

CLOSER TO HOME: TOWARDS A CONNECTED & FLEXIBLE URBAN FUTURE IN COURT STATION, RAJSHAHI

Z H M Monjur Murshed¹, Sheikh Hameem², Zarin Tasnim Rahman³, Jannatul Ferdous*³, Afifa Rahman Bristy³, Acia Hossain³, H. M Anhaf Niyaz Chowdhury³

¹Assistant Professor, Department of Architecture, Rajshahi University of Engineering & Technology, Rajshahi 6204, Bangladesh, Email: turjo.bogra@hotmail.com

² Lecturer, Department of Architecture, Rajshahi University of Engineering & Technology, Rajshahi 6204, Bangladesh, Email: sheikh.hameem71@gmail.com

³B.Arch. Student, Department of Architecture, Rajshahi University of Engineering & Technology, Rajshahi 6204, Bangladesh, Email: zarinomi.01@gmail.com

³*B.Arch. Student, Department of Architecture, Rajshahi University of Engineering & Technology, Rajshahi 6204, Bangladesh, Email: jferdous.rj115@gmail.com

³B.Arch. Student, Department of Architecture, Rajshahi University of Engineering & Technology, Rajshahi 6204, Bangladesh, Email: afifarahman6789@gmail.com

³B.Arch. Student, Department of Architecture, Rajshahi University of Engineering & Technology, Rajshahi 6204, Bangladesh, Email: acia2792000@gmail.com

³B.Arch. Student, Department of Architecture, Rajshahi University of Engineering & Technology, Rajshahi 6204, Bangladesh, Email: anhafniyaz4@gmail.com

***Corresponding Author**

ABSTRACT

The aim of this paper explores the potential of developing a 10-minute city model in the Court Station area of Rajshahi. The research is driven by the need to ensure that all essential everyday facilities—such as workplaces, schools, healthcare, recreation and shopping which are accessible within a short walk or bike ride. This research examines the Court Station Bypass area of Rajshahi, focusing on an 800-meter radius that includes a continuous commercial corridor surrounded by mixed-use and residential zones. Like many growing cities in Bangladesh, Rajshahi faces challenges of unplanned growth, traffic congestion, and diminishing public spaces. Yet, its compact scale and walkable character create opportunities to reimagine urban life more inclusively and sustainably. Guided by the principles of proximity, equity and climate-responsive design and the study conducts mapping of existing facilities and gap analysis to assess accessibility and service distribution.

The findings suggest that strengthening mixed-use zoning, enhancing pedestrian and cycling networks and integrating green-blue infrastructure can improve resilience, accessibility and liveability. Moreover, designing for universal access and fostering social interaction can bridge the divide between commercial activity and residential life which offer a localized framework for Rajshahi's transition toward a connected and flexible 10minute city future.

Keywords: *Community, Walkability, Near to Home, Green Space, Recreation Zone*

1. INTRODUCTION

The researchers suggest mapping of the current urban structure, and mobility networks in the Court Station area of Rajshahi to understand the availability of the daily activities of work, education, healthcare, shopping and recreation (Geurs and van Wee, 2004; Pojani and Stead, 2015). The paper establishes what is labeled as accessibility breaches on location analysis and fieldwork and how informal economic activity and the specified practice of transportation impacts the utilization of the public space and movement of individuals.

The physical distance between amenities may also compel the residents to commute further than the actual need, which will reduce the amount of walking and accessibility on a daily basis (Cervero and Kockelman, 1997; Porta et al., 2012). The walking paths infrastructure has been killed by these street hawkers and illegal car parkings which have increasingly overtaken the infrastructure (Mitullah, 2003; Watson, 2009). There is also the uncontrollable traffic situation that results in the conflict between Motorized transport, the pedestrians, the bicycles, and the rickshaws, ruining the mobility rates and safety (Ewing and Cervero, 2010; Pojani and Stead, 2015). Also, the absence of functional open spaces reduces the recreation, rest and social opportunities to the barest minimum as well as fragmented institutional responses can never address the issues on a long lasting scale (Watson, 2009).

These are mixed-use development and mini-zoning to accommodate the highly sought-after services and allow residential-commercial mix (Cervero and Kockelman, 1997; Jabareen, 2006). The continuous pedestrian systems, the restyling of a curb, the integration of sellers into the streets, and the special bike system are all the things that facilitate the ease of walking (Gehl, 2010; Mitullah, 2003). Also refers to pocket parks, shaded green corridors, and market plazas of multiple functions as sources of economic activity, environmental comfort, and stormwater management (Gill et al., 2007; Fletcher et al., 2015; Rasli et al., 2025).

The micro-mobility concentrations such as bicycle parking, e-rickshaw points, and electric charging points were also noted in the study to support the low-carbon mobility (Shaheen et al., 2016; Ewing and Cervero, 2010). It suggests green solutions, including heightened percentage of trees, and permeable pavement which will be a part of the heat stress eradication and runoff on the surface (Gill et al., 2007; Fletcher et al., 2015). The study focuses on inclusive governance as well as through the involvement of multi-stakeholder engagement where it is required that the local authorities and transport agencies, the vendor associations and the community members are included in this so as to have long-term implementation and conflict resolution (Watson, 2009; Mitullah, 2003).

The anticipated advantages are the improvement of the accessibility and the proportion of people that live within an area covered by a 10-minute walk or cycling distance, the decrease in the scale of the risks of walking and cycling, and the rise of the access to open spaces (Geurs and van Wee, 2004; Cervero and Kockelman, 1997; Logan et al., 2022). The developments will enhance social life, economic life in the local level, and policy integration that will be an example of transfer to other middle-sized cities in Bangladesh (Siddique, Asaduzzaman, and Hameed, 2024; Hameed et al., 2023; UNDP, n.d.). The size and diversity in the vicinity of Court Station, in general, are largely adhering to the concept of the 10-Minute City since they lead to incremental, inclusive, and sustainable urban renewal (Jabareen, 2006; Ewing and Cervero, 2010; Pojani and Stead, 2015).

2. METHODOLOGY

This methodology is introduced to address the research objectives by assessing accessibility, walkability, vendor activity, and environmental voids within the 10-minute city framework and the current study has a people-oriented, step by step working process, which also entails linking evidence, design and possible action. To be capable of collecting available principles and quantifiable indicators of 10-minute neighbourhoods, walkability, vendor integration, and green-blue resiliency, the literature review begins with a narrow analysis of the literature. The research location will be a 800 meter walk on the field of Rajshahi Court Station. The constructions of the georeferenced layers of land use, transport, public amenities and hazards are then comprised using the municipal plans, high-resolution images, and short field survey. With the help of a locally adjusted checklist, we establish amenity

levels, namely health, education, retail, green space and sanitation and access to transit, and project near-term population demand. The field verification is a set of information regarding the type of the facilities, their capacity, and their hours, and accessibility to form a geolocated inventory and accessibility scores. A spatial gap analysis which is used to determine the deficit in service is aided by the amenity thresholds on the estimated demand. The weighted multi criteria process favours micro-sites and the population density, the size of the gaps, the foot traffic activities, the agglomeration of sellers as well as to the vulnerability of the site to floods. In the case of the priority sites, we hold fast co-designing sessions with the vendors, residents and officials and develop context specific plans. These are the walk-friendly streets, which are institutionalized. Sketches of what to create in phases, the division of the corridors, vendor welfare and safety, conclusive scheme on monitoring and assessment, and abstract concept of what should be in the spaces, and the preliminary cost estimations. The ultimate products will be a monitoring and evaluation scheme, which includes: accessibility, security, exploitation of the spaces, environmental issues and wellness of the vendors and the timetable of the implementation in steps, and the basic governance scheme of piloting and expanding interventions.

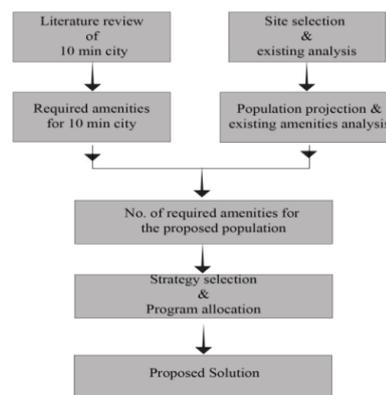


Fig.1 : Methodology Diagram
Source : Author

3. SITE SELECTION

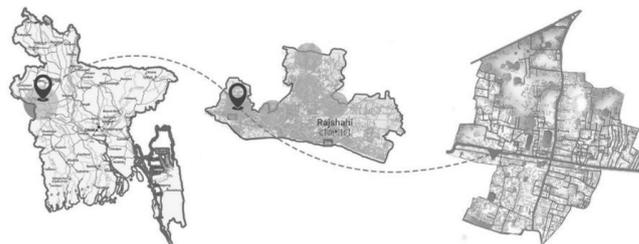


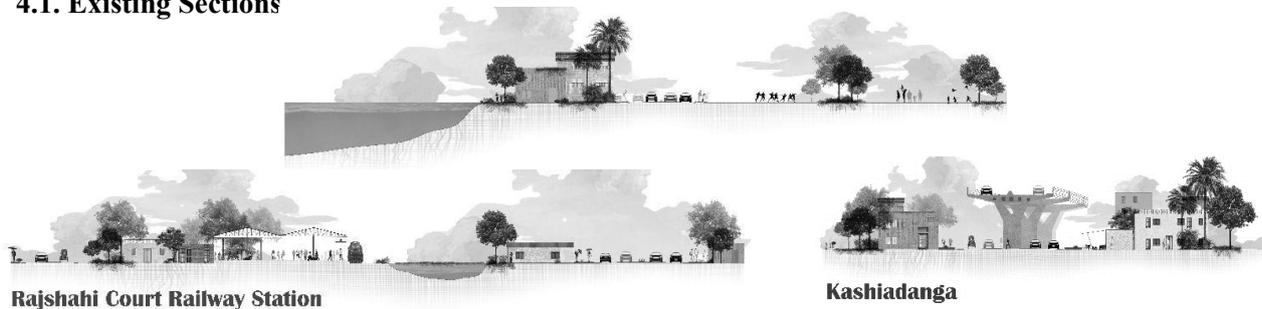
Figure 2: Site Map

The area around Court Station in Rajshahi was selected for the given purpose due to its strategic location within both the administrative and commercial networks in the city (Rajshahi City Corporation estimates,2020). This location serves essentially as a connector between major urban destinations that include civic institutions, communities of residents, and small-scale commercial clusters. Its high vehicular accessibility underlines its prime value for city mobility, while the inadequacy of safe pedestrian routes and functional public spaces attests to the obvious deficits in livability. The area consists of a diverse social setting where local vendors, commuters, and residents create a vibrant street character. In contrast, underutilized open pockets and scattered green spaces are not integrated into the everyday urban life of citizens. These existing potentials and

constraints align effectively with the goals of a 10-Minute City (Moreno ,2021), which focuses on walkability, accessibility and community-centered design in a sustainable manner. This project, therefore, selects Court Station with the aim of demonstrating how a transformative approach can be used to create an inclusive and human-focused neighborhood in Rajshahi, Bangladesh.

4. EXISTING ANALYSIS

4.1. Existing Sections



4.2. Site-specific Problem Identification

There is an urban context at Court Station in Rajshahi that faces a number of critical spatial and infrastructural deficiencies, hindering its transformation into a compact and accessible 10-Minute City. Field observation by the author, 2025. First, the area's public facilities are inaccessibly insufficient. A shortage of shaded sitting areas, public toilets, and green areas of recreation makes the pedestrian experience less comfortable and worth not engaging in outdoor activities. Eventually, it leaves the realm underutilized without gaining much vibrancy accordingly Rajshahi City Corporation, 2023. It is badly developed with non-motorized transport infrastructure facilities. Discontinuous sidewalks and undesignated cycling lanes are making the movement of pedestrians and cyclists unsafe and inefficient. All this weakens connectivity on-site and limits access to daily facilities. Bangladesh Urban Planning Department, 2022. The third reason is that community spaces are fragmented and carry less social significance. The unplanned and underused open areas do not facilitate interaction and community bonding among the people in the community. (Observation by the author on the field, 2025). The site is culturally monotonous, in that it allows little expression of diversity or social inclusion. A gap in sustainable planning is also reflected in the lack of intelligent urban technologies, such as smart lighting, digital information systems, and waste management (Bangladesh Urban Planning Department, 2022). All these issues put together create a general discontinuity and dysfunction in the urban fabric. These conditions eliminate possibilities for making Court Station dynamic, livable, and inclusive. This area hosts a rich social environment, with the local vendors and commuters and the residents adding to the vibrant character of the street. Yet, underutilized open pockets and scattered green spaces have remained disconnected from the rhythms of everyday urban life. These existing potentials and constraints interact effectively with the goals of a 10-Minute City, as identified by Moreno, 2021, which is walkable and accessible, with design sustainability focused on the community. This selection of Court Station allows this project to express the transformative approach that would develop a more inclusive human-centered neighborhood in Rajshahi, Bangladesh.

5. PROPOSED DESIGN SOLUTION

5.1. The Green Spine: Ecological, Social and Mobility Backbone: The green Spinal, as a multifunctional and ecological corridor goes across the territory of the project, is one of the common characteristics of the proposed smart metropolis. The spine will be used also as storm water management mechanism, bio diversity corridor, linear park network and non motorized mobility

path. The lack of formalised civil space and single green spaces in the site analysis is created by the master plan; this could be observed in the master plan formulation (Author field observation, 2025).



Figure 4: Existing Plan

5.2. Ecological Role and Climate resilience: the Green Spin relies upon the presence of soakable green surfaces, permeable pavements, bioswales and native vegetation to enhance the amount of groundwater and cooling of the city. This argument falls into the same category as the notion of climate-adaptive urban forms of the shared spaces based on the ecological continuity and incorporation of softscapes (Wang and Pei, 2020; Rasli et al., 2025). This is achievable through replacement of hardscape with vegetation that has been covered with sheets of heat trapping materials. the spine will alleviate the effect of heat-island and make the surroundings more comfortable in an urban city that is expected to experience higher temperatures and more rainfalls in its weather patterns throughout the year. The significant benefit of linear green networks based on the ecological corridors study is that linear networks enhance movement of pollinators, microhabitat diversity, and soil health (Pei & Zhao, 2021; Hegeduds, 2021).

5.3. Active Mobility and Non-Motorized Transport: The mobility functions are present in the spine. Large personal walks, running walks and bike walks run through the whole corridor and this shows that there is perpetual movement of people and traffic through the residential blocks, business communities, civil amenities and transit regions. This plan is connected to the ideas of the global walkable-city design according to which the focus on the continuous green lines becomes the forms guiding the non-motorized movement (Seferooglu and Allahverdiyev, 2025; Logan et al., 2022). The interdependence between the amount of the green space and mobility not only erases the need to travel by motorised transport but also makes all the required services in a walk or a ride of 10 minutes, which proves the spirit of the 10Minute City (Moreno, 2021).

5.4. Reintroduction of the historic Dhopkol as a Smart Water Station: It is a proposal to reintroduce the historic Dhopkol of Maharani Hemonto Kumari of Rajshahi to be developed as a Smart Water Station which will be a blend of historicity and functionality. The dhopkol is a free water source which typically is used by the inhabitants to clean clothes and water traveling and animals and is currently being repackaged as a solar-powered source of filtration, bottle refill station, mist-cooling panels, and small troughs to wash the animal. This will solve the growing heat stress in Rajshahi, and will put out the bypassers and stray animals during the day.

5.5. Improved Blue-Green Infrastructure: Rain gardens, Micro wetlands, Seasonal retention ponds, Shallow drainage channels, Permeable landscape terraces are all the members of Blue-green infrastructure network within the city. These all include stormwater which minimizes the chances of flooding and cleanses the runoff before they are discharged to the natural aquifers. The design has been oriented to the existing city policies regarding the focus on the decentralized nature-based solutions (Shaw and Ghosh, 2024; Hasan and Mahmood, 2021).



5.6. Mobility Transfer AI-Integrated Public Transport System: The proposal of the project which aims at solving the insufficiency of the current transport infrastructure will introduce the concept of the self-driving buses which have predictive algorithms to alter routes, occupancy regulation, and real-time schedule. As the world demonstrates, the waiting time can be cut by up to 30 percent by introducing AI enhanced transit systems and they can also enhance the fuel consumption (Bibri, 2021; Gao et al., 2023). It is possible to access the system in a mobile application with the live bus position and wait-time and numbers of carbon saved to make the population aware.

5.7. Self-driving Shared Micro-Mobility: The Self-driving bicycles and e-bikes are another service that supplements the service of the buses by traversing across the city. The autonomous mobility

units provide access on the last mile and the 10-Minute City adheres to the principle of proximity in terms of access to the daily needs. This has been emphasized in relation to the urban micro-mobility studies since it can be reduced that amount of individuals who drive individual cars and make them available to the younger generation, to the population of senior citizens, and to the population with low income (Martinez & Hu, 2022).

5.8. Pedestrian and Cycling Infrastructure: The plan will have cycling tracks throughout the facility, more foot paths, crossing pedestrian crossing, and crossing raised to ensure no accidents, universal access point to the disabled persons. These developments are directly based on the gaps found during the site analysis and the literature, based on which high-quality pedestrian spaces are addressed as the tool that encourages the active mobility culture and promotes the culture of transporting (Wang and Pei, 2020; Hegedus, 2021).

5.9. Light sustainability: A motion-sensitive Smart, streetlights is one of the most important sustainability projects, and it is activated when there is motion detected. As the recent urban lighting research states, this system will be able to save the costs of energy consumption by 80 percent (Cho & Reinhart, 2022). The least carbon footprint and safest lighting network is adaptive lighting network.

5.10. Civic, social, and community infrastructure: A new Civic Center is a combination of various administrative measures that were previously scattered on the premises. It comprises a combined complex of living: The model is built on the modern tendencies of smart administration and the use of online resources of providing services to the population (Urban Design Lab, 2023; Akotia, Awuzie and Egbu, 2022). It is proposed in the literature that central civic centres also minimize the time that the bureaucracy takes as well as satisfaction of citizens because the working process becomes simpler (Das and Rahman, 2024).

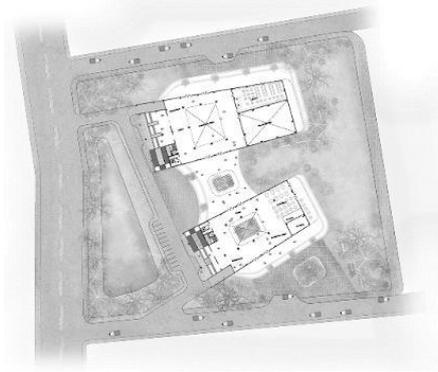


Figure 6: Civic Center Plan

5.11. Educational and Hospitality Facilities: The proposal will involve the inclusion of new schools that will be evenly spaced so that the students will be able to walk to the schools and a hotel to accommodate the demand of the visitors, business travelers and academic guests in the vicinity. The new identity of the district as a mixed-use metropolitan centre is also favourable to these facilities.

5.12. Housing to Future Growth and Redevelopment: The proposal proposes affordable and climate responsive housing in the plots, which will be demolished, not to mention, those that will be exposed to the impacts of an urban growth. Green roofs, Shared courtyards, Passive cooling systems, Rainwater harvesting and Solar-integrated facades are contained in the typology of housing. It is also suggested that the long-term impact of the model of sustainable housing, constructed into walkable

areas, has a positive influence on social cohesion and energy consumption rate (Hasan and Mahmood, 2021; Tsenkova and Hutcheon, 2016).

5.13. Daily Conveniences Grocery, Pharmacy, Small Store: The small stores are small grocery stores, pharmacy, and small stores that are strategically located and within a 10 minutes walking distance of all residential communities. Such distribution reflects the number of empirical studies that established the positive association between the distance to the necessary services and the wellbeing of the community, less transportation emissions, and better local economies (Young et al., 2022). **Reorganized Fish Market:** The past disorganized fish market has been restructured into an organized and sanitary fish market comprised of recognized stalls, wastewater management, cold storage, loading/unloading capacities This is informed by the experiences in the entire world that focus on the role of green corridors in the achievement of SDG 11 through linking ecological fragments and climate adaptability (Rasli et al., 2025).

5.14. Climate-Responsive and Zero-Carbon Strategies

Energy Transition Goals: 2050 80 percent fuels with 80 percent ethanol by 2070 No fossil fuels by 3000: 0 percent carbon emissions The intentions are in accordance with the global climate decisions, along with the domestic development plans on low carbon (UNDP, n.d.).The variety of buildings proposed is intended based on the sustainable architecture: Solar rooftop systems, Insulated with natural roofs, Rainwater collection, Natural ventilation systems, High-performance building envelopes. The research indicates that the solar parks and hybrid green roofs are introduced to empty spaces and areas near where the current urban facilities are situated so that they can make a significant contribution to the energy demands at the urban level (Pei and Zhao, 2021). These installations use the renewable energy to serve the Streetlights, government buildings and electric mobility systems.

6. POLICY INTEGRATION

The policy framework includes a chain of policies such as Zero-Carbon Energy System, Zero-Carbon Public Transport Policy, Ethanol Fuel Adoption Policy, Urban Biodiversity and Ecology Policy, Green Roof and Permeable Surface Policy all of which are aligned to sustainable and walkable urban environments in line with regional approaches of urbanism (Shaw and Ghosh, 2024; Hasan and Mahmood, 2021). Water-oriented concepts, like the Self-Sufficient and Recyclable Water System and Groundwater Recharge and Urban Softscapes Policy, are used to enhance environmental resilience in the long term, which is in line with the research focusing on climate-adaptive and environmentally responsive public space (Wang and Pei, 2020; Hegedus, 2021). The policies that are operational and technology oriented such as Smart Infrastructure Monitoring, App-Based Amenity Integration and a Centralized Automated Waste Management System are aimed at improving efficiency and service delivery in support of evidence based and activity driven urban management frameworks (Urban Design Lab, 2023; Akotia, Awuzie and Egbu, 2022). (Tsenkova & Hutcheon, 2016; Asaduzzaman, 2022). The proposed policy collectively address climate vulnerability, resource inefficiency, infrastructure failure, ecological degradation and poor urban service integration in rapidly urbanizing cities.

Table: Policies and Strategies

Problem Identify	Policy	Management Strategy
High carbon emissions from fossil-fuel-based urban energy use	Use of Zero-Carbon Energy System	Promote energy-efficient buildings and smart energy storage
Lack of real-time data and feedback systems	App-Based Amenity Integration	Develop a centralized digital urban platform
Loss of green spaces and ecological corridors, declining urban flora and	Urban Biodiversity & Ecology Policy	Protect ecological zones and native vegetation Integrate urban forests,

Problem Identify	Policy	Management Strategy
fauna		wetlands and green buffers
Infrastructure deterioration and unexpected system failures	Smart Infrastructure Monitoring	Apply predictive maintenance models
Excessive building energy consumption, poor indoor comfort due to static building envelopes	Application of Kinetic & Responsive Facade Design	Use of adaptive facades responding to light, heat and wind. optimize natural ventilation and shading also reduce dependency on mechanical cooling
Lack of safe drinking water	Groundwater Recharge & Urban Softscapes	Introduce rainwater harvesting and recharge wells
Lack of accessible green areas and dependency on market elements	Green Roof & Permeable Surface Policy	Promote permeable pavements in streets and plazas
High vehicular air pollution and overdependence on fossil fuel imports	Ethanol Fuel Adoption	Promote biofuel blending policies and Support ethanol-compatible vehicles
Traffic congestion and transport-related emissions	Zero-Carbon Public Transport Policy	Improve public transport connectivity and accessibility
Water scarcity and supply stress	Self-Sufficient & Recyclable Water System	Implement greywater recycling and reuse
Poor waste segregation and landfill dependency and environmental pollution and public health risks	Centralized Automated Waste Management	Enforce source segregation and recycling policies and convert waste to energy and compost

7. RESULT & DISCUSSION

The proposed design at Court Station Node, Rajshahi incorporates the 10-Minute City concept and the concept of smart and sustainable city. To make it accessible and reduce the use of cars, all facilities required are located within a ten-minute walking/biking distance. The spinal is green, there is a bicycle trail and the place that allows people to walk, promoting not only environmental comfort but also active mobility. Examples of smart city features, which enhance user experience and efficiency, include digital information panels, sensor-based lighting, Solar based Buildings, Bus stop, Electric Vehicle charging station, solar charging eating, zero carbon emission bus service, solar park, and app-based public services. The management strategies emphasize integrated governance, smart technologies, ecological restoration and low-carbon infrastructure to address critical urban environmental and service-related challenges. The design of each building which is a sustainable building also includes green roofs, the use of renewable energy, and passive strategies. Overall, the project develops a small, interdependent, and climate-sensitive prototype of the future urban development of Rajshahi. This aim to be an example module

8. CONCLUSION

This paper has responded to the research questions by analyzing accessibility, walkability, informal economic activity as well as environmental resilience in the Court Station area. The Court Station Node in Rajshahi has the space structure, the socio-economic diversity, and the urban dynamics that can be used as a prototype in the application of a 10 Minute City model in a mid-sized Bangladeshi setting. The research determines the potential of proximity-based planning to transform the daily life

of the city in a meaningful way through a mix of thorough mapping, evaluation of accessibility, assessment of service gaps, evaluation of the environment, and exploration of the community oriented design. Through this research we want to establish the facilities of compact city through new urbanism where we can find the facilities in certain distance. Smart infrastructure, waste management system, smart vehicle system, walking friendly pedestrian activity enhance the research to achieve a compact city within 10 min walking solution. Community facilities, infrastructure, green spine combines the research to achieve compact solution for all users. Although Court Station's current compact layout offers a solid basis for change, planned upgrades are needed to address the analysis's findings regarding infrastructure deficiencies, mobility conflicts, vendor encroachment, and environmental concerns. (Mitullah, 2003; Watson, 2009). The suggested design framework will solve these problems through implementing the combination of people-friendly mobility systems, nature based solutions, community-serving public space, and smart technological interventions. The introduction of the Green Spine that is a multifunctional ecological, mobility, and social corridor that is in direct response to the disjointed landscape and absence of uninterrupted areas of public space as perceived in the field. It has been demonstrated that green-blue infrastructure is more capable of improving the urban climate mechanisms, urban biodiversity, and stormwater management in addition to promoting healthier civic environments (Gill et al., 2007; Fletcher et al., 2015). Including bioswales, permeable surfaces, seasonal retention landscapes, and microwetlands, the proposal follows the best practices in urban design globally towards climate-adaptive and water-sensitive urban design. The huge green spine connects the whole city by walking friendly pedestrian, bicycle lane, activity zone like open gym, amphitheater, cultural club.

Moreover, the example of the reintroduction of the historic Dhopkol into the Smart Water Station reflects how the cultural value can be combined with the modern technologies of sustainable development and formed the concrete connection between the heritage and the urbanism of the future. The main aspect of the proposal is mobility transformation. The paper shows that pedestrian-centric streets, aggregated cycling systems, AI-operated bus services, and autonomous micro-mobility systems can all decrease the use of personal motor vehicles and make it much safer, more efficient, and less damaging to the environment (Ewing and Cervero, 2010; Bibri, 2021). Pedestrian friendly street activity with separate lane solution, bicycle lane, urban furniture, green buffer connect the city within walking distance. Similarly, the implementation of smart infrastructure a sensor-based lighting system, application-integrated governance platform, automated waste management and real-time information of the public supports more efficient, transparent, and citizen-centered city operations. Recent research established that data-driven and IoT-enabled infrastructures enhance the reliability of the operations and ought to assist cities in keeping abreast with the changing technology, population, and climate at an alarming pace (Gao et al., 2023; Urban Design Lab, 2023). Smart facilities are included there like transportation hub, solar vehicle charging spot, seating with solar charging port, bus stop with solar panel, water pumps work with solar, solar park, waste management system. In addition to the physical and technological enhancement, the study strengthens the need of inclusive and socially based urbanism.

The channelized vendor-integrative design, open spaces, and mixed-use communal facilities will protect the livelihood and foster social cohesion, overcoming the criticisms of exclusionary or displacement-oriented planning which is typical of cities with quickly growing populations (Watson, 2009; Pojani and Stead, 2015). The study reveals that, inclusive, safe, and comfortable, the public environments promote social interaction and economic vitality as well as empowering the community, as well as shared sense of ownership of the urban spaces (Gehl, 2010). Collaboration of the users, creating community interaction in market place, walking friendly pedestrian & green spine enhance the social value of the city. Solar park, smart infrastructure, smart vehicle system, smart administrative process, use of smart citizen card enhance the citizen facilities & mandatory solar panel in every structure decrease the use of coal based electricity. These facilities enhancing the economic value of the city as well as the land value. Policymaking wise, the research demonstrates how coordinated regulatory frameworks can be undertaken on migration to zero-carbon mobility, transition to renewable energy, green roofing, permeable landscape policies, biodiversity

improvement and smart governance that may assist in achieving long-term sustainability. Rajshahi with its small size and good civic culture can easily spearhead such policy frameworks and can serve as a national model. All in all, this study offers an in-depth and context-based roadmap of how to turn Court Station into a connected, walkable, inclusive and climate-adaptive 10-Minute City. It shows that even minor and gradual changes can radically transform the city life and make it more sustainable as organized through strategic planning, local engagement, intelligent government and ecological planning.

DECLARATION OF USE OF AI

All the study, field observations, interviews, data analysis, interpretation of findings, documentation, research design, conclusion and the figures (with citations) are real, designed and conducted by the authors. To bring out the right and authentic document, Microsoft Copilot AI was applied to organize the final document, check references, and paraphrase some sections that were keenly examined, edited, and subsequently approved after subsequent checks by the authors. One of the AI technologies that have been used is Microsoft Copilot. The AI tool was aimed at creating first drafts of the text that would be edited later and also checking grammar, reference, and paraphrase. Examples of grammar correcting tools are Quilbot, Gemini and Grammarly.

REFERENCE

- Siddique, S. A., Asaduzzaman, M., & Hameem, S. (2024). Assessing the walkability and pedestrian facilities at major intersections in Rajshahi City, Bangladesh. *Jordan Journal of Civil Engineering*, 18(3), 377–385.
- Hameem, S., Siddique, S. A., Rahman, A., & Tarafder, M. M. B. (2023). Transformations of residential neighborhoods of Rajshahi: The case of Sagarpara and Padma residential areas in Bangladesh. *ISVS e-journal*, 10(8), 15–24.
- Geurs, K. T., & van Wee, B. (2004). Accessibility evaluation of land-use and transport strategies: Review and research directions. *Journal of Transport Geography*, 12(2), 127–140.
- Porta, S., Romice, O., Maxwell, J., Russell, P., & Baird, J. (2012). Alterations in urban quality: The impact of density and space on the perception of urbanity. *Urban Studies*, 49(16), 3605–3623.
- Mitullah, W. V. (2003). Street vending in African cities: A synthesis of empirical findings from Kenya, Cote d'Ivoire, Ghana, Zimbabwe and South Africa. World Bank background paper.
- Pojani, D., & Stead, D. (2015). Urban transport in the developing world: A socio-economic perspective. *Transport Reviews*, 35(6), 667–688.
- Gehl, J. (2010). *Cities for People*. Island Press.
- Watson, V. (2009). 'The planned city sweeps the poor away...': Urban planning and 21st century urbanisation. *Progress in Planning*, 72(3), 151–193.
- Fletcher, T. D., Shuster, W., Hunt, W. F., Ashley, R., Butler, D., Arthur, S., ... & Mikkelsen, P. S. (2015). SUDS, LID, BMPs, WSUD and more — The evolution and application of approaches to urban drainage. *Urban Water Journal*, 12(7), 525–542.
- Cervero, R., & Kockelman, K. (1997). Travel demand and the 3Ds: Density, diversity, and design. *Transportation Research Part D: Transport and Environment*, 2(3), 199–219.
- Jabareen, Y. (2006). Sustainable urban forms: Their typologies, models, and concepts. *Journal of Planning Education and Research*, 26(1), 38–52.
- Gill, S. E., Handley, J. F., Ennos, A. R., & Pauleit, S. (2007). Adapting cities for climate change: The role of the green infrastructure. *Built Environment*, 33(1), 115–133.
- Shaheen, S., Cohen, A., & Zohdy, I. (2016). *Shared mobility: Current practices and guiding principles*. U.S. Department of Transportation.
- Ewing, R., & Cervero, R. (2010). Travel and the built environment: A meta-analysis. *Journal of the American Planning Association*, 76(3), 265–294.

- Logan, T., Hobbs, M., Conrow, L., Reid, N., Young, R., & Anderson, M. (2022). The x-minute city: Measuring the 10, 15, 20-minute city and an evaluation of its use for sustainable urban design. *Cities*, 131, 103924.
- Bibri, S. E. (2021). Data-driven smart sustainable cities of the future: urban computing and intelligence for strategic, short-term, and joined-up planning. *Computational Urban Science*, 1(1).
- Gao, C., Wang, F., Hu, X., & Martinez, J. (2023). Research on sustainable design of smart cities based on the internet of things and ecosystems. *Sustainability*, 15(8), 6546.
- Rasli, F. N., Juhari, M. L., & Halim, A. H. A. (2025). Green Corridors in coordinating and supporting SDG 11: Sustainable Cities and Communities. *International Journal of Research and Innovation in Social Science*, VIII(XII), 1053–1071.
- Moreno, C. (2021). The 10-minute city concept: Principles for proximity-based urban planning. *Journal of Urban Design*, 26(2), 145–162.
- Shaw, S., & Ghosh, R. (2024). Climate-adaptive urban strategies for South Asian cities. *Urban Climate and Resilience*, 3(1), 45–67.
- Hasan, M., & Mahmood, S. (2021). Urban biodiversity and green infrastructure in Bangladesh. *Journal of South Asian Environmental Planning*, 8(4), 201–218.
- Wang, Y., & Pei, L. (2020). Climate-adaptive public space design: Frameworks and applications. *Landscape and Urban Planning*, 197, 103747.
- Hegedüs, A. (2021). Ecological corridors and urban habitat connectivity. *Urban Ecology Review*, 12(3), 77–92.
- Urban Design Lab. (2023). Smart governance for resilient cities: Tools and case studies. Urban Design Lab Report.
- Akotia, S., Awuzie, B., & Egbu, C. (2022). Digital public service delivery: Integrating technology in municipal governance. *International Journal of Public Sector Management*, 35(6), 512–529.
- Logan, T., Hobbs, M., Conrow, L., Reid, N., Young, R., & Anderson, M. (2022). The x-minute city: Measuring the 10, 15, 20-minute city and an evaluation of its use for sustainable urban design. *Cities*, 131, 103924.
- Bibri, S. E. (2021). Data-driven smart sustainable cities of the future: Urban computing and intelligence for strategic, short-term, and joined-up planning. *Computational Urban Science*, 1(1), 1–23.
- Gao, C., Wang, F., Hu, X., & Martinez, J. (2023). Sustainable design of smart cities based on Internet of Things and ecosystems. *Sustainability*, 15(8), 6546.
- Rasli, F. N., Juhari, M. L., & Halim, A. H. A. (2025). Green corridors in coordinating and supporting SDG 11: Sustainable Cities and Communities. *International Journal of Research and Innovation in Social Science*, 8(12), 1053–1071.
- Seferoğlu, M. T., & Allahverdiyev, J. (2025). Pedestrian safety and sustainable urban planning: A literature review on walkable city design. *Proceedings of the International Conference of Contemporary Affairs in Architecture and Urbanism (ICCAUA)*, 8(1), 1–14.
- Tsenkova, S., & Hutcheon, M. (2016). Sustainable urban development and housing policy. *Housing Studies*, 31(7), 789–806. United Nations Development Programme. (n.d.). Sustainable development goals: Sustainable cities and communities