



**UNIVERSITY OF RAJSHAHI**

**MASTER PLAN  
(2020-2070)**

**September 2020**

# RAJSHAHI UNIVERSITY

## MASTER PLAN (2020-2070)

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Rajshahi University

First Edition

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## Message from Honorable Vice-Chancellor

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Welcome to the Rajshahi University Master Plan.

As the COVID-19 pandemic unravels all over the world, disruptions to daily life and workplaces have become inevitable. However, we have to rethink the planning of our future campus to face all type disaster and creating quality of life for all.



This 50 years Master Plan document constitutes a major revision of 1962 campus plan honoring the major concepts. We envision the campus as a collection of zones, each with its distinctive identity and purpose. New facilities are thoughtfully integrated in the most effective zone based upon a set of design guidelines. This process provides a powerful tool for the structured, yet flexible development of our campus over the next 50 years.

I am happy to report that this master plan takes into account a number of prominent themes advocated by numerous faculties, staff and students as well as the general public. These themes include using best practices for increased consolidation and density building a more pedestrian-friendly campus and better serving the needs of a culturally diverse student population. With this in mind, we plan to increase space for student life and student housing and create a welcoming place that embraces the intercultural and international diversity of our global community.

Cognizant of shifting pedagogy, E-learning and the realities of our recent situation we will be judicious in the new spaces we create and effective with the spaces we utilize and maintain.

I want to thank the entire Master Plan Team for the great work accomplished to develop this plan. I especially want to thank the Convener Committee of Rajshahi University Master Plan for their efforts and contributions. Finally, Consultant Team for their professional expertise and the entire faculties and university staff for their management and completion of this report.

The Rajshahi University Master Plan (2020 - 2070) provides the framework for a very bright future.

Regards,

A handwritten signature in black ink, appearing to read 'M. Abdus Sobhan', with a long, sweeping flourish extending to the right.

Professor M. Abdus Sobhan  
Vice-Chancellor, Rajshahi University

## Message from Honorable Pro Vice-Chancellor

A master plan is a document of frameworks and supportive policies that reflect the design intent and direction outlined in the Vision and Planning Principles for any institution. It can make the connection between its structures with social settings as well as the surrounding environments of the institution.



To build a developed Bangladesh as dreamt by the Father of the Nation, Bangabandhu Sheikh Mujibur Rahman, honorable Prime Minister her Excellency Sheikh Hasina has taken initiatives by setting a clear vision and mission up to the years till 2100 under Delta Plan. I think this is the strength of inspiration in this regard.

All sorts of modern technology-based infrastructure facilities are needed to cope with global changes. As such, it is obligatory to revise the plan that was unveiled in 1962 for the University of Rajshahi. We do believe that the proposed master plan, Rajshahi University Master Plan (2020-2070), will cater to a cutting edge, sustainable and attractive environment of our beloved beauty queen campus of Matihar. The envisioned dynamic master plan will also facilitate the improvement of teaching, student life, research and the overall atmosphere through the integrated and effective arrangement for the next 50 years.

Being a part of such a historic work, I am happy and would like to express my grateful appreciation of our honorable Vice-Chancellor for giving his consent to accomplishing such a great job.

I thank the master plan committee, all the stakeholders and those who are connected somehow with this plan from its inception.

I wish success of 50 years Master Plan of Rajshahi University.

Regards

*AK Saha*  
5.9.2020

Professor Dr. Ananda Kumar Saha  
Pro Vice-Chancellor, Rajshahi University

## Message from Honorable Pro Vice-Chancellor

It gives me immense pleasure to state that eventually we have been able to have a 50 Years Master Plan through a well-orchestrated effort by Rajshahi University Authority and Sheltech Consultants (Pvt.) Ltd. who happens to be the consultant of the Master Plan project. Over last couple of months, the University, together with the consultants, carried out extensive efforts to formulate a development plan that bears the footprint of the campus dwellers' aspirations and dreams of a beautiful campus. University officials extended all its assistance to the consultant in executing the required surveys, collecting field data and conducting people's opinion survey- all in a participative manner. All efforts were directed to make the plan an inclusive one through participation of a wide cross section of campus residence. The University had several consultations with the Consultants on the problems and pertinent issues of the campus, apart from direct consultation with all the Faculty members. Along the road, the University, expressed earnest hopes that GoB would extend its assistance to get the development proposals, set in the Master Plan, executed to a maximum extent. However, alongside above, the university may as well need to mobilize its own resources to implement some of the MP-propositions. The other public sector agencies involved in the campus area would expectedly have their roles in implementing their respective slices of the plan proposals. Hopefully, they would as well do their very best to carry out their respective parts of the plan-stipulated responsibilities.

I firmly believe that, should the 50 years Rajshahi University Master Plan be properly conformed to, it would bring noteworthy changes in the campus scenario. With the hopefully flourish, quality of life and the extent of livability of the campus will further go up.

In the end, I do hope that concerted effort will need to be made to realize all the development and management propositions set forth in the Master Plan so produced.

Regards,



Professor Choudhury M. Zakaria  
Pro Vice-Chancellor, Rajshahi University



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## Message from Honorable Treasurer

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My heartfelt thanks to Rajshahi University and Sheltech Consultants (Pvt.) Ltd., the pertinent consultant, for their formidable formulation of 50 Years Master Plan for Rajshahi University. It is extremely important to integrate campus development and concomitant spectrum of campus services through an appropriate plan.



Along the road, I express my gratitude towards all the participants of Rajshahi University and elsewhere for their assistance throughout the project and the preparation of the master plan. I believe, proper implementation of the plan so evolved will ensure optimum use of resources/funds and depict a way for the University to play a strong role in the provision of a wide spectrum of campus services.

In the end, I wish Rajshahi University's success in all their service provision and development efforts. Inasmuch, I do hope that the campus dwellers living milieu will improve further, ensuring a safer and better standard of living.

Regards,

A handwritten signature in black ink, appearing to read 'Ammur Rahman'.

A. K. M. Mostafizur Rahman  
Treasurer, Rajshahi University



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## Acknowledgements

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The following individuals and groups are acknowledged and thanked for their contribution to the development of 50 Years Master Plan for Rajshahi University.

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## Executive Summary

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Rajshahi University is the first public university to have acted as a powerful performer in the economic and cultural life of the southwestern region of Bangladesh. It is one of the oldest, largest and highest seat of learning institute in this country.

The first Master Plan was done by “Daniel Dunham” of Berger Consultants, in 1962. Dunham had been working in Dhaka since 1960 and was able to develop a long-term vision for the plan based on his knowledge of the local climate and site conditions of Rajshahi. The axial, organizational framework of the Dunham plan reflects a clear concept about the relationship of the built environment and open space which future expansion plans can build on. This Proposed master plan strives to honor these founding ideas in Dunham’s original master plan for the university.

Rajshahi University is preparing a Master plan for 2020 to 2070 with the goal of directing the University to the next level of excellence. From it’s starting to till date this University has gone through numerous even and odds; experienced its position, ranking, placement in national and in international comparisons. Location, approach, connectivity, gateways, accessibilities are definitely important for academic status.

Academic courses, contents, research and analytical aspects are deciding factors of selection of a university. Teaching faculties, their skills and knowledge sharing aptitudes decide university’s value. Quality and quantity of meritorious students add on the classification of the institution. Challenges and opportunities are to overcome by further refinement of the totality. This plan addresses the educational needs of present and future generations, with reference to recommendable strategic plans to achieve phases.

The university will have to develop academic development and research, student development, campus development and continuing education. Perhaps, international students largely help to knowledge sharing with domestic students besides play a pivotal role



for development of regional interfacing. Already Rajshahi University allows 25 students per admission session, if it properly continues for welcoming abroad students, that can be a key factor for upgrading university ranking in world perspective.

Rajshahi University has all the qualities to become a creative and innovative in ideas, academics, designing, environment, securities and in development of human representatives for the nation for the globe for the future. It will establish its name as an internationally renowned institution for research and higher learning to the next level of world excellence.

Designs have given special thoughts of science of air circulation and sun-path shadows. Building designs are oriented accordingly. Internal courtyards are thought as shaded cool and comfortable areas with pleasant and accessible plazas. Urban design of the university deals with physical comfort and aesthetical gratification. Classification of areas are done to break monotony and to give identity to a place of its own. Plantation, landscaping, water bodies have played important roles in maintaining soothing and qualitative merits of each spaces. Modern technologies are thought in designing of sun and moon, air and rain. Shaded, perforated link spaces are programmed for all the times. All human beings, with ability and non-ability (otherwise able) are sympathetically dealt. Environmental issues are handled to improve air quality to provide comfort. Noise is reduced by layers of landscaping. Flowers are proposed to welcome butterflies, honey bees that to enhance studying environment.

Rajshahi University is the home of many architectural and artistic landmarks. During the Bangladesh Liberation War of 1971, this campus was witness of various incidents. The students and staff of the university started playing a prominent role in politics. So, conservation of buildings, preservation of heritage site, improvement of landscapes and development of Paris road to uphold the history of this university to further many years ahead to the academicians and visitors.

University students live apart from family members in isolation and under pressure of academic competitiveness. Festive holidays are planned to bring immense pleasure by designing performance areas, photo shoot points, fireworks, dining out, angling, boating. Walking trails, soft and designed pavements, plazas are to ease academic life.



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# Chapter One

## Introduction



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## CHAPTER ONE INTRODUCTION

### 1.1 Background

Master plan of a university allows its physical improvements and supports the strategic vision. The University Master Plan incorporates academic, research and development activities, space utilization, infrastructure assessment. Identification of existing problems related to transportation, accommodation, water and electricity supply, drainage and sanitation, solid waste management and environmental issues. Local weather studies are important for preparation of a feasible master plan that would ensure proper functionality of the university as well as most suitable management. The master plan will also aim at campus beautification and enhancement of social and environmental aesthetics.



#### At a Glance

**Established:** 6 July 1953  
**Location:** Motihar, Rajshahi, Bangladesh  
3 kilometres (2 mi) from the Rajshahi city centre.  
**Area:** 305 Hectare (753 Acre)  
**Academic Faculties:** 10  
**Academic Departments:** 58  
**Affiliated Institutes:** 06  
**Affiliated Colleges:** 19  
**Faculty Members:** 1205  
**Students:** 38230  
**Officers:** 734  
**Employees:** 1701  
**Residential Hall:** 17 (Male: 11 & Female: 06)  
**International Dormitory:** 01  
**Source:** ru.ac.bd; August 2020

The university campus is an environment for living and learning, environment for research, social life and institution related recreation. The present campus of the university is located at Matihar developed on 753 Acres of land acquired and construction of new buildings and structures started in 1958. The first Master Plan was designed by Daniel Dunham at Louis Berger & Associates based in New Jersey, USA with Berger Engineers, Pakistan office in Dhaka, 1962. According to his design, University of Rajshahi had a vibrant and dynamic campus with historical and cultural background.

To develop a university campus proper utilization of land, development of space for residential facilities (teachers, staff and students, residence), proper planation of academic zone, development of conservation land, development of drainage network will be considered as the objectives of this project. So, for creating a better and convenient academic environment and research facilities proper campus planning for university area is very magnificent.

## 1.2 Historical Background

### 1.2.1 General History

The first proposal to establish a university came in 1917, when Calcutta University created the Sadler Commission to assess the university system in Bengal. However, the recommendations of the report had no immediate consequences.

Demand for a university in the northern part of East Bengal gained momentum when two universities were set-up quickly in West Pakistan, using funding diverted from East Bengal, without the establishment of any in the east. Students of Rajshahi College were at the forefront of the movement demanding a new university. Finally, Rajshahi was selected as the home for the second university in East Bengal and the Rajshahi University Act of 1953 (East Bengal Act XV of 1953) was passed by the East Pakistan provincial Assembly on 31 March 1953. The Governor of East Bengal was the chancellor and Dr. Itrat Hossain Juberi, the Principal of Rajshahi College was appointed the first vice-chancellor of the university. He and a patron of learning Mr. Madar Baksh worked together to prepare a plan for the university. All intermediate and degree colleges and also the colleges of vocational and technical education of Rajshahi and Khulna divisions were affiliated to the newly established university.

Initially, the university was housed in temporary locations, at the local Circuit House and Bara Kuthi, an 18th-century Dutch establishment. B B Hindu Academy, a local school, housed the library, teachers' lounge and the Medical Centre. The university started out with 20 professors, 161 students (of which 5 were female) and six departments—Bengali, English, History, Law, Philosophy and Economics. In 1964, the offices moved to the permanent campus.

The construction of the first phase to accommodate all offices and academic units was completed in 1964. At present (2011), the university has two administrative buildings, a senate house, 8 academic buildings, 17 residential halls for students (6 for Female), residential houses for teachers and other staff (including separate houses for the Vice Chancellor and Pro Vice-Chancellor), the central library, central mosque, central auditorium, students' union building, medical centre, press, guest house and a cafeteria. Some institutes building, special departments and facilities of the university are located within the campus and in the town. These include the Institute for Bangladesh Studies (IBS, 1974), Institute of Biological Sciences (IBSc, 1989), Institute of Environmental Science (2000), Institute of Education and Research (2000), Institute of Business Administration (2000), the Department of Fine Arts, the University School and College, a rail station, the varendra research museum and Barakuthi Building. A sculpture of the war of liberation, the Sabash Bangladesh and



a Shaheed Minar have been erected at the campus. At the period of 1960s was a turbulent period in Bangladesh, when demands for East Pakistani autonomy became stronger. The students and staff of the university started playing an increasing role in politics. Rajshahi University has a great role in all major historical movements of the country. On 18 February 1969, Shamsuzzoha, a professor, was killed by the police when he tried to prevent them from shooting student demonstrators. This date is now commemorated as Zoha Day. During the Bangladesh Liberation War of 1971, the campus was used as a base by the Pakistan Army. A number of professors, students and officers of the university were killed by the Pakistan army during this period. They killed three other teachers: Habibur Rahman of Mathematics, Mir Abdul Quaiyum of Psychology and Sukhranjan Samaddar of Linguistics, 15 non-teacher employees and 9 students of the university.

After independence, a new act regarding the administration of the university came into being—the Rajshahi University Act of 1973. The university is now governed by this Act. According to the act, the President of Bangladesh is its Chancellor and the activities of the university are regulated by the senate, syndicate, academic council, finance committee and other statutory bodies. The Vice-Chancellor is the executive head and he is assisted by Pro Vice-Chancellor, Treasurer, Registrar, Controller of Examinations, and a set of other officers.

The post-independence years saw the university grow steadily in student enrolment and size of the academic staff. However, the 1980s were turbulent for the university, as the students agitated with other institutions of the country against the military rule of Hossain Muhammad Ershad. Since the early 1990s, the university has seen relative calm and lowering of session backlogs, though active student politics remains a contentious issue.

Famous researchers and academicians who played a prominent role for the development of the campus and worked here in different aspects. Some of such people are Dr. Muhammad Shahidullah, Dr Muhammad Enamul Haq, Dr AR Mallick and Dr. Abdul Karim. The university offered honorary DLit to the French philosopher Andre Malraux in 1973.

**Map 1.1 and Figure 1.1 presents location of Rajshahi University.**



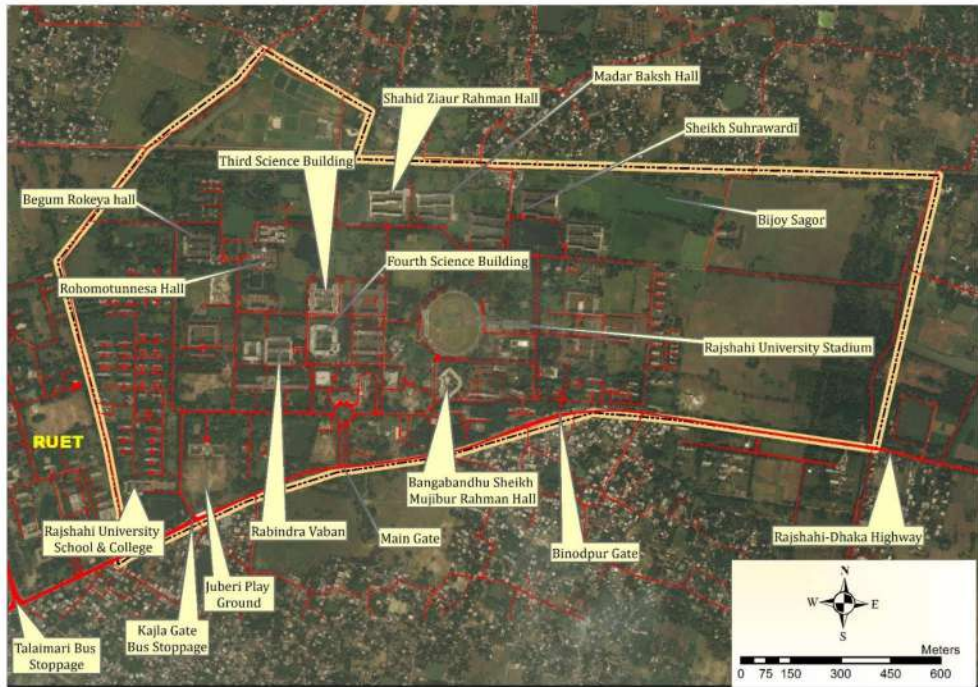


Figure 1-1: Location Map of Rajshahi University

### 1.2.2 Academic History

The university started its progress with 20 professors, 161 students (of which 5 were female) and six departments-Bengali, English, History, Law, Philosophy and Economics. The academic programs of the university commenced from 1953-54 session with post-graduate courses in Philosophy, History, Bengali, English and Mathematics. New courses introduced within the next three years were in Geography, Psychology, Islamic History and Culture and Commerce. The classes used to hold in the Rajshahi College building in evening shift. The first teachers of the university were from the senior professors of Rajshahi College. Some hostels were developed at different locations at Rajshahi town.

Initially the University had only post-graduate courses. Honors courses in the university were introduced in 1962. In 1953, there were only two faculties, Arts and Law with 7 departments. In 2010-11 session, the number of faculties stood at 9 and these had 47 different departments of all major branches of humanities, pure and applied science and commerce as well as new and modern disciplines. The five institutes of the university are those of Bangladesh Studies, Biological Sciences, Education and Research, Environment Science and of Business Administration. The

university does not have any affiliated college now as all the degree colleges of Rajshahi and Khulna were put under academic control of the national university established in 1992.

The Arts and the Law faculties are the oldest, both established in 1953, closely followed by the Faculty of Science (1956) and the Faculty of Engineering (est. 2009). The Faculty of Law has the following departments- Department of Law, established in 1953 and University of Rajshahi Department of Law and Land Administration, established in the session of 2015-16. It is the pioneer department in Bangladesh in the field of education on land laws land management and land survey.

Under faculty of Arts, the departments of Philosophy, History, English, and Islamic History & Culture were established in 1953. Arabic and Islamic Studies in 1981-82, Bangla, Music, Theatre, Persian language and literature, Urdu, Sanskrit. Teaching in Islamic Studies subject began in 1981-1982 session under the Department of Arabic and Islamic Studies. Then on an independent one.

Fine Arts subject began in 1994-1995 session under the Faculty of Arts. Fine Arts subject began in 1994-1995 session under the Faculty of Arts. The students of Fine Arts strongly demanded the separations of Fine Arts faculty. After recommendation of academic council in the decision of number 3 of 46<sup>th</sup> syndicate, held in 29.08.2015. With Department of Painting, Oriental Art & Printmaking, Department of Ceramics & Sculpture and Department of Graphic Design, Craft & History of Arts Fine Arts Faculty was given the status of individual Faculty. Under the Faculty of Agriculture, Department of Fisheries was established in 2000.

Under The Faculty of Engineering, Computer Science & Engineering, Information and Communication Engineering (ICE) was established in 2000, Applied Physics & Electronic Engineering, Applied Chemistry & Engineering, Materials Science and Engineering from 2009-10 academic session and Electrical and Electronic Engineering (EEE) in 2015. In the late 1990 and 2000s, programs in computer science & engineering and Information & Communication Engineering were introduced. The newest addition to the Faculty of Engineering is the Department of Electrical and Electronic Engineering in 2015. The university used to have a separate engineering program through BIT (Bangladesh Institute of Technology) Rajshahi, which has become an independent university: Rajshahi University of Engineering & Technology (RUET) in 2002.



The transport pool of the university launched in 1967 has a fleet of vehicles for students, teachers and staffs staying outside the campus.

### 1.3 First Master Plan (1962)

**Rafique Islam** is an architect registered in Arizona, USA. Many of the buildings designed by him have received recognition and award for design excellence. He compiled Daniel Dunham's work.

**Following documents, maps, figures, hand sketching and articles published in newspapers are collected from the book named "Daniel Dunham Pioneer of Modern Architecture in Bangladesh", by Rafique Islam, Architect, Arizona, USA.**

#### **Rajshahi University Campus Planning**

Daniel Dunham lived in Dhaka from 1960 to 1967 and he produced many planning and architectural drawings. Rajshahi University Campus Planning is one of them. Rajshahi University was existence in the city of Rajshahi since 1953. With the University Act funding being available in 1960, approximately 300 hectares of land was acquired outside the city limits to set up a new campus. With a train station on the north and a road access on the south, the campus was to act as a semi-residential university. It was anticipated that while most of the students would come to campus from the city by train and bus, some residence halls and staff housing on campus would need to be provided on the campus.

Among the list of buildings proposed for the campus would be the administrative building, library, conference center, science and arts faculties, auditorium, medical center, stadium, swimming pool, mosque, botanical garden, student and staff housing complexes.

As part of the Berger Consultants contract for Rajshahi University's 1962 master plan, Dunham was also responsible for the design of at least four of the first buildings to go up on the campus including: (1) the library, (2) the canteen, (3) the medical clinic, and (4) a dormitory.

Dan's first assessment of the site was to make a compact campus with all the facilities within walking distance. A grid of 1000 feet which corresponded to 5 minutes of walking distance was laid on the site. Another assessment Dan made was to save a large mango grove on the site. With the administration and library building centrally located off of the ceremonial entry drive from the main road, a systematic layout was placed on the site with buildings in first phase located nearby with outward future expansions to be done in tandem.



The stadium and sports facilities were used as a buffer between the academic functions and housing blocks. The botanical garden was laid out in a classic Mughal pattern with the mosque occupying a prominent center spot in it. The vehicular link between the train station, bus stop and the campus were placed on the periphery to keep the internal movement mainly pedestrian. The campus was designed as a set of departments interconnected by pedestrian walkways. In an effort to use less land, Dan proposed two and three story buildings to house the students, library and departments. The linear 3-story dormitory building with facilities for meeting, mosque and dining room faced the street on the southern edge of the campus.

The Rajshahi University was in 1917 that the Calcutta University Commission better known as Sadler Commission constituted by the Government of the then India. The commission suggested the establishment of a University at Rajshahi with a view to imparting higher education to the people of the northern part of the country. The commission stated, "In Rajshahi it was refreshing to find evidence of the existence of genuine intellectual interest quite independent of the business of examination coaching, there is in Rajshahi something of the genuine University spirit though it needs to be fostered and strengthened in many ways.

Long after 36 years of the recommendations of the Sadler Commission. In 1953 the University of Rajshahi was established and started functioning as an affiliating University. In the year 1954-55 the university opened only six departments for teaching at the post-graduate level. The University, at that time, had no houses and buildings of its own. The classes were held in the morning in Rajshahi Government College. Some rented buildings were used for office and hostels.

Till 1958-59 the University could practically achieve no remarkable progress in any sector. In 1959-60 it suddenly received a handsome Government grant and was assured of its every possible financial assistance from time to time. The authority was then prepared an overall development scheme of the university which was duly approved by the provincial as well as the Central Government.

**Map 1.2 and 1.3 presents 1962 Master Plan.**

### **1962 Master Plan Proposals**

The master plan was carefully considered geographical location, extent, account the specific climatic conditions of Rajshahi and its site requirements. It was invariably shown the sites, mutual relationship and the features of the landscape of the establishments with which the university has ultimately take an overall real shape.

The university is located in Motihar at a distance of about four miles from the town of Rajshahi covering a beautiful green area of one thousand acres of land. The master plan “envisages” the establishment of a residential university to be developed.



Rajshahi University Campus map with Berger buildings shown highlighted

Figure 1-2: Rajshahi University Campus Plan, 1962

(Drawing Prepared by Rafique Islam)

### Science Museum

A science museum will be established along third and fourth science building. A modern refectory building has been built near the Central Library and the teaching blocks keeping in view the convenience of access to all concerned. Ample space around every building will be left for gardening and maintaining beautiful landscapes so that a pleasant environment may be created around each building.

### Other Institutional Buildings

On either side of the main entrance road, the Convocation Hall, the Students Union Building, the International House, the Posts and Telegraphs Office and the Administrative Building along with a scheduled bank will be situated. The International House is meant for the students coming from abroad and the guests



from any other part of the world. The Students Union Building comprising a big auditorium will act as a social center for cultural and other activities. The teachers and officers will be provided with residential quarters to be built in the western side of the university complex. A site has been earmarked for building their club in a suitable place in between the teaching blocks and their residential quarters.

### **Halls for Residential Accommodation**

As many as seven halls of residence each capable of accommodating 300 students will be located in the eastern side of the university campus. One of such halls has already been constructed and the construction of another one has been started. Almost within a year the construction of this hall will be completed.

Very near to the halls of residence there will be a well-equipped gymnasium, a modern swimming pool with all possible facilities for regular practice, tennis lawns, football and hockey grounds and a beautiful stadium. An artificial lake will be made for aquatic sports and rowing facilities. These will provide enormous recreational facilities for games and exercise.

The halls of residence have been located around the games and sports area so that the students can have a healthy corporate life and a common athletic spirit.

In the western zone of the university area will be a women's hall of residence which will be a self-sufficient and full-fledged establishment with all possible recreational facilities and all other amenities of life.

A small hospital along with a dispensary has been established not far from the halls of residence. This will ensure prompt treatment in case of emergency of the students and staff of the university. The officers, the supervising, personal and all others relating to this medical service would be provided with residential quarters in between the Nature Road and the halls of residence.



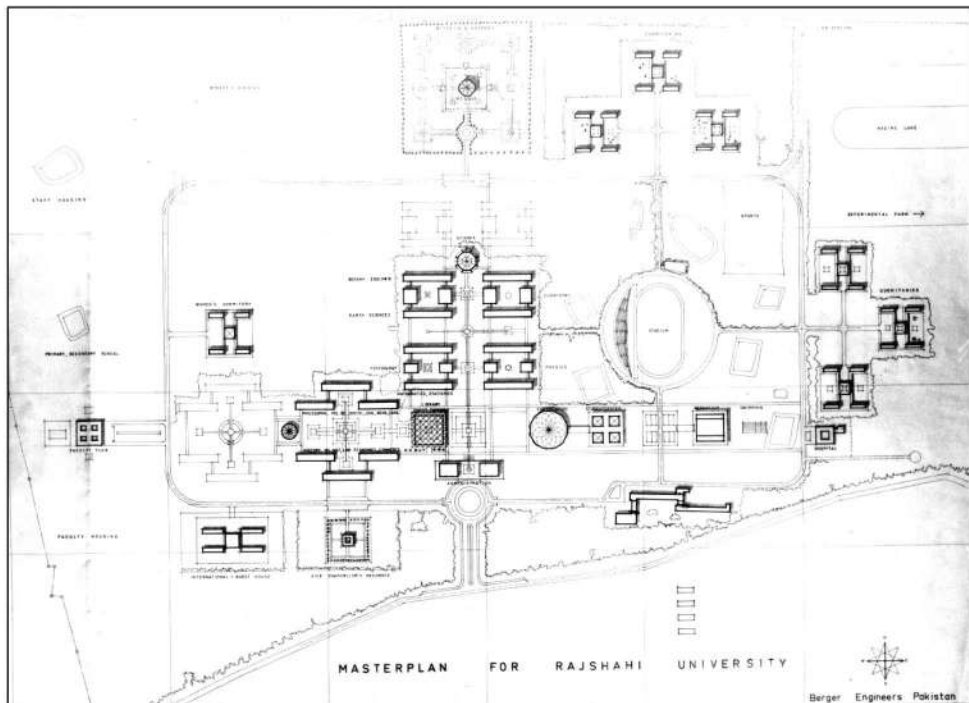


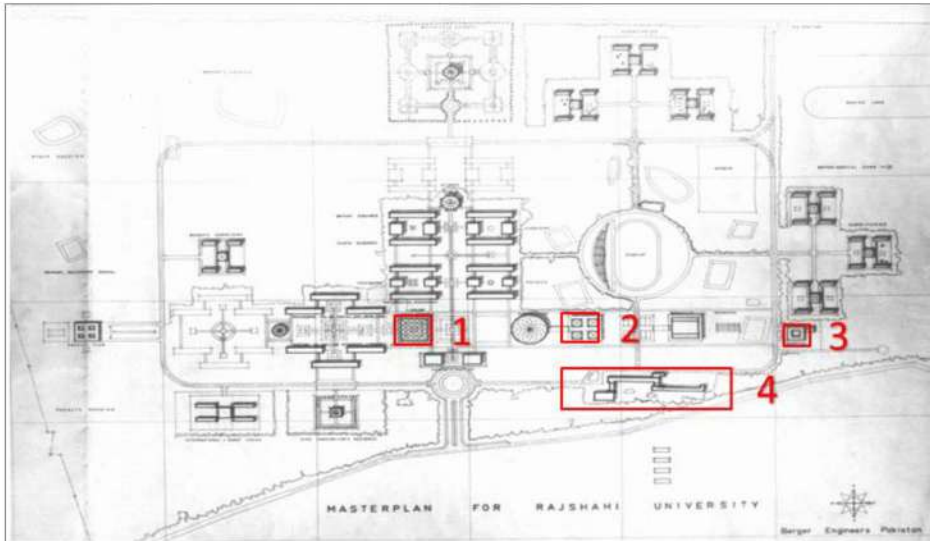
Figure 1-3: Rajshahi University Master Plan Layout, 1962 as Prepared by Daniel Dunham at Berger Engineers from Daniel Dunham book by Rafique Islam

### Mosque

In the heart of the northern zone of the university campus there will be a very beautiful mosque for students, teachers and all others serving the university. It would be an object of beauty, visible from all Sides of the campus. The mosque would serve as a supplement to all other prayer houses attached to each individual hall of residence and will act as a gathering center of many religious occasions, especially on the days of “Jumma Prayers”.

### Commercial Centre

A commercial center with stationary shops, general stores, laundry, hair-dressing, saloons, etc., will be located on the southern side of the Natore Road and would serve the entire university community of about six thousand people. The university purposes to open an experiment all dairy firm to cater to the constant demand of the students and teachers. The firm would make proper use of the resources of the idle lands of the adjoin areas.



1] LIBRARY



2] STUDENT CANTEEN



3] MEDICAL CLINIC



4] STUDENT DORMITORY



## DUNHAM 1962 MASTER PLAN AND FIRST STAGE BUILDINGS

As part of the Berger Consultants' contract for Rajshahi University's first master plan in 1962, Dunham was also responsible for the design of four of the first buildings to go up on the campus including: the library, the canteen, the medical clinic, and a dormitory.

Figure 1-4: Daniel Dunham's designed buildings at Rajshahi University  
(Source: Collected from Katherine Dunham (Daughter of Daniel Dunham); October - 2019)

### **Railway Station of Rajshahi University**

The railway board has granted the establishment of a railway station mainly for the use of university people.

During the second Five-Year Development Plan starting from 1959-60 to 1964-65 prepared within the framework of the overall development scheme, the construction of a three storied science building has been finished.

### **Jinnah Hall**

The construction of Jinnah Hall, a big hostel named after Quaid-e-Azam Muhammad Ali Jinnah has been completed. The residential quarters of the provost and its four house tutors are not far from this hall at present accommodating about three hundred students. A commodious auditorium capable of accommodating about 800 people has also been built in it for social, cultural and recreational activities of the resident-students of the hall. Moreover, the hall contains a library, a study room, an indoor games room, a common room, a prayer hall, a dining hall and a cafeteria.

Another hall of residence all most of this kind is now under construction. This hall has been named after Shah Makhdum, the famous saint of Rajshahi and has been styled as Shah Makhdum Hall. A few small hostels of the university are there in the town of Rajshahi. Besides these, the university also contains a few a few brick-built and tin shed hostels in the campus. About 350 students are now living in these hostels in addition to a hostel for women students of the university. These temporary hostels are now jointly known as Shah Makhdum Hall. Some teachers and officers are now residing in the campus. Some brick-built houses have been built for the residence of class IV employees of the university.

Constructions of the International House, the Central Library, the refectory building, the playground, the tennis lawns, the swimming pool, the doctor's residence and a hospital along with a dispensary and residential quarters for all the employees of the medical department are now nearing completion.

### **Arts Faculty**

Constructions of the Convocation Hall, the Administrative Building and many other buildings will be constructed. The administrative Building along will contain the bank, the Posts and Telegraphs office and all other offices of the university.



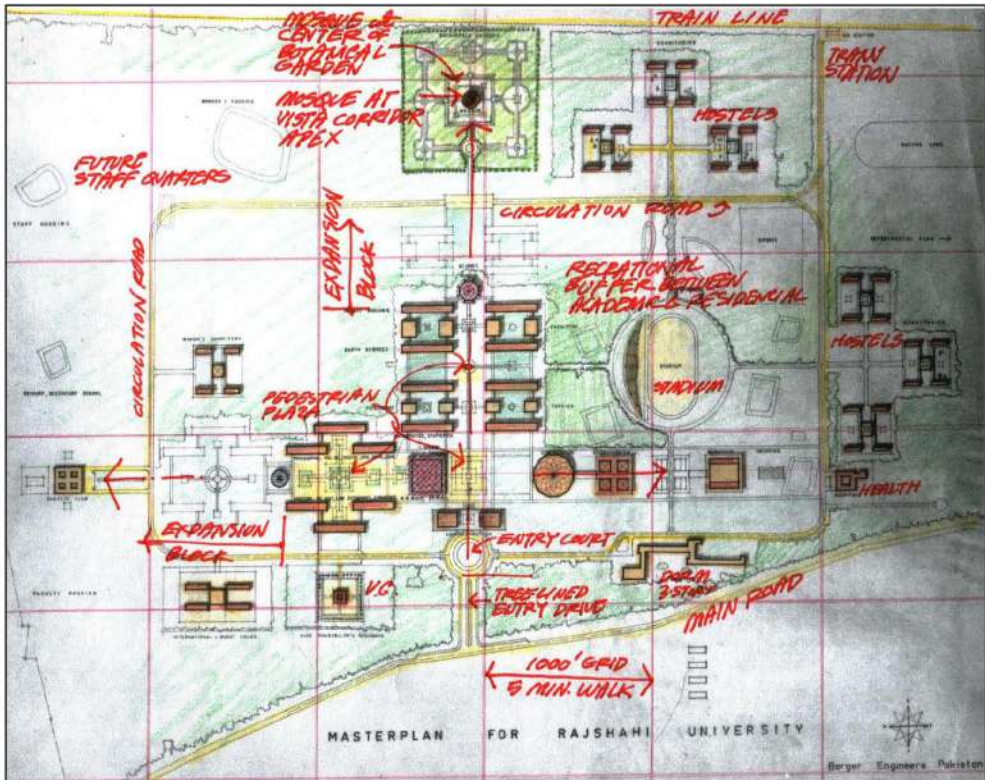


Figure 1-5: Campus Plan Analyzed by Rafique Islam, Architect, Arizona, USA.

(Source: From the Book "Daniel Dunham Pioneer of Modern Architecture in Bangladesh", Copyright 2013 by Rafique Islam, Architect, Arizona, USA; ISBN: 978-0-9834694-3-8)

### Sixteen Departments

A few years ago, there were only few post-graduate departments in the campus. Now there are as many as 16 post graduate departments in the university. During the last academic year honors course had been introduced in 14 subjects. The roll-strength of the students of the university is now about 1400, 700 of whom are residents. Excepting Law and three other departments all other subjects are now being taught in its own buildings in the university campus. Law classes are held in Rajshahi Government College in the night.

### Library and Laboratory

There are some 50,000 volumes of academic and other related books in the library of university excluding those kept in the seminar library of each department. The research laboratories of the departments of Physics, Chemistry, Psychology, Statistics, Geography and Mathematics are well-equipped with all necessary scientific tools and other machineries. It goes without saying that the university the

university is self-sufficient in water supply and electricity. The university has a plan to open Zoology, Sociology and Botany departments in this year.

It is simultaneously a teaching as well as an affiliating University and all colleges of Rajshahi and Khulna divisions, including a Medical College and Teachers Training College at Rajshahi are affiliated to it. The Rajshahi Medical College is making such a rapid stride that in no time it would be developed into a 1<sup>st</sup> grade Medical College. The Government of East Pakistan has decided to establish an Engineering College at Rajshahi. It will start functioning from the academic year 1965-66.

It is hoped that this new University will be able to make a considerable progress in the near future. The day is not far when this university will achieve a very dignified status in imparting higher education to the people of our land. We all pray for the success of this university.



**Figure 1-6: 1962 Master Plan (Architectural Model) Conserved at VC residence in Rajshahi University**

## 1.4 Present Master Plan (2020-2070)

### 1.4.1 Vision of the Master Plan (2020-2070)

The Master Plan Vision is according to the Rajshahi University vision. The messages of VC and Pro-VC reflects the vision of the University. So, the Vision of the Master Plan is -

**“To enable to think comprehensively in order to serve the nation and 21st century through fruitful academic collaboration and enhancing research, innovation and excellence”.**

### 1.4.2 Mission of the Master Plan (2020-2070)

The Mission of the Master Plan are as follows:

**“To perform quality research providing excellence in teaching and building a tradition of innovation to acquire advance knowledge through global standard excellence and professionalism in education, technology to benefit the greater society in an eco-friendly environment”.**

Rendering the above mission following Concept Plan and there after strategies has been proposed for future development.



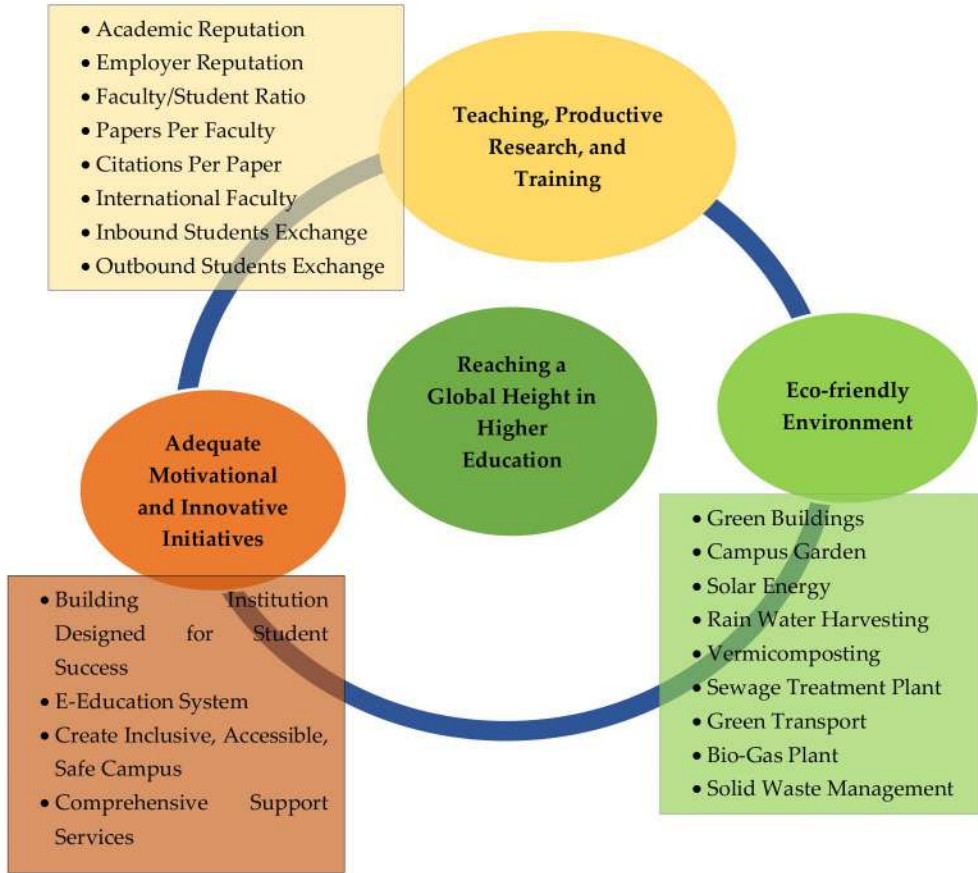


Figure 1-7: Concept Plan Diagram Proposed for University of Rajshahi

## 1.5 Strategies and Goals

Following strategies has been set primarily for the Master Plan:

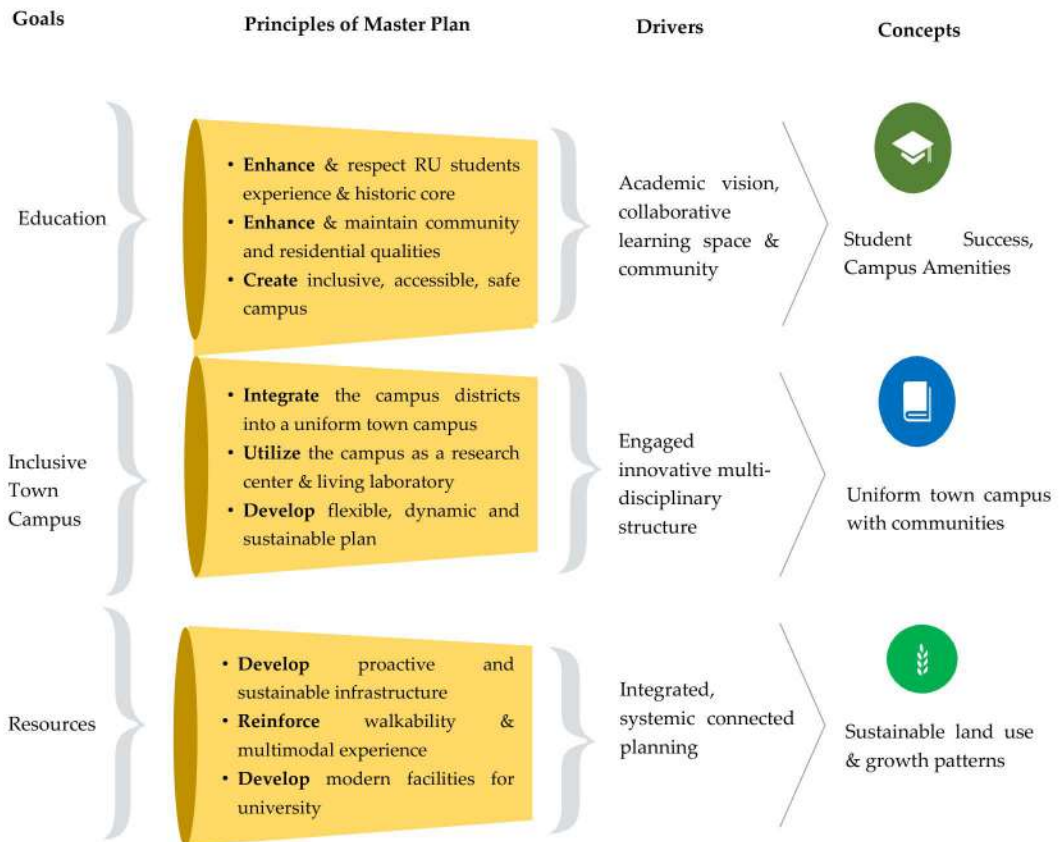


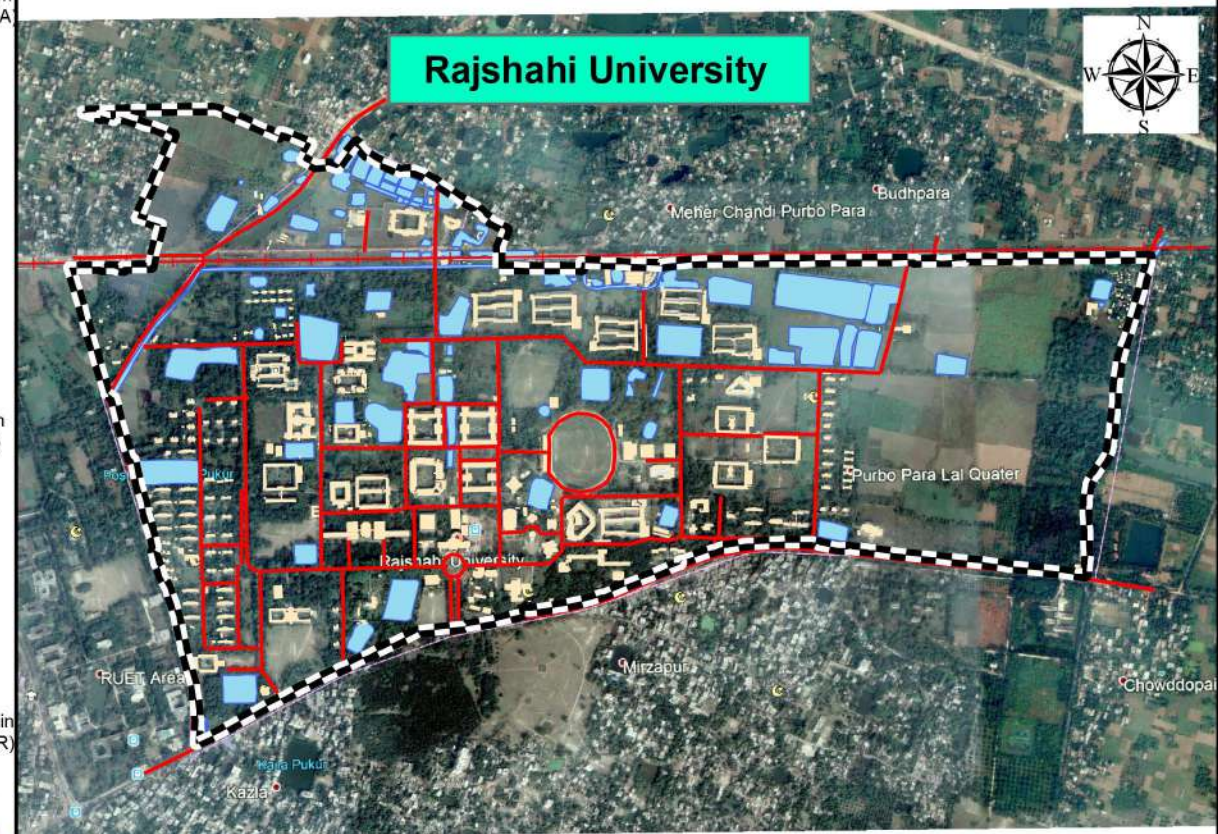
Figure 1-8: Strategies for Concept Plan

### Our Goals:

- Efficient use of land
- Efficient use of built space
- Zero water Import
- Zero energy import
- Zero waste export
- Mobility with low carbon emitted vehicle
- Preservation of bio-diversity
- Social Equity
- Cultivation of food onsite
- Harvesting energy onsite.



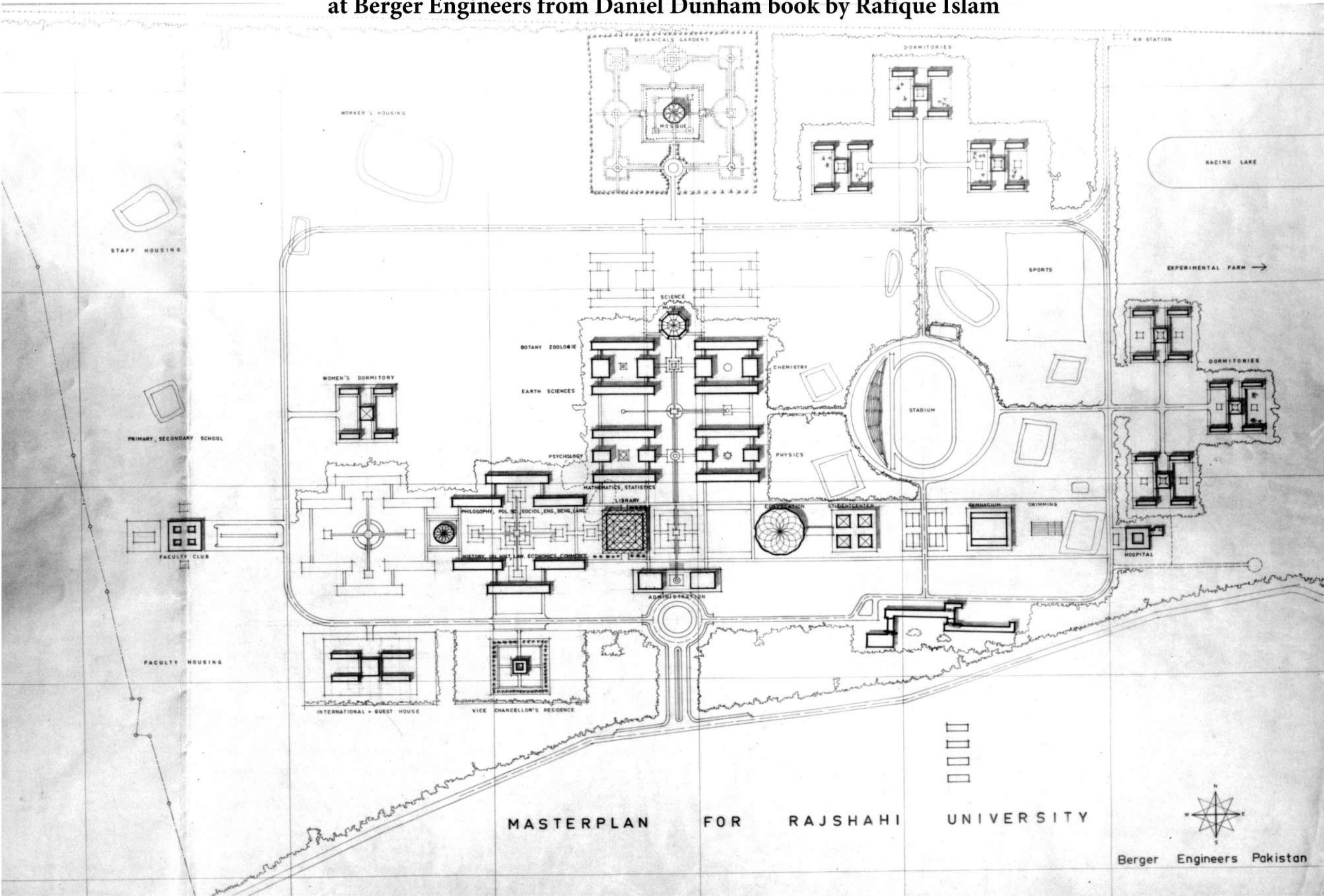
**Map 1.1: Location of Rajshahi University in Respect of Bangladesh**



Prepared By:

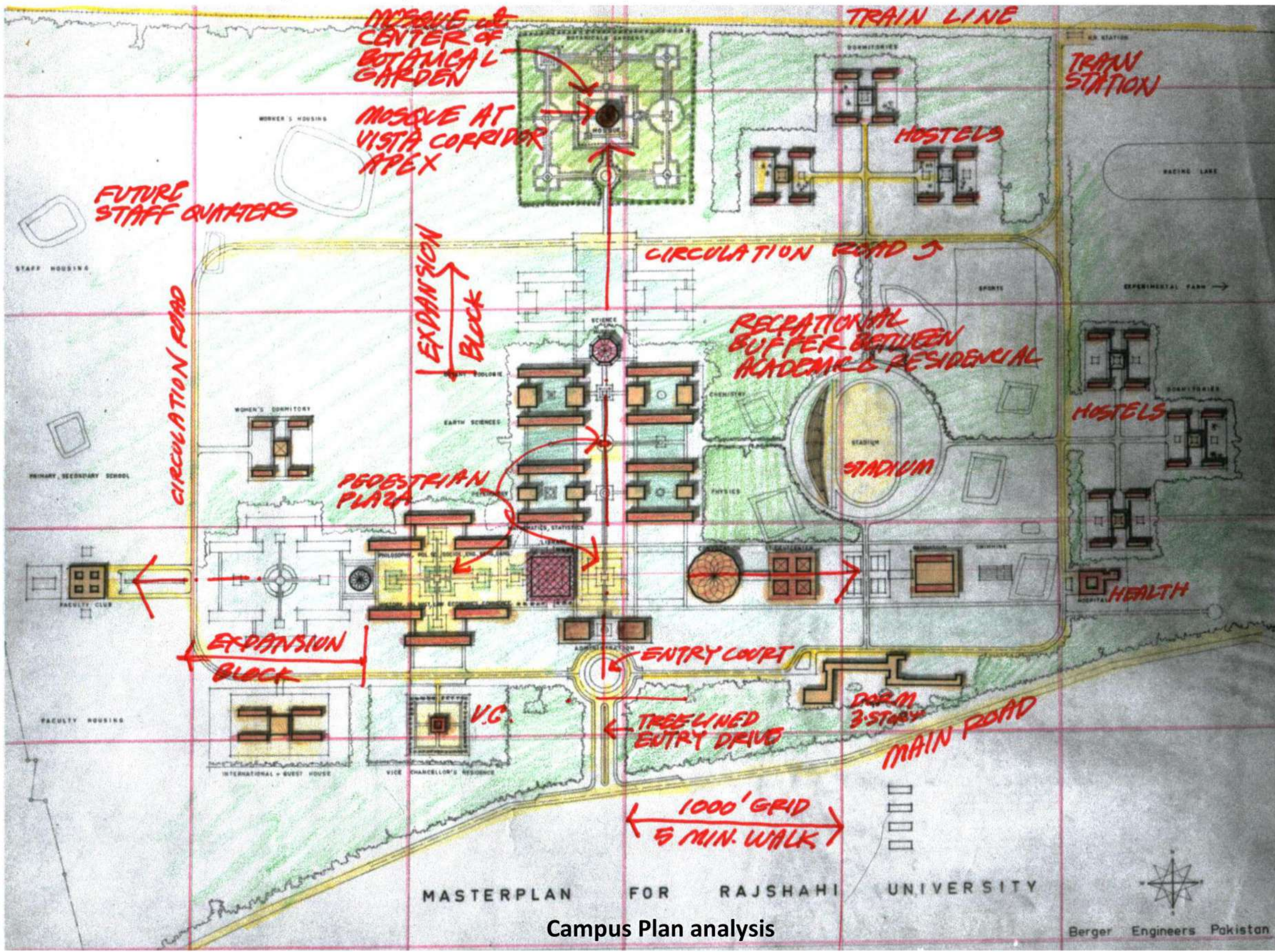


**Map 1.2 : Rajshahi University Master Plan Layout, 1962 as Prepared by Daniel Dunham  
at Berger Engineers from Daniel Dunham book by Rafique Islam**





Map 1.3 : Campus Plan Analyzed by Rafique Islam, Architect, Arizona, USA.







## Chapter Two

### Master Plan Preparation Process



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## CHAPTER TWO

### MASTER PLAN PREPARATION PROCESS

#### 2.1 The Roles and Effects of Rajshahi University Master Plans

##### The roles of Rajshahi University Master Plan

The roles of master plan are as follows:

- To support the implementation of the university's strategic vision and academic plan through aspects relating to its physical environment and facilities.
- To ensure that all stakeholders, both within the university and outside it, have a common awareness of the future vision for the campus.
- To contribute to the promotion of joint research and funded research by clearly defining the location of industrial-academic collaboration.
- To ensure that the necessity and urgency of investment in campus development can be presented to stakeholders in an easily understood manner.
- To facilitate the formulation and implementation of near, medium- to long-term renovation plans that are consistent with the plan for facility development.

##### The effects of creating Rajshahi University master plan

The effects of creating a master plan are as follows:

- Planned development that supports education and research activities, such as the upgrading and diversification of existing facilities.
- Building consensus within the university concerning the future direction of efforts to develop and enhance the external environment, as well as upgrading and diversifying existing facilities, and implementing planned development, based on an accurate understanding of the current status of existing facilities.
- Forming a harmonious campus landscape.
- Facilitating the formation for a harmonious campus landscape by setting forth the basic approach to building lines and design.
- Enhancing the campus environment from the perspective of users, such as students. Contributing to the formation of attractive campuses by clarifying the direction that should be taken in the development and utilization of existing campuses, such as incorporating the perspective of students.
- Utilizing campuses that promote the university's strategy.

- Rethinking the land use around the campus, according to the university's strategy, and reconfiguring sites in order to form new education and research hubs.
- Making issues concerning campus development visible
- Bringing to the surface issues that should be resolved, through the process of creating the University Master Plan, as well as building a cooperative structure within the university and contributing to smooth consensus-building concerning campus development.

## 2.2 Master Plan Preparation Process

### 2.2.1 Preliminary Concept Master Plan

- **Setting up vision**

At the onset of preparing the Concept Master Plan, the Consultant will fix up the vision. The Vision will be as such that it transforms impact on society through continual innovation in education, research and creativity. The vision should enhance educational experience for students focused on deep disciplinary knowledge; problem solving; leadership, communication, and interpersonal skills; and personal health and well-being. It will encourage innovation and leadership among students.

To set up the vision for the Master Plan of Rajshahi University, the Consultant will analyze in detail the history and background of development of the University. The Team will also hold small FGDs and PRAs with students and teachers to know what they want to see the University in 50-years of time. How they visualize the changes and impacts of those changes on the people on the region.

- **Preliminary Concept Master Plan**

At this stage the Consultant will prepare the preliminary concept Master Plan and translate the Vision into an outline. The Plan will be prepared based on the surveys conducted on the previous activates. The Master Plan will consider the existing structure and their location and condition.

### 2.2.2 Consultation with Stakeholders

The Consultation will be conducted involving concerned University officials, representatives from UGC, local administrative and government organizations, student organizations, public and private organizations, NGOs and professional groups. A more participatory approach will be followed during the consultation to ensure social and environmental compliance of the Project. Preliminary Concept Plan



will be presented to the attendees and sought for comments. The development Vision of the Master Plan will be finalized in this Consultation meeting.

### 2.2.3 Demand Assessment

The demand assessment will be fixed based on the survey and analysis of existing context of the University and understanding its future growth potential. The demand will be estimated through a series of consultations with the Client, student and teacher organizations and leaders/representatives of surrounding local community at local level and government organizations at national level. The following figure shows the process flow for demand estimation for Rajshahi University Master Plan.

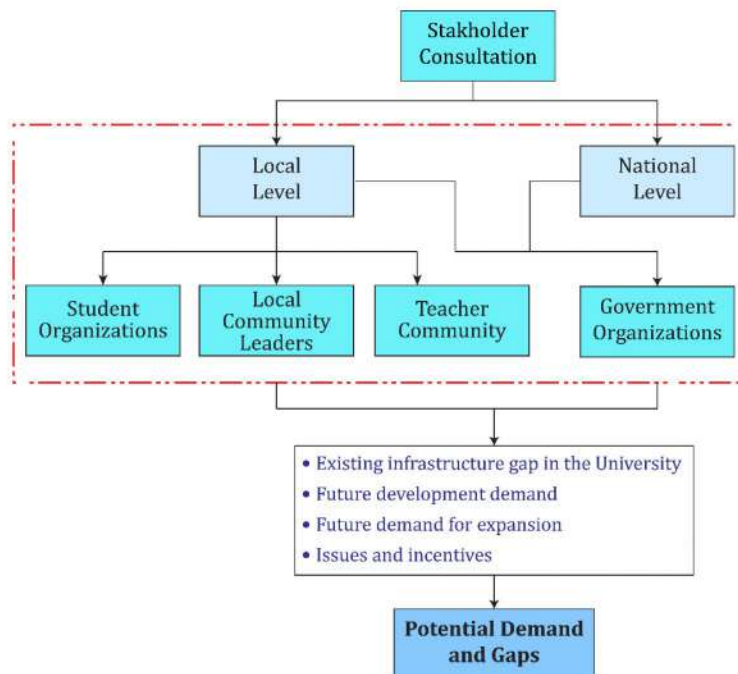


Figure 2-1: Estimation of Future Demand

Based on these consultations and with the assessment of the capacity of existing infrastructure and services, the future demand and gap will be identified. The Master Plan will work on fulfilling these gaps based on the demand assessment, accommodating the development Vision.

### 2.2.4 Flow of Creating Rajshahi University Master Plan

The Flow chart of Rajshahi University Master Plan are described below:

- It is important to prepare Rajshahi University master plan (basic policy, development and utilization policy, and plans for individual sectors) based on an understanding of the current status of the campus, as well as the academic plan and management strategy, as is shown in general terms in the diagram on the right.

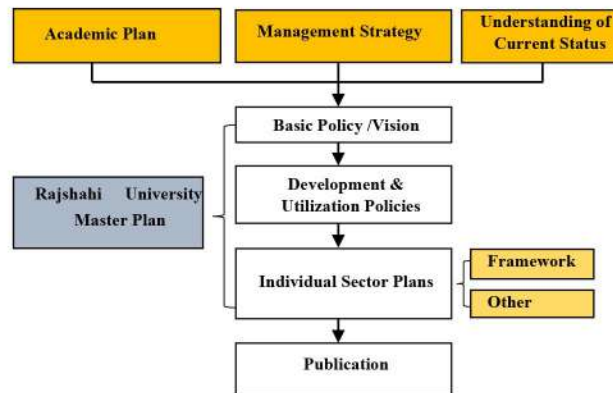


Figure 2-2: Flow of Creating Rajshahi University Master Plan

### The Relationship to the Academic Plan and the Management Strategy

#### The relationship to the Academic Plan

- As part of the strategy for implementing the academic plan, such as promoting specialization according to function, and upgrading and globalizing education and research, it is important to consider the Rajshahi University development and utilization required to achieve this. For example, it is important to give sufficient consideration to such matters as whether it is possible for existing facilities to accommodate the development of education and research at the university, including the future vision for education and research with a view to the reorganization of faculties, the strengthening of industrial-academic collaboration, and further progress in international exchange, or whether it is necessary to develop and enhance related facilities.

#### The relationship to the Management Strategy

- It is vital to consider the effective utilization of land and facilities, which form part of the Rajshahi University's management resources, as part of its management strategy. For example, it is important to think about such matters as clarifying the management-related challenges in campus

development, from the perspective of attracting outstanding students from within Bangladesh and overseas, ensuring safety and measures to conserve energy as a corporation.

### Understanding the Current Status of the Rajshahi University Campus

Conducting inspections and evaluations of facilities

- In order to ensure the qualitative enhancement of the campus, and the regeneration and effective utilization of existing facilities, it is important to conduct an inspection and evaluation of the facilities and clarify the challenges and problems facing the campus as a whole.

Utilizing performance assessment systems for university facilities

- In order to undertake the requisite development as a base for education and research activities, in addition to conducting evaluations based on the values conventionally used, it is vital to conduct an objective evaluation from the perspective of low carbon emissions, dilapidation of the facilities, the living environment and the education and research infrastructure.
- In order to carry out such evaluations appropriately, it is effective to utilize a performance assessment system for Rajshahi University facilities to evaluate existing facilities.

**Outline of Individual Sectoral Plan Framework are described below:**

**Table 2-1: Outline of Individual Sectoral Plan Framework**

Frameworks	Survey and investigation	Demand analysis and future projection	Planning and Mapping
<b>Present and Future land use/Land cover framework</b>	Shows the existing land uses by percentage and locational importance.	Flow of the present land use like offices, administrative, academic buildings etc.	On the basis of future needs, supported by existing land and <b>land cover map of the university</b> . <b>A phase wise proposed land use map</b> with proper planning is the key documents for minimize the problems.
<b>Academic and research framework</b>	Present inventory survey represents occupying structures used for academic and research purposes.	Conserved sufficient spaces with respect of future establishments departments, research institutional buildings.	By proper planning future thinking about how much departments and institutional set up on the conditional preference of spaces. <b>Spatial planning zones</b> hardly managed future development.



Frameworks	Survey and investigation	Demand analysis and future projection	Planning and Mapping
<b>Administrative framework</b>	Present inventory survey locates the varieties sectional divisional activities, distance, accessibility, ways.	More administrative manpower needs more places with respect to infrastructure to meet future needs.	Sectional, Administrative, banking, senate must be correlate to each other with planned way with <b>spatial planning zones</b> .
<b>Teachers, Officers, Staff and Students residential framework</b>	Highlight dormitory, building, residential hall and adjacent other residential houses by inventory survey.	Demand for more residential spaces within this place.	Accommodate this enormous number of staff and students with relax able planning standards. <b>Student's residential plan for renovation, elimination, and new construction based on evaluation and analysis of existing space.</b>
<b>Athletics, Sports and Recreational framework</b>	Refreshment and recreational spots represent comparatively very strongly rather than others.	Its requirement gradually increased day by day, so provide those sites with efficient way.	Planned and established with nearest residential locational site. Special consideration will be took that purposes into a <b>complete master plan</b> . Including <b>plan for cultural sites (athletics, sports and recreation)</b> .
<b>Infrastructure (Circulation, Movement and Parking) framework</b>	Provision Traffic and Transportation related issues come into focuses.	Increased vehicles need more spaces for parking, movement.	Managing this increasing number of vehicles with traffic norms, rules, better commute and regulations. Incorporate <b>plan for car parking</b> . A comfortable <b>transportation network</b> makes more convenient for campus communication network.
<b>Landscape and Beautification framework</b>	Existing landscape that is the most useful natural resources. Represents landscaping and vegetative covered area highly emphasized.	Future environmentally friendly planning needed for removal of environmental hazards.	Keep existing natural resources and make beautification with most preference of nature. As well as plan for <b>landscape development and beautification</b> .
<b>Open space and conservation framework</b>	Present inventory focuses pond, green spaces, vegetation	Help to ground water recharging, recreational	Planning with protect future environmental problems that there is no harmful environmental

Frameworks	Survey and investigation	Demand analysis and future projection	Planning and Mapping
	area, open space, natural drainage systems.	factors, storm water drain out, climatic factors, ecological balance.	impact. Make plan for <b>campus conservation sites</b> .
<b>Digital Elevation Modelling framework</b>	Present inventory relates locational view with the consideration of distance, gap and aesthetical view.	Spatial choices for a structure consider with elevation and contour level.	Slope of the earth's surface calculation of drain out surface water, water logging etc. A campus <b>Digital Elevation Model (DEM)</b> helps to eradicate those problems and helpful for planning.
<b>Drainage network framework</b>	Existing drainage network loading capacity.	It will be depending on expansion of residential hall, dormitory and rate of storm water flow.	Drainage channelization and newly <b>planned drainage network</b> developed.
<b>Digital Visualization (including 3D) framework</b>	Current situation visualized by using 3D model	Trend rates from existing to future buildings.	Future visualization, support to accommodate future expansion with this <b>3D visualization and mapping</b> .

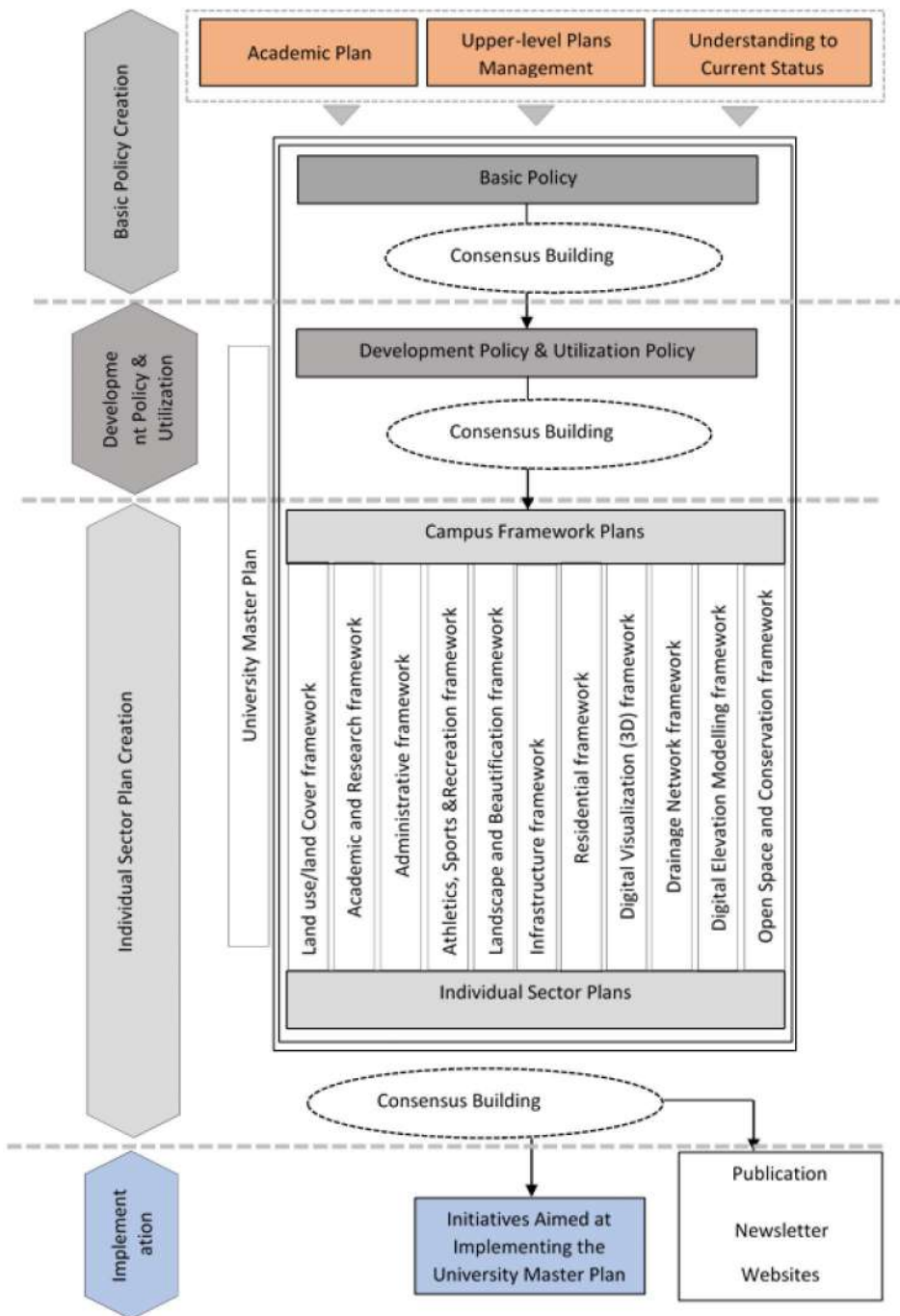


Figure 2-3: Master Plan Preparation Strategies



### 2.3 Multi-level Participation: Consultation Meeting, FGD and KII

Meeting with stakeholder, KII (Key Informant Interview) and FGDs (Focus Group Discussion) are key tools in providing continuous coordination for the study amongst various participants. Master Plan preparation process comprised four level of consultation (Multi-level Participatory Approach) with different stakeholders.

**First Level:** First consultation meeting was with the University Authority and Convener committees of master plan. An informative meeting was conducted with senior teachers, administrator, Staffs of Rajshahi university at Senate building. Consulting professional team very sincerely noted about their perception, judgement and concept. Discussion had been on problem identification and their thought-out solutions/remedies.

**Second Level:** In this Phase FGDs was accomplished with an active participation of the concerned Vice-Chancellor/Pro Vice-Chancellor/Officers/Teachers/Students. From these FGDs, a more comprehensive need/demand of the people was documented.

**Third Level:** Subsequently, having agglomerated all departments space needs, relocation of department, institute, administrative offices and so on considering according to planning standards and advanced thinking with planning. Intermediate and previous Master Plan (1962) was presented and discussed in common meeting. All the stakeholders and concerned groups were invited and they expressed their opinion. They expressed their judgement on space need assessment, preservation, improvement and redevelopment method.

**Fourth Level:** Fourth level consultation was made with Planning and Development Committee and officials, Pro Vice-Chancellor, teacher of Geography and Environmental Studies Department, Steward department, Veterinary officer at Narikelbaria were there to ensure if their demands stand implied or not. Preliminary draft design, drawing and report were presented on that meeting.

#### 2.3.1 Consultation Meeting with Teachers, Experts and Team Leader

**Minutes of the Meeting on Preparation of 50 years Master Plan for Rajshahi University Master Plan Project Inception Report (Report -1): Consultation-1**

**Venue:** Shahed Tajuddin Ahmed Senate Building

**Date:** 26 June, 2019

**Presided by:** Pro Vice-Chancellor, Professor Choudhury M. Zakaria, Rajshahi University.

**Time:** 09.30 AM

**Organized by:** Rajshahi University and Sheltech Consultants (Pvt.) Ltd.



A consultation meeting was held on the project 'Preparation of 50 years Master Plan for Rajshahi University' in the University Senate Building presided over by the Hon'ble Pro Vice-Chancellor, Professor Dr. Choudhury M. Zakaria. The chief guest was honorable Vice-Chancellor Professor Dr. M. Abdus Sobhan and special guest Pro Vice-Chancellor, Professor Dr. Ananda Kumar Saha and Treasurer Professor A.K.M. Mostafizur Rahman was also attended that meeting. On the other hand, Deans of different Faculties, Provosts of different Halls, Proctor, Administrator (Central Cafeteria), Engr. Khandakar Shahriar Rahman, Director (In charge), Planning and Development Division was also presence there.



The honorable Vice Chancellor Dr. M. Abdus Sobhan, in his deliberation, firstly he gave special thanks to all of the attended guest and declared Sheltech Consultants (Pvt.) Ltd. as a leading consultancy firm over the country. Furthermore, he also memorized father of the nation Bangabandhu Sheikh Mujibur Rahman and Prime Minister Sheikh Hasina. He said, 1<sup>st</sup>

prepared master plan of Rajshahi University was prepared in 1962, it has no official document in their hand right now but a 3D model display in Vice Chancellors residence. If that plans written documents found, it will be very helpful for consultant to continuation those one. As an example, he added that, at present there is a number development projects ongoing in university campus. He recommends to



incorporate this project with this master plan. Finally, honorable Vice Chancellor invite to consultant team to represent their tremendous presentation.

On behalf of the Sheltech Consultants (Pvt.), in that meeting was attended by Senior Architect-Urban Planner Nurunnahar Mili, Urban Planner Abdullah Al Masud and Jr. Urban Planner Atikur Rahman and Zulfiker Haider Faysal.



The meeting was initiated with deliberation by Nurunnahar Mili. She in her speech explained the key features of the project. She also added that, despite the hot weather in Rajshahi, there are enough trees, flowers on the university campus, and the view is also beautiful and clean. All the motorized and

nonmotorized cars are moving freely on campus and there is no wide range of Urban Signage. Maximum modern urban amenities need to ensure a beautiful university campus under this master plan.



After that, Urban Planner Abdullah Al Masud presented the Inception Report and the initially prepared maps of the Master Plan. In addition, he also described Topographic survey, Physical Feature Survey and Inception Report. Furthermore, the location of the emphasized University campus and gave an idea about the number of faculty members, the staff

and students. He also presented physical condition of the campus and the future work plan in preparation of the digital master plan. He informed that the consultant has already collected satellite images of the campus and surroundings. Consultant will try to collect copy of the previous master plan and mouza map sheets, department wise expectation from Master Plan of the campus area. He described various aspects of the recently done topographic survey, physical feature survey and transport survey.



Architect-Urban Planner, Nurunnahar Mili also highlighted the possible design principles to be adopted for preparation of the master plan. She requested the University authority to follow the Bangladesh National Building Code (BNBC) during construction of the University Buildings. She added that, next 50 years, each faculty would be developed as a separate complex, academic building, plaza, meeting place, open space, sitting arrangements and security measures. She also stressed on the provision of landscape with greeneries, road lanes for pedestrians and bicycles side by side with motorized vehicles, promotion of tourism in the master plan.



Disable and others added to be engaged in this Master Plan with presents. Convener of Master Plan Pro Vice-Chancellor Professor Dr. Choudhury M. Zakaria said that Honorable Prime Minister Sheikh Hasina has given special importance to the education sector to develop “Shonar Bangla” of Bangabandhu Sheikh Mujibur Rahman, the father of the nation. The

current Vice-Chancellor Professor Dr. M. Abdus Sobhan has adopted a far-reaching plan to transform Rajshahi University into a time-honored and inter-state institution under the leadership. This is a 50 years term Master Plan. He also added that the 'Master Plan' of the Rajshahi University wants to establish a vision for the physical assets of the university. Participatory decision making will be one of the main tools for developed a modern and sustainable master plan.

After completion the first half was honorable guest valuable speech, second half was declared as open discussion. Most of the department heads, senior teachers, administrative officers, administrator, provost, student advisor, proctor and so on to participate and share their ideas and views, thinking, perception and opinion.



### **Professor Khalilur Rahman**

Dean, Faculty of Science

- Conducted Meeting with senior teachers about this Master Plan.
- To ensure uninterrupted Electricity Supply.
- To modernize Research and Development equipment.



**Professor Moloy Kumar Bhaumik**  
Department of Business Studies

- To plan academic buildings close to each other.
- Existing SSSTSCC student capacity only 200 this is very poor number as per required.
- Proposed location for new TSC at

Sheikh Russel Model School Field besides pond.

- Present SSSTSCC can be used as convention hall.
- Construction shade for students so that, they can accomplish their educational activities.



**Professor Rakib Ahmed**  
Department of Geography

- Master Plan should be associated with landscape, climate perspectives.
- HEQEP (Higher Quality Education Enhancement Plan) represent more emphasis on teaching quality.
- During planning to consider socio-economic status of campus and

surrounding area.

- To control by standard population projection method.



**Sirajul Islam**

Teacher, Social Science Department  
Administrator, Central Cafeteria,  
Rajshahi University

- To Proposal for underground electricity transmission line.
- To Proposal for 1500 seating capacity based community center.
- To Proposal for Students, Teachers support center (Train, Air and

Bus tickets are available services).





**Professor Chitto Ranjon Misro**

Department of History

- To new TSC will be included in this master plan.
- Specified places for students group study closer to central Library.
- Campus local gathering place, tea stall (চত্বর) should be away from academic buildings.
- Upgradation of Sewerage and Sanitation system, specially Sahidullah kola Bhaban

(শহীদুল্লাহ কলা ভবন).

- Proposal for Students, Teachers support center (ছাত্র শিক্ষক সেবা কেন্দ্র).



**Professor Dr. Md. Shahidur Rahman**

Department of Applied Chemistry and Chemical Engineering

- Water logging problem from Kadomtola to Chemistry Department.



**Professor Rakibuzzaman**

Department of Applied Chemistry and Chemical Engineering

- Campus Mouza shows 732 Acre land but topographic survey shows 718 Acre. So, where the remaining land?
- Detailed explanation about Rain Water Harvesting.



**Professor S M Abu Bakkar**

Department of Philosophy

- New Bank development besides new TSC building or existing Bank extension.
- New multistoried TSC building must be included Bank, Cafeteria, Dormitory, Auditorium, Rehearsal room.





**Professor Md. Belayet Hossain Hawladar**

Head, Department of Chemistry

- Established a overbridge at Kazla Gate.
- A individual Science building chemical relevant department.
- Chemical storage for chemical science.



**Professor Fouzia Edib Flora**

Department of Fisheries

- Senate Bhaban extension and renovation.
- At least one Eco-friendly building must be build.
- Wetland conservation inside campus.
- Any waterbody did not fill due to

new building construction.



**Professor Dr. Bithika Banik**

Department of Sanskrit

- Proposed to incorporate Moral Cell (নৈতিক সেল) in this master plan.
- As early as possible Mamtaziddin Kola Bhaban (মমতাজ উদ্দীন কলা ভবন) and Sahidullah kola Bhaban (শহীদুল্লাহ কলা ভবন) need to be renovate.
- University Rail Station must be

turn on and take step to ensure inter city train stopage.



**Professor Mobarra Siddika**

Department of Folklore

- Playground for female Hostel Area (পশ্চিম পাড়া)
- Proposal for shade between academic and administrative building.
- Proposal for underpass between main campus and fine arts building.



**Professor Dr. Md. Abdus Salam Madani**

Department of Arabic

- To take special consideration on University Graveyard.



**Professor Dr. Sultana Mostofa**

Department of Social Science

- Separate Hall for special person (Disable) and manage familiar facilities Like Wheelchair, lift, Stair for them in academic buildings.



**Professor F M A H Taki**

Department of Islamic Studies

- Established universities own power plant for continuous electricity supply.
- Residential hall will be placed along the university boundary and central places of the campus uses for academic zone.
- At least 50 percent teachers, 75 percent staff and 100 peraccommodation will be managed inside campus area.



**Professor Jafor Sadik**

Department of management Studies

- Campus waterbody conservation and increase greeneries for temperature control.
- Established central generator for academic support.
- Road widen with footpath.



**Professor Nazrul Islam**

Department of Chemistry

- New structure developed in planned way.
- Major emphasis on sewerage line drainage system.



**Professor Md. Akhter Hossain**

Department of Folklore

- Requirement of Folk Culture Museum, Open Stage
- Departmental Transport

**Professor Md. Hasibul Alam Prothan**

Director, SSSTSCC

- Developed modern amenities TSC

**Professor Abdul Wadud**

Department of Economics

- We can classified this Master Plan into number of three division.
  - a) Academic Plan (Forming a committee with senior teachers)
  - b) Institutional Plan
  - c) Infrastructure Plan
- Find out economic impact of surrounding area.

**Overall Proposal:**

- Agriculture Faculty individual building.
- Treatment facilities updated in Medical Center.
- Individual Building for Archives.

**2.3.2 FGD (Focus Group Discussion)**

**Minutes of the FGD 1 on Rajshahi University 50 years Plan Project, Draft Master Plan**

**Venue:** Planning and Development office (Administrative Building 2)

**Organized by:** Rajshahi University and Sheltech Consultants (Pvt.) Ltd.

**Date:** 26 June, 2019

A Focus group discussion was held on the project 'Preparation of 50 years Master Plan for Rajshahi University' in the University second Administration Building presided over by the Hon'ble Chief Engineer. Director, Planning and Development and some of the officers were present on that discussion. On behalf of the Sheltech (Pvt), Team leader of the project Architect-Urban Planner Nurunnahar Mili, Urban Planner Abdullah Al Masud and Junior Urban Planner Atikur Rahman and Junior Urban Planner Zulfikar Haider Faysal were also present there.



Project Director Nurunnahar Mili initiated the discussion by describing the existing progression of project work. She in her speech explained the key points and possibilities of the project site.

She had also described the works accomplished during the last three months that included, Topographic survey, Transport survey, Physical Feature Survey and Inception Report and Preliminary Drawings Preparation. Now according to the inception report consultant team has prepared draft master plan for the project.

In addition, chief engineer gave special emphasis on some of the specific issues like IT Park, Upgradation Sweeper Colony and Wildlife Conseservation Site. During the FGD some complex issues regarding inception report and draft master plan, have been discussed broadly for possible solution.

#### **Minutes of the FGD 2 on Rajshahi University 50 years Plan Project, Draft Master Plan**

**Venue:** Vice-Chancellors Residence

**Organized by:** Rajshahi University and Sheltech Consultants (Pvt.) Ltd.

**Date:** 01 October, 2019

Urban planner explained about previous Master Plan layout. Broadly explained previous master plan concepts, design, drawing, thinking and guidelines. New master plan will be developed according to the guidelines of previous master plan. Location of the existing academic building, administrative building, teachers and staff's quarter, student's hall as well as others buildings explained descriptively. Violation of previous master plan, shortcomings and possibilities of that master plan represents to them very informatively. A few numbers of initial proposal come into front of them because consultant team try to know about their demand, opinion and proposals.



All of the initial proposals appreciated by the clients including the honorable Vice-Chancellor, Pro Vice-Chancellors and Director of Planning and Development Division. Honorable Vice-Chancellor and Pro Vice-Chancellors also

Honorable VC appreciated proposals of consult team regarding university center, TSC location, conversion of duplex house into high rise flat building, location demarcation & proper use of land for faculty of social science and business administration, location of Shahid Minar etc. Consultant team told that they are planning to accommodate 40000 students in 50 year. Honorable VC and Chief Engineer (CE) agreed on this issue.

VC finally discussed about location of medical center and second administration building. Consultant team suggested that existing medical center would serve as temporary basis. A medical center will be relocated in existing transport office with large space for parking, dispensary, sufficient bed for patient, doctor chamber etc. Consultant team suggested a new building as second administration building. The second administration building will be erected on the existing teacher's co-operative structure and its adjoining area. VC suggested conserving the university antique structures like Dr. Abdul Karim Vaban which is presently using as Arts and Humanities building.

### 2.3.3 KII (Key Informant Interview)

**Name:** Engr. Khandakar Shahriar Rahnan

**Venue:** Planning and Development Office (Administrative Building 2), Rajshahi University

**Date:** 26 June, 2019





After finishing inception presentation at senate building, consultant team with team leader Architect-Urban Planner Nurunnahar Mili discussed about submitted inception report and our future working progress. Planner Abdullah Al Masud also the chapters including in inception report.

**Professor M. Abdus Sobhan**  
**Vice-Chancellor, Rajshahi University**  
**Date: 01 Oct, 2019**





With the presence of Vice-Chancellor consultant team had been meeting and digital presentation for two hours in his residence about working progress of master plan. Although, another two Pro Vice-Chancellor and project director presence there. In this meeting consultant team expressed their initial proposal and future development guidelines.

**Name: Raquib Ahmed**

Professor, Ph.D. (Mysore)

Department of Geography and Environmental Studies, Rajshahi University

**Venue:** Sir Jagadis Chandra Bose Academic Building (3<sup>rd</sup> Science Building), Rajshahi University

**Date:** 03 October, 2019



The planning team maintain close relation with Professor Mr. Raquib Ahmed who is the most knowledgeable person in urban planning. Consulting team always try to keep in touch with him throughout all phases of the project. He shared a wide range of concepts in university, among them he gave more emphasized on some specific issues.

In his speech he focused there is no pivotal scope for spatial planning in Rajshahi University and give priorities on Environment and Landscape Aesthetics.

He also added that, Prime Minister recommend that to increase the quantity of universities, not student numbers. It is quite evident that in his opines, to ensure quality living by this master plan. According to his perception followings are the vital component for quality living.

- Environmental aesthetics.
- Internal Environmental aesthetics.
- Site development.
- Optimize resources.

After that Mr. Raquib noted, if university authority perfectly follows government policies, framework then it will be easier to control university growth trend. To ensure quality education including teachers training and academic quality.

On the one hand, a few numbers of specific issues come forward on the basis of discussion like optimizing use of resources., existing poor condition will be managed and so on. Others are student's hall can be leased, newly building height not more than 10 storied, integrate disable person with main stream, Pedestrian friendly walk way, Grass lawn for campus beautification and finally Connect waterbody to make a better network mentioned also.

**Name: Dr. Md. Hemayatul Islam**

Deputy Chief Veterinary Officer,

Department of Veterinary and Animal Sciences

**Venue: Narikelbaria Campus, Rajshahi University**

**Date: 02 October, 2019**



Narikelbaria currently using as dairy firm and fish firm. Dr. Hemayatul Islam proposed, it will play pivotal role for agriculture faculty as a research center. All area of Narikelbaria sufficient for agrobased development. He also suggests that, if university authority develop a better communication system between university campus and narikelbaria campus, it can be a resourceful site for Rajshahi University.



**Name: Md. Moslem Uddin**

Assistant Registrar, Steward Section

Rajshahi University

**Date:** 03 October, 2019



As a duty planner Abdullah Al Masud met with Mr. Moslem Uddin for knowing about existing drainage system of university area. On the basis of map, whole site planner Abdullah Al Masud properly demarcated by the support of Mr. Moslem Uddin.

**Engr. Kazi Salauddin**

Drainage and Infrastructure Expert, Sheltech Consultants (Pvt.) Ltd.

**Date:** 04 Feb, 2020



Mr. Salauddin who is currently perform as an infrastructure and drainage expert of consultant team. According to the instruction of Mr. Shahriar (Project Director, Rajshahi University), infrastructure expert noted his necessary documents. As per director decision, expert will prepare all of the priorities building cost.

**Khandakar Shahriar Rahman**

Director (In-charge), Planning and Development  
Rajshahi University

**Date:** 05 Feb, 2020



After submitting preliminary master plan report, consultant team including a planner and a design associate met with Mr. Shahriar Rahman in his office. Mr. Moshir Rahman was also present there. Planner Mr. Atik properly described about proposal of newly structure, land use, facilities, extension building etc. Design associate also illustrated 3D views of Rajshahi University. At the end of the meeting, Mr. Shahriar Rahman and Mr. Moshir Rahman delivered some special recommendation such as, central sports complex at female hall zone. They further encourage us to thinking about teacher's residence and student hall.

**Professor Choudhury M Zakaria**

Pro Vice-Chancellor, Rajshahi University

**Date:** 05 Feb, 2020



After submitting preliminary master plan report and documents, Rajshahi University authority organised a meeting for quires our proposal, planning, design and drawings. In this meeting, with the presence of pro vice-chancellor, Professor Choudhury M Zakaria; Professor Chitto Ranjon Misro, Director of Transport and Planning division.

**Md. Golam Murshed**

Executive Engineer (Planning), Rajshahi City Corporation

**Date:** 05 Feb, 2020



Team member (Urban Planner) of Sheltech Consultants (Pvt.) Ltd. met with Mr. Golam Murshed who is currently responsible for planning division of Rajshahi City Corporation. Firstly, consultant team apprised him about preparation of 50 years master plan of Rajshahi University. To begin with, he appreciates our preparing master plan and very pleased on our work. He also added that they have no option to intimate universities activities but one of the important issues he mentioned that, a road passing away at north side along the rail line of campus. This road is under the control of City Corporation authority. Finally, he committed us if there is any need, as an engineer he will always with consultant team and university authority.

**Azmeri Ashrafi**

Urban Planner, Rajshahi Development Authority

**Date:** 06 Feb, 2020



Azmeri Ashrafi has been working as a chief town planner at Rajshahi Development Authority (RDA). Consultant team discussed with her about 50 years master plan of Rajshahi University and tried to know how they play a significance role on this



master plan. In the first place, planning team member Mr. Atik highlighted about Spatial Planning Zone (SPZ) of Rajshahi Metropolitan Area. After that, Mst. Ashrafi told us SPZ illustrates that it is a educational zone. Besides, we are not responsible for incorporating our decision in this master plan. Furthermore, she also added that, their organization (RDA) conducting a 64 feet width road with drainage system project along the western boundary of campus. This project has been running for 2 years. They are in the processing of acquire land with proper compensation from university authority.

**Professor Raquib Ahmed**

Department of Geography and Environmental Studies

Date: 06 Feb, 2020



A team member of master plan met with Professor Raquib Ahmed, for discussion about draft master plan. Mr. Raquib highly encourage to ensure quality of life during preparation of master plan.

### Preliminary Report Presentation

#### 1<sup>st</sup> Speaker Khondoker Shahriar Rahman

Project Director, Rajshahi University

Date: 15 March, 2020



Welcome Speech and give special thanks to all of the members of master plan committee.

#### 2<sup>nd</sup> Speaker Chowdhury Zakaria (Pro Vice-Chancellor)

Date: 15 March, 2020



Focused on background of master plan. He also shared their activities with Geography and Environmental Studies Department of Rajshahi University, and Geography and Environment Department of Dhaka University about master plan.

After that he also shows his gratitude to the faculty members of Geography and Environmental Studies Department, Rajshahi University. Finally, he represents the background of previous master plan which was prepared by Sir “Daniel Dunham”. Mr. Zakaria also express his grateful to Architect “Mr. Rafique Azam” and daughter of Daniel Dunham, Architect-Urban Planner “Kathrine Duham” for their kind hearted supported and providing guidelines.

**3<sup>rd</sup> Speaker Professor Anondo Kumar Saha (Pro Vice-Chancellor)**

**Date:** 15 March, 2020



He reveals in his speech Importance of master plan and relevant expert will give their special opinion about this plan. Future infrastructure development will be considered on the basis of this prepared master plan.

**4<sup>th</sup> Speaker Professor Abdus Sobhan (Vice-Chancellor)**

**Date:** 15 March, 2020





Alumni, Academic Excellence, Digital Development, Geography Department. Ha says in his speech Rajshahi University Alumni will play a pivotal role for implementing of this 50-year master plan. This plan can significantly helpful for upgrading academic excellence and digital development. He also added that, every university should have a proper master plan for control of future development. It's a guideline, which will largely helpful for future decision making. After that, he showed his gratitude to Geography and Environmental Studies Department, Rajshahi University.

#### 5<sup>th</sup> Speaker Architect-Urban Planner Nurunnahar Mili

Date: 15 March, 2020



At first Team Leader Architect-Urban Planner Nurunnahar Mili introduced herself and the team members of Sheltech Consultants (Pvt.) Ltd., and explained the submitted draft master plan. She mentioned that over the time rapid changes are realized in the university campus. “We are trying to make a walk-able and accessible university campus in our country. Always we are keeping contact with Architect “Mr. Rafique Islam” and daughter of Daniel Dunham, Architect-Urban Planner “Kathrine Duham”. Finally, N Mili illustrates in her speech some of the key issues like-Environment, Ranking, Landscaping, Accessibility for all, Science Lake, Festival ground, Park, Playground, Light and Sound, Railway track development, Happiness, Boddho Bhumi development, Main Entrance Development, Transport management, Science Museum, Safety Security, Bicycle Lane, Pedestrian Development, Rain water Harvesting Plant, Fish Pond, Angling Deck, Water Canal, Waste Management, Perforated Boundary Wall, Photo-shoot Point, Open Space Development, Plaza, Drinking Water Station, Signage and so on.

**6<sup>th</sup> Speaker Urban Planner Abdullah Al Masud**

**Date:** 15 March, 2020



At first Brief Explanation of Previous Master Plan. Then specifically described each of the component of master plan. Added new faculty and individual departments, academic development, space of faculty, Space need analysis, Stakeholder Consultation, Spatial Planning Zone of Rajshahi Development Authority (RDA). Narikelbaria included into Mixed Landuse zone of SPZ. Population trend analysis, 2019-2023, Population projection analysis, Land--use Planning, Existing Scenario Analysis, Reorganize Residential building development, Various Proposal in different Sector, Management of Commercial Site, Extension of Botanical Garden, Road Sector Development, STP/ETP (Sewerage Treatment Plant/Effluent Treatment

Plant), Water Retention Area, Location of Community bin, Parking Location and Capacity, Climate Change Consideration, Ecosystem and Biodiversity, Fire Safety.

**7th Speaker Professor Mizanur Rahman**

Department of Geography and Environmental Studies

**Date:** 15 March, 2020



To begin with remembering background of Rajshahi University Master Plan. Following phenomena are highly encouraged to take into consideration during Master Plan those are- Projected Population, Parking Area on the basis of Projected Population, Population Trend Analysis in City, Shifting of Botanical Garden and Red Quarter, Highly focused Super Store in Planned Way, Consideration of Central Library., Earthquake and Fire Hazard would be take into consideration.

**7th Speaker Professor Chowdhury Mohammad Zakaria (Pro-Vice Chancellor)**

**Date:** 15 March, 2020





Special Consideration on Sweeper Colony, Female Central Swimming pool proposed into female hall zone.

**8<sup>th</sup> Speaker Professor Dr. Enayet**

Chairman, Tourism and Hospitality Management

Date: 15 March, 2020



Mr. Enayet suggested to redevelopment of Zuberi House with modern amenities and beside it Developed a Multipurpose Center which is monitored and organized by Tourism and Hospitality Department including recreational site development, food court site selection would be on the basis of land use zoning. This multipurpose center also supports to laboratory services for this department.

**9<sup>th</sup> Speaker Professor Abdullah Al Maruf**

Professor, Geography and Environmental Studies Department

Date: 15 March, 2020



Mr. Maruf is one of the resource persons in urban planning field from Geography and Environmental Studies Department. He suggested to analysis risk factor on

university campus. On the other he also said to maintain standard of building intensity on the basis of area, analysis of collision between new and Previous Master Plan. He also encouraged to find out is there any alternative function of Earthquake and Fire Hazard? All of the development must be in academically favorable construction.

**10<sup>th</sup> Speaker Selim Reza**

Associate Professor, Economics Department

**Date:** 15 March, 2020



He recommended that, Safety, Security system conducted by universities own administrative system. It's very urgent for developing a guest house, student projection system manage properly for future development. He also highly emphasized on identify the quantity of international student, medical center and drainage system.

**11<sup>th</sup> Speaker Professor Raquib Ahmed**

Professor, Geography and Environmental Studies Department

**Date:** 15 March, 2020



Suggest for phase wise development, more concern about quality, in population projection cases in Bangladesh population will be stable within 2050, encourage to develop academic quality, living quality, environmental planning, landscape planning and spatial planning, phase wise planning with detail level, do not require to construction massive structure, standard based ratio guidelines, if it is possible to follow radiant pattern road instead grid iron pattern road.

**Date:** 15 March, 2020



**Master Planning Team with Invited Professionals**



**Discussion with Pro Vice-Chancellor**





# **Chapter Three**

## **Scenario Analysis**

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## CHAPTER THREE SCENARIO ANALYSIS

### 3.1 Vision of the University

Vision of the University of Rajshahi is to serve the nation through fruitful academic collaboration, enhancing research and innovation to address the 21st century.

In detail, the university, in future, will continue to enhance the quality of research, introduce subjects having global significance and adopt the state-of-the-art technology and fruitful academic collaboration. Rajshahi University aims to produce well-rounded individuals capable of thinking in a comprehensive way. Hundreds of our past students have proved their worth, professionalism and excellence at home and abroad in different walks of life. Our challenge is to help students generate ideas that will benefit greater society and to educate and train our students to work in fields where they will be valued both for their specialized knowledge, and for their ability to research, communicate and solve problems.

### 3.2 Mission of University

To perform qualitative research providing excellence in teaching and building a tradition of innovation to acquire advance knowledge through global standard excellence and professionalism in education, technology to benefit the greater society.

### 3.3 Demography and Population Growth by 2070

University Grants Commission (UGC) publishes annual report. This report includes academic information, students-teacher-officer-employee number, economic information, development work, employment history etc. with all basic information. Information about student number is given below from 2013 to 2017.

**Table 3-1: Student Information**

Year	Students Number
2013	33922
2014	33456
2015	34165
2016	36606
2017	37256

Source: UGC

Population growth for students has been calculated in liner growth rate using this data and the value is found 1.8.

Using this growth rate population is projected for 2070. First student's number is projected for 2070. Teacher, Officer and employee number is calculated by using student ratio against Teacher, Officer and Employee. The three ratios are given below

1. Teacher: Students 1:15
2. Officer: Student 1:50
3. Employee: Student 1:10

Table 3-2: Population Projection

Population Category	Year					
	2020	2030	2040	2050	2060	2070
Student	38596	45296	51996	58696	65396	72096
Teacher	2573	3020	3466	3913	4360	4806
Officers	772	906	1040	1174	1308	1442
Employee	3860	4530	5200	5870	6540	7210
Total	45801	53752	61702	69653	77604	85554

Source: UGC

### 3.4 Present Structure Inventory

#### 3.4.1 Structure by Construction Type

Information of building is collected during physical feature survey. Collected data of structures is categorized according to various classes and construction types. Information is given below.

Table 3-3: Buildings Scenario According to Construction

Use Type	Katcha	Pucca	Semi Pucca	Grand Total
Admin support	3	14	3	20
Commercial	29	34	30	93
Educational		21	11	32
Health		2		2
Miscellaneous		2	2	4
Mixed		1		1
Recreational		1		1
Recreational		13	1	14
Religious		14	6	20
Residential	12	128	54	194
Sculpture		4		4
Security		17	1	18
Transportation		29	6	35
Utility		16	12	28
Grand Total	44	297	126	467

Source: Physical Feature Survey, 2019

### 3.4.2 Functional Use of the Structure

Building structures is categorized according to function and floor number. There are 194 residential buildings in the university. There are 93 Commercial buildings, 20 Administrative buildings, 32 Educational buildings, 20 Religious buildings etc. Detail of functional use of building according to floor is given in a tabular format -

**Table 3-4: Buildings Scenario According to Function**

Use Type	Floor					Gallery	Ground Floor	Under construction	Grand Total
	1	2	3	4	6				
Admin support	12	4	2	1			1		20
Commercial	89	2	1				1		93
Educational	13	5	4	10					32
Health	2								2
Miscellaneous	3	1							4
Mixed			1						1
Recreational							1		1
Recreational	2	3	1			1	7		14
Religious	17	1					1	1	20
Residential	94	34	41	24	1				194
Sculpture	3						1		4
Security	18								18
Transportation	31						3		34
Transportation	1								1
Utility	26	1					1		28
Grand Total	311	51	50	35	1	1	16	1	466

Source: Physical Feature Survey, 2019

### 3.5 Present Land Use/Land Cover Framework

Under land use zoning the entire university area is divided into four zones, such as, Residential, Academic, Administrative and Conservation. The purpose is to separate one use from the other to maintain their environmental sanctity and to keep away negative impacts on other land uses. Broad description of land use zoning is given below.

**Table 3-5: Broad Land Use Category**

Land Use Category	Area (Acre)	Area (Kilometer)	Percentage
Academic	38.08	0.15	5.06
Administrative	166.45	0.67	22.10
Conservation	433.38	1.75	57.54
Residential	115.33	0.47	15.31
Grand Total	753.24	3.05	100

Source: Physical Feature Survey, 2019



The above table describes that conservation land use is 57.54 percent of total land use. Administrative and Support zones are 22.10 percent, Residential zones are 15.31 Percent and Academic zones are 5.06 percent. The total land area is summed by keeping RHD road inside the university area.

Details of land uses is given below:

Table 3-6: Details of Land Use

Land Use	Area (Acre)
<b>Academic</b>	<b>38.08</b>
• Faculty Building	31.53
• Library	1.40
• Research	3.90
• Trees	1.25
<b>Administrative</b>	<b>166.45</b>
• Access Road	33.15
• Admin Building	2.93
• Commercial	2.57
• Fire Service	0.77
• Foot Path	0.14
• Historic Area	2.65
• Medical Center	1.68
• Police Camp	1.73
• Primary Road	7.72
• Recreation/Culture	20.22
• Religious	12.85
• Secondary Road	25.14
• Services	13.46
• Support	11.02
• Tertiary Road	22.28
• Trees	8.15
<b>Conservation</b>	<b>433.16</b>
• Agriculture	142.47
• Lake	3.65
• Marshland	8.21
• Play ground	21.67
• Pond	45.75
• Recreation/Culture	3.44
• Services	1.16
• Support	1.80

Land Use	Area (Acre)
• Trees	204.69
• Water Bodies	0.33
<b>Residential</b>	<b>115.33</b>
• Female Hall	16.33
• Guest House	2.82
• Male Hall	38.98
• Play ground	0.06
• Pro-VC Housing	0.79
• Provost Residential	1.48
• Staff's Residential Area	15.49
• Teacher's Residential Area	36.03
• VC House	3.35
<b>Grand Total</b>	<b>753.02</b>

Source: Physical Feature Survey, 2019

### 3.6 Academic and Research Framework

#### 3.6.1 Faculties and Departments

##### Faculty of Arts

List of Departments of Arts Faculty is given below

- Philosophy
- History
- English
- Bangla
- Islamic History & Culture
- Arabic
- Islamic Studies
- Music
- Theatre
- Persian language and literature
- Urdu
- Sanskrit

##### Faculty of Law

List of Departments of Law faculty is given below

- Law
- Law and Land Administration

##### Faculty of Science

List of Departments of Science faculty is given below

- Mathematics
- Physics
- Chemistry
- Statistics
- Biochemistry & Molecular Biology
- Pharmacy
- Population Science & Human Resource Development
- Applied Mathematics
- Physical Education and Sports Sciences

**Faculty of Business Studies**

- Accounting and Information Systems
- Management studies
- Marketing
- Finance
- Banking and Insurance

**Faculty of Social Science**

- Economics
- Political Science
- Social Work
- Sociology
- Mass Communication and Journalism
- Information Science & Library Management
- Public Administration
- Anthropology
- Folklore
- International Relations

**Faculty of Life & Earth Science**

- Psychology
- Botany
- Zoology
- Geology & Mining
- Genetic Engineering & Biotechnology
- Clinical Psychology

**Faculty of Engineering**

- Applied Physics & Electronic Engineering



- Applied Chemistry & Chemical Engineering
- Computer Science & Engineering
- Information & Communication Engineering
- Materials Science and Engineering
- Electrical and Electronic Engineering

#### Faculty of Agriculture

- Agronomy and Agricultural Extension
- Fisheries
- Veterinary & Animal Science
- Crop Science and Technology

#### Faculty of Fine Arts

- Painting, Oriental Art & Printmaking
- Ceramics and Sculpture
- Graphic Design, Crafts & History of Art

### 3.6.2 Institutes and Research Center

Institutes and research centers are listed below -

Table 3-7: Institute Information

Name of Institutes	Director
Institute of Bangladesh Studies	Dr. Jakir Hossain
Institute of Biological Sciences	Dr. Mohammad Firoz Alam
Institute of Business Administration	Dr. M. Rafiqul Islam
Institute of Education and Research	Dr. Md. Abul Hasan Chowdhury
Institute of Environmental Science	Professor Dr. Golam Shabbir Sattar
Institute of English and Other Languages	Professor Dr. Md. Shahidullah

### 3.6.3 Academic, Admin and Support Structure

Academic and Admin& Support building are more important for university. Information for this important structure types is collected during physical feature survey.

Table 3-8: Academic, Admin and Support Buildings Scenario According

Use Type	Floor					Grand Total
	1	2	3	4	Ground	
Admin Support	12	4	2	1	1	20
Educational	13	5	4	10		32
Grand Total	25	9	6	11	1	52

Source: Physical Feature Survey, 2019

### Academic Structures

According to the field survey, there are 10 academic buildings in the Rajshahi University Campus. The table below represents the names of the 10 academic buildings along with the number and name of departments each building has.

**Table 3-9: Details of Academic Building**

Name of Building	No. of Departments	Name of Departments
1. Rabindranath Tagore Academic Bhaban	05	Law, BBA, Journalism, Public Administration, Information Science and Library Management
2. Dr. Momtazuddin Ahmed Academic Building	04	Philosophy, Social Work, Social Science, Economics
3. Syed Ismail Hossain Siraji Academic Building	09	Political Science, International Relation, Education and Research, Anthropology, History, Folklore, Persian, Music, Theater
4. Dr. Mohammad Shahidullah Academic Building	07	Bangla, English, Linguistics, Arabic, History, Islamic History, Institute of English and Other Languages
5. 1 <sup>st</sup> Science Building	03	Physics, Sports Science, EEE
6. 2 <sup>nd</sup> Science Building	06	Mathematics, Chemistry, Psychology, Treatment Psychology, Geology and Mining, Applied Chemistry and Chemical Engineering
7. 3 <sup>rd</sup> Science Building	07	Biochemistry, Genetic Engineering, Zoology, Botany, Population Science, Statistics, Geography and Environment
8. 4 <sup>th</sup> Science Building	05	Pharmacy, Applied Mathematics, CSE, IT, Material Science and Engineering, Institute of Environmental Studies
9. Shilpacharja Zainul Abedin Charukala Bhaban	03	Painting, Oriental Art and Print Making, Ceramics and Sculpture, Graphic Design, Crafts and History of Arts
10. Agriculture Bhaban	03	Agronomy and Agricultural Extension, Fisheries, Crop Science and Technology, Veterinary and Animal Science

Source: Physical Feature Survey, 2019

### 3.6.4 Library

Rajshahi University Central Library is positioned at the heart of the university. It is a three-storied building superbly designed for library purposes. It is aesthetically beautiful and provides quiet and comfortable inside environment for the library users.

The ground floor of the building is used for storage and lending, the nicely designed well-ventilated first floor for reading rooms and the second floor for cataloguing, automation and administrative activities.



**Figure 3-1: Central Library**

It is one of the oldest and largest libraries of Bangladesh and, since its inception, has been providing library support to students, teachers, researchers and general readers for more than six decades. This library has a collection of more than 3, 50,000 books, 40,000 journal volumes and periodicals. These books and journals cover almost all areas of knowledge and information and reflect the nature of a general university with equal emphasis on humanities, social sciences, business administration, sciences and applied sciences. The library has also a huge archive of newspapers and other 'ephemeral' publications.

### 3.7 Administrative Framework

Presently there are only two administrative towers:

- i) Shaheed Syed Nazrul Islam Administrative Building
- ii) Shaheed Captain Mansur Ali Administrative Building





Figure 3-2: Shaheed Syed Nazrul Islam Administrative Building

### 3.7.1 Commercial Structure

There are Different types of shops, Grocery & tea shop, Grocery & tea stall, Tea stall, Market (Tea, Food, Grocery shop, and Different organization office) etc. These structures are also Katcha, Pucca and Semi Pucca in construction type. Relevant information related to commercial structure is given below:

Table 3-10: Commercial Building Information

Detail Use	Katcha	Pucca	Semi Pucca	Grand Total
Informal Structure	15	33	10	58
Different type of shops			1	1
Grocery & tea shop			18	18
Grocery & tea stall	8			8
Grocery shop			1	1
Tea stall	6			6
Market (Tea, Food, Grocery shop, Different organization office)		1		1
Grand Total	29	34	30	93

Source: Physical Feature Survey, 2019

3.7.2 Formal and Informal Economic Activities

There are number of formal and informal economic activities in university area. Formal economic activities are shops, hotels, stationary, library, corner shops etc. having fixed locations and structures. Whereas informal economic activities have no fixed location and valid structures and often it is found under open sky. There are number of formal commercial shops in university area. There are also found some locations of informal economic activities.



Figure 3-3: Formal Economic Activities



Figure 3-4: Informal Economic Activities

3.7.3 Religious Structures

The religious structures found in the campus are given below as well in number.

Table 3-11: Information Table of Religious Structures

Type of Structure	No. of Structure Present
Masjid (Mosque)	06
Hindu Temple	02
Graveyard	01

Source: Physical Feature Survey, 2019



Figure 3-5: Central Masjid

3.7.4 Support Structures

Various support structures were identified in the field survey, the table below is the presentation of the information gathered on these structures.

Table 3-12: Information Table of Support Structures

Type of Structure	No. of Structure Present	Location
Bank Office	01	Agrani Bank, Dutch Bangla Bank, Attached to Zuberi Bhaban
ATM Booth	03	
Pump House	07	Narikel Barhia(01), East Zone(02), North Zone(01), West Zone(03)
Zuberi Bhaban	01	Besides Paris Road

Source: Physical Feature Survey, 2019





Figure 3-6: Zuberi Bhaban

### 3.7.5 Cafeteria

The university has a canteen for the students near to the residential buildings. The canteen is well furnished for the participants. The canteen provides varieties of foods including tea, during breakfast, lunch and also dinner time for the students. There is a separate room for the VIPs. It's an amazing place to share time with friends and seniors.

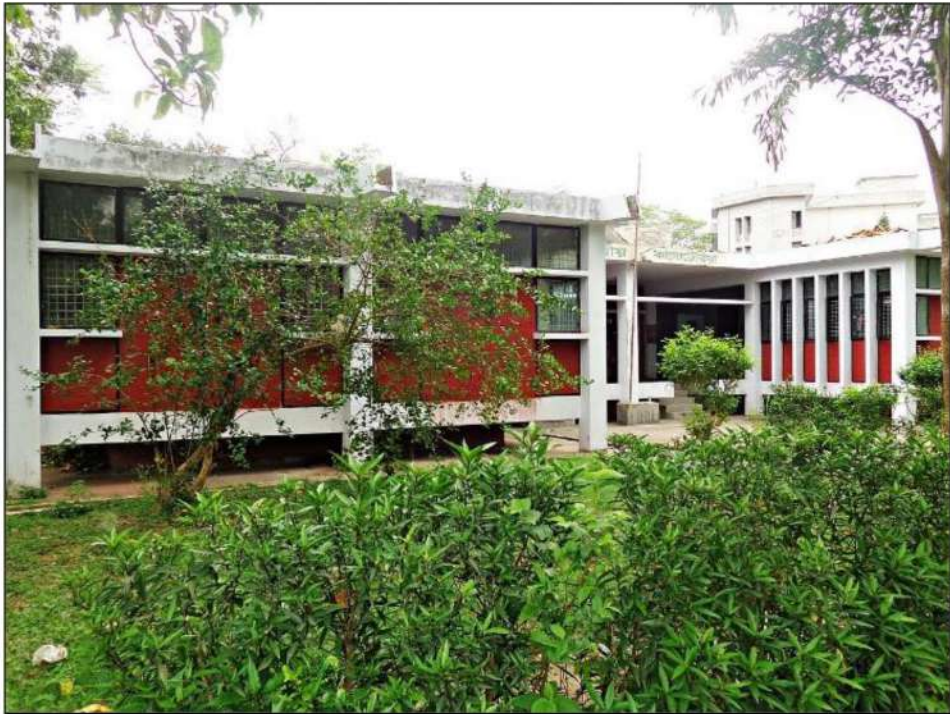


Figure 3-7: Central Cafeteria

### 3.7.6 Health Services

Rajshahi University Medical Centre is situated on the center point of the University. On its south is Binodpur Bazar, west side is Motihar Hall & North-eastern side is Shah Mokdum Hall. This Medical Centre was established in the year of 1958 to serve the teachers, staffs and students of this university. Other than treatment facilities X-ray, Pathology & Biochemistry, ECG, Nebulization & ambulance service is available. There are many units such as medicine, orthopedics, eye, skin, VD and Pediatrics. Students enjoy all the facilities without any costs. Teachers & all others employees enjoy all the facilities on payment except consultation.



Figure 3-8: Medical Center

### 3.8 Teachers, Officers, Staff and Student Residential Framework

Housing structures are the ones provided for the accommodation of the students and the employees. These structures have been categorized as: i) Student Accommodation and ii) Teacher and Staff Accommodation. The information collected on these structures from the field survey is as below.

Table 3-13: Housing Scenario According to Types

Detail Use	Katcha	Pucca	Semi pucca	Grand Total
Teachers Residence		72		72
Staffs Residence	12	34	27	73
Amir Ali Hall Provost House		1		1
Female hall		6		6
Hall staff quarter			4	4
Horijon community			23	23
Male hall		10		10
Shah Makhdum Hall Provost House		1		1
Shah Mukhdum Hall Provost House		1		1
Shahid Mir Abdul Kaiyum International Dormitory		1		1
Shahid Shamsuzzoha Hall Provost House		1		1
Sher E Bangla Hall Provost House		1		1
Grand Total	12	128	54	194

Source: Physical Feature Survey, 2019



### 3.8.1 Residential Structure

Residential building is categorized as Katcha, Pucca and Semi-Pucca. Information about floor number of buildings is also collected. Summary of residential structures is given below:

Table 3-14: Residential Building Scenario

Structure Type	Floor					Grand Total
	1	2	3	4	6	
Katcha	12					12
Pucca	28	34	41	24	1	128
Semi-pucca	54					54
<b>Grand Total</b>	94	34	41	24	1	194

Source: Physical Feature Survey, 2019

### 3.8.2 Existing Housing Condition for Teachers and Staff

The current number of residential towers to provide housing facilities to the employees of the university is 131 and all the quarters have total 564 flats.

### 3.8.3 Student Accommodation

There are 17 residential halls for student's accommodation. Whereas Male students housed in 11 halls and female in 6 halls.

Table 3-15: Details of Students Residential Hall

Hall Name	Teachers	Rooms		Attached Students		Employees
Sher-E-Bangla Fazlul Haque Hall	04	Dwelling	-	Residential	312	26
		Common	01			
		Dining	01	Non- Residential	933	
		Library	01			
Shah Makhdum Hall	04	Dwelling	-	Residential	434	27
		Common	01			
		Dining	02	Non- Residential	934	
		Library	01			
Nawab Abdul Latif Hall	04	Dwelling	-	Residential	319	29
		Common	01			
		Dining	01	Non- Residential	620	
		Canteen	01			
		Library	02			
Syed Amir Ali Hall	05	Dwelling	-	Residential	412	30
		Common	01			
		Dining	01	Non- Residential	800	
		Library	01			
	05	Dwelling		Residential	431	30

Hall Name	Teachers	Rooms		Attached Students		Employees
Shahid Shamsuzzoha Hall		Common	01	Non-Residential	706	
		Dining	01			
		Library	01			
Shahid Habibur Rahman Hall	06	Dwelling	-	Residential	728	33
		Common	01			
		Library	01	Non-Residential	1150	
		Dining	01			
		Canteen	01			
Motihar Hall	03	Dwelling	72	Residential	288	20
		Common	01			
		Dining	01	Non-Residential	850	
		Library	01			
Madar Baksh Hall	04	Dwelling	-	Residential	580	50
		common	01			
		Dining	01	Non-Residential	1275	
		Canteen	01			
		Library	01			
		Gymnasia	01			
Shahid Sohrawardi Hall	04	Common	01	Residential	488	27
		Dining	01			
		Library	01	Non-Residential	907	
		Canteen	01			
Shahid Ziaur Rahman Hall	05	Common	01	Residential	598	26
		Dining	01			
		Canteen	01	Non-Residential	1405	
		Library	01			
Bangabandhu Sheikh Mujibur Rahman Hall		Common	01	Residential	496	25
		Dining	01			
		Canteen	01	Non-Residential	1194	
		Library	01			
Monnujan Hall	06	Common	01	Residential	860	41
		Dining	01			
		Canteen	01	Non-Residential	1225	
		Library	01			
Begum Rokeya Hall	04	Common	01	Residential	720	42
		Dining	01			
		Canteen	01	Non-Residential	535	
		Library	01			
Tapashi Rabeya Hall	03	Dining	01	Residential	469	44
		Library	01			
		Common	01	Non-Residential	556	
		Departmental store	01			

Hall Name	Teachers	Rooms		Attached Students		Employees
Begum Khaleda Zia Hall	04	Dining	01	Residential	452	
		Common	04			
		Library	01	Non-Residential	1481	
		Canteen	01			
Rahamatunnesa Hall	03	Common	01	Residential	580	35
		Dining	01			
		Canteen	01	Non-Residential	600	
		Library	01			
Bongomata Sheikh Fazilatunnesa Hall	04	Common	01	Residential	504	21
		Dining	01		40	
		Library	01	Non-Residential		
Shaheed Mir Abdul Qayyum Int'l Dormitory	02	Dwelling	128	Residential	32	04
		Common	01			
		Dining	01	Non-Residential	-	
		Library	01			

Source: Physical Feature Survey, 2019

### 3.9 Athletics, Sports and Recreation Framework

- Sheikh Kamal Stadium: The university stadium (01) covers a total area of 30812 square meter and has 20,000 seating arrangement.
- Indoor Stadium: The indoor stadium is situated adjacent to the main stadium.
- Swimming Pool: There is only one swimming pool in the university campus. It is located north to the Medical Center and adjacent to the indoor stadium.
- Park: There are three parks in the campus, two located in Pashchim (west) Para (area) and the other located in Puub (east) Para (area).
- Playground: Currently there are three playgrounds within the campus boundary. One is located on the east to the Kazla Masjid, another located north to the Syed Aamir Ali Hall and the other is located on south to the Shaheed Habibur Rahman Hall.
- Auditorium

The information on the two auditoriums is given below-

**Table 3-16: Information of Auditoriums**

Name of Auditorium	Area of Auditorium (sq. meter)	No. of Seats
Kazi Nazrul Islam Auditorium	2479	2189
S.S.S.T.S.C	315	393

Source: Physical Feature Survey, 2019





Figure 3-9: Sheikh Kamal Stadium of Rajshahi University



Figure 3-10: S.S.T.S.C

### 3.10 Games and Sports

#### 3.10.1 Indoor Games

There are 2 gymnasiums, which is known as central gymnasium, and the other is lady's gymnasium. Boy's practice in the central gymnasium and the girl's use in the lady's gymnasium. All indoor games practicing facilities are the in the central gymnasium. There is a separate weight training room in the central gymnasium, there students of the Rajshahi University practice regularly in the afternoon for maintain their own physical fitness.



Figure 3-11: RU Central Stadium



Figure 3-12: RU Swimming Pool



Figure 3-13: RU Central Gymnasium



Figure 3-14: RU Physical Education  
Department

#### 3.10.2 Outdoor Games

There is a standard stadium in the campus. Seat capacity of the stadium is 30 thousand. There are also two good play grounds named as Habibur Rahman ground and Zuberi ground. Students of the R. U. play and practice different games and sports in these grounds. In the stadium there is a good cricket field, four practicing pitch(s), good football ground, two volleyball grounds, two handball grounds, and also a 400 meter track.

Besides, there are 2 international level Lawn tennis courts, 2 basketball grounds and a national level swimming pool. These are controlled by the physical Education Department.

### 3.11 Infrastructure (Circulation, Movement and Parking)

#### 3.11.1 Road Inventory

Traffic generation in different hierarchy of roads within university has been identified as presented below:

- Primary Road
- Secondary Road
- Collector Road
- Access Road/ Local Road

Table 3-17: Road Hierarchy Definition

SL. No.	Hierarchical Basis	Planning Commission's Classification	Functional Basis	Definition	ROW (m)	Ownership
1	Primary Road	National Highway, regional Highway & Circular road*	Arterial I & II	Highways connecting University or circular bypass road to ease internal traffic movement	36-45	RHD
2	Secondary road	Zila and Upzila Road & University Class-I*	Distributor	Roads connecting university's Different districts from the highway	18-20	RHD, LGED, University
3	Tertiary/Collector road	University Class-II*	Collector	Roads that connect different zones from the different districts of university	12-15	University
4	Access Road	University Class-III*	Access	Roads that connect different structures like halls, faculties, office etc.	6-8	University

During physical feature survey detail of road data has been collected. Collected information of road category is given below.



Table 3-18: Existing Road Length of Different Types

Road Type	Length (Kilometer)
Access	18.68
Footpath	0.28
Primary	5.53
Secondary	10.00
Tertiary	8.24
Grand Total	42.74

Source: Physical Feature Survey, 2019

### 3.11.2 Transport Mode

There are different types of vehicles in Rajshahi University transport sector. Most common vehicles are Bus, Microbus, Pick-Up, Ambulance, Car, Jeep etc. List of different types of vehicles number is given below-

- Bus: 35
- Car: 3
- Microbus: 14
- Pick-Up: 2
- Jeep: 2
- Ambulance: 5

### 3.11.3 Transport Facilities and Management

University transport authority provides vehicles for transporting teachers, students, officers and employees to different areas of Rajshahi. There is a complete network for transportation. Vehicles for different route are also distributed for teachers, students and employees.



**Figure 3-15: Existing Transport Complex Adjacent Administrative Building - 01**

#### 3.11.4 Parking

Parking facilities is found marginal at university area. There is a transport complex at central part of campus which is used as bus stoppage and also used for parking. There are few parking garages at teacher's residential area and staff residential area. It is also found, during physical feature survey, vehicles are parked haphazardly besides administrative, academic building. So, parking facilities location and quantity assessment is much needed for planning.

#### 3.11.5 Pedestrian Movement and Facilities

There is no designated pedestrian way in the campus. People use the same existing road for both walking and for which again designated for vehicular movement. The master plan will recommend further definition of proposed routes, especially primary corridors to establish a clear hierarchy of pathway designations.

### 3.12 Drainage Network and Utility Services Framework

#### 3.12.1 Drainage

The major drainage network in campus is mostly Katcha. This drainage network is used for flowing of waste water from different buildings to the outside of university area. It also collects rain water. Although the residential area and academic buildings have pucca drainage network. The drainage network joins with Zia khal for the

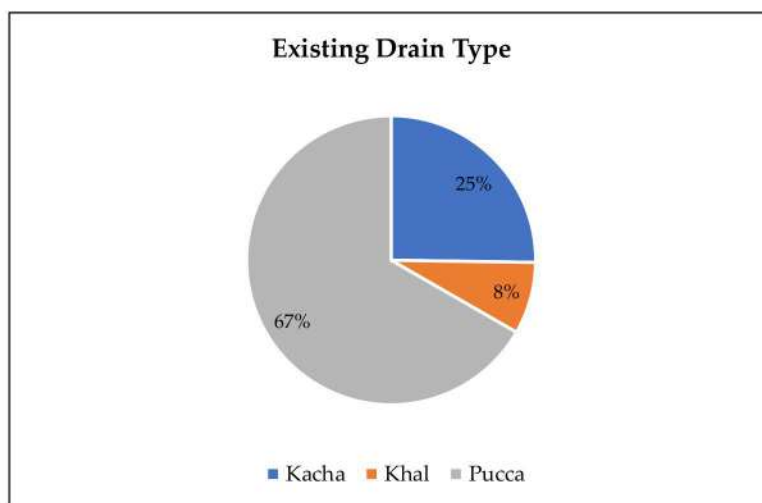
disposal of both waste and rain water. There is no treatment plant regarding this water.

There are three types of drains, such as Katcha, Pucca and Khal used as primary khal. Total length of pucca drain is 30294 meter which is 67% of total drain; length of Katcha drain is 11464 which are 25% of total drain.

**Table 3-19: Drainage According to Build Form**

Drain Type	Total Length (Meter)	Percentage
Katcha	11464	25%
Khal	3658	8%
Pucca	30294	67%
<b>Grand Total</b>	<b>45416</b>	<b>100%</b>

Source: Physical Feature Survey, 2019



**Figure 3-16: Existing Drain Type**

There are 44128 meter uncovered drain results in 97% of total drain and 1288 meter covered drain results in 3% of total drain.

**Table 3-20: Drainage According to Cover**

Drain	Total Length (Meter)	Percentage
Covered	1288	3%
Uncovered	44128	97%
<b>Grand Total</b>	<b>45416</b>	<b>100%</b>

Source: Physical Feature Survey, 2019



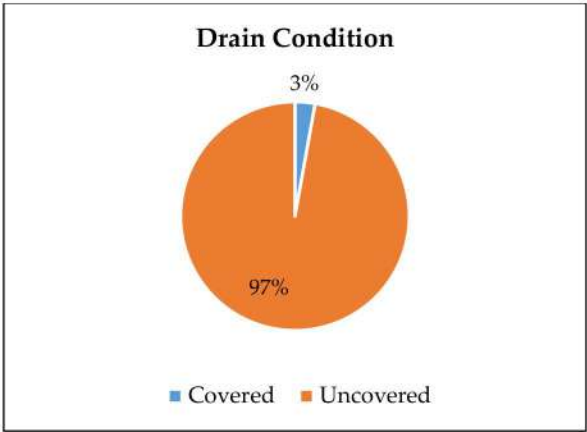


Figure 3-17: Existing Drainage Condition

Access drains are flowing from individual buildings. Khal is considered as primary drain which receives the final runoff from drains. Secondary drains are considered drains that receive runoff from access drain and carry to primary drain.

Table 3-21: Drainage Category Information

Drain Category	Total Length (Meter)	Percentage
Access	26854	59%
Primary	3658	8%
Secondary	14903	33%
Grand Total	45416	100%

Source: Physical Feature Survey, 2019

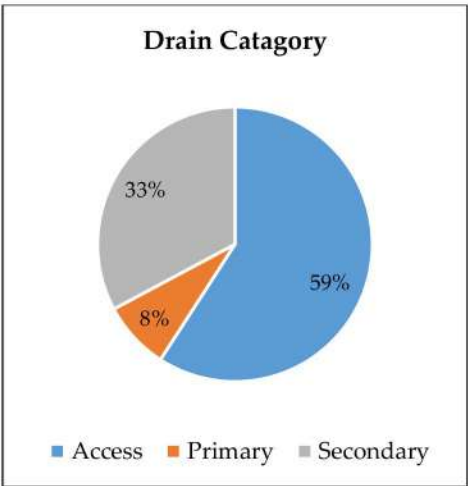


Figure 3-18: Existing Category of Drain

### 3.12.2 Sewerage System

There are septic tanks in student's residential hall. Sewage water is drained to Zia Khal from septic tank through adjacent drains.

### 3.12.3 Water Supply

Information of water supply and distribution

- Overhead tank: 120' Height
- Pump Station: 7 Nos. (6 in main Campus power capacity 60 Hz and 1 at Narikel Baria power capacity 10Hz)

#### Water Supply Line

Water supply main diameter varies from 1.5" to 12". Specific diameter for supply network is 12", 8", 6", 4", 3", 2" and 1.5". Water supply network is distributed in underground at depth level of 4', 3' and 2.5'. Location of pump is collected from engineering office and described the following approximate location -

- Near back side of Shahid Shamsuzzoha Hall
- Medical Center provides in east zone
- Auditorium provides water in middle zone
- West side of Monnujan Hall provides in west zone
- West North side of Rahamatunnesa Hall provides in west zone
- North of Agriculture faculty

Rajshahi City Corporation provides water supply to the sweeper colony.

### 3.12.4 Solid Waste Management

Rajshahi University Authority has its own solid waste management system. The waste is collected through two types of dustbins:

- i) Formal dustbin and ii) informal dustbin.
- ii) There are currently 28 dustbins in the campus.

The waste is collected from these dustbins and carried to a designated location at the last corner of Pashchim Para.



Figure 3-19: Formal Dustbin

### 3.12.5 Topography and Digital Elevation Modelling Framework

Geographically Rajshahi University is situated within Barind Tract, 23 meter (75 ft) above sea level, and lies at 24°22'26" north, 88°36'04" east. The University is located on the alluvial plains of the Padma River, which runs through southern side of the Rajshahi city.

A detailed Topographic survey has been carried out in the entire study area as per ToR. Topographic description shows the differential elevations over the surface of the earth with respect to a datum. Topographic survey measured the entire surfaces of the project area with standard known coordinates of X, Y, and Z values, to mean sea level with reference value of SOB. DTM points are the 'spot heights' or 'spot elevations' extracted by photogrammetric method from stereo images.

Table 3-22: Spot height in the Project Area

Spot Unit	Value
Mean	16.90333
Median	17.028
Mode	17.169
Minimum	14.29
Maximum	19.461
Count	5757

Source: Topographic Survey, 2019



Table 3-23: Frequency Distribution of Spot Height Level

Class Interval	Frequency	Percentage
13 up to 14.5	7	0.12
14.5 up to 15.5	127	2.21
15.5 up to 16.5	989	17.18
16.5 up to 17.5	4211	73.15
17.5 up to 18.5	413	7.17
18.5 up to 19.5	10	0.17

Source: Topographic Survey, 2019

### 3.12.6 Geology

The district of Rajshahi is situated in an area known as the Barind and extends over 3,652 sq. miles in area. The project area located a small part adjacent Doya River Basin (Part of Swarmangala river), which is primarily, a large flat alluvial basin made up of quaternary sediments having varied thickness ranging from a few hundred meters along the northern limit of the basin.

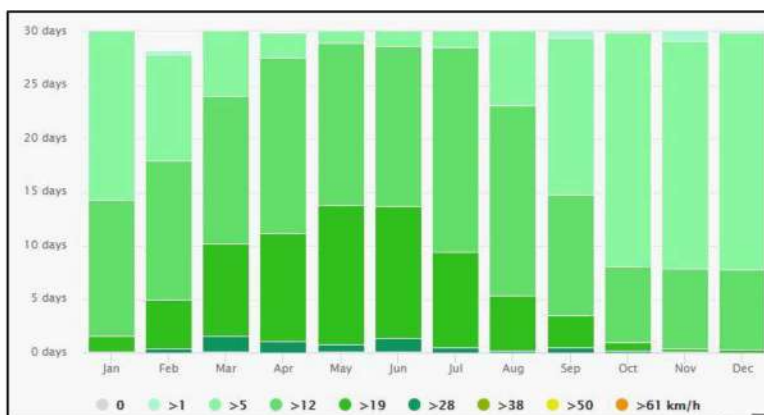


Figure 3-20: Seasonal Wind Flow Variation

The physical characteristics of the basin under consideration are complex in that they have been the sites of sedimentary disposition by two of the world's mighty rivers to the braiding and meandering pattern of the recent flood plain further downstream. The meandering streams of the Pleistocene surface.

- Varendra Bhumi is the physiographic unit of the largest Pleistocene age of Bengal Basin.
- This land is divided into three units: the recent sedimentary fan, Virendra Pleistocene, and the recent floodplain. These are divided into recent poles, long, narrow bands.

- The climate of this region is generally warm and humid.
- Based on rainfall, humidity, temperature and air pressure, the weather conditions in the Barind region are divided into four types:
  1. Pre-Season,
  2. Monsoon,
  3. Seasonal North,
  4. Winter
- Rainfall is comparatively low in the region and the average annual rainfall is approximately 1,971 mm.
- Rainfall occurs mainly during the monsoon season.

### 3.12.7 Sun Path

Sun path diagram (also known as "solar path diagram", "sun chart" or "solar chart") is a visualization of the sun's path through the sky. This path is formed by plotting azimuth (left-right) and elevation (up-down) angles of the sun in a given day to a diagram. Solar path is important for site analysis for a design project. Here, in the diagram, solar path of Rajshahi is given. Green curve shows the June Solstice, and the blue curve shows the December solstice.

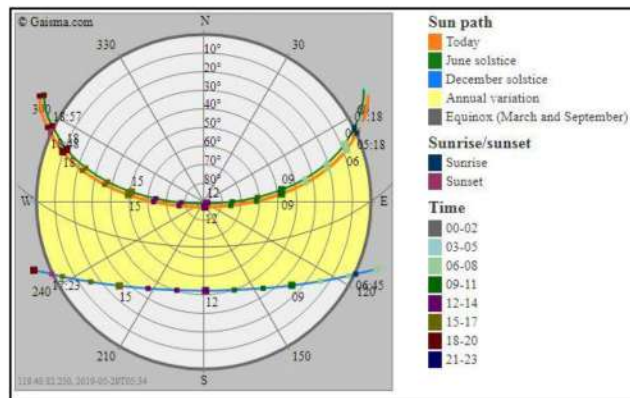


Figure 3-21: Sun Rise Path

### 3.12.8 Wind Flow

The diagram for Rajshahi shows the days per month, during which the wind reaches a certain speed. Wind speed units can be changed in the preferences (top right). The maximum wind speed is 16.8 kmph and the average wind speed is 9.9 kmph.

### 3.12.9 Wind Rose:

The wind rose for Rajshahi shows how many hours per year the wind blows from the indicated direction. Example SW: Wind is blowing from South-West (SW) to North-East (NE).

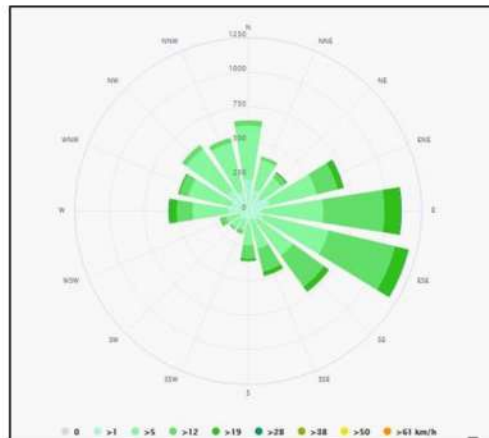


Figure 3-22: Wind Direction

### 3.13 Landscape and Beautification Framework

The natural beauty of Rajshahi University (RU), enveloped in greenery, charms all those who visit its campus. The main gate of Rajshahi University will be seen eight kilometers east of the Rajshahi-Dhaka highway from Rajshahi city. Inside there, the fairy green tree can be found. But its enchanting ambience is losing its luster because of litter dirtying the area, as few seem to use the installed dustbins.



Figure 3-23: Zoha Hall Pukur



Figure 3-24: Rajshahi University Rail Line

In many places, however, dustbins have not yet been set up, resulting in garbage piling up beside academic and residential buildings and next to the streets.

Students allege that despite designated places to dump food wastes, restaurants and tea-stalls throw garbage wherever they find it convenient, thus ruining the beauty of



the campus and spreading contamination. Dustbins behind the Shahidullha Arts Building, on the west side of the Ismail Hossen Siraji Building and other places had not been cleaned for many days and rubbish was dumped next to them.

Forests in Rajshahi division are the lowest, but surrounded greenery around Rajshahi University campus is unparalleled in judging the natural beauty of the campus.

In the university campus, there are numerous parks, ponds, flower gardens, and many architectural structures being designed as unique architecture of architectural architecture.

Besides, there was no drainage system to clear up the water from shops at the “Tukitaki chattar” in front of central library area. The place has become a breeding ground for mosquitoes.

### 3.13.1 Trees

The idyllic “Paris Road” of Rajshahi University adds beauty of the campus. Sun rays creep through thick ‘Gagan Sirish’ trees along the ‘Paris Road’ on Rajshahi University campus. The road, which stretched from Kazla Gate to Shere-e-Bangla Hall on the campus, is declaring the beauty of the university. The 30 to 40 metre-high trees along the ‘Paris Road’ has been welcoming all the visitors at the main entry point into the university for decades. In 1965, the then RU vice chancellor Prof M Shamsul Alam brought some saplings of ‘Gagan Sirish’ from France to enhance the beauty of the campus. Led by Prof Nadiruzzaman, a team of Botany Department of the university planted those saplings on both sides of the road. Since then, the road had become known as ‘Paris Road’ as it seemed to have similarities with a road in Paris, capital of France. Around six hundred trees on both sides of the ‘Paris Road’ not only give shades, shelter birds and lots of other small creatures. The road is the witness to many historical events of the university.

The trees on the ‘Paris Road’ are not only enhancing the beauty of the campus but also maintaining ecological balance on the campus and its surrounding areas. During the summer, many outsiders used to visit campus to get relief from the blistering heat.

### 3.13.2 Animal Life

In 1976, for the first time a list of birds of the RU campus was published by Haque, who identified 76 species from the campus. At that time the university authority put on a ban on the wildlife hunting and poaching within the campus.

Among the birds are green teas (parrots), red head tiara, sesame dumplings, tilani munia, black head mandiya, chandichot munia. At the same time, a rare species of tortoises was also released in the research department of zoology department.

The birds were seen to live and forage at the above-mentioned niches of the campus. Continuous bird watching at the campus makes it possible to chalk out the route and definite sites of the birds of the campus. A study reveals that, 159 species of birds of 13 orders, 36 families and 102 genera from the Rajshahi University campus were recorded. Among the recorded birds one duck, one Bee-eater and a parakeet remained unidentified. Total 83 and 76 species of non passerine and passerine species were recorded respectively.

### 3.13.3 Botanical Garden

On the western side of the main deployment central Shaheed Minar is a flower garden. There are more than 30 species of flowering trees. Daliya, heap, China heap, jarul, sunflower, radhachura, nagolanga, various types of roses, wood rose, honey malti, kamini, jabha, belly, sonalu, gold mark, paper flowers, resinjunda flower complexes. Apart from this, thousands of colorful flowers gathered in front of the central Shaheed Minar and on the entrance of the mosque.

From the killing ground to the west and the north-western corner of the university, a little before the railway line, there is a garden on about 10 acres of land. Inside the Garden, look a little ahead and look at the green and below the bright gray-colored biichala tree. Green House at the right. Various species of sensitive trees are growing in intensive care inside the house. Just behind the greenhouse, there is a wide variety of greenery around the area. There are thousands of different species of rare varieties of species. Diverse variety of such trees are unique in nature. The trees have enhanced the beauty of the garden on the one hand, several times. At present, there are about five thousand trees in the garden. It has been identified in 690 species of trees. Currently, there are many rare species of Cannabal, Nagolan, Kalpanch, Lalakoch, Bhukumara, Pocket Tab, Old Karnal etc. Throughout the year, the green complexes of Mothihar are fragrant with the smell of trees, birds and kalakakali and flowers. Varendra's reddish turtle has cooled down the campus and green in the tree.

According to the Department of Botany, it was started in 1964 by the founder president of this department, Mohammad Ali Yunus, with 102-105 species of trees. It has been identified in about 690 species of trees. Currently there are Cannabal, Nagolin, Kalpanch, Lalakocha, Bhukumara, Pocket Tab, Old Kaleel and many more bulky species of trees.



But sadly, despite being so close to nature, many students of Rajshahi University do not know the names of many trees and flowers on the campus.

However, it is a matter of hope that each tree has been planted with Placard with its name, English name and the botanical name on the initiative of the Botany Department. So that students or visitors can easily get acquainted with the tree.

### 3.14 Open Space and Conservation Framework

#### 3.14.1 Agriculture

Agricultural land is considered as conservation uses. University authority will use this type of land for future expansion. There are 142.47 acres of agricultural land at Rajshahi University. This land is mainly at East part of the university. Paddy & Sugar-cane Cultivation, Tree Plantation are main agricultural activities at university area.

#### 3.14.2 Water Body

In Talaimari area at the city of Rajshahi, origin of the river Swarmangala. The river was flowing through the Kajala-Jamalpur and Nomodhuda areas of the city. Doya river is a branch of the Swarmangala river. The river Doya was born before 20-25 yards of entry into the current north-western part of RUET area from Swarmangala. From there, Doya has turned northwards. The river went north along the western wall of Rajshahi University. Still, the river lines on the west wall of the university are understood. The riverline is still quite clear on the north side of the railway line. The water is about four feet deep and about 25 yards wide in this wetland for six months of the year. Afterwards, both rivers jointly fell into Musa Khan River. Unfortunately, university authority used it as a drainage channel.

Under the supervision of the corresponding university committee, regarding the activities of “Satpukur Project” under higher education and research work, including beautification, bathing and fish farming, included ponds are Zoha Hall pond, Habibur Rahman pond, Kachiyapukur, Mannujan Hall pond, Jubilee building pond and science workshop pond and Pauddo pond was added to it as additional one.

### 3.15 Historical Place and Monuments

- **Varendra Museum** is the oldest in the nation and an important resource for the university. A few miles from the main campus, the Varendra Research Museum is one of the richest repertory of Bengal sculptures in the world. Established in 1910 by Ramaprasad Chanda, the museum became a part of the university in the 1960s when a financial crisis threatened its existence. Under



the university, the museum has thrived, adding a folklore gallery to its impressive collection from ancient and medieval Bengal.

- **Golden Jubilee Tower**, a 2003 addition to the university's array of sculptures, commemorates the 50th anniversary. It is right beside the main gate. It has also an open theatre and two beautiful murals.
- **Shaheed Minar** is the most well-known landmark in the university and completed with a mural designed by Murtaza Bashir.
- **Shabash Bangladesh** is the famous sculpture which commemorates the Bangladesh Liberation War, designed and constructed by Nitun Kundu. The name comes from a poem by Sukanta Bhattacharya of the same name, the last four lines of which is engraved under the structure.
- **Bodhybhuumi Monument** is established in 1999. It is situated on the west side of Shaheed Shamsuzzoha Hall in Rajshahi University.



Figure 3-25: Shabash Bangladesh



Figure 3-26: Boddhobhumi Monument



Figure 3-27: Central Shahid Minar



Figure 3-28: Martyr Shamsuzzoha  
Memorial Sculpture



Figure 3-29: Shuborno Joyonti Tower



Figure 3-30: Paris Road



Figure 3-31: Varendra Museum

### 3.16 Rajshahi Metropolitan Development Plan (2004-2024)

Rajshahi University is under the jurisdiction of Rajshahi Development Authority (RDA). The main goal of Rajshahi Development Authority is city planning and also to ensure planned growth and development of the city. RDA has prepared Master Plan named Rajshahi Metropolitan Development Plan (RMDP), 2004-2024. In that plan Rajshahi University falls on the SPZ (Spatial Planning Zone) 13, SPZ 18 and SPZ 19. All the three SPZs declare Rajshahi University as Institutional so no development constraints has been found in that plan for this campus.

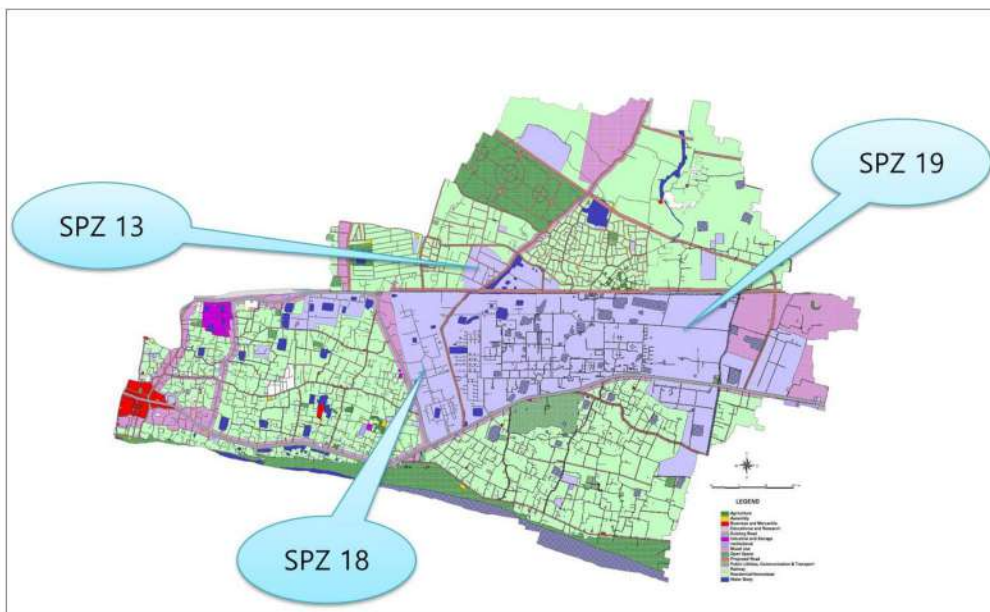


Figure 3-32: Rajshahi University in Rajshahi Metropolitan Development Plan (RMDP) Area (2004-2024)

### 3.17 SWOT Analysis

#### 3.17.1 Strength

Strength stands to represent the positive strong aspects and characteristics of an area. Following Strengths of Rajshahi University are -

- Rajshahi University is 3 kilometers (2 mile) away from the Rajshahi city Centre, adjacent Dhaka–Rajshahi Highway.
- Internal roads of RU are well networked. So, it does not have to be constructed a fresh.
- No cost of land acquisition for development.
- Strom water drains connect to existing water-bodies. So, no water logging problem.
- There are sufficient bare land around the water-bodies which could easily be used for recreational purposes
- The concerned water-bodies would be conserved for Seven Pond Project.
- It will promote the campus as the most significant location with zest of the Liberation war 1971.
- Sufficient greeneries with number of fruits garden.



### 3.17.2 Weakness

Weakness of an area represents the negative characteristics. Weaknesses of Rajshahi University are as follows.

- Retail shopping area is away from the university campus.
- Health facility is not conveniently located.
- Insufficient road width and no road median
- There is less foot path in campus. As a result people walk on main road which is not acceptable for a better movement for traffic mode.
- Maximum drains at university are earthen and there final outfalls are to existing water bodies. The other types of drains are also not well managed and it founds some blocks and overflow of water. So it's clear that drainage system is mismanaged.
- Number of bins at campus is not sufficient. It also founds that people dump solid waste everywhere in an improper way which indicated No solid waste management system has developed yet.
- There is a transport complex at campus near administrative building. This transport complex is also not carefully maintained. Besides, there are no designated parking area at campus. It is found that vehicles are parked near the buildings haphazardly.

### 3.17.3 Opportunity

Opportunities are external attractive factors that represent university likely to be prosper. Opportunities of Rajshahi University are given below -

- The conservation of the water-bodies will reduce environmental impact of the surrounding structures.
- There is huge unutilized land for expansion of the campus and making productive use.
- Scope to develop commercial function at convenient location for convenience of the campus dwellers and expand income of the university.
- Opportunity to widen roads and footpath.
- Opportunity to develop tourism within the university campus and earn extra revenue.
- Small scale farming can be introduced to raise income of the university.
- Scope to develop cultural heritage at campus.

### 3.17.4 Threat

Threats refer to factors that have the potential to harm an organization. Threats that is harmful to Rajshahi University are given below

- After developing the area, the traffic load on road will be increased but opportunity to provide new road development is limited.
- Developing residential area on the peripheral boundary will create problem in providing accessibility. Currently outsiders have accessibility at every gate and connecting points. Safety security needs to develop strongly.

## 3.18 Comparative Demographic Analysis

### 3.18.1 Comparative Analysis of the University Basic Information

University of Rajshahi was established in 1953. Some basic information (Students hall Number, International Dormitory Number, Faculty Number, Department Number, Institute number) was found changes over time. In the following table changes in recent past is given.

**Table 3-24: Year (2013 - 2019) Basic information**

Level of Course	Year						
	2013	2014	2015	2016	2017	2018	2020
Students Hall	17	17	17	17	17	17	17
International Dormitory	0	0	1	1	1	1	1
Faculty	8	8	9	9	9	9	10
Department	47	50	57	57	57	58	58
Institute	6	6	6	6	6	6	6

Source: UGC and Rajshahi University

### 3.18.2 Comparative Analysis of Year Wise Student Enrollment Information

The number of students is a key issue in a campus population projection. Enrollment data procured from University Grants Commission (UGC) and Rajshahi University, for Honors, Masters, M.Phil. PhD, & Higher studies by years shows gradual change in the size of enrolment from 2013 to and 2017 and 2018.

Table 3-25: Year (2013 - 2018) Enrolled Students Number

Level of Course	Year					
	2013	2014	2015	2016	2017	2018
<b>Total Student</b>	33922	33456	34165	33200	36437	38230
<b>Honors Students</b>	27056	27536	28471	29255	32236	33190
<b>Masters Students</b>	6388	5656	5234	3221	3908	4836
<b>M.Phil., PhD, &amp; Higher studies</b>	279	264	223	260	107	149

Source: UGC and Rajshahi University

### 3.18.3 Year wise Analysis of Enrolled Students According to Basic Subject

Student number according to core subject reflect the student's density according to subject, department and faculty. Statistical data of student distribution according to different subjects has been collected from University Grant Commission (UGC) website for the year 2013-2017 as presented in the following table.

Table 3-26: Year (2013-2017) Enrolled Students Number in Each Faculty

Faculty	Year				
	2013	2014	2015	2016	2017
<b>Arts &amp; Humanities</b>	8965	9067	8270	8864	8964
<b>Social Science</b>	6779	6920	6906	7420	7329
<b>Education</b>	17	-	-	-	-
<b>Business Administration</b>	4695	4292	4319	4499	4499
<b>Law</b>	1016	403	1099	1210	1210
<b>Pharmacy</b>	382	407	427	441	441
<b>Science</b>	8738	9024	5209	5440	5440
<b>Engineering</b>	1840	1944	1964	2341	2141
<b>Agriculture</b>	1012	1135	1093	1429	1429
<b>Others</b>	478	264	930	784	1625

Source: UGC

### 3.18.4 Comparative Analysis of Teacher Numbers by Years

Number of Teachers is one of the most vital issues for future population estimation. Proper functioning of an academic institution largely depends on the teaching class. The Consultant has collected some information about the number of teachers appointed as permanent. The teacher categories are, Professor, Associate Professor, Lecturer, absent teacher with permission, Teacher with Ph.D. Data on the number of teachers has been collected from UGC's website for the time period of 2013-2017. University of Rajshahi also provided some information. Following table has the details.



Table 3-27: Year (2013-2018) Number of Teachers

Category of Teachers	Year					
	2013	2014	2015	2016	2017	2018
<b>Total Teacher</b>	1231	1249	1230	1230	1216	1205
<b>PhD. Teacher</b>	572	697	571	570	555	-
<b>Professor</b>	428	442	455	489	483	-
<b>Associate Professor</b>	263	317	317	299	294	-
<b>Assistant Professor</b>	283	302	334	348	345	-
<b>Lecturer</b>	252	188	124	80	80	-
<b>Absent teacher with permission</b>	141	153	142	107	113	-
<b>Teacher - Student Ratio</b>	1:28	1:27	1:28	1:27	1:30	1:32

Source: UGC

### 3.18.5 Number of Staff

Officers and employees of different classes are part and parcel of the university administration. Data on the number of officer and employees has been collected from UGC's website and Rajshahi University authority for recent past (2013-2018).

Table 3-28: Year (2013 - 2018) Staff Number

Administrative Personnel	Year					
	2013	2014	2015	2016	2017	2018
<b>Officers</b>	658	788	761	759	787	734
<b>Employees</b>	2543	2392	1973	1933	1923	1701
<b>Officers – Student Ratio</b>	1:52	1:42	1:45	1:44	1:46	1:52
<b>Employees – Student Ratio</b>	1:13	1:14	1:17	1:17	1:19	1:22

Source: UGC and Rajshahi University

### 3.18.6 Housing Accommodation

Rajshahi University authority is not capable of providing full accommodation facilities to students, teachers, officers and employees. The Consultant has collected data for better understanding of the past condition of housing accommodation of students, teachers, officers and employees. This data has been collected from UGC website and Rajshahi University archives for the period of 2013 to 2018. Following table has the details.

Table 3-29: Year (2013-2018) Number of Provided Housing Facility

Resident Statistics	Year					
	2013	2014	2015	2016	2017	2018
<b>Male Student</b>	4823	5385	4895	5073	5057	5086
<b>Female Student</b>	2992	3086	3081	3438	3529	3585
<b>Teacher</b>	258	258	288	228	328	-
<b>Officer</b>	42	42	44	44	44	-
<b>Employee</b>	145	119	125	125	115	-

Source: UGC and Rajshahi University

### 3.18.7 Teacher-Student Ratio, Officer-Student Ratio, Employee-Student Ratio of Different Universities of Bangladesh

Population projection for a university is different from population projection for any particular area. There is no valid formula of population projection for a university. Estimation of the ratios of student teacher, Officer-Student, Employee-Students are important to understand the standard of services provided by the university. Lower the ration better will be the service. But often low ration cannot be afforded by the University authorities. The ratios of student-teacher, Officer-Student, Employee-Student in different Bangladeshi universities is presented in given table.

Table 3-30: Comparison of Staff's Ratio at Different Universities of Bangladesh

Name of University	Teacher Student Ratio	Officer-Student Ratio	Employee-Student Ratio
University of Dhaka	1:14	1:31	1:10
University of Rajshahi	1:32	1:52	1:22
Bangladesh University of Engineering & Technology	1:14	1:27	1:10
University of Chittagong	1:20	1:60	1:15
Bangladesh Agricultural University	1:11	1:18	1:4
Jahangirnagar University	1:23	1:60	1:11
Shahjalal University of Science & Technology	1:20	1:46	1:22
Khulna University	1:14	1:22	1:13
Bangabandhu Sheikh Mujib Medical University	1:7	1:2	1:2
Bangabandhu Sheikh Mujibur Rahman Agricultural University	1:7	1:15	1:6
Hajee Mohammad Danesh Science & Technology University	1:26	1:42	1:18
Sher-e-Bangla Agricultural University	1:15	1:16	1:6
Bangladesh University of Textiles	1:16	1:47	1:20
Chittagong University of Engineering & Technology	1:16	1:30	1:12
Rajshahi University of Engineering & Technology	1:16	1:30	1:13
Khulna University of Engineering and Technology	1:13	1:38	1:9
Jagannath University	1:32	1:113	1:43

The table above shows, better teacher-student ration exists in Bangabandhu Sheikh Mujib Medical University (1:7), Bangabandhu Sheikh Mujibur Rahman Agricultural University (1:7), Bangladesh Agricultural University (1:11), Bangladesh University of Engineering & Technology (1:14) and University of Dhaka (1:14).

### 3.19 Future Population and Housing

#### 3.19.1 Population Projection

Projection of population for any planning area is a vital task for any future planning. Population projection for a university is a tough task as there is no standard technique. To estimate future population, first past population growth rate has to be calculated.

#### 3.19.2 Population Growth Rate

There are various techniques to calculate past growth rate of population. The Consultant has already collected student number data of 2013-2019 from UGC and university archives. Population growth rate has been calculated by following Percent (Straight-Line) Growth Rate method.

$$PR = \frac{(V_{Present} - V_{Past})}{V_{Past}} \times 100$$

Where,

PR = Percent Rate

$V_{Present}$  = Present or Future Value

$V_{Past}$  = Past or Present Value

The annual percentage growth rate is simply the percent growth divided by N, the number of years.

Table 3-31: Different Population Growth Rate

Year	Student Number	Student Growth Rate (Percentage)
2011	26000	3.99
2013	33922	1.88
2014	33456	2.5
2015	34165	2.66
2016	33200	4.39
2017	36437	2.35
2019	38230	-



Student growth rate during 2011 was 3.99%, 2013 to 2019 was 1.88% and 2014 to 2019 it was 2.5%. Consultant team has projected population using the following above growth rates for year 2068.

**Table 3-32: Projected Student in 2070 According to Growth Rate**

Existing Students (2020)	2021-2025 (Near Term Phase 01) 5 Yr	2026-2030 (Near Term Phase 02) 5Yr	2031-2050 (20 Yr)	2051-2070 (20 Yr)
38230	39000	40000	45000	50000

The Consultant has calculated teacher number, officer number, and employee number by following ratio to students in each class. Teacher-student ratio 1:20, Officer-Student ratio 1:50 and Employee-Student ratio 1:15 have been used for population calculation. This calculation has been done against the student number of 50000 which has been calculated by using medium growth rate percentage. Total population has been projected 56833 for Rajshahi University in 2070.

**Table 3-33: Projected Population (Staff)**

Category	Projected Teacher, Officer and Employees in 2070
Teacher	2500
Officer	1000
Employee	3333

**Table 3-34: University Population Growth in Recent Years**

Category	Year					
	2013	2014	2015	2016	2017	2020
Total Student	33922	33456	34165	33200	36437	38230
Male Student	22723	22333	22941	21172	24032	25232
Female Student	11199	11123	11224	12028	12405	12998
Teacher	1231	1249	1230	1230	1216	1205
Officer	658	788	761	759	787	734
Employee	2543	2392	1973	1933	1923	1701
Total Population	38354	37885	38129	37122	40363	41870

Table 3-35: Existing Housing Scenario

Category	Year					
	2013	2014	2015	2016	2017	2020
Teacher	258	258	288	228	328	-
Officer	42	42	44	44	44	-
Employee	145	119	125	125	115	-
Male Student	4823	5385	4895	5073	5057	5086
Female Student	2992	3086	3081	3438	3529	3585
Total	8260	8890	8433	8908	9073	-

Source: UGC

Table 3-36: Population Projection

Year	Population
2020	43456
2025	44330
2030	45467
2050	51150
2070	56833

Table 3-37: Population Projection for Rajshahi University

Projected Criteria	Existing	2021-2025 (Near Term Phase 01) 5 Yr	2026-2030 (Near Term Phase 02) 5 Yr	2031-2050 (20 Yr)	2051-2070 (20 Yr)
	2020	2025	2030	2050	2070
Students Projection	38230	39000	40000	45000	50000
Teachers Projection	1912	1950	2000	2250	2500
Officers Projection	765	780	800	900	1000
Employees Projection	2549	2600	2667	3000	3333
Total Population	43456	44330	45467	51150	56833

### 3.19.3 Housing Need Projection

Housing need projection has been done by using projected population. Housing has been distributed in three time periods. The time periods are, 2021 to 2025 named as near term (Phase 01), 2026 to 2030 near term (Phase 02), 2031 to 2050 declared as mid-term, 2051 to 2070 named as long-term. Housing is distributed to students, teacher, officer and employees.

### Students Housing

Student housing projection is followed by examining the existing student capacity of halls. The highest accommodation capacity has been found 728 students in Habibur Rahman Hall (Male Hall) & 860 capacity in Monnujan Hall.

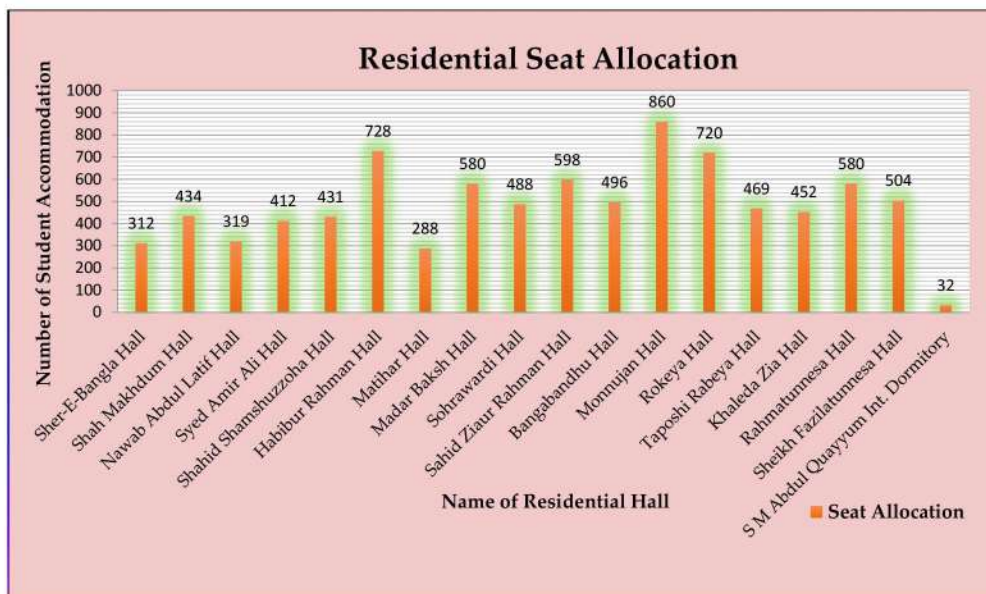


Figure 3-33: Student Capacity in Different Residential Halls

Housing accommodation for students in recent years makes to rethink about the provision of student improve student housing situation.

Table 3-38: Housing Allocation for Male Student in Recent Years

Categories	Year					
	2013	2014	2015	2016	2017	2018
Number of Male Students	22723	22333	22941	21172	24032	25232
Number of Housing Allocation	4823	5385	4895	5073	5057	5086
Percentage of Housing Allocation	21	24	21	24	21	20



Table 3-39: Housing Allocation for Female Student in Recent Years

Item Description	Year					
	2013	2014	2015	2016	2017	2018
Number of Female Students	11199	11123	11224	12028	12405	12998
Number of Housing Allocation	2992	3086	3081	3438	3529	3585
Percentage of Housing Allocation	27	28	27	29	28	28

At present residential accommodation of male students more than 22% and female students also remaining above 29%. Large numbers of students who require housing remain deprived due to shortage of accommodation. Moreover, there are large number of students who live with parents in Rajshahi city and in surrounding areas of the university campus.

Table 3-40: Housing Projection for Students

Students Hall Projection										
Accommodation Rate	2020		2025		2030		2050		2070	
	Student Number	Hall Quantity	Student Number	Hall Quantity	Student Number	Hall Quantity	Student Number	Hall Quantity	Student Number	Hall Quantity
100%	38230	38	39000	39	40000	40	45000	45	50000	50
90%	34407	34	35100	35	36000	36	40500	41	45000	45
80%	30584	30	31200	31	32000	32	36000	36	40000	40
70%	26761	27	27300	27	28000	28	31500	32	35000	35
60%	22938	23	23400	23	24000	24	27000	27	30000	30
50%	19115	19	19500	20	20000	20	22500	23	25000	25
40%	15292	15	15600	16	16000	16	18000	18	20000	20
30%	11469	11	11700	12	12000	12	13500	14	15000	15

The consultant proposes capacity of each proposed student hall to be 1000. It is also proposed that university authority will increase accommodation capacity of existing halls to 1000. There are limitations for buildable area inside the university boundary due to conservation of green space, preservation of garden areas. However, consultant suggests 60% students to be provided accommodation in halls and all of the halls will be vertically developed.

Table 3-41: Projected Student's Hall Number

Year	Expected Student	Housing for Students	Proposed Total Male Hall	Proposed Total Female Hall
2020	38230	22938	14	9
2025	39000	23400	14	9
2030	40000	24000	15	9
2050	45000	27000	16	11
2070	50000	30000	17	13

Some guidelines for future student halls are given below:

- The proposed number of halls includes the existing halls. So, the number of halls for new construction will be subtraction of existing halls from proposed total hall numbers for respective time period. Constructed halls between time period will be termed as "Existing Hall"
- Each hall will be six storied divided into three blocks.
- Capacity of each hall will be 1000 students.

### Housing for Teachers

Percentage of housing allocation to teachers is decreasing day by day. Teachers are not willing to live with family in University. This scenario is not good for both teachers and students. Because students cannot get easy access to teachers after classes which is much needed for students. Considering the problem, consultant team has developed proposals for teachers.

Teacher number has been projected by using teacher-student ratio of 1:20. The number of projected teachers need projected number of housing. Housing for teacher has been estimated in two categories Duplex and Flats. Some guidelines for teacher's housing are enclosed in below

- 60% of teacher will be given housing facility inside the university area
- VC, Pro-VCs will enjoy Bungalow housing, Other teachers will get residential flats
- Duplex house will be 1500 square feet plinth in a two storied building having 2 blocks.
- Residential flats will be 1500 square feet in 4 blocks of ten storied building
- University authority will adjust existing housing for teacher's according to the estimated number of housing in different categories

Table 3-42: Teacher-student ratio and Projected Teachers Number

Teachers Student Ratio					
		Existing Ratio	Standard Ratio		
		1:32	1:20		
Projected Year	2020	2025	2030	2050	2070
Required Teachers	1912	1950	2000	2250	2500

Table 3-43: Projection of Housing for Teacher

Teachers Residence Requirement										
Projected Year	2020		2025		2030		2050		2070	
Accommodation Percentage	Teachers Number	Resident Required	Teachers Number	Resident Required	Teachers Number	Resident Required	Teachers Number	Resident Required	Teachers Number	Resident Required
100%	1912		1950		2000		2250		2500	
90%	1721		1755		1800		2025		2250	
80%	1530		1560		1600		1800		2000	
70%	1338		1365		1400		1575		1750	
60%	1147	29	1170	29	1200	30	1350	34	1500	38
50%	956		975		1000		1125		1250	
40%	765		780		800		900		1000	
30%	574		585		600		675		750	

### Housing for Officer's

Housing provision for officers need to be sufficient. But there is scarcity of housing for officers. Moreover, there is absence of regular monitoring and maintenance of housing structures.

University authority require a number of officers for administrative, assisting, and management works of university. So, the number of officers need to project for future. Officer's number has been projected by using Officer-Student ratio of 1:50. The number of projected officers needs projected number of housing. Housing for officer has been estimated in residential flats. Some guidelines for officer's housing are enclosed in below

- 70% of officer will be given housing facility inside the university area.
- Officer will get flats of 250 to 1500 square feet in 4 blocks according to grade.
- Buildings will be ten storied.
- Each floor will have 4 flats.



Table 3-44: Officers-student ratio and Projected Officers Number

Officers Student Ratio					
		Existing Ratio	Standard Ratio		
		1:52	1:50		
Projected Year	2020	2025	2030	2050	2070
Required Officers	765	780	800	900	1000

Table 3-45: Projection of Housing for Officers

Officers Residence Requirement										
Percentage	2020		2025		2030		2050		2070	
	Officers Number	Resident Required	Officers Number	Resident Required	Officers Number	Resident Required	Officers Number	Resident Required	Officers Number	Resident Required
100 %	765		780		800		900		1000	
90%	689		702		720		810		900	
80%	612		624		640		720		800	
70%	536	13	546	14	560	14	630	16	700	18
60%	459		468		480		540		600	
50%	383		390		400		450		500	
40%	306		312		320		360		400	
30%	230		234		240		270		300	

### Housing for Employee's

University authority have provided limited housing to class-III and class-IV employees. As most of the employees have limited income percentage of housing allocation for them should be more.

Employee's number has been projected by using employee-student ratio of 1:15. The number of projected employees needs projected number of housing. Housing for employees has been estimated in residential flats. Some guidelines for employees housing are enclosed in below

- 70% of employees will be given housing facility inside the university area
- employees will get flats of 500 to 800 square feet
- Buildings will be constructed in combination of ten storied and six storied
- Each floor will have 16 flats

Table 3-46: Employee-student ratio and Projected Employees Number

Employee Student Ratio					
		Existing Ratio	Standard Ratio		
		1:22	1:15		
Projected Year	2020	2025	2030	2050	2070
Required Employees	2549	2600	2667	3000	3333

Table 3-47: Projection of Housing for Employees

Percentage	Employees Residence Requirement									
	2020		2025		2030		2050		2070	
	Employee Number	Resident Required	Employee Number	Resident Required	Employee Number	Resident Required	Employee Number	Resident Required	Employee Number	Resident Required
100 %	2549		2600		2667		3000		3333	
90%	2294		2340		2400		2700		3000	
80%	2039		2080		2133		2400		2667	
70%	1784	19	1820	19	1867	19	2100	22	2333	24
60%	1529		1560		1600		1800		2000	
50%	1275		1300		1333		1500		1667	
40%	1020		1040		1067		1200		1333	
30%	765		780		800		900		1000	

Total population has been projected 56833 for 2070 whereas housing accommodation has been figured out 34533.

Table 3-48: Projected Housing Percentage of Accommodation for Rajshahi University

Percentage of Accommodation	2020	2025	2030	2050	2070
Student Accommodation (60%)	22938	23400	24000	27000	30000
Teachers Accommodation (60%)	1147	1170	1200	1350	1500
Officers Accommodation (70%)	536	546	560	630	700
Employees Accommodation (70%)	1784	1820	1867	2100	2333
Total Accommodation	26405	26936	27627	31080	34533

### 3.19.4 Summary

Table 3-49: Summary of Population Projection for Rajshahi University

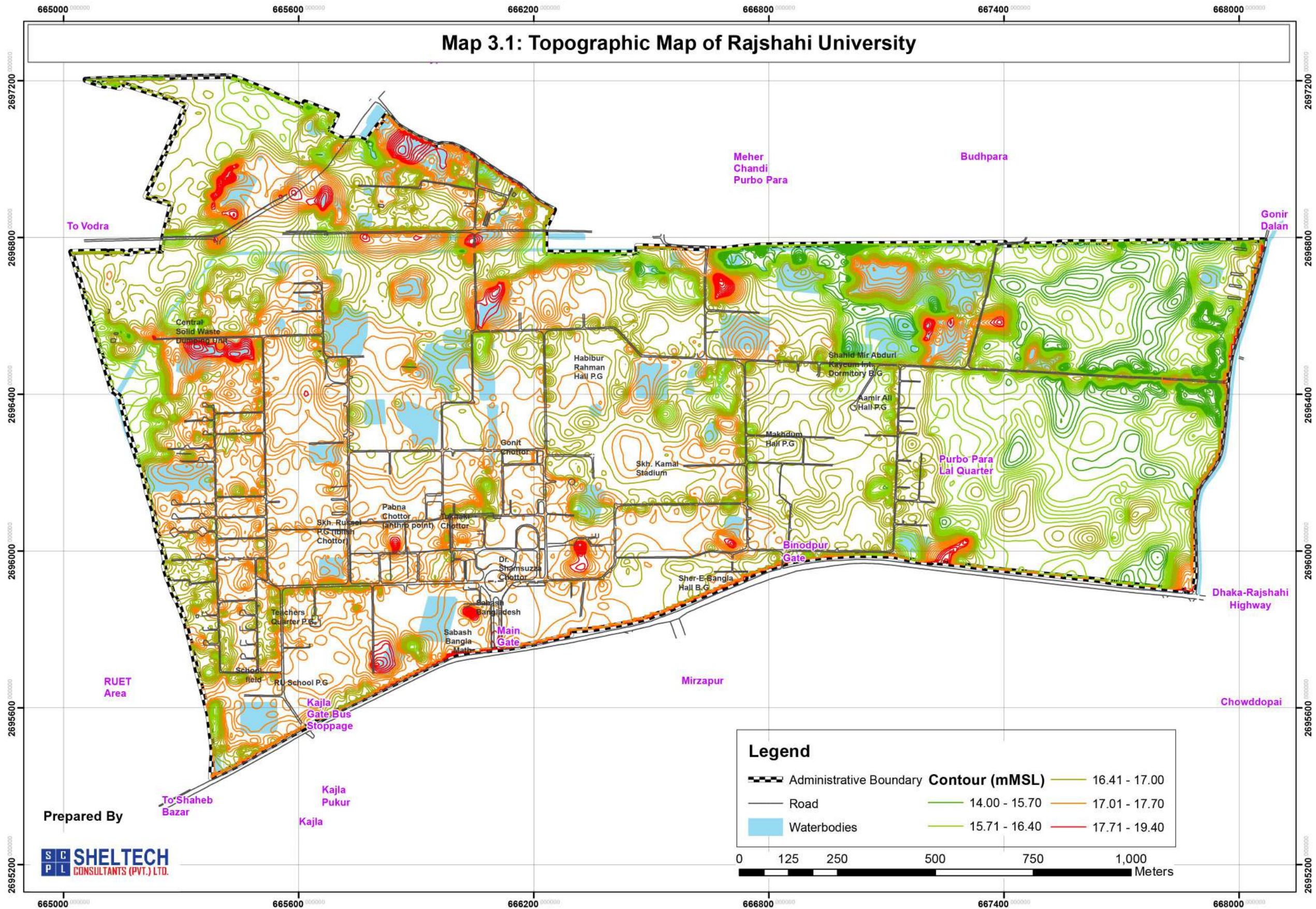
Projected Year	2070
Students Projection	50000
Teachers Projection	2500
Officers Projection	1000
Employees Projection	3333
Total Population	56833

**Table 3-50: Summary of Projected Accommodation for Rajshahi University**

<b>Projected Year</b>	<b>2070</b>
<b>Student Accommodation (60%)</b>	30000
<b>Teachers Accommodation (60%)</b>	1500
<b>Officers Accommodation (70%)</b>	700
<b>Employees Accommodation (70%)</b>	2333
<b>Total Accommodation</b>	<b>34533</b>



# Map 3.1: Topographic Map of Rajshahi University

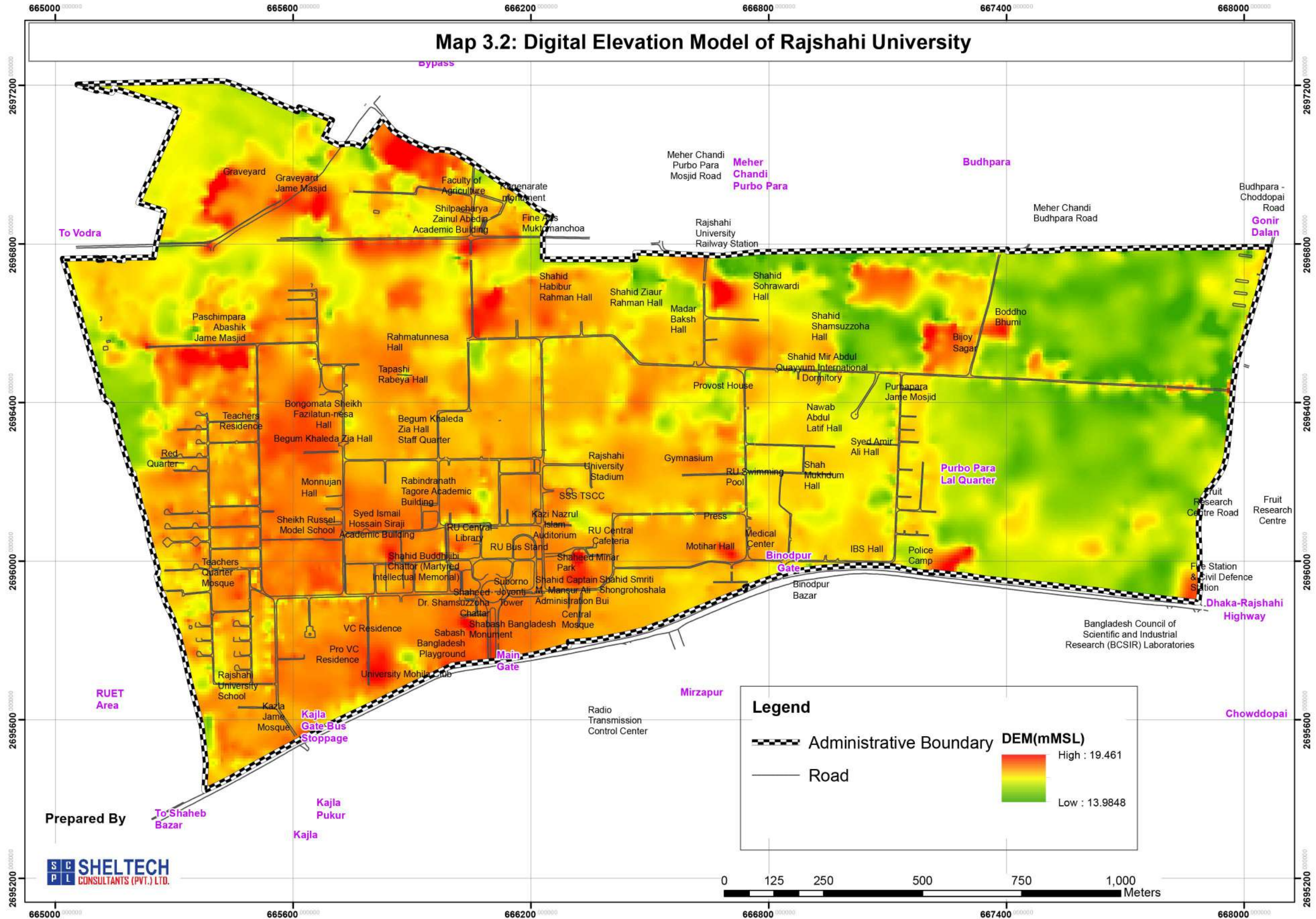


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Map 3.2: Digital Elevation Model of Rajshahi University





# Chapter Four

## Planning Principles, Standards and Time-Frames



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## CHAPTER FOUR

# PLANNING PRINCIPLES, STANDARDS AND TIME-FRAMES

### 4.1 Principles for Fifty Year Development Master Plan

Principles for Fifty Year Development Master Plan are as follows:

- To create a self-contained university campus imbued with all necessary services and facilities.
- To provide sufficient flexibility to accommodate unanticipated changes.
- Build on existing strengths of the campus and maintain a “sense of place” that is university of Rajshahi.
- To Strengthen the physical, visual and intellectual links with the Rajshahi City.
- To create a new Identity for the campus based upon public realm - the Best Garden Campus according to previous campus plan concept.
- To link the past, present and the future as part of a new Campus Narrative history of the university.
- To create zones based on functions and separate zones by road.
- To maximize utilization available facilities.
- To reinforce and define campus edges with green buffer Enhance arrival and way finder for visitors/tourists.
- To provide safe and accessible campus for all – enhance the pedestrian experience.
- To encourage non-motorized transport within campus.
- To incorporate principles of sustainability into future development.
- To promote green technologies, including green building materials, solar energy, biogas, rain water harvesting, and surface water retention.
- To provide accommodation to 60% to 80% students within this planning period.
- To conserve at least 50% of the area as natural environment.
- To arrange functional area within close proximity so that a student does not have to walk more than 0.5 km.
- Mobility without Cars on Campus
- To develop Planned faculty zones to minimize movement between its functional buildings.

- To preserve existing green space and promotion further landscape of different types.

- **Semi-residential University**

It is anticipated that most of the students and teachers will travel to campus from the city by auto rickshaw, rickshaw, private vehicle and University's bus/ car/ community vehicle, so residential halls and staff housing on campus will be provided on the basis of proportion between teachers, students and staffs.

- **Compact Campus**

A compact campus with all facilities within walking distance is proposed. A grid of 1000 feet which corresponded to 5 minutes of walking distance has been laid in the plan.

- **To Encourage Vertical Expansion**

In an effort to low utilization of surface land, master plan highly encourages to develop vertical structures to house departments, faculties, housing for students, teachers, staffs and others. The high-rise dormitory buildings will provide residential facilities with meeting area, prayer room, recreational area and dining. Adequate room for future buildings has been allocated and all future buildings has been envisioned to be multistory units to preserve the open spaces within.

- **University Centers**

**Primary Center:** With the administration and library building centrally located off of the ceremonial entry drive from the main road, a systemic layout has been placed on the site with buildings already developed located nearby with outward future expansions to be done.

**Secondary Center:** Another centers with grouping of administrative support building, faculty buildings, institutes, student halls, staff accommodation has been proposed in eastern area of the campus.

- **Integrated segregation of Residential and Academic Facilities**

The stadium and sports facilities, recreation area, green buffer, plazas have been used as a buffer between the academic functions and housing blocks.

The halls of residence have been located around the games and sports area so that the students can have a healthy corporate life and a common athletic spirit.

- **Academic Blocks**

The teaching blocks are spread over the campus. Science and Arts blocks are located in the center of the university. The students, teachers and others who will render their services here has an easy access to each of the divisions of these blocks. People of these two divisions interact together in the Central Library.



- **Science and Arts Museum**

A science museum has been proposed at the end of the existing Science Block. The museum building may be developed on the bank of proposed science lake.

Another museum which is related to Arts faculty has been proposed at the western portion adjacent to new arts buildings.

- **Heritage and liberation spaces**

At the beginning of this universities, historic and functional heart of campus and Main Gate is the primary entrance to the campus. Significant care should be taken to maintain and enhance the strong initial impression of the campus as entering through Main Gate to the campus.

All buildings and landscaped areas on the campus will be listed according to their heritage significance. The higher the degree of significance, the more care must be taken when alterations, extensions or refurbishments are carried out. Significance does not imply a building cannot be demolished or substantially altered. Procedures for monitoring such works will be in place and a conservation manual will be prepared for the guidance of University staff, consultants and contractors. Where necessary, guidance will be sought from a consulting heritage architect, landscape historian or art historian.

- Campus planning and facility development has been recognized values regarding historic preservation, sustainability, accessibility, and the aesthetic integrity of facilities and outdoor spaces.
- The heritage buildings should be preserved.
- Campus history should be explicitly considered in decisions concerning future development.
- Distinctive examples of architecture should be respected in the subsequent renovation of facilities.
- Planning for renovations and new construction should incorporate standards for environmental and energy conservation. Standards for Leadership in Energy and Environmental Design (LEED) should be explicitly considered as construction and renovation projects are developed.
- **Open Space Allocation (mango groves)**
  - To conserve a large mango grove at project area.
  - Due to considered as weather sustained tree, mango grove will be properly maintained in university campus area.
- **Proper Building Orientation (N-S orientation of blocks)**
  - Proper orientation of buildings with room for logical future growth has been proposed in the Master Plan.

- The classroom and residential buildings have been all laid out in north-south orientation to have solar and wind gains.
- Cultural sensitivity, arranging buildings to function in the local climate has been paramount considerations in this master plan.
- Ample space around every building has been left for gardening and maintaining beautiful landscape so that a pleasant environment may be created around each building.

- **Scenic beauty (Paris Road)**

It is quite evident that, Paris Road convey history, culture, heritage of Rajshahi University. So, it is expected to give special concern of that road.

- **Pedestrian friendly campus**

The vehicular link between the bus stop, train station and the campus has been placed on the periphery to keep the internal movement mainly pedestrian. The campus has been designed as a set of departments, faculties, residences interconnected by pedestrian walkways.

The individual department buildings could be reached by pedestrian via a set of interconnected plazas. In the central area the library and convention hall/ auditorium has been placed in close proximity to the department buildings.

- **Walkability & Access**

This has been done while keeping the accessibility for emergency vehicles, yet creating a walkable, cycle friendly campus where any functional area could be reached by anyone in a 10 minutes trip with non-motorized transport.

- **Grouping of Building**

Each building group has been deigned to have its own identity within the overall campus plan.

- **Flood Protection**

Water Logging has been taken into account during planning phase and buildings will be placed on raised floors to guard against floods. At the same time surface drainage will be laid toward direction of stream.

- **Zoning**

The main cluster separates into faculty residential, academic and hostel zone.

- **Green buffer and Sports zone create** a distance of the main cluster from the noisy highway.

- **Phasing**

Phasing has been done such that each functional group can be expanded nearly contiguously next to its given type in earlier phases.

- **The “Living Laboratory”**

An interlocking, integral network of complex dynamic systems, like the metabolism of a living organism. This meta-system shall be actively studied and monitored to generate intelligent control instructions and partly to mine data.

A “**Smart Intelligent Eco-campus**” with the ideals of social, economic and environmental sustainability.

- **Landscaping strategies**

Designing to absorb storm water even during extreme rainfall incidents and prevent erosion or flooding. The integrated agriculture plan provides appropriate space for organic agriculture suited to present climates and improves soil moisture and controls forestation while keeping the campus chemical free.

This campus provides a protected habitat for flora and fauna (including humans). It rejuvenates the site by providing biodiversity corridors to allow native species to have contiguous habitat and passage across the site and within the region rather than being isolated in island sanctuaries in a human settlement.

- **Net Zero Water Campus**

The Campus aims to be NET-ZERO water at the completion of all its phases.

The basic concept is to optimize the baseline, reduce demand wherever possible and use water-efficient technologies to minimize wastage. Capacity has been provided for rainwater harvesting as well as extensive re-use of treated grey and black water for non-potable uses within the Campus.

The municipal supply will act as a backup in case of emergency situations.

Native as well as resistant species of plants have been proposed to reduce the irrigation demand.

- **Net-Zero Waste Campus**

The Campus aims to be NET-ZERO waste at the completion of all its phases.

Segregation-at-source, regular waste collection and a central waste sorting area have been proposed to optimize the waste management process. Strategies to deal with various types of waste have also been suggested.

Followed efficiently, the Campus may be able to successfully divert 100% of its waste from the landfill site.

- **Near Zero Energy Campus**

The energy consumption of this campus will be reduced to about one-third by integrated with renewable energy technologies (Solar Park, Rooftop Solar, Biogas), with compact building clustering, and by encouraging a low energy lifestyle. The buildings shall be some of the most energy efficient and low resource consuming buildings globally.



- **ICT Information Communication Technology**

The plan provides for a high-speed ICT backbone with distributed hubs for flexible data exchange within and outside the campus, providing information, communication, security, and access control.

ICT systems make a smart intelligent eco-campus by capturing extensive data about the energy, water, waste, and mobility on campus and integrating them in the campus management systems.

The campus community is itself going to be enabled for learning anywhere, anytime, by the ICT backbone.

- **Multi-dimensional approach towards ensuring quality of life in campus**

Two approaches have been figured out to ensure quality of life in the campus and described in the following section:

**Quality of Life in Campus (Approach 1)**

- A. Ensuring Quality **Environment**
- B. **Mobility** for all and **Parking** Management
- C. Campus **Safety**
- D. **Campus Space** Management
- E. **Support services** at door step

**Quality of Life in Campus (Approach 2)**

- A. Health Wellbeing
- B. Work
- C. Financial Wellbeing
- D. Safety
- E. Quality of Environment
- F. Emotional Wellbeing
- G. Social Relationship

- **Master Plan Preparation in synchronization with National Development Policy**

The plan is carefully synchronized with national development policy led by the Honorable Prime Minister Sheikh Hasina based on the national human resource development and quality higher education requirement to meet the challenges of the 21st century in the rapidly changing global system. The design of the strategic structure plan is set to meet the demand for the university change during the next 50 years (a target span of 10, 20 and 20 years subsequently). Two government policies are thought to be important in the master plan formulation (i) under government's new policy of creating new universities in all districts, Rajshahi University should not grow much spatially and, (ii) to keep pace with the global phenomena, Rajshahi

University should grow with quality education for sustainable national development.

#### 4.2 Regional Linkage with Rajshahi City

Rajshahi University is situated in Rajshahi City, which is the divisional headquarter of Rajshahi division as well as the administrative district and is one of the four metropolitan cities of Bangladesh. Often referred to as Silk City and Education City, Rajshahi is located on the bank of the Padma River in the west boundary of the country. Rajshahi Municipality was one of the first municipalities in Bangladesh, established in 1876. In 1991, the Municipality has upgraded to Rajshahi City Corporation. The City Corporation consists of 30 wards and has an area of 96.69 sq. km. Currently, it has an estimated population of around 449,657 people and growing at the rate of 1.25% annually (BBS, 2011). Rajshahi University is located at Motihar, 3 kilometers (2 mi) away from the Rajshahi city Centre.

Rajshahi city has established itself as a significant market town and already turned into a trade center. Because of good communication network with Dhaka after constructions of the Jamuna Multipurpose Bridge, commercial and business activities are rapidly growing in this town because of additional acceleration and improvement of various sectors. A considerable number of important institutions are situated in and around Rajshahi City. These are Rajshahi University, Rajshahi University of Engineering and Technology, Rajshahi Medical College and numbers of private universities and other govt. & non-govt. institutions etc. It is also famous for its socioeconomic and cultural heritage. Rajshahi is famous for its silk industries. Fine and special affordable silk products of Rajshahi have earned it the nickname Silk City. Besides the beautiful Mango groves and river beaches, it is home to renowned educational institutions covering almost all of professional and cultural fields available within the country. This is due to the fact that, Rajshahi is referred to as an Education City in Bangladesh. Rajshahi is an important tourist destination because of a number of ancient mosques, shrines and temples in and around the city. There are also numbers of ancient mosques, shrines and temple in and around Rajshahi. The Padma River is the main tourist spots in the City.

#### 4.3 Timeframe

**The Current Master plan has been prepared for 50 years. Three tier timeframes will be maintaining for implementing the Master Plan. The Timeframes are:**

- Near Term 10 years (2020 to 2030)
  - Near Term Phase I (2020-2025)

- Near Term Phase II (2026-2030)
- Mid Term 10-30 years (2031 to 2050)
- Long Term 30-50 years (2051 to 2070)

#### 4.4 Standards for Rajshahi University Master Plan

The planning standard specified is the minimum land required for the specific services. The Consultant has proposed a slight modification of planning standard practice in different planning projects. The reasons behind the modified planning standards are as follows:

- The approved planning standard is the minimum land required to install each service.
- Missing of different planning items.

The planning standard as follows has been used for the study area and required land for different sectoral land use has been calculated accordingly. Following Chapters present different sectoral proposals for Rajshahi University.

**Table 4-1: Planning Standards and Land Requirements for Different Sectors for the Rajshahi University Master Plan (2020-2070)**

SL. No	Sectorial Land use	Recommended Standard Provision
1	<b>Residential</b>	
	Teachers Housing	11 Storied, 4 units/1500sqft
	Officers Housing	11 Storied, 4 units/1500sqft
	Class-III Employee Housing	11 Storied, 4 units Flat/800sqft
	Class-IV Employee housing	11 Storied, 4 units Flat/800sqft
	Student Hall Male	6 Storied *1000 students/3 Blocks
	Student Hall Female	10 Storied *1000 students/3 Blocks
2	<b>Health</b>	
	Health Center/Clinic / Maternity	4 acre/ 50,000 Population; 500 persons/ bed
3	<b>Open Spaces &amp; Recreational</b>	
	Play Lot	0.5 – 1.5 acres, every 300 residents need 0.5 acres, in the range of 0.5 km
	Play field/ground	2.0 acre per 25,000 Population; minimum walking distance 1.5 km
	Park/ Neighborhood park	2 acre/ 10,000 Population
	Open Space	1.75 acre/ 1000 Population
	Stadium/sports complex	5 acre/ 50,000 Population
	Cinema/ Theatre	0.5 acre/25,000 Population



SL. No	Sectorial Land use	Recommended Standard Provision
	hall/Auditorium	
4	<b>Community Facilities</b>	
	Mosque	0.2 acre/10,000 Population
	Eidgah	0.5 acre/ 20,000 Population
	Graveyard	5 acre/ 50,000 Population
	Community center	0.5 acre/ 10,000 Population
	Police Station	As per requirement made by Police
	Police Box/outpost	As per requirement made by Police
5	<b>Commercial</b>	
	Retail sale market	5 acre includes market square, occasional supplies & shop like use
	Corner Shop	0.2/ 2,500 Population
	Retail Katcha Bazaar	One in each District and one for every 20,000 Population, 0.3-acre minimum space for each
	Neighborhood Market	0.5 acre/ 10,000 population
6	<b>Educational</b>	
	Nursery	0.4 acre/ 5,000 Population; seats/school: 160, the walking distance of school should normally be 0.5 Km
	Primary School	1.6 acre/ 5,000 Population; infrastructure in 0.6 acre and 1.0 acre for Playground; seats/school:200; 2 Shifts; the walking distance of school should normally be 1.5 Km
	Secondary/ High School	2-2.5 acre/ 10,000 Population; seats/school: 720; 2 shifts; infrastructure in 0.6 acre and 1.4 acres for Playground. the walking distance of school should normally be 2 Km
	Intermediate / Degree College	4-6 acre/ 20,000 Population; seats/college: 1500 seats; 2 shifts
7	<b>Utilities</b>	
	Power Development Board	Minimum land for construction of 33/11 KV & 2*10 MVA Substation 0.07 acre
		Minimum distance for installation of 33 KV, 11 KV & 4 KV line 30-40 meters
		Height of the poles: 15 meters for 33 KV line; 11/12 meter for 11 KV line & 9 meter for 4 KV line
	Waste Transfer Station	Minimum 20 decimal per District
	Fire Services	Minimum 50 decimal for Residential Area
	Post office	0.05 acre/ 20,000 Population
8	<b>Transportation</b>	
	Bus terminal Complex	Minimum 3 acres per terminal, 3 acres per 1,00,000 Population
		Services: Workshop; Petrol pump; Market:

SL. No	Sectorial Land use	Recommended Standard Provision
		Equipment, parts, accessories; Cleaning and Washing; Internal circulation; Hotel (Food and residence); Different courier & parcel service office; Loading and unloading place; Bus parking space; Police outpost/ security outpost; Mosque
	Railway & Station	From one home signal to another home signal: length 3,000 feet & width 500 feet broad Gauge and 90 feet for meter Gauge (considerable average height of the embankment 10 feet)
		Minimum land width for establishment of double line: 125 feet for Broad Gauge and 115 feet for meter Gauge (considerable average height of the embankment 10 feet)
9	<b>Administration</b>	
	Police Fari	33 decimals
	Others	As per concern department



## Chapter Five

### Campus Districts, Land Use Plan and Zoning



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## CHAPTER FIVE

# CAMPUS DISTRICTS, LAND USE PLAN AND ZONING

### 5.1 Campus Districts

The University campus has been breaking down their large sites into clearly 5 districts-each with their own sense of identity and mix of programs. Five districts of the campus separated by large natural landscape buffer. The clearly separated districts will maximize the continuous open land area by concentrating and maximizing the density of built area within the campus districts. The benefits of creating 5 compact campus:

- Reduces travel distances between dorms and classrooms within each district.
- Minimizes building impacts on the natural landscape.
- Allows each campus to have a clear identity of its own.
- Makes clear distinction between campus and natural open space.

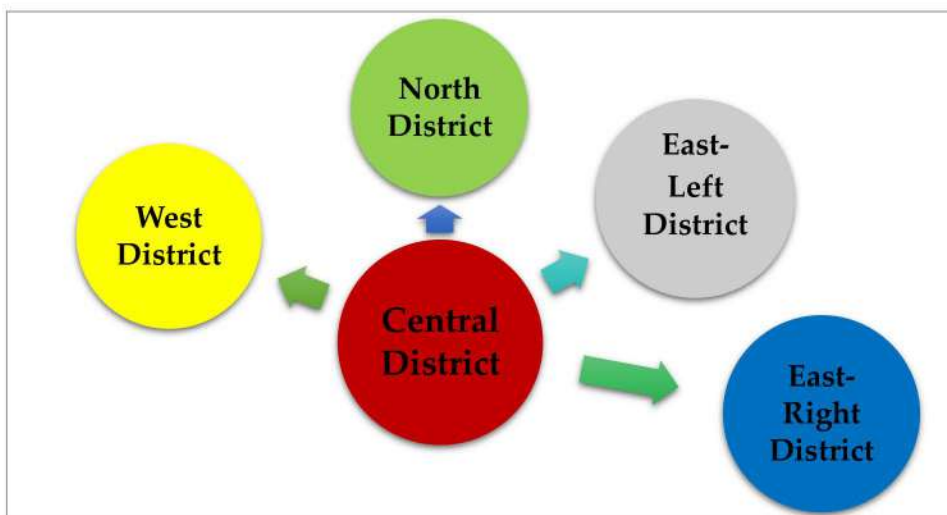


Figure 5-1: Campus Districts for University of Rajshahi

Map 5.1 and 5.2 presents Campus Districts and their corresponding centers for Rajshahi University.



Table 5-1: Proposed Districts and Land Use Permission

SL. No.	Districts	Location	Center	Landmarks	Recreational Area	Existing Landuse	Land use Permission
1	Central District	Central-Academic Area	Shaheed Dr. Shamsuzzoha Chattar	Shahid Minar, Shabash Bangladesh Monument, Library, First Science Building	Shahid Minar Area, Stadium-Swimming pool Area, New Science Lake area	Academic, administrative, support area, recreation area and few male halls	Students hall discourage, Expansion and redevelopment of academic use
2	West District	West Para-Residential Area	Poschim Para Pukur Park	Zuberi Bhaban	West Para Park, Iblish Chottor Area	Residential area for Teachers, officers and Female students	Future expansion of residential use is preferable
3	North District	Agriculture, Fine Arts & Botanical Area	Meherchand Bazar	Botanical Garden, Zainul Abedin Academic Building	Botanical Garden Area, Railway track, Fine Arts area	Botanical garden, Graveyard, Agriculture faculty and Fine Arts faculty	Conservation and expansion of Botanical Garden, New faculty, research center and future expansion of existing facilities encouraged
4	East-Left District	East Para-Male Hall & Residential Area	International Dormitory	International Dormitory & Medical Center	Bijoy Sagar and Shorobor Area	Male student hall, staff housing and two institutes	Future expansion of residential use is preferable
5	East-Right District	East Para-New Academic & Residential Area	Baddhavhumi Bijoy Sagar Shorobor	Baddhavhumi	Proposed Lake & Park Development	Mostly agriculture, few service area and staff housing exist	Conservation of historic area, agricultural land and tree gardens. Suitable for future academic, residential and administrative support expansion.

## 5.2 Campus Centers

There are defined centers in each district which will create a sense of identity for each district. The centers will be supported by essential administrative support, emergency services, day to day facilities, primary commercial activities, one stop services, and central gathering area.

**Primary Center:** With the administration and library building centrally located off of the ceremonial entry drive from the main road, a systemic layout has been placed on the site with buildings already developed located nearby with outward future expansions to be done. Primary center lays surrounding Shaheed Dr. Shamsuzzoha Chottor.

**Secondary Centers:** Another 8 centers with grouping of administrative support building, faculty buildings, institutes, student halls, staff accommodation has been proposed in each district of the campus. Secondary centers will be developed to decentralize major function or facilities in the other centers. Primary services will be developed in secondary centers within walking distance in each district. Location of these centers and services required has been listed in the previous table.

Table 5-2: Proposed Centers in different Districts for Rajshahi University

SL. No.	Center Location	Districts	Services to be Develop
1.	Shaheed Dr. Shamsuzzoha Chatter	Central District	Exiting administrative services will continue with introducing modern services, One stop center, Information Booth & Support Center, ATM booth, Smart public toilet, Parking area and Support Facilities.
2.	Poshchim Para Pukur Park	West District	Residential area supported facilities to be incorporated. Commercial area, laundry, Faculty Club with Swimming Pool, Gem, Eco Food Court and Support Facilities for Teachers-Officers
3.	East side of Begum Rokeya Hall		Commercial area, laundry, Eco Food Court, Smart public toilet and Support Facilities for Female Students
4.	Meherchandi Bazar	North District	Proposed Commercial Area, Banking area, Katcha Bazar, Information Booth & Support Center, Eco Food Court, Smart public toilet, Parking area and Support Facilities for Staff Housing and New faculty area
5.	Adjacent to Agriculture and Fine Arts faculty		Proposed Admin support building, Commercial Area, Eco Food Court, Bicycle Parking, Smart public toilet and Support Facilities for Agriculture and Fine Arts faculty
6.	International Dormitory	East-Left District	Residential area supported facilities to be incorporated. Commercial area, laundry, Eco Food Court and Support Facilities
7.	Rail Station Bazar		Already a commercial area, need modern facilities, Smart public toilet and Admin Support Facilities for Male student, Staffs and others
8.	Baddhavumi Bijoy Sagar Shorobor	East-Right District	Residential area supported facilities to be incorporated. Commercial area, laundry, Eco Food Court and Support Facilities for New Male and female Student Halls, new faculty area.



SL. No.	Center Location	Districts	Services to be Develop
9.	Proposed east gate adjacent to IBA area		New development of admin building, Banking, commercial area, Information Booth & Support Center, parking, Smart public toilet and Support Facilities, all types of services for new faculties

### 5.3 Land Use Plan

Land use zoning is the description of the regulation for use and development on any land. It is the most common form of land use regulation. Land Use Zoning regulations and restrictions are used by Concern Authorities to control and direct the development on land. Unlike many other countries, in Bangladesh Land Use Zoning is a part of any land development plan or Master Plan.

Following is the strategy and a set of policy recommendations for drawing up land use zoning plan for Rajshahi University Master Plan:

**Strategy:** Promote organized development of future land maintaining environmental sanctity, promoting economy and ensuring a balance between flexibility in land use permit and environmental quality.

One of the most important concept of previous master plan was Moghul Garden. In new master plan consultant transforms the first master plan concept. With the entire academic, sports and administrative functions within a rectangular street layout, the residential halls and staff quarters has been placed on the outside of the open landscape.

The individual department buildings could be reached by pedestrian via a set of interconnected plazas. In the central area the library and convention hall/ auditorium has been placed in close proximity to the department buildings.

**Policy: Land Use /1:** Maintain segregation of environmentally sensitive land uses.

**Policy: Land Use/2:** Each Faculty with all the support facilities like academic building, research center, institutes, cafeteria, support buildings, etc. should be in one zone.

**Policy: Land Use/2:** Use Open space green buffer, green belt or gardening as a physical barrier to ensure segregation of land uses.

**Policy: Land Use/3:** Limit the zone classes at minimum possible.

**Policy: Land Use/4:** Ensure livability in residential zones.

**Policy: Land Use/5:** Ensure that zoning restrictions does not create major obstruction in building development.

**Policy: Land Use/6:** Zoning restrictions must not be a barrier to academic or economic flourishing.

**Policy: Land Use/7:** Devise appropriate mechanism to ensure preservation of the conservation zone.



**Policy: Land Use/8:** Formulate *Zoning regulations based on the strategy and policies.*

Under land use zoning the entire university area has been divided into five zones, such as, residential, academic, admin & support, conservation zone and open space green buffer zone. The purpose is to maintain their environmental sanctity and negative impacts on other land uses. Apart from development in each land use zone additional restrictions can be as the following:

- Specific requirements as to the type of buildings allowed in each land use.
- Location of utility lines.
- Restrictions on accessory buildings, setbacks, maintain planning regulations of government.
- Size and height of buildings.
- Number of units/rooms on the basis of land volume.
- National building code.
- Planning Laws of the government.

The restrictions may also cover frontage of lots, front, rear, and side yards; off-street parking; the number of buildings on a lot and the number of dwelling units in a certain area. In areas of historic or cultural significance, zoning regulations, population density, skyline, color may require that those features be preserved.

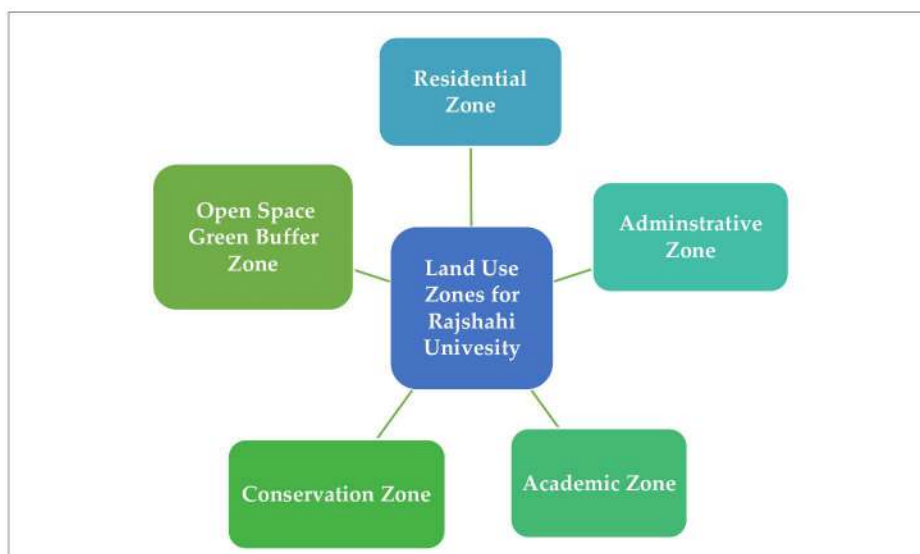


Figure 5-2: Land Use Zones for University of Rajshahi

Consultant team has divided the land into four districts according to concept plan. From the above figure it is found that 49.46% of the total land is kept as conservation and open space green buffers which are lion share of the whole area. Second highest

land use is 26.60% which is kept for residential purpose. The rest of the area is kept for academic (13%) and administrative & support (10.94%).

**Table 5-3: Land Use Category and District wise Distribution**

Land Use Category	Area in Acres						Percentage in Total (%)
	Central District	East-Left District	East-Right District	North District	West District	Grand Total	
<b>Academic Zone</b>	43.60	7.87	25.20	16.19	3.27	96.14	<b>13.00</b>
<b>Administrative &amp; Support Zone</b>	33.89	16.45	4.38	14.21	12.00	80.94	<b>10.94</b>
<b>Conservation Zone</b>	49.18	23.85	20.64	24.59	31.75	150.01	<b>20.28</b>
<b>Open Space Green Buffers</b>	18.28	38.27	60.86	65.25	33.21	215.88	<b>29.18</b>
<b>Residential Zone</b>	14.04	59.46	33.71	15.97	73.62	196.80	<b>26.60</b>
<b>Grand Total</b>	<b>159.00</b>	<b>145.90</b>	<b>144.80</b>	<b>136.21</b>	<b>153.85</b>	<b>739.77</b>	<b>100.00</b>

## 5.4 Multi-dimensional approach towards ensuring quality of life in campus

The land use of the campus has been distributed in a multi-dimensional approach to ensure quality of life. Two approaches have been figured out to ensure quality of life in the campus and described in the following section:

### QUALITY OF LIFE IN CAMPUS (Approach 1)

#### A. Environment

- Environmental Noise
- Air Quality
- Waste Management: Solid Waste, Liquid Waste, Medical Waste.
- Water management, Surface water, Rain water.

#### B. Mobility and Parking

- Campus accessibility.
- Campus accessibility for handicapped differently able people.
- Internal road circulation vehicular network.
- Internal Pedestrian network.
- Other networks: wheel chair, guided, supported.
- Parking offer.
- Public transport.

#### C. Safety

- Campus safety.
- Campus surveillance.

- Fire Fighting.
- Evacuation exercises.

#### D. Urban Space

- Functional Zoning.
- Urban Furniture.
- Internal signaling.
- Lighting illumination attractiveness.

#### E. Support Services

- Food and drinks-Restaurant and Cafeteria.
- Shopping area, Kitchen Market, Informal shopping, Book store, other shops like- souvenir, flower gift.
- Services- Travel agencies, Banks, ATMs, Public Phone, Medical Support, Wireless Network Coverage, area for other services.
- Students-Teachers support center.
- Leisure and culture- Auditorium, Cultural events space.
- Sports- Indoor sports, outdoor sports.
- Residential area (Student hall, staff housing) internal Environment.

#### QUALITY OF LIFE IN CAMPUS (Approach 2)

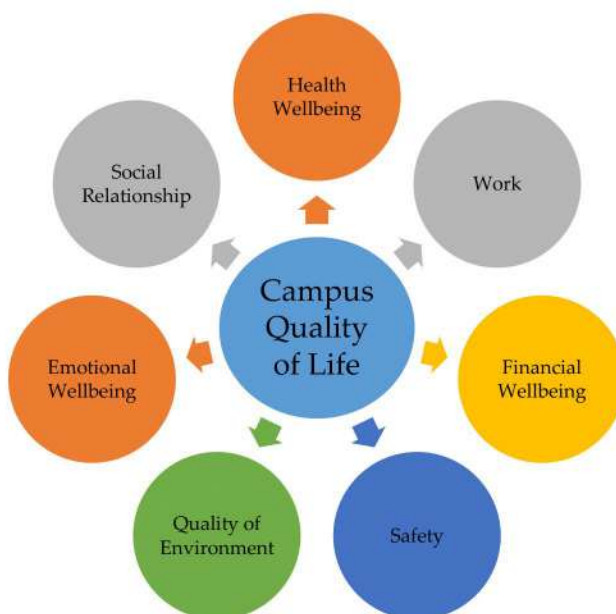


Figure 5-3: Campus Quality of Life Approach Diagram



## 5.5 Academic Zones:

The Academic or teaching blocks are spread over the campus. Science and Arts blocks are located in the center of the university. The students, teachers and others who will render their services here has an easy access to each of the divisions of these blocks. People of these two divisions interact together in the Central Library. New academic area proposes in the eastern area for future development.

The stadium and sports facilities, recreation area, green buffer, plazas have been used as a buffer between the academic functions and housing blocks.

The halls of residence have been located around the games and sports area so that the students can have a healthy corporate life and a common athletic spirit.

A science museum has been proposed at the end of the existing Science Block. The museum building may be developed on the bank of proposed science lake or floated or below the science lake.

Another museum which is related to Arts faculty has been proposed at the western portion adjacent to new arts buildings.

Academic land use zone is the sum of existing and future faculty area, institute area, research area, laboratory area and workshop area. Total academic land use area for future use is kept **96.14 acres which is 13% of total land**. Each faculty should be a faculty zone with agglomeration of faculty's academic building, research center, institutes, and cafeteria and support buildings. In this land use division three new faculty zones have been proposed for future along with new research center zone and institute zone proposal. Existing faculty zone also will have space for expansion in future. Detail academic land use for future provision is shown in table below.

**Table 5-4: Distribution of Academic Facilities in Different Academic Zones**

SL. No.	Academic Zones	Area in acre
1)	Faculty Zone A (Faculty of Arts)	15.15
2)	Faculty Zone B (Law Faculty Zone)	4.64
3)	Faculty Zone C (Faculty of Science)	9.29
4)	Faculty Zone D (Faculty of Business Studies)	12.34
5)	Faculty Zone E (Faculty of Social Science)	10.33
6)	Faculty Zone F (Faculty of Life & Earth Science)	10.16
7)	Faculty Zone G (Faculty of Agriculture)	23.73
8)	Faculty Zone H (Faculty of Engineering)	11.16
9)	Faculty Zone I (Faculty of Fine Arts)	5.51
10)	Faculty Zone J (New Faculty 01)	13.73
11)	Faculty Zone K (New Faculty 02)	15.26

SL. No.	Academic Zones	Area in acre
12)	Faculty Zone L (New Faculty 03-Proposed Historic/Heritage Area related Faculty)	6.30
13)	Institute Zone	19.03
14)	Research Zone A	1.57

### 5.5.1 Faculty of Business Studies (Business Studies Faculty Zone)

#### Qualitative Summary:

- Existing space for the department is not sufficient for the existing departments.
- A newly developed research center is added with corresponding department.
- Separated provision is proposed for Academic Laboratory, Common Room, Store Room, Official Staff's office in distinct faculty building.
- Proposal is made for development of greeneries in surrounding areas of Rabindranath Tagore Academic Building.
- Provision of better drainage system for storm water drain out from that building is included.

#### Quantitative Summary:

- Existing floor area is only 9306 square feet for management studies department.
- Rabindranath Tagore Academic building can be used for only business faculty.
- Rabindranath Tagore Academic building upgradation into multistoried building and included research center.
- Additional parking space required for corresponding department.
- Space for link corridor to connecting between various buildings.
- Class room, Teachers room, Toilet spaces needed within targeted year.

#### New Initiatives & Space Drivers:

- Due to not existence of separate building for business studies faculty, there is no scope for opening new department like Human Resource Management, International Management.
- Outsider's vehicles not to be allowed into corresponding building.
- Tourism and Hospitality Management Department shows an interest to build a 10 storied "Bangabandhu Sheikh Mujibur Rahman THM Multipurpose Center" only for their own purposes.

#### Estimated Facility Needs:

- A multi storied new building should be developed for new Business Studies faculty.
- Selected a location for waste dumping.

- When student number will be increased on the basis of 3 tier (2019-2023, 2024-2044, 2045-2070), spaces would be managed with the respect of standard student and space standard ratio.
- Space for institute and research center.
- Soft space required for dissemination of ideas, thoughts and information of students with easy, safe and efficient access of students.
- Space for parking.

Proposed and existing buildings with ID are listed in following table:

Table 5-5: Existing and Proposed Building's at Business Studies Faculty Zone

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
Faculty Building 01	AB_15 (15 <sup>th</sup> Academic Building)	10	East-Right	Adjacent Eastern Para	Mid Term	New Academic Building
Faculty Building 02	AB_23	10	East-Right	Adjacent Eastern Para	Mid Term	New Academic Building
Institute 01 (Institute of Business Administration)	Ins_02 (2 <sup>nd</sup> Institutional Building)	06	East-Right	IBA Building	Long Term	Existing Institute (Redevelopment)
Institute 02	Ins_08	06	East-Right	Adjacent IBA Building	Mid Term	Proposed Institute (New)
	Plaza_19					Proposed Plaza & Gathering Area
	Plaza_20					Proposed Plaza & Gathering Area

### 5.5.2 Faculty of Science (Science Faculty Zone)

#### Qualitative Summary:

- Available existing facilities cannot fulfill existing students and teachers mental health requirements compared to international standards.
- Plaza development is basic need along with all building.



- Existing departmental lab facilities in science building need to be more equipped with modern facilities.
- Walkable and pedestrian oriented movement need to be ensured between science buildings.
- Multipurpose labs to be utilized.

**Quantitative Summary:**

- Second and third science building should be redeveloped immediately.
- More emphasis should be given on conservation on 1st science building.
- Newly established research centers and institutions needed more spaces.
- Soft and green space required for gathering, meeting and open discussion for students proportionate students, open spaces and buildings.
- Space needed for parking.
- New research center and institutions requires enough spaces.
- New faculty office, dean office and teachers' lounge demand spaces.

**New Initiatives & Space Drivers:**

- Take initiative to better design and plan for cycling and pedestrian-oriented movement from residential to academic buildings.
- Extension building should be established around existing building and make a better connectivity between those buildings.
- Space behind 3rd and 4th science building can be used for extension of science building.
- Desire to have classrooms in close proximity to student's hall, teachers house and supporting staff housing.
- Department based laboratory facilities need to be upgraded and proper storage point selected.
- Improve access to multiple student services.

**Estimated Facility Needs:**

- Kept field research space for some of the specific departments.
- New building will be multistoried and designed with modern amenities.
- More emphasis to vertical expansion of the buildings and to keep surrounding space for green belt.
- Research center as international standard adorned with modern facilities.
- Space for laboratories and workshops.

**Proposed and existing buildings with ID are Listed in Following Table:**

Table 5-6: Existing and Proposed Buildings at Science Faculty Zone

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
Faculty Building 01	AB_06 (6 <sup>th</sup> Academic Building)	10	Central	Satyendra Nath Bose Academic Building (First Science Building)	Mid Term	New Academic Building (Conservation)
Faculty Building 02	AB_07	10	Central	Dr. Muhammad Qudrat E Khuda Academic Building (Second Science Building)	Near Term Phase II	New Academic Building (Redevelopment)
Faculty Building 03	AB_12	10	Central	Behind Dr Muhammad Qudrat E Khuda Academic Building	Near Term Phase I	RU Pro New Academic Building (New)
Institute 01	Ins_12 (12 <sup>th</sup> Institutional Building)	06	Central	Adjacent Dr Muhammad Qudrat E Khuda Academic Building	Near Term Phase I	Proposed Institute (New)
Institute 02	Ins_13	06	Central	Adjacent Dr Muhammad Qudrat E Khuda Academic Building	Mid Term	Proposed Institute (New)
Workshop 01	Ws_01 (1 <sup>st</sup> Workshop)	06	Central	Adjacent Dr. Muhammad Qudrat E Khuda Academic Building	Mid Term	Proposed Workshop (New)
	Plaza_09			Shatendranath Boshu Academic Building		Proposed Plaza & Gathering Area
	Plaza_07			Dr Muhammad Qudrat E Khuda Academic Building		Proposed Plaza & Gathering Area

### 5.5.3 Faculty of Social Science (Social Science Faculty Zone)

#### Qualitative Summary:

- Increasing number of students required extra classroom for fulfill their academic activities.
- Location of student halls is closer to academic building is prerequisite for maintaining the guidelines of walking distance.
- Individual space for laboratory, seminar room and library, conference room would be substitute in a distinct building.
- It should be mentioned that, there is not quite wide range of parking spaces for adjacent academic buildings or demarcated area for uses.
- More students need more faculty member and that will show demand for extra class room, moreover other utility services.
- More research center needed for future exploration of modern technology-based

research work.

#### Quantitative Summary:

- Newly developed and redeveloped academic building requires more space for existing and added various departments classroom, common room, auditorium and following international standard.
- Mandatory space for parking.
- Greeneries and soft space required for student meeting, discussion, group study with respect to the proportionate standard of existing space.
- Plaza is the prerequisite for faculty building.
- New research center required more space or including existing faculty building.
- Faculty office, dean office, teacher's lounge needs sufficient space.

**Proposed and Existing Buildings with ID are Listed in Following Table:**

**Table 5-7: Existing and Proposed Building at Social Science Faculty Zone**

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
Faculty Building 01	AB_03 (3 <sup>rd</sup> Academic Building)	10	Central	Dr. Muhammad Shahidullah Academic Building	Near Term Phase I	Existing Academic Building (Redevelopment)
Faculty Building 02	AB_04	10	Central	Rabindranath Tagore Academic Building	Mid Term	Existing Academic Building (Redevelopment)
	Ins_07 (7 <sup>th</sup> Institutional Building)	06	Central	Adjacent Shahidullah Academic Building	Mid Term	Proposed Institute (New)
	Ins_09	06	Central	Adjacent Deans Complex	Long Term	Proposed Institute (New)
	Plaza_04			Dr. Muhammad Shahidullah Academic Building		Proposed Plaza & Gathering Area
	Plaza_13			Dr. Muhammad Shahidullah Academic Building		Proposed Plaza & Gathering Area
	Plaza_14			Dr. Muhammad Shahidullah Academic Building		Proposed Plaza & Gathering Area

#### 5.5.4 Faculty of Arts (Arts Faculty Zone)

##### Qualitative Summary:

- There is no delineated space for arts faculty.
- Building space and individual department space is not sufficient for conducting academic activities smoothly.
- All department in this faculty accomplished their academic activities in two buildings.



- Plaza is very important necessity to fulfill the basic services of that department.
- Modern learning environment with heavily utilized facilities is crying need.
- To emphasize departments together.
- Existing research center and institution are deprived from well-equipped lab facilities.
- Maintenance system is very poor of buildings.

#### Quantitative Summary:

- Separate space needed for institutional development.
- New faculty member, dean's office, student's classroom, official staff room demand more space.
- Parking space for faculty member and students must be needed.
- Newly developed research center and institutions required delineated area.
- Green space or gathering place including outdoor discussion spaces require proper proportionate planned pieces of land.
- Plaza developed with modern amenities required better connecting commuting system.
- Theatre room, open space/stage, hall room required for fulfillment of academic activities.

Proposed and existing buildings with ID are listed in following table:

Table 5-8: Existing and Proposed Buildings at Arts Faculty Zone

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
Faculty Building 01	AB_01 (1 <sup>st</sup> Academic Building)	10	Central	Dr. Momtazuddin Ahmed Academic Building	Near Term Phase I	Existing Academic Building (Redevelopment)
Faculty Building 02	AB_02	10	Central	Syed Ismail Hossain Siraji Academic Building	Mid Term	Existing Academic Building (Redevelopment)
Faculty Building 03	AB14	10	West	Adjacent Iblish Chottor Pond	Near Term Phase II	New Academic Building
Faculty Building 04	AB21	10	West	At Iblish Chottor	Near Term Phase II	New Academic Building
Institute 01(IFS)	Ins_01 (1 <sup>st</sup> Institutional Building)	06	East-Left	Institute of Bangladesh Studies	Mid Term	Existing Institute (Redevelopment)

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
Institute 02(Institute of Education and Research)	Ins_05	06	Central	Adjacent Momtazuddin Academic Building	Near Term Phase II	Proposed Institute (New)
Institute 03(Institute of English and Others)	Ins_06	06	Central	In front of Deans Complex	Mid Term	Proposed Institute (New)
Plaza & Gathering Area 01	Plaza_01		West	At Iblish Chottor	Near Term Phase I	Proposed Plaza & Gathering Area (New)
Plaza & Gathering Area 02	Plaza_02		West	At Iblish Chottor	Mid Term	Proposed Plaza & Gathering Area (New)
Plaza & Gathering Area 03	Plaza_03		Central	Behind Dr. Momtazuddin Ahmed Academic Building	Near Term Phase II	Proposed Plaza & Gathering Area (New)
Plaza & Gathering Area 04	Plaza_12		Central	Infront Dr. Momtazuddin Ahmed Academic Building	Mid Term	Proposed Plaza & Gathering Area (New)

### 5.5.5 Faculty of Life and Earth Science (Life and Earth Science Faculty Zone)

#### Qualitative Summary:

- More research-oriented departments including in this faculty.
- Field laboratory and research center need to establish along with existing buildings.
- Departments in this faculty are not located in a same building.
- Green space of the front side of a building occupied by parked vehicle so well-organized parking space is basic need.
- In future separated large area and laboratory facilities will be needed.
- Student hall location for both male and female students is prerequisite for maintaining guideline of walking distance.
- All departments and newly added departments, teacher's lounge, classroom, seminar room come to in a single faculty building.

#### Quantitative Summary:

- A new multistoried faculty building needs enough space to meet demand of extended several department's classroom, common room, auditorium and maintain international standard.
- Newly developed research center and field laboratory required enough space.
- Soft space or gathering place including outdoor discussion space requires proper

proportionate planned piece of land.

- New faculty office, dean office, teacher's lounge demands space.
- Space for parking is a prerequisite.
- Space for plaza is mandatory.
- A distinct space for seminar room, conference hall, auditorium etc.
- New space for institute is required.

**Proposed and existing buildings with ID are listed in following table:**

**Table 5-9: Existing and Proposed Building's ID at Life and Earth Science Faculty**

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
Faculty Building 01	AB_08	10	Central	Sir Jagadis Chandra Bose Academic Building (Third Science Building)	Near Term Phase II	New Academic Building (Redevelopment)
Faculty Building 02	AB_13	10	Central	Nearest to Botanical Garden	Long Term	RU Pro New Academic Building (New)
Institute 01(Institute of Biological Science)	Ins_03	06	Central	Adjacent Sir Jagadis Chandra Bose Academic Building	Near Term Phase I	Proposed Institute (New)
Institute 02	Ins_04	06	Central	Adjacent Sir Jagadis Chandra Bose Academic Building	Near Term Phase II	Proposed Institute (New)
Workshop 01	Ws_03	10	Central	Behind Sir Jagadis Chandra Bose Academic Building	Long Term	Proposed Workshop (New)
	Plaza_10			Sir Jagadis Chandra Bose Academic Building		Proposed Plaza & Gathering Area
	Plaza_11			Nearest to Botanical Garden		Proposed Plaza & Gathering Area

### 5.5.6 Faculty of Engineering (Engineering Faculty Zone)

#### Qualitative Summary:

- All of the departments in engineering faculty is not located in a same building.
- Separated provision of for workshop, seminar room, conference hall in distinct building.
- Institute of engineering is recent demand for this faculty.
- No parking space is allocated for the supporting of this faculty.
- Space conservation for the supporting this faculty.
- Separated provision of for workshop, seminar room, conference hall in distinct building.



### Quantitative Summary:

- A new multistoried faculty building needs enough space to meet demand of extended several department's classroom, common room, auditorium and maintain according to international standard.
- New research center, faculty office, dean office, teachers' lounge, academic classroom demands enough space.
- Each department would be adjusted in a single faculty building.
- Plaza development must be needed for this enough student.
- Space will be designated for gathering place including outdoor discussion space and greeneries.
- Workshop will be developed nearby to the faculty building.
- Provision for link corridor among each of the building.

### Proposed and Existing Buildings with ID are Listed in Following Table:

Table 5-10: Existing and Proposed Building's ID at Engineering Faculty

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
Faculty Building 01	AB_09 (9 <sup>th</sup> Academic Building)	10	Central	Dr. M A Wazed Mia Bhaban (Fourth Science Building)	Mid Term	New Academic Building
Faculty Building 02	AB_07	10	Central	Dr. Muhammad Qudrat E Khuda Academic Building (Second Science Building)	Near Term Phase II	New Academic Building (Redevelopment)
Faculty Building 03	AB_12	10	Central	Behind Dr. Muhammad Qudrat E Khuda Academic Building	Near Term Phase I	Proposed New Academic Building
Workshop 01	Ws_02 (2 <sup>nd</sup> Workshop Building)	10	Central	Behind Dr. Muhammad Qudrat E Khuda Academic Building	Mid Term	New Academic Building
	Ins_16 (16 <sup>th</sup> Institutional Building)	06	Central	Adjacent Dr. Muhammad Qudrat E Khuda Academic Building	Near Term Phase II	Proposed Institute (New)
	Ins_17	06	Central	Adjacent Dr. Muhammad Qudrat E Khuda Academic Building	Long Term	Proposed Institute (New)
	Plaza_06			Dr. M A Wazed Miah Academic Building		Proposed Plaza & Gathering Area

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
	Plaza_07			Dr Muhammad Qudrat-E-Khuda Academic Building		Proposed Plaza & Gathering Area
	Plaza_08			Central Science Building		Proposed Plaza & Gathering Area

### 5.5.7 Faculty of Agriculture (Agricultural Faculty Zone)

#### Qualitative Summary:

- Quality of existing facilities is very poor compared to international standards.
- Space of the existing department is not sufficient for conducting their academic and lab facilities.
- Plaza development is basic need.
- Separated provision for of workshop, seminar room, conference hall in distinct building.
- Field laboratory and research area nearby existing building.
- Increasing number of students required extra classrooms for to fulfill their academic activities.
- Location of student halls is closer to academic building is prerequisite for maintaining the guidelines of walking distance.
- In future more faculty members will be joined that will create extra demand of new faculty office for dean, chairmen, teachers and staff.
- Some of the departments get facilities from outside of the existing faculty building so, ensure a better connection must need for development academic and institutional facilities.

#### Quantitative Summary:

- New faculty building is required.
- Space for parking is a prerequisite.
- New faculty office, dean office, teacher's lounge demands space.
- New research center demands enough space.
- Soft space or gathering place including outdoor discussion space requires proper proportionate planned piece of land.
- Required space for plaza.

**Proposed and Existing Buildings with ID are Listed in Following Table:**

Table 5-11: Existing and Proposed Building's ID at Agriculture Faculty

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
Faculty Building 01	AB_10 (10 <sup>th</sup> Academic Building)	10	North	Agriculture Faculty Building	Mid Term	Existing Academic Building (Redevelopment)
Faculty Building 02	AB_17	10	North	Adjacent Agriculture Faculty Building	Mid Term	New Academic Building
Faculty Building 03	AB_25	10	North	Adjacent Agriculture Faculty	Mid Term	New Academic Building
Institute 01	Ins_14 (14 <sup>th</sup> Institutional Building)	06	North	Adjacent Agriculture Faculty Building	Near Term Phase II	Proposed Institute (New)
Institute 02	Ins_15	06	North	Nearby Agriculture Faculty Building	Long Term	Proposed Institute (New)
	Plaza_15			Agriculture Department		Proposed Plaza & Gathering Area (New)
	Plaza_16			Adjacent Agriculture Faculty		Proposed Plaza & Gathering Area (New)
	Plaza_17			Adjacent Agriculture Faculty		Proposed Plaza & Gathering Area (New)
	Plaza_18			Adjacent Agriculture Faculty		Proposed Plaza & Gathering Area (New)

### 5.5.8 Faculty of Fine Arts (Fine Arts Faculty Zone)

#### Qualitative Summary:

- Quality of existing facilities is not so pretty compared with international standards.
- Existing space for the newly added department is not sufficient for the department.
- A newly developed research center added with corresponding department.
- Plaza development is crying need.
- Existing laboratories need to be more modernized and separated from other faculty building.
- Art Gallery, workshop initiation adjacent to faculty building
- Required parking space.
- Open stage, teachers lounge, laboratory can be separated.
- Better communication system to be ensured between Fine Arts faculty building and Administrative building.

#### Quantitative Summary:

- To develop new faculty building needs enough space.



- Guest house for national and international guests with modern amenities required
- Conference room required.
- Parking space requires designated space.
- Open space, Art Gallery, Workshop would be separated and added individual space.
- Institute needs separate space.
- Student halls location for male & female are prerequisite to maintain the guideline of walking distance.
- Soft space or gathering place including outdoor discussion space requires proper proportionate planned piece of land.
- New faculty office, dean office, teacher's lounge demands space.

**Proposed and Existing Buildings with ID are Listed in Following Table:**

**Table 5-12: Existing and Proposed Building's ID at Fine Arts Faculty**

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
<b>Faculty Building 02</b>	AB_16 (16 <sup>th</sup> Academic Building)	10	North	Adjacent Shilpacharya Zainul Abedin Academic Building (Fine Arts)	Near Term Phase II	New Academic Building
<b>Faculty Building 01</b>	AB_11	10	North	Shilpacharya Zainul Abedin Fine Arts Academic Building	Mid Term	Existing Academic Building (Redevelopment)
<b>Institute 01</b>	Ins_19 (19 <sup>th</sup> Institutional Building)	06	North	Adjacent Shilpacharya Zainul Abedin Academic Building (Fine Arts Building)	Mid Term	New Academic Building
<b>Plaza 01</b>	Plaza_21		North	Adjacent Shilpacharya Zainul Abedin Academic Building		Proposed Plaza & Gathering Area

### 5.5.9 Faculty of Law (Law Faculty Zone)

#### Qualitative Summary:

- At present Law faculty is not located in a single building, they share rooms with others departments.
- As a faculty and demandable subject its need a separate building.
- Space is not sufficient for conducting their academic activities.
- Parking space is not well designed and plaza is not developed with modern amenities.
- Guest house for international professionals and foreign teachers.
- Quality of existing facilities is modest compared with international standards.

- Plaza must be included with buildings.

#### Quantitative Summary:

- To develop new faculty building needs enough space.
- To find out scope for Guest house for national and international visitors and modern conference rooms.
- To provide space for research center.
- To promote soft green ground surface for meeting, gathering, outdoor discussion as appropriate and proportionate to existing land use.
- To ensure better connectivity between student's hall and faculty building.

**Proposed and Existing Buildings with ID are Listed in Following Table:**

**Table 5-13: Existing and Proposed Building's ID at Law Faculty**

Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
Faculty Building 01	AB_05 (5 <sup>th</sup> Academic Building)	10	Central	Opposite of Siraji Bhaban	Near Term Phase I	Existing Academic Building
Same Faculty Building 01	AB_05 (1 <sup>st</sup> Institutional Building inside 5 <sup>th</sup> Academic Building)	06	Central	Institute inside Faculty of Law Building	Near Term Phase II	Proposed Institute (New)
Plaza & Gathering Area 01	Plaza_05		Central	Infront of Siraji Bhaban Extension	Near Term Phase II	Proposed Plaza & Gathering Area (New)

#### 5.5.10 New Faculty Zones

At present there are ten faculties in Rajshahi University. Another three new faculties are also proposed for future development. Each faculty should be a zone with all the support facilities like academic buildings, research center, institutes, cafeteria and other support buildings.

#### New Faculty 01

**Table 5-14: Proposed Building's ID at New Faculty 01**

Proposal	Faculty Name	Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
New Academic Building	New Faculty 01	Faculty Building 01	AB18	10	North	Adjacent University Graveyard	Long Term	New
New Academic Building	New Faculty 01	Faculty Building 02	AB22	10	North	Adjacent University Graveyard	Long Term	New

Proposal	Faculty Name	Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
New Academic Building	New Faculty 01	Faculty Building 03	AB26	10	North	Adjacent Mehercho ndi Bazar	Long Term	New
New Academic Building	New Faculty 01	Institute 01	Ins_18	06	North	Nearby University Graveyard	Long Term	New
Proposed Plaza & Gathering Area	New Faculty 01		Plaza_22			Nearby University Graveyard		
Proposed Plaza & Gathering Area	New Faculty 01		Plaza_23			Nearby University Graveyard		

## New Faculty 02

Table 5-15: Proposed Building's ID at New Faculty 02

Proposal	Faculty Name	Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
New Academic Building	New Faculty 02	Faculty Building 01	AB20	10	East-Right	Adjacent to Eastern Para	Long Term	New
New Academic Building	New Faculty 02	Faculty Building 02	AB24	10	East-Right	Adjacent Eastern Para	Long Term	New
Proposed Institute	New Faculty 02	Institute 01	Ins_10	06	East-Right	Nearby IBA Building	Long Term	New
Proposed Institute	New Faculty 02	Institute 02	Ins_11	06	East-Right	Eastern Area	Long Term	New
Proposed Plaza & Gathering Area	New Faculty 02		Plaza_24			Eastern Area		
Proposed Plaza & Gathering Area	New Faculty 02		Plaza_25			Eastern Area		



### New Faculty 03

Table 5-16: Proposed Building's ID at New Faculty 03

Proposal	Faculty Name	Structure	Structure ID	Proposed Structure Height	Location in District	Existing Location	Phase	Remarks
New Academic Building	New Faculty 03	Faculty Building 01	AB19	10	East-Right	Adjacent Baddho Bhumi	Mid Term	New
Proposed Plaza & Gathering Area	New Faculty 03		Plaza_26			Adjacent Baddho Bhumi		

### 5.6 Residential Zones

The total land proposed for residential purpose is 196.80 acres which is 26.60% of total university area. This area includes students hall, teacher's housing, officer's housing and employee's housing in four districts according to concept plan. Residential area will be adorned with basic urban facilities like water supply, safety, gas supply, electricity supply, waste management, laundry etc. there will be also facilities that are important for better study, research, recreation and human psychological development. Proposed land use is given in below

- 43.12 acres of land is kept for teacher's and officer's housing
- 29.11 acres of land for staff housing (Class III & Class IV Employee)
- 68.65 acres Male Students hall with the existing hall area
- 42.00 acres Female Students hall with the existing hall area
- 6.36 acres of land for Proposed IT park housing

It is anticipated that most of the students and teachers will travel to campus from the city by auto-rickshaw, rickshaw, private vehicle and University's bus/ car/ community vehicle, so residential halls and staff housing on campus will be provided on the basis of proportion between teachers, students and staffs. Detail residential land use for future provision is shown in table below.

Table 5-17: Distribution of residential zones

SL. No.	Residential Zones	Area (Acre)
1.	Residential Zone A (VC & Pro VCs Housing-West)	3.89
2.	Residential Zone B (Teachers Housing -West)	13.89
3.	Residential Zone C (Officers Housing-West)	6.96
4.	Residential Zone D (Bachelors Housing -West)	2.84
5.	Residential Zone E (Teachers Housing -West)	1.41
6.	Residential Zone F (Teachers Housing East-Left)	3.78
7.	Residential Zone G (Officers Housing East-Left)	5.15
8.	Residential Zone H (Teachers Housing East-Left)	3.70
9.	Residential Zone I (Teachers Housing East-Left)	1.51

SL. No.	Residential Zones	Area (Acre)
10.	Residential Zone J (Staff Housing East-Right)	16.31
11.	Residential Zone K (Staff Housing North)	12.81
12.	Residential Zone L (IT Park Housing North)	6.36
13.	Residential Zone M (Female Hall Zone A)	34.46
14.	Residential Zone N (Male Hall Zone A-Central)	14.05
15.	Residential Zone O (Male Hall Zone B East-Left)	18.49
16.	Residential Zone P (Male Hall Zone C North)	23.53
17.	Residential Zone Q (New Male Hall Zone D East-Right)	12.59
18.	Residential Zone R (New Female Hall Zone B)	7.55

### 5.1.1 Residence for Students

#### Qualitative Summary:

- Residence halls need better technology integration.
- Need to address the space around the residence halls add informal recreation.
- Nawab Abdul Latif Hall, S. M. Hall, Amir Ali Hall immediately need to renovation.

#### Quantitative Summary:

- There is need of 30 new residential halls if university authority wants to arrange accommodation for future 60% students
- New student's halls will give residence to 1000 in each hall.

#### New Initiatives & Space Drivers:

- Students hall need to locate in close proximity to academic building by a guideline of walking distance.
- Hall for differently able Male and Female Students accommodation are provided in newly developed hall.
- Keep provision of space for facilities like dinning, canteen, cafeteria, TV room, indoor games arrangement, provost office, guest room, garden, etc.

#### Estimated Facility Needs:

- Space for 13 new student's halls.
- Inclusion of modern technologies and facilities for students.
- Renovate existing residence halls to create more soft space.

Existing and Proposed Hall's with ID and Location are listed as below:

Table 5-18: Existing and Proposed Male Student Residential Building

Male Hall	Proposed ID	Phase Update	Proposed Storied	Existing Location
Proposed Reconstruction of Sher-E-Bangla Hall	MH01	Near Term Phase I	10	Adjacent Central Mosque
Redevelopment of Male Hall (Shah Mukhdum Hall)	MH02	Near Term Phase I	10	Adjacent Medical Center
Redevelopment of Male Hall (Nawab Abdul Latif Hall)	MH03	Near Term Phase I	10	Nearby International Students Dormitory
Redevelopment of Male Hall (Syed Amir Ali Hall)	MH04	Mid Term	10	Adjacent Purba Para
Redevelopment of Male Hall (Shahid Shamsuzzoha Hall)	MH05	Mid Term	10	In front of International Students Hall
Redevelopment of Male Hall (Shahid Habibur Rahman Hall)	MH06	Mid Term	10	Nearby Botanical Garden
Redevelopment of Motihar Hall	MH07	Mid Term	10	Nearby Binodpur Gate
Redevelopment of Male Hall (Madar Baksh Hall)	MH08	Mid Term	10	Nearby Station Market
Redevelopment of Male Hall (Shahid Sohrwardi Hall)	MH09	Mid Term	10	Nearby Station Market
Redevelopment of Male Hall (Shahid Ziaur Rahman Hall)	MH10	Mid Term	10	Adjacent Habibur Rahman Field
Bangabandhu Sheikh Mujibur Rahman Hall	MH11	Near Term Phase II	10	Adjacent Shaheed Smriti Songrohosala Museum
Proposed Male Hall (Kamaruzzamn Hall)	MH12	Near Term Phase I	10	Nearby University Medical Center
Proposed Male Hall (For IBA-Adjacent to Baddhavhumi)	MH13	Near Term Phase I	10	Adjacent Eastern Para
Proposed Male Hall (Adjacent to Baddhavhumi)	MH14	Mid Term	10	Adjacent Eastern Para
Proposed Male Hall (Adjacent to Shah Mukhdum Hall)	MH15	Long Term	10	Adjacent University Medical Center
Proposed Male Hall (Adjecent to Nawab Abdul Latif Hall)	MH16	Long Term	10	Nearby International Students Hall
Proposed Male Hall (Adjecent to Syed Amir Ali Hall)	MH17	Near Term Phase II	10	Adjacent Eastern Para

Table 5-19: Existing and Proposed Female Student Residential Building

Proposed Female Hall	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Existing Demolish-Monnujan Hall	FH01	Near Term Phase I	10	Nearby Shiraji Bhaban
Existing Demolish	FH02	Near Term Phase I	10	Nearby Botanical Garden
Existing Demolish-Tapashi Rabeya Hall	FH03	Mid Term	10	In front of Rokeya Hall
Existing Demolish-Begum Khaleda Zia Hall	FH04	Mid Term	10	Nearby Monnujan Hall



Proposed Female Hall	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Existing Demolish-Rahmatunnesa Hall	FH05	Mid Term	10	Adjacent Botanical Garden Pond
Existing Demolish-Bongomata Sheikh Fazilatun-nesa Hall	FH06	Long Term	10	Adjacent Monnujan Hall
New Female Hall-Sheikh Hasina Hall	FH07	Near Term Phase I	10	Nearby Third Science Building
New Female Hall	FH08	Mid Term	10	Adjacent Monnujan Hall
New Female Hall	FH09	Long Term	10	Adjacent Monnujan Hall
New Female Hall	FH10	Mid Term	10	Adjacent Monnujan Hall
New Female Hall	FH11	Long Term	10	Adjacent East Para
New Female Hall (For IBA)	FH12	Mid Term	10	Adjacent East Para
New Female Hall (For IBA)	FH13	Near Term Phase I	10	Adjacent East Para

### 5.1.2 Residence for Teachers, Officers and Employees

#### Qualitative Summary:

- Lack of adequate housing for teachers, officers and staff
- Housing area needs to better technology integration
- Need to address the space around the residence area and add informal recreation like playground, play field, park, amusement park, garden, swimming complex etc.
- Existing housing area require to expand for giving residence to increased population
- Safety provision is must and there should be arrangement of security office, fire service & civil defense
- Provide urban facilities

#### Quantitative Summary:

- There is need of new residential building for teachers, officers, employees of different category if university authority wants to arrange accommodation for future 60% of staff

#### New Initiatives & Space Drivers:

- Existing semi-pucca and pucca outdated pucca residential structures need to demolish to give space for new housing structures
- Housing area will follow the rules of vertical expansion of structures rather than horizontal expansion with the integration of modern technology

#### Estimated Facility Needs:

- Inclusion of modern technologies and facilities for teachers, officers, employees.
- Give space for security office, fire service and civil defense

- Give space for recreational facilities
- Space calculation for urban facilities like electricity, drainage, solid waste management, water, gas, internet etc.

Following section presents Teachers, Officers and Staffs Housing with unique ID and detail requirement.

Table 5-20: Existing and Proposed Teachers Residential Buildings

Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
VC Residence	VC Res01	Near Term Phase II	03	Adjacent Senate Building
Proposed Pro-VC Banglow	Pro-VC Banglow01	Mid Term	02	Adjacent Zuberi Bhaban
Proposed Pro-VC Banglow	Pro-VC Banglow02	Mid Term	02	Adjacent Zuberi Bhaban
Zuberi Bhaban Redevelopment	ZB01	Near Term Phase I	10	Adjacent Zuberi Field
Proposed Teachers Housing	TH01	Near Term Phase I	06	At West Para
Proposed Teachers Housing	TH02	Near Term Phase I	06	At West Para
Proposed Teachers Housing	TH03	Near Term Phase I	10	At West Para
Proposed Teachers Housing	TH04	Near Term Phase I	10	At West Para
Proposed Teachers Housing	TH05	Near Term Phase I	10	At East Para
Proposed Teachers Housing	TH06	Near Term Phase I	10	At East Para
Proposed Teachers Housing	TH07	Near Term Phase I	10	At East Para
Proposed Teachers Housing	TH08	Near Term Phase II	10	At West Para
Proposed Teachers Housing	TH09	Near Term Phase II	10	At West Para
Proposed Teachers Housing	TH10	Near Term Phase II	10	At West Para
Proposed Teachers Housing	TH11	Near Term Phase II	10	At West Para
Proposed Teachers Housing	TH12	Near Term Phase II	10	At West Para
Proposed Teachers Housing	TH13	Near Term Phase II	10	At West Para
Proposed Teachers Housing	TH14	Long Term	10	At East Para
Proposed Teachers Housing	TH15	Long Term	10	At West Para
Proposed Teachers Housing	TH16	Long Term	10	At West Para
Proposed Teachers Housing	TH17	Long Term	10	At West Para
Proposed Teachers Housing	TH18	Near Term Phase II	10	At East Para
Proposed Teachers Housing	TH19	Near Term Phase II	10	At East Para

Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Proposed Teachers Housing	TH20	Mid Term	10	At East Para
Proposed Teachers Housing	TH21	Mid Term	10	At East Para
Proposed Teachers Housing	TH22	Mid Term	10	At East Para
Proposed Teachers Housing	TH23	Mid Term	10	At West Para
Proposed Teachers Housing	TH24	Mid Term	10	At West Para
Proposed Teachers Housing	TH25	Mid Term	10	At West Para
Proposed Teachers Housing	TH26	Mid Term	10	At West Para
Proposed Teachers Housing	TH27	Mid Term	10	At West Para
Proposed Teachers Housing	TH28	Mid Term	10	At West Para
Proposed Teachers Housing	TH29	Mid Term	10	At West Para
Proposed Teachers Housing	TH30	Long Term	10	At West Para
Proposed Teachers Housing	TH31	Long Term	10	At West Para
Proposed Teachers (Bachelors) Housing	TH32	Long Term	10	At West Para
Proposed Teachers (Bachelors) Housing	TH33	Mid Term	10	At West Para
Proposed Teachers Housing	TH34	Long Term	10	At East para
Proposed Teachers Housing	TH35	Long Term	10	At East Para
Proposed Teachers Housing	TH36	Long Term	10	At East Para
Proposed Teachers and Officers Housing for University School & College	TH37	Long Term	10	At West District

Table 5-21: Existing and Proposed Officers Residential Building

Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Proposed Officers Housing	OH01	Near Term Phase I	10	At West Para
Proposed Officers Housing	OH02	Near Term Phase I	10	At West Para
Proposed Officers Housing	OH03	Near Term Phase I	10	At West Para
Proposed Officers Housing	OH04	Near Term Phase I	10	At West Para
Proposed Officers Housing	OH05	Near Term Phase I	10	At West Para
Proposed Officers Housing	OH06	Near Term Phase I	10	At West Para
Proposed Officers Housing	OH07	Near Term Phase I	10	At West Para
Proposed Officers Housing	OH08	Near Term Phase I	10	At West Para
Proposed Officers Housing	OH09	Near Term Phase II	10	At East Para
Proposed Officers Housing	OH10	Near Term Phase II	10	At East Para
Proposed Officers Housing	OH11	Near Term Phase II	10	At East Para
Proposed Officers Housing	OH12	Near Term Phase II	10	At East Para
Proposed Officers (Bachelors) Housing	OH13	Mid Term	10	At West Para
Proposed Officers Housing	OH14	Long Term	10	At East Para
Proposed Officers Housing	OH15	Long Term	10	At East Para



Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Proposed Officers Housing	OH16	Long Term	10	At East Para
Proposed Officers Housing	OH17	Long Term	10	At East Para
Proposed Officers (Bachelors) Housing	OH18	Long Term	10	At West Para

Table 5-22: Existing and Proposed Staffs Residential Building

Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Proposed Staffs Housing	SH01	Near Term Phase I	06	East Para Sweeper Colony
Proposed Staffs Housing	SH02	Near Term Phase I	06	East Para Sweeper Colony
Proposed Staffs Housing	SH03	Near Term Phase I	06	East Para Sweeper Colony
Proposed Staffs Housing	SH04	Near Term Phase I	06	East Para Sweeper Colony
Proposed Staffs Housing	SH05	Near Term Phase I	06	East Para Sweeper Colony
Proposed Staffs Housing	SH06	Near Term Phase II	06	East Para Sweeper Colony
Proposed Staffs Housing	SH07	Near Term Phase II	06	East Para Sweeper Colony
Proposed Staffs Housing	SH08	Near Term Phase I	06	Nearby University Graveyard
Proposed Staffs Housing	SH09	Near Term Phase I	06	Nearby University Graveyard
Proposed Staffs Housing	SH10	Near Term Phase II	06	Nearby University Graveyard
Proposed Staffs Housing	SH11	Near Term Phase II	06	Nearby University Graveyard
Proposed Staffs Housing	SH12	Near Term Phase I	06	Adjacent Central Mosque
Proposed Staffs Housing	SH13	Near Term Phase I	06	At West Para Adjacent Teachers Housing
Proposed Staffs Housing	SH14	Near Term Phase II	06	At West Para Adjacent Teachers Housing
Proposed Staffs Housing	SH15	Mid Term	06	Adjacent East Para Sweeper Colony
Proposed Staffs Housing	SH16	Mid Term	06	Adjacent East Para Sweeper Colony
Proposed Staffs Housing	SH17	Mid Term	06	Adjacent East Para Sweeper Colony
Proposed Staffs Housing	SH18	Long Term	06	Adjacent East Para Sweeper Colony
Proposed Staffs Housing	SH19	Long Term	06	Adjacent East Para Sweeper Colony
Proposed Staffs Housing for University School & College	SH20	Mid Term	06	At West Para Adjacent Teachers Housing
Proposed Staffs Housing	SH21	Mid Term	06	Adjacent Central Mosque
Proposed Staffs Housing	SH22	Mid Term	06	Adjacent University Graveyard
Proposed Staffs Housing	SH23	Mid Term	06	Adjacent University Graveyard

Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Proposed Staffs Housing	SH24	Mid Term	06	Adjacent University Graveyard
Proposed Staffs Housing	SH25	Mid Term	06	Adjacent University Graveyard
Proposed Staffs Housing	SH26	Long Term	06	Adjacent University Graveyard
Proposed Staffs Housing	SH27	Long Term	06	Adjacent University Graveyard

Table 5-23: Existing and Proposed IT Sector Residential Building

Proposed Housing	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Proposed IT Sector Housing	ITH01	Mid Term	10	Nearby University Graveyard
Proposed IT Sector Housing	ITH02	Mid Term	10	Nearby University Graveyard
Proposed IT Sector Housing	ITH03	Long Term	10	Nearby University Graveyard
Proposed IT Sector Housing	ITH04	Long Term	10	Nearby University Graveyard
Proposed IT Sector Employees Housing	ITH05	Mid Term	06	Nearby University Graveyard
Proposed IT Sector Employees Housing	ITH06	Long Term	06	Nearby University Graveyard
Proposed IT Sector Employees Housing	ITH07	Long Term	06	Nearby University Graveyard

## 5.7 Administrative and Support Zones

Administrative and support zone land use is proposed for 80.94 area and comprised of following land use

- Administrative office area
- Engineering office area with Parking yard, construction and storage facilities
- Teacher-Student Center (TSC)
- Press area
- Religious area (Mosque, Graveyard, Temple)
- University Center or open-air meeting point
- Transport office area with terminal and parking space
- Security office area
- Medical Center and primary health support area
- Commercial area, Shopping area, Rail station Bazar
- Community Area
- Utility Services

Water Supply: Underground, surface water, rainwater harvesting center

Electricity Supply Sub Station, Solar Park

Telephone Service

IT Service: WIFI Zone

Waste Transfer and recycling area

- Emergency support center
- Fire Service & Civil defense and rehabilitation center
- Club house
- Teachers' Lounge
- Staff Union Office
- Go-down
- Farm house

**Qualitative Summary:**

- In future population will increase and maintaining the loads of works will require extra unit of administration
- Up gradation of existing health facility is needed and number of doctors, attendant, bed for patient is need to increase
- Safety for students, staffs, teachers, family member of teachers and are must. The number of security unit cell (Guard room) need to increase all over the campus and give training & instrument to security officials.
- Go-down capacity need to increase and its location need not place near to any research center or educational structures.

**Quantitative Summary:**

- Second administrative building with modern facility will require a vast space for proper functioning.
- Press and printing area require modest area for proper working.
- Security office requires space for training, keeping records, instruments. There is need of constructing extra guard room at academic building, student's hall, staff housing, teachers housing area and other important area & structures.
- A modern medical center captures comparatively large area. It requires parking area for ambulance, medicine unit, doctor's chamber, bed for patient.
- Go -down will require vast area for keeping materials

**New Initiatives & Space Drivers:**

- Second administrative building needs to locate close proximity to existing one
- Second administrative needs to expand its own existing place
- Press is a confidential unit of university so its need to place at close proximity to administrative building or security office
- Security office needs to expand in existing area with more space. Provision of guard room at every housing unit, academic building, important location needs to materialize.
- Go-down need to place at an isolated area.



- Existing Central Library will be redeveloped honoring the existing design unchanged.

#### Estimated Facility Needs:

- Renovation of second administrative office with modern facilities.
- Up graded quality and service of security and expansion of security office.
- Renovation of go-down in an isolated space.
- A modern medical center at existing transport service.

Existing and Proposed Administrative and Support Building's ID and Location are listed as below:

Table 5-24: Existing and proposed administrative and support building

Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Admin Support	AS01	Mid Term	02	Adjacent West Para Mosque
Central Cafeteria	CT01	Near Term Phase I	04	Adjacent Central Shaheed Minar
Helipad	HP01	Mid Term		Adjacent International Dormitory
Proposed Central Store House	CSH01	Near Term Phase I	02	Adjacent Station Market
Proposed Gymnasium & Swimming Pool	GSP01	Long Term	03	Adjacent Eastern side New Female Hall
Proposed 100 bed Hospital	MC01	Mid Term	05	Adjacent Binodpur Gate
Proposed Admin Support Building	AdB02	Near Term Phase I	10	Adjacent Suborno Joyonti Tower
Proposed Alumni Building	AluB01	Near Term Phase I	04	Adjacent Proposed Sheikh Russel Model School
Proposed Arts Museum	AM01	Mid Term	02	Adjacent Tukutaki Chottor
Proposed Science Museum	SM01	Long Term	03	On Proposed Science Lake
Proposed Faculty Club	FC01	Near Term Phase I	02	Adjacent Pro VC Residence
Proposed IT Park Building	ITB01	Mid Term	03	Adjacent University Graveyard
Proposed Press Building	PB01	Mid Term	03	Adjacent University Central Temple
Proposed TSC	TSC01	Near Term Phase I	04	Adjacent Kazi Nazrul Islam Auditorium
Redevelopment of Administrative Building	AdB01A	Near Term Phase II	10	Adjacent Zoha Chottor
Redevelopment of Administrative Building	AdB01B	Near Term Phase II	10	Adjacent Zoha Chottor
Reconstruction of Deans Complex	DC01	Near Term Phase I	06	Adjacent Tukitaki Chottor
Redevelopment of Central Library	CL01	Near Term Phase I	06	Adjacent Tukitaki Chottor
Renovation of Senate Building	SB01	Near Term Phase I	05	Adjacent Zoha Chottor
THM Multipurpose Center & Community Center	THMMC01	Near Term Phase I	10	Adjacent Zuberi Bhaban

Table 5-25: Proposed School and College

Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Sheikh Russel Model School	SRMS01	Near Term Phase I	04	Adjacent Kazla Gate
Rajshahi University College	CB01	Mid Term	05	Adjacent Kazla gate
Rajshahi University School	SB01	Mid Term	05	Adjacent Kazla Gate
Proposed Nursery School	NS01	Near Term Phase II	04	Adjacent West Para Teachers Housing
Proposed Nursery School	NS02	Long Term	04	Adjacent North Side Staff Housing
Proposed Nursery School	NS03	Mid Term	04	Adjacent East Para Staff Housing
Proposed Nursery School	NS04	Mid Term	04	Adjacent East Para Sweeper Colony

Table 5-26: Proposed Utility Buildings

Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Proposed Utility Building	UB01	Near Term Phase I	06	Adjacent Sher-E-Bangla Male Hall
Proposed Utility Building	UB02	Mid Term	06	Adjacent Station Market
Proposed Utility Building	UB03	Near Term Phase I	06	Adjacent Proposed Transport Complex nearby Main Entrance
Proposed Utility Building	UB04	Near Term Phase II	06	Adjacent Rajshahi University Central Mosque
Proposed Utility Building	UB05	Mid Term	06	Adjacent Rajshahi University Central Temple
Proposed Utility Building	UB06	Near Term Phase I	06	Adjacent Rajshahi University Central Stadium
Proposed Utility Building	UB07	Mid Term	06	Behind Rajshahi University Central Mosque
Proposed Utility Building	UB08	Long Term	06	Behind Rajshahi University Central Mosque
Proposed Utility Building	UB09	Near Term Phase I	06	Adjacent Station Market
Proposed Utility Building	UB10	Long Term	06	Adjacent Proposed Multistoried Parking Nearby Main Gate

Table 5-27: Proposed Religious Buildings

Proposal	Proposed ID	Phase Updated	Existing Location
Mosque Development	M01	Long Term	Adjacent Northern side Botanical Garden
Mosque Development	M02	Near Term Phase II	Adjacent Station Market
Mosque Development	M03	Mid Term	Adjacent Officers Housing East Para
Mosque Development	M04	Mid Term	Adjacent Binodpur Gate
Mosque Development	M05	Long Term	Adjacent New Gate at Eastern side



Proposal	Proposed ID	Phase Updated	Existing Location
Mosque Development	M06	Mid Term	Adjacent New Male Hall Eastern side
Mosque Development	M07	Mid Term	Adjacent Boddho Bhumi
Mosque Development	M08	Mid Term	Adjacent Central Stadium
Mosque Development	M09	Mid Term	Adjacent Habibur Rahman Field
Mosque Development	M10	Mid Term	Adjacent Proposed IT Park housing
Mosque Development	M11	Mid Term	Adjacent West Para Teachers Housing
Mosque Development	M12	Long Term	Adjacent Northern side New Academic Building
Mosque Development	M13	Long Term	Adjacent Agriculture Faculty
Mosque Development	M14	Long Term	Adjacent Kazla Gate
Mosque Development	M15	Mid Term	Central Mosque
Mosque Development	M16	Mid Term	Adjacent Botanical Garden
Temple Redevelopment	TB01	Mid Term	Existing Temple area

Table 5-28: Proposed Eco Food Court

Proposed Type	Proposed Sector	District Location	Existing Location
Eco Food Court	Administrative & Support Zone	Central District	Adjacent Dr. Muhammad Shahidullah Academic Building
Eco Food Court	Administrative & Support Zone	Central District	Adjacent Bangabandhu Complex
Eco Food Court	Administrative & Support Zone	Central District	Along Paris Road
Eco Food Court	Administrative & Support Zone	Central District	Adjacent Iblish Chottor
Eco Food Court	Administrative & Support Zone	Central District	Nearby Second Science Building
Eco Food Court	Administrative & Support Zone	West District	Nearby Third Science Building
Eco Food Court	Administrative & Support Zone	West District	Nearby Begum Rokeya Hall
Eco Food Court	Administrative & Support Zone	West District	In front of Monnujan Hall
Eco Food Court	Administrative & Support Zone	West District	Adjacent West Para Faculty Club
Eco Food Court	Administrative & Support Zone	West District	Adjacent West Para Teachers Housing
Eco Food Court	Administrative & Support Zone	North District	In front of Agriculture Faculty Building
Eco Food Court	Administrative & Support Zone	North District	Adjacent North-Western Side IT Park Residential Area
Eco Food Court	Administrative & Support Zone	North District	At North-Western Side Staff Housing
Eco Food Court	Administrative & Support Zone	East-Left District	Adjacent Shah Makhdum Hall
Eco Food Court	Administrative & Support Zone	Central District	Adjacent Habibur Rahman Hall Field
Eco Food Court	Administrative & Support Zone	East-Left District	In front of International Dormitory



Proposed Type	Proposed Sector	District Location	Existing Location
Eco Food Court	Administrative & Support Zone	East-Left District	Adjacent Bijoy Sagar at Eastern Side
Eco Food Court	Administrative & Support Zone	East-Right District	Adjacent Eastern Side New Academic Building
Eco Food Court	Administrative & Support Zone	East-Right District	Adjacent Eastern Side New Academic Building
Eco Food Court	Administrative & Support Zone	East-Right District	At Eastern Side New Male Hall

Table 5-29: Proposed Commercial Buildings

Proposal	Proposed ID	Proposed Storied	Phase Updated	Existing Location
Proposed Commercial Area	CA01	01	Near Term Phase I	Adjacent Tukitaki Chottor
Proposed Commercial Area	CA02	02	Near Term Phase I	Adjacent Station Market
Proposed Commercial Area	CA03	02	Near Term Phase II	Adjacent Station Market
Proposed Commercial Area	CA04	01	Near Term Phase II	Adjacent Iblish Chottor
Proposed Commercial Area	CA05	01	Mid Term	Adjacent Forth Science Building
Proposed Commercial Area	CA06	02	Near Term Phase I	Adjacent Proposed Bangabandhu Complex
Proposed Commercial Area	CA07	02	Near Term Phase I	Adjacent Proposed Bangabandhu Complex
Proposed Commercial Area	CA07	01	Near Term Phase II	Adjacent West Para Teachers Housing
Proposed Commercial Area	CA08	01	Mid Term	Adjacent East Para Sweeper Colony

Table 5-30: Proposed Community Centers

Proposal	Proposed ID	Phase Updated	Proposed Storied	Existing Location
Proposed Commercial Area with Community Center	CACC01	Near Term Phase II	10	Adjacent Kazla Gate
Proposed Commercial Area with Community Center	CACC02	Mid Term	10	Adjacent Binodpur Gate
Proposed Commercial Area with Community Center	CACC03	Long Term	10	Adjacent Meherchondi Bazar

Table 5-31: Proposed Security Building & Police Box

Proposal	Proposed ID	Proposed Storied	Phase Updated	Existing Location
Proposed Security Building/ Police Camp	PC01	02	Near Term Phase I	Adjacent Kazla Gate
Proposed Security Building/ Police Camp	PC02	02	Near Term Phase II	Adjacent Binodpur Gate
Proposed Police Box	PB01	01	Near Term Phase I	Adjacent Main Gate
Proposed Police Box	PB02	01	Near Term Phase II	Adjacent Fine Arts Building

Proposal	Proposed ID	Proposed Storied	Phase Updated	Existing Location
Proposed Police Box	PB03	01	Near Term Phase I	Adjacent Boddho Bhumi
Proposed Police Box	PB04	01	Long Term	Adjacent Main Gate of Eastern Side
Proposed Police Box	PB05	01	Near Term Phase II	Adjacent Binodpur Gate
Proposed Police Box	PB06	01	Long Term	Adjacent University Graveyard
Proposed Police Box	PB07	01	Mid Term	Adjacent Botanical Garden
Proposed Police Box	PB08	01	Near Term Phase II	Adjacent Station Market
Proposed Police Box	PB09	01	Near Term Phase II	Adjacent IT Park Staff Housing

Table 5-32: Proposed Information Booth &amp; Support Center

Proposal	Proposed ID	Proposed Storied	Phase Updated	Existing Location
Proposed Information Booth & Support Center	IC01	02	Near Term Phase I	Adjacent Kazla Gate
Proposed Information Booth & Support Center	IC02	02	Near Term Phase I	Adjacent Main Gate
Proposed Information Booth & Support Center	IC03	02	Near Term Phase II	Adjacent Binodpur Gate
Proposed Information Booth & Support Center	IC04	02	Long Term	Adjacent New Gate at Eastern Side

## 5.8 Conservation Zone and Open Space Green Buffer

Conservation and Open Space Green Buffer covers vast Open Space & Recreational area, Water Bodies, Botanical Garden, Mango Grave, Fruits Gardens, Agriculture Area, Historic & Tourist Site and Defense and restricted area. Water based recreational area, Monuments; etc. has been included in this use. Rajshahi University has large mango groves which need to conserve. Due to considered as weather sustained tree, mango grove will be properly maintained in university campus area. Green buffer and Sports zone will create a distance of the main cluster from the noisy highway. Proposed conservation zone covers 150 acres of land and Open Space Green Buffer covers 215.88 acres for Rajshahi University.

### Hierarchy of Open Space in the Campus-

1. University Level Open Space-Botanical Garden, University Center/ Central Space, Central Field, Stadium Area, Boddhobhumi Area, Eastern Park and lake based recreational area.
2. District Level Open Space- Open Space Green Buffer, Mango groves, Research Field
3. Neighborhood level open space- Neighborhood Park, Outdoor Space or Plazas in the zones, Academic assembly space
4. Housing Cluster Level open space- Playground, Residential Courtyard
5. Play lots

### Qualitative Summary:

- Need to improve existing facilities
- Decorate the existing playground, play field, park with modern facilities
- Provision of university swimming complex for teachers, students, staff
- Provision of separated gymnasium for teachers, students and staff by keeping opposite male and female population in different block or floor.

### Quantitative Summary:

- Space for modern facilities installation around the amusement park, playground, playfield.
- Space for swimming pool, gymnasium.

### New Initiatives & Space Drivers:

- Swimming complex and gymnasium will be located near to teachers housing, staff housing and students housing.
- Existing playground, play field, Neighborhood Park need to upgrade in quality.

### Estimated Facility Needs:

- An international cricket stadium.
- Gymnasium and Swimming Complex for teachers, staff, students.
- Playground, Play field, Amusement Park with modern facilities.

**Table 5-33: Proposed Neighborhood Parks**

Proposed Park	Proposed ID	Existing Location	Phase Update	Remarks
Neighborhood Park	NP01	Adjacent Central Shaheed Minar	Near Term Phase I	Proposed
Neighborhood Park	NP02	Adjacent East Para Sweeper Colony	Near Term Phase I	Proposed
Neighborhood Park	NP03	Adjacent East Para Teachers Housing	Near Term Phase I	Proposed
Neighborhood Park	NP04	Adjacent Central Stadium	Near Term Phase I	Proposed
Neighborhood Park	NP05	Adjacent Central Stadium	Near Term Phase I	Proposed
Neighborhood Park	NP06	Adjacent East Para Sweeper Colony	Near Term Phase I	Proposed
Neighborhood Park	NP07	Adjacent West Para Teachers Housing	Near Term Phase I	Proposed
Neighborhood Park	NP08	Adjacent West Para Officers Housing	Near Term Phase I	Proposed
Neighborhood Park	NP09	Adjacent Staff Housing of Northern Area	Mid Term	Proposed
Neighborhood Park	NP10	In front of Rokeya Hall at West Para	Mid Term	Proposed
Neighborhood Park	NP11	Adjacent East Para Sweeper Colony	Mid Term	Proposed



Proposed Park	Proposed ID	Existing Location	Phase Update	Remarks
Neighborhood Park	NP12	Adjacent East Sweeper Colony	Mid Term	Proposed
Neighborhood Park	NP13	Adjacent West Para officers Housing	Mid Term	Proposed
Neighborhood Park	NP14	Adjacent Rajshahi University Boddho Bhumi	Near Term Phase II	Proposed
Neighborhood Park	NP15	Adjacent Rajshahi University Boddho Bhumi	Near Term Phase II	Proposed
Neighborhood Park	NP16	Adjacent Rajshahi University Boddho Bhumi	Near Term Phase II	Proposed
Neighborhood Park	NP17	Adjacent University Graveyard	Long Term	Proposed
Neighborhood Park	NP18	Infront of Zuberi Bhaban	Mid Term	Proposed
Neighborhood Park	NP19	Adjacent Teachers Housing at West Para	Mid Term	Proposed
Neighborhood Park	NP20	Adjacent Boddho Bhumi Rajshahi University	Near Term Phase II	Proposed

Table 5-34: Proposed Plaza & Gathering Area

Proposed Type	Proposed Use	Proposed ID	Faculty Zone
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_01	Faculty of Arts
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_02	Faculty of Arts
Green Plaza	Conservation and Recreational Use	Plaza_03	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_04	Faculty of Social Science
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_05	Faculty of Engineering
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_05	Faculty of Science
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_06	Faculty of Engineering
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_07	Faculty of Science
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_08	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_09	Faculty of Science
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_10	Faculty of Engineering
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_11	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_12	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_13	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_14	Faculty of Law

Proposed Type	Proposed Use	Proposed ID	Faculty Zone
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_15	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_16	Faculty of Arts
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_17	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_18	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_19	Faculty of Engineering
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_20	Faculty of Engineering
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_21	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_22	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_23	Faculty of Law
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_24	Faculty of Science
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_25	Faculty of Science
Proposed Plaza & Gathering Area	Conservation and Recreational Use	Plaza_26	Faculty of Law

Table 5-35: Proposed Playground

Proposal	Proposed ID	Phase Updated	Existing Location
Playground	PG01	Near Term Phase I	Adjacent Officers Housing at West Para
Playground	PG02	Near Term Phase I	Adjacent Male Hall East Para
Playground	PG03	Near Term Phase I	Adjacent Male Hall East Para
Playground	PG04	Near Term Phase I	Adjacent Teachers Housing at West Para
Playground	PG05	Near Term Phase I	Adjacent Sher-E-Bangla Male Hall
Playground	PG06	Near Term Phase I	Adjacent Female Hall at East Para
Playground	PG07	Near Term Phase I	Adjacent Female Hall West Para
Playground	PG08	Near Term Phase I	Adjacent Female Hall West Para
Playground	PG09	Near Term Phase I	Adjacent Female Hall West Para
Playground	PG10	Near Term Phase I	Adjacent New Sheikh Russel Model School
Playground	PG11	Near Term Phase I	Adjacent Zuberi Bhaban
Playground	PG12	Near Term Phase I	Adjacent Shahid Tajuddin Ahmed Senate Building
Playground	PG13	Near Term Phase I	Adjacent East Para Sweeper Colony
Playground	PG14	Near Term Phase I	Adjacent East Para Teachers Housing
Playground	PG15	Near Term Phase II	Adjacent East Para Male Hall
Playground	PG16	Near Term Phase II	Adjacent Iblish Chottor
Playground	PG17	Mid Term	Adjacent Male Hall East Para
Playground	PG18	Mid Term	Adjacent West Para Teachers Housing
Playground	PG19	Mid Term	Adjacent International Dormitory



Proposal	Proposed ID	Phase Updated	Existing Location
Playground	PG20	Mid Term	Adjacent Teachers Housing nearest University Medical Canter
Playground	PG21	Mid Term	Adjacent Female Hall at West Para
Playground	PG22	Mid Term	Adjacent Shahid Sohrwardi Hall
Playground	PG23	Mid Term	Adjacent Baddho Bhumu at Eastern Side
Playground	PG24	Mid Term	Adjacent Shahid Ziaur Rahman Hall
Playground	PG25	Near Term Phase II	Adjacent 4th Science Building
Playground	PG26	Long Term	Adjacent Female Hall at East Para
Playground	PG27	Near Term Phase I	Adjacent 10 Storied New Academic Building
Playground	PG28	Near Term Phase II	Adjacent Rajshahi University School and College
Playground	PG29	Long Term	Adjacent Male Hall at East Para

Table 5-36: Proposed Play lot

Proposal	Proposed ID	Phase Updated	Existing Location
Play lot	PL01	Near Term Phase I	At East Para
Play lot	PL02	Mid Term	At West Para
Play lot	PL03	Near Term Phase I	At West Para
Play lot	PL04	Near Term Phase I	Adjacent Zuberi Bhaban
Play lot	PL05	Near Term Phase II	At West Para
Play lot	PL06	Near Term Phase I	At East Para Sweeper Colony
Play lot	PL07	Near Term Phase I	Adjacent University Graveyard
Play lot	PL08	Near Term Phase I	Adjacent West Para Teachers Housing
Play lot	PL09	Near Term Phase II	At West Para Adjacent Teachers Housing
Play lot	PL10	Near Term Phase II	At Eastern side Sweeper Colony
Play lot	PL11	Near Term Phase II	Adjacent North Side Staff Quarter
Play lot	PL12	Mid Term	Adjacent West Side Teachers Quarter
Play lot	PL13	Mid Term	Adjacent North District Staff Quarter
Play lot	PL14	Mid Term	Adjacent North Side Staff Housing
Play lot	PL15	Near Term Phase II	Adjacent Officers Housing at East Para
Play lot	PL16	Mid Term	Adjacent Staff Housing at Eastern Side Area
Play lot	PL17	Mid Term	Adjacent IT Park Staff Housint at North District
Play lot	PL18	Mid Term	Adjacent Central Mosque Staff Housing
Play lot	PL19	Long Term	Adjacent Teachers Housing at West District
Play lot	PL20	Long Term	Adjacent Teachers Housing at West District
Play lot	PL21	Long Term	Adjacent Teachers Housing at West District
Play lot	PL22	Long Term	Adjacent Officers Housing at East Para
Play lot	PL23	Long Term	Adjacent IT Park Officers Housing at North Side

Table 5-37: Proposed Tennis Court

Proposal	Proposed ID	Phase Updated	Existing Location
Proposed Tennis court	TC01	Near Term Phase II	Adjacent Sher-E-Bangla Hall
Proposed Tennis court	TC02	Near Term Phase II	Adjacent Nawab Abdul Latif Hall
Proposed Tennis court	TC03	Mid Term	Adjacent Shahid Ziaur Rahman Hall



Proposal	Proposed ID	Phase Updated	Existing Location
Proposed Tennis court	TC04	Mid Term	Adjacent Madar Baksh Hall
Proposed Tennis court	TC05	Mid Term	Adjacent Begim Rokeya Hall
Proposed Tennis court	TC06	Mid Term	Adjacent Monnujan Hall
Proposed Tennis court	TC07	Mid Term	Adjacent Taposhi-Rabeya Hall
Proposed Tennis court	TC08	Mid Term	Adjacent Teachers Housing
Proposed Tennis court	TC09	Long Term	Adjacent Eastern side Male Hall

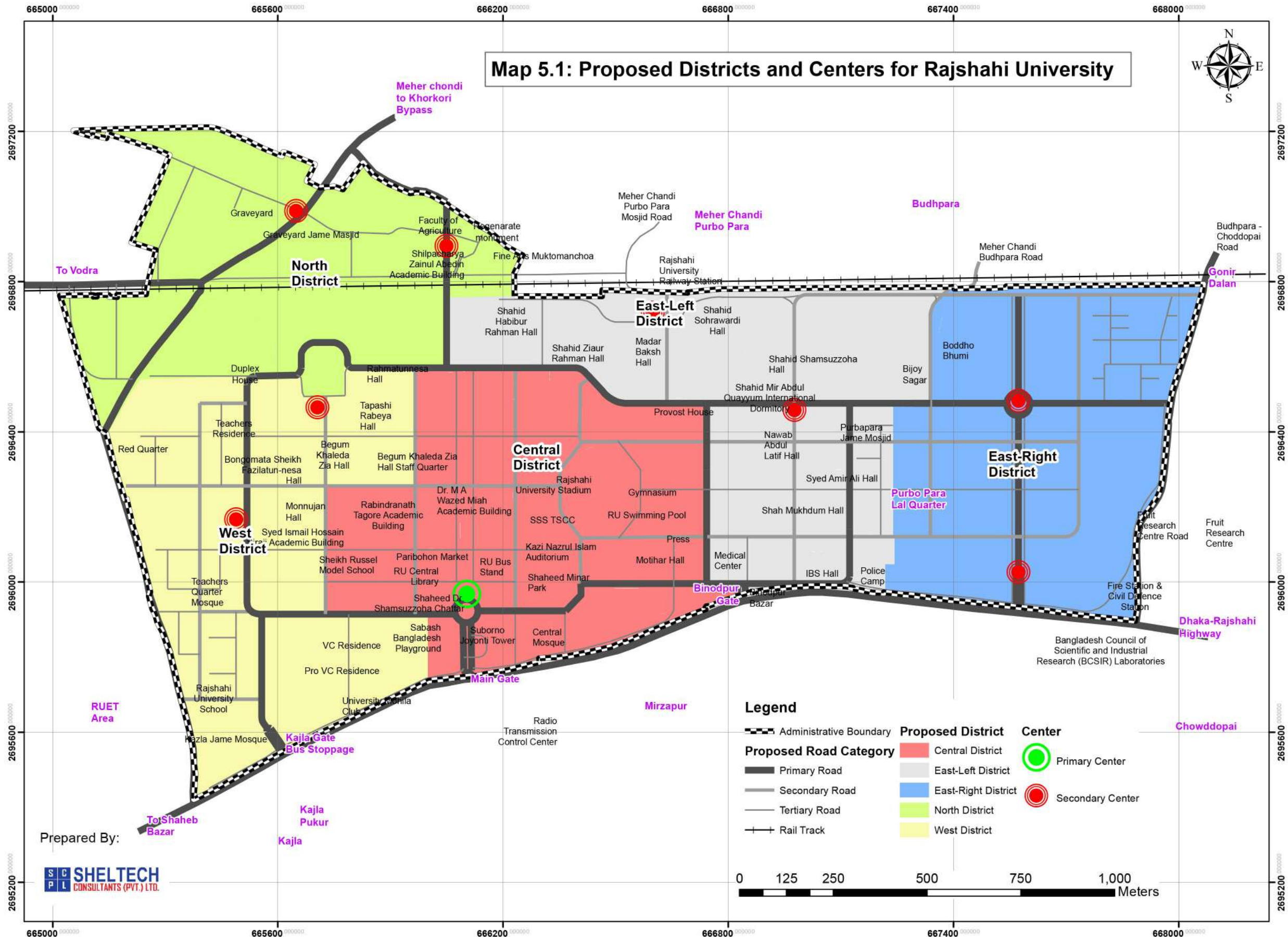
**Table 5-38: Proposed Basketball Ground**

Proposal	Proposed ID	Phase Updated	Existing Location
Basketball Ground	BBG01	Mid Term	Adjacent Sher-E-Bangla Hall
Basketball Ground	BBG02	Near Term Phase II	Adjacent International Dormitory
Basketball Ground	BBG03	Near Term Phase II	Adjacent Shahmukhdum Hall
Basketball Ground	BBG04	Long Term	Adjacent Ziaur Rahman Hall
Basketball Ground	BBG05	Mid Term	Adjacent Madar Baksh Hall
Basketball Ground	BBG06	Mid Term	Adjacent Begum Rokeya Hall
Basketball Ground	BBG07	Mid Term	Adjacent Monnujan Hall
Basketball Ground	BBG08	Mid Term	Adjacent Taposhi Rabeya Hall
Basketball Ground	BBG09	Mid Term	Adjacent West Para Teachers Quartar
Basketball Ground	BBG10	Long Term	Adjacent West Para Male Hall

**Table 5-39: Proposed Community Space**

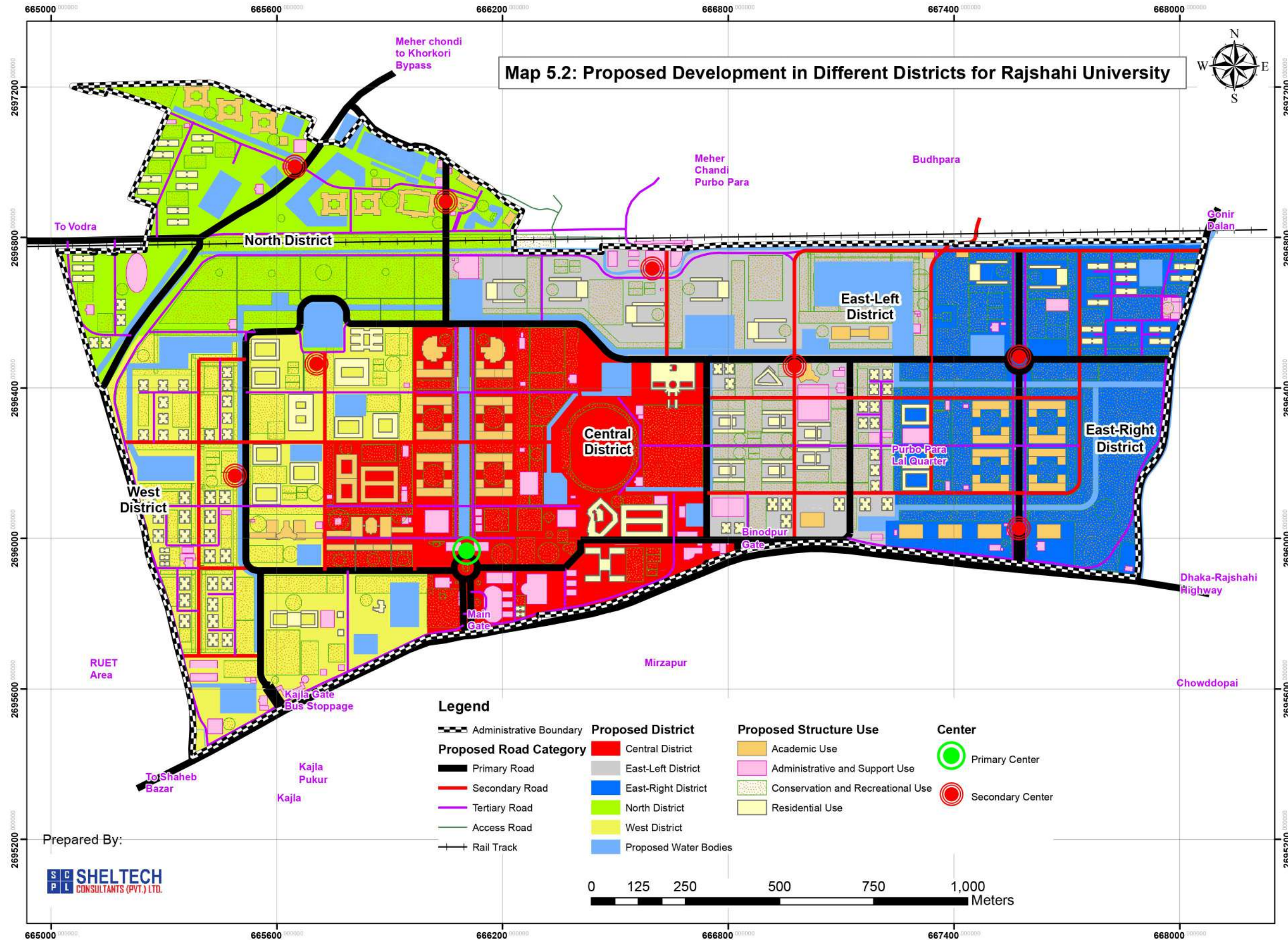
Proposal	Proposed ID	Phase Updated	Existing Location
Proposed Community Space	CS01	Near Term Phase I	Adjacent New Female Hall at Eastern Side
Proposed Community Space	CS02	Long Term	Adjacent Eastern Side Male Hall
Proposed Community Space	CS03	Long Term	Adjacent Female Hall at Eastern Side
Proposed Community Space	CS04	Near Term Phase II	Adjacent East Para Officers Housing
Proposed Community Space	CS05	Near Term Phase II	Adjacent Eastern side Sweeper Colony
Proposed Community Space	CS06	Long Term	Adjacent University Graveyard

Map 5.1: Proposed Districts and Centers for Rajshahi University



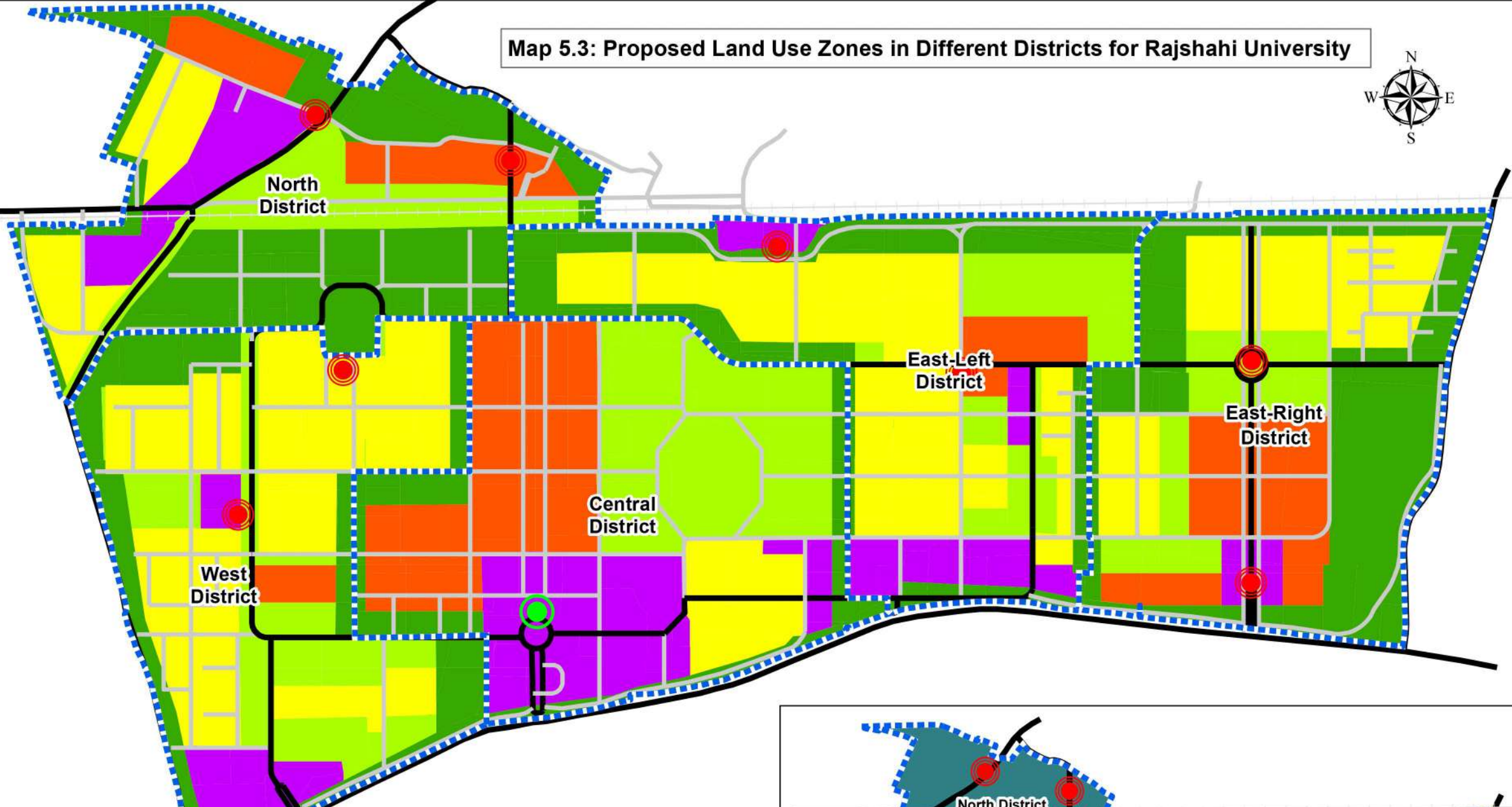


Map 5.2: Proposed Development in Different Districts for Rajshahi University





Map 5.3: Proposed Land Use Zones in Different Districts for Rajshahi University



### Legend

#### Center

- Primary Center
- Secondary Center

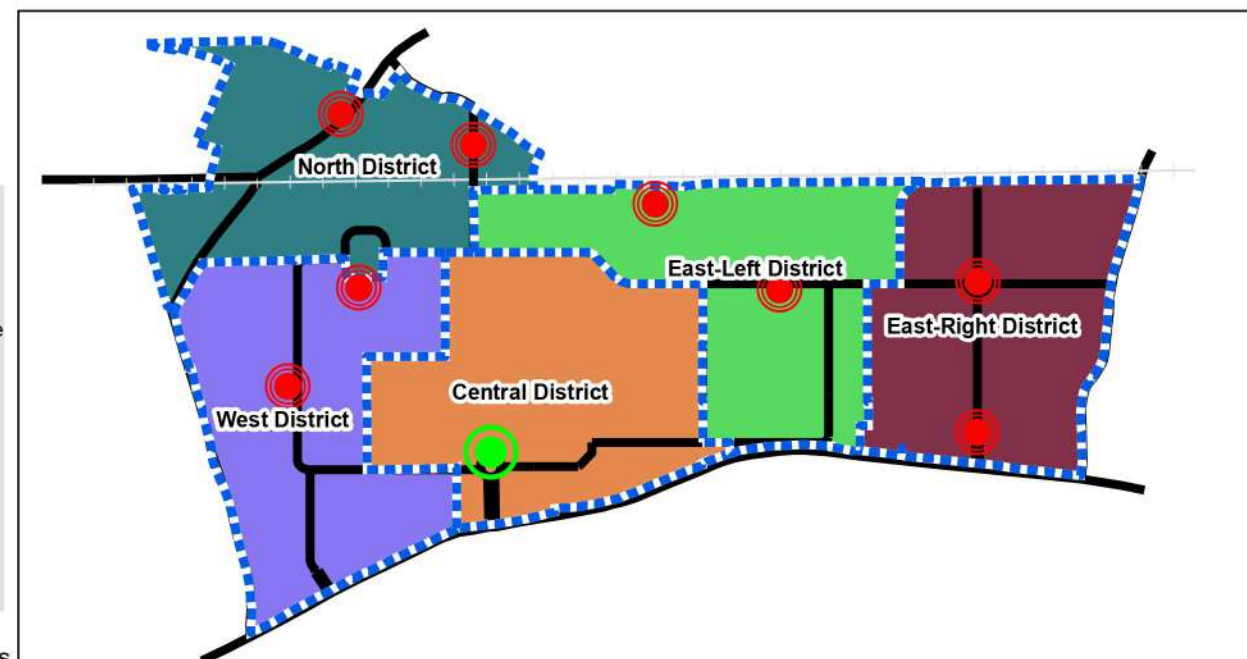
#### University District Boundary

#### Road Category

- Primary Road
- Other Road
- Rail Track

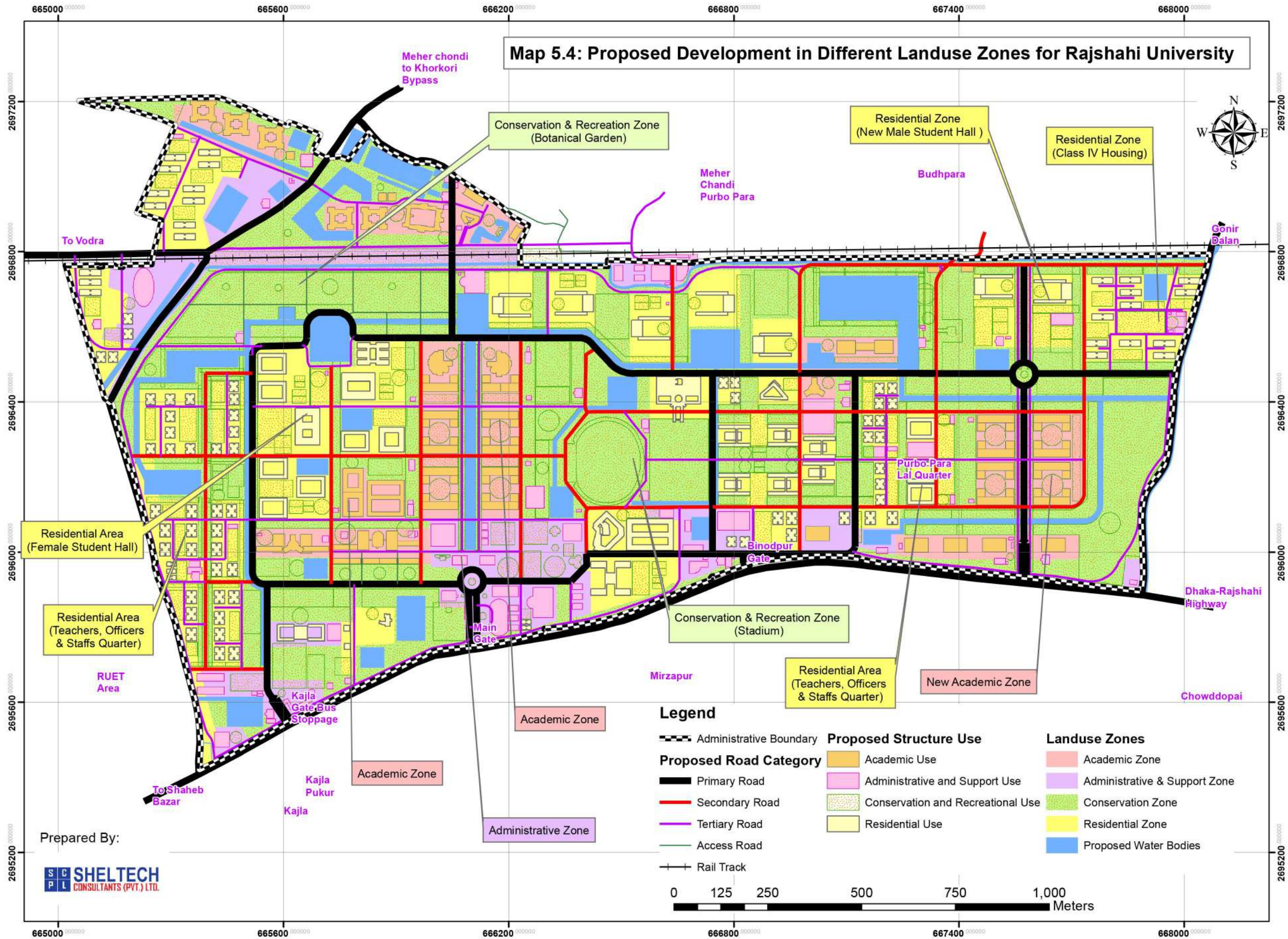
#### Land Use Zones

- Academic Zone
- Administrative & Support Zone
- Conservation Zone
- Open Space Green Buffers
- Residential Zone



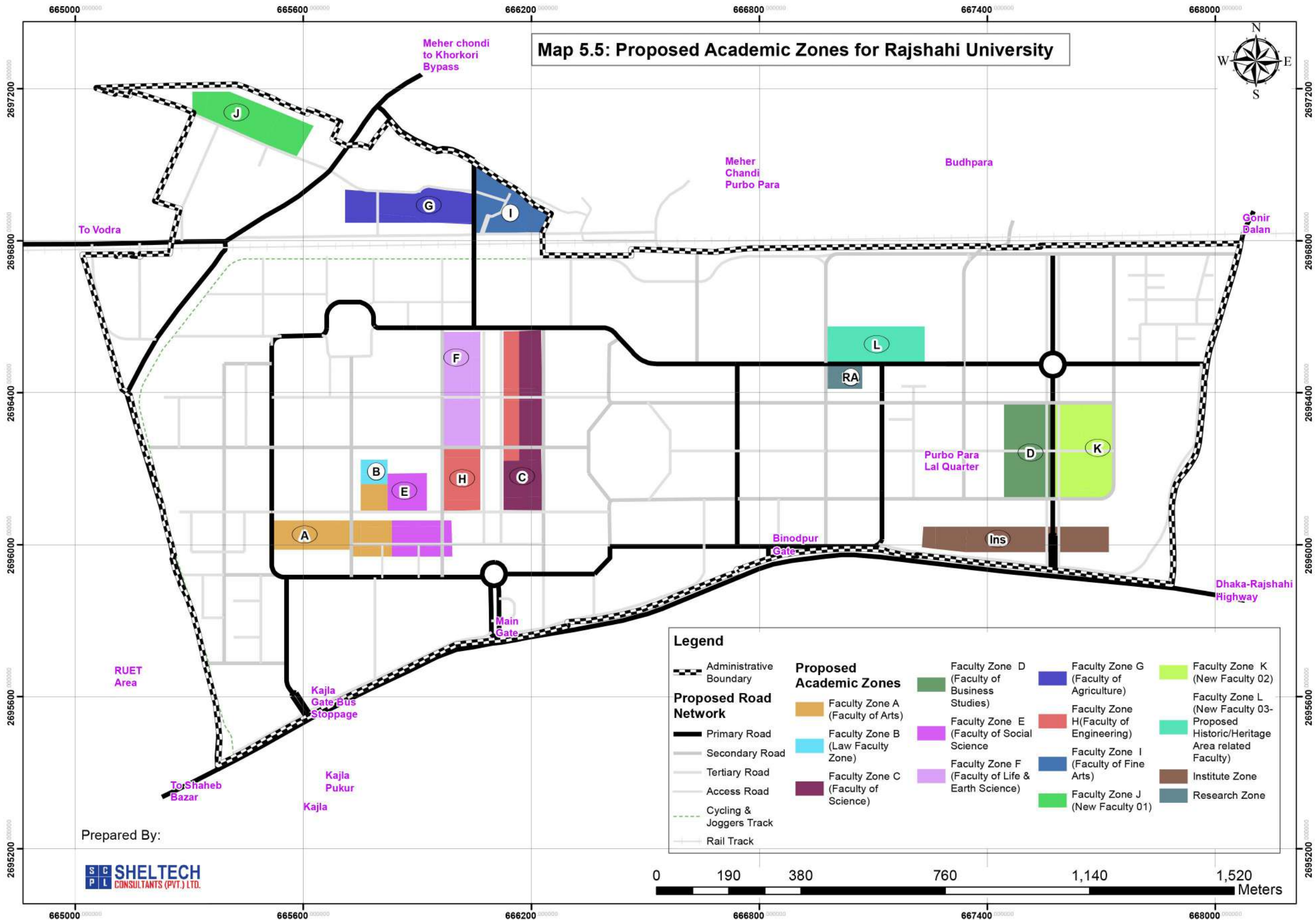


Map 5.4: Proposed Development in Different Landuse Zones for Rajshahi University



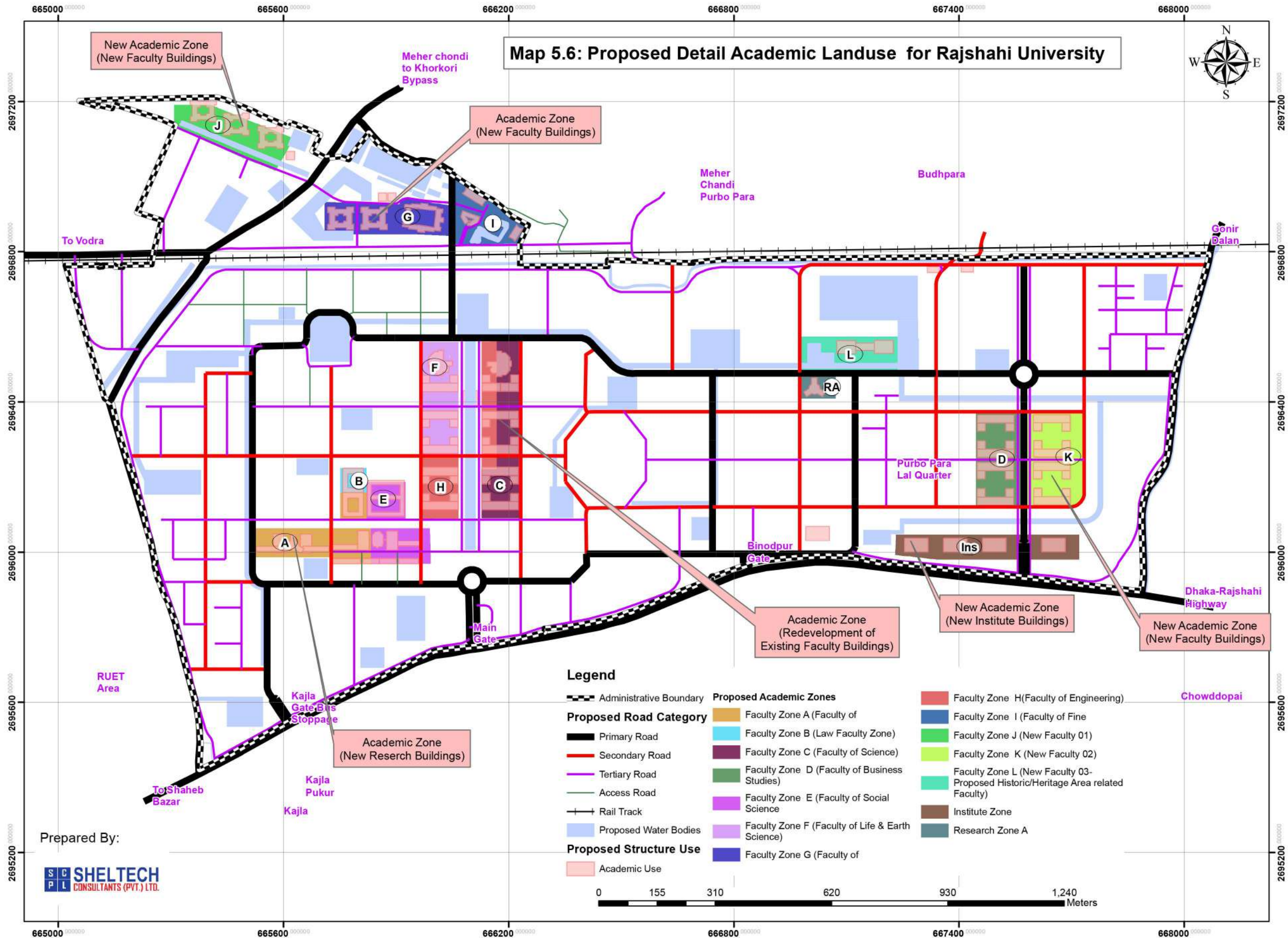


Map 5.5: Proposed Academic Zones for Rajshahi University



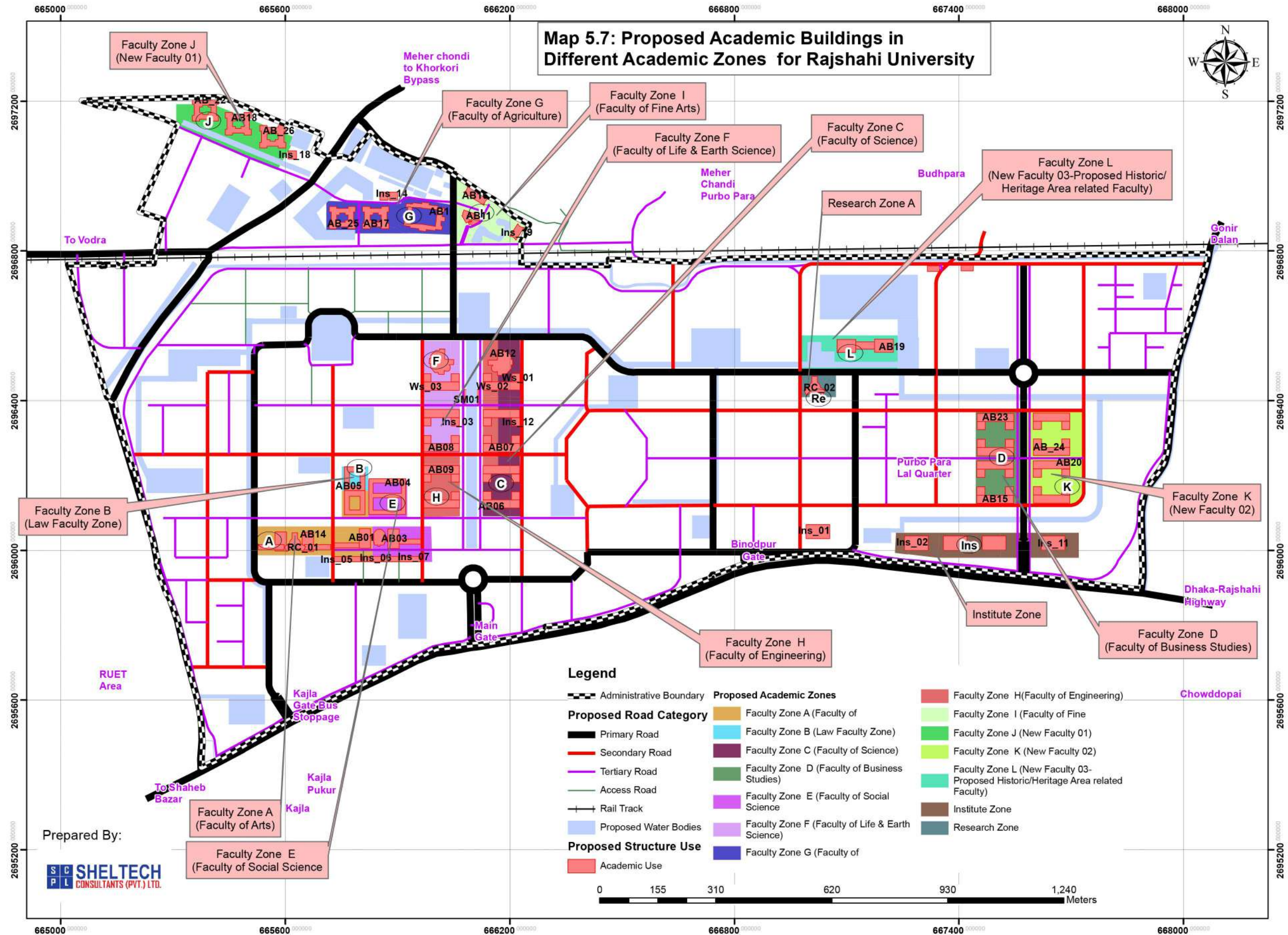


Map 5.6: Proposed Detail Academic Landuse for Rajshahi University



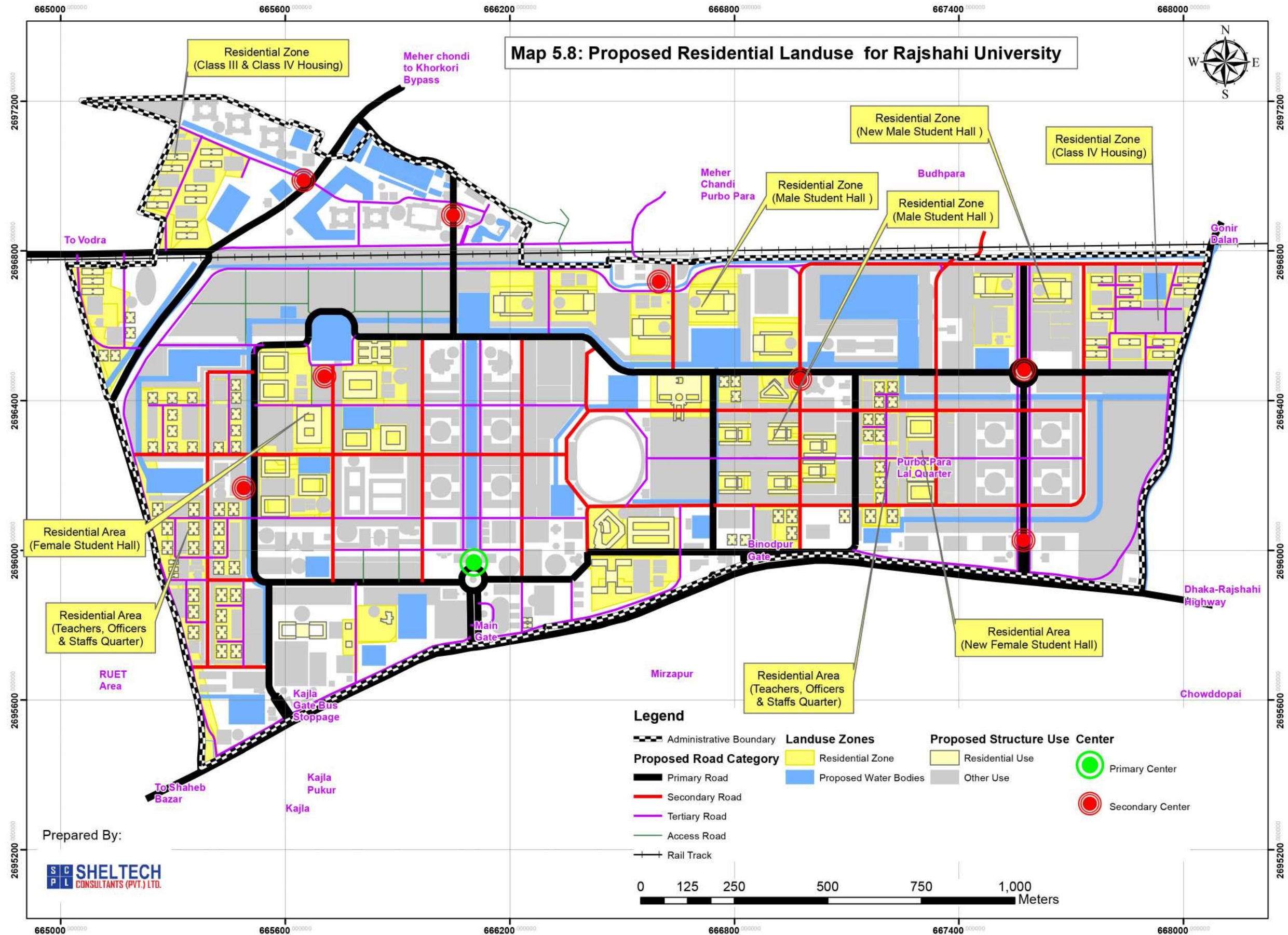


Map 5.7: Proposed Academic Buildings in Different Academic Zones for Rajshahi University



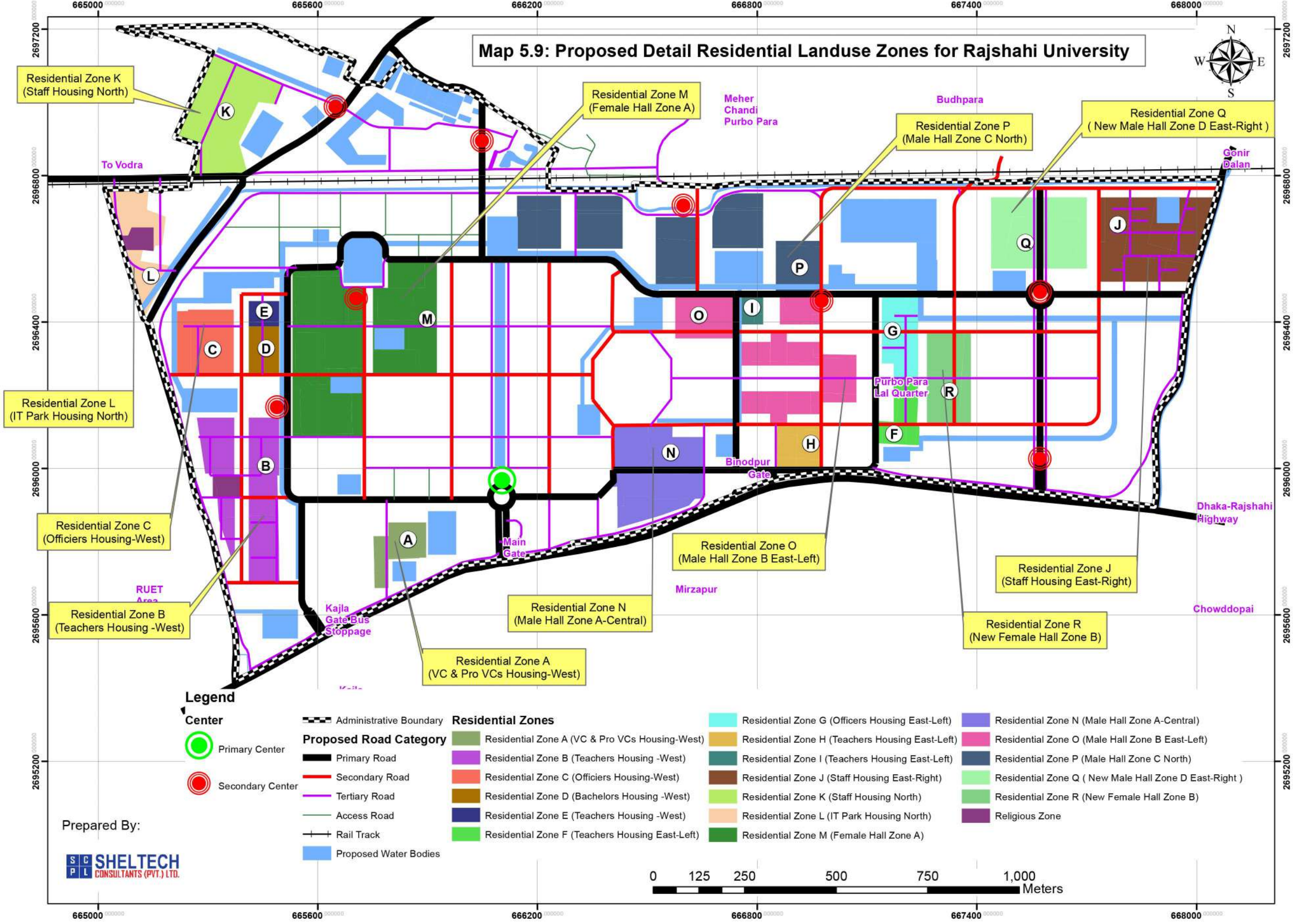


Map 5.8: Proposed Residential Landuse for Rajshahi University



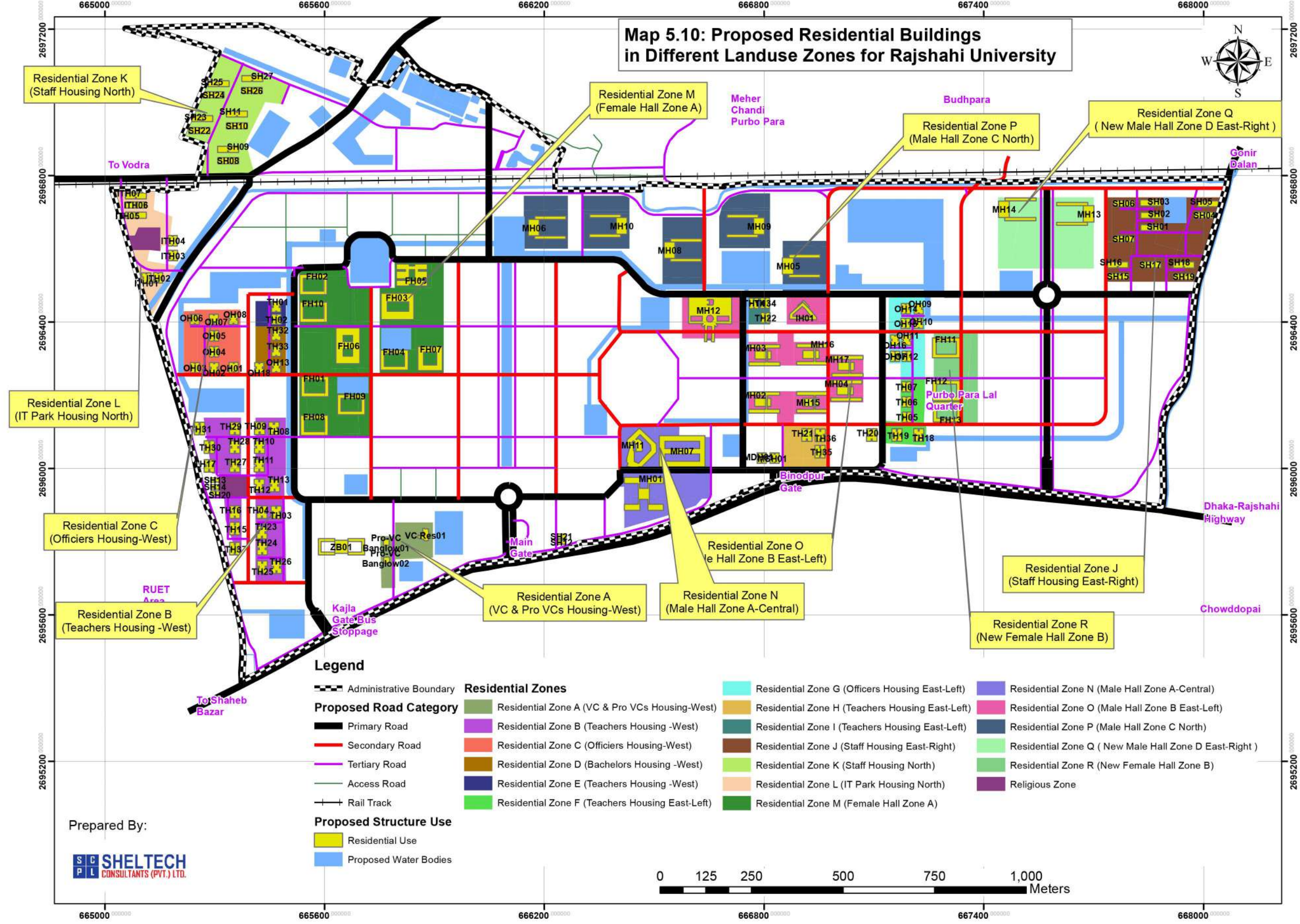


Map 5.9: Proposed Detail Residential Landuse Zones for Rajshahi University





Map 5.10: Proposed Residential Buildings in Different Landuse Zones for Rajshahi University



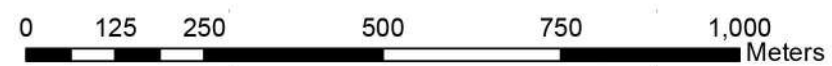
Legend

- Administrative Boundary
- Proposed Road Category
  - Primary Road
  - Secondary Road
  - Tertiary Road
  - Access Road
  - Rail Track
- Proposed Structure Use
  - Residential Use
  - Proposed Water Bodies

Residential Zones

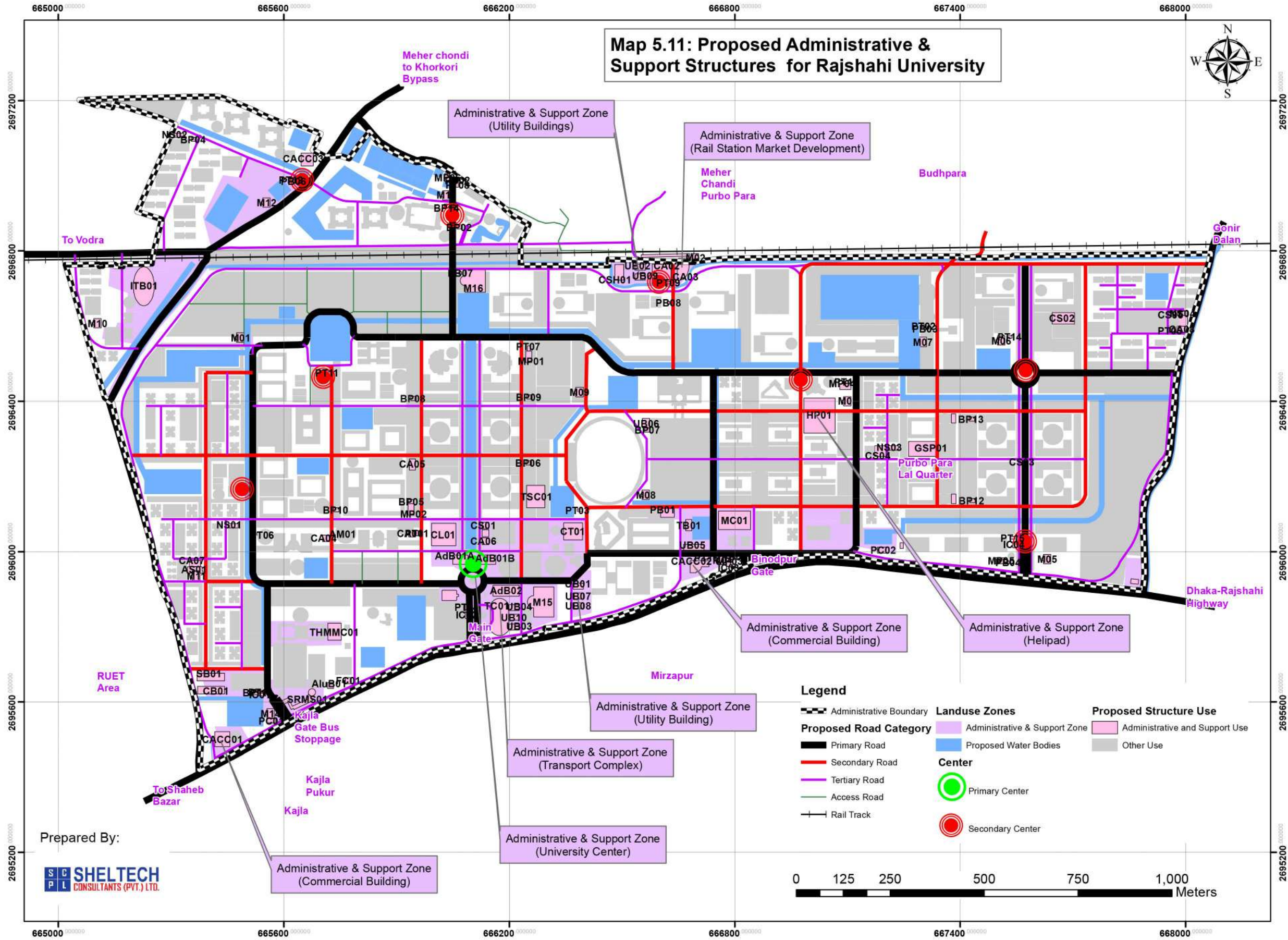
- Residential Zone A (VC & Pro VCs Housing-West)
- Residential Zone B (Teachers Housing -West)
- Residential Zone C (Officers Housing-West)
- Residential Zone D (Bachelors Housing -West)
- Residential Zone E (Teachers Housing -West)
- Residential Zone F (Teachers Housing East-Left)
- Residential Zone G (Officers Housing East-Left)
- Residential Zone H (Teachers Housing East-Left)
- Residential Zone I (Teachers Housing East-Left)
- Residential Zone J (Staff Housing East-Right)
- Residential Zone K (Staff Housing North)
- Residential Zone L (IT Park Housing North)
- Residential Zone M (Female Hall Zone A)
- Residential Zone N (Male Hall Zone A-Central)
- Residential Zone O (Male Hall Zone B East-Left)
- Residential Zone P (Male Hall Zone C North)
- Residential Zone Q (New Male Hall Zone D East-Right)
- Residential Zone R (New Female Hall Zone B)
- Religious Zone

Prepared By:



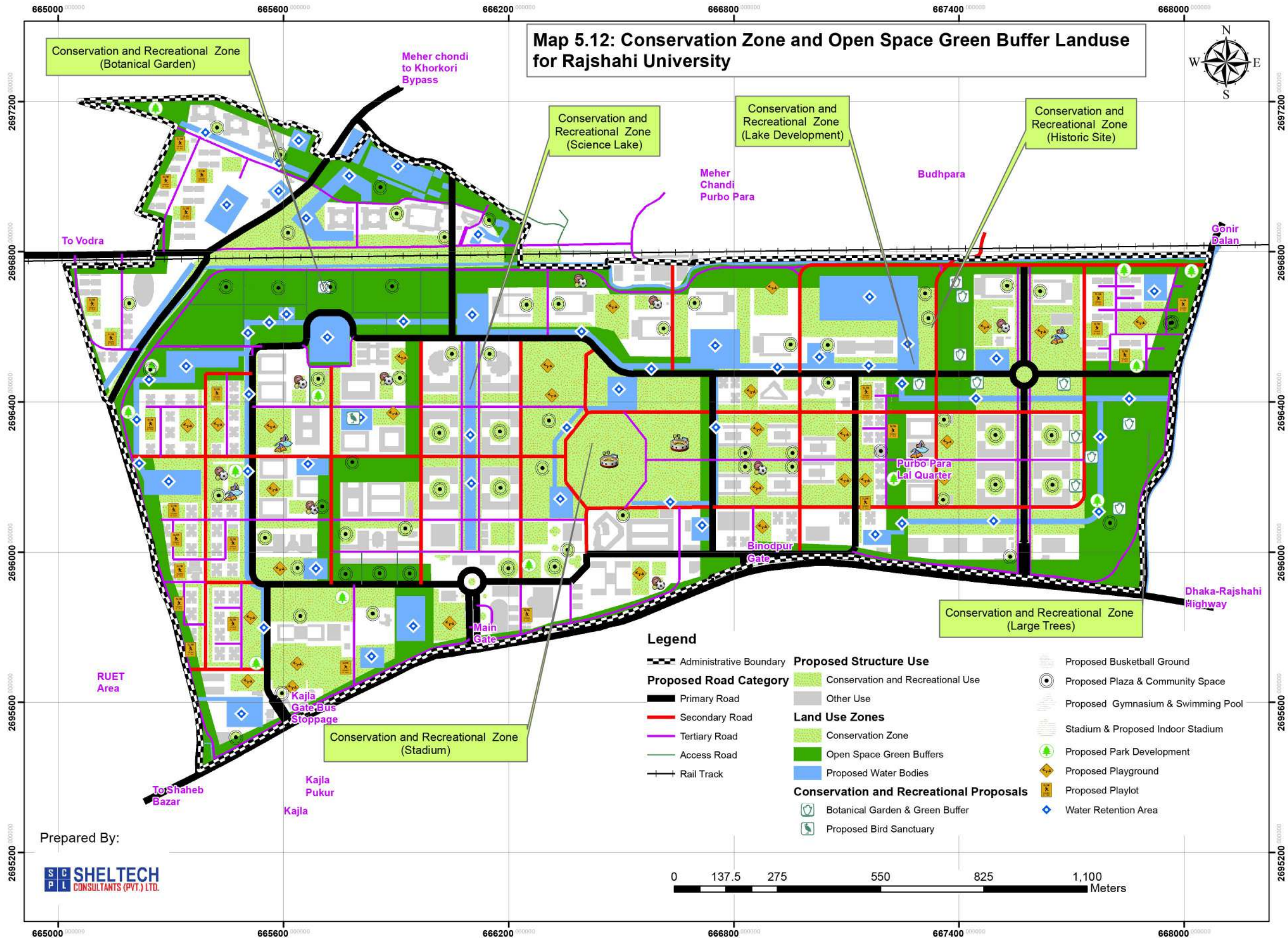


**Map 5.11: Proposed Administrative & Support Structures for Rajshahi University**





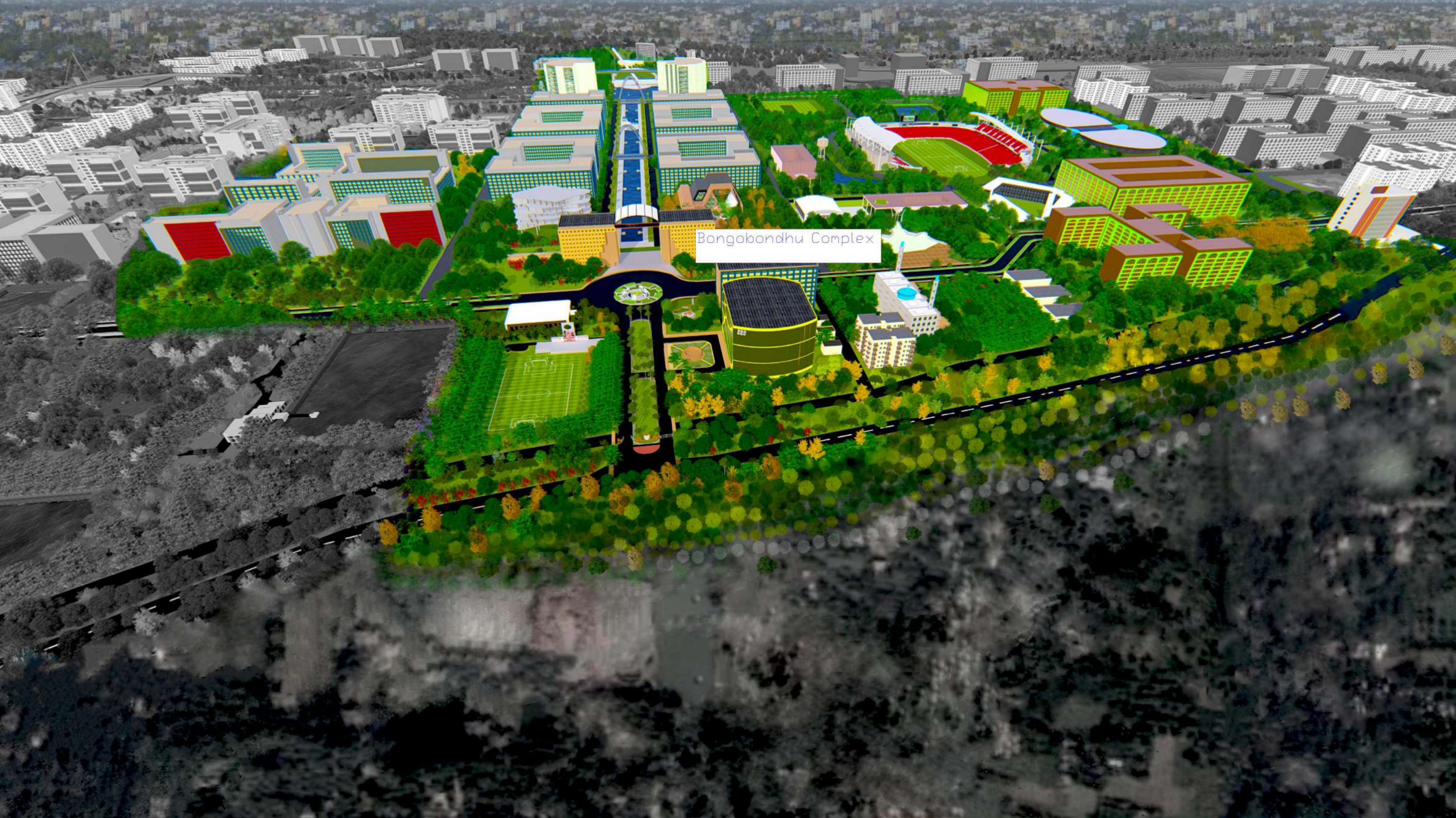
**Map 5.12: Conservation Zone and Open Space Green Buffer Landuse for Rajshahi University**































## Chapter Six

### Transport Development Plan



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## CHAPTER SIX

### TRANSPORT DEVELOPMENT PLAN

#### 6.1 Introduction

The Transport Development Plan supports the evolution of Rajshahi University in becoming an accessible, multi-modal place that signifies the pedestrian's priority, "pedestrian first". Multiple modes are designed to increase connectivity with the surrounding community and to create a walk environment. A clear hierarchy and function for streets is presented in the Transport Development Plan with these objectives in mind.

A comprehensive transportation study was undertaken to investigate the existing transportation infrastructure, transportation modes and modal share scenario, identify problems and to estimate the anticipated transportation needs of the proposed project area up to the year 2070. The major phases of the study were the determination of the present travel patterns and the characteristics of facilities, forecasting future travel conditions, development of a transportation plan, could be staged to meet the transportation needs of the project area during the next quarter century.

#### 6.2 Existing Transportation System

The transportation of Rajshahi University depends on roadways and railway. The roads and railways are the main backbone of the university. It stimulates the economy and daily life of the university. University owned buses are available for the students, teachers and staffs. There are two bus stops, Kazla Gate and Binodpur Gate exist near the university. But there is no designated bus bay adjacent to University. The bus stops are not safe, healthy and hygiene. Intercity bus service has ticket selling offices in the university area. The University Railway Station lacks all modern facilities and no intercity rail stopped here. All commuters have to travel Rajshahi railway station for intercity services. So, the University lacks all type of modern public transport services like bus or train.

The Consultants has already carried out physical feature survey. During physical feature survey detail information of road features has been collected. During survey it is found that total road length is 42.74 kilometers. There are wide ranges of vehicles in the transport office which are distributed for different purposes.

Table 6-1: Existing Vehicle Type and Numbers

Vehicle Type	Number	User
Bus	5	Teachers and Officers
	4	Teachers, Officers, Female Student
	3	Female Student
	3	Combine
	11	Male Student
	1	Students for Narikelbaria
Car	3	Teachers, Officers
Microbus	14	Teachers, Officers, Engineering Offices, Students, Administrative offices
Ambulance	5	
Zeep	2	
Pick-Up	1	

Table 6-2: Type Wise Road Length

Road Type	Length (Kilometer)
Access	18.68
Footpath	0.28
Primary	5.53
Secondary	10.00
Tertiary	8.24
Grand Total	42.74

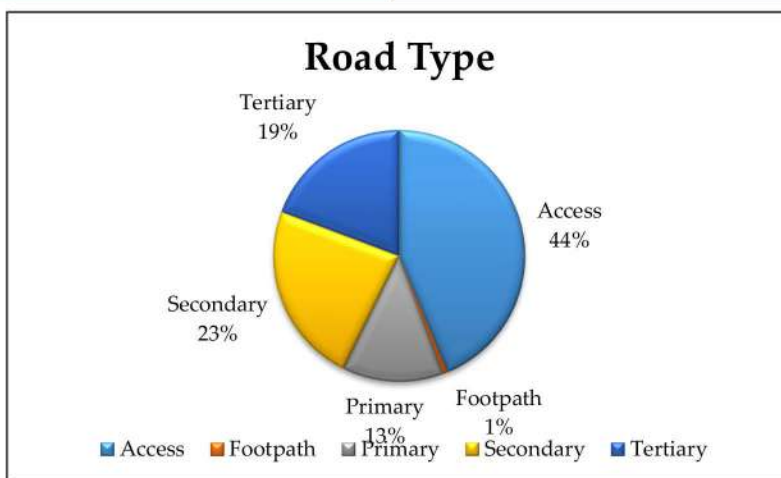


Figure 6-1: Road Type in Rajshahi University

### 6.2.1 Mode of transport

The mode of transport of this university is both motorized and non-motorized. Most of the people of the university commute by Bicycle, Rickshaw, Auto Rickshaw and



university Buses. Major goods transportation is made by truck, pick-up for long distance traffic. Students come to the university from Rajshahi city and its surrounding area by Rickshaw and Auto Rickshaw. A few numbers of shuttle train hold at University Railway Station. But those train services are not shuttle services like other universities. No intercity train stopped in this Rajshahi University railway station.

Buses are found in Rajshahi city in various locations with a fixed route. Stoppages for the Bus services are found in the location of Rajshahi Court, Bollobgonj, Lakshmipur, Naodapara, Oloka more, C & B morr and some of the most vital locations.

**Table 6-3: Vehicles Scenario in University Campus**

Route Name	Time Interval						Peak Hour Volume (V)
	08:00-09:00 AM	09:00-10:00 AM	12:30-01:30 PM	01:30-02:30 PM	04:30-05:30 PM	05:30-06:30 PM	
Rajshahi University Main Entrance	258	561	310	357	347	305	561
Kazla Gate to Paris Road	392	559	534	517	336	293	559
Paris Road	394	545	624	590	503	473	624
Besides Matihar Hall Road (South Side)	147	86	147	120	85	107	147
Medical Center Road	181	220	221	208	177	262	262
Adjacent kazi Nazrul Islam Auditorium Road	141	357	293	270	209	134	357
Paris Road to Monnujan Hall Road	377	445	467	549	252	460	549
Adjacent Siraji Bhaban Road	307	308	513	213	127	129	513
In front of Zia Hall Road	196	325	298	408	131	116	408
Road between Agricultural Faculty and Fine Arts Building	237	574	261	282	212	117	574
West Para Teachers Dormitory Road							107

### 6.2.2 Traffic Volume

The traffic volume count Survey is designed using five bar gate method to determine total volume of each mode of traffic plying in the pre-selected route. For these purposes appropriate prescribed forms earlier supplied by LGED has been used. The prescribed forms have been exclusively used to cover all modes of Traffic plying from different directions. There are eleven numbers of enumerators have been engaged for the purpose at eleven crucial spots earlier selected.

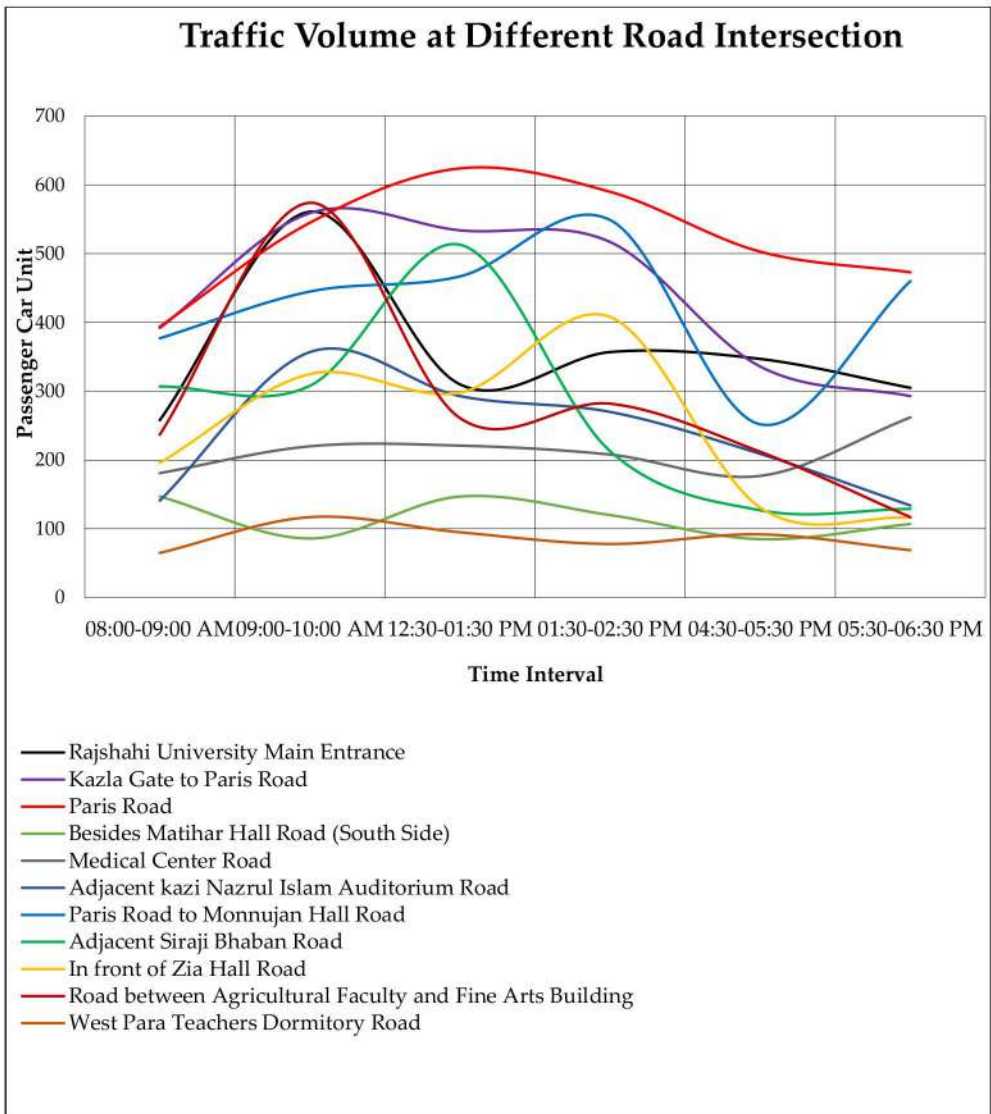
Location of traffic volume counts:

The following spots were earlier selected for all modes of traffic:

1. Rajshahi University Main Entrance
2. Kazla Gate to Paris Road
3. Paris Road
4. Besides Matihar Hall Road (South Side)
5. Medical Center Road
6. Adjacent kazi Nazrul Islam Auditorium Road
7. Paris Road to Monnujan Hall Road
8. Adjacent Siraji Bhaban Road
9. In front of Zia Hall Road
10. Road between Agricultural Faculty and Fine Arts Building
11. West Para Teachers Dormitory Road

The following results have been worked out from the traffic volume counts.





**Figure 6-2: Volume Count of Important Road Intersection**

### 6.2.3 Level of Services

The service which a roadway offers to the road user can vary under different volumes of traffic. The Highway capacity Manual has introduced the concept of “Level of Service” to denote the level of facility one can derive from a road under different operating characteristics and traffic volumes. The operating conditions for the six levels of service selected by the Manual are given below, Level ‘A’ representing the highest and Level ‘F’ representing the lowest:

Table 6-4: Standard Level of Service

Level of Services		V/C ratio
Level of Service A	Zone of Free flow	$\leq 0.33$
Level of Service B	Zone of Stable flow	$\leq 0.50$
Level of Service C	Zone of Stable flow	$\leq 0.65$
Level of Service D	Unstable Flow	$\leq 0.80$
Level of Service E	Unstable Flow	$\leq 1.0$
Level of Service F	Forced flow at low speed	$> 1$

**Level of Service A:**

Zone of Free flows, with low volumes and high speeds. Traffic density is low and little or no restriction in manoeuvrability. The V/C ratio for this level of Service should not exceed 0.33.

**Level of Service B:**

Zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. The V/C ratio for this level of Service should not exceed 0.50.

**Level of service C:**

Still in the zone of stable flow, but speeds and manoeuvrability are more closely controlled by higher volumes. The V/C ratio for this level of Service should not exceed 0.65.

**Level of Service D:**

This service is related to unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. The V/C ratio for this level of Service should not exceed 0.80.

**Level of Service E:**

Flow is unstable with volumes at or near the capacity of the road. The V/C ratio for this level of service should not exceed 1.0.

**Level of Service F:**

Forced flow operations at low speeds, where volume is more than the capacity, speeds are reduced substantially and stoppages may occur for short or long period of time.

In the project area the consultants have performed traffic survey in total 11 road intersections. On the basis of that traffic survey, the consultants have evaluated the performance of road sections. The only quantitative measure for the performance evaluation of sections that has been used in the study is volume to capacity ratio (V/C ratio). Traffic capacity is defined as the maximum hourly rate at which vehicles can



reasonably be expected to traverse a roadway during a given period of time under prevailing roadway, traffic and control conditions and expressed as PCUs per hour. Peak Traffic Volume is defined as the actual peak hour traffic passing a particular roadway during a given time period and expressed as PCUs per hour. Capacity of a roadway largely depends on number of lanes, road width and roadway condition. However, capacity was calculated in PCUs per hour and the standard capacity of a lane is assumed as 1400 PCUs per hour.

At present the level of service of major roads found satisfactory. With the present level of service if the vehicle growth occurs 7% per year than this existing road cannot provide service to the surplus demand. The major problem was found that there is no suitable alternative or parallel road of those major roads. Also, the existing narrow carriage way and adjoining commercial activities reduce the roadway capacity.

Table 6-5: Evaluation of Level of Service and Recommendations of Different Roads at Rajshahi University

Route Name	Peak Hour Volume (V)	Road Width (Meter)	Capacity (C)	V/C	Level of Service (LoS)	Recommendations
Rajshahi University Main Entrance	561	12	1600	0.35	B	Road Marking, Spaces for Bus Bay, Separate lane for cycling, Marking for wheel chair movement
Kazla Gate to Paris Road	559	4.6	800	0.70	D	Widening of road, Bus Bay at Kajla Intersection, Road side pedestrian and Cycle Lane, Road marking for Kazla gate to Paris Road, Road Divider, Zebra Crossing in front of School Gate and west corner of Zuberi Bhaban, Foot over bridge at Kazla Gate intersection above Natore road.
Paris Road	624	5.6	1600	0.39	B	Road widening for Paris road, separate lane for Pedestrian only north side and Cycle lane on both sides, Road widening, Footpath and Cycle lane development.
Besides Matihar Hall Road (South Side)	147	3	400	0.37	B	To follow Paris road style, Pedestrian friendly walkway.
Medical Center Road	262	3.5	400	0.66	D	Widening of road, To follow Paris road model, Footpath, Cycle lane
Adjacent kazi Nazrul Islam Auditorium Road	357	4.5	800	0.45	B	Widening of road, Separate lane for motorized and non-motorized vehicle, wheel chair friendly footpaths. Road marking as Zebra crossing. Marking of speed reducers.
Paris Road to Monnujan Hall Road	549	4	700	0.8	D	To follow Paris road style, Widening of road, Footpath, Bicycle lane.



Adjacent Siraji Bhaban Road	513	3.5	400	1.28	F	Widening of road with pedestrian and Non-motorized vehicle facilities, Separate bicycle lane
In front of Zia Hall Road	408	3.5	400	1.02	F	To follow Paris road style, Bicycle Lane, Pedestrian friendly footpath.
Road between Agricultural Faculty and Fine Arts Building	574	3	300	1.91	F	Widening of Road with pedestrian and Non-motorized vehicle, Road improvement
West Para Teachers Dormitory Road	107	3	400	0.27	A	Separate lane for motorized and non-motorized vehicle, Pedestrian friendly walkway

### 6.3 Gateways & Way finding

Gateways are featured spaces that emphasize a sense of welcome, arrival at the place. Beyond a welcome plaque, each gateway should be unique based on where it is situated, relative to the Campus and its surrounding environment. They demarcate a transition between quality areas within the campus and assist in way finding and orientation. Gateways can be created through the design of buildings, landscapes, arts, signage, maps, sculptures or a combination of these elements.

Existing main gates have problems for vehicle movements, clear siting, short term parking, etc. So, the Main gate, Kajla gate and Binodpur gate need to redevelop and shifting backward for more space. A new gate at eastern part of the campus has been proposed for future development. All the entries in the campus should have way finding tools include signage and mapping, streetscape elements, streetscape design and building design such as gateways and landmark elements. As these elements are to provide easily understandable and navigable routes for all users, accessibility must be of utmost priority when it comes to way finding.

## 6.4 Vehicular Circulation

Rajshahi University is not well planned with integrated road networks. The most outstanding feature of the campus area is some part of the campus area detached from designated road. Some of the western and eastern part covered by vegetation. One of the most notable issues is that, in eastern part areas sweeper colony is not efficiently connected with core campus.

However, vehicular circulation is primarily for the purpose of accessing the core area, parking, servicing areas, or to connect to the neighborhoods. The Master Plan proposes vehicular circulation through the Campus and the function of the roads gives priority to pedestrian and cycling movement. The Master Plan recommends a strategy for surface parking either on street, at the ground floor or below grade in new buildings, or in parking structures. The traditional neighborhood includes a high level of connectivity allowing actual walking distances to nearly meet the one quarter mile radius. The Five-Minute Walk is a standard that is best described as the average distance that a pedestrian is willing to walk before opting to drive.

## 6.5 Proposed Road Network

The efficient and appropriate road network is very important for university of Rajshahi. The following section defines the hierarchy of roads within the Framework and provides a structure for how the different modes of movement work together to create a walk-able, safe, pedestrian-oriented environment. Traffic generation in different hierarchy of roads within university area has been identified and presented below:

- Primary Road
- Secondary Road
- Collector Road
- Access Road/ Local Road



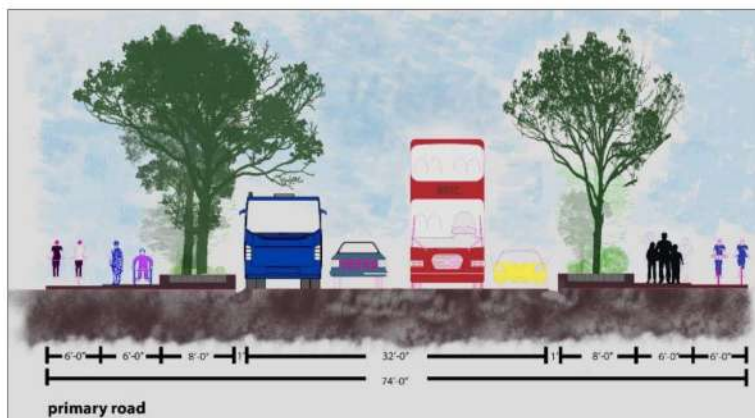


Figure 6-3: Road Section Model for Rajshahi University

Table 6-6: Proposed Road Category

Sl. No.	Hierarchical Basis	Planning Commission's Classification	Functional Basis	Definition	ROW (m)	Ownership
1	Primary Road	National Highway, regional Highway & Circular road*	Arterial I & II	Highways connecting University or circular bypass road to ease internal traffic movement	36-45	RHD
2	Secondary road	Zila and Upzila Road & University Class-I*	Distributor	Roads connecting university's Different districts from the highway	18-20	RHD, LGED, University
3	Tertiary/Collector road	University Class-II*	Collector	Roads that connect different zones from the different districts of university	12-15	University
4	Access Road	University Class-III*	Access	Roads that connect different structures like halls, faculties, office etc.	6-8	University

\*Classified by the Consultants for better functioning of University's road

Map 6.1 pictured proposed road network for Rajshahi University. And Map 6.2 presents physical status of road (Existing/ proposed).

## 6.6 Pedestrian Circulation

The Campus has numerous pedestrian ways, but without much logic certain high-volume routes entered the core area. While in other areas of campus the number of sidewalks is excessive, providing more options than is needed and making

maintenance burdensome. The suburban campus has limited access onto the campus itself, with vehicular access available.

The Movement Framework reflects an extensive circulation network for pedestrian and cyclers needed a pedestrian-oriented environment designed primarily for the pedestrian. The majority of the Campus should be of motorized vehicle-free zone, with the exception of some areas for pedestrian drop-off and pick up and servicing of buildings. As such, pedestrian circulation must be of highest priority when it comes to designing a vibrant and welcoming place accessible by all. This means that above all, pedestrian activity and the walking experience within the Campus is enhanced and improved for utilitarian, leisure, and recreational purposes. It is a means of fostering healthy lifestyles for both the University's population as well as the surrounding community and for creating an environment that is continuously animated.

The core Campus is a high-quality pedestrian environment, with selection pavement throughout. Contrasting the 'urban forest' of the inner core, there are areas dominated by vehicle priority. Despite being signed shared zones', the environment for pedestrians can be threatening.

**Policies:**

- Pedestrian pathways should be designed to accommodate use and circulation of the campus 24/7, all the year-round.
- Shaded pathways with seating facilitate must be established to enable ease of circulation in the summer and rainy seasons throughout the Campus streets and pathways. This also needs considerations to enhance design features for passageways within the plaza spaces.
- The present topography should be considered in the designing of pedestrian pathway.
- Expand the internal circulation network to connect to the external pathways and open spaces to increase ease of pedestrian movement through the campus.
- All external pathways must also accommodate bicycle movement.
- Locate and orient new buildings to provide short and direct distances between building entrances.
- All streets including the roads and sidewalks must be walk-able in all seasons.



The campus is currently comprised of too short and narrow pedestrian routes filtering campus. The master plan recommends further definition of proposed routes, especially primary corridors to establish a clear hierarchy of pathway designations.

### 6.6.1 Vision

Pedestrian priority and amenity will be improved on the campus, together with the de-emphasis of vehicles in the campus core. An intuitive Primary Pedestrian Network has been introduced, creating direct access paths, clear links and strong sight lines that is easy to navigate. High-quality shared zones and car free zone has also been introduced, increasing pedestrian safety in these areas. Major infrastructure has been so arranged that functional area within close proximity so that a student does not have to walk more than 0.5 km.

- **Compact Campus**

A compact campus with all facilities within walking distance is proposed. A grid of 1000 feet which corresponded to 5 minutes of walking distance has been laid in the plan.

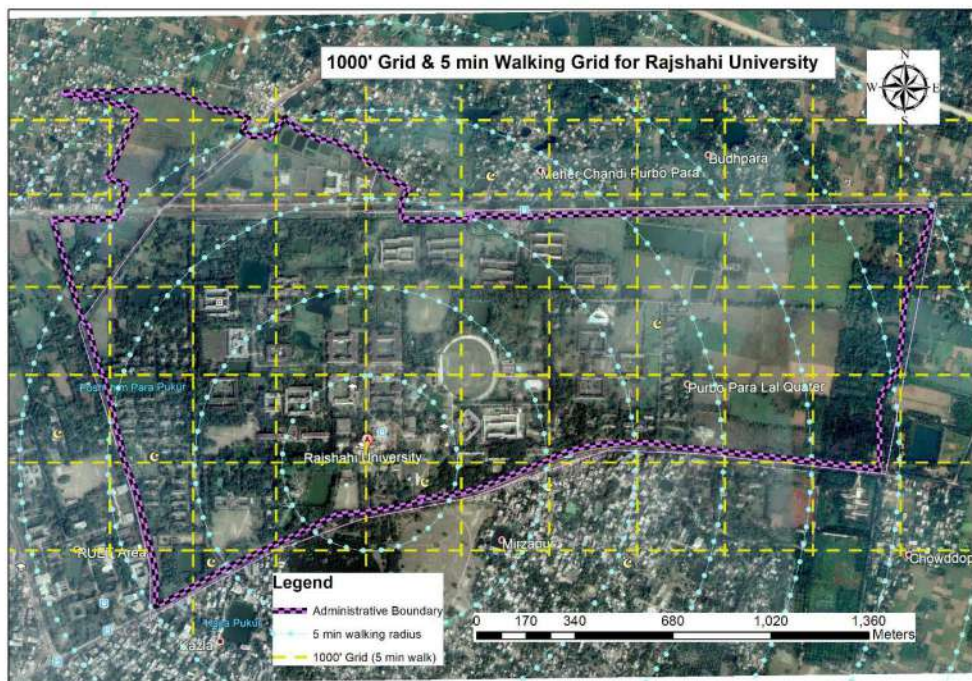


Figure 6-4: 1000' Grid & 5 min Walking Grid for Rajshahi University

### 6.6.2 Direction

#### **Introduce a hierarchy of key pedestrian paths**

- A series of typologies will be set up for different access roads and paths to create a clear hierarchy of movement through the campus. Primary civic walks will lead pedestrians directly into and through Campus. The civic walks are aligned between buildings, and are characterized by high-quality hardstand paving with generous widths, integrated furniture and lighting. These gate ways welcome pedestrian visitors into the campus.
- Primary green walks to be developed with the existing established vegetation on the campus, with their path determined by existing trees. These walks are characterized by high quality hardstand paving, with variables, but with generous widths.
- A secondary network of quality pavement will be throughout the campus connecting buildings, open spaces and primary walks. These paths will have a different finishing from the primary walks, to allow a clear visual differentiation between the pathways. Both primary green walks and secondary walks shall be able to accommodate emergency and maintenances vehicle access as necessary.

#### **Improve signage and way-finding on campus**

Develop a way-finding strategy for the campus that builds on the idea of the proposed walks.

#### **Improve pedestrian safety on the Ring Road and key service roads**

High-quality shared zones will be introduced to improve pedestrian priority whilst catering for vehicles of service, maintenance and deliveries. Lower vehicle speeds, and engagement of all road/path users creates a safer environment throughout the campus. The introduction of shared zones does not prohibit vehicles from using these roads, rather the look and feel of the environment should make drivers more aware of their speed and keep an eye out for pedestrians.

#### **Limit access for private vehicles in the core campus**

The pedestrian and cycling environment within the campus core could be compromised if the existing car priority, unrestricted access and usage levels are left unchanged.

#### **Smart Pedestrian Crossing System:**

All the crossing in Dhaka-Rajshahi Highway near the gates should equipped with Smart Pedestrian Crossing Systems for safe movement of pedestrians and Person with disabilities (PWD).



**Foot Over Bridge:**

To ensure safe pedestrian crossing, foot over bridge has been proposed adjacent to main gate. In the future foot over bridge may be installed other location as per demand.

**Smart Railway Gate System/ Automatic Railway Gate System:**

Smart railway gate system has been proposed in several location along the railway track in the University area.

Map 6.3 presents transport sector proposals for Rajshahi University.

### 6.6.3 Existing Pedestrian Scenario

Table 6-7: Existing Pedestrian Scenario and Recommendations

Route Name	Time Interval							Max. P/Hour	Max. P/Min	AM Average P/Hour	Recommendations
	08:00-09:00 AM	09:00-10:00 AM	12:30-01:30 PM	01:30-02:30 PM	04:30-05:30 PM	05:30-06:30 PM	Peak Hour Pedestrian				
Rajshahi University Main Entrance	383	974	740	632	1065	510	1065	1065	18	679	Required shaded footpath, Install directional signage, Street lighting, Pedestrian sitting arrangement, and Cycle shade.
Kazla Gate to Paris Road	122	99	209	197	318	348	348	348	6	111	Pedestrian sitting arrangement, Street lightning, bicycle stand, Install directional signage.
Paris Road	52	101	78	95	131	209	218	218	4	77	Street lightning, Designated footpath, install directional signage, Pedestrian sitting arrangement
Besides Matihar Hall Road (South Side)	231	291	361	419	369	408	419	419	7	295	Cycle shade, Shaded footpath, Street lightning, Install directional signage.
Medical Center Road	219	256	155	225	269	302	303	303	5	246	Zebra crossing, Smart pedestrian controlling system, Street lightning, Install directional signage, Pedestrian sitting arrangement, Footpath.
Adjacent kazi Nazrul Islam Auditorium Road	32	38	108	149	216	210	274	274	5	82	Zebra crossing, street lightning, Pedestrian sitting arrangement, Smart pedestrian controlling system, Footpath, Install directional signage.



Route Name	Time Interval							Max. P/Hour	Max. P/Min	AM Average P/Hour	Recommendations
	08:00-09:00 AM	09:00-10:00 AM	12:30-01:30 PM	01:30-02:30 PM	04:30-05:30 PM	05:30-06:30 PM	Peak Hour Pedestrian				
Paris Road to Monnujan Hall Road	185	180	434	466	532	549	810	810	14	183	Footpath, Street lightning, Shaded footpath, Jobicycle stand, Install directional signage, Pedestrian sitting arrangement
Adjacent Siraji Bhaban Road	226	744	529	933	600	464	933	933	16	591	Shaded footpath, Footpath, Zebra crossing, Pedestrian sitting arrangement, Jobicycle stand, Install directional signage.
In front of Zia Hall Road	358	394	542	619	227	353	619	619	10	442	Shearing bicycle (Jobicycle stand), Pedestrian sitting arrangement, Install directional signage, Street lightning system, Zebra crossing.
Road between Agricultural Faculty and Fine Arts Building	278	372	450	388	246	94	462	462	8	325	Zebra crossing, Footpath, Pedestrian sitting arrangement, Street lightning, Shaded footpath, Install directional signage.

Map 6.4 presents pedestrian way, joggers track and cycling network for Rajshahi University

Table 6-8: Proposed Pedestrian Crossing and Foot Over Bridge

Proposed Type	Existing Location	Remarks
Smart Pedestrian Crossing System	At Kazla Gate	Proposed
Smart Pedestrian Crossing System	At Main Gate	Proposed
Smart Pedestrian Crossing System	At Binodpur Gate	Proposed
Smart Pedestrian Crossing System	Adjacent Agriculture and Fine Arts Faculty	Proposed
Smart Pedestrian Crossing System	New Gate at Eastern Side	Proposed
Proposed Foot Over Bridge	At Main Entrance	Proposed
Proposed Foot Over Bridge	At Binodpur Gate	Proposed
Proposed Foot Over Bridge	At Kazla Gate	Proposed

#### 6.6.4 Cycling Circulation

Rajshahi University moves toward a multi-modal movement strategy, cycling will become an increasingly adaptable, adorable and dominant mode of transportation. Cycling becomes more of an attractive and economical option for students living in the surrounding community as more services and amenities are provided on the Campus. Students can rely less on vehicles to go distances to shop, buy groceries, or go to an eating establishment as these services are now within walking and cycling distances to the neighborhoods.

The plan proposes safe cycling circulation along the pedestrian circulation routes, as well as the campus streets. Shared bicycle markings and signage will provide clarity in movement between the integrated modes of transportation. In addition, new cycling amenities such as cycle shelters and cycle reuse, sharing and cycle maintenance stations are recommended on campus.

#### Policies:

- Cycling should be accommodated on all campus streets and pedestrian pathways.
- Bicycle amenities such as bicycle parking posts, sheltered bicycle parking stations, and even a bicycle repair shop or free-standing bicycle repair stations can encourage increased cycling.
- Bicycle parking facilities should be considered in the north, central, and south campus areas to encourage use. These facilities should be incorporated into the design of new buildings.
- Bicycle posts should be located throughout the campus in close proximity to building entrances, in interior parking lots, and in the major open spaces.



- The location of the bicycle posts should not obstruct pedestrian passage along the circulation routes, and should be integrated into the design of the public realm.
- With the exception of sheltered bicycle parking facilities, bicycle parking should not be designed in large groupings but should be distributed in smaller groupings of four or five bicycle posts, throughout the campus
- Provide bicycle signage to demarcate cycling routes and connections to other destinations.

### 6.6.5 Existing Cycling Scenario

Table 6-9: Existing Cycling Scenario

Route Name	Time Interval						Peak Hour Cycling	Recommendations
	08:00-09:00 AM	09:00-10:00 AM	12:30-01:30 PM	01:30-02:30 PM	04:30-05:30 PM	05:30-06:30 PM		
Rajshahi University Main Entrance Road	152	109	81	80	138	110	152	Separate lane for cycling, Cycle shade, Signage, Shearing bicycle stand,
Kazla Gate to Paris Road	166	74	98	109	92	82	166	To develop individual cycle lane, install signage, Cycle parking shade, Jobicycle stand.
Paris Road	187	172	128	112	99	103	187	Managed grass lawn, Separate lane for cycling, Install signage.
Besides Matihar Hall Road (South Side)	106	93	89	91	105	91	106	To develop signage, Cycle shade, Jobicycle stand, Designated network of cycling, Lightning.
Medical Center Road	235	167	99	155	170	275	275	Separate lane for cycling, Cycle stand, Signage for parking, Properly managed green lawn.
Adjacent kazi Nazrul Islam Auditorium Road	74	77	96	94	106	69	106	Cycle lane, connecting better cycle lane network, Jobicycle stand, Corresponding signage.
Paris Road to Monnujan Hall Road	119	86	82	118	92	97	119	Cycle lane, Signage, Jobicycle stand, Cycle shade, Implant grass.
Adjacent Siraji Bhaban Road	90	76	60	81	67	55	90	Cycle parking space, Jobicycle stand, Signage.
In front of Zia Hall Road	243	228	169	198	168	137	243	Cycling lane, Street lightning, Signage for parking,
Road between Agricultural Faculty and Fine Arts Building	294	518	201	226	195	94	518	Separate lane for cycling, Cycle parking signage, Street lightning, Jobicycle (Shearing bicycle) stand.



Table 6-10: Proposed Bicycle Parking Development

Structure ID	Proposed Structure Height	Existing Location	Phase Update	Remarks
BP01	01	Adjacent Agriculture Faculty	Near Term Phase I	Existing Upgraded
BP02	01	Adjacent Fine Arts Building	Near Term Phase I	Proposed
BP03	01	Adjacent University Graveyard nearby Staff Housing	Near Term Phase II	Proposed
BP04	01	Adjacent Northside New Academic Building	Mid Term	Proposed
BP05	01	Adjacent Rabindra Bhaban	Near Term Phase II	Existing Upgraded
BP06	01	Adjacent TSC Building	Near Term Phase I	Proposed
BP07	01	Adjacent Central Stadium	Mid Term	Proposed
BP08	01	Adjacent 4th Science Building	Long Term	Proposed
BP09	01	Adjacent TSCC Building	Near Term Phase II	Proposed
BP10	01	Adjacent Siraji Bhaban	Mid Term	Existing Upgraded
BP11	01	Adjacent Rajshahi University School and College	Near Term Phase I	Proposed
BP12	01	Adjacent Eastern Side New Academic Building	Mid Term	Proposed
BP13	01	Adjacent Eastern Side New Academic Building	Mid Term	Proposed
BP14	01	Adjacent Agriculture Faculty	Near Term Phase I	Existing Upgraded

## 6.7 Mobility without Cars on Campus

One of the goals of this Master Plan is to be a car free campus. And yet, the residential campus requires transportation to connect it to the surrounding areas and to connect residential areas to the institutional areas within the campus. As the size of the campus grows, so does the need for internal transportation. The Master plan specified that the actively used areas of the campus be kept small enough for walking and that the use of automobiles be limited to connections with the surrounding areas. Using appropriate planning measures, such as safe, shaded and rain-protected walkways, walking can be encouraged and automobile use discouraged. Most zones in the campus are planned with pedestrian and cycling in mind, and walkways-joggers lane are sketched throughout the campus. As car use is limited on campus, an alternative system of transportation is required to take care of the needs of young children, seniors and the physically challenged.

The female hall zone, central academic zone, stadium zone, male hall zone and new east academic zones are proposed to be car free. A central spine of roads only for pedestrian and cycle are planned for unentrapped circulation. Cycling and Jogger

tracks are proposed on the peripheral green buffer to support the residential areas. Only service vehicle and emergency vehicle can use these roads for emergency operation.

## 6.8 Transit

Rajshahi University currently connected with Rajshahi City and other locality through local transport like rickshaw, auto-rickshaw and CNG operated vehicles. The Master Plan emphasizes an enhanced public transit experience to and from the Campus and introduces new transit routes.

Six basic elements which contribute to specific transportation problems of a university. These are –

- Institution size.
- Location of the campus.
- Magnitude of commuter students.
- Parking and car ownership policies.
- Public transport availability.
- Ownership and control of local street system.

There are three headings under which the various transportation issues can be grouped, namely

- Campus access.
- Internal circulation.
- Parking.

The prime goal in the consideration of campus access should be the provision of accessibility. The objectives to be sought in obtaining this goal can be summarized as follows:

- Provision of multiple entry-exit points.
- Design standards at these points should be such that traffic flow through them should be both efficient and safe.
- Provision of efficient and affordable public transport links between the community and the university.
- Where the campus is not in one integrated land parcel an inter-campus road system should be provided which minimizes the use of the local street system.

### **Bus Bay and bus stoppage:**

In Dhaka-Rajshahi Highway close to main entrance of Rajshahi University there should be more than one bus bays and bus stoppages with proper design and standards. Other locations for bus bay and stoppage may be proposed as per demand arise.



- **Road Divider:**

There is in need of road divider along Rajshahi-Dhaka highway to avoid any type of accident.

**Table 6-11: Proposed Road Divider**

Proposed Type	Existing Location	Remarks
Proposed Road Divider	At Main Gate	Proposed
Proposed Road Divider	At Binodpur Gate	Proposed
Proposed Road Divider	At Kazla gate	Proposed

- **Transport Complex:**

A transport complex with all type of modern facilities has been proposed adjacent to main gate. Multistoried parking, bicycle parking and workshop facilities will be equipped the complex.

- **Updating Railway Station:**

The existing railway service should be modernized and all inter-city trains should be stopped here.

**Map 6.3 displays transport sector proposals for Rajshahi University.**

### **Internal Circulation**

Internal circulation is concerned with the flow of pedestrians, cars, public transport vehicles and other users of the campus transportation system. It is closely related to the land use pattern adopted and the effect. The growth and density of building development on campus have generally had the effect of increasing the magnitude and concentration of travel between activity centers with the result that travel on campus has become both slower and more congested. The great majority of internal movements are carried out on foot but unfortunately these movements often have to compete with motor vehicles for the same travelling space. Thus, the unnecessary circulation of vehicles on the internal road system should be avoided as far as possible. In an attempt to make universities own transports more attractive, attention should be given to the provision of high-level terminal facilities on campus. Although buses are primarily an access mode there is a need for internal penetration in order to improve the convenience of this particular mode.

The use of other modes such as bicycles and motor cycles should also be considered in the drawing up of a plan for internal circulation. With an overall goal of safety and efficiency the specific objectives for internal circulation can be briefly stated as:

- Conflicts between various modes of transport especially pedestrian and vehicles

should be minimized.

- The network should maximize the safety and convenience of movement.
- A hierarchy and transportation links should be established and design standards formulated for each type of link.

## 6.9 Parking

Transportation issues are therefore, one of the biggest challenges within university campuses and their surrounding communities. Promoting sustainable modes of transportation for university campuses has many environmental, social and economic benefits, but the educational benefits of this effort are most profound since internally they have a duty to educate and foster the next generation of decision makers.

### **Parking Management and Utilization:**

In contemporary life, issues related to parking are one of the greatest common problems faced by users and planners of university campuses. Issues related to parking facilities can be divided into two different categories: supply and management. Good parking management offers social, environmental and economic benefits meaning for example, increasing livability, supporting social equity, improving service efficiency and quality, decreasing land use, increasing walkability, and saving costs.

- One of the most effective strategies within densely populated areas such as university campuses is parking supply and restriction.
- The supply of fewer parking areas within university campuses encourages commuters to use sustainable modes of transportation such as walking, cycling, and public transportation.
- Pricing of parking spots is another approach within university campuses that deters use because it means private car owners must pay fees to use parking areas.

If parking areas are located only in the central or peripheral areas of the campus, commuters are denied the opportunity of convenience parking close to buildings and their destinations. In weighing their options, this strategy encourages car users—especially ambivalent commuters—to choose sustainable modes of transportation to save their time and potentially gain more direct access to their destination. Besides reducing private car usage, strategic parking locations can save transportation costs for both the commuters and the universities.

**The objectives that are set in the formulation of the parking plan may consist of the following:**

- To lay down a policy that will lead to a balance between supply and demand for



parking space.

- To make recommendations on how such a policy should be managed and implemented.
- To provide parking areas that will be efficiently used and which will assist in minimizing internal circulation of vehicles.

#### **Policies:**

- Multistoried parking facilities should not be a stand-alone use for any building development. Parking structures should be fronted by other uses that provide active use.
- The design of structured parking facilities should be of the highest architectural design and material quality, in keeping with the quality of design recommended in the Built Form Framework for new campus buildings. Design innovation should be considered that contributes to the Campus' identity
- Structured parking facilities need to be open and transparent, allowing views into and through the building, at ground level and within the buildings.
- Structured parking facilities must be well-integrated with the public realm, providing a friendly "human scale" presence on the adjacent public realm and contribute to a pedestrian-focused environment.
- On-street parking is provided on the internal campus street as short-term, timed parking spaces.
- On-street parking is to be provided in the form of parking lay-bys with parking bump-outs at the intersections or at identified pedestrian crossing zones.
- The surface parking lots integrated within the residential blocks should be enhanced with landscaping and sustainable surface paving treatments so that they turn into attractive parking areas within the neighborhood. Landscaping along the parking lot should be used to create a green screen between adjacent residential buildings.

#### **Transport Complex:**

A transport complex with all type of modern facilities has been proposed adjacent to main gate. Multistoried parking, bicycle parking and workshop facilities will be equipped the complex. Six multistoried parking has been proposed in different districts in Rajshahi University.

Table 6-12: Proposed Multistoried Parking

Structure ID	Proposed Structure Height	Existing Location	Phase Update	Remarks
MP01	03	Adjacent Siraji Bhaban	Near Term Phase I	Proposed
MP02	03	Adjacent Rabindra Bhaban	Near Term Phase II	Proposed
MP03	03	Adjacent Binodpur Gate	Mid Term	Proposed
MP04	03	Addjacent East Para Officers Housing	Long Term	Proposed
MP05		Adjacent Eastern Side Entrance Gate	Long Term	Proposed
MP06	03	Adjacent Agriculture Faculty	Mid Term	Proposed

Proposed Transport Complex and Multistoried parking locations has been presented in Map 6.3

## 6.10 Transportation Demand Management

Transportation Demand Management (TDM) strategies in comprehensive transportation system plans for university campuses commonly used on university campuses as: parking management and utilization, public transportation, carpooling and vanpooling, encouraging the use of bicycles, and providing a pedestrian-friendly campus. The following sections describe several TDM strategies commonly used on university campuses: public transportation, carpooling and vanpooling, encouraging the use of bicycles, and providing a pedestrian-friendly campus.

Transportation demand management (TDM) is defined as a series of measures and strategies to decrease vehicular use and increase the proportion of trips made by transit, walking, and cycling. TDM is comprised of various strategies that change travel behavior (how, when, where, and why people travel) in order to achieve transport system objectives. There are numerous TDM strategies using various approaches to influence travel decisions.

The Master Plan recommends the implementation of a TDM Plan to be administered over time as the development of the Campus unfolds. The following are the TDM strategies that provide a means of reducing car dependency and shifting the modal split. These are either inherent in the Master Plan design, or they are additional strategies to support TDM, and include:

- Accessibility for Person with a Disability (PWD)



- Creating a compact and pedestrian-oriented development to increase walking and cycling.
- Providing bicycle parking and a diversity of amenities.
- Providing community-oriented services (Small community bus or microbus) and amenities within a 5 to 10-minutes walking radius. So, community-oriented bus stoppage has been proposed within walking distances.
- Creating an expanded and enhanced transit network.
- Managing parking supply and pricing.
- Increasing and diversifying the housing stock on the Campus to reduce the need for vehicular travel.

#### 6.10.1 Accessibility for Person with a Disability (PWD)

Accessibility for Person with a Disability (PWD) is a worldwide concern especially for academic facilities. Every PWD has right to full and equal enjoyment of the goods, services facilities, privileges, accommodations of any public accommodation.

International standards should be followed in building new facilities whereas existing buildings can be modified to be accessible. Public accommodations are required to make their existing public areas accessible only if doing so is readily achievable.

In other words, readily achievable barrier removal should be easily accomplished and could be carried out without much difficulty and effort or expense. Measuring accessibility in university buildings can help us identify accessibility problems and solutions in existing facilities. Horizontal circulation, route of travel, and lavatories items were the most accessible items among university buildings. However, getting to the rest rooms, parking and drop-off, signage of goods and services items were the least accessible items. Collaborative professional teams need to work together to make universities buildings more accessible for persons with disabilities to meet their needs.

#### 6.10.2 Promoting Bicycle Use and Creating a Pedestrian Friendly Campus

The best modes of transportation to substitute for private car trips, particularly within university campuses are walking and cycling because these modes care for independent choice of route and schedule. Walking is potentially the easiest adaptation because during any other mode of transit to university campuses, all commuters also become pedestrians to reach their final destination from parking place for drivers, bicycle points for cyclists and bus or train station for users of public transportation.

For promoting walking among university's members, various affective factors must be considered that the key of them are related to the quality of infrastructures and safety. These main factors include continuity of pedestrian paths, quality of pavements, safety along sidewalks and intersections, lighting, pedestrian signage, width of pedestrian paths, "otherwise ables" accessibility, quality of crosswalks, shading element and not limited to picturesque views.

Bicycle infrastructure can be low-cost and accommodated spatially on university campuses by initially employing on-street striping and placing simple bicycle racks near high-traffic nodes.

### 6.10.3 Carpooling and Vanpooling Program

One of the more recognized TDM strategies is the carpool and vanpool program, which provides the opportunity for users of single-occupancy private automobiles to move away from the need for individual car trips. This strategy suggests that two or more people, who share a common source, route and destination, can use a single automobile. This strategy usually involves people who live and work in the same and/or nearby neighborhoods.

### 6.10.4 Public Transportation Strategy

Public transportation strategies like the U-Pass Program are one of the most popular of the TDM strategies for university campuses. The U-Pass Program's main goal is to encourage all participants to use public transportation modes (buses, trains, or light rail) and/or active transportation modes (bicycles, walking etc.) rather than commuting by private cars. The U-Pass strategy has been effective and successful in terms of increasing the number of public transportation users and decreasing the demand for parking facilities on university campuses. The top five reasons to apply the U-Pass Program are: decline in parking demand and traffic; improved access to housing and the university campus by all members; decreased costs of travel and student education; increased transportation justice and enhanced usage levels of sustainable, active modes of transportation.

The U-Pass program has several advantages for universities such as these Support universities in achieving their environmental responsibilities, Diminishes the demand for parking areas, hence universities have more land to use for educational goals and Reduces parking spaces and traffic impact on surrounding areas.



### 6.10.5 Ridesharing

Ridesharing has been proposed to help form carpools and vanpools to improve air quality by reducing trips. These ridesharing opportunities will provide campus and city ridesharing options that reduce traffic and individual commuting costs in addition to improving local and regional air quality. In the university area, following different upgraded modern vehicle can be used.

### 6.11 Key Proposals

- **Safe, accessible and compact campus for all**

A safe and accessible campus will enhance the pedestrian experience and encourage non-motorized transport. Arranged functional area within close proximity so that a student does not have to walk more than 0.5 km, that is all facilities within walking distance is proposed. A grid of 1000 feet which corresponded to 5 minutes of walking distance has been laid in the plan.



Figure 6-5: Sample share vehicles for Rajshahi University Campus

This has been done while keeping the accessibility for emergency vehicles, yet creating a walkable, cycle friendly campus where any functional area could be reached by anyone in a 10 minutes trip with non-motorized transport.

The vehicular link between the bus stop, train station and the campus has been placed on the periphery to keep the internal movement mainly pedestrian. The campus has been designed as a set of departments, faculties, residences interconnected by pedestrian walkways.

The individual department buildings could be reached by pedestrian via a set of interconnected plazas. In the central area the library and convention hall/ auditorium has been placed in close proximity to the department buildings.

- **Accessibility for Person with a Disability (PWD)**
- **Smart Pedestrian Crossing System:**

All the crossing in Dhaka-Rajshahi Highway near the gates should be equipped with Smart Pedestrian Crossing Systems for safe movement of pedestrians.

- **Foot Over Bridge:**

To ensure safe pedestrian crossing, foot over bridge has been proposed adjacent to main gate.

- **Smart Railway Gate System/ Automatic Railway Gate System:**

Smart railway gate system has been proposed along the railway track in the University area.

- **Redevelopment of Main Entrances/ Gate:**

Existing main gates have problems for vehicle movements, clear siting, short term parking, etc. So the Main gate, Kajla gate and Binodpur gate need to be redeveloped and shifted backward for more space.

- **Development of New Entrance/Gate:**

New gate in the eastern area should be developed to meet the future demand.

- **Bus Bay and bus stoppage:**

In Dhaka-Rajshahi Highway close to main entrance of University there should be more than one bus bays and bus stoppages with proper design and standards.

- **Road Divider:**

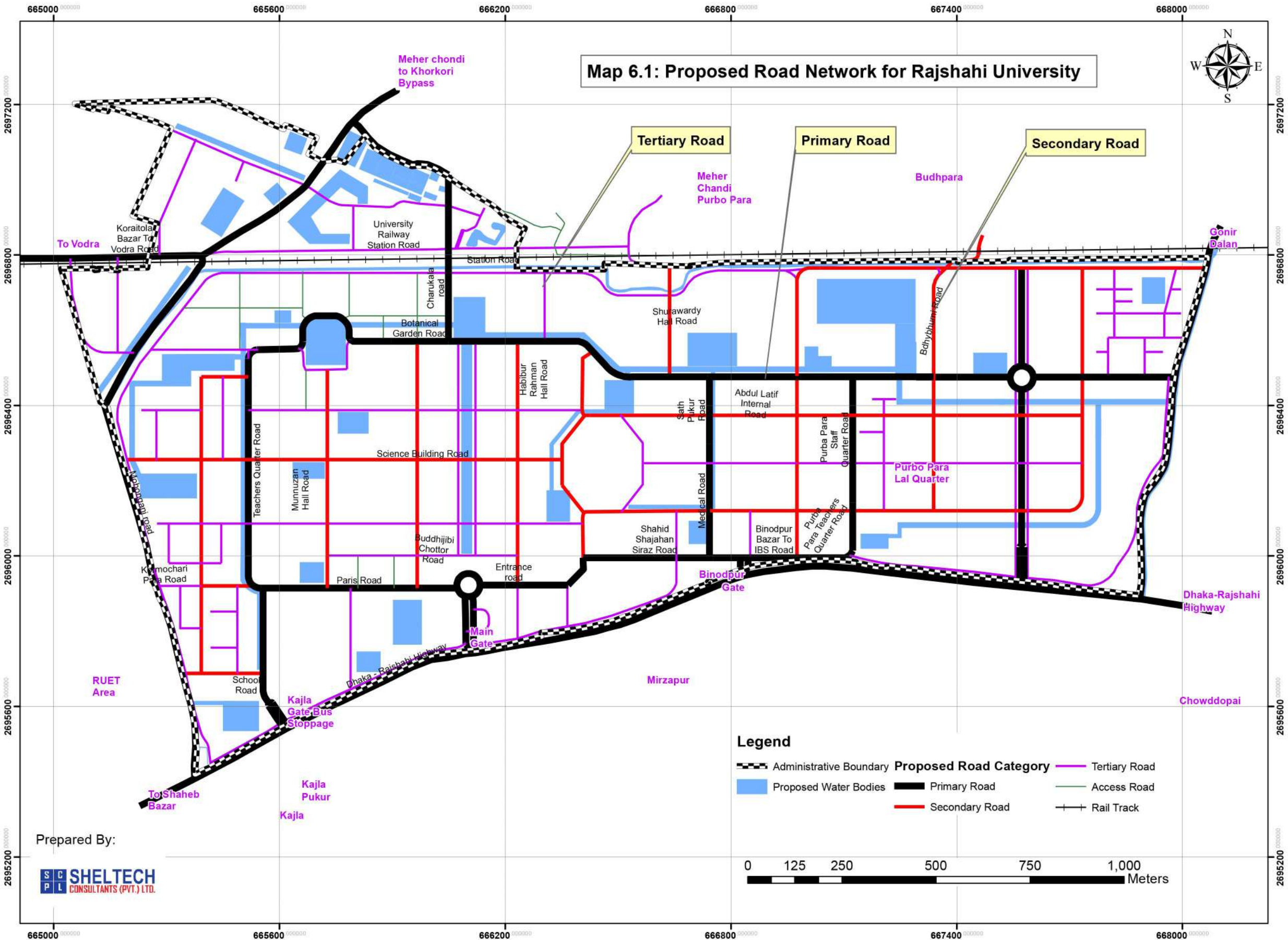
There is a need of road divider along Rajshahi-Dhaka highway to avoid any type of accident.

- **Transport Complex:**

A transport complex with all type of modern facilities has been proposed adjacent to main gate. Multistoried parking, bicycle parking and workshop facilities will be equipped in the complex.



Map 6.1: Proposed Road Network for Rajshahi University

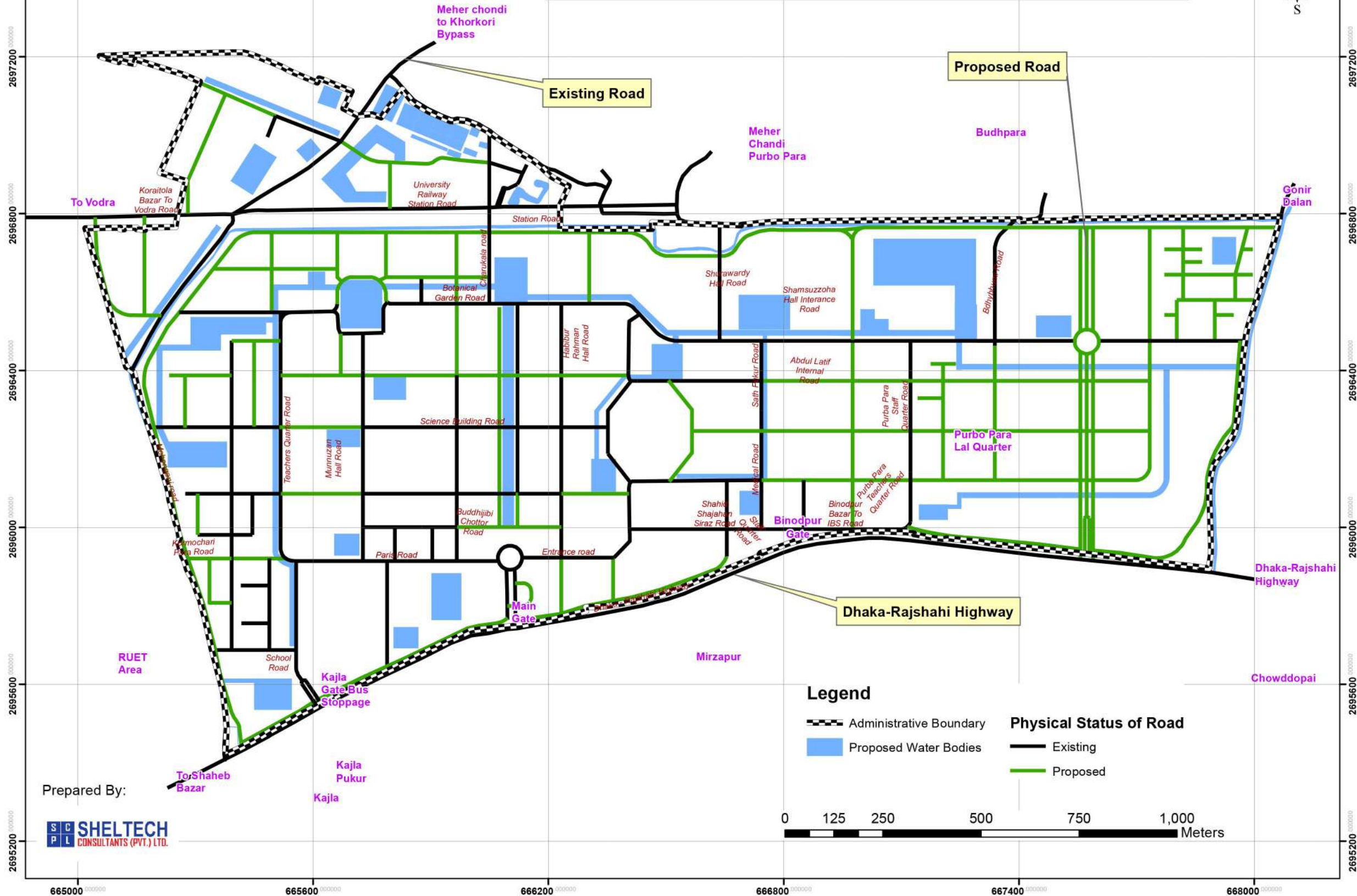
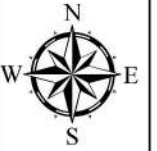


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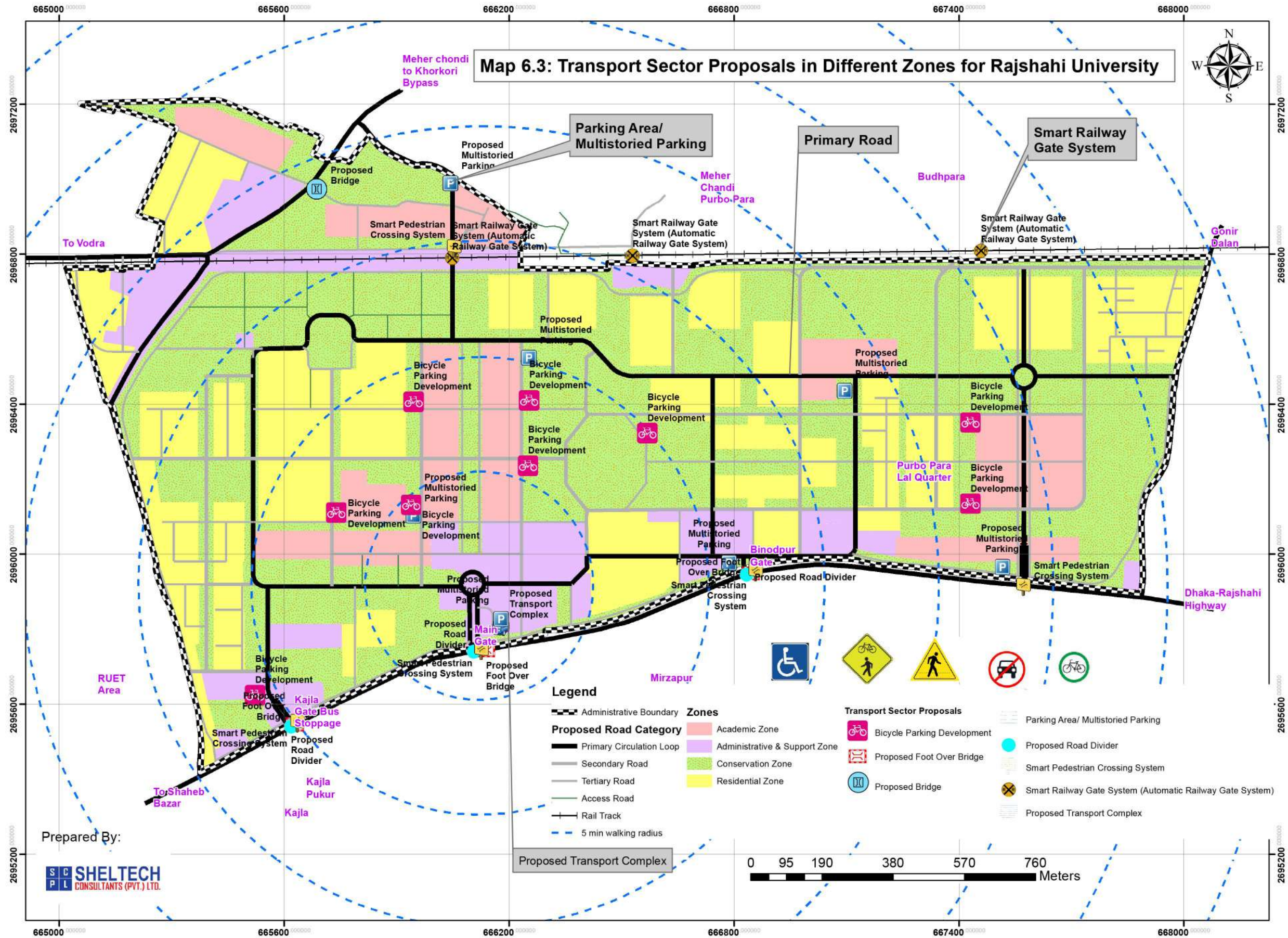
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0 125 250 500 750 1,000 Meters

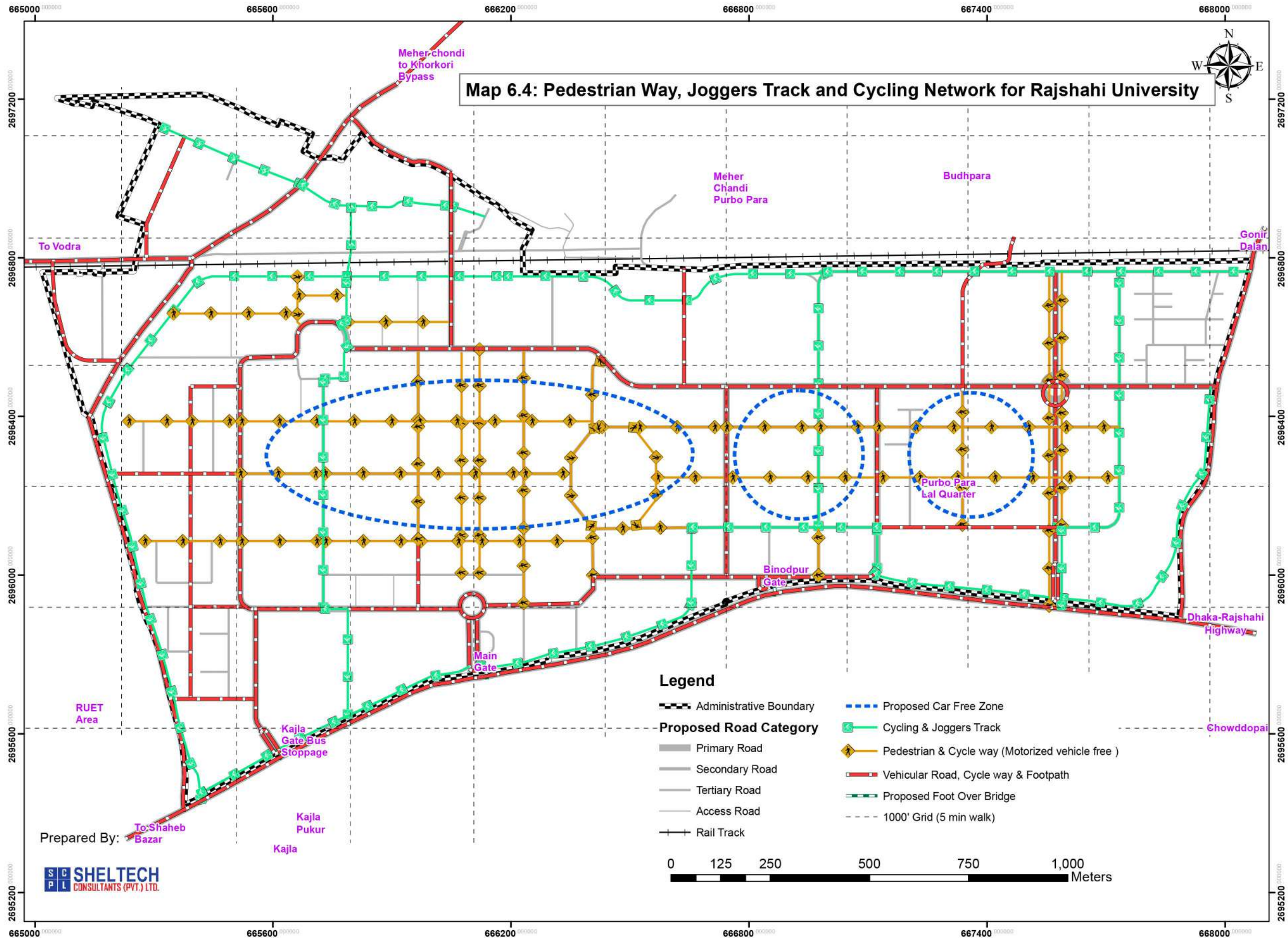
Map 6.2: Proposed & Existing Road Network for Rajshahi University















# Chapter Seven

## Drainage and Utility Services Plan

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## CHAPTER SEVEN

# DRAINAGE AND UTILITY SERVICES PLAN

### 7.1 Introduction

Chapter seven of the Master plan presents existing drainage scenario, future drainage plan, water supply issues-net zero water campus, solid waste management-net zero waste campus, net zero energy campus, underground duct plan, ICT, smart public toilet to ensure utility system reliable and efficient to serve the current and future services-of the campus.

### 7.2 Drainage

Storm or surface runoff moves flows into streams, rivers, ponds, lakes and canals. Infrastructure development affects the drainage systems, as development increases the amount of the impervious surfaces (roofs, streets, parking lots) and decreases the amount of pervious areas. Development of a comprehensive campus storm water management approach to mitigate impacts of campus development and improve water quality. Developing an efficient drainage system is a very important component of a total planning. In fact, it is the most effective way of keeping the planning area off waterlogging and flooding including the waste water. Implementation and maintenance of the system is very challenging as most of the drains remains under ground or out of scene.

A little obstruction to the natural flow or connectivity can cause over flow of waste water that leads to water logging and disturb the natural rhythm of everyday life. But it is often given less priority in terms of planning, implementation and maintenance. As a result, physical environment, health hygiene and standard of living suffer seriously. Natural water sources like, river, khal or pond etc. are kinds of blessings and a kind of naturally established drainage system. University of Rajshahi is intersected and surrounded by Zia Khal in north-west side & north-south sides that serve as the major natural drainage channels for the campus and it finally joint at Padma River.

#### 7.2.1 Existing Water bodies

There are different types of water bodies inside and around the university campus. One of the major stream observed in campus area during survey period is Zia khal. Both western and eastern part of the campus areas draw most of the storm and sewerage water by the existing katcha drains. Most of the outfall of primary drains is

connected with Zia khal via northern and western part of the campus. On the other hand a few number of ponds and water channels located at various locations inside campus area. It is observed from the site visit that some of the secondary and tertiary drainage outfall and storm water fall into the pond. To infer, it is quite evident that, under seven pond project of university authority provide special emphasis on fish cultivation, monitoring and management of ponds and protect those from water pollution.

### 7.2.2 Status of Existing Drainage System

The main drainage network in University of Rajshahi is mostly Katcha. Pucca or Paved Drain made of masonry work in three sides keeping the upper side open, is Katch or Earthen Drain, made by digging soil. On the one hand Zia khal which is currently used as a primary drain and most of the sewerage and storm water used to pass through this. Beside the residential structures and academic buildings drainage network is pucca and the connecting drain lines are also pucca. The drain network meets with Zia khal for disposal of waste water and rain water. There is no treatment plant for these waters. There are three types of drain, Katcha, Pucca and Khal. Total length of pucca drain is 30294 meter which is 67% of total drain, length of Katcha drain is 11464 which is 25% of total drain.

Table 7-1: Type Wise Drainage Length

Drain Type	Total Length (Meter)	Percentage
Katcha	11464	25%
Khal	3658	8%
Pucca	30294	67%
Grand Total	45416	100%

There are 44128-meter uncovered drain results in 97% of total drain and 1288 meter covered drain results in 3% of total drain.

Table 7-2: Drainage on the basis of openness Cover

Drain	Total Length (Meter)	Percentage
Covered	1288	3%
Uncovered	44128	97%
Grand Total	45416	100%

Source: Physical Feature Survey, 2019



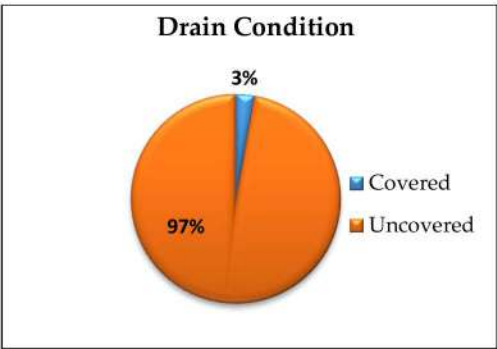


Figure 7-1: Existing drain Condition

Access drains that are come from individual buildings. Khal is considered as primary drain which receives the final runoff from drain. Drain that receives runoff from access drain and carry to primary drain are considered as Secondary.

Table 7-3: Drainage Category Information

Drain Category	Total Length (Meter)	Percentage
Access	26854	59%
Primary	3658	8%
Secondary	14903	33%
Grand Total	45416	100%

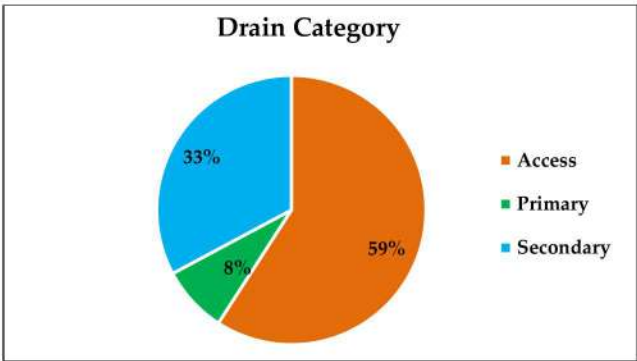


Figure 7-2: Existing Category of Drain

### 7.2.3 Plan for Drainage Development

The Master plan proposes separate system of storm water and sanitary drainage. Storm water drained out through natural canal and manmade drains. Sewer lines lead sanitary water in the proposed STP/ETP and to be treated there. The separate system may decrease threat on natural water bodies and eco system.

#### Flood Protection

Water Logging has been taken into account during planning phase and buildings will be placed on raised floors to guard against floods. At the same time surface drainage will be laid toward direction of stream.

##### 7.2.3.1 Storm Water Drainage Design Approach and Options

The design approach used in preparing the Drainage Plan, the consultant has considered the practical aspects of desired results, cost, efficiency, durability and ease of construction and maintenance. Visible social improvements for the population are considered to be the most important of the desired results and a reduction in the annual damage is considered to be the greatest tangible benefit. Reduction of diseases, and increase of life span are considered to be the greatest intangible benefits.

The economic strength of the campus and its residents, including all capital construction and operation and maintenance costs are key factors in selecting the alternative construction methods to be adopted under the Project. Closely associated with these are considerations of the durability of the improvements taken up and the ease of long-term maintenance, must be carried out by the University Authority for the duration of the design life. In line with these considerations, the Consultant has adopted the following broad approach in preparing the Drainage Plan for Rajshahi University:

- a) **Sustaining Topography:** The topography of the site allows more than generous slopes for drainage of soil, waste water and rain water from buildings.
- b) **Channel Improvement:** Dredging of all major canal & Lake should be taken up under the Project to open up the existing open channels / primary drains and the new construction of primary/secondary drains necessary to provide the spine for an integrated storm drainage system for University of Rajshahi. Improvements would include removal of blockages, cleaning, deepening, re-sectioning and re-sloping of existing channels. New construction will consider both katcha and pucca channels, as most appropriate. Underground pipe storm drainage systems are not generally considered for the Project due to the high initial capital and maintenance costs associated with the flat gradients, siltation and solid waste



problems. Map 7.3 and 7.4 present storm drainage network for Rajshahi University. Map 7.6 illustrate priority drainage network for immediate development.

- c) **Storage and Retention Ponds:** Existing and proposed canal/pond/lake will act as storage and retention area for University. In the Master Plan ponds/lake and canal has been demarked for preservation. Sluice gate should be installed in the discharge points of lake to store the water for dry season. Map 7.2 presents proposed retention areas and sluice gate location for Rajshahi University. The list of proposed retention ponds and canals are listed below:

**Table 7-4: List of Proposed Retention Canal**

Retention Canal ID	Location	Remarks
Retention Canal_01	Zuberi Bhaban to West Para Duplex House	Existing
Retention Canal_02	West Para Duplex House to Rahmatunnesa Hall Pond	Existing
Retention Canal_03	Rahmatunnesa Hall to Habibur Rahman Hall	Proposed
Retention Canal_04	Habibur Rahman Hall to Bijoy Sagar	Proposed
Retention Canal_05	Bijoy Sagar to Eastern Side City Corporation Road	Proposed
Retention Canal_06	Eastern Side to Police Camp Pond Binodpur	Proposed
Retention Canal_07	Sohrawardi Pond to RU Central Stadium	Existing
Retention Canal_08	Habibur Rahman Field Pond to TSCC Pond	Proposed
Retention Canal_09 (Science Lake)	Habibur Rahman Hall Pond to 1st Administrative Building	Proposed
Retention Canal_10	Paschim Para Teachers Quarter to Residential Area	Proposed
Retention Canal_11	RU Graveyard to Padma Residential Area	Proposed

**Table 7-5: List of Proposed Retention Pond**

Retention Pond ID	Location
Retention_01	Kazla Jame Mosque Pond
Retention_02	Paschim Para Teachers Quarter Pond
Retention_03	Paschim Para Residential Pond
Retention_04	Rahmatunnesa Hall Pond
Retention_05	Monnujan Hall Pond
Retention_06	Iblish Chottor Pond
Retention_07	Khaleda Zia Hall Pond
Retention_08	Pro VC Residence pond
Retention_09	VC Pond
Retention_10	Habibur Rahman Hall pond
Retention_11	TSCC Pond
Retention_12	Habibur Rahman Hall Field Pond
Retention_13	RU Temple Pond
Retention_14	Sohrawardi Hall Pond

Retention Pond ID	Location
Retention_15	Bijoy Sagar
Retention_16	Shamsuzzoha Hall Pond
Retention_17	Binodpur Gate Police Fari Pond
Retention_18	Eastern Side Pond (Adjacent Boddho Bhumi Pond)
Retention_19	Sweeper Colony Pond
Retention_20	West Para Staff Quarter Pond
Retention_21	Fine Arts Building Pond
Retention_22	Agriculture Faculty Pond
Retention_23	Northern Side Agriculture Faculty Pond
Retention_24	Meherchondi Pond
Retention_25	Graveyard Pond
Retention_26	Graveyard Mosque Pond

- d) **Drain System Capacity:** The drainage systems are to be designed to handle the average annual runoff (i.e. 20-year recurrence interval for tertiary and secondary system and 50-year recurrence interval for primary system) from peak storms without overflowing, considering the estimated development level. In practice, this means that fully built-up areas will be designed for the present situation, while areas which are not yet fully built-up will have excess capacity to handle rainfalls of greater intensity during the developing period. Rainfall which exceeds the design capacities (i.e. 5 years recurrence period and greater) will result in localized short-term overflows, which will drain away quickly (usually in less than one hour) following the end of the storm.
- e) **Trash Racks and Sumps:** Trash racks and sumps are normally used to prevent debris (silt and solid waste) from entering into the drainage systems where major problems could occur as a result of debris accumulation, and to reduce the routine drainage system cleaning and maintenance costs. Trash racks and sumps are considered appropriate for the Rajshahi University. Although not specifically identified in the Plan, locations for trash racks and sumps should be identified during preparation of the final engineering designs, and should be included in all work programs.
- f) **Preventive Maintenance Program:** For the proper functioning of the drainage system, it is essential to have an appropriate maintenance program. The program must include inspection, enforcement, cleaning and repair. The frequency of inspection and cleaning will be dependent on the season of the year with more frequent inspection and cleaning at the start of the rainy season and on the importance of the drain. The maintenance programs include log book keeping for:



### Inspection

- Open pucca drains-monthly in general; weekly in academic and market areas.
- Covered pucca drains monthly with drains opened in February.
- Katcha drains monthly.
- All drains following first heavy rainfall in year.

### Cleaning

- Open pucca drains as required.
- Covered pucca drains in February when opened.
- Katcha drains and culverts/bridges in January to February prior to rains.
- All drains as revealed by inspection.

#### 7.2.3.2 Sanitary Sewer Drainage System

A variety of waste generated from buildings including human excreta, food, laundry and household cleaning wastes, various animal remains as well as chemical wastes are exposing serious hazard for natural system, polluting stream water and degrading biodiversity. Therefore, the campus sanitary drainage and storm drainage systems are completely separated from one another. Considering the contour, the condition of the soil and location of canal, the University's main campus is divided into 17 major drainage basins corresponding to Effluent Treatment Plants (ETP) or Sewer Treatment Plant (STP) that convey sanitary sewer water runoff from the main campus. Treated water will then be drained out in the nearest canal or drain. Map 7.1 presents drainage basins for Rajshahi University. Map 7.3 and map 7.5 presents sanitary sewer drainage network with proposed location of ETP/STP for the study area. Map 7.6 illustrate proposed priority drainage network for immediate development.

The University authority will own and maintain the sanitary sewage collection system on campus. The majority of campus sewage drains directly by gravity to the STPs/ETPs. There may be few localized segments on campus that will need pumped into the gravity network.

The sanitary connection of any building cannot be discharged at canal or pond and each building must ensure the provision of sanitary sewerage connection during the plan preparation. Complexes with chemical waste will have drainage lines for the disposal into the nearest ETP. The buildings lie outside the basins must have Septic tanks and soak well. The ultimate sludge of STP/ETP and waste collected from septic tanks will be collected through Vacuum tank will be transferred to the Sludge treatment plant. Sludge treatment plant has been proposed at the central landfill site near botanical garden.

### 7.3 Net Zero Water Campus

The Campus aims to be NET-ZERO water at the completion of all its phases. The basic concept is to optimize the baseline, reduce demand wherever possible and use water-efficient technologies to minimize wastage. Capacity has been provided for rainwater harvesting as well as extensive re-use of treated grey and black water for non-potable uses within the Campus. The municipal supply will act as a backup in case of emergency situations. Native as well as resistant species of plants have been proposed to reduce the irrigation demand.

#### 7.3.1 Existing Scenario

Except sweeper colony there is no local organization like City Corporation or WASA responsible for potable water supply inside campus area, from which the Universities community, student, teacher could draw water in needs. So, the University has developed an independent water supply system.

Sources of water are usually available in campus like (a) rain water and (b) ground water. Rain water is not feasible for the size of the supply in this case. But roof water can be stored in the peak monsoon and use as car washing, gardening, etc. Combined system of storing surface water and extracting ground water may meet the water demand of University campus area.

#### 7.3.2 Proposals Related to Water Supply

Consultant has made a list of proposal for development of water supply system. This list include–khal protection work, surface water treatment plant, surface water retention pond, renovation and upgrading of pump house, pump house building, etc. Water-efficient technologies should be used to minimize wastage. Extensive re-use of treated grey and black water for non-potable uses are encouraged within the Campus. The city corporation water supply will act as a backup in case of emergency situations. Native as well as resistant species of plants should be planted to reduce the irrigation demand.

#### Rain Water Harvesting

It would be very useful if roof water will be reused discharged in peak monsoon. Measures need to allocate surface location and identification in design for re-use, recharge, and retention/storage. Most of the building footprints and paved areas that will be covered by concrete is currently covered by soft and permeable components. It is recommended in the master plan and in future drainage, landscape planning and total design need to be adjusted.



## 7.4 Net-Zero Waste Campus

The Campus aims to be NET-ZERO waste at the completion of all its phases. Segregation-at-source, regular waste collection and a central waste sorting area have been proposed to optimize the waste management process. Strategies to deal with various types of waste have also been suggested. Followed efficiently, the Campus may be able to successfully divert 100% of its waste from the landfill site.

### 7.4.1 Existing Scenario

There is no specific data related to solid wastes generation per day in the University of Rajshahi. However, University has no proper methods for collection of these wastes. People leave waste here and there. In most urban areas, door to door waste collection is commonly seen, but in the University of Rajshahi no such system exists. It is the responsibility of Class IV employees to collect waste and transfer in the Secondary Transfer Station (STS). The campus STS located in western side adjacent to Botanical Garden. Finally, RDA transfer the waste from University STS to their Sanitary landfill area. Waste dumping facilities within the university is not satisfactory. The existing number of bins and dustbins are not sufficient and designed for proper waste management.

### 7.4.2 Recommendations for Solid Waste Management

- Solid waste recycling can generate many usable materials as resources. So, Reduce, Recycling, Reuse (3R) concept of waste should be established at household level.
- SWM at Source to Reduce Waste.
- Follow the three Bins System.
- The coverage of household waste collection system needs to expand.
- Secondary Transfer station in each District to introduce.
- Central Transfer station and recycling area to design.
- The STS area should be minimum of 5 decimal for each district.
- Community bins has been proposed in walking distance.

A list of proposals related to solid waste management has been prepared for the university area. Map 7.7 pointed out Community Bins, Central transfer station and Secondary Transfer stations, etc. in the university area.

Table 7-6: List of Proposed Community Bin

Proposed Type	Proposed ID	Location in District	Existing Location
Community Bin	CB_01	West District	Adjacent Zuberi Bhaban
Community Bin	CB_02	East-Right District	At Sweeper Colony
Community Bin	CB_03	East-Right District	Adjacent New Academic Building at Eastern Side
Community Bin	CB_04	East-Right District	Adjacent Eastern Side New Academic Building
Community Bin	CB_05	East-Right District	Adjacent Eastern Side Female Hall
Community Bin	CB_06	East-Right District	Adjacent Eastern Side New Academic Building
Community Bin	CB_07	East-Right District	Adjacent Eastern Side Teachers Housing
Community Bin	CB_08	East-Left District	Adjacent Helipad
Community Bin	CB_09	East-Left District	Adjacent Proposed Male Hall
Community Bin	CB_10	East-Left District	Adjacent Provost Housing
Community Bin	CB_11	East-Right District	Adjacent Eastern Side New Academic Building
Community Bin	CB_12	East-Right District	At Eastern Side New Academic Building
Community Bin	CB_13	East-Left District	Adjacent Shah Mukhdum Hall
Community Bin	CB_14	Central District	Located Between 1st and Second Science Building
Community Bin	CB_15	Central District	in front of Habibur Rahman Hall
Community Bin	CB_16	Central District	Adjacent Sher-E-Bangla Hall
Community Bin	CB_17	Central District	Adjacent Central Stadium Mosque
Community Bin	CB_18	Central District	At Tukitaki Chottor
Community Bin	CB_19	West District	Adjacent Rahmatunnesa Hall
Community Bin	CB_20	West District	Nearby Begum Rokeya Hall
Community Bin	CB_21	Central District	Located Between Third and Fourth Science Building
Community Bin	CB_22	West District	Adjacent Western Side Female Hall
Community Bin	CB_23	Central District	Adjacent Siraji Bhaban New Block
Community Bin	CB_24	West District	At West Para
Community Bin	CB_25	West District	At West Para
Community Bin	CB_26	West District	At West Para Teachers Housing
Community Bin	CB_27	West District	At West Para Officers Housing
Community Bin	CB_28	North District	Behind Fine Arts Building
Community Bin	CB_29	North District	At North Side
Community Bin	CB_30	North District	At IT Park Housing Area
Community Bin	CB_31	North District	Adjacent IT Park Park Housing
Community Bin	CB_32	East-Left District	Adjacent Bijoy Sagor
Community Bin	CB_33	East-Right District	Behind Eastern Side Male Hall
Community Bin	CB_34	East-Right District	Adjacent Eastern Side Sweeper Colony
Community Bin	CB_35	Central District	Adjacent Second Administrative Building
Community Bin	CB_36	West District	Nearby Pro-VC Residence
Community Bin	CB_37	East-Left District	Adjacent Madar Baksh Hall
Community Bin	CB_38	East-Left District	Behind Habibur Rahman Hall
Community Bin	CB_39	East-Left District	At Station Market



## 7.5 Near Zero Energy Campus

The energy consumption of this campus will be reduced to about one-third by integrated with renewable energy technologies (Solar Park, Rooftop Solar, Biogas), with compact building clustering, and by encouraging a low energy lifestyle. The buildings will be developed with more energy efficient and low resource consuming buildings.

### 7.5.1 Electricity and Street Light

Green lighting technology e.g. compact fluorescent lamps (CFL), Light Emitting Diodes (LEDs) bulb needs to use in street pole which are clean, durable, energy efficient, cost effective (lower electricity bill) and typically provide higher quality lighting. Besides, more street lights should be incorporated identifying the streets where there are safety issues during night. Solar facilitated street light should be introduced.

### 7.5.2 Telephone Service

Telephone line is spared through the existing buildup area of the University. New network may be developed as per the future requirement.

The main basis of future requirement will be the population size of the university area. The existing services have to be considered in the forecasts. The BTCL service is easier and rates are cheaper now. To provide better service, a network of land lines of BTCL may be installed. Many new land phone companies in Bangladesh have introduced wireless phones. This system does not need wire, as a result not substantial cost is saved, but the company gets rid of the complexities involved in installation of network using limited road space.

### 7.5.3 Underground Duct Plan

Underground duct plan is suggested for smooth and efficient operation of university utilities service lines. Underground duct plan will include electricity line, telephone line, Wi-Fi optic fiber line, etc.

### 7.5.4 Recommendations

- Uninterrupted electricity should be ensured for a better development in the campus.
- In order to ensure the public safety, all the overhead electric lines (except high voltage line) to be shifted underground.
- Solar parks and community level solar facilities have to be provided.
- A renewable energy center may be used to generate electricity from solid wastes. Its viability to be checked through study.

➤ Solar facilitated street light should be introduced.

## 7.6 ICT Information Communication Technology

The plan provides for a high-speed ICT backbone with distributed hubs for flexible data exchange within and outside the campus, providing information, communication, security, and access control.

ICT systems make a smart intelligent eco-campus by capturing extensive data about the energy, water, waste, and mobility on campus and integrating them in the campus management systems.

The campus community is itself going to be enabled for learning anywhere, anytime, by the ICT backbone.

## 7.7 Smart Public Toilet

The role of public toilet facilities in university cannot be underplayed because it is important in the sanitation enhancement of campus environment. Public toilets matter to everybody, regardless of their age, class, ethnic origin, gender, mental ability or physical ability. The harmony of a building would not be complete without it. A close observation of university environment without adequate public toilet facilities at strategic locations is an impediment to its assumption of a full-fledged academic environment. Findings revealed the unhealthy conditions of toilet facilities in institutional housing and recommends public toilet facilities for institutional buildings and common places.

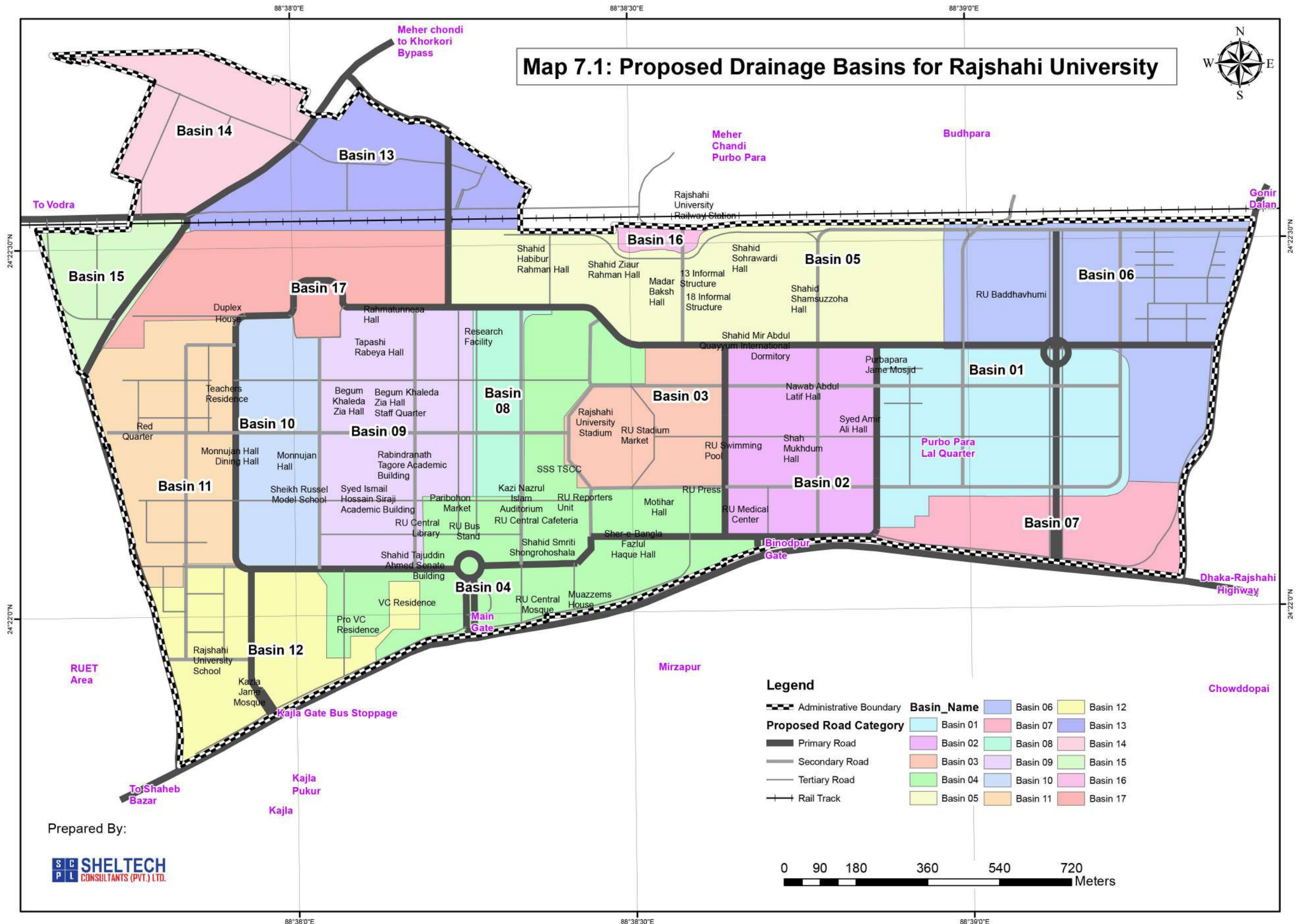
Smart public toilets has been proposed throughout the campus within 10 min waking distance with all disable friendly and modern technology supported. Map 7.7 presents strategic location of public toilets for Rajshahi University.

**Table 7-7: List of Proposed Smart Public Toilet**

Proposal	Proposed ID	Phase Update	Proposed Storied	Location in District	Existing Location
Smart Public Toilet	PT01	Near Term Phase I	01	Central District	Adjacent Tukitaki Chottor
Smart Public Toilet	PT02	Near Term Phase I	01	East-Right District	Adjacent Boddho Bhumi
Smart Public Toilet	PT03	Near Term Phase I	01	Central District	Adjacent Central Stadium
Smart Public Toilet	PT04	Near Term Phase I	01	Central District	Adjacent Sabash Bangladesh Field
Smart Public Toilet	PT05	Near Term Phase II	01	East-Right District	Adjacent East Para Sweeper Colony
Smart Public Toilet	PT06	Near Term Phase II	01	West District	Adjacent Iblish Chottor
Smart Public Toilet	PT07	Near Term Phase I	01	Central District	Adjacnt Habibur Rahman Field
Smart Public Toilet	PT08	Near Term Phase II	01	North District	Adjacent Fine Arts Building

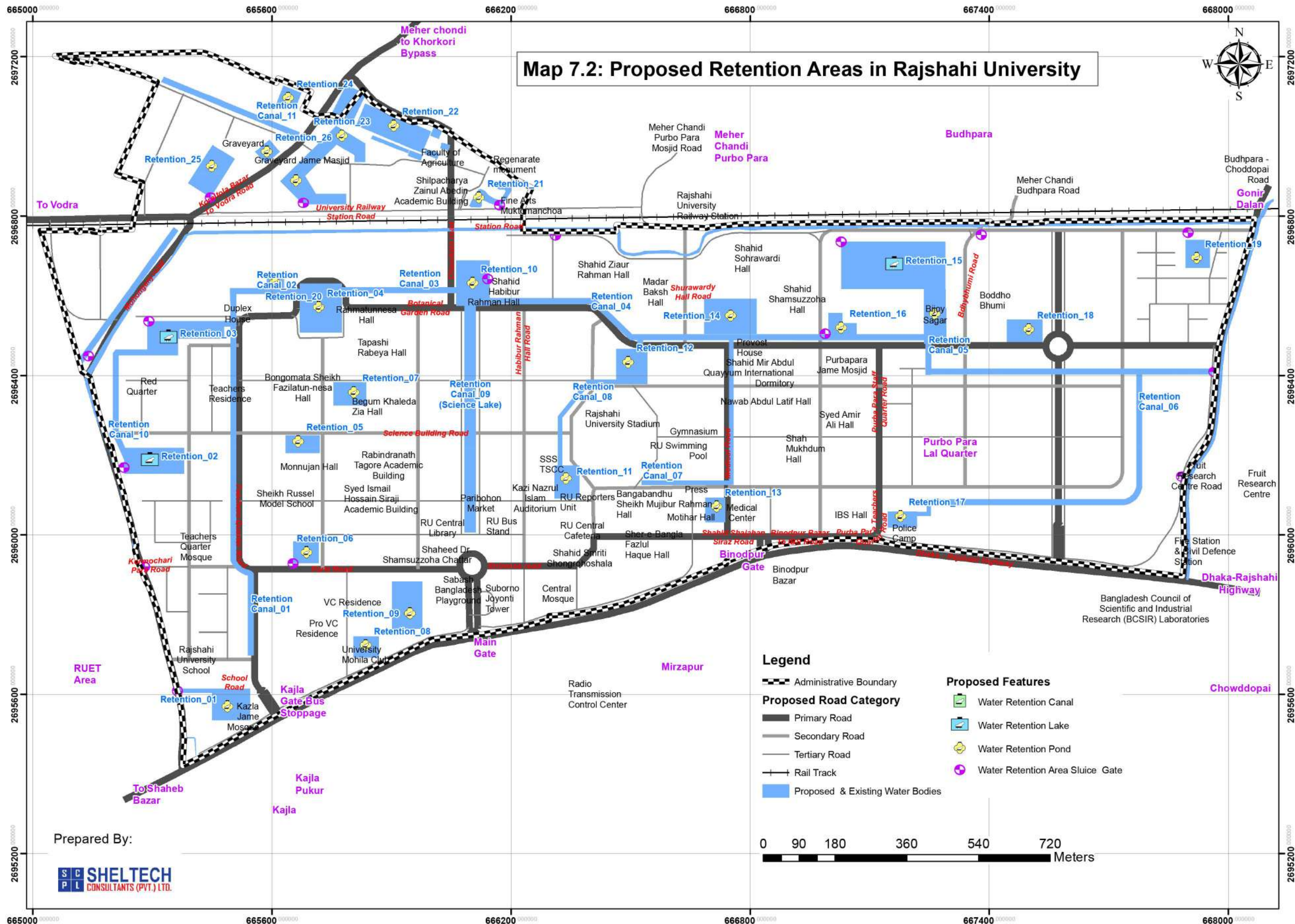


Proposal	Proposed ID	Phase Update	Proposed Storied	Location in District	Existing Location
Smart Public Toilet	PT09	Near Term Phase I	01	East-Left District	Adjacent Rajshahi University Station Market
Smart Public Toilet	PT10	Near Term Phase I	01	Central District	Adjacent Kazla Gate
Smart Public Toilet	PT11	Mid Term	01	West District	Infront of Rokeya Hall
Smart Public Toilet	PT12	Long Term	01	North District	Adjacent University Graveyard
Smart Public Toilet	PT13	Mid Term	01	East-Left District	Adjacent East Para Officers Housing
Smart Public Toilet	PT14	Long Term	01	East-Right District	Behind Boddho Bhumi at Eastern Side
Smart Public Toilet	PT15	Long Term	01	East-Right District	Adjacent Eastern Side New Gate
Smart Public Toilet	PT16	Near Term Phase II	01	Central District	Adjacent Binodpur Gate



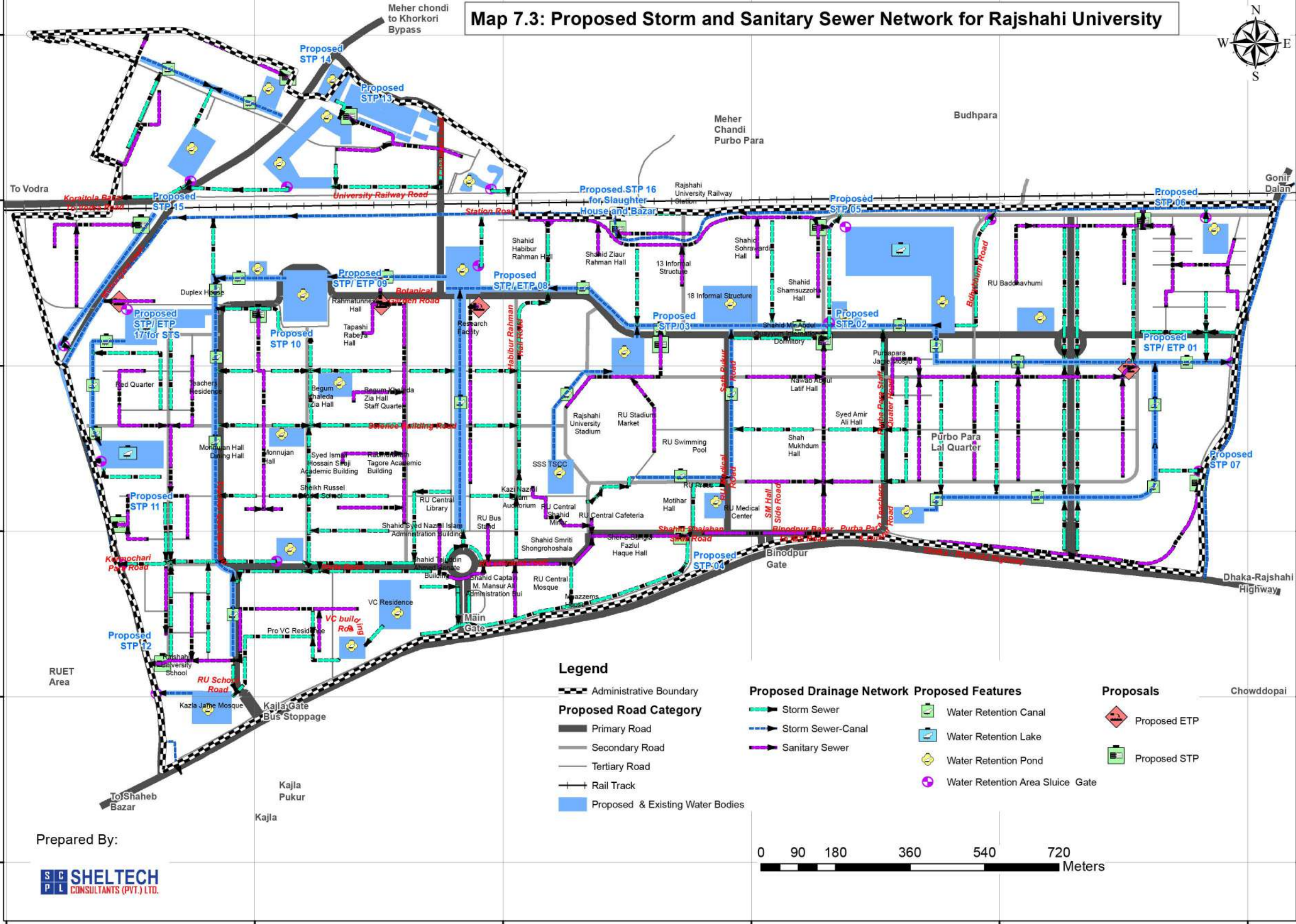


**Map 7.2: Proposed Retention Areas in Rajshahi University**





# Map 7.3: Proposed Storm and Sanitary Sewer Network for Rajshahi University



## Legend

Administrative Boundary

## Proposed Road Category

- Primary Road
- Secondary Road
- Tertiary Road
- Rail Track
- Proposed & Existing Water Bodies

## Proposed Drainage Network Proposed Features

- Storm Sewer
- Storm Sewer-Canal
- Sanitary Sewer
- Water Retention Canal
- Water Retention Lake
- Water Retention Pond
- Water Retention Area Sluice Gate

## Proposals

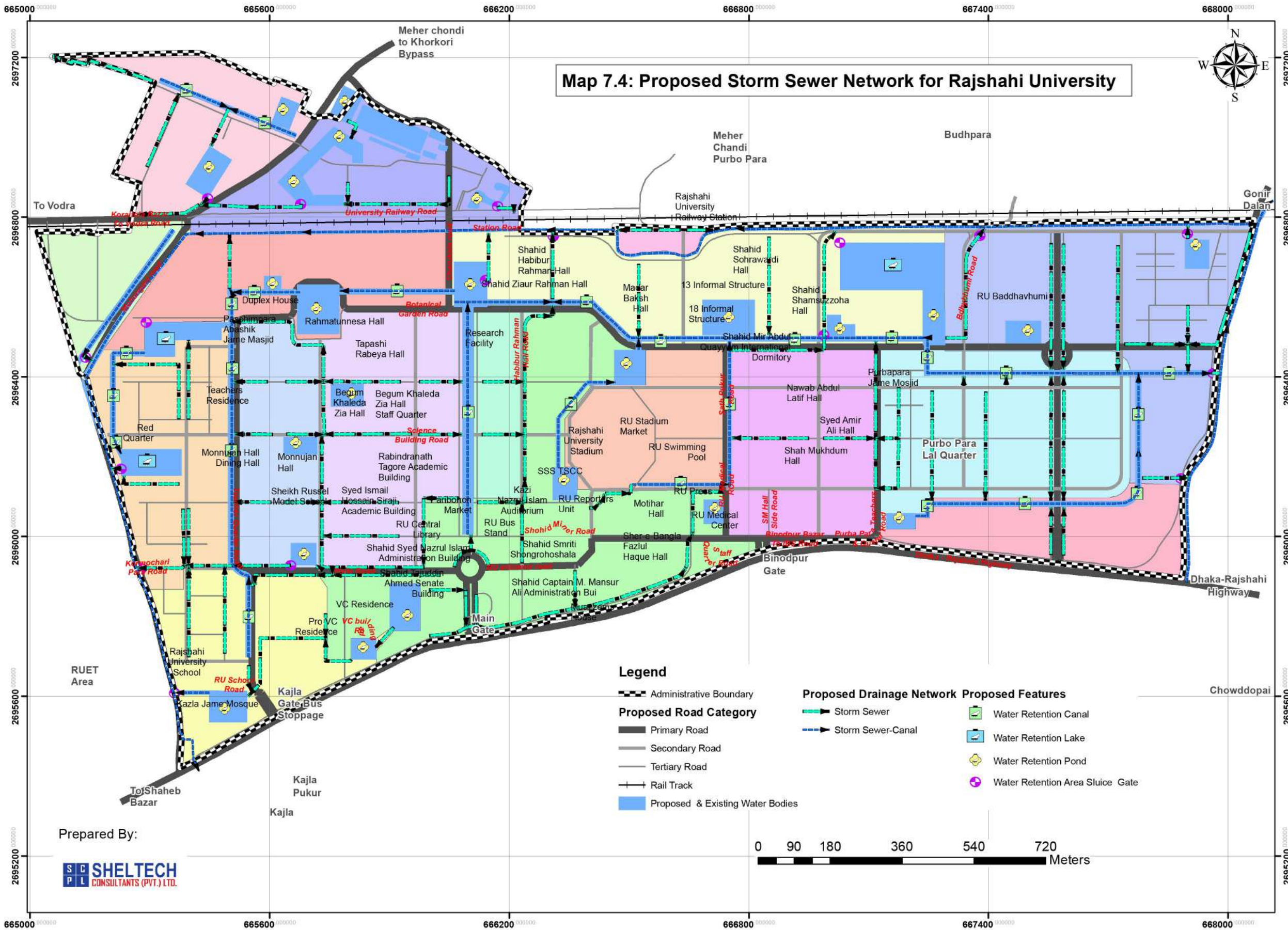
- Proposed ETP
- Proposed STP

0 90 180 360 540 720 Meters

Prepared By:

**SHELTECH**  
CONSULTANTS (PVT.) LTD.





Map 7.4: Proposed Storm Sewer Network for Rajshahi University



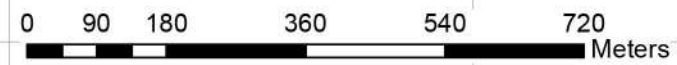
Legend

- Administrative Boundary
- Proposed Road Category
  - Primary Road
  - Secondary Road
  - Tertiary Road
  - Rail Track
  - Proposed & Existing Water Bodies

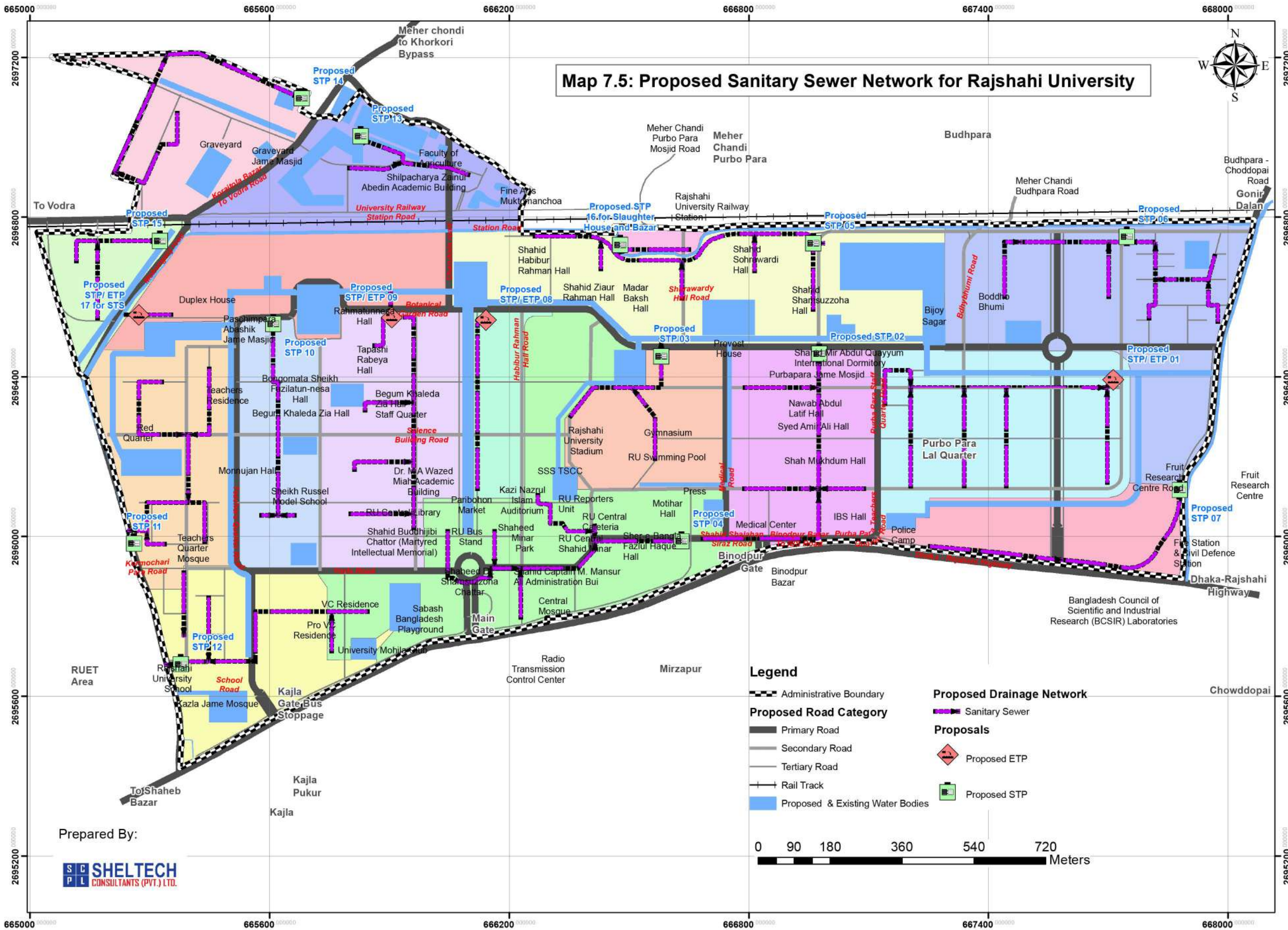
Proposed Drainage Network Proposed Features

- Storm Sewer
- Storm Sewer-Canal
- Water Retention Canal
- Water Retention Lake
- Water Retention Pond
- Water Retention Area Sluice Gate

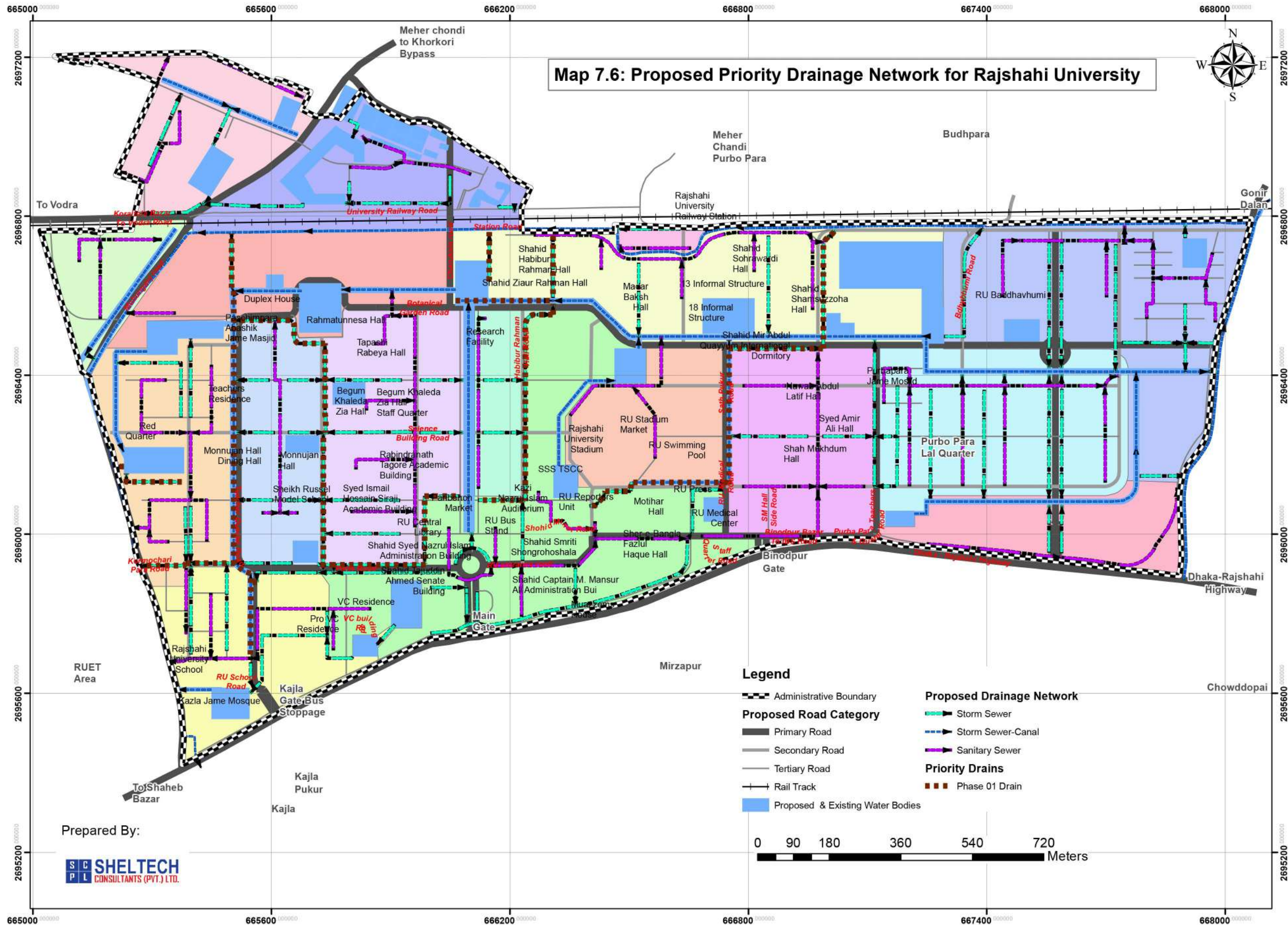
Prepared By:





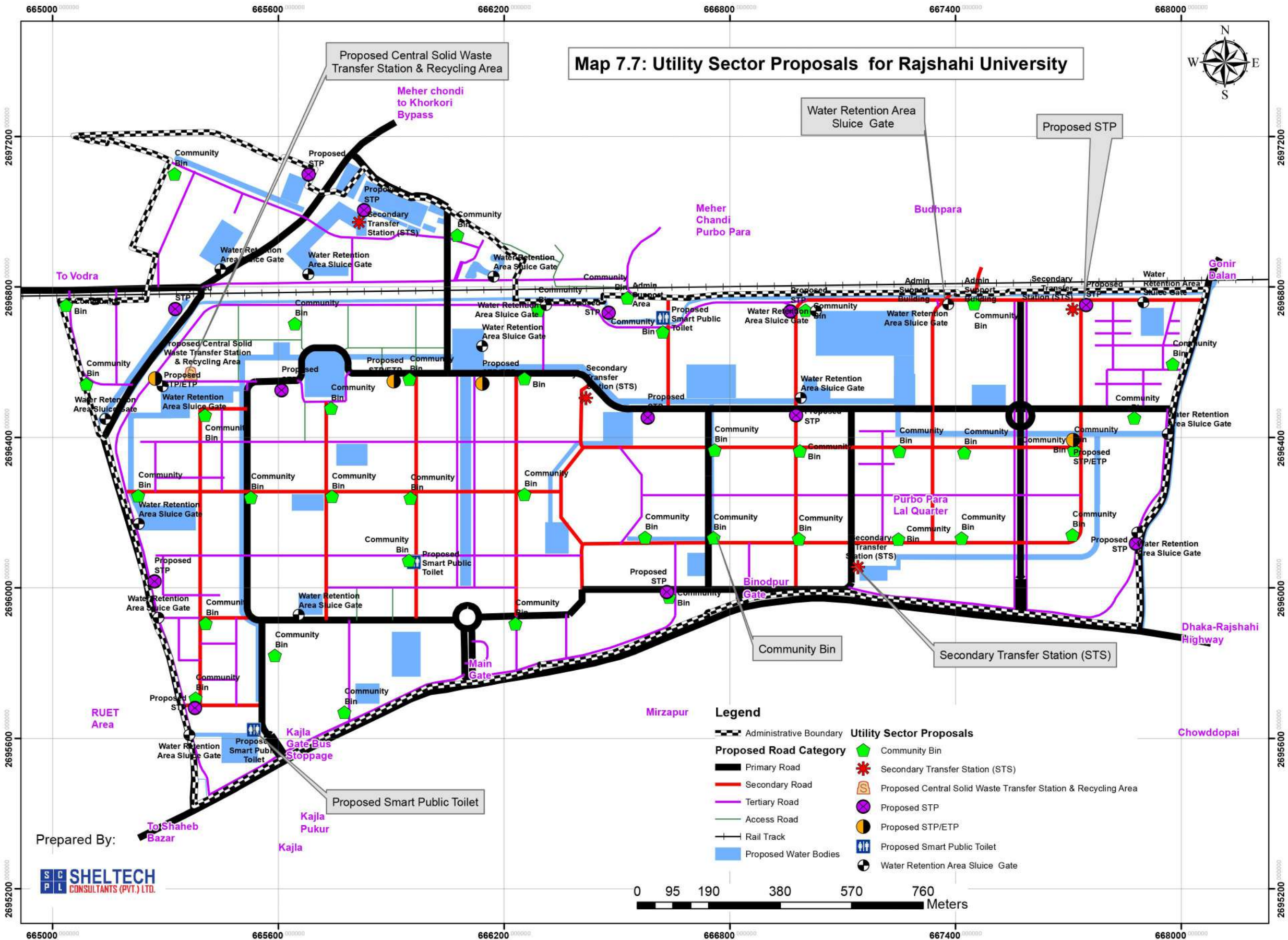








Map 7.7: Utility Sector Proposals for Rajshahi University



Prepared By:

**SC PL** **SHELTECH**  
CONSULTANTS (PVT.) LTD.

#### Legend

Administrative Boundary

Proposed Road Category

Primary Road

Secondary Road

Tertiary Road

Access Road

Rail Track

Proposed Water Bodies

#### Utility Sector Proposals

Community Bin

Secondary Transfer Station (STS)

Proposed Central Solid Waste Transfer Station & Recycling Area

Proposed STP

Proposed STP/ETP

Proposed Smart Public Toilet

Water Retention Area Sluice Gate

0 95 190 380 570 760  
Meters





# Chapter Eight

## Open Space Framework, Landscape and Design Guidelines

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## CHAPTER EIGHT

# OPEN SPACE FRAMEWORK, LANDSCAPE AND DESIGN GUIDELINES

### 8.1 Open Space Framework

The Open Space Framework plays an integral role in the building campus identity and in defining the University as a welcoming and desirable place to be natural. Most notable campuses around the world are typically renowned for their impressive landscapes. One of the top considerations for choosing a University over the past decade standard and university along with the beauty and attractiveness of the campus, and the quality of the public realm - the open spaces and landscapes - regardless of geographical location. The Plan seeks to achieve a seamless relationship between buildings and open spaces which work together to create a high quality, attractive, and functioning environment for the University.

The Open Space Framework for Rajshahi University is intended to provide a clear and flexible structure of existing and new open spaces to meet a variety of social and recreational needs, and to elevate the quality standard, attractiveness, and comfort of the Campus. The living and studying framework constitute all aspects of the public realm, including a diversity of open spaces, conservation of botanical gardens, canals, ponds, recreational spaces like photoshoot points and memorable event, pathways, pedestrian corridors, linkages, and streets. It provides the context for the built form and takes into consideration the treatment of internal open spaces and their relationship to the external environment.

#### 8.1.1 Open Space Typologies

The Open Space Framework constitutes a variety of open space typologies that function to create a beautiful, welcoming, animated, pedestrian-oriented environment and destination. Each open space typology is intended to contribute holistically to accommodate a variety of needs, to enhance tourism, protect the green, to socialize the Campus, to engage and welcome the community in, and to foster healthy living for all. The open spaces are one of the best opportunities to represent and support university's culture and tradition, historical dominance, signages, facilities through art, landscape and sculpture design and planting, and through programming open spaces. The open spaces should be used as a pedagogical tool for the University, with opportunities for outdoor learning and teaching.

At the scale of the University, the Framework provides a variety of spaces to meet student and faculty needs, increasing the opportunity for social meeting, engagement, lingering and studying, learning, recreating, and for events and ceremony. In addition, at the scale of the community, it functions as the day-to-day playground and destination for the surrounding neighborhood and local community for recreation, get-together, relaxation, amusement, walking, cycling, and partaking in Campus' events.

Safety and security factors and measures are priorities to be addressed in design. Accordingly, all open spaces must be well equipped with a sustainable way, and visible and accessible from numerous vantage points both internal and external so that they are safe, secure and comfortable places to be.

The following section provides an overview of each of the open space typologies defined in the Framework.

### 8.1.2 University Center/ Central Space

The University Center is proposed to be one of the primary open spaces within the Campus, due to its function as a central gathering space and student hub in the heart of the Campus. The space is an open green framed by surrounding landscape, and by the key student destinations. The center is intended to provide a high level of flexibility in terms of use and activity, accommodating a wide range of both active and passive recreation. It is also intended to function as the ceremonial space for the Campus, as the place to hold large gatherings, and host University and community events. When there is nothing programmed for the center, it functions as a place to sit and enjoy the outdoors, waterbody, greeneries.

#### Policies:

- The University center should be visible and accessible from Main Entrance Road. It should be welcoming and animated with open space in front of Campus.
- The University center should be designed as an open grassed area with pathways that link to building entrances and pedestrian circulation routes.
- Existing and new trees should spread to define the spaces of trees, plants, flowers, vegetation should attract the center for users and visitors.
- Fixed seating could be provided along the edges of the university center with focusing the center.
- The design of the University Center should be integrated in the design of the adjacent open spaces, water bodies, sculptures to feels large contiguous space.



- The University Center should be a prime location for highlighting university interfacing as highest education center, better world through art, landscape design and the location of structures.
- Important elements in the University Center are Dr. Shamsuzza Chottor, Central Shahid Minar, Suborno Joyonti Tower, Sabash Bangladesh, Main Academic Building, Science Lake, Senate Building etc. These features should be maintained and lined with pedestrian circulation, landscape elements, siting armaments etc.
- The center should provide a balance of soft and hard surfaces to accommodate a high degree of pedestrian circulation, as well as grassed areas for sitting, and garden areas for landscape beautification.
- It should be aimed to create walkability University Center by reducing the size of the drop-off loop and integrating it as part of a continuous plaza landscape. The University Center space can be framed with smaller ornamental trees to provide beautification of the space and seasonal landscape color and interest.
- All trees including existing evergreens should be limbed up to provide a minimum 6-8 feet clearance underneath the tree canopy. The canopies of trees act as a physical filter, trapping dust and absorbing pollutants from the air. They also provide shade from solar radiation and reduce noise. Courtyard or outdoor space or plazas in the zones

### 8.1.3 Courtyard or Outdoor Space or Plazas in the Zones

The master plan proposes different faculty zones in the university like Arts faculty zones, Science Faculty zone, Law faculty zones, Admin zone, residential zone, conservation zone etc. The Courtyard open spaces or outdoor gathering space or plazas in the Zones are the opportunities to create beautiful, unique, and intimate places. Each outdoor gathering space adds to the variety of open spaces and open space design, thereby bringing a diversity of landscape characteristics and forms to the overall Framework. Generally, courtyards should be designed as flexible spaces for passive recreation and activity. There should be multiple entrances onto the spaces from the buildings that frame them. They should be well lit with pedestrian scale lighting and transparent building frontages. At grade uses should animate the space so that they are comfortable and safe places to be. The outdoor gathering space or plazas in the zones also provide the perfect opportunities to tell/ reflect faculty zone uniqueness through design, planting, and the integration of art as spaces that can be viewed and experienced from surrounding buildings.

The recommendations above apply to all existing and new courtyard spaces but the following sections provide more specific recommendations that speak to increased use of the existing courtyards spaces and the enhancement of the unique elements within.

**Policies:**

- Preserve and enhance the existing trees and landscape features.
- The at-grade use of all new buildings should provide “eyes on the courtyard”, animate the space, and provide internal and external pedestrian linkages between the courtyard and buildings.
- All new buildings that front the courtyard should provide multiple points of access to it, and a high degree of transparency fronting it. The building should help to illuminate and visibility to beauty open space at night.
- To provide designated seating increase efficient use of spaces.
- To design the planters with sitting edges and consider the use of high-quality materials such as wood and stone in keeping peace with the character of the university, users and visitors appear to feel of the space.
- To design the pedestrian passageway so that it is more inviting and attractive as the face to the street.
- The courtyard/plaza should be designed as an extension of the streetscape design with places to sit and linger.
- To ensure sufficient lobby, lift for corresponding academic, administrative and residential buildings.
- To give more importance on vegetation on the basis of trees categories like flowers plants, fruits grove, grasses, shrubs would be implemented in accepted space.
- Open space conservation, sculptural garden, courtyard, bicycle, washroom should come into forward with proper utilization.
- Green areas, bird’s sanctuary, waterbodies, weather and climatic conditions are trying to more preservation for future development and planning.

**8.1.4 Central field**

The Central Field is the largest open space in the Campus. In the Master Plan, the field is envisioned as a community magnet and focus. It is the opportunity to engage and draw in the community, other institutions, and the wider city. This open space should function like all other open spaces within the Framework, as an accessible, inviting, and flexible space. Its primary function is to accommodate the University’s sports, as well as support a variety of recreational activities for the University, surrounding schools, and the community in general. One international level football ground cum international standard cricket stadium, Indoor stadium, swimming complex,



Gymnasium and emergency service area should accommodate in the central field and adjacent area.

**Policies:**

- To enhance the field to standard field dimensions to organize international level football tournament, international standard cricket ground.
- Existing permanent gallery in some portion may be preserved and reserved and vertical expansion with escalator or lift facility may be introduced to fulfill the capacity for international level football ground/ international standard cricket stadium but temporary gallery or movable gallery may be installed. Designer's privilege for detail design must consider openness and natural beauty of the surrounding landscape.
- To enhance and frame the edges of the field with a row of canopied trees to define and beautify the space to create a defined and striking look to street. Fences to be permitted to define.
- To provide an illustrious architectural form, a significant canopy, and a change in range of color throughout the seasons such as Krisnachura, Polash, Shimul, Sonalu, Jarul, Chapa etc.

### 8.1.5 Pedestrian Linkages

The Green Linkages are the pedestrian passageways through the Campus that are a key component of the circulation system, and contribute to vegetation and good-looking environment. They are typically key connectors between larger open spaces or are part of servicing routes through the Campus, such as laneways. The linkages are typically defined by trees, landscaping, and pedestrian scale lighting to create a relaxed and safe walking.

**Policies:**

- The linkages should be designed with clear and unobstructed extended and broad views for ease in wayfinding.
- Linkages should be well lit with pedestrian-scale lighting, and fronted by doors and windows where possible so that these passageways can be used safely at night.
- Quality paving materials should be used to clearly define these passageways.

### 8.1.6 Streetscapes

Streets are not just circulation corridors. They are public places, and as such, are an integral component of the Open Space Framework. They function similar to the green linkages in that they provide attractive green connections to places throughout the Campus and beyond. They are opportunities to enhance and strengthen linkages to

different zones. They also function as Plazas, as places to walk, cycle, sit, linger, read, and wait for a bus. They are destinations and get-together spaces that allow for spontaneous interaction, planned programs and events. Importantly, they also help to guide how people experience, move through, and use the campus with ease and comfort.

**Policies:**

- Major roads should follow the Paris road character and designated with consideration of photoshoot, wedding photo shoot, festive, memorable event.
- Streets should be designed to function as pedestrian priority spaces, while accommodating all modes of transportation including bicycles, cars, buses, and service vehicles.
- Traffic speeds should reduce along internal campus streets and physical measures to mitigate traffic should be integrated in the streetscape design. Such measures include raised crosswalks, signage, street trees and landscaping, parking bump-outs, on-street parking, and enhanced paving materials such as brick or stone.
- Streetscape design should create welcoming, beautiful, and comfortable places to walk in all seasons.
- Streets should have generous sidewalks, attractive landscaping, street trees, and lighting for both pedestrians, cycles and vehicles.
- Streetscape design should incorporate attractive signage to assist wayfinding within the Campus, to neighboring properties, and to tourism potential areas.
- Opportunities for storm water management should be integrated in the streetscape design.
- Sustainable design approaches should be used for the planting of street trees such as tree trenches and soil cells.
- Tree species with large canopies should be chosen to create shade, to act as wind breaks, and to increase the overall tree canopy for the neighborhood. Trees should be limbed up to provide 6-8 meters clearance under the canopy for clear visibility and sight-lines.

#### 8.1.7 Internal Meeting Places

The demand for bright, open, spacious internal areas for study, learning, and socializing changes changing the design of buildings. As such, the internal social gathering spaces within buildings play a key role the Open Space Framework and require design guidance in relation to exterior open spaces. These spaces provide additional opportunities to invite the community in and to be an integral part of the Campus.



**Policies:**

- All internal public realm spaces should be open, bright, and spacious to create welcoming and inviting places to study, linger, socialize, dine and in some cases to doze.
- The location of these spaces should be along the periphery of buildings with a transparent face to allow for direct visual and physical connections to the external open spaces.
- The design of the interior and exterior spaces should be considered comprehensively so they complement each other.

**8.1.8 Landscape Design**

Each space should be designed to develop unique quality to the Open Space Framework. That said, there needs to be a cohesiveness to the landscape that contributes to a strong campus identity and a distinct and recognizable character of the place. Landscape design and the materials used should reflect not only a quality environment, but one that is sustainable and resilient.

**Policies:**

- The plant material should be strong, self-sustaining, with minimal need for irrigation and maintenance.
- Effective trees should be planted to define spaces, to create shade and shelter, to protect from extreme weather conditions, and to provide seasonal interest in terms of color and form.
- Development of plazas in each faculty zone to provide space for outdoor gathering of students. Gardens can be incorporated in the design of the streets in the plaza spaces.
- Natural water bodies and fountain, canal, plaza should be developed, conserved and protected and used to be storm water management and are also a means of showcasing sustainability.
- The choice of plant material should provide beauty, color and form throughout the seasons and provide opportunities to enhance the natural plant and animal habitat for the area.
- The landscape design should integrate flowering trees or trees for beauty or aesthetics that can be enjoyed by the University and surrounding community.
- The landscape design and use of space should be structured to engage faculty and program curriculum as opportunities for teaching and learning, including of Indigenous cultures and traditions.

### 8.1.9 Lighting

Lighting is one of the primary means of making a place feel safe, intimate and inviting and facilitating its use beyond daylight hours. It can be used to elevate and enhance the quality and character of space by providing attractive architectural or artistic design form during the daytime, and a variety of ambiance levels during the night time. This will make the open space of the campus unique.

#### **Policies:**

- Campus streets and open spaces should be well-lit to create a sense of safety and security in all seasons.
- Lighting design should provide adequate illumination while minimizing light pollution.
- Energy-efficient lights should be installed throughout the Campus to minimize energy usage.
- The lighting design of open spaces should be carefully chosen to complement the use and character of the space and to enhance the unique elements and landscapes within.
- Pedestrian scale lighting should be used within the open spaces and streets. Vehicular scaled lighting should be used primarily at road intersections.
- The choice and style of light fixtures should contribute to building campus identity and creating a quality environment. The fixtures should complement the architecture and landscape and read as part of an overall package of furnishings for the Campus.
- Lighting can be in the form of style, and can be integrated into art forms as well.
- The design for the open spaces should include electrical conduits for temporary or decorative lighting installations during festivals and events.
- Decorative lighting should not be used on trees. If trees are to be focused, lighting should be provided at the ground level or adjacent to the trees in the form of a bollard.

### 8.1.10 Public Art

Public art is an art installation that resides within the public realm. Art plays an important role in building the University's identity. It provides opportunities to create a unique environment and enhance the quality and experience of the public realm. It is a means in which to convey the history and culture of the University. Public art also serves as an orienting and wayfinding mechanism, and can be used as a gateway feature located at key entrances into the Campus, along pedestrian corridors, at the



terminus of streets, and within all open spaces. Art can be used to frame or terminate views as a focal point, or add interest to a streetscape or open space.

**Policies:**

- Art may be represented as permanent or temporary installations, water features, recreational features, furniture, landscaping, architectural design and signage.
- Art can function as an interpretive and educational tool and should be used as a means of telling the story of peoples.
- The scale of art installations should correspond to the visual prominence of the site.
- At the planning of each phase of development, key locations for art within the public realm should be identified so that it can be integrated into the design.
- Temporary installations are encouraged as opportunities to animate the winter landscape, to create a dynamic campus environment year-round, and to engage the community.
- All art within the Open Space Framework should be publicly accessible.
- Art should be used as a means of visibly representing and building peoples' culture and identity on campus, and should be located in key locations and within significant places.

### 8.1.11 Heritage Conservation

Rajshahi University has several prominent older buildings that represent significant architectural moments in time. Among those buildings, Shahid Syed Nazrul Islam Administration Building, Rajshahi University Central Library, First Science Building-Satyendra Nath Bose Academic Building and so on. This is due to the fact that, during starting period those structures play pivotal role and witness of Bangladesh Liberation War 1971.

Most of these buildings should be recognized and conserved as significant and contributing buildings in the context of the Plan. Some of these buildings are defined by surrounding existing cultural heritage open spaces. Both buildings and open spaces should be enhanced as historic assets for the University. A committee should be formed to inspect the heritage building and recommended the necessary measures to fully conservation, partially conservation, renovation or demolition those structures.

The entire campus of Rajshahi University (RU), the second largest such institution in the country, contains different beautiful monuments dedicated to the Liberation War 1971. The RU also played a vital and glorious role in the Liberation War as the university lost its teachers, students and officials as martyrs during the liberation war.

To pay tributes to the national heroes martyred in the War of Independence and recall their contributions, the university has established a museum. These monuments have gradually enhanced the beauty of the campus. Shahid Smriti Sangrahashala, the first museum based on the Liberation War, was set up in 1972. This was also the first museum in the country dedicated to the Liberation War and its memorabilia.

Many skeletons of martyred freedom fighters are preserved in the Shahid Smriti Sangrahashala. Also preserved in the museum are different rare objects used in war by the freedom fighters including arms, garments and relevant documents.

It has six galleries, with various memorabilia recovered after the Liberation War. At the centre of the museum is a research library to preserve all documents on the Liberation War, including books, reference papers, journals and photographs.

Sabash Bangladesh, a headstone on the Liberation War, is the most attractive one on the university campus. This monument located through the main entrance gate of the university. The Sabash Bangladesh monument is situated on the right side of the university's Senate building. It was designed by eminent artist Nitun Kundu in 1976.

In 1972, an eye-catching Shahid Minar was built next to the Shahid Smriti Sangrahashala. The first Shahid Minar, in front of the Shahidullah Arts Building, was demolished by the Pakistani army on April 14, 1971. Another memorial is the Shahid Smriti Stombho '71, built on the university's mass graveyard at the east side of the campus. The authorities recovered thousands of skeletons of freedom fighters while they dug up the mass graveyard in March 2003. Another monument, 'Bidhargo', was set up in front of Shaheed Habibur Rahman Hall in August 2011.

#### **Policies:**

- Preserve and enhance historical assets and enhance the context in which they reside such that they are prominent landmarks for the University and community.
- Integrate heritage assets in a way that celebrates and commemorates the past and complements the current and future contexts.
- The design, orientation, and placement of new buildings and structures must respect transition and compliment heritage buildings.
- Consider all new buildings as significant heritage assets for future generations. Therefore, the design of new buildings should represent "expressions of their own time," reflecting quality, sustainability, and innovation that will be appreciated by future generations and be representative of Rajshahi University.
- A prescribed committee of experts should be formed to prepare effective measure for the heritage sites.



### 8.1.12 Materials and Architectural Character

Regardless of the building design or architectural era, RU has successfully maintained a consistency in materiality which has resulted in a cohesive look to the campus. The brick, wood, and concrete that is reflective of the original buildings has carried through in other buildings over time. The quality in materiality - the brick, wood, and concrete - has stood the test of time and is reflected in the buildings today. The use of glass and stone, stainless steel, etc. may be introduced as new material in campus. A mix of materiality provides interest and diversity in the built environment and is encouraged for the University moving forward.

Campus architecture should be rich with a variety of traditional and contemporary styles.

All buildings should be treated as valued icons for the University. Therefore, the primary criteria for the choice of materials and building details should be sustainability, high quality and longevity, ease of maintenance, and timelessness in design. The consistency in high-quality design, and a cohesiveness in materials and architectural character is what builds campus identity. It shapes the look and feel of the Campus and is an integral part of how Rajshahi University is defined and assessed outwardly. It is important to create quality interior environments as well in which the materiality and architectural character creates friendly, bright, and inviting spaces whether it be classroom, study, lab, or social gathering space.

#### **Policies:**

- The design of any new building on the Campus should exemplify the highest quality and standard of architecture and evoke an image of excellence and leadership for the University.
- The architectural character of new buildings should be respectful of, and enhance where possible, existing campus buildings, and draw on the assets and qualities of existing building elements.
- Existing design themes and styles that are valued should be carried forward and integrated into new design compositions. This does not mean replicating the existing architecture, but instead, designing to complement and seamlessly integrate a new form that maintains the desired character of place.
- Design buildings with quality interior spaces that enhance the learning and social environments.

### 8.1.13 Climate Considerations

The design of buildings in Rajshahi University must create comfortable, walkable environment to mitigate the rain, humidity, cold and wind, and also to enable visually

and physically pleasant experience of all seasons. The warmer seasons need to be considered such that the campus can be enjoyed during hot and rainy seasons. The design of buildings, scale, masses, height, orientation, materials, transparency and perforation play a key role in creating comfortable interior and exterior pedestrian environments throughout the year. In addition, the Plan will encourage indoor-outdoor interfacing for pedestrian circulation as a means of development a vigorous healthy campus environment.

**Policies:**

- Buildings should be designed to allow for maximum sunlight in the interior of buildings.
- Shades on road to be preserved pedestrian passageways to protect from rain and sun conditions.
- Orientation of Building: Exact north or south facing of the building limits solar load on the east and west walls only. South wall is exposed to sun but can be protected by small overhang. West wall should be 20" thick or have air gap. Trees on west protect from hot afternoon.
- Avoid the use of upper level pedestrian way connections between buildings. This inhibits the socialization and animation of the campus at the ground level.
- If building connections are deemed necessary, they should be located at grade and should be open, bright, and transparent to allow for the visual experience of the outdoors and the orientation of place.
- Design internal pedestrian corridors alongside the building edges to allow the visual experience of the outdoors and the orientation of place. Social meeting spaces study and interaction spaces should be located accordingly.

## 8.2 Design Guidelines

Design guidelines are sets of recommendations towards good practice in design. They are intended to provide clear directives to designers and developers on how to adopt specific principles, such as intuitiveness, learnability, efficiency, and consistency. Instead of dictating conventions, design guidelines provide helpful advice on how to achieve a design principle that can be platform-specific or cross-platform. Landscape design guideline is more needed for a university campus. Consultant team suggests some examples and guidelines to beautify, sympathetically for integrated, safe and honored university campus for all times.



### 8.2.1 Main Entry and Access Road.

A very magnificent gateway at Kazla, Main Gate, Binodpur, New East Gate and others gate in northern area should be designed for the university with most modern safety and security systems.



Figure 8-1: Examples of Main gate and Access Road

The Gates (Kazla, Main Gate, Binodpur, New East Gate) along Dhaka-Rajshahi Highway should be redeveloped considering safe vehicle parking, entry and exit. More space in front of gate for vehicle turnover or movement. The designer can check existing RUET gate for detail design.



Figure 8-2: Existing RUET Gate

### 8.2.2 Design of Primary Circulation Loop



Figure 8-3: Paris Road

It will be great if the entire primary circulation loop lined with trees like Paris Road.

### 8.2.3 Vehicular Roads, Bicycle Lane and Pedestrian

There will be a provision of pedestrian and bicycle lane which will circulate the university campus. Provision of vehicular road also described in chapter seven.



Figure 8-4: Examples of Roads with Bicycle lane and Pedestrian

### 8.2.4 Roads, Pavements, Walk Ways, Landscape.

It is necessary to design the roads to ensure safety and decrease congestion. Road will be 2 to 4 lanes. Middle lanes will be for public transport. There will be separate pedestrian lane and bicycle lane in two sides of roads. Pedestrian and bicycle lane will be separated by green belt.



Figure 8-5: Examples of Roads, Pavements and Walkways Landscape

### 8.2.5 Buildings and Built Forms

Different types of buildings and built forms seen in the university area, needs renovation work for symmetry and synchronization. Access road to the university,



main gate(s) and total university area should come under fencing, proper lighting and monitoring by all means.

### 8.2.6 Flowering Trees/Ornamental Trees for Beauty or Aesthetics

Plants are some of the easiest (and most sustainable) ways to make a landscape more vibrant and welcoming. Planting the right tree for the right place helps ensure a healthy life for years to come. The most successful designs are those that are planned and take climate and environmental factors into consideration.

In university area, road side can be beautified by planting local trees like Krishnachura, Polash, Shimul, Kodom, Sonalu, Jarul, Chapa etc.

Different category of trees has been proposed for the University area:

- i) Timber value (bonoj)
- ii) Fruit (foloz) and
- iii) Medicinal (oushodi)
- iv) Flowering trees



Figure 8-6: Examples of Ornamental Trees

### 8.2.7 Plazas

Campuses Communities create a vibrant mixed-use community where teachers, students, families can visit, live, dine, shop, work out and socialize. It conveniently located at the gateway to the campus. The citrus colors of the Sunshine State accent

the building facades, and the expanse of transparent lower floors and open pathways encourage a mix-and-mingle atmosphere.

Green space surrounding the residence halls provides ample opportunities for informal recreation, gathering and social interaction.



Figure 8-7: Example of Plazas

### 8.2.8 Gateways and Way-finding

Gateways are featured spaces that identify key points of entry and create a sense of welcome, arrival, and place. Beyond a welcome plaque, each gateway should be unique based on where it is situated, relative to the Campus and its surrounding environment. They should demarcate a transition between character areas within the Campus, and assist in wayfinding and orientation. Gateways can be created through the design of buildings, landscapes, art, signage or a combination of these elements.



Figure 8-8: Examples of Gateways Development



### 8.2.9 Link Corridors

Link corridor used to protect the people against summer heat and glazing sunlight, surrounded by high adobe walls on both sides to maximize the shadow coverage. These narrow deep canals, filled with air that is cooled down by the shadows create an air-block in the pedestrian level and help keep the warm winds from descending to the houses' level near the ground. In some portions, the sidewalks are roofed or vaulted to increase the shadow coverage.



Figure 8-9: Examples of Link Corridors

### 8.2.10 Central Space

There is a vital need for research that communicates psychosocial needs of users and space design and planning. These activities should then be translated to spatial requirements of specific design, as well as the choice of the elements that create it. Design standards and considerations built on users' needs and behavior need to be incorporated in databases that could be used by designers of different typologies of projects.



Figure 8-10: Universities Central Space Development

### 8.2.11 Space Inside of Academic Buildings

Common space in campus landscape are streets and open spaces that are not territory of departmental buildings. Their existence reinforces the spatial structure of the public area and supports the meaningfulness of meeting and gathering space. Majority of students on foot enter the campus from the formal north and south main entry, and the open spaces in between provide spaces for waiting, casual studying, people watching, relaxation, display, bands play and sport activities.



Figure 8-11: Example of Space Between Buildings

### 8.2.12 Walkways to Cycle Lane

Cycling can prevent environmental pollution, such as air pollution and noise pollution. The use of motorized mode of transportation in campus will be more exposed to dangers of pollution, such as carbon monoxide.



Figure 8-12: Example of Walkways and Cycle Lane

### 8.2.13 Waterbody Development

We know that the lakes and ponds at university or college serve an important role. They add beauty and often serve as focal points on campus. They may also serve



as stormwater management facilities, filtering pollutants from runoff and helping to mitigate flooding after heavy rains.



Figure 8-13: Example of Waterbody and its Surrounding Area

#### 8.2.14 Informal Restaurants, Relax Areas

Meeting people outside of academic building is not always easy when you're a college student—and this applies for those who stay at home or go away to school. Finding your new group of friends in a new town or staying home while others go away can come with its own set of new challenges.



Figure 8-14: Informal Restaurants and Relax Areas

#### 8.2.15 Spaces between Buildings



Figure 8-15: Example of Space between Buildings

### 8.2.16 Wheel Chair Access



Figure 8-16: Wheel Chair Accessibility and Parking Signages

### 8.2.17 Zebra Crossing



Figure 8-17: Example of Zebra Crossing

### 8.2.18 Water side recreation



Figure 8-18: Water Based Recreational Development

### 8.2.19 Lakes with Ducks, Lily and Guitar



Figure 8-19: Lake Development



### 8.2.20 Open Air Meeting Point

Open space which refers to the land set aside during the development process is a contemporary topic as it is mandatory for a healthy education environment. It is mandatory for a healthy education environment and it means many different things to different people.

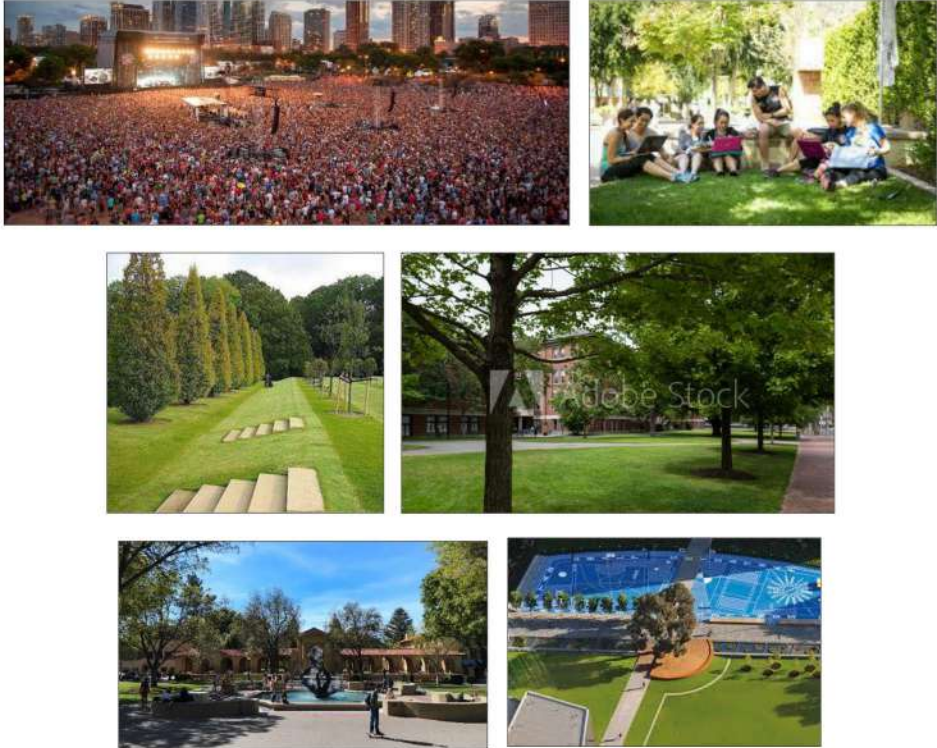


Figure 8-20: Open Air Meeting Point

### 8.2.21 Foot Over/Archway

An arch bridge is a bridge with abutments at each end shaped as a curved arch. Arch bridges work by transferring the weight of the bridge and its loads partially into a horizontal thrust restrained by the abutments at either side.



Figure 8-21: Foot Over/Archway

### 8.2.22 Signage for disable and all normal people

Signages play a vital role in directing, informing and controlling users behavior in an effort to make the roads as safe as possible for everyone. This makes a knowledge of traffic signs essential. Not just for new drivers or riders, pedestrian, disable person needing to pass their theory test, but for all road users, including experienced professional drivers.



Figure 8-22: Example of Various types of Signages



### 8.2.23 Sitting Place



Figure 8-23: Outdoor Sitting Arrangement

### 8.2.24 Perforated Fencing Green Wall Ventilation



Figure 8-24: Perforated Fencing Wall

### 8.2.25 Breathing Area and Outdoor Gymnasium





Figure 8-25: Example Sites of Breathing Area and Gymnasium

#### 8.2.26 Sculpture Garden with Plaza



Figure 8-26: Example of Sculpture Garden with Plaza

#### 8.2.27 Amusement Corner



Figure 8-27: Example of Amusement Corner



### 8.2.28 Plant Base Landscaping



Figure 8-28: Plant based Landscaping

### 8.2.29 Water Sprinkler and Fountain



Figure 8-29: Water Sprinkler and Fountain

### 8.2.30 All Access for Drinking Water



Figure 8-30: Drinking Water for All

### 8.2.31 Outdoor Amusement Space for Learning



Figure 8-31: Example of Amusement Space with Learning

### 8.2.32 Campus Wedding Venue



Figure 8-32: Example of Wedding Venue

### 8.2.33 Fire Hydrant



Figure 8-33: Example of Fire Hydrant

### 8.2.34 Waste Mechanism



Figure 8-34: Waste Mechanism System

### 8.2.35 Lighting







Figure 8-35: Example of Lighting in Campus Area

#### 8.2.36 Solar Panel Utilization



Figure 8-36: Example of Solar Panel Utilization in Various Purposes

#### 8.2.37 Sanctuary Area



Figure 8-37: Conservation of Sanctuary Area

#### 8.2.38 Open Air Academic Discussion Point



Figure 8-38: Example of Open-Air Meeting Place

### 8.2.39 Water Sprayer



Figure 8-39: Example of Water Sprayer

### 8.2.40 Light and Sound







Figure 8-40: Example of Light and Sound Space in University Campus

### 8.3 Section Development in Rajshahi University

#### 8.3.1 Main Entrance Development

Campus gates are not considered as architectural elements, their potential not realized, so that they remain as simple intersections of passage. The infertile connection between the city and the university is sustained in these examples which could not manage to be spatialized. Universities are not completely independent of the cities they locate in, and their basic function should be to produce and spread information and knowledge. This is the reason why the architectural problem of the campus gate should be questioned further, so that universities would be able to produce them as new spaces of interaction with the city rather than sole identity representation tools.



Figure 8-41: Section of Main Entrance Development

### 8.3.2 Section of Paris Road

In future, Paris Road will be developed in consideration with following design. The section shows that, the accessibility of most type vehicles is easier than previous design. Special consideration takes into pedestrian, cycling, wheel chair, lighting, landscaping. Besides, all types of motorized and non-motorized vehicles are also getting free access in this road.



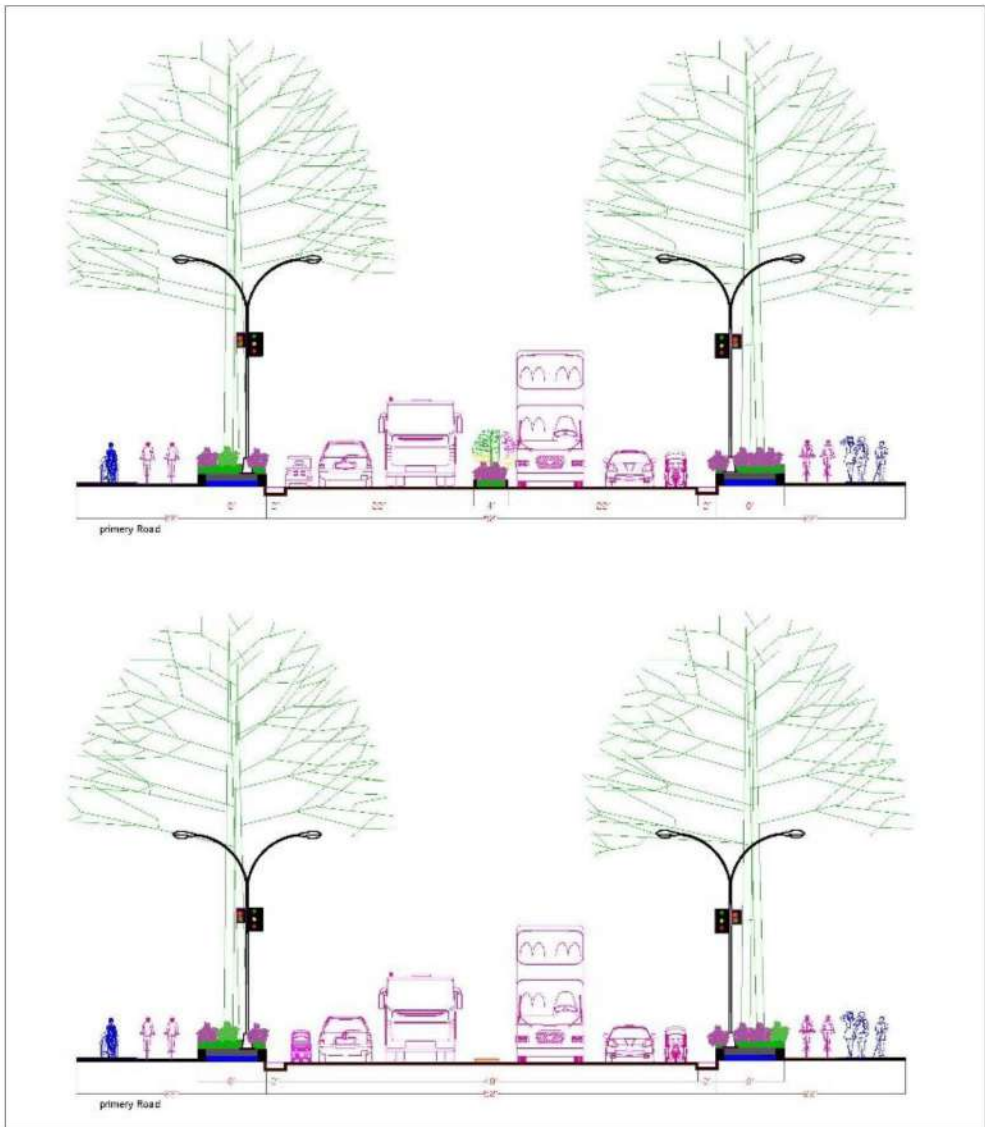


Figure 8-42: Section Paris Road Development



### 8.3.3 Residential Block Development

All of the necessary design guidelines and environmental impact properly take into consideration during preparing drawing and design. Accessibility, building roof, distance between buildings are highly manageable during construction period.

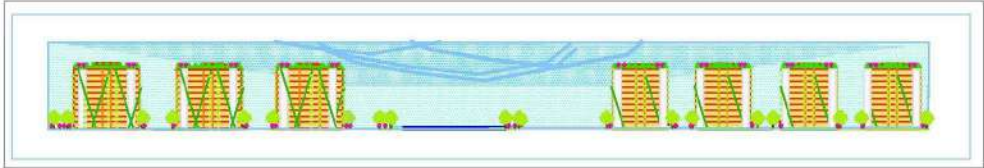


Figure 8-43: Section of Residential Block Development

### 8.3.4 Railway track Development

This site is located at northern side of university campus adjacent botanical garden. Railtrack will be developed in such way, that will not harmful for normal natural beauty of botanical garden. Green barrier will develop along the rail line. Surrounding environment very familiar with rail track.

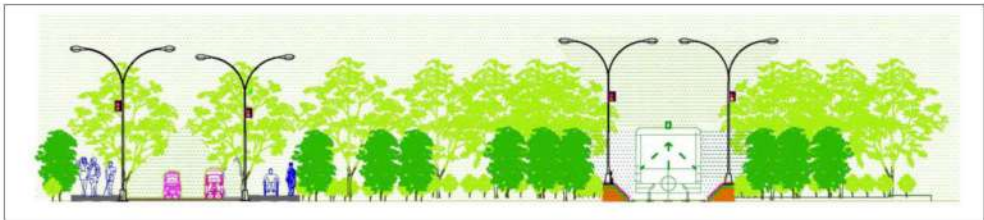


Figure 8-44: Section of Railtrack Development

### 8.3.5 Science Lake Development

The lake has been designed to support both current and future developments on the site and also to take the surface water flows from administrative building to last science building in eastern side of the Campus East. Science lake will be developed along the middle side of science building. This lake starts from administrative building and ending at rail track. This lake represents architectural beauty of administrative and academic buildings.



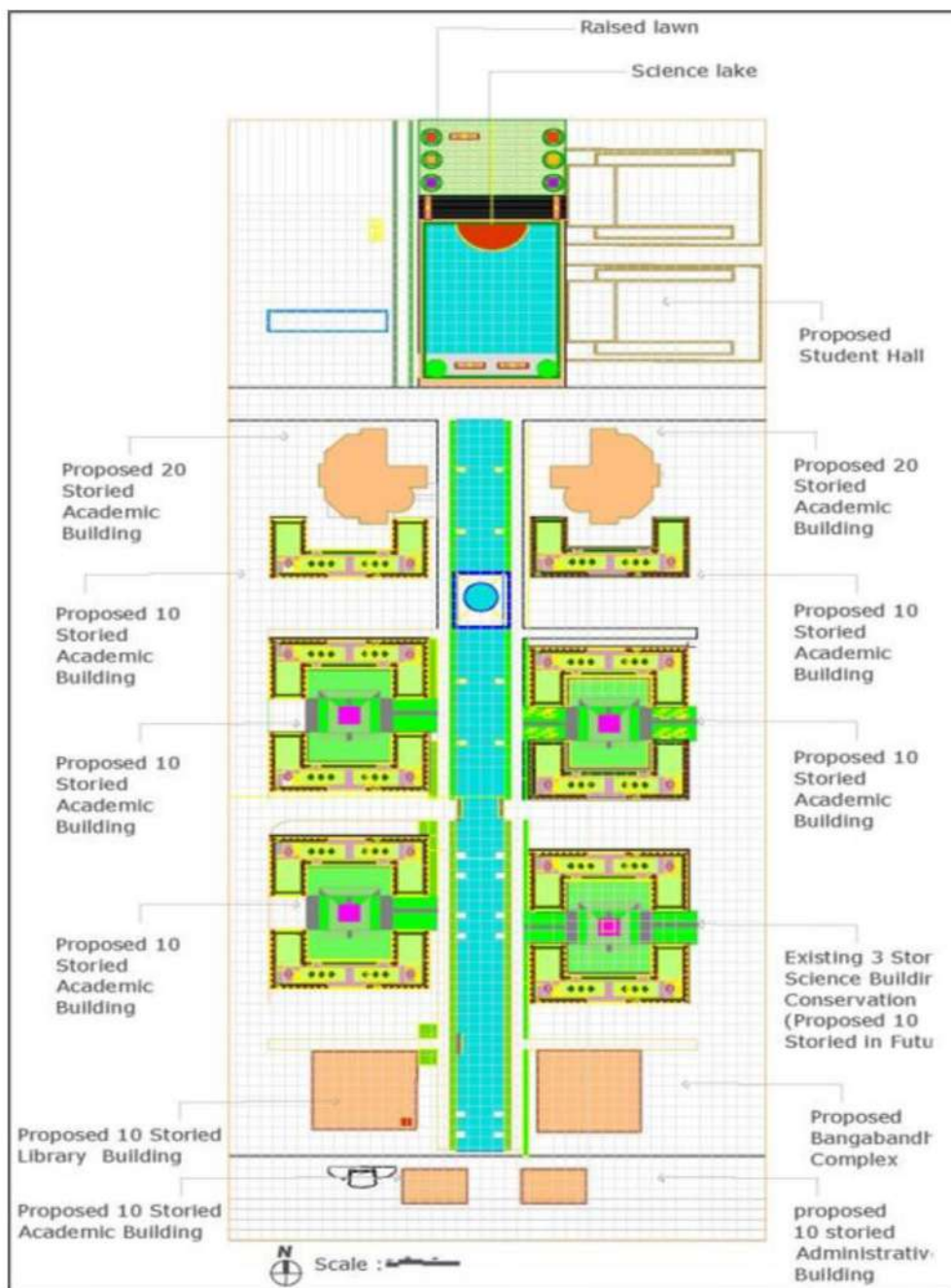


Figure 8-45: Section of Science Lake Development

### 8.3.6 Boddho Bhumi and Bijoy Sagar Development

Historic preservation on campuses is a multifaceted endeavor and requires the careful balancing of priorities. Although many universities are effectively managing their historic resources. Those assets most likely to be preserved are the iconic landscapes that can be easily identified as crucial manifestations of the institution.

Existing Boddho Bhumi at Eastern side developed as a recreational place. Whole site developed as a water based recreational center and urban landscaping.

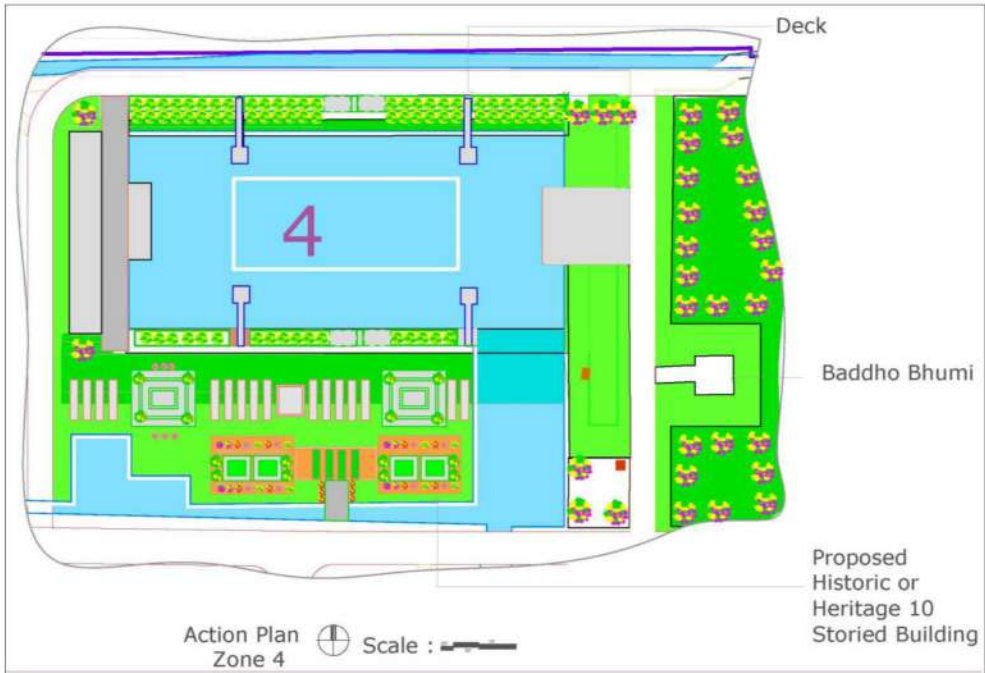


Figure 8-46: Section of Boddho Bhumi Development

### 8.3.7 Information Booth and Supporting Center

The information booth is a student-run service that provides resources for the campus community and a great way to distribute information. This supporting center distributed whole campus for supporting of students and visitors. Some of the special facilities including this booth so that, support is publicly distributed at whole campus.



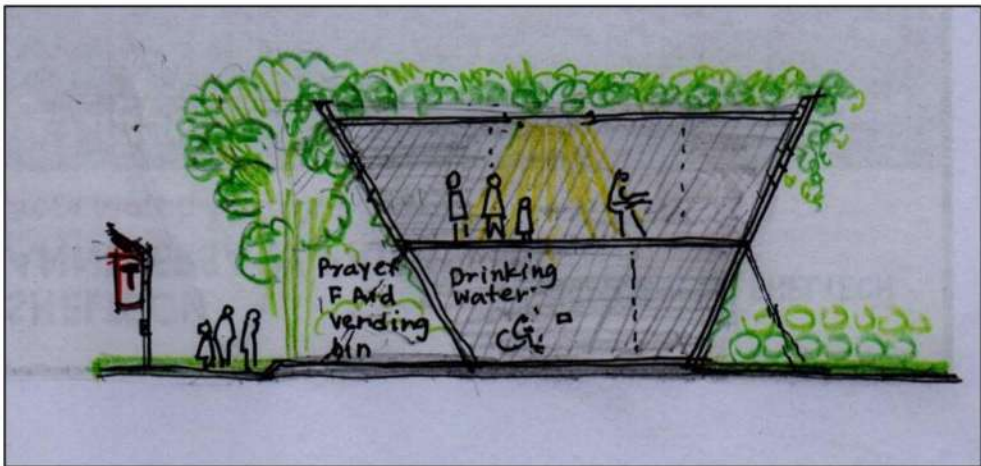


Figure 8-47: Structural Images of Information Booth and Supporting Center



Figure 8-48: 3D View of Master Plan in Rajshahi University

## 8.4 Central District



Figure 8-49: 3D View of Central District in Rajshahi University



Figure 8-50: 3D View of First Administrative Building





Figure 8-51: 3D View of Science Lake Along Science Building



Figure 8-52: Science Museum Above Science Lake

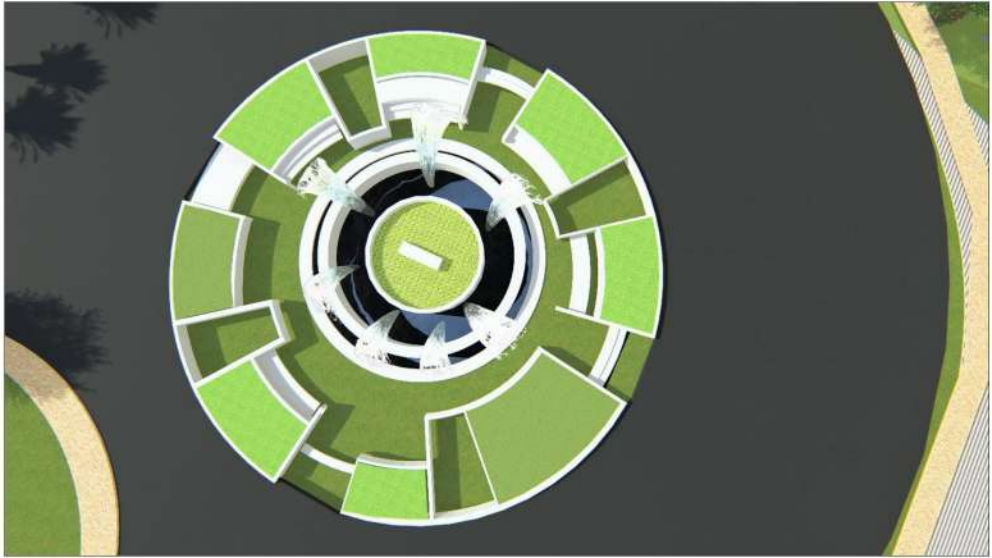


Figure 8-53: 3D View of Zoha Chottor



Figure 8-54: 3D View of Central Library Building





Figure 8-55: 3D View of Sabash Bangladesh Sculpture



Figure 8-56: 3D View of Sabash Bangladesh Sculpture



Figure 8-57: 3D View of Shuborno Joyonti Tower



Figure 8-58: 3D View of Paris Road





Figure 8-59: 3D Eye View of Paris Road



Figure 8-60: 3D View of Central Stadium

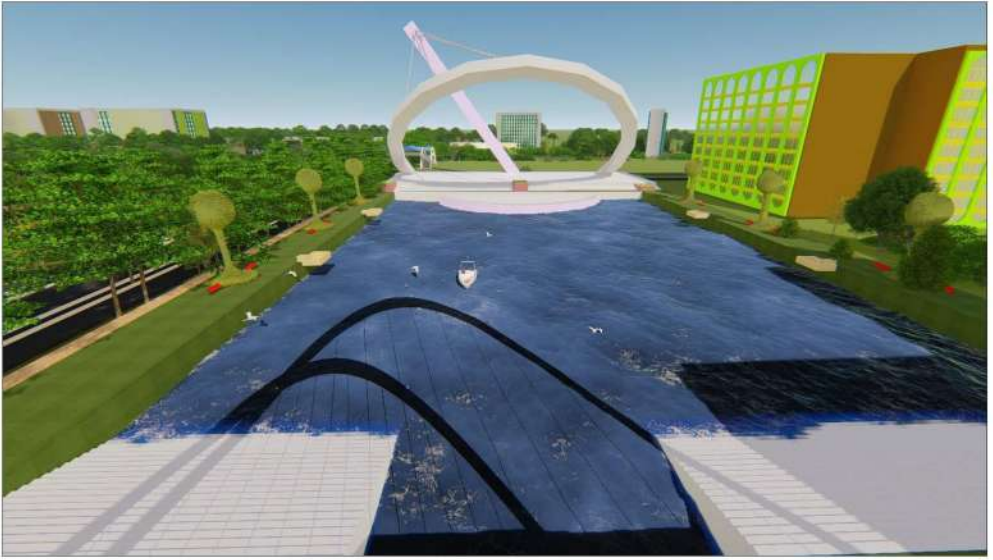


Figure 8-61: 3D View of Sculpture Above Science Lake



Figure 8-62: Front View of Science Lake





Figure 8-63: 3D View of Rajshahi University Central Mosque



Figure 8-64: 3D View of Rajshahi University Central Shaheed Minar

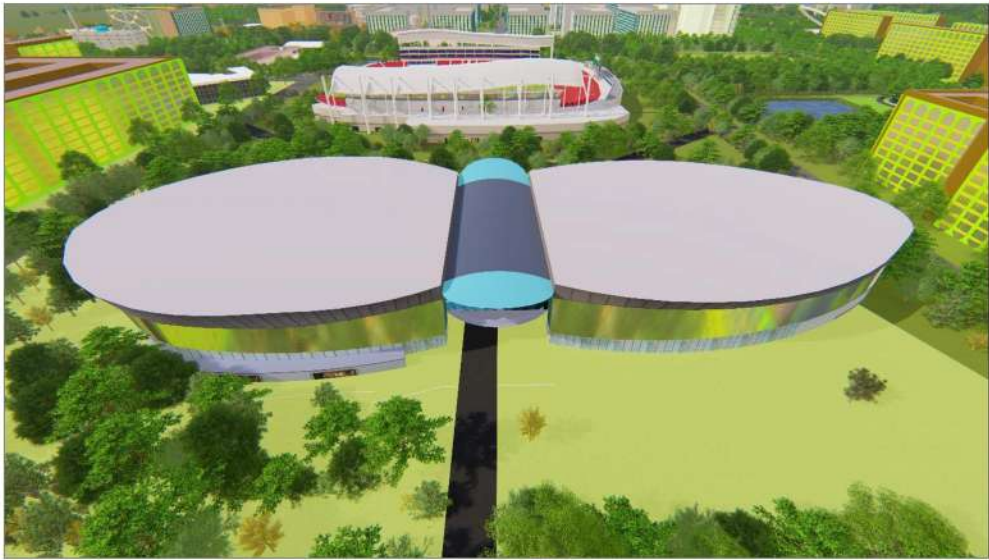


Figure 8-65: 3D View of Indoor Stadium

8.5 West District



Figure 8-66: 3D View of West District in Rajshahi University





Figure 8-67: Playground at West District



Figure 8-68: 3D View of Playlot at West District



Figure 8-69: 3D View of Waterbody at West District



Figure 8-70: 3D View of Children's Corner at West District





Figure 8-71: 3D View of Green Space Inside Teachers Housing at West District



Figure 8-72: 3D View of Children's Corner at West District



Figure 8-73: 3D View of Green Space and Sitting Arrangement at West District



Figure 8-74: 3D View of Road at West District





Figure 8-75: 3D View of Pond at West District

## 8.6 North District



Figure 8-76: 3D View of North District at Rajshahi university

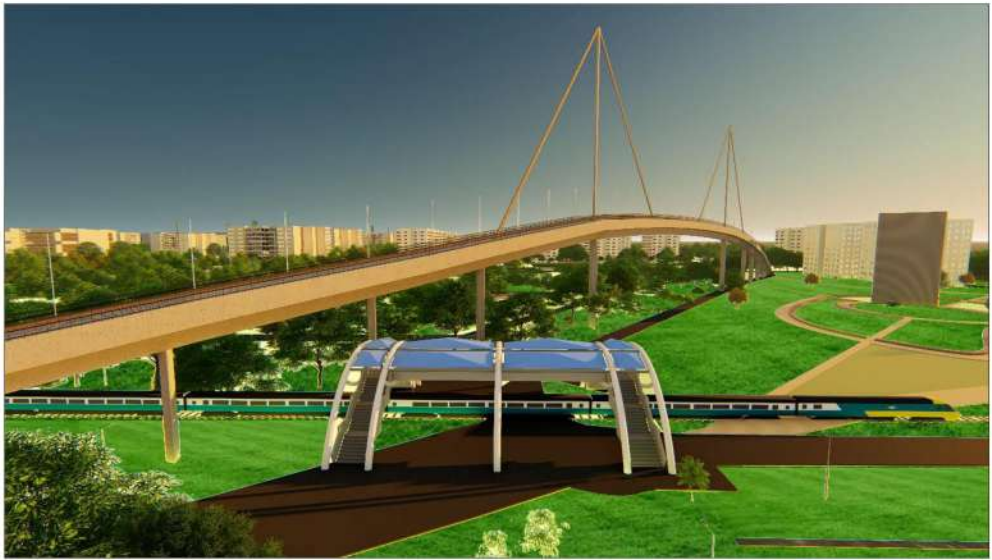


Figure 8-77: 3D View of Railway Overpass at North District



Figure 8-78: 3D View of Amphitheatre Adjacent Botanical Garden





Figure 8-79: 3D View of Plaza Development at North District



Figure 8-80: 3D View of Plaza Development at IT Park Zone



Figure 8-81: 3D View of Green Plaza Development at North District

## 8.7 East-Left District



Figure 8-82: 3D View East-Left District at Rajshahi University





Figure 8-83: 3D View of Playlot Adjacent Male Hall at East-Left District

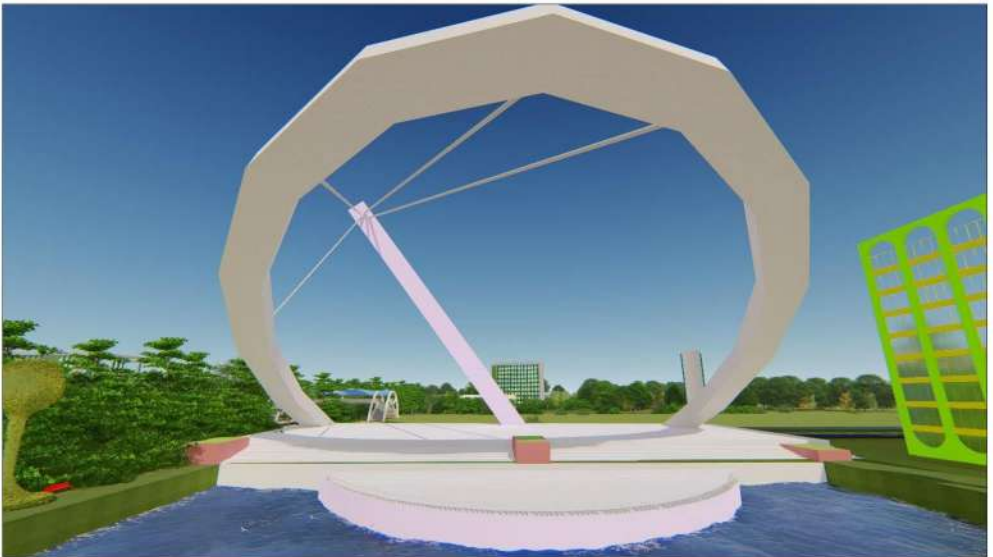


Figure 8-84: 3D View of Science Lake Sculpture above Science Lake



Figure 8-85: 3D View of Celebration Point at East-Left District

## 8.8 East-Right District



Figure 8-86: 3D View of East-Right District at Rajshahi University





Figure 8-87: 3D View Green Plaza Development at East-Right District



Figure 8-88: 3D View of New Intersection (Gol Chottor) at East-Right District

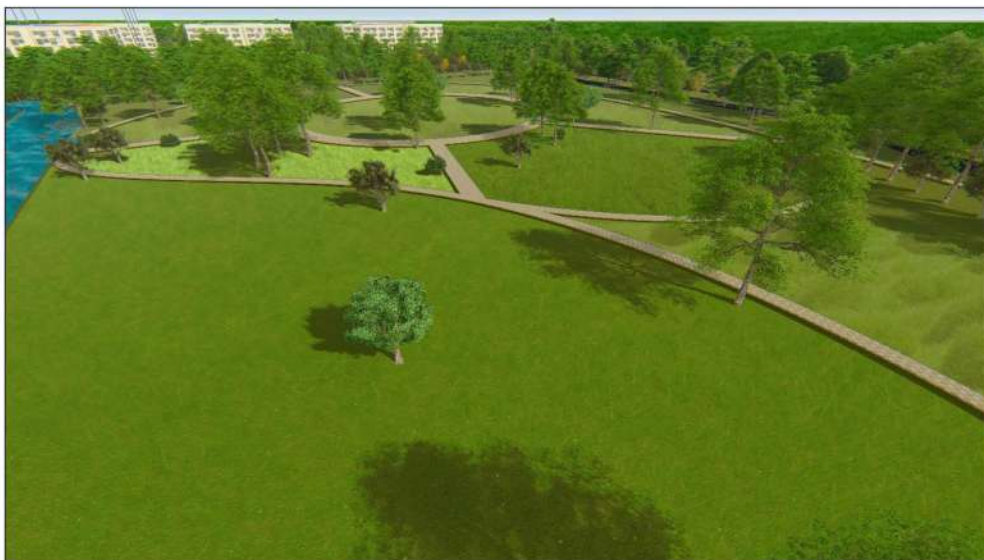


Figure 8-89: 3D View of Green Plaza Development at Corner side of East-Right District



Figure 8-90: 3D View of Boddho Bhumi





Figure 8-91: 3D View of Tennis Court at East-Right District



Figure 8-92: 3D View Playlot Development



Figure 8-93: 3D View of Playground at East-Right District



Figure 8-94: 3D View of Playground Development at East-Right District





Figure 8-95: 3D View of Green Landscaping at East-Right District





Central Mosque



Proposed Central Stadium

Increased tree canopy will buffer the fuel emissions from train engines, improve air quality and create shaded environments for recreation. Activating and illuminating these spaces at night will create safe routes for walking, cycling, commuting, community groups and local neighborhood residents.

Science Lake, Botanical Garden and Railway Track Adjoining Area  
Hard slope with vegetation to absorb sound and vibration of railway track. Multiple layers of landscape with various height range. Trees of seasonal variation colors and adaptability.

Fencing  
Lighting  
Signage



New road intersection development at eastern area



Proposed Indoor Stadium



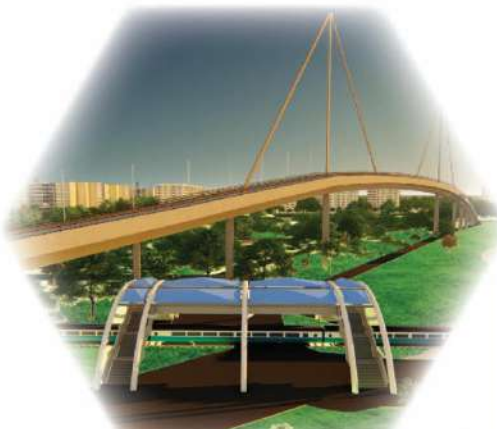
Administrative Building



Gathering area development at eastern area



Central Shaheed Minar



Proposed Railway Track



Park Development at Eastern area

Railway line over-pass as recreation deck and observatory for Botanical Garden.  
Option: Slope 1:12 for circulation of all vehicles and human being.

-Escalator (Existing overpass to develop as escalator)  
-Stairs

Safety rail and guard

Weather protection shading

Landscape and electrification

Seating out, Eating out, Kiosk

Waste bin, Drinking water, Toilets and Baby preparation space.

Essential Utilities Accessible and Parking for all modes of vehicles.

Solar Panel Shading.



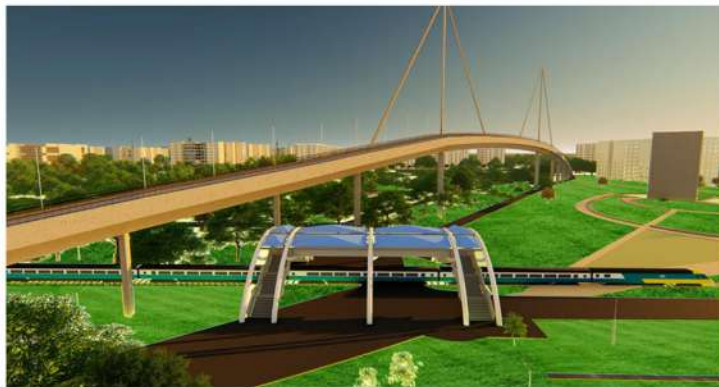
Proposed Playground



## NORTH DISTRICT KEY PLAN



1. PUBLIC PLAZA



2. PROPOSED RAILWAY TRACK



3. IT PARK



4. PUBLIC PLAZA AND FOOD COURT



5. PUBLIC PLAZA

3D View Map 8.2: 3D view of different areas in North District for Rajshahi University





1 Play Ground



Teacher Colony

Residential buildings each have 4 blocks, 10 storied.



2 Play Ground



4 Teacher Colony Road



6 Park development by the side of water body

## West District Key Plan 1

Teachers and Officers residential area development with playlot, pedestrian way, lake side sitting area, community space for each neighborhood.



5 Residential area lake development



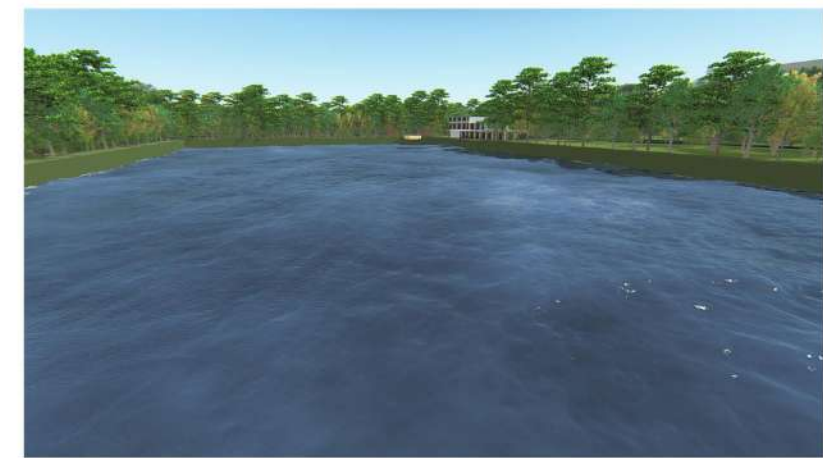
7 Play Ground



8 Bird sanctuary adjacent to female hall

3D View Map 8.3: 3D view of different areas in West District 1 for Rajshahi University

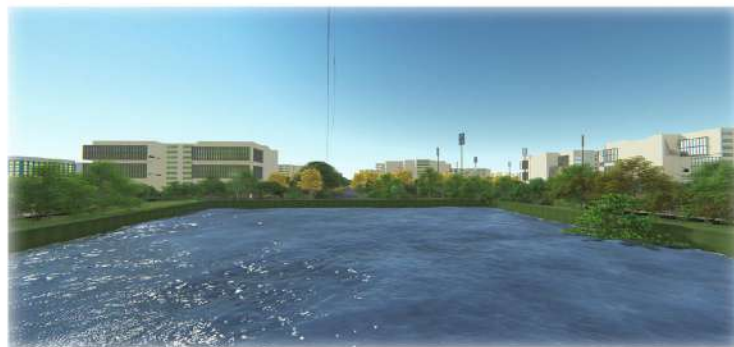




1 Water Body



2 Play Ground



3 Water Body



4 Play Ground



5 Play Ground



6 Female Hall



7 Play Ground

## West District Key Plan 2

**3D View Map 8.4: 3D view of different areas in West District 2 for Rajshahi University**





## Chapter Nine

### Climate Change, Environment and Disaster Management Plan



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## CHAPTER NINE

# CLIMATE CHANGE, ENVIRONMENT AND DISASTER MANAGEMENT PLAN

### 9.1 Introduction

Chapter 9 of the Master Plan deals with some crucial issues that need to be addressed to make future university campus sustainable and safer place to learn, live, work and enjoy. The issues that have been addressed in this chapter are environment, climate change, disaster and COVID-19 or other pandemic that Bangladesh mostly suffers from.

### 9.2 COVID- 19 or Other Pandemic

The impacts of the global COVID-19 pandemic are still being understood, but it does seem clear that this crisis will make a mark on cities, physically and socially, that will echo for generations. The COVID-19 pandemic has already significantly altered urban life. The number of people moving around has dropped to unprecedentedly low levels. Work from home is the new normal – for those who can afford it, and for whom it's even a feasible option to begin with.

So in campus planning we have given emphasis on the following issues.

#### 1. Focus on Access to Core Services

The spread of COVID-19 in the world's most connected urban centers has raised questions about healthy density. In the campus area, access to essential services such as water, housing and health care should be insured to fight any type of pandemic.

#### 2. Affordable Housing and Public Spaces

How we plan our living area determines to a large extent how resilient they are. Population density without adequate public spaces or proper affordable housing provision will lead to problems. This was the reason many housing laws and regulations were implemented, halting many diseases, for example. COVID-19 may prompt changes too, from temporary measures that make it feasible for people to follow social distancing guidelines to more lasting changes that should focus on improving access to affordable housing and public space in campus area.

#### 3. Integrated Green and Blue Spaces

One of the few places that have seen a surge in traffic during COVID-19 lockdowns (at least as long as they remain open) is parks. A new approach to campus planning



should bring open spaces, watersheds, forests and parks into the heart of how we think about and plan the campus.

A more holistic approach to planning that combines gray, green and blue infrastructure supports better health, better water management (flooding contributes to many epidemics and diseases after natural disasters), and climate adaptation and mitigation strategies. Furthermore, larger open spaces within the urban fabric can help campus implement emergency services and evacuation protocols.

#### **4. Increased Campus-Regional Planning**

What happens in campus does not stay in campus. The cascading economic effect of this crisis will impact supply and production chains in surrounding regions and ripple out into global networks too, as we are already seeing. We should learn from this unprecedented disruption to better plan for the next crisis.

We need more integrated campus-regional planning around economies, energy provision, transport networks and food production so that these networks can become pillars of resilience rather than weak points. Such a planning approach will bring a broader and different set of stakeholders to the table, creating a stronger coalition for change.

#### **5. More Campus-Level, Granular Data**

Data is mainly now aggregated at the national level, while many decisions on containment of any epidemic or pandemic are made at the local level. To help cities harness the power of big data – in response to this crisis but also other long-term sustainability and equity challenges – we need to empower campus/cities with more granular, regularly updated data streams that can provide better evidence for decision-making.

Resilience is all about interdependencies. That means that if we keep the data in silos, we cannot track where the pivot points are, and we are not able to take the right measures. Campus should reach out to community groups, the private sector and concerned citizens to start building more comprehensive, community-based data sets to understand and better address the challenges ahead.

As lockdowns stretch on in many places, we are only beginning to understand how COVID-19 will affect how we approach campus planning. We should be prepared for any kind of epidemic. Planned for properly, density is a good thing for campus, and it will be again. But will we do more to protect the most vulnerable? Will we make campus more resilient to future crises? Will we make green and blue spaces front and center of our infrastructure investments? And will we seriously address

the fact that it's not just physically, but economically, socially and environmentally that campus/cities are connected to their surrounding regions? We will rebuild our crucial economic and social fabric. It's our decision to rebuild better.

9.3 Climate Induced Hazard Management Plan

In order to assess present vulnerability of an area, some procedures have to be followed. The consultant conducted perception survey about future University campus. Based on campus users perception combined with the formula below the consultant has identified hazard, risk and vulnerability that the campus might face.

Risk = 
$$\frac{\text{Hazard} \times \text{Vulnerability}}{\text{Capacity}}$$

Table 9-1 shows the Climate Induced Hazard Management Policies worked out by the consultant.

Associated risk related activity and mitigation plan includes specific section.

Table 9-1: Climate Induced Hazard Management Policies

Resilience Dimension	Remarks	Policies
Water supply	Existing water supply service is moderate, need to be increased as for increased demand at it is a basic utility service for any area.	100% municipal water supply has to be ensured within then University boundary.
		Along with ground water, alternative solutions like, use of surface water, rain water harvesting, etc. should be considered.
		Construction of surface water treatment plant
Household Waste	Existing service is poor; people dump household wastes in the open space, beside the roads and in the drains that causes air pollution and water logging problems.	Waste collection system has to be introduced.
		Establishment of transfer station in important places of the campus.
		Secondary Transfer Station of Solid Waste at north-west corner with enough space should be developed
		Perform the segregation of hazardous and non-hazardous wastes.
		Hazardous (Clinical) waste from laboratory should be burnt.
		Introducing 3R system (Prepare action plan to reduce of waste generation, reuse and recycling activities)
Flash flood	Heavy rainfall causes flash flood and overflows	At least one large size dustbin set containing separate bins for organic, plastic and sharp components should be placed at every academic building, residential hall, laboratory, institute which will ensure one large garbage bin set per building and these bins will be cleared up for transfer stations.
		Plan an efficient and sustainable drainage network within the university



Resilience Dimension	Remarks	Policies
Water unavailability		Provide piped water supply facility throughout the university boundary area.
		Stop land filling of ponds and water bodies to maintain the groundwater level through recharge and leaching process.
		Establish water storage tanks, reservoirs to supplement both the water storage capacity of the drainage system and, Possibly, augment the surface water sources for the water supply system.
Earthquake		Legal measures like Dhaka Mahanagar Imarat Nirman Bidhimala, 2008 should be implemented for University of Rajshahi immediately. Building Rules 2008 and BNBC as applied in Dhaka should be applied in Rajshahi University also.
Green Infrastructures		Plan a municipal public and private network of open (green) spaces, parks, urban agriculture locations and multi-functional recreation and supplementary water retention areas.
		Cleaning and maintenance of Zia Khal and other natural khals within whole campus.
		Ensure at least one play ground and one park in each housing area.
Emergency and critical climate resilience asset		Emergency supports during the critical situation should be ensured
		Provide emergency shelters that can be used in the critical situation.
University disaster management capacity	There are not enough staffing, facilities and funding to handle a disaster, an urban planner should be recruited in this University.	Develop a disaster master plan for the University.
		Increase collaboration with external (NGOs) and national institutions for disaster management response.
		There should be at least one urban planner in University.
		Community level anti disaster volunteer committee should be established in every faculty.
Economic activities and drivers	Local economic condition should be made better to ensure better disaster management capacity.	Local economic condition has to be promoted
		Plan for a training program to promote climate proof harvesting system.
Socio-Demographic condition	Though the density is low till now, density control measures may be taken in future to keep the density controlled.	Density may be kept under control by applying density control measures in future.

## 9.4 Environment Management Plan

### 9.4.1 Environment Management Policy

The Environmental Policy sets the high-level objectives for the Environmental Management plan that includes the following:

- Developing effective materials management and recycling practices.
- Increasing awareness of environmental responsibility among staff, students and visitors.
- Develop an environmental management system that ensures the University complies with environmental legislation.
- Follow environmentally sustainable initiatives in new construction projects and redevelopments.
- Maintaining the University grounds in an environmentally sensitive way, having regard to the protection of natural habitats and local wildlife.
- Promoting and encouraging sustainable forms of travel and transport by staff and students.
- Striving to continually improve the University's environmental performance.

The Environmental Management Plan is divided into the following functional areas. However, it is recognized that these areas are interconnected and adverse or beneficial environmental impacts in one area will affect the others

- Water conservation
- Waste management
- Campus environment, biodiversity and open space.
- Integration, communication and engagement
- Transportation

#### 9.1.2 Water Conservation

##### Objective:

To make rational use of water and save wastage.

##### Strategies

- Establish baseline water consumption for university campus.
- Install water meters in each building and oval, where feasible and monitor water consumption levels to establish baseline for each area.
- Review water consumption patterns, identify areas for improvements and options for water conservation.
- Implement water conservation technologies and make water efficient fittings and appliances as one of the procurement selection criteria in



maintenance and capital works projects.

- Develop a landscaped water conservation plan in conjunction with the University's Landscape Plan.
- Continually identify opportunities in major project works to harvest rainwater for reuse.
- Develop and implement a water conservation awareness campaign for staff and students.

#### 9.4.2 Waste Management

**Objective:**

To achieve best practice in recycling and waste management.

**Targets:**

- Establish a baseline for weight/volume of waste going to Secondary Transfer Station.
- Reduce volume of waste generation.
- Implement university wide recycling program.

**Strategies**

- Develop and implement, in conjunction with waste management contractors, a waste monitoring and evaluation process that provides baseline information on annual volume, weight and composition of the waste, recycling and composting streams.
- Introduce & maintain a university-wide recycling program, which includes the use of standard recycling bins and promotional media and training in the use of the system.
- Establish a strategy for managing e-waste such as toner cartridges, mobile phones and old computers & monitors.
- Establish a community awareness program to promote the reuse of materials, recycling and waste minimization.

#### 9.4.3 Campus Environment, Biodiversity and Open Space

**Objective:**

To manage and improve biodiversity in an ecologically appropriate manner in consultation with the various university communities.

**Target:**

- Develop and implement a biodiversity management plan.
- Environmental Performance.

**Indicators:**

- Increased university community awareness of biodiversity issues.
- Demonstrated improvement in biodiversity within a location.

**Strategies:**

- Identify and assess localized biodiversity priorities in partnership with students and/or academics for research and monitoring for biodiversity conservation and protection.
- Undertake a pilot ecological audit and then develop a biodiversity action plan for input to the University's Landscape Plan for that locality.
- Assess and report effectiveness of the biodiversity improvements in the pilot projects.
- Include protection of biodiversity and minimization of ecological impact (on topography, hydrology, vegetation, fauna etc.) as goals for all maintenance and capital works projects.
- Raise awareness among university community of potential significant specific factors that impact on site diversity in at least one locality.

## 9.5 Pollution Prevention Measures

### 9.5.1 Surface Water Pollution Mitigation

Generally, the main causes of surface water pollution are, discharge of waste water, sanitary sewage, solid waste dumping, and untreated effluent. In the University, all the waste water finally end up in the ponds, khals and drains, which makes the water contaminated. The present trend of the surface water pollution level may further increase due to population and activity increase leading to volume of discharge of wastewater, sanitary sewerage, over spilling of pit and septic tanks, surface run-off of katcha bazars, indiscriminate solid and clinical waste dumping. Field visiting by the study team found that, waste dumping in open areas, which include household chores and other type of solid waste. Leachate of this wastes mix up with surface water and pollute the water. Solid Waste dumping in drains and water body need to be strictly prohibited and take other alternative measures to redress the affects.

### 9.5.2 Waste Management (Solid waste and Sludge)

Following measures are suggested for waste management:

- Solid waste management with separation at source will be green and red colored bins.
- Organic waste will be dumped to green bins and will be transferred to the



transfer station and finally to send to designated composting site.

- Inorganic waste will be for filling of the low land sites.
- Collect the sludge from house hold through truck and treat it in STP.
- Use the treated sludge as fertilizer.
- Use Pucca latrine with septic tank and soak well.
- Prohibit indiscriminate dumping of medical and other solid waste in drains and khals.
- Improve sanitation condition of slaughterhouse, fish market and katcha bazars.
- Prohibit the direct discharge of wastewater to any khal, low-lying areas and river.
- Establish wastewater and sewerage treatment plant.

Solid waste and sewerage plan have been already detailed out at chapter 07 in solid waste management and drainage plan.

### 9.5.3 Ground Water Pollution Mitigation

Ground water pollution due to manganese, iron and hardness is a major problem in the project area. With expansion of build-up area, dependency on groundwater sources may increase leading to the pollution level of sub-surface water.

#### Mitigation

- Use surface water for supply water system.
- Introduce rainwater harvesting system.
- Reduce dependency on groundwater.
- Preserve surface water in ponds, khals, ditches and lakes for irrigation.

### 9.5.4 Drainage Congestion Mitigation

Drainage congestion may increase further with the present trend of development and no improvement of the present drainage system. Faulty design, inadequate slopes in head and tail areas, solid waste and rubbish dumping, encroachment and unauthorized structures, siltation, lack of renovation and unplanned re-excavation are the main causes of drainage congestion are the main causes of drainage problem. As a result, discharge of new drainage network creates severe drainage problem in campus area, particularly during monsoon.

#### Mitigation:

- Excavation/ cleaning of the primary drainage networks specially the encroached and filled areas of Khals in university area.
- Water body side road construction can improve cleaning and maintenance

program.

- Remove all unauthorized structures, developed on drainage structures.
- Make proper drainage network in new area considering the slope and local topographical condition.
- Strictly prohibit in dumping of rubbish and solid waste in drain.
- Regular cleaning and maintenance by the concerned authorities.

### 9.5.5 Mitigation for Pesticide Generated Pollution

Different types of chemical pesticides are being used in the agricultural production in university area. These may protect crops from pests but affects the environment in long term. They pollute the soil and decreases land fertility. Pesticides applied to the ponds and other water bodies pollute water. Again, waterbodies adjacent to agricultural fields where chemical pesticides are applied, can be polluted by washing away.

#### Mitigation:

- Encouraging farmers in using green fertilizers in agricultural production.
- Access to green fertilizers and pesticides should be made easier for the local farmers.
- Authority should make a list of restricted pesticides with the help of Department of Environment (DoE).
- Enforcement of law to stop using the restricted pesticides.
- For the storage and disposal of pesticides and pesticide containers, label instruction must be followed.

## 9.6 Disaster Management Plan

### 9.6.1 Fire Protection Plan

University authority should follow these steps to reduce the fire risk at workplace:

1. Identify any fire hazard in workplace, e.g. presence of ignition sources (heaters, lighting, electrical equipment, etc.) and fuel (packaging, plastics, rubber, petrol, chemicals, etc.).
2. Assess the risks posed by the hazards that has identified – this will determine which hazards need the most urgent attention.
3. Put measures in place to control the risks – the hierarchy of control is a useful tool to use here, e.g. eliminate work processes that could generate an explosive atmosphere, service and clean all machinery as recommended by manufacturers, switch off electricity points when the business is unattended, remove waste material (e.g. fuel) that could act as fuel, store and dispose of

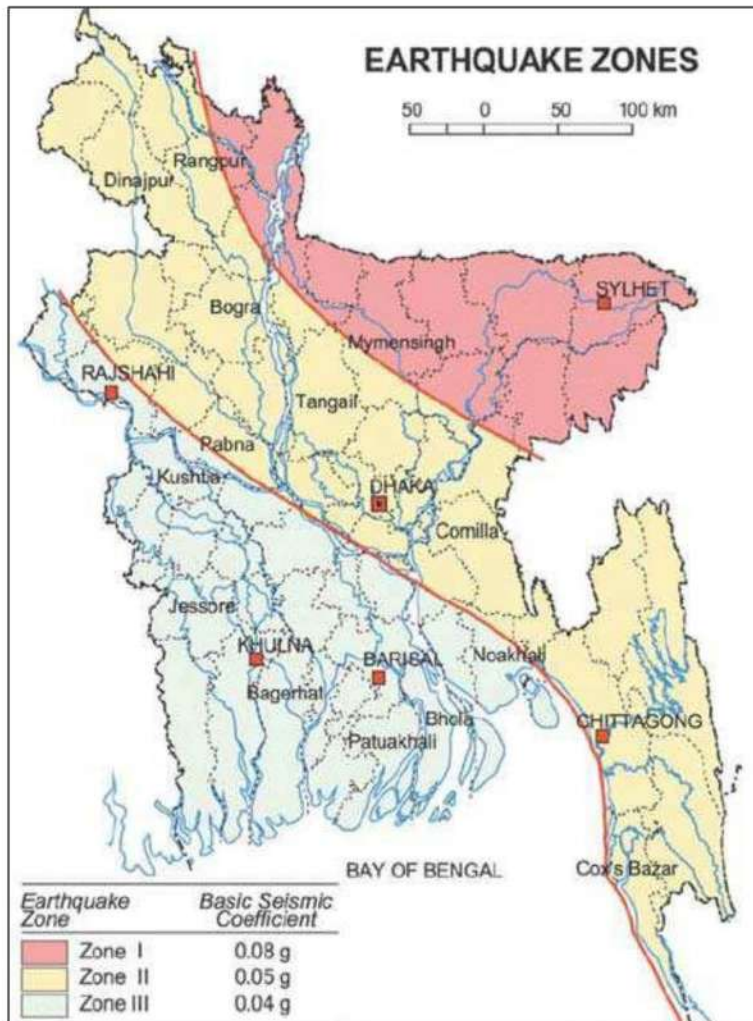


- flammable substances correctly.
4. Monitor the hazards and review the controls – this will ensure that the controls are minimising the risks effectively.

### 9.6.2 Earthquake and Emergency Support

In the generalized tectonic map of Bangladesh, Rajshahi is located in the medium risk zone. The earthquake risk of the Rajshahi City is growing with every passing moment because of the unabated growth of human settlement and establishment of administrative and economic activities, and educational institutions. The rapid increase in vulnerability of the city is evident from rapid urbanization, population growth and population migration in and around Rajshahi. Major causes behind such ever increasing earthquake risk are the haphazard urbanization and sub-standard construction of buildings, residential houses and other infrastructures without any consideration of underlying earthquake risk. The geotechnical and geophysical investigation under CDMP- II shows that almost 90% of the soil in Rajshahi City Corporation area is dense/ stiff soil and rest 10% is loose/ soft soil which has high to very high liquefaction susceptibility. The foundations and supports of structures built on this highly liquefiable sediment can fail, causing damage or destruction during major earthquakes in city.

Based on this information, in Rajshahi University, the impact of earthquake should be considered in all phases of the project, in particular during design and construction. Project planning decisions, project design, and construction methods should take into account the level of earthquake hazard. Further detailed information should be obtained to adequately account for the level of hazard.



Source: Geological Survey of Bangladesh (GSB)

**Figure 9-1: Earthquake Zonation Map of Bangladesh**

Emergency support is required during earthquake and any other natural calamities. The Consultant team has proposed existing stadium as an emergency center. This point is almost central portion of the university campus and has a large flat land to accommodate large number population.

#### **Immediate Evacuation Spaces and Emergency Shelter**

The available open spaces within the University area are sufficient for immediate evacuation for the required number of displaced populations. Currently, there is about 30600 sq. m. of open spaces in the Sheikh Kamal Stadium in the Rajshahi



University can be used for immediate evacuation purpose (@ 1 sq. m. /person as standard) or Emergency Shelter.

According to SPHERE standard for emergencies (2011), 45 sq. m. per person surface area is required for emergency shelter purpose. However, realizing the scarcity of open spaces 45 sq. m. per household is used as the required minimum standard to calculate the space need for shelter.

After an earthquake, open spaces such as parks, playgrounds, recreational centers etc. are potential shelter areas for the homeless population. Available open spaces (bigger than 5000 sq. m. which can accommodate more than 100 families) are proposed for emergency temporary shelter purpose.

Existing academic buildings and communal buildings (e.g. community centers, auditorium, etc.) can also be used as temporary shelter purpose depending on the season as well as their level of functionality after the earthquake.

### **Evacuation Routes**

Only the roads of 6m and above width are usually considered for safe evacuation, because other smaller roads inside the University will likely to have higher possibilities of blockage due to road damage itself or due to falling debris from damaged buildings. However, the existing road network of 6m and above width within Rajshahi University area is not evenly distributed and not well connected. Therefore, the existing roads of 4m to 6m width are also considered as evacuation routes that can be used for operating small vehicles, ambulance and small equipment to ensure the search, rescue and evacuation operation at every corner of the University. Existing Heliport will provide any kind of operation required during earthquake.

### **Fire Control**

The earthquake will result in multiple conflagrations immediately. There will likely be ignitions that can burn out of control due to insufficient capacity of Fire Service and Civil Defense, delay of fire-fighting agency and/or limited access to the affected areas, and lack of water sources. The existing and proposed ponds, lakes will support the water supply during earthquake.

In the aftermath of the earthquake and subsequent aftershocks there will be a massive requirement of response efforts from Fire Service and Civil Defense for both fire-fighting and search and rescue operation. The existing Fire Service and Civil Defense station at Dhaka-Natore Road will support any incident happened in the University area.

### Health Facilities

Currently, the University Medical Center has 20 beds available for use. The medical center can support primary needs it is not damaged during hazard. For higher support Rajshahi Medical College or Hospitals in Rajshahi City Corporation area can support.

#### 9.6.3 Transportation and Communication

For tourist and other visitors, parking of vehicles needs proper instruction and signage, mirror establishment at sudden deviated point might be helpful. Further recommendations are given below:

- Widening and improvement of national and link road: To accommodate the additional transport need to widen and improve the national and other link roads.
- Transport Complex.
- Telecommunication network: For modern world telecommunication is the first chose of the tourist attraction.

#### 9.6.4 Future Development Associate Risk Mitigation Plan

In order to make University of Rajshahi Campus physically viable, economically sound and aesthetically pleasant, there is opportunity to develop it as a tourism campus. To attain this objective, there will be need for proper campus management. From tourism point of view, the present waste dumping and management is one of the major problems. Near every shop, tourist point and picnic spots, measures are needed for proper waste collection to achieve the environment pollution free and eye catching.



# Chapter Ten

## Development Program, Phasing and Priority Schemes

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## CHAPTER TEN

# DEVELOPMENT PROGRAM, PHASING AND PRIORITY SCHEMES

### 10.1 Introduction

Chapter ten is about implementation of development programs, phasing of development schemes. It also includes recommendations about priority development projects.

### 10.2 Timeframe

Execution of the entire Master Plan will span over 50 years, phasing out over 3 terms- Near Term, Mid Term and Long Term. Priority action plan of the Master Plan also comprises priority schemes for next 5 years worked out by the consultant in consultation with the University expert team, engineering section and other stakeholders. This priority action plan is for 5 years and its timeframe starts in 2021 and will end in 2025.

#### **Total Timeframe:**

Execution of all development will take place over 50 years divided into 03 phases as follows:

- Near Term 10 years (2021-2030)
  - Near Term Phase I (2021-2025)
  - Near Term Phase II (2026-2030)
- Mid Term 20 years (2031-2050)
- Long Term 20 years (2051-2070)

Near Time frame has been sub-divided into two, Near Timeframe Phase I spanning from 2021 to 2025 and Near Timeframe Phase II spread over 2026 to 2030. Map 10.1 presents phase wise development for Rajshahi University.

### 10.3 Near-term Phase I & Phase II Scheme Details

In total 65 schemes have been suggested to be implement in Near-term Phase I and Phase II. The schemes cover a wide range of sectors, like, academic, administrative and support services, residential, commercial, utility services, etc. shown in table 10-1 has the details. Map 10.2 represents Phase I and Phase II development for Rajshahi University.

Table 10-1: Near-term Phase I & Phase II Scheme Details

SL. No:	Sector	Priority Projects for 2021-2030	Area/Quantity	Remarks
1.	Academic	Academic Building	03 Nos/ 10 storied	New
2.		1 <sup>st</sup> Science Building	3 storied	Conservation
3.		2 <sup>nd</sup> Science Building	10 storied	Reconstruction
4.		3 <sup>rd</sup> Science Building	10 storied	Reconstruction
5.		Fine Arts Building	10 storied	New
6.		Sahidullah Academic Building	10 storied	Reconstruction
7.		Mamataz Uddin Academic Building	10 storied	Reconstruction
8.		Central Science laboratory & Science Workshop	01 Nos/ 5 storied	New
9.		Construction of Research Center	01 Nos/ 5 storied	New
10.		Construction of Institutes Building	02 Nos/ 5 storied	New
11.	Admin and Support	Deans Complex	5 storied	New
12.		Senate Building	Extension in height and area, 10 storied	Redevelopment
13.		Administrative Building	10 storied	New
14.		TSCC	4 storied	Redevelopment
15.		Central Cafeteria, other support services	4 storied	Redevelopment
16.		Central Store House	2 storied/ 01 No.	New
17.		Health Care Center	5 storied	Reconstruction
18.	Residential	Male Hall (General)	04 Nos/ 10 storied, 1000 student, 3 Blocks	Reconstruction of Sayed Amir Ali Male Hall,
				Nawab Abdul Latif Male Hall,
				Shah Mukhdam Male Hall,
				Sher-E-Bangla Fazlul Haque Hall



19.		Female Hall (General)	02 Nos/10 storied, 1000 student, 3 Blocks	Reconstruction of Monnujan Hall, Rokeya Hall
20.		International House (Zuberi Bhaban)	01 Nos/ 10 storied, 1000 student, 3 Blocks	
21.		Quarter for Teachers	03 Nos/ 11 storied, 4 units/1000-1500 sqft	New quarter instead of Western areas Red Quarter (1-24)
22.		Quarter for Officers	02 Nos/ 11 storied, 4 units/1000-1500 sqft	New
23.		Quarter for Employees (III-IV class)	6 Nos/ 6 storied, 16 units/500-800sqft/430-500sqft	New, 3 <sup>rd</sup> and 4 <sup>th</sup> Class Staff Quarter, Sweeper Quarter
24.		IBA Student Male Hall	10 storied	New
25.		IBA Student Female Hall	10 storied	New
26.		IBA Mosque	3 Storied	New
27.		IBA Mosque	3 Storied	New
27.	Heritage and Liberation War	Bangabandhu Complex	2 storied	New
28.		National Four Leader Mural		New
29.		Other Sculptures	3Nos	New
30.	Commercial	Central Market Place	02 Nos/ 10 storied, with parking,	Kajla and Binodpur
31.		Retail Market Development	3 storied	Rail Station Market
32.		Corner shop development	10 Nos/ 1 storied	New
33.		Food Court and Plaza Development (Tukitaki Chatter)	5 Locations	New
34.		Road (2 lane)	4km	New
35.	Transportation	Road (1 lane)	8km	New
36.		Maintenance of Road	15km	Upgrading
37.		Pedestrian way (6'-0" wide)	15km	New
38.		Cycle way	15km(6'-0" wide)	New

39.		Transport Complex Construction	5 storied	New
40.		Multi-storied parking	5 storied	New
41.		Bicycle and Motorcycle Shed	3 locations	New
42.	Recreation	Sports Complex with Indoor Stadium and pavilion		New
43.		Playground development	2 Nos. 2 acre per playground	New
44.		Park Development	West Para	New
45.		Lake development	Science Lake	New
46.		Cannel Development	2 km	New
47.		Landscaping and open space maintenance	TSCC, Rail track, Botanical, Paris Road, Boddho Bhumi	New
48.		Indoor swimming complex	2 storied	New
49.		Tree Plantation	3 trees per person per year	New
50.		Upgradation of central auditorium		Upgrading
51.		Main Entry Development		Redevelopment
52.	Utility and Services	Underground Duct of Electricity, internet	10 km	New
53.		Electric Sub-station construction	(5MVA 33/11 KV)	New
54.		Solar Panel Construction (2 MW)		Solar Energy
55.		Water Supply line (2"-4" dia)	3 km	Potable water by universities own treatment plant
56.		Pump House	3 Nos	New
57.		Mosques	500 persons (2 Nos.)	New
58.		Graveyard Maintenance		
59.		Religious Facilities for other religion		
60.	Drainage	Drain	5km	New
61.		Sewer Line	1.5km	New



62.		Sewerage Treatment Plant (STP)	02 Nos/8 MLD each site	New
63.		Rainwater harvesting system		
64.		ETP	01 Nos	
65.		Water Spray for fun and lawn		

#### 10.4 Cost Estimate of Priority Schemes

Priority schemes list contains 65 projects in different fields. Cost estimation has been done according the PWD recent rate schedule. Table 10-2 shows the details of priority schemes that cover area of the schemes, project title, area coverage and cost estimates of the projects.

As evident from the table academic projects would cost about Tk. 5,285,000,000; the cost of administration and support project would require Tk 2,881,000,000 and residential projects would incur Tk 10,759,537,500. Implementation of all projects during Near Term Phase 1 would cost Tk. 2429.006 crore. Cost estimation for priority plan has been shown for next 10 years and consultant urged for review the cost estimation with times as rate of Public Works Department (PWD) changes with time.

**All these projects need to have feasibility studies before taking up for execution. The authority shall take necessary measures to conduct feasibility studies after approval of the Master Plan.**

Table 10-2: Cost Estimate of Priority Schemes

SL. No.	Sector	Priority Project for 2021-2030	Nos/ Number of Story	Remarks	Unit	Total Area/ Quantity	Unit Rate in Taka	Cost Amount in Taka
1	ACADEMIC	Academic Building	03 Nos/ 10 storied	New	Sqm.	45000	35,750.00	1,608,750,000.00
2		1 <sup>st</sup> Science Building	3 storied	Conservation	L.S.	4100		20,000,000.00
3		2 <sup>nd</sup> Science Building	10 storied	Reconstruction	Sqm.	15000	35,750.00	536,250,000.00
4		3 <sup>rd</sup> Science Building	10 storied	Reconstruction	Sqm.	15000	35,750.00	536,250,000.00
5		Fine Arts Building	10 storied	New	Sqm.	15000	35,750.00	536,250,000.00
6		Sahidullah Academic Building	10 storied	Reconstruction	Sqm.	15000	35,750.00	536,250,000.00
7		Mamataz Uddin Academic Building	10 storied	Reconstruction	Sqm.	15000	35,750.00	536,250,000.00
8		Central Science laboratory & Science workshop	01 Nos/ 5 storied	New	Sqm.	7500	32,500.00	243,750,000.00
9		Construction of Research Center	01 Nos/ 5 storied	New	Sqm.	7500	32,500.00	243,750,000.00
10		Construction of Institutes Building	02 Nos/ 5 storied	New	Sqm.	15000	32,500.00	487,500,000.00
11	ADMIN & SUPPORT	Deans Complex	5 storied	New	Sqm.	7500	32,500.00	243,750,000.00
12		Senate Building	Extension in height and area, 10 storied	Redevelopment	Sqm.	15000	35,750.00	536,250,000.00
13		Administrative Building	10 storied	New	Sqm.	20000	35,750.00	715,000,000.00
14		TSCC	4 storied	Redevelopment	Sqm.	11600	32,500.00	377,000,000.00
15		Central Cafeteria, other support services	4 storied	Redevelopment	Sqm.	9200	32,500.00	299,000,000.00



SL. No.	Sector	Priority Project for 2021-2030	Nos/ Number of Story	Remarks	Unit	Total Area/ Quantity	Unit Rate in Taka	Cost Amount in Taka
16		Central Store House	2 storied/ 01 No.	New	Sqm.	2000	30,000.00	60,000,000.00
17		Health Care Center	5 storied	Reconstruction	Sqm.	20000	32,500.00	650,000,000.00
18	RESIDENTIAL	Male Hall (General)	4 Nos/ 10 storied, 1000 student, 3 Blocks	Reconstruction of Sayed Amir Ali Male Hall,	Sqm.	24000	35,750.00	858,000,000.00
				Nawab Abdul Latif Male Hall,	Sqm.	24000	35,750.00	858,000,000.00
				Shah Mukhdam Male Hall,	Sqm.	24000	35,750.00	858,000,000.00
				Sher-E-Bangla Fazlul Haque Hall	Sqm.	24000	35,750.00	858,000,000.00
19		Female Hall (General)	02 Nos/ 10 storied, 1000 student, 3 Blocks	Reconstruction of Monnujan Hall,	Sqm.	24000	35,750.00	858,000,000.00
				Rokeya Hall	Sqm.	24000	35,750.00	858,000,000.00
20		International House (Zuberi Bhaban)	01 Nos/ 10 storied, 1000 student, 3 Blocks		Sqm.	30000	35,750.00	1,072,500,000.00
21		Quarter for Teachers	03 Nos/ 11 storied, 4 units/1000 -1500 sqft	New quarter instead of Western areas Red Quarter (1-24)	Sqm.	28710	35,750.00	1,026,382,500.00
22		Quarter for Officers	02 Nos/ 11 storied, 4 units/1000 -1500 sqft	New	Sqm.	19140	35,750.00	684,255,000.00

SL. No.	Sector	Priority Project for 2021-2030	Nos/ Number of Story	Remarks	Unit	Total Area/ Quantity	Unit Rate in Taka	Cost Amount in Taka
23		Quarter for Employees (III-IV class)	6 Nos/ 6 storied, 16 units/500-800sqft/430-500sqft	New, 3 <sup>rd</sup> and 4 <sup>th</sup> Class Staff Quarter, Sweeper Quarter	Sqm.	33120	32,500.00	1,076,400,000.00
24		IBA Student Male Hall	10 storied	New	Sqm.	24000	35,750.00	858,000,000.00
25		IBA Student Female Hall	10 storied	New	Sqm.	24000	35,750.00	858,000,000.00
26		IBA Mosque	3 Storied	New	Sqm.	1200	30,000.00	36,000,000.00
27	Heritage & Liberation War	Bangabandhu Complex	2 storied	New	Sqm.	16350	32,500.00	531,375,000.00
28		National Four Leader Mural		New	L.S.			2,000,000.00
29		Other Sculptures	3Nos	New	L.S.			2,000,000.00
30	COMMERCIAL	Central Market Place	02 Nos/ 10 storied, with parking,	Kajla and	Sqm.	1600	35,750.00	57,200,000.00
				Binodpur	Sqm.	1200	35,750.00	42,900,000.00
31		Retail Market Development	3 storied	Rail Station Market	Sqm.	6000	30,000.00	180,000,000.00
32		Corner shop development	10 Nos/ 1 storied	New	Sqm.	200	20,000.00	4,000,000.00
33		Food Court and Plaza Development (Tukitaki Chatter)	5 Locations	New	Sqm.	1650	20,000.00	33,000,000.00
34	TRANSPORTATION	Road (2 lane)	4km	New	KM	4	17,000,000.00	68,000,000.00
35		Road (1 lane)	8km	New	KM	8	8,500,000.00	68,000,000.00
36		Maintenance of Road	15km	Upgrading	KM	15	4,370,000.00	65,550,000.00



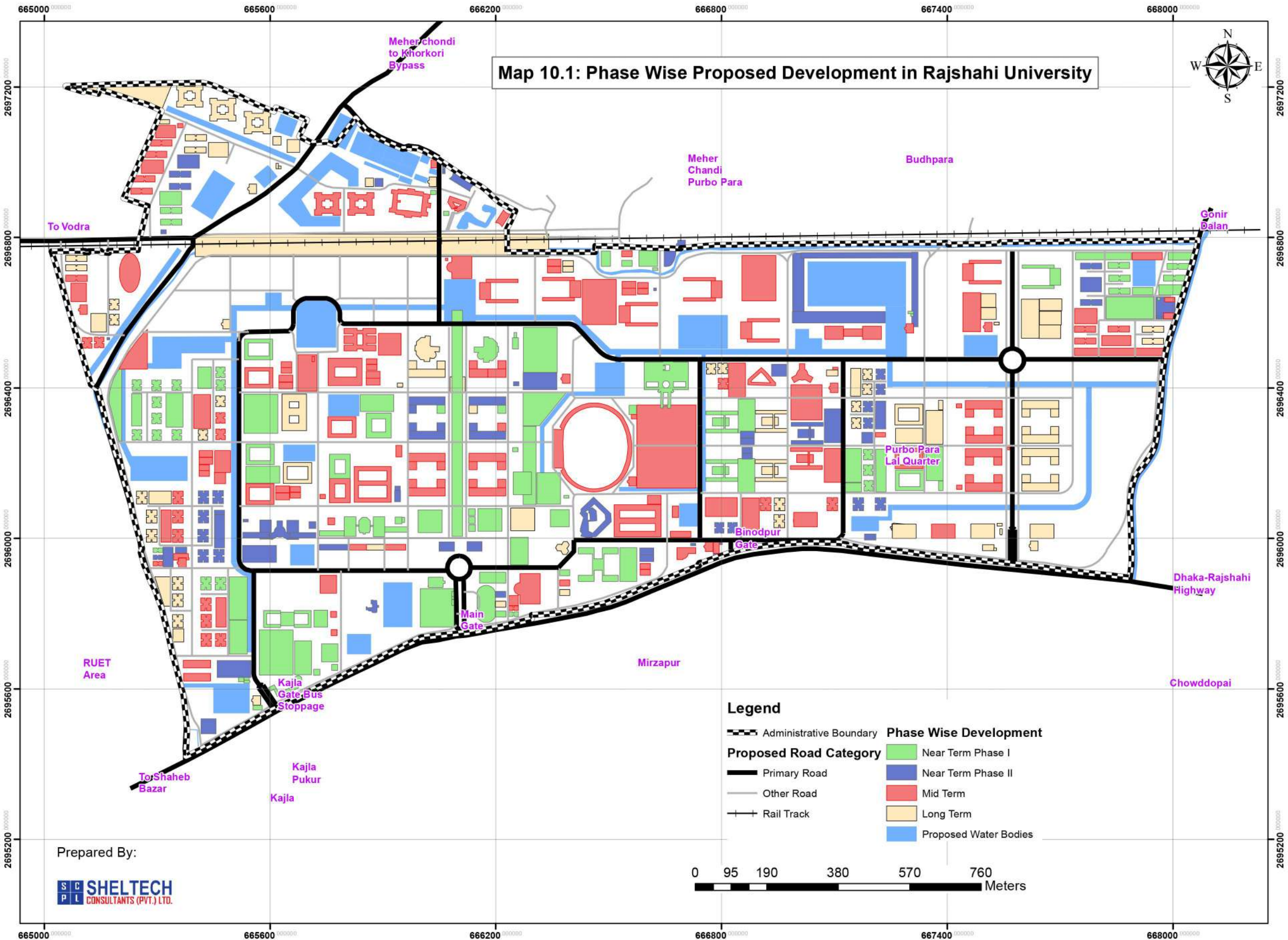
SL. No.	Sector	Priority Project for 2021-2030	Nos/ Number of Story	Remarks	Unit	Total Area/ Quantity	Unit Rate in Taka	Cost Amount in Taka
37		Pedestrian way (6'-0" wide)	15km	New	KM	15	2,700,000.00	40,500,000.00
38		Cycle way	15km(6'-0" wide)	New	KM	15	2,700,000.00	40,500,000.00
39		Transport Complex Construction	5 storied	New	Sqm.	21500	32,500.00	698,750,000.00
40		Multi-storied parking	5 storied	New	Sqm.	17500	32,500.00	568,750,000.00
41		Bicycle and Motorcycle Shed	3 locations	New	Sqm.	1500	4,000.00	6,000,000.00
42	RECREATION	Sports Complex with Indoor Stadium and pavilion		New	Sqm.	35000	32,500.00	1,137,500,000.00
43		Playground development	2 Nos. 2 acre per playground	New	Acre	4	3,000,000.00	12,000,000.00
44		Park Development	West Para	New	Acre	2	3,000,000.00	6,000,000.00
45		Lake development	Science Lake	New	L.S.			5,000,000.00
46		Cannel Development	2 km	New	L.S.			5,000,000.00
47		Landscaping and open space maintenance	TSCC, Rail track, Botanical, Paris Road, Boddho Bhumi	New	Acre	50	1,000,000.00	50,000,000.00
48		Indoor swimming complex	2 storied	New	Sqm.	4500	32,500.00	146,250,000.00
49		Tree Plantation	3 trees per person per year	New	Number	100000	100.00	10,000,000.00
50		Upgradation of central		Upgrading	Sqm.	6000	32,500.00	195,000,000.00

SL. No.	Sector	Priority Project for 2021-2030	Nos/ Number of Story	Remarks	Unit	Total Area/ Quantity	Unit Rate in Taka	Cost Amount in Taka
		auditorium						
51		Main Entry Development		Redevelopment	L.S.			2,500,000.00
52	UTILITY AND SERVICES	Underground Duct of Electricity, internet	10 km	New	KM	10	4,500,000.00	45,000,000.00
53		Electric Sub-station construction	(5MVA 33/11 KV)	New	L.S.			200,000,000.00
54		Solar Panel Construction (2 MW)		Solar Energy	nos	2	150000000	300,000,000.00
55		Water Supply line (2"-4" dia)	3 km	Potable water by universities own treatment plant	km	3	3000000	9,000,000.00
56		Pump House	3 Nos	New	Sqm.	300	30000	9,000,000.00
57		Mosques	500 persons (2 Nos.)	New	Sqm.	2400	30000	72,000,000.00
58		Graveyard Maintenance			L.S.			1,500,000.00
59		Religious Facilities for other religion			L.S.			20,000,000.00
60		Drain	5km	New	KM	5	4500000	22,500,000.00
61		Sewer Line	1.5km	New	KM	1.5	4500000	6,750,000.00
62	DRAINAGE	Sewerage Treatment Plant (STP)	02 Nos/8 MLD each site	New	MLD	16	40000000	640,000,000.00
63		Rainwater harvesting system			L.S.	6	10000000	60,000,000.00
65		Water Spray for fun and lawn			L.S.			1,000,000.00



SL. No.	Sector	Priority Project for 2021-2030	Nos/ Number of Story	Remarks	Unit	Total Area/ Quantity	Unit Rate in Taka	Cost Amount in Taka
Total Cost in Taka:								24,290,062,500.00
Total Cost in Lac:								242900.63
Total Coat in Crore:								2429.01

Map 10.1: Phase Wise Proposed Development in Rajshahi University



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**PL CONSULTANTS (PVT.) LTD.**

**Legend**

**Administrative Boundary**  
- - - - -

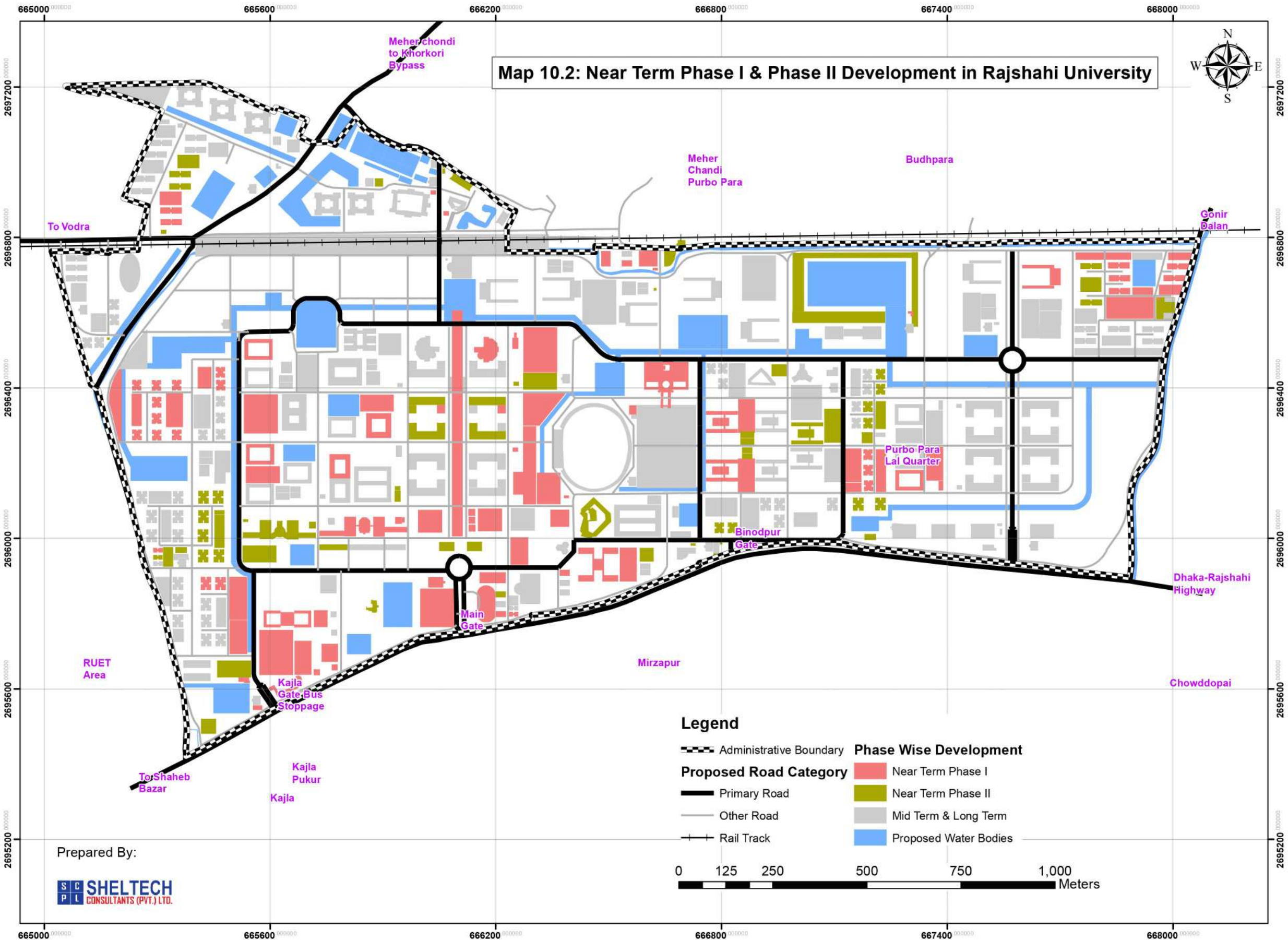
**Proposed Road Category**  
- Primary Road  
- Other Road  
- Rail Track

**Phase Wise Development**  
- Near Term Phase I  
- Near Term Phase II  
- Mid Term  
- Long Term  
- Proposed Water Bodies

0 95 190 380 570 760 Meters

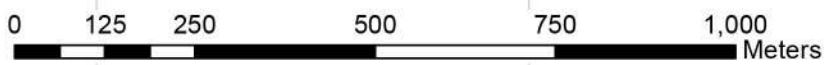


Map 10.2: Near Term Phase I & Phase II Development in Rajshahi University



Legend

- |                         |                               |
|-------------------------|-------------------------------|
| Administrative Boundary | <b>Phase Wise Development</b> |
| Primary Road            | Near Term Phase I             |
| Other Road              | Near Term Phase II            |
| Rail Track              | Mid Term & Long Term          |
|                         | Proposed Water Bodies         |



Prepared By:





# Chapter Eleven

## Implementation Issues



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## CHAPTER ELEVEN

### IMPLEMENTATION ISSUES

#### 11.1 Background

Implementation issues with respect to translating Master Plan into reality challenges and deserve highest priority. The implementation issues may be of routine nature. Special issues are particular skills/inputs, unforeseen or newly created issues due to changed circumstances/imposed conditions or otherwise required being executed due to unavoidable adjustment of the Master Plan preparation parameters.

Implementation issues should be addressed and dealt inconformity with basic structure and philosophy of the Master Plan. The magnitude and intensity of respected issues might differ and need individual's attention, at the same time, they will need legal, financial, managerial support and beneficiary participation along with a sense of belongingness having a commitment to take care and maintain the implementation schemes/project/activity in line with Master Plan.

Good governance is another very important element in implementation process, which, if properly administered, will make the implementation successful and praise worthy.

#### 11.2 Custodian of the Master Plan

Almost all aspects of development (Physical, Social etc.) have been incorporated in the Master Plan to suit the community at different span of time. As such stakeholders/beneficiaries must be involved in every aspect of implementation. Execution of substantial amount of plan proposals will rest on Rajshahi University authority as it is the principal custodian of the Master plan. Planning proposals take time to implement and hence the execution of the proposals should be more ahead once the plan is formally approved.

Rajshahi University being in charge of the Master Plan, it will also be responsible for monitoring the execution process and take follow up measures accordingly. For effective implementation of the plan proposals, planning commission at national apex level must ensure that no other plan, which may contradict with the Master Plan should be financed for implementation.

#### 11.3 Amendment of the Master Plan

Any amendment in the Master Plan, as and when felt necessary for future needs to serve public interest may be undertaken with approval of the University Authority.



### 11.4 Reviewing and Updating

The Master Plan should be reviewed every 4<sup>th</sup> year of plan period which will come under implementation from the 5<sup>th</sup> year. The purpose of review will be to analyze the status of implementation of plan provisions, the changing physical growth pattern, infrastructure development needs and the trend of public and private physical development including growth direction.

### 11.5 Implementation of the Master Plan

The entire package of Master Plan refers to Strategic Policies and principles translated into development proposals. Accordingly all development proposals should be programmed for smooth implementation.

The principal caretaker of Master Plan is Rajshahi University who will fulfill all the needs to implement the Master Plan. One should notice that phasing of Master Plan into consecutive five years would be difficult to start with, but with the passage of time, the workability will be easier.

It is important to understand the whole philosophy of Master Plan and the integration of different stages of implementation. It will be necessary to monitor the implementation work and make review on time so as to update the plan.

### 11.6 Programming of Development Proposal

Programming of development proposals can be drawn up based on criteria i.e. fixing of priority based on criticality of the problem. Phasing of implementation should also be worked out considering criticality of the problems and priority needs. For the sake of transparency, development proposals should be discussed in Rajshahi University Syndicate meeting and the decision to be taken through discussions considering criticality of the problem and priority needs assessment.

#### 11.6.1 Outlay Program

Definite outlay of programs is necessary to give a limit to the executing authority about the possible size of expenditure required for implementing the development projects. This helps the authority to take necessary action before handover for procurement of fund for this period of implementation. Detail estimates should be worked out by the executing authority based on up-to-dates of various cost components. Outlay programming for the projects to be implemented during the first five years need to be undertaken.

### 11.6.2 Context of Development Control

Development Control should be exercised for proper development of the Master Plan area. Rajshahi University has been created against the demand of the people which needs a Master Plan to lead development. The development features/components which are provided in the plan need appropriate control. University Authority and its immediate influence zones are under subjugation of many other bodies from Local to national level.

The activities of these agencies influence each other by implementing their respective agenda over time. Therefore, the development control at different level in their areas is governed by respective charter of duties framed by the government. Many functions replicate but their level of operation is different.

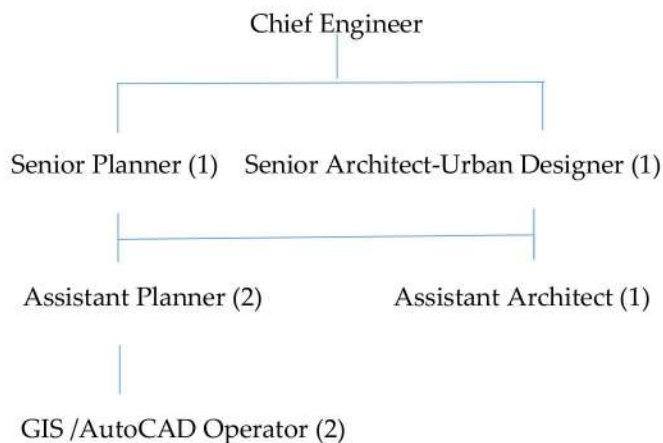
Master Plan jurisdiction of Rajshahi University is under the authority of Rajshahi University, Rajshahi City Corporation (RCC) and Rajshahi Development Authority (RDA). Therefore, RCC, RDA and Rajshahi University has the authority to control jointly its development. It is advised that Rajshahi University should also follow all the 1996 rules and regulations of development control prepared by the government under East Bengal Building Construction (EBBC) Act 1952.

### 11.7 Manpower Requirement

It is evident that the university is short of manpower especially technical professionals. Rajshahi University authority should deploy more trained technical manpower to ease the situation. Apart from conventional engineering staff, there should be a Planning Section comprising GIS facilities engaging a graduate urban planner to monitor development, identify problems and make suggestions about new developments including income raising projects. This is necessary considering the vastness of the campus and its geographic diversity.

The following professional manpower may be added under the Chief Engineer:





Senior Planner and Senior Architect-Urban Designer would be equivalent to Executive Engineer; Assistant Planner/ Assistant Architect will enjoy the status of Assistant Engineer and GIS /AutoCAD Operator will be of the status of Sub-Assistant Engineer. Senior Planner & Senior Architect-Urban Designers responsibility will control future development of the campus according to this master plan.

### Training

A continuous training program of Rajshahi University Engineers, Architects and Planners along with other technical professionals should be undertaken with appropriate modules so that the Master Plan can be properly taken care of.

## **11.8 Restriction on Use of Land Contrary to the Master Plan**

Rajshahi University Authority should take care not to use any Land for any purpose other than that land laid down in the land use zoning of the approved Master Plan. All future development and construction within the area of Master Plan shall be in conformity with the approved plan. If necessity arises the authority may change the land use of the Master Plan through legal procedure.

### **11.8.1 Building Construction**

Development control mechanism will be the major plan implementation instrument to be carried out through the Building Construction Rules (1996) under section 18 of EBBC Act 1952 and the land use provisions of the Master Plan. The whole procedure from submitting the application for approval to completion /hard over report of the building construction will be as per set rules and provisions to be followed by Rajshahi University.

### 11.8.2 Development Restrictions

#### a) Pond, Low Land and Drainage Discharge Path

No low land can be filled up and no obstruction to drainage system shall be allowed within the jurisdiction of Master Plan. Prior permission from Rajshahi University will be required for filling any low lands. The Rajshahi University shall accord such permission based on prevailing laws. All ponds shall not be allowed to be filled up as they are a good source of urban water supply as well as serve as open space, retain water retention and support emergence firefighting activities. There is large number of ponds in the university. It is suggested that ponds having an area of 0.50 acres should be retained. Filling up of these ponds should be restricted. Rajshahi University should acquire these over time for their optimal use.

#### b) Water Treatment Plant, Pump Station and Power Station

Water treatment plant, pump station, power supply station, police station (fari) are the key securities areas which usually remain within demarcated boundaries. Historical places, important Government installations, if not regularly taken care of may be developed by unauthorized encroachment which will destroy total security even unmonitored development around these areas may create security problem.

#### c) Conservation of Historical Places

Rajshahi University campus has a very rich historical background. The whole campus holds a very humble essence of the Liberation War 1971. The most historical incidences of Rajshahi City were occurred in the Rajshahi University. The University Authority has also constructed monuments in the significant places. Historical Places or Monuments are Shabash Bangladesh, Golden Jubilee Tower, Shahed Minar, Sfulinggo (Shaheed Shamsuzzoha memorial sculpture), Badhyobhuumi monument, Bighardo Monument, Varendra Museum, Paris Road, Senate Building, Zuberi Bhaban of the University. These places must be conserved. It will promote the campus as the most significant location with zest of the Liberation war 1971. It will also attract more visitors to the campus.





# Chapter Twelve

## Conclusion

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## CHAPTER TWELVE

### CONCLUSION

The master plan for the Rajshahi University is a blueprint of success. It builds upon the University's powerful local identity, heritage, culture, and its sense of place to shape up plans for future growths and investments.

Rajshahi University has an historic opportunity to capitalize upon its unique assets and significant investments in infrastructures to plan for growth and, in the process, to create a campus of greater quality and character. It provides a strategic context for many local endeavors that will bring it to fruition. This is not a statutory document and it is not intended to be prescriptive. The University has an opportunity to create a marvelous new 'Green Campus', while rising to meet the challenges and ambitious targets of the 21st Century.

The preparation of Master Plan for Rajshahi University itself is a challenging task. UGC, university authority, local citizens, stakeholders and service providers were enthusiastic in providing suggestions/observations in consultation meetings that have been noted for future planning action.

Master Plan area encompasses the present university area for preparation of 3D Master plan as per ToR. The Approach and methodology developed in the proposal stage has been updated with all details associated with work program and schedule based on the outcome of the review of the preliminary data and information, reconnaissance surveys.

Assessment of the survey and investigation, analytical method and study program with their implementation plan including staffing and time schedule have also been reviewed. In this report the consultant has included the university history, existing land use, proposal of road network, existing university facilities, and environment. The report covers detailed work program, outline of analytical study plan, discussion with the authority and other agencies and the stakeholders during the meetings between project coordinator and university authority.

In this report detailed design, drawings are provided. Land use plan, transport plan, drainage and utility plan, disaster management, water demand and supply management plan, sewerage plan, waste management system, space need analysis, detailed land allocation to the desired faculty, residential land use optimization etc. have given detailed description in this report.

Consultant also made a phasing plan for all sectorial proposals. Educational, Residential, Administrative & Support, Utilities sectorial proposals have been shown in detail with item description and unit number of items. In phasing proposal there is a priority plan. Cost estimation for priority plan has been shown for next 10 years and consultant urged for review the cost estimation with times as rate of Public Works Department (PWD) changes with time.

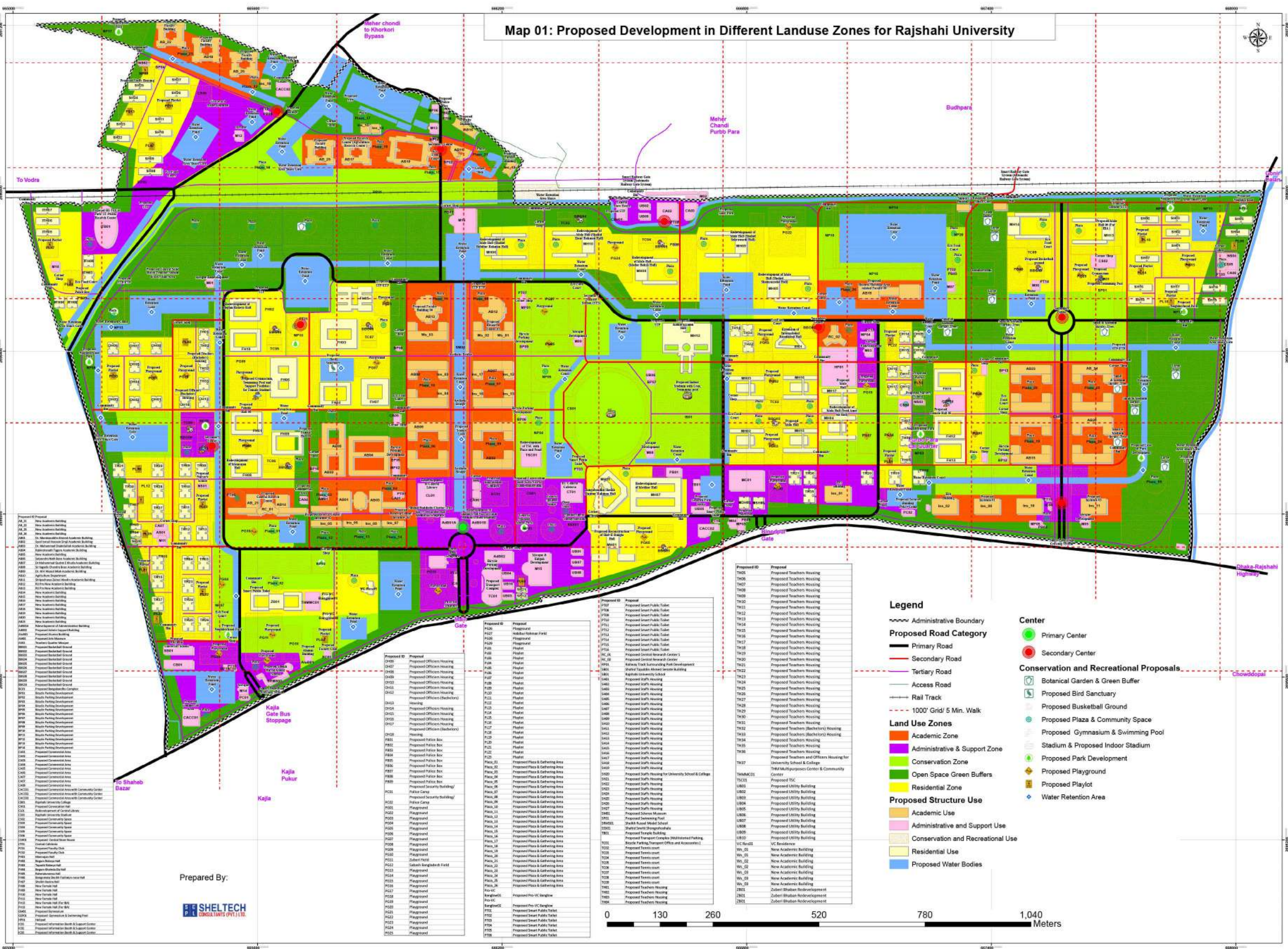
This was necessary that the activities can be undertaken with full support and participation of the concerned agencies, especially needed to have access to the maps, records and information. In the practical context a lot of issues have come up which have to be resolved in a professional manner. It is expected that the plan will facilitate desired development in sequential manner and will open up insights of Master Plan for campus.



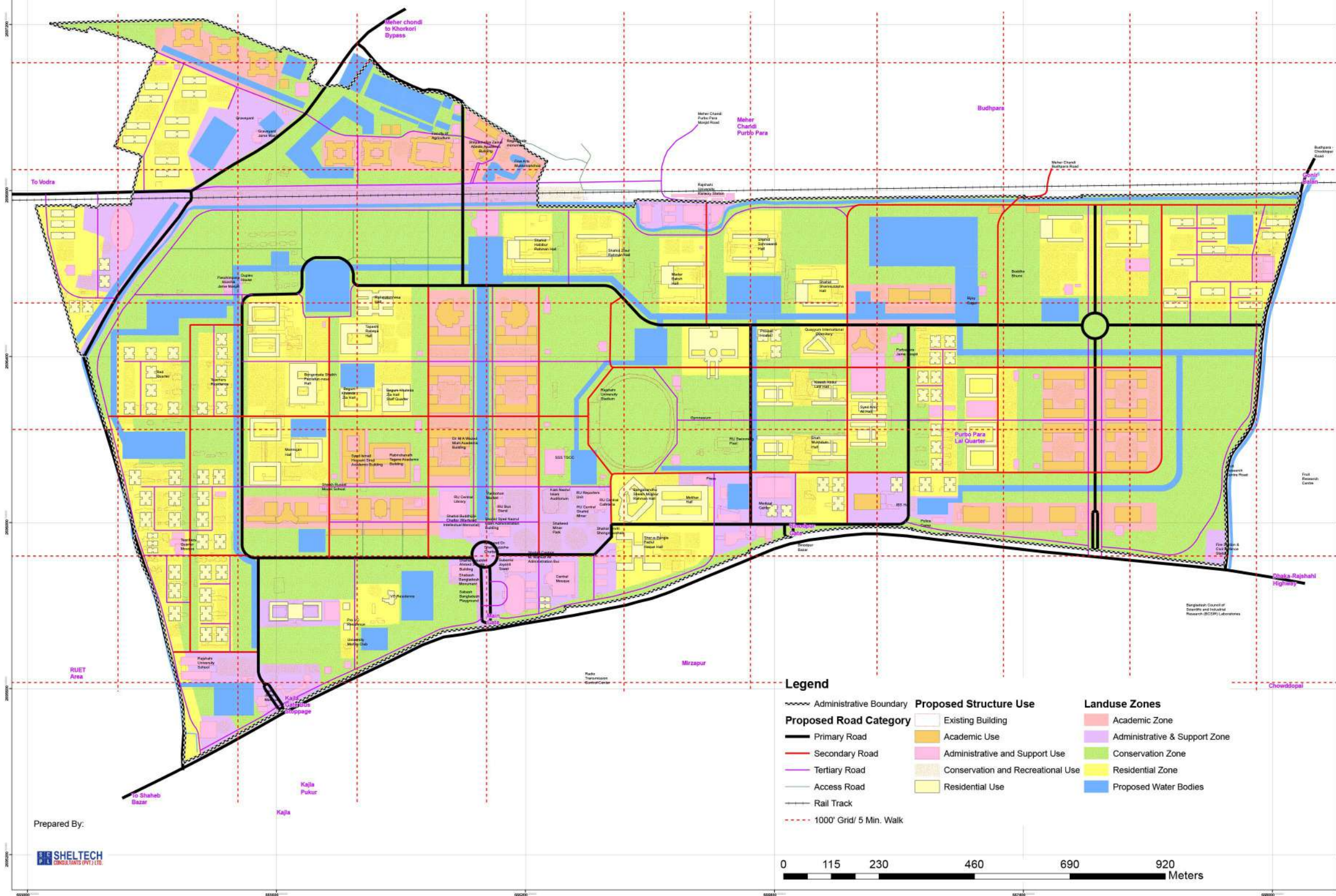


# Annex Map



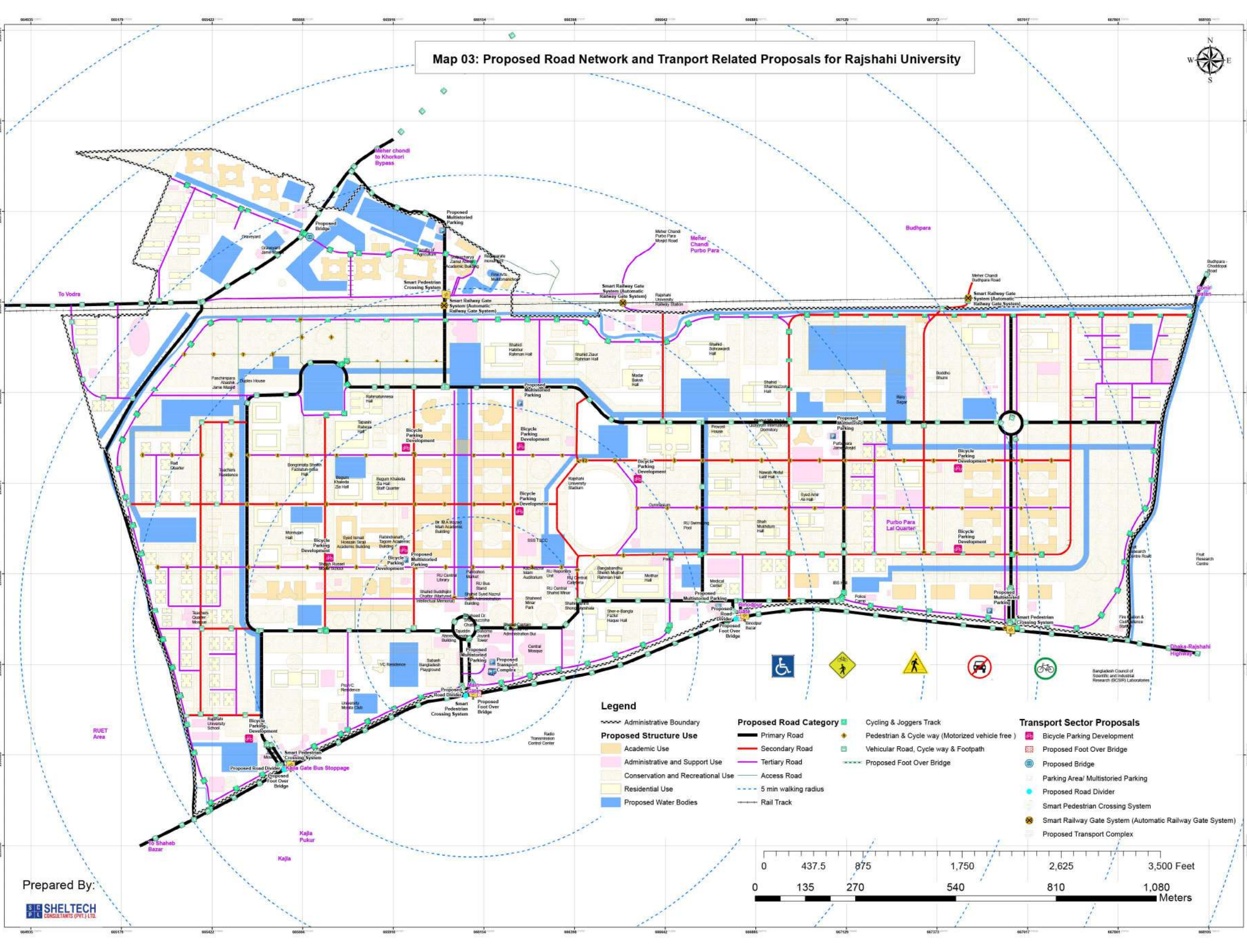








Map 03: Proposed Road Network and Transport Related Proposals for Rajshahi University



Legend

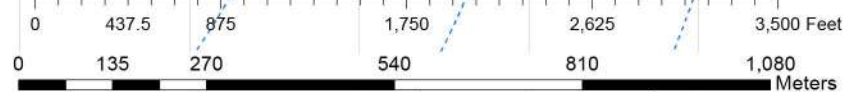
- Administrative Boundary
- Proposed Structure Use
  - Academic Use
  - Administrative and Support Use
  - Conservation and Recreational Use
  - Residential Use
  - Proposed Water Bodies

- Proposed Road Category
  - Primary Road
  - Secondary Road
  - Tertiary Road
  - Access Road
  - 5 min walking radius
  - Rail Track

- Cycling & Joggers Track
- Pedestrian & Cycle way (Motorized vehicle free)
- Vehicular Road, Cycle way & Footpath
- Proposed Foot Over Bridge

Transport Sector Proposals

- Bicycle Parking Development
- Proposed Foot Over Bridge
- Proposed Bridge
- Parking Area/ Multistoried Parking
- Proposed Road Divider
- Smart Pedestrian Crossing System
- Smart Railway Gate System (Automatic Railway Gate System)
- Proposed Transport Complex

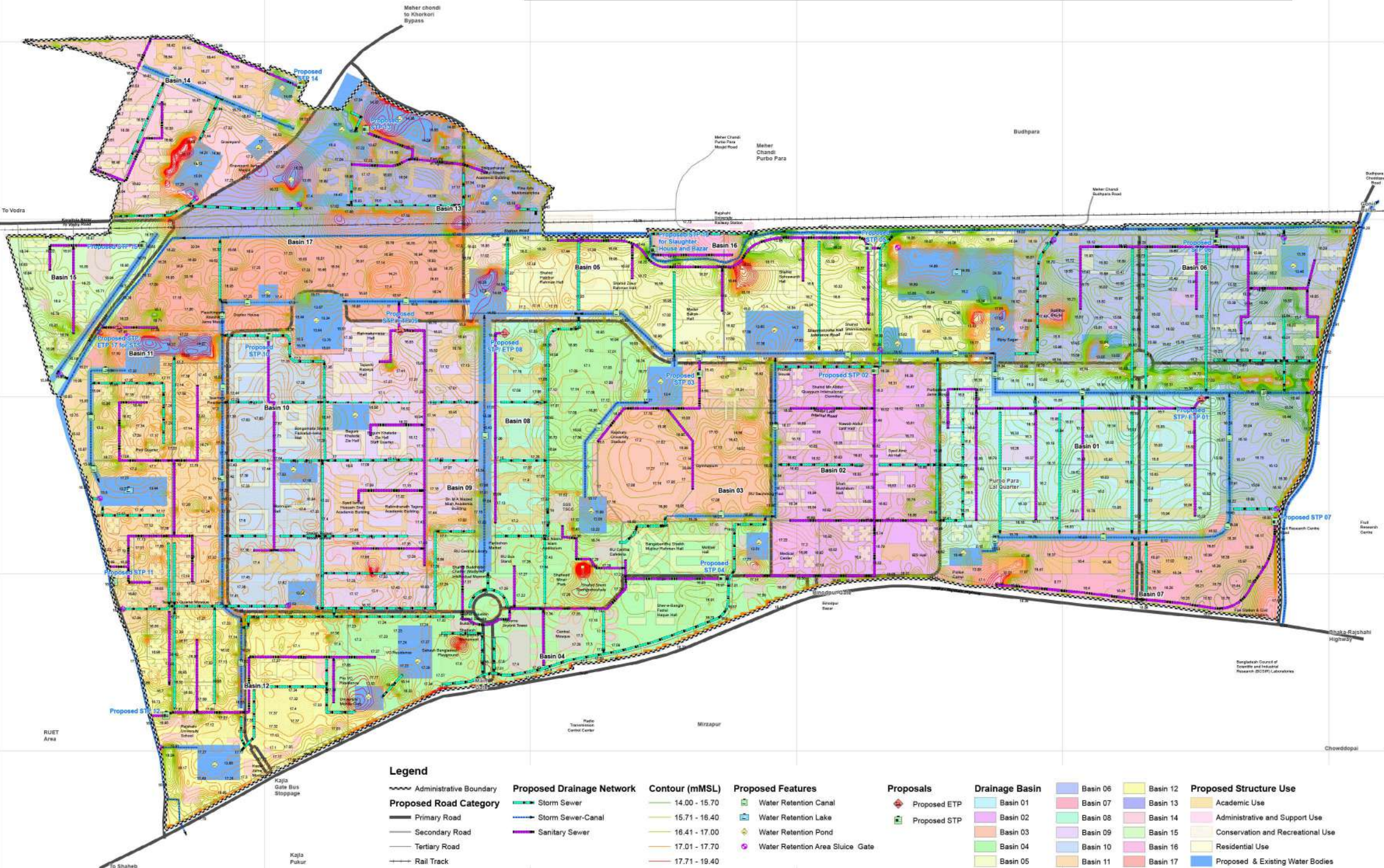


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Map 4: Proposed Storm and Sanitary Sewer Network and Drainage related Proposals for Rajshahi University



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