

REWILDING RAJSHAHI: REVIVING THE URBAN SPINE THROUGH NATURE, CULTURE, AND COMMUNITY-DRIVEN DESIGN

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ABSTRACT

As one of the historical cities in Bangladesh, Rajshahi is characterized by a central spine running through Talaimari to Zero Point, connecting schools, cultural sites, marketplaces, and civic centres. With time, this linear stretch has turned into a crowded and discontinued area, with no spatial recognition or ecological worth. Through the years, this spine has been broken by haphazard growth, decreased ecological connectivity, and constrained civic space, creating a situation where social disengagement has been experienced, as well as, environmental degradation. This study envisions the Talaimari-Zero Point corridor as a green urban belt through an urbanism plan of rewilding that puts the focus on nature restoration, cultural identity, and shared spaces. It is an attempt to rejuvenate this forgotten urban spine, making it a biodiverse, people-friendly, socially vibrant green corridor that reinvigorates the historical and ecological fabric of Rajshahi. It is based on green urbanism, participatory mapping, and green infrastructure spatial layering methodology. The design interventions involve restoration of original landscapes, development of biodiversity along roads and canal banks, and harmonization of the heritage and market areas through walkable green corridors. Community involvement was relevant in the process of defining informal uses, ecological diversity, and memory nodes. The effect of such a rewilding strategy is two-fold: the corridor does not only reestablish the environmental resilience through reconnection of green areas, but also provides better social resilience by introducing accessible spaces of gathering, cultural practice, and informal economy. Movement is enhanced by the light infrastructure/shaded paths, and transit-connected green centers. This design will be a replicable design in the future within other cities of Bangladesh to show how urban regeneration and ecological restoration can go together. A green belt might help to serve as a climate adaptation buffer, a buffer against floods, and provide livelihoods via micro-economies. This rewilded spine will make sure as Rajshahi continues to grow, that the growth is human-centered and ecologically based to create a resilient, inclusive, and livable city. This will assist the policymaker in the development of the city.

Keywords: *Biodiversity, Green streetscape, Urban corridor, Cultural Integration, Community-centric neighborhood.*

1. INTRODUCTION

Urban corridors are important linear structures that determine transportation, the ecological and social dynamics of cities. The Rajshahi region, located between the Talaimari and Zero Point, has been a vibrant urban street with a history of connecting educational areas, markets, cultural places, residential areas. This is a street that used to offer a smooth system of social activities and natural features, including tree-lined streets, beachfronts, and shared meeting areas. Nevertheless, over the years, the fast urbanization, population growth, and infrastructure expansion have had a massive impact on the ecological and spatial nature of this route (Asaduzzaman & Hameem, 2021). Although the area underwent these changes, the Talaimari-Zero Point corridor is one of the main locations of urban revitalization and ecological rehabilitation because of its location and historical significance.

The spatial and ecological decrease in the Talimari-Zero Point area over the last several decades is also significant because of the unplanned urbanization and the development of infrastructure and loss of the natural landscapes (Asaduzzaman et al., 2023). Regions of vegetation that used to serve as shade and facilitate biodiversity, as well as to control the microclimate, have become more and more disjointed and this has broken the ecological continuity of the corridor. The erosion of the edge of canals as well as ecosystems dependent on water has demonstrated environmental strain resulting in heightened urban heat along with diminished resilience. Meanwhile, traffic congestion, inadequate walking facilities, and absence of usable open spaces have reduced the walking habits and opportunities of socialization. Consequently, the route that is no longer an effective urban backbone but a conservation of innumerable parts, which are disjointed, environmentally permeable, and socially underutilized. These issues are being exacerbated by the absence of an integrated green network or community-based spatial system which is underscoring the need to adopt a regenerative approach that deals with the ecological restoration and social-spatial well-being (Krebs and de Oliveira, 2025).

The major aim of this study is to redesign the Talaimari-Zero Point corridor to become a rewilded green belt that reinstates ecological continuity that regenerates the life of the people, and a culturally rich, climatic attune urban setting. The study aims at incorporating ecological restoration along with community-based urban design to change the current linear spine into a resilient and inclusive cityscape. The objectives of this study focus on rehabilitation and revitalization of the ecological, social, and urban landscapes along the Talaimari-Zero Point. Along with the ecological restoration, the key aspects of this initiative include the revitalization of indigenous ecological systems in the fragmented green spaces and degraded landscape sections along the corridor, aimed at restoring the biodiversity and ecological resilience in an increasingly divided urban environment, as well as improving the walkability, comfort and socialization opportunities to make the corridor accessible, inclusive and livelier to all people (University of Hawaii at Manoa, 2018). Alongside the ecological restoration, the also entails the enhancement of the pedestrian networks and the public spaces

The study is also aimed at strengthening the cultural and community connections by revitalizing major city centers, including Talaimari, Shaheed Minar, Pochoboti, Alupotti, and Zero point with flexible and inclusive civic spaces that promote social interaction, cultural and civic activities. The other main goal is to promote climate-mediated city-building by introducing green areas, landscapes conducive to biodiversity, and water-sensitive systems that increase resilience to the environment and reduce the impact of climate change (Asaduzzaman et al., 2023). To implement these aims, the suggested study will involve the introduction of the urban rewilding strategy, which involves the creation of green patches of native plants and biodiversity, landscapes, and water-sensitive features that can increase environmental resilience and mitigate the influence of climate change.

Other efforts include providing shaded paths, bicycle paths as well as greener transport hubs to promote transport sustainability, converting unused areas into community centers and cultural outlets, and reuse waterfronts in greener purposes, including stormwater management and displaced wildlife. The end result of the interventions is the need to ensure a smooth integration of ecological restoration, community and urban functionality to make the corridor a resilient, socially active and ecologically integrated urban axis.

Although rewilding is a generalized approach, the project has many challenges. Firstly, the closeness of the contemporary urbanization of the region limits the level of the ecological rehabilitation of the specific localities. Secondly, the land ownership and informal land use can complicate even the possibility to revitalize large areas open spaces. Third, the present spatial data and field observations form the basis of this research, and this may not be adequate in collecting a long-term ecological trend. Besides, the policy support, availability of funds, and collaboration between the stakeholders that might not be consistent across the corridor will be required to ensure a proper implementation. (Gregori et al., 2016). However, the research points out feasible solutions that balance the ecological prospects with the urbanity.

2. METHODOLOGY

In the research, the methodology uses a multi-layered and systematic approach to the design process since the research begins with initial analysis and stops with implementation (Gregori et al., 2016). The Talaimari-Zero Point area of Rajshahi was selected because of its historical, ecological, and cultural significance in the urban landscape of the city (Asaduzzaman and Hameem, 2021).

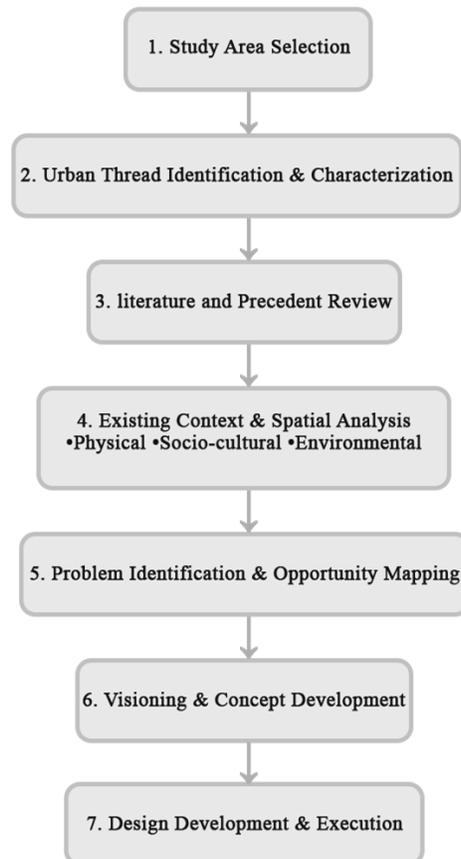


Figure 1: Methodology Flowchart

This started with identification and characterization of the urban components of this corridor in order to understanding its spatial hierarchy, connectivity and socio-cultural dynamics. To develop a theoretical base and design references, literature and previous researches that investigate ecological urbanism, rewilding, and adaptive regenerations of urban areas were analyzed (Krebs and de Oliveira, 2025).

Ample space and contextual analysis was conducted to understand the existing physical, socio-cultural, and environmental situations based on mapping, fieldwork, and behavioral observations (Asaduzzaman et al., 2023). The findings were synthesized to identify the key problems of urban areas such as ecological fragmentation, lack of public spaces and loss of cultural continuity, as well as to determine the ways in which the intervention could take place. This analysis led to the development of the concept of green belt rewilding, which aims to rebuild ecological networks and improve community connections by using nature-based design plans (University of Hawaii at Manoa, 2018).

In the development stage of the design, this vision was translated into spatial plans that include the biodiversity corridors, walking networks, and cultural hubs. This methodological tool is quite certain that the design is grounded in its context, eco-responsible, and social.

2.1 SITE SELECTION

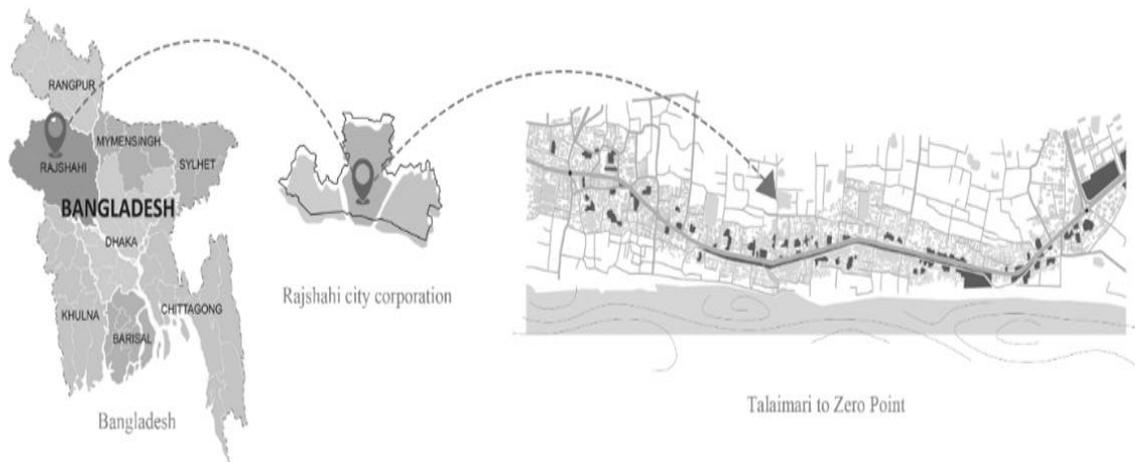


Figure 2: Site Map

The Talaimari to Zero point corridor was selected given that it plays a significant role as it links the academic, commercial and residential landscape of Rajshahi as well as establishes the cultural and ecological identity of Rajshahi. Over the years, the spontaneous development has disrupted the vegetation and reduced its walkability but it still possesses immense potential of urban regeneration of the greenery. This location will hence enable the project to address several issues that are further associated with the urban setting, i.e., the recovery of lost ecosystems, the reconciliation of the public open spaces, the opening of the public spaces to everyone and to everyday encounters. Its location near universities, market places, and civic areas provide it with a social aspect in which culture, environment, and community co-exist. It is the project that will make this linear route a green and colorful spine that will enhance the ecological condition and urban environment. The excellent example of people oriented and sustainable urban design is Talaimari to Zero Point that shows the fact that considered interventions may help to reconnect people with nature and to connect with one another in a rapidly developing Bangladeshi city.

3.1 EXISTING ANALYSIS

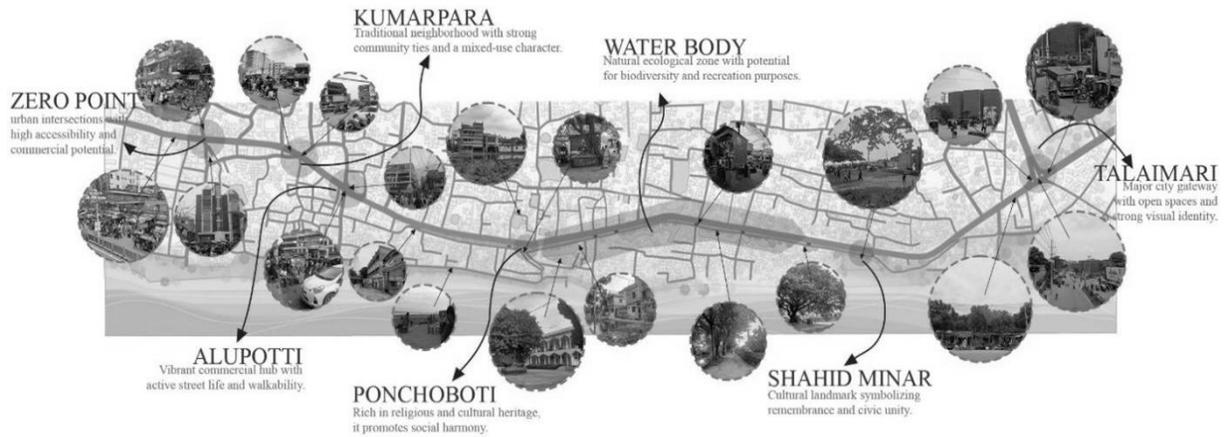


Figure 3: Existing Plan

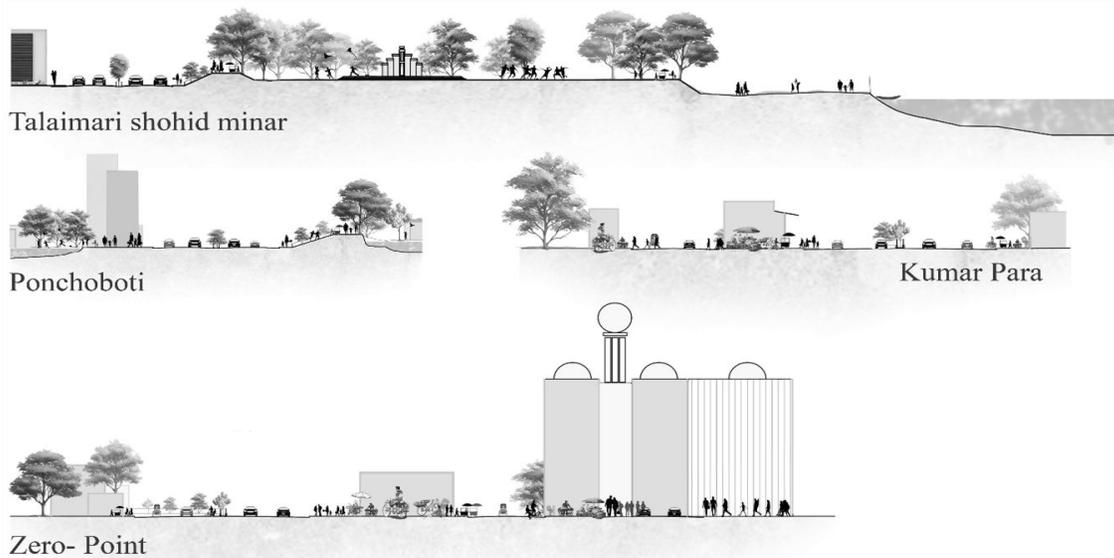


Figure 4: Existing Section

3.2. SITE-SPECIFIC PROBLEM IDENTIFICATION

- **Talaimari:** The challenges of a fragmented street interface, inadequate pedestrian crossing, and the absence of common space are key urban design aspects that decrease accessibility and safety, and spatial continuity.
- **Shahid Minar:** The lack of public cultural narrative has been undermined by the unorganized local activities and poor maintenance.
- **Waterbody Area:** The degradation of the environment and loss of ecological balance manifest themselves through severe encroachment, low biodiversity, and poor interaction with the population.

- **Ponchoboti:** There has been decline in community involvement and social dynamics in the use of underutilized cultural and religious space.
- **Alupotti:** With the disappearance of leisure and communal spaces, informal social life is constrained, and the feeling of community space is reduced.
- **Kumarpara:** The neighborhood has changed its character due to the lack of control in land use, cultural identity and unsafe pattern of movement.
- **Zero Point:** Indeterminate areas, overuse of commercial enterprises, and human disturbance cause clashes between common and personal activities and thus lessens the entire comfort in the city.



Figure 5: Existing Site Problems

4. PROPOSED SOLUTION

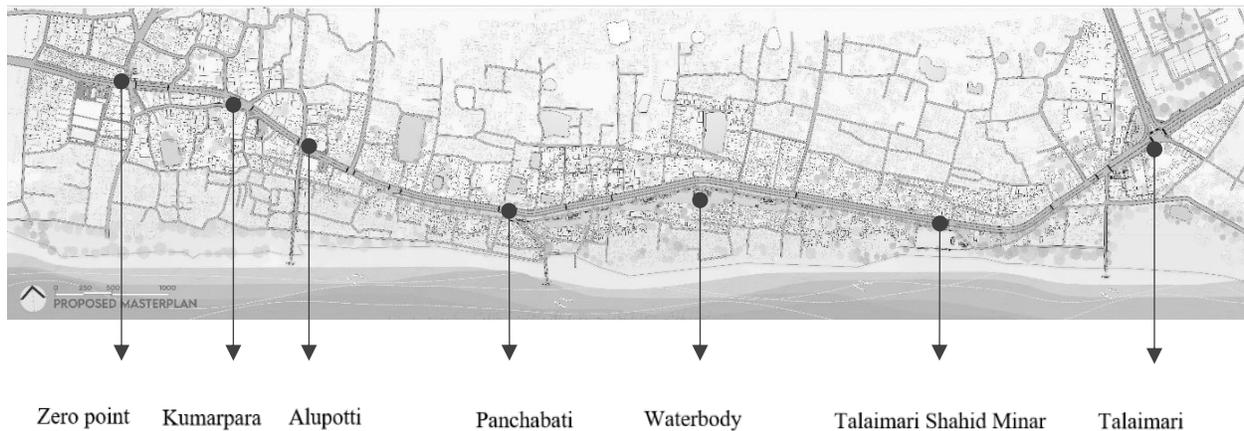


Figure 6: Proposed Masterplan

Talaimari Mor:

Traffic Flow & Pedestrian Safety: The pedestrian movement and traffic jam problems were reduced by installation of zebra crossing, removing the foot over-bridge, and the elimination of sidewalk encroachments. Bike lanes were created, auto-rickshaw zones rearranged, and the general safety was enhanced by introducing the elements of traffic control, including crossings and the right signs.

Spatial Organization & Urban Interface: The disorganized urban form was restructured through the zoning of different zones between pedestrians, vehicles and vendors. The modular stalls were designed to assist informal sellers, the removal of billboards increased the visibility, and transparent facades of stores enhanced the streetscape.

Shared Space & Public Realm: Disorganized open spaces were transformed into friendly shared spaces, with seating, lighting effects and shady places to sit down. Planting trees and the introduction of new designs of paving added more mobility and beauty making the areas used by people useful and attractive.

Shared Space & Public Realm: Chaotic open spaces were revamped into accessible shared areas equipped with seating, lighting, and shaded spots for gathering. The addition of tree planting and new paving designs enriched both mobility and aesthetics, resulting in practical and visually appealing public spaces.

Public Facilities & Infrastructure: Public facilities like toilets, waste bins and improved drainage systems with covered manholes were introduced. Cleanliness was encouraged by constant cleaning and wayfinding signs.



Figure 7: Talaimari Node

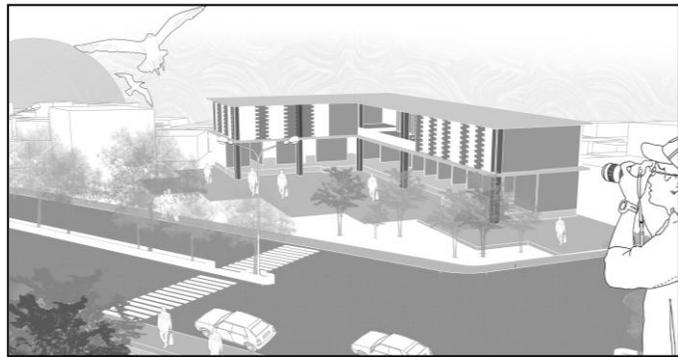


Figure 8: Talaimari Bazar

Shahid Minar:

Urban Connectivity & Accessibility: The entryways were updated in a way that encourages inclusivity and have ramps and steps that connect to the rest of the road network. The improved pedestrian walkways and the sightlines brought the monument closer to the city environment.

Cultural Activation & Functional Reuse: The space was developed into a cultural hub and offered places of performances, meetings and exhibitions thereby reestablishing the role of the monument in the lives of the community.

Public Realm Organization: Public areas were re-organized into a circulation area, relaxation and event areas. Durability in furnishing, landscaping and well defined pathways were used to improve the aesthetics, comfort and flexibility to various activities.

Safety & Nighttime Activation: proper lighting was introduced in pathways, seating areas, and the monument itself to improve safety and encourage evening use.

Placemaking & Identity: The materials, paving, and landscaping were designed to respect the historical significance of the monument, whereas the green buffers and shaded seating were applied to provide the visitor with an even greater experience, which once again proved Shahid Minar a meaningful space to be.

Waterbody:

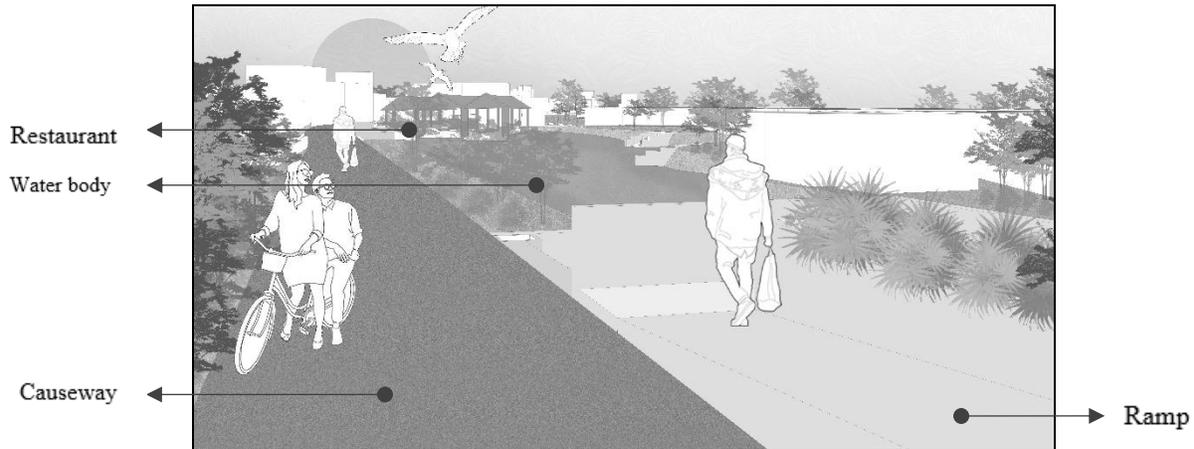


Figure 9: Waterbody from causeway view

Water Quality & Biodiversity: Natural filtration was used to treat water on the surface and wetland buffers were used to treat surface runoffs and natural plants and fish were introduced to restore ecological balance. Water was kept clean through frequent cleaning.

Boundary Protection: Buffering and soft landscaping were taken care of by encroachment.

Community Engagement: Awareness campaigns, clean-up events, and educational signage encouraged public involvement.

Urban Development Control: Eco-sensitive zoning was used to limit the high-impact building along the lake, through the use of setbacks, vegetated buffer and permeable surfaces to minimize the environmental impact.

Public Access & Recreation: Walking trails, observation decks, and shaded seating and food areas introduced to increase both accessibility and recreational opportunities while preserving ecological integrity.

Panchabati:

Road Infrastructure & Mobility: Introduction of better accessibility points to entry points through the use of ramps and steps that linked to roadways to facilitate pedestrian connectivity to the city.

Public Realm Enhancement: Greenery, street furniture, sufficient lighting and shade was added, to make the environment cleaner and enhance overall quality.

Inclusive & Safe Community Spaces: Multifunctional open spaces served recreational and social purposes to everyone in the community. Engagement of people makes the place safe, vibrant and accommodating to all.

Alupotti Mor:

Engaged Public Areas: Introducing a small plaza featuring naturally shaded seating, greenery, and adaptable spaces encouraged relaxation, socialization, and cultural events, revitalizing neglected spots into lively environments.

Sense of Place & Navigation: The pavements, similarities of furniture, proper signage, and familiar landmarks created a good sense of place, which improved navigation and user experience.

Natural Energy & Aesthetics: The vendor areas were planned using modular stalls and shading which would create a balance between the street activity and the comfort of pedestrians.

Infrastructure & Drainage Enhancements: Permeable surfaces, improved drainage systems and underground utilities enhanced functionality and durability and aesthetic appeal.

Kumarpara Mor:

Sustainable Land Utilization & Heritage Preservation: Zoning laws conserved the old buildings but allowed commercial expansion in areas without conflicting with the buildings. The city maintained the urban identity through streetscapes, which were harmonized with homogenous facades, signage, and landscapes.

Cultural Connectivity & Accessibility: The temples, courtyards, and other common areas were connected by walks and open areas were also designated where parades and cultural events took place, increasing the continuity of traditions.

Cultural Representation & Community Participation: Plazas and courtyards turned out to be centers of performances and festivals. Cultural traditions were revived with the help of murals, outdoor art installations and informative signage which resulted in community pride.

Public Safety & Infrastructure Development: Designation of parking, rehabilitated structures, street lighting, and surveillance ensured ease and safety and made the urban environment safer and more organized.

Shaheb Bazar Zero Point:

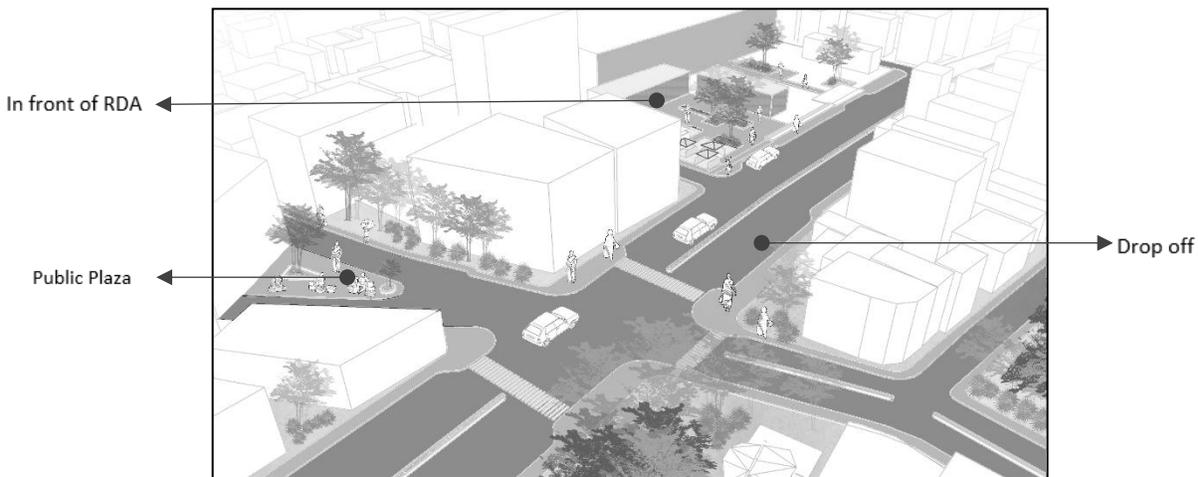


Figure 10: Zero point node

Commercial & Public Zoning: Vending and the areas of the public activity were clearly defined. Modular kiosks were also developed to make the process of vending formal and retain the vibrancy of the area so as to have a balance between commerce and movement of people.

Pedestrian Connectivity: Sidewalks were expanded with introduction of tactile paving and aligned crossings. Obstacles were cleared away, providing safe, accessible pathways for every user.

Urban Amenities & Green Spaces: Benches, waste bins, lighting, green spaces and shaded areas were added to make the area more comfortable and usable.

Circulation & Safety: Traffic and pedestrian movement were re-organized with traffic lanes, crossings as well as re-positioned parking. Signage and lights enhanced navigation and safety, which could be used during the day and at night.

5. RESULT DISCUSSION

The comprehensive intervention from Talaimari Mor to Zero Point has effectively transformed the spine into an unified, accessible, and lively urban corridor for Rajshahi. By implementing a range of focused strategies, fragmented areas were linked, traffic conflicts were reduced, and public life was revitalized with enhanced comfort and safety.

- **Enhanced Urban Connectivity and Mobility:** The proposed model and analysis shows that redesigning of the vehicular and pedestrian transport at Talaimari mor and Zero point has greatly decreased congestion and conflicts. Proposed pedestrian crossing, cycle lanes, and organized parking will improve mobility and safety for everyone. Ongoing walkable pedestrian now link to important intervention zones, such as Shahid Minar, allowing for smoother transitions between public, commercial, and heritage areas.
- **Reinforced Cultural and Civic Identity:** Shahid Minar, previously underused, is now envisioned as a cultural hub with regular community events, encouraging public participation and enhancing city life. Its integration into the surrounding urban environment creates the opportunity for it to become a civic landmark that reflects Rajshahi's shared memory and cultural pride. Each intersection along the corridor has its own character, transitioning naturally from the green calm of Talaimari to the bustling commercial energy of Zero Point, offering a series of distinctive but connected urban experiences.
- **Improved Public Space and User Comfort:** Throughout the corridor, the addition of urban furniture, greeneries, pedestrian access, and clearly defined resting spots has enhanced public accessibility and involvement in the city. Shared spaces are well-organized in the proposed model, and offer both movement and leisure in the city life. The revival and conservation of green, such as trees, landscaping design, contribute to better microclimate conditions and a more pedestrian-friendly environment.
- **Clear Functionality and Spatial Organization:** The existing disorder of inefficiently used spaces has been addressed by establishing clear zones for more activity and movement in city. Unauthorized vendors have been relocated into stalls and pave which was designed dedicating spaces for vendors. This solution provides both economic opportunity and public access. Open areas are no longer left unused or misused, instead redesigned for efficient public activities, establishing structural plazas and smartly organized landscaping.
- **Commitment to Environmental and Social Sustainability:** The increase of green and revitalization of waters, and drainage system have enhanced rainwater management and urban cooling, ensuring active ecological system. Inclusive design method, including accessible pedestrian, universally accessible facilities, and organized vendor spaces have advanced social equity. Improved night time lighting and increasing social activities have elevated safety by reducing crime prone areas.
- **Creation of a Unified Urban Identity:** By linking Talaimari, Shahid minar, Kumarpara, Zero point with a integrated design language method through, pathway and efficient transportation system, vegetation, lighting, material the corridor now present itself a singular civic spine. It functions not only have transportation route but also a series of public accessible spaces, mirroring Rajshahi's changing urban identity while respecting it's local context and history.

6. CONCLUSION:

The redesign of the Talaimari to Zero Point corridor showcases how thoughtful urban design interventions can restore connectivity, identity, and livability within a disconnected and dead city landscape (Aouf, 2019). By dealing issues of traffic conflicts, neglected public spaces, and chaotic commercial practices, the project has effectively redefined the corridor as a continuous, people-centric urban spine (Hameem et al., 2023). The addition of shaded walkways, orderly vendor zones, cultural hubs, and pedestrian accessible facilities has encouraged a more lively and dynamic urban corridor. Shahid Minar now stands as a renewed civic icon, while Talaimari and Zero Point function as lively entry points and commercial zones to the city. Overall, the intervention creates a balance between movement and place, culture and commerce, as well as heritage and modernity, providing a replicable model for sustainable and context-aware urban redevelopment in Rajshahi (Krebs & de Oliveira, 2025).

DECLARATION OF AI

The authors used AI tools (ChatGPT by OpenAI) only for language improvement, grammar correction, and improvement of the clarity of the manuscript. All of the analysis, case studies, surveys, design ideas conclusions were developed by the authors. The authors carefully revised, verified, and edited the AI-assisted passages to ensure clarity, accuracy, project objectives, and maintain academic integrity.

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