Community Services

Community services include religious and other services like health facilities, community center, markets, co-operative societies etc.

Religious

In the physical feature, survey 102 religious facilities identified in the project area, which include Mosque, Mazar, Church, Temple and Pagoda. As the majority of population of the project area is Muslim, the number of mosque is the highest (69). At the same time the highest number of mosque is located in Sakta union (45) and Kalatia union (26). Other mosques are available in other unions, which are shown in Table 2-11. However, there is no single Church and Pagoda in the whole project area. **Map 2-7** shows the location of religious facilities.

Table 2-11: Number of Religious Institutions in the Project Area

Union	Number of Religious Facilities					
	Mosque	**Mazar**	**Church**	**Temple**	**Pagoda**	**Total**
Kalatia (Partial)	26	2	0	4	0	32
Ruhitpur (Partial)	12	1	0	1	0	14
Sakta	45	9	0	16	0	70
Taranagar (Partial)	24	2	0	6	0	32
Total	**69**	**11**	**0**	**22**	**0**	**102**

Source: Physical Features Survey, 2005-2006

Health Facilities

The project area is very small and rural in nature. There are several numbers of government and private health facilities in the project area. Ruhitpur and Sakta unions have two Hospitals and Kalatia and Sakta unions have four Clinics, which are serving health facilities in surrounding areas (**Map 2-7**). However, these facilities are not sufficient for the existing population (Table 2-12).

Table 2.12: Number of Health Facilities in the Project Area

Union	Number of Health Facilities				
	Hospital/ Health Complex	**Clinic**	**UHFPC**	**Others**	**Total**
Kalatia (Partial)	0	2	0	1	**3**
Ruhitpur (Partial)	1	0	0	0	**1**
Sakta	1	2	0	0	**3**
Taranagar (Partial)	0	0	0	1	**1**
Total	**2**	**4**	**0**	**2**	**8**

Source: Physical Features Survey, 2005-2006

2.1.1 Non-Urbanized Area

Most of the areas under the project area are not developed. The share of agricultural land is still very high. The areas like Nayagaon, Balsata, Birtali, Chansipur, and Ulta is out of the touch of urbanization.

2.1.2 Land Ownership and Value

Most of the areas under the project area have rural characteristics. Some of them are developing with the improvement of road network and other utility facilities. Private housing developer's initiative in some areas makes the land value higher. Most of lands are privately owned. Land value at present time in different location is shown in Table 2-13.

Table 2-13: Present Land Value in the Project Area

Sl.No.	Name of the Area	Price per katha (Taka in Lakh)
1	Ruhitpur	1.20-2.50
2	Sakta	1.20-2.50
3	Taranagar	1.20-2.00
4	Kalatia	0.80-2.20
5	Chhoto Monhoria	0.80-2.20
6	Boro Monhoria	1.00-2.20
7	Belna	1.80-3.00
8	Nayagaon	0.80-1.60
9	Washpur	1.00-2.50
10	Ghata Char	1.50-2.20
11	Ati	2.00-3.50
12	Dharmasur	1.50-2.00
13	Joinpur	1.50-2.00

Source: Landuse Survey, 2007

2.2 Expected Development

2.2.1 Population

The density of population of the project area according to 2001 Census report is 14.30 persons per acre. The projected density in 2015 is 17 person per acre. The selected mouzas whose density is in the range of average density and above are proposed for urban development with further densification considering optimum density as 150 persons per acre in 2015. The existing infrastructure, utility services and other facilities are inadequate for the total population of the project area. Presently there is no well-developed infrastructure and basic utility services. They need to be well developed and well inserted in the project area before any population influx can be visualized. With proper infrastructure, the following population will be expected to settle down (Table 2-14).

In the project area, considerable population concentration (density) is seen in mouzas namely Washpur, Vararia, Birtali, Ghatachar etc.

Table 2-14: Mouza-wise Projected and Additional Population in 2015

Name of Mouza	Area (Acre)	Population 2015	Density2015
Ati	992.91	18621	19
Baila	76.27	574	8
Balna	647.11	5525	9
Balsota	888.67	5064	6
Bara Shikaritola	37.67	4524	120
Baro Joy Nagor	135.75	3718	27
Baro Manoharia	329.23	3586	11
Birtail	40.68	836	21
Chato Manoharia	64.84	599	9
Chondipur	190.81	1813	10
Dharmasur	242.49	4262	18
Ghatachar	255.13	4617	18
Joinapur	190.94	3796	20
Kakalia	194.75	1089	6
Maddarchar	519.94	6022	12

Name of Mouza	Area (Acre)	Population 2015	Density2015
Malancha	268.34	971	4
Nagdha	47.30	903	19
Napiadi	79.45	846	11
Noagaon	167.69	629	4
Rohitpur	290.30	4506	16
Sakta	935.88	9653	10
Sheyali	157.05	264	2
Shobonpur	100.76	603	6
Totail	118.44	887	7
Ulta	162.13	1451	9
Vanderkhola	654.06	5986	9
Vararia	99.07	4087	41
Washpur	177.42	41560	234
Total	**8065.08**	**136992**	**17**

Source: Population projection based on BBS, 2001, P = Part.

2.2.2 Economic Activities

As the area is very close to the capital city, a good number of economic transactions may occur. With the development of transportation networks, this volume will be much higher. Development of housing schemes will generate other economic activities like shopping and other commercial activites. Moreover, with the development of the BISIC Industrial zone the area may experience a high increase in economic activities.

2.2.3 Landuse and Settlement

The proposed landuse will be based on proposals that will strictly adhere to the recommendations made in the Urban Area Plan and Structure Plan. Group-D area is composed of four unions. The major landuse found in this area comprises vast agriculture and flood flow zone and area is very low-lying. It has good network of roads leading to China Friendship bridge-2 upto Ruhitpur H.Q. area in Ruhitpur union. In order to suggest new landuse, it should be kept in mind that floodwater flow should not be disturbed. The connector road from the foot of China Friendship bridge towards Jingira have large scale commercial development and it is a good access to rest of the unions in Group-D area. There are union growth centers in all the four union H.Q. area. So, proposals can be made to upgrade these four union H.Q. area into small compact township, which can preferably be designated as "Rural growth centres". In this regards Ruhitpur union H.Q. area should be strengthened to accommodate handloom insdustry, cottage insdustry based on government assistence like BISIC. Individual estate in this regard by BISIC, can be utilized to have a planned development.

2.2.4 Settlement Development

Population in Group-D area, which is a part of greater Dhaka, is growing about 5.65% per anum. Migration as well as natural increase lay to the foundation of drawing people to the four unions of the area. Noteworthy are the Ruhitput H.Q. area in Ruhitpur Union and areas on north; and the areas adjacent to the northern boundary and western boundary of the Group-D area. Here settlements are growing as informal sector housing area without having any proper urban planning of infrastructure. The trend of settlement development in and around the second bridge shows a thick commercial belt, which has already developed and growing towards south. Numerous small industrial and commercial developments with varieties of income groups are residing here. The area will eventually extend as residential cum commercial belt. This residential and commercial development should come under the domain of proper planning. Here congestion will prevail in coming years; absence of basic utility services with no recreational space will be the future scenario with rapid migration. Therefore, proper settlement planning is needed especially in four unions keeping in view of the future migration. The settlement as well as development should encompass in and around the existing main roads. In addition, preference

should be given in settling down the poor, low-income and middle-income classes from old Dhaka to ease the tremendous population pressure. For such settlement development, the procedures will be improved Sites and Service Scheme, Guided Land Development etc. However, importantly, the area for Agriculture and Flood Flow Zone should be kept as restrictive use zone.

2.3 Development Problems

2.3.1 Hydrology (Flooding and Drainage)

All the drainage channels and lakes are being occupied by the illegal occupants. Conservation and management of existing natural drainage channel, khal, and river is essential to save the area from water logging and flooding. This practice should be stopped immediately. The sub-flood flow zone will essentially serve as the areas under government reserve and continuty to be kept as area for urban agriculture and retention pond zone.

Group-D area's drainage characteristic is following:

- It is low lying and flood plain
- The area is subject to annual planning by Dhaleshwari river and has been designated as flood zone south
- Within the area there are numerous cannals and drainage function is mostly done by this cannals
- Since urban development in this area did not occur in a planned manner, drainage was not given due priority. Therefore, suffering of inhabitants continuously increasing and development in this area is affected by this drainage system

Flooding
As the area is very low lying and subject to annual flooding it is a flood zone of the entire SPZ 18, where regular flooding occurs. The following strategies should be adopted to improve flood protection and drainage system**:**

- To protect the drainage system all natural canals and watercourses should be preserved
- As a measure of protection from encroachment, restrictive buffer zone should be created on both sides of natural canals, rivers and other watercourses. Walk way and plantation should be created along these buffer zones

Water Logging
During the monsoon from May to October, the drainage mostly dependent on the water levels of its peripheral river systems. During this period, river water level generally remains higher than the internal drainage level. The wide range of rainfall intensities that prevail during the monsoon period aggravates this major constraint to the effective surface drainage. The situation worsens when monsoon runoff generated from short duration and high intensity rainfall coincides with high water level in the river system.

2.3.2 Geology and Soil

The project area is covered with Pleistocene Madhupur Clay and Holocene sediments belonging to the Ganges-Brahmaputra flood plain. The area is covered with recent flood plain deposits.

Based on geomorphological expression and sediment characteristics, the area has been divided into nine geological units having deposits of the following:

1. Sand bar/ point bar
2. Active natural levee
3. Flood plain

4. Depression
5. Abandoned channel
6. Gully fill
7. High flood plain
8. Old natural levee
9. Madhupur Clay.

The geological map of the area has originally been prepared at a scale of 1:20,000; the geomorphological map was used as a base map.

Subsurface engineering bore logs up to 30 meters and open pits up to 10 meters were studied to determine both the engineering and geological characteristics of the sediments.

Sand bar/Point bar Deposits

These deposits consist mainly of loose and fresh sand and are medium to fine-grained. Some yellowish-brown sand patches are observed at many places. Few laminations of silty materials are found in the sand. At places, the percentage of silt is comparatively high. In aerial photographs, this unit shows light tone and oval and crescent shapes.

Active Natural Levee Deposits

These deposits consist dominantly of sand with many discontinuous thin laminations of sand silt and clay silt. The sand is light brown to light gray in color, fine to course grained and moderately compact. This unit is more elevated than its surrounding areas. In aerial photographs, it shows light to medium tone and elongated shape along the rivers.

Flood Plain Deposits

The flood plain is the extended flat, poorly drained land that is flooded annually. In aerial photographs, this unit shows medium gray tones, blocky texture, intense land-use and virtually no relief.

These deposits consist of alternating silt, clay, fine sand and peaty clay. At many places, peat layers are a few centimeters to 0.3 meters thick within 1 meter from the surface.

Generally, the upper 1 meter is silty clay to clayey silt, which is light gray to light yellowish brown in color. Below this, thick layers of light gray to yellowish-brown silty clay with mottling and ferruginous concretions are found. Alternating layers of blackish-ray organic clay and blackish-brown silty clay are generally found in the unit in down slope areas near depressions. At places, alternative fine sand layers are found irrespective of depth, where peat layers from a few centimeters to 0.3 meters thick are found in near surface. Decomposed and partially decomposed grass roots and animal burrows are common at the upper part of the unit.

Depression Deposits

Depressions are the deepest part of the area situated above 1.3-2 meters above mean sea level. Most of the area is usually covered with water but occasionally dry during the winter. In aerial photographs, the area shows dark-gray tone.
The deposit consists of gray to light gray organic clay, dark gray to blackish gray peaty clay and blackish to dark brown peat. Decomposed and partially decomposed vegetal matters are common. The sediments are highly sticky and plastic with high natural moisture content. Some alternation of light gray sand and silty layers is found in this unit. A few patches of reddish to yellowish brown silty clay with orange red mottling are sporadically present. This silty clay is medium to high plastic and compacted. Some blackish gray, thin, fine sand layers (+0.6 meters) with a large amount of silicified tree branches (0.26 centimeters mean diameter and 2 centimeters length) coated with yellowish brown, fine sand are present near the reddish to yellowish brown, silty clay patches.

Generally, two layers of peat with average thickness of 1 meter were found. These layers are present within 1-4 meters below the surface. These peats, containing fibers from decomposed and partially decomposed tree branches, are spongy,

medium to light weight when dry and mixed with some clay. According to local people and field investigation, buried partially decomposed tree trunks are found 3-5 meters below the surface at many places in depressions.

Abandoned Channel Deposits

Channel segments that are abandoned by erosion process become flood plain lakes of identifiable origin. On aerial photographs, abandoned channel deposits show medium-gray tone, smooth texture and elongated patterns. Surface deposits are silty clay or clayey silt that are dark gray, greenish gray to yellowish gray with yellow and brown mottling in many localities. Below tile near surface, thick layers of organic clay and peat are common.

Root tubes and worm burrows are filled with gray silty clay. Partly decomposed and broken shells and organic matters are common. Lenses of very fine sand interbedded with clay are found at some places.

Gully Fill Deposits

Along the edge of the high Madhupur Clay unit, several small drainage channels of dendritic patterns have formed to drain out water to low-lying areas. Due to partial or complete obstruction of the main channel of the drainage system, the amount and velocity of the water flow decreases; as a result, sedimentation starts on the channel base and the channels are filled up. On aerial photographs of the area shows light to medium tone with little relief.

The main sediments constituting this unit are light gray to dark gray sticky, clayey silt. A few thin layers of yellowish-brown, fine sand and blackish-gray organic clay are present. The thickness of the top layer ranges from 1.5 to 2.5 meters, which is underlain by Madhupur Clay.

High Flood Plain Deposits

In aerial photographs, high flood plain shows light gray tone. The top layer of this unit is light gray to yellowish brown sandy silt and bluish gray silty clay, which is underlain by yellowish brown to reddish brown Madhupur Clay. Thickness of the top layer is I.7-3 meters. Worm burrows, root tubes and vegetal matters are common.

Old Natural Levee Deposits

The sediments are mainly grayish brown, sandy silt and silty clay with thin lamination of yellowish brown, fine sand. Few peaty matters are present at places. The sediments are well compacted and oxidized along rootlets and fractures. The thickness of the sediment is generally 2-3 meters, underlain by Madhupur Clay.

In aerial photographs, the unit shows light gray tone, elongated shape and relatively high relief. The area gently slopes towards the city side. This unit generally lies above high flood level and general elevation is more than 6.5 meters above mean sea level. The old natural levee sediments were deposited on Madhupur Clay unit.

Madhupur Clay

This unit mainly consists of yellowish brown to reddish brown, highly oxidized, silty clay. The main characteristics of this unit are orange red mottling, high oxidation and a metallic black iron oxide accumulation in nodular form with a nucleus. This black nucleus might have been formed by manganese. Some yellowish brown ferruginous nodules are also present. The reddening of color increases with depth. Some sand and mica are present in this unit. The clays are mainly kaolinite and illite (Chowdhury and others, 1989). Secondary light bluish gray, plastic silty clay is deposited along fractures and animal burrows. The sediments of this unit are highly compacted, medium plastic and sticky. The average thickness of this unit is about 8 meters. This unit is underlain by Dupi Tila Formation and is probably a residual deposit.

The chemical analytical data reflects that the water holding capacity as well as clay content is higher in Madhupur Clay than the Alluvium Sediment (flood plain deposit). On the other hand, the carbon, calcium and magnesium contents are higher in Alluvium than in Madliupur Clay. The percentage of iron in both the units is almost the same, but Madhupur Clay is much redder in color than the Alluvium. This indicates that the iron in Alluvium is mostly in ferrous form whereas in Madhupur Clay it is in ferric form. From this view one can infer that the Madhupur Clay unit was well exposed for a longer time to oxidation than the Alluvium.

2.3.3 Circulation and Transportation Network

Group-D is located at the south-west part of Dhaka City and bounded by the river Buriganga and Dhaleshwari. The total area under Group-D is about 8065.08 acres. The review of land use pattern shows that the most dominant land use of the project area is agriculture and it is about 71% of the total land. The second major land use is residential and occupying about 9% of the project area. Beside these, about 13.45% is water body, 0.11% is manufacturing and about 4.78% of land is under Transport and Communication purposes.

The review of the physical feature survey of existing road networks revealed that various types of road exist having different width and without any proper circulation pattern. There are different categories of roads like pucca, semi-pucca and katcha in the project area. The total length of pucca roads is 38.92 km. The condition of pucca roads is not same in all locations in the project area. Some of these roads are good and some are in poor condition. The next category of the roads is semi pucca, also called HBB (Herring Bone Bond) or brick soling road, which have been identified as of almost similar in character in the whole project area. The length of semi pucca roads is 28.08 km. The rest of the category is katcha road and its length is 60.86 km.

The analysis of circulation network shows that one national highway passes through this area, which is only one arterial road of this area. It connects the capital city with southern part through Dhaka-Mawa Road. The survey indicated that this national highway is in good condition. As the proportion of industrial and mixed uses is low and residential land uses are characterized as rural, transport network is not properly developed. Tertiary and access roads are also inadequate and very narrow. Again, none of the existing roads established any proper circulation pattern.

To address the circulation problems of this area, a number of roads have been suggested. After establishing arterial road network, internal roads have been suggested in such a way so that a gridiron pattern is developed and mobility gets easier within the neighborhood.

2.3.4 Environmental Concern

a. Flooding and Drainage

Flooding in the unplanned area is a major concern and a matter of serious planning implications It causes unbearable sufferings for the people by creating difficult situation for traffic movement:. Following aspects of flooding and drainage congestion can be seen in Group-D Area.

- Unplanned and uncoordinated development of the area
- Continuous filling of wet lands for expansion of the city both by the public sector and private organizations
- Unauthorized and illegal occupation and destruction of natural drainage system and retention basins
- Inadequate storm water drainage facilities
- Disposal of solid waste, waste water and septic waste into the drainage system
- High water level in the peripheral river system

There is no any planned drainage system in this area. Drainage system that existis in this area is natural drainage. The outlets of drainage networks are mostly connected with the natural channels or khals like Karim Khali Khal, Bara Bhawal Khal, Maragona Khal, But some parts of these natural khals are dilapidated due to unauthorized encroachment which causes flood and water logging in the adjacent areas. Thus, many areas are subjected to water logging during the heavy rainfall causing inconvenience to the people of the area. It negatively impacts health and sanitation problem, disrupts of business and commercial activities, disrupts communication, outbreak of water borne diseases, loss to economic activities etc.

b. Pollution

The surface water quality of Buriganga and Dholeshawri River, ponds and beels is polluted in respect of pH, turbidity and coliform bacteria with national standard. The main causes of surface water pollutions are from city wastewater, sanitary sewage, solid waste dumping and discharge of untreated industrial wastes. With implementation of the DAP, the surface water pollution level may further increase for high volume of discharge of waste water, sanitary sewerage, over spilling of pit and septic tank, industrial effluents, surface run-off of katcha bazaars, indiscriminate solid waste dumping.

Fall of ground water table is a common phenomenon in project area during dry period (February-May). With expansion of urbanization and industrialization through this project, the ground water table may further fall if present tradition of using ground water is continued. Groundwater pollution due to manganese, iron and hardness is a major problem in the project area. With expansion of urban area, more dependency on groundwater sources may increase the pollution level of sub-surface water.

c. Loss of Wetlands and Depletion of Ground Water

Earth filling fills up the beels, ponds and khals. Wastewater affects the aquatic ecosystem and makes the beels, ponds and khals unproductive and as a result the aquatic plants, fishes and animals die or migrate to other places. For high price of highlands, the developers enlarge their hands to the low cost wetlands. Number of ponds in the study area is reduced every year to accommodate housing and commercial structures. These encroachments of rivers, lakes, khals, diminishing of the arable lands, filling of low-lying areas are the major cause of loss of groundwater recharge sources. Polluted groundwater and/or a diminished supply of groundwater are of particular concern where groundwater is the major source for drinking and irrigation water. As wetlands play an important role as a reservoir of rain and floodwater. They are also important to maintain the balance of ecosystems and for replenishing the ground water level through seepage.

d. Controlling Instruments

For sound and sustainable development, there exist some controlling instruments such as

i. Town Improvement Act 1953
ii. Dacca Master Plan 1959
iii. Dhaka Metropolitan Development Plan 1995-2015
iv. National Environmental Policy 1992
v. Environmental Conservation Act 1995
vi. Environmental Conservation (Amended) Act 2010
vii. Environmental Conservation Rules 1997
viii. Jaladhar Sangrakkhan Ain 2000
ix. Dhaka Mahanagar Imarat Nirman Bidhimala 2008
x. Besarkari Abashik Prokolper Bhumi Unnanayan Bidhimala 2004
xi. Bangladesh National Building Code 2006

Due to absence of application and very weak provision of punitive measure for its violation, these acts and rules have become ineffective and plan violation has become a common practice.

2.3.5 Shelter and Settlement

The project area is low laying area and a part of flood plain of the Buriganga river, situated very close to Dhaka city. The present Real estate activity comprises of different proposed model towns, which will provide various sizes of plots for lower middle income to upper middle-income classes of people. The average plot size varies from 2.5 to 10 katha. Though the area is close to Dhaka city, the development is still very poor. The area has substantial attraction

to turn itself into a place for serve living as natural canals are there. The area has a great chance to be developed similar to Uttora.

With the development of extensive road network, the area will attract the developers to initiate private land development program. At present the price of land being low compared to that of the core city, there area has a great chance to accommodate middle-income group of the city.

2.4 Stake Holders' Wish List of Projects

Stakeholders wish list include following projects:

- Mitigation of Water logging problem on priority area basis
- Develop the banks of water bodies as recreation spots by removing all illegal occupants
- Widening of the existing access road to the optimum level
- Refurbishment of potential sites in old Dhaka and other parts of Dhaka City and develops them as centers of tourist attraction
- Develop a Theme Park in the most suitable position based on common people interview
- Replacement of katcha toilets by sanitary latrines/sewerage system in the whole project area
- Improvement of Solid Waste management system to prevent environmental degradation, especially in and around the industrial areas
- Construction of a new road to lessen the traffic congestion problem
- Improvement of important roads to facilitate movement of industrial goods and providing hazard-free walkways for the people
- Develop control mechanism for the Non-motorized vehicles in the important roads
- Control of being private school, colleges, offices and clinics in the residential area
- Improvement of the playground and parks exists
- Development of Swimming Pool and Indoor Games Training Facilities
- Revitalization of present under-utilized facilities due to socio-political or Economical circumstances by providing special incentive in the form of revenue and fiscal measure

Chapter- 3

DEVELOPMENT PLAN PROPOSALS

3.1 Abiding Policy Frameworks of Higher Level Plans

Development of a controlled growth in Dhaka relies upon the adherence to a pre-determined plan. The Dhaka Metropolitan Development Plan (1995-2015) was prepared addressing urban planning issues at three geographic levels: sub-regional, urban and the sub-urban. There were two relevant plans upon which the basis of Detailed Area Plan relied. These are Dhaka Structure Plan; Urban Area Plan (1995-2015) and finally Detailed Area Plan (DAP).

3.1.1 Dhaka Structure Plan (1995-2015)

This Plan was prepared to provide a long term (20 years) strategy for development of greater Dhaka which is a legally approved higher level planning framework for the preparation of DAP. The plan defines a broad set of policies to guide for the achievement of the overall plan objectives. The relevant policies of Structure Plan that are followed in preparation of DAP for Group-D area is given below:

The non-urban areas should be free from the encroachment of urban infrastructure development as per rural and special areas strategies.

Policy RS/3 - Flood-Flow Zones

Land development within the designated flood plain areas of the DMDP Structure PLan, will he controlled in order to avoid obstructions to flood flow which might otherwise result in adverse hydrolic effects, such as, for example, the rise of flood water levels and changes in flow direction.

Policy RS/4 - River Pollution Control

Environmental protection measures will be taken to prevent pollution of the Lakhya River and its tributary, the Balu River, in order to ensure that it remains a viable, long-term source of potable water for Dhaka city.

3.1.2 Dhaka Urban Area Plan (1995-2009)

The Urban Area Plans were developed for the DCC and its major expansion areas. The Urban Area Plans were intended to provide interim mid term strategies for a 10 year period and were conceived as “nested” written the over all Structure planl. This plan provided an interim mid-term strategy for the 10 years to 2005 and cover for the development of urban areas within the Metro Dhaka management area. The main theme of Structure plan and the Urban Area Plan is to assist in guiding more detailed planning proposals for specific areas of Dhaka and its surrounding areas. Urban Area Plan divides the Structure Area Plan area into 26 Spatial Planning zones (SPZ) with specific recommendations. Here, the review of Urban Area Plan has been made considering the Group-D area demarcation for specific SPZ proposals.
Group-D area consists of one Spatial Planning Zones (SPZ) namely SPZ 18: Dhaleshwari Flood Zone South. In preparing DAP, Group-D area considers as single unit.

Spatial Planning Zone-18: Central Business District (CBD) South (*DMDP Urban Area Plan, Volume-II, Page No: 44*)

UAP Recommendations:

- The area is flood flow zone, t e flood water flow should not be disturbed
- The area is low-lying so sut stantial investment will be required for lar fill and development if deve opment is considered

3.2 Design Principles and Standards

Different standards and codes are noticeable for guiding and controlling development in Bangladesh such as: National Building Code [BNBC, 1993], Building Construction Rules and Environmental Act. For ascertaining minimum space requirement for different physical features and functions Private Land Development Rules and for density control of an area Floor Area Ratio [FAR] are the two very important legal instruments in contolling development.

DMDP Structure Plan and Urban Area Plan both higher level plans have fixed certain minimum standards for certain facilities. In today's reality of congested unhygienic less-a-fair construction race, where planning is a far cry, land is obviously the most scarce and hence most valuable property. DAP has been finalized by reviewing the upper level previous plans. Following standards as set at the DMDP higher level plans and other Master Plans are the obvious deduction of the above situation (Table 3-1, 3-2, 3-3, 3-4 & 3-5).

Table 3-1: Planning Standards followed in Previous Master Plans of Bangladesh

Sl. No.	Facilities	Standards in Recent Metropolitan Plans		
		RMDP	KMDP	DMDP
1	Primary School	1 school per 4,000 popu. Area: 1-1.5acre	1 school per 3,400 popu. Area: .5-.7 acre	1 school per 15,000 popu. Area: 1 acre
2	Madrasha	--	--	--
3	High School/ Intermediate College	1 school per 6,000 popu. Area: 2-3 acre	1 school per 5,000 popu. Area:1.5-1.6 acre	1 school per 23,000 popu. Area: 2 acre
4	Degree College	1 college per 30,000 popu. Area: 10 acre	1 college per 36,000 popu. Area: 10 acre	--
5	Park/Open Space	1.5 acre per 1,000 popu.	1 acre per 1,000 popu.	0.16 acre per 1,000 popu.
6	Community Center	1 for each neighbourhood. Area: 0.30 acre	--	1 in each ward. Area: 0.30 acre
7	Health Center	354 person per bed	527 person per bed	Ward basis
8	Graveyard	1 per 50,000 popu. Area: 5 acre	--	Ward basis Area: 5 acres
9	Market	1 in each ward/spz Area: 0.30 acre	1 for 45,000 popu. Area: 0.30 acre	Ward basis Area: 0.30 acre
10	Post Office	1 for 20,000 popu. Area: 0.50 acre	--	--
11	Fire Station	Area: 1 acre	--	--
12	Police Out Post	--	--	--
13	Mosque	--	--	1 for 3,000 popu. Area: 0.30 acre

Source: DMDP (1995-2015), RMDP (2004-2024), and KMDP (2001-2020)

Table 3-2: Target Standards for Provision of Community Services

Type of Service	Population	Surface Area Needed Per Unit
Primary Schools	15000	1 acre
Secondary Schools	23000	2 acres
Colleges		
Playgrounds		
Parks	25000	4 acres
Graveyards	Ward basis	Minimum 5 acres

Type of Service	Population	Surface Area Needed Per Unit
Neighbourhood Centres	Ward basis	0.3 acre
Health Post	Ward basis	
Welfare Centre	Ward basis	
Hospital		
Markets	Ward basis	0.3 acre
Police / Fire Station		

Source: Urban Area Plan, DMDP (1995-2005)

Table 3-3: BNBC Guidelines for Development of Minimum Standard Housing

One Room Houses	Maximum Density	175 units per house
	Minimum Plot in metro area	30 m^2
	Minimum plot outside metro area	40 m^2
	Minimum plot in dense inner city	25 m^2
Two Room Houses	Minimum Plot in metro area	40 m^2
	Minimum plot outside metro area	60 m^2
	Minimum plot frontage	3.5 m^2
	Height limitation	6 storeys, but 5 storeys preferred

Source: BNBC, 1993

Table 3-4: Road Standards

Road Type	Width of the Road
Main Road	24.0 metre (78 ft) ROW
Arterial Road	14.5 metre (47.5 ft) ROW
Collector Road	13.0 metre (42.6 ft) ROW
Access Road	9.0 metre (29.5 ft) ROW
Access Road	6.0 metre (19.7 ft) ROW
Non Motorized Road	4.0 metre (13.1 ft) ROW
Footpath	2.5 metre (8.2 ft) ROW

Source: Urban Area Plan, DMDP (1995-2009)

Table 3-5: Road Standards, the Private Residential project (Plots) Rules 1991

Road Type	Width of the Road
Main Road	60 ft
Secondary Road	30 ft
Access Road	20 ft

Source: Urban Area Plan, DMDP (1995-2009)

3.2.1 Guiding Principles

The design principles that has been visualized as a set of planning tools, for guiding and controlling the land use management of Group-D area includes following principles. The area needs further micro-level plan sponsored by RAJUK. The set of design principles adopted for landuse proposals for the area are has been prepared based on the following principles:

- Environment friendly sustainable development of the area
- Urban periphery function to develop as per major landuse zones
- Effective drainage through minimum hindrance to Flood Flow zones
- Safe residential areas with major communication routes

- Safe yet faster connectivity
- Develop to serve the surrounding hinterlands

A set of design principles can be adopted for landuse proposals are as follows:

1. Land Readjustment
2. Guided Land Development
3. Land Expropriation and Land Banking
4. Site and Service
5. Land Use Zoning

In case of Group D (Extension of Group-C), only Landuse Zoning technique is adopted.

Landuse Zoning: Landuse zoning is effective to control densities and protect the natural and living environments. Zoning regulates the use of land or bulk control over land and buildings. They aim at controlling density of population, requirement of open space around building, height limitations, setback regulations and also FAR. For some Group-D area, flood flow zone, rural settlement zone are the focus of Landuse zoning cum Master Plan process.

3.2.2 Planning Standards

Facility Standard

Standards for community facilities also need to be fixed to ensure better condition of urban living. Considering the relevant available standards, DAP consultants propose the planning standards for different community services. In the calculation process existing Building Construction Rules and average standard of facilities are considered (Table 3-6).

Table 3-6: Facility Standard at Neighbourhood Level or for 12500 People

Sl. No.	Name of the Facility	Quantity		Area		
		Min. (No.)	Max. (No.)	Minimum for Unit Facility	Sub Class Total	Class Total (Acre)
1	Primary School(Public or private)	2	3	1 Acre		3
2	High School(Public or private)	1	2	1.5 Acre		3
3	Open space			10 Acre		12
	i)Park/children's park	1	2	0.3 Acre	1 Acre	
	ii)Water body/ Canal/Pond	As per Planner		1.5 Acre	6 Acre	
	iii)Play field	2	3	1 Acre	3 Acre	
	iv) Green/Vegetation/Water Front	As per F lanner		0.5 Acre	2 Acre	
4	Mosque and Maktab/ Worship Places	2	3	0.2 Acre		0.6
5	Library(central)	1	1	0.1 Acre		0.2
6	Services			0.3 Acre		0.5
	i)Dentist/Doctor's Chamber	2	3	40 sq.m	120 sq.m	
	ii) Beauty Parlour	1	2	50 sq.m	100 sq.m	
	iii) Laundry	2	3	16 sq.m	50 sq.m	
	iv) Hair Dresser	2	3	12 sq.m	40 sq.m	
	v) Cyber Café/Internet service provider	1	2	50 sq.m	100 sq.m	
	vi) Photocopy / mobile / land phone / fax	2	2	12 sq.m	40 sq.m	
	vii) Computer based (word processing, printing etc) services	1	1	30 sq.m	30 sq.m	

Sl. No.	Name of the Facility	Quantity		Area		
		Min. (No.)	Max. (No.)	Minimum for Unit Facility	Sub Class Total	Class Total (Acre)
6	viii) Motor bike Repair, vulcanising etc.(optional)	1	1	50 sq.m	50 sq.m	
	ix) NMT repair service (Rickshaw, bicycle etc)	1	2	30 sq.m	60 sq.m	
	x) Post Office / Courier Services	1	2	20 sq.m	40 sq.m	
	xi) Sports / Recreational facilities(games, indoor games etc)	1	2	50 sq.m	100 sq.m	
	xii) Rickshaw/Auto stand (General)	2	4	100 sq.m	400 sq.m	
	xiii) Restaurant, Tea bar, Fast food	2	4	10 sq.m	100 sq.m	
	xiv) Tailoring	1	2	20 sq.m	40 sq.m	
7	Solid waste transfer station(ma y also small scale processing)	1	1	0.5 Acre		1
8	Utility Facilities					1*
9	Neighborhood Co-operative Of fice Complex			0.33 Acre		0.5
	i) Offices	2	4	15 sq.m	60 sq.m	
	ii) Committee rooms	2	3	40 sq.m	120 sq.m	
	iv) Community Club including indoor games (male and female)	2	2	200 sq.m	400 sq.m	
	v) Cultural Facilities (Rehearsal, Music room etc)	1	2	30 sq.m	60 sq.m	
	vi) Community Police Barrack	1	1	40 sq.m	50 sq.m	
	vii) Technician Service (Electrical, Plumber, AC, Freeze etc.)	2	4	25 sq.m	100 sq.m	
10	Community Hall	1	2	0.33 Acre		0.5
11	Shops			0.33 Acre		0.5
	i) General store	3	4	25 sq.m	100 sq.m	
	ii) Grocery	4	6	25 sq.m	150 sq.m	
	iii) Stationary	2	3	25 sq.m	150 sq.m	
	iv) Confectionary / Bakery	2	3	25 sq.m	80 sq.m	
	v) Departmental Store**	1	2	100 sq.m	200 sq.m	
	vi) Medicine Shop	2	3	25 sq.m	80 sq.m	
	vii) Sweet Meat Shop	2	3	25 sq.m	80 sq.m	
	viii) Book / Newspaper Stall	2	3	10 sq.m	30 sq.m	
	ix) Fresh Corner (Vegetable, fish, meat, egg, chicken etc.)	2	3	12 sq.m	40 sq.m	
	x) Fruit Shop	2	3	10 sq.m	30 sq.m	
	xi) Flower Stall	2	2	10 sq.m	30 sq.m	
	xii) Gift shop	1	2	10 sq.m	30 sq.m	
Total Area for the Neighborhood Facilities				**22.8 Acres (approx.)**		

* May be added as per decision of the Nagar Unnayan Committee under New use category.

**Area under Departmental Store shall be calculated on the basis of the spaces allocated against one of the corresponding services in this table (cumulative area).

Urban residential zone shall be developed in terms of neighborhood concept following approximate standards and the area will be free of thorough traffic.

Gross area of Neighborhood : 50 acres [approx.]. It may vary depending on the population density of the planning area

Gross Density : 225 to 250 persons per acre.

In order to promote development of all roads in a systematic manner, a set of "Geometric Design Standards" have been recommended for both built up as well as for less built-up areas. These will replace the old standards, which were proposed in the DMDP, but never adopted. These standards will facilitate earmarking the right of way (RoW) for all roads. The details of these standards are indicated in Table 3-7.

Table 3.7: Proposed Road Standard for DAP Area

Sl. No.	Road Category	Type	Built-up Area	Less Built-up Area
			RoW Ft (M)	RoW Ft (M)
1	Primary Road	Type-1	80 (24.39)	170 (51.83)
2	Primary Road	Type-2	80 (24.39)	130 (39.63)
3	Primary Road	Type-3	80 (24.39)	100 (30.49)
4	Secondary Road	Type-1	60 (18.29)	80 (24.39)
5	Secondary Road	Type-2	40 (12.0)	60 (18.29)
6	Tertiary Road	Type-1	40 (12.0)	40 (12.0)
7	Tertiary Road	Type-2	30 (9.19)	40 (12.0)
8	Access Road	Type-1	24 (7.32)	30 (9.19)
9	Access Road	Type-2	20 (6.10)	24 (7.32)

Source: Proposed by Consultants

3.3 General Development Strategies

The formulation of plan development objectives and supporting standards is one of the most important steps in the planning process. This is particularly important because of the value judgments inherent in any set of development objectives. Planning principles and guidelines are set forth to provide for the formulation of reasonable plans responsive to national and local concerns. Likewise, the plans recommended for implementation, in general, are reasonably maximize net national benefits. The planning process shall place specific emphasis on sound judgment; planners and other team members shall be guided by common sense in applying the policies and procedures contained herein. It also shall reflect a systematic and comprehensive treatment of resources. This is a very important stage in the design process crucial to the final functional, quality of the result and its efficiency and cost effectiveness. Planning principles have to address two distinct situations: existing and new urban areas (with a further distinction between small-scale incremental and large-scale planned development).

For the two situations, planning principles and design rules will work in a different way. Whereas in new urban areas there is a great deal of freedom to make ideal design decisions, in existing situations in most cases only a gradual improvement and restructuring is feasible and desirable. In existing urban areas, the quality of the buildings, the infrastructure, the general layout, the public space, findings of the survey of the existing situation is the starting point.

Here design principles and standards cannot be implemented right away, but serve rather as a reference, or target, to be approximated to a degree that depends on available budget, willingness of local inhabitants to co-operate, ability to have formal developers adopt these principles and standards. According to these opportunities, infrastructure may be upgraded, land readjustment, guided land development or slum clearance can be carried out, relocation schemes (either on or off site) can be implemented, facilities and open space may be introduced etc.

Special attention has to be given for managing development in existing urban areas. While in fringe areas that are still only partially developed, the design aims at more efficient land use by increasing density, in fully developed areas that are already very dense, measures have to be taken to match the already high and still increasing densities with the required facilities and services (always as related to infrastructure capacity and sustainable environment). Arrangement of separate consultation with representative of different interest group to formulate the design is desirable.

Residential development
Rural Settlements will be preserved as exists. The structures are proposd to develop in the demarcated area up to 1st Floor.

Institutional development
Schools i.e. primary, secondary, collage, madrasa and where need, university should be developed acoording to future population within the plan period.

Health facilities
Health facilities should be provided accoding to the hierarchy of facilities. Primary health care center should be provided in community level and higher-level facilities according to the population threshold and equirement.

Parks/Play ground
Community paks should have to be provided according to their standard and requirements.

Markets/Bazars
Union Level Plan- Average no. of villages-16-18
Avarage no. of population- 70000

Small growth centre/compact settlement will be initiated/ introduced into the union centre to concentrate physical, social and economic functions for further promotion of the settlement forms.

Sub-centres- Avarage no. of villages- 4-5
Avarage no. of population- 16000-18000

The sub-centre will be the nucleous of 4 to 5 villages.The sub-centre will work as a daily market to sell perishable agricultural products, which will produce the agro-farmers to boost production. Village unplanned horizontal expansion should be strongly discouraged.

Drainage
In according to FAP-8A (Keranigonj) the project area entirely falls in Polder-01 and partly in polder-02. In adition, DAP study has identified that it is necessary to prepare a guideline on the future drainage system on the Thana as a whole, because the natural canals of the project area penetrate through the areas of Thana towards north to south from Buriganga to Dhaleswari Rivers. To make feasible of the drainage system in the project area, total drainage system in the Thana area should be controlled through rehabilitation and if necessary create new canal so that man can live with water (**Map 3-1 and 3-2**).

3.4 Proposed Infrastructure Development

3.4.1. Major Existing and Planned Networks

The review of the physical feature survey of existing road network revealed that various types of road exist in Group-D area, which have different width and do not follow any proper circulation pattern. There are different categories of roads like pucca, semi-pucca and katcha roads in the project area. The total length of pucca roads is 38.92 km. The condition of pucca roads is not good in the project area. Some of these roads are good and some are in poor condition. The next category of the roads is semi pucca, also called HBB (Haringbone Bond) or brick soling road, which have been identified as of almost similar in character in the whole project area. The length of semi pucca roads is about 28.08 km. The significant portion of the roads is katcha, and its length is about 60.84 km.

In order to address the circulation problems, first initiative has to establish arterial road network, proposing some new roads and filling up the missing links. DMDP Structure Plan recommended a number of roads to be built to establish an arterial networks in this area. All of the proposals recommended in the Structure Plan were also taken in the recently developed Strategic Transport Plan (2006). The proposals made in DMDP and STP has been incorporated and some new roads have been suggested in DAP. After establishing arterial road network, internal roads have been suggested in the neighborhood level in such a way, so that a gridiron pattern has been developed, so that mobility will be easier. Existing roads are shown in **Map 3-1** and all the proposed roads are shown in **Map 3-2** and Table 3-8 and 3-9 (Details Road Proposal are shown in **Annexure-II**.

Table 3-8: Structure Plan Proposed Road

Road ID	Road Name	Width (m.)	Length (Km.)	Area (Acre)
SP 1	Kholamura to Ati Bhawal Road	36.59	5.693	51.471
SP 2	Balsata Ati to Taranagar Road	36.59	4.535	41.003

Source: Structre Plan, 1995-2015

Table 3-9: Road Proposed by Consultant

Road ID	Road Name	Width (m.)	Length (Km.)	Area (Acre)
DAP 1	Kharakandi to Goalkhali Road	36.59	5.883	53.194
DAP 2	From Shavar, Bara Monoharia to Shakta Road	91.46	8.761	197.999
DAP 3	Ruhitpur to Shakta Road	24.39	4.082	24.602
DAP 4	Sakta to Belna Road	36.59	4.324	39.099
DAP 5	Singasur to Kholamura Bazar Road	36.59	5.788	52.333
DAP 6	Taranagar Ulta to Balsata Road	24.39	2.151	12.964
DAP 7	Shakta Road to Hoghway	18.29	1.295	5.854
DAP 8	Balsata Road to Shakta-Dohar Road	24.39	2.212	13.333
DAP 9	Ramer Kanda College Markrt to Paschim Goalkhali	36.59	2.784	25.175

Source: Proposed by Consultants

The following strategies should be adopted to promote circulation in the project area:

- A comprehensive road network should be prepared for the entire project area using a hierarchy of road network
- In case of local roads, a participatory approach should be developed to realize at least a part of the cost of development from the beneficiaries. This will also help to reduce cost involved in land acquisition for road development
- Proposed roads in these areas should be chosen for immediate development that is needed to promote growth in that area
- Incremental development approach should adopt to get rid of unnecessary costs in development of roads that will remain underutilized
- Service roads should be created along major roads to allow free flow of long distance traffic

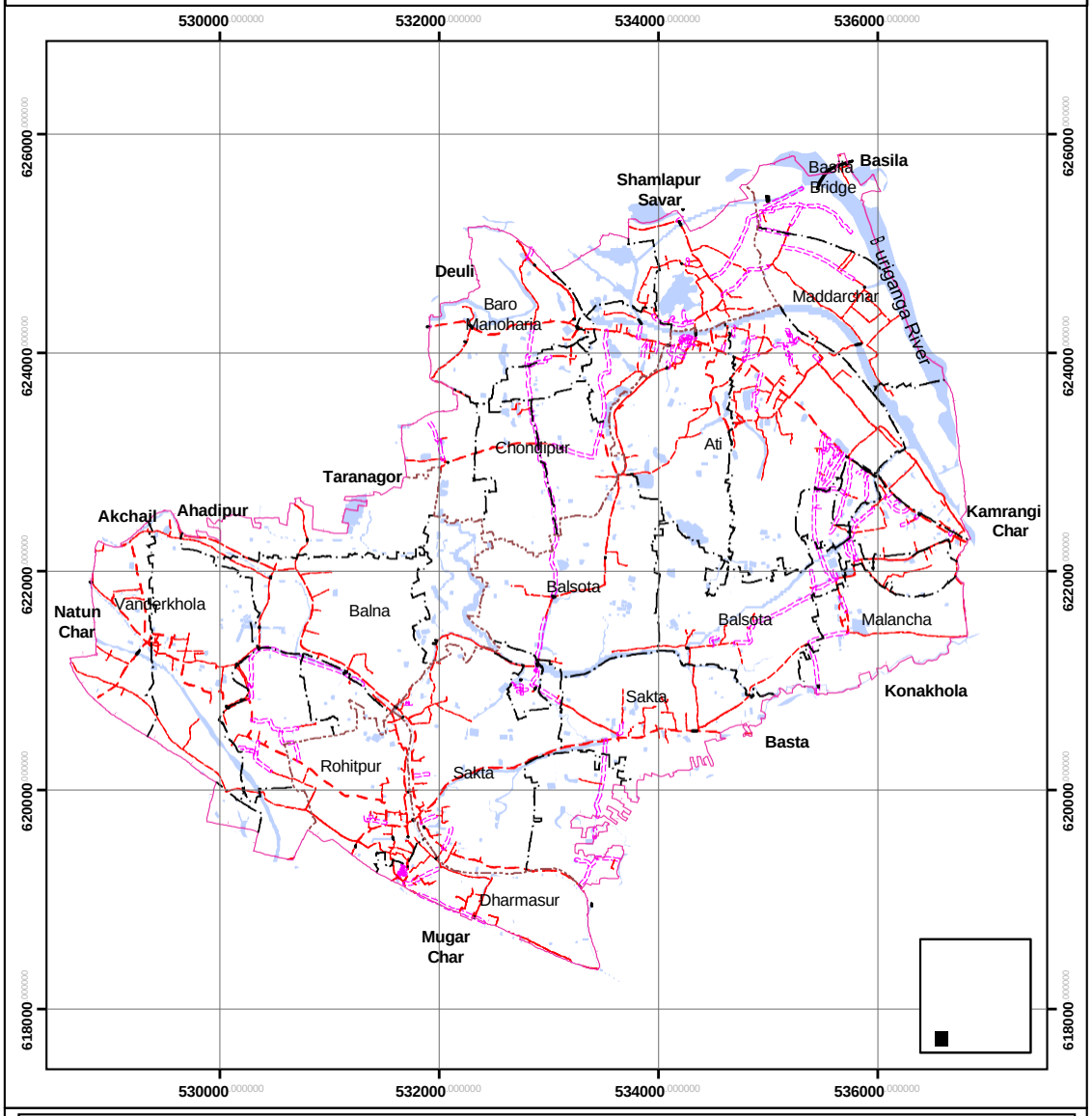
3.4.2. Link Road Development program

The consultant thoroughly examined the road standards proposed by the Structure Plan. The Structure Plan recommended two categories of primary roads – main road and arterial road. The consultant suggests only arterial road with 15 meter width and collector road with 12.5 meter width for the project area. The consultant also suggests two types of access road, one for old areas with 6 meter width and for new areas with 9 meter width. The access roads would be created to link mainly the housing areas with the collector roads.

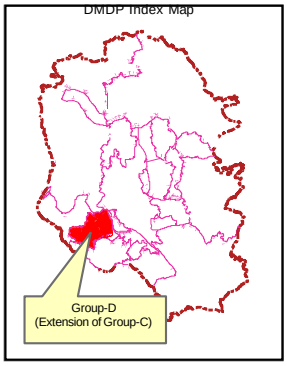
a. Arterial Road Proposals

The purpose of arterial road is to set up regional links. The consultant supports STP proposals with some modifications.

Map 3-1: Existing road network in the Project Area



Preparation of Detailed Area Plan (DAP) for DMDP Area [Group-D (Extension of Group-C)]



0 625 1,250 2,500 3,750 5,000 Meters

Legend

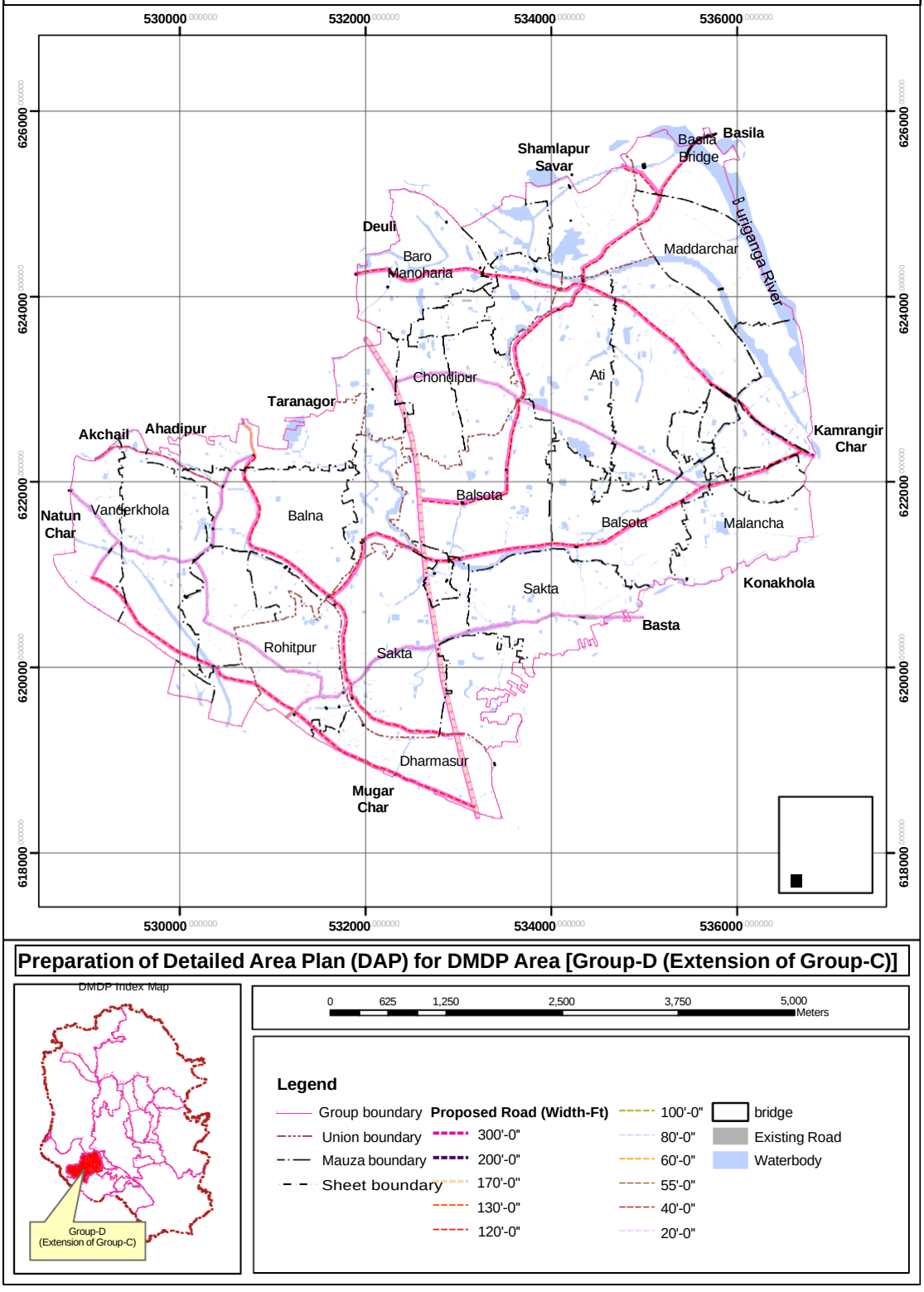
- Group boundary
- Union boundary
- Mauza boundary
- Sheet boundary
- bridge_poly
- Waterbody

Road Type

- Road (Pucca)
- Road (Semi-pucca)
- Road (Katcha)

Source: Physical Features Survey, 2005-06

Map 3-2: Proposed Road Network in the Project Area



b. Collector Road Proposals

The purpose of collector road is to establish link between main road and access road. Collector roads have been proposed in different parts of the existing and new urban areas to link them with arterial roads. The main focus of collector roads is to promote accessibility in fast growing urban centers and establish link with nearby arterial road and adjoining urban centers.

c. Access Road Proposals

Access road provides access to individual houses and links with other external activity areas through collector and main road. Access roads have been provided in existing and new urban areas to enable development on private initiatives.

3.4.3. Road Widening Programme

To ease traffic movement and to enhance the mobility of the urbanized zones, 25 km of existing roads were prioritized for widening. Several of these roads fell in the area covered by Group-D.

- For the road network, the Structure Plan suggested a grid pattern with distances between major roads at an average of 1,200 m
- Without reducing capacity too far, distances may be set at 1,500 or 2,000 m for north-south roads, and 2,000 or 3,000 m for east-west roads. In fact, in the Urban Area Plan such extensive road network is already adopted
- Some of the existing major urban roads are double in scale as of national highways. The Dhaka– Chittagong road may serve as an example, as it gives both access to the northern part of the DND triangle and serves long distance traffic. It is necessary to separate these functions by constructing service roads that take over the access function
- Even though in the planning period for the Detailed Area Plans, neither the need nor the resources will be there for actually building these service roads and fly-overs, reservations (ROWs) will have to be made of, otherwise this will prove very difficult and costly later on
- Reservations may also be made for bus lanes or even light railway tracks

3.5 Existing and Proposed Landuse

The following Table 3-10 and **Map 3-3** shows the existing landuse of Group-D (Extension of Group-C) area and Table 3-11 and **Map 3-4** shows the Proposed Landuse of Group-D (Extension of Group-C) Area.

A copy of Integrated Detailed Area Plan for Group-D (Extension of Group-C) Area (Scale 1:35000) and Integrated Detailed Area Plan for DMDP Area (Scale 1:80000) are attached with the Report.

The physical feature survey shows that major areas are covered by agriculture and it is about 70.61% of the total land. The second major land use is occupying by water body and it is about 13.45 % of the project area, Existing land use pattern is shown in Table 3-10.

Table 3.10: Existing Landuse of Group-D (Extension of Group-C) Area

Sl. No.	Land Use Type	Area (Acre)	Percentage
1	Agriculture	5694.80	70.61
2	Circulation Network	385.44	4.78
3	Commercial Activity	51.46	0.64
4	Education & Research	26.71	0.33
5	Manufacturing and Processing Activity	8.50	0.11
6	Mixed Use	14.73	0.18
7	Recreational Facilities	0.37	0.00
8	Residential	732.08	9.08
9	Service Activity	3.46	0.04
10	Vacant Land	62.94	0.78

Sl. No.	Land Use Type	Area (Acre)	Percentage
11	Water Body	1084.59	13.45
Total		**8065.08**	**100.00**

Source: Landuse Survey, 2006

Table 3-11: Proposed Landuse of Group-D (Extension of Group-C) Area

Sl. No	Land Use Type	Area (Acre)	Percentage
1	Flood Flow Zone	4521.02	56.06
2	Proposed Road Network	335.71	4.16
3	Rural Settlement Zone	2608.97	32.35
4	Transportation & Communication	167.62	2.08
5	Waterbody	431.76	5.35
Total		**8065.08**	**100.00**

Source: Proposed by Consultants

3.6 Description of the Plan

Road widening and new road propsed

Some roads is needed to widen and and some new roads have been proposed in the planning area (see Table 3-8). It is because of ensuring the better communication from DCC and savar to the planning area (keranigonj). Among them, the western by-pass (300 ft wide) from Savar to Keranigonj is very important that should immediately need to implement to reduce traffic congestion from DCC area.

Flood Flow Zone

Most of the land in this area is flood flow (see **Map 3-4**). It is urgently needed to protect the unplanned development, illegal land filling and encroachment of flood flow zone.

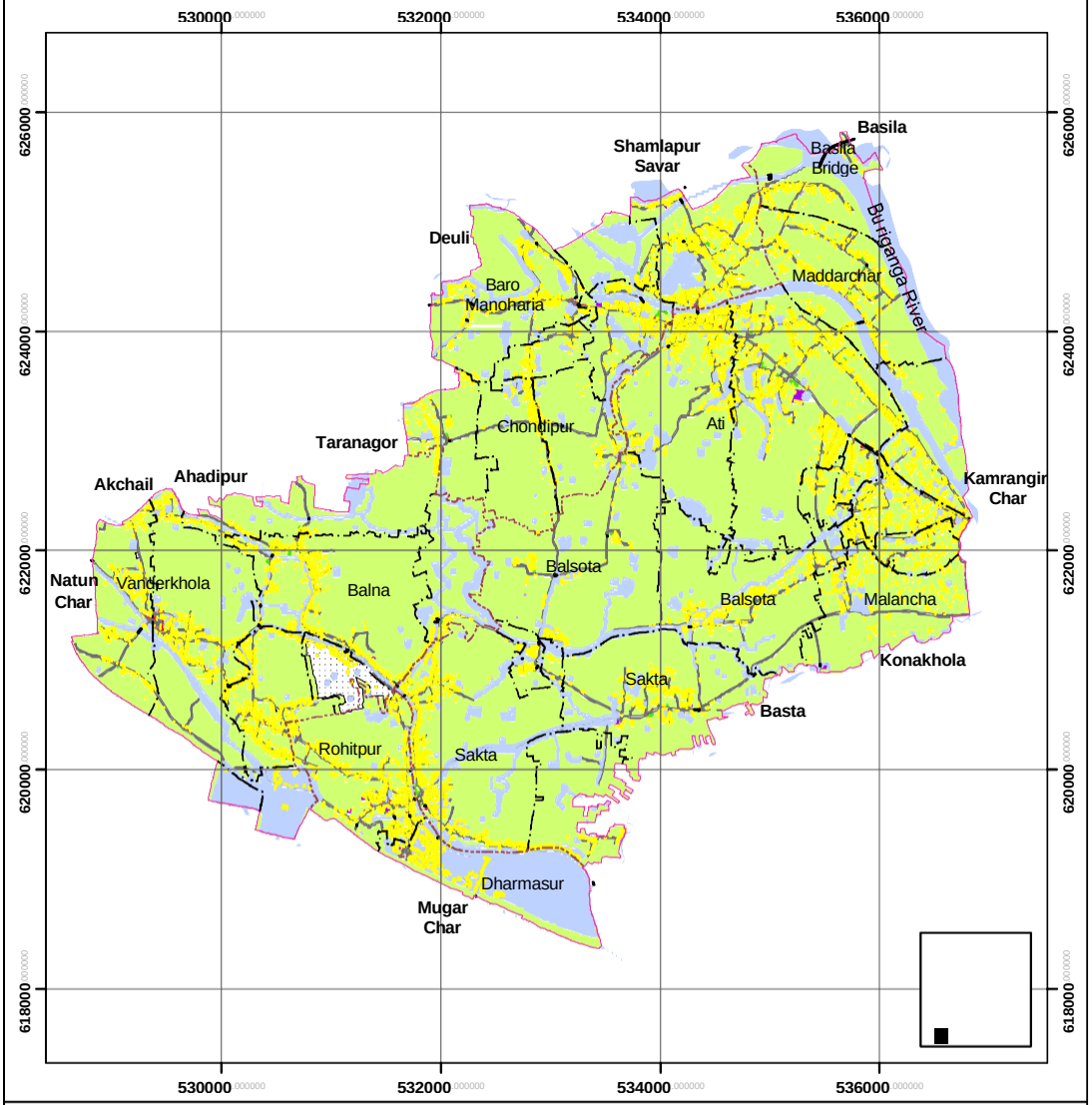
Rural Settlement Zone

This plan has identified and proposed for rural settlement zone. There will not be further extension for development. Maximum two-storied building is allowed in this zone. Thus, multistoried building is restricted in this zone. Detail is shown Table 4-31 and 4-32.

Natural Khal/Canal/River

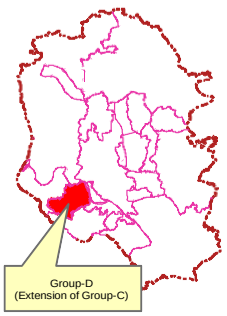
Natural Khal/canal/river is needed to protect. It is proposed to re-excavate khal/ canal/river according to RS mouza.

Map 3-3: Existing Landuse of the Project Area



Preparation of Detailed Area Plan (DAP) for DMDP Area [Group-D (Extension of Group-C)]

DMDP Index Map



0 625 1,250 2,500 3,750 5,000 Meters

Legend

- Group boundary
- Union boundary
- Mauza boundary
- Sheet boundary
- bridge
- Agriculture
- Circulation Network
- Commercial Activity
- Community Service
- Education & Research
- manufacturing & processing
- Mixed Use
- Recreational Facilities
- Residential
- Service Activity
- Vacant Land
- Water Body

Source: Landuse Survey, 2005-06