

PREFACE

This is a great pleasure for all concerned that the “**Preparation of Development Plan for Faridpur Sadar Upazila**” has been successfully completed by June, 2018 under the supervision of the Urban Development Directorate (UDD), Ministry of Housing and Public Works, Government of the People’s Republic of Bangladesh. This development Plan for 20 years (2013-2033) will serve as a guideline for the future Infrastructure Development of Faridpur Sadar Upazila together with land use control, effective management of the Upazila municipal service facilities. The aim of preparing this plan is to identify the infrastructural facilities needed for overall socio-economic and physical development of the people as well as the society of Faridpur Sadar Upazila. This Development Plan comprises of Five-tier Plan in a hierarchical order. Those are Sub-Regional Plan for 20 years, Structure Plan for 20 years, Urban Area Plan for 10 years, Rural Area Plan for 10 years and Action Area Plan for 5 Years.

UDD engaged Consulting firm “Engineering Consultants and Associates Limited (ECAL)” for the preparation of the development plan for Faridpur Sadar Upazila. For preparation of the development Plan, the Consultants successfully completed the most essential tasks such as topographic survey, land use survey, suitability assessment, physical feature survey, socio-economic survey, traffic and transport studies, formal and informal economic study, drainage and environmental study, GIS based base map preparation, series of consultation with stake holders and formal public hearing. The entire works for the preparation of development plan have been completed through participatory planning approach with the Upazila and related stake-holders. During implementation period if needed any change of the land use plan for the purpose of public interest that may be allowed with the approval of the appropriate authority.

Urban Development Directorate (UDD) acknowledges the full support and cooperation of Faridpur Sadar Upazila Authority, Member of Parliament, Stake-holders and Civil Societies with the deepest gratitude.

Dr. K. Z. Hossain Taufique

Director

Urban Development Directorate (UDD)
Ministry of Housing and Public Works
Government of the People’s Republic of
Bangladesh

EXECUTIVE SUMMARY

Urban and rural development plan offers visionary, viable solution for the future oriented development opportunities in the locality of urban and rural areas. The development plan is the main public statement of planning policies for the local community. It sets out the land use, amenity and development objectives and policies of the planning authority for short, medium and long-term basis. The broad objective of development plan preparation of upazilas to provide guidelines for physical development based on future need and opportunities and constraints. Under this project, five tier plans namely Sub Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan have prepared to focus on land-use, transportation and traffic management and comprehensive drainage and environment and disaster management. It has also proposed multi-sectoral investment plan which will help create employment opportunities in the upazila. The plan has developed on the basis of information and data collected from secondary sources and findings through various surveys and is produced through participation of local stakeholders. Physical survey has conducted with the use of GPS, DGPS, RTK-GPS, Total Station and Optical Level and more technical procedures have been adopted to establish the planning phenomenon. Cross checking, internal verification and monitoring have ensured during the survey work.

Bangladesh is a small south Asian country having high population density of 1019 persons per km² (UN Data, 2011) and rapid population growth. The urban area of Bangladesh is facing rapid horizontal expansion due to rapid population growth in all urban areas all the country. The present trend of planning practice is mostly oriented towards planning of cities and towns in Bangladesh. This involves huge amount of financial allocation/grants every year for the development and improvement of urban facilities and utility services for only 20% of the country's population living in the urban areas. In the government's recent policy for overall administrative reorganization, the upazila has been recognized as the most significant tier of administration. So that these areas are need to be planned and developed to accommodate all social, economic, administrative, infrastructure services and service facilities for the region. The current government's intention is to reflect the national policy of bringing development administrative and service facilities to the door step of rural masses and to ensure better delivery of government services to the people. Realizing the fact and importance of formulating development plans for upazilas, Urban Development Directorate has come up with a great initiative to plan those areas. At the first phase of this initiative UDD has decided to prepare development plan for 14 upazilas all over Bangladesh into five different packages. For each package separate consultancy team has been appointed to carry out that job more fruitfully. ECAL has been selected for package-3 (covering Bagmara Upazila, Dist: Rajshahi; Faridpur Sadar Upazila, Dist: Faridpur; and Gangni Upazila, Dist: Meherpur) by project evaluation committee of UDD. The official agreement has been signed between UDD and ECAL on 10th June, 2015 in presence of high officials of UDD and witnesses from both sides.

Faridpur Sadar came into existence as a thana in 1894. The upazila occupies an area of 412.86 sq.km. It is located between 23° 29' and 23° 34' north latitudes and between 89° 43' and 89° 56' east longitudes. The upazila is bounded on the north by Goalanda upazila of Rajbari zilla and Shibalaya and Harirampur upazilas of Manikganj zila, on the east by Char Bhadrassan upazila, on the south by Nagarkanda and Boalmari upazilas and on the west by Madhukhali upazila and Rajbari Sadar upazila of Rajbari zila.

To fulfill the objectives of this project after accomplishing all surveys which are physical feature survey, geological survey, hydrological survey, vulnerability assessment after all these surveys a final

report has been prepared where the total summary of the survey works, the plan preparation process, the proposals have been discussed in different chapters.

In Chapter 1 there has provided a background of the project along with its objectives and scope. In Chapter 2 the study area which is Faridpur Upazila has been portrayed in terms of its existing features. This chapter visualize the present strength of this upazila. In Chapter 3 and 4 development related policies and critical planning issues have been discussed. The most important chapter is Chapter 5 where the total technical process of plan preparation has been discussed. This chapter highlights the survey data of this upazila. From this chapter information regarding geology can be garnered. Such as from the microzonation map it is visible that some areas of Kaijuri, Gerda, Krishnanagar unions are sensitive to earthquake. The suitability analysis to find out the agriculture suitable, urban suitable, industrial suitable area have been described this chapter. It is found that which areas are suitable for industry such as Macchar, Greda and Kanaipur have the potentiality as Industrial Suitable Area. Moreover, North Channel is suitable for Industry which dictates mainly for Agro based Industries. Like this agricultural suitable area are Char Madhabdia, Decreeerchar and North Channel are mostly suitable area for agriculture whereas other unions are moderately to highly suitable like Krishnagar, Kanaipur. The analysis indicates a comparative analysis incorporating all agricultural areas in Faridpur Sadar Upazila. In Chapter 6 Sub regional and regional analysis have been discussed. In Chapter 7 conceptualization of Structure plan has been depicted. The objectives of Structure plan have been narrated elaborately. In this order Structure plan and landuse zoning has been recited in Chapter 8. While Chapter 9 consists of the strategies and policies of sectoral development. In Chapter 10 detailed drainage planning for the upazila has been narrated. Chapter 11 composes the contingency plan regarding earthquake and vulnerable assessment. Chapter 12 describes the basic services and facilities which are provided for the upazila in terms of present needs and future population projection. Urban area plan, rural area plan and action area plan have been discussed in Chapter 13, 14 and 15 respectively. The detailed plan has been recited in this chapters. The most important part of preparation of plans is the implementation. In Chapter 16 there has given an outline of the agencies which will be involved in implementing the plans.

Glossary of Terms

Action Area Plan: The Action Area Plan guides land use and infrastructure within the area potential for immediate intervention based on public demand and necessity. It is prepared on 5 years interval.

Bazar: Bazar is a Market Place almost synonym of hat with some advanced facilities in comparison to hat. Generally, in a hat, there may not be any permanent business/trading house, shops. But in a bazar, there are some permanent trading houses, shops and these shops are open every day and buyers and sellers attend the bazar from morning till late evening.

Buffer: A zone of user - specified distance around a point, line or area.

Building Code: Regulations established describing design, building procedures and construction details for new homes or homes undergoing rehabilitation.

Catchment: The area contributing surface water to a point on a (Drainage) Area drainage or river system, which may be divided in to sub-catchments.

Climate Change: The slow variations of climatic characteristics over time at a given place. Usually refers to the change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is, in addition to natural climate variability, observed over comparable periods.

Community Service: Community service covers a wide range of urban basic services, like, park, play field, eidgah, health and education services.

Contingency Plan: The problematic structures in project area found to be vulnerable and risky. For these structures a contingency plan has been prepared to make sure safety of the structures in case of earthquake.

Contour: The form of the land. Contour lines are map lines connecting points of the same ground elevation and are used to depict and measure slope and drainage. Spot elevations are points of a specific elevation.

Contour Interval: Difference in elevation between two successive Contour lines. The interval at which contours are drawn on a map depends on the amount of the relief depicted and the scale of the map.

Coordinates: Pairs of numbers expressing horizontal distances along orthogonal axes, or triplets of numbers measuring horizontal and vertical distances.

Detailed Area Plan: Detailed Area Plan is the last tier of the present plan package (Structure Plan, Master /Urban Area Plan and Detailed Area Plan) adopted in Bangladesh which gives detailed development plan of an area at plot to plot level. It also provides a land use zoning plan superimposed on mouza map. A detailed area plan is prepared for approximately three to five years, that is, the plan must be implemented during this period. Because, spatial changes in urban areas, particularly, in large cities takes place very rapidly. If the DAP is not implemented within five years it would turn obsolete, and a new plan will have to be prepared to accommodate new changes. So, it should be executed as soon as possible. A detailed area plan can be both, participatory or non-participatory. Participatory plans are those plans when it is prepared with direct participation of the local people.

Development: The process whereby a local planning authority Control decides whether a planning application meets the requirements of planning policy, particularly as set out in development plans. The prime function of the Development Control section is to determine planning applications in the public interest, in accordance with planning legislation and the local plan that has been adopted by the plan approving authority.

DEM: The representation of continuous elevation values over a topographic surface by a regular array of z-values, referenced to a common datum. DEMs (Digital Elevation Model) are typically used to represent terrain relief.

Encroachments: A structure that extends over the legal property line of other people or public land.

EIA: It is a detailed study based on Environmental Assessment (EA) to determine the type and level of effects an existing facility is having, or a proposed project would have, on its natural environment.

GIS: A geographic information system merges information in a computer database with spatial coordinates on a digital map.

GPS: Global Positioning System used to determine latitude, longitude, and elevation anywhere on or above the Earth Surface. This system involves the transmission of radio signals from a number of specialized satellites to a hand-held receiving unit. The receiving unit uses triangulation to calculate altitude and spatial position on the Earth Surface.

Growth Centre: Hats and bazars are the trading centers of the rural Bangladesh. Considering the importance of their economic role in national economy, government has decided to develop infrastructure facilities of some selected hats and bazars in every upazila through LGED. The markets which are already provided with such extra infrastructure facilities are called growth center.

Hat: The term ‘hat’ is very much known to all from time immemorial throughout the country which is a temporary rural market place. In rural Bangladesh farmers and other producers/manufactures used to sit with their surplus products in a suitable place having comparatively better communication system with surrounding villages to exchange these goods. This suitable place is called hat where generally on fixed days sellers and buyers get together and exchange goods and services. This gathering place is developed gradually by the local people at the beginning. The Hatis a rural trading center.

Household: Describes group of people who live in the same house and share food from the same kitchen. Household is similar to a family, except that household members may not have blood relationship.

Katcha: Impermanent structure/ building materials.

Land Use Zoning: Land use zoning plan can be a single plan or it can be devised as a part of master plan. In land use zoning plan the entire area under planning is sub-divided into suitable use zones according to their potentiality for that particular use. Accordingly planning permits are given to developers. Land use helps a city grow maintaining environmental sanctity ensuring livability.

Land Development: Re-shaping land to make better use of it. All planned and unplanned development on land is called land development. This term is usually used for housing development in urban areas.

Local Road: Those Roads are provided at local level to give access to houses and other establishments. It is the lowest level of road hierarchy.

Master Plan: It is the 2nd tier of the three level urban plans. It is prepare for the main city and its surroundings. Its development proposals are more detailed and prepared in map and report forms. It also contains a land use zoning map.

Mouza: Mouza is the smallest unit of Land Survey System with a unique number called Jurisdiction List Number (J.L. No.)

Mode of Transport: Four ways are included in the mode of transport. They are Roadway or Highway, Railway, Waterway, and Airway.

National Highway: Highway is a public road, especially a more major road connecting two or more destinations. National Highways are the primary long-distance roadways. Connect national capital with state capital, major port towns, border areas etc. Most are maintained by the Government. Connecting the neighboring countries is also called the National Highway.

Paurashava: Paurashava is the local name of the municipality. The incorporated area administered by the government as urban area under the Paurashava Ordinance 2008 is considered as the paurashava.

Population Projection: Make future estimation of population using well established and scientifically developed formula.

Pucca: Permanent construction/structure using bricks, cement etc. **Right of Way:** The entire space reserved for use of road. Initially road is developed in a part of the space, but gradually with the pace of urbanization the entire reserved space is used for road and footpath.

Road Hierarchy: The hierarchy of roads categorizes roads according to their functions and capacities.

Rural Area Plan: Rural Area Plan (RAP) provides a mid-term strategy for 10 years and covers for the development of rural areas within the project area. Generally, RAP contains an explanatory report, resource maps, conservation and management report, planning rules, rural area plan and a multi-sectoral investment program etc.

Structure Plan: Structure plan develops broad strategies for managing and promoting efficient medium- to long-term urban development. The structure plan integrates economic, physical and environmental planning objectives, providing a framework for development activities in the area. It also indicates the direction and extent of urban growth over a period of next 20 years.

Sub-Regional Plan: It is the document of plan package which determines a long-term vision for the development of an area

Shoulder: Shoulders are strips provided on both the sides of the carriage way. It serves as parking place for vehicles which have developed some defect and need parking.

Skyline: Outline of building, hills, etc. against the sky.

Solid Waste: Non-liquid waste materials that have been discarded. It may be classified by point of origin (such as agricultural waste, industrial waste, domestic waste or construction waste) or by the kind of waste involved (such as rubbish, ashes, garbage, and special waste).

Structure Plan: Structure Plan is the 1st tier plan of the three level plan currently prepared for urban centres in Bangladesh. It is a policy plan and not a plan in maps. Future urban development policies are written down in the plan report that serve as the framework for subsequent lower level plans, like, master plan/urban area plan and detailed area plan. Major development locations may be symbolically indicated in structure plan.

Suitability Analysis: The suitability is a GIS based process for evaluating the suitability of land for development.

Traffic Volume: Number of vehicles passing a particular road per unit time at a specified time is called Traffic volume.

Thematic Map: A thematic map is a type of map specifically designed to show a particular theme connected with a specific geographic area.

Upazilla/Thana: Sub-District administrative area.

Union: Smallest local administrative unit of rural area which is composed of mouzas and villages. A union has a union parishad.

Urban Fringe Area: Outskirt areas of an urban center. These areas are usually being developed. They low density of population and structure and lack physical infrastructure, particularly road.

Urban Area Plan: It provides an interim mid-term strategy for 10 years and covers for the development of urban areas within the project area. Generally, Urban Area Plan contains an explanatory report, resource maps, interim management report, planning rules, urban area plan and a multi-sectoral investment program.

Village: Smallest geographic area of rural area. A village may be same as mouza or there may be more than one village in a mouza.

Vulnerability Analysis: To analysis the vulnerable condition of buildings in the project area different criteria have been identified. These are: structure condition, structure age, historical time period, peripheral impact of structure. Depending on these criteria vulnerable buildings have been identified.

Ward: Smallest local administrative unit of urban area. For the operational convenience, Municipalities are divided into three or more wards. The ward boundaries are specified by gazette notification.

Zila/District: District administrative area.

Unit of Equivalence

1 lakh = 1,00,000

1 million = 10,00,000

1 crore = 1,00,00,000

1 katha = 0.05 bighas = 1.65 dec. = 66.9 sq.m. = 720 sq. ft.

1 bigha = 20 kathas = 33 dec = 0.33 ac.

1 acre (ac) = 3 bighas = 4000 sq.m. = 60.50 kathas = 100 dec

1 hectare (ha) = 2.47 ac. = 7.5 bighas = 10,000 sq. m.

1 square metre (sq. m.) = 1.20 sq. yards = 10.76 sq. ft.

1 square kilometre (sq. km.) = 247.1 ac. = 100 ha.

1 square mile (sq. mile) = 259 ha. = 640 ac. = 2.59 sq. km.

1 yard = 3 feet = 0.9m

1 metre = 3.281 feet

1 kilometre = 1000m. = 0.62 miles

1 mile = 1760 yards = 1.61 km.

1MW = 1000 KW = 106 watts

1 Nautical mile = 1.854 mile

ABBREVIATIONS AND ACRONYMS

AAP	Action Area Plan
DAP	Detailed Area Plan
DEM	Digital Elevation Model
DTM	Digital Terrain Model
FGD	Focus Group Discussion
GCP	Ground Control Point
LGED	Local Government Engineering Department
NHA	National Housing Authority
PDB	Power Development Board
PGA	Peak Ground Acceleration
PRA	Participatory Rapid Appraisal
REB	Rural Electrification Board
RHD	Roads and Highway Department
RTK	Real Time Kinetic
SFYP	Sixth Five Year Plan
TIN	Triangulated Irregular Network
TMC	Technical Management Committee
UDD	Urban Development Directorate
SDG	Sustainable Development Goal
BNBC	Bangladesh National Building Code

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Chapter 01 Introduction

1.1 General

The project “Preparation of Development Plan for Fourteen Upazilas” funded by the Government of Bangladesh envisages preparation of development plan for some specific Upazilas such as Faridpur Sadar Upazila of Rajshahi District, Faridpur Sadar Upazila of Faripur District and Gangni Upazila of Meherpur District. This Plan along with report includes development strategies plan proposals, action plans and plan implementation strategies, in order to fulfill the requirements specified the Terms of Reference (TOR).

The aim of preparing this plan is to identify the infrastructural facilities needed for overall socio-economic and physical development of the people as well as the society. The Development Plan contains a Five-tier Plan which has been mentioned in Table 1.1:

Table 1. 1: Five Tier Plan for Faridpur Sadar Upazilla

Sub-Regional Plan	For a period of 20 years
Structure Plan	For a period of 20 years
Urban Area Plan	For a period of 10 years
Rural Area Plan	For a period of 20 years
Action Area Plan	For a period of 5 years

1.2 Project Background

Bangladesh has been showing rapid growth of urban population since the partition of India in 1947, especially since the independence of Bangladesh in 1971. The average growth rate of urban population has been fluctuating in different census decades. Between 1961 and 1980, the growth rates marked roughly 8 percent. Between 1991 and 2001, the rate has been declined to 3.5 percent. At present (2011) about 28.40 percent of the total population of Bangladesh lived in urban areas. This in fact indicates that Bangladesh is a low urbanized country, even if compared with even the Asian Context (50% urban). In absolute terms however, the country has a huge number of urban populations. In 1971, the urban population of Bangladesh was 5.5 million while in 2001 the size of urban population rose to about 30 million. These simple statistics represent the clear picture of urban population growth. With the increasing of urban population, cities’ physical limits are expanding; many sub-urban and rural areas are becoming urban. With such expansion, urban built environment is increasing. But in context of Bangladesh, such expansions are not being taken place in a planned way. Haphazard and unplanned development are seen everywhere which cost the inhabitants too much in social and economic terms.

Due to lack of practicing effective urban and regional planning, these secondary towns have been failed to put in order especially the most valuable resource i.e., the land in view of the citizens' socio economic and cultural needs. The land is used most haphazardly. As such, the developments are taking place in unplanned and unregulated manner resulting in low living standard of the people living in the cities and towns. This situation depressingly influences the investment patterns in the secondary towns resulting not creating employment opportunities for the urban dwellers and generating funds for development

and better maintenance of urban infrastructure such as roads, water supply, drainage, waste disposal and sanitation, electricity, etc. within their boundaries. Thus, the role of the secondary towns in the overall socio-economic development both at the local and the national levels are not much noteworthy. Further, it is to be agreed that the issues concerning urbanization and practicing urban planning at the secondary town level have not been duly addressed as far as the national policies and strategies are concerned.

City planning authority such as RAJUK, CDA, KDA, RDA etc. made their development plan for own territory. In this course the small towns and other administrative tiers such as district, upazilas and thanas are kept behind all of these. Unfortunately, most of these towns, upazilas and growth centers do not have any development plan, so that government, executing agencies, local government and people all are constantly suffers with complicity and indecision. In the government's recent policy for overall administrative reorganization, the upazila has been recognized as the most significant tier of administration. So that these areas are need to be planned and developed to accommodate all social, economic, administrative, infrastructure services and service facilities for the region. The current government's intention is to reflect the national policy of bringing development administrative and service facilities to the door step of rural masses and to ensure better delivery of government services to the people.

In this regard a comprehensive development plan is required to address the required land use transformation which will not allow any unauthorized and unplanned-development, either in urban area or in rural area. Due to lack of such plan, it is generally found that most of the Upazilas in Bangladesh have developed with least coordinated manner possessing very little development control. Measures for the adequate provision of infrastructure, service, utility and modern amenities for maintaining a minimum standard of life, considering environment and sustainability has to be taken. Moreover, in preparing such plan, development constraints and local development potentials are to be identified clearly, and plans should be formulated addressing' such development constraints and potentials of the area to make the plan practicable.

Considering this situation, the project on "Preparation of Development Plan for Fourteen Upazilas" has been initiated with a view to prepare for a period of next 20 years (2015-2035) divided into five packages by UDD. For each package separate consultancy team has been appointed to carry out that job more fruitfully. Urban Development Directorate (UDD), Under Ministry of Housing and Public Works as the excluding agency. The project is merged monitored and evaluated by UDD at the field level. Engineering Consultants and Associates Ltd (ECAL) has been selected as a consultancy firm for package-3 (covering Bagmara Upazila, District: Rajshahi; Faridpur Sadar Upazila, District: Faridpur; and Gangni Upazila, District: Meherpur) by project evaluation committee of UDD. The activities of the project were started in January 2015 and was expected to be completed by January 2017. But for some unavoidable reasons time period of the project had to be extended up to June 2018.

1.3 Objectives of the Plan Packages

The vision of the plan is the creation of an urban livable environment where the people, able and or disable, irrespective of age-sex and income, cast-creed and religion, can live and enjoy today within affordable means without sacrificing interests of tomorrow. However, the overall vision of the Development Plan is to make the Upazila by revitalizing its growth and make it a poverty free, livable and economically vibrant Upazila. Bangladesh Govt. has an agenda to develop its standard as middle-income country in the year of 2021. The rate of this development is not uniform all over the country. Bangladesh has now going towards achieving the rank in the list of developed countries in the world

and this plan will help to meet the SDGs of Bangladesh in Upazila stage in order to make the development uniform all over the country to ensure sustainable growth. According to the Terms of Reference the objectives of Faridpur Sadar Upazila Development Plan are outlined in following paragraphs.

1.3.1 National Objectives

To find out development issues and potentials of the Upazila and make a 20 years development vision for the Upazila (both urban and rural area) and prepare a Master Plan in line with the vision for the development.

1. Prepare plan for the people of whole upazila to develop and update provisions for better transport network, housing, infrastructures for roads, markets, bus terminals, sanitation, water supply, drainage, solid waste management, electricity, education, leisure and such other infrastructure facilities for meeting the social and community needs of the poor and the disadvantaged groups for better quality of life and at the same time ensure the development of rural area within the project area.
2. Prepare a multi-sector short and long-term investment plan through participatory process for better living standards by identifying the area-based priority-drainage master plan, transportation and traffic management plan, other specific plan needs as per requirement in accordance with the principle of sustainability;
3. Provide controls for private sector development, clarity and security with regard to future development;
4. Provide guidelines for development considering the opportunity and constraints of future development of Upazilla town and rural area.
5. Prepare 20 years Development Plan to be used as a tool to ensure and promote growth of the city in line with the guiding principles of the Master Plan and control any unplanned growth by any private and public organizations.
6. Facilitating the urban growth to protect the valuable farmland and at the same time provide space and facilities for non-agricultural activities.
7. Provision of standards for use by public bodies.
8. Supporting the livelihood of the inhabitants of Faridpur Sadar Upazila.
9. Protecting the eco-system with the understanding that we are a component of the system rather than the consumer of the system.
10. Discouraging the involuntary displacement of the inhabitants in the name of development.
11. Control of undesired development in all areas for which plans have been prepared.

1.3.2 Immediate Objectives

The immediate objectives of the project are:

Objective 1: Determination of Present and Future Function of the Upazila

Preparation of Sub Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan (AAP) are to be based on PRA sessions, land use survey, topographical survey, environmental, disasters/hazards and agricultural studies. The major studies are related to traffic and transportation, drainage and environmental, formal and informal economic studies, slums and squatters, unauthorized encroachment, recreational facilities and stakeholder's participation for planning and development control.

Objective 2: Mechanism for Improving and Guiding Development

The mechanisms for improving and guiding development are:

- Preparation of five tier Development Plans namely: Sub Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan.
- Development of mechanisms for stakeholders, especially communities, who control over all development initiatives.
- Preparation of a set of Institutional and Legislative Restructuring Proposals.
- Selection of appropriate standards and guidelines for improving present conditions and guiding future development.

Objective 3: Review of Existing Problems and Propose initiatives

Review of existing problems and proposed initiatives are stated below:

- Detailed analysis of problems presently hampering development, which can be eliminated by action in the short term.
- Development of sectoral programs to alleviate poverty problems.
- Prepare a minimum number of action area plans for early area development or area upgrading of parts of the town that exhibits a representative cross section of development problems.
- Undertake initiative at Upazila level to promote sustainable economic activity by formal private sector and individuals, groups, GOB and NGOs.

Objective 4: Formulation of Bankable Projects

The factors for formulation of bankable projects areas are mentioned below:

- To determine methodology for identifying Multi-sectoral Investment Projects (MSIP) with their major priorities.
- Prepare a multi-sector investment plan through participatory process for better living standards by identifying areas based on the priority such as Drainage Master Plan, Transportation and Traffic Management Plan and other specific plans as per requirement.
- Providing controls for private sector development and clarity and security with regard to future development for inhabitants and investors. The targeted objectives and guidelines of the development projects would be to initiate and implement through participation.
- To identify a range of projects suitable in both sectoral and spatial terms.
- To develop a package for the priority to a level suitable for financial appraisal.

Objective 5: Increasing Capacity/formulation of Local Authorities for Urban and Rural Management and Development

The factors to be considered in regard to increasing the capacity/formulation of local authorities for urban management and development are:

- To prepare a detailed analysis of the past budgets, their expenditure, liabilities and sources of funds of Pourashava, Upazila Prishad and Union Parishad.
- Providing Land use maps and information at Mouza Dag level (parcel) as a professional manner for efficient updating, exchange, dissemination and decision support use.
- To prepare practical and detail proposal for increasing the income of the local authorities with reference to any forthcoming donor's proposal to assist financial management and paying

particular attention to the possibilities of increasing revenue from existing and proposed development activities.

- Providing guidelines for development considering the opportunity and constraints of future development. Moreover, for the betterment of the community, actions would be taken through government, public private partnership, private and non-government initiatives as indicated in AAP.
- To prepare proposal for rationalizing the roles and divisions of responsibilities between Upazila and other development agencies.
- To prepare priority list of projects which can be funded from local resources and examine any new forms of funding for such developments.
- To assist Upazila, Pourashava and Union in drawing up schemes within the framework of Strategic Plan and Action Plans for inclusion in Development Programs.
- To strengthen the technical capabilities of local authorities involved in urban management and development.
- Providing Planned Development to ensure Sustainable Environment Action Area Plan (AAP) should be undertaken with the cooperation of other development agencies. So all the agencies should cooperate, coordinate and participate in the process of preparation of Master Plan for proper planning and development. The Plan would be the guiding document for implementation by all concern. GIS based data; map and information would be the resource which could be easily updated when necessary.

1.4 Rationale of the Project

At the present age development plan is the demand of time. The upazilas are the main developing sectors of the country. For the planned development a master plan is the prerequisite. It will guide the future development of these areas. Master plan will direct the upazila towards a right path of development. With the population growth it will calculate the future demand of that growing population. It will trigger the way of new employment for the inhabitants of this area.

1.5 Scope of the Project

The scope of Consultancy Services encompasses for Preparation of Five Tiers Development Plan for Faridpur Sadar Upazila, which includes Sub Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan. The study will cover surveys of physical features and preparation of Land use Plan, Traffic and Transportation Management Plan, Drainage and Environmental Plan and Ward Action Plans for the project area.

Considering the above scope of services and to prepare an efficient Development Plan for Faridpur Sadar Upazila, the specific tasks to be performed by the consultants in realization of the scope of services as spelled out in the TOR are given below in brief:

- Determination of study area based on suitable physical boundary.
- Explanation of the plan (report) indicating population, density, livelihood and its future plan.
- Collection of socio-economic and demographic information and data both from primary and secondary sources in the study context to forecast future population, requirement of different services, physical and social infrastructure facilities, employment generation.
- Identify the exiting natural and man-made drains in the town and investigating the mechanisms of the drainage and local river system to assess the extent and frequency of flood damage and determine areas where flooding or poor drainage is most severe.

- Preparing a conceptual report on the various alternative solutions to the present storm water problems and selecting the most appropriate and economical alternatives.
- Prepare a Development Plan of the storm water drainage & sewerage system treatment plant for all areas in the town, which will include discharge calculations for the catchment areas, design of main and secondary drains/sewerage including their sizes, types and gradients and retention areas with preliminary cost estimates for the proposed drainage/sewerage system.
- Prepare a conceptual plan to show the phase-wise implementation schedule in an affordable and practical manner considering the technical, environment, institutional, economic and social feasibility of the proposed works.
- Proposal for preparation of hydraulic and structural designs for the priority areas of the study area and preparing a first phase implementation program.
- Study of the existing drainage maintenance procedures and budgets, if any including solid waste collection and design and estimate costs for a planned maintenance system to ensure that the drains are kept free from blockages and physical damage.
- Recommend planning, institutional and legal mechanisms to ensure provision of adequate land for rights of way for storm water drainage, which will also determine illegal encroachments.
- Investigate methods to find the other phases of the storm water drainages and sewerage master plan.
- Assess additional data requirements, critical additional data, not currently available should be collected through reconnaissance and traffic surveys which should estimate present traffic volume and forecast the future traffic growth and identify travel patterns, areas of traffic, conflicts and their underlying causes.
- Study the viability of different solutions and develop a practical short-term traffic management scheme of implementation, including one-way systems, restricted access for large vehicles, improved signal system traffic islands, roundabout, pedestrian crossings, deceleration lanes for turning traffic, suitable turning radius, parking policies and separation of pedestrians and rickshaws.
- Assess the current land use with regard to transportation, bus and truck terminals, stations, railway stations etc. and recommend actions to optimize this land use.
- Assess existing plot information.
- Prepare a Long-Term traffic and Transportation Plan.
- The Development/Master Plan shall assess major investments and activities of the various development agencies/Ministries and indicate the stages of development preferably through 5-year programming approach. Consultants shall be making to liaison with all government and semi-government and other agencies concerned with their development at the Study area. Contract should also be made with the headquarters of such agencies and full details of such plans should be referenced in the plan.
- Survey and evaluate Urban Land Capabilities considering factors such as flood basin, topography, fertility etc.
- The Development/Master Plan Package shall indicate/outline possible frameworks/strategy for management and development control, institutional arrangement ensuring people's participation etc. for effective implementation of the plan.
- Development of Proposal of By-laws for Land Development, Real Estate Development. Urban Plan Development control and Natural Resources/Green belt and places of historical interest.

- In line with the Master Plan, propose a Detailed Area Plan with a list of priority schemes for the development of roads, drains, traffic management and other social infrastructure for implementation during the first five years of plan period.
- Facilitate City Authority, Union Parishad about the publicity of Master Plan, its preparation strategy, function and their role through making, leaflet, newspapers, cable line, FGD etc.
- Allocating zones for as high, middle and low-density areas.
- Guidelines for control/promote industries at different locations according to their nature such as heavy industrial, light industrial and service industries including waste disposal / treatment plants.
- Guidelines for controlling/guiding location of commercial use.
- To identify the areas reserved for agriculture, flood flow, public/private open spaces, parks, play grounds, play-lots and other recreational uses like green belts, retention pond, water bodies, water front, natural reservoirs and historical monuments.
- Detailed Area/Action Area Plan will cover all related issues to bring about expected result.
- Allocating the zones where public utilities, institutions and civic services will be established. Moreover, zones of urban deferred areas, for future development expanded areas and areas for new development have to be considered.
- To ensure planning principles/standards, gross/net densities, guideline for future development and development control.
- To exercise control over architectural features, elevations, frontage of buildings and structures including zoning regulations to regulate locations, preservation of heritage, and type of buildings within each zone.
- Earthquake hazard, vulnerability, risk and loss assessment for project area.
- Development of scenario based spatial earthquake contingency plan for project area.
- Prepare and submit Development Plan and Report with required standards as specified in the TOR.

1.6 Methodological Approach to Plan Preparation

The Preparation of Development Plan of Faridpur Sadar Upazila a participatory method has been followed. In this method down to top planning process where opinion, ideas, and needs of common people and stakeholders are considered to participate in making a successful plan. The overall methodology has been presented in Figure 1.1. In the beginning a detailed survey has been carried out in order to know the existing condition of the surveyed area. PRA demand analysis has been done then and after that consultation meeting has been carried out about the findings and for proposing development plans. After that a draft plan has been prepared and workshops were arranged. Public hearing was included in order to know the plan's usefulness in local level and then Final plan has been prepared.

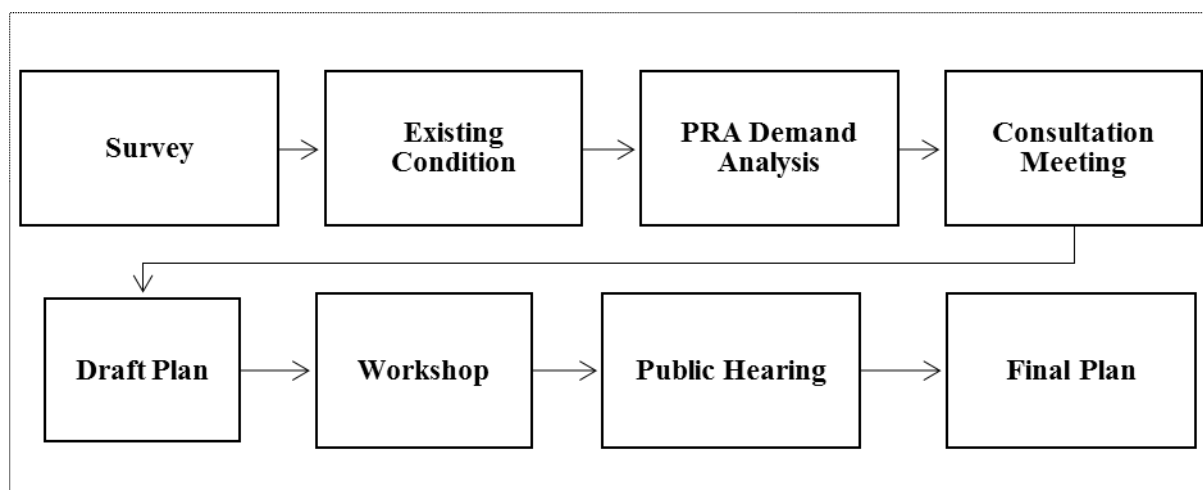


Figure 1. 1: Overall Methodology

In the planning exercise a five-step planning methodology has been followed (Figure 1.1).

In step-1 the conceptualization, mobilization, and operationalize the activities were carried out and the output was the preparation of Mobilization Report. Different types of Background Studies, Reconnaissance Survey was carried out and step- 2 was the preparation of an Inception Report.

In step-3 different type of survey and studies were conducted and prepare a database and get an insight into the existing conditions. On the basis of findings of the studies, Survey Report was prepared.

Fourth step were review of Survey and PRA findings for making draft plan. Reviews were made by exchange of opinion with the cross section, people and stakeholders either groups or individual basis. Important task or activities in this step was to formulate strategies, policies, and preparing plans for all five stages like Sub-Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan, Action Area Plans for selected areas.

Fifth and Final step was review and evaluation of the Strategies, Plans, feedback and opinion of experts and public hearing. After compilation of all the opinion, the Final Plan has been prepared.

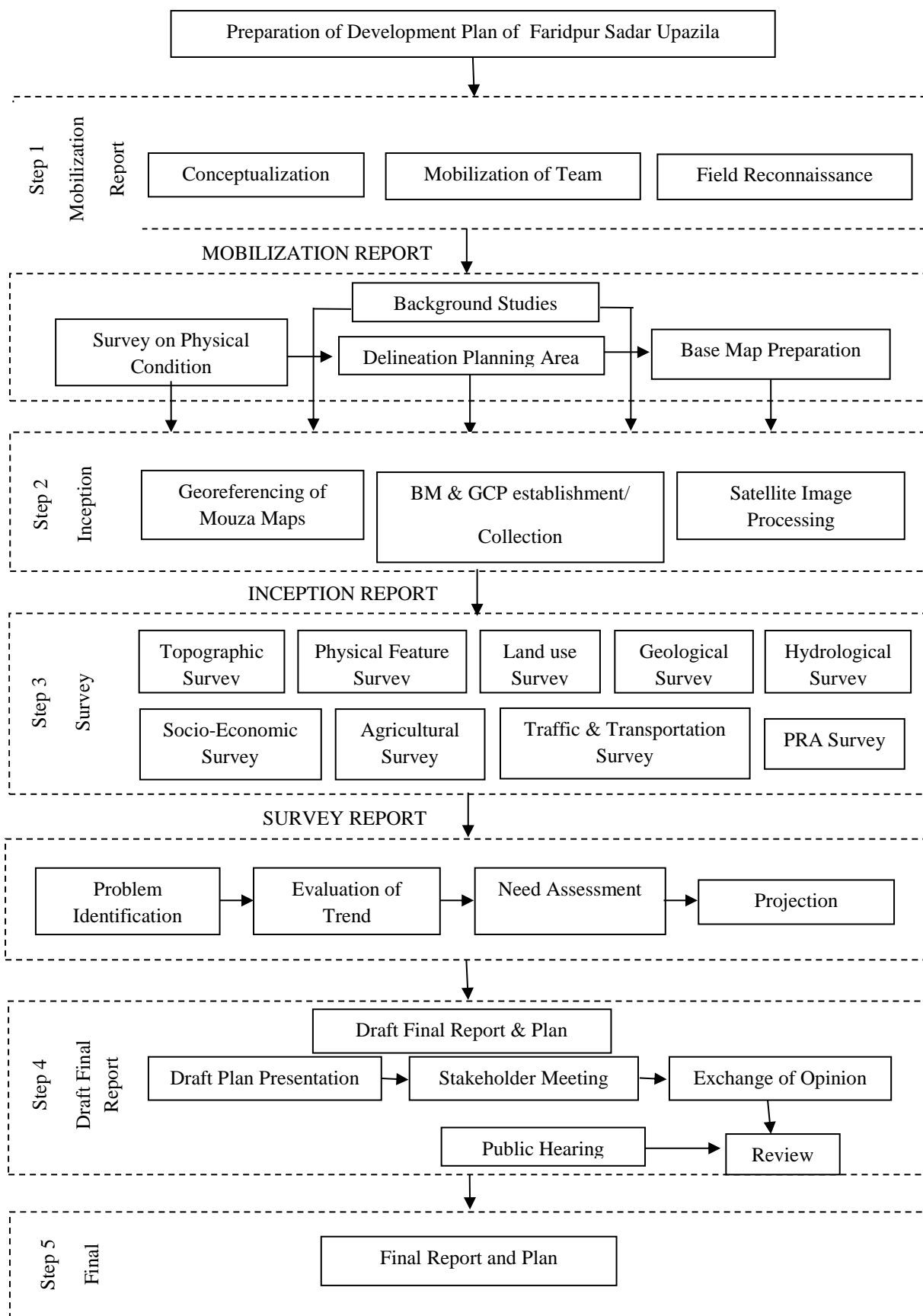


Figure 1. 2: Planning Approach

Chapter 2 Study Area Profile

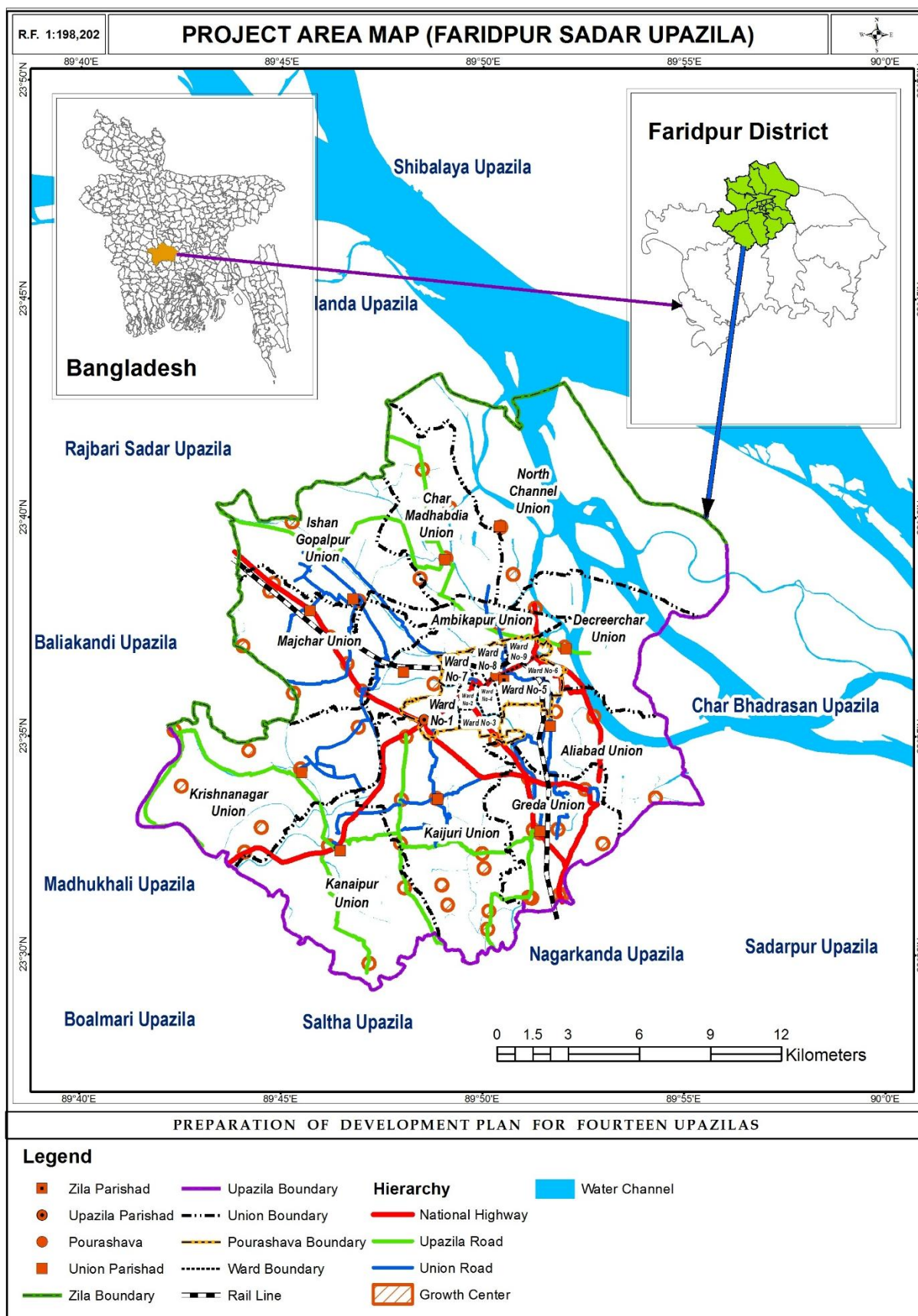
2.1 Introduction

The current chapter describes the basic information about Faridpur Sadar Upazila. The information presents in this chapter has been collected directly from the field as well as from many other secondary sources including National Population Census Reports of BBS.

2.2 Brief Description of the Project Area

2.2.1 Location and Geography

Faridpur Sadar Upazila occupies an area of 407.02 sq.km. It is located between 23° 29' and 23° 34' north latitudes and between 89° 43' and 89° 56' east longitudes. The upazila is bounded on the north by Goalanda upazila of Rajbari zilla and Shibalaya and Harirampur upazilas of Manikganj zila, on the east by Char Bhadrassan upazila, on the south by Nagarkanda and Boalmari upazilas and on the west by Madhukhali upazila and Rajbari Sadar upazila of Rajbari zila. The Map 2.1 shows the geographic location of Faridpur Sadar Upazila.



Source: Prepared by Consultants. 2018

Map 2. 1: Project Area Map (Faridpur Sadar Upazila)

2.2.2 Administrative and Cadastral Boundaries

Administration Faridpur Sadar Thana was formed in 1896 and it was turned into an Upazila in 1983. Table 2.1 shows the different administrative units located within Faridpur Sadar Upazila.

Table 2. 1: Administrative Information of Faridpur Sadar Upazila

Administrative Units	Zila		Upazila	
	2011	2001	2011	2001
Upazila/Thana	9	8		
Union	79	79	11*	11
Mauza	997	1038	150	157
Village	1899	1860	342	332
Paurashava	4	4	1	1
Paura Ward	36	36	9	9
Paura Mahalla	100	94	41	35
*Faridpur Sadar Upazila has now pronounced their 12th Union named as Chadpur Union				

Source: BBS, 2011

2.2.3 Demography and Social Composition

According to census 2011, Faridpur Sadar Upazila has the total population of 4,69, 410. Among them male 2,35,762 and female 2,33,648; Muslim 420103, Hindu 48260, Christian 843, Buddhist 20 and others 184.

Table 2. 2 Union and Ward wise population distribution

Administrative Unit	Population	BBS, 2011		Upazila Portal	Georeferenced Mouza	
		Area (Acre)	Area (sq. km)	Area (sq. km)	Area (Acre)	Area (sq. km)
Faridpur Sadar Upazila	469410	102020	412.86	407.02	93793.41	379.57
Faridpur Pourashava	121632			17.38		17.40
Faridpur Unions	347778	17463.50	370.73		17060.08	362.17
Aliabad Union	33944	6632	26.84		6315.79	25.56
Ambikapur Union	27477	4140	16.75		4157.73	16.83
Char Madhabdia Union	28476	6024	24.38		6494.18	26.28

Decreerchar Union	21195	5695	23.05		5648.40	22.86
Greda Union	29242	5739	23.22		5913.94	23.93
Ishan Gopalpur Union	28861	8775	35.51		7225.59	29.24
Kaijuri Union	42153	10305	41.70		10489.06	42.45
Kanaipur Union	48559	9337	37.79		9289.54	37.59
Krishnanagar Union	37667	10836	43.85		10295.00	41.66
Majchar Union	29118	10873	44.00		7030.80	28.45
North Channel Union	21086	13254	53.64		16633.75	67.31
WARD-1	15644				474.44	1.92
WARD-2	12715				835.22	3.38
WARD-3	13867				202.63	0.82
WARD-4	16686				259.46	1.05
WARD-5	15401				800.62	3.24
WARD-6	9699				345.95	1.40
WARD-7	11102				469.50	1.90
WARD-8	13919				425.02	1.72
WARD-9	12599				486.80	1.97

Source: BBS, 2011 and Field Survey, 2016.

2.2.4 Water Bodies

Main rivers: Padma, Kumar, Old Kumar, Bhubaneshwar; Chapa Beel, Hari Beel, Shakuner Beel, Dhol Samudra, Kole (a strip of shallow water) of Beel Mamunpur and Tepa Kholar Lake are notable.

2.2.5 Literacy Rate

Average literacy 49.7%; male 53.7%, female 45.4%.

2.2.6 Educational Institutions

Medical college 1, law college 1, homeopathic college 1, teachers' training college 1, technical and vocational college 1, primary teachers' training institute 1, college 13, open university 1, secondary school 40, primary school 148, satellite school 13, community school 14, orphanage 3, madrasa 39. Noted educational institutions: Faridpur Medical College (1992), Government Rajendra College (1918), Faridpur High School (1889), Hitoishi High School (1889), Ishan Girls' High School (1908), Shiva Ram RD Academy (1917), Faridpur Government Girls' High School (1918), Moiez Uddin High School (1926), Adarsha Girls' High School (1927), Faridpur Zila School (1840).

2.2.7 Main Sources of Income

Agriculture 39.72%, non-agricultural labourer 4.03%, industry 1.65%, commerce 17.49%, transport and communication 9.19%, service 14.23%, construction 3.68%, religious service 0.15%, rent and remittance 1.41% and others 8.45%.

2.2.8 Ownership of Agricultural Land

Landowner 77.77%, landless 22.23%; agricultural landowner: urban 72.28% and rural 77.95%.

2.2.9 Main Crops

Paddy, jute, wheat, potato, sugarcane, onion, garlic, turmeric, pulse, vegetables. Extinct or nearly extinct crops Kaun, kusum phul, sesame, sonamuk, china, barley, arahar, sweet potato.

Main fruits Mango, jackfruit, litchi, banana, papaya, coconut.

Fisheries, Dairies and Poultry: Fishery 22, dairy 109, poultry 32, hatchery 3.

2.2.10 Industries

Jute mill, textile mill, rice mill, flour mill, pulse mill, ice cream factory.

Cottage Industries: Goldsmith, blacksmith, potteries, wood work, bamboo work, cane work.

2.2.11 Markets and Bazaars

Hats, bazaars and fairs Hats and bazaars are 37, fairs 6, most noted of which are Kanaipur, Tepakhola, Mominkha, Gendu Mollar, Gajaria, Tambulkhana, Bakhunda and Khalilpur hats; Angina, Chawdhury Bari, Jasim Palli and Akpara melas.

Main Exports: Jute, onion, garlic, sugarcane molasses, pulse, vegetables, turmeric.

2.2.12 Access to Electricity

All the wards and unions of the upazila are under rural electrification net-work. However, 35.41% (urban 79.96% and rural 22.12%) of the dwellings have access to electricity.'

2.2.13 Sources of Drinking Water

Tube-well 93.51%, tap 3.91%, pond 0.16% and others 2.42%.

2.2.14 Sanitation

55.95% (urban 89.37% and rural 45.98%) of dwelling households of the upazila use sanitary latrines and 39.02% (urban 9.22% and rural 47.91%) of dwelling households use non-sanitary latrines; 5.03% (urban 1.41% and rural 6.10%) of households do not have latrine facilities.

2.2.15 Natural Disasters

The cyclone, originated from the eastern region of Meghna, of 9-10 and 30-31 October 1960 caused huge damages to settlements, livestock and crops of the upazila. The eastern part of the upazila is under constant threat due to river erosion.

2.2.16 Infrastructure and Social Services**2.2.16.1 Houses and Accommodation**

Most of the houses and infrastructure of this upazila is building, metalled, semi-metalled. The number of concrete houses very few at out of sadar and different unions and village level. Though the school, Mosque and various infrastructures are pucca and semi pucca but most of the houses are semi pucca, hut. Total numbers of structures at Faridpur Sadar upazila are 115977.

Table 2. 3: Structure Information of Faridpur Sadar upazila

Structure Type	Pourashva		Unions	
	No. of Structures	Percentage	No. of Structures	Percentage
Katcha	20213	54.40%	67057	85.07%
Pucca	7953	21.40%	2501	3.17%
Semi Pucca	8830	23.76%	9234	11.71%
Under Construction	159	0.44%	30	0.05%
Total	37155	100%	78822	100%

*Source: Field Survey, 2016***2.2.16.2 Communications and Roads**

Most of the roads within Faridpur Sadar upazila are paved; the communication system has improved significantly over the last 5-10 years. The road system within the unions of the upazila is good. All most villages connected to main road with herring bone road and earthen road.

Table 2. 4: Road Type of Faridpur Sadar Upazila

Type	Length in Kilometre	Percentage
Pucca	678	59%
HBB	195	17%
Katcha	275	24%
Total	1149	100%

*Source: Field Survey, 2016***Table 2. 5: Road Hierarchy of Faridpur Sadar Upazila**

Road Hierarchy	Length in Kilometre	Percentage
Village Road	792.03	68.95%
Local Road	126.2	10.98%
Upazila Road	81.76	7.12%
Poura Road	53.38	4.65%
Union Road	45.43	3.95%
National Highway	23	2%
Regional Highway	22.82	1.98%
Embankment Road	3.94	0.37%
Total	1148.59	100%

Source: Field Survey, 2016

2.2.17 External Linkage

Faridpur Sadar Upazila is an important hub for connecting surrounding Upazilas of Manikganj Zila and Rajbari Zila. Faridpur District is bounded on the north by Manikganj, Dhaka and Rajbari districts, on the east by Madaripur, Dhaka and Munshiganj districts, on the south by Gopalganj and Madaripur districts and on the west by Rajbari, Magura, and Narail districts. At the border area of Faridpur there are two big rivers one is Padma and another is Meghna. Padma separated Faridpur from Pabna & Dhaka districts at its north- east part and merged with Jamuna at Goalanda upazilla of Rajbari district.

2.2.18 Local Stakeholder of the Project Area

- Upazila Parishad
- Union Parishad
- Paurashava/Municipality
- Upazila Agricultural Office
- Upazila Health and Family Planning Office
- Upazila Office, LGED
- Upazila Education Office
- Upazila Office of Food Controller
- Upazila Social Service Office
- Upazila Youth Development Office
- Local Level Police Authority
- Upazila Somobay Office
- Press Club
- Roads and Highways Department
- Bangladesh Small and Cottage Industry Corporation
- Upazila Ansar and VDB Office
- Fire Service and Civil Defense
- Upazila Post Office

Chapter 3 Development Related Policies, Laws and Regulations

3.1 Introduction

National policies and laws broadly cover the aspects of intervention necessary for the development of the diverse areas within an Upazilla. The related policies and laws are considered in the Preparation of Development Plan for Fourteen Upazilas and its sector wise development. This review highlights the important legal issues in acts, rules and regulations relevant to planning.

The aim of the project is to prepare five tier of development plan such as- Sub-Regional Plan, Structure Plan, Urban Area Plan, Rural Area Plan and Action Area Plan to facilitate the improvement of infrastructure and services of the upazilla.

These plans include several sectoral components such as- socio-economic, housing, population, urban and rural economy, hydrology, geology, disaster, environment, agriculture etc.

Objectives of the study:

- The aim of the policy review is to highlight the special features of the relevant legal documents.
- Point out necessary areas of intervention to make them effective facilitators for future regional development.
- Issue identification and attention that need for actions.

3.2 Terminology

Policy: A policy is a deliberate system of principles to guide decisions and achieve rational outcomes. A policy is a statement of intent, and is implemented as a procedure or protocol. The declared objectives that the government seeks to achieve and preserve in the interest of national community.

Law: Law is a system of rules that are enforced through social institutions to govern behavior. Laws can be made by a collective legislature or by a single legislator, resulting in statutes, by the executive through decrees and regulations, or by judges through binding precedent, normally in common law jurisdictions

Planning law must clearly define the extent and content of the rights of the Government and the people. Thus, legislative measures can help to frame policies for best use of land and its policies to control. Law should aim at a clear definition of the responsibilities and functions of various Government departments and its respective powers.

Act: An Act is the final form of any legislation passed by a legislature.

Sub-Regional Plan: Sub-Regional Plan of the study area would be prepared for 20 years according to the guidelines of national policies, formulated and integrated different sectoral strategies at sub regional level, spatially interpreted sectoral strategies at sub regional level, formulated Conservation Plan at sub regional level and formulated Development Plan.

It is also necessary to figure it out the economic disparity by using “shift-share analysis” or “input-output analysis” technique among the Upazila within districts under study for drawing the future socio-economic development scenario.

The sub-region may overlap local authority boundaries relating more to specific problems than administrative convenience. It is a more localized area with its own particular structure, problems and potentials.

Structure Plan: The term Structure Plan is derived from British planning practice but has been internationally adopted. The principal components of such a plan are:

- An inventory of existing physical, demographic, economic, social and infrastructure features.
- An analysis of the major existing problems.
- An estimation of trends and changes likely in future (for the next 20 years).
- The identification of the major constraints on and opportunities for development.
- Consideration of the major development options and policies.
- An indication of the most suitable areas for such development.
- The identification of the priorities in each sector and the major activities needed to implement the development strategy.

The structure plan concentrates on the broad structure of the Upazila and is not concerned with the details of physical layout or individual development details which cannot be implemented until the later stages of the planning period.

Urban Area Plan: Urban Area Plan (UAP) provides an interim mid-term strategy for 10 years and covers for the development of urban areas within the project area. Generally, UAP contains an explanatory report, resource maps, interim management report, planning rules, urban area plan and a multi-sectoral investment program.

Rural Area Plan: Rural Area Plan (RAP) provides a long-term strategy for 20 years and covers for the development of rural areas within the project area. Generally, RAP contains an explanatory report, resource maps, conservation and management report, planning rules, rural area plan and a multi-sectoral investment program.

Action Area Plan: The Action Area Plan (AAP) guides land use and infrastructure within the area potential for immediate intervention based on public demand and necessity. It is prepared on 5 years interval. The preparation of Action Area Plan (AAP) will be formulated through participatory approach involving the local people. It will contain problem analysis using participatory approach, stakeholder analysis, Potential analysis (Basic and derived potentials), Identification of possible projects, Priority ranking of projects, Strategy formulation for prioritized projects. Action Area Plan will provide prioritized projects consisting location of project, goal & objectives, activities, tasks, actors, resources, cost and assumptions/constraints.

The action plan consists of three parts, a summary of resources available, project selection and project evaluation. The analysis of available resources looks at the past availability of funds, insofar as this is possible for such a recent institution as an Upazila and attempts to assess funds likely to be available for the Upazila itself for development in the action plan period.

3.3 Reviewed Policies, Acts and Rules

Policy document usually follows a staged approach for development. Identify specific issues that could trigger the need for a policy review or new policy development or an identification of policy gap. The list of reviewed policies, acts and rules are given below:

1. Climate Change Policies
2. The Sendai Framework for Disaster Risk Reduction 2015-2030
3. Quito Implementation Plan for the New Urban Agenda
4. Sustainable Development Goals (SDG)

5. The United Nations Framework Convention on Climate Change
6. Seventh Five Year Plan (FY2016 – FY2020)
7. National Urban Sector Policy, 2011
8. National Land Use Policy 2001
9. National Housing Policy, 2008 (Draft)
10. Population Policy 2004
11. National Environment Policy 1992
12. Disaster Management Act 2012
13. National Plan for Disaster Management 2008-2015
14. The Climate Change Strategy and Action Plan 2009
15. Industrial Policy 2005
16. National Tourism Policy 1992
17. National Agriculture Policy, 1999
18. National Forest Policy 1994
19. National Fisheries Policy 1998
20. National Water Policy 1999
21. Bangladesh National Building Code (BNBC) 1993
22. The Building Construction Act 1952
23. Building Construction Rules 1996
24. Private Residential Land Development Rule-2004
25. Real Estate Development and Management Act 2010
26. Burning of Bricks (Control) Act 1989
27. National policy for safe water supply and sanitation 1998

3.4 Policy Review according to Five Tier Plan wise

3.4.1 Framework of Five Tier plan

Among 22 policies, the policies are reviewed according to duration and strategy. So, according to duration and strategic point of view some policies are shortlisted.

Table 3. 1: List of policies according to five tier plans

Five Tier Plan	Review policies
Sub-regional Plan	<ul style="list-style-type: none"> • Climate Change Policies • The Sendai Framework for Disaster Risk Reduction 2015-2030 • National Agriculture Policy 1999 • Climate Change Strategy 2009 • Disaster Management Act 2012 • National Plan for Disaster Management 2008-2015 • Population Policy 2004 • National policy for safe water supply and sanitation 1998 • National Water policy 1999 • Industrial Policy 2005 • National Urban Sector Policy 2011 • National Fisheries Policy 1998

Structure Plan	<ul style="list-style-type: none"> • Climate Change Policies • The Sendai Framework for Disaster Risk Reduction 2015-2030 • Quito Implementation Plan for the New Urban Agenda • Sustainable Development Goals (SDG) • The United Nations Framework Convention on Climate Change • National Agriculture Policy 1999 • Climate Change Strategy 2009 • National Plan for Disaster Management 2008-2015 • Population Policy 2004 • National policy for safe water supply and sanitation 1998 • The Building Construction Act, 1952 • National Water policy 1999 • Industrial Policy 2005 • National Urban Sector Policy 2011 • National Fisheries Policy 1998
Urban Area Plan	<ul style="list-style-type: none"> • Quito Implementation Plan for the New Urban Agenda • Sustainable Development Goals (SDG) • Climate Change Strategy 2009 • National policy for safe water supply and sanitation 1998 • The Building Construction Act, 1952 • National Water policy 1999 • National Urban Sector Policy 2011 • Bangladesh National Building Code 1993
Rural Area Plan	<ul style="list-style-type: none"> • Population Policy 2004 • National policy for safe water supply and sanitation 1998 • National Water policy 1999
Action Area Plan	<ul style="list-style-type: none"> • Quito Implementation Plan for the New Urban Agenda • Sustainable Development Goals (SDG) • National Agriculture Policy 1999 • Climate Change Strategy 2009 • National Plan for Disaster Management 2008-2015 • Population Policy 2004 • National policy for safe water supply and sanitation 1998 • The Building Construction Act, 1952 • National Water policy 1999 • Industrial Policy 2005 • Burning Bricks Act 1989 • National Urban Sector Policy 2011 • National Fisheries Policy 1998 • Seventh Five Year Plan

(To find the key issues please see the Appendix- A)

The issues or the key factors which identify in these policies according to five tier plans are listed in Appendix A.

3.5 Policy Review according to conducted Survey Sectors

In the project, the survey was conducted according to the following sectors:

- | | |
|--|--------------------------------------|
| 1. PRA (Participatory Rural Appraisal) | 7. Topographic Survey |
| 2. Socio-economic Survey | 8. Photogrammetric works Survey |
| 3. Agricultural Survey | 9. Traffic and Transportation Survey |
| 4. Formal-informal Economic Survey | 10. Geological & geophysical Survey |
| 5. Physical Features Survey | 11. Hydrological Survey |
| 6. Landuse Survey | |

But in the policy review from the 11 sectors, some sectors are merged as they are identified as same category. So as per the benefits of policy review and for the asperity of work, the sectors are categorized. And same policies are reviewed in different sectors so to remove repeatness, the sectors are categorized.

Table 3. 2: Sectors are categorized as per policy review

Sectors	Agriculture
	PRA and Socio-Economic, Formal-informal Economic Sector
	Geology
	Hydrology
	Transport
	Physical, Landuse and Topographic Features

Table 3. 3: Summary of Policies according to sectors

Sector Wise Policy list					
Agriculture Sector	PRA and Socio-Economic Formal-informal Sector	Physical, Landuse and Topographic Features	Geology	Hydrology	Transport
1. National Agriculture Policy 1999	1. National Agriculture Policy 1999	1. National Agriculture Policy 1999	1. Climate Change Strategy 2009	1. Population Policy 2004	1. Population Policy 2004
2. Climate Change Strategy 2009	2. Climate Change Strategy 2009	2. Climate Change Strategy 2009	2. National Plan for Disaster Management 2008-2015	2. National Water policy 1999	
3. National Plan for Disaster Management 2008-2015	3. Disaster Management Act 2012	3. National Plan for Disaster Management 2008-2015	• The Sendai Framework for Disaster Risk Reduction 2015-2030	3. National Urban Sector Policy 2011	
4. Population Policy 2004	4. National Plan for Disaster Management 2008-2015	4. Population Policy 2004	3. The United Nations Framework Convention on Climate Change	4. National Fisheries Policy 1998	
5. Safe Water Supply and Sanitation 1998	5. Population Policy 2004	5. The Building Construction Act, 1952		• Climate Change Policies	
6. National Water policy 1999	6. Safe Water Supply and Sanitation 1998	6. National Water policy 1999		5. The United Nations Framework Convention on Climate Change	
7. Seventh Five Year Plan	7. National Water policy 1999	7. Industrial Policy 2005			
8. National Environment Policy 1992	8. Industrial Policy 2005	8. Burning Bricks Act 1989			
9. Industrial Policy 2005	9. National Urban Sector Policy 2011	9. National Urban Sector Policy 2011			
10. National Urban Sector Policy 2011	10. Seventh Five Year Plan(FY2016 – FY2020)	10. National Fisheries Policy 1998			
11. The United Nations Framework Convention on Climate Change	• Quito Implementation Plan for the New Urban Agenda	11. Seventh Five Year Plan (FY2016 – FY2020)			
	• Sustainable Development Goals (SDG)				

(To find the key issues please see the Appendix- B)

Among the 26 policies, the sectors are identified and summarized on the above Table 3.3 which are identified among the policies at Appendix-B.

Table 3. 4: Summary of sectors according to policies

Policy	Sector
National Agriculture Policy 1999	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features
Climate Change Strategy 2009	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Geology
Disaster Management Act 2012	<ul style="list-style-type: none"> • Formal-informal Sector
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Geology
Population Policy 2004	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Transport • Hydrology
Safe Water Supply and Sanitation 1998	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector
The Building Construction Act,1952	<ul style="list-style-type: none"> • Physical, Landuse and Topographic Features
National Water policy 1999	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Hydrology
Industrial Policy 2005	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Formal-informal Sector
Burning Bricks Act 1989	<ul style="list-style-type: none"> • Physical, Landuse and Topographic Features
National Urban Sector Policy 2011	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Formal-informal Sector • Physical, Landuse and Topographic Features • Hydrology
National Fisheries Policy 1998	<ul style="list-style-type: none"> • Physical, Landuse and Topographic Features • Hydrology
Seventh Five Year Plan(FY2016 – FY2020)	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features
National Land Use Policy 2001	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Hydrology

	<ul style="list-style-type: none"> • Transport
Climate Change Policies	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Geology • Hydrology
The Sendai Framework for Disaster Risk Reduction 2015-2030	<ul style="list-style-type: none"> • Agriculture • Physical, Landuse and Topographic Features • Geology • Hydrology
Quito Implementation Plan for the New Urban Agenda	<ul style="list-style-type: none"> • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features
Sustainable Development Goals	<ul style="list-style-type: none"> • Agriculture • PRA and Socio-Economic Formal-informal Economic Sector • Physical, Landuse and Topographic Features • Geology • Hydrology
The United Nations Framework Convention on Climate Change	<ul style="list-style-type: none"> • Agriculture • Geology • Hydrology

(To find the key issues please see the Appendix- B)

3.6 Planning Standard Review

Facilities and services are the main features of a development plan. Depending on the demand and population projection facilities and services are calculated. For this purpose, planning standard is formulated for this specific project.

3.7 Components of Planning Standard

SITE density includes only the residential component of the land area. It is the most concentrated measure of density.

NET residential density includes the residential component plus local roads.

GROSS residential density includes residential uses, local roads plus local non-residential land uses such as parks and schools.

URBAN residential density includes all the above land uses plus regional land uses such as employment, transport and regional open space.

METROPOLITAN density is a macro measure, often used in international comparisons and includes all land (i.e. including non-urbanised land within what are often arbitrary administrative boundaries)

Use of Density Measures

- Estimate the intensity of built form on a particular site or a place.
- Model the impacts of development standards.
- Keep track of how well a development is performing against the original ‘vision’.
- Calculate population densities.

Working with Density Measures

- Density measures are only indicators, not design tools
- The ‘right’ density evolves over time
- Higher density does not always equal higher buildings
- Higher net residential density does not always equal more people
- The same building type can yield different net residential densities
- Density is not intensity

3.8 Formulation of Planning Standard

Table 3. 5: Recommended Standard for Major Land Uses

Types of Land Uses	Recommended Standard
1. Residential	
General residential	150 persons/1 acre
Real Estate-Public/Private	200 population/ 1 acre
2. Roads	
Upazila primary roads	70 feet and above
Upazila secondary roads	40feet
Upazila local/Tertiary roads	32 feet
Access Road	20 feet
3.Education	
Nursery	0.5 acre/10,000 population
Primary School/ kindergarten	2.00 acres/5000 population
Secondary/High School	5.00 acres /20,000 population
College	10.00 acres/20,000 population
Vocational Training Centre	5 - 10 acres / Upazila
Other	5.00 acres / 20,000 population
4.Open Space	
Play field/ground	3.00 acres/20,000 population
Park	1.00 acre /10000 population
Neighborhood park	1.00 acre /10000 population
5. Recreational	
Stadium/sports complex	5 – 10 acres/Upazila HQ
Cinema/ Theatre	1.0 acre /20,000 population
6. Health	
Upazila health complex	10 -20 acres/Upazila HQ

Types of Land Uses	Recommended Standard
health centre/Maternity clinic	1.00 acre/ 5,000 population
7. Community Facilities	
Mosque/Church/Temple	0.5 acre /20,000 population
Eidgah	1.0 acre/20,000 population
Graveyard	1.00 acre /20,000 population
Community centre	1.00 acre /20,000 population
Police Station	3 – 5 acres/Upazila HQ
Police Box/outpost	0.5 acre/ per box
Fire Station	1.00 acre/ 20,000 population
Post office	0.5 acre /20,000 population
8. Utilities	
Water supply	1.00 acre /20,000 population
Gas	1.00 acre /20,000 population
Solid waste disposal site	5– 10 acres/Upazila HQ
Waste transfer station	0.25 acres/per waste transfer station
Electric sub-station	1.00 acre/20,000 population
Telephone exchange	0.5 acre/20,000 population
Fuel Station	0.5 acre/20,000 population
Others	-
9. Commerce and Shopping	
Wholesale market	1.0 acres/ 10000 population
retail sale market	1.0 acres/ 1000 population
Corner shops	0.25 acre/per corner shop
Neighborhood market	1.00 acre/per neighborhood market
Super Market	1.50 – 2.50 acres/per super market
10. Industry	
small scale	1.50 acres /1000 population
Heavy Industry	5.0 acres /10000 population
11. Transportation	
Bus terminal	1.0 acre /20,000 population
Truck terminal	0.50 acre /20,000 population
Launch/steamer terminal	1.00 acre /20,000 population
Rickshaw/van/Tempoo stand	0.25 acre /one baby taxi/tempo stand
Passenger Shed	0.25 acre /one baby taxi/tempo stand
Others	-
12. Administration/Govt. Service	
Upazila complex	10-15.00 acres
Paurashava office	3 – 5 acres

3.9 Residential Density Control

Residential density can be measured in five ways: site, net, gross, urban and metropolitan. All five residential density measures are calculated using the same basic ratio formula: the number of dwellings divided by the area of land they occupy.

Table 3. 6: Residential Standard

Public Sector Housing Site/Estate	Private Sector Housing Site/Estate	Neighbourhood Size	Rural/Scattered Housing Area
Calculate the Gross and Net density	Calculate the Gross and Net density	Calculate the Housing Unit Show the FAR aspects Determine the maximum and minimum area size	

Public Sector Housing Estate

It is proposed that all public-sector housing estates should develop 55% for residential area and reserve at least 45% of its area for community service facilities including road. Density of public sector is determined in the following manner:

Assuming that,

- ✓ There is 2 units in each floor of each 3 katha plot (Comfortable housing with respect of our country) area on average,
- ✓ Each building having maximum 3 storied in height (If the distance is 7.6 meter to 10.59 meter between front side road and mandatory open space of the building, the height of the building will be maximum 9.50 meter, Building Construction Rules, 1996)
- ✓ 6 families will be living in each 3 katha,
- ✓ Total population in each 3 katha will be (Average household size is 4.9 in Rangunia Upazila, converting to 5 as average H/H size): $5 \times 6 = 30$ persons,
- ✓ Net density per acre $(30 \div 3 \times 55) = 550$ persons,
- ✓ Assuming 55 acres as net residential area of a 100 acre residential area estate,
- ✓ Total population of the housing area: $55 \times 550 = 30,250$,
- ✓ Gross density of public sector housing area $(30250 \div 100) = 302$ persons/acre.

GROSS RESIDENTIAL DENSITY/ACRE: 302 persons

NET RESIDENTIAL DENSITY/ACRE: 550 persons

Means of Implementation: incorporation of density standard as rules under Section 18 of EBBC Act, 1952.

Private Sector Housing Estate-Cooperative and Commercial

Due to profit motive of the private housing companies it would be difficult to achieve the same density standard as suggested for public sector housing estates. The amount of saleable land percentage is 60% and minimum land for services and facilities can be fixed at 40%. This would give following gross and net densities for privately organized housing estates:

Assuming that,

- ✓ 2 units in each floor of each 3 katha plot on average,
- ✓ each building having 3 storied in height,
- ✓ 6 families living (2×3) in each 3 katha,
- ✓ total population in each 3 katha (assuming 5 as average family size): $5 \times 6 = 30$ persons,

- ✓ net residential density per acre $(30 \div 3 \times 60) = 600$ persons
- ✓ gross residential density can be calculated as follows:
- ✓ assuming 60 acre as net residential area of a 100-acre residential area estate,
- ✓ total population of the area: $60 \times 600 = 36000$ persons.
- ✓ gross residential density of the private organized housing area: $36000 \div 100 = 360$ persons/acre.

GROSS RESIDENTIAL DENSITY/ACRE: 360 persons

NET RESIDENTIAL DENSITY/ACRE: 600 persons

Neighbourhood Size

According to the Private Residential Land Development Rule, 2004, the following issues have to be considered:

- There will be minimum 5 acres land for development of private residential land in Dhaka City Corporation Area and outside of City Corporation and Pourashava there will be minimum 10 acres land.
- There will be gross density maximum 350/acre for the development of private residential land.
- Maximum 70% area of the total land are allowable to sell and 30% of the land will be preserved for providing civic facilities and utility facilities according to the private residential development rule, 2004.

Limit all public and private sector housing estates (plot) units to 50 acres maximum and minimum 5 acres for Urban Area and 10 acres for Rural Area.

This would give an estimated maximum population size of 15,100 persons (at 302 persons /acre gross density) for public sector housing estates and 18,000 persons (at 360 persons / acre gross density) for private sector housing estates including cooperative housing.

Housing Unit Calculation

Given:

1 acre = 43,560 square feet (sq. ft.) and 20 units/acre as a **minimum density**

Example Plot Size = 5,000 sq. ft. plot

$$\begin{aligned} \text{Plot Size} &= \frac{\text{Total Land}}{\text{Desired Unit}} \\ &= \frac{43560}{20} = 2178 \text{ sq. ft.} \approx 2160 \text{ sq. ft.} \end{aligned}$$

Example Plot Size	Plot Size	Allowable Unit	Round up to
5000	2160	2.31	2
7500		3.47	4
10000		4.63	5

The thresholds for whole units at 20 units per acre are as follows:

2160 sq. ft. == 1 unit

4320 sq. ft. = 2 units

6480 sq. ft. = 3 units

1 acre = 43,560 square feet (sq. ft.) and 30 units/acre as a **minimum density**

Example Plot Size = 5,000 sq. ft. plot

$$\text{Plot Size} = \frac{\text{Total Land}}{\text{Desired Unit}}$$

$$= \frac{43560}{30} = 1452 \text{ sq. ft.} \approx 1450 \text{ sq. ft.}$$

Example Plot Size	Plot Size	Allowable Unit	Round up to
5000	1450	3.45	4
7500		5.17	5
10000		6.90	7

The thresholds for whole units at 20 units per acre are as follows:

1450 sq. ft. = 1 unit

2900 sq. ft. = 2 units

4350 sq. ft. = 3 units

Building Construction Rules for Density Control

Section 12(1) of Building Construction Rules, 1996 sets a formula for building height determination based on the width of the front road. This rule imposes a limit on the building height as long as the front road is less than 75 ft. (22.87 meter). Indirectly this limits the number of family or the size of population in a building.

Building Height

According to the Building Construction Rules (1996), the maximum height of a building will not be more than the summation of front side road width and the mandatory open space between road and building site. According to the law, the following decisions can be summarized

Distance between Front side road and space of the building	Building's Highest Height (meter)
7. 60-10.59 m	9.5 m
10. 60-13.59m	12. 50m
13. 60-16.59m	15.50m

According to the rules, the building's height doesn't less than the above values, if the width of adjacent road of the site tends to the following conditions, the estimated building's height will be the correspondent value according to the following table.

Width of the Road of Adjacent Site	Building's Highest Height (meter)
4.55-7.59m	18.50m
7.60-10.66m	27. 50m
10. 67-15.24m	42.50m
15.25-22.99m	60.50m

Chapter 4 Development Planning Issues in Faridpur Sadar Upazilla

4.1 Introduction

This is the summary of the information based on the existing conditions of the development and planning issues, which is to be considered in the planning and development processes of Faridpur Sadar Upazila. These are the issues that connect the decision making in setting proposals for future urban development.

4.2 Physical Infrastructure

Physical infrastructure is the prominent element for the development of an area. To accomplish the development goals existing condition of physical infrastructure needs to figure out. For this purpose, physical feature survey has been conducted. This survey includes existing structure, roads and other existing infrastructure. A representation of physical infrastructure of Faridpur upazlia has been elaborated in Chapter 5.

4.3 Socio –Economic

Socioeconomic indicators are an important ingredient for knowing an area's socio-economic conditions. Here the phenomena that lie at the convergence of the societal and economic areas of society are being examined. Moreover, while planning an area there is a need for information about the degree of socio-economic development, the population's quality of life (urban, rural, etc.), local problems, and the distinctive of people's economic behavior. The main source of such information is an intricate and comprehensive social research. Studies are aimed towards the analysis of complicated social processes in an area and examine the spectrum of problems concerning changes in societal construction and the constellation of social awareness. It includes family structure, satisfaction with living conditions, housing and communal services, assessment of educational service quality (public schools, vocational training, higher education), quality of medical services, employment status, income level etc.

Moreover, the Formal and Informal economic survey gives an idea about economic function at Faridpur Sadar Upazila. This helps to understand the economic growth in Industry, Growth center, NGO, CBO, Bank, Bima. The surveyed industry sectors such as Jute Mills, Brick Field, Jute Store, Yarn and Fabrics industry, Cottage and Handicrafts, Handicrafts, Fertilizer Industry, Flour mill, Rice mill, Workshop, Cottage, Food processing gives a notion for understanding the regional context and helps to derive the Shift Share Analysis in Sub Regional Planning.

4.4 Existing Land use

Lands can be used for different purposes. To regulate land use, plan the existing land use pattern is the main key to implementation. While observing the project area some prominent land uses can be noticed such as agriculture, residential, commercial, waterbodies, etc. To record the whole existing land use pattern as well as with their specific area land use survey has been conducted which has been discussed in the Chapter 5.

4.5 Transportation

Traffic and Transportation system is the backbone or mirror of an Upazila. It describes about the prospects of an Upazila. For preparation of a Development Plan, Transport is the prime issue for

resolving different problems. For knowing different issues and problems, several surveys have been selected for depicting the perfect scenario of the Upazila. To know the different scenario the consultants have conducted a number of surveys on traffic and transportation which are as follows:

- Traffic Volume Count Survey
- Origin & Destination (O D) Survey
- Passenger Interview Survey and
- Regional Transportation Survey

The conducted surveys have been delivered the glimpses such as Importance road, road widening priorities based on their Annual Average Daily Traffic (AADT), road condition etc.

4.6 Participatory Rural Appraisal (PRA)

Participatory Rural Appraisal (PRA) is considered one of the popular and effective procedure to incorporate the knowledge and opinions of people in the planning and management of development projects and programs. In recent years there has been rapid expansion of new participatory reflection and action methods and related approaches in the context of development and research. PRA methods are now increasingly used in both Rural and Urban situations. Three tools were selected such as Social Mapping, Venn diagram and Technology of Participation for collecting information from the field.

Table 4. 1: Problems and Potentials of Faridpur Sadar upazila

Administrative Unit	Problems	Potentials
Faridpur Paurashava	<ul style="list-style-type: none"> • Drainage problem • Road communication • Pure drinking water and sanitation • Entertainment center • Drug addiction and unemployment • Public toilet • Dog killing • Public toilet • Playground/ community center facility lacking • Graveyard • Dustbin • Water logging • Problem of employment • water without arsenic • No playing fields • Lack of security 	<ul style="list-style-type: none"> • River • Small and cottage industries • Bus stand • Municipality market • Natural channel • Main road in city • Fisheries project • Hard working people • Tree Plantation • Educated man power • Vocational training center

Aliabad Union	<ul style="list-style-type: none"> • Sanitation • Communication problem • Lack of educational infrastructure • Lack of pure drinking water • Weak local government • Unemployment • Water logging • Lack of agricultural training • No hospital • Lack of drainage system 	<ul style="list-style-type: none"> • Agricultural land (Chili, Jute, Paddy, Cucumber) • Manpower • Livestock • Foreign remittance • Hat /Bazar
Ambikapur Union	<ul style="list-style-type: none"> • Drug addiction • Lack of educational infrastructure • Lack of local Govt. empowerment • Water logging, Unemployment • Communication problem • Unhealthy drinking water and sanitation 	<ul style="list-style-type: none"> • Agricultural Crop (onion, jute, paddy) • Man power • Poet Jasim Uddin's house • Educational institute • Muslim mission school • Marine academy • Remittance
Char Madhabdia Union	<ul style="list-style-type: none"> • Lack of educational infrastructure • Sanitation, Banking, Communication • Pure drinking water • Early Marriage 	<ul style="list-style-type: none"> • Agricultural land, Vegetables • Active manpower • Expatriates
Decrrerchar Union	<ul style="list-style-type: none"> • Education, Sanitation, Health service • Communication problem • Lack of pure drinking water 	<ul style="list-style-type: none"> • Agricultural land, Vegetables • Active manpower • Expatriates • Educated man power
Greda Union	<ul style="list-style-type: none"> • Education • Sanitation problem • Water logging • Health service • Lack of pure drinking water 	<ul style="list-style-type: none"> • Agricultural land • Proposed EPZ, Cattle farm • Kumar river • Educated man power
Ishan Gopalpur Union	<ul style="list-style-type: none"> • Communication Problem • Health facility problem • Lack of security • Lack of education, electricity • Lack of River and canal erosion • Unplanned market, Drug addiction • Lack of cold storage 	<ul style="list-style-type: none"> • Agricultural land (onion, jute, paddy) • Fisheries • Medicinal and forest tree • Remittance • Livestock • Brick Industry

Kaijuri Union	<ul style="list-style-type: none"> • Communication problem • Sanitation problem • Unemployment • Lack of Agricultural equipment • Lack of Pure drinking water 	<ul style="list-style-type: none"> • Agricultural land • Market • Poultry farm • Water body Active man power
Kanaipur Union	<ul style="list-style-type: none"> • Lack of education • Market • Health service problem • Lack of Fire service • Lack of pure drinking water 	<ul style="list-style-type: none"> • Agricultural land • Cattle farming • Industry • Expatriates Business
Krishnanagar Union	<ul style="list-style-type: none"> • Lack of education • Lack of electricity • Health service • Lack of communication • Law and order 	<ul style="list-style-type: none"> • Agricultural land • Market • Industry • River • Educated manpower
Majhchar Union	<ul style="list-style-type: none"> • Communication Problem • Sanitation problem • Lack of education • Lack of health facility • Unemployment 	<ul style="list-style-type: none"> • Agricultural land (onion, jute, paddy, vegetable) • Fisheries • Industry • Remittance • Home cattle
North Channel Union	<ul style="list-style-type: none"> • Unemployment • Lack of education • Communication problem • Lack of health facility • Sanitation problem • Natural river 	<ul style="list-style-type: none"> • Agricultural land (onion, jute, paddy, vegetable) • Sand • Fisheries • Remittance • Home cattle

Source: Field Survey, 2016.

4.6.1 Finding of PRA

The key findings of PRA study are:

Short Term (1-5 Years): Communicational development, Improved drainage, Educational development, Water supply, Electricity, Drug eradication, Development of agriculture, Employment opportunity, Sanitation, Health Facilities

Mid Term (5-10 Years): Development in communication, Agricultural development, Employment, Sanitation, Quality education, Food management, Improved drainage

Long Term (10-20 Years): Better communication, Agricultural development, Model union

4.8 Geological Analysis

An extensive geo-scientific investigation is one of the fundamental prerequisites for any sustainable infrastructural development initiative. In this context, a systematic study including geological, geophysical, geotechnical study was done in the proposed project area. The study report would be useful for planning, designing and future maintenance of the project area. Moreover, the current study would also be beneficial for the planners as well as the concerned authorities to take relevant decisions

pertaining to disaster risk reduction and mitigation. Keeping those in mind, prior to any sort of infrastructural development in the area the current study is an inevitable component of the project. In this study, following investigations and surveys has been carried out into the field which are geomorphological survey; drilling of boreholes and preparation of borehole logs; collection of undisturbed and disturbed soil sample as per standard guide line; conducting standard penetration tests (SPTs); drilling of boreholes and casing by PVC pipe for conducting PS logging test (Down-hole seismic test); conducting PS logging test (Down-hole seismic test) and conducting Multi-Channel Analysis of Surface Wave (MASW). Geomorphologic conditions of the study area are covered by floodplain and elevated Pleistocene trace with some low or marshy land. Geologically and structurally the area is not much complex, that's why geotechnical and geophysical investigations are covered whole floodplain and elevated Pleistocene trace area except low or marshy land and almost everywhere soils are clay and recent fluvial type of deposit which are much soft and thicker. These field and technical laboratory data were analyzed to produce risk sensitive micro-zonation maps of the project area.

4.7 Surface Geology

A surface geological map of the area exemplifies the physiographic features of the terrain and also reveals the geological attributes. The surface geological map units are the litho-genetic units that ultimately reflect the surface lithology as well as the physical processes involved in the geological evolution of the study area. Table depicts the surface geological (geomorphological) classification of the study area based on litho-genetic category, with a brief lithological description.

Table 4. 2: Surface geological map units and lithological characteristics for each unit in the study

Litho-Genetic Category	Map Unit	Detail Description
Floodplain Deposits	Deltaic Sand and Deltaic Silt	Deltaic sands accumulate in fluvial and tidal channels, distributary-mouth bars, beach ridges, barrier islands, and on delta-front platforms. It consists of sand, slit, clay and organic matters. The deposit may be sand or slit depending on the river water energy. Sands are particle sizes having 1/16 to 2 mm diameter. Sediment particles ranging from 0.004 to 0.06 mm (0.00016 to 0.0024 inch) in diameter irrespective of mineral type are called Silt. Silt is easily transported by moving currents but settles in still water. Hence river deposits are ideally rich in silty deposits. Energy content for silt deposition is slightly lower than sand body.

	Marshy Clay and Peat	Peat soils and Marshy clays in the surface geology of the area is indication of swampy and humid environment of present active river plain deposits. In these soils, partially or wholly decomposed organic matters are present. These soils have a low infrastructure and of low quality on engineering value. Peat and muck layers are black to dark brown, strongly reduced, and neutral in reaction under persisting conditions. When these layers are allowed to dry, they become extensively acidic. The unit is seasonally flooded by both increased river water and rainwater hence, remains wet around this time. During the dry season where, mineral topsoil is present they become dry. Under dry condition mineral top-soils are mainly grey or dark grey and become strongly acidic.
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4.8 Hydrology Analysis

Hydrological Analysis has been done for identifying the flood prone area. The process requires the understanding of flow dynamics over the flood plain, topographic relationships and the sound judgments of the modeler. Flood risk zone maps may include water depth, flood extent, and flood duration. This is a basic and important indicator for the flood plain land use development planning and regulations. Computer models for the determination of river flood generally consists of four parts, these are:

- i. The extraction of geospatial data for use in the hydrological and hydraulic models (HEC-GeoHMS and HEC-GeoRAS).
- ii. The hydrologic model which develops rainfall-runoff from a design rainfall or historic rainfall event (HECHMS).
- iii. The hydraulic model which routes the runoff through stream channels to determine water surface profiles (including depth and velocity) at specific locations along the stream network (HEC-RAS).
- iv. A tool for floodplain mapping and visualization (HEC-GeoRAS).

Combination of the hydraulic series data within a spatial interface, such as Geographical Information System (GIS), are the key to graphical visualizations on the hydraulic modelling. The increasing availability of very high-performance GIS software packages such as ArcGIS offers new opportunities for engineers to perform flood inundation analysis in conjunction with hydraulic models with interactive visualization within immerse decision support environments. The GIS technology has the ability to capture, store, manipulate, analyze, and visualize the diverse sets of geo-referenced data. On the other hand, hydraulic is inherently spatial and hydraulic models have large spatially distributed data requirements. The integration of hydraulic model and GIS is therefore quite natural. The GIS allows modulation and simulation of different scenarios and the graphic representation of the different alternatives. In recent years, efforts have been made to integrate hydraulic models and GIS to facilitate the manipulation of the model output which led to the establishment of a new branch of hydraulics and hydrology, namely, hydro informatics. Hydro-informatics encompasses the use of advanced information technology procedures to improve the level of technology in predicting the governing processes of water science and engineering.

4.9 Population Growth and Projection

Population projection is a scientific approach to fathom the future population growth by making certain assumptions, using the related past available data at the point of time. To forecast the future population several methods have been used. Some are very sophisticated and rigorous while others are simple and less sophisticated. The primary needs of the people cannot be gauged rationally without regard to the expected size and composition of the population, at the same time national resources cannot be appraised adequately without considering population size and structure. Many studies rely on a projection assumed to be the “most likely” outcome, and for this reason it seems widely agreed that it is important to provide users with such a projection. However, while it seems equally important to provide users with an indication of the uncertainty associated with the most likely projection. But there is no generally accepted approach to characterize this uncertainty (Ezra, 2001). For that reason, population projection can switch depending on the situation. Projections for small areas are more uncertain because of greater possibility of migration which is totally uncertain. Uncertainty also depends on some external factors such as war, epidemic, HIV/AIDS, climate change, natural hazards.

4.9.1 Methods of Population Projection

After knowing the present and past census data, the following methods can be applied to project the population for desired year.

- Arithmetical Increase Method
- Geometrical Increase Method
- Incremental Increase Method
- Exponential Growth Method
- Compound Rate of Growth Method
- Cohort Component Method

4.9.2 Adopted Population Projection Method

Compound Growth Method has been applied for population projection of Faridpur Sadar Upazila. The formula is outlined below:

$$P_n = P_o (1 + r)^n$$

Where,

P_o = Population in the base year

P_n = Population in the projected year

n = Number of intermediate years

r = Annual rate of growth

Basic Assumptions

The recent trend of change of development is expected to be continued into future.

The existing population, growth rate, density, literacy rate, urbanization rate reveals that Faridpur Sadar Upazila will be developed in near future.

For determining the growing trend of development, it is necessary to calculate viable growth rate for projecting population for next 20 years.

4.9.3 Determination of Growth Rate

Faridpur Sadar Upazila is now growing in diverse sites and its development will be flourished in near future. After considering different aspects, it has been considered medium growth rate as 1.33 and 1.3 respectively in Urban (Pourashava) and Rural (Unions) areas.

Table 4. 3: Population Projection and Distribution for all the wards of Faridpur Pourashava

Faridpur Pourashava	Year wise Population				
	2011 (Base Year)	2018	2023	2028	2033
Ward-01	15644	17160	18332	19584	20921
Ward-02	12715	13947	14900	15917	17004
Ward-03	13867	15211	16249	17359	18545
Ward-04	16686	18303	19553	20888	22315
Ward-05	15401	16893	18047	19279	20596
Ward-06	9689	10628	11354	12129	12958
Ward-07	11102	12178	13009	13898	14847
Ward-08	13919	15268	16310	17424	18614
Ward-09	12599	13820	14764	15772	16849
Total	121622	133408	142518	152250	162649

Source: Prepared by Consultants based on BBS, 2011.

Table 4. 4: Population Projection and Distribution for all the unions of Faridpur Sadar Upazila

Union	Year Wise Population				
	2011 (Base Year)	2018	2023	2028	2033
Char Madabdia	28476	31171	33250	35468	37834
Aliabad	33944	37156	39635	42279	45099
Ambikapur	27477	30077	32084	34224	36507
Decreerchar	21195	23201	24748	26399	28161
Greda	29242	32009	34144	36422	38852
Ishan Gopalpur	28861	31592	33700	35948	38346
Kaijuri	42153	46142	49220	52504	56006
Kanaipur	48559	53154	56700	60483	64518
Krishnanagar	37667	41231	43982	46916	50046
Majh Char	29118	31873	34000	36268	38687
North Channel	21086	23081	24621	26264	28016

Total	347778	380687	406084	433175	462072
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Source: Prepared by Consultants based on BBS, 2011.

4.10 Demand Analysis

According to population projection in project time period, the different facilities and its number is analyzed. By considering existing facility and needed facility the final proposal has distributed among the unions and paurashva. For this analysis the planning standard and projected population is the main basis for the future proposal distribution.

Table 4. 5: Demand Calculation

Union/ Ward	Facilities	Population Standard	Projected Population	Required Facilities	Existing Facilities	PRA Demand
Ward-01	Nursery	10000	20921	2	2	0
	Primary School/ kindergarten	5000	20921	4	3	4
	Secondary/High School	20000	20921	1	2	1
	Neighborhood park	10000	20921	2	1	0
	Health centre	5000	20921	4	1	0
Ward-02	Nursery	10000	17004	2	4	0
	Primary School/ kindergarten	5000	17004	3	1	0
	Secondary/High School	20000	17004	1	2	0
	Neighborhood park	10000	17004	2	0	0
	Health centre	5000	17004	3	1	0
Ward-03	Nursery	10000	18545	2	2	3
	University	20000	18545	1	1	1
	College	20000	18545	1	3	4
	Primary School/ kindergarten	5000	18545	4	4	5
	Secondary/High School	20000	18545	1	1	2
	Neighborhood park	10000	18545	2	0	2
	Health centre	5000	18545	4	13	0
Ward-04	Nursery	10000	22315	2	0	2
	Primary School/ kindergarten	5000	22315	4	2	4
	Secondary/High School	20000	22315	1	2	2
	College	20000	22315	1	1	1

	Neighborhood park	10000	22315	2	0	2
	Health centre	5000	22315	4	9	9
Ward-05	Nursery	10000	20596	2	4	4
	College	20000	20596	1	6	6
	University	20000	20596	1	1	1
	Primary School/ kindergarten	5000	20596	1	4	4
	Secondary/High School	20000	20596	1	3	3
	Neighborhood park	10000	20596	2	0	2
	Health centre	5000	20596	4	11	11
Ward-06	Nursery	10000	12958	1	1	1
	Primary School/ kindergarten	5000	12958	3	2	2
	College	20000	12958	1	1	1
	Secondary/High School	20000	12958	1	0	0
	Neighborhood park	10000	12958	1	0	0
	Health centre	5000	12958	3	0	3
Ward-07	Nursery	10000	14847	1	1	1
	Primary School/ kindergarten	5000	14847	3	2	3
	Secondary/High School	20000	14847	1	2	2
	Neighborhood park	10000	14847	1	1	1
	Health centre	5000	14847	3	2	3
Ward-08	Nursery	10000	18614	2	1	2
	Primary School/ kindergarten	5000	18614	4	2	4
	Secondary/High School	20000	18614	1	2	2
	Neighborhood park	10000	18614	2	0	2
	Health centre	5000	18614	4	1	1
Ward-09	Nursery	10000	16849	2	2	2
	College	20000	16849	1	1	1
	Primary School/ kindergarten	5000	16849	3	2	3
	Secondary/High School	20000	16849	1	4	4
	Neighborhood park	10000	16849	2	0	0

	Health centre	5000	16849	3	7	7
Aliabad	Primary School/ kindergarten	5000	45099	9	3	3
	Secondary/High School	20000	45099	2	0	0
	Health centre	5000	45099	9	0	9
Ambikapur	Primary School/ kindergarten	5000	36507	7	2	7
	Secondary/High School	20000	36507	2	1	2
	Health centre	5000	36507	7	1	7
Char Madhabdi a	Primary School/ kindergarten	5000	37834	8	8	8
	Secondary/High School	20000	37834	2	4	4
	Health centre	5000	37834	8	2	8
Decreerch ar	College	20000	28161	1	1	1
	Primary School/ kindergarten	5000	28161	6	3	6
	Secondary/High School	20000	28161	1	0	1
	Health centre	5000	28161	6	2	6
Greda	College	20000	38852	2	3	3
	Primary School/ kindergarten	5000	38852	8	4	8
	Secondary/High School	20000	38852	2	4	4
	Health centre	5000	38852	8	1	8
Ishan Gopalpur	Primary School/ kindergarten	5000	35948	7	2	7
	Secondary/High School	20000	35948	2	0	2
	Health centre	5000	35948	7	0	7
Kaijuri	College	20000	56006	3	2	3
	Primary School/ kindergarten	5000	56006	11	4	11
	Secondary/High School	20000	56006	3	4	4
	Health centre	5000	56006	11	1	11
Kanaipur	Primary School/ kindergarten	5000	64518	13	1	13
	Secondary/High School	20000	64518	3	3	3
	Health centre	5000	64518	13	0	13
Krishnana gar	Primary School/ kindergarten	5000	50046	10	7	10

	Secondary/High School	20000	50046	3	1	3
	Health centre	5000	50046	10	1	10
Majh Char	Primary School/ kindergarten	5000	38687	8	9	9
	Secondary/High School	20000	38687	2	5	5
	Health centre	5000	38687	8	3	8
North Channel	Primary School/ kindergarten	5000	28016	6	0	6
	Secondary/High School	20000	28016	1	1	1
	Health centre	5000	28016	6	0	6

Source: Prepared by Consultants based on BBS, 2011.

4.11 Demand Analysis for Urban Residential

By the building footprint analysis and average plot area for each household the future urban residential area has analyzed here and future demand for urban area is demarked. In 2011, the population of Faridpur Sadar Paurashava is 1,21,622 and for the project time in 2033, the population will be 1,62,649. With an estimation of average household need for five person per household, the demand of the household number in 2033 is 32530. And according to present condition (2011) the existing household no is 24,324. So, the surplus household no. in project period which will be accommodated in future is 8205.

Table 4. 6: Demand Analysis for Urban Residential

Pourashava Population 2011	Poura Projected Population 2033	Poura Household 2011	Poura Projected Household 2033	Demand Household no	Existing Building Foot Print Area	Plot Area Demand	Gross Residential Area Demand
121622	162649	24324	32530	8205	488	1627	306

Source: Prepared by Consultants based on BBS, 2011.

The average building footprint area is 488 sq. ft. By considering, the building will occupy the 60% area of the plot area; the average plot area will be 813 sq. ft per household. So future net building foot print area is (Required Household No* Average Plot Area) = (8205*813) = 153 Acre. For calculating gross residential area, the other facilities and roads must be considered. By considering everything the gross area should be two times of the net building Area. So, the projected gross residential area for the Faridpur Paurashava will be 306 acres.

The existing and projected population of wards have been scrutinized by ward wise to understand the housing demand. Existing structures basically Pucca structures are assumed to vertical expansion for having foundation. From the table, it is seen that the existing building foot print area and settlement area from land use map have great deviations. However, there is enough space for horizontal expansion in each ward. So, the projected household demand can easily be accommodated within the existing residential area.

Table 4. 7: Ward wise Household and Structure Distribution

Ward No.	Population 2011	Population 2033	Structure No.	Structure No. (Pucca)	Existing Building Foot Print Area (acre)	Existing Settlement Area(acre)	Density (Per acre 2011)
Ward No-01	15644	20921	4867	896	55	380	29.20
Ward No-02	12715	17004	2472	558	28	115	18.74
Ward No-03	13867	18545	3762	610	42	278	62.55
Ward No-04	16686	22315	2888	864	32	180	64.53
Ward No-05	15401	20596	4699	1097	53	433	19.21
Ward No-06	9689	12958	3337	542	37	227	28.08
Ward No-07	11102	14847	3188	483	36	199	23.65
Ward No-08	13919	18614	3589	604	40	221	32.73
Ward No-09	12599	16849	3645	514	41	274	25.92
Total	121622	162649	32447	6168	364	2307	

Source: Prepared by Consultants based on BBS, 2011.

Chapter 5 Technical Process of Plan Preparation

5.1 Introduction

The planning approach has described in this chapter where applied techniques are elaborated. The survey outputs are incorporated in order to produce certain findings of Faridpur Sadar Upazila and served as basis for final plan preparation. Through this process the existing land use, physical features, agricultural situation, flooding scenario, geological factors and other related facts are portrayed into maps and then analysed through GIS Techniques.

5.2 Methodology of Plan Preparation

Planning process depends on a bunch of works which reflects the existing condition of the project area. To reveal the existing situation several surveys have been done and further gone through a technical process. The technical methodology has been shown in the **Figure 5.1**.

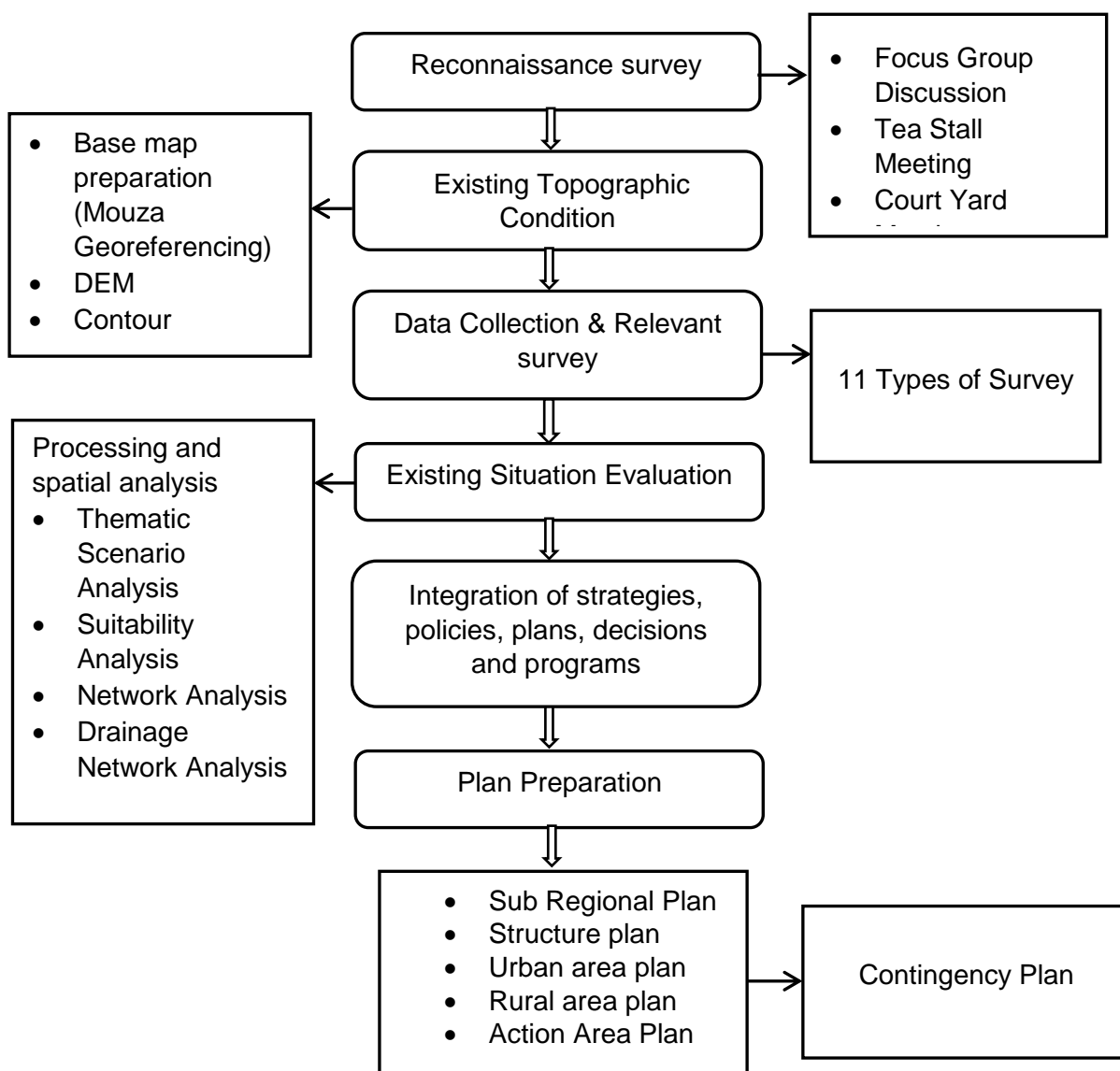


Figure 5. 1: Technical Methodology of Plan Preparation

5.4.1 Reconnaissance Survey

A reconnaissance survey had carried out to identify the extent of works and get an idea about project area which includes several Focus Group Discussion, Courtyard Meeting, Tea stall Meeting.

5.4.2 Existing Topographic Condition

Satellite image had purchased for the concern area then processed the image for planning works from where Digital Elevation Model (Dem), Contour, Physical Feature extraction are important phenomena. To get the project area boundary, Mouza maps have been collected from Land Record and Survey Department (DLRS) and processed for further works.

5.4.3 Data Collection and Relevant Survey

During the survey stage, 11 types of survey had conducted that were paraphrased in the **Figure 5.2**. The detail description and procedure had described in Final Survey Report.

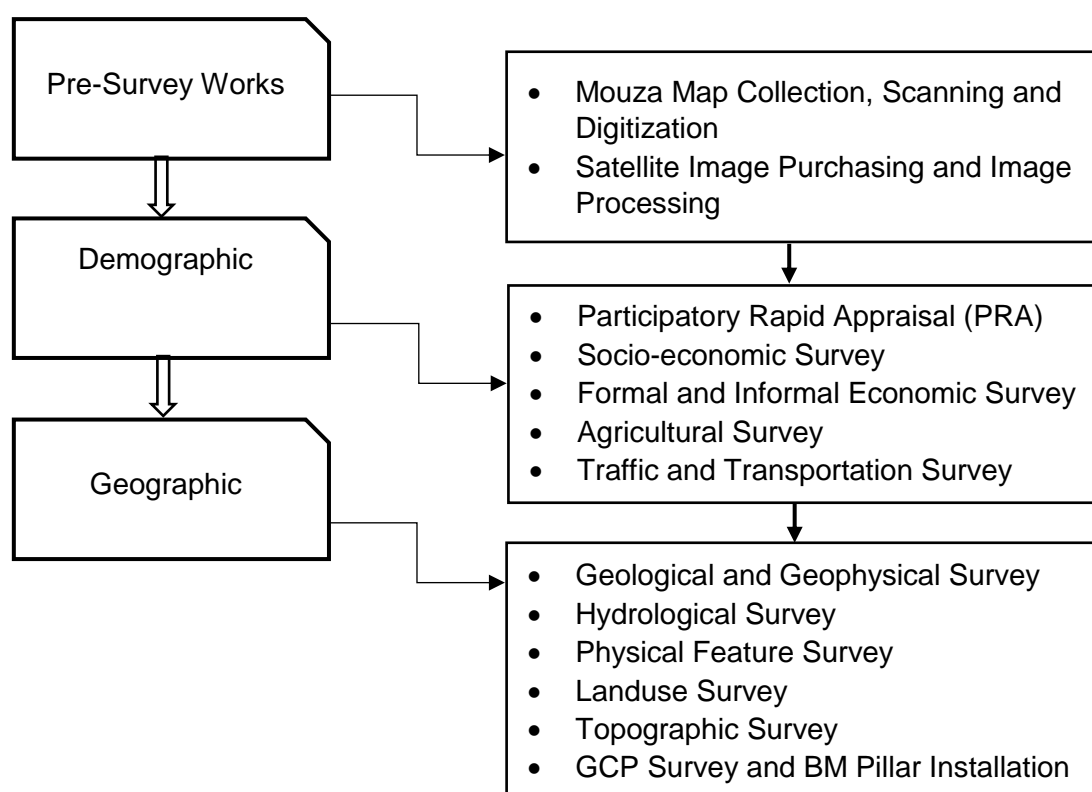


Figure 5. 2: Flow chart of Conducted Surveys

5.4.4 Existing Situation Evaluation

In this stage, several scientific ways followed through GIS Analysis which help to go in a concrete decision. The following techniques were applied:

- Thematic Scenario Analysis
- Suitability Analysis
- Network Analysis
- Location Allocation Analysis
- Drainage Network Analysis

5.4.5 Integration of Strategies, Policies, Plans, Decisions and Programs

Depending on the analysis, several decisions were made depending on planning phase. Few decisions, strategies and policies had placed in broad scale in Sub Regional Plan and Structure Plan and other decisions suggested in small scale for Urban and Rural area plan. Immediate intervention emphasized in action area plan.

5.4.6 Plan Preparation Process

Plan preparation process outlined in following diagram which has been further elaborated in later chapters. Outline of Plan Preparation Process are described in **Figure 5.3** to **Figure 5.6**.

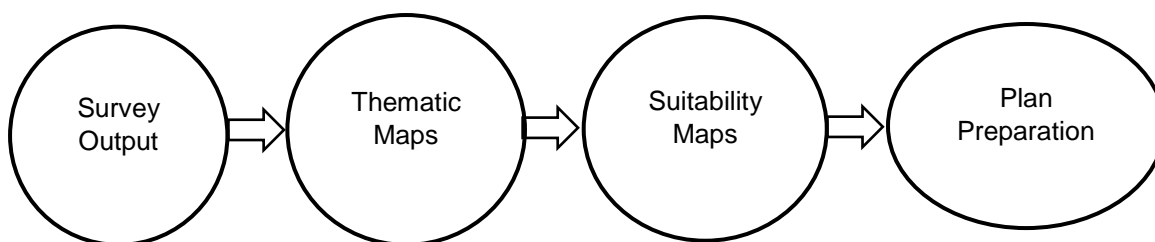


Figure 5.3: Flow Chart of Plan Preparation Basis

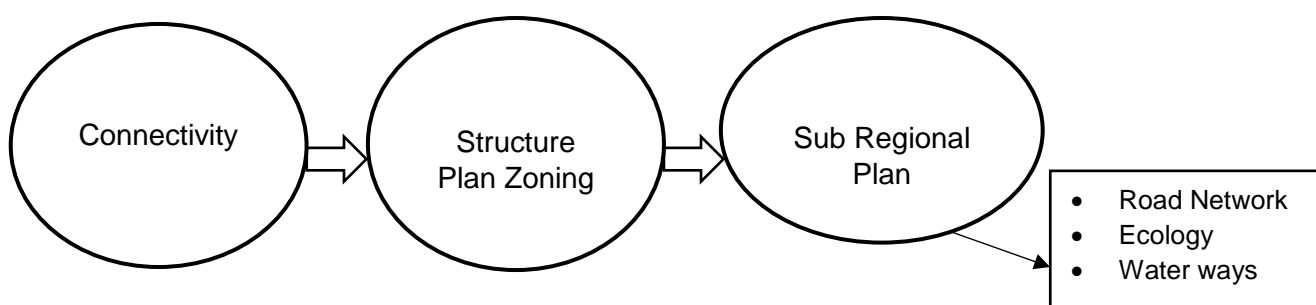


Figure 5.4: Flow Chart of Sub Regional Plan Process

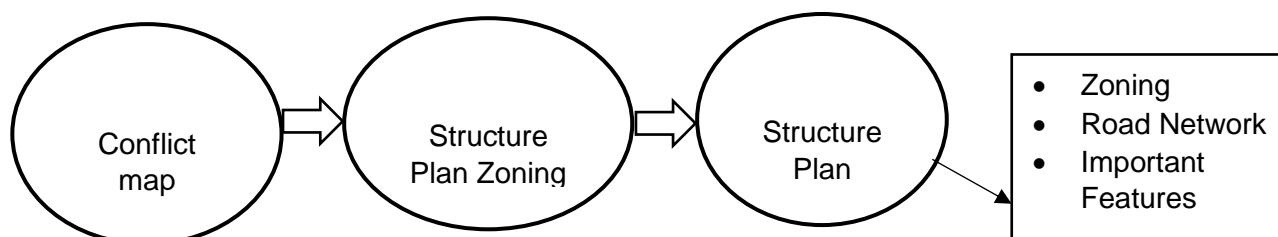


Figure 5.5: Flow Chart of Structure Plan Process

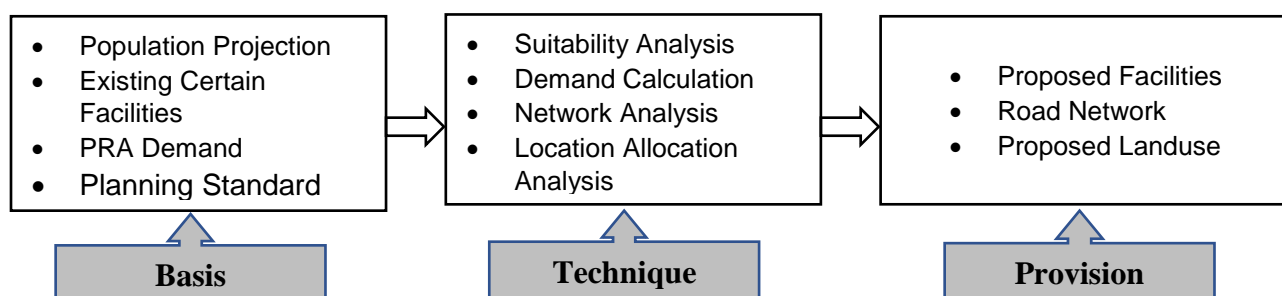


Figure 5.6: Flow Chart of Urban and Rural Area Plan Process

5.3 Formulation of Thematic Maps

During the survey stage, 11 types survey had conducted. These were PRA, Socio-Economic survey, Formal-Informal survey, Agricultural survey, Transportation survey, Physical Feature survey, Land use survey, Topographic survey, Geological & Geo-physical survey and Hydrological survey. Each survey has distinct output. These outputs are presented in the form of thematic maps. The main components of thematic scenario are presented in **Figure 5.7**.

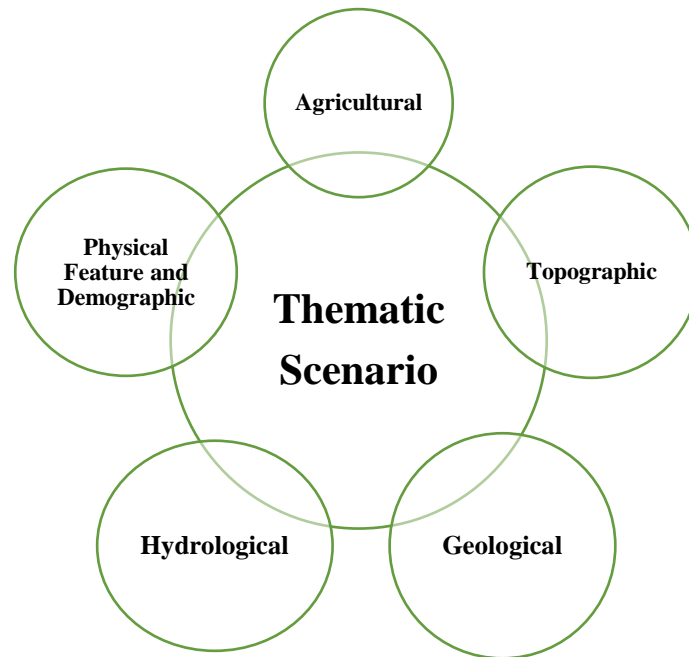


Figure 5. 7: Thematic Scenario

Here is a major list of thematic maps:

- Topographic Survey
- Slope
- DEM
- Contour
- Geological & Geo-physical Survey
- PGA
- Shear wave
- Foundation depth
- Micro zonation map
- Land Use Survey
- Existing land use map
- Ecological map
- Physical-Feature Survey
- Existing road network in terms of type
- Existing road network in terms of width
- Connectivity map
- Agricultural Survey

- Cropping intensity map
- Hydrological Survey
- Flooding scenario map
- Main and Sub flood flow zone map
- Density
- Union-wise population density
- Ward-wise population density

5.4.1 Connectivity

Faridpur Sadar Upazila is bounded on the north by Goalanda Upazila of Rajbari Zila and Shibalaya and Harirampur Upazilas of Manikganj Zila, on the east by Char Bhadrassan Upazila, on the south by Nagarkanda and Boalmari Upazilas and on the west by Madhukhali Upazila and Rajbari Sadar Upazila of Rajbari Zila. The connectivity map of Faridpur Sadar Upazila is presented in **Map 5.1**. The major roads of Faridpur Sadar Upazila has shown in **Table 5.1**.

Table 5. 1: Major Roads of Faridpur Sadar Upazila

Road ID	Name of the Road	Length of Road (km)
N7	Daulatdia Ferryghat - Goalchamot (N803) - Magura (N704) - Arappur (N704) - Jhenaidah - Hamdah (N703) - Palbari (N707, N708) - Chanchra (N706) - Murail (N707) - Phultala (N709) - Khulna - (ferry) - Kudir Battala (N709) - Digraj	252
N803	Goalchamot (N7) - Alipur (N804) - Faridpur	7
N804	Alipur (N803) - Bhanga (N8, N805)	32
Z8402	Faridpur-Hatgazaria-Char Bhadrason-Sadarpur Road	49
Z8405	Faridpur (Goalchamat)-Alipur (Ambikapur)-S.S.Ghat Road	10

Source: RHD, Road Database.

5.4.2 Density

Population density is midyear population divided by land area in square kilometres. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship--except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin. Land area is a country's total area, excluding area under inland water bodies, national claims to continental shelf, and exclusive economic zones. Here population density map has been prepared according to the population density in 2011 and projected density in 2033 of Faridpur Sadar Upazila respectively.

5.3.2.1 Union wise Density Map

According to the population density in 2011 of Faridpur Sadar Upazila, four unions are densely populated in comparison with others. Ambikapur, Greda, Kanaipur and Aliabad unions have highest density compares to others. The range of population per acre of these unions varies from 4.39 to 6.61. From this outcome, it is visible that in future these four unions have great influence in future economy. The result is presented in **Map 5.2** for base year 2011. Density Map for 2033 has also prepared which

has been shown in **Map 5.3**. Though the above-mentioned unions will be densely populated in 2033, the overall population will be increased in Kanaipur and Kaijuri Unions. The projected results have been shown in **Figure 5.8**.

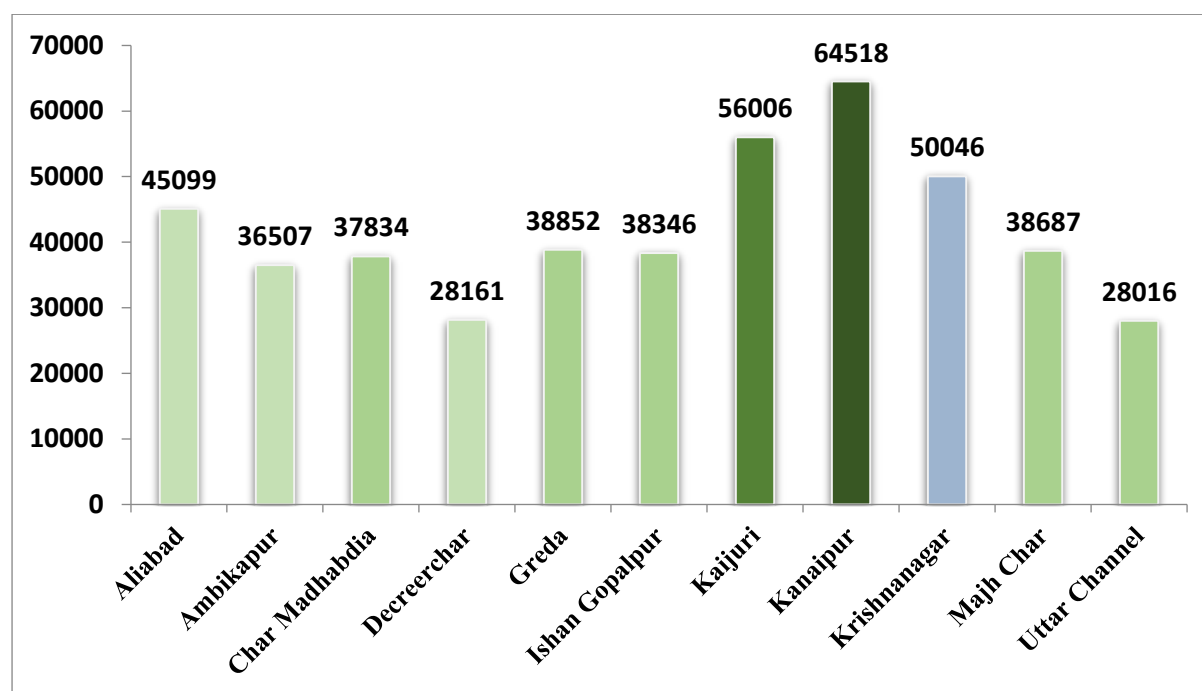


Figure 5. 8: Projected Population of Unions of Faridpur Sadar Upazila

5.3.2.2 Ward wise Density Map

Faridpur Pourashava of Faridpur Sadar Upazila is now experiencing densely population in Ward 02, 03, 04 and 08 where the density ranges from 28 to 65 population per acre. The overall population of Pourashava is highly populated with the comparison of Unions. The results have been shown in **Map 5.4 & Map 5.5**. As Pourashava has higher annual growth rate, the future population has calculated according with the convenient growth rate. The densely populated area will be denser. The calculated results are shown in **Figure 5.9**.

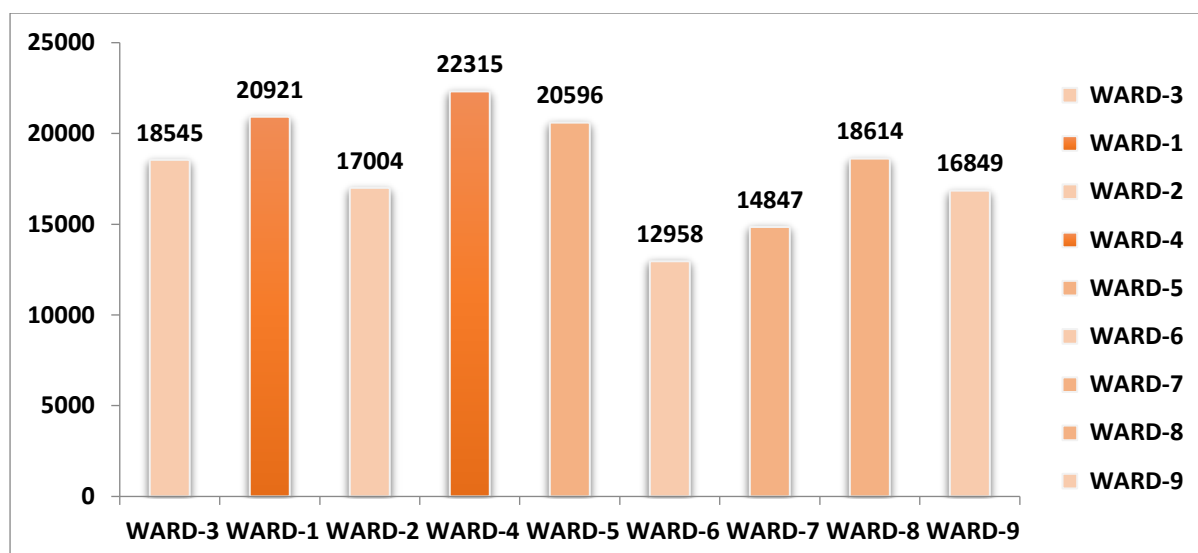
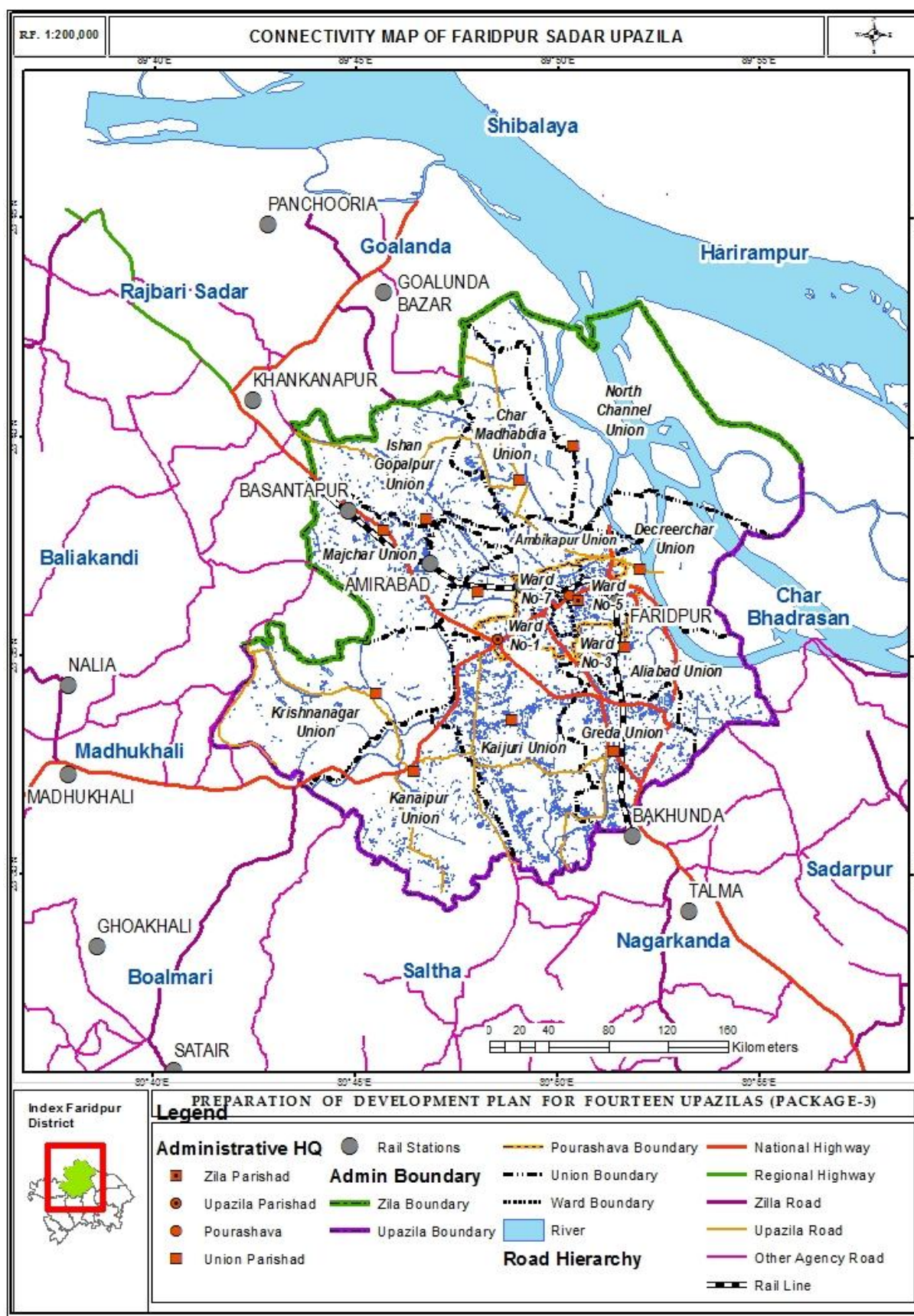
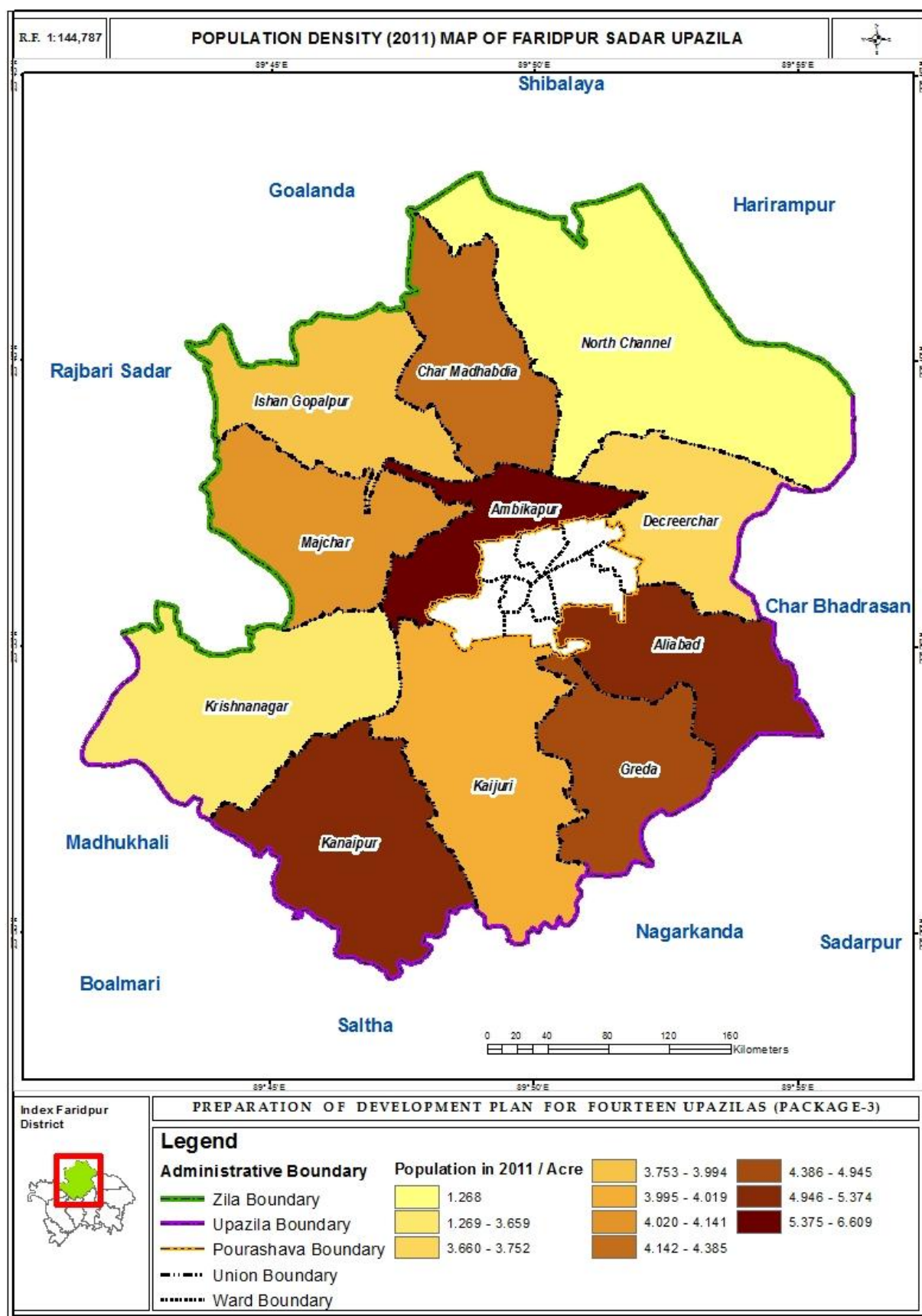


Figure 5. 9: Projected Population of Pourashava of Faridpur Sadar Upazila



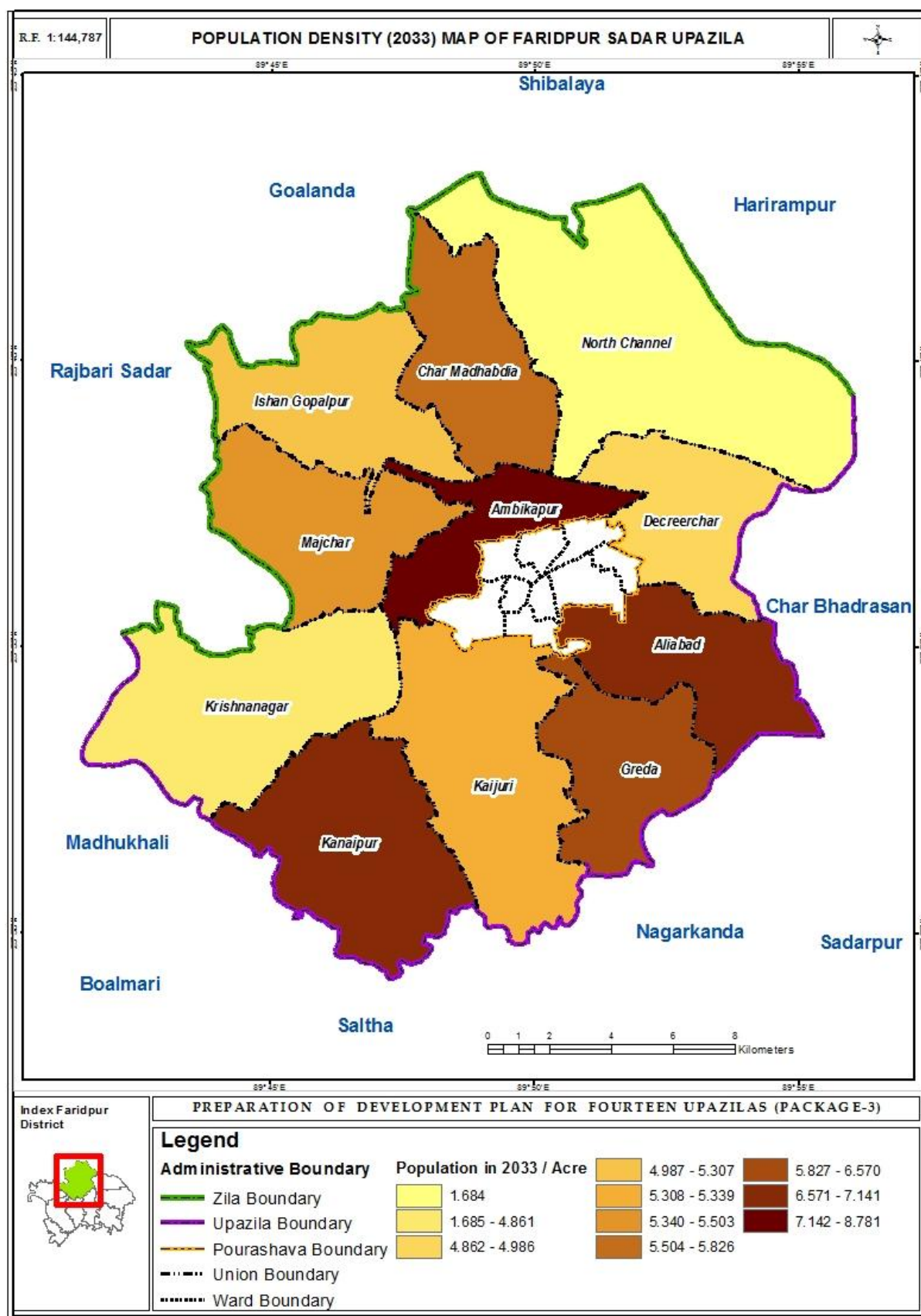
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 1: Connectivity Map of Faridpur Sadar Upazila



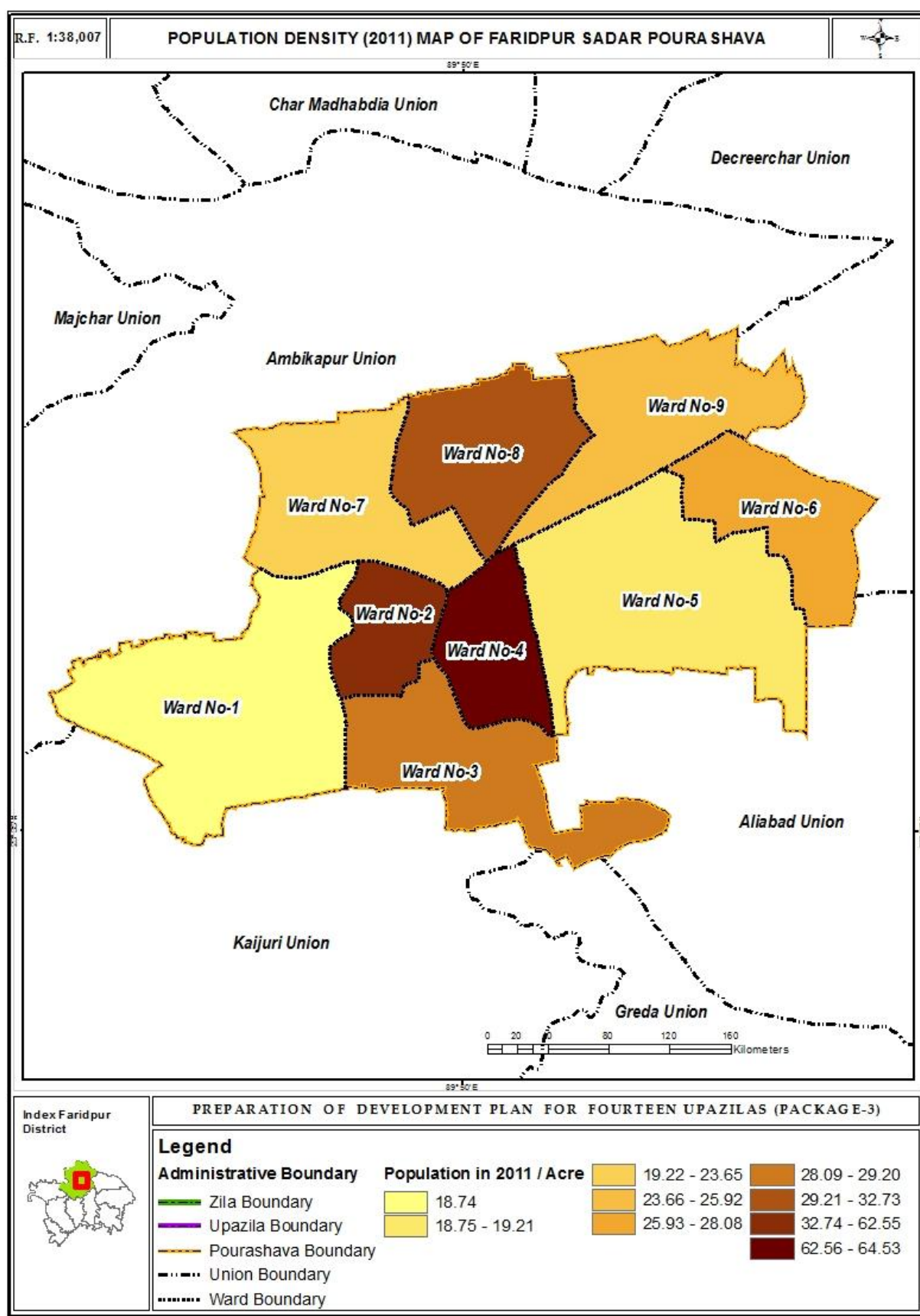
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 2: Union wise Population Density in Faridpur Sadar Upazila (2011)



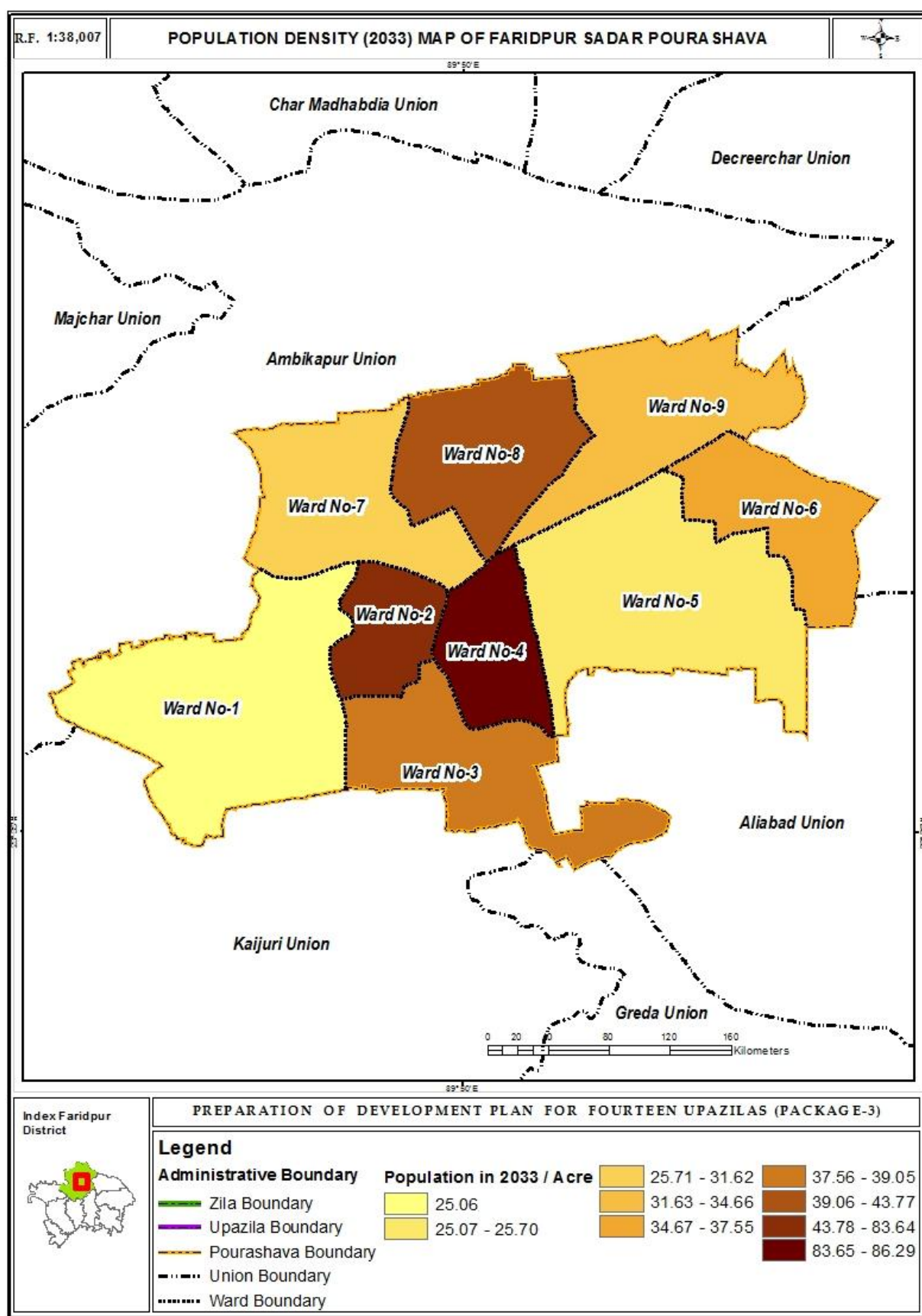
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 3: Union wise Population Density in Faridpur Sadar Upazila (2033)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 4: Urban Population Density in Faridpur Sadar Upazila (2011)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 5: Urban Population Density in Faridpur Sadar Upazila (2033)

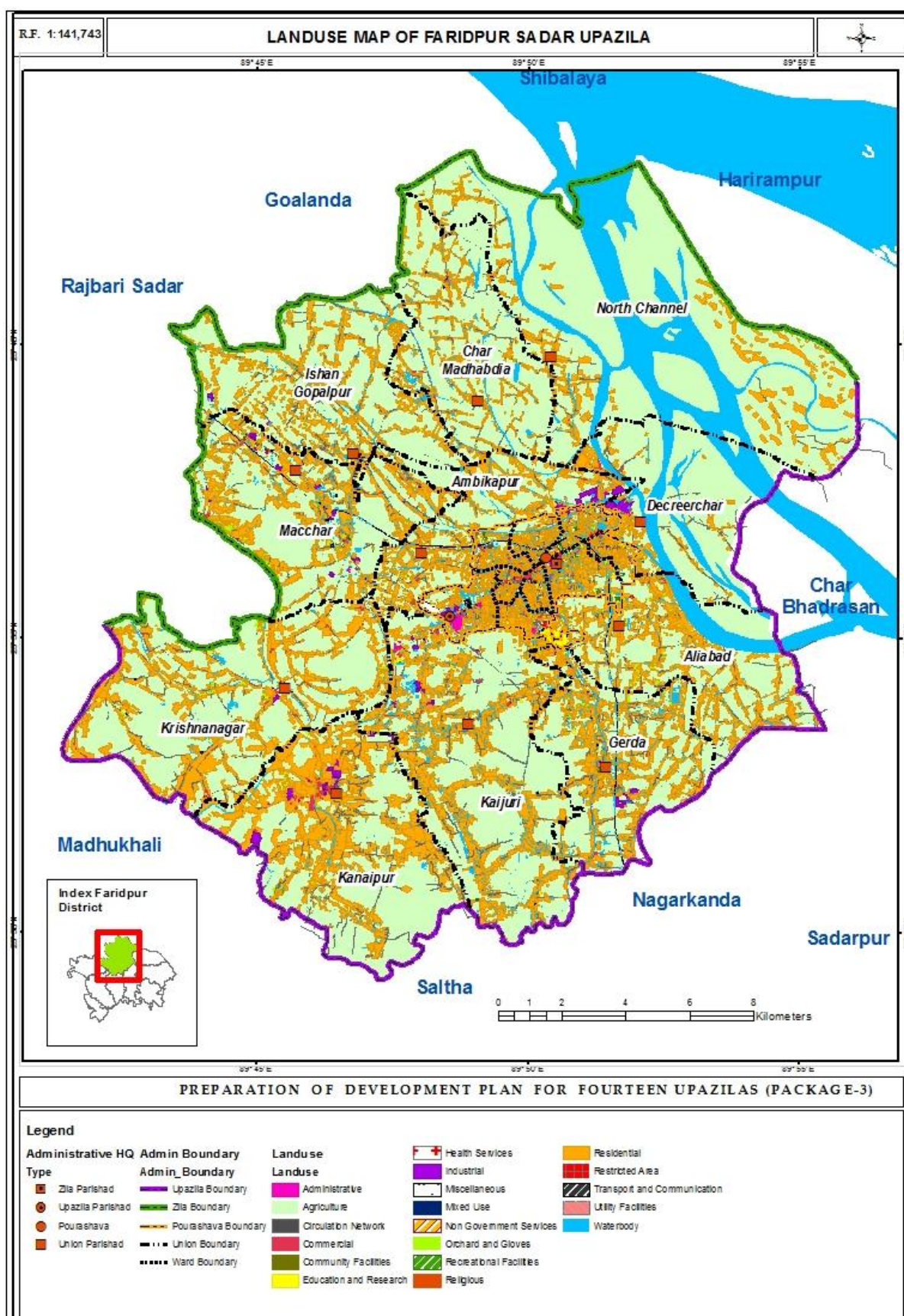
5.4.3 Existing Land Use

In Faridpur Upazila different types land uses have been observed. The total land use of this upazila has been categorized into 19 types. In **Table 5.2** existing land uses have been presented.

Table 5. 2: Existing Land Use

Landuse	Area in Sq. m	Area in Sq.km	Area in Acre	Percentage
Administrative	496396.49	0.50	122.66	0.13
Agriculture	244783333.72	244.78	60487.28	64.47
Circulation Network	4160612.33	4.16	1028.11	1.10
Commercial	1271941.65	1.27	314.30	0.34
Community Facilities	37950.21	0.04	9.38	0.01
Education and Research	1007752.25	1.01	249.02	0.27
Health Services	198773.26	0.20	49.12	0.05
Industrial	1739019.74	1.74	429.72	0.46
Miscellaneous	219799.22	0.22	54.31	0.06
Mixed Use	92512.24	0.09	22.86	0.02
Non-Government Services	36385.47	0.04	8.99	0.01
Orchard and Groves	2364390.77	2.36	584.25	0.62
Recreational Facilities	266375.45	0.27	65.82	0.07
Religious	383252.96	0.38	94.70	0.10
Residential	87669855.80	87.67	21663.69	23.09
Restricted Area	1455.06	0.00	0.36	0.00
Transport and Communication	103974.78	0.10	25.69	0.03
Utility Facilities	35459.27	0.04	8.76	0.01
Waterbody	34798168.17	34.80	8598.81	9.17
Total	379667408.86	379.67	93817.86	100.00

Source: Physical Feature Survey, 2016



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 6: Land Use of Faridpur Sadar Upazila

5.4.4 Existing Physical Feature

During the physical feature survey existing features such as roads according to type and width, structures of the Upazila has enlisted. A total overview of the Upazila was gathered from the data of existing physical feature survey. This database is the base for the development that will be planned for next 20 years.

5.3.4.1 Road Network according to Type

From the Physical feature survey, the road network of the study area has summarized in the **Table 5.3**. From the survey, it is found that the length of Pucca Road is above 678 km which is around 59% of total length of road and the other length of road according to type has been depicted in below table. **Map 5.8** presents the road network according to type.

Table 5. 3: Total Circulation Network of Faridpur Sadar Upazila

Road Type	Length in Meter	Length in Km	Percentage
HBB	190982.81	190.98	19.42
Katcha	232021.08	232.02	23.60
Pucca	559712.18	559.71	56.93
RCC	502.87	0.50	0.05
Total	983218.94	983.22	100.00

Source: Physical Feature Survey, 2016

Table 5. 4: Road Type According to Union and Ward Wise

Union Ward	Road Type	Length in Meter	Length in Km
Aliabad	HBB	12747.532	12.748
	Katcha	11723.825	11.724
	Pucca	48271.229	48.271
Ambikapur	HBB	15089.977	15.090
	Katcha	6899.116	6.899
	Pucca	25686.977	25.687
	RCC	242.959	0.243
Char Madhabdia	HBB	25921.529	25.922
	Katcha	26347.522	26.348
	Pucca	24762.441	24.762
Decreerchar	HBB	3631.637	3.632

	Katcha	19618.869	19.619
	Pucca	5527.730	5.528
Greda	HBB	17765.919	17.766
	Katcha	12791.017	12.791
	Pucca	67908.180	67.908
Ishan Gopalpur	HBB	16695.834	16.696
	Katcha	24626.910	24.627
	Pucca	33258.501	33.259
Kaijuri	HBB	31559.750	31.560
	Katcha	20369.655	20.370
	Pucca	83576.505	83.577
Kanaipur	HBB	17832.323	17.832
	Katcha	21999.856	22.000
	Pucca	53111.118	53.111
Krishnanagar	HBB	3231.019	3.231
	Katcha	42505.540	42.506
	Pucca	34921.566	34.922
Macchar	HBB	12142.364	12.142
	Katcha	14924.168	14.924
	Pucca	52361.699	52.362
North Channel	HBB	6818.585	6.819
	Katcha	14690.915	14.691
	Pucca	11351.345	11.351
WARD-1	HBB	5733.147	5.733
	Katcha	4952.020	4.952
	Pucca	19136.130	19.136
	RCC	54.527	0.055
WARD-2	HBB	1832.203	1.832
	Katcha	891.275	0.891
	Pucca	10011.566	10.012
WARD-3	HBB	6899.596	6.900

	Katcha	951.524	0.952
	Pucca	9322.982	9.323
WARD-4	HBB	376.380	0.376
	Katcha	405.474	0.405
	Pucca	15439.145	15.439
	RCC	82.455	0.082
WARD-5	HBB	4741.110	4.741
	Katcha	2906.437	2.906
	Pucca	23376.609	23.377
WARD-6	HBB	668.145	0.668
	Katcha	417.130	0.417
	Pucca	11294.359	11.294
WARD-7	HBB	2187.068	2.187
	Katcha	1848.482	1.848
	Pucca	9325.974	9.326
	RCC	122.928	0.123
WARD-8	HBB	1317.850	1.318
	Katcha	1750.598	1.751
	Pucca	9869.468	9.869
WARD-9	HBB	3790.842	3.791
	Katcha	1400.749	1.401
	Pucca	11198.652	11.199

Source: Physical Feature Survey, 2016

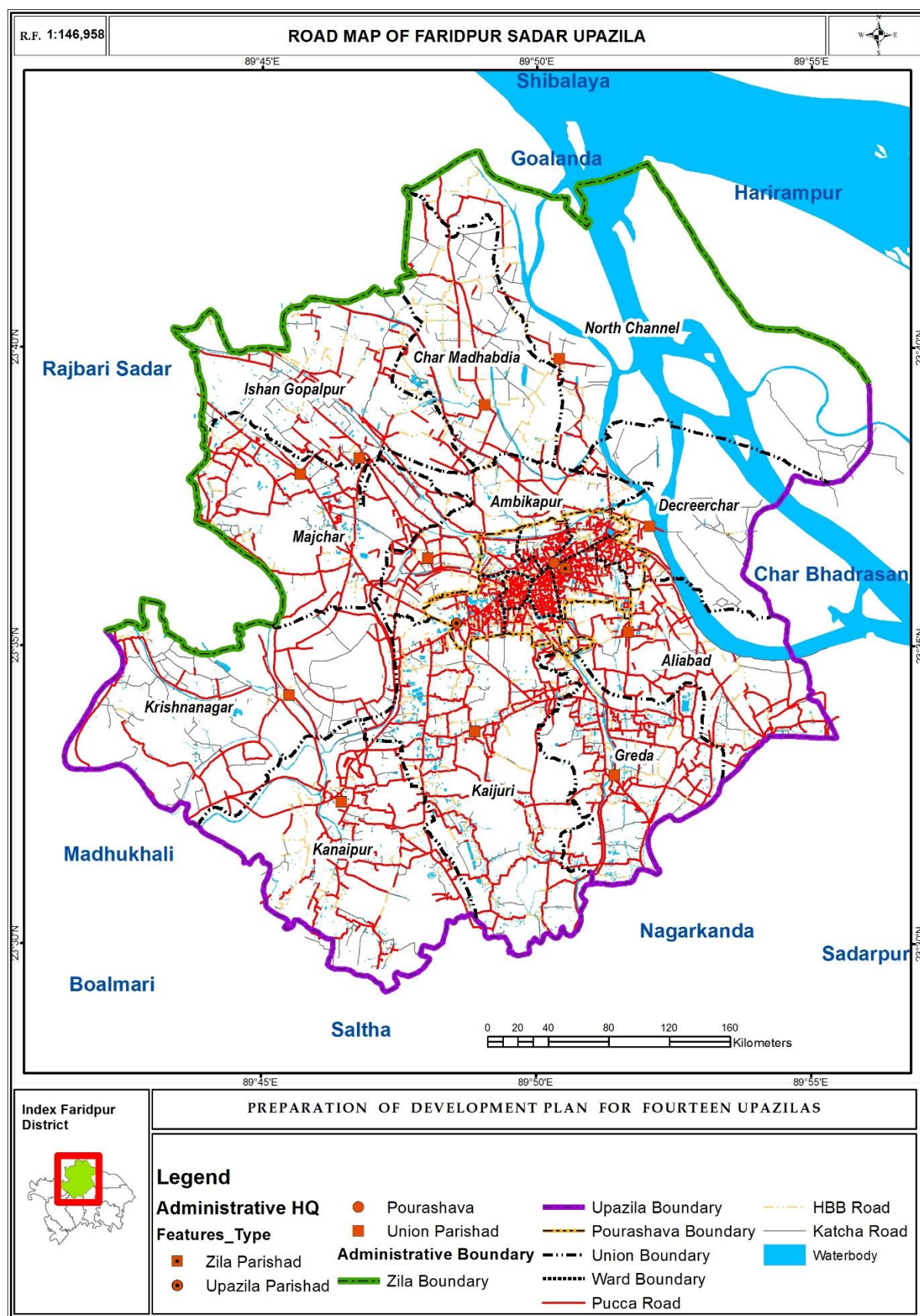
The **Table 5.3** depicted that the total road network system of the Upazila along with type and road length. From the table, it is visible that the length of Pucca Road is prominent which marks a great sign of future development. As well as road type according to union and ward wise has been presented in **Table 5.4**. From the data it provides an overall physical condition of the unions and wards. Existing road network according to type and hierarchy has presented in **Map 5.7 and 5.8**. The existing road hierarchy has been presented in **Table 5.5**.

Table 5. 5: Existing Road Hierarchy of Faridpur Sadar Upazila

Hierarchy	Length in Meter	Length in Km	Percentage
Village Road	148810.371	148.810	21.590
Local Road	152259.513	152.260	22.091
Upazila Road	78934.482	78.934	11.452
Union Road	85346.109	85.346	12.382
National Highway	63777.515	63.778	9.253
Local Road	152259.513	152.260	22.091
Embankment road	7861.981	7.862	1.141
Total	689249.484	689.249	100

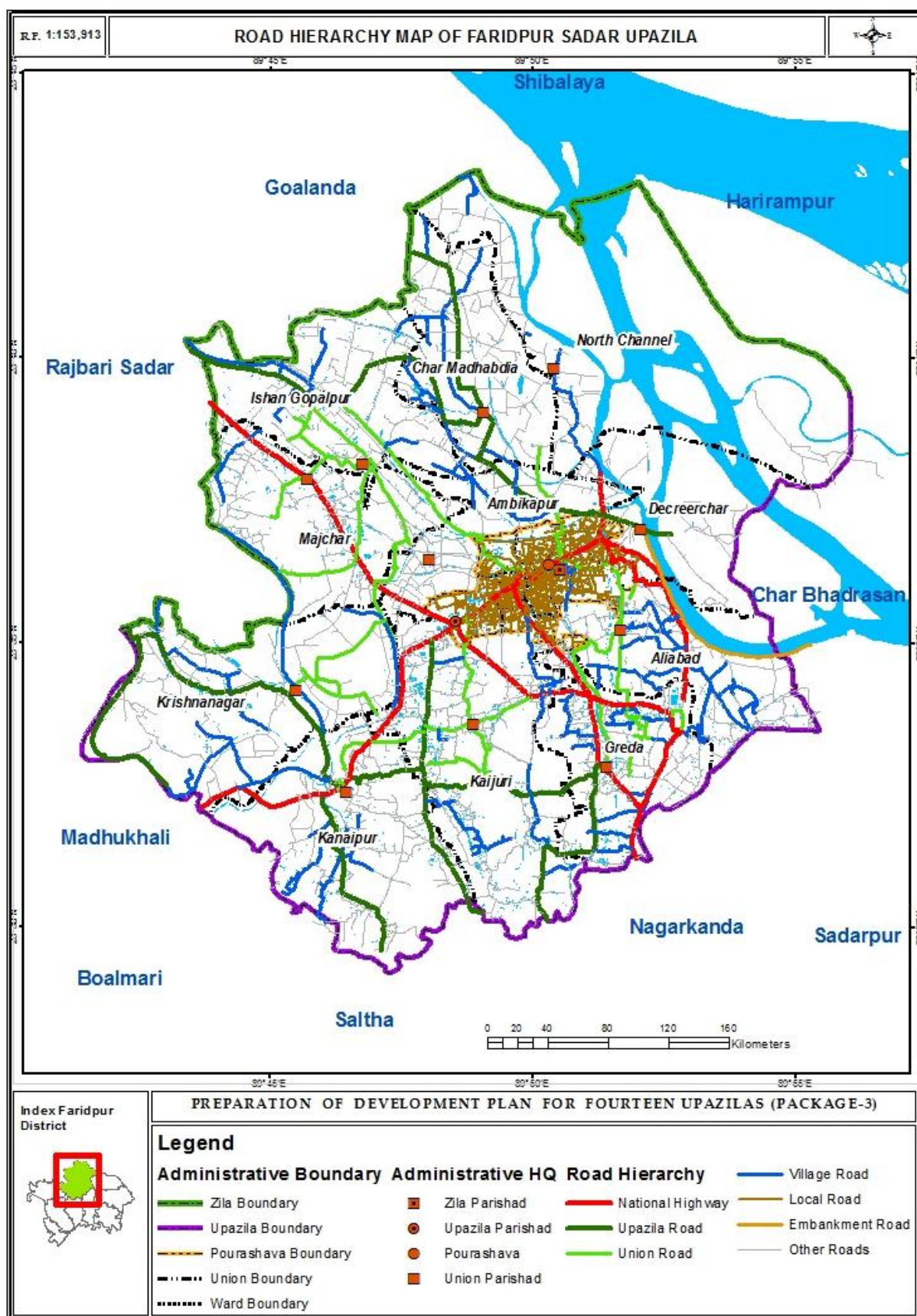
Source: Physical Feature Survey, 2016

From the table it is visible that above 21% roads are Village Roads. The main connectivity of this Upazila is National and Upazila Road which are around 9% and 11%.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5.7 Road Network (Type) of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 8: Road Hierarchy of Faridpur Sadar Upazila

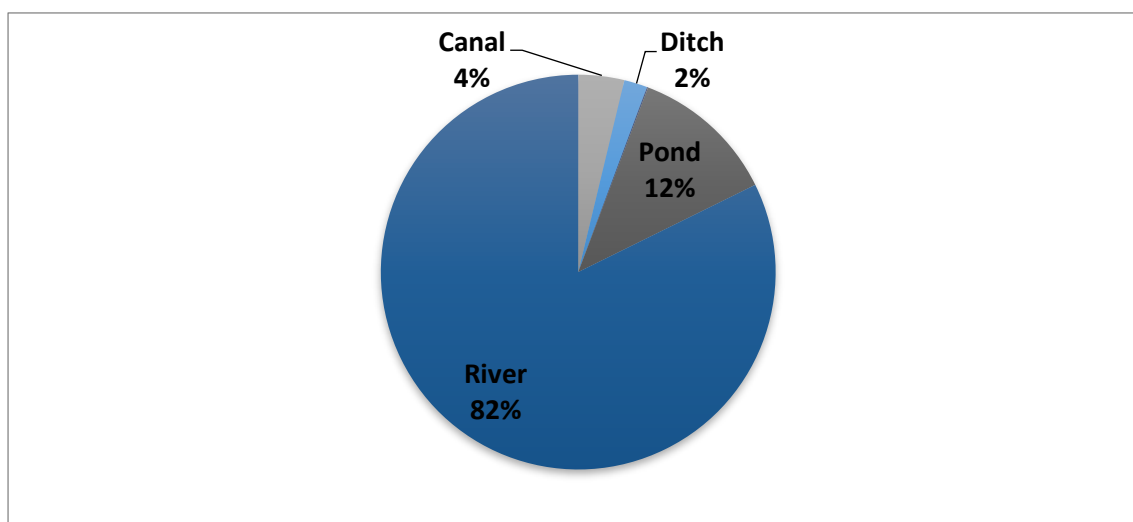
5.3.4.2 Water body

Padma, Kumar, Old Kumar, Bhubaneshwar; Chapa Beel, Hari Beel, Shakuner Beel, Dhol Samudra etc. are the main water sources of Faridpur Sadar Upazila. The **Table 5.6** and **Figure 5.10** represented the present condition of the waterbody of this area and Union wise Scenario has been shown in **Map 5.9**.

Table 5. 6: Waterbody of Faridpur Upazila

Type	Area (Acre)	Area (sq.km)
Beel	18.77	0.08
Ditch	7.30	0.03
Khal	203.48	0.82
Pond	1401.49	5.67
River	706.31	2.86
Total	2337.34	9.46

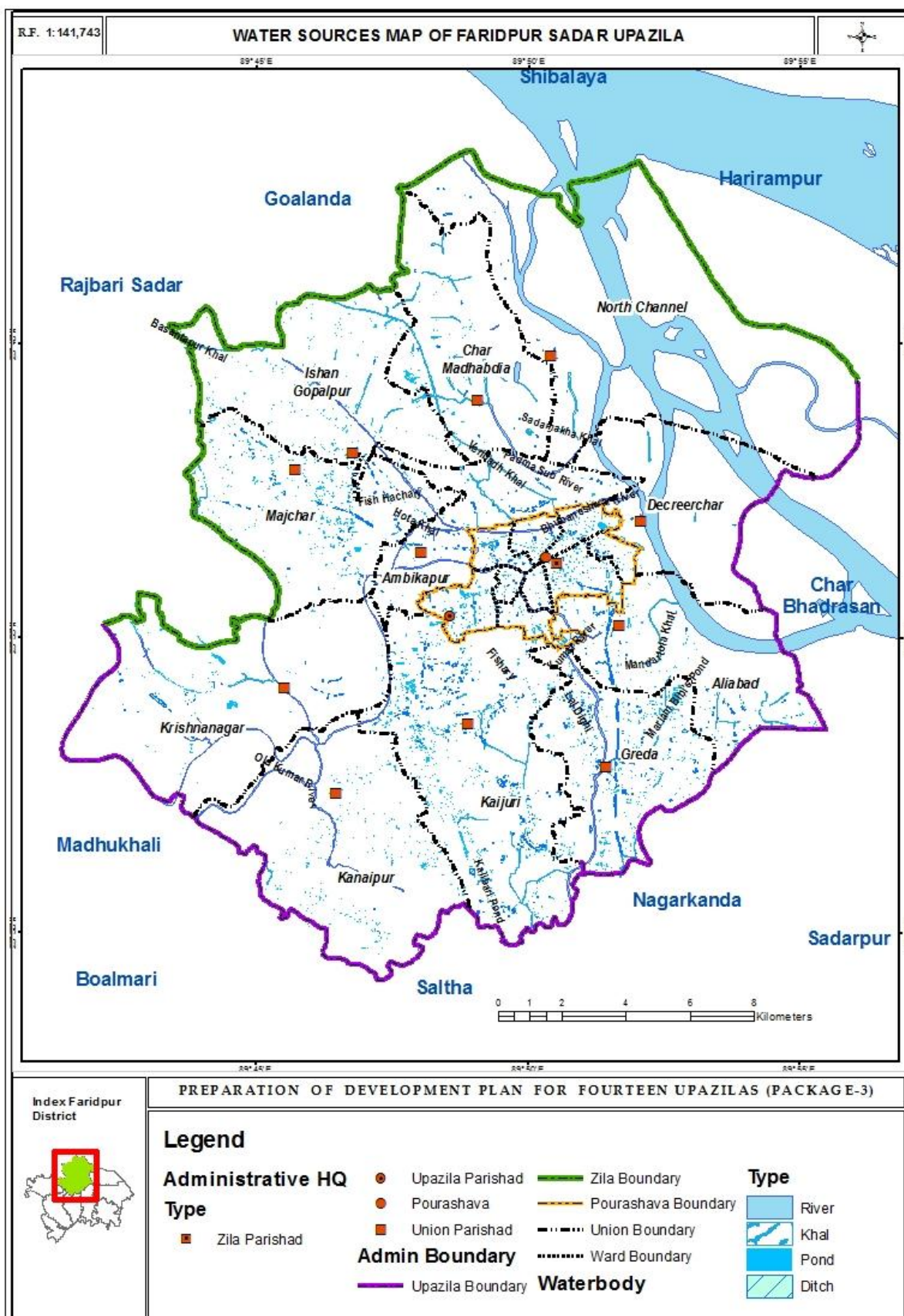
Source: Physical Feature Survey, 2016



Source: Physical Feature Survey, 2016

Figure 5. 10: Existing Waterbodies of Faridpur Sadar Upazila

In Faridpur Sadar Upazila, there are more than 5000 pond which is around 12% of total waterbodies. Padma River and Kumar River are the dominating waterbodies in this area



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 9: Existing Water Sources of Faridpur Sadar Upazila

5.3.4.3 Structure type

Structures are the most important element of the physical features of an area. Structure condition depicts the existing economic scenario of the inhabitants of an area. During the physical feature survey of Faridpur upazila an overall situation of the structures has been recoded. From the survey four types of structures has been identified which are katcha, pucca, semi pucca and under construction. In **Table 5.7** total structure condition has been represented. Beside that **Table 5.8** and **Table 5.9** depicts the structure condition of paurashava and 11 unions of this upazila.

Table 5. 7: Structure Type of Faridpur Upazila

Structure Type	No. of Structure
Katcha	88018
Pucca	10869
Semi Pucca	18535
Under Construction	257
Total	117679

Source: Physical Feature Survey, 2016

The above table depicts that most of the structures of this upazila are katcha and the number is 88019. Number of pucca structure is 10869. Which clearly elaborate that the economic condition of the most of inhabitants not satisfactory.

Table 5. 8: Structure Type of Paurashava

Structure Type	No. of Structure
Katcha	17667
Pucca	7206
Semi Pucca	7768
Under Construction	196

Source: Physical Feature Survey, 2016

Table 5. 9: Structure Type of Union

Union	Structure Type	No. of Structure
Aliabad	Katcha	6578
	Pucca	238
	Semi Pucca	177
	Under Construction	3
Ambikapur	Katcha	5976
	Pucca	210
	Semi Pucca	320

	Under Construction	10
Char Madhabdia	Katcha	5949
	Pucca	166
	Semi Pucca	797
Decreerchar	Katcha	2056
	Pucca	96
	Semi Pucca	143
	Under Construction	5
Greda	Katcha	6108
	Pucca	432
	Semi Pucca	1605
	Under Construction	8
Ishan Gopalpur	Katcha	4372
	Pucca	233
	Semi Pucca	1663
	Under Construction	1
Kaijuri	Katcha	9053
	Pucca	491
	Semi Pucca	1247
	Under Construction	12
Kanaipur	Katcha	9031
	Pucca	265
	Semi Pucca	1142
	Under Construction	11
Krishnanagar	Katcha	7652
	Pucca	305
	Semi Pucca	1100
	Under Construction	2
Macchar	Katcha	6525
	Pucca	401
	Semi Pucca	1410

	Under Construction	6
North Channel	Katcha	3667
	Pucca	6
	Semi Pucca	12

Source: Physical Feature Survey, 2016

5.3.4.4 Structure Use

During the survey different types of structure use has been identified. There are almost 1 types of uses have been recorded. Structure use of Faridpur Upazila has been represented in **Table 5.10**. From this data an overview can be garnered about the existing institutions of this area.

Table 5. 10: Structure Use of Faridpur Upazila

Structure Use	No. of Structure
Abandoned	71
Commercial	5243
Community Facilities	90
Education & Research	788
Government Office	536
Health Facilities	111
Historical and Heritage Site	25
Industrial	432
Miscellaneous	357
Mixed Use	322
Non-Government Office	226
Recreational Facilities	41
Religious	571
Residential	108825
Transport & Communication	18
Utility Facilities	29

Source: Physical Feature Survey, 2016

5.4.5 Agriculture

The existing land use of this Upazila depicted that the most of its land are occupied by the agricultural use. Different types of crops are planted in the agricultural land. Through the agricultural survey the cropping pattern and intensity has recorded. From the survey it implied that three types of cropping intensity exist in this area.

3.5.1.1 Cropping Intensity

Single, double and triple cropped land are enlisted in Faridpur Sadar Upazila. From the **Table 5.11**, it is visible that double cropped land is the highest in this Upazila. The area of double cropped and triple cropped land is 52.83% and 35.88% respectively. **Map 5.10** represents the cropping intensity of the Faridpur Sadar Upazila.

Table 5. 11: Cropping Intensity of Faridpur Sadar Upazila

Cropping Pattern	Area in Sq. km	Area in Acre	Percentage
Single Cropping	29.52	7293.85	11.29
Double Cropping	138.10	34125.21	52.83
Triple Cropping	93.78	23172.45	35.88
Total	261.39	64591.51	100.00

Source: Physical Feature Survey, 2016

5.4.6 Hydrology-Flooding Scenario

Flooding is one of the major natural hazards affecting communities across Bangladesh and has caused damages worth millions of dollars every year. The main objectives of river flood plain mapping are as follows: to prevent loss of life, to minimize property damage of homestead, roads, school, market etc, to minimize social disruption and to encourage coordinated approach for land/water use for urban development. The role of flood mapping in river engineering is an important feature in planning and management: basis for managing flood plains, engineering & planning tool, first step in flood plain management, part of legislation for regulating development and basis for pursuing structural and non-structural measures.

A total of 6 scenarios are simulated during hydrological and hydraulic modelling in this study. River flood map shows areas which could be flooded complemented with: the flood extent; water depth or water level. River flood map covers the geographical areas which could be flooded according to different scenarios. The magnitude of the damage depends on the flood characteristics especially in terms of water depth. In order to produce the river flood maps for the river basin which is combination of river flood depth, four river flood risk categories can be determined consists of F0 (0-0.30 m), F1 (0.30-0.90 m), F2 (0.90-1.80 m), F3 (1.80-3.60 m), F4 (>3.60 m) according to flood forecasting warning center (FFWC), BWDB. Zone F0 is the flood zone that corresponds to the areas of very shallow flooding with a temporary water-surface elevation (usually areas of ponding) where average depths are between 0.0 and 0.3 meter. For floodplain management in Zone F0 areas, elevation is not required for improvements to existing structures. However, for new construction, the structure must be elevated (or flood proofed for non-residential structures) such that the lowest floor, including basement, is a maximum of 0.3 m above the highest adjacent existing grade if the depth of the base flood elevation (BFE) does not exceed 0.3 m at the proposed development site. For infill sites, rehabilitation of existing structures, or redevelopment of previously developed areas, there is a 0.3 m elevation requirement regardless of the depth of the BFE at the project site. Flood zone F1, F2 and F3 are classified as functional floodplain, and are deemed to be the most at-risk land of flooding from rivers. Local planning authorities have classified areas at significant risk of flooding. F4 is termed as permanent water body considered as river, lake etc. Flood inundation is classified through gradually varied color with five different range of flood depth.

This indicates the five intensities used for the classification of the flood risk zones based on water level depth in the study area. It is easy to identify one's homesteads on the inundation maps are at risk with

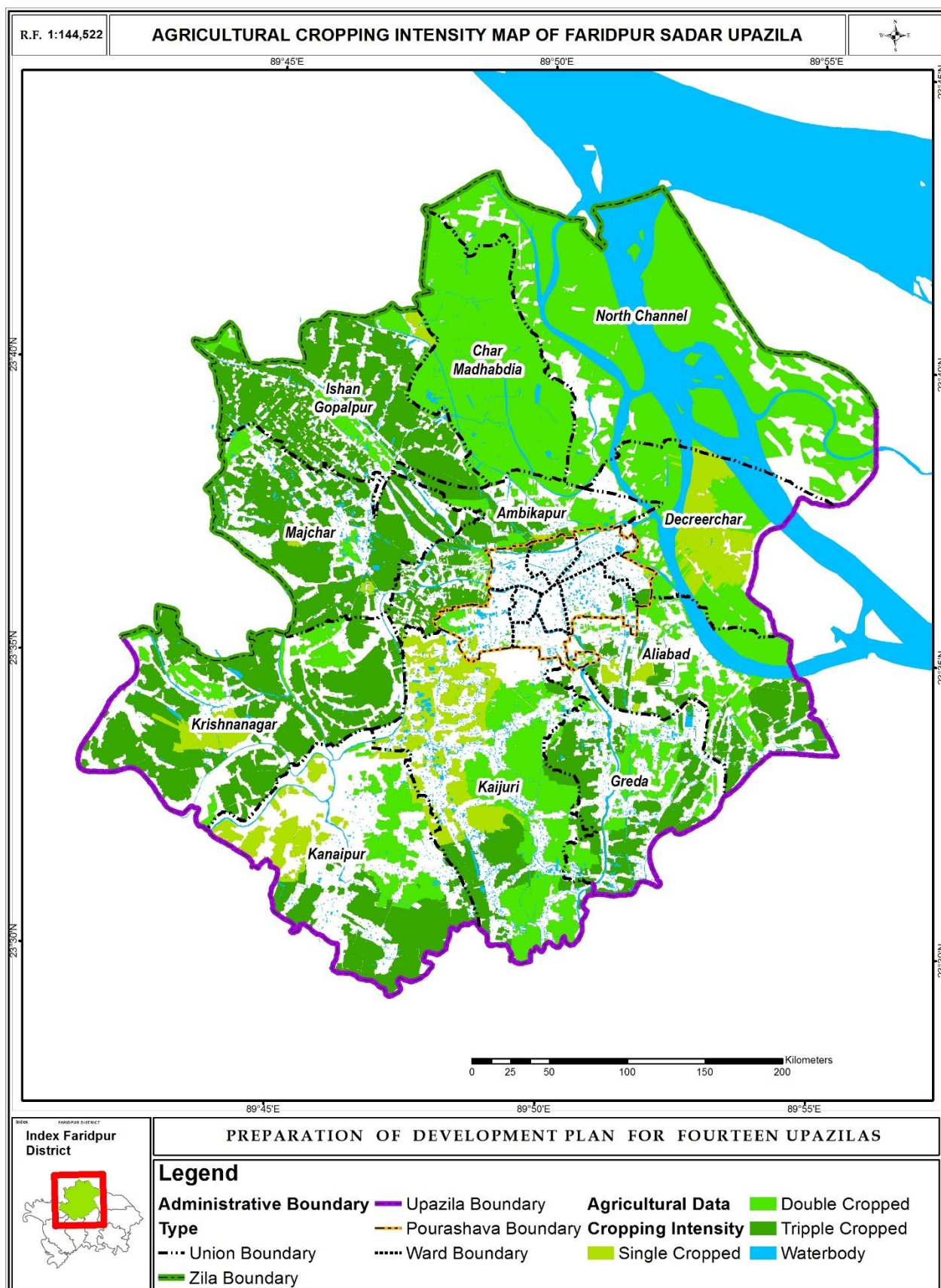
the extent and depth of flood. This study develops equations relating peak stream flows to drainage areas for the 2.33, 5, 10, 20, and 50-year recurrence intervals using Gumbel and log-Pearson type III distribution.

Flooding Scenario Maps have been prepared for five returning period that has shown in **Map 5.11, Map 5.12, Map 5.13, Map 5.14** and **Map 5.15**. Five types of land have been shown depending on the water depth, F3 and F4 land are termed as sub flood flow zone and main flood flow zone respectively. The derived statistics has summarized in below **Table 5.12**.

Table 5. 12: Different Flooding Scenario

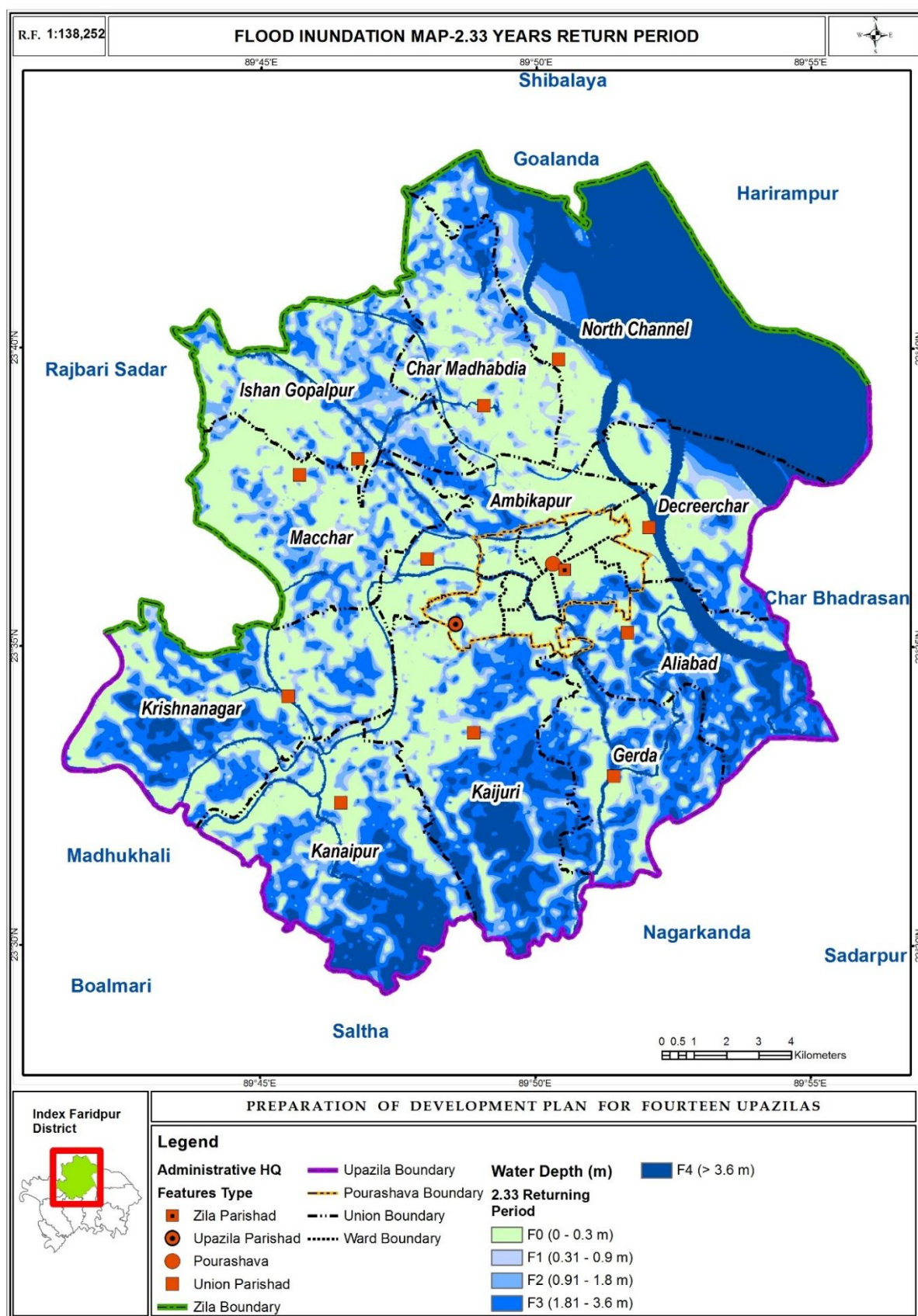
Flooded Land Category	Water Depth (m)	Area (sq. m)	Area (sq.km)	Area (Acre)	Percentage	Remarks
F0	0-0.3	130218700	130.22	32177.74	34.31	
F1	0.3-0.9	34409420	34.41	8502.75	9.07	
F2	0.9-1.8	51091300	51.09	12624.94	13.46	
F3	1.8-3.6	73533180	73.53	18170.44	19.37	Sub Flood Flow Zone
F4	>3.6	90288300	90.29	22310.72	23.79	Main Flood Flow Zone
Total		379540900	379.54	93786.60	100.00	

Source: Field Survey, 2016



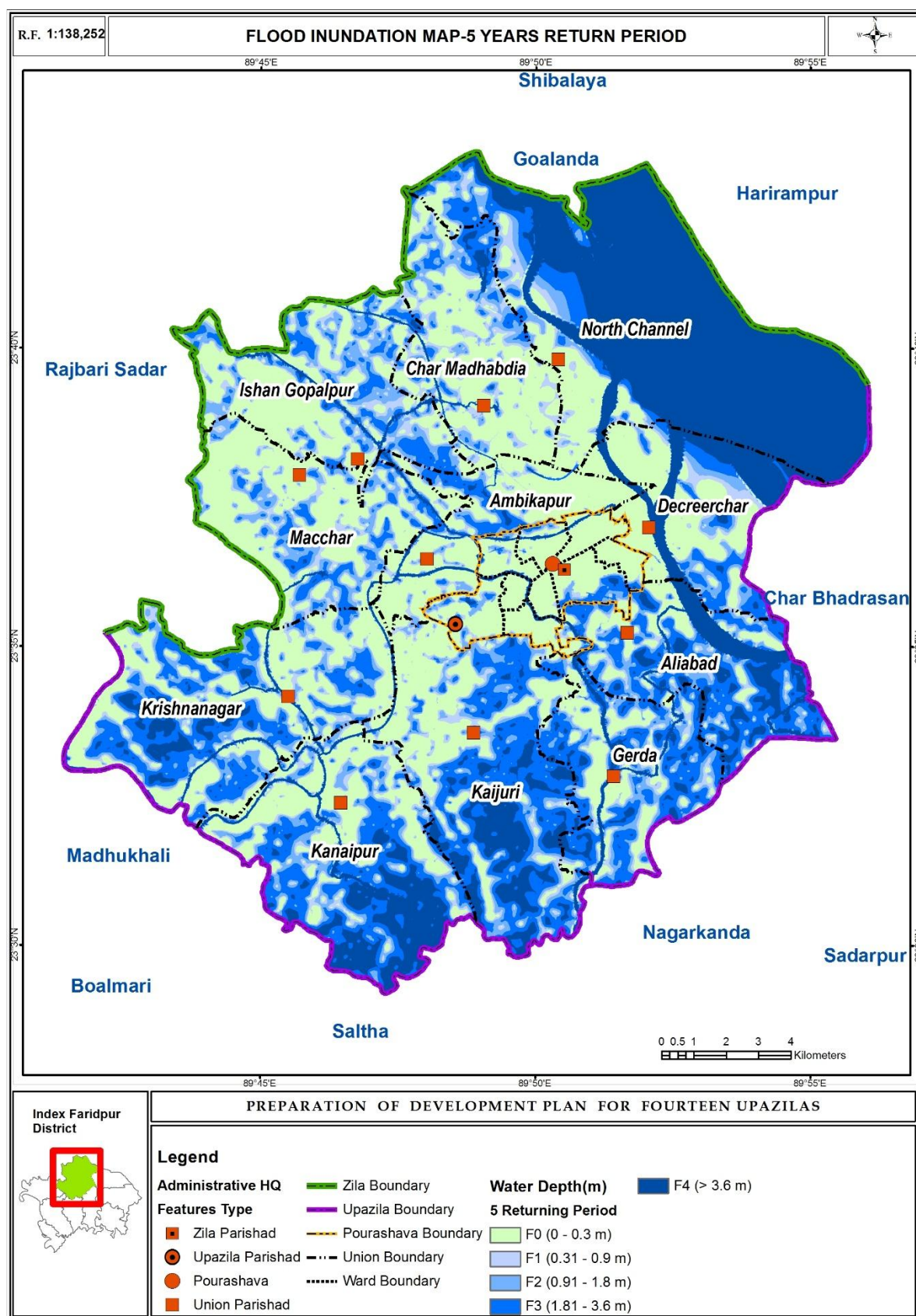
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 10: Cropping Intensity in Faridpur Sadar Upazila



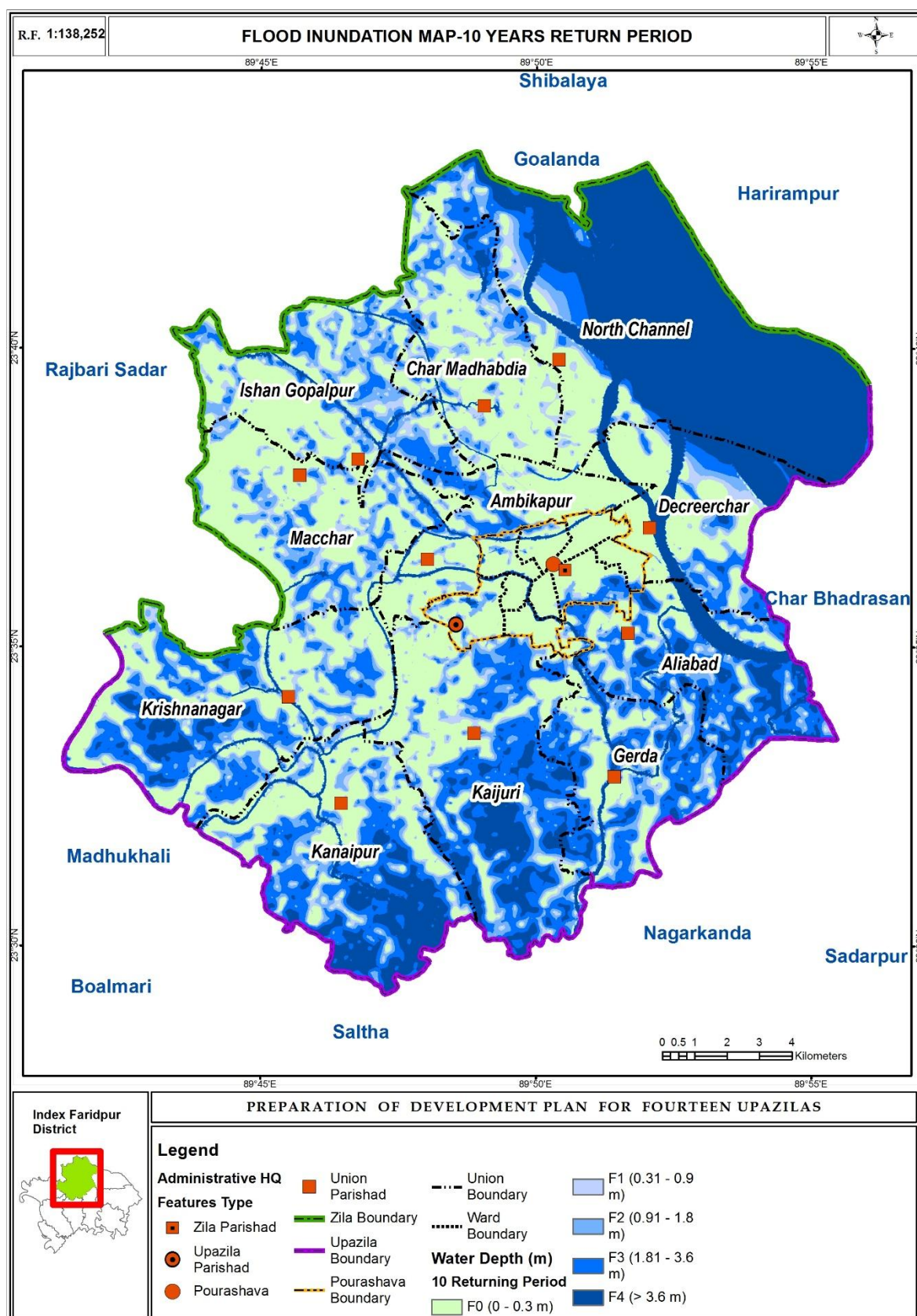
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 11: Flood Scenario Map (2.33 Year Returning Period) of Faridpur Sadar Upazila



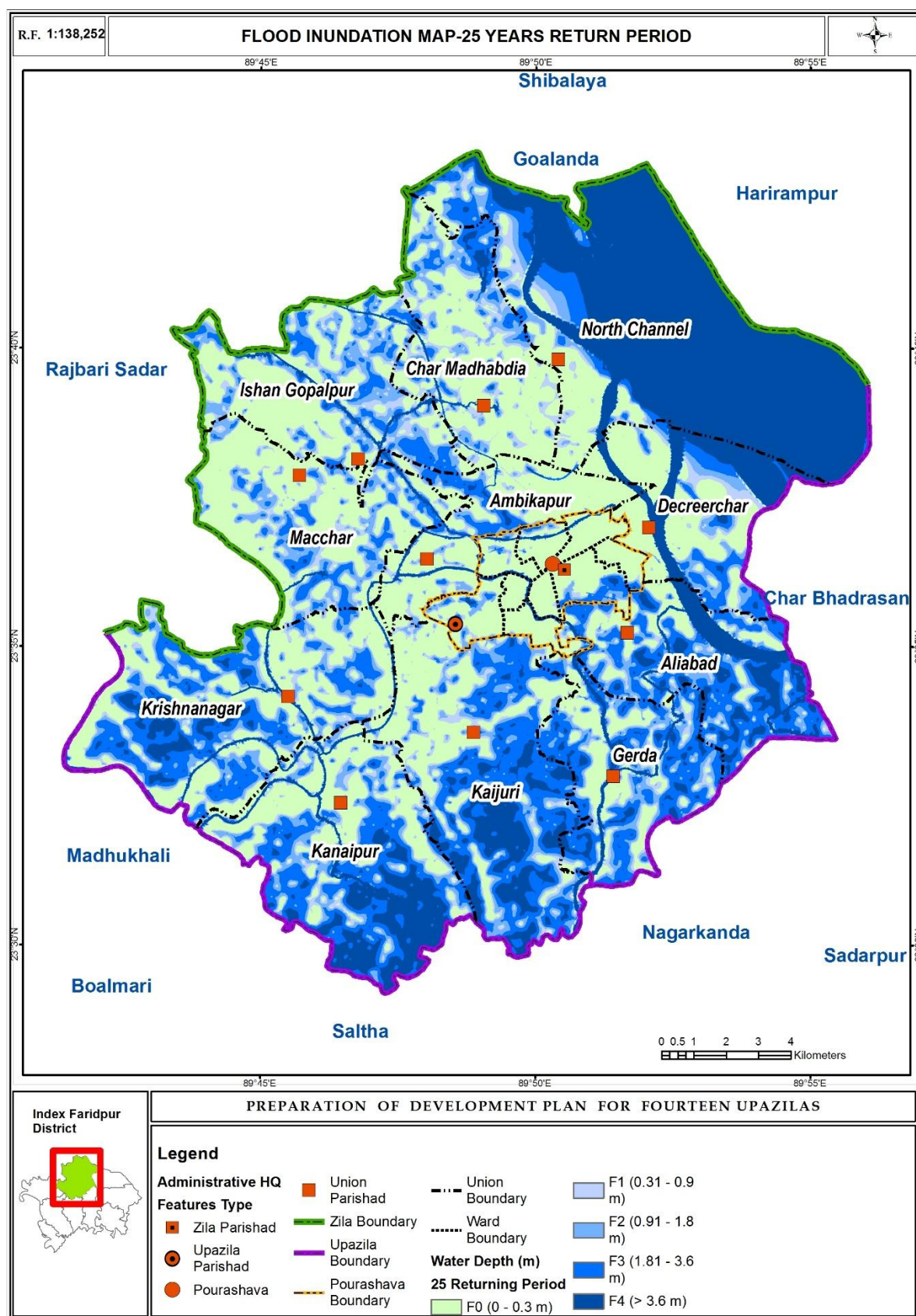
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 12: Flood Scenario Map (5 Year Returning Period) of Faridpur Sadar Upazila



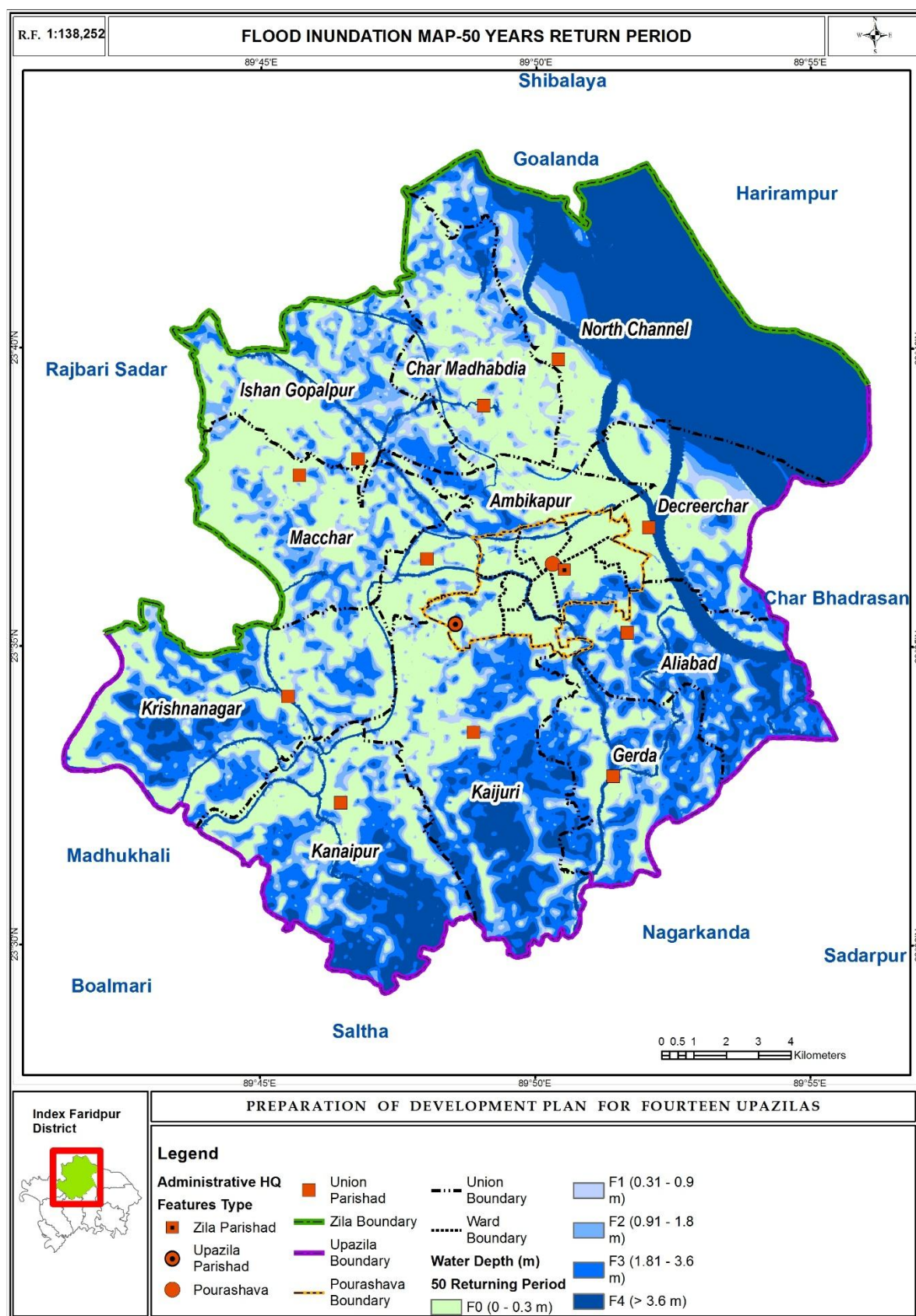
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 13: Flood Scenario Map (10 Year Returning Period) of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 14: Flood Scenario Map (25 Year Returning Period) of Faridpur Sadar Upazila



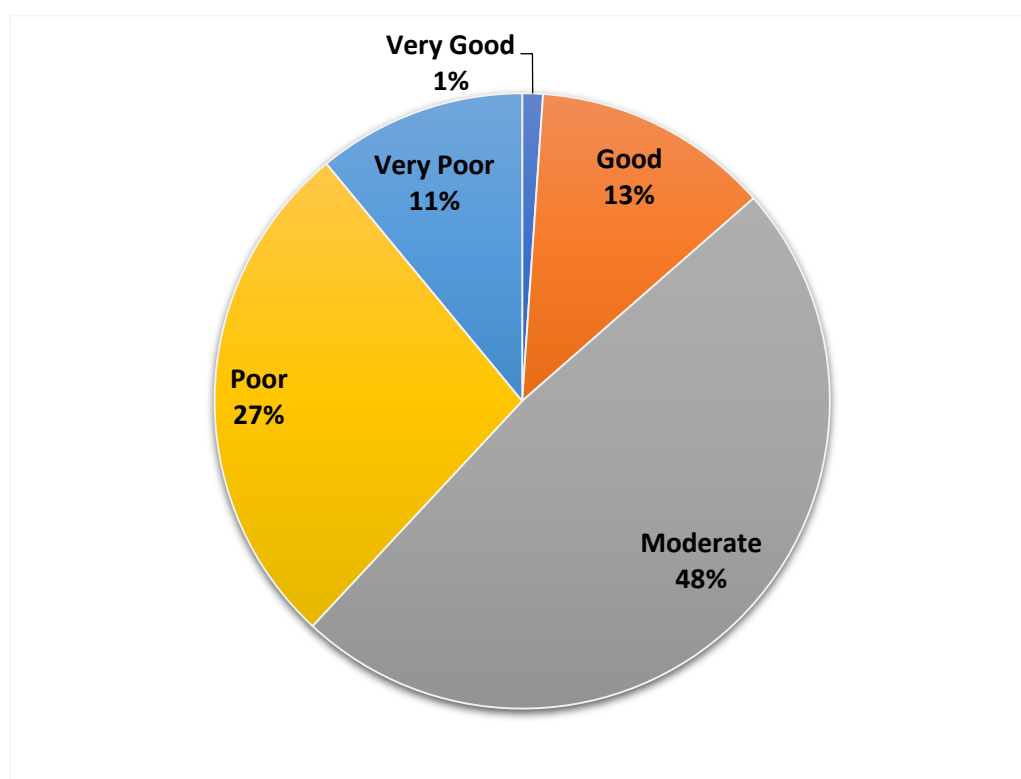
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 15: Flood Scenario Map (50 Year Returning Period) of Faridpur Sadar Upazila

5.4.7 Geology

5.3.7.1 Foundation

The structural elements that connect buildings, bridges, and other structures to the ground are called foundations. These elements are very important, because the safety and serviceability of the structure depends on the performance of its foundations. Suitable engineering layer identification may reduce the both natural (Earthquake) and anthropogenic (Building Collapse) disaster risk. Geotechnical engineers are routinely involved in both the design and construction of foundations. The main objective of this part of the report is to suggest and help planners based on the bearing capacity and subsoil stratification. It is noteworthy that the bearing capacity results and zoning based on the results are solely for use during planning stage of the project. Before design and construction of any structure within the project area, detail subsoil investigation must be carried out for foundation and structural design of any structure. Based on the geological and geo-physical investigation and study, it is recommended the suitability of foundation depth for the multi-storied structure with respect to land area in Faridpur Sadar Upazila is presented in **Figure 5.11**.



Source: Field Survey, 2016

Figure 5. 11: Foundation Depth of Faridpur Sadar Upazila

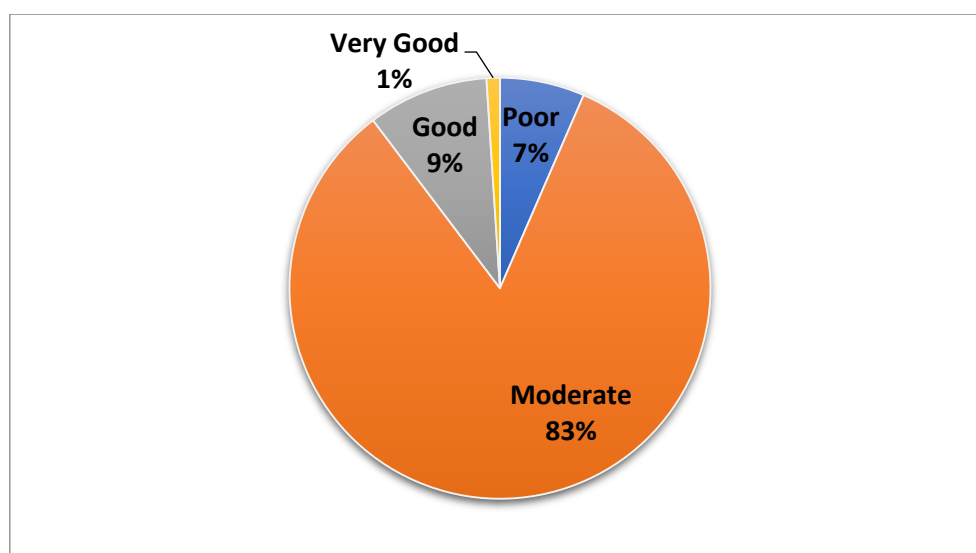
From the **Figure 5.11**, it is seen that Moderate area (48%) is prominent in Faridpur Sadar Upazila in respect of Foundation Depth. Good and Very Good area corresponds to 12% which areas are on Ambikapur and Machchar. Greda and Kaijuri have very poor and Poor foundation layer. The other unions have moderate area that are shown in **Map 5.16**.

5.3.7.2 Seismic Hazard Assessment

Seismic hazard is a broad term used in a general sense to refer to the potentially damaging phenomena associated with earthquakes, such as ground shaking, liquefaction, landslides, and tsunamis. In the specific sense, seismic hazard is the likelihood or probability of experiencing a specified intensity of any damaging phenomenon at a particular site or over a region in some period of interest. The methodology for assessing the probability of seismic hazards grew out of an engineering need for better designs in the context of structural reliability (Cornell, 1968; Cornell, 1969), since such assessments are frequently made for the purpose of guiding decisions related to mitigating risk. However, the probabilistic method has also proven to be a compelling, structured framework for the explicit quantification of scientific uncertainties involved in the hazard estimation process. Uncertainty is inherent in the estimation of earthquake occurrence and the associated hazards of damaging ground motion, permanent ground displacements, and in some cases, seiche and tsunamis.

The process begins with the characterization of earthquake occurrence using two sources of data: observed seismicity (historical and instrumental) and geologic. The occurrence information is combined with data on the transmission of seismic shaking to form the seismo-tectonic model. Since uncertainty is inherent in the earthquake process, the parameters of the seismo-tectonic model are systematically varied via logic trees, Monte Carlo simulation, and other techniques, to provide the probabilistic seismic hazard model's results. The results may be disaggregated (also known as disaggregation) to identify specific contributory parameters to the overall results. The results must also consider the site-specific soil properties.

The final outcome of seismic hazard assessment in this project is a seismic micro-zoning map or hazard map of the area, in which incorporated are characterized seismic sites, constrained from the aforementioned simulations of earthquake ground motion. The mapped hazard refers to an estimate of the probability of exceeding a certain amount of ground shaking, or ground motion, in 50 years. This map can be used to create building code at the area to help establish construction requirements necessary to preserve public safety. Based on the geological and geo-physical investigation and study, it is observed the area of land that is suitable against shear wave during earthquake for the multi-storied structure in Faridpur Sadar Upazila is presented in **Figure 5.12**.



Source: Field Survey, 2016

Figure 5. 12: Shear Wave of Faridpur Sadar Upazila

The **Figure 5.12** show that Moderate Area is grasping a huge area around 83%. Good and Very Good area are lying in some part of Aliabad and Machchar where Poor area is only seen In Kanaipur mostly around 5%. The better realization is depicted in **Map 5.17**.

5.3.7.3 Ground Motion Parameters (PGA, SA 0.2s and SA 1s)

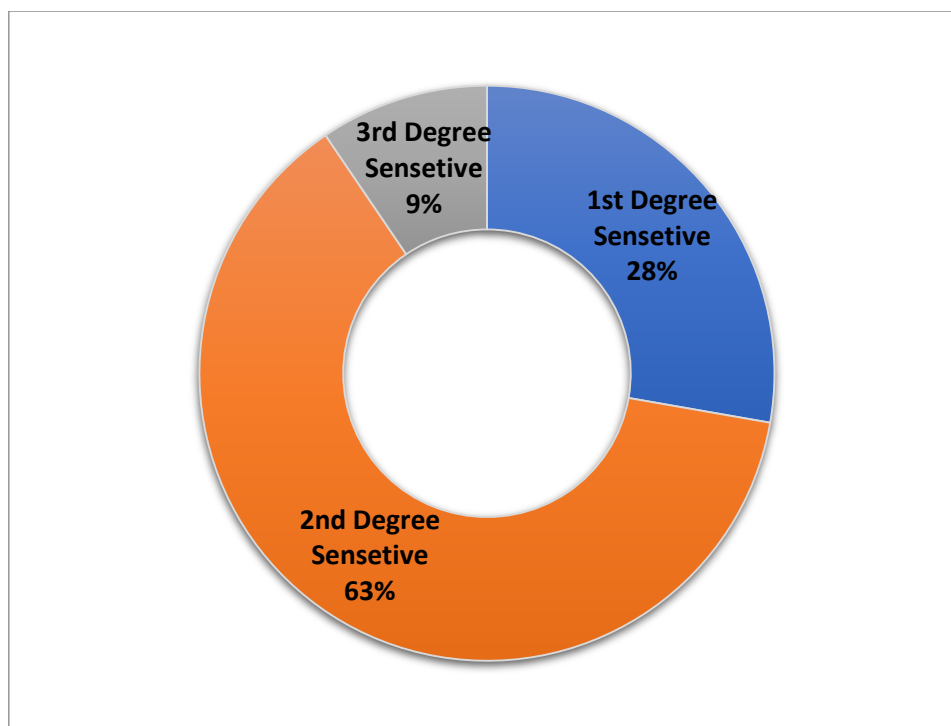
Peak ground acceleration (PGA) is experienced by a particle on the ground, and spectral acceleration (SA) is approximately experienced by a building, as modelled by a particle mass on a mass less vertical rod having the same natural period of vibration as the building. SA would also be a good index to hazard to buildings and is more closely related to the building behaviour than peak ground motion parameters. PGA is normally used to define earthquake intensity and SA is used for safe building design, considering earthquake intensity.

Peak ground acceleration (PGA) is equal to the maximum ground acceleration that occurred during earthquake shaking at a location. PGA is equal to the amplitude of the largest absolute acceleration recorded on an accelerogram at a site during a particular earthquake and Spectral Acceleration (SA) for 0.2 sec and 1 sec were measured to identify comparative suitable land for low and high rise building respectively. Suitable land can be identified using following equation.

$$F = ma \dots\dots\dots (5.8)$$

Here, F is the applied force due to measure earthquake intensity from PGA value in a grid; m is the mass of the structure and a is the Spectral Acceleration.

The Peak Ground Acceleration (PGA) during earth quake in Faridpur Sadar Upazila is presented in the **Figure 5.13**.



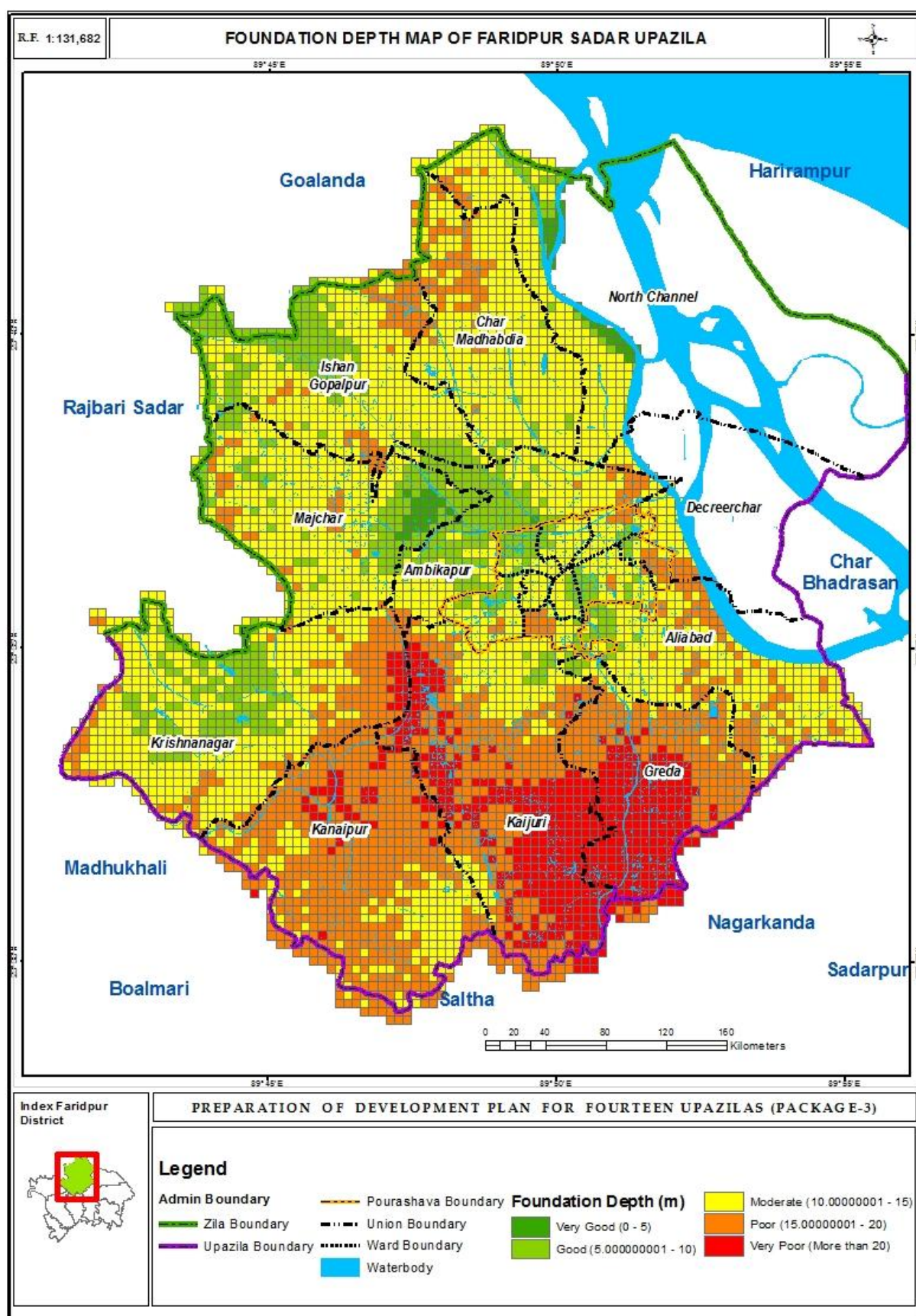
Source: Field Survey, 2016

Figure 5. 13: PGA of Faridpur Sadar Upazila

The **Figure 5.13** and **Map 5.18** represented peak ground acceleration condition of Faridpur Sadar Upazila. It is an important part of geology and as well as development. Three types areas have been shown in the map depending on the sensitivity of PGA which are 1st degree sensitive, 2nd degree and 3rd degree sensitive. It is shown that most of the area is 2nd degree sensitive (63%) which includes mostly in Pourashava, Krishnagar, Kanaipur and Greda. On the other hand, Machchar and Aliabad have 3rd degree sensitive area. Moreover, Char Madhabdia, Ishan Gopalpur and Kanaipur correspond to 1st degree sensitive area that needs special attraction mostly in planning and development.

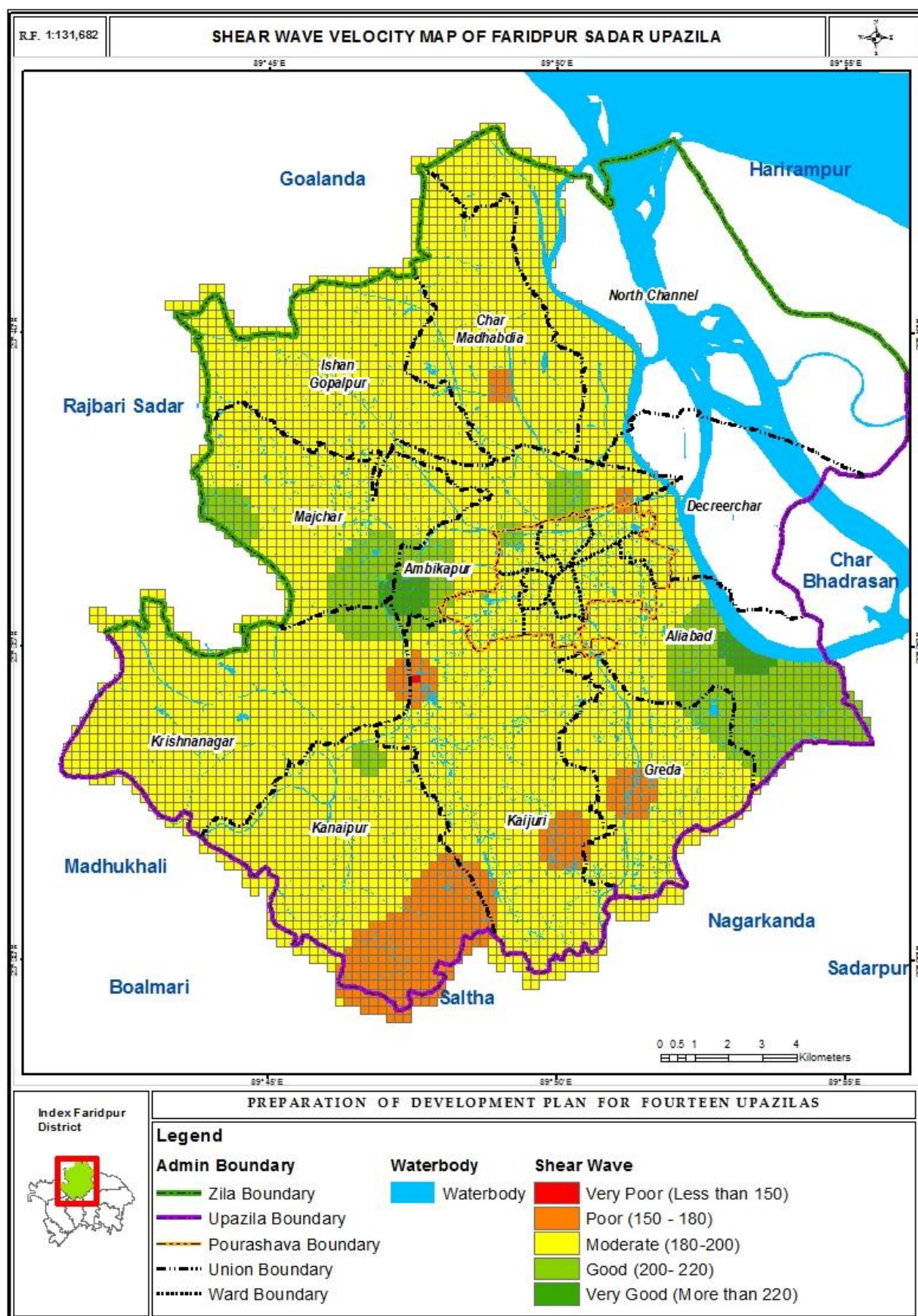
5.3.7.4 Micro Zonation

Micro zonation **Map 5.19** represented the character of the soil that is the combined result of different geological survey that has described earlier. Seismic micro zonation is defined as the process of subdividing a potential seismic or earthquake prone area into zones with respect to some geological and geophysical characteristics of the sites. From the map it is visible that some areas of Kaijuri, Gerda, Krishnanagar unions are sensitive to earthquake.



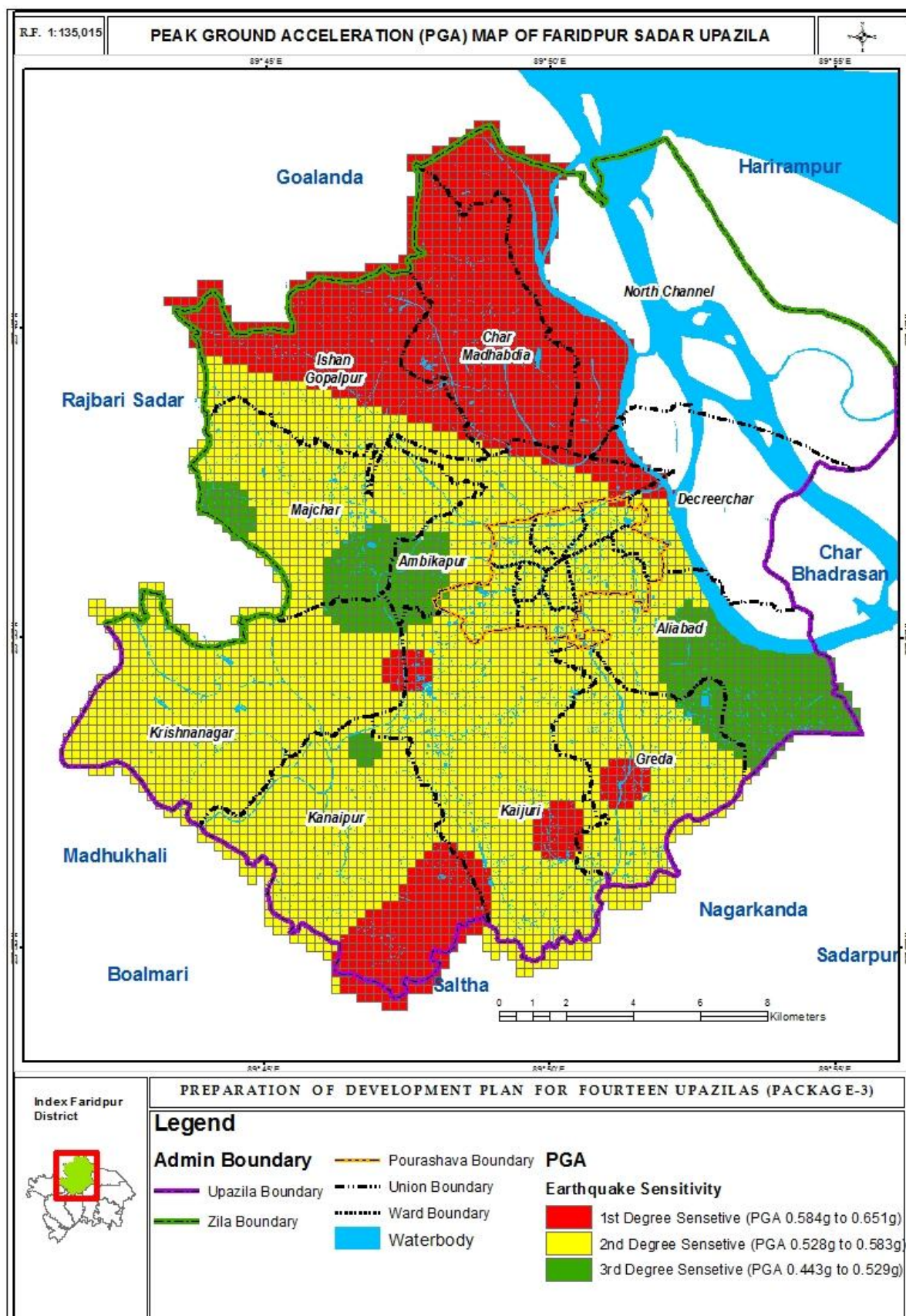
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 16: Geology (Foundation Depth) of Faridpur Sadar Upazila



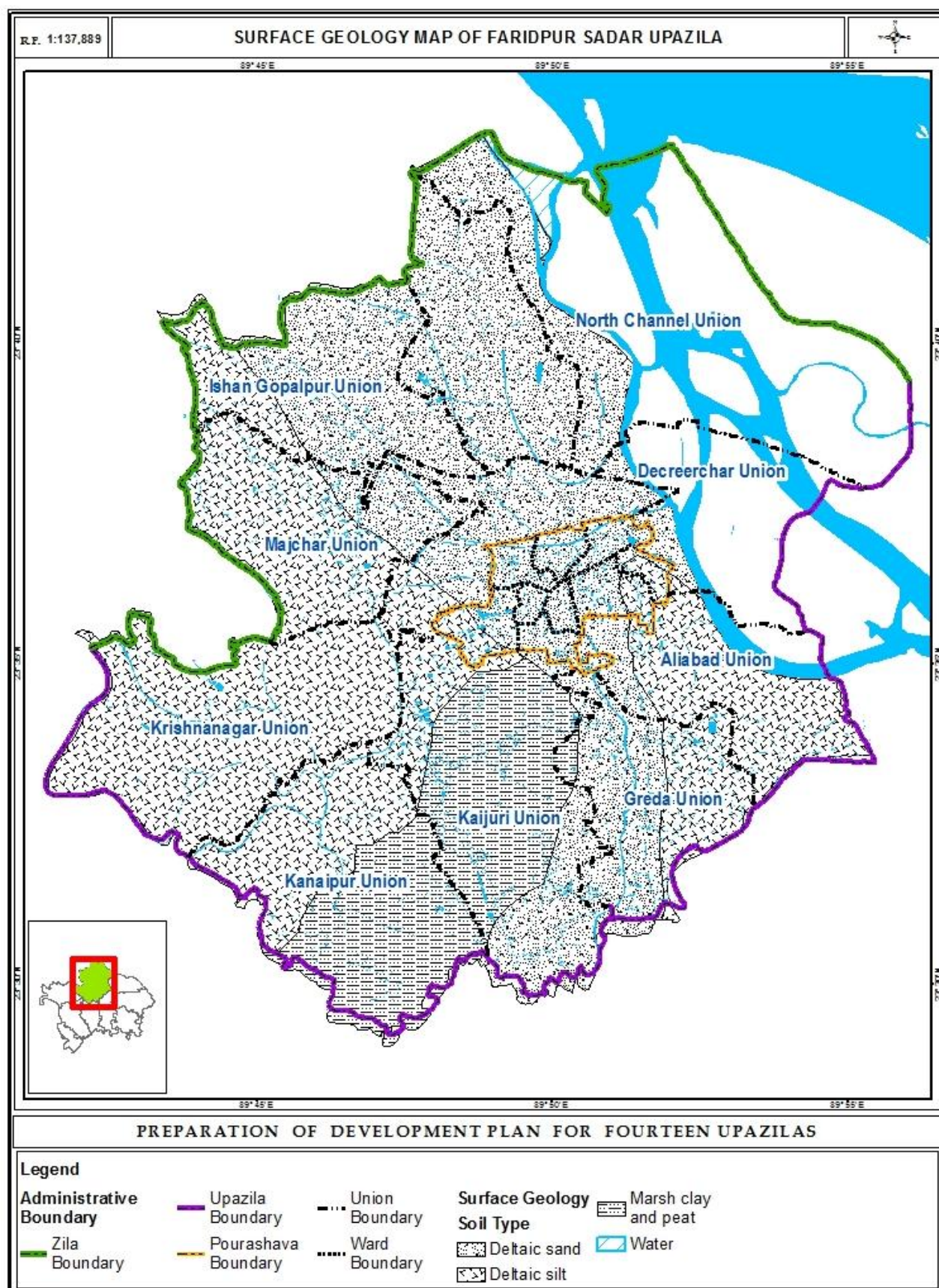
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 17: Geology (Shear Wave) of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 18: Geology (PGA) of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 19: Microzonation Map of Faridpur Sadar Upazila

According to the Geological and Geophysical Survey, the recommendation stated in the **Table 5.13** could be drawn for Faridpur Sadar Upazila.

Table 5. 13: Overview of the Infrastructure Suitability Classes

Infrastructure Suitability	Infrastructure Foundation Suitability	Suggested Land Use
Very Good	4-6 story light infrastructure is suitable with a foundation depth of up to 2 m. Large and tail infrastructure requires pile foundation placed on Soil layer no 3 or 5.	Commercial area Residential area Industrial zone
Good	4-6 story light infrastructure is suitable in Madhupur Clay. General foundation depth is within 5 m, at places higher Large and tall infrastructure requires pile foundation placed on layer no 3 or 5	Commercial area Residential area Industrial zone
Moderate	4-6 story light infrastructure requires on-site subsoil investigation and proper foundation design. Deep pile foundation is needed for large and tail infrastructure	Industrial zone Residential area Commercial area Agricultural Zone Park and Recreation
Poor	Detail subsoil investigation and proper foundation design is required for all types of infrastructure, due to low bearing capacity with hazard potential.	Agricultural zone Flood flow zone Wetland Rural settlement Park and Recreation
Very Poor	Detail subsoil investigation for deep pile foundation is essential, due to very low bearing capacity and high hazard potential. Shallow foundation is not preferred.	Agricultural zone Flood flow zone Wetland Rural settlement Park and Recreation

5.4.8 DEM (Digital Elevation Model)

DEM refers the digital representation of topography that creates cell based with a single elevation representing the entire area of the cell. In a word, A digital elevation model (DEM) is a digital file consisting of terrain elevations for ground positions at regularly spaced horizontal intervals. It determines the following characteristics of terrain:

- Slope, aspect
- Watersheds
- Drainage networks

Map 5.20 presented the Digital Elevation Model that enables to understand the land type of this area whether it is plain or undulated. Faridpur Sadr Upaizla is mainly plain land where land elevation within 17 meters. Pourashava area is relatively higher area where Krishnanagar, Kanaipur and Kaijuri have few low land areas elevation within 3 meters. The deeper area in the map is the river.

5.4.9 Contour

A contour line connects a series of points of equal elevation & is used to illustrate relief on a map. For example, numerous contour lines that are close to one another show hilly or mountainous terrain; when far apart, they indicate a gentler slope.

Contour has been created for Faridpur Sadar Upazila at 30 cm interval. In the **Map 5.21** Contour interval has shown in 20 categories. From the map, it is clear that urban area namely Pourashava has relatively higher elevation than Unions but all areas have considerable elevation and few areas are marking as low land in Unions mainly in Krishnanagar, Kanaipur and Kaijuri.

5.4.10 Slope

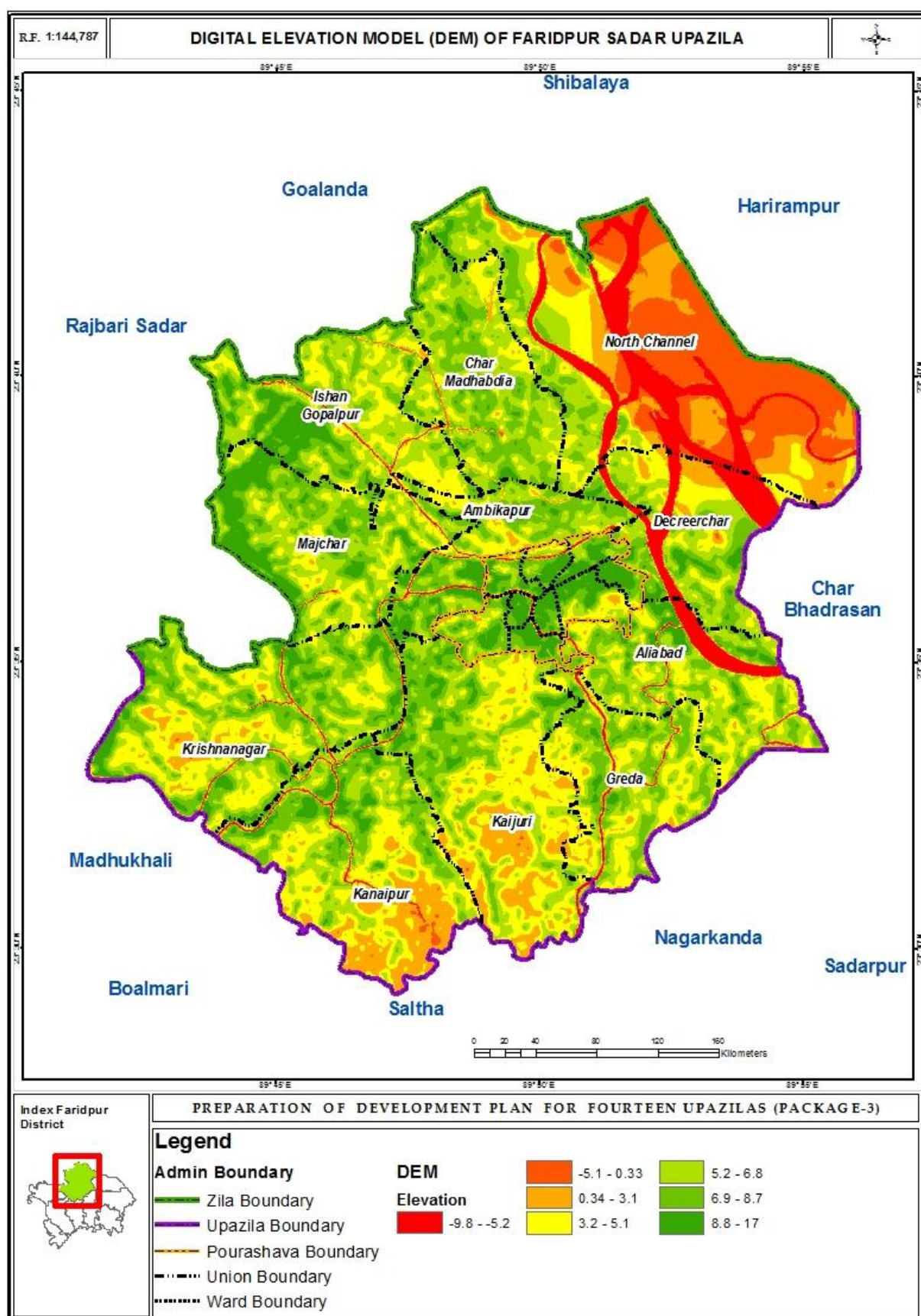
Slope is the steepness of a line as it moves from left to right. Therefore, Slope is the ratio of the rise, the vertical change, to the run, the horizontal change of a line. Slope is measured by calculating the difference in the elevation from one point to another divided by the lateral distance between those points. Slope can be categorized into different interval depending on purpose. For the planning of project area, slope map has been done in following interval:

Table 5. 14: Slope Categories

Categories	Percentages
Nearly Level	0-1
Very Gently Sloping	1-3
Gently Sloping	3-5
Moderately Sloping	5-10
Strongly Sloping	10-15
Moderately Steep	15-25
Steep	25-33
Very Steep	33-50
Very Very Steep (More than 50)	More than 50

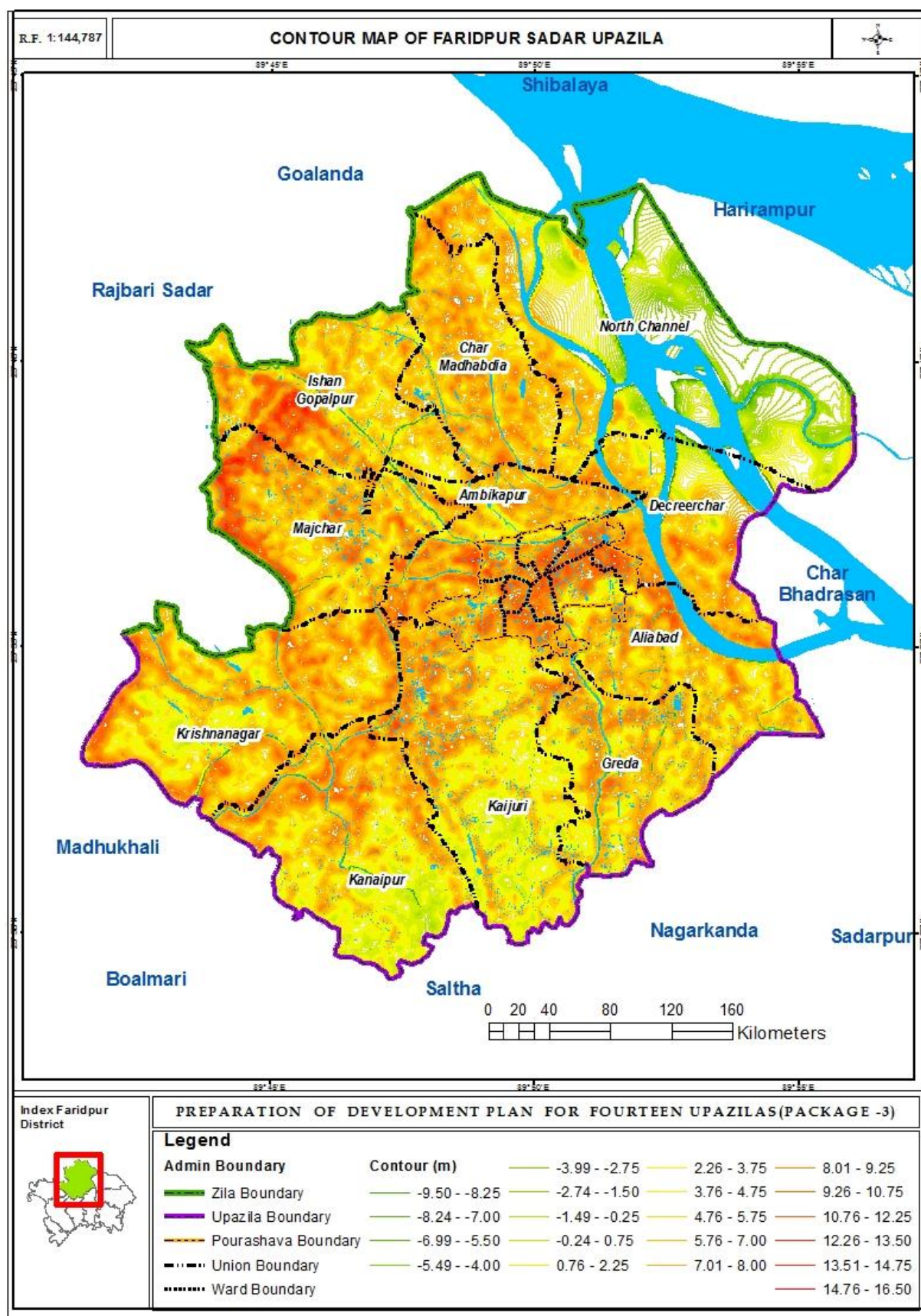
Source: Developed by Consultants

Map 5.22 depicts that Faridpur Sadar Upazila is mainly plain land where it can be said that the total area is mostly in nearly level and very gently sloping area covering the area within 3% slope. Slope consideration is negligible for development here as total land cover within 5% slope.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 20: Digital Elevation Model (DEM) of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 21: Contour Map of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 22: Slope Map of Faridpur Sadar Upazila

5.4 Suitability Analysis

For the plan preparation of Faridpur Sadar Upazila suitability analysis is an essential step. Through this analysis suitable area for agriculture, urban, industry and infrastructure development have been identified for planning. The factors were considered in the suitability analysis is presented in **Figure 5.14**.

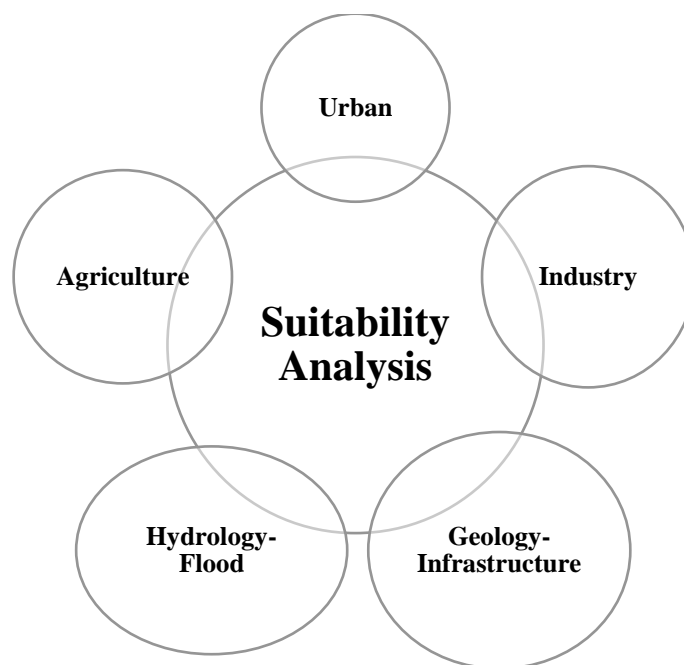


Figure 5. 14: Diagram of Suitability Analysis

5.4.1 Agricultural Suitability

Suitability analysis is a GIS-based multi-criteria decision-making process. To identify the best suitable area for agriculture an analysis has been done. It is derived from the data of water depth, slope and cropping intensity. For agricultural suitability analysis, the weightages according to criteria are given below:

Table 5. 15: Criteria for Agriculture Suitability

Criteria	Weightage
Cropping Intensity	50
Water Depth	30
DEM	20

Source: Developed by Consultants

The **Map 5.23** depicted the derived result from the analysis. Agriculture suitability represents the suitable areas for agricultural activities. It also provides a guideline in order to preserve the agriculture land. Depending on this which land should be preserved for agriculture and which will be used for future development decision can be taken. This analysis divides the agriculture land of this Upazila into four categories which are very good, good, moderate and poor. Char Madhabdia, Decreeerchar and North Channel are mostly suitable area for agriculture whereas other unions are moderately to highly suitable like Krishnagar, Kanaipur. The analysis indicates a comparative analysis incorporating all agricultural areas in Faridpur Sadar Upazila.

5.4.2 Urban Suitability

For the identification of the urban suitable area some criteria have fixed based on the slope less than or equal to 5%, DEM, geological suitability and major roads. In which areas these four criteria have met the consideration those areas are the urban suitable areas. According to criteria and weightages are presented in the **Table 5.16**.

Table 5. 16: Criteria for Urban Suitability

Criteria	Weightage
DEM	35
Major Roads	25
Infrastructure Suitability	20
1/Hydrological Suitability	10
1/Agricultural Suitability	10

Source: Developed by Consultants

Map 5.24 presented the urban suitable area in this Upazila that is divided into five categories which are very poor, poor, moderate, good and very good. In this situation, Very Good area will be used for future urban development.

5.4.3 Industry Suitability

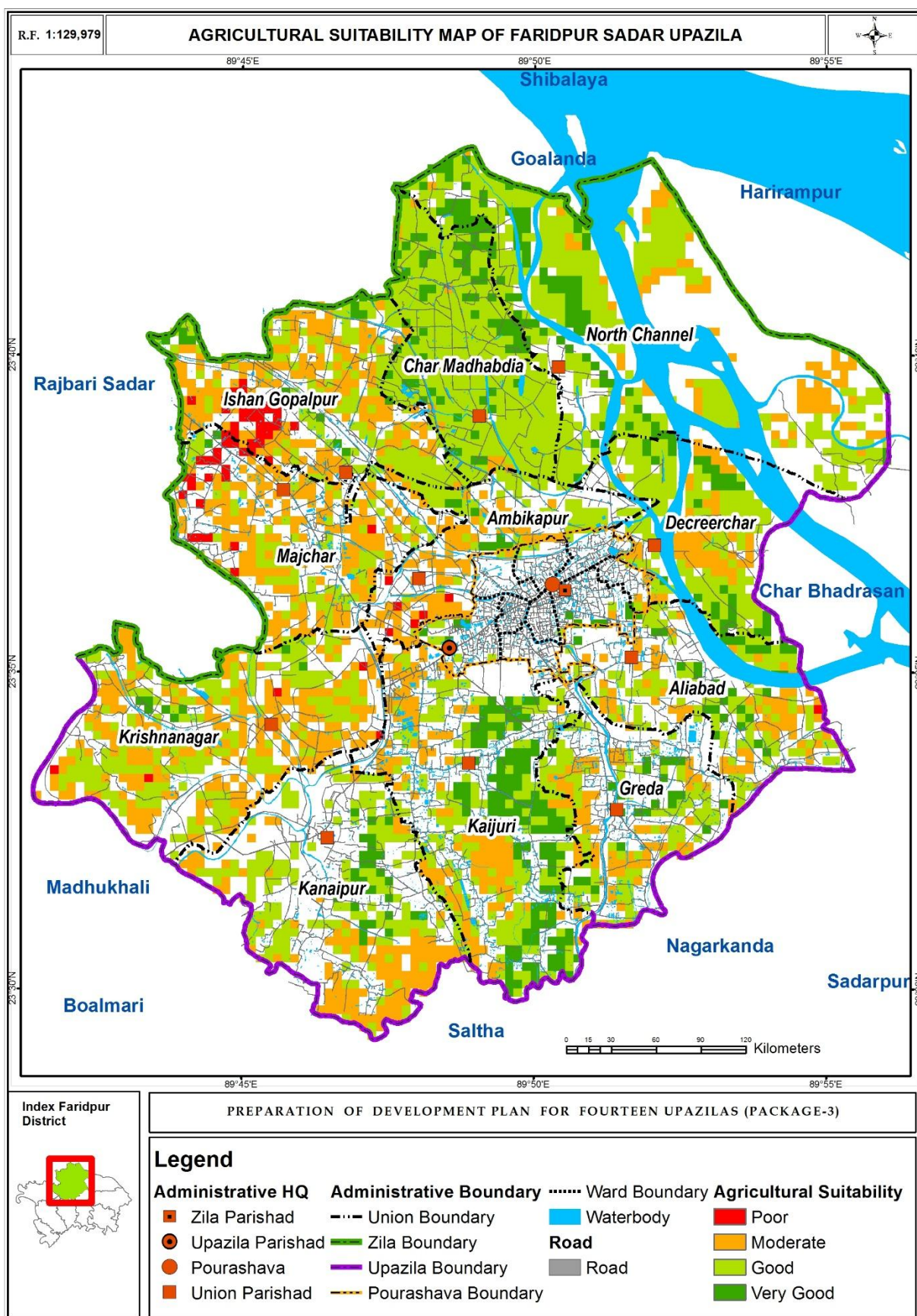
Industry is an important factor to determine the prospects of that upazila or region. Industrial generally growth generally depends on the geographical location, service and accessibility. Considering this situation, few factors have been analysed for industry suitability. DEM, Major Roads and Infrastructure Suitability are the prominent factor to determine the industrial preference locations. Moreover, Hydrological and Agricultural Suitable areas are inversely proportional to the industrial suitable locations.

Table 5. 17: Criteria for Industry Suitability

Criteria	Weightage
DEM	25
Major Roads	20
Agricultural Suitability	25
Infrastructure Suitability	10
Hydrological Suitability	20

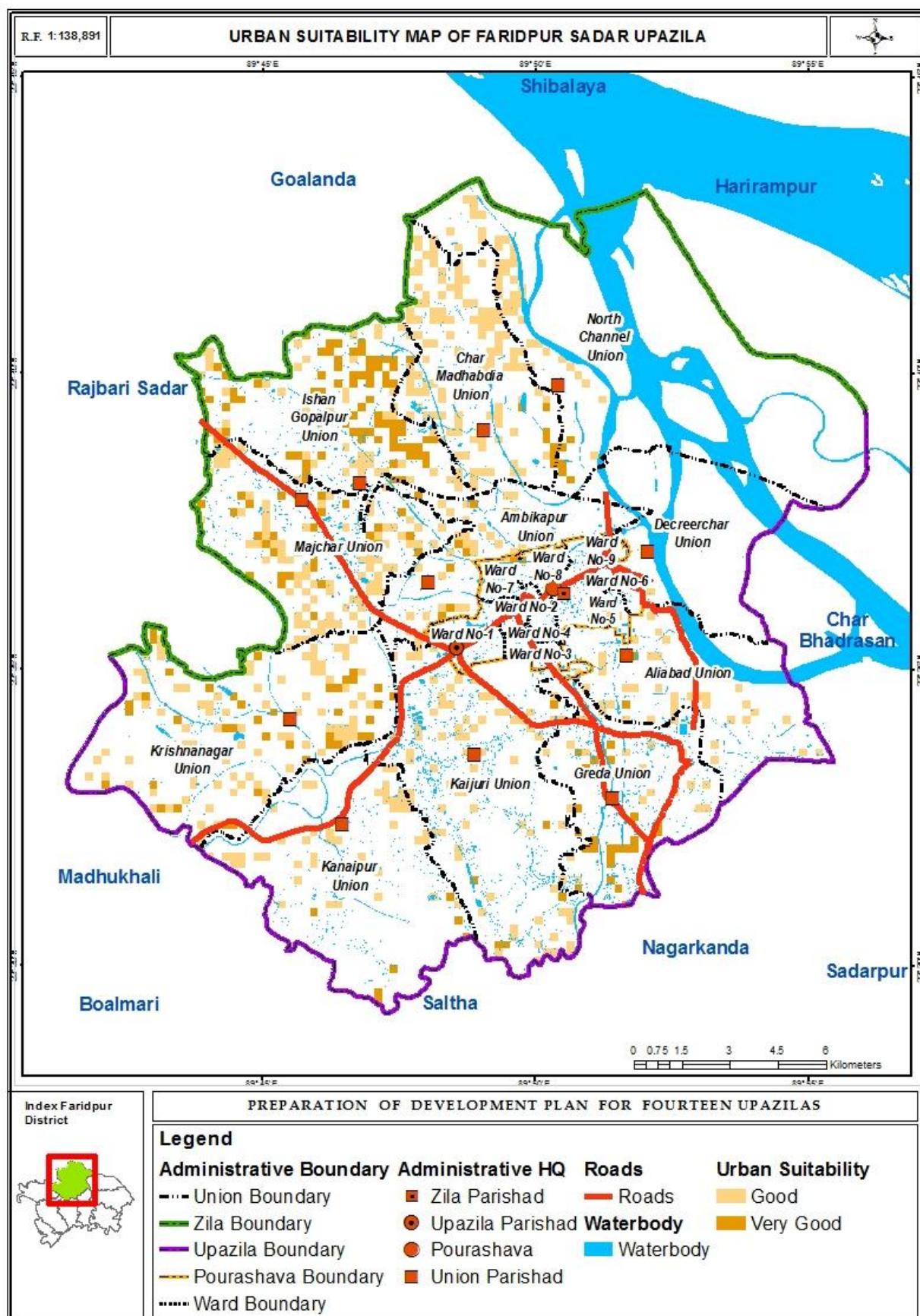
Source: Developed by Consultants

Map 2.25 depicts that Macchar, Greda and Kanaipur have the potentiality as Industrial Suitable Area. Moreover, North Channel is suitable for Industry which dictates mainly for Agro based Industries.



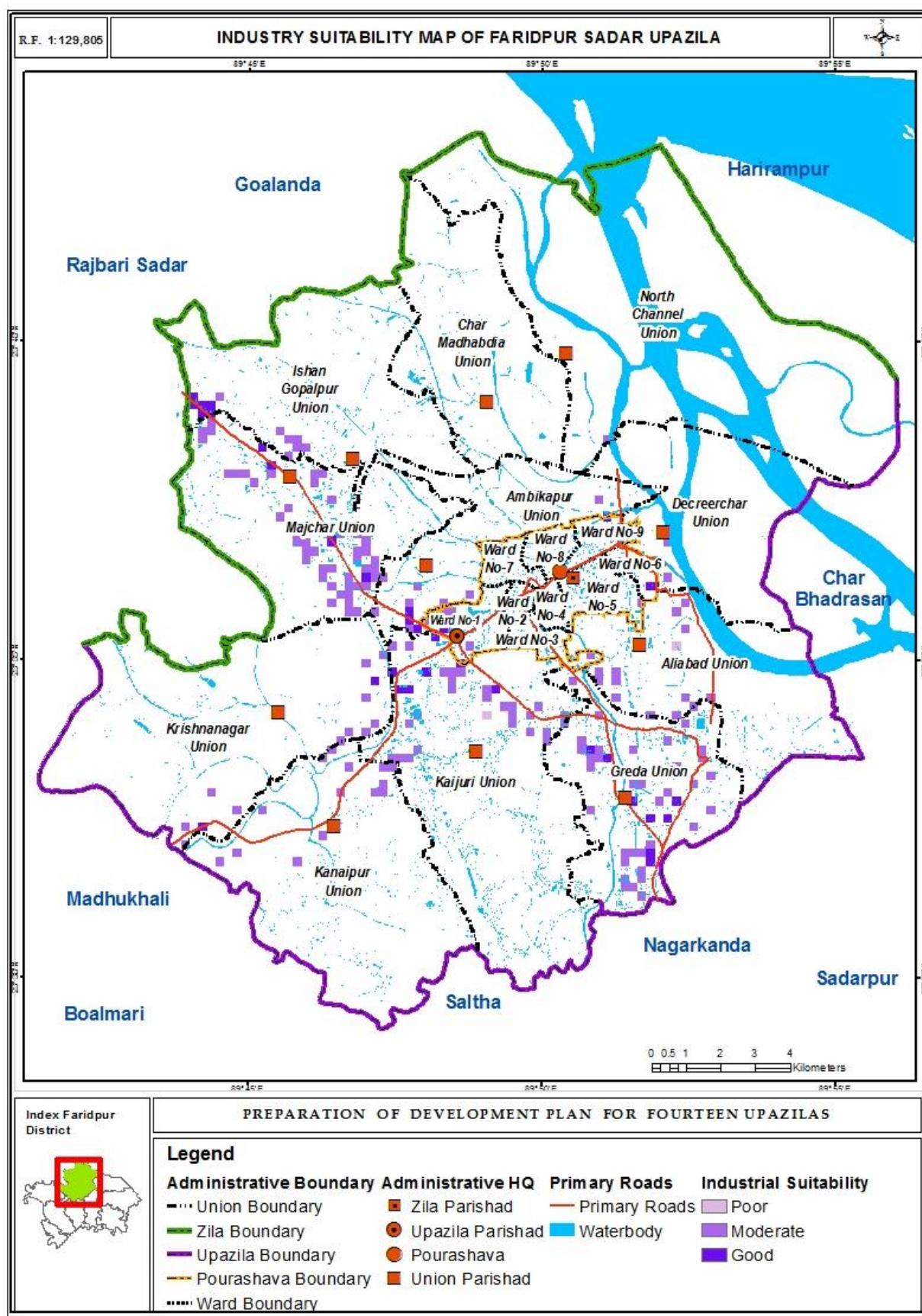
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 23: Agriculture Suitability of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 24: Urban Suitability of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 25: Industry Suitability of Faridpur Sadar Upazila

5.4.4 Infrastructure Suitability

Infrastructure Suitability is the process of identifying the most and least suitable areas of the Upazila. In order to identify the area for zoning an analysis has been carried out. For this analysis the criteria are shear wave, PGA and foundation layer. The weightages according to the criteria are presented in the **Table 5.18**.

Table 5. 18: Criteria for Infrastructure Suitability

Criteria	Weightage
PGA	30
Foundation Depth	40
Shear Wave	30

Source: Developed by Consultants

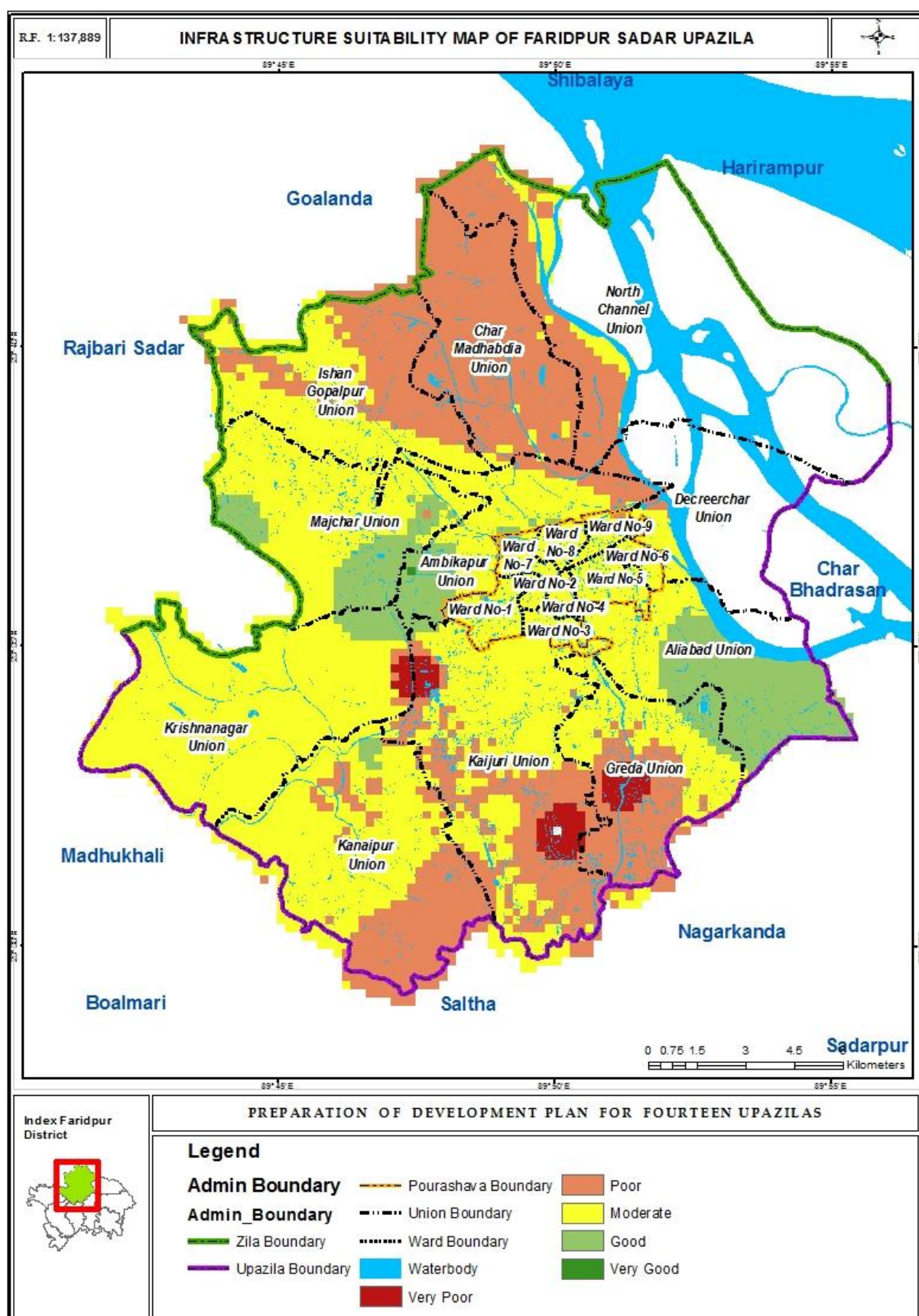
From this analysis, the most and least suitable areas for infrastructure has identified that will help for further development in the project area and presented in the **Table 5.19**.

Table 5. 19: Infrastructure Suitability

Category	Area (sq. m)	Area (sq. km)	Area (acre)	Percentage
Very Good	14437500	14.438	3567.584	7.425
Good	4687500	4.688	1158.306	2.411
Moderate	5437500	5.438	1343.636	2.797
Poor	79312500	79.313	19598.546	40.791
Very Poor	90562500	90.563	22378.481	46.577
Total	194437500	194.438	48046.553	100

Source: Field Survey, 2016

The results revealed that approximately 40.79% of land of the study area is highly suitable for infrastructure development, whereas 46.58% of land is less suitable which is presented in **Map 5.26**. Infrastructure suitability is the most important part of infrastructure development. The area is divided into five categories which are very good, good, moderate, poor and very poor. This analysis will enable to take decision where to build high rise buildings and industries or residential buildings.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 26: Infrastructure Suitability of Faridpur Sadar Upazila

5.4.5 Prime Flood Affected Area

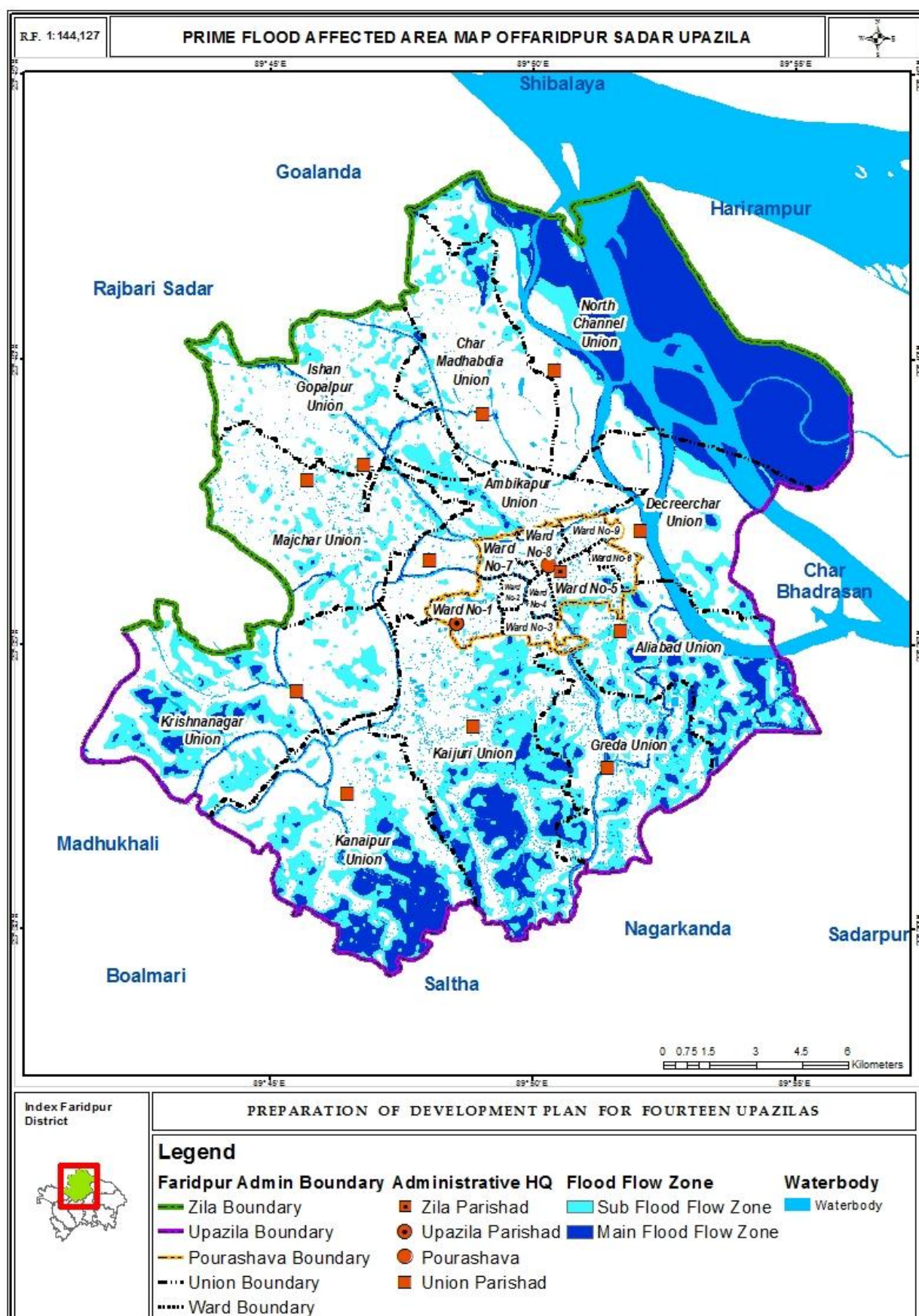
Flood is an important phenomenon in this Upazila. Without considering this factor planning cannot take place. This map mainly shows the sub flood flow zone and main flood flow zone of this Upazila. Sub flood flow zone area is submerged in water occasionally. Flood inundation map of Faridpur Sadar Upazila is presented in **Map 5.27**.

5.4.6 Water Supply Protection Zone

Water supply protection zone comprises river, canal/chara/khal. 50-meter buffer from the edge of the rivers, 10-meter buffer from the chara/khal will be preserved for water supply protection zone and presented in the **Map 5.28**. It has done according to the Water Act, 2013.

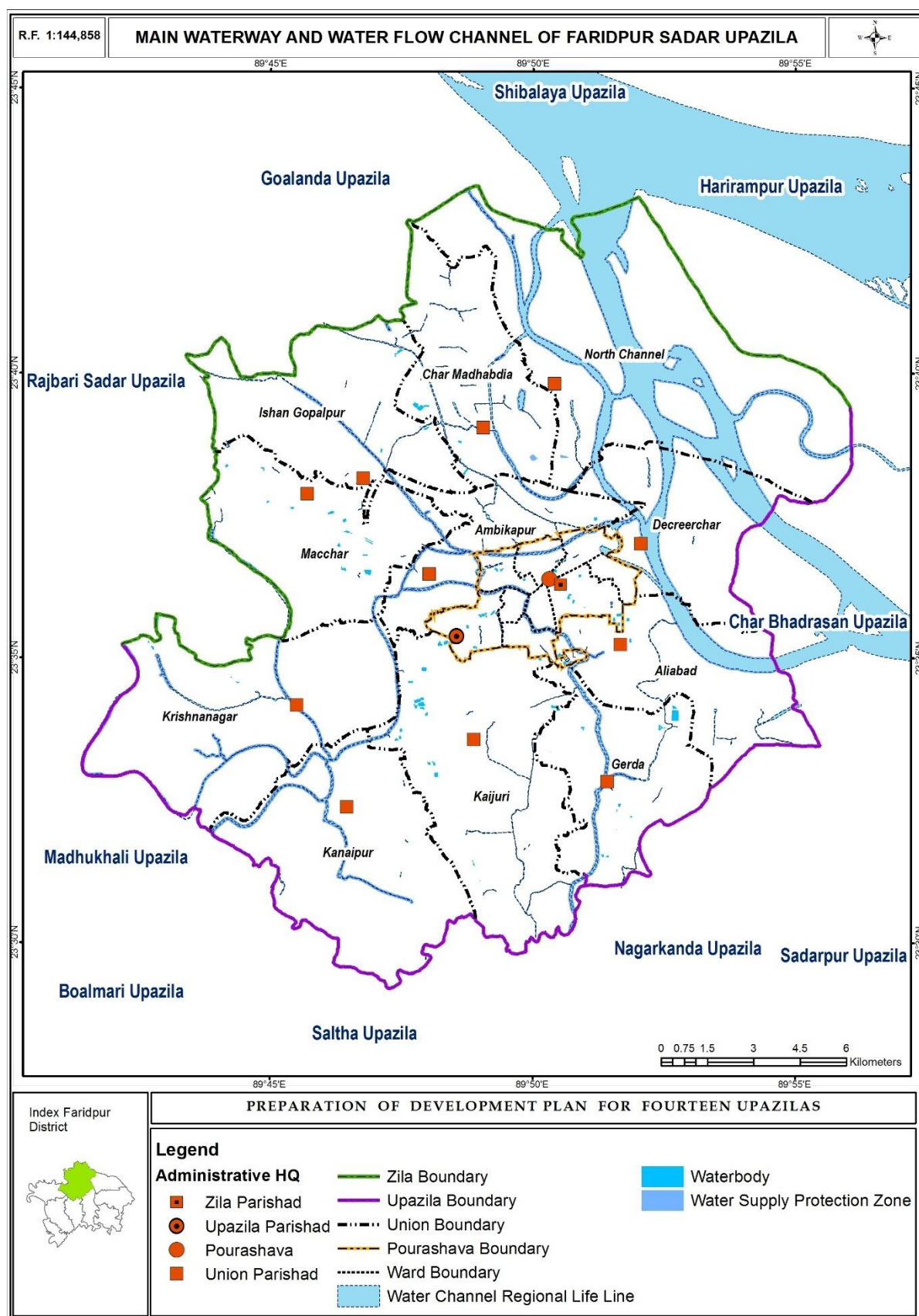
5.4.7 Conflict Map

After the identification of suitable areas, a conflict map has derived by compiling agricultural suitable area, urban suitable area, infrastructure suitable area as well as the prime flood affected areas and undesirable area for planning. This conflict map is the base for structure plan preparation of Faridpur Sadar Upazila that helps to develop of zoning. Conflict **Map 5.29** represented that the results of the suitability analysis have conflict with each other. In this map reserved agriculture, urban suitability, main flood flow zone, sub flood flow zone and slope more than 5% have been incorporated. From this map decision will be taken which part of the area will be used for which purpose.



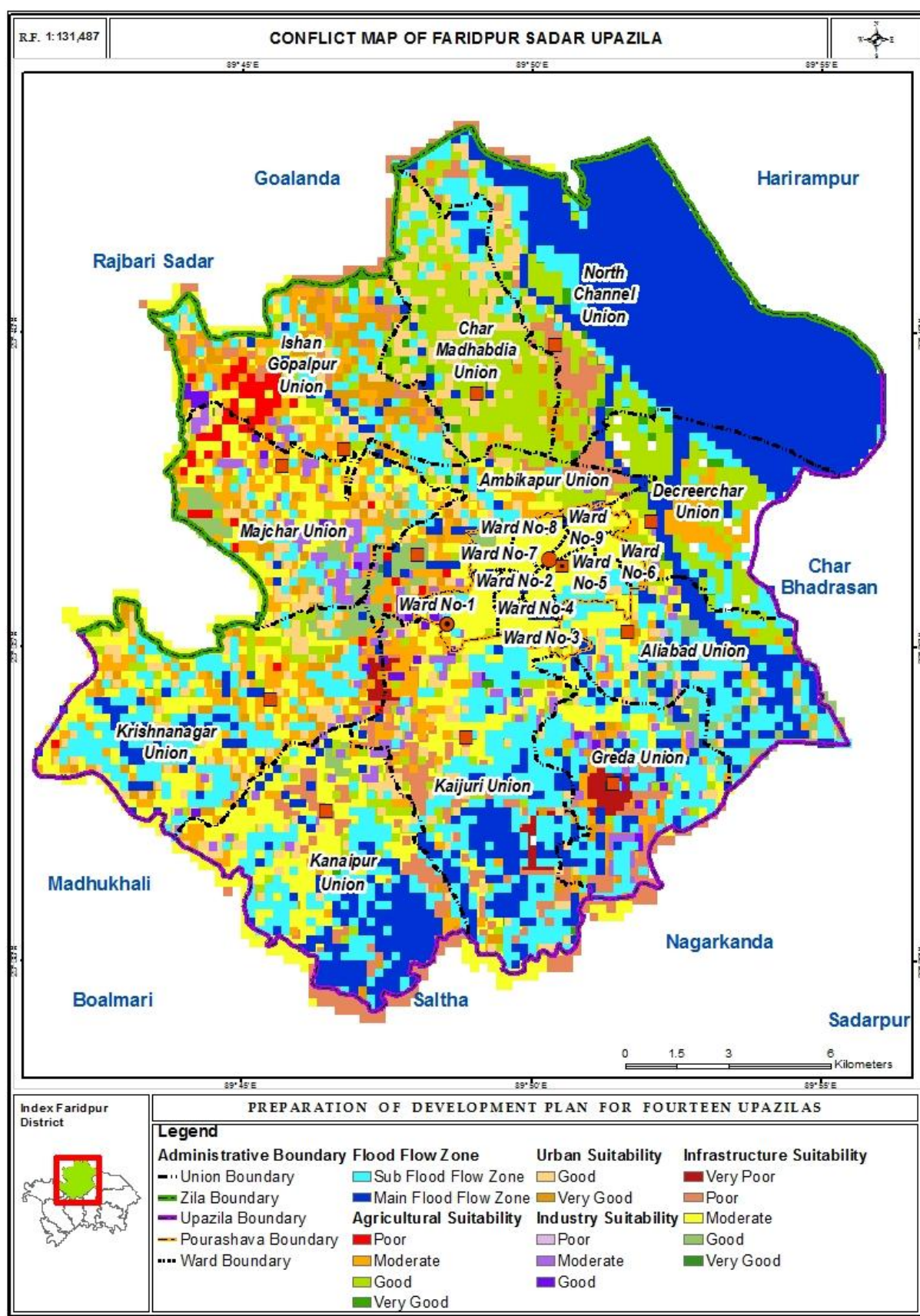
5.4.8 Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 27: Prime Flood Affected Area of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 28: Water Supply Protection Zone Map of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 5. 29: Conflict Map of Faridpur Sadar Upazila

5.5 Location Allocation Analysis

Location Allocation Analysis is a tool in the ArcGIS Network Analyst extension determines an optimal location for one or more facilities that will serve demand from the surrounding population.

To analyse with this tool the following data has required:

Facilities-If we want to provide a primary school in an area, first we need the existing primary school data of that area.

Demand Points-Projected Population is the demand points, that's why we need the projected population of certain area

Road Network

To provide facilities in Urban and Rural area, first we have to calculate the future demand of the area. Therefore, Population projection has been done for 2033. On the basis of this data, future demand for certain facilities have been calculated (presented in **Appendix C and Appendix D**).

The road network has been analysed through Network Analysis. Network analysis is the shortest path analysis which is used to find the shortest routes between an origin and a destination. It helps to find closest facility, evaluating allocation and solving location allocation problems.

To run the location allocation analysis, we have to set parameter for providing a facility, such as we want to provide a primary school; a primary school will serve for 5000 population and distance will be within 500 meters. Such kind of parameters have been established in Planning Standard (presented in **Chapter 4**).

By using the existing facilities data, network analysis and future demand of certain facilities; several proposals have been made for Urban and Rural area which has outlined in **Chapter 10**. The proposals allow the optimal distance and well served facilities provisions for an area as it has determined through location allocation analysis.

5.6 Drainage Network Analysis

For deriving the drainage network, watershed analysis has been done. Defined by topographic divides, a watershed is an area that drains surface water to a common outlet. A watershed is a hydrologic unit that is often used for the management and planning of natural resources. Watershed Analysis refers to the process of using of DEM and raster data operations to delineate watersheds and to derive topographic features such as stream networks. The total analysis has been incorporated through using Hydrology Tool in ArcGIS where Fill, Flow Direction, Flow Accumulation, Stream Network, Stream Links has performed. On the basis of analysis, Primary drain, Secondary Drain and Possible outlets have been determined in Drainage Network Analysis (presented in **Chapter 10**).

Chapter 06 Sub Regional Plan and Regional Analysis

6.1 Introduction

Faridpur Sadar Upazila has the importance for Padma River, Agricultural activities, Important Beels which demarcate the regional lifeline of that region. Being naturally conditioned by an agricultural hub the upazila serves the city as a hinterland by providing agricultural goods. Secondly, the upazila serves a service providing area for its surrounding upazilas. These opportunities are the basis of development of the regions as a sub-system of the whole economic region.

6.2 Conceptualization of Sub-Regional Plan

Strategic plan determines a long-term vision for the development of an area where the area is going over the next several years as say 20 years, how it's going to there and how it will know if it got there or not. The strategic plan includes the clear goal envisioning the future growth and developments which will be directed with country's development activities and different policies of the country.

6.2.1 Extent and Nature of Sub-Regional Plan

- **Strategic Plan at Sub-Regional Level**

Country's development systems can be enhanced by developing a clear vision, objectives, strategies and detailed actions plans. It enables a global sense of purpose and direction capable of guiding implementers in making everyday choices what actions should be taken to produce the expected results. Strategic plan identifies the following steps:

- Assesses needs and resources;
- Defines a target audience and a set of goals and objectives;
- Plans and designs coordinated strategies with evidence of success;
- Logically connects these strategies to needs, assets, and desired outcomes;
- Measures and evaluates the process and outcomes.

Strategic Plan would be prepared for 20 years for Faridpur Sadar Upazila according to the guidelines form which will dictate the development plan such policies as National policies, Formulated and Integrated different sectoral strategies at sub regional level, spatially interpreted sectoral strategies at sub regional level, formulated Conservation Plan at sub regional level and formulated Development Plan.

- **Regional Structure Zoning Category**

Zoning generally allows the authority to control the use of land and development of land. Zoning is an important tool for guiding the private development, so that land is used in a way that promotes both the best utilization of the land and the prosperity, health and welfare of the residents. Naturally, Zoning is enacted by the law by following respective procedures. Regional Structure Zoning is comprehensive planning process that allows a city or region to develop a plan for creating and maintaining a desirable environment and safe and healthy community. Once a plan is adopted, it guides local officials in making their day to day decisions and becomes a factor in their decision-making process. By creating zoning categories that separate uses, the city assures that adequate space is provided for each use and that a transition area or buffer exists between

distinct and incompatible uses. Adequate separation of uses prevents congestion, minimizes fire and other health and safety hazards, and keeps residential areas free of potential commercial and industrial nuisances such as smoke, noise and light.

Regional Structure Zoning can be adopted by ensuring the following mundane purposes:

- ✓ Minimising adverse effect resulting from the inappropriate location or use of sites and structures,
- ✓ Conserving limited land resources and encouraging their efficient use.

- **Conservation Plan**

A conservation plan can be a vision for the future ecological health of an area. It typically includes reference to a natural resources inventory, a description of important features and an action plan to protect these features over a long period of time.

Major land use pressure is heavily depending on the ecosystems and resources of the existing nature. Land-use conflicts and clearly unsustainable uses may be found in planning areas. There is a clear need for broad-based, multi-sectoral and long-term development management, including community-based initiatives in sanitation, biomass preservation and collective management of natural resources, including more detailed priorities such as ecosystem preservation of fisheries habitat, maintenance of biological diversity and productivity, forestry management, containment of saltwater intrusion and population risk management. Also needed are institutional and regulatory actions.

Contrary to some current impressions, conservation and economic development are not conflicting ideas. In fact, well-planned conservation-oriented development will add to the general economic and social prosperity of a coastal community, while bad development will sooner or later have a negative effect. With innovative management based upon sustainable use, communities may be able to achieve a desirable balance without serious sacrifice to either short-term development progress or longer-term conservation needs. In broad sense, Conservation Plan would cover ecology and environment, land forms: forest, wetland, rivers and agricultural land, Major infrastructures, area of archaeological/ anthropological interest. Conservation plan will derive the following issues:

- ✓ Articulate the most important natural features within the Geographic Area.
- ✓ Flourish conservation of these important natural features.
- ✓ Dictate local government or private voluntary to develop land conservation planning
- ✓ Document conservation priorities and recommend policies in Upazila Development Plan

Suggest viable regulatory process for some resources and features.

6.2.2 Goals and Objectives of Sub-Regional Plan

To achieve the vision of developing Faridpur Sadar Upazila as an economically vibrant, liveable, sustainable and planned Upazila, the following objectives are outlined:

- ✓ The Sub-Regional Plan for Faridpur Sadar Upazila for the next 20 years will guide the upazila to become integrated with Divisional area as their economic sub-system;
- ✓ The sub-system will be provided strength by development of various linkages, physical, economic and social connections; and
- ✓ Making provision and plans for the growth of economy, employment, social, and environmental conditions
- ✓ Control unauthorized development throughout the city.

- ✓ Providing suitable economic base for future growth of the city.
- ✓ To provide a rational land use pattern in order to protect and conserve agricultural land and other unproductive land as well as the water bodies.
- ✓ To develop selected areas with infrastructural facilities.
- ✓ Ensuring sustainability without violating the environmental concerns.

6.2.3 Nature of Sub-Regional Plan

The overall vision of the sub-regional plan is to make Faridpur Sadar Upazila as a well-linked and integrated, liveable and sustainable Upazila. It contains the policies drawn for development of Faridpur Paurashava and rest of the upazila area over a longer period of time (20 years). It also contains a comprehensive package of social, economic and physical policies which deals in principles only with all aspects of development (urban/rural) over a given period of time. The predominant policy areas include agriculture, linkages, mobility, employment, land, infrastructure for linkages such as transport and social provisions. This framework has been generated from data and findings from shift share analysis and location quotient earlier in the survey section.

6.3 Linkage with National and Regional Context

6.3.1 National Context

Faridpur Sadar Upazila has the linkage with Dhaka Region through Goalanda Upazila of Rajbari Zila, on the west Madhukhali upazila to Magura Zila and on the south via Nagarkanda Upazila to Bhanga Upazila. Railway Network has gone through Faridpur Sadar Upazila around 14-kilometre, Waterway in monsoon 37 kilometre and waterway around the year 25 kilometre.

6.3.2 Regional Context

In the process of globalization, the world has experienced surges of regional integration initiatives in the last century. A strong connectivity not only strengthens the intra and inter regional trade but also generates higher income and prosperity. Increased connectivity can play an important role in achieving efficiency and enhanced productivity. Transport connectivity along with trade facilitation measures may spur regional trade and commerce by reducing cost of transportation and logistics.

Faridpur Sadar Upazila has great significance in the context of road network. National Highway N803 connects Daulatdia Ferryghat and Goalchamot, N704 connects Magura and Arappur, N703 then Jhenaidah and Hamdah, N803 goes through Alipur then N8 covers Bhanga. Railway Network covers several stations on the northwest Panchooria, Khankanapur, Goalunda Bazar, inside Faridpur it goes through Basantapur, Amirabad, Ambikapur, Faridpur and on the south east Bakhunda, Talma.

6.4 Components of Sub-regional Plan

Major four components for the regional growth of the Faridpur Sadar upazila has considered here in sub regional plan. **Map 6.1** and **Map 6.2** represent respectively Sub regional Plan and Regional Life Line Map. The policy recommendations in these sectors are mentioned here for further development and connectivity in regional context. The major four components are mentioned below.

1. Connectivity and Transportation Network
2. Biodiversity, Agriculture and Nature Conservation
3. Economic acceleration
4. Community Resilience through Disaster Management

6.5 Policies for Sub-regional Planning

6.5.1 Connectivity and Transportation Network

1. Developing an integrated local, regional and national transportation system

Development of local transportation network will help build up improved internal road and waterway transport system within the Upazila. This will connect all parts of the Upazila with the regional and national transportation system and help transportation of goods and services between the Upazila and many other potential regional and national centres.

2. Improving local transport network within the Upazila linking the nearest districts

At present, all the Union Parishads are not directly connected by roads between each other and some of them are also not directly connected to the Upazila Parishad. To exploit full potentials of both urban and rural areas of the Upazila for economic growth and development, improved transportation connectivity between the upazila and nearest district

3. Establishing Railway Network more vibrant for better communications

Railway Accessibility should be improved by providing sufficient train mode, facilities and Ambikapur station should be materialized for improving the communication within the surrounding areas.

4. Build an integrated (land, rail and water) transportation network

The Upazila level transportation network of roads, waterways and railways will be designed and developed in a way so that the network and system can be integrated with the regional and national network and system of transportation.

6.5.2 Biodiversity, Agriculture and Nature Conservation

1. Preserving and maintaining the existing natural water bodies for drainage, flood control and environmental purposes

All the water bodies of the Upazila should be preserved for natural flow of water, especially the rain and flood water. The natural water bodies generally have desired slopes for flow of water. This unique flow system cannot be developed easily by man-made drainage system. All national and regional highways, railway tracks, and public buildings and facilities will be constructed above the highest ever-recorded level of flood in the Upazila complying with the National Water Policy. This principle will also apply in cases of reconstruction of existing structures of this nature. All plans for roads and railways embankment will adequately provide for unimpeded drainage. Strategy adopting integrated actions for

major water bodies, rivers and other large water reservoirs within the Upazila can be developed as these are concerns of national, regional and local authorities.

2. Conserve ecosystem through the delineation or demarcation of eco-sensitive zones

As the Faridpur Sadar Upazila and the adjacent upazilas are the lands of Beel. These areas are ecologically critical in context of waterbody. For what, these areas should be preserved as eco sensitive zone as well as water retention area. Beside this, by considering the river morphology the water bodies must be preserved considering its foreshore as eco sensitive zone in sub regional level.

3. Demarcating 2 crops and 3 crops land and preserving the existing agricultural lands.

Demarcation of agricultural lands in the Upazila will be performed for preservation especially those lands whose cropping patterns are 2 and 3. No encroachment of other uses will be allowed in the agricultural zones. To save the agricultural land for food security in the country, it is necessary that further loss of agricultural land is prevented.

4. Preserving the existing beels and ponds to increase the fish production

Faridpur Sadar is a land of beels and ponds namely Chapa Beel, Hari Beel, Shakuner Beel, Dhol Samudra etc. There are huge beels and ponds in Faridpur Sadar upazila which are used for fish cultivation. A large portion of fisheries from Faridpur Sadar Upazila fulfils the national demand. So, these existing ponds and beels should be preserved for fisheries development.

6.5.3 Economic acceleration

1. Creating special economic zones for faster industrial development

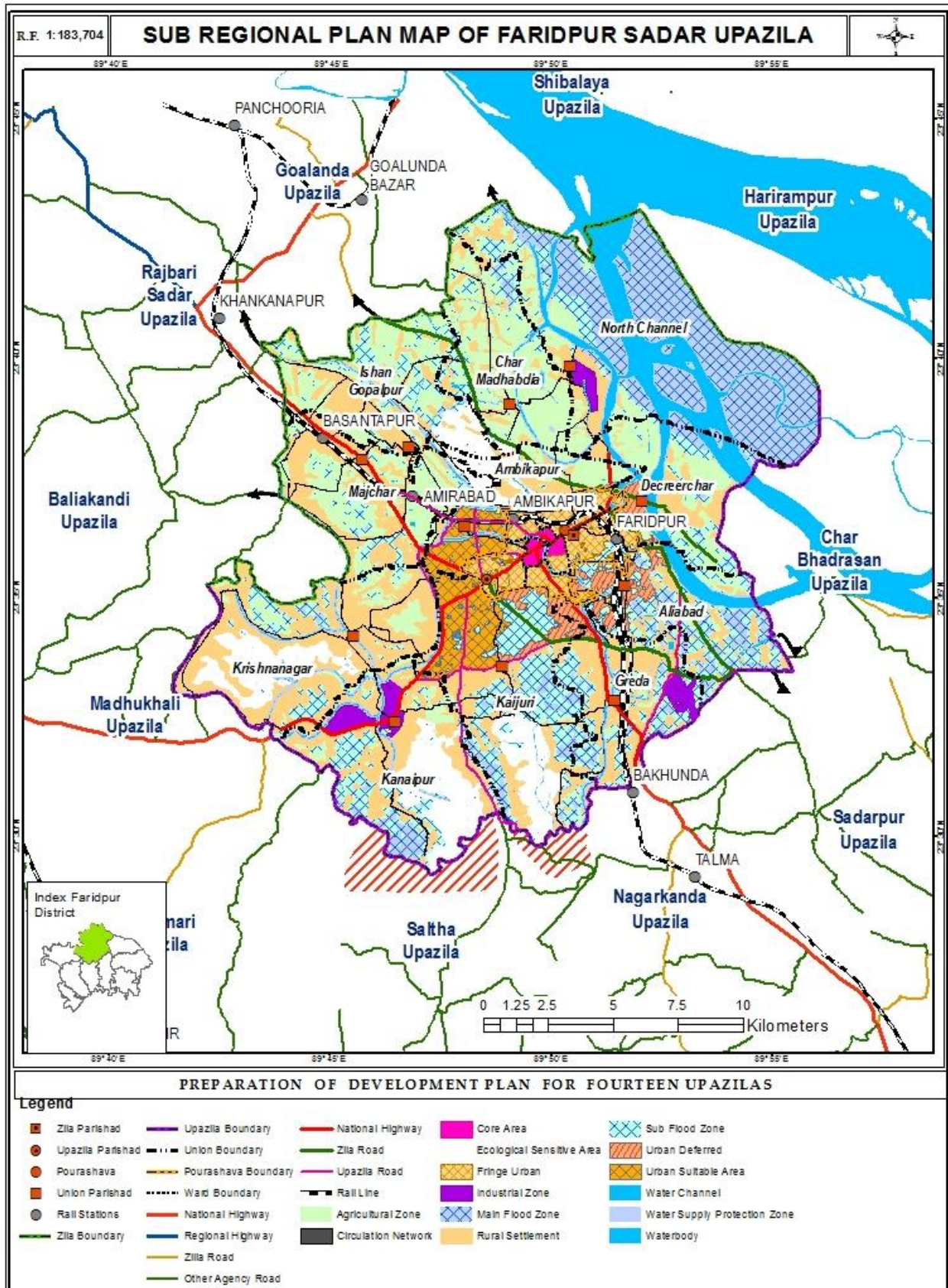
Creating special economic zones in the strategic locations of the Upazila will help industrial growth. Identification, demarcation and development of Special Economic Zones (SEZ) for medium and large-scale economic investment in the Upazila can be important for the Upazila economy.

2. Demarcating and preserving the existing and future potential locations and areas for livestock production

Livestock sector including cattle, poultry and others is important contributor in the national nutritional needs. Preservation of sources and areas of livestock is required in the local and national interests. Identification, demarcation and preservation of livestock sources and areas will be required. Increased investment will be attracted to this sector. People can be encouraged for household level livestock development.

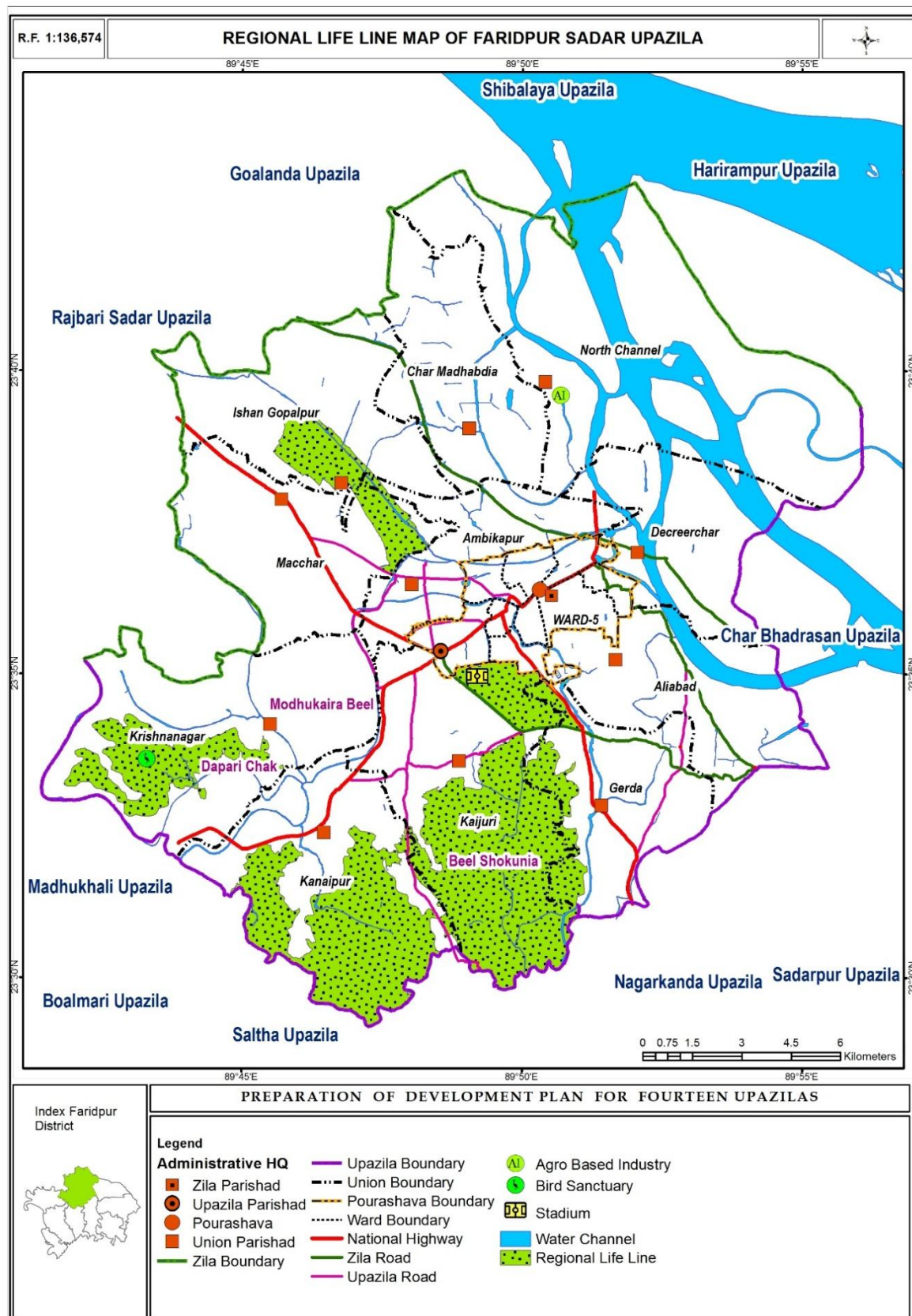
6.5.4 Community Resilience through Disaster Management

1. Identification of seismic hazard prone zones.
2. Identification of flood hazard prone zones and river erosion areas.
3. Provision and implementation of a risk sensitive land use planning



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6. 1: Sub Regional Plan Map



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 6. 2: Regional Life Line Map

Chapter 07 Structure Plan Conceptualization

7.1 Introduction

The Structure Plan is the second basic document of the Plan Package which contains policy framework for further plans and development actions. This report is based on the policy framework of the Structure Plan, in which the development proposals are prepared at subsequent lower levels. It identifies areas where growth is likely to take place in the future that addresses the major issues only. This report consists of plans that comprises a broad policy guideline. It also indicates the direction and extent of urban growth and long-term strategy covering the twenty years from 2015-2033, for urban development infrastructure facilities and broad indication of land use.

7.2 Conceptualization of Structure Plan

Structure plan typically shows how broad scale development or change in a Geographical area will be physical organized on the ground. It provides long term statutory framework to guide the development and redevelopment of land which contains a development concept and policies by establishing the general pattern for land use, densities, major roads and utilities with the goal of ensuring that subdivision or development occur in an orderly, economic and efficient manner. The Structure Plan consists of a report and plans that comprises of a broad policy guideline. The term Structure Plan is derived from British planning practice but has been internationally adopted. The principal components of such a plan are:

- An inventory of existing physical, demographic, economic, and social-infrastructure features.
- An analysis of the major existing problems.
- An estimation of trends and changes likely in future (for the next 20 years).
- The identification of the major constraints on and opportunities for development.
- Consideration of the major development options and policies.
- An indication of the most suitable areas for such development.
- The identification of the priorities in each sector and the major activities needed to implement the development strategy.

The structure plan concentrates on the broad structure of the Upazila and is not concerned with the details of physical layout or individual development details which cannot be implemented until the later stages of the planning period. In those areas and sectors where action is anticipated or proposed within a relatively short time however, more detail may be needed than is provided in the structure plan. Such appropriate level of detail is provided in the action plan.

7.3 Extent and Nature of Structure Plan

Structure Plan for Faridpur Sadar Upazila would be prepared for 20 years which would cover up to 2033 with the content and meaning of the development policy of Planning Commission and guidelines laid in the Poverty Reduction Strategy Paper (PRSP), National Water Management Plan (NWMP), Disaster Management Plan, Wet land Protection Act, Environmental Laws, etc. This will bridge the gap between National level policy and local level plan.

The Structure Plan would include the following studies on:

- Hydrological study on the of the Upazila and connecting rivers (Hydrodynamic characteristics, Morphological characteristics, Geomorphologic development, Dominant Hydrodynamic and Morphologic process)
- Disaster management: Flood, water logging, drainage congestion,

- Water Resource Management
- Lands Study: Change in Land Use
- Livelihood Study
- Settlement Pattern
- Population Study
- Housing, Water supply and sanitation
- Communication, energy, education and health
- Agriculture and fisheries
- Transport system (road and water)
- Ecology and Environment

These sectoral studies would provide planning guidelines for land use and physical infrastructure. There is a need for a legal instrument in order to regulate land use in a manner that would encourage orderly urban and rural settlements in accordance with the strategic policies of the Structure Plan. Zoning regulations in Sub Regional Plan will be applied for the delineation of the Structure Plan.

The Structure Plan consists of a report and plans that comprises of a broad policy guideline. The report is supported by a number of maps of 1: 10000 scales illustrating various plan proposals. As such, at they are broad b rush and indicative and are developed and elaborated in the Urban Area Plan and Action Area Plan. The boundary of Structure Plan will coincide the future jurisdiction of Faridpur Sadar Upazila as the future expansion has duly been considered during preparation of Structure Plan.

7.4 Objectives

- (i) The main objective of Structure Plan is to demarcate the future growth areas and set a strategy for future development of Faridpur Sadar Upazila.
- (ii) To identify the urban areas and different rural centres of the upazila; and determine the planning requirements for the urban area, rural centres and rural area.
- (iii) Identification of urban growth area based on analysis of patterns and trends of development, and projection of population, land use and economic activities for next 20 years
- (iv) Formulation and Integration of different sectoral strategies for the Upazila.

7.5 Broad Landuse Zoning

In Land-use strategies Zoning is a technique that is used as a tool for urban planning by the governments to develop and regulate a real estate. The purpose of zoning is to divide a property uniformly into residential, commercial, and industrial districts. Zoning regulates the use and development of private and public real estates of an area.

The Total area of the Upazila is segregated under some broad classes that will basically guide future growth with wide aspects. Definitions of broad classes of Structure Plan are given below for conceptualizing focus of the future magnitude as well as illustration of the policies and strategies.

7.5.1 Agriculture Zone

Agriculture zone is the zone of food production where predominantly agricultural production will be encouraged. All types of agricultural activity such as crop production, aquaculture, vegetable production etc. will be dominant and will be permitted to ensure food security and also fishing, poultry, etc. will be included in this zone. The main purposes of this zone are to

- Protecting high value agriculture land

- Promote farming activity and farming operation in the land especially suitable for the purpose.
- Conserve agriculture lands within the urban area.

7.5.2 Circulation Network

Circulation network contains major road network and railways linkage with regional and national settings. The purpose of this zoning is:

- Development of Regional Connectivity.
- To reduce traffic congestion within the Paurashava area
- Widening of existing Narrow Roads.

7.5.3 Growth Center

Growth centers are service centers (rural or urban) which has a potential for further development. It has been conceived as points of attraction for the people who otherwise would go to large congested urban areas.

- To sustain economic activity and economic development of rural area
- To provides goods and services to its own population as well as its surroundings.

7.5.4 Hat Bazar

Hat Bazar serves as a trading venue for local people in rural areas. These areas are considered as the market place for the villagers provide a noticeable number of commercial activities and have a higher concentration of structures than the rural settlement area.

- Promote trade and commerce compactly associated with all other facility.

7.5.5 Industrial Zone

Industrial zone has been earmarked as the primary location to promote industrial development, the use generally includes manufacturing, repairs, warehousing, distribution and transport operating centers. Agro based industry major consideration for this zone.

- Accommodate a variety of industrial establishments of high environment quality that may function as an integral part of an overall development of the area.
- Link the zone with major transport network for convenience of the employees and production function.

7.5.6 New Growth Center

The hut bazar area which has the potentiality of new development and has a good connectivity and prospects to serve local community by increasing commercial activities area considered as New Growth Center.

- New Growth Center will be the new development hub in the rural area
- The development should not go beyond the area of the growth center zone what will preserve

7.5.7 Urban Area

This area is also known as built-up area or core area. This is defined as the area which has the highest concentration of services; it also has the highest population concentration and density at the present day. Height restriction or density zoning can be the tool to control the present growth trend and establish the targeted density.

7.5.8 New Urban Area or Urban Suitable

In preparing the Structure Plan some areas are identified outside the existing Paurashava area. Due to some growth and development factors of these areas are considered as Structure Plan area. This area will be developed within the plan period (2033). This zone also accommodates the required area for proposed public facility like administrative services, utilities, recreational area, major religious educational area, etc.

7.5.9 Rural Settlement and Vegetation

Rural settlement is a sparsely populated community that exists away from densely populated urban centers and has low population density. In Faridpur Sadar Upzila, Rural Settlement area is predominantly influenced by agriculture, homestead farming and vegetation etc. Rural Settlement haphazardly developed at road side areas.

- Rural settlement zone will preserve the rural and traditional character of the area.

7.5.10 Water body

This zone conserves various types water bodies such as river, canal, khal, beel and pond etc. Water body under this category are grouped under two functional sub categories, natural water system – rivers and canals; water retention –controlled canal and large ponds.

- Ensure natural drainage network
- Provide irrigation facility round the year, especially in dry seasons

7.5.11 Water Supply Protection Zone

Water supply protection zone comprises river, canal/chara/khal. 50-meter buffer from the edge of the rivers, 10-meter buffer from the chara/khal will be preserved for water supply protection zone.

7.5.12 Urban Structure Plan

In Structure Plan, different policies have been described for different sectors comprising Socio-Economic, Physical Infrastructure and Environmental Issues including different sub-sectors. The policy implication of these sectors has structured the Urban Area for next 20 years. Thus, Land use Plan is the reflection of Structure Plan policy which will revised after 10 years.

Total Urban Area Plan is segregated under some broad classes that will basically guide future growth with wide aspects. Definitions of broad classes of Urban Structure Plan are given below for conceptualizing focus of the future magnitude as well as illustration of the policies and strategies.

Agriculture: Agricultural land denotes the land suitable for agricultural production, both crops and livestock. All types' agricultural activities such as crop production, vegetable production, and aquaculture etc. will be dominant and also fishing, poultry etc. will be included in this zone.

Circulation Network: This area includes rail and road communication.

Core Area: This area is also known as built-up area. This is defined as the area which has the highest concentration of services; it also has the highest population concentration and density.

Urban Fringe Area: This area is considered as the influenced area of urban core area. The area is mainly urban settlement area beside the core area. And the influence of core area and major development can be gone to this area after development of core area.

Urban Deferred: Future Urban refers to the extended developed area. It will be developed where the new growth trend can be identified. New service provisions and many new facilities can be provided in this area. The area will be developed as the future build up area and will support a huge population among the Paurashava as well as Upazila.

Water body: Equal or more than 0.25-acre land justification by the consultant and wet land will merge with water body.

Chapter 8 Structure Plan and Land use Zoning

8.1 Introduction

The Structure Plan refers to certain strategies and policies that are used to manage, plan and control the growth of the urban area as well as Rural Area so that the unplanned growth can be discouraged. Land use development strategies are formulated in such way that can form the regulation associated with the optimum use of land.

The land use Zoning is well known as a key instrument of planning regulation, which is environmental regulation in its broadest sense. Structure Plan and Land use Zoning are closely interacting and helps to ensure that pressure for change does not diminish area's social and environmental qualities as well as the protection of the Faridpur Sadar Upazila character.

8.2 Broad Land Use Zoning

8.2.1 Upazila Structure Plan

Faridpur Sadar Upazila consists of an area of 379.57 sq. kilometres. This large-scale geographic area is a potential opportunity broad scale land use zoning to implement a fruit full structure plan. The reflection of inventory for the Upazila regarding existing physical, demographic, economic, and social-infrastructure features, separated under some broad classes that will basically guide future growth with wide aspects. Broad Land use Zoning will provide sustainable structural development for future growth and designing strategic guidelines.

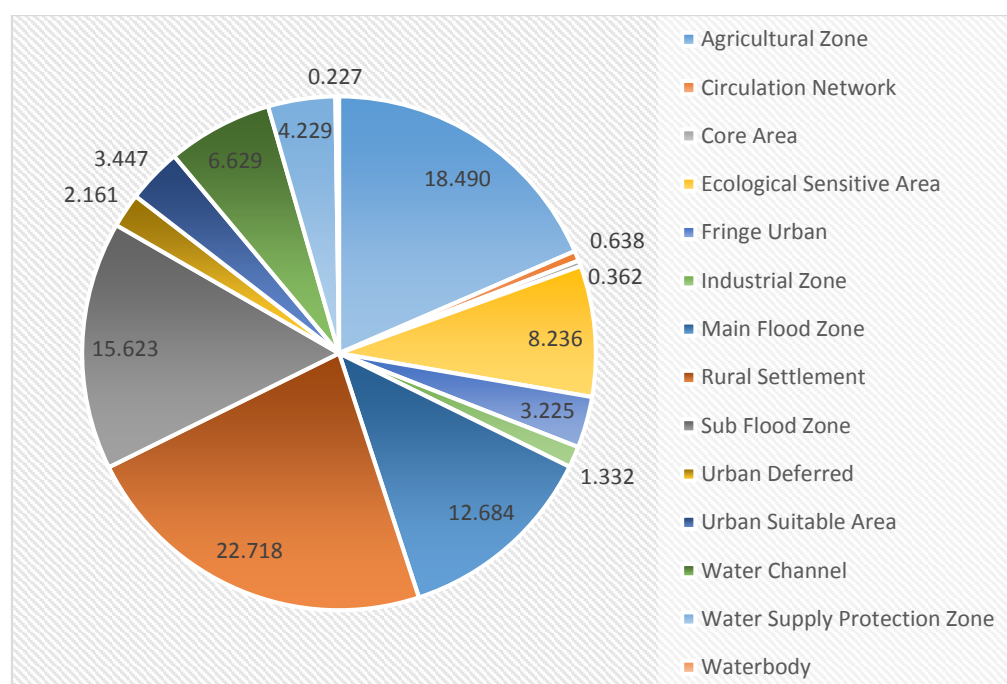
Table 8. 1: Structure Plan of Faridpur Sadar Upazila.

Zoning	Area in Sq. m	Area in Sq. km	Area in Acre
Agricultural Zone	70198883.599	70.199	17346.522
Circulation Network	2420819.099	2.421	598.197
Core Area	1372588.408	1.373	339.174
Ecological Sensitive Area	31269310.340	31.269	7726.815
Fringe Urban	12245286.384	12.245	3025.876
Industrial Zone	5057983.281	5.058	1249.855
Main Flood Zone	48158564.041	48.159	11900.240
Rural Settlement	86254175.430	86.254	21313.871
Sub Flood Zone	59314347.419	59.314	14656.894
Urban Deferred	8204363.342	8.204	2027.342
Urban Suitable Area	13086773.661	13.087	3233.812

Water Channel	25169030.057	25.169	6219.403
Water Supply Protection Zone	16055084.986	16.055	3967.298
Waterbody	860198.815	0.860	212.560
Total	379667408.862	379.667	93817.860

Source: Field Survey, 2016

Above table represents the land use zoning of structure plan along with area and percentages. Agricultural zone consists of 18.4% area of the upazila. The urban area of this upazila has been categorized into fringe urban, urban deferred and urban suitable area in the land use zoning. The urban suitable area is 3.4% of the total area. Fringe urban is 3.22% and urban deferred is 2.16%. An eco-sensitive area has been declared which is very much important to maintain the environmental balance and the area is 8.23%. 1.33% of area has been identified for industrial zone. The river, canal has been buffered according to the water act and the zone has been declared as water supply protection zone which is 4.22% of the total area. Rural settlement is 22.71%. Other zones such as main flood flow, sub flood flow, waterbody, water channel, circulation network has been declared. The scenario has been displayed more significantly in **Figure 8.1**.



Source: Field Survey, 2016

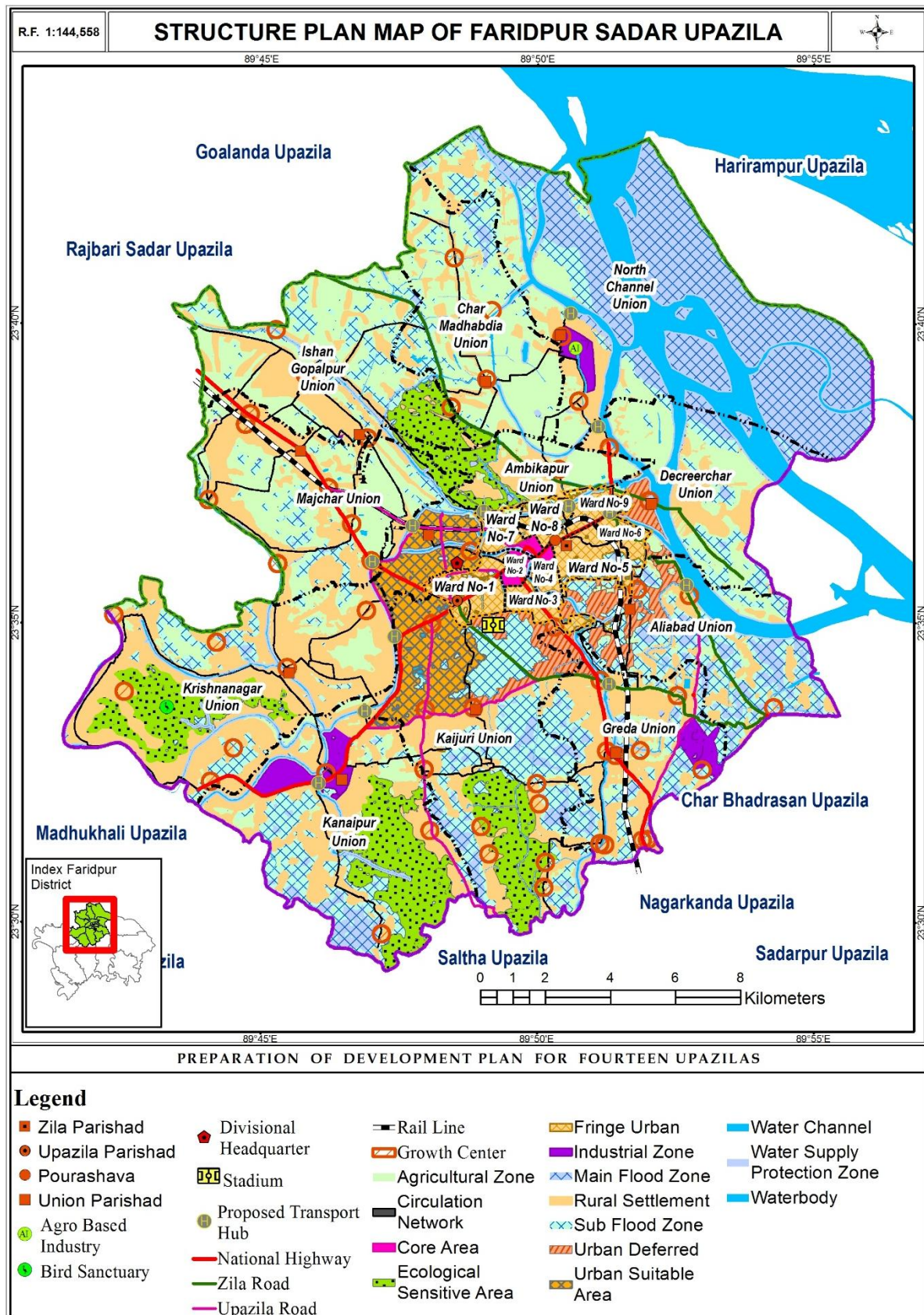
Figure 8. 1: Structure Plan of Faridpur Sadar Upazila

8.2.2 Urban Structure Plan: Faridpur Paurashava

Faridpur Upazila consists of 11 unions and 1 paurashava. The land use zoning in structure plan has been proposed for the whole upazila. Table 9.2 provides an outlook of the land use zoning of paurashava in terms of area and percentage.

Table 8. 2: Structure Plan of Paurashava

Zoning	Area in sq. m	Area in sq. km	Area in Acre	Percentage
Agricultural Zone	298100.537	0.298	73.662	1.713
Circulation Network	393116.807	0.393	97.141	2.259
Core Area	1372588.410	1.373	339.174	7.889
Ecological Sensitive Area	89303.630	0.089	22.067	0.513
Fringe Urban	12168633.918	12.169	3006.935	69.941
Main Flood Zone	126203.237	0.126	31.185	0.725
Rural Settlement	22873.330	0.023	5.652	0.131
Sub Flood Zone	933352.284	0.933	230.636	5.365
Urban Deferred	13420.487	0.013	3.316	0.077
Urban Suitable Area	489.209	0.000	0.121	0.003
Water Channel	702775.009	0.703	173.659	4.039
Water Supply Protection Zone	1119645.096	1.120	276.670	6.435
Waterbody	157906.783	0.158	39.020	0.908
Total	17398408.738	17.398	4299.240	100.000



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 8. 1: Structure Plan Map of Faridpur Sadar Upazila

Chapter 9 Strategies and Policies for Sectoral Development

9.1 Introduction

The function of the Structure Plan is to promote the development of Faridpur Sadar Upazila. These are as follows:

- The Structure Plan will serve as a framework for the development.
- It will work out as a mechanism for coordination and prioritizing development activities by public and private sector agencies.
- It will set the context for action area plan by the identification of the development needs of specific areas and the time period of action.
- The Structure Plan will consider the major development options and policies.

The Structure Plan Area is determined on the basis of reviewing its growth, geographical context, geological and hydrological aspects, socio-economic context and other relevant issues. As per ToR, the study area of the planning is determined as the whole Upazila comprising Paurashava and 11 unions.

9.2 Economic Development

Policy-01: Attracting investment in various economic sectors.

Justification: Attraction of investments in various sectors of the economy in the Upazila by various local Governments will be important tasks once the plan is ready for implementation. The volume of internal and external investments in various sectors of the Upazila economy will therefore be dependent on the performance of these local government units. With the legal and other logistical support from the national government, there is strong possibility that there will be increasing investments in the future.

Policy-02: Light Industries need to be developed to flourish the Industrial Sector Development.

Justification: To accelerate the economic development of Faridpur Sadar Upazila in the long run, it is required to encourage the industrial establishment within Upazila area.

To control the haphazard industrial development measures will be undertaken

- Follow the category of industries as categorized by DOE (Green Category) and Bangladesh National Building Code (low and medium category hazards)
- Follow Bangladesh National Building Code, 1993 and Building Construction Regulation, 1952 (amendment in 1996) for providing Road, setback before construction of any industrial structures

Policy-03: Developing Growth Center Markets.

Justification: Small growth Center should be developed in different union. Public and private investment should concentrate in this growth center. This policy will create opportunities for developing basic agro-based industries in Faridpur Sadar Upazila using the agricultural products as input at a comparatively cheaper rate. Agro-based industries will help the existing producer to increase their earning and increase the employment opportunities.

Policy 04: Ensure Best Possible Use of Land.

Justification: To contribute to the land for economic development and employment generation proper land use is necessary. Within the Paurashava area, land is limited and agriculture has been discouraged. To make a successful implication of this policy, following strategies should be taken:

- Inland Water bodies for fishery purpose and recreational purpose.
- Khas land will be distributed among the landless and a more transparent process of land settlement will be ensured

Policy-05: Encourage Investment in Business

Justification:

- Local people can be encouraged to invest in business.
- Authority can reduce cost, revenue on business to encourage people.

Policy 06: Creating special economic zones for faster industrial development.

Justification: Creating special economic zones in the strategic locations of the Upazila will help industrial growth.

Policy 07: Employment Generation through Development of Potential Sectors.

Justification: To sustain economic activity of Upazila people for longer period. The economic activity of existing Faridpur Sadar Upazila is oriented with mainly Agriculture, small scale business in some extent. Proper planning and co-ordination among these sectors and future potential sectors would be possible to engage active labor force.

Following measures will be encouraged to implement this policy implication:

- Industrial Zone declaration in Land Use Zone (mainly light industries)
- Infrastructure development to flourish agro industry (Market, Storage facility, electricity supply etc.)
- Involvement of active labor force and community participation in different management activities of Upazila such as solid waste management in transferring the wastes from Solid-waste transfer sites, road maintenance, public sanitation

9.3 Infrastructure Development

9.3.1 Traffic and Transportation

Traffic is the function of land use. It is also mention here that traffic network and the traffic generated induces the growth of land use. There is an interrelation between road network and utility services which together play key role to guide physical development in the town and Upazila.

Policy -01: Developing an integrated local, regional and national transportation system.

Justification: Development of local transportation network will help build up improved internal road and waterway transport system within the Upazila. This will connect all parts of the Upazila with the regional and national transportation system and help transportation of goods and services between the Upazila and many other potential regional and national centres. The Upazila level transportation network of roads, waterways and railways will be designed and developed in a way so that the network and system can be integrated with the regional and national network and system of transportation.

Policy -02: Improving local transport network within the Upazila linking the nearest districts.

Justification: At present, all the Union Parishads are not directly connected by roads between each other and some of them are also not directly connected to the Upazila Parishad. To exploit full potentials

of both urban and rural areas of the Upazila for economic growth and development, improved transportation connectivity between the upazilas and nearest districts is of paramount importance.

Policy -03: Establishing Railway Communication more vibrant for better communications.

Justification: Faridpur has the option making Railway communication more accessible to the people.

Policy -04: Widening of Existing Narrow Roads.

Justification: Due to narrow road and inadequate road space traffic congestion is common in the Upazila. Transport facility is not adequate for convenience and comfort. For example, passenger shades, sufficient and footpaths etc. are not available.

Policy-05: Develop Efficient inter Upazila Communication Facilities.

Justification: To create easy traffic movement within the Upazila, the roads have to be widened. The main artery of both the Paurashava and unions has to be kept free from any development.

Policy-06: For better Accessibility Transport Terminals should be Located at Major Roads

Justification: To develop and facilitate easy means of transport, consultant encourages the promotion of public transport and terminals.

- Make a priority for in space allocation of ROW for better space utilization and promoting non-motorized traffic avoiding interruption, ensuring speed with motorized traffic.
- 10-20 ft. plantation at road side will be proposed.
- The Road Hierarchy of Faridpur Sadar Upazila will be modified and proposed on the basis of Road width Standards.
- Follow up the basic rules mentioned in Building Construction Act, 1996 at Major Intersections of the Paurashava. Some basic rules are:
 - ✓ In each Corner plot of major intersection 1m×1m land area has to be open for traffic movement.
 - ✓ At the cross section of two or three roads within 50-meter distance, construction of commercial complex, Cinema Hall etc. are prohibited. But, 500 square meter area in total is permitted for commercial purpose (Shopping Complex), road width is 23 meter or greater.
- Promote efficient traffic management system within Upazila by pursuing Regulatory measures (parking control and speed control in Highway Road, access control of trucks in the area,) and Design measures (Details of lay-out of Proposed Primary Road and Secondary Road, use of lighting equipment etc.) in Road Transportation System.

Policy 07: Develop Safe Pedestrian Sidewalks and Bicycle Paths along the Roads.

Justification: For achieving a better quality of life in the Paurashava and UPAs, safe sidewalks and bicycle paths are required along the road system. An exclusive bicycle trails can also be created in suitable areas or along the roads with low traffic volume for supporting healthy lifestyle of local communities.

9.3.2 Utility Services

Policy-01: Facilitating Access for all Citizens to Basic Level of Services in Water Supply and Sanitation.

Justification: Facilitate safe drinking water supply and safe sanitation to each household as per demand in 2035 through various means, including:

- Piped Water Supply System
- Water treatment plant, Overhead Tank
- Rainwater Harvesting and Conservation

Policy-02: Management of Toxic Waste from Industry.

Justification: Toxic waste from industries is hazardous for human health. Industrial waste must be treated through proper method include Effluent Treatment Plant (ETP).

- Promotion of public health
- Prevention of public nuisance
- Promotion of healthy environment

9.3.3 Agriculture Development

Policy 01: Demarcating 2 crops and 3 crops land and preserving the existing agricultural lands.

Justification: Demarcation of agricultural lands in the Upazila will be performed for preservation especially those lands whose cropping patterns are 2 and 3. No encroachment of other uses will be allowed in the agricultural zones. To save the agricultural land for food security in the country, it is necessary that further loss of agricultural land is prevented.

Policy 02: Increasing production in the existing agricultural lands.

Justification: There are single, double and multiple cropped lands in the Upazila. Further intensification of production will be possible in these various categories of cropping lands. Increasing food supply of land will be required for the increasing population in the Upazila. Higher quality seeds, fertilizers and technologies of cultivation should be applied for higher production. The Agriculture Extension Department of the Ministry of Agriculture will be supervising and monitoring the execution of the plan with support and cooperation of the respective local governments within the Upazila.

Policy 04: Discouraging residential expansion in the agricultural land.

Justification: Bangladesh is an agricultural country. Its economy is mostly dependent on agriculture. But in order to provide housing, most of the agricultural lands are converting to residential areas. As a result of expansion of residential areas, the total amount of agricultural lands is decreasing day by day which is harmful for future food production. So, it is the demand of the time to discourage residential expansion in the agricultural land.

Policy 05: Promotion of Regional Agriculture.

Justification: Promotion of agriculture would help raising income and savings to employment. The main objectives of agriculture sector to increased production and simultaneously ensure value addition. Surplus from agriculture will help development of agro-based industries and investment in other productive sectors.

9.3.4 Open Space and Recreation

Policy-01: Conserving the play field, open space, park and natural water reservoir.

Justification: To provide a livable environment for the Upazila people, community level recreational facilities should be preserved. In the long run, preservation of recreational lands for future generations should be ensured. Parks should be created at central and neighborhood level through Master Plan and Ward Action plan. Both public and private sectors investment is encouraged. Standard wise recreational facilities such as Playground, Neighborhood parks, Stadium, Cinema hall will be provided as described in Land Use Plan of Volume II.

Policy 02: Development of Public Park

Justification

- Creation of recreational facilities and breathing place
- Preservation of ecological balance
- Promotion of physical and mental health both for the residents and tourists.

9.3.5 Housing Development

Policy-01: Making Provision of Affordable Housing for the Low-Income People

Justification: Upazila and Paurashava have to think about housing facilities for the low-income people. Private sector will be operated for profit earning, the low-income people will not access to these schemes. Thus, to reduce unplanned development, the development authority may take initiative for low income people. Also, by providing services the general people can be encouraged to build their own houses.

Policy 02: Densification of Residential Areas.

Justification: Housing category need to be decentralized through effective measures of planning. To make a successful implication of this policy, following strategies should be taken:

- Core Area should be preserved for high income group through high land price. Core area comparatively highly dense area and vertical expansion is proposed for this area.
- Periphery portion where land price comparatively low can be declared for low income group.

Policy 03: Stop all Illegal Construction.

Justification:

- Prevention of land carrying capacity
- Promotion of urban environment

Policy 03 Specific Policies for Urban and Rural Settlement Area:

Urban Settlements

- Policy 1: Promote urban area to buildable lands.
- Policy 2: Restrict urban growth in seismic and flood prone zones.
- Policy 3: Provide better transportation connectivity throughout urban areas linking rural hinterlands.
- Policy 4: Provision of appropriate infrastructure and service facilities (road, drain, bridge, culvert, water supply, sewerage and sanitation, garbage disposal, energy, education and health etc) with equity to the urban dwellers.

Rural Settlements

- Policy 1: Save agriculture lands in rural areas by encouraging nucleated/clustered villages.
- Policy 2: Provision of better infrastructure and service facilities to the rural dwellers.
- Policy 3: Promote integrated rural development connecting growth centres and villages.

9.3.6 Ecology and Environment

Policy-01: Preservation of Ponds and Water bodies.

Justification: To ensure natural water bodies and fish resources which are crucial to sustain the livelihood and to retain the eco-system.

Permitted land use will be maintained in the demarcated areas that are as follows:

- Irrigation
- Provision of water way transportation in wet season
- Fishing/Fish Culture

Identify and conserve big ponds. These water bodies work as retention pond resource for fish cultivation and vital components to retain ecological balance.

Policy 02: Treatment of Industrial Waste before Discharging into the River.

Justification:

- Prevention of water pollution
- Promotion of public health
- Promotion of healthy environment.

Policy 03: Incepting Drainage Network Plan in Response of Water Logging Problems.

Justification: Lack of adequate and planned drainage facility causes Water logging problem. The depth of maximum internal inundation ranges from 2-5 ft and duration varies 3 to 4 hours.

Following strategies should be reflected in Drainage Network Plan:

- A planned Drainage network will be provided in Drainage and Environment management Plan considering the standards, appropriate method and formula
- Regular maintenance of existing man-made and natural drainage network with Community involvement
- Illegal encroachment of Water bodies by Water Reservoir Conservation Act, 2000 ensuring storm water drainage
- Scattered throw of solid waste in water bodies by proper solid waste management activities

Policy-04: Identifying the Hazard Risk Zones.

Justification: Environmental Management Plan will be prepared under Urban Area Plan for all possible hazards (Cyclone, Flood, River Erosion, etc.). The Plan will provide the adaptation, prevention (structural/non-structural measures), mitigation, Preparedness techniques against a natural disaster through comprehensive disaster risk management.

To reduce the impact of hazards same manures will be undertaken which are as follows:

- Embankment, flood control sluice gates and other structural measures
- Early Warning System
- providing of multi-purpose cyclone shelter

Policy-05: Pollution Control

Justification: Pollution level such as water, air and soil pollution rate is very low. Besides air and soil pollution rate is also negligible. But this should not allow increasing pollution rate. To ensure safe environment for the Paurashava area, maintenance of the surface water quality is vital.

To control pollution following measures will be required:

- Make free surface waters form domestic wastes and other types of wastes which require proper solid waste management
- Riverside dumping needs to be restricted and dumping site has to be located through prescribed land use planning
- Discourage the high hazarders industries (Only Green Category Industries of DOE)
- Excessive pesticides and fertilizers use in Agriculture field cause soil pollution; therefore, it is required to follow the Pesticides law, 1985

Policy-06: Ensuring Safe Sanitation for Citizen.

Justification: There exist two types of latrine viz. katcha and Pucca. Besides, dumping of solid wastes in a scattered way is a common phenomenon.

Following strategies should be promoted in ensuring sanitation:

- Dumping Site and solid waste transfer sites demarcation in Land Use Plan of Paurashava area ensuring effective management including community participation
- Proposal of Solid Waste Dumping site
- Installing public toilets in schools, bus stations, launch Terminal, Markets, important public places and community latrines in densely populated poor communities or slums

9.3.7 Heritage Development

Policy01: Conservation of Heritage Site.

Justification:

- Identify and preserve Ecologically Sensitive Area (ESA)
- Locate and conserve 'Heritage Sights'.
- Preventing intrusion into the protected areas by identifying and minimizing the root causes of illegal encroachment and occupancy.
- Bringing up the ecologically and culturally valuable sights into prominence and making them functional.
- Encourage public participation through central and local conservation committees.

Policy 02: Promoting and Attracting Investment in Tourism Development.

Justification:

- For attracting tourists, tourist zone should be developed.
- Improved infrastructure and accommodation facilities can help promote tourism in the Upazila.

9.3.8 Drainage and flood control

Policy 01: Developing drainage system within the Paurashava area.

Justification: Internal drainage system is important to keep the urban areas free from water logging and flooding. Drains are also required for the transportation of household sludge. At present, drains are made in the Paurashava area. A detailed network of drainage system for Paurashava will be designed and implemented through several phases in the future.

Policy-02: Preserving and maintaining the existing natural water bodies for drainage, flood control and environmental purposes.

Justification: All the water bodies of the Upazila should be preserved for natural flow of water, especially the rain and flood water. The natural water bodies generally have desired slopes for flow of water. This unique flow system cannot be developed easily by man-made drainage system. All national and regional highways, railway tracks, and public buildings and facilities will be constructed above the highest ever-recorded level of flood in the Upazila complying with the National Water Policy. This principle will also apply in cases of reconstruction of existing structures of this nature. All plans for roads and railways embankment will adequately provide for unimpeded drainage. Strategy adopting integrated actions for major water bodies, rivers and other large water reservoirs within the Upazila can be developed as these are concerns of national, regional and local authorities.

9.3.9 Industry

Policy 01: Stopping establishment of new brickfields within the Paurashava area and close proximity of any agricultural zone.

Justification: This is necessary for maintaining the environment for agricultural production and quality of bio-diversity. Concerned authorities will be responsible for supervising and monitoring the activities of brick burning. It is very necessary to stop the establishment of new brick fields within the Paurashava area and also in the agricultural zone. Not only that, but also shifting of brick fields from the Paurashava area is a crying need now a days to prevent environmental pollution.

Policy 02: Encouraged the agro based industries and cottage industries

For reducing the loss and value addition to the agricultural produces, agro-based industries can be established in the industrial estates. Agro-based industries can be promoted in the designated industrial areas within the Upazila. Both public and private agencies can be encouraged for investment in agro-based industries in the Upazila.

Policy 03: Heavy industries must be developed in concentric way in specific land use category

Justification: Prohibit polluting or high hazard creating establishments/industries in haphazard way or in close proximity of human settlement or agriculture zone or ecologically critical area. And this kind of industries must be located in more concentric way with proper measure to minimize the pollution.

Policy 03: Creating special economic zones for faster industrial development

Justification: Protect grey area for alternative use (low hazard industry) rather than agriculture settlement. If the landuse category does not make any conflict or any kind of adverse effect to the agriculture zone or ecology special economic zone can be considered for industrial purpose with proper measure.

Flood Flow, Water Body and Water Supply Protection Zone

- Policy 1: Protect main flood flow zone from encroachment.
- Policy 2: Discourage development on the influence area of main flood flow zone.
- Policy 3: Protect existing and newly buildable urban growth from river erosion.
- Policy 4: Ensure utilization of surface water for irrigation and supply of water to the urban residents.

Chapter 10 Traffic and Drainage Management Plan

10.1 Introduction

Transportation occupies a high place in modern life. Transport planning is a science that seeks to study the problems that arise in providing transportation facilities in an urban, regional or national setting and to prepare a systematic basis for planning such facilities. Transport planning is an important part of overall Town and Country Planning.

In Bangladesh, Transport Planning is not in practice still. Recently, government has developed the National Land Transport Policy, 2004 in order to provide a safe, integrated, effective transport system. Also, attempt has been taken to link relationship with land, economic activities and road network development.

Drainage condition and facilities are important concern to human settlements to create better living environment. On the other hand, Environment is an important factor during preparation of any development plan of an area, Different environmental condition and drainage situation have been analyzed and information has been collected accordingly in order to present the overall drainage and environment profile and plan of Faridpur Sadar Upazila.

10.2 Transportation Network Considered

The primary road of Faridpur Sadar Paurashava is well connected with other part of the Upazila areas and also connected with secondary and access roads and all these roads maintain good connectivity within the Paurashava area. But these roads are not wide enough on the basis of standard. So, the narrow roads have to be widened on the basis of and also traffic management system need improved. Besides, some new roads need proposed to accommodate the future travel demand. Moreover, footpath facilities have to be introduced to meet up the demand of pedestrians.

10.2.1 Design Principals and Standards

In preparing detail design some basic principals have been followed:

A) Intersection improvement

This measure can be categorized into 2 types, are as follows:

- a. Channelization
- b. Improvement of Intersection geometry

Channelization

Channelization of intersection at grade is the separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

Channelization is done for:

- Separation of conflicts (by using roundabout, raised island, etc.)
- Reduction of conflict points
- Reduction of excessive pavement areas

Improvement of intersection geometry includes

- Corner Plot widening
- Establishment of Traffic islands

According to Building Construction Act, 1996, in each Corner plot of major intersection, 1m×1m land area has to be open for traffic movement.

B) Land use Proposals at the Major Intersections

According to Building Construction Act, 1996, the construction permission of Shopping Complex, Cinema Hall or similar type of buildings are restricted within 50 m (164 ft) from major road intersections to avoid traffic congestion.

C) Prioritization in ROW Space Allocation according to Road Hierarchy

In pertaining with the National Land Transport Policy, 2004, for promoting an efficient road transport system, provision of Motorized and Non-motorized vehicles is prioritized. Therefore, effective road space allocation and utilization is also emphasized in national policy.

Primary Road

Provide four lanes (12 m) for motorized vehicles including Bus, Car and Jeep etc. The width of each lane is minimum 3 m depending on the availability of space. Pedestrian paths as per existing demand (minimum 1.5 m).

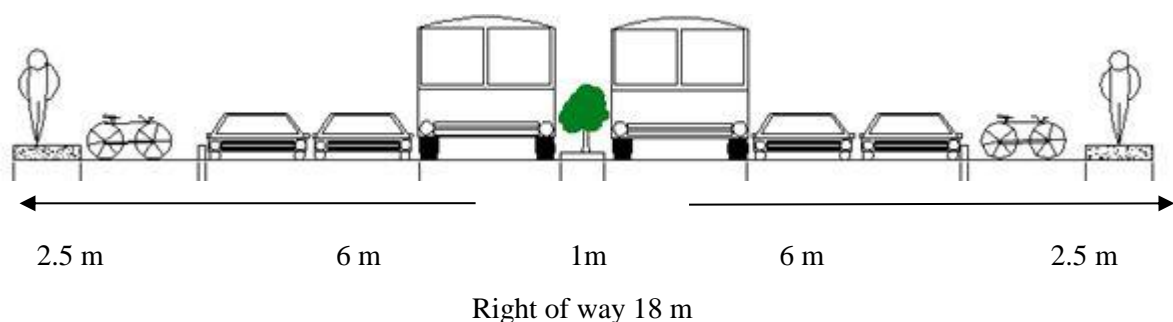


Figure 10. 1: Typical Cross Section of Primary Road

10.2.2 Secondary Road

Provide four lanes (8.0 m) for motorized vehicles including Bus, Car and Jeep etc. The width of each lane is minimum 2.0 m depending on the availability of space. Pedestrian paths as per existing demand (minimum 2.0 m).

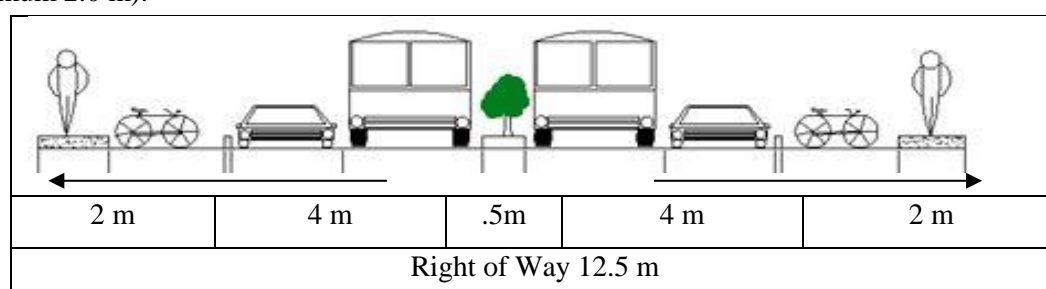


Figure 10. 2: Typical Cross Section of Secondary Road Tertiary Road

Provide one lane (5 m) for motorized and non- motorized vehicles including Car, Jeep, Motorcycle and Rickshaws etc. Pedestrian paths as per existing demand (minimum 1.5 m).

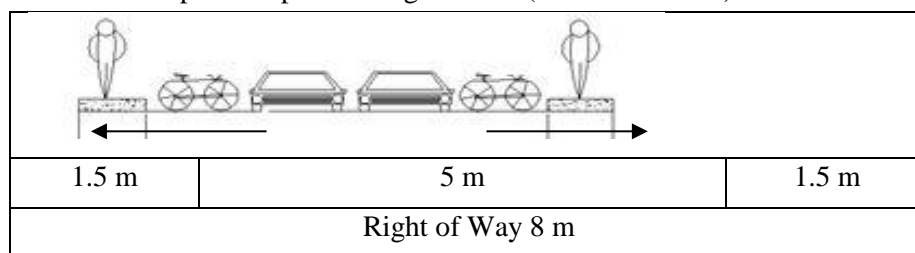


Figure 10. 3: Typical Cross Section of Primary Road

Access Road

Provide one lane (3 m) for motorized and non- motorized vehicles including Car, Jeep, Motorcycle and Rickshaws etc. The width of each lane is minimum 2.5 m depending on the availability of space

10.2.3 Transportation Network Plan

Transportation Network Plan covering its development plan proposals and management of the project area up to the year 2035. Existing transportation facilities and proposal on the important facilities such as, bus terminal, truck terminal, rickshaw/van stands, baby taxi/tempo stands and passenger sheds for local bus users are described in this section.

Road Network Plan

The proposed best suitable road hierarchy for the study area has been determined considering road standard by Planning Commission, 2004 and LGED, 2005. The aim of planning team is to design urban roads with a clear functional hierarchy. Primary roads (Class A & B) are those major routes specially designated to channelize large volume of traffic moving longer distances from one locality to another; Secondary collector and access roads provide for shorter journeys to schools, shops and recreation, and give access to residential plots. By creating a residential road pattern that discourages thorough traffic, residential amenity-traffic noise, accidents, and delays to pedestrians crossing roads-can be protected.

Table 10. 1: Recommended Road Hierarchy

Hierarchy (Planning Commission,2004)	Hierarchy (LGED,2005)	Recommended Hierarchy Type	Width (ft)
National	National	National	80-200
Regional	Regional	Regional	60-100
Feeder A	Zila	Primary	40-60
Feeder A/B	Zilla/Upazilla	Primary	40-60
Feeder A/B	Zilla/Upazilla	Secondary-1	30-40
Feeder B	Upazilla	Secondary-1	30-40
Union/Paurashava Road	Union Road	Secondary-2	25-35
Union/Paurashava Road	Union Road	Tertiary	20-25
Village Road	Village Road	Access Road	N.R

Source: Estimated by the Consultants, 2018

Existing road network covers most of the area but not interconnected and in scattered condition. In the road network plan, consultants have tried to meet the problems by proper channelization and widening of roads. As a result, proposed new roads will make a planned circulation network through the connection with existing roads of total.

The proposal should be implemented in near future to ensure smooth traffic flow in the town. In case of major road network (primary, secondary and even collectors), it would be essential to earmark the ROW as per the UDD planning standard but not acquiring the land right at this movement. The original owner can continue to use the land for the same purpose as of now but no change in land use should be allowed. It would be essential to build “bus-bays” as part of the geometric design standards, so that buses do not stop on a traffic lane while loading and unloading of passengers. Proposed primary, secondary and collector road network have been listed below.

10.2.4 Plans for Transportation Facilities

Parking Facilities

In entire Paurashava area there is no defined parking area. The buses/trucks/minibuses are parked haphazardly for at shoulder of roads illegally. As per Paurashava context, it is recommended to provide parking facilities in commercial and industrial area.

Footpath

More than one third of the total trips are performed by walking, which is a good indicator to ensure sustainability for transportation and for the city. This also indicates the compact nature of the development. The travel distance information also suggests a lower travel distance for everyday job, school and shopping. People can easily perform that by walking. However, there is absent of footpath in the Paurashava area. This study suggests a network of footpath that can connect the transport stoppage with the important activities such as commercial centers, schools, hospital etc. In such case footpath is proposed in some area. Standard Footpath width is 2.45 m. Footpath has been proposed beside primary and secondary road at Paurashava area

Bus Stoppage/ Bus Bays

In the proposed Bus stoppage, the Bus Bay has been provided for safe embarking and disembarking. Faridpur Sadar Paurashava needs to pursue with concerned authorities to prepare action plan and to conduct full length feasibility study to design, develop and construct public bus stoppage.

Construction of By Pass

Traffic currently goes through the urban area using major urban linkages causes’ traffic congestion to the core area. Bypass on the outer part of the existing urban settlement about 1.81 km has been proposed to reduce pressure of motorized vehicles from core urban area as it becomes a major link for its internal traffic.

Eco-friendliness and Sustainability

Use of fossil fuel and harmful emissions are a major environmental issue all over the world. That's where FFT (Fuel Free Transport) can play a vital role. Modes like walking, bicycling are in general called 'green transport' for their environmental friendliness. Promotion of these means of mobility can eliminate long-term negative impacts of fuel-based vehicles and enhance health and safety of the inhabitants.

Fire Route

According to Fire Protection section of BNBC fire apparatus access road shall have required 14.7ft (4.5 Meter) width for free access of fire brigade vehicles and the hosepipe can cover 50m surrounding the road..It has been suggested that several existing roads need to widen from 10 to 15 feet to increase to ensure access to vulnerable inhabitants.

Road network Plan

Preparation of Master Plan for Faridpur Sadar Upazila aims to provide compatible land users supported by essential services specially establishment of appropriate linkage within the town. It is expected that renovation/rebuilding of existing road network and introduction of new roads and facilities will enhance the linkage and movement through congestion free appropriate management system.

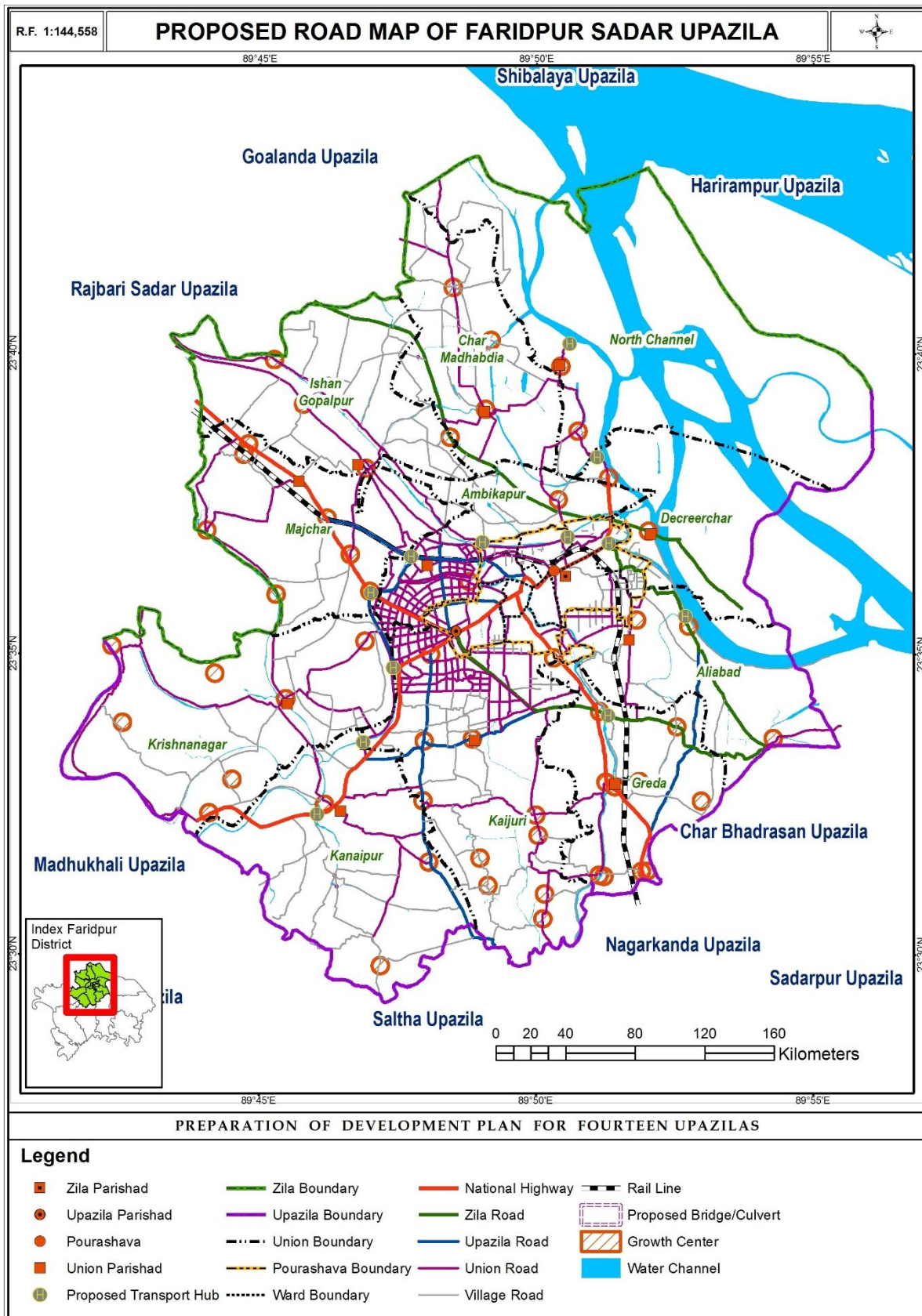
10.2.5 Proposed Road

Preparation of road network plan has been an essential part of this development plan. Base on the existing road network renovation or rebuilding of new road network proposals have been prepared. Table represents the road proposals on the basis of road hierarchy. Map 10.1 represents the proposed road network.

Table 10. 2: Proposed Road Network

Road Hierarchy	Length in m	Length in km
National Highway	41332.44	41.33
Union Road	271698.43	271.70
Upazila Road	38849.19	38.85
Village Road	251953.65	251.95
Zila Road	38468.30	38.47
Total	642302.00	642.30

Source: Estimated by the Consultants, 2018



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 10. 1: Proposed Road Map of Faridpur Sadar Upazila

The advantages of increased mobility need to be weighed against the environmental, social and economic costs that transport systems pose. Transport is not an isolated issue. Any new scheme like a major road construction may improve connectivity and expand economic activities. But, at the same time, it may evict hundreds of people and cause critical change to the surrounding ecology. A sensible trade-off must be done in these cases; and, the net result has to be positive on the lives of the people and their environment. Therefore, all the study needs to ensure in-depth analysis of socio-economic and environmental impact of transport projects.

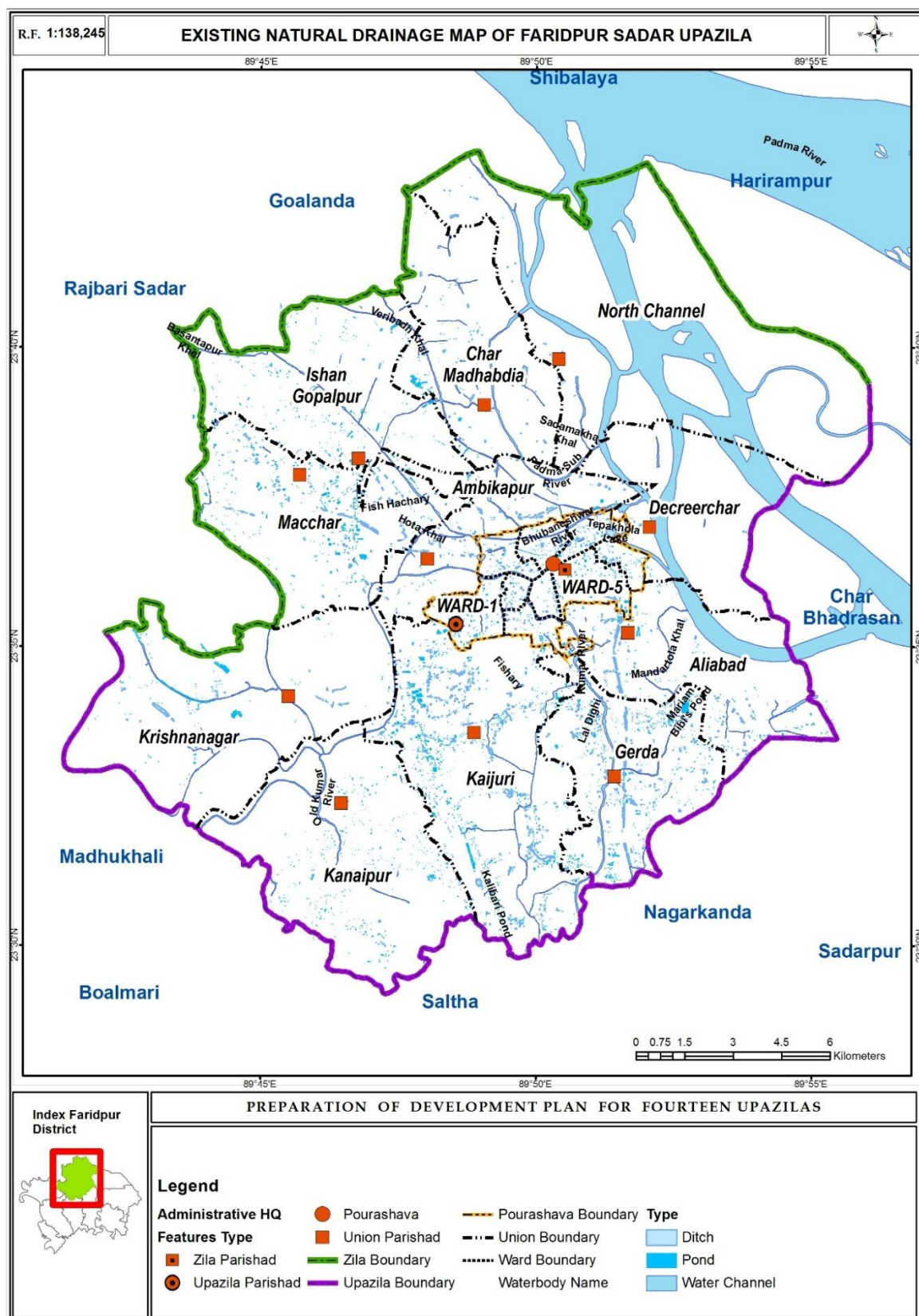
10.3 Hydrological Analysis for Drainage

10.3.1 Existing Natural Water Channel

Faridpur Sadar has huge numbers of water bodies which serve to contain flood water. Water channel should be revived for natural drainage. The area demarcates different important beels which are ecologically sensitive area. Padma is the main river then Kumar, Old Kumar, Bhubaneshwar River flow different parts of the study area. Chapa Beel, Hari Beel, Shakuner Beel, Dhol Samudra, Beel Mamunpur and Tepa Kholar Lake are prominent water natural water channel. The existing natural water channel of Faridpur upazila has been resented in **Map 10.2**.

10.3.2 Contour

Contour level data is essential to determine the water flow and the drainage plan. As contour drains or cut-offs are temporary excavated channels or ridges, or a combination of both it is very essential to incorporate the contour data for drainage plan. The Elevation Contour information denotes elevation above sea level. From these contours a general sense of the lie of the land, terrain or relief can be determined. Terrain affects surface water flow. The direction of a stream can be determined by taking note of the shape of contour lines as they cross a stream. Contour lines are often V shaped where they cross a stream. (Contour has been presented in Chapter 5)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 10. 2: Existing Natural Water Channel of Faridpur Sadar Upazila

10.3.3 Inundation Mapping & Return Period data Analysis

By the HYCRAS software the average inundation condition of the upazila has been derived. By the HYCRAS modeling the flood condition with respect of different return periods, has been generated. For the long period development this flood modeling is essential for permanent structure and declaration of zoning. Here the return period flood mapping for 2.33, 5, 10, 30 and 50 is derived. (Inundation mapping has been shown in Chapter 5)

10.3.4 Catchment Area and Flow Direction

Watershed analysis has been done by dividing topography according to the project area. A watershed is an area that drains surface water to a common outlet. A Watershed is a hydrologic unit that has often used for the management and planning of natural resources. A large watershed may cover an entire system and within the watershed, there may be smaller watersheds, one for each tributary in the stream system. Area based watershed has been followed for delineation of watershed analysis where the watershed divides the study area into a series of watersheds, one for each stream section. The process has been done following a series of steps starting with a filled DEM, flow direction, then flow accumulation. Basin has been derived which determines subareas water accumulation before flowing to the catchment. It holds water for some time and can derive how much water flowing to the particular catchment. Stream networks are derived from flow accumulation raster. Eventually stream link and raster calculator has been used for deriving the natural drainage network. Catchment area and flow direction has been portrayed in the **Map 10.3**.

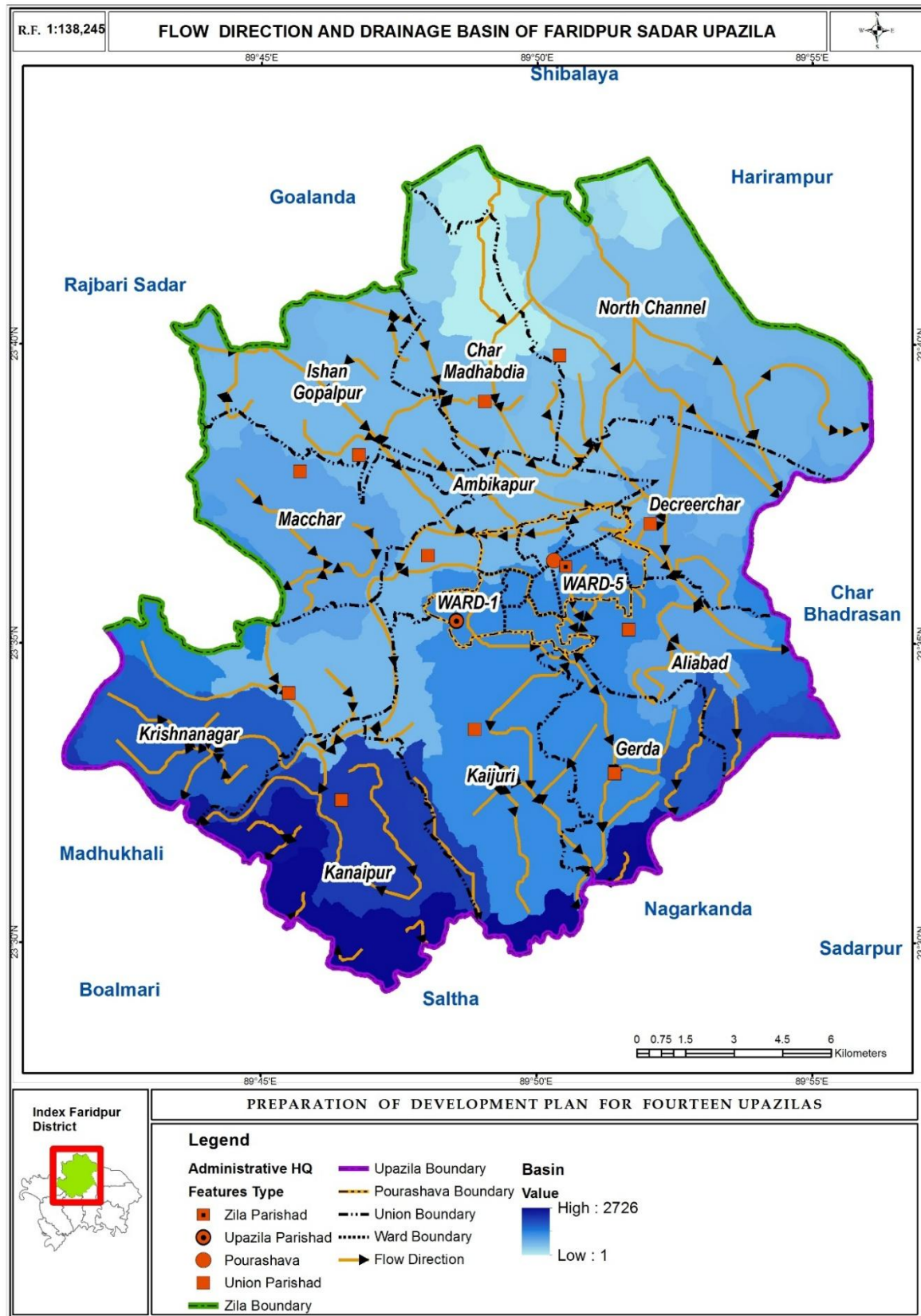
10.4 Drainage Management Plan

Drainage management system of an area includes natural canal and river system, and different drainage issues.

10.4.1 Proposed Natural Drainage system and Drainage Plan

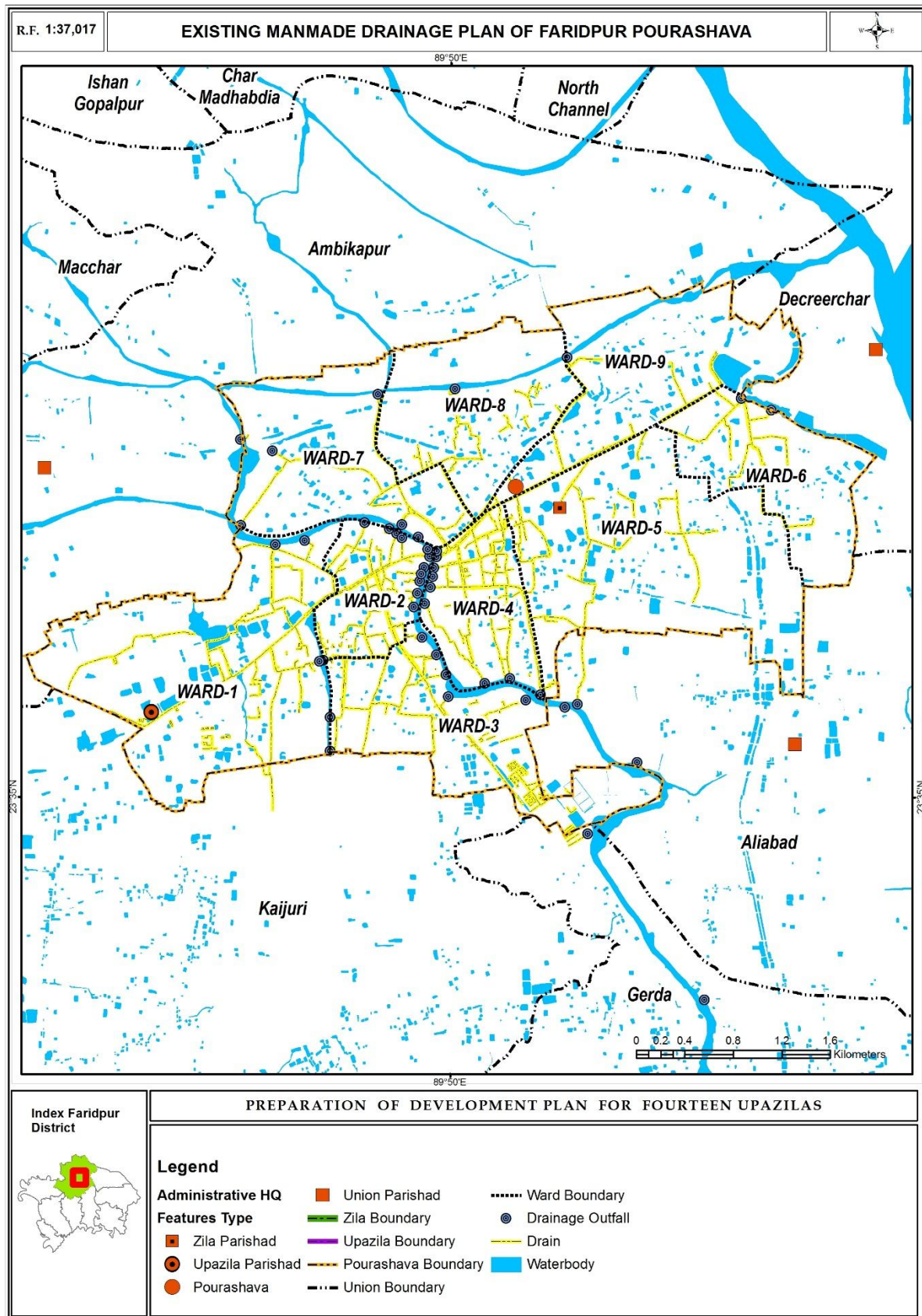
The urban areas lack of proper drainage system. Flood modeling software should be used to understand flooding conditions, identify the water logging areas and establish the drainage requirements. From the analysis, it has been derived that there are two types channel like seasonal water channel and permanent water channel. In some areas, water channel has been interrupted due to road or other purposed which demarcates water logging in the concerned areas. And no better linkage is found among the beels having water in dry season. So, in drainage network proposal this dry channel of the rivers and canals have to be excavated.

Manmade drainage system has been developed in pourashava areas. Existing drainage system and outfall have been identified during the physical feature survey. From the survey, it has been seen some missing links which should be connected then drains to the natural drainage.



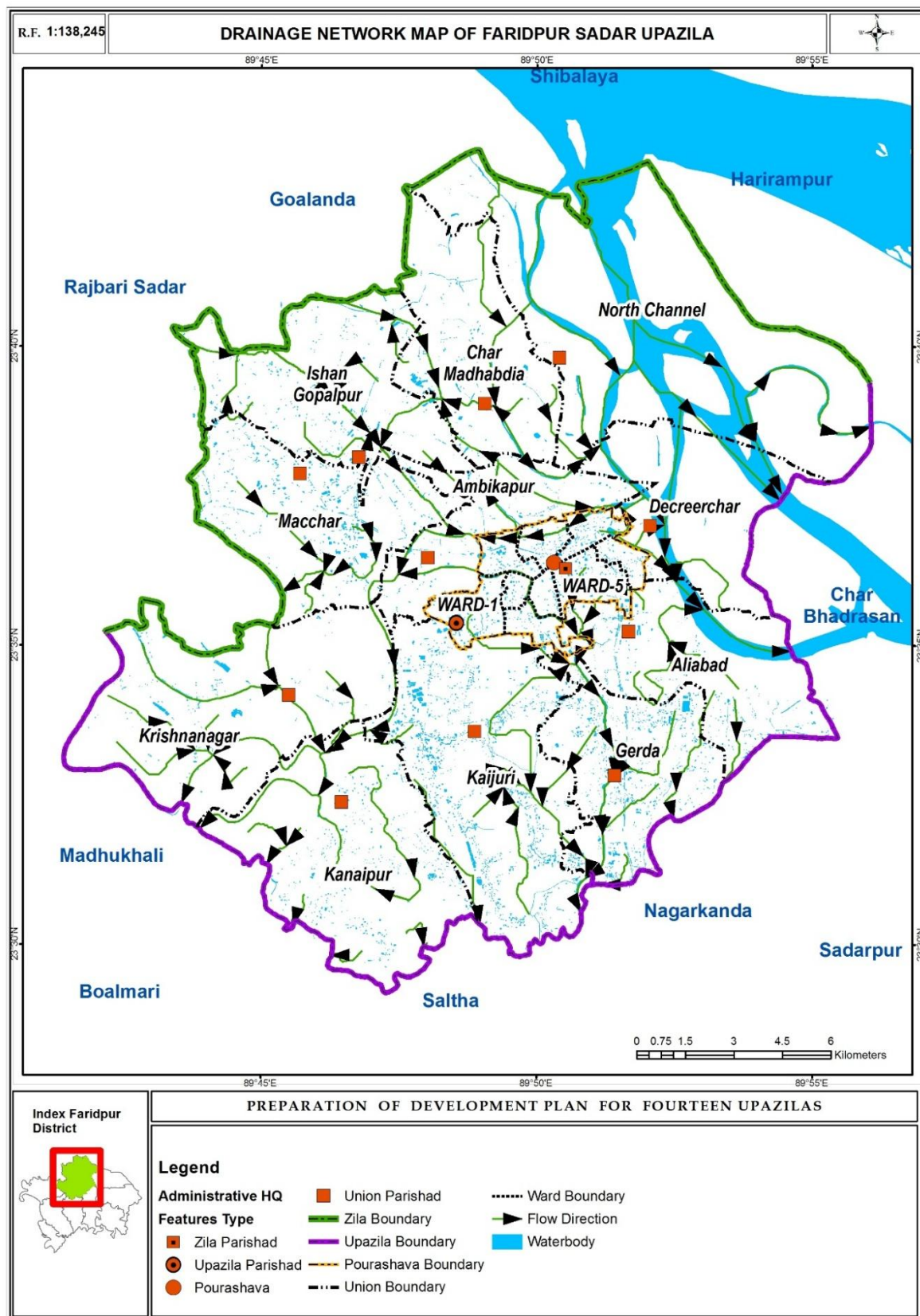
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 10. 3: Catchment Area and flow direction Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 10. 4: Existing Drainage System of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 10. 5: Drainage Network of Faridpur Sadar Upazila

Chapter 11 Contingency Plan

11.1 Introduction

A contingency is a situation that is likely to occur but may not. Contingency Planning is a systematic approach and the preparatory process of identification of and planning for such situations. A contingency plan may never need to be activated. However, if the anticipated situation does arise, the plan will provide a basis for rapid and appropriate actions. Thus, the contingency planning consists of anticipating and analyzing potential hazards, and determining the kind of measure.

Contingency implies a future event or circumstance which is possible but cannot be predicted with certainty. Contingency Planning is done for the rationalize change. It ensures that the resources available now and in the future are used in the most efficient way to obtain specific objectives (Green, 1994). Contingency planning enables actions taken to prepare for an impending emergency (Cunny, 1988). According to UNHCR, 1996; Contingency planning is a forward planning process in a state of uncertainty in which scenarios and objectives are agreed, managerial and technical actions defined and potential response systems put in place in order to prevent or better respond to an emergency. Contingency planning is one component of a much broader emergency preparedness process that includes items such as practices, operational continuity, and disaster recovery planning. Preparing for such events often involves implementing policies and processes at an organizational level and may require numerous plans to properly prepare for, respond to, recover from, and continue activities if impacted by an event.

11.2 Process of Contingency Planning

The purpose of contingency planning is to help ensuring a rapid, appropriate and effective response if and when a crisis occurs. The process of contingency planning should identify operational and other difficulties that could be encountered in responding to potential crises and enable thinking ahead and finding ways in which, such problems can be avoided or overcome before a crisis actually occurs. In case of Contingency Planning, the plan identifies the issues, buildup scenarios and analyze them, promotes the choices and assert the first steps. The steps of contingency planning are summarized below:

- Identify scenarios of hazard and risk
- Set priorities and goals
- Identify activities and tasks
- Allocate resources
- Allocate responsibilities
- Set order of implementation
- Ensure technical inputs
- Develop procedures

11.3 Factors of Contingency Planning

Contingency plan includes how the current situation will change and what we want to achieve, then what we should be done firstly. The following factors are derived for contingency planning.

- Population and Society: Number of people, water security, food security, access to facilities, access to services.
- Environment: Shelter and habitat, sanitation, wildlife and natural heritage, cultural heritage.
- Production and Economy: Agriculture and livestock, industry, commerce, tourism, employment.
- Infrastructure and Services: Energy, communications, transports, health and medical, public works, education.

11.4 Contingency Plan for the Project Area

Natural disasters can strike anyplace, anytime with little or no warning. Fortunately, a small degree of preparation and common sense can greatly increase one's chances of surviving a natural disaster. This contingency plan for natural disasters summarizes the Government's alerting systems and organizational framework for responding to such disasters. Functions and responsibilities of Government departments and other bodies in the event of natural disasters including those resulting from severe weather conditions are also set out in this Contingency Plan. The following possible aspects are examined under contingency plan:

- Building Vulnerability Assessment
- Existence of Natural Hazards

Risk assessment is process of determining the spatial variety of in risk scale in terms of specific hazard. Risk assessment is necessary for any development project to evaluate the sustainability of the project. Risk is different in terms of hazard and vulnerability of the area. This report mainly looks for the existing risk condition of Earthquake and Fire Hazards in Faridpur Sadar Upazila area. After that a contingency plan has been prepared to overcome the risk.

11.4.1 Vulnerability Assessment

To analysis the vulnerable condition of buildings in Faridpur Sadar Upazila different criteria have been identified. These are: structure condition, structure age, historical time period, peripheral impact of structure. Depending on these criteria vulnerable buildings have been identified. The criteria and the results have been given respectively.

Table 11. 1: Criteria's for Vulnerability Assessment

No.	Scale	Explanation
0	Not Sensitive	No existance of variables
10	Less Sensitive	Existance of any 1 variable
20	Average Sensitive	Existance of any 2 variables
30	Moderate Sensitive	Existance of any 3 variables

40/50/60	Most Sensitive	Existence of 4/5/6 variables
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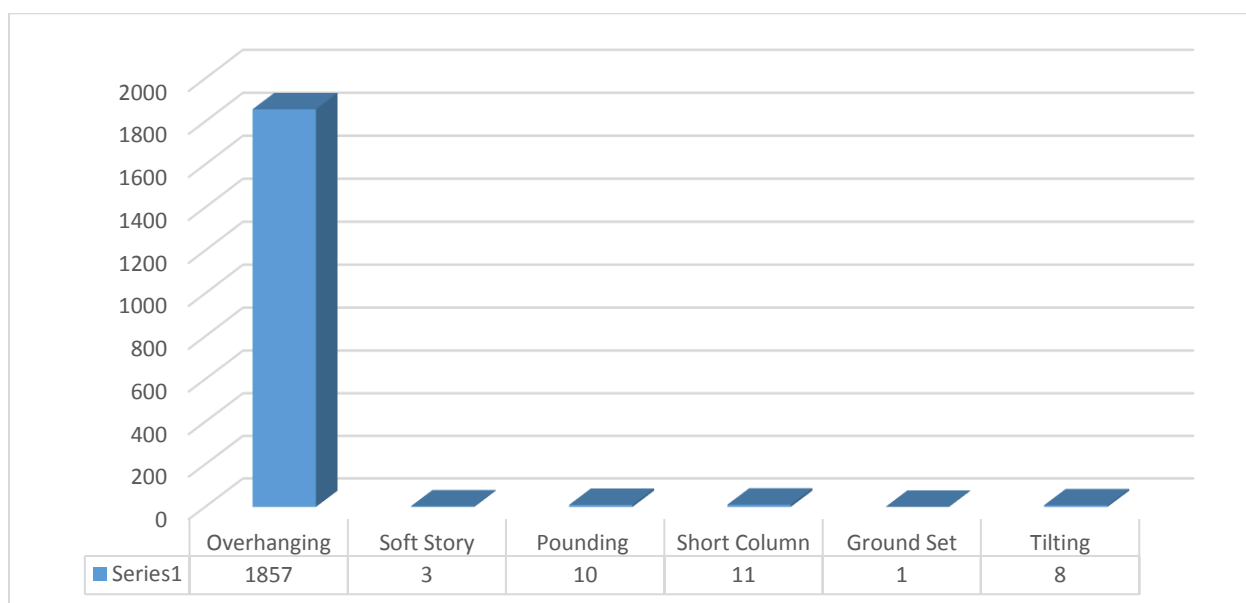
11.4.2 Structure Condition

To identify the Vulnerability Assessment, the structure condition has been analyzed which is summarized below.

Table 11. 2: Structure Condition

Structural Condition Variable	Weightage
Soft Story	10
Short Column	10
Overhanging	10
Pounding Possibilities	10
Tilting	10
Ground Set	10

To identify the vulnerable structures due to structure condition the six parameters stated above in the table have been given weightage value of 10. Depending on that the number of structures vulnerable due to the parameters have been presented in **Figure 1.1**.



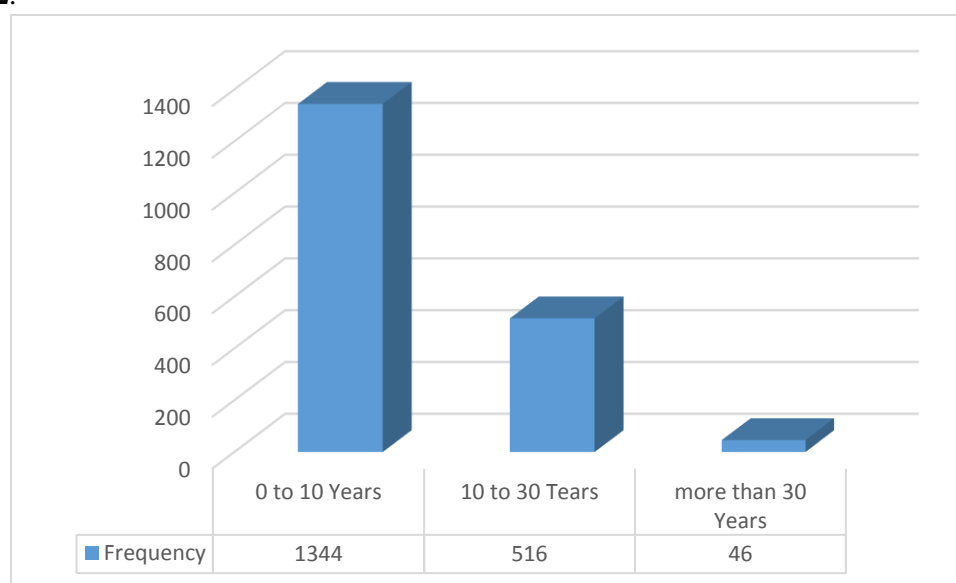
Source: Field Survey, 2016

Figure 11. 1: Structure Condition Sensitivity

Form the Figure it is visible that almost all of the structures are vulnerable due to overhanging and the number is 1857.

11.4.3 Structure Age

To identify vulnerable buildings in terms of structure age the weightage value has been presented in the **Figure 11.2**.



Source: Field Survey, 2016

Figure 11. 2: Structure Age Scenario

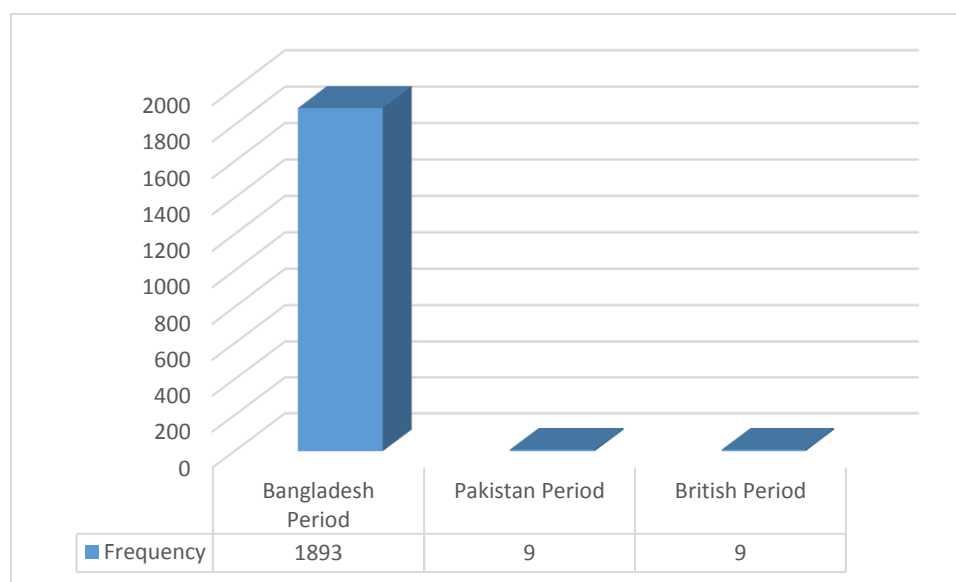
From the study it is clear that only 46 structures exist which age is more than 30 years and their weightage value is the highest. 1344 structures exist whose age is between 0 to 10 years.

11.4.4 Historical Time Period

To identify vulnerable buildings in terms of historical time period the weightage value has been presented in the **Table 11.5**.

Table 11. 3: Historical Time Period

Historical Time Period of Structure	Weightage
British Period	3
Pakistan Period	2
Bangladesh Period	1



Source: Field Survey, 2016

Figure 11. 3: Structure Period Sensitivity

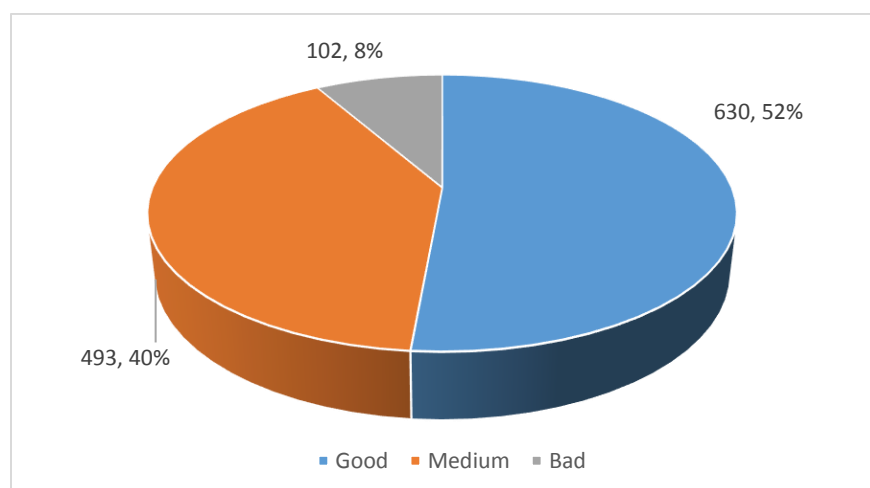
From the study it is clear that 1893 structures historical time period is Bangladesh period. Only 9 structures are from Pakistan and British period.

11.4.5 Visible Physical Condition of Structure

Weightage has been given according to the visible physical condition of structure. The poorest structure has been given the highest weightage. It has been assumed that visibly poor structure may be more sensitive to earthquake.

Table 11. 4: Visible Physical Condition of Structure

Visible Physical Condition of Structure	Weightage
Poor Structure	3
Average Structure	2
Good Structure	1



Source: Field Survey, 2016

Figure 11. 4: Physical Condition Visibility

The pie chart shows the quality sensitivity structures. From which 40% structure are medium sensitive and 52% structures are good.

11.4.6 Final Vulnerability

Final vulnerability sensitivity has been presented in **Table 11.7**. From the table it is visible that 298 structures are less sensitive and 101 structures are not sensitive. In **Table 11.8** the results have been presented on the basis of the existence of the factors.

Table 11. 5: Final Vulnerability Sensitivity

Final Vulnerability Sensitivity	Frequency
Averagely Sensitive	1
Less Sensitive	298
Not Sensitive	101

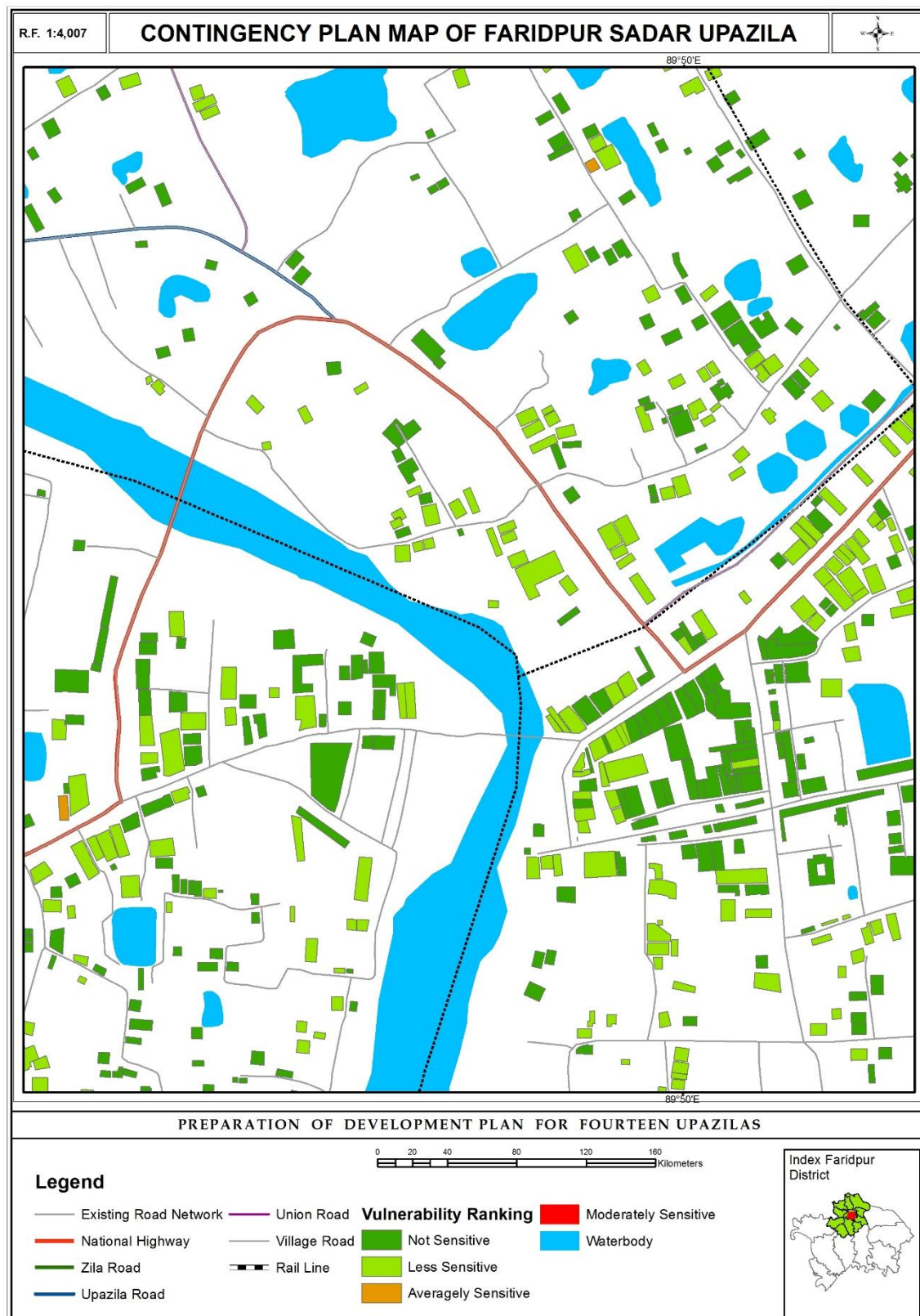
Table 11. 6: Vulnerability Assessment According to the Factor's Existence

Sensitivity	Sensitivity Scale	Frequency
Not Sensitive	0	2267
Less Sensitive	0 to 20	1855
Sensitive	20 to 40	16
Averagely Sensitive	40 to 60	0
Moderately Sensitive	60 to 80	1
Mostly Sensitive	80 to 100	0
Total	100	4139

11.5 Recommendation

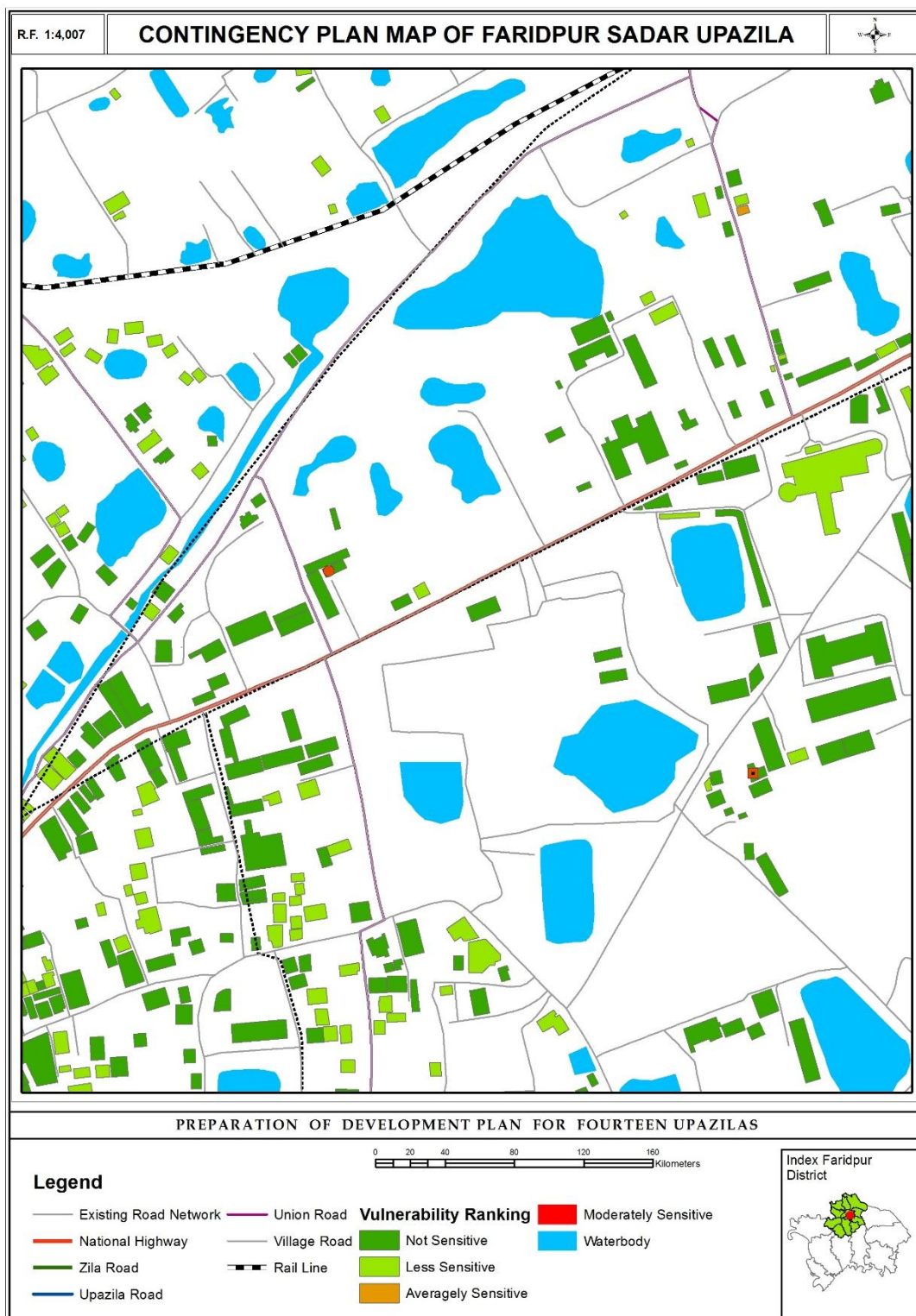
Mitigation measurement through retrofit the structure should be taken according to its scale of sensitivity. A list of mentioned vulnerable structures with its degree of sensitivity could be visible in the GIS data base under vulnerability assessment.

Depending on the vulnerability assessment contingency plans have been prepared. The plans have been represented in **Map 11.1**, **Map 11.2** and **Map 11.3**.



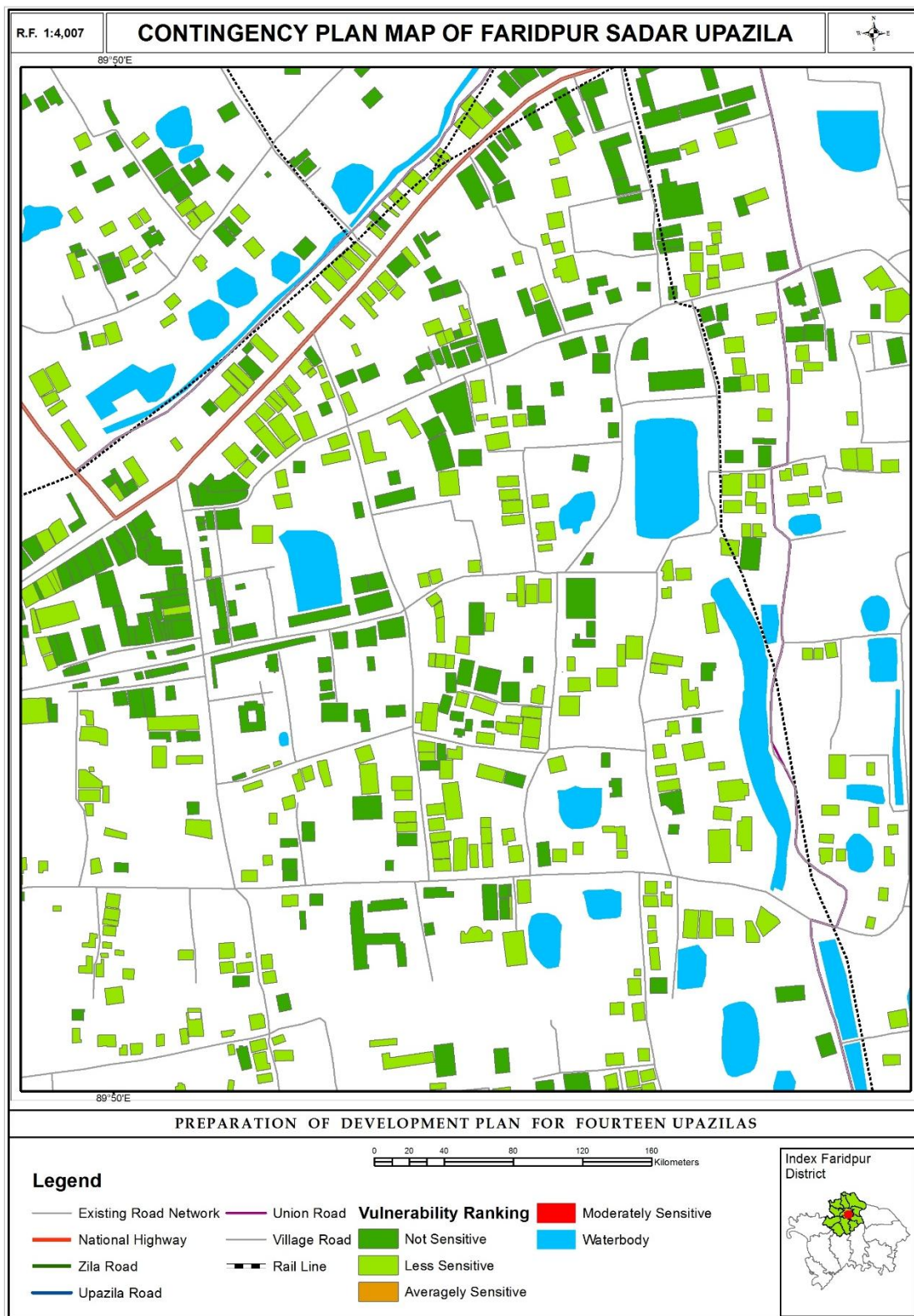
Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 11. 1: Contingency Plan Map of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 11. 2: Contingency Plan Map of Faridpur Sadar Upazila



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 11. 3: Contingency Plan Map of Faridpur Sadar Upazila

11.5.1 Mitigation Measures for Earthquake

Preparation for An Earthquake

There is no such thing as "earthquake weather" or earthquake seasons. Earthquakes can occur at any time and any place.

- Make necessary repairs to home and office buildings
- Know location of emergency exits, fire alarms, and fire extinguishers
- Check for cracks in building foundations
- Insure building is attached directly to foundation, e.g., with bolts through the sill; this may require an inspection by an expert
- Keep emergency supply kits in home, vehicle, and office.

During an Earthquake

- Get under a desk, table or doorway, and hang on
- Avoid panic and help others to remain calm
- Stay clear of windows, mirrors, fireplaces, heaters, heavy furniture and appliances

After an Earthquake

- Quickly estimate damage and further danger and make decision on a full/partial evacuation
- Check evacuation routes for obstacles, such as water (electrical hazard), fire, fallen debris, or blocked passages. If safe, evacuate staff away from buildings, light posts, electric power lines, etc.

11.5.2 Sector wise Contingency Action Plan

Sector wise approach can minimize the effects of a natural calamity which is outlined in **Table 11.7**.

Table 11. 7: Sector Wise Contingency Action Plan

Sectors	Actions	Physical Planning
Health	<ul style="list-style-type: none"> • Preparedness planning for Community Clinic • Mobilization of doctors and medical teams 	<ul style="list-style-type: none"> • Location of Clinic (Existing and Proposed) • Connectivity with the Clinic
Food Security Cluster	<ul style="list-style-type: none"> • Supply and distribution of Food and relief 	<ul style="list-style-type: none"> • Location of Godown and Food Storage
Shelter	<ul style="list-style-type: none"> • Identification of Shelter Place 	<ul style="list-style-type: none"> • Location of Open Space and Safe Govt. Institution, multipurpose of Govt. School College
	<ul style="list-style-type: none"> • Identification of the people needing shelter in camps 	<ul style="list-style-type: none"> • Proximity of this place

Sectors	Actions	Physical Planning
WASH	<ul style="list-style-type: none"> Restoration of water supply and drainage 	<ul style="list-style-type: none"> Identification of water hydrant and reservoir
Logistics	<ul style="list-style-type: none"> Risk Assessment Accommodations facilities for humanitarian workers (tents) 	<ul style="list-style-type: none"> Accessibility to the vulnerable locations
Fire Service	<ul style="list-style-type: none"> Preparedness planning for Fire Service 	<ul style="list-style-type: none"> Location of Fire Service Station Fire Service Route Planning
Child Protection	<ul style="list-style-type: none"> Family training Coordinate with other sectors 	
Early Recovery	<ul style="list-style-type: none"> Governance Debris Management 	<ul style="list-style-type: none"> Waste Disposal Site locations

11.5.3 Physical Planning Approach

The above-mentioned action planning approach are being delineated into physical planning approach. Those physical planning approach has been later integrated into five broad categories. Those categories of contingency plan have been delineated below.

- Road Widening and New Road Proposal:**

The existing road has been widened in the whole Faridpur Sadar Upazila. Besides new proposals for road have been prepared. The width of these road is determined considering the factor that in the time of disaster rescue team and other organization have proper accessibility to the affected area with safeguard tools. Besides this connectivity with the health facilities is also being considered so that affected population have least time to reach those facilities. Contingency plan focuses on the connectivity among, risky zone and health facilities, water hydrant, safe govt. institution and open space. Road width standard has been set with planning team recommendations which has been detailed in the plan.

- Location of Health Facilities, Food Storage, Safe Govt. Institution:**

Six hospitals have been identified in the whole Upazila. Besides these hospitals there are a lot of clinics in the whole upazila. There are one clinic and two health complexes near Faridpur Sadar Paurashava risk zone.

- Locating Open Space:**

There are six large open spaces near Faridpur Sadar Paurashava risk zone. Moreover, there are also many agricultural lands beside the Paurashava risk zone and all other zones in the other union. In such case it can be concluded that ample open space is available if any disaster occurs.

- Identifying water hydrant and reservoir and Supply system:**

Faridpur Sadar is rich in large amount of small and big ponds and beels. These waterbodies can be used as water hydrant during the time of fire hazards.

Faridpur Sadar Upazila is situated on seismic zone III where earthquake coefficient is 0.04. Hence the probability of earthquake is really low with a greater return period. But there are some structures which are risky because of their vulnerability. The contingency plan has proper support to eliminate the earthquake risk for those structures. Although the as per the plan road widening requires to effect on some the structures, but the total benefit for the whole Faridpur Sadar Upazila will be maximum against earthquake.

Chapter 12 Basic Services and Facilities

12.1 Administrative Zone

Administrative zone covers all kinds of government offices and Non-Government Offices including existing and proposed uses in Faridpur Sadar Paurashava. The land of total 89.83 acres has been proposed for administrative zone **Table 12.1** shows the proposals to meet up the demand of projected people.

Table 12. 1: Proposals for Administrative Facilities

Proposed Zone	Location	Area (acre)
Administrative Zone	Ambikapur	89.83

Source: Estimated by the Consultants, 2018.

12.2 Commercial Activities

Commercial activities are focusing the growth centers of this area. During the survey works the existing growth centres of this upazila have been identified. There are 54 commercial areas where different hat bazaars have been identified. These number of growth centres are sufficient for the present and future inhabitants of this upazila. 2 commercial zone has been proposed in Kanaipur and Kaijuri. **Table 12.2** represents the location and area of the zone.

Table 12. 2: Proposed Commercial Zone

Proposed Zone	Proposed Feature	Location	Area(acre)
Commercial Zone	Wholesale Market	Kanaipur	2.3
Commercial Zone	Commercial Zone	Kaijuri	19.01

Source: Estimated by the Consultants, 2018.

12.3 Education and Health Facilities

Educational and health facilities refer to all kind of educational institutes such as School, Colleges, Madrasha, School. and Health Facilities includes Upazila Health complex, health center or maternity clinic. In **Table 12.3** existing number of educational and health facilities have been presented. **Table 12.4 & 12.5** depict the proposed educational and health facilities.

Table 12. 3: Existing Education and Health Facilities

Facilities	Type	Frequency
Education Facilities	Primary School	84
	High School	41
	Madrashah	11
	School	41
	College	22
	University	2
	Total	201
Health Facilities	Health Clinic	19

	Health Complex	4
	Hospital	38
	Total	61

Source: Estimated by the Consultants, 2018.

Table 12. 4: Proposals for Education Facilities

Proposed Facilities	Location	Area (acre)
Primary School	Ward No.08	.56
	Ambikapur	2.58
	Decreer Char	1.78
	Gerda	1.73
	Ishan Gopalpur	1.66
	Kanaipur	.95
	Kanaipur	1.59
	Aliabad	2.76
	Aliabad	2.12
	Krishnanagar	2.11
	North Channel	2.03
High School	Ward No. 06	1.21
	Ward No.06	1.31
	Ambikapur	5.67
	Decreer Char	3.31
	Aliabad	3.31
	Krishnanagar	2.15
University	Kaijuri	168.67

Source: Estimated by the consultants, 2018.

Table 12. 5: Proposals for Health Facility

Proposed Facilities	Location	Area (acre)
Proposed Clinic	Aliabad	1.34
	Aliabad	1.37
	Ambikapur	1.98
	Char Madhabdia	0.99
	Char Madhabdia	1.83
	Decreerchar	0.57
	Gerda	0.34
	Ishan Gopalpur	1.40
	Ishan Gopalpur	1.68
	Kaijuri	1.47
	Kanaipur	1.52
	Kanaipur	0.63
	Macchar	1.72
	North Channel	1.67
	North Channel	0.75

Source: Estimated by the consultants, 2018.

12.4 Recreational Facilities and Open Space

Recreational facilities include, Stadium, Sports Complex, Indoor Stadium, Planetarium, Park, Botanical Garden and zoo. **Table 12.6** shows the proposed lands to meet up the demand of projected people.

Table 12. 6: Proposals for Open Space and Recreational Facilities

Proposed Facilities	Location	Area (acre)
Stadium	Kaijuri	8.55
Sports Complex	Kaijuri	11.24
Planetarium	Kaijuri	12.44
Park	Kaijuri	7.35
Botanical Garden and Zoo	Ambikapur	28.70

Source: Estimated by the consultants, 2018.

12.5 Planned Residential Area

Housing is one of the basic needs of every human being. Financial condition is a prominent factor to own a house. In order to direct the development in a planned way planned residential housing has been proposed. For the lower income group low cost housing area has been proposed. Along with that resettlement housing area has also been proposed. **Table 12.7** represents the information.

Table 12. 7: Proposed Housing Area

Proposed Residential Area	Location	Area (acre)
Housing Area	Ambikapur	203.76
Low Income Housing	Ambikapur	14.58
Resettlement Zone	Krishnanagar	91.56
	Ambikapur	88.46
	Ambikapur	40.89
	Kaijuri	215.52

Source: Estimated by the consultants, 2018.

12.6 Transportation Facilities

Transportation facilities include Bus / Truck Terminals. **Table 12.8** shows the proposed transportation proposals.

Table 12. 8: Proposals for Transportation Facilities

Proposed Transportation Facilities	Location	Area (acre)
Proposed Bus Terminal	Ambikapur	2.24
Proposed Truck Terminal	Ambikapur	2.05

Source: Estimated by the consultants, 2018.

12.7 Utility Facilities

Utility facilities are one of the most important components of a planned developed area. For Faridpur Upazila utility facilities have been proposed on the basis of the future population growth and the need. It includes solar park, overhead tank, sludge treatment plant, solid waste disposal site. **Table 12.9** presents the proposed utility facilities.

Table 12. 9: Proposals for Utility Facilities

Proposed Utility Facilities	Location	Area (acre)
Solar Park	Kaijuri	24.49
Overhead Tank	Ambikapur	0.39
Sludge Treatment Plant	Ambikapur	5.65
Solid Waste Disposal Site	Ambikapur	5.40

Source: Estimated by the consultants, 2018.

12.8 Agricultural Facilities

To promote the agricultural products and to maximize agricultural production different agricultural facilities have been proposed. These facilities include dairy farm, cold storage, food processing zone, jute processing zone. **Table 12.10** describes the agricultural facilities.

Table 12. 10: Proposed Agricultural Facilities

Proposed Agricultural Facilities	Location	Area (acre)
Dairy Farm	North Channel	2.24
	Char Madhabdia	2.86
Cold Storage	Gerda	1.89
Food Processing Zone	Kanaipur	3.32
Jute Processing Zone	Krishnanagar	4.27

Source: Estimated by the consultants, 2018

12.9 Mixed Use Zone

A mixed-use zone has been proposed in the proposed land use plan. The location of this zone is Ambikapur and area is 34.37 acre.

******The mentioned proposed features and facilities have been outlined according to the Plot Schedule at Appendix-D. And Detail Land Schedule of Proposed Landuse at Structure Plan, Urban Area Plan & Proposed Road Network can be found at Plot Schedule Book.

Chapter 13 Urban Area Plan

13.1 Introduction

Urban Area Plan is the third stage of the current plan package. This plan is based on the framework of the Structure Plan prepared in the earlier phase. The Plan is intended to address those areas of the Structure Plan that are likely to face urban growth in the next 10 years. Detailed Area Plan provides the more detailed planning proposals for specific sub-areas of the city. The Urban Detail Area Plans are prepared as comprehensive implementation guides that incorporate the development policies, guidelines and framework set by the Structure Plan for different subareas of the Upazila. It provides planning proposals for specific sub-areas for the provision or improvement of road network, access roads, community facilities, utilities and services, streetscape, outdoor spaces, squares, outdoor furnishing, sign-symbols & billboard and a detail pattern of land uses. The Urban Detail Area Plan is supposed to face urban growth in the next 20 years. Since, the Detailed Area Plan is prepared at community scale, community participation in their planning and implementation can be an important concern, and in this procedure, the plan is more likely to be applied, appreciated and accompanied by the community. Development Plan for Faridpur Sadar Upazila includes an Urban Area Plan and this plan proposed an Urban Detail Area Plan for Faridpur Sadar Paurashava.

13.2 Demarcation of the Planning Area and Plan Period

The total planning area is about 17.40 sq. km. in Faridpur Sadar Paurashava in the structure plan. Total (9) wards are considered as the Urban Area. The Following **Table 13.1** shows planning area.

Table 13. 1: Planning Area of Faridpur Sadar Paurashava

Faridpur Sadar Paurashava	Area in Acre	Area in sq. km
Ward No-01	474.44	1.92
Ward No-02	835.22	3.38
Ward No-03	202.63	0.82
Ward No-04	259.46	1.05
Ward No-05	800.62	3.24
Ward No-06	345.95	1.40
Ward No-07	469.50	1.90
Ward No-08	425.02	1.72
Ward No-09	486.80	1.97

Source: Estimated by Consultants, 2018

13.3 Land Use Plan

The Urban Area Plan identifies approaches of planning existing and proposed land use. It is based on the land use policies, guidelines and proposals including land use zoning plan. In Faridpur Sadar , Urban area consists of one Paurashava: Faridpur Sadar Paurashava.

19 types of land uses are found. It is clearly evident from the table that agricultural land use (20.28% in the Faridpur Sadar Paurashava area; followed by residential (49.35 %) which contains almost half of the area of paurashva. From this data it can be concluded that most of the land of Faridpur Paurashava are occupied by residential purposes. Other land uses such as water body (10.24%), circulation network (4.29%) and Commercial (2.77%).

Proposed land use is projected for the target year 2035. More land uses has been proposed than existing land uses like Educational zone, Water channel, Planned Residential area, water supply protection zone and many more. land uses in Faridpur Sadar for accommodate target population according to planning standards. **Table 13.2** and **Table 13.3** depicts the existing and proposed urban land use. Following the planning standard, proposed land use has been calculated and shown in **Map 13.1**

Table 13. 2: Existing Land Use of Faridpur Sadar Paurashava

Landuse	Area in Sq. m	Area in Sq.km	Area in Acre	Percentage
Administrative	385034.81	0.39	95.14	2.21
Agriculture	3529023.42	3.53	872.04	20.28
Circulation Network	746316.73	0.75	184.42	4.29
Commercial	481231.95	0.48	118.92	2.77
Community Facilities	7189.08	0.01	1.78	0.04
Education and Research	499081.38	0.50	123.33	2.87
Health Services	169421.17	0.17	41.86	0.97
Industrial	166976.64	0.17	41.26	0.96
Miscellaneous	179929.89	0.18	44.46	1.03
Mixed Use	69883.77	0.07	17.27	0.40
Non-Government Services	14155.63	0.01	3.50	0.08
Orchard and Groves	419433.30	0.42	103.64	2.41
Recreational Facilities	191293.78	0.19	47.27	1.10
Religious	111566.54	0.11	27.57	0.64
Residential	8588584.25	8.59	2122.29	49.35
Restricted Area	43.31	0.00	0.01	0.00
Transport and Communication	55131.15	0.06	13.62	0.32
Utility Facilities	5292.82	0.01	1.31	0.03
Waterbody	1782146.37	1.78	440.38	10.24
Total	17401735.99	17.40	4300.06	100.00

Source: Estimated by Consultants, 2018

Table 13. 3: Proposed Urban Land use

Proposed Landuse	Area in Sq. m	Area in Sq. km	Area in Acre	Percentage
Administrative	362188.863	0.362	89.499	2.081
Administrative Zone	48124.459	0.048	11.892	0.277
Agriculture	5805580.464	5.806	1434.590	33.362
Cantonment Area	146548.727	0.147	36.213	0.842
Circulation Network	1111502.629	1.112	274.658	6.387
Commercial	387787.432	0.388	95.824	2.228
Community Facilities	6673.055	0.007	1.649	0.038
Education and Research	469383.946	0.469	115.987	2.697
Educational Facilities	7629.284	0.008	1.885	0.044
Educational Zone	83783.121	0.084	20.703	0.481
Health Facilities	200665.871	0.201	49.586	1.153

Industrial	144185.950	0.144	35.629	0.829
Miscellaneous	26141.174	0.026	6.460	0.150
Mixed Use	63335.328	0.063	15.651	0.364
Non-Government Services	11202.400	0.011	2.768	0.064
Planned Residential Area	31106.221	0.031	7.687	0.179
Recreational Facilities	183774.225	0.184	45.412	1.056
Religious	102784.442	0.103	25.399	0.591
Residential	8156333.238	8.156	2015.474	46.871
Restricted Area	43.310	0.000	0.011	0.000
Transport and Communication	51972.851	0.052	12.843	0.299
Utility Facilities	9.000	0.000	0.002	0.000
Water Channel	9.000	0.000	0.002	0.000
Water Supply Protection Zone	20.000	0.000	0.005	0.000
Waterbody	951.000	0.001	0.235	0.005
Total	17401735.990	17.402	4300.063	100.000

Source: Estimated by Consultants, 2018

13.4 Major dimension in Land Use

Planned Residential Area

In Faridpur Sadar Paurashava, half of the land are in use of residential purposes. In order to provide the residential zone a planned dimension in the near future a planned residential area has been declared. This area contains 7.86 acre of land. This area mainly has been declared to accommodate the future population which has been projected for 2035.

Circulation Network

In existing condition Faridpur Paurashava has 184.4-acre area used for circulation network. For proper functioning of an urban area its circulation network must be well serviced and sufficient. For this purpose, 274.65-acre area has been proposed for circulation network.

Water Supply Protection Zone

As river and different chara have been passed through this area a water supply protection zone has been declared to protect the waterbodies and as well as to protect the inhabitants of this area from any kind of disaster due to river erosion. To fulfill this purpose .004-acre area has been declared as water supply protection zone.

Recreational Facilities

In existing landuse 47.27-acre area is in use as recreational facilities. For urban people recreational facility is a very important element. In proposed plan, 45.41-acre land are proposed as recreational facilities.

Water Channel

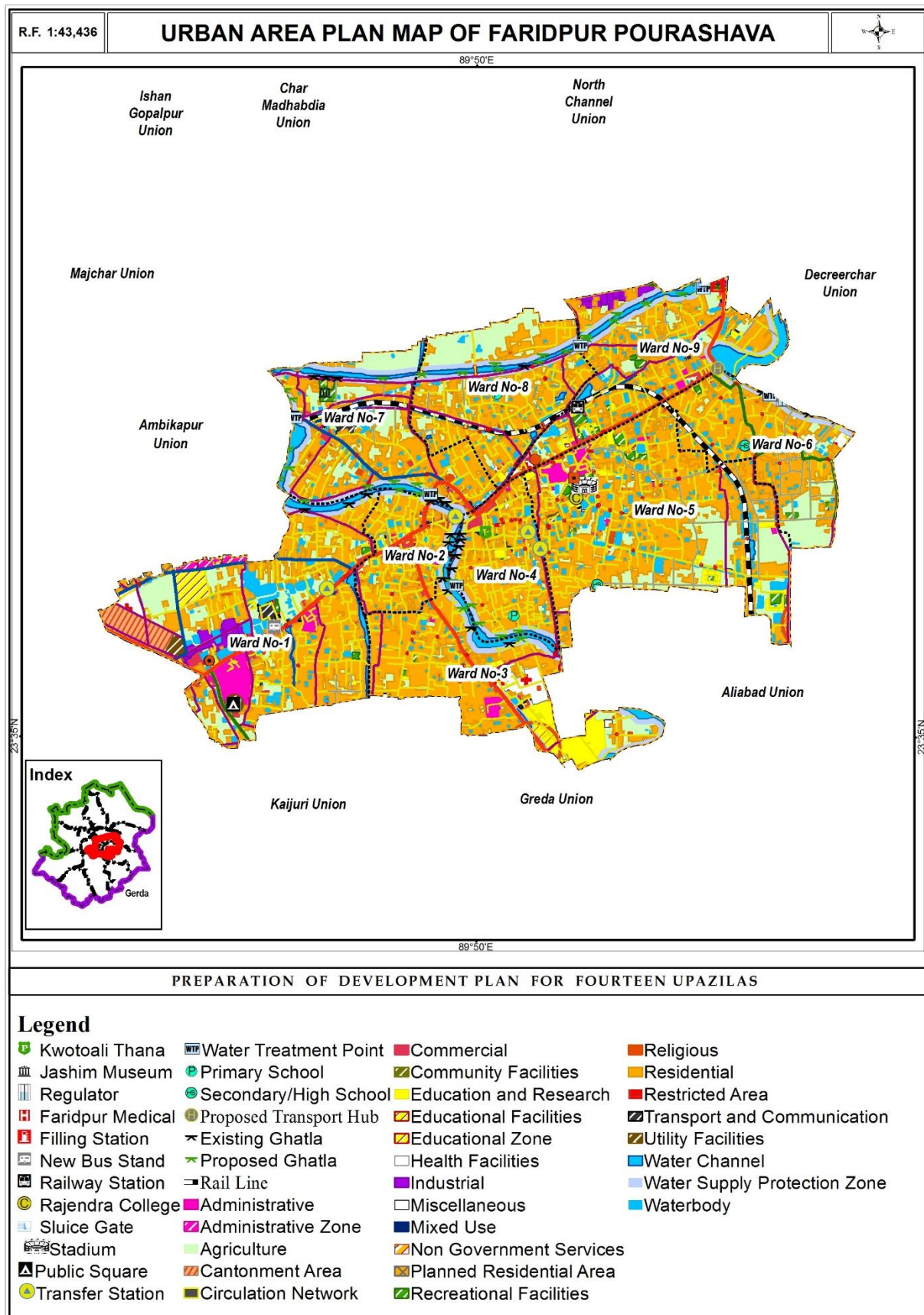
A new category of land use has been declared in the proposed urban land use plan which is water channel. This water channel contains .0022 acre of the area.

Educational Zone

Educational zone is a new type of land use which has been introduced in the proposed land use plan. This zone consists of different training and research institutions. The area of this zone is 20.70 acre.

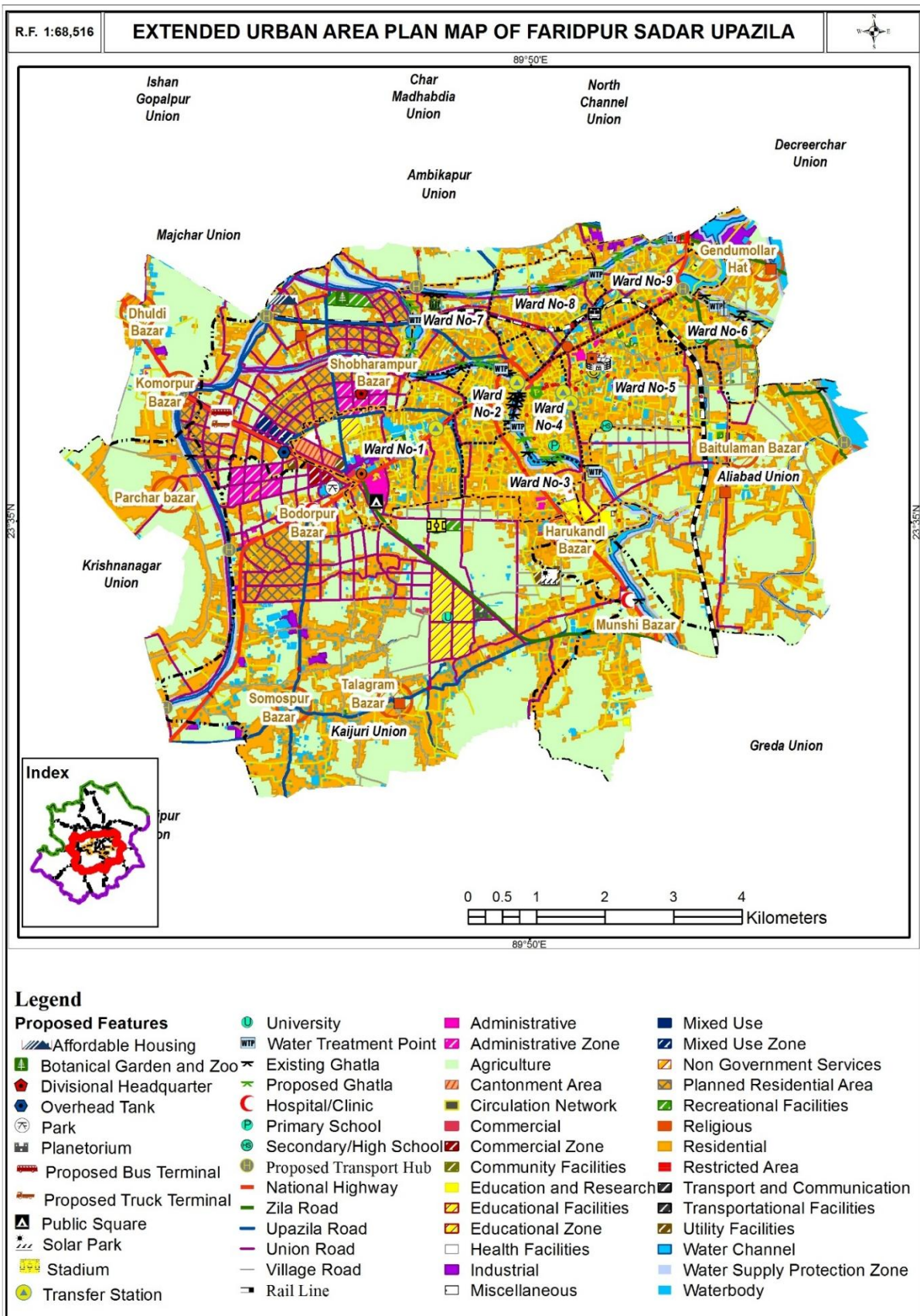
Agriculture

Agricultural land is the most important asset for our country. For this purpose, 335 area has been declared for agricultural use. **Map 13.1** represents the proposed urban area plan of Faridpura Sadar Upazila and **Map 13.2** represents the extended urban area plan.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 1: Urban Area Plan of Faridpur Sadar Paurashava



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 2: Proposed Extended Urban Area Plan Map of Faridpur Sadar Upazila

13.5 Ward Wise Urban Area Plan

The Faridpur Sadar Paurashava is a total of 4299.24 acres of land. The proposed facilities are analyzed and divided through the population density growth rate and existing available resources.

Ward No. 1

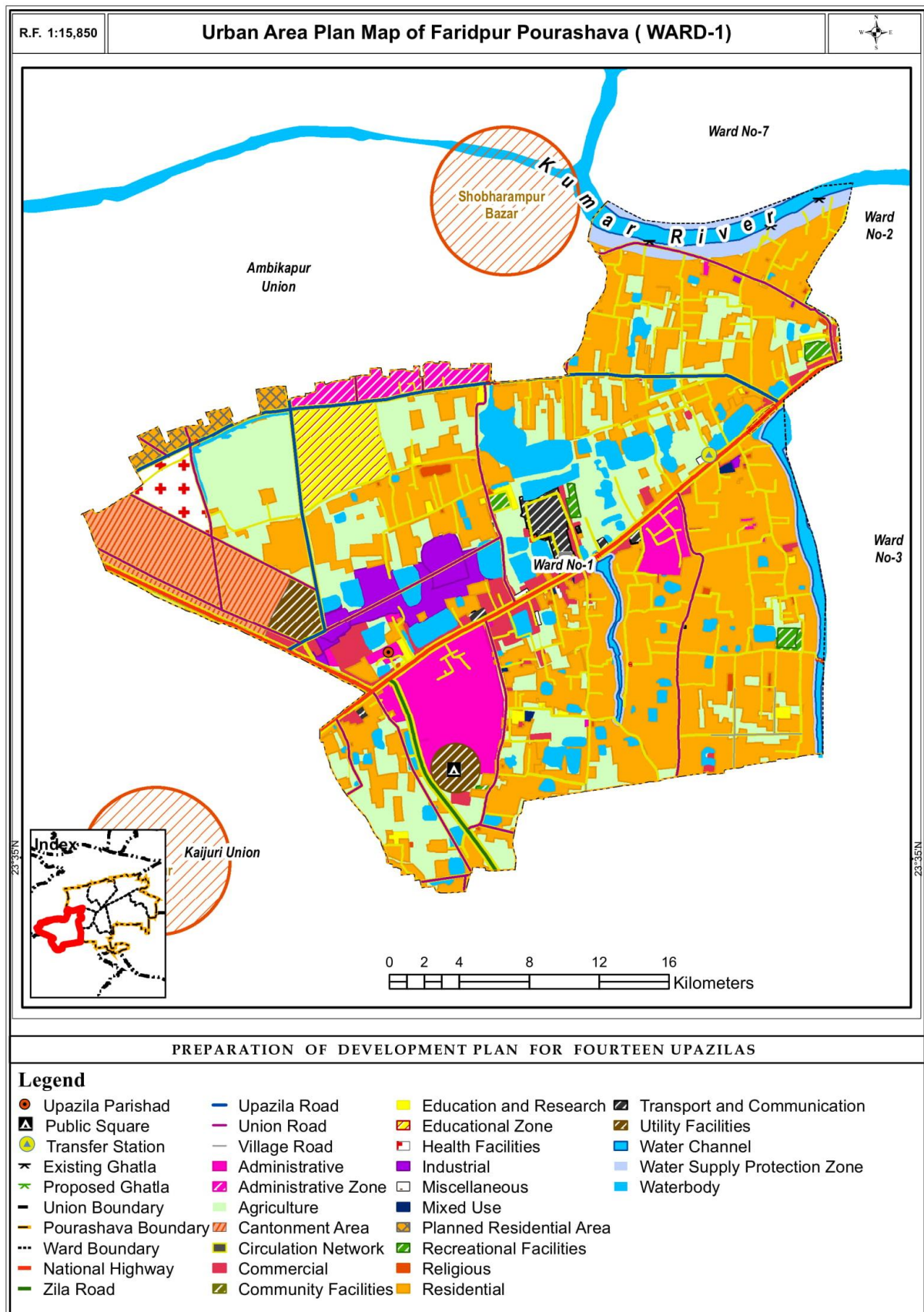
In ward no 1, of Faridpur Sadar Paurashava is comprise of 474.91 acres. According to the socio-economic condition of the area the first priority is road connectivity. As it is part of urban area and the almost half of the land is used for residential purposes road connectivity is a vital issue. **Table 13.4** will describe the proposed road within this ward. A National highway goes through the ward. The provision of union road will increase the connectivity with regional highway. Road proposals will increase internal connectivity within the paurashava area it will also reduce traffic congestion by widening existing narrow roads.

Table 13. 4: Proposed Road in Ward No 1.

Proposed Road	Area (acre)	Length in km
National Highway	16.2614	7.246
Union Road	14.8719	17.350
Upazila Road	9.2055	7.075
Village Road	0.9067	1.543
Zila Road	4.0862	1.734

Source: Estimated by Consultants (2018)

The proposed land use of Faridpur Sadar Paurashava combined with urban-agricultural pattern. The most of the Paurashava area is agricultural land, centered with some residential zone. The proposed facilities will provide the inter connectivity between agricultural and urban development. In ward no.01 11.89 acre area has been declared for agricultural use. This ward is also very significant in terms of administrative activities which occupy 40.68 acre area. The residential zone of this award is 303.31 acre. **Map 13.2** presents the details about it.



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 3: Urban Area Plan of Faridpur Sadar Paurashava (Ward-1)

Wad No. 2

In ward no 2, of Faridpur Sadar Paurashava is comprise of 834.90 acres of land. In this ward significant landuses are agriculture and residential. The area of residential zone is 112.92acre and agricultural land is 10.17 acre. **Map 13.3** shows the landuse of the ward and following **Table 13.5** presents the list of proposed road network.

Table 13. 5: Proposed Road

Proposed Road	Area(acre)	Length in km
National Highway	7.7064	3.392
Union Road	0.9601	1.143
Village Road	0.3443	0.770

Source: Estimated by Consultants (2018)

A national highway goes through the ward. To improve connectivity to essential service and economic market roads have been proposed.

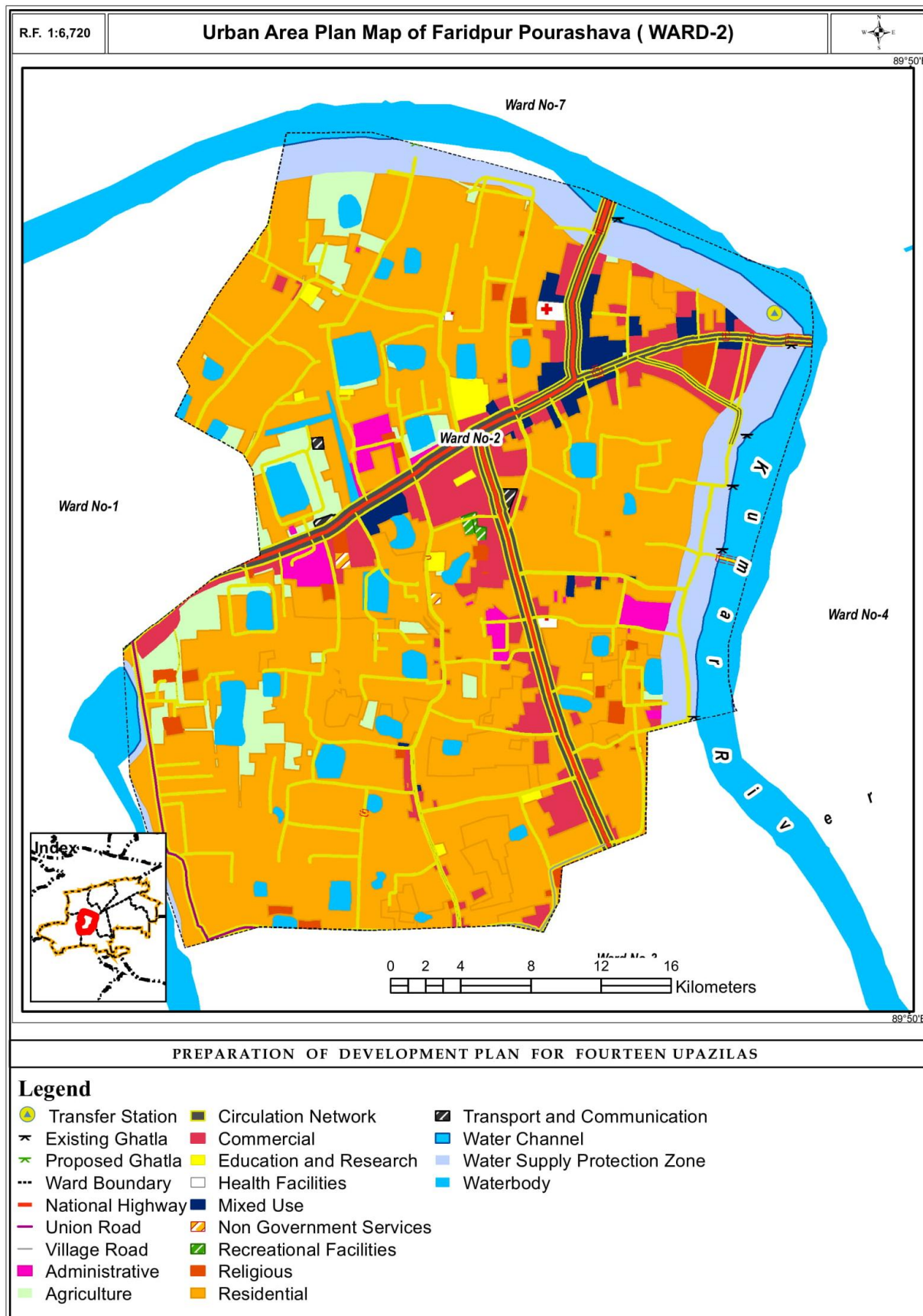
Ward no 3

Ward no 3, has 203.29 acres of land. This ward also comprises most of land as agriculture. The area of agricultural land is 35.70 acre. Most prominent land uses of this ward are education and research and health facilities. The areas of these two uses are 57.30 and 28.41 acres. Residential area occupies an area of 232.03 acre. **Table 13.6** will present the list of proposed road network and **Map 13.4** presents the proposed urban area plan for Ward no 3.

Table 13. 6: Proposed Road

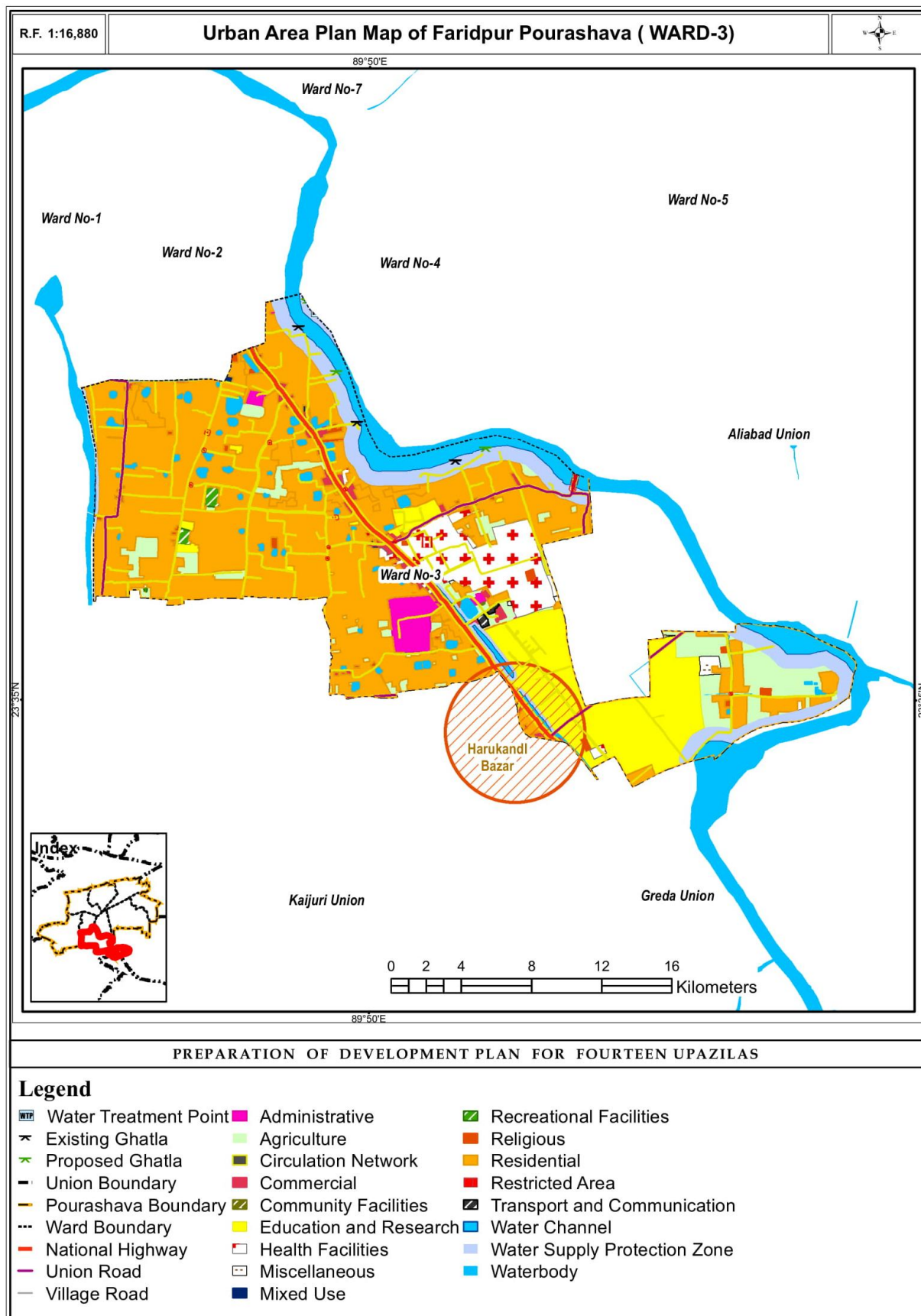
Proposed Road	Area(acre)	Length in km
National Highway	9.4928	3.933
Union Road	4.3487	5.092
Village Road	0.3040	0.707

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 4: Urban Area Plan of Faridpur Sadar Paurashava (Ward-2)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 5: Urban Area Plan of Faridpur Sadar Paurashava (Ward-3)

Ward No. 4

As from the survey of existing land use it has been identified that in Faridpur Paurashava almost half of the land use is residential. Unlike in ward 4 the dominating land use is residential which area is 152.49acre. Agricultural land is also there which area has been declared 9.30 acre. The commercial zone of this ward has been proposed area of 14.17 acre.

In propose facilities road network is the most important factor to fasten the improvement of an area. Roads are proposed to be widen or new roads as well as have been proposed. **Table 13.7** shows the proposed road in Ward no 4. **Map 13.5** depicts the proposed urban area plan.

Table 13. 7: Proposed Facility in ward no 4.

Landuse	Area (Acre)	Length in km
National Highway	2.72	1.24
Union Road	2.21	2.73

Source: Estimated by Consultants (2018)

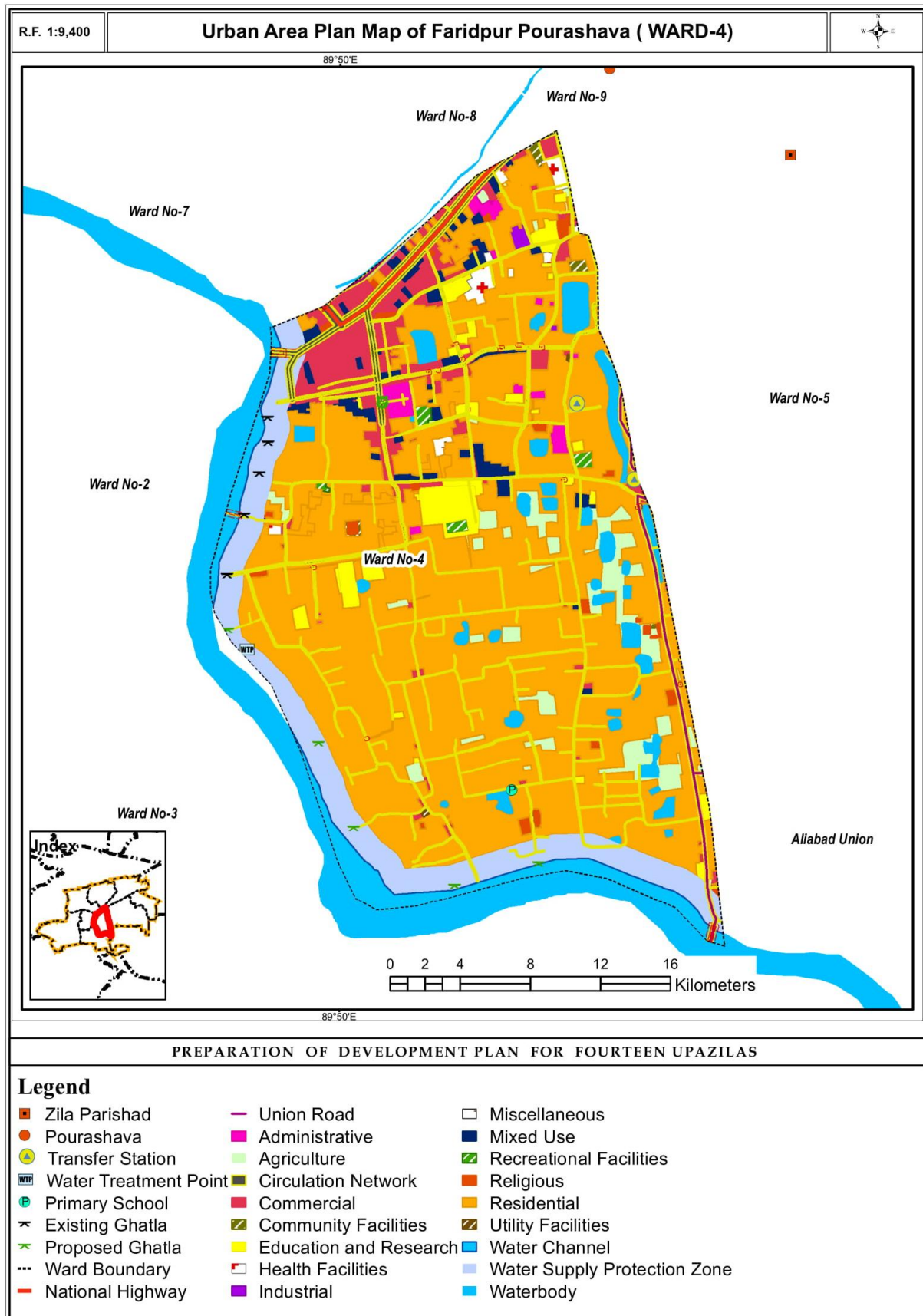
Ward No. 5

In ward no 5, of Faridpur Sadar Paurashava comprises of different uses of land like other wards. It is also predominantly agricultural area but it has the potentiality for future urban development. Road network proposals are represented in **Table 13.8** and **Map 13.6** presents the proposed urban area plan.

Table 13. 8: Proposed Road Network in Ward 5

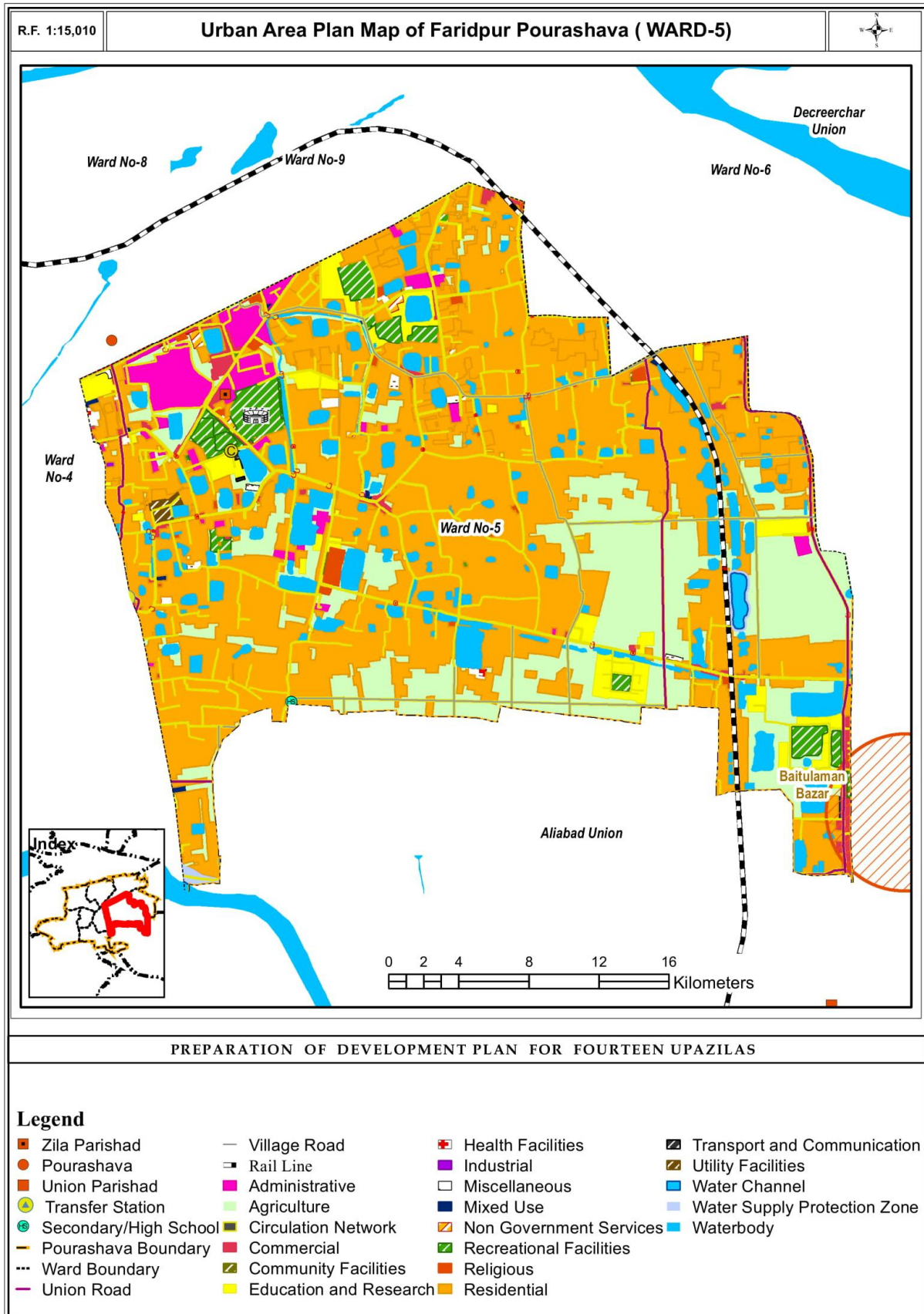
Road Category	Area (Acre)	Length (Km)
National Highway	1.627	2.087
Union Road	5.837	8.437
Village Road	8.014	13.832

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 6: Urban Area Plan of Faridpur Sadar Paurashava (Ward-4)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 7: Urban Area Plan of Faridpur Sadar Paurashava (Ward-5)

Ward No. 6

Like other wards described before Ward no 6 has been also divided into different land use categories. In the proposed land use water supply protection zone, water channel has been added for the better development of the area along with conserving the waterbodies. Schools have been proposed in Ward no 6 which has been discussed in the previous chapter. Proposed urban area plan of Ward no 6 has been presented in **Map 13.7**. In this context the proposed road network has depicted in **Table 13.9**.

Table 13. 9: Proposed Road Network in Ward no 6

Road Category	Area (Acre)	Length (km)
National Highway	1.36	1.59
Union Road	0.48	0.99
Village Road	7.37	12.76
Zila Road	12.68	5.69

Source: Estimated by consultants (2018)

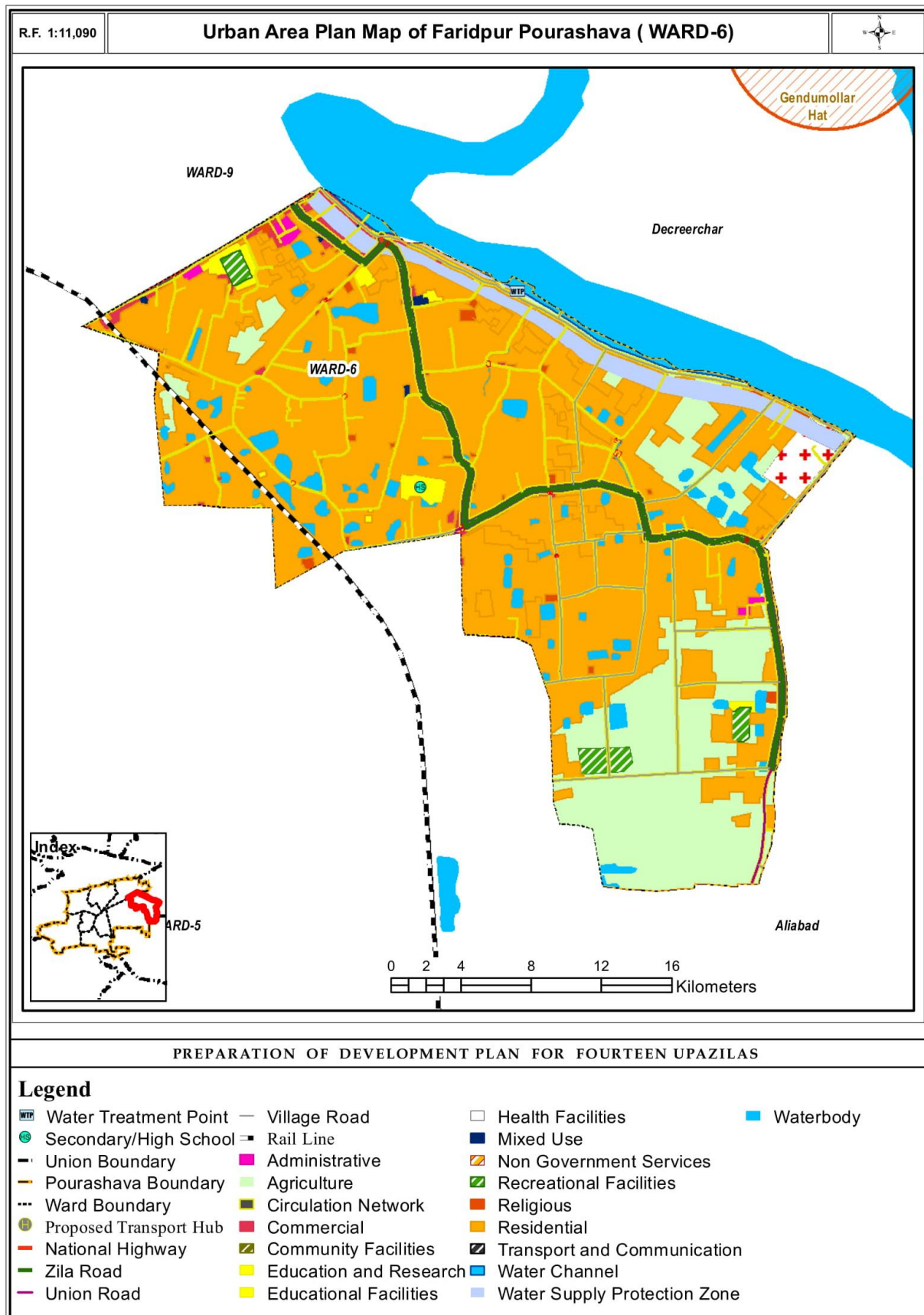
Ward No. 7

As from the survey of existing land use it has been identified that in Faridpur Paurashava almost half of the land use is residential. Unlike in ward no 7 the dominating land use is residential which area is 171.61 acre. The proposed urban area plan has been presented in **Map 13.8**. The proposals of road network have been described in **Table 13.9**

Table 13. 10: Proposed Road Network in Ward no 7

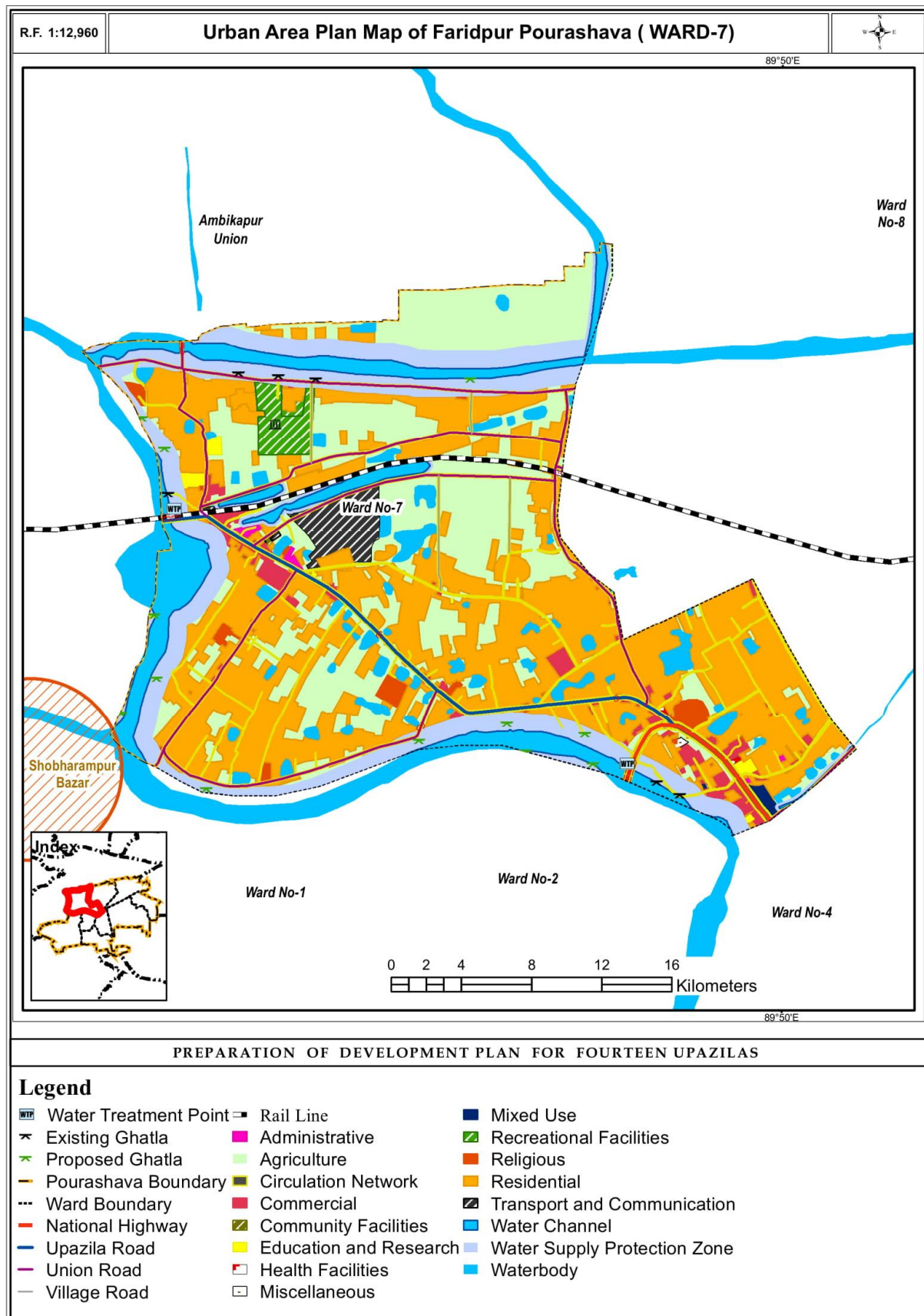
Road Category	Area (Acre)	Length (Km)
National Highway	3.23	1.39
Union Road	11.10	13.44
Upazila Road	4.89	3.58
Village Road	1.06	1.90

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 8: Urban Area Plan of Faridpur Sadar Paurashava (Ward-6)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 9: Urban Area Plan of Faridpur Sadar Paurashava (Ward-7)

Ward No. 8

As like other wards described before Ward no 6 has been also divided into different land use categories. In the proposed land use water supply protection zone, water channel has been added for the better development of the area along with conserving the waterbodies. High school has been proposed for this ward which has been discussed in the previous chapter. In **Map 13.9** the proposals of urban area plan of Ward no 8 has been presented. To make the paurashava area more flexible in terms of road network proposal have been presented in the **Table 13.11**.

Table 13. 11: Proposed Road Network in Ward no 8

Road Category	Area (Acre)	Length (Km)
Union Road	6.48	8.91
Village Road	1.18	2.04

Source: Estimated by Consultants (2018)

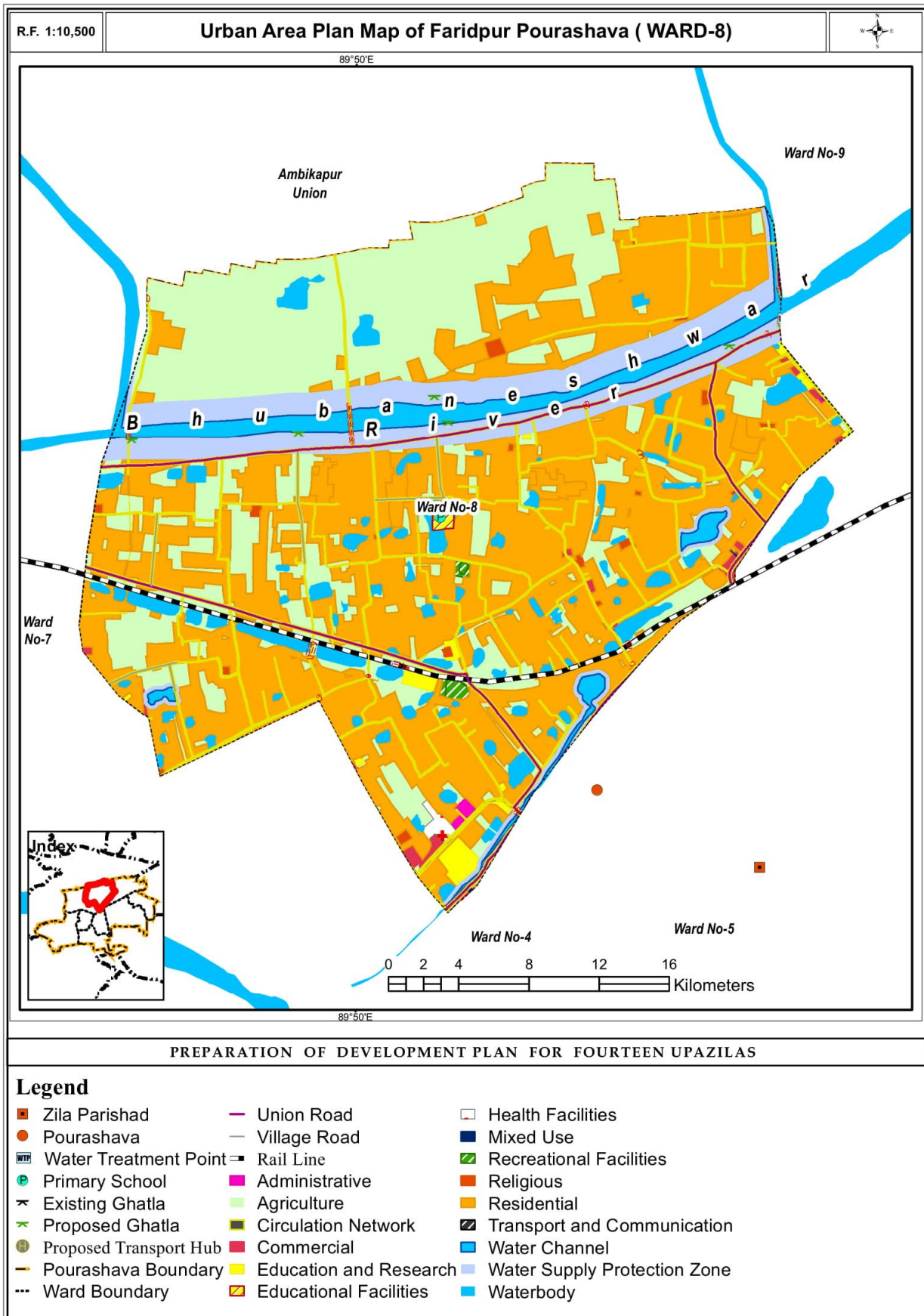
Ward No. 9

The proposed land use for the Paurashava area has given a new dimension. The land use proposals have been made in keeping account the future need and environmental issues. In ward no 9 the dominating land use is 207.20 acre. To make the easier communication facility roads have been proposed. The proposals have presented in **Table 13.12** and **Map 13.10** depicts the proposed urban area plan of this ward.

Table 13. 12: Proposed Road Network in Ward 9

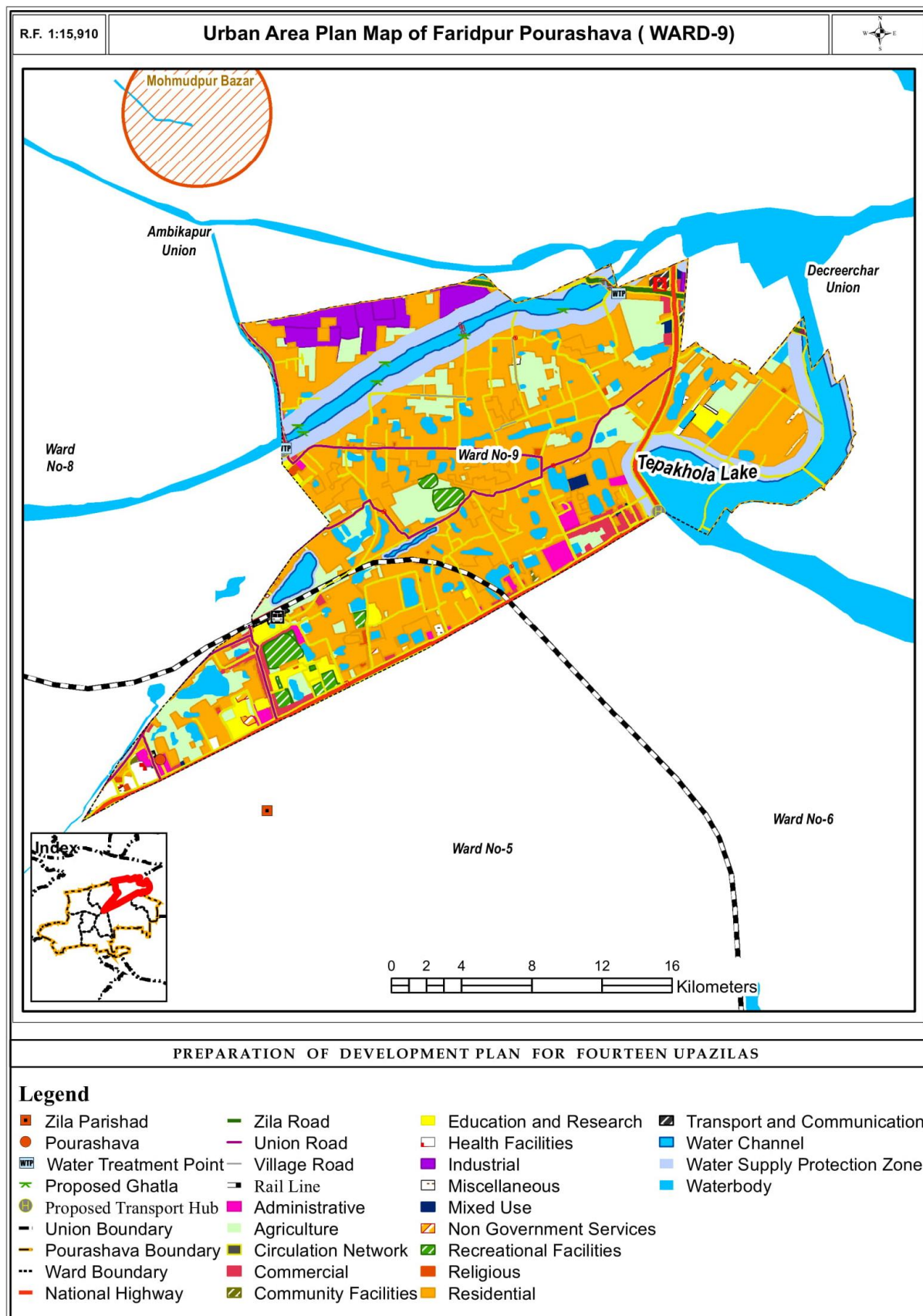
Road Category	Area (acre)	Length in km
National Highway	13.56	6.80
Union Road	6.64	9.28
Village Road	0.92	1.60
Zila Road	2.79	1.37

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 10: Urban Area Plan of Faridpur Sadar Paurashava (Ward-8)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 13. 11: Urban Area Plan of Faridpur Sadar Paurashava (Ward-9)

Chapter 14 Rural Area Plan

14.1 Introduction

Faridpur Sadar Upazila has nine Unions. All the Union are agriculture oriented. Bairab, Ichamati, Mathabhanga and Kazla Rivers are run through this Upazila. Three notable beels are exists here. In this chapter the union wise detail plan is presented. The aim of the proposed plan is to provide sustainable living while enhancing economic activities and protecting its nature. Considering the general character and quality of the union and what people care about, Union wise landuse is proposed here. Every union has its own characteristics and preference. This plan proposed some facilities for every union according to their functionality, character and local peoples' demand. Circulation network is very important for the development of any area. Circulation pattern may boost the economic activities and ease the life of local people. In this chapter, road network is also proposed for every Union.

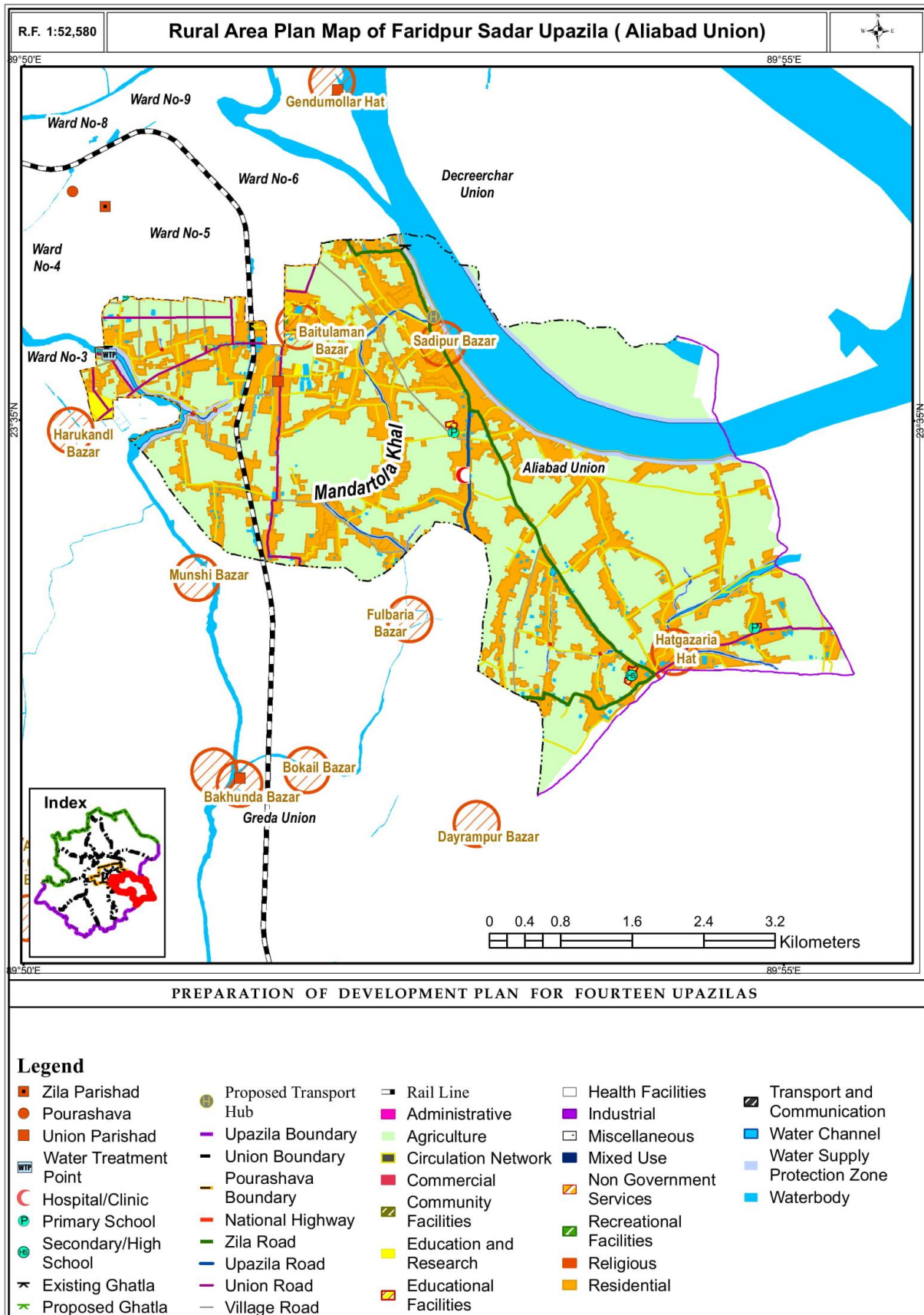
14.2 Aliabad Union

Aliabad Union is mainly agriculture based. The agriculture zone must be remaining unchanged and can be used only for agriculture purpose considering agricultural nature of the union an agro-based industry consisting 3506.62 acres of land has been proposed here to pace economic growth of the Union. Which is a huge amount of area. The agricultural lands are the asset of our economy. It cannot be altered for any kind of development. Unions are termed as rural area. The settlement is an important land use the area of 1557.22 acres have been proposed for residential use. 2 primary schools and 1 high school have been proposed in Aliabad. Proposals related to circulation network has been given. In **Table 14.1** and **Map 14.1** the proposals have been presented.

Table 14. 1: Proposed Road network in Aliabad Union

Road Category	Area (acre)	Length in km
National Highway	0.49	0.335
Union Road	16.29	22.13
Upazila Road	4.14	2.85
Village Road	20.28	34.54
Zila Road	44.36	17.06

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 14. 1: Proposed Land use Map of Aliabad Union

14.3 Ambikapur Union

As the unions are in the rural side of this upazila agricultural land use is significant in each union. In Ambikapur 1956.40 acres area has been proposed for agriculture. In Ambikapur administrative zones of 89.83 and 82.72 acres have been proposed. 2 resettlement zones have been proposed in Ambikapur the area of this two zones are 88.46 acre and 40.89 acre. In the proposed land use for Ambikapur water channel and water supply protection zones are new features. An industrial zone has been proposed which area is 76.15 acre. For a planned development and providing all kinds of facilities for the inhabitants like overhead tank, sludge treatment plant and solid waste disposal site have been proposed. Transport and communication facilities have been proposed in this union. For better communication facility road network proposals have also given. **Table 14.2** depicts the proposals of road network and **Map 14.2** presents the proposed land use plan of this union.

Table 14. 2: Proposed Road Network in Ambikapur Union

Road Category	Area in Acre	Length in km
National Highway	13.62	5.86
Union Road	81.25	95.87
Upazila Road	18.79	14.44
Village Road	12.17	20.60
Zila Road	19.99	7.88

Source: Estimated by Consultants (2018)

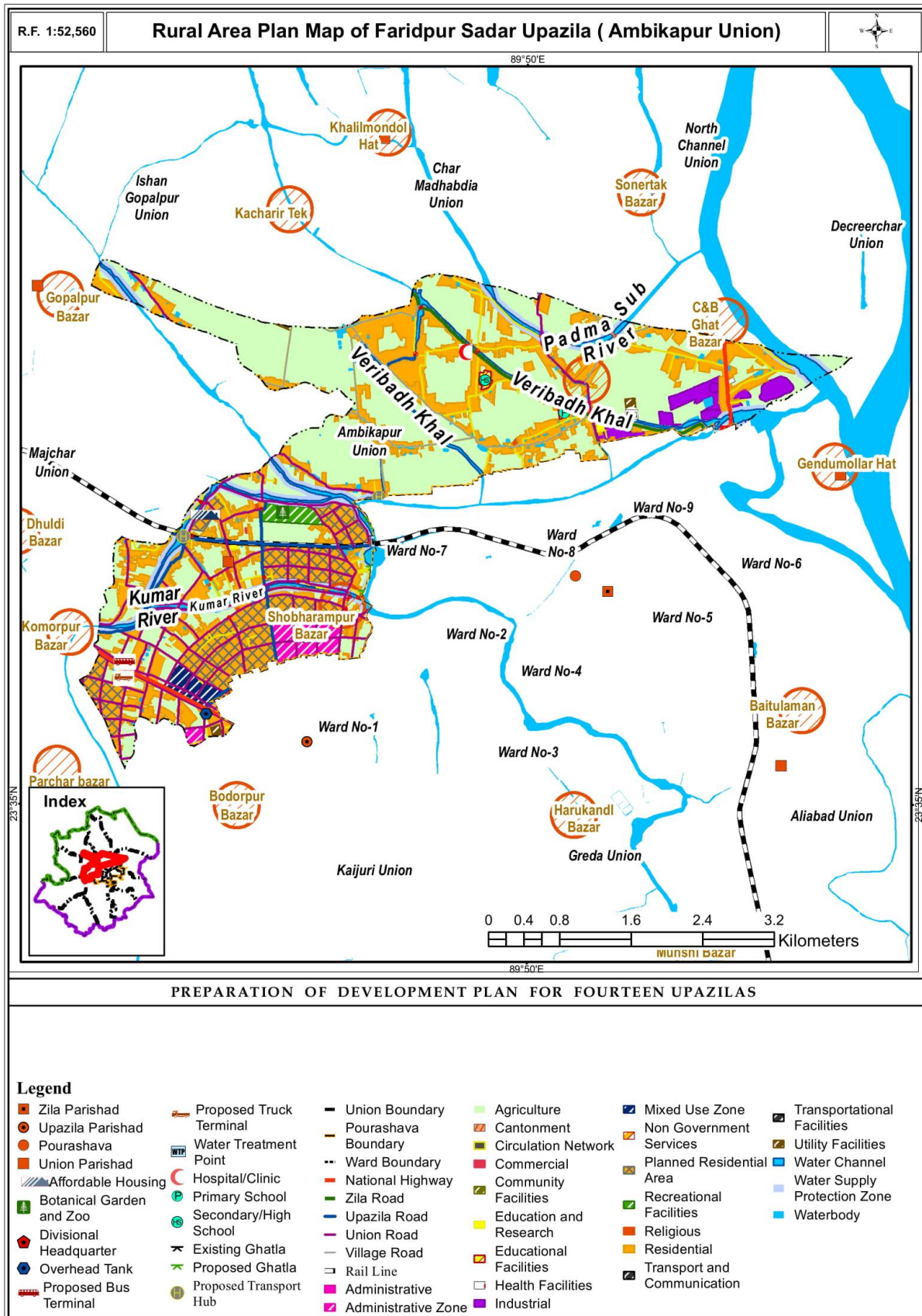
14.4 Char Madhabdia Union

Agricultural land has been given the highest priority while preparing the proposed land use plan. The area of 5207.12 acre has been proposed for agricultural land. For the betterment of the agricultural products some agricultural facilities like cold storage has been proposed in this union. For health facilities 2 clinics have been proposed in this union. 717.93-acre area has been proposed for residential use. Road network proposals have been given on the basis of the existing scenario and future demand. **Table 14.3** represents the proposal and **Map 14.3** represents the proposed land use plan.

Table 14. 3: Proposed Road Network in Char Madhabdia Union

Road Category	Area in acre	Length in km
Union Road	20.53	30.62
Village Road	29.56	50.02
Zila Road	22.93	9.052

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 14. 2: Proposed Land use Map of Ambikapur Union



Map 14. 3: Proposed Land use Map of Char MadhabdiaUnion

14.5 Decreerchar Union

Decreer Char Union is mainly agriculture based. The agriculture zone must be remaining unchanged and can be used only for agriculture purpose considering agricultural nature of the union an agro-based industry consisting 3242.93 acres of land has been proposed here to pace economic growth of the Union. An industrial zone of 37.19 acre has been proposed. Residential area of 374.93 acre has been proposed. In case of proposed facilities 1 primary and high school, 1 clinic have been proposed. Road network proposals have been given in **Table 14.4** and **Map 14.4** depicts the proposed land use plan.

Table 14. 4: Proposed Road network in Decreer Char

Road Category	Area in acre	Length in km
National Highway	1.789	0.829
Union Road	1.201	1.785
Village Road	5.955	10.142
Zila Road	29.033	11.181

Source: Estimated by Consultants (2018)

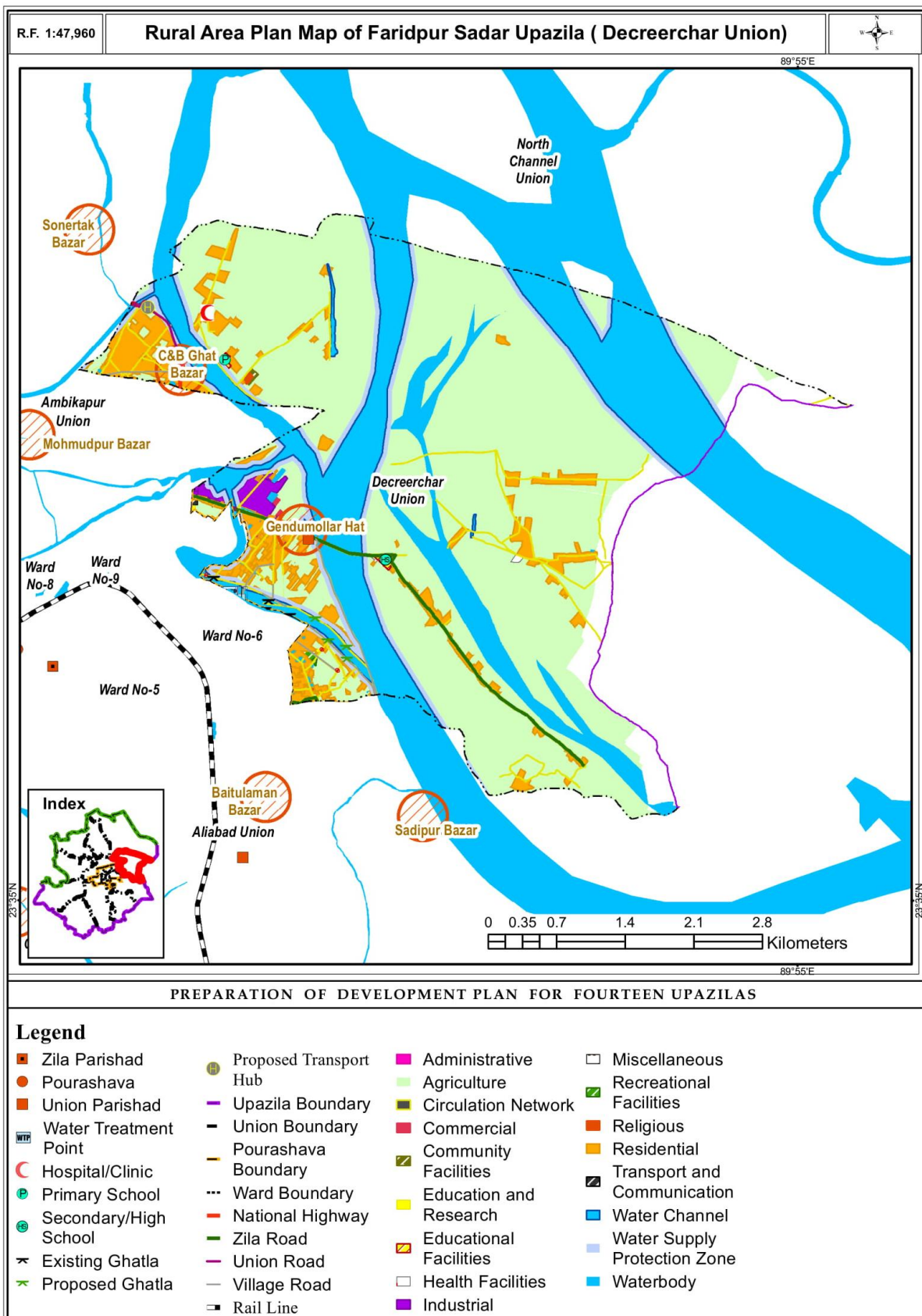
14.6 Greda Union

Maximum land coverage of Greda Union is agriculture based. The area of agricultural land has been proposed is 3176.88 acre. A cold storage has been proposed in this union to facilitate the agricultural products. Residential area of this union is huge it is 1799.36 acre. 1 primary school and 1 health clinic has been proposed in Greda. Circulation network is a very important facility for an area. Proposals of circulation network have been presented in **Table 14.5** and **Map 14.5** presents the proposed land use plan.

Table 14. 5: Proposed Road Network in Greda Union

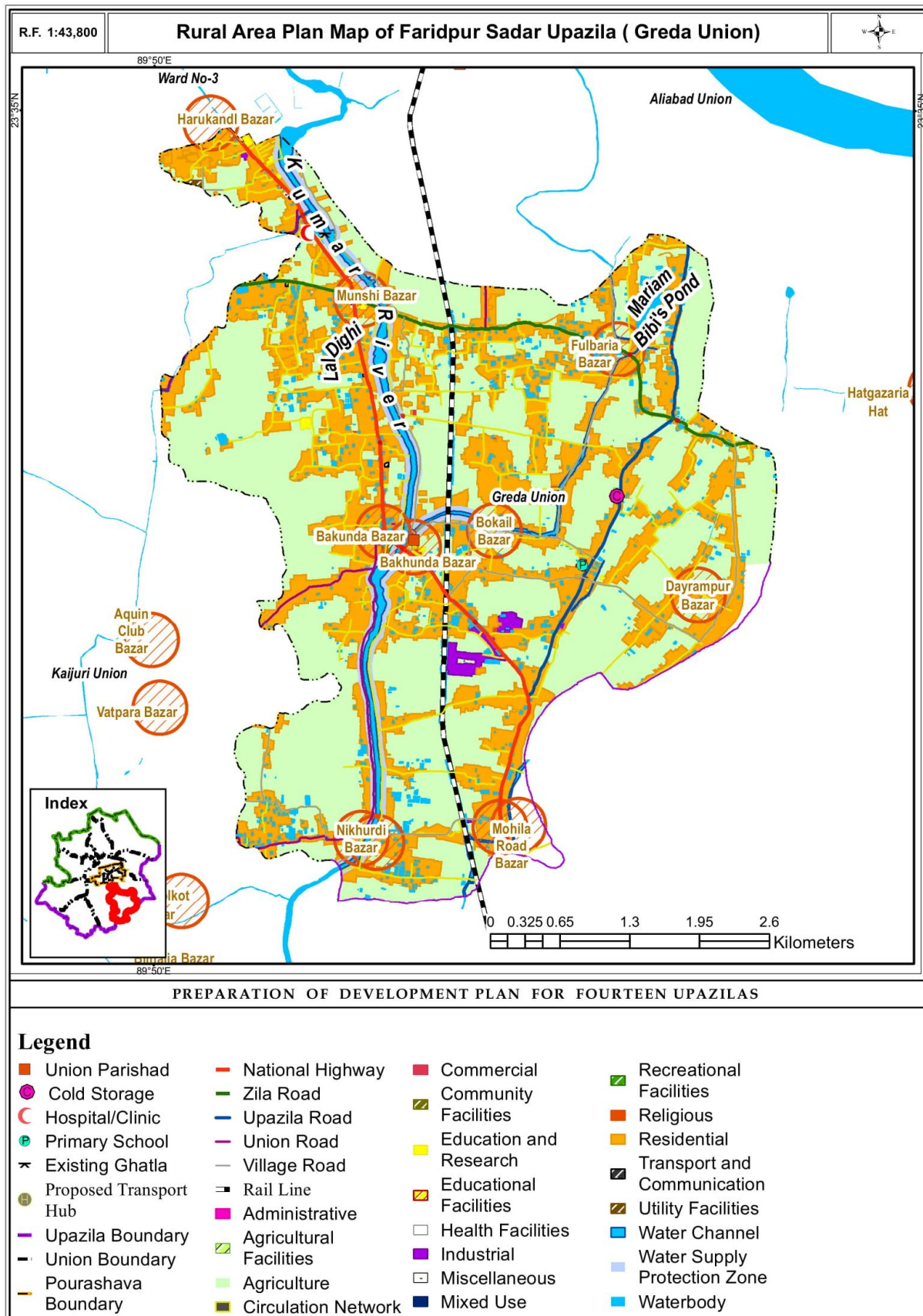
Road Category	Area (acre)	Length in km
National Highway	42.051	16.471
Union Road	8.768	13.156
Upazila Road	13.949	9.580
Village Road	20.911	35.501
Zila Road	29.533	11.700

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 14. 4: Proposed Land use Map of Decreechar Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 14. 5: Proposed Land use Map of Greda Union

14.7 Ishan Gopalpur Union

Agricultural land has been given the highest priority while preparing the proposed land use plan. The area of 5212.44 acre has been proposed for agricultural land. Another land use which occupies the highest coverage of land is residential. The proposed area is 1445.93 acre. There are industrial and mixed use zone also. 1 primary school and 2 health clinics have been proposed for this union. Along with this road network proposals have also given in **Table 14.6** and **Map 14.6** depicts the proposed land use plan.

Table 14. 6: Proposed Road Network in Ishan Gopalpur Union

Road Category	Area in Acre	Length in km
National Highway	4.432	1.714
Union Road	22.632	33.632
Village Road	38.246	64.628

Source: Estimated by Consultants (20018)

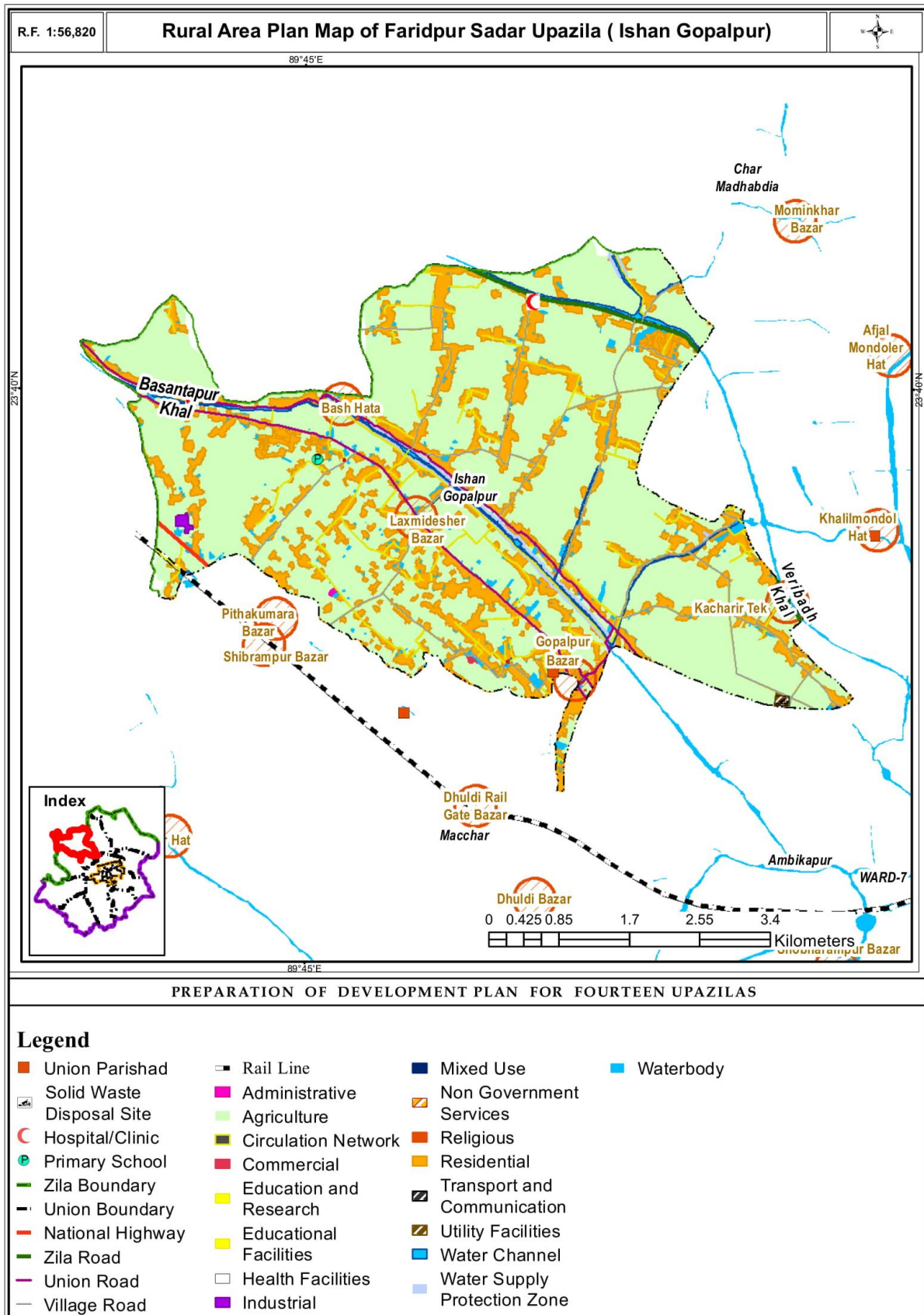
14.8 Kaijuri Union

The proposed agricultural area of this union is 6100.38 acre. On the basis of existing population and projected population a planned residential area has been proposed in this union. The area of which is 215.52 acre. The residential area is 2739.12 acre. A resettlement zone has been proposed. For the purpose of recreation different facilities have been proposed in this union such as stadium, sports complex, park, etc. To improve road network facility proposals have also give in **Table 14.7** and **Map 14.7** depicts the land use proposal.

Table 14. 7: Proposed Road Network in Kaijuri Union

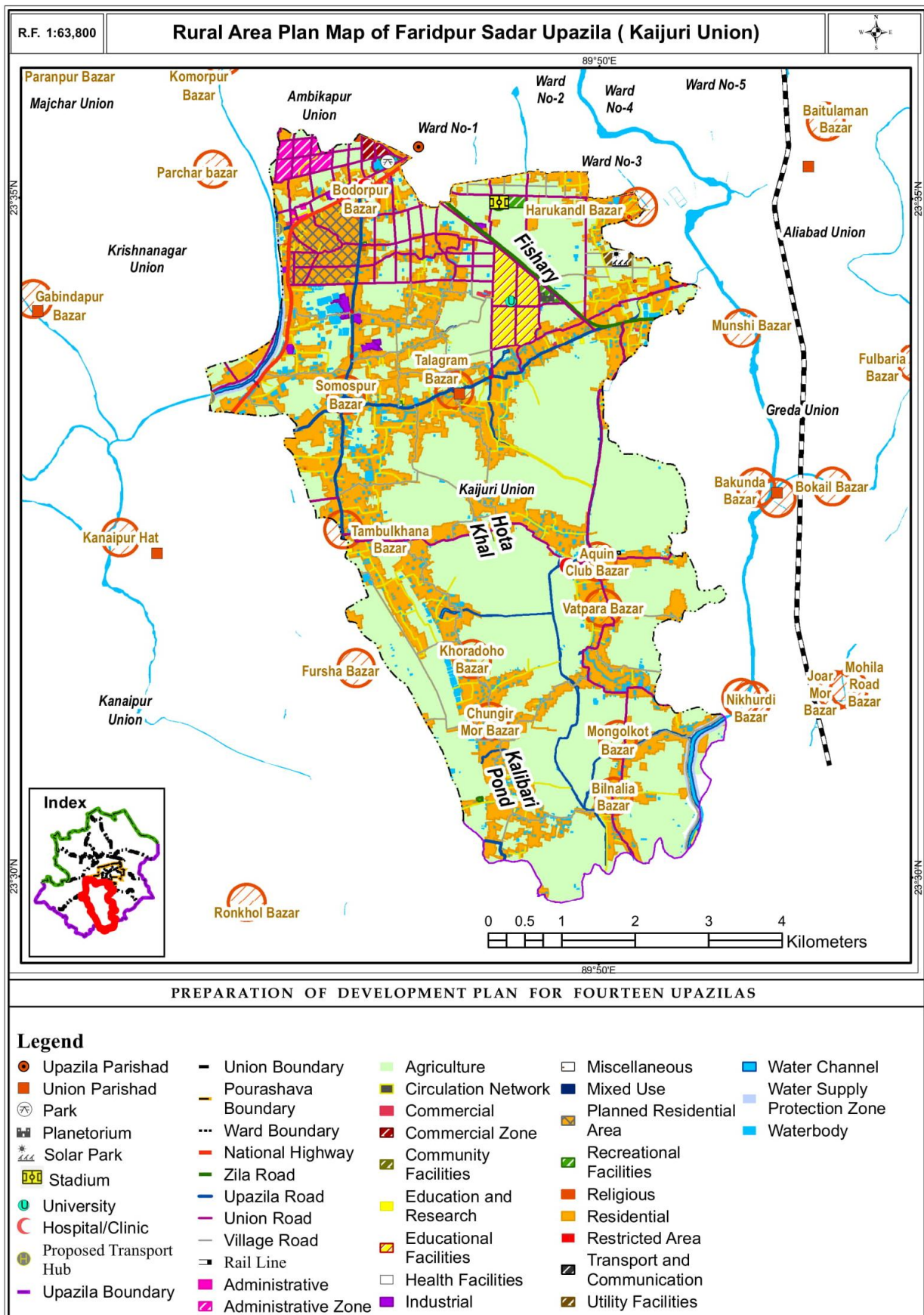
Road Category	Area in acre	Length in km
National Highway	24.778	11.621
Union Road	107.618	129.083
Upazila Road	31.880	22.709
Village Road	50.694	85.933
Zila Road	18.612	8.048

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 14. 6: Proposed Land use Map of Ishan Gopalpur Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 14. 7: Proposed Land use Map of Kaijuri Union

14.9 Kanaipur Union

Kanaipur union is also agro-based union. Like other union stated above Kanaipur has the highest land coverage for agriculture. The area is 5328.92 acre. The industrial area in proposed land use has been declared and the area is 98.44 acre. 4.22-acre area has been declared for education and research. Commercial area is 38.40 acre. A food processing zone has been proposed in Kanaipur. For the better functioning of this upazila circulation network must be effective. For this purpose, road network proposal has been given in **Table 14.8** and **Map 14.8** represents the proposed land use.

Table 14. 8: Proposed Road Network in Kanaipur Union

Road Category	Area in Acre	Length in km
National Highway	27.908	11.069
Union Road	17.576	26.127
Upazila Road	15.706	10.760
Village Road	36.594	61.929

Source: Estimated by Consultants (2018)

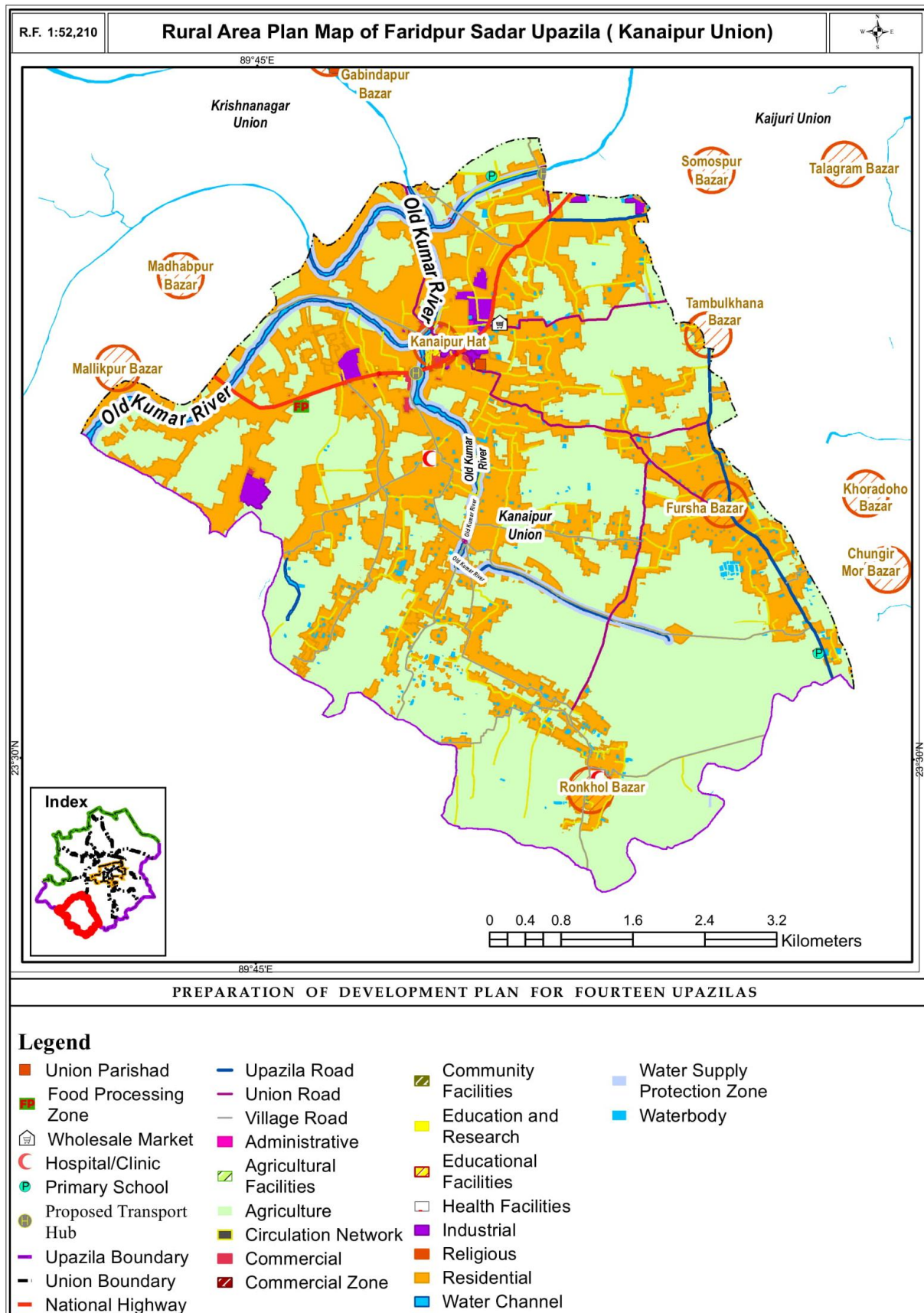
14.10 Krishnanagar Union

Proposed agricultural land of Krishnanagar union is 6810.24 acre. For agricultural improvement some facilities have been proposed in this union which are jute processing zone and cold storage. 20.77 acre of planned residential area has been proposed for this union. 2422.32-acre land has been proposed for residential use purpose. The road network proposals have been presented in **Table 14.9** and **Map 14.9**.

Table 14. 9: Proposed Road Network in Krishnanagar Union

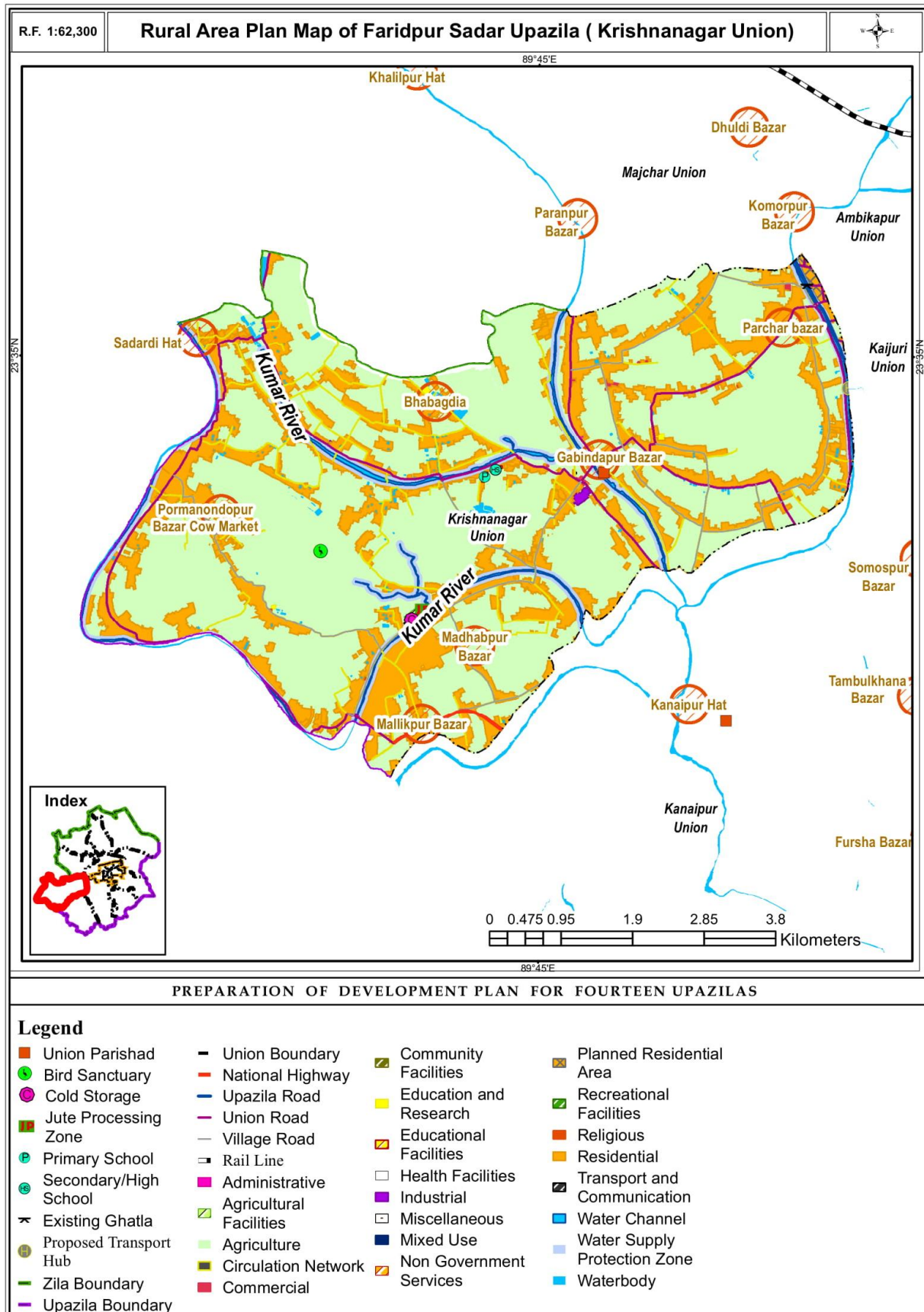
Road Category	Area in Acre	Length in km
National Highway	8.683	3.409
Union Road	41.516	61.700
Upazila Road	4.667	3.461
Village Road	32.946	55.737

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 14. 8: Proposed Land use Map of Kanaipur Union



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 14. 9: Proposed Land use Map of Krishnanagar Union

14.11 Majchar Union

Proposed land use plan has been prepared by taking into accounts the related surveys and analysis that have been done for this purpose. Like other unions Macchar union also has the almost same land use category. The amount of agricultural land is 4321.24 acre. Residential area has been proposed which area is 2048.63 acre. Education and research zone have been declared where different training centres can be developed. **Map 14.10** represents the proposed land use. Its area is 8.08 acre. For the better functioning of the union road proposals have been prepared. **Table 14.10** depicts the proposals.

Table 14. 10: Proposed Road Network in Macchar Union

Road Category	Area in Acre	Length in km
National Highway	39.539	15.781
Union Road	34.778	51.151
Upazila Road	10.685	7.599
Village Road	17.788	30.220

Source: Estimated by Consultants (2018)

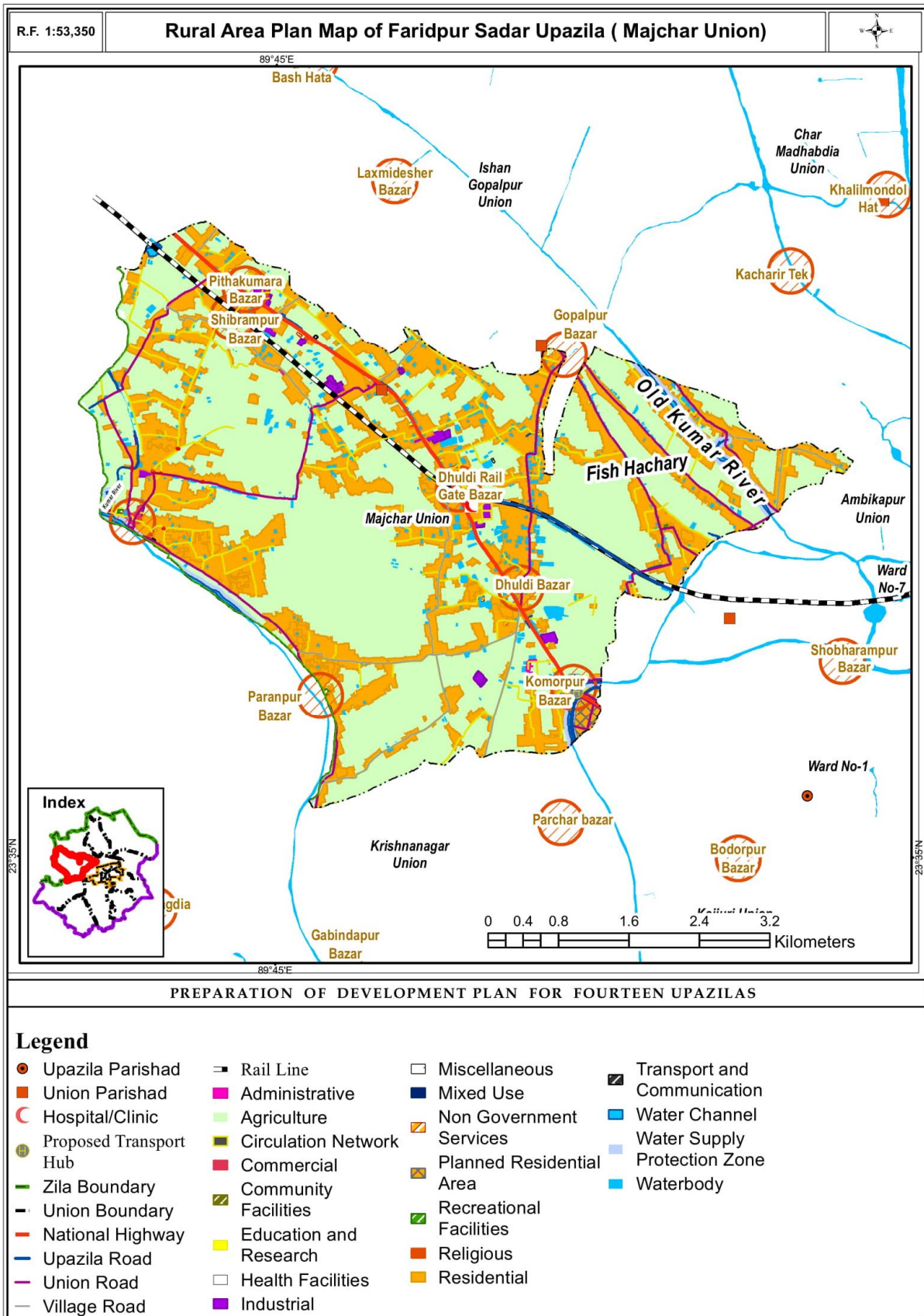
14.12 North Channel Union

North channel is the one union which comprises of the highest agricultural land of this upazila. The total area for agricultural land is 10687.50 acre. This union has many potentialities regarding agricultural development. As other unions it also has the same land use category. Around 925.56-acre area has been declared as water supply protection zone. There is no industrial use in this union. 1216.21-acre area has been proposed for residential use. The proposed land use plan has been presented in **Map 14.11**. A cold storage of 2.86 acre has been proposed in this union. Besides these road network improvement proposals have also been given. **Table 14.11** depicts the proposals.

Table 14. 11: Proposed Road Network in North Channel Union

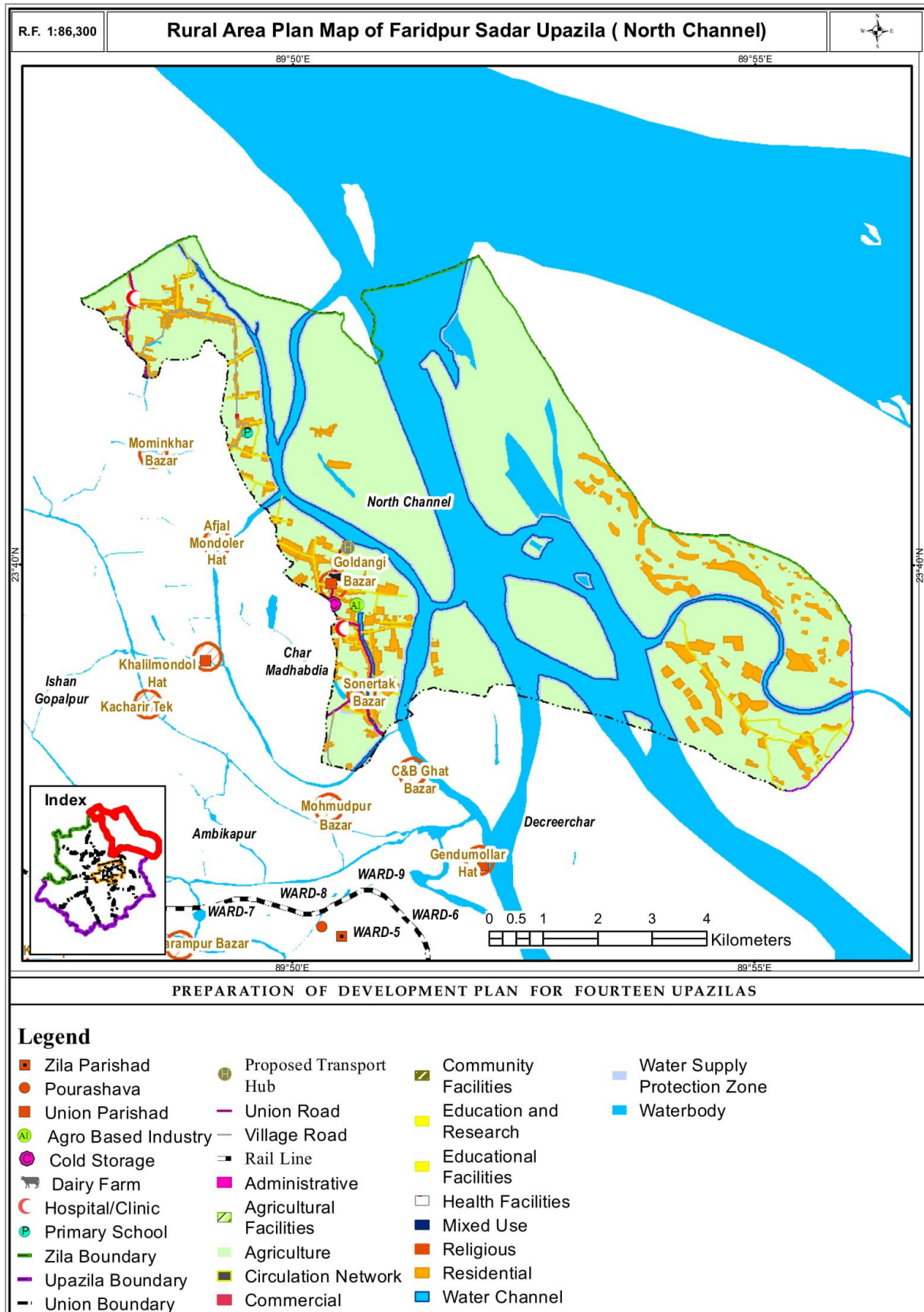
Road Category	Area in Acre	Length in km
Union Road	8.989	13.401
Village Road	8.064	13.678

Source: Estimated by Consultants (2018)



Source: Prepared by Consultant Team Based on Field Survey, 2016

Map 14. 10: Proposed Land use Map of Majchar Union



Source: Prepared by Consultant Team Based on Field Survey, 2016
Map 14. 11: Proposed Land use Map of North Channel Union

Chapter 15 Action Area Plan

15.1 Introduction

Action Area Plan is the last component of the Development Plan. This plan will enroll at 5 years interval. This plan is prepared under the frame of Structure Plan, Urban Area Plan and Rural Area Plan.

15.2 Purpose of Action Area Plan

In the Structure Plan broad policies for future development have been formulated. The next step is to interpret these broad policies in terms of geographical locations. Action Area Plan contains a description of the proposed sequence and related activities for the implementation of the development plan to ensure the planned development of the project area. It describes land use in specific location, prepare architectural layout plans, building control mechanism. Action Area plan embodies components of the plan, geographical coverage, time frame for implementation, responsibility of plan implementation and coordination among components and implementation agencies.

15.3 Duration and Phasing of Development

Action Area Plan have prepared for the areas within the Upazila where action is required immediately. For preparing the priority list of Action Area Plan, all the development proposals have been arranged according to four phases.

Table 15. 1: Duration and phases of Action Area Plan

Phases	Duration
First Phase	2015-2020
Second Phase	2020-2025
Third Phase	2025-2030
Fourth Phase	2030-2033

15.4 Phasing of Action Area Plan

According to the demand of Consultation meeting and potentiality of the Upazila, development proposals are phasing in action area plan. The list of development Projects is given below with appropriate phasing in **Table 15.2**.

Table 15. 2: Priority Projects for Infrastructure Projects of Faridpur Sadar Upazila

Problem Description	Proposed Delivery Timescale ¹	Proposed Project	Priority Level	Justification
Insufficiently sized water	Short Term	Improved water supply system	High	This project is critical for need but vulnerable due to climate change. An improved water supply system will become increasingly critical as the municipal population grows. This

¹ The timeframes are defined as: (1) Short Term — Within 5 years; (2) Medium Term — Within 10 years; and (3) Long Term — Beyond 10 years.

Problem Description	Proposed Delivery Timescale ¹	Proposed Project	Priority Level	Justification
supply network				will be exacerbated by expected increases demand from rising temperatures and the increasing levels of water pollution. Measures will need to be taken to protect water supply infrastructure from possible flooding due to intensive rainfall. The project is aligned with draft Master Plan, is fully owned by municipal stakeholders (<i>pourashava</i> officials, TLCC and WLCCs) was considered a joint first priority by all. It will serve the entire municipality (approximately 130,000), including underserved wards and slum areas.
Drainage congestion and water pollution	Short Term	Integrated waste management system	High	<p>The presence of unattended waste without proper landfill areas, a growing population and a large medical sector (with related clinical waste) poses a severe health hazard, and places may vulnerable groups at increased risk due to illness. Waste collection, transfer and treatment are a major issue. This project is foundational to establishing processes to address climate change vulnerabilities. Addressing this basic, though critical human need is considered a priority. Without implementing this project with full coverage investment in drainage network will not be effective as all the drainage channels stays clogged by solid waste. This project is aligned with the draft Master Plan, is fully owned by municipal stakeholders (<i>pourashava</i> officials) was considered a priority by all. It will serve the entire municipality.</p> <p>The <i>pourashava</i> is piloting alternative waste treatment processes.</p>
Energy supply	Short Term	Access to consistent energy supply	Medium - High	The lack of a consistent energy supply is a major constraint to Faridpur's ability to develop its commercial and industrial base, as well as its small- and medium-sized enterprises. The increase in the commercial footprint is considered crucial for <i>pourashava</i> financial independence. Municipal officials and the Chamber of Commerce consider this project a priority. Improved access to a safe and consistent energy supply will also reduce the socio-economic vulnerabilities of at-risk groups and emergency facilities. This project is fully owned by municipal stakeholders (<i>pourashava</i> officials) and will serve the entire municipality.
Slums and informal settlements	Short Term	Slum upgrading	Medium - High	<p>Slum improvement and management is an ongoing success by the people of Faridpur. To date, 13 slums have on-going improvement projects. <i>Pourashava</i> officials, led by the Mayor, want to address a further 11 slums over the next five years in an integrated project that includes ward level water supply; sanitation; small enterprise development; and local education and health facilities. In addition, there is demand for the development of an incentive program for increasing the supply of safe and affordable housing in the municipality. Although the draft Master Plan does not include these projects, municipal stakeholders (<i>pourashava</i> officials, TLCC, WLCCs and CBOs) rate them highly. Approximately 2,500 slum residents (per ward) will benefit from this project.</p> <p>This project is linked to G2 Strategy 2</p> <p>See note at end of this table for additional considerations</p>

Problem Description	Proposed Delivery Timescale ¹	Proposed Project	Priority Level	Justification
Drainage congestion and water logging	Short Term	Drainage network	Medium	This project (the drainage network) is closely linked with the following one (the multi-functional green infrastructure and open space network). As envisioned, these two projects will address current drainage and flood related challenges, including flood defenses, while providing systemic redundancy. ² This combined approach will also improve conditions for vulnerable populations in the most at-risk municipal areas. These projects are considered of major relevance for the short-term. This project will serve the entire municipality, including its underserved areas and slums. The project is fully owned by municipal stakeholders (<i>pourashava</i> officials, TLCC and WLCCs). This project is also closely linked with the development of an integrated waste management system.
Urban flooding	Short Term	Multi-functional green infrastructure and open space network	Medium	This project (the multi-functional green infrastructure and open space network) is closely linked with the previous one (the drainage network). As envisioned, these two projects will address current drainage and flood related challenges while providing systemic redundancy with a low-cost, easily maintained multi-functional network. This combined approach will also improve conditions for vulnerable populations in the most at-risk municipal areas. These projects are considered of relevance in the short-term. They will reduce the demand for a large investment in hard drainage facilities; increase groundwater recharge rate and help to stabilize microclimate to address climate impacts. This project will serve the entire municipality, including its underserved areas and slums. The project is fully owned by municipal stakeholders (<i>pourashava</i> officials). This project is linked to G2 Strategies 1 and 2
Insufficient transport facilities and traffic congestion	Medium Term	Multi-modal transport plan Investment in transport facilities	Medium	A growing population, limited transportation services and facilities and increasing levels of heavy freight through-traffic present a non-climate related stress to municipal capacity that poses a safety hazard to municipal residents. The expected increase in demand due to the opening of the Padma Bridge creates increased transportation related challenges for the <i>pourashava</i> . Without new investments in multi-modal transport facilities the <i>pourashava</i> will be unable to cope with the traffic challenges or reduce demand and GHG emissions. This project is important for both safety and economic development. During emergencies, improved transportation facilities will also increase the speed and ease of evacuations. Though much broader in scope, this project is aligned with the draft Master Plan. It is fully owned by municipal stakeholders (<i>pourashava</i> officials) and will serve the entire municipality. While there is no doubt that this project is a general priority, it is considered of lesser priority due limited funding capacity and competing investment priorities.

Source: Estimated by the consultant, 2017.

Table 15. 3: Priority Projects for Infrastructure Projects of Faridpur Sadar Upazila

Challenge	Delivery Timescale	Proposed Projects	Priority Level	Justification
Management and technical capacity	Short Term	Strengthen technical and administrative capacity for O&M for all municipal process, equipment, facilities and infrastructure.	High	<p>Improved technical and administrative capacity for municipal staff is critical to ensuring that the municipality can be managed and governed appropriately. This also ensures that the <i>pourashava</i> will be able to address the challenges posed by climate impacts while providing support to its residents, especially its most vulnerable populations. To the extent possible, the project is aligned with the findings of the Master Plan and is fully owned by municipal stakeholders (<i>pourashava</i> officials). This project will serve and benefit the entire municipality.</p> <p>This project is linked to G1 Strategies 2, 3 and 4</p>
Institutional development	Short Term	Establish the Master Plan Coordination Committee	High	<p>The project will transform Faridpur's ability to oversee and coordinate the sequencing and implementation of its Master Plan as its legal guardian. <i>Pourashava</i> control over the timing and implementation of projects identified in the draft Master Plan and in this CRIUP is critical to ensuring that it develops adaptive capacity to address climate challenges, improves capacity to govern its urban development processes and creates cross-sectoral synergies. To the extent possible, the project is aligned with the findings of the draft Master Plan and is also fully owned by municipal stakeholders (<i>pourashava</i> officials). This project will serve the entire municipality.</p> <p>This project is linked to G1 Strategy 1</p>
Urban planning capacity	Short Term	Strengthen technical and administrative capacity for urban planning, including development of spatial development framework, strengthen permitting review process and development of resettlement and housing programs	High	<p>These projects are critical to the development of urban planning capacity in Faridpur, and to its ability to assert control over its urban development processes. This aspect is critical to enable economic growth, address the challenges faced vulnerable social groups and posed by climate change, especially in terms of land elevation guidelines. The projects are in-line with the draft Master Plan, are fully owned by municipal stakeholders (<i>pourashava</i> officials) and will serve the entire municipality.</p> <p>This project is linked to G1 Strategy 3</p>
Community participation and engagement (1)	Short Term	Ward-based drain cleaning program	High	<p>This project empowers communities to support restoration of the complete capacity of the existing drainage system while supporting waste management awareness and action. This project is considered critical to ensure a safe drainage system and reduce overall exposure to health hazards. This project is critical for improved participation and communication with the various communities, and is considered foundational for reducing long-term climate vulnerabilities. This project is fully owned by municipal stakeholders (<i>pourashava</i> officials, TLCC and WLCCs) and will eventually serve the entire municipal population.</p>

Challenge	Delivery Timescale	Proposed Projects	Priority Level	Justification
Household and community green infrastructure	Short Term	<p>Program for heavy metal absorption via phytoremediation in urban ponds</p> <p>Program to establish household and community level grey-water planter-beds</p>	Medium - High	<p>These projects will provide a bridge in water related service provision. It will do so in a distributed, non-structural, low-cost, easily implemented and maintained manner. The projects will also facilitate social interaction, inclusion and community cohesion while providing household and neighborhood services, especially in under-served areas. Given the service level deficit and the limited availability of funding, these projects will provide the <i>pourashava</i> with a low-cost platform that will have direct and substantial impact on service levels, water supply, quality of life, community engagement and the general health of the population. The projects are in-line with the vision articulated by municipal stakeholders (<i>pourashava</i> officials,) and will serve the entire municipality, with specific focus on its slum areas.</p> <p>This project is linked to G2 Strategies 2, 3 and 4</p>
Emergency preparedness	Short Term	<p>Develop a Pourashava Disaster Management Plan</p> <p>Undertake mapping and risk assessment for critical assets and infrastructure</p> <p>Develop a program to strengthen and disaster-proof communities</p>	Medium	<p>These projects are necessary to ensuring that Faridpur can start developing municipal capacity to address disasters and increase emergency preparedness activities. These projects are necessary to start addressing climate related vulnerabilities. The projects are in-line with national (legal) requirements, are fully owned by municipal stakeholders (<i>pourashava</i> officials) and will serve the entire municipality.</p> <p>This project is linked to G1 Strategy 5 and G5 Strategy 2</p>
Green infrastructure	Medium Term	<p>Develop green infrastructure and infill demonstration/pilot projects in conjunction with development of the drainage network</p> <p>Household and community level grey-water planter-beds</p>	Medium	<p>This project supports the development of distributed, non-structural, low-cost, easily implemented and maintained green infrastructure elements for improved drainage capacity. This will support the development of complementarity with the drainage network to supplement flood control mechanisms and improve quality of life and health in communities. Given the expected level of climate related impacts, the service deficit in the municipality and the limited availability of resources, this approach will provide the <i>pourashava</i> with a low-cost platform that will substantially impact its ability to increase levels of services, while increasing its long-term resilience. Green infrastructure was not included in the draft Master Plan. The project is fully supported by municipal stakeholders (<i>pourashava</i> officials) and will serve the entire municipality.</p> <p>This project is linked to G2 Strategies 1, 2 and 4</p>
Community participation and engagement (2)	Medium Term	Cost sharing for tertiary level services (for water and drainage)	Medium	<p>Providing an alternative and efficient route for ward-based, community involvement in the management and construction of tertiary level systems, is significant to overcoming Faridpur's funding and urban systems gap, especially at the tertiary level. Cost sharing (in cash and/or kind) will ensure community ownership and also help the <i>pourashava</i> improve the level of services it provides to all communities. This</p>

Challenge	Delivery Timescale	Proposed Projects	Priority Level	Justification
				<p>project is is considered foundational for reducing long-term climate vulnerabilities. This project needs further discussion with <i>pourashava</i> officials. The project will serve the entire municipal population, including socially vulnerable groups.</p> <p>The project's priority is defined as medium as it requires that primary and secondary systems are in place prior to its implementation.</p>

15.5 Action Area Plan

15.5.1 Redevelopment of Administrative Core at Faridpur Upazila

Name of the Project: Redevelopment of Administrative Core at Faridpur Upazila

Location: Faridpur Paurashava, Faridpur Upazila

Priority Phase: First Phase (2015-2020).

Project Description: In a democratic country, the government system works for its people, and an intimate relationship with people is essential to run the administration successfully. The redesign of Faridpur administration core was based on this consideration to ensure the public access in the admin zone as much as the officials and collaborate. Besides automobiles, the whole central administrative hub has connected through a web of pedestrian plaza, to ensure all classes of people equally participate in the administrative work.

Site Analysis

- Existing Transportation
- Existing Road Network
- Existing Land use
- Cultural activity Analysis
- Economic Activity Analysis
- Religious Infrastructures

Proposed Components

- Proposed Pedestrian Concentration
- Proposed Open Space
- Earthquake Shelter
- Proposed Transportation Amenities

15.5.2 Redevelopment of City Center and CBD at Faridpur

Name of the Project: Redevelopment of City Center and CBD at Faridpur Upazila

Location: Faridpur Paurashava, Faridpur Upazila

Priority Phase: First Phase (2015-2020).

Project Description: Make the core area of Faridpur Sadar Upazila more vibrant and establish as a city center. By retaining river and river banks, rearranging commercial activities, pedestrian oriented urbanism, improving street environment and public activities, the core area will be well equipped as a city center.

15.5.3 Rethinking the Home of Pastoral Poet Jasimuddin for Tourism

Name of the Project: Rethinking the Home of Pastoral Poet Jasimuddin for Tourism

Location: Faridpur Paurashava, Faridpur Upazila

Priority Phase: First Phase (2015-2020).

Project Description: The inspiration of this project has been taken from polli kobi Jasimuddin's famous poem 'nimontron'. Here he invites everyone to visit his beautiful village. The concept was to create a journey from his beloved village where the rural life can be enjoyed towards kobi bari and graveyard of his family. The main motto was to show the connection of rural life and nature through this journey as like the representation of nakshi kantha.

15.5.4 Waterfront Development

Name of the Project: Waterfront Development: Kumar River in Faridpur

Location: Faridpur Upazila

Priority Phase: First Phase (2015-2020).

Project Description: At past, the river 'KUMAR' acts as the lifeline of Faridpur. It was one of the major means of communication, irrigation, recreation as well as economic activities. With the passage of time, unfortunately it was neglected by the structures grows around it. People started dumping garbage in it. Illegal structures took place. Finally, with the construction of unplanned dam in "farakkah" the water level of the river gradually started decreasing. Later on, the people started feeling the necessity of the river in their life. Later on, the people started feeling the necessity of the river in their life. The authority launches step to dredge the river bed to revive the life of Kumar. Our objective is to develop the frontage of the river Kumar in order to reintegrate the life of the people with the river. Our site covers 3.6sqkm area including riverbanks that run through the area of East & West Khabashpur, Jhiltuli and Charkamlapur. The Maowa-Vanga road is adjacent to our site. According to the development plan of faridpur, this area gets the highest priority as this place is reachable both from a highway the highest priority as this place is reachable both from a highway & the river.

15.5.5 Lakeside Development

Name of the Project: Lakeside Development at Tepakhola Faridpur

Location: Faridpur Upazila

Priority Phase: First Phase (2015-2020).

Project Description: While urbanization creates a great impact on our everyday lives. It also affects our surrounding inhabitants. To preserve the nature an eco-forest has been proposed on the lakeside zone of Tepakhola along the Padma riverbed. This eco-forest will restore the connectivity in urban eco-system creating a place for those people who want to escape to nature.

REDEVELOPMENT OF ADMINISTRATIVE CORE AT FARIDPUR UPAZILA

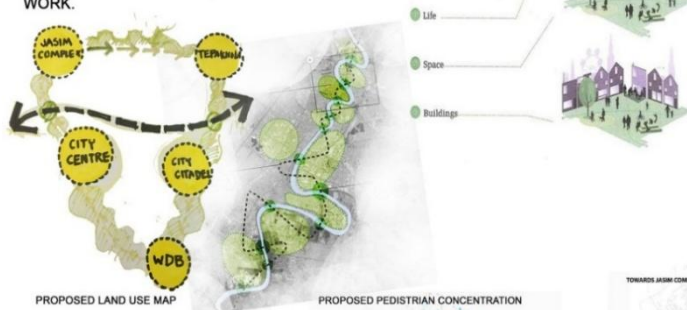
REDEVELOPMENT OF ADMINISTRATIVE CORE AT FARIDPUR

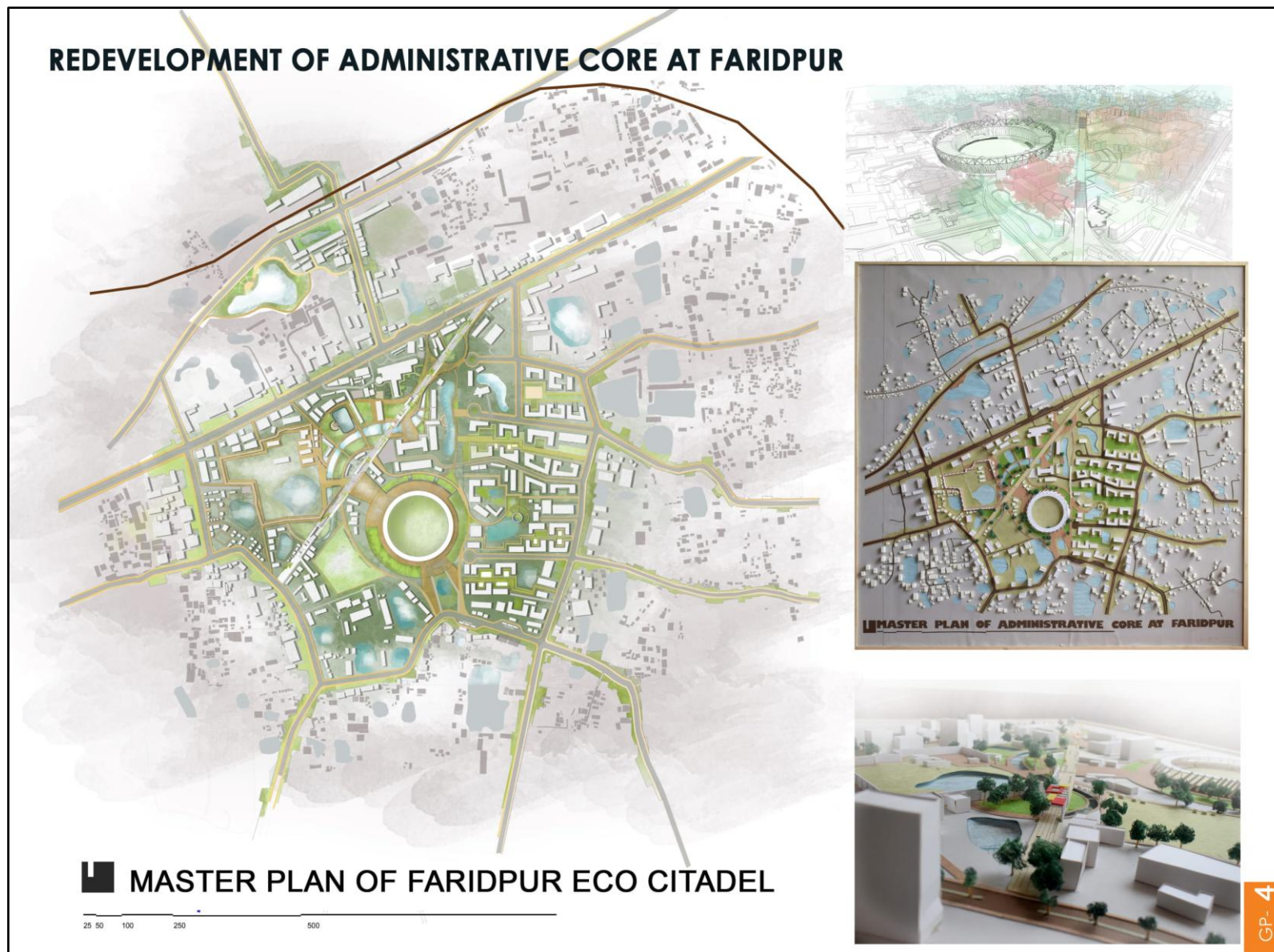


REDEVELOPMENT OF ADMINISTRATIVE CORE AT FARIDPUR

“GOVERNMENT OF THE PEOPLE, BY THE PEOPLE. FOR THE PEOPLE”

IN A DEMOCRATIC COUNTRY, THE GOVERNMENT SYSTEM WORKS FOR ITS PEOPLE, AND AN INTIMATE RELATIONSHIP WITH PEOPLE IS ESSENTIAL TO RUN THE ADMINISTRATION SUCCESSFULLY. THE REDESIGN OF FARIDPUR ADMINISTRATION CORE WAS BASED ON THIS CONSIDERATION TO ENSURE THE PUBLIC ACCESS IN THE ADMIN ZONE AS MUCH AS THE OFFICIALS AND COLLABORATELY. BESIDES AUTOMOBILES, THE WHOLE CENTRAL ADMINISTRATIVE HUB HAS CONNECTED THROUGH A WEB OF PEDISTRIAN PLAZA, TO ENSURE ALL CLASSES OF PEOPLE EQUALLY PARTICIPATE IN THE ADMINISTRATIVE WORK.






REDEVELOPMENT OF ADMINISTRATIVE CORE AT FARIDPUR



 MASTER PLAN DETAIL

25 50 100 250 500



 MASTER PLAN DETAIL

GP- 4

REDEVELOPMENT OF CITY CENTER AND CBD AT FARIDPUR

Design issues Faridpur City Centre

1. Retaining River & River Banks

- Heart of Faridpur City
- Location of CBD
- River filled up & banks occupied illegally these lands need to be retained



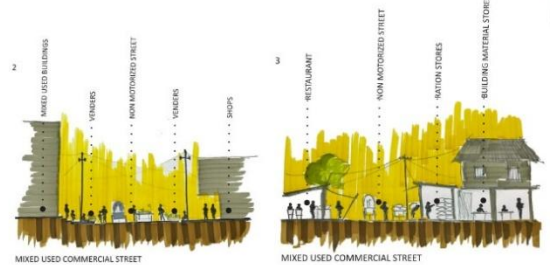
2. Rearranging Commercial Activities

Concentrated buildup area



3. Walkable & Pedestrian Oriented Urbanism

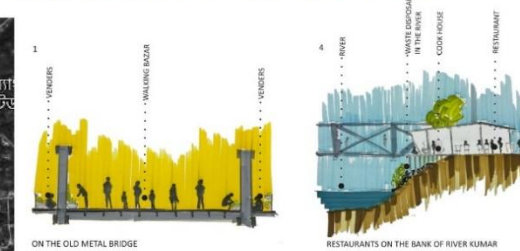
Pedestrian flow exist through baily bridge, it should now be designed to get it more appropriate



4. Making River Frontline

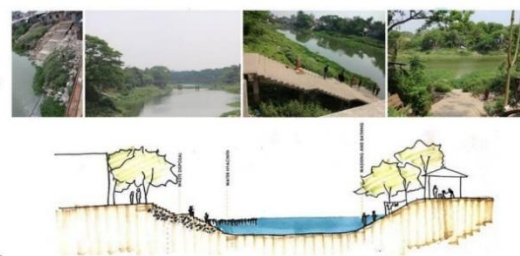
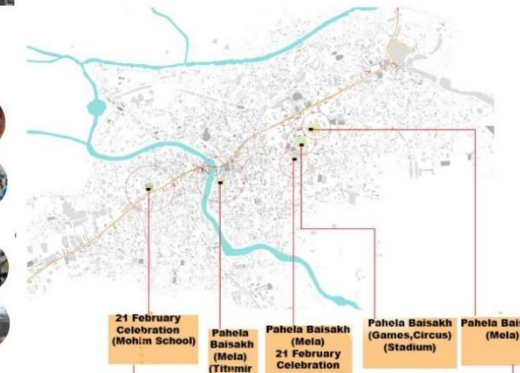
The river is backyard now, it should be linked effectively with all trade & commerce, as seen in affluent river based Faridpur

5. Improving the River Condition and Street Environment



6. Public Activities

Riverside Public Activities activating Ghats

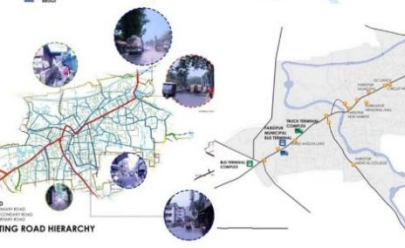


7. Access & Movement

Solution to traffic congestion of Arterial Roads View Corridor from City to river, incorporating secondary & Tertiary roads

8. Parking

Parking facilities already proposed Suitability of those parking was reviewed.

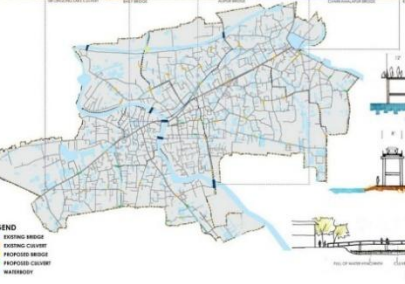


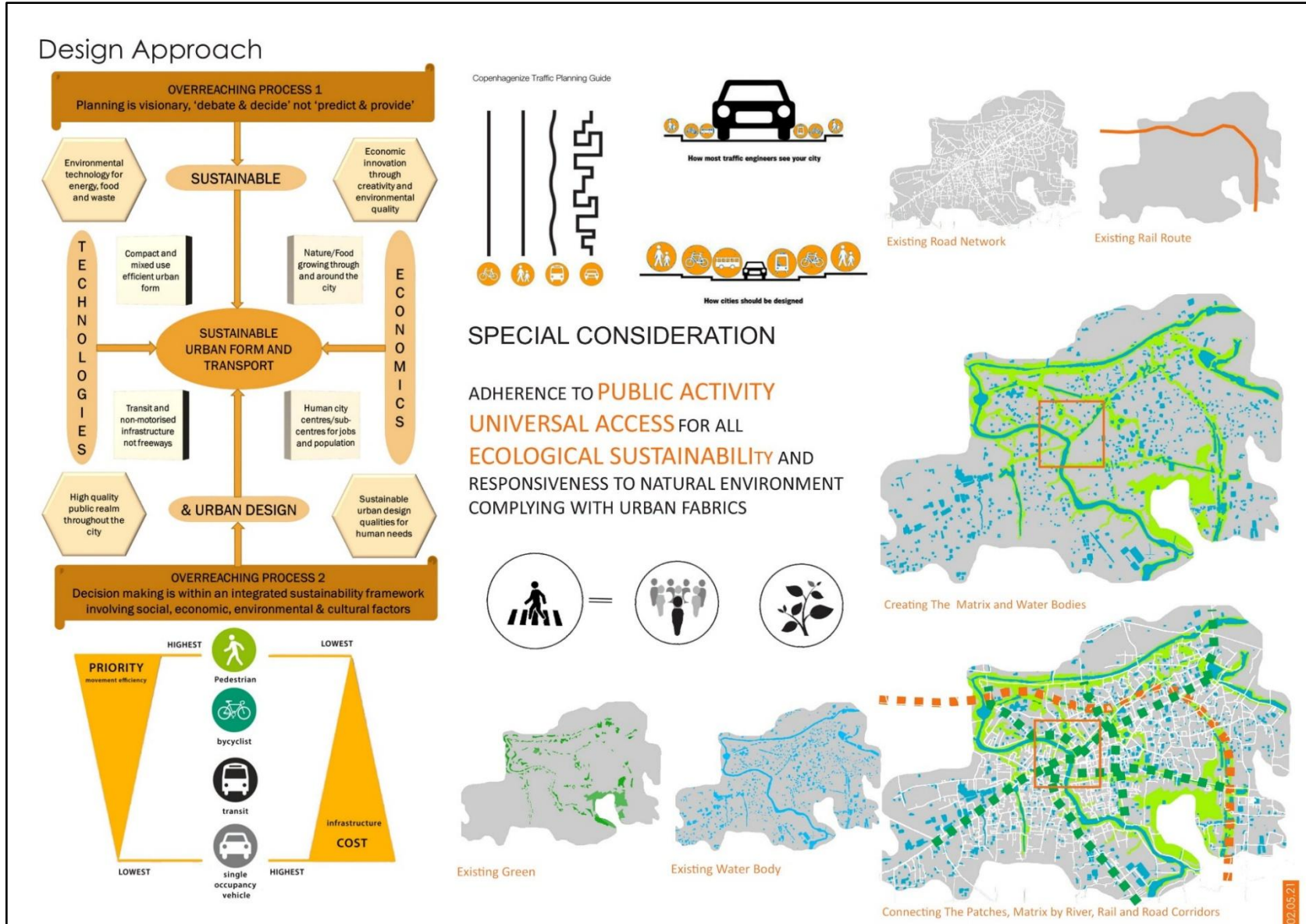
9. Connectivity

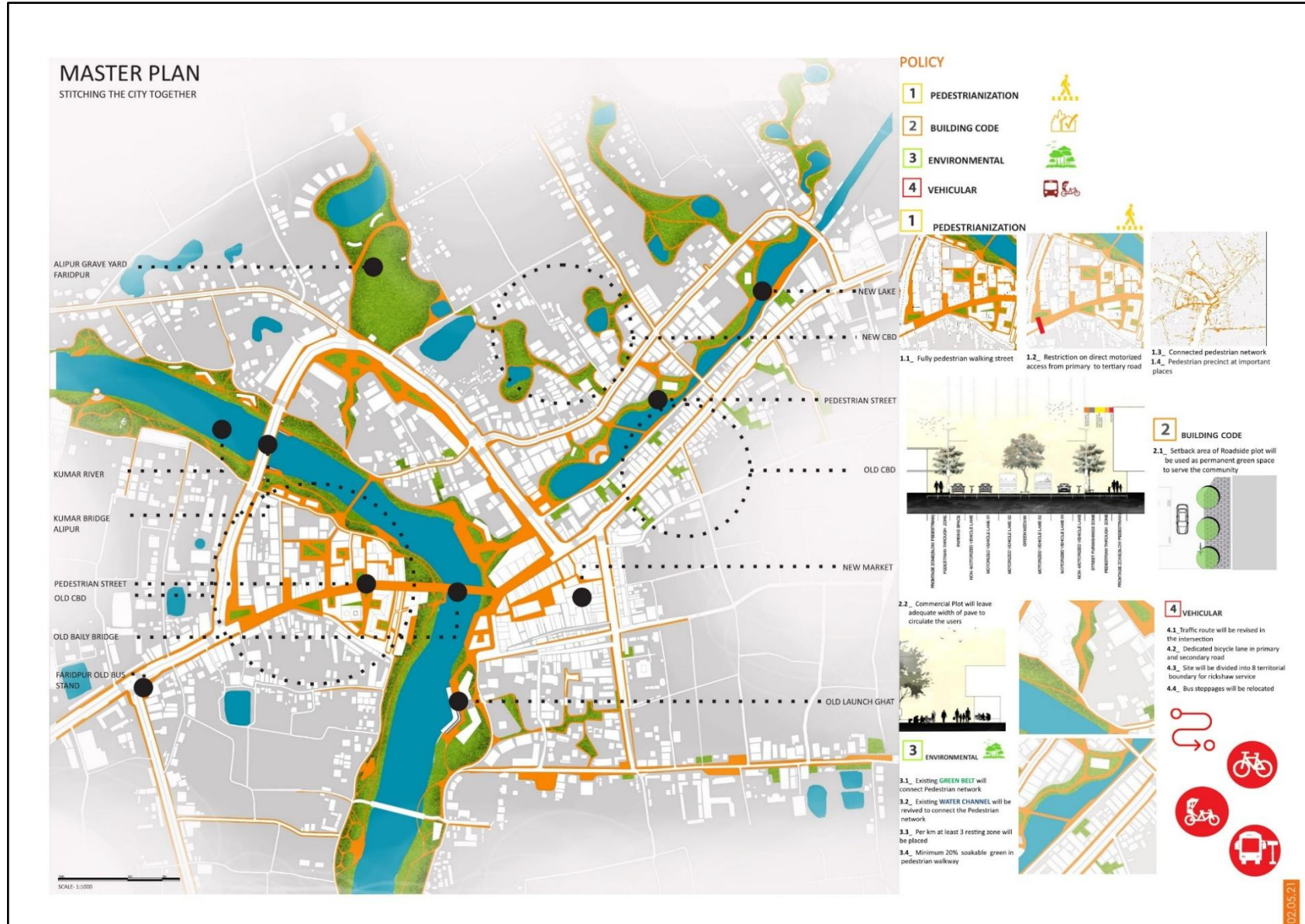
Connectivity between two parts of city along river

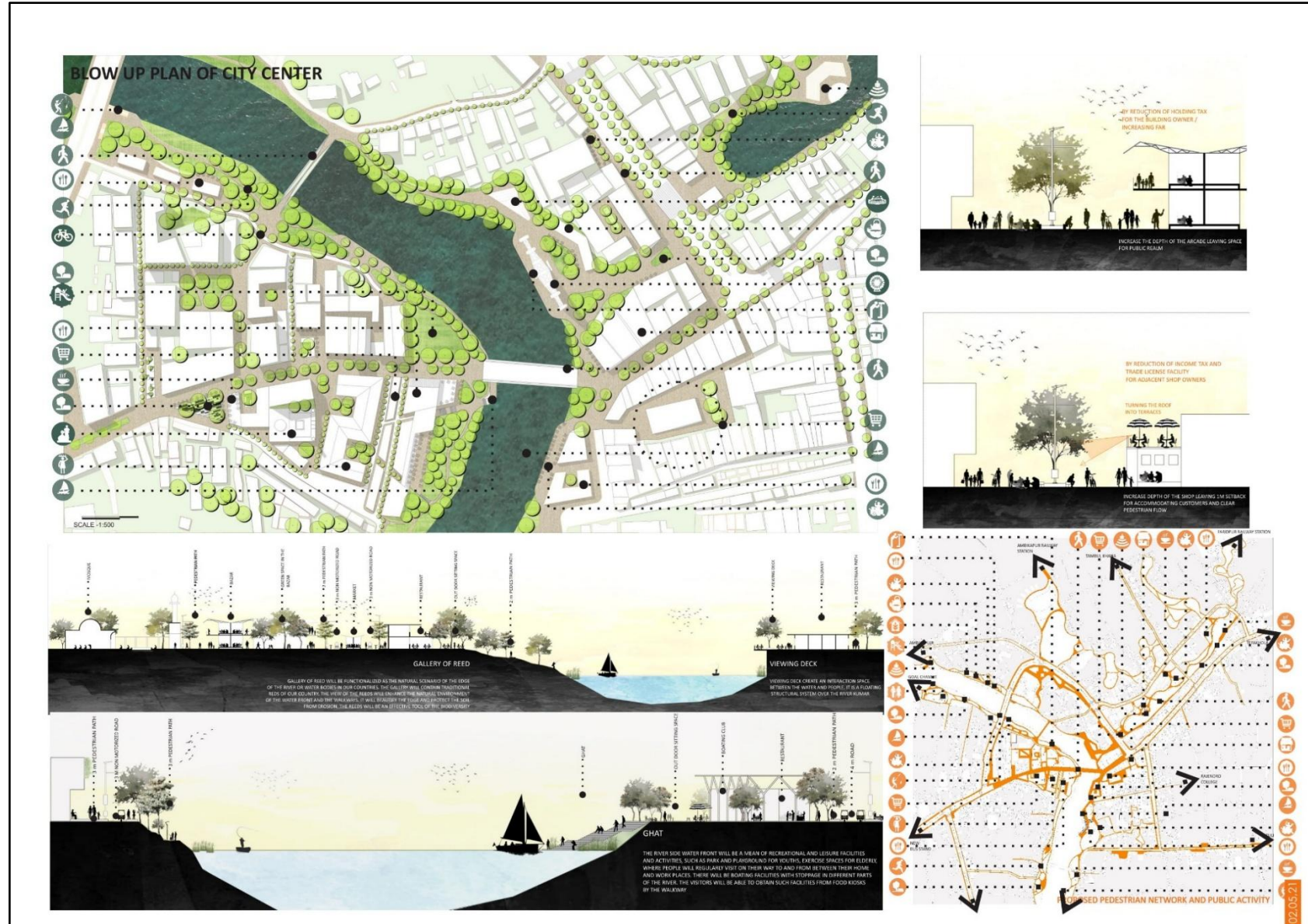
10. Vitality

Parking Boishaki Mela & Durga Puja takes place in and around Old Bailey Bridge, facilitating these will increase the vitality of City Centre











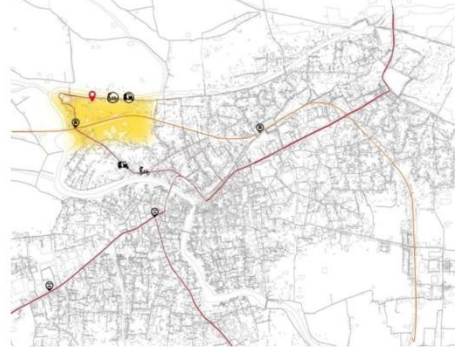


RETHINKING THE HOME OF PASTORAL POET JASIMUDDIN FOR TOURISM

SITE CONSIDERATIONS

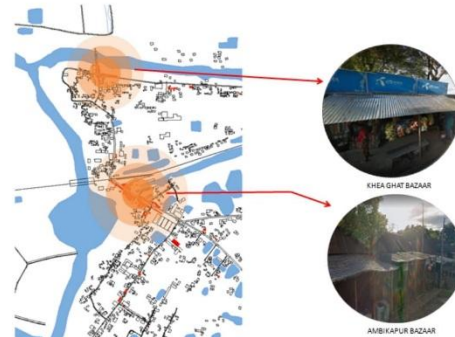
1. Lack of Transportation

Ambikapur is the end of the city Faridpur, connected by only one major road 'Palli Kobi Jasimuddin Sharak'.



2. Commercial Zone

Two major bazaar is situated here. Ambikapur Bazaar and Kheya Ghat Bazaar.



3. Railway Connection

Ambikapur Railway Station is set intersecting the site. Previously it was used for commercial and passenger purpose but for many years it has been shut down which causes a great loss for the adjacent bazaar.

4. Culture

This part of Faridpur is very rich in culture. They have many native culture that are in extinction now.

Nakshi Kantha

Nakshi Kantha (embroidered quilt), said to be indigenous to Bangladesh, is made from old cotton clothes, predominantly discarded sari, dhoti and lungi. Nakshi kantha stitching is some of the finest tapestries in the world.

The motifs of the Nakshi Kantha depict

- Hindu festivals, folk festivals
- marriage ceremonies,
- the lotus,
- Lord Buddha's footprint,
- fishes, snakes,
- boats, horses, carts,
- flowers, elephants, umbrellas,
- God and Goddess



Present Condition Of Cultural Traditions



DEAD COTTAGE INDUSTRY
DEAD AGRICULTURE AND GROWING RENT BASED ECONOMY

Jute-Production

- Faridpur is known as 'the Land of the Golden Fibre.'
- jute is grown in 8 of the district's 9 upazilas.
- The area of farmland on which jute is grown has gone up by over 7000 hectares in the last seven years, leading to increased production



Painting on trees

Trees are shaved and colored with different colors in a form of art. Mostly this paintings represents nature and rural life.



Pottery

There are still some family who maintains this tradition. Handmade plates, jar, baskets, pots of clay is also used in their daily life.



RECREATION JASIM POLLI MELA

DURATION: 3 WEEKS

CULTURAL ACTIVITIES:

RECITATION

DANCE

FOLK SONGS, JARI GAAN, KOBIGAN, LALONGREET

PUPPET SHOWS

CIRCUS



RIVERSIDE ACTIVITIES

large field beside the river is now a playing ground for the local people. They used to pass their afternoon using playing football or other local plays there. It's also a lovely scene where kids are playing. For visitors, there are benches to sit, under sheds.



SWOT ANALYSIS



HOME OF PASTORAL POET JASIMUDDIN

- Jasim Uddin was endearingly bestowed the title of PolliKobi, or folk poet, because of his vivid imagery his poems painted of rural Bangladesh, its people and its traditions.
- Polli Kobi Jasim Uddin was born in Tambulkhana, Faridpur. Built by the banks of the Kumar river, his house and surrounding grounds are open to tourists.
- A collection of the poet's possessions and photos are up on display inside the house, while the grounds are popular with local picnickers.
- Visitors can also pay their respects at the poet's grave inside the family graveyard.
- A festival, Jasim Mela, takes place on the grounds every year in January to commemorate the life and works of the poet.

CONCEPT

নিমন্ত্রণ

তুমি যাবে ভাই যাবে মোর সাথে আমদের ছোট গাঁয়
গাছের ছায়ায় লতায় পাতায় উদাসী বনের বায়;
মায়া মমতায় জড়া জড়ি করি
মোর গেহখানি রইয়াছে ভরি,
মায়ের বুকতে, বোনের আদরে, ভায়ের মেহের ছায়,
তুমি যাবে ভাই- যাবে মোর সাথে আমদের ছোট গাঁয়।

ছোট গাঁওখানি- ছোট নদী চলে, তারি একপাশ দিয়া,
কালো জল তার মাজিয়াছে কেবা কাকের চক্ষু নিয়া।
ঘাটের কিনারে আছে বঁধা তরী,
পারের খবর টানটানি করি-
বিনাসুতি মালা গাঁথিছে নিতুই এপার ওপার দিয়া;
বাঁকা ফাঁদ পেতে টানিয়া আনিছে দুইটি তীরের হিয়া।

তুমি যাবে ভাই, যাবে মোর সাথে- নরম ঘাসের পাতে,
চুশন রাখি অশ্বখানিরে মেজে লয়ে নিরালাতে।
ভেলাকুচ-লতা গলায় পরিয়া
মেঠো ফুলে নিও আঁচল ভরিয়া,
হেথায় সেথায় ভাব করো তুমি বুনে পাখিদের সাথে,
তোমার পায়ের রঙখানি তুমি দেখিবে তাদের পাতে।

তুমি যদি যাও আমাদের গাঁয়ে, তোমারে সঙ্গ করি
নদীর ওপারে চলে যাই তবে লইয়া ঘাটের তরী
মাঠের যত না রাখাল ডাকিয়া,
তব সনে দেই মিতালি করিয়া,
ঢোলা কুড়াইয়া গড়ি ইমরত সারা দিনমান ধরি
সত্যিকারের নগর তুলিয়া নকল নগর গড়ি।

তুমি যদি যাও - দেখিবে সেখানে মটর-লতার সনে,
সীম-আর-সীম হাত বাড়ালেই মুঠি ভরে সেইখানে।
তুমি যদি যাও সে-সব কুড়ায়ে,
নাড়ার আগুনে পোড়িয়ে পোড়িয়ে,
খাব আর যত গোঁয়ে চাষিদের ডাকিয়া নিমন্ত্রণে,
হাসিয়া হাসিয়া মুঠি মুঠি তাহা বিলাইব জনে জনে।

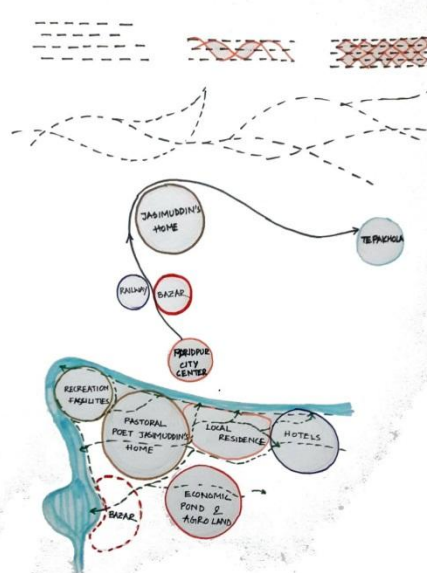
তুমি যদি যাও- শ্যামুক কুড়ায়ে, খুব-খুব বড় করে
এমন একটি গাঁথিব মালা যা দেখনি কাহারো করে;
কারেও দেব না, তুমি যদি চাও
মনের খুশিতে দিয়ে দেব তাও,
গলায় পরিবে স্তম্ভস্তুম রবে পথেরে মুখের করে,
হাসিব খেলিব গাঁথিব নাচিব সারাটি গেরাম ভরে।

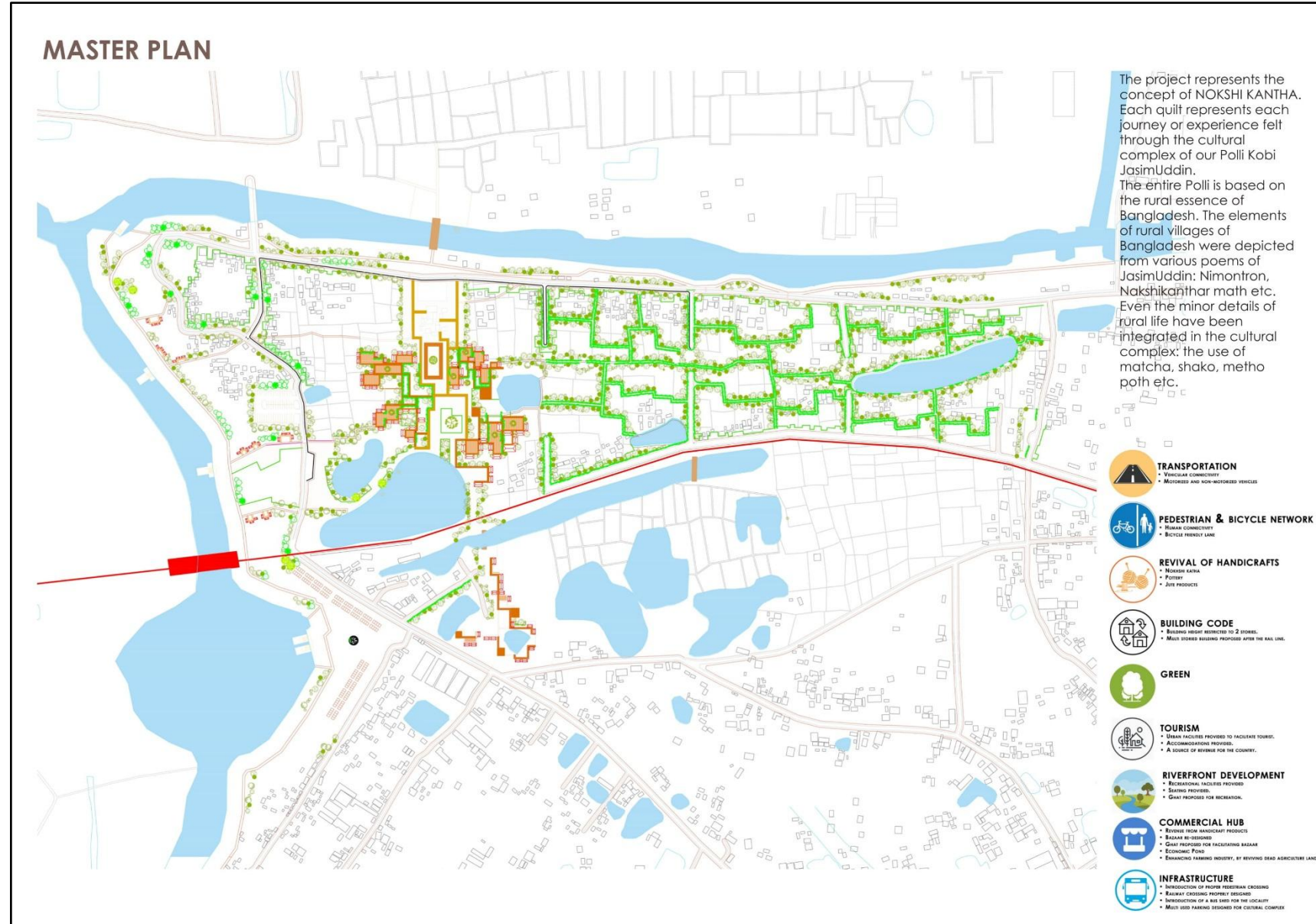
খুব ভোর করে উঠতে হইবে, সুস্থি উঠারও আগে,
কারেও কবি না দেখিস পায়ের শব্দে কেহ না জাগে।
রেল সড়কের ছোট খাদ ভরে
ডানকিনে মাছ কিলবিল করে;
কাদার বাঁধাল গাঁথি মাঝামাঝি জল পেঁচে আগেভাগে,
সব মাছগুলো কুড়ায়ে আনিব কাহারো জানার আগে।

ভর দুপুরেতে একরাশ কাদা আর একরাশ মাছ,
কাপড়ে জাড়ায়ে ফিরিয়া আসিব আপন বাড়ির কাছ;
'ওরে মুখ-পোড়া ওরে রে বাদর!'
গালি-ভরা মার অমনি আদর,
কতদিন আমি শুনি নারে ভাই, আমার মায়ের পাছ;
যাবি তুই ভাই, আমাদের গাঁয়ে যেথা ঘন কালো গাছ।

যাবি তুই ভাই, যাবি মোর সাথে আমাদের ছোট গাঁয়,
ঘন কালো বন-মায়া মমতায় বেঁধেছে বনের বায়।
গাছের ছায়ায় বনের লতায়,
মোর শিশুকাল, লুকায়েছে হায়!
আজিকে সে-সব সরিয়ে সরিয়ে খুঁজিয়া লইব তায়,
যাবি তুই ভাই, যাবি মোর সাথে আমাদের ছোট গাঁয়।

The inspiration of this project has been taken from polli kabi Jasimuddin's famous poem 'nimontron'. Here he invites everyone to visit his beautiful village. The concept was to create a journey from his beloved village where the rural life can be enjoyed towards kobi bari and graveyard of his family. The main motto was to show the connection of rural life and nature through this journey as like the representation of nokshi kantha.





BLOW UP OF JASIMUDDIN COMPLEX



The complex is connected through courtyards. Village houses are connected with internal and external courtyards. The complex has several parts which can be accessed through courtyards.

The complex is consisted of-

1. Cultural Complex
2. Craft Village
3. Admin Block
4. Shojon badiyar Ghat with picnic Spot
5. Cottages for accommodating tourists

The whole complex has started from the parts terminating on the other side of Kumar River, crossing poets' home and graveyard. On the other side the railway is crossed and adjacent waterbody is crossed by a wooden bridge, natively called SHAKHO. This whole complex will give a tourist the essence of rural villages of Bangladesh. The experience will be a mixture of rural life and beautiful nature which were always patronized by the pastoral poet himself.

The whole complex can be accessed by pathways intersecting the other parts of the village. The complex is a portrait of Jasimuddin's poem to show the beauty of the village.

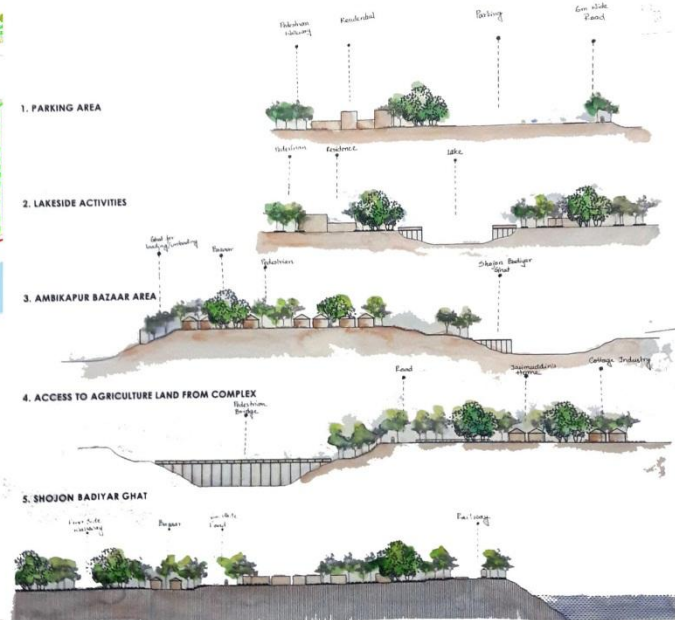
1. PARKING AREA

2. LAKESIDE ACTIVITIES

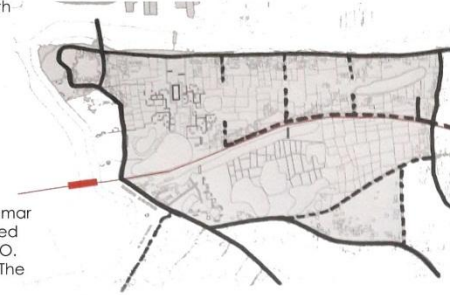
3. AMBIKAPUR BAZAAR AREA

4. ACCESS TO AGRICULTURE LAND FROM COMPLEX

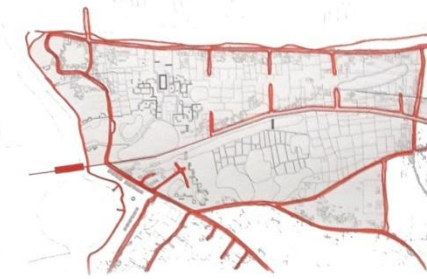
5. SHOJON BADIYAR GHAT



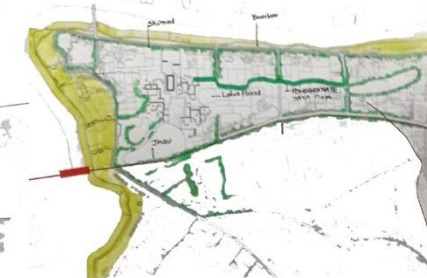
DESIGN CONSIDERATIONS



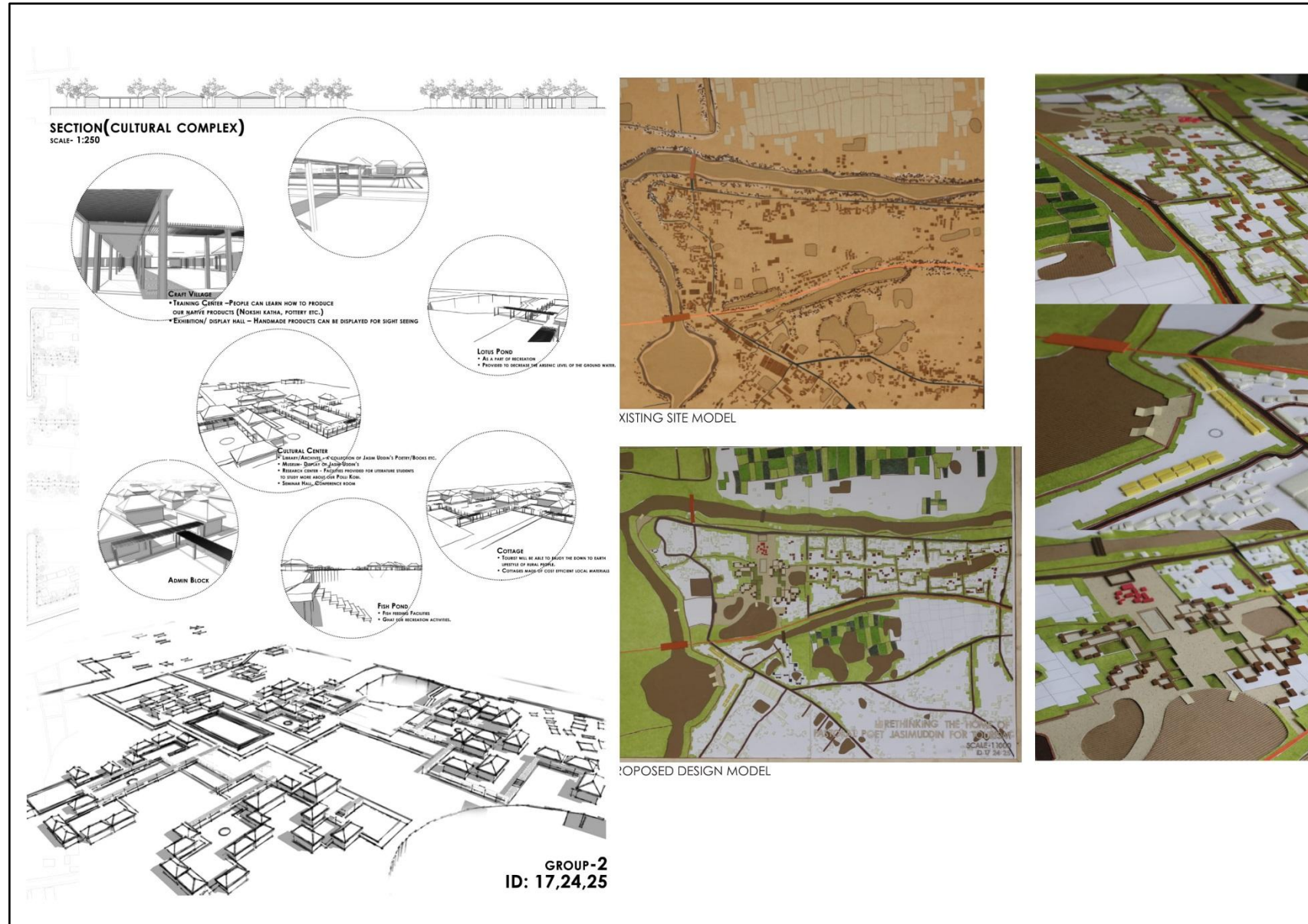
PROPOSED ROAD NETWORK

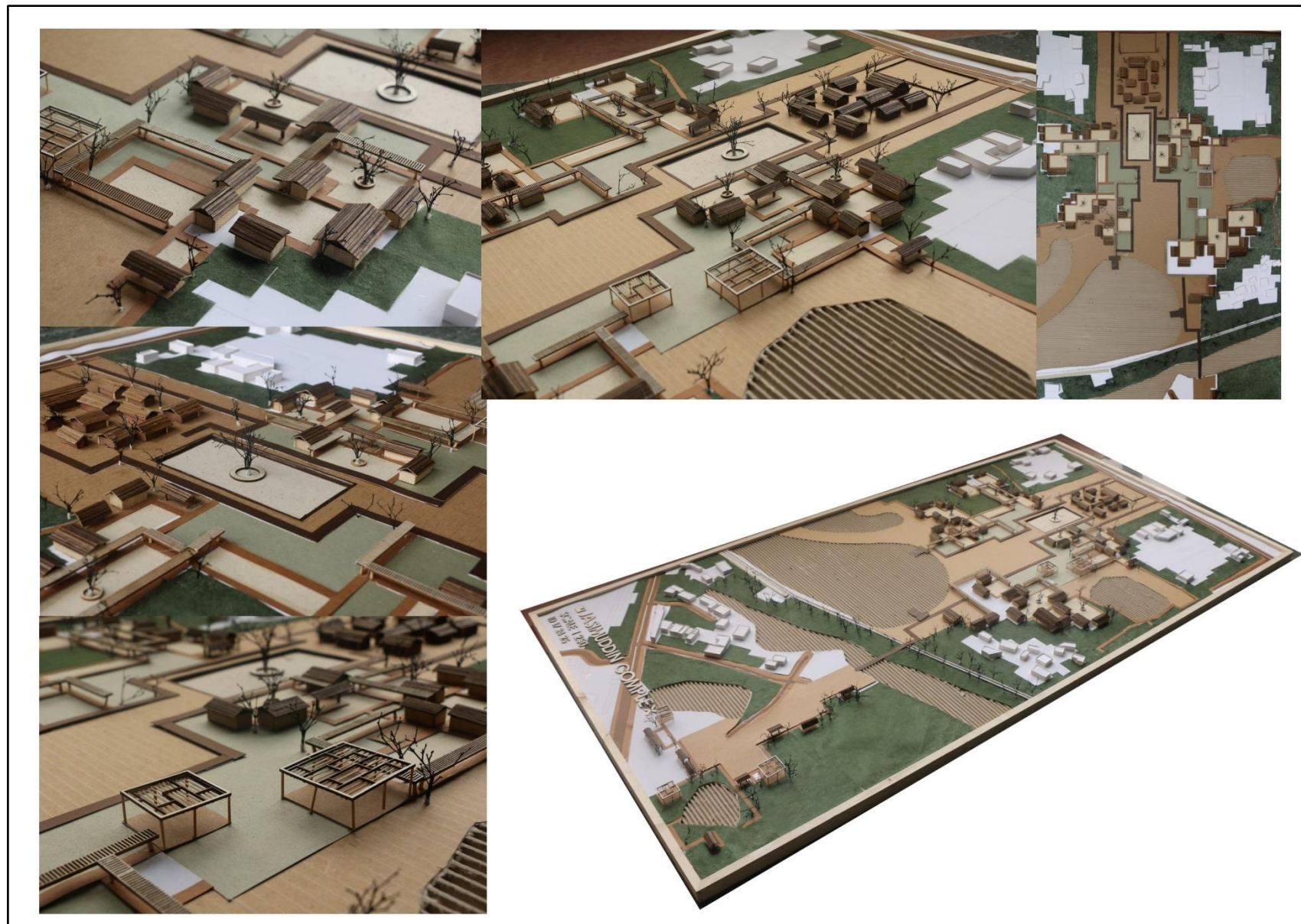


PROPOSED PEDESTRIAN DOMAIN

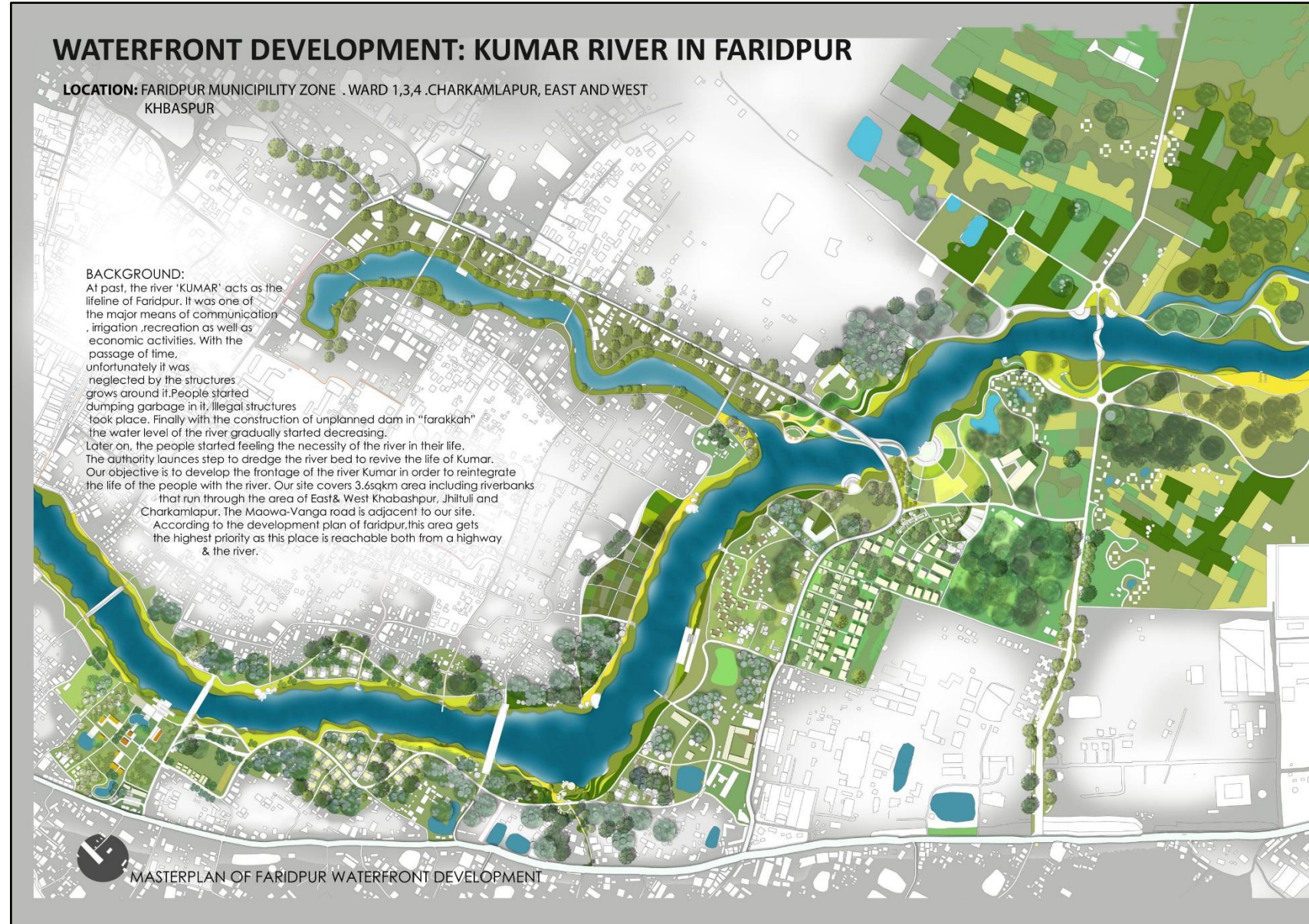


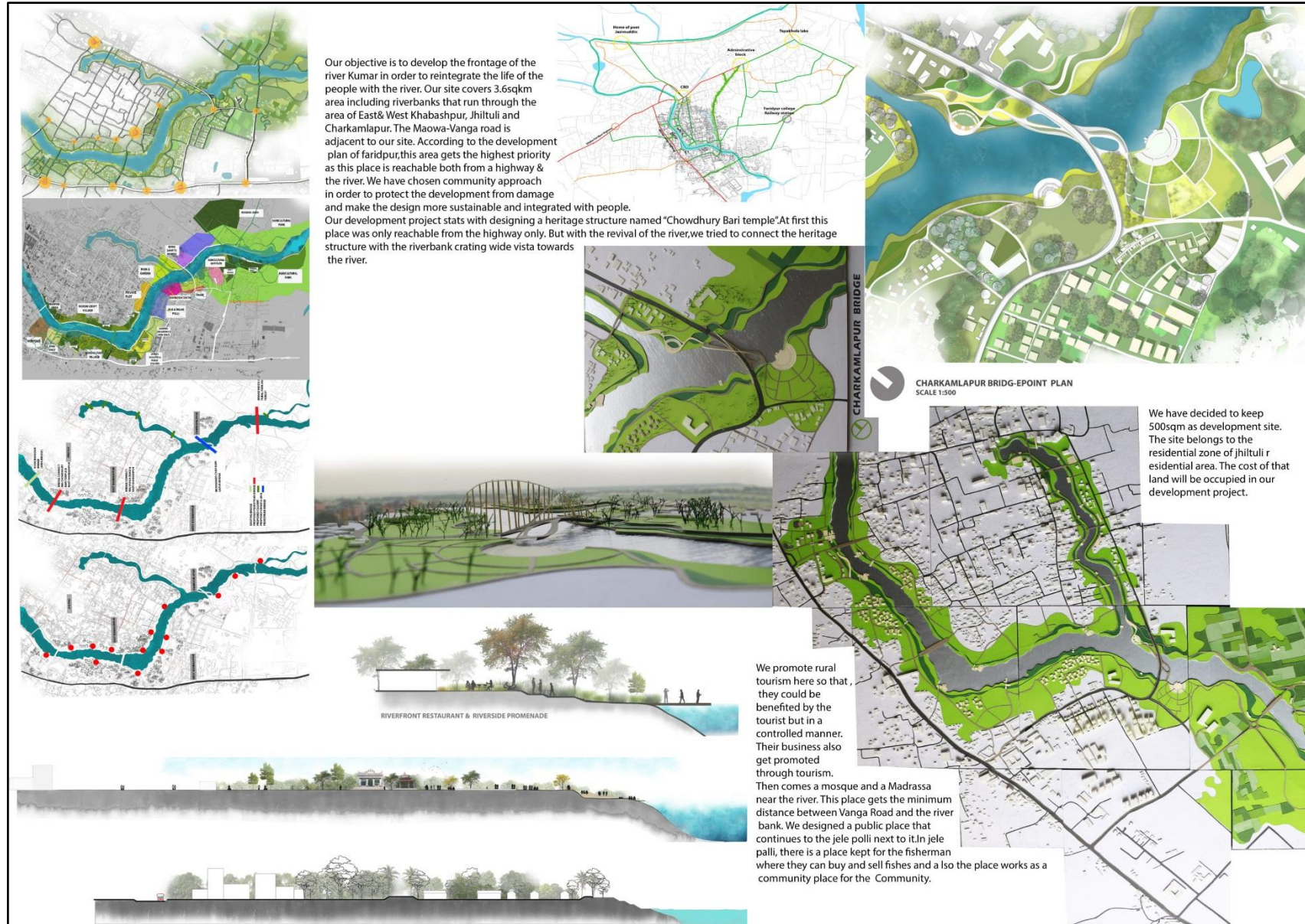
PROPOSED PLANTATION SCHEME





WATERFRONT DEVELOPMENT

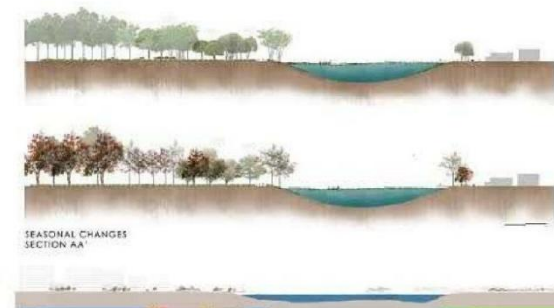
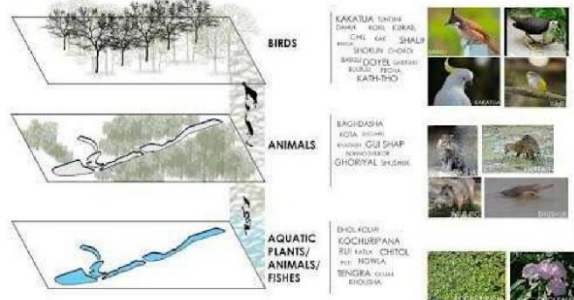




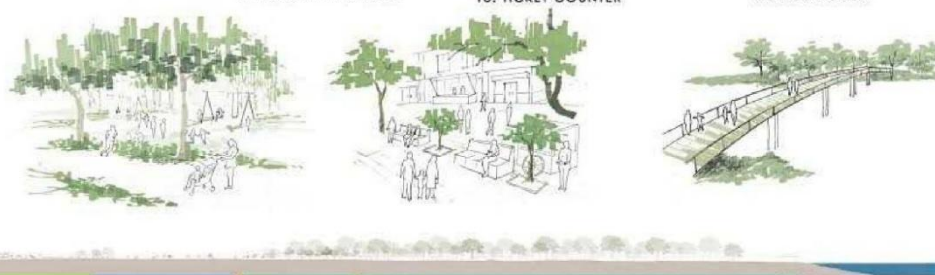


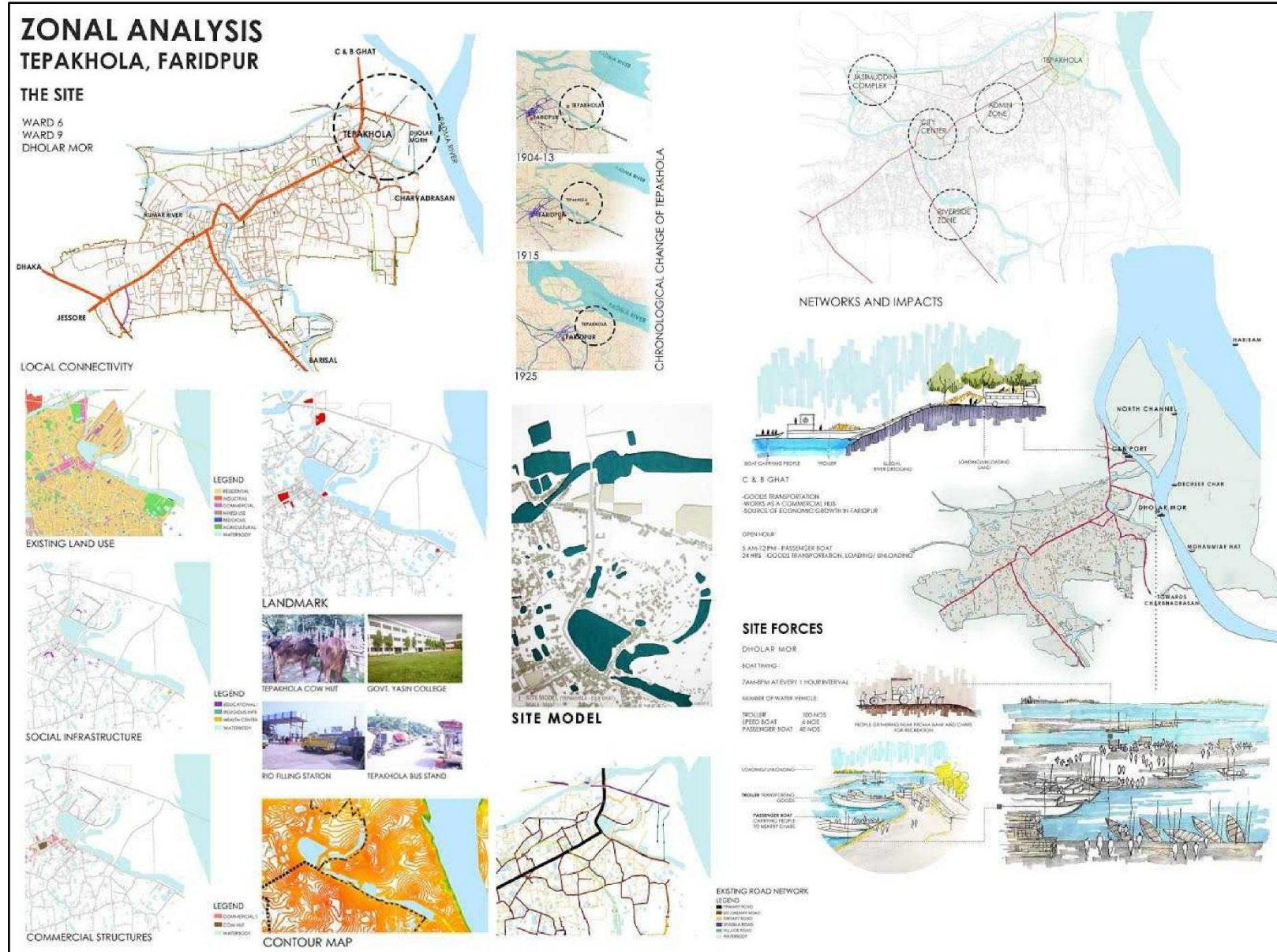
LAKESIDE DEVELOPMENT

WHILE URBANISATION CREATES A GREAT IMPACT ON OUR EVERYDAY LIVES IT ALSO AFFECTS OUR SURROUNDING INHABITANTS. TO PRESERVE THE NATURE AN ECO-FOREST WAS PROPOSED ON THE LAKESIDE ZONE OF TEPAKHOLA ALONG THE PADMA RIVERBED. THIS ECO-FOREST WILL RESTORE THE CONNECTIVITY IN URBAN ECOSYSTEM CREATING A PLACE FOR THOSE PEOPLE WHO WANT TO ESCAPE TO NATURE.

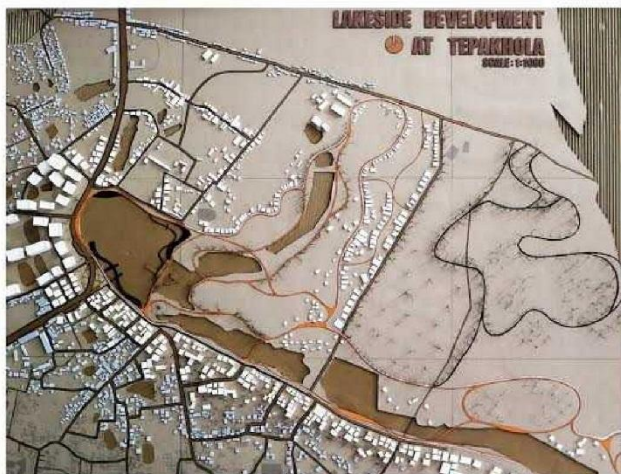


1. SHADED PUBLIC SPACE	10. PEDESTRIAN BRIDGE	19. ELEVATED TRAIL
2. PLAZA	11. WALKING TRAIL	20. RIVERFRONT DECK
3. MARKET	12. BICYCLE LANE	21. TOILET & SERVICE
4. ASHWATHA TOLA	13. BASE CAMP	22. PEDESTRIAN BRIDGE
5. FLOATING WALKWAY	14. MEDITATION SPACE	23. FLOATING DECK
6. PARKING	15. YOGA CENTRE	24. GHATLA
7. PICNIC SPOT	16. RESORT	25. PARKING
8. SHOPS	17. ECO-FOREST SERVICE BUILDING	26. FOREST SERVICE ROAD
9. PEDESTRIAN BRIDGE	18. TICO-FOUNTAIN	27. ECO-FOREST





LAKESIDE DEVELOPMENT AT TEPAKHOLA FARIDPUR



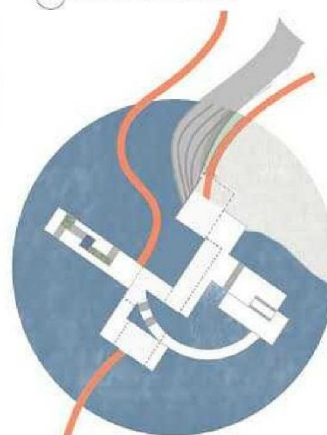
PHYSICAL MODEL



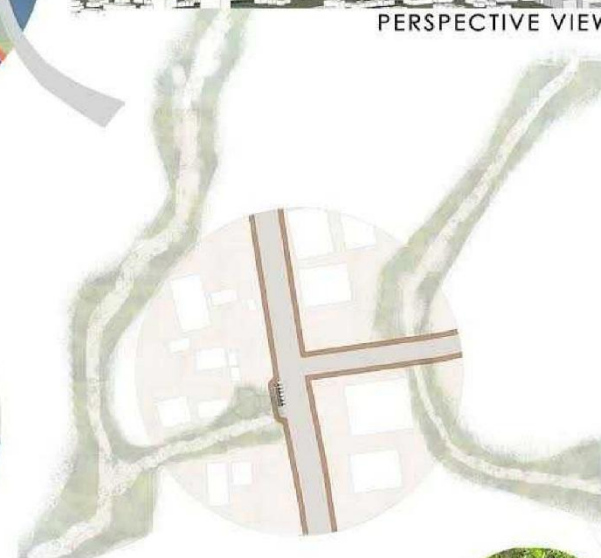
BLOW UP PLAN (PLAZA)



PERSPECTIVE VIEW



BLOW UP PLAN (TEPAKHOLA)



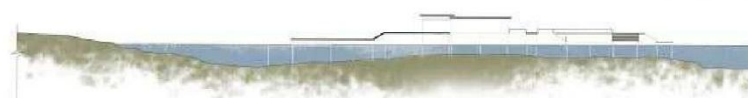
BLOW UP PLAN (NEIGHBOURHOOD NODE)
SCALE: 1:250



ELEVATED TRAIL



SEASONAL CHANGES IN TEPAKHOLA LAKE



Chapter 16 Plan Implementation

16.1 Introduction

Plan Implementation is the most crucial task of the stakeholders. This chapter will highlight the various measures needed to be taken in order to execute the plan proposals. Effective implementation of a plan is the most important part of the total planning process.

16.2 Plan Custodians

It is necessary that all the stakeholders should be involved in carrying out the implementation of the plan proposals. Planning proposals are essentially much time bounded, therefore, execution of the proposals should move ahead once the government formally approves the plan. Faridpur Sadar Upazila will be the main custodian of the total plan package. It will also be responsible for monitoring and implementation of the development projects by other development as well as UNO.

16.3 Periodic Review and Updating

The plan package needs to be updated regularly to make it respond to the spatial changes over time. The aim of the review will be to analyze the status of implementation of plan provisions, the changing physical growth pattern, infrastructure development and the trend of public and private physical development including growth direction. It is necessary that the entire plan document should be reviewed every 4th year of the plan period and will come into execution from 5th years. For regular updating and changes and plan implementation monitoring, the Upazila should immediately set up a planning section with a number of planner and staff.

16.4 Legal Aspects

The drive to establish strong urban local governance in the Upazila is yet not to be legalized. The governance programs at present are operated project wise based on the formulated policies of the implementation agencies of the national government. There are national policies for most of the sectors. The relevant sector policies are consulted in this project for the preparation of Development Plan. These sector policies will be important for adopting measures of executing development projects as indicated in the plan documents. For further details of the policies and strategies, the implementing agencies may consult the national policy documents for any sector.

16.5 Resource Mobilization

Resource mobilization will be one of the most challenging tasks in implementing the plan package. Though the development proposals are said to be executed by a large number of development agencies, but it is beyond doubt that the Upazila will have to shoulder heaviest burdens. Upazila is dependent on the government for executing its development projects as it is unable to collect sufficient revenue from its tax and non-tax resources. Assessment and collection of taxes by local government is poor. It is found that local governments for various reasons are unable to collect appreciable amount of revenue that can be used for funding their development projects. Local government can contract private sector companies on commission basis to collect revenue. Local government should introduce betterment fee to raise its revenue. Necessary rules and regulations will have to be formulated for this purpose. Its fees for insurance of land use clearance and fees for approval of building plans should also be raised by following the Building Construction Rules. Local government agencies should take up and implement

commercial area development projects smartly and competitively with private developers to raise its income and finance its development projects.

16.6 Capacity building

The plan package imposes a large number of development projects on Faridpur Sadar Upazila for implementation. Faridpur Sadar Upazila is not only the custodian of the plan, it will also directly implement much of the development projects. Besides, it will also be responsible for monitoring and implementation of the development projects by other urban development and service giving agencies. To raise working capability, training programs should be arranged and modern office and working equipment should be installed.

16.7 Role of Urban Development Directorate (UDD)

UDD is not directly involved with Upazila development plan and UDD is currently doing Upazilas master Plan. The role of UDD should expand to monitor and evaluate the development plans of Upazilas directly in order to make it more practical and fruitful. UDD can provide technical services for effective implementation of the plan.

16.8 Good Governance in Legal Provisions.

There is hardly any act / Ordinance where the elements of good governance area clearly visible. The consultant has identified some acts, where some elements of good governance can be traced. The implementation of Plan will be legally guided by the Local Government Acts of all Local Government Units within the Upazila - (i) Local Government (Upazila Parishad) Act, 2009; (ii) Local Government (Paurashava) Act, 2009; and (iii) Local Government (Union Parishad) Act, 2009. The constitution of Peoples republic of Bangladesh clearly spells out that the government should work to minimize the gap between urban and rural areas. A Planned Upazila development in that pursuit can provide necessary service to improve quality of life in both urban and rural areas within the Upazila.

16.9 Lack of Automation

Most works in the Upazila are done manually. Such practice delays work and deprives the citizens from services. Modern office and working equipment should be installed. Use of modern technology will increase efficiency in planning and record keeping, finally expedite decision making process.

16.10 Staffing and Training

As a traditional system of Upazila, professionals are appointed directly by the ministry of local government and other staffs are appointed locally through the approval of the ministry after advertisement on the newspaper. In Faridpur Sadar Upazila revenue income is too low and that's why it is not capable to pay the salary of all the officials. This is the main reasons for under staffing of the Upazila. There is no proper arrangement for staff training. As a result, the staffs are mostly unskilled. They cannot deliver proper service to the citizens. Besides, most of them are not qualified enough to render proper services.

16.11 Monitoring and Evaluation

Monitoring and evaluation are a very important part of plan implementation. It measures the level of implementation of the plan. If the plan implementation is not on track, corrective measures can be taken to put execution on the track. After expiry of any plan, evaluation is made about the errors and omissions. Such evaluation helps take corrective measures in the next plan.

16.12 Landuse Control

Landuse zoning is an evitable element of development plan that regulates the haphazard land use and ensure enough space for proper uses and creates homogeneous land uses. Land use zoning practices have practiced in local planning system since the beginning of the post-World War II in the form of physical planning approach. The aim of land use zoning is outlined below:

- Landuse control or regulation and land use development will ensure sustainable development of the environment and urban growth.
- Enables issuance of land use clearance for development.

16.13 Land Use Regulation for Different Land Use Zones

Summary of permitted & conditional uses of different land use category for the study area is presented in the **Table 16.1**. Here, “Permitted Use” stands for “Allowable Use or it’s Permitted for specific use”, “Conditional Use stands for “Conditionally Permitted Use”, “Plan Review Required” stands for “Special Use” and “Not Permitted” stands for “Restricted Use”.

Table 16. 1: Permitted & conditional uses of different Land use category

PERMITTED USE	Y	Agriculture Zone	Commercial Zone	Eco Sensitive Area	Industrial Zone	Main Flood and Sub Flood Zone	Urban Settlement	Rural Settlement	Urban Deferred Area
CONDITIONAL USE	C								
PLAN REVIEW REQUIRED	P								
NOT PERMITTED	N								
LAND USES									
Agriculture, Forestry & Grazing		Y	Y	Y	N	Y	C	C	Y
Aquaculture & Fisheries		C	N	Y	N	Y	N	C	Y
Brick fields		N	Y	N	C	N	N	N	Y
Cemeteries / Graveyard		N	N	N	N	N	Y	Y	Y
Cinemas		N	C	N	N	N	Y	C	N
Clinics, Medical		N	C	N	N	N	Y	Y	C
Clubs		N	C	N	N	N	Y	Y	N
Colleges & Universities		C	C	N	N	N	Y	Y	C
Farm		Y	C	N	N	N	Y	Y	Y
Dwellings-Minimal Housing		N	N	N	N	N	Y	Y	C
Dwellings-Single/Multi Family		Y	N	N	N	N	C		C

PERMITTED USE	Y	Agriculture Zone	Commercial Zone	Eco Sensitive Area	Industrial Zone	Main Flood and Sub Flood Zone	Urban Settlement	Rural Settlement	Urban Deferred Area
CONDITIONAL USE	C								
PLAN REVIEW REQUIRED	P								
NOT PERMITTED	N								
Flood Management Structures	Y	Y	Y	Y	Y	Y	Y	Y	Y
Hospitals (with morgue)	N	N	N	N	N	N	Y	Y	N
Hotel /Guest House	N	P	N	N	N	N	Y	Y	N
Hotel International Class	N	P	N	N	N	N	Y	Y	N
Industrial, Orange A	N	C	N	Y	N	N	C	C	C
Industrial, Orange B	N	N	N	Y	N	N	C	C	N
Industrial, Red	N	C	N	Y	N	N	N	N	N
Institutions	N	C	N	N	N	Y	Y	Y	N
Major Development	C	C	C	C	N	Y	Y	Y	Y
Offices, Services	N	N	N	N	N	Y	Y	Y	N
Parking Facilities, Commercial	N	Y	N	C	N	Y	Y	Y	N
Petrol Stations	N	C	N	N	N	Y	Y	Y	N
Public Uses & Structures	N	C	N	N	N	Y	Y	Y	N
Recreation Facilities, Outdoor	N	C	C	N	N	Y	Y	Y	Y
Religious Uses & Structures	N	N	N	N	N	Y	Y	Y	Y
Repair Shops, Major	N	C	N	N	N	Y	Y	Y	N
Repair Shops, Minor	N	C	N	N	N	Y	Y	Y	N
Retail Shops & Restaurants	N	C	N	N	N	Y	Y	Y	N
Schools, Private	N	C	N	N	N	Y	Y	Y	N
Schools, Government, Religious	N	N	N	N	N	Y	Y	Y	N
Shopping Centres, Large Market	N	C	N	N	N	Y	Y	Y	N
Stadium, Sports	N	P	N	N	N	Y	Y	Y	N
Terminals, train, bus	N	C	N	N	N	Y	Y	Y	N
Trade Centres	N	C	N	N	N	Y	Y	Y	N
Utility Installations	N	C	N	N	N	Y	Y	Y	C
Ware Housing & Distribution	N	Y	N	N	N	Y	Y	Y	N
Waste Disposal & Processing	N	Y	N	Y	N	Y	Y	Y	Y

Source: Developed by Consultants

The detailing permitted landuse category has been identified at Appendix-C.

16.14 Plan Review Committee

Ministry of Housing & Public Works will provide administrative orders regarding the specific landuse change and it will be included during review of the plan on specific interval as stated in the plan. If there is any landuse change required on any plot for Government/Non-Government/Private Intervention/Project/Land Acquisition on General Welfare that is not in consistent to the proposed landuse or it's permitted, conditionally permitted, restricted or special use stated in the Gazetted plan,

it must be approved by the Ministry of Housing and Public Works through the following Plan Review Committee:

Plan Review Committee Formation

1. Secretary, Ministry of Housing & Public Works- Chairman
2. Upazila Nirbahi Officer (UNO) of concerned Upazila- Member
3. Mayor of Concerned Pourashava- Member
4. Upazila Engineer of Concerned Upazila- Member
5. Director, UDD- Member
6. Concerned Senior Planner, UDD-Member
7. Deputy Secretary, Ministry of Housing & Public Works, Member- Secretary

ToR:

1. Plan Review Committee will meet on need basis.
2. Any decisions taken by the committee will be Gazetted by the Ministry of Housing & Public Works.
3. Plan Review Committee can Co-opt any member if necessary.

APPENDIX-A- Plan Related Policies

National Agriculture Policy 1999

Policy	Five Tier Plan	Key Issues
National Agriculture Policy 1999	Sub-regional Plan	<ul style="list-style-type: none"> • Groundwater irrigation programmes will be coordinated at the national level. • National Agricultural Research Institutes will give priority to region-wise research on irrigate and rain-fed cultivation and also Research on improving quality and utility of various crops.
	Structure Plan	<ul style="list-style-type: none"> • Location specific (including hill tracts) suitable crops will be identified with respect to technological and economic parameters and appropriate strategies will be pursued for cultivating those crops. • Measures will be taken to minimize post-harvest losses by introducing appropriate technologies. • With a view to transforming crop production system into a profitable and sustainable sector, a two-dimensional agricultural research management programme will be followed. • Government, private sector agencies and NGOs involved in agriculture sector will in principle agree to exchange information among them. • Special development programmes will be taken with a view to increasing production of potential crops suitable for the coastal areas and the hill tracts. • ensure a profitable and sustainable agricultural production system and raise the purchasing power by increasing real income of the farmers • The Seed Certification Agency will take membership of the International Seed Testing Association (ISTA) so that the opportunities for exporting internationally standard seeds are created
	Action Area Plan	<ul style="list-style-type: none"> • Reservoirs will be built-up to tap water from the year-round stream flow in hilly areas and appropriate infrastructure will be developed for irrigation as well as fish culture. • Pest surveillance and monitoring system will be strengthened. • Salt tolerant crop varieties will be developed and extended along with possible measures to resist salinity. • Irrigation programmes will be undertaken following proper strategy according to the availability of surface and groundwater. • Number of agricultural education institutions will be increased up to the required level. • take supportive programmes for inter-cropping in a field instead of single cropping; • Land zoning programme will be taken up by the Soil Resources Development Institute (SRDI) on a priority basis.

Climate Change Strategy 2009

Policy	Five Tier Plan	Key Issues
Climate Change Strategy 2009	Sub-regional Plan	<ul style="list-style-type: none"> • Model climate change scenarios for Bangladesh by applying global climate change models and methodologies at regional and national levels • Regional and international cooperation is essential in order to build necessary capacity and resilience • Strengthen the government's capacity and that of civil society partners and communities to manage natural disasters • To review energy and technology policies and incentives to promote efficient production, consumption, distribution and use of energy • To build the capacity of the country to meet the challenge of climate change over the next 20-25 years.
	Structure Plan	<ul style="list-style-type: none"> • Repair and rehabilitate existing infrastructure (e.g., coastal embankments, river embankments and drainage systems, urban drainage systems) and ensure effective operation and maintenance systems • Undertake strategic planning of future infrastructure needs and future patterns of urbanization and socio-economic development; and the changing hydrology of the country, because of climate change • Strengthen cyclone, storm surge and flood early warning systems to enable more accurate short, medium and long-term forecasts.
	Urban Area Plan	<ul style="list-style-type: none"> • New urban areas must be built to be climate resilient. • Flood protection and drainage schemes to protect urban areas from rainwater and river flooding during the monsoon season
	Action Area Plan	<ul style="list-style-type: none"> • .Monitor changes in water quality and quantity available for drinking and forecast future changes due to climate change • flood management schemes to raise the agricultural productivity of many thousands of km2 of low-lying rural areas and to protect them from extremely damaging severe floods • Monitor and research the impacts of climate change on ecosystems and biodiversity • Model the likely hydrological impacts of climate change on the Ganges-Brahmaputra-Meghna system to assess future system discharges and river levels <p>The Climate Change Action Plan is built on six pillars:</p> <ul style="list-style-type: none"> ➤ Food Security, Social Protection and Health ➤ Comprehensive disaster management ➤ Infrastructure to ensure existing and maintainences. ➤ Research and Knowledge Management ➤ Migration and low carbon development ➤ Capacity Building and institutional strengthening

Disaster Management Act 2012

Policy	Five Tier Plan	Key Issues
Disaster Management Act 2012	Sub-regional Plan	<ul style="list-style-type: none"> National Disaster Management Council should provide <ul style="list-style-type: none"> ➤ strategic guidelines concerned to policies and plans about disaster management; ➤ Implementation progress review of government projects and programs taken to face the disaster and rehabilitation The government may give order to accomplish special activities to be done on emergency basis by concern ministry, division, directorate, office, government and semi-government organization and committees formed under this Act.
	Action Area Plan	<p>The following requirements will need assistance:</p> <ul style="list-style-type: none"> Unusable or destroyed disaster protection infrastructure for essential services. Extensive death or disaster like any unnatural event or any such natural event.

National Plan for Disaster Management 2008-2015

Policy	Five Tier Plan	Key Issues		
National Plan for Disaster Management 2008-2015	Sub-regional Plan	Strategic Goal	Action Agenda for 2008-2015	Supporting Agency/ dept.
		Strengthening Institutional Mechanisms	Identify national, regional, sub-regional and local institutional mechanisms including informal systems and undertake an audit to validate roles and linkages	Ministry of Establishment /Ministry of Law, Justice and Parliamentary Affairs/ Cabinet Division/ Sectoral Ministries/NGOs Affairs Bureau/NGOs / Development Partners
		Strengthening Emergency	Use SAARC, RCC and other	Armed Forces Division; Ministry of

National Plan for Disaster Management 2008-2015

Policy	Five Tier Plan	Key Issues
		<p>Response Systems available frameworks and platforms to establish regional networks for real time data/information sharing</p> <p>Post and Telecommunication; MoHA/ MoFA/ SMRC NGO Affairs Bureau/ NGOs Development Partners</p> <p>Developing and Strengthening regional and global Networks Identify key regional collaborating organizations and develop systems for coordination, and knowledge sharing. Use SAARC, ASEAN and RCC platforms to establish regional networks for real time data/information sharing as well as sharing of new knowledge and technology.</p> <ul style="list-style-type: none"> • Developing and strengthening networks of relevant national, regional and international organizations. • To mitigate the impacts of floods, the government has been developing and implementing various measures to better equip the country to deal with floods.
	Structure Plan	<ul style="list-style-type: none"> • Strengthening disaster management and risk reduction capacity • The plan followed by the strategic plan and operational plan of the different directorate of the ministry. Purpose of the Corporate Plan includes <ul style="list-style-type: none"> <input type="checkbox"/> Articulate the Ministry's long-term Strategic Focus. <input type="checkbox"/> Detail a road-map for the development of internal

National Plan for Disaster Management 2008-2015

Policy	Five Tier Plan	Key Issues
		<p>Strategic Plans for the Disaster Management Bureau (DMB), Directorate of Relief and Rehabilitation (DRR), Director-General of Food (DGoF) and the Policy Programme and Partnership Development Unit (PPPDU).</p> <p>□ Provide a framework within which to report performance and success in achieving goals and strategies</p> <ul style="list-style-type: none"> • Different stakeholders in a multi-sectoral approach, including the development sector, should address the strategic goals and priorities for action. <p>STRATEGIC GOALS OF THE PLAN</p> <p>The strategic goals of the plan are drawn from the SAARC Disaster Management Framework</p> <ul style="list-style-type: none"> • Goal 1: Professionalising the Disaster Management System • Goal 2: Mainstreaming Risk Reduction • Goal 3: Strengthening Institutional Mechanisms • Goal 4: Empowering at Risk Communities • Goal 5: Expanding Risk Reduction Programming • Goal 6: Strengthening Emergency Response Systems • Goal 7: Developing and Strengthening Network
	Action Area Plan	<ul style="list-style-type: none"> • to develop a Tsunami early warning system and mass awareness of Tsunami threat at the coastal areas

Population Policy 2004

Policy	Five Tier Plan	Key Issues
Population Policy 2004	Sub-regional Plan	<ul style="list-style-type: none"> • Ministry of Planning/Planning Commission will be responsible for <ul style="list-style-type: none"> ➤ policy planning, ➤ integration of population variables in the relevant sectoral plans and programs, as well as ➤ co-ordination of adequate resource allocation to concerned ministries. <p>The Population Policy proposals can broadly be divided into four sectors,</p>

Population Policy 2004

Policy	Five Tier Plan	Key Issues
		<ul style="list-style-type: none"> ➤ human resources development, ➤ decentralization of population activities, ➤ participation of NGOs and private sector in population planning, ➤ building of planned family
	Structure Plan	<ul style="list-style-type: none"> • Roads and communication systems should be linked with the growth centers; along with health, education housing and other welfare services created in those places
	Rural Area Plan	<ul style="list-style-type: none"> • to mitigate the push factors from rural areas by ensuring rural employment opportunities in agriculture and agro-based industries for slowing down the rate of migration from rural areas • Support the programs for re-excavation of canals and ponds in rural area and to undertake measures against soil and river erosion.
	Action Area Plan	<ul style="list-style-type: none"> • A detailed time-bound integrated Action Plan shall be prepared to implement this policy with specific measurable indicators to monitor progress • satellite towns and growth centers should be established with adequate facilities to provide alternative destinations to rural migrants.

National Policy for Safe Water Supply and Sanitation 1998

Policy	Five Tier Plan	Key Issues
National policy for safe water supply and sanitation 1998	Sub-regional Plan	<p>The overall works to be done-</p> <ul style="list-style-type: none"> ➤ Power to formulate international and regional agreement ➤ Formulation of National Disaster Management Policy. ➤ Declaration as distress zone • Drainage system in the cities and municipalities will be integrated with the overall drainage system with the coordination of Ministry of Water Resources. • Department of Environment will be consulted on solid waste management.

	Structure Plan	<ul style="list-style-type: none"> • A comprehensive strategic plan of operations shall be prepared • Within a specified period legislation will be enacted making use of sanitary latrine compulsory. • Support poverty alleviating strategies for improved quality of life
	Urban Area Plan	<ul style="list-style-type: none"> • Ensuring storm-water drainage in urban areas. • Making safe drinking water available to each household in the urban areas. • Adoption of necessary measures in urban areas to prevent contamination of ground and surface water by solid and liquid wastes. • To prevent contamination of ground and surface water by solid and liquid wastes. • The City Corporations or Paurasabhas shall be responsible for solid waste collection, disposal and their management.
	Rural Area Plan	<ul style="list-style-type: none"> • Ensuring the use of waste for the production of organic fertilizer (compost) in the rural areas. • Ensuring the installation of one sanitary latrine in each household in the rural areas • To improve public health standard through inculcating the habit of proper use of sanitary latrines.
	Action Area Plan	<ul style="list-style-type: none"> • Paurasabhas and WASAs will take actions to prevent the wastage of water. • Necessary measures shall also be taken to prevent contamination and damage of tube wells during natural disaster.

The Building Construction Act, 1952

Policy	Five Tier Plan	Key Issues
The Building Construction Act, 1952	Structure Plan	<p>In order to power to make Bangladesh National Building Code, the following requirements are:</p> <ul style="list-style-type: none"> ❖ general building requirements, control and regulation; ❖ fire protection; ❖ building materials; ❖ structural design; ❖ construction practices and safety; ❖ building services; ❖ alteration, addition to and change of use of existing building; ❖ sign and outdoor display;
	Urban Area Plan	<p>This act includes as follows:</p> <ul style="list-style-type: none"> • Restriction on construction of building and excavation of tank • Restriction on improper use of lands and building • Direction for removal of construction, etc • Power of removal of temporary building • Power of removal of building under construction
	Action Area Plan	<ul style="list-style-type: none"> • Restriction on cutting of hills • Direction for stopping cutting or razing of hill • Power of seizure and arrest without warrant

National Water policy 1999

Policy	Five Tier Plan	Key Issues
National Water policy 1999	Sub-regional Plan	<p>This plan will guide water management Institutions at the national, regional, and local levels in the formulation and implementation of policies and plans for improved water management and investment.</p> <ul style="list-style-type: none"> • The Government will exercise its water allocation power in identified scarcity zones on the basis of specified priorities • The Government may empower the local government or any local body to exercise its right to allocate water in scarcity zones during periods of severe drought • To environmental protection, restoration and enhancement measures consistent with the National Environmental Management Action Plan (NEMAP) and the National Water Management Plan (NWMP) • For sustaining rechargeable shallow groundwater aquifers. The Government will regulate the extraction of water in the identified scarcity zones with full public knowledge.
	Structure Plan	<ul style="list-style-type: none"> • Water development plans will make adequate provision in control structure for allowing fish migration and breeding. • Brackish aquaculture will be confined to specific zones designated by the Government
	Urban Area Plan	<ul style="list-style-type: none"> • Preserve natural depressions and water bodies in major urban areas for recharge of underground aquifers and rainwater management • Improve efficiency of resource utilization through conjunctive use of all forms of surface water and groundwater for irrigation and urban water supply.
	Rural Area Plan	<ul style="list-style-type: none"> • To develop different flood proofing measures such as raising of platform for homesteads, market places, educational institutions, community centers etc and adjusting the cropping pattern to suit the flood regime.
	Action Area Plan	<ul style="list-style-type: none"> • The contingency plan will include action to limit the use of groundwater according to priorities. • To assist the process of building public support

Industrial Policy 2005

Policy	Five Tier Plan	Key Issues
Industrial Policy 2005	Sub-regional Plan	<ul style="list-style-type: none"> • Establishment of Special Economic Zone based on the Importance of Industries, • Availability of Inputs and Regional Facilities • To reduce poverty and generate employment opportunities • The government has taken an initiative to formulate a separate SME policy to provide entrepreneurs with necessary guidance and strategic support in respect of the establishment of SME industries all over the country.
	Structure Plan	<ul style="list-style-type: none"> • Develop planned industrial areas by establishing Special Economic Zones in areas with vast economic potentials, and utilizing local resources • Cluster villages can be set up in especial economic zones for industries • Provide structural and other facilities to establish and develop compact industrial areas.
	Action Area Plan	<ul style="list-style-type: none"> • Necessary action will be taken to update the relevant legislation and • The establishment of a separate bank under public or private initiative will be considered

Burning Bricks Act 1989

Policy	Five Tier Plan	Key Issues
Burning Bricks Act 1989	Action Area Plan	<p>The conditions of the act as follows</p> <ul style="list-style-type: none"> ❖ Supremacy of the Act. ❖ Licence for burning bricks ❖ Prohibition of burning bricks with firewood ❖ Inspection ❖ Punishment ❖ Filing suit ❖ .Power to make rules

National Urban Sector Policy 2011

Policy	Five Tier Plan	Key Issues
National Urban Sector Policy 2011	Sub-regional Plan	<ul style="list-style-type: none"> • In order to make urban plans flexible and adaptable to changing circumstances, following three levels of planning activity are required <ul style="list-style-type: none"> ❖ structure planning, ❖ local planning and ❖ action planning • Associations at local and regional levels can form partnerships in local economic development which are then connected to national and international opportunities. • Formulation of Urban, Rural and Regional Planning Act (i.e., Physical Planning Act) • facilitate economic development, employment generation, reduction of inequality and poverty eradication through appropriate regulatory frameworks and infrastructure provisions
	Structure Plan	<ul style="list-style-type: none"> • Regional development planning at district level would pave the way for practical application of bottom-up planning approach as present planning activities in Bangladesh are too much centralized. • Detailed plan for specific sections of urban area as identified in the structure plan can be prepared for rapid development or for special projects and improvements. • urban planning and management strategies including: <ul style="list-style-type: none"> ❖ Regulatory frameworks ❖ Appropriate by-laws, standards and norms, ❖ and planning guidelines should be developed and adopted. ❖ Informal and home-based income-generating activities • Specific responsibilities for provision of services in urban areas will be formulated for government agencies and • encouraging community participation in maintaining law and order. • Develop and implement urban management strategies and governance arrangements for enhancing complementary roles of urban and rural areas in sustainable development • local level rural plans can be prepared at the union level while the local level urban plan can be prepared at the Paurashava level

National Urban Sector Policy 2011

Policy	Five Tier Plan	Key Issues
	Urban Area Plan	<ul style="list-style-type: none"> • Protect hills in urban areas, specially Chittagong, Sylhet, Khagrachari, Cox's Bazar etc. Protect peri-urban areas from unplanned development. • Promote hierarchical structure of educational institutions, such as from the kindergartens to universities, at appropriate locations with catchment areas/zones in urban areas. • The local government body should design and implement regular survey of deprived groups in urban areas to keep track of numbers, origin and location of street children and other disadvantaged groups or individuals. • Promote hierarchical distribution of recreational places in all urban areas with planned coverage as per physical planning rules. • Plan for adequate number, size and location of graveyards and provision for burning ghats in all urban areas. • Conserve natural water bodies, forests if they exist in and around urban areas as public recreation open spaces. • Government will enact law and adopt prevention measures through police and special system for crime prevention and personal safety in urban areas.
	Action Area Plan	<ul style="list-style-type: none"> • the Paurashava and City Corporation Ordinance/acts should be amended so that the women ward commissioners can participate fully and equally in the decision-making processes and activities of urban local bodies. • Union plans can be integrated at the upazila level to prepare the upazila plan.

National Fisheries Policy 1998

Policy	Five Tier Plan	Key Issues
National Fisheries Policy 1998	Sub-regional Plan	<ul style="list-style-type: none"> To save the marine resources from further decline strict measures will be taken against increase in mechanized or non-mechanised boats engaged in fish harvest in the marine zones. Development of the fisheries research infrastructure, extension, training, demonstration and other activities influencing fisheries programme shall be run by both private and public sector agencies. The Ministry of Fisheries and Livestock will control all development, , and other management aspects of fisheries resources and fish habitats and Ministry of Land will be involved in taking effective steps in this respect All water bodies of the country will be identified and their primary use as areas of fish production ensured. To ensure high quality of exportable fish and shrimp products, laboratory facilities for Quality Control will be expanded and modernised. Appropriate preventive measures will be taken against dumping of hazardous chemicals and nuclear wastes into the sea.
	Structure Plan	<ul style="list-style-type: none"> Integrated rice cum fish culture shall be extended through the release of fish fry in the beels, haors and other floodplains, especially in the areas encircled by dams in flood control and irrigation projects. Fish culture will be encouraged in all ponds, dighis and other water bodies. Biodiversity will be maintained in all natural water bodies and in marine environment.
	Action Area Plan	<ul style="list-style-type: none"> Priority will be given to fish culture in the low-lying lands of the country where 50 cm or more of water is retained or can be retained during rainy season for more than three months. discharge of harmful municipal and industrial wastes directly into the water bodies will be considered a punishable crime and measures will be taken to control and limit the use of harmful chemical fertilisers, insecticides Union based demonstration farms will be established with the assistance of the private sector, for the dissemination of aquaculture technologies. After mapping of soil quality of potential aquaculture regions, a manual describing appropriate use of lime and fertiliser in fish ponds shall be developed and distributed.

Bangladesh National Building Code 1993

Policy	Five Tier Plan	Key Issues						
Bangladesh National Building Code 1993	Urban Area Plan	<p>The BNBC code has ten parts comprising different aspects of building construction and services.</p> <table><thead><tr><th>Parts</th><th>Components</th></tr></thead><tbody><tr><td>1. General introduction to the code</td><td><ul style="list-style-type: none">• Definitions• Symbols</td></tr><tr><td>1. Adminstrative requirements necessary for enforcement of the code</td><td><ul style="list-style-type: none">• Seismic zoning• Design earthquake forces for primary framing systems• Selection of lateral force method• Seismic Dead Load• Design Base Shear• Seismic zone coefficient• Structure Importance coefficients• Structure period• Response Modification coefficient for structural systems• Site coefficient• Vertical distribution of lateral force• Combination of structural systems• Ground motion• Response spectrum Analysis• Seismic laterak forces on components and equipment supported by structures• Horizontal force coefficient• Seismic lateral forces on nonbuilding structures• Horizontal force coefficient• Coefficient for nonbuilding structures• Combination of loads and stress increase for allowable stress design method• Combinations of load for strength design method</td></tr></tbody></table>	Parts	Components	1. General introduction to the code	<ul style="list-style-type: none">• Definitions• Symbols	1. Adminstrative requirements necessary for enforcement of the code	<ul style="list-style-type: none">• Seismic zoning• Design earthquake forces for primary framing systems• Selection of lateral force method• Seismic Dead Load• Design Base Shear• Seismic zone coefficient• Structure Importance coefficients• Structure period• Response Modification coefficient for structural systems• Site coefficient• Vertical distribution of lateral force• Combination of structural systems• Ground motion• Response spectrum Analysis• Seismic laterak forces on components and equipment supported by structures• Horizontal force coefficient• Seismic lateral forces on nonbuilding structures• Horizontal force coefficient• Coefficient for nonbuilding structures• Combination of loads and stress increase for allowable stress design method• Combinations of load for strength design method
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		<p>2. General Planning and architectural requirements of buildings based on classification in accordance with occupancy, fire resistance</p> <p>3. The requirements for fire prevention and protection measures</p> <p>4. The standard materials to be used in building construction</p> <p>5. Requirements governing structural design that ensure safety and serviceability of buildings</p> <ul style="list-style-type: none"> • Earth quake resistant Design • Strengthening of Masonry Building for Earthquake Seismic • Band Reinforcement • Strengthening of Corner and Junctions • Vertical Reinforcement for Brick and Hollow Block Masonry • provisions for high wind regions • Special Splice Requirements for Columns • special provision for seismic design • Detailing of Reinforced Concrete Structures • Analysis and Proportioning of Structural Members • Detailing of Reinforced Concrete Structures • Structural Walls and Diaphragms • Shear Strength Requirements • Frame Members not Proportioned Resist Forces Induced by Earthquake Motion • Requirements for Special Moment Frames (SMF) <p>6. Ensuring safety of life during construction and minimization of construction hazards</p> <p>7. Standards of minimum requirements for the various services</p>
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Seventh Five Year Plan (FY2016 – FY2020)

Policy	Five Tier Plan	Key Issues
Seventh Five Year Plan	Action Area Plan	<ul style="list-style-type: none"> • Seventh plan strategy for enhancing the role of the services sector in economic development includes: <ol style="list-style-type: none"> i) Modernizing the service sector with emphasis on export of non-factor services; ii) Improve the incentive policies iii) Increasing public investment in key service sector infrastructure; iv) Strengthening the skills base for the service industry; v) Strengthening implementation of prudential regulations to boost service quality increase public safety, improve compliance and ensure accountability of service providers; vi) Strengthen monitoring and enforcement services and Strengthening public institutions vii) In urban and peri-urban areas the government should preferably not transfer land in freehold to occupants, rather choose leases as the instrument for granting tenure for publicly-owned land and especially local authority land • Provide infrastructure and services • Strategies for Reduction of Urban Poverty • Special Zones for the Urban Poor • Ensure availability and sustainable management of water and sanitation for all • Build resilient infrastructure • Take urgent action to combat climate change and its impacts • Conserve and sustainably use the oceans, seas and marine resources for sustainable development

National Land Use Policy 2001

Policy	Five Tier Plan	Key Issues
National Land Use Policy 2001	Sub-regional Plan	<ul style="list-style-type: none"> • Execution of coordinated land conservation projects aimed at prevention of desertification in the northern region. • Take up effective programmes aimed at preventing weathering of land, conservation of land fertility, • development and conservation of land in coastal areas. • identification of zones for land uses by Paurashavas and other places of Upazilas
	Structure Plan	<ul style="list-style-type: none"> • Formulation, categorization and effective implementation of land use plan in order to ensure planned occupancy and / or use of land. • Payment of compensation to those who will be affected by land weathering and land acquisition for the purpose of development agencies and/ or by the government. • Regular monitoring, survey and research on desertification in the northern region, land reclamation, prevention of weathering of land, mixed use of land, conservation and protection of coastal area land and condition of watershed areas.
	Urban Area Plan	<ul style="list-style-type: none"> • construct service roads along the main roads of the country so as to ensure safe movement of traffic as well as set aside 10 feet to 20 feet of land for plantation trees on the both sides of roads.
	Action Area Plan	<ul style="list-style-type: none"> • Prevention of destroying the hilly landscape by earth cutting, excavation and removal of land. • Appropriate measures to be taken against indiscriminate collection of earth and stone from hilly areas and disturbance ecological balance. • Emphasis on watershed management • Entrust the responsibility of maintaining small ponds by the owners and large water bodies such as river, channels, haor, baor and beel by the community people and the Government. • use of embankments for controlling flood as roads as far as possible • planned tree plantation on the embankments • encouragement to construct multi-storied buildings instead of single storied in the rural and urban areas so as to ensure optimum use land for residential purposes

Housing Policy 2008 (Draft)

Policy	Five Tier Plan	Key Issues
Housing Policy 2008 (Draft)	Sub-regional Plan	<ul style="list-style-type: none"> • সরকারগৃহায়ন প্রক্রিয়া বাস্তবায়ন কালে উদ্ভূত পরিস্থিতি সমূহ পর্যালোচনা করবে এবং এসংক্রান্ত পদ্ধতিগত বাধাবিপত্তিগুলো অপসারণে সক্রিয় ভূমিকা পালন করবে। • বস্তিবাসীদের বা কোন নিম্নবিত্ত বসতি স্থানান্তর করার সিদ্ধান্ত অপরিহার্য বিবেচিত হলে প্রয়োজনীয় সামগ্রিক আর্থ সামাজিক তথ্যাবলীর সমন্বয়ে বিশেষজ্ঞ দ্বারা প্রণীত একটি উপযোগিতা সমীক্ষা জাতীয় গৃহায়ন কতৃপক্ষের মতামতের জন্য দাখিল করা হবে। • বস্তি এলাকা যেখানে আবাসিক এলাকার পরিবেশ ও অবকাঠামোর উন্নয়ন, গৃহের ও সেবা-সুবিধার ক্রমোন্নয়ন এবং যখন যেখানে সম্ভব সেখানে বাসিন্দাদের বসবাসে অধিকার প্রদানের ব্যবস্থা নেয়া হবে।
	Structure Plan	<ul style="list-style-type: none"> • একটি আধুনিক আবাসিক ভূমি তথ্য পদ্ধতি তৈরী করা হবে। জমির সরবরাহ বৃদ্ধি, যথোপযুক্ত ও সময়োপযোগী ব্যবহার নিশ্চিত করণ এবং ফতকাবাজী রোধ করার লক্ষ্যে জমি ফেলে রাখাকে অলাভজনক ও নিরুৎসাহিত করার ব্যবস্থা নেয়া হবে। • গৃহায়নের জন্য ভূমি ও অবকাঠামো উন্নয়ন এবং সার্বিকভাবে গ্রামীণ ঘর বাড়ীর মান উন্নয়নকে সম্পদ ও কর্মসংস্থান সৃষ্টির কার্যক্রমের সঙ্গে সম্পৃক্ত করা হবে।
	Urban Area Plan	<ul style="list-style-type: none"> • দেশের সকল পল্লী ও শহরাঞ্চলের জন্য সমভাবে প্রযোজ্য এই নীতির আওতায় গৃহনির্মাণে সরকার ক্রমান্বয়ে সহায়তাকারীর ভূমিকা নিবে। • নগর ও গ্রামীণ এলাকায় অব্যবহৃত খাস ও পতিত জমি ও জেগে উঠা চর নিয়ে আলাদা ‘ভূমি ব্যাংক’ সৃষ্টি করে তাকে সমৃদ্ধ করা হবে। • উচ্চবিত্তের আবাসনের জন্য ভূমি ও ইমারত এবং শিল্প-বাণিজ্য জাতীয় অনাবাসিক ভূমি মুনাকা মূল্যে বরাদ্দ করে প্রাপ্ত মুনাকা দিয়ে নিম্ন বিত্তের সুবিধা দিতে ভর্তুকি দেয়া হবে। • একটি সমন্বিত আঞ্চলিক উন্নয়ন পরিকল্পনার আওতায় ছোট ও মাঝারি শহরের সংগে সংলগ্ন গ্রামাঞ্চল ও হাটবাজারের সংযোগ

Housing Policy 2008 (Draft)

Policy	Five Tier Plan	Key Issues
		<p>গড়ে তোলে, এগুলোতে অর্থনৈতিক ক্রিয়াকাণ্ড ও কর্মসংস্থানের সুযোগ বৃদ্ধি করা হবে ও সামাজিক ও সাংস্কৃতিকভাবে আকর্ষণীয় করে গড়ে তোলা হবে।</p> <ul style="list-style-type: none"> দেশের সব কয়টি নগর এলাকার মহাপরিকল্পনা প্রণয়ন সমাপ্ত করে তদনুযায়ী অবকাঠামো নির্মাণ ও ব্যবহার নিশ্চিত করা হবে। নগর অঞ্চলে অনুমোদনবিহীন এবং ব্যক্তি মালিকানাধীন বস্তী গজিয়ে ওঠা রোধ করার উদ্দেশ্যে বিভিন্ন বিধিমালা কঠোরভাবে প্রয়োগ করা হবে। স্থায়ী/অস্থায়ী, কাঁচা/পাকা প্রকৃতির যে কোন বসতিতে এ্যাম্বুলেন্স, অগ্নি নির্বাপক গাড়ী ও অত্যাবশ্যকীয় যানবাহন চলাচল নিশ্চিত করা হবে।
	Rural Area Plan	<ul style="list-style-type: none"> গ্রামাঞ্চলে অধিক হারে কর্ম সংস্থান, রসদের প্রাপ্তি ও গৃহায়ন ও সেবা সুবিধা বৃদ্ধি করে অভিবাসন জনিত গৃহায়ন চাহিদা হ্রাস করণ। পল্লীর জনগণের জন্য উপযুক্ত নিরমান উপকরণ সহজলভ্য করা হবে। একই সাথে পরিবেশ সংরক্ষণ, অবাধ বৃক্ষ নিধন, ইট ভাটার জ্বালানী, ইত্যাদি নিয়ন্ত্রণ করার প্রয়োজনীয় ব্যবস্থা নেয়া হবে। <p>গ্রামীণগৃহায়নঃ</p> <ul style="list-style-type: none"> কৃষি জমির উপর বাড়ীঘর নির্মাণের প্রবণতা নিরুৎসাহিত করা হবে। গ্রামাঞ্চলে পরিকল্পিত নিবিড় আবাসন সৃষ্টির উৎসাহ ও নির্দেশনা দেয়া হবে। গ্রামীণ গৃহায়নের জন্য খাস জমির প্রাপ্যতা সাপেক্ষে ‘আদর্শ গ্রাম’/‘গুচ্ছ গ্রাম’ কর্মসূচীর অনুরূপ কার্যক্রম বিস্তারিত করা হবে। <p>গ্রামীণ জনগণের গৃহ নির্মাণ, মেরামত, পরিবর্তন, পরিবর্ধন ও অন্যান্য গৃহ সংক্রান্ত ছোটখাটো প্রয়োজন বিনা সূদে বা সহজ শর্তে ছোট ছোট ঋণের ব্যবস্থা করা হবে।</p>

National Forest Policy 1994

Policy	Five Tier Plan	Key Issues
National Forest Policy 1994 জাতীয় বননীতি, ১৯৯৪ (সংশোধিত)	Sub-regional Plan	<ul style="list-style-type: none"> To fulfill national responsibilities and commitments by implementing various efforts and government ratified agreements relating to global warming, desertification and the control of trade and commerce of wild birds and animals; To encourage effective use and utilization of forest products at various stages of processing ;
	Structure Plan	To aforest about, 20% of the total area of the country by initiating various aforestation programmes in forest lands, fallow lands, lands not useful for agriculture, hinter lands and other possible areas to meet the basic needs of the present and future generations and to ensure greater contribution of the forestry sector to economic development.
	Rural Area Plan	<ul style="list-style-type: none"> To strengthen agriculture by extending assistance to those sectors related with forest development, especially by conserving land and water resources; To encourage effective use and utilization of forest products at various stages of processing ; To provide for and implement aforestation programmes on both public and private lands.
	Action Area Plan	<ul style="list-style-type: none"> To prevent illegal occupation of forest lands, illegal tree felling and hunting of wild animals through the promotion of participation of local people

National Environment Policy 1992

Policy	Five Tier Plan	Key Issues
National Environment Policy 1992	Sub-regional Plan	<p>Key elements of the policy statement are:</p> <ul style="list-style-type: none"> Maintain ecological balance and overall physical development progress of the country through protection and development of different sectors. Protection from natural disaster is one of them; Identification and regulation all type of activities which pollutes and degrade the environment; Ensuring proper Environment Impact Assessment prior to undertaking of industrial and other development projects; and Ensuring sustainable use of natural resources.

National Tourism Policy 1992

Policy	Five Tier Plan	Key Issues
National Tourism Policy 1992	Sub-regional Plan	<ul style="list-style-type: none"> The policy identified tourism as a multidimensional industry and spelt out the necessity to have an effective coordination among various government ministries, departments, agencies and civil society bodies. In line with the policy, the Bangladeshi Government provides incentives to attract private sector partners. The incentives include tax-holiday, loans, concession rates for taxes and duties and in specific cases, allotment of land etc.
	Action Area Plan	<p>Its main objectives are:</p> <ul style="list-style-type: none"> To create interest in tourism among the people. To preserve, protect, develop and maintain tourism resources. To take steps for poverty-alleviation through creating employment. To build a positive image of the country abroad. To open up a recognized sector for private capital investment. To arrange entertainment and recreation. To strengthen national solidarity and integrity

Private Residential Land Development Rule 2004

Policy	Five Tier Plan	Key Issues
Private Residential Land Development Rule 2004	Urban Area Plan	<ul style="list-style-type: none"> প্রকল্প বাস্তবায়নের সময় পার্শ্ববর্তী এলাকায় যাহাতে কোন ধরনের জলাবদ্ধতা সৃষ্টি বা পরিবেশের ভারসাম্য নষ্ট না হয় উহা নিশ্চিত করণ বিভিন্ন উটিলিটি সার্ভিস এর রক্ষণাবেক্ষণের জন্য সংরক্ষিত জায়গা সংশ্লিষ্ট সংস্থার নিয়ম-নীতি অনুসরণে হস্তান্তর যাসেই সকল বরাদ্দ ও হস্তান্তর যাসেই সকল বরাদ্দ প্রকল্প এলাকার উন্নয়নের সময় পানি এবং বিদ্যুৎ সরবরাহ সুবিধা বা ব্যবস্থা না থাকিলে উদ্যোক্তার নিজস্ব খরচে অন্তর্বর্তীকালীন পানি এবং ব্যবস্থাকরণ নগরপরিকল্পনার দৃষ্টিকোণ হইতে প্রকল্প এলাকার প্রতিটি বাড়ীর অবস্থান, ব্লক, সেক্টর, পার্শ্ববর্তী বাড়ীর অবস্থান (Block/Sector/ Zone/ Neighbourhood) এ নিরূপিত জনসংখ্যার বিবেচনায় বিস্তারিত ভূমি ব্যবহার সিডিউল প্রস্তুত করিলে উত প্ল্যানে প্রদর্শন করিতে হইবে।

Private Residential Land Development Rule 2004

Policy	Five Tier Plan	Key Issues																																												
		<div><div><div>➤ Sectoral/ Block/Zonal/ Naighbourhood Plan including detailed sub–division of lands;</div><div>➤ Road Network Plan;</div><div>➤ Drainage Plan;</div><div>➤ Utility Services Plan of Water Supply, Sewerage System(Treatment & Final Disposal),Solid Waste Collectoin & Disposal, Gas Supply, Electricity Supply,Telephone Facilities,etc.</div><div>➤ Traffic Circulation Plan;</div></div><div>Space Standards for Urban Community Facilities in acres by Population size</div><table><thead><tr><th>Community Facilities</th><th>Facility per 1000 Population</th></tr></thead><tbody><tr><td colspan="2">EDUCATION</td></tr><tr><td>Nursery</td><td>0.08</td></tr><tr><td>Primary School</td><td>0.08</td></tr><tr><td>Secondary School</td><td>0.10</td></tr><tr><td>College*</td><td>0.08</td></tr><tr><td colspan="2">HEALTH</td></tr><tr><td>Small Clinic*</td><td>0.04</td></tr><tr><td>Hospital*</td><td>0.04</td></tr><tr><td colspan="2">COMMUNITY ORGANIZATION</td></tr><tr><td>Community Center/Mosque</td><td>0.04</td></tr><tr><td colspan="2">RECREATION</td></tr><tr><td>Play-Ground/</td><td>0.08</td></tr><tr><td>Play-field</td><td></td></tr><tr><td>Park</td><td>0.12</td></tr><tr><td colspan="2">COMMERCIAL</td></tr><tr><td>Corner Shop/</td><td>0.04</td></tr><tr><td>Market/Kutchra</td><td></td></tr><tr><td>Bazar*</td><td></td></tr><tr><td>Residential</td><td>0.34</td></tr><tr><td>Roads**</td><td></td></tr><tr><td>Total Area for community Facilities (minimun)</td><td>1.00</td></tr></tbody></table></div>	Community Facilities	Facility per 1000 Population	EDUCATION		Nursery	0.08	Primary School	0.08	Secondary School	0.10	College*	0.08	HEALTH		Small Clinic*	0.04	Hospital*	0.04	COMMUNITY ORGANIZATION		Community Center/Mosque	0.04	RECREATION		Play-Ground/	0.08	Play-field		Park	0.12	COMMERCIAL		Corner Shop/	0.04	Market/Kutchra		Bazar*		Residential	0.34	Roads**		Total Area for community Facilities (minimun)	1.00
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Private Residential Land Development Rule 2004

Policy	Five Tier Plan	Key Issues
	Plan	<p>হইলে সেই ক্ষেত্রে উদ্যোক্তাদের নিজস্ব খরচে Waste Water & Sewerage Treatment Plant Composting Plant ইত্যাদি নির্মাণের ব্যবস্থা করণ;</p> <ul style="list-style-type: none"> • The Building Construction Act, 1952 (E.B. Act // of 1953) এবং প্রচলিত ইমারত বিধিমালা অনুসারে অনুমোদন গ্রহণ করিয়া সরকার কর্তৃক অনুমোদিত বিল্ডিং কোড অনুযায়ী প্রকল্পের বাস্তবায়ন এবং ইমারত নির্মাণ করণ; • প্রকল্প এলাকায় বসতবাড়ী আছে এমন সকল ক্ষতিগ্রস্তকে পুনর্বাসনের ব্যবস্থা করিতে হইবে। • প্রকল্প এলাকার আয়তন অ জনসংখ্যা নির্ধারণ সঙ্কল্প শর্ত: <ul style="list-style-type: none"> ➤ বেসরকারী আবাসিক প্রকল্প গ্রহণের ক্ষেত্রে ঢাকা সিটি কর্পোরেশন এলাকার অভ্যন্তরে ন্যূনতম ৫ (পাঁচ) একর এবং সিটি কর্পোরেশন বা পৌর এলাকা বাহিরে ন্যূনতম ১০ (দশ) একর জমির প্রয়োজন হইবে। ➤ বেসরকারী আবাসিক প্রকল্পে প্রতি একরে সর্বোচ্চ জনসংখ্যার ঘনত্ব (Gross Density) হইবে ৩৫০ জন। • প্রকল্প এলাকার ৩০ (ত্রিশ) ভাগ জমির সম্পূর্ণভাবে অবিক্রয় যোগ্য বলিয়া গণ্য হইবে এবং এই জমি প্রকল্প এলাকার বসবাসকারীদের প্রয়োজনীয় নাগরিক সুযোগ-সুবিধা প্রদানসহ বিভিন্ন ইউটিলিটি সার্ভিসের জন্য সংরক্ষিত থাকবে • বেসরকারী আবাসিক প্রকল্প এলাকার মৌজা মাপের উপর আধুনিক পদ্ধতিতে জরীপ (GPS bases Survey) করিয়া existing topographical Survey Map প্রস্তুত করিতে হইবে • প্রকল্প এলাকার ৩০ (ত্রিশ) ভাগ জমি নাগরিক সুবিধাদি এবং বিভিন্ন ইউটিলিটি সার্ভিসের জন্য সংরক্ষিত থাকবে • সড়ক যোগাযোগ ব্যবস্থার বিন্যাস, প্রকল্প এলাকার আয়তন, জনসংখ্যা এবং আশে-পাশের Traffic Circulation বিবেচনায় রাখিতে হইবে, প্রকল্পের প্রধান সড়কের (Main/Primary Road) প্রশস্ততা (Right of Way or ROW) ন্যূনতম ৬০ ফুট, মাধ্যমিক সড়কের (Secondary Road) প্রশস্ততা (ROW) ন্যূনতম ৪০ ফুট এবং অভ্যন্তরীণ বাসং যোগ সড়কের (Internal/Access/Residential Roads) প্রশস্ততা (ROW) ন্যূনতম ২৫ ফুট হইতে হইবে • প্রকল্প এলাকায় নিরূপিত জন সংখ্যার ভিত্তিতে প্রয়োজনীয় প্রাইমারী স্কুলের সংখ্যা নির্ধারণ, হাই স্কুলের সংখ্যা নির্ধারণ, প্রয়োজনীয় কলেজ নির্ধারণ প্রয়োজনীয় কলেজ এবং স্থাপনের ব্যবস্থা করিতে হইবে।

Building Construction Rules 1996

Policy	Five Tier Plan	Key Issues
	Urban Area Plan	<p>Density Control- Density Control is considered as an important development control tool. It includes the number of units, people allowed per parcel of plot size, unit limitation, height of the building etc. In the Government and Semi Government institutions, building permission is hardly obtained and therefore, density control rules and regulations are not in practice.</p> <p>Payment of Betterment fee- For every town planning scheme for an existing town, some owners of the property will be affected and as such they will have to be paid some amount as compensation.</p> <p>Control of private housing estates Large numbers of pockets of urban infill and privately owned low lying peripheral lands have been developed by private companies. In some cases small scale real estate development permission is obtained occasionally but deviations from the approved plan are most common practice of the developers.</p>
	Action Area Plan	According to the Building Construction Rules (1996), the maximum height of a building will not be more than the summation of front side road width and the mandatory open space between road and building site.

Coastal Zone Policy 2005

Policy	Five Tier Plan	Key Issues
	Structure plan	<ul style="list-style-type: none"> Coastal Development Strategy (CDS) shall be developed and adopted in line with national strategy documents as a commonly agreed framework document; Rigid enforcement of conservation regulations will affect the livelihoods of many people and such conservation efforts will be linked, as far as possible, with alternative opportunities of employment Conservation and enhancement of critical ecosystems
	Urban Area Plan	<ul style="list-style-type: none"> Actions will be designed to reach the poorest and the remote rural areas (including the cycloneprone coastal regions, chars and river erosion affected areas), which are vulnerable to adverse ecological processes and those with high concentrations of socially disadvantaged
	Action Area Plan	<ul style="list-style-type: none"> Khas land will be distributed among the landless and a more transparent process of land settlement will be ensured; An effective program for land reclamation will be developed A Coastal Development Strategy (CDS) shall be developed and adopted in line with national strategy documents as a commonly agreed framework document

Climate Change Policies

Policy	Five Tier Plan	Key Issues
Climate Change Policies	Structure plan	<ul style="list-style-type: none"> According to the Intergovernmental Panel on Climate Change (IPCC), to keep global warming below 2 °C, emissions of carbon dioxide (CO₂) and other greenhouse gases (GHGs) must be halved by 2050 (compared with 1990 levels). Developed countries will need to reduce more – between 80 % and 95 % by 2050; advanced developing countries with large emissions (e.g. China, India and Brazil) will have to limit their emission growth. Agreed in 1997, the UNFCCC's Kyoto Protocol is a first step towards achieving more substantial global emission reductions. It sets binding emission targets for developed countries that have ratified it, such as the EU Member States, and limits the emission increases of the remaining countries for the first commitment period from 2008 to 2012. The 15 pre-2004 EU Member States (the EU-15) have a joint emission reduction target of 8 % below 1990 levels. Through

		<p>the internal EU "burden-sharing agreement", some EU Member States are permitted increases in emissions, while others must decrease them. Most Member States that joined the EU after 1 May 2004 have targets of -6 % to -8 % from their base years (mostly 1990).</p> <ul style="list-style-type: none"> • EU emissions represent about 10 % of total global emissions. The United States, which has a large share of total global GHG emissions, has not ratified the protocol. China and several other countries with large GHG emissions do not have binding emission targets under the protocol. Countries are expected to meet their target mainly through domestic policies and measures. They may meet part of their emission reduction targets by investing in emission-reducing projects in developing countries (the Clean Development Mechanism (CDM)) or in developed ones (Joint Implementation (JI)). The CDM is also meant to support sustainable development, e.g. by financing renewable energy projects. • The Cancún Agreements, adopted at the UN Climate Conference in Mexico (December 2010), include a comprehensive finance, technology and capacity-building support package to help developing nations adapt to climate change and adopt sustainable paths to low-emission economies. The agreements also include a time schedule for reviewing the objective of keeping the average global temperature rise below 2 °C. The agreements confirm that developed countries will mobilise USD 100 billion in climate funding for developing countries annually by 2020, and establish a Green Climate Fund through which much of the funding will be channelled. • The 'Durban Platform for Enhanced Action', adopted at the UN conference in South Africa (Dec 2011) agreed a roadmap towards a new legal framework by 2015, applicable to all Parties to the UN climate convention. It also foresees a second commitment period of the Kyoto Protocol, starting in 2013. Agreement was also reached on the design and governance arrangements for the new Green Climate Fund.
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The United Nations Framework Convention on Climate Change

Policy	Five Tier Plan	Key Issues
The United Nations Framework Convention on Climate Change	Structure plan	<ol style="list-style-type: none"> 1. The 2015 Paris Agreement represents a historic turning point in global cooperation on addressing climate change and its global goal of limiting warming to well below 2 °C or 1.5 °C provide direction and help to frame climate change action. Given the gap between the emission level implied by the aggregate effect of countries' national plans enshrined in their intended nationally determined contributions and the level consistent with limiting warming to well below 2 °C or 1.5 °C, urgent pre-2020 mitigation action is needed to reduce climate risks in the 21st century and beyond and increase the prospects for effective adaptation. While greater levels of mitigation can reduce the need for additional adaptation efforts, failure to mitigate can result in higher adaptation costs or in adaptation options being no longer available or being financially non-viable. 2. Addressing global climate change goes hand in hand with ensuring sustainable development. Reducing poverty as well as securing food, water, health, energy and livelihoods are contingent on our mitigation and adaptation efforts. National climate change policies will be most effective if linked to broader sustainable development strategies, including those geared towards the attainment of the United Nations Sustainable Development Goals enshrined in the 2030 Agenda for Sustainable Development. 3. Through the process of preparing national contributions and their implementation, countries demonstrate that they are increasingly introducing national policies and related instruments for low emission and climate resilient development. This rise is driven by increased mainstreaming of climate change in national and sectoral development priorities and increased collaborative climate action between Parties and non-Party stakeholders. All key economic sectors and areas are being addressed as laid out in this year's report. 4. Financial support, technology development and transfer as well as capacity-building at scale continue to be urgently needed. Successful planning and implementation of adaptation and mitigation measures requires very large investments. As such, in many developing countries, financial, technological and capacity-building support is critical. Developed country Parties should continue to seek to scale up their level of support to developing

Policy	Five Tier Plan	Key Issues
		<p>country Parties, with a concrete road map to achieve the collective mobilization goal of jointly providing USD 100 billion annually by 2020 for climate mitigation and adaptation. It is also critical to further explore ways to increase private sector financial investments.</p> <p>5. Institutions need strengthening to enable them to plan for and implement adaptation and mitigation in an effective and sustainable fashion. Institutions and stakeholder groups at all levels of government, as well as civil society, are more likely to engage in climate action when they have the necessary human, technical and financial capacity.</p> <p>6. The UNFCCC process offers a platform to scale up cooperative action. Evidence continues to prove that cooperative initiatives are important to enhance climate action as such initiatives can facilitate access to support and knowledge. The UNFCCC process, including the technical examination processes and the Non-state Actor Zone for Climate Action platform, supports the incubation and fully fledged development of cooperative action by facilitating solution oriented dialogue, knowledge-sharing and learning between cooperative initiatives and government leaders and encouraging the scaling up of existing and the establishment of new initiatives.</p>

The Sendai Framework for Disaster Risk Reduction 2015-2030

Policy	Five Tier Plan	Key Issues
The Sendai Framework for Disaster Risk Reduction 2015-2030	Structure plan	<p>Priority 1: Understanding disaster risk.</p> <p>Priority 2: Strengthening disaster risk governance to manage disaster risk.</p> <p>Priority 3: Investing in disaster risk reduction for resilience.</p> <p>Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.</p>
	Urban Area Plan	<p>Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.</p>

Priorities of the 2017 G20 Summit (Agenda3)

Policy	Five Tier Plan	Key Issues
Quito Implementation Plan for the New Urban Agenda	Structure Plan	<p>The United Nations resolves to implement the New Urban Agenda as a key instrument for national, sub-national and local governments and all relevant stakeholders to achieve sustainable urban development.</p> <p>1. The Transformative Commitments for Sustainable Urban Development</p> <p>The transformative commitments for sustainable urban development are grounded in social, economic and environmental dimensions, which are seen as integrated and indivisible.</p> <p><i>a. Sustainable Urban Development for Social Inclusion and Ending Poverty</i></p> <p>Land tenure, the value of public space, and the sustainable leverage of natural and cultural heritage are among the issues that this section elaborates.</p> <p><i>b. Sustainable and Inclusive Urban Prosperity and Opportunities for All</i></p> <p>The profound impact of housing on economic transformation, access to knowledge, skills, and education, and the promotion of investments, innovations and entrepreneurship are part of the scope of concern.</p> <p><i>c. Environmentally Sustainable and Resilient Urban Development</i></p> <p>Climate change, unsustainable consumption, slum upgrading, energy efficiency and the social and ecological function of land are some of the topics of concern.</p> <p>2. Effective Implementation</p> <p>An enabling policy framework is required at the national, sub-national and local levels. Integrated and complimentary processes and actors, such as participatory planning, regional development banks, coordination of urban and rural development strategies, and international cooperation will assist the implementation of the New Urban Agenda, along with system-wide coordination of the UN.</p> <p><i>a. Building the Urban Governance Structure: Establishing a Supportive Framework</i></p> <p>Inclusive, implementable and participatory policies will ensure effective implementation of the New Urban Framework. Local and municipal governments are a particular focus, with support for capacity, reliable financing mechanisms and management structures. The cooperation of all levels of government will be fostered.</p> <p><i>b. Planning and Managing Urban Spatial Development</i></p> <p>Integrated planning will aim to balance short-term needs with long-term desired outcomes. Among the issues addressed are food security, the interrelationships of cities and territories, mixed social and economic uses, and quality public spaces. Road safety, affordable, accessible and sustainable urban mobility, water management and climate risk are also specific focus points. Culture will be included as a</p>

Policy	Five Tier Plan	Key Issues
		<p>priority component of urban plans and strategies.</p> <p>c. Means of Implementation The complexity of the agenda requires many actors and a variety of means, along with an enabling environment. Capacity development, cooperation, mobilization of financial resources, alongside political and legal frameworks, are all part of the core means. The New Urban Agenda advocates building on the legacy of Habitat III and the lessons learnt from its preparatory process.</p> <p>3. Follow-up and Review This will be done to track progress, assess impact, ensure effective and timely implementation, accountability and transparency. The United Nations Human Settlements Programme (UN-Habitat) is recognized as a focal point for sustainable urbanization. Quantitative and qualitative analysis, regular assessments, along with meetings and conferences, will support follow-up and review of the New Urban Agenda. The New Urban Agenda's and the 2030 Agenda for Sustainable Development's follow-up and review must have effective linkages to ensure coherence in their implementation.</p>

Sustainable Development Goals

Policy	Five Tier Plan	Key Issues
Sustainable Development Goals	Sub Regional Plan	<ul style="list-style-type: none"> ▪ Goal 1. End poverty in all its forms everywhere ▪ Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture ▪ Goal 3. Ensure healthy lives and promote well being for all at all ages ▪ Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all ▪ Goal 5. Achieve gender equality and empower all women and girls ▪ Goal 6. Ensure availability and sustainable management of water and sanitation for all ▪ Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all ▪ Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
	Structure Plan	<ul style="list-style-type: none"> ▪ Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation ▪ Goal 12. Ensure sustainable consumption and production patterns ▪ Goal 14. Conserve and sustainably use the oceans, seas

		<p>and marine resources for sustainable development</p> <ul style="list-style-type: none"> ▪ Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably ▪ manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss ▪ Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development
	Urban Area Plan	<ul style="list-style-type: none"> ▪ Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable
	Rural Area Plan	<ul style="list-style-type: none"> ▪ Goal 10. Reduce inequality within and among countries ▪ Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
	Action Area Plan	<ul style="list-style-type: none"> ▪ Goal 13. Take urgent action to combat climate change and its impacts

APPENDIX-B-Sector-wise Policies

Agriculture Sector

Policy	Key Issues
National Agriculture Policy 1999	<ul style="list-style-type: none"> To grow more profitable crops as an alternative to only rice-rice cropping pattern. reduce excessive dependence on any single crop Salt tolerant crop varieties will be developed Special development programmes will be taken with a view to increasing production of potential crops suitable for the coastal areas and the hill tracts. Maximum utilization of land will be ensured through promotion of inter-cropping with the main crops preserve existing bio-diversity of different crops encourage farmers in providing supplementary irrigation during drought with a view to increasing cropping intensity and yield take supportive programmes for inter-cropping in a field instead of single cropping Modern cultivation practices will be followed
Climate Change Strategy 2009	<ul style="list-style-type: none"> Develop climate change resilient cropping systems (e.g. agricultural research to develop crop varieties, which are tolerant of flooding, drought and salinity irrigation schemes to enable farmers to grow a dry season rice crop in areas subject to heavy monsoon flooding and in other parts of the country, including drought-prone areas agricultural research programmes to develop saline, drought and flood-adapted high yielding varieties of rice and other crops
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none"> Develop and establish policy and planning frameworks to incorporate all hazard risk reduction perspectives into Agriculture, livestock with the support agency Ministry of Agriculture, Agriculture cannot be practiced without irrigation so irrigation is must.
Population Policy 2004	<ul style="list-style-type: none"> discourage housing in the villages and cities by destroying agricultural lands;
Safe Water Supply and Sanitation 1998	<ul style="list-style-type: none"> To ensure the use of waste for the production of organic fertilizer (compost) in the rural areas.
National Water policy 1999	<ul style="list-style-type: none"> Strengthen crop diversification programmes Encourage and promote continued development of minor Irrigation
Industrial Policy 2005	<ul style="list-style-type: none"> To establish agro-based industries as well as to raise agricultural production. Prioritize the expansion and development of agro-based and agricultural processing industries Take steps to preserve and market agro-based goods hygienically by

Agriculture Sector

Policy	Key Issues
	processing in frozen, pasteurized, canned or dry form
National Urban Sector Policy 2011	<ul style="list-style-type: none"> • Protect productive agricultural lands by limiting the intrusion of non-agricultural uses
Seventh Five Year Plan	<ul style="list-style-type: none"> • develop technologies of crops • develop the capacity of agriculture to effectively respond to market signals • New technology generation for vulnerable areas e.g. stress tolerant varieties and management practices, quality improvement of major crop varieties • Promote adoption of modern agricultural practices in dry land, wetland, hills.
National Environment Policy 1992	<ul style="list-style-type: none"> • Ensuring proper Environment Impact Assessment prior to undertaking of industrial and other development projects; and • Ensuring sustainable use of natural resources.

PRA, Socio-Economic and Formal-Informal Economic Sector

Policy	Key Issues
National Agriculture Policy 1999	<ul style="list-style-type: none"> • Land zoning programme will be taken up by the Soil Resources Development Institute (SRDI) on a priority basis. • Activities of the government, private organization and NGOs involved in agricultural development will be brought under a well-organized monitoring system and will be coordinated from the national to field level. • The Ministry of Agriculture will have a contingency plan for taking up emergency agricultural rehabilitation programmes (ARP) to recover from the crop losses due to any natural disaster at both the farmers' and national levels.
Climate Change Strategy 2009	<ul style="list-style-type: none"> • Implement drinking water and sanitation programmes in areas at risk from climate change (e.g., coastal areas, flood-and drought-prone areas) • to ensure food security, social protection and health for the poorest and most vulnerable in society, including women and children • agricultural research programmes to develop saline, drought and flood-adapted high yielding varieties of rice and other crops, based on the traditional varieties evolved over centuries by Bangladeshi farmers • comprehensive disaster management projects, involving community-based programmes and early warning systems for floods and cyclones

Agriculture Sector

Policy	Key Issues
Disaster Management Act 2012	<ul style="list-style-type: none"> National Disaster Management Council should provide necessary guidelines to all concern about law, policy and plan implementation on disaster management The government may establish a 'National Disaster Management Research and Training Institute' to take relevant programs including research on the effects of disaster and climate change and increasing capability of disaster management method. Formulation of National Disaster Management Policy and National and Local Disaster Management Plan and also National Disaster Response Coordination Group, National, local, level disaster management committee
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none"> Restoration of emergency services, such as water supply, gas supply, power, telecommunication, road links To ensure socioeconomic development of the country through food security, relief and disaster management programmes. <p>Health</p> <ul style="list-style-type: none"> Improve maternal health Combat HIV/AIDS, malaria and other diseases Reduce child mortality Maintaining and strengthening the National Food Security System <p>Education</p> <ul style="list-style-type: none"> Achieve universal primary education Promote gender equality and empower women <p>Environment</p> <ul style="list-style-type: none"> Ensure environmental sustainability launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries Economy Develop a global partnership for development Education to take measures for prevention and mitigation of disasters by government agencies, NGOs, CBOs and the private sector within the district, capacity building and preparedness measures to be taken by government agencies, NGOs, CBOs and the private sector Make provision in the national budget for funding of activities related to Disaster Reduction Ensure an effective system within Government to link and co-ordinate the processes of planning and the management of sustainable development, environmental management and disaster reduction. The government in coordination with NGOs and International Organizations has done a commendable job in responding to the cyclone emergency situation and assisting the affected population

Agriculture Sector

Policy	Key Issues
	<ul style="list-style-type: none"> Non-structural mitigation measures such as community disaster preparedness, training advocacy and public awareness must be given a high priority
Population Policy 2004	<ul style="list-style-type: none"> Health Improve maternal health with emphasis on reduction of maternal mortality Reduce RTIs/STIs and prevent spread of HIV/AIDS Establishment of Union level Health and Family Welfare Centers, wherever needed and appointment of a doctor in these centers Ensure and support gender equity and empower women provide food and social security and shelter for the disadvantaged including the elderly, destitute, physically and mentally retarded persons; Ensure availability, access to safe and arsenic free water. Strengthen training activities in order to develop skilled manpower like nurses, paramedics, field workers and skilled birth attendants so that maternal and child mortality can be reduced Environment Support measures for environmental sustainability with emphasis on access to safe drinking water.; Education Provide formal and non-formal education to both in-school and out-of-school adolescent boys and girls; Provide adolescent RH and life skills education as well as counseling for parents, teachers and service providers Impart education and skill training to the young men and women to become competent and skillful Social Consciousness Ensure Early Childhood Development (ECD) program Eliminate all forms of violence and sexual abuse, including trafficking of women and children; Promote male participation in household responsibilities; Create equal opportunity for both boys and girls in education, nutrition and health services. Ensuring rural employment opportunities in agriculture and agro-based industries. Ministry of Health and Family Welfare shall be the lead Ministry for overseeing family planning, maternal and child health and reproductive health care services.

Agriculture Sector

Policy	Key Issues
	<ul style="list-style-type: none"> • Ministry of Primary and Mass Education and Ministry of Education may ensure improved quality and completion of primary and secondary education levels. • Ministry of Agriculture may make useful efforts to motivate farm population on small family norm through its extension workers. • Ministry of Information will be encouraged • Ministry of Local Government, Rural Development and Co-operatives strengthen institutional capacity and resources of the women's development related institutions. • Engage NGO in awareness creation activities regarding the benefits of delayed marriage and delayed birth, health and nutrition issues as well as of STIs, RTIs, HIV/AIDS; • Ensure coordination and intimate linkages of the NGOs and private sector with the Ministry of Health and Family Welfare and other relevant ministries and institutions and avoid duality
Safe Water Supply and Sanitation 1998	<ul style="list-style-type: none"> ❖ Health <ul style="list-style-type: none"> • To ensure that all people have access to safe water and sanitation services at an affordable cost. • Removal of arsenic from drinking water and supply of arsenic free water from alternate sources in arsenic affected areas. ❖ Social Consequences <ul style="list-style-type: none"> • Bringing about behavioural changes regarding use of water and sanitation; • Promotion of various technology options will be sustainable for both water supply and sanitation keeping the needs of specific areas and socio-economic groups of people. ❖ Environment Consequences <ul style="list-style-type: none"> • To preserve environmental quality and to mitigate arsenic contamination research and field surveys are being carried out. • Use of organic waste material for compost and bio-gas will be promoted • The City Corporations or Paurasabhas shall be responsible for solid waste collection, disposal and their management • The government is encouraging and supporting the involvement of other partners, such as non-governmental organizations (NGOs) market-oriented business organizations and similar private organizations in water and sanitation development. • Private sector and NGO investment will be encouraged in manufacturing, sale and distribution of different types of tube wells, sanitary latrines etc • During natural disaster WASAs and relevant agencies shall take

Agriculture Sector

Policy	Key Issues
	<p>appropriate measures for providing safe drinking water</p> <ul style="list-style-type: none"> • Building capacity in local governments and communities to deal more effectively with problems relating to water supply and sanitation; • Water Supply, Sewerage Authorities (WASAs) shall be responsible for sustainable water supply in the metropolitan areas where WASAs exist. • Drainage system in the cities and municipalities will be integrated with the overall drainage system with the coordination of Ministry of Water Resources. <p>Behavioral development and changes in user communities shall be brought about through social mobilization and hygiene education in coordination with the Ministries of Health, Education, Social Welfare, Information, Women & Children Affairs and DPHE, NGOs, CBOs, local government bodies and other related agencies</p>
National Water policy 1999	<ul style="list-style-type: none"> ❖ Social Consequences <ul style="list-style-type: none"> • Recreational activities at or around water bodies will be allowed ❖ Environment Consequences <ul style="list-style-type: none"> • Natural water bodies such as heels, haors, and baors will be preserved for maintaining the aquatic environment and facilitating drainage • Mandate local governments to create awareness among the people in checking water pollution and wastage • Mandate relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage • Empower, and hold responsible, municipalities and urban water and sewerage institutions to regulate the use of water for preventing wastage and pollution by human action • Alleviation of poverty through creation of job opportunities and finding options for diversified livelihoods would be the major principles of all economic activities. • Economic opportunities based on local resources will be explored to enhance income of the people;
Industrial Policy 2005	<ul style="list-style-type: none"> • Social Consequences • Provide special facilities as well as infrastructural support to Cottage and Small and Medium Enterprises (SME) • establish more backward linkage industries in order to accelerate the export of high value-added garments • SMEs will be established on a greater scale across the country in order to bring about poverty alleviation, unemployment reduction and creating more employment opportunity so that national economic growth can be attained • Provide financial, technical, technological and infrastructural facilities

Agriculture Sector

Policy	Key Issues
	<p>in order to inspire setting up and developing agro-based industries.</p> <ul style="list-style-type: none"> • For setting up industries, The Board of Investment will provide one-stop service in the following fields so that investors get infrastructure facilities quickly when setting up industries: • (a) Electric and gas connections; • (b) Water and sewerage connections; • (c) Telecommunications facilities; • (d) Customs clearance of imported machineries, spare parts and raw materials; • (e) Clearance from environmental agencies; and • (f) Other necessary facilities and services for speedy setting up and running of industries
National Urban Sector Policy 2011	<ul style="list-style-type: none"> ❖ Social Consequences <ul style="list-style-type: none"> • assure health, safety and security of all citizens through multifaceted initiatives to reduce crime and violence; • ensure social justice and inclusion by measures designed to increase the security of poor people through their access to varied livelihood opportunities, secure tenure and basic affordable services • Strengthen local government bodies by increasing efficiency through adequate and trained manpower. • Each Paurashava should have a Paurashava Development Committee and there should be a Ward Committee in each ward of a City Corporation.
Seventh Five Year Plan	<ul style="list-style-type: none"> ❖ Education <ul style="list-style-type: none"> ➤ The religious education at primary level will be well organized & systemic. Islamic ideals, values culture will be disseminated and flourished among the students at primary schools. ➤ Achieving 100 percent net enrolment rate for primary and secondary education ❖ Health <ul style="list-style-type: none"> ➤ Creating Medicare facilities by creating a permanent infrastructural facilities for each Centre. ➤ Providing free Medicare service will be given to the poor and disadvantaged people. ➤ Safe drinking water for all and Proportion of urban population with access to sanitary latrines to be increased to 100 percent. ❖ Culture <ul style="list-style-type: none"> ➤ Preserve and present national history, culture and heritage ➤ Preserve and promote language arts and culture of small ethnic group communities within the framework of national unity; ➤ Access to education, language, and culture:

Agriculture Sector

Policy	Key Issues
	<p>Recreation</p> <ul style="list-style-type: none"> ➤ Development and establishment of five new initiatives such as eco-parks, recreational garden along river or bay and botanical gardens, safari park, national park etc Such activities will be continued under this Seventh Five Year Plan. ➤ Regional botanical garden will also be setup for uniform biodiversity conservation in the country. <p>Water and Sanitation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Safe drinking water for all <input type="checkbox"/> Proportion of urban population with access to sanitary latrines to be increased to 100 percent <input type="checkbox"/> Proportion of rural population with access to sanitary latrines to be raised to 90 percent
National Environment Policy 1992	<p>Key elements of the policy statement are:</p> <p>Maintain ecological balance and overall physical development progress of the country through protection and development of different sectors. Protection from natural disaster is one of them;</p> <p>Identification and regulation all type of activities which pollutes and degrade the environment;</p>
National Tourism Policy 1992	<p>In the Tourism Policy, status of tourism industry in Bangladesh was described, aims and objectives were defined and implementation strategies were suggested. The National Tourism Policy of Bangladesh was declared in 1992. Its main objectives are:</p> <ul style="list-style-type: none"> • To create interest in tourism among the people. • To preserve, protect, develop and maintain tourism resources. • To take steps for poverty-alleviation through creating employment. • To build a positive image of the country abroad. • To open up a recognized sector for private capital investment. • To arrange entertainment and recreation
Housing Policy 2008 (Draft)	<ul style="list-style-type: none"> • ভাসমান ও সাময়িক ব্যবহারকারীদের জন্য পানীয় জল ও পয়ঃ নিষ্কাশনের ব্যবস্থা সম্বলিত রাত্রিকালীন আশ্রয় এবং গন-শৌচাগার নির্মাণ করা হবে। • সরকারী, আধা-সরকারী এবং বেসরকারী সকল প্রকার আবাসন প্রকল্প পানি, বিদ্যুত, পয়ঃ, গ্যাস, বর্জ্যনিষ্কাশন, ড্রেনেজ ইত্যাদি সেবামূলক কার্যক্রমের জন্য পর্যাপ্ত জায়গা রাখা হবে। • পরিবারহীন বৃদ্ধদের গ্রিহায়নে সহর ও গ্রামাঞ্চলে প্রয়োজনীয় সংখ্যক ‘বৃদ্ধনিবাস’ নির্মাণ করা হবে।

Agriculture Sector

Policy	Key Issues
	<ul style="list-style-type: none"> পল্লী অঞ্চলের আবাসন ব্যবস্থার লক্ষ্যে পরিকল্পনা প্রণয়ন, অর্থের যোগান নিশ্চিতকরণ, বাস্তুবায়ন, তদারক ও পর্যবেক্ষণ সংক্রান্ত সার্বিক দায়িত্ব পালনের লক্ষ্যে স্থানীয় পর্যায়ের সংগঠনগুলোকে জাতীয় গৃহায়ন কতৃপক্ষের সহায়তায় শক্তিশালী করাসহ উপযুক্ত প্রাথমিক কাঠামো, জনবল ও সম্পদ সৃষ্টি করা হবে। লাগসই ও সহজবোধ্য প্রযুক্তি, পরিবেশ-বান্ধব সামগ্রী উৎপাদন, বাজারজাতকরণ ও ব্যবহার, স্বাস্থ্যসম্মত গৃহায়ন ও পরিবেশ উন্নয়ন ইত্যাদি বিষয়ে এনজিও, এলাকা ভিত্তিক বেসরকারী সংস্থা, সেবা সংস্থাসমূহের কর্মচারী ও মাঠকর্মী এবং ব্যক্তির জ্ঞান ও সামর্থ্য বৃদ্ধির জন্য প্রয়োজনীয় তথ্য পুস্তিকা, প্রচার এবং কর্মশালার আয়োজন করা হবে। সকল গ্রাম আবাসিক ভূমি ও আবাদী ভূমি চিহ্নিত করে সে অনুসারে বিভিন্ন অবকাঠামো গড়ে তোলা হবে। এক্ষেত্রে বেসরকারী উদ্যোক্তাদের অংশ গ্রহণকে উৎসাহিত করা হবে।
Forest Policy 1994	<ul style="list-style-type: none"> Buffer zones attached to protected areas may be allocated for tree farming and agroforestry on a long term lease basis Industries located in rural areas, particularly those cottage and small scale labour intensive industries which contribute to the local economy and process wood and other forest based raw materials, will be promoted by the State To enrich biodiversity in the existing degraded forests by conserving the remaining natural habitats of birds and animals; To strengthen agriculture by extending assistance to those sectors related with forest development, especially by conserving land and water resources

Geology Sector

Policy	Key Issues
Climate Change Strategy 2009	<ul style="list-style-type: none"> Afforestation and reforestation can protect land from soil erosion and landslides, particularly in hilly areas.
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none"> Incorporate Tsunami Risks in land use planning in Coastal Zone Development Plans developed by Ministry of Water Resources Ministry of Water Resources, Disaster Management Bureau, DRR Prepare an Institutional Resource Map of Coastal Zone by Disaster Management Bureau and CDMP
Private Residential Land Development Rule 2004	<ul style="list-style-type: none"> ভূত্বাধিদপ্তরহইতেপ্রকল্পএলাকারবন্যানিওব্লনঅপানিনিষ্কাশনসুবিধাপ্রদানসংক্রান্ত ছাড়পত্র

Transport Sector

Policy	Key Issues
Population Policy 2004	<ul style="list-style-type: none"> Roads and communication systems should be linked with the growth centers disallow air polluting vehicles Reduce vehicular pollution by implementing appropriate laws
Coastal Zone Policy	<ul style="list-style-type: none"> development of communication network with islands for passengers and freight traffic; An integrated network of communication including highways, major roads, rural roads, railways and waterways will be developed development of two existing seaports and installation of a communication network between main river ports, ghat and inland container ports and depots; Initiatives of establishing deep sea port; development of communication network with islands for passengers and freight traffic; ensuring shipping security for passengers and freight;

Hydrology Sector

Policy	Key Issues
Population Policy 2004	<ul style="list-style-type: none"> Support the programs for re-excavation of canals and ponds in rural area and to undertake measures against soil and river erosion
National Water policy 1999	<ul style="list-style-type: none"> Replacement of open drains and construction of sewers Dredging and other suitable measures would be undertaken, Develop and disseminate appropriate technologies for conjunctive use of rainwater ground water and surface water Develop and promote water management techniques to prevent wastage and generate efficiency of water and energy use Investigate thoroughly important flood control and management issues, such as the efficacy of coastal polders, for guiding future policy on structural Interventions Haors that naturally dry up during the winter will be developed for dry season agriculture
National Urban Sector Policy 2011	<ul style="list-style-type: none"> protect, preserve and enhance the urban environment, particularly water bodies; Conserve natural water bodies.
National Fisheries Policy 1998	<ul style="list-style-type: none"> Proper arrangement will be initiated to develop water control and drainage system for sustainable fish production in the baor. Arrangements will be made to conserve the ecological balance within the polders and embankments in which a suitable environment shall be created for rice and shrimp production. To ensure high quality of exportable fish and shrimp products, laboratory facilities for Quality Control will be expanded and modernised.

Hydrology Sector

Policy	Key Issues
Private Residential Land Development Rule 2004	<ul style="list-style-type: none"> • প্রকল্প এলাকায় ভূমির উচ্চতা বন্যার পানি-প্রবাহ সীমার উপর (Highes Flood Level) এর উপরে রাখার জন্য প্রয়োজনীয় ব্যবস্থা গ্রহণ; • প্রকল্প এলাকায় কোন খাল, বিল, নদী, নালা বা অন্য কোন জলাশয় থাকিলে উহার পানি প্রবাহে বিঘ্ন সৃষ্টি না করিয়া প্রবাহিত পানি যাহাতে প্রকল্পের শেষ প্রান্তে ইয়া ক্ষেত্রমত খাল, বিল, নদী, নালা বা জলাধার পর্যন্ত প্রবাহিত হইতে পারে, উহা নিশ্চিত করণ; • বাংলাদেশ পানি উন্নয়ন বোর্ড হইতে প্রকল্প এলাকার বন্যা নিয়ন্ত্রণ অ পানি নিষ্কাশন সুবিধা প্রদান সংক্রান্ত ছাড়পত্র

Physical, Landuse and Topographic Features Sector

Policy	Key Issues
National Agriculture Policy 1999	<ul style="list-style-type: none"> • Maximum utilization of land will be ensured through promotion of inter-cropping with the main crops. • Acquisition of land in excess of requirement for non-agricultural purposes will be discouraged.
Climate Change Strategy 2009	<ul style="list-style-type: none"> • Flood management embankments, coastal polders and cyclone shelters have been built
National Plan for Disaster Management 2008-2015	<ul style="list-style-type: none"> • restoration of damaged public infrastructure, resumption of educational institutions, • restoration of livelihood, rehabilitation of affected people, especially the disabled, and elderly women and children • Map out critical vulnerable infrastructure and communities within the high risk zones
Building Construction Rules 1996	<ul style="list-style-type: none"> • Land use planning Rules- It is based on land use policies including Local Plans, such as residential density, road standard, provision of infrastructure and services. • Control of public estates-Different government agencies have developed some housing, commercial and industrial estates in different urban areas and they have leased them out. • Non-compliance of development control by some government and semi-government agencies- According to Building Construction Act, 1952 (amended in 1996, followed by Paurashava) each public building needs approval from the concerned development agencies. • Control of private housing estates • Control of informal Development • Density Control- At present, Paurashava follows Building Construction Rule, 1952 (amended in 1996) which restricts the height of Building in respect of adjacent road. • Taxation • Payment of Betterment fee

Physical, Landuse and Topographic Features Sector

Policy	Key Issues								
National Water policy 1999	<ul style="list-style-type: none"> • replacement of open drains and • construction of sewers to the interest of public health 								
Industrial Policy 2005	<ul style="list-style-type: none"> • By creating special economic zones, cluster villages can be established quickly for running industrial enterprises. • Provide structural and other facilities to establish and develop compact industrial areas. • Develop planned industrial areas by establishing Special Economic Zones in areas with vast economic potentials, and utilizing local resources. 								
Burning Bricks Act 1989	<ul style="list-style-type: none"> • No person may burn bricks without a licence. • No person may use firewood for burning bricks. • No suit shall be filed in any court against offences under this Act without the written accusation of the chairman of the Upazila Parishad 								
National Urban Sector Policy 2011	<ul style="list-style-type: none"> • Allocating khas land/acquired land for housing the poor • Protect hills in urban areas, specially Chittagong, Sylhet, Khagrachari, Cox's Bazar etc.; • Protect peri-urban areas from unplanned development. • Manage floodplains by controlling uses of land within hydrologically defined areas subject to floods of a designated frequency; • Promote hierarchical structure of educational institutions, such as from the kindergartens to universities, at appropriate locations with catchment areas/zones in urban areas. • Preserve open space by designating land areas for a variety of purposes such as recreation, future use, green belt etc 								
Coastal Zone Policy 2005	<ul style="list-style-type: none"> • Enforcement of existing legal coverage will be facilitated with adequate logistics and support, to relevant agencies. 								
National Fisheries Policy 1998	<ul style="list-style-type: none"> • To increase production and to conserve biodiversity, part or the whole water bodies/jalmohals shall be converted into fish sanctuaries • Emphasis will be given for extension of rice-cum-fish culture. • Biodiversity will be maintained in all natural water bodies and in marine environment. • Chemicals harmful to the environment will not be used in fish and shrimp culture 								
Seventh Five Year Plan	<ul style="list-style-type: none"> • Coastal pollution & marine resource management • Crop Zoning and Land Use Planning: 								
Private Residential Land Development Rule 2004	<p>Building Height According to the Building Construction Rules (1996), the maximum height of a building will not be more than the summation of front side road width and the mandatory open space between road and building site. According to the law, the following decisions can be summarized</p> <table border="1"> <thead> <tr> <th>Distance between Front side road and space of the building</th><th>Building's Highest Height (meter)</th></tr> </thead> <tbody> <tr> <td>7. 60-10.59 m</td><td>9.5 m</td></tr> <tr> <td>10. 60-13.59m</td><td>12. 50m</td></tr> <tr> <td>13. 60-16.59m</td><td>15.50m</td></tr> </tbody> </table>	Distance between Front side road and space of the building	Building's Highest Height (meter)	7. 60-10.59 m	9.5 m	10. 60-13.59m	12. 50m	13. 60-16.59m	15.50m
Distance between Front side road and space of the building	Building's Highest Height (meter)								
7. 60-10.59 m	9.5 m								
10. 60-13.59m	12. 50m								
13. 60-16.59m	15.50m								

Physical, Landuse and Topographic Features Sector

Policy	Key Issues										
	<p>According to the rules, the building's height doesn't less than the above values, if the width of adjacent road of the site tends to the following conditions, the estimated building's height will be the correspondent value according to the following table.</p> <table> <tr> <th>Width of the Road of Adjacent Site</th><th>Building's Highest Height (meter)</th></tr> <tr> <td>4.55-7.59m</td><td>18.50m</td></tr> <tr> <td>7.60-10.66m</td><td>27. 50m</td></tr> <tr> <td>10. 67-15.24m</td><td>42.50m</td></tr> <tr> <td>15.25-22.99m</td><td>60.50m</td></tr> </table> <p>Here is also one condition, if the width of the Road of the adjacent Site is 23.50 or more then there is no limit of the height of the building.</p>	Width of the Road of Adjacent Site	Building's Highest Height (meter)	4.55-7.59m	18.50m	7.60-10.66m	27. 50m	10. 67-15.24m	42.50m	15.25-22.99m	60.50m
Width of the Road of Adjacent Site	Building's Highest Height (meter)										
4.55-7.59m	18.50m										
7.60-10.66m	27. 50m										
10. 67-15.24m	42.50m										
15.25-22.99m	60.50m										
The Building Construction Act, 1952	<p>Density Control: Section 12(1) of Building Construction Rules, 1996 sets a formula for building height determination based on the width of the front road. This rule imposes a limit on the building height as long as the front road is less than 75 ft. (22.87 meter). Indirectly this limits the number of family or the size of population in a building. Setback rule of the building and approval system of the building plan also prescribed in the Building Construction Rules.</p> <p>Raging of Hill: Section 3(3) of the Act presents regulation on the raging of hill. In the Act it is prescribed that anybody is not authorized for raging of hill without approval from the concerned authority. Development Authority and Deputy Commissioner is the concerned authority.</p>										

APPENDIX-C- Permitted Landuse

Major Land Use Category	Sub-Land Use Category	Sub-Land Use Category
Residential	Residential Area	Planned Residential Area
		Govt. Quarters
		Private Housing
		Rest/Guest/Circuit House
		Banglow
		Mess
		Orphanage/Old Home
	Unplanned Residential Area	Rural Homestead
Commercial	Hotel	Residential Hotel/ Hotel & Restaurant
	Wholesale Shop	Wholesale Rice Market
		Wholesale Vegetables Market
		Wholesale Fish Market
		Wholesale Grocery Goods Market
		Wholesale Fruit Market
	Retail Shop	Book Stall
		Cloths Shop
		Paper & Magazine
		Stationery Shop
		Shoe Shop
		Bag & Leather Goods
		Cosmetics
		Spectacles
		Electronic Goods
		Audio Video Cassette
		Utensils/Crockery
		Sports Goods
		Computer Goods
		Motor Car Parts
		Jewelry shops
		Show Room/Electric/Mobile
		Furniture Shop
		Department Store
		Mobile Sales Center
		Hardware Goods
		Sweet Shop
		Bakery Shop
		Gift Shop
		Press & Printing
		Grocery Shop
		Iron & Steel Shops
		Shopping Center/Mall
		Super Market
		Rubber Stamps
		Phone-Fax-Photocopy
		Cycle Store
		Studio/Colour Lab

Major Land Use Category	Sub-Land Use Category	Sub-Land Use Category
		Drug/Pharmacy
		Pottery shop
	Show Room	Electronics
	Market/Bazaar	Sports and Athletics
		Kitchen Market
		Katcha Bazar
	Cold Storage	
	Others Godown	
Mixed Use		Residential -Commercial
		Residential - Office
		Commercial -Industrial
		Two or more use
Transportation	Road	R & H Road/LGED Road
		Primary Road/ Major Through fare
		Secondary Road (Pucca)
		Secondary Road (Kutchra)
		Local Road (Pucca)
		Local Road (Kutchra)
		Access Road (Pucca)
		Access Road (Kutchra)
		Footpath (Paved)
		Footpath (Unpaved)
		Walkway
		Embankment cum Road
	Transport Terminal	Bus terminal / Truck terminal / Tempo stand / Rickshaw stand / Railway station etc.
	Rail way	Broad gauge
		Meter gauge
	Water way	River
Industrial **	Food Manufacturing Industry	Dairy Products
		Fish & Sea Food
		Soft Drink
		Bakery Product
	Textile & Garments	Cotton Textile
		Jute Textile
		Silk & Artificial Textile
		Dyeing Industry
		Knitting Industry
		Hosiery Products
		Readymade Garments
	Chemical industry	Compressed Natural Gas
		Fertilizers
		Insecticides Industry
		Soap & Detergent
		Paints & Varnishes
	Pharmaceuticals Industry	Medicine and Drugs Company
	Paper Mills	Paper Product (all kind)
		Newspaper
	Plastic and Rubber Industry	Rubber Footwear
		Cycle & Tyre Tube

Major Land Use Category	Sub-Land Use Category	Sub-Land Use Category
		PVC Product
		Glass Product
		Bricks Kiln/Fields
		Cement
	Metal Industry	Iron & Steel
		Bland & Knives
		Heating & Lighting
		Plumbing Equipment
		Machinery Equipment
		Wire & Cables
		Electric Lamps
		Electrical Apparatus
	Agro based Industry	Fruits & Vegetables
		Oil Products
		Edible Salt
		Molasses
		Atta, Maida and Suji (Flour Mill)
		Spice Industry
		Rice Mill
		Boiler (Rice)
	Cottage Industry	Handicrafts
		Pottery
		Carpets
		Fabrics
		Sewing/Hand loom Products
	Others Industry	Wooden Furniture
		Cane Furniture
		Steel Furniture
		Ship Building
		Lime Stone
		Sports & Athletics
Educational	Kindergarten and Nursery	
	Primary School	
	Primary & High School	
	High School	
	High School & College	
	College	
	Private University	
	Medical College	Public Medical College
		Private Medical College
	Engineering College/University	Public/ Private
	Vocational Training Institute	Public/ Private
	Computer Training Institute	Public/ Private
	Dakhil Madrasa	Public/ Private
	Alim Madrasa	Public/ Private
	Fazil Madrasa	Public/ Private
	Kamil Madrasa	Public/ Private

Major Land Use Category	Sub-Land Use Category	Sub-Land Use Category
	Hafezia Madrasa	Public/ Private
	Tutorial/ Coaching Center	Public/ Private
	Government Training Institute	Public/ Private
	Library	Public/ Private
	Museum	Public/ Private
	Social Welfare Institution	Public/ Private
Health	Medical Facilities	Govt. Hospital / Pvt Hospital /Maternity/ Children Hospital / Clinic/ Diagnostic Center
Administrative	Government Office	Paurashava Office
		LGED Office
		Upazila Headquarter
		Union Parishad Office
		Settlement Office
		Post office
		Bank
		Public Works Department Office
		R&H Office
		DPHE Office
		Statistical Bureau Office
		PDB Office
		BWDB Office
		Other Government Office
	Non-government Office	Private Bank/ Insurance Company
		Mercantile & Cooperatives
		Private company/Different types of NGO/CBO/Club
		Construction Office
		Commercial Group Office
		Trading Corporation Office
		Law Chamber
		Doctors Chamber
		Political Party Office
		Professional's Association
		Labor Union
	Defense and security	Cantonment/BDR/Navy
		Police Station
		Ansar Camp
		Jailkhana
Recreational	Indoor Recreation	Cinema Hall
		Theater Hall
		Museum & Art gallery
		Auditorium /Community Center/Town Hall
	Other Recreation	Park/Playground/Amusement Park/Theme Park
		Stadium/ Gymnasium/Swimming Pool
		Tennis Complex
Places of Worship	Religious	Mosque

Major Land Use Category	Sub-Land Use Category	Sub-Land Use Category
		Eidgah / Mazar/ Dargha
		Temple
		Church
		Pagoda
	Graveyard	Graveyard
		Cemetery
		Cremation place
Public Utility		TV Station
		Radio Station
		T&T Board
		Power Supply Station
		Solid Waste Dumping Site
		Water Pump House
		Overhead Tank
		Solid Waste Transfer Station
Open spaces	Reserve Open Space	Historic Sites
	Open Area	Forest Land/Urban Green
		Ecological park/sites
		River Bank
		Monument
		Shahid Minar
		Embankment
Water bodies	Pond	
	Tank	
	Beels	
	Lakes	
	River	
	Khals	
	Streams	
	Drain	

APPENDIX-D-Proposed Services and Facilities

Proposed Stadium				
Union	Mouza	JL No.	Sheet No.	Plot No.
Kaijuri	Goalchamat	103	4	6412
	Goalchamat	103	4	6405
	Goalchamat	103	4	6414
	Goalchamat	103	4	6428
	Goalchamat	103	4	6415
	Goalchamat	103	4	6429
	Goalchamat	103	4	6430
	Goalchamat	103	4	6427
	Goalchamat	103	4	6416
	Goalchamat	103	4	6426
	Goalchamat	103	4	6417
	Goalchamat	103	4	6413
	Goalchamat	103	4	6431
	Goalchamat	103	4	6418
	Goalchamat	103	4	6423
	Goalchamat	103	4	6421
	Goalchamat	103	4	6432
	Goalchamat	103	4	6420
	Goalchamat	103	4	6433
	Goalchamat	103	4	6419
	Goalchamat	103	4	6422
	Goalchamat	103	4	6437
	Goalchamat	103	4	6436
	Goalchamat	103	4	6434
	Goalchamat	103	4	6467
	Goalchamat	103	4	6468
	Goalchamat	103	4	6435
	Goalchamat	103	4	6438
	Goalchamat	103	4	6466
	Goalchamat	103	4	6445
	Goalchamat	103	4	6465
	Goalchamat	103	4	6439
	Goalchamat	103	4	6446

Proposed Planatorium				
Union	Mouza	JL No.	Sheet No.	Plot No.
Kaijuri	Kaijuri	99	1	277
	Kaijuri	99	1	275
	Kaijuri	99	1	274
	Kaijuri	99	1	1037
	Kaijuri	99	1	587
	Kaijuri	99	1	1036
	Kaijuri	99	1	273

Kaijuri	99	1	272
Kaijuri	99	1	586
Kaijuri	99	1	585
Kaijuri	99	1	584
Kaijuri	99	1	583
Kaijuri	99	1	588
Kaijuri	99	1	1042
Kaijuri	99	1	1041
Kaijuri	99	1	1040
Kaijuri	99	1	271
Kaijuri	99	1	1039
Kaijuri	99	1	1038
Kaijuri	99	1	1035
Kaijuri	99	1	1034
Kaijuri	99	1	589
Kaijuri	99	1	593
Kaijuri	99	1	1004
Kaijuri	99	1	1005
Kaijuri	99	1	594
Kaijuri	99	1	1003
Kaijuri	99	1	1006
Kaijuri	99	1	270
Kaijuri	99	1	595
Kaijuri	99	1	1002
Kaijuri	99	1	590
Kaijuri	99	1	592
Kaijuri	99	1	269
Kaijuri	99	1	99999
Kaijuri	99	1	591
Kaijuri	99	1	997
Kaijuri	99	1	596
Kaijuri	99	1	600
Kaijuri	99	1	599
Kaijuri	99	1	598
Kaijuri	99	1	992
Kaijuri	99	1	601
Kaijuri	99	1	603
Kaijuri	99	1	604
Kaijuri	99	1	602
Kaijuri	99	1	597
Kaijuri	99	1	605
Kaijuri	99	1	606
Kaijuri	99	1	621
Kaijuri	99	1	622
Kaijuri	99	1	582

	Kaijuri	99	1	637
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Proposed Public Square				
Union	Mouza	JL No.	Sheet No.	Plot No.
PSA	Goalchamat	103	1	613
	Goalchamat	103	1	443
	Goalchamat	103	1	444
	Goalchamat	103	1	435
	Goalchamat	103	1	442
	Goalchamat	103	1	619
	Goalchamat	103	1	615
	Goalchamat	103	1	614
	Goalchamat	103	1	616
	Goalchamat	103	1	889
	Goalchamat	103	1	618
	Goalchamat	103	1	436
	Goalchamat	103	1	431
	Goalchamat	103	1	434
	Goalchamat	103	1	432
	Goalchamat	103	1	433
	Goalchamat	103	1	888
	Goalchamat	103	1	438
	Goalchamat	103	1	437
	Goalchamat	103	1	430
	Goalchamat	103	1	617
	Goalchamat	103	1	625
	Goalchamat	103	1	626
	Goalchamat	103	1	426
	Goalchamat	103	1	429
	Goalchamat	103	1	428
	Goalchamat	103	1	427
	Goalchamat	103	1	628
	Goalchamat	103	1	629
	Goalchamat	103	1	627
	Goalchamat	103	1	624
	Goalchamat	103	1	630

Low Income Housing				
Union	Mouza	JL No.	Sheet No.	Plot No.
Ambikapur	Sobharampur	127	1	67
	Sobharampur	127	1	49
	Sobharampur	127	1	48
	Sobharampur	127	1	62
	Sobharampur	127	1	69
	Sobharampur	127	1	47

Sobharampur	127	1	43
Sobharampur	127	1	46
Sobharampur	127	1	17
Sobharampur	127	1	44
Sobharampur	127	1	70
Sobharampur	127	1	75
Sobharampur	127	1	45
Sobharampur	127	1	18
Sobharampur	127	1	76
Sobharampur	127	1	77
Sobharampur	127	1	42
Sobharampur	127	1	78
Sobharampur	127	1	41
Sobharampur	127	1	71
Sobharampur	127	1	74
Sobharampur	127	1	79
Sobharampur	127	1	93
Sobharampur	127	1	91
Sobharampur	127	1	40
Sobharampur	127	1	92
Sobharampur	127	1	24
Sobharampur	127	1	31
Sobharampur	127	1	96
Sobharampur	127	1	25
Sobharampur	127	1	73
Sobharampur	127	1	90
Sobharampur	127	1	28
Sobharampur	127	1	97
Sobharampur	127	1	80
Sobharampur	127	1	30
Sobharampur	127	1	39
Sobharampur	127	1	32
Sobharampur	127	1	89
Sobharampur	127	1	98
Sobharampur	127	1	33
Sobharampur	127	1	87
Sobharampur	127	1	111
Sobharampur	127	1	37
Sobharampur	127	1	110
Sobharampur	127	1	112
Sobharampur	127	1	81
Sobharampur	127	1	113
Sobharampur	127	1	88
Sobharampur	127	1	101
Sobharampur	127	1	84

Sobharampur	127	1	100
Sobharampur	127	1	103
Sobharampur	127	1	109
Sobharampur	127	1	102
Sobharampur	127	1	86
Sobharampur	127	1	104
Sobharampur	127	1	108
Sobharampur	127	1	138
Sobharampur	127	1	107
Sobharampur	127	1	105
Sobharampur	127	1	106
Sobharampur	127	1	114
Sobharampur	127	1	126
Sobharampur	127	1	117
Sobharampur	127	1	118
Sobharampur	127	1	144
Sobharampur	127	1	125
Sobharampur	127	1	137
Sobharampur	127	1	119
Sobharampur	127	1	143
Sobharampur	127	1	145
Sobharampur	127	1	127
Sobharampur	127	1	120
Sobharampur	127	1	146
Sobharampur	127	1	132
Sobharampur	127	1	179
Sobharampur	127	1	147
Sobharampur	127	1	121
Sobharampur	127	1	148
Sobharampur	127	1	124
Sobharampur	127	1	149
Sobharampur	127	1	128
Sobharampur	127	1	153
Sobharampur	127	1	178
Sobharampur	127	1	131
Sobharampur	127	1	152
Sobharampur	127	1	151
Sobharampur	127	1	133
Sobharampur	127	1	136
Sobharampur	127	1	150
Sobharampur	127	1	154
Sobharampur	127	1	155
Sobharampur	127	1	156
Sobharampur	127	1	173
Sobharampur	127	1	164

	Sobharampur	127	1	157
	Sobharampur	127	1	174
	Sobharampur	127	1	162
	Sobharampur	127	1	1856
	Sobharampur	127	1	158
	Sobharampur	127	1	165
	Sobharampur	127	1	163
	Sobharampur	127	1	172
	Sobharampur	127	1	171
	Sobharampur	127	1	323
	Sobharampur	127	1	322

Dairy Farm				
Union	Mouza	JL No.	Sheet No.	Plot No.
Uttar Channel	D.D.Char Madhabdia	148	4	3976
	D.D.Char Madhabdia	148	4	3968
	D.D.Char Madhabdia	148	4	3967
	D.D.Char Madhabdia	148	4	3966
	D.D.Char Madhabdia	148	4	3958
	D.D.Char Madhabdia	148	3	3648
	D.D.Char Madhabdia	148	3	3647
	D.D.Char Madhabdia	148	3	3646
	D.D.Char Madhabdia	148	3	3642

Food Processing Zone				
Union	Mouza	JL No.	Sheet No.	Plot No.
Kanaipur	Karimpur	54	1	493
	Karimpur	54	1	492
	Karimpur	54	1	475
	Karimpur	54	1	490
	Karimpur	54	1	478
	Karimpur	54	1	489
	Karimpur	54	1	479
	Karimpur	54	1	488
	Karimpur	54	1	491
	Karimpur	54	1	487
	Karimpur	54	1	480
	Karimpur	54	1	486
	Karimpur	54	1	481
	Karimpur	54	1	485
	Karimpur	54	1	482
	Karimpur	54	1	483
	Karimpur	54	1	298

Overhead Tank				
Union	Mouza	JL No.	Sheet No.	Plot No.
Ambikapur	Raghunandanpur	128	1	132
	Raghunandanpur	128	1	133
	Raghunandanpur	128	1	135
	Raghunandanpur	128	1	131
	Raghunandanpur	128	1	134

Solid Waste Disposal Site				
Union	Mouza	JL No.	Sheet No.	Plot No.
Ambikapur	Guha Lakshmipur	120	2	1044
	Guha Lakshmipur	120	2	1018
	Guha Lakshmipur	120	2	1017
	Guha Lakshmipur	120	2	1016
	Guha Lakshmipur	120	2	1015
	Guha Lakshmipur	120	2	1014
	Guha Lakshmipur	120	2	1013

Primary School				
Union	Mouza	JL No.	Sheet No.	Plot No.
Aliabad	Bil Gazaria	109	0	218
	Bil Gazaria	109	0	217
	Bil Gazaria	109	0	229
	Bil Gazaria	109	0	230
	Bil Gazaria	109	0	231
	Bil Gazaria	109	0	225
	Bil Gazaria	109	0	232
	Bil Gazaria	109	0	238
	Bil Gazaria	109	0	233
	Bil Gazaria	109	0	237
	Bil Gazaria	109	0	234
	Bil Gazaria	109	0	236
	Bil Gazaria	109	0	235
	Bil Gazaria	109	0	244
Aliabad	Aliabad	92	4	6895
	Aliabad	92	4	6896
	Aliabad	92	4	6898
	Aliabad	92	4	6897
	Aliabad	92	4	6899
	Aliabad	92	4	6900
	Aliabad	92	4	6907
	Aliabad	92	4	6908
	Aliabad	92	4	6901
	Aliabad	92	4	6906
	Aliabad	92	4	6902
	Aliabad	92	4	6916
	Aliabad	92	4	6913
	Aliabad	92	4	6912
	Aliabad	92	4	6909
	Aliabad	92	4	6904

	Aliabad	92	4	6903
Ambikapur	Berahimpur	123	0	40
	Berahimpur	123	0	41
	Berahimpur	123	0	43
	Berahimpur	123	0	42
	Berahimpur	123	0	44
	Berahimpur	123	0	45
	Berahimpur	123	0	23
	Berahimpur	123	0	46
	Berahimpur	123	0	47
	Berahimpur	123	0	54
	Paschim Ramkantapur	122	0	160
	Paschim Ramkantapur	122	0	161
Decreerchar	Tepurakandi	160	1	631
	Tepurakandi	160	1	630
	Decreerchar	161	2	1912
	Decreerchar	161	2	1910
	Decreerchar	161	2	1911
	Decreerchar	161	2	1608
	Decreerchar	161	2	1607
	Decreerchar	161	2	1606
Greda	Bokail	96	0	1275
	Bokail	96	0	1267
	Bokail	96	0	1266
	Bokail	96	0	1277
	Bokail	96	0	1279
	Bokail	96	0	1777
Ishan Gopalpur	Chandpur	3	3	2328
	Chandpur	3	3	2054
	Chandpur	3	3	2059
	Chandpur	3	3	2055
	Chandpur	3	3	2060
	Chandpur	3	3	2056
	Chandpur	3	3	2057
	Chandpur	3	3	2058
	Chandpur	3	3	2066
Kanaipur	Fursa	68	2	1642
	Fursa	68	2	1641
	Fursa	68	2	1640
	Fursa	68	2	1637
	Fursa	68	2	1632
	Fursa	68	2	1633
	Fursa	68	2	1634
Krishnanagar	Maharajpur	40	0	688
	Maharajpur	40	0	691
	Maharajpur	40	0	689
	Maharajpur	40	0	685
	Maharajpur	40	0	687
	Maharajpur	40	0	686
Krishnanagar	Batikamari Bil	34	0	31
	Batikamari Bil	34	0	30
	Batikamari Bil	34	0	21
	Batikamari Bil	34	0	23

	Batikamari Bil	34	0	24
Uttar Channel	Uttar Decreechar Madhabdi	147	5	3656
	Uttar Decreechar Madhabdi	147	5	3655
	Uttar Decreechar Madhabdi	147	5	3654
	Uttar Decreechar Madhabdi	147	5	3653
	Uttar Decreechar Madhabdi	147	5	3652
	Uttar Decreechar Madhabdi	147	5	3647
	Uttar Decreechar Madhabdi	147	5	3646
	D.D.Char Madhabdia	148	1	40
	D.D.Char Madhabdia	148	1	39
PSA	Guha Lakshmipur	120	1	467
	Guha Lakshmipur	120	1	453
	Guha Lakshmipur	120	1	451
	Guha Lakshmipur	120	1	573
	Alipur	126	2	2469
	Alipur	126	2	2468
	Alipur	126	2	2467

Proposed High School				
Union	Mouza	JL. No.	Sheet No.	Plot No.
Aliabad	Aliabad	92	6	9959
	Aliabad	92	6	9960
	Aliabad	92	6	9961
	Aliabad	92	6	9963
	Aliabad	92	6	9964
	Aliabad	92	6	9966
	Aliabad	92	6	9967
	Aliabad	92	6	9965
	Aliabad	92	6	9970
	Aliabad	92	6	9977
	Aliabad	92	6	99999
	Aliabad	92	6	99999
	Aliabad	92	6	99999
	Aliabad	92	6	9972
	Aliabad	92	6	9976
	Aliabad	92	6	9975
Ambikapur	Adampur	124	1	132
	Adampur	124	1	131
	Adampur	124	1	135
	Adampur	124	1	130
	Adampur	124	1	128
	Adampur	124	1	127
	Adampur	124	1	136
	Adampur	124	1	137
	Adampur	124	1	138
	Adampur	124	1	126
	Adampur	124	1	129
	Adampur	124	1	203
	Adampur	124	1	90
	Adampur	124	1	91

	Adampur	124	1	79
Decreerchar	Charmadhya Tepakholia	113	1	1645
	Charmadhya Tepakholia	113	1	1639
	Charmadhya Tepakholia	113	1	1640
	Charmadhya Tepakholia	113	1	1636
	Charmadhya Tepakholia	113	1	1635
	Charmadhya Tepakholia	113	1	1642
	Charmadhya Tepakholia	113	1	1628
	Charmadhya Tepakholia	113	1	1633
	Charmadhya Tepakholia	113	1	1641
	Charmadhya Tepakholia	113	1	1638
	Charmadhya Tepakholia	113	1	1637
	Charmadhya Tepakholia	113	1	1634
	Charmadhya Tepakholia	113	1	1629
	Charmadhya Tepakholia	113	1	1632
	Charmadhya Tepakholia	113	1	99999
	Charmadhya Tepakholia	113	1	1627
	Charmadhya Tepakholia	113	1	1630
	Charmadhya Tepakholia	113	1	1626
	Charmadhya Tepakholia	113	1	1625
	Charmadhya Tepakholia	113	1	1586
Krishnanagar	Bahadurpur	35	0	26
	Bahadurpur	35	0	8
	Bahadurpur	35	0	25
	Bahadurpur	35	0	116
	Bahadurpur	35	0	23
	Bahadurpur	35	0	24
	Bahadurpur	35	0	125
	Bahadurpur	35	0	9
	Bahadurpur	35	0	10
	Bahadurpur	35	0	117
	Bahadurpur	35	0	22
	Bahadurpur	35	0	21
	Bahadurpur	35	0	20
	Bahadurpur	35	0	360
	Bahadurpur	35	0	19
	Bahadurpur	35	0	18
	Bahadurpur	35	0	124
	Bahadurpur	35	0	126
	Bahadurpur	35	0	123
PSA	Tepakhola	114	0	92
	Tepakhola	114	0	76
	Tepakhola	114	0	83
	Tepakhola	114	0	77
	Tepakhola	114	0	1001
	Tepakhola	114	0	74
	Tepakhola	114	0	75
	Tepakhola	114	0	69

Proposed Clinic				
Union	Mouza	JL. No.	Sheet No.	Plot No.
Aliabad	Chauhatta	108	0	57
	Chauhatta	108	0	56
	Chauhatta	108	0	51
	Chauhatta	108	0	50
Aliabad	Aliabad	92	4	6851
	Aliabad	92	4	6850
	Aliabad	92	4	6782
	Aliabad	92	4	6783
	Aliabad	92	4	6784
	Aliabad	92	4	6785
	Aliabad	92	4	6786
	Aliabad	92	4	6787
	Aliabad	92	4	6788
	Aliabad	92	4	6781
	Aliabad	92	4	6789
	Aliabad	92	4	6802
	Aliabad	92	4	6801
	Aliabad	92	4	6800
	Aliabad	92	4	6799
	Aliabad	92	4	6798
	Aliabad	92	4	6797
	Aliabad	92	4	6796
	Aliabad	92	4	6795
Ambikapur	Adampur	124	1	147
Ambikapur	Bhelabad	136	0	191
	Bhelabad	136	0	195
	Bhelabad	136	0	192
	Bhelabad	136	0	190
	Bhelabad	136	0	194
	Bhelabad	136	0	187
	Bhelabad	136	0	189
Ishan Gopalpur	Goalertila	145	2	703
	Goalertila	145	2	702
	Goalertila	145	2	701
	Goalertila	145	2	697
Char Madhabdia	Baludhum	144	2	537
	Baludhum	144	2	546
	Baludhum	144	2	548
	Baludhum	144	2	547
	Baludhum	144	2	545
	Baludhum	144	2	544
Decreerchar	Tepurakandi	160	1	584
	Tepurakandi	160	1	525
Greda	Deora	106	0	78

	Deora	106	0	99
Ishan Gopalpur	Decreechar Barakhada	1	0	407
	Decreechar Barakhada	1	0	408
	Decreechar Barakhada	1	0	412
	Decreechar Barakhada	1	0	409
	Decreechar Barakhada	1	0	410
	Decreechar Barakhada	1	0	411
Ishan Gopalpur	Durgapur	139	2	1164
	Durgapur	139	2	1165
	Durgapur	139	2	1166
	Durgapur	139	2	1167
	Durgapur	139	2	1168
	Durgapur	139	2	1169
	Durgapur	139	2	1170
	Durgapur	139	2	1162
	Durgapur	139	2	1075
	Durgapur	139	2	1074
	Durgapur	139	2	1073
	Durgapur	139	2	1072
	Durgapur	139	2	1163
	Durgapur	139	2	1163
Kaijuri	Akain	71	0	639
	Akain	71	0	616
	Akain	71	0	615
Kanaipur	Rankali	66	2	2761
	Rankali	66	2	2760
	Rankali	66	2	2751
	Rankali	66	2	2752
	Rankali	66	2	2748
	Rankali	66	2	2750
	Rankali	66	2	2753
Kanaipur	Bhati Kanaipur	56	2	969
	Bhati Kanaipur	56	2	971
	Bhati Kanaipur	56	2	968
	Bhati Kanaipur	56	2	972
	Bhati Kanaipur	56	2	1067
Majchar	Chandipur	8	2	803
	Chandipur	8	2	799
	Chandipur	8	2	781
	Chandipur	8	2	782
	Chandipur	8	2	780
Uttar Channel	Char Tepurakandi	159	6	3012
	Char Tepurakandi	159	6	3013
Uttar Channel	Uttar Decreechar Madhabdia	147	1	789
	Uttar Decreechar Madhabdia	147	1	792
	Uttar Decreechar Madhabdia	147	1	791
	Uttar Decreechar Madhabdia	147	1	793

	Uttar Decreerchar Madhabdia	147	1	796
	Uttar Decreerchar Madhabdia	147	1	797
	Uttar Decreerchar Madhabdia	147	1	802
	Uttar Decreerchar Madhabdia	147	1	313
	Uttar Decreerchar Madhabdia	147	1	803

APPENDIX-E-Public Hearing at Faridpur Pourashava

Serial No.	Serial in Register Book	Name	Phone Number	Comments
01	01	Md Jubayer	01822-786469	Drainage system is required for water discharge at Municipal area.
02	02	Md Rimon	01914-745597	Reconstruction of road at college road.
03	03	Md Mintu Sheikh	01914-745357	Widen of road at Municipal area.
04	04	Juyel	01923-122417	Removal of waste and proper waste management system is required at Municipal area.
05	05	Mizan	01793-239599	Unplanned building construction should be removed at Municipal area.
06	06	Minjar Molla	01945-936620	Development of road is needed at Bitul Aman, Municipal area.
07	07	Parvez Sheikh	01782-978157	Removal of waste from Jhiltuli College, Municipal area.
08	08	Md Sher Alam	01777-426244	Pure drinking water supply is required at Faridpur.
09	09	Sujon Sardar	01951-376860	Health safety public toilet is required at Faridpur city.
10	10	Sabuj Khan	01985-212692	Road light is required at Faridpur city.
11	11	Md Ferdaus Ali	01723-009726	Electric poles and electricity are needed to nearest villages of Faridpur city.
12	12	Saddam Hossain	01623-590104	Drainage system is required at Faridpur Municipal area.
13	13	Md Kalam	01928-809901	Reconstruction of road is required from Shibrampur to Khalilpur, Machchar Union.
14	14	Sheikh Juran	01623-323228	Improvement of drainage system at Faridpur city.
15	15	Juyel Sheikh	01923-122417	Construction of Union Parishad at

				Decrer Char.
16	16	Abu Bakkar Siddiq	01718-781094	Proper waste management and waste dumping system is required at Municipal area.
17	17	Robiul Alam	01875-041808	Traffic Jam should be removed at Municipal area.

APPENDIX-F- Public Hearing at Faridpur Upazila Parishad

Serial No	Serial in Register Book	Name	Phone Number	Comments
01	02	Paritosh Baroi	01751-338888	Clean road is to be needed.
02	03	Mannan Kabir	01718-700823	Remove traffic jam and decrease accidents at Upazila.
03	04	Md Anowar Hossain	01711-321995	Carefully driving vehicles and waste dumping should be forbidden at Bypass.
04	05	Md Moshiul Ajom Khan	01716-087383	Waste dumping should be forbidden at Bypass.
05	06	Md Abdur Rauf	01712-707899	Sufficient drainage system constructed beside road for water discharge.
06	07	Taeq Monowar	01718-781094	All roads should be reconstructed at Eshan Gopalpur.
07	08	Md Milon Biswas	01985-212645	Road should be constructed from Shibrampur to Madarjoni.
08	09	Ashraful Alam Mithu	01756-588612	Electric poles and electricity are needed at Shibrampur village.
09	10	Rony Shaha	01771-984767	Road reconstruction and electricity is needed at Shibrampur Shahapara.
10	11	Hashem Khan	01727-900375	High school is needed at Chadpur village, Eshan Gopalpur Union.
11	12	Nur Hasne Babul	01710-398690	Road reconstruction is needed at Nikhurdi village, 11 no Gerda union.
12	13	Md Liton Sheikh	01854-225501	Road should be reconstructed at 10 no ward, Faridpur Municipal area.
13	14	Md Ferdaus Ali	01723-639726	Road is needed from Shibrampur Amirabad railstation to Betepara.
14	15	Md Munnu Biswas	01878-226469	High school is needed at Chala Rajpur, Machchar Union.
15	16	Somrat	01875-041810	Proper place should be selected for waste dumping and waste management at Upazila.
16	17	Rajon	01674-245896	Roads should be cleaned for better Environment
17	18	Sapon Kumar Saha	01711-209937	Drainage waste should be cleaned every

				week at Municipal area.
18	19	Md Nizam Uddin	01727-572450	Construction of drain and road light is needed at Upazila.
19	20	Md Nure Alam Siddiqi	01746-671546	Tree plantation, electric poles and road light is needed beside the road at 4 no ward, Gerda Union.
20	21	Md Ashraful Islam	01728-369210	Reconstruction of road and widen road is needed at Charkamlapur.
21	22	Rasheda Khanam	01746-868044	Pavement is needed at Alipur Alauddin Khan road.
22	23	Asha Akhtar	01634-383093	Well management of local Bazar is needed at Gerda Union.
23	24	Karim Abdali	01991-352394	Reconstruction of road is needed at Char Madhabdia Union.
24	25	Ajid Milon	01190-612192	Union parishad is emergency needed at Decrer Char Union.
25	26	Alamgir Hosen	01716-392242	Road construction and remove of water logging in agricultural field is needed at Raghunandanpur.
26	27	Md Jafar Khan	01983-952994	Traffic jam should be removed at Faridpur Sadar Upazila.
27	28	Md Shamim Sheikh	01703-203334	Drug addiction should be removed at 6 no ward, Machchar union and road construction is needed at 3 no ward.
28	29	Md Zahid Hasan	01920-654186	Unnecessary speed breaker should be removed from Shibrampur to Khalilpur.
29	30	Kalam Biswas	01928-800961	Reconstruction of Union Parishad at Eshan Gopalpur Union.
30	31	Md Mijanur Rahman	01914-745597	Pavement is needed at Gerda Union road.
31	32	Adib Khan	01727-165220	Unnecessary speed breaker should be removed at Eshan Gopalpur Union.
32	33	Ahsan Habib	01781-244090	Solar road light is needed from Laxmipur Bazar to Gopalpur Union.
33	34	Al-Amin	01938-902329	Reconstruction of road at Khalil Mandols Bazar, Char Madhabdia Union.
34	35	Tushar Ghosh	01947-720910	Rehabilitation is needed by Government for local people at Decrer Char Union.

35	36	Md Panna Hosen	01882-106989	Pavement is needed at Ghaneshampur, Machchar Union.
36	37	Md Ashraful Islam	01928-818372	Pavement is needed at Shibrampur village, Machchar Union.
37	38	Md Pannu Sheikh	01627-487729	Reconstruction of road at North Channel Union.
38	39	Md Badol Molla	01990-724365	Dumping waste should be removed from Gerda Union Bypass road.
39	40	Md Mijanur Rahman	01793-239599	Main road and Union Parishad are needed at Decrer Char Union.
40	41	Md Habibur Rahman	01710-018959	Reconstruction of road at Ambica pur Union.
41	42	Md Kawsar Khan	01634-388431	Proper waste management system is required at Kanai pur Union
42	43	Asadul Islam	01718-781094	Proper waste dumping management system is required at Sadar Upazila.
43	44	Md Rezaul Karim	01815-400216	Rehabilitation of local people and Union Parishad are emergency required.
44	45	Rostom Ali	01701-357821	Proper waste management and waste dumping system is required Sadar Upazila.
45	46	Emran Khan	01638-343283	Bypass road is required at Kanai pur Union.
46	47	Md Mamun Khan	01772-124121	Reconstructed of Lake or water reservoir at Char Madhabdia Union.
47	48	Robiul Islam	01875-041807	Playground is required at Kanai Pur Union.
48	49	Gurupad Das	01776-583333	Drainage system at Housing area, River excavation and Bridge are required at Kumar river, Park is needed at Upazila Parishad.