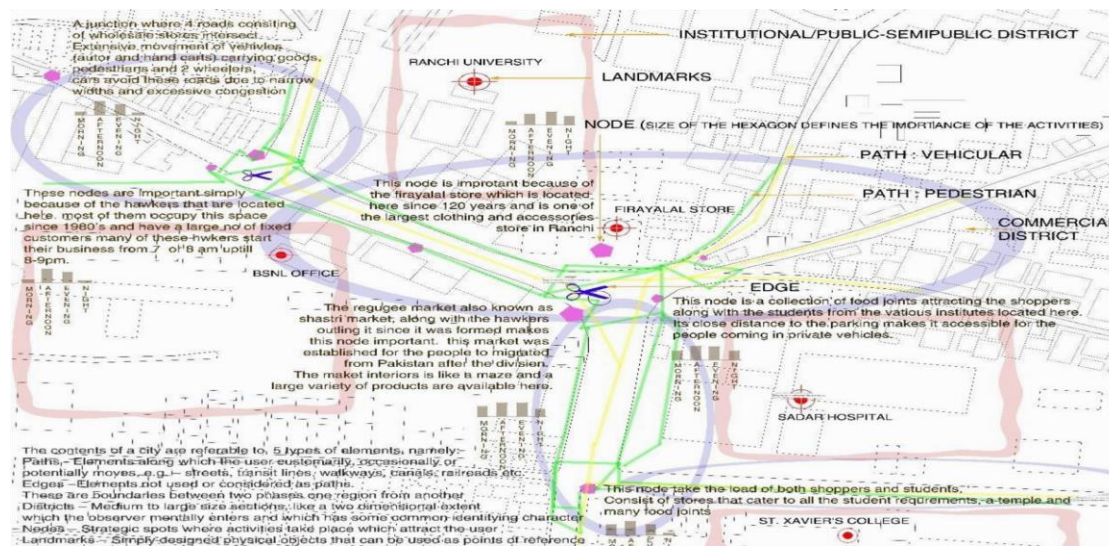


Fig. 7: legibility Map and Activity Node Diagram Source: author

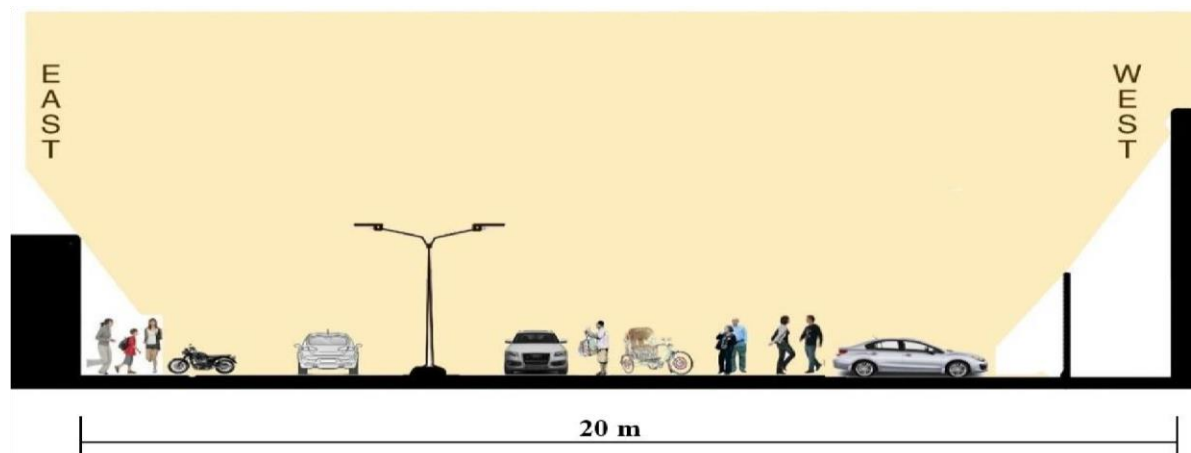


Fig. 8: Existing section[s-s] of MG Road Source: author

Table 1: Assessing and measuring the quality of public spaces

Major strategies that need to be implemented to boost the sustainability of the space:

Having nice views is essential for a whole walking experience. When partially constructed buildings are combined with completed facades, they appear unsightly. To make the space aesthetically pleasing, consistency must be maintained. The area can be made to look more lovely by adding painted ornaments, gall fenestrations, and other decorations to exposed brick and concrete structures. The building heights and roof shapes must blend well with the surrounding landscape. Regulations limiting roof kinds and heights can aid in preserving the area's homogeneity. Infrastructure improvements will raise the area's level of safety, accessibility, and beauty. This will contribute to showcasing the region's economic

expansion. Spreading knowledge among users about the significance of improving the infrastructure and how they may contribute to it is crucial since a lack of awareness among users can undermine all policies and planning initiatives. According to Ranchi's bylaws, rainwater collection must be a requirement for any new development. The bylaws should also have a policy to integrate it into the current structures. Additionally, solar harvesting needs to be required for all commercial and institutional buildings. Solar heat harvesting should be aided by the usage of solar street lighting systems. Lighting needs to be thoughtfully designed to draw attention to key nodes, divide various tasks, and avoid excluding shadowy or obscure areas. Due to the majority of new buildings' blank façade and non-operable windows, artificial lighting and air conditioning have become more common. By installing windows and balconies, artificial ventilation will be used as little as possible. This will be a cost-effective and energy-efficient choice. Regular garbage collection is necessary. It is necessary to make provisions for waste segregation at the source. Raising awareness of the value and practices of waste segregation is crucial for the effective enforcement of such regulations. Drains need to be covered and carefully designed to prevent overflow. Street and pavement slopes need to be carefully planned to allow water to flow easily to the drain. It is important to improve the structural integrity and aesthetics of the historic buildings that are currently used for new purposes. These structures enable individuals relate to and connect with their history by showcasing the customary architectural elements of their time. Emphasising thresholds and entrances is necessary to make the area readable. Planters can be utilised to draw attention to the thresholds, and hoardings and embellishments can be used appropriately to draw attention to the entrance.

Design Strategies

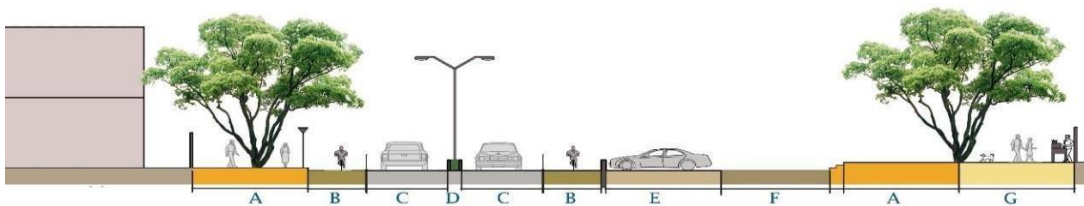


Fig. 17: Proposed section for the MG road Source: author

Areas must be specified for all uses and activities for better space organization and better segregation of movements

A – Pedestrians, B- Non motorized transport, C- Carriage way, D-Median, E-Parking, F-Service Road, G- public plazas and hawking zones



Fig. 18: Perspective view, as proposed for MG road Source: author

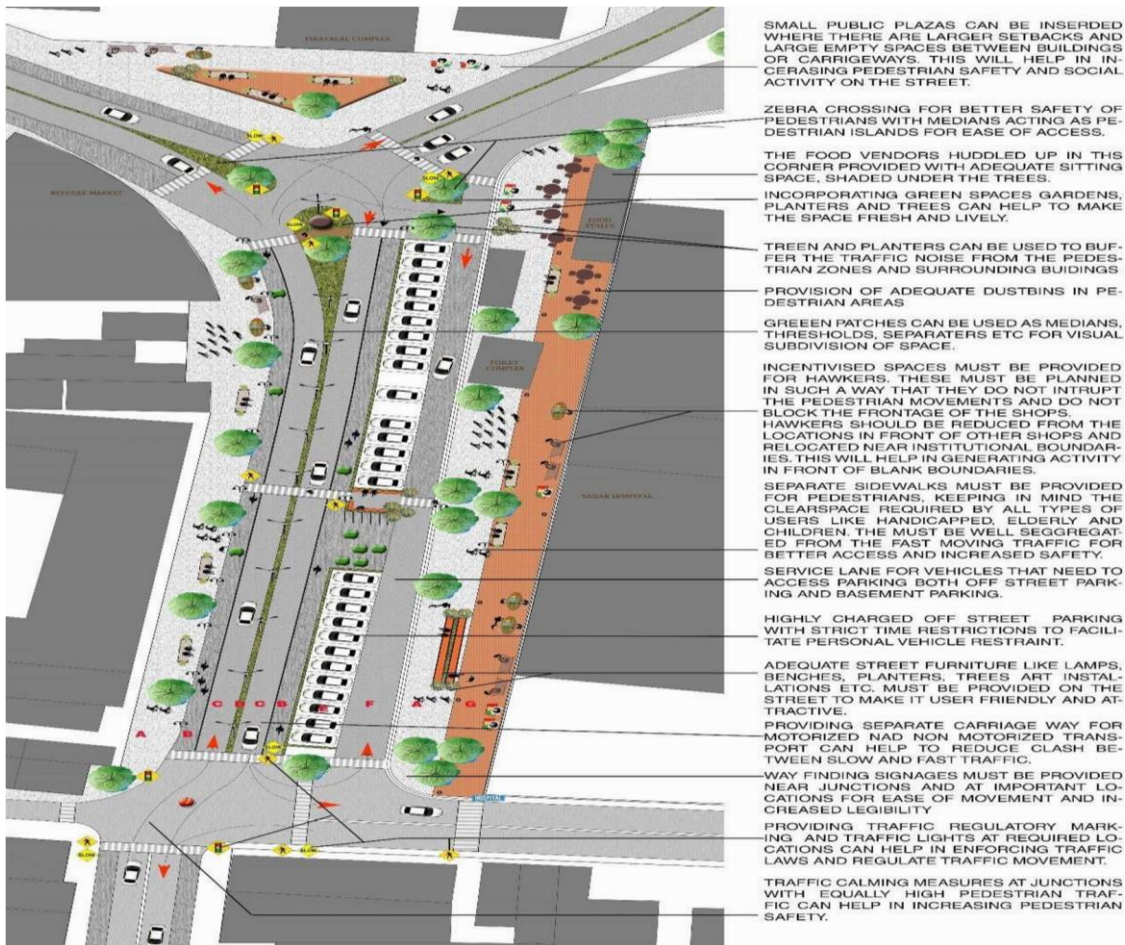


Fig. 19: Proposed Plan for MG road Source: author

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