# Chapter- 3
# Development Plan Proposal

## 3.0 Introduction

Chapter–3 of the explanatory report describes the development plan proposals. The Chapter starts with DMDP policies as upper level frameworks followed by a review of the policies in the light of prevailing situations. Next, planning principles, standards and strategies have been set. Lastly, sectoral development proposals have been put forward under the DMDP policy frameworks. The chapter also describes landuse zoning provisions and makes comments on some critical issues of the Structure Plan.

## 3.1 Abiding Policy Frameworks of Higher Level Plans

In this section the upper level frameworks of the current plan that is DMDP Structure Plan and Urban Area Plan policy proposals have been discussed. The policies have been discussed on sectoral basis. In the transport sector the strategies proposed by the approved Strategic Transport Plan (STP) for Dhaka have also been discussed as upper level framework.

### Structure Plan Policies

The DMDP Structure Plan and Urban Area Plan (1995-2015) are the legally approved higher level planning frameworks of the current DAP project.

### Relevant Structure Plan Policies

- **Flood Flow Zone Policy RS/3 –** Land development, within the designated flood plain areas will be controlled in order to avoid obstructions to flood flow, which might otherwise result in adverse hydraulic effects, for example, the rise of flood water levels and changes in flow direction.
- **Rural and Special Area Policy RS/5 –** Flood Retention Ponds control will be maintained over the areas in order to ensure that they remain capable of fulfilling their primary function of water storage at times of flooding.
- **Urban Area Policy UA/6 –** for New Urban Land growth promotion seeks to initiate and coordinate a range of measures aimed at stimulating and promoting the rate of development in the designated areas of the urban fringe.
- **Urban Area Policy UA/7 –** Infrastructure Initiatives seek to promote, through the DMDP Structure Plan, an orderly sequence of new area development by means of mutually reinforcing and coordinated public sector investment programs, spearheaded by drainage, flood protection and transport development.
- **Sectoral Policy SE/4 –** advocates for an integrated policy of the incremental environmental upgrading and relocation, where necessary, of Dhaka's polluting industries, in a manner commensurate with sound environmental practice and cost-effectiveness.
- **Infrastructure Policy IN/2 –** promotes for incremental network development in the transport sector in order to conserve resources and being responsive to proven demand for the service being offered.
- **Special Area Policy RS/6 –** A number of special uses, with extensive land allocation, are located outside the main urban area but within DMDP area. The DMDP Structure Plan suggested for special treatment. For a variety of reasons theses special areas need to be considered to ensure that their respective functions and any future planned expansion, is secured and unimpeded from uncontrolled urban growth or encroachment.
- **Land Resource Optimization Policy UA/1 –** advocates adjusting expected increase of population and the need to maintain and develop a healthy and stimulating urban living environment, it is necessary to optimize the use of limited land and more effectively utilize the existing flood free areas of, urbanized land.
- **Community Based Development Initiatives Policy UA/3 –** suggests to enhance access to land with secure tenure, and to affordable and appropriate levels of infrastructure and social community services provision for an increasing majority of the population.

**Urban Area Plan Recommended Policies**

The ten year spanned (1995-2005) DMDP Urban Area Plan (UAP) provides interim mid-term strategies for the development of urban areas within the RAJUK administrative boundary. The validity of UAP, though expired in 2005, it has been extended through a gazette notification. The UAP, through its explanatory report, resource maps, interim management report, interim planning rules, and urban area plan map provides guidelines for planning and development control of the entire RAJUK area. The following sections make a review of the Urban Area Plan proposals made for the SPZs that make up the Group-E area.

**Spatial Planning Zone wise (SPZ) Recommendations**

SPZs **were designed by dividing the entire Structure Plan area into 26 zones for the purpose of detailed planning. The current study area of Group-E shares four of these Spatial Planning Zones (SPZ), namely,** Spatial Planning Zone-16: Northern Fringe, Spatial Planning Zone-17.1: Savar, Spatial Planning Zone-17.2: Dhamsona,

Spatial Planning Zone-16: Northern Fringe ***(DMDP Urban Area Plan, Volume-II, Page # 75)***

**UAP Recommendations:**

- The zone is likely to maintain its present status for many years. As such the authority should discourage development and keep its urban infrastructure development to the minimum.

Spatial Planning Zone-17.1: Savar ***(DMDP Urban Area Plan, Volume-II, Page # 76)***

**UAP Recommendations:**

- Detailed Area Plan is required to review the RAJUK development plan for the area and to see a better integration of the presently planned development in the zone.
- Development should be steered towards the established areas rather than sparsely to make delivery of utility services easy and cost effective.
- Linear development should be discouraged to contain the urban areas in manageable limits in view of the resource constraints.
- Cost of the off site provision should be realized from the private developers of the housing estates.

Spatial Planning Zone-17.2: Dhamsona ***(DMDP Urban Area Plan, Volume-II, Page # 77)***

**UAP Recommendations:**

- Detailed Area plans should be prepared to guide the development of the zone in a planned way.
- As the zone is expected to gradually develop into a major industrial/commercial area funds should be made available for essential infrastructure and utility services to enable corresponding urbanization.
- A separate municipality or development board should be created for the governance of the zone and to provide guidance to public and private development.
- The zone should be enabled to attract investment from both local and international sources.

**Spatial Planning Zone- 17.3: Flood Flow Zone West** *(DMDP Urban Area Plan, Volume-II, Page # 78)*

*Actions Committed/Required*

- The area should be enabled to function properly as flood plain and a basic rural/pisciculture zone.
- All the development permits issued for the development for the housing should be withdrawn and no new one is needed to maintain the nature of the zone.
- Conversion of land from rural to urban should be regulated strictly in this zone.

## 3.2 Planning Principles and Standards

### 3.2.1 Guiding Principles

The following principles have been considered for making various designs under the planning proposals. The principles have been proposed out in line with Structure Plan policies.

a. That the area determined for development has to be made accessible to make the area livable and functional by providing efficient circulation system.

b. Considering land constraint minimum possible land should be allocated to provide civic facilities.
c. Location of civic facilities should be chosen carefully to serve maximum possible residents.
d. During designing land use category emphasis should be laid on facilitating investment through enabling easy building permission.
e. Environment friendly sustainable development of the area.
f. City function to develop as per major land use zones.
g. Effective drainage through minimum hindrance to Flood Flow and Sub-Flood Flow zones.
h. Safe residential areas at proximity to place of work or major communication routes.
i. Smooth and effective functioning of industries, specially export oriented industries.
j. Safe yet faster connectivity.
k. Development to serve the surrounding hinterlands.

### 3.2.2 Planning Standard

Following are the standards adopted for setting the development proposals in the current plan.

**Road Network**

While the Structure Plan recommended two categories of primary roads-main road and arterial road. Consultant proposes the three categories of roads. The new road type will facilitate providing different categories of roads based on local requirement.

The following principles are proposed for development of road network in the planning area.

1. Footpath, meaning exclusive pedestrian movement paths, may be avoided because of enforcement problem.
2. A grid pattern road network with an average 1200 m distance between major roads is recommended.
3. A distance of 1500 m or 2000 m for north-south road and 2000 m or 3000 m for east-west roads is to be maintained.
4. Structure Plan reservation of land for bus road and light train tracks will be maintained. However, the new roads have been proposed based on certain criteria. The arterial roads are aimed to create new options to link Dhaka as well as providing access to inaccessible areas outside the city. The collector roads would open up areas not having accessibility. The access roads would be created to link mainly the housing areas with the collector roads. This part of the project report, however, deals only with first two categories of roads **(Table-3.1).**

**Table - 3.1: 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*

**Open Space**

DMDP Urban Area Plan (Page 14, Part-2, Development Management Report) sets standard for park as 4 acres for every 25,000 persons. No specific standard has been set for community level playing ground. However, it proposes 1 acre for primary school (one for every 15,000 population) including playing ground and 2 acres for each secondary school including playground for every 23,000 persons. The DAP suggests 40% of all school premises to be earmarked for playing ground. However, there should be keen efforts to propose more open space than what would come as per standard suggested by DMDP.

**Community Services**

For providing community services like, educational institutions, open space, bazaar, police and fire station DMDP standards set in **Table 2, Part 2, Development Management Report, Urban Area Plan** has been followed **(Table-3.2).**

**Table-3.2: Standards for Provisions of Community Services**

| Type of Service | Number of Area Inhabitants served Per Unit | Surface Area Needed per Unit | *Remarks* |
|---|---|---|---|
| Primary School | 15000 | 1 acre | • 'ideal' standard is 1 per 7000; present situation is 1 per 220000.<br>• 16% primary schools are government schools;<br>• the 1 acre surface includes playgrounds;<br>• can also be double shift / dual use. |
| Secondary Schools | 23000 | 2 acres | • the surface area includes playgrounds. |
| Colleges | - | - | • Threshold number of students and area of land to be defined case by case |
| Playgrounds | Double usage of primary and secondary school yards. | - | - |
| Parks | 25000 | 4 acres | • Larger parks may serve larger number of inhabitants. |
| Graveyards | Ward basis | Minimum 5 acres | - |
| Neighbourhood Centers | Ward basis | 0.30 acre | - |
| Health post | Ward basis | - | - |
| Welfare Centre | Ward basis | - | • Also included in community center |
| Hospital | - | - | • To be determined in a case by case basis |
| Markets | Ward basis | - | |
| Police/Fire Station | - | - | • To be determined in a case by case basis. |

***Source:*** *DMDP Urban Area Plan, 1995.*

Planned development ensuring community's active participation is the key to successful transformation of future Dhaka into tomorrows adorned green Dhaka. Keeping that vision in mind, DAP Consultants developed an optimum standard for the amenities and community facilities that the city dwellers deserve **(Table-3.3).**

**Table - 3.3: Facility Standard at Neighbourhood Level**

| Sl. | Name of the Facility | Quantity | | Area | | |
|---|---|---|---|---|---|---|
| | | Min. | Max. | Minimum for Unit Facility | Sub Class Total | Class Total |
| | | (No.) | (No.) | | | (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 Planner | | 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 | |
| | 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(may also small scale processing) | 1 | 1 | 0.5 Acre | | 1 |
| 8 | Utility Facilities | | | | | 1* |
| 9 | Neighborhood Co-operative Office 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 | |

| Sl. | Name of the Facility | Quantity | | Area | | |
|---|---|---|---|---|---|---|
| | | Min. | Max. | Minimum for Unit Facility | Sub Class Total | Class Total |
| | | (No.) | (No.) | | | (Acre) |
| | 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.)** | | |

***Source:*** *Proposed by the Consultants*

* 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.

## 3.3 Preferred Development Strategies

Hydrological issues predominated the reasoning regarding the ways to develop the study area so near to the heart of the vibrant capital city. All the higher level plans and studies carried out at varying

point of time converged to the same conclusion that the vital contribution of this low lying area bounded by rivers as main Flood Flow and Sub-Flood Flow zones allowing excess flood water to pass over it, must not be obstructed by any development. Despite this unanimous expert cautions, the area is experiencing a tremendous development pressure. DAP consultants for the study area has tried to work out an effective strategy to address the issue with acceptably low obstruction to the flood water to pass through. The strategies adopted for current planning exercise are as follows:

### 3.3.1 Drainage

- Non-continuous smaller rural settlements above flood level surrounded by ample low lying areas (agriculture, sub-flood flow, main flood flow) allowing uninterrupted flow of water to pass through.
- Minimize obstruction of flood water as is practicable.
- Appropriate connectivity by roads having sufficient openings to ensure needful flow of water across them as well as uninterrupted traditional water based connectivity keeping appropriate navigation clearance at the bridges. This would help maintain the biodiversity of the area and contribute to sustainable environment in turn.

### 3.3.2 Residential Development

- Subdivide Residential Landuse Zone based on the potentiality, trend and opportunity.
- Adopt Neighborhood concept for new residential developments and for need assessment of community facilities.
- Avoid thorough traffic and heavy vehicles within the neighborhoods.
- Provision of adequate footpaths should be ensured for ease movement of residents.
- Ensure community facilities and services of appropriate scale at neighborhood level.

### 3.3.3 Industrial Development

- Ensure provision of central effluent treatment plant in case of industrial clusters.
- Ensure own treatment plant in case of individual manufacturing units.
- Relocate industries from predominantly residential zones in phases.
- Heavy and Noxious types of industries would be shifted in designated industrial zone.

- Heavy and polluting industries of category Orange-B and Red-B located in structure plan designated urban zone, would be shifted and its use would be shown as non-conforming.

### 3.3.4 Mixed Use Development

- Relocate noxious and heavy industries [red category as per DoE] to Heavy Industrial Zone as soon as practicable.
- Allow the red industries to maintain their status under strict abiding conditions until shifting.
- Ensure adequate safety and security of the people especially of the families residing in such mixed zones.
- Provide sufficient quantity of wide and safe footpaths.
- Provide zebra crossing for road crossings instead of over bridge to ease the lives of major portion of low income workers likely to traverse on foot to reach their likely abode in the busy town.
- Ensure adequate utility services to ensure uninterrupted production.

### 3.3.5 Transport and Connectivity

- Provide safe, adequate and comfortable pedestrian paths.
- Provide appropriate and effective public transport routes with sufficient number of quality public transport to carry passenger.
- Grade separation at National and Regional Highway intersections from the local main roads, the latter being at grade and other two above grades.

### 3.3.6 Flood Flow Zones

- Strictly preserve the zone area as per the higher level plans and DAP.
- Promote agricultural and passive recreational use of the area during dry season.

### 3.3.7 Non-urban Areas

- Strictly preserve agriculture land from conversion into non-agricultural use.
- Promote traditional waterways in the low lying areas by constructing sub-merged road for dry season connectivity.
- Promote rural characteristics in the isolated settlements keeping mandatory buffer to make way for the flood water pass through.

### 3.3.8 Water Body and Open Spaces

- Strictly protect canal networks as per DAP.
- Make provision for open space and water body at the neighborhood level.
- Strictly protect the river fronts and open it to city dwellers for serene passive recreation.
- Make city scale open space with easy accessibility, especially for people of densely populated areas with meager scope for open space.

### 3.3.9 Amenities and Community Facilities

- Consider neighborhood concept of residential development for estimating community facilities and amenities requirement.
- Avoid construction of religious structure unless built on its own land.
- Relocate unauthorized religious structures from river and road right of way to safeguard greater interest of the people.
- Evacuate unauthorized structures and uses from road right of way to safeguard greater interest of the people.
- Close/relocate existing schools with highly inadequate class rooms, play field and essential facilities and gradually replace with standard one, one per 12000 populations per acre [approx. 50 acres].

### 3.3.10 Water Supply

- Private extraction of water by tube wells may continue in non-municipal areas where there is no piped water supply.
- In the long run, to make the supply sustainable, projects may be undertaken to procure river water and supply after treatment.
- Restriction on private extraction of ground water may strictly be imposed in municipal areas.
- Recycling of treated wastewater with separate lines for potable water and recycled water is needed. For this, dual pipe supply system has to be introduced in a phased manner all over the areas.
- Ground water recharging through rain water harvesting, conserving water bodies and controlling groundwater extraction. Groundwater extraction is to be controlled through registering boreholes and recharging according to test yields. Ground water management is to be enforced by the concerned agency.
- Focused planning and action will be required to be taken to prepare and implement rain water as roof water harvesting schemes both with the aim of optimizing water use and ground water recharge. For this suitable mandatory provision is to be made for planning and construction of various schemes.
- The planning should fit together watershed management, and arrest the run-off. It should ensure the conservation of natural valleys, water bodies and aquifers. The concepts of 'zero run-off drainage', with retention ponds, sediment traps and balancing lakes should be adopted with a segregated wastewater disposal system. A green network overlapping the blue network would protect the ecology of aquifers, and also provide a pleasant environment. Simple methods of site planning, which incorporate porous/semi permeable paving, drop inlet/down pipe, sediment trap, retention ponds, etc. will contribute in maintaining ground water table.
- One of the prime objectives of development should be to improve the quality of river-water, to secure its continuous flow and to encourage the return of aquatic life. This needs improvement of drainage, waste water treatment and pollution abatement by sewerage improvement. The surplus water during the monsoons should be retained in balancing ponds along the riverbed rather than allowing it to the downstream areas.
- Where the hazard of pollution exists, the minimum charge for operating permits should cover the expenses of adequate policing and controls. Mandatory performance bonds and liability insurance should pay for all damages plus any corrective measures, which might be needed. As a governing rule, no new development, manufacturing, process or operation of any polluting activity should be permitted, which may result in the significant degradation of any water resource.
- The drains and waterfront can be landscaped in the form of interconnected parkways. There is no need for elaborate gardening of the greenways, but wild, simple and natural stretch by itself would be ecologically important. Such trails could be one of the cheapest forms of drainage and recreation.
- Water supply in new areas should incorporate separate lines – one for washing, water coolers and garden taps, the second for supplying potable water. All non-residential buildings having a discharge of over 10,000 litres a day should incorporate a wastewater recycling.

### 3.3.11 Electricity

- For all establishments with floor area of more than 500 sqm, solar energy should be encouraged.
- Compulsory Solar Panels for public advertising, lighting in open areas, public utilities, streets, etc.
- As alternate mandatory arrangement during power cuts to replace by generators/inverters, etc.
- Adoption of Load Management Technique.
- Tariff restructuring and improved metering arrangement to minimize power thefts/losses.
- Private sector participation in different stages of power generation, transmission and distribution;
- Incentivising energy savings and use of energy efficient gadgets.
- Public awareness, capacity building and training.

### 3.3.12 Gas Supply

- Explore possibility of use of gas in cylinder for domestic purposes.

### 3.3.13 Conservation of Monument and Heritage

Built heritage of planning area needs to be protected, nourished and nurtured by all citizens and passed on to the coming generations. It is suggested that with the aim of framing policies and strategies for conservation, appropriate action plans may be prepared by all the agencies. These should include promotion and conservation of the civic and urban heritage, architecturally significant historical landmarks, living monuments, memorials and historical gardens, riverfront, city wall, gates, bridges, vistas, public places, edicts and the ridge. Listing of Heritage Buildings based on the following criteria:

(a) The age of the building;
(b) Its special value for architectural or cultural or historical reasons
(c) Its relevance to history
(d) Its association with a well-known character or event
(e) Its value as part of a group of buildings
(f) The uniqueness of the building or any object or structures fixed to the building or forming part of the land and comprised within the cartilage of the building.

- Prepare guidelines for development, redevelopment, additions, alterations, repairs, renovations and reuse of the heritage buildings.
- These places of interest must be marked in the map for preservation by the Department of Archaeology, Tourist Corporation and RAJUK for national interest.

### 3.3.14 Environmental Management

- Grouping of hazardous industries
- Establishment of common effluent treatment plant
- Adoption of neighborhood concepts for new residential development
- Establishment of waste water treatment plant

### 3.3.15 Supporting the Surrounding Hinterland

- Easy accessibility from the surrounding hinterlands especially to the growth centers.
- Ensure facilities, such as, cold storage, wholesale/retail market facilities for needful commodities (fertilizer, insecticide, agro-machineries etc.) and shopping centers of regional standards to support population living in the surrounding hinterlands.

## 3.4 Major Infrastructure Proposals

Among the vital infrastructure supports required for the smooth functioning of urban life, the foremost is the accessibility. The physical interpretation of this requirement is an effective road network having a range of roads with proper hierarchy starting with major traffic arteries, connectors, distributors and finally down to access roads. Almost always these road networks physically house other vital utilities of urban life – electricity, tap water, gas, sewerage disposal, storm water drainage and so forth so that the households and their facilities can be brought under their services. This calls for careful planning of the road sections off-setting the perennial cutting of urban roads causing tremendous misery which every citizen is aware of.

### 3.4.1 Transport

A number of primary and collector, tertiary and access roads have been recommended for the Group-E area. Besides, widening of many existing narrow roads have been suggested. Due to vastness of the study area it is extremely difficult to go for details about access roads. The road proposals are based on review of Structure Plan and Strategic Transport Plan (STP) proposals. Some modifications have been suggested for STP proposals, while full support has been extended to the Structure Plan road recommendations.

**a. Road Development Proposals**

Following are the different categories of new roads proposed for development in the Group-E area.

**i. Primary or Arterial Road**

The purpose of arterial road is to set up regional links as well as to create bypass facilities to avoid congestion in existing major roads. The Consultant supports STP road proposals in the study area with some modifications. Instead connecting the proposed north-south main road with Nabinagar-Chandra Road near EPZ extending from Baliarpur point in the south, as per STP proposal, the road is proposed to be moved further north through Kashimpur and join Joydebpur-Chandra Road (13.22 km).

**Table- 3.4: Proposed Primary Road Details**

| Road Type | Length | SPZ Connecting | Mauzas Connecting |
|---|---|---|---|
| Primary Road Type-1 (170' RoW) | 62.37 km (Including some 2km of roads within ***Location-15***) | SPZ 17.3 to SPZ 16 | Mauza Boliarpur to Mauza Gobindabari through Ashulia |
| Primary Road Type-1 (170' RoW) | 2.98 km | SPZ 17.3 | Mauza Bhakurta to Mauza Mauza Boliarpur connecting Savar Aricha Road |
| Urban Primary Road Type-2 (130' RoW) | 6.65 km | SPZ 17.3 | Mauza Syamlapur to Mauza Uttar Kaundia connecting Savar Aricha Road |
| Urban Primary Road Type-2 (100' RoW) | 35.34 km | Group-E all SPZ's | Mauza Musurikhola to Mauza Naojuri |

The consultant also supports Structure Plan proposal of C&B Road upgradation into a main road to establish an alternative east-west link. The consultant also supports upgradation of Cantonment-Jirabo Road only as a Collector Road instead of a main road as proposed by STP. Other main road improvement proposals of STP, like, Hemayetpur-Singair Road and Hemayetpur-Harindhara Road are also supported. **Map-3.1** shows the proposed road development.

**ii. Secondary or Collector Road**

The purpose of collector road is to establish link between main road and access road. About 60 km of collector roads have been proposed in different parts of the planning area to establish link with arterial roads. The main focus of collector road is to promote connectivity with fast growing and potential urban centers and establish links with nearby arterial road and adjoining urban centers. **Table-3.5** and **Map-3.1** shows the details of collector roads.

**Table- 3.5: Proposed Major Secondary Road Details**

| Road Type | Length in km | RoW in feet |
|---|---|---|
| Secondary Type-1 | 20.47 | 80 |
| Secondary Type-2 | 141.41 | 60 |
| Secondary Type-3 | 142.87 | 40 |

**iii. Tertiary Road and Access Road**

Tertiary roads connect secondary roads and access roads. Following is the brief of tertiary road in the planning area:

**Table- 3.6: Proposed Tertiary Road and Access Road Details**

| Route Description | Length in km | RoW in feet |
|---|---|---|
| Tertiary Type-1 | 61.72 | 30 |
| Access Type-1 | 7.33 | 24 |
| Access Type-2 | 15.58 | 20 |

**iv. Other Road Transport Improvement Proposals**

Besides new road development there are some other road transport improvement proposals. These include, widening of selected existing narrow roads, service lane development on important roads and road overpass at important road crossings.

**Road Widening and Improvement and Establishing Missing Links**

The consultant proposes a number of existing roads of different categories to be improved in terms of width and surface quality. Katcha roads will be improved to BFS and HBB surface and to BC where possible. Missing links are in the first priority. Table in **Annex- 3.1** shows phasing of development of new roads and widening of existing narrow roads.

**Service Road**

In the highways there should be uninterrupted movement of traffic. But local traffic moving in the highways often disrupts free movement of highway traffic. To relieve the main traffic from possible interruption the consultant suggests service lanes on either side of BKSP-Kashimpur Road, which is a very busy road.

**Road Overpass at Intersection and Bridge/Culvert**

Road overpass has become imperative at some points in the study area. Savar bazaar is the busiest point where there is cross connection between Savar Bazar and Rajashan through Rajashan Road crossing Dhaka-Aricha Highway. The Dhaka–Aricha Highway at Savar bazaar point is often interrupted by traffic moving eastward to Savar Bazar or westward to Rajashan. To keep the highway traffic movement uninterrupted the consultant proposes to develop an overpass on Savar-Rajashan Road. Another overpass is proposed at EPZ point. At this point traffic from south turning to the industrial areas including EPZ in the east and traffic coming from the north turning to the EPZ often create interruption on highway traffic movement. There are a number of drainage channels in the planning area that will be over run by proposed roads.

**Transportation Facilities for the Old and the Disabled**

Consultant recommends some measures in the transportation sector for the old and the disabled people of the society who are often ignored and deprived. All categories of disables should be allowed to travel in buses free of charge. To ease boarding a bus by disabled and the old public buses should be parked on the footpath curb and platform of appropriate height should be built

**Footpath and Road Side Plantation**

It is evident from past experience that the pedestrian traffic is given low priority in urban streets. But things should have been opposite. Pedestrians should be given the highest preference in the traffic stream as they constitute over 60% of the trips. In all secondary and tertiary roads there should be provision for footpath on both sides of the roads. This is necessary to ensure free and safe movement of pedestrians on the streets. To increase greenery, road side plantation should be made compulsory on all roads. This is necessary not only on environmental grounds but also to ensure comfort of the pedestrian traffic and aesthetics.

**Fuel and CNG Stations on Highways**

These establishments have been found as a hindrance to free flow of drainage water flow along the road. RHD dug borrow pits along the road to collect earth and raise road level. Later on, these borrow pits turned into a continuous drainage channel. But it is found that RHD is allotting in its right of way space for setting up fuel and CNG stations on long term basis. The fuel stations, to take access to their establishment from the road fill up the borrow pits that hinder free flow of water creating water congestions. RHD should maintain some policies before leasing land for filling stations. A 500 ft. distance should be maintained between stations, plus a condition should be there not to block the drainage channel. RAJUK should consider all these issues before giving landuse clearance for CNG Stations.

**b. Water Transport**

Circular waterway around Dhaka is a good initiative by BIWTA to ease traffic congestion in the city core. But it is not being handled in an appropriate way. Two landing stations have been built in Amin Bazar and Ashulia, but there is no vessel movement. The channel needs to be more widened apart from increasing draft, from Amin Bazar to Ashulia to

keep it navigable to accommodate vessels round the year. The bridge being built on Mirpur-Ashulia through Birulia does not have navigation clearance. The under construction bridge has to be rebuilt. To make use of the waterway route river cruise may be arranged between Amin Bazar Landing Station to Ashulia Landing Station on private initiative. This might attract tourists, particularly, during rainy season. BIWTA can float its own vessels in Badamtali – Ashulia Route. If it can achieve success in carrying goods and passenger, than the private vessel owners will follow. Navigability is also required in Karnatali River connecting the Banghsi and the Turag to allow private vessels to operate round the year in this route.

### 3.4.2 Utility Services

**a. Water Supply**

Water supply is a responsibility of urban local government. Presently, there is only one municipality in the planning area. Since the developments in the entire planning area are much dispersed, it is not possible to arrange municipal water supply for the entire area. The consultant has suggested three municipalities in three potential urban agglomerations. Only in these areas it may be possible to provide piped water supply in future. For non-municipal dispersed urban areas DPHE may arrange hand tub well based water supply. Side by side, individual property owners outside municipalities may also be allowed to extract ground water to meet their day to day need. To avoid depletion of ground water immediate measures should be taken to extract surface water as sustainable source of water supply. However, this would require strict control to be imposed on river side industries not to pollute the water. Harvesting of rainwater may help supplement water demand during rainy season. But this has to be popularized through drawing up motivation programs.

**b. Sanitation**

The people of the area will have to wait for long to have a complete sewerage network, because the Dhaka City itself does not have a total network of sewerage system still now. The system serves only about 20% of the city area.

**c. Solid Waste**

Solid waste management will soon turn into a crucial issue as the urbanization proceeds. It is suggested to introduce CBO based house to house collection system in housing and commercial areas. In industrial areas the individual enterprises will have to make their own arrangements to transport their waste upto the transfer stations. From transfer station the waste will be transported to final dumping sites. In municipal area Paurashava will be responsible for transporting the waste from transfer station to the dumping site. In non-municipal areas private parties may be engaged for doing the job. The cost of the service will be collected from the beneficiaries. Upazila Parishad may take the initiative to engage the private party for this purpose. The consultant has suggested for two waste transfer stations in DPZ 6 of the planning area covering an area of 1.15 acres of land.

**d. Electric Supply**

Power supply is a national issue, so it will be solved on national basis. REB may extend its lines in the planning area as per their programmes. Preference should be given to potential urban and industrial areas. Street light is a function of urban local government. Since there is no urban local government in vast areas outside Savar Paurashava the task of street lighting in those areas will have to be borne by the PDB.

**e. Gas supply**

Gas supply will proceed as per Titas Gas plans and programmes. It is suggested to ensure priority supply in industrial and residential areas.

## 3.5 Social Service and Amenities

The consultant made a proposal for providing a series of social services for day to day need of the local people. These include level of education facilities, play field and park, bazaar, police outpost, civic centre and fire station, etc.

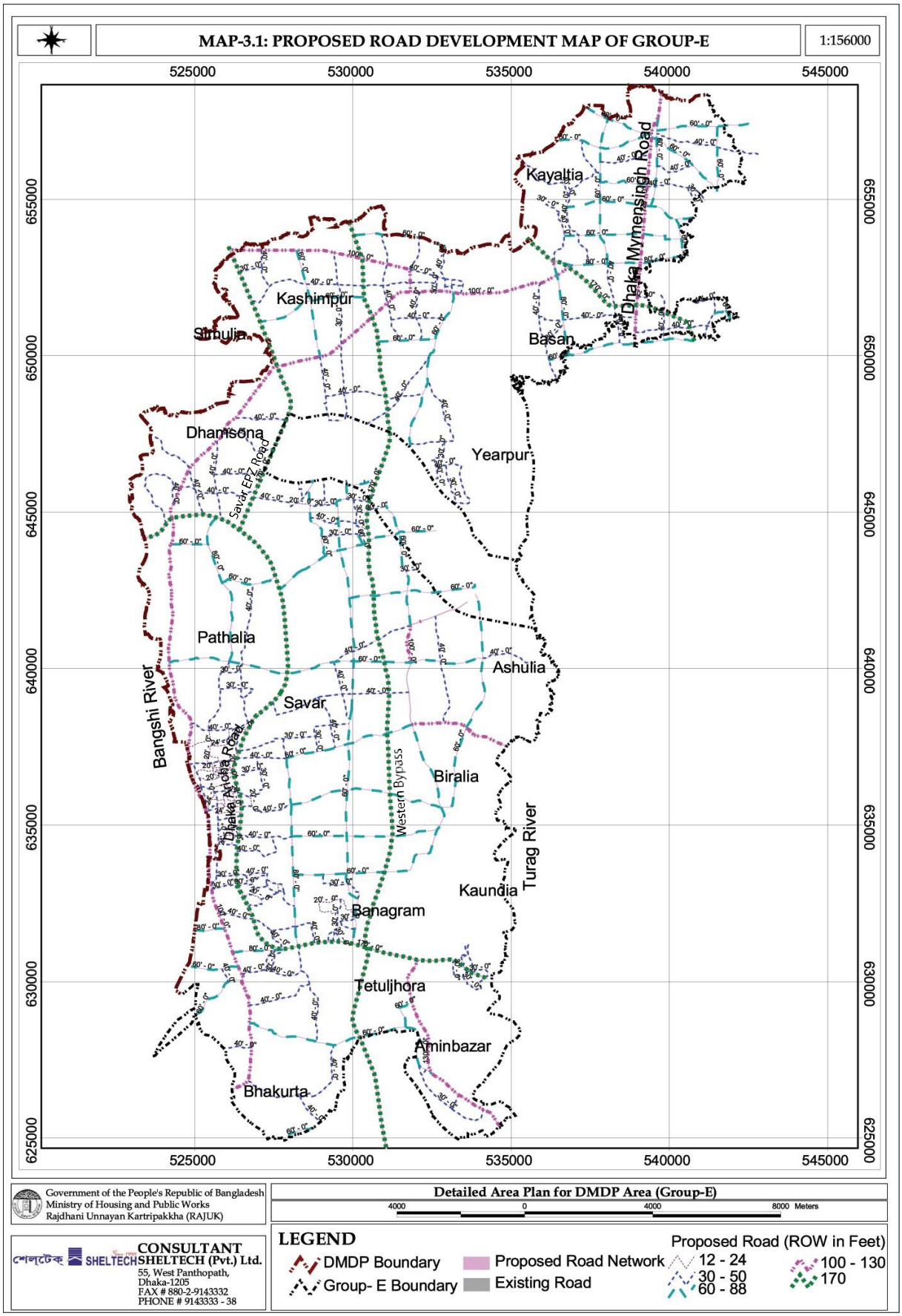

MAP-3.1: PROPOSED ROAD DEVELOPMENT MAP OF GROUP-E
1:156000
525000
530000
535000
540000
545000
655000
650000
645000
640000
635000
630000
625000
Kayaltia
Dhaka Mymensingh Road
Kashimpur
Simulia
Basan
Dhamsona
Yearpur
Savar EPZ road
Pathalia
Ashulia
Bangshi River
Savar
Dhaka Aricha Road
Western Bypass
Biralia
Turag River
Kaundia
Banagram
Tetuljhora
Aminbazar
Bhakurta
Government of the People's Republic of Bangladesh
Ministry of Housing and Public Works
Rajdhani Unnayan Kartripakkha (RAJUK)
Detailed Area Plan for DMDP Area (Group-E)
4000 0 4000 8000 Meters
CONSULTANT
SHELTECH (Pvt.) Ltd.
55, West Panthopath,
Dhaka-1205
FAX # 880-2-9143332
PHONE # 9143333 - 38
LEGEND
DMDP Boundary
Group- E Boundary
Proposed Road Network
Existing Road
Proposed Road (ROW in Feet)
12 - 24
30 - 50
60 - 88
100 - 130
170

**Table-3.7: Summary of Social Service Proposals**

| Unit | Required No. / Area of Social Service Facilities as per Standard | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Primary School | | | Secondary School | | | College | | | Public Play Field | | | Park | | | Bazaar | | | Police Outpost | | | Civic Centre | | | Fire Station | | |
| | Existing | Proposed. | Additional | Existing | Proposed | Additional | Existing | Proposed | Additional | Existing | Proposed. | Additional | Existing | Proposed. | Additional | Existing | Proposed | Additional | Existing | Proposed | Additional | Existing | Proposed | Additional | Existing | Proposed | Additional |
| **No.** | 114 | 35 | 0 | 93 | 22 | 0 | 21 | 52 | 4 | 0 | 21 | 21 | 0 | 21 | 21 | 27 | 29 | 5 | 1 | 11 | 10 | 0 | 5 | 5 | 2 | 6 | 4 |
| **Land Required (ac)** | | | **0** | | | **0** | | | **7.87** | | | **61** | | | **84** | | | **0.82** | | | **0.91** | | | **80** | | | **0.66** |

**a. Education Facilities**

Study shows (**Table-3.7**) according to standard lower level education facilities like, primary and secondary schools are sufficient in number in the planning area, so no new primary and secondary schools have been proposed upto 2015. But higher level education facilities are not adequate as per standard, so four new additional colleges have been proposed in addition to existing ones. For these new educational establishments an area of 7.87 acres (3.18 ha) would be required. The consultant has earmarked an area of about 60.18 acres in Enayetpur, Polashabari and Banshbari Mauzas, north-east of the Cantonment, for developing new universities on public or private sector initiatives. According to the Bangladesh University Grants Commission minimum 1 acre of space is required for setting up a private university. Based on this standard, the space earmarked for university will be able to accommodate 37 private universities. It is suggested that RAJUK should acquire the entire land and prepare a site plan for the area where space for common facilities (like, play ground, road and other services) will be provided before allocation of land to applicant private universities. The space for four new colleges has been provided in two unions, three in Dhamsona and one in Pathalia. For each college an area of 2 acres (0.405 ha) have been earmarked as per adopted standard of land allocation. Apart from college the space can also be used for other lower level education facilities together with college. However, at least 40% area (34848 sft.) must be reserved as open space for active recreation of the students. In the core Dhaka indiscriminate setting up of schools have been found as a major cause for traffic congestion during peak hours of a day. To avoid this problem it is recommended that school zone should be created in the future urban area and students of the particular locality should be compelled to study in the schools of their own neighbourhood. This will help reduce long travel and congestions on streets. This can be adopted as a part of education policy. Details of educational facilities are shown in **Map 3.2.**

**b. Playground and Park**

Recreation and open space facilities are essential parts of busy urban life. Recreation facilities can broadly be divided into active and passive. Active recreation includes play field, sports ground, cultural activities, while passive recreations are, park and open space, garden, etc. The rise in disposable income of the people increases demand for leisure and recreation. Structure Plan apprehended that by the year 2015 such a trend would unlikely to occur in the planning area and the role of government in providing recreation facilities would be transferred to the private sector. The keeping this idea in view, Structure Plan advocated identifying and securing suitable land in the new priority development areas as recreational space. It is suggested to secure large tract of land as open space long before urbanization takes place and land price escalates. Beyond the urban area the plan recommended to encourage establishing picnic spots at accessible rural locations. It also supported establishing large scale recreational open space projects like, Bhawal National Park by the Forest Department. During discussion with Paurashava suggestion came about creating new open space on some selected public land. There is an agriculture farm called Rajalakh Farm in ward No. 4 near the Dhaka-Aricha highway that includes a large pond. This was taken over by the government as an abandoned property after liberation. Paurashava proposed this site to be converted into a park

keeping the water body. The consultant considers the idea acceptable, because there is acute shortage of public land for open space in old Savar area. The proposed space is an agricultural farm which is not compatible with the surrounding. To implement the project, land transfer will be required through inter-ministerial understanding for development of the land as a park. Savar Paurashava on discussion expressed their desire to have a stadium and an auditorium. In this regard they also indicated a location for the facilities in Ward No. 1, in the north-western fringe. The area amounts to about 6 acres (2.42 ha). The consultant accepted the idea and the proposal have been integrated in the plan**.** Open space facilities like, playground and park are highly inadequate in the study area. There is extremely high deficiency of public playfields in the fast growing urban part. The consultant fully agrees with Structure Plan view about preserving open space in the built up areas of the main city though this does not apply to the study area, except the already urbanized part of Savar. However, in densely populated areas of old Savar there is hardly any chance to apply this policy. It strongly recommends securing large open space in dispersed peripheral locations where rapid urban growth is likely. Time is precious element in this process; because once the open space is lost due to urbanization it would never be possible to recover the land again. In line with this policy the consultant proposes to secure space for playground and parks with a total area of 35.40 acres. About 11.53 acres of land has been reserved for playgrounds while about 23.85 acres of land has been earmarked for recreational park for the planning area, where there exist no park facilities in the planning area. An area of about 9.93 acres of land has been reserved for river front recreational project in Savar Area along Bangshi River. Please see **Map-3.2**

**c. Bazaar**

A kitchen market has been proposed opposite existing Paurashava wholesale market over an area of 0.49 acres (0.2ha).

**d. Police Outpost**

Land has been reserved for one police outpost in Dakshin Ramchandrapur mauza and one police barrack in Tetuljhora. A total area of 1.52 acres of land has been earmarked for this purpose.

**e. Fire Station**

There already exist two fire station; four new sites for fire station have been proposed at four locations where industrial growth is fast. The new locations are, Itahata of Basan Union, Barenda of Kashimpur, Sadhupara of Ashulia and Nandakhali of Tetuljhora Union. All these locations are places of growing industries and this growth is expected to expedite further in future. The proposed fire stations would be very helpful in tackling possible fire incidents in the industries in particular.

**f. Civic Centre**

Structure Plan proposes creation of neighbourhood centre with an area of only 0.30 acre that is about a bigha and also suggested to provide one in each ward. The consultant feels that this standard is not at all suitable for the planning area. First, there are no municipal wards in the larger segment of the future urban area except in the Savar Paurashava; second, the area suggested for a neighbourhood is too small to accommodate even the most essential urban services, like, bazaar, school, play field, and park. The consultant, therefore, has developed its own model of providing space for urban amenities by accommodating many of the Structure Plan recommendations in civic center as service centers.

There is need to creating service center or anything like that in dispersed peripheral urban areas where new impetus of urbanization is going on due to increasing productive activities in response to opening up of export markets as well as due to overspill of population from the main city. Within the planning area the DEPZs are acting as engines of growth for over a decade. With the emergence of manufacturing around DEPZs and on the Abdullahpur-Baipail Road new support activities including housing and ancillary land uses are coming up fast leading to urbanization. All these activities are taking place without any planning. As a result a chaotic situation is being created without adequate provision for physical facilities and social services including road network, water, sanitation, drainage open space.

For adopting Infrastructure Led Development Initiatives (ILDIs) as a strategy for developing peripheral urban areas it is necessary to create some service centers at suitable locations of future urban areas wherefrom basic urban services can be rendered to the area concerned, apart from creating road and other services network to connect them. These initiatives will foster and faster urbanization in the locality leading to reduction of pressure on the core

city area. The consultant proposes to set up a two stage service centres, called 'civic centre', located at suitable distances. One will be a major civic centre located at a central position in the planning area. One major and four minor civic centers have been provided at five locations in hierarchical manner. The major civic centre contains such amenities as, stadium, central park, space for health facility, education facilities, play ground, public administration, shopping centre, mosque and eidgah, fire service and police outpost, kitchen market, graveyard and space for unforeseen uses. Minor civic centre contains space for education facilities, play ground, graveyard, and family welfare, shopping and bazaar. The major civic centre covers an area of about 15.59 acre. The major civic centre has been placed at Badda mauza, a centrally located area at Savar surrounded by high growth potential localities.

**Flood Control and Drainage Development**

The following proposals have been set for flood control and drainage development. However, before making proposals, a review of upper level plan proposals and current situation have been carried out. Paurashava has prepared a separate drainage development plan with the assistance of UGIIP project of LGED. The plan comprises primary, secondary and tertiary drains for draining out waste water and storm water of the Paurashava. Consultant integrates the proposed municipal drainage plan with its total drainage plan of the study area (please see **Map-3.3**).

Flood Mitigation System

In general the structural measures that can be taken for flat mitigation are as follows:

(i) Dredging of the rivers
(ii) Empoldering
(iii) Regulation of flow by control structures

**Dredging of Rivers**

The Bangshi River carries significant amount of sediment load during flood season. As it flows down stream both depth and the width of the river increases and its slope gradually decreases from 6.7cm/km to 1.5cm/km. The Dhaleswary River have some sort of similarity with Bangshi River in respect to sediment load. At bank full discharge the cross sectional area of Dhaleswari is very large and the water surface slope is very small (about 2.7cm/km). Considering the channel pattern for both Bangshi and Dhaleswari River, the present geometric characteristics of the channel seem well adjusted to the sediment yield. Both for Bangshi and Dhaleswari large volume of dredging would be required to increase significantly the flood discharge. The bed material yield during high flood season could be as large as 1 (one) million m3 during 4 (four) months from June to October. The dredging will increase the section of the reach. The velocity of flow and the sediment transport capacity of the reach will reduce. A significant part of the sediment yield would deposit in the dredged channel and a considerable maintenance requirement can be anticipated. Thus dredging will not be cost effective. The general conclusion about the river training by dredging will not be effective for lowering the flood water level as it is very difficult to maintain the design riverbed due to sedimentation problem and peculiar hydraulic characteristics of the area.

***Empoldering***

**Standard sections of polder**:

**i. Embankment**

**Embankment**: The standard cross sections of BWDB as applied to the existing embankments shall be adopted. Under poor sub-soil conditions foundation treatment is necessary to ensure embankment stability. The foundation treatment proposed for sub-soil is consolidation by sand drain/sand compaction, along with step by step embankment construction.

**ii. Construction of Tannery Estate Protection Embankment**

Bangladesh Water Development Board (BWDB) has proposed an embankment along the Bangshi River that passes through the western boundary of the under construction Tannery Estate. Total length of this embankment is .5 km.

### iii. Regulation of Flow by Control Structures

The Bangshi River was formerly an offtake of Brahmaputra River which is closed since 1970 and now acts almost entirely as a drainoff from the Madhupur Tract. At Deopara it joined with Fatikjani River, a distributary of Jamuna River. Downstream of the junction, near Kaliakoir, the majority of the Bangshi flows into the Turag River with smaller flow into the Old Bangshi River. There are two existing channels into the Old Banshi. The easterly one has a capacity of some 400 to 500 cusecs, while the westerly one carries some 200 to 300 cumec. There is potential for improvement flow out of this area by increasing the capacity of the Old Bangshi. This will reduce the pressure on Turag River specially during flood season.

The Tongi Khal is an Offtake from the Turag River north to the Shahjalal (R.) International Airport. Tongi Khal flows easterly direction to join the Balu River of Balu-Lakhaya River system.The Tongi Khal serves as a bypass to the Balu River when water level in the Turag River is high. The reverse flow also occurs. Regulation of flow between the two rivers is desirable to prevent surplus water flow from Balu to Turag that would raise the water along the city perimeter.

A river (Khal) named the Karnatali connects the Bangshi River with the Turag River. It has a similar function like Tongi Khal. Important function of this khal is to minimize intensity of flood, either by carrying discharge from the Bangshi River to the Balu- Lakhaya River system through the Turag River when level of the Bangshi River is high or vice-versa, when level of the Balu- Lakhaya River is high. Regulation of flow of Bangshi River at Karnatali junction point is desirable to stop flowing water from Bangshi to Turag.

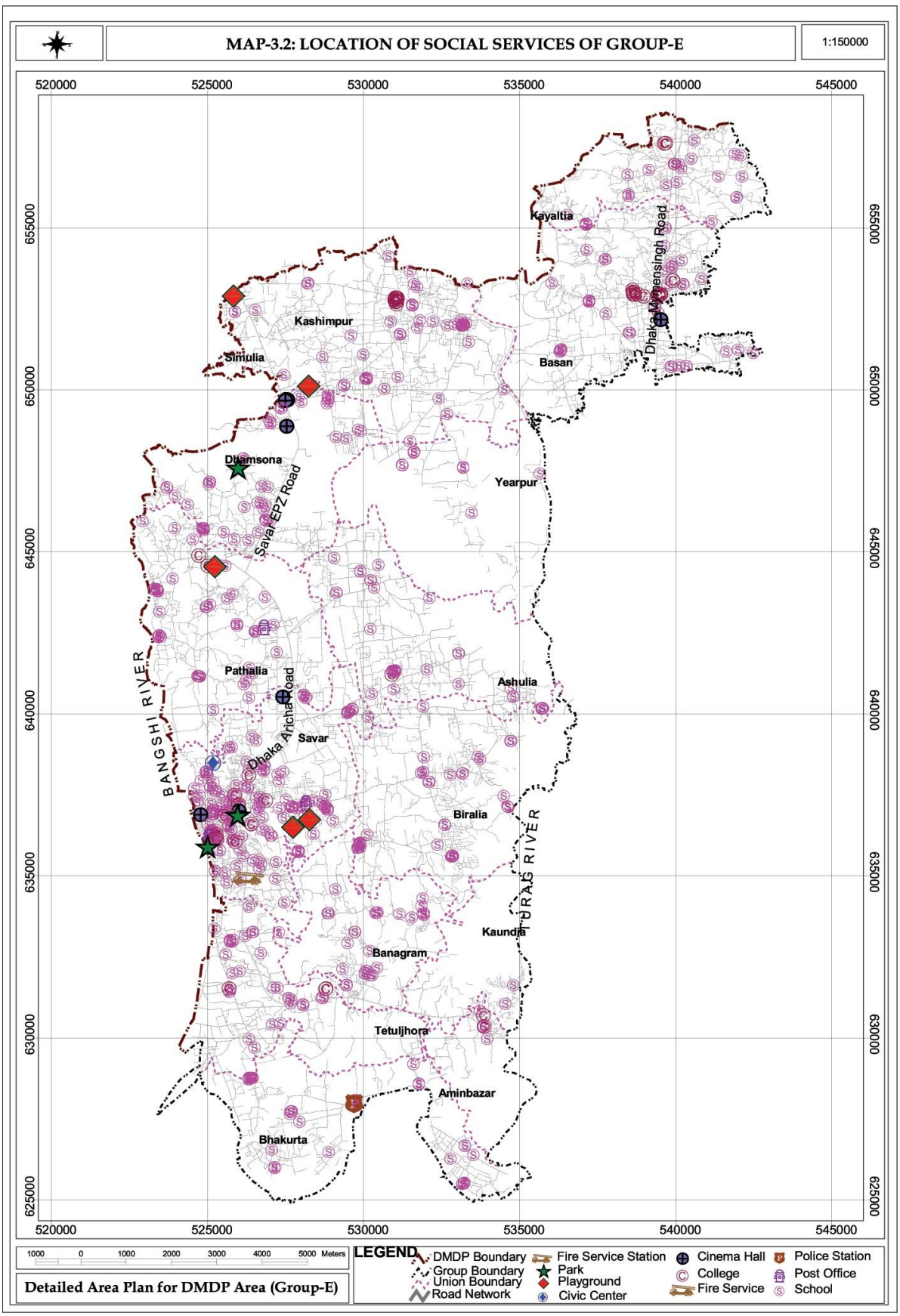
### Planning Storm Water Drainage

The storm water drainage system of planning area has to be developed based on the requirements up to certain future period, implemented in phases. The first phase or initial development programme has to be targeted for the next 10 years. In fact these phases have to be taken as a basis for planning and implementation considering some economic factors such as time and investment of money. During phase wise implementation process the overall development shall have to be reviewed and new problems that may arise shall have to be attended. Land acquisition to protect the water bodies has to be considered with top most priority. With the overall development and with densification of population, industries, institutions, increase in road networks etc., the acquisition of land shall be more difficult and highly expensive. In order to eliminate drainage problems and to enhance the security of people in the planning area, an optimum drainage improvement plan, comprised of either non-structural or structural measures, is essential.

Storm water drainage improvement plan may be either pump drainage system or gravity system. Pump water drainage is essential specially for poldered areas. For pump drainage area a 2 days consecutive rainfall with 5 years frequency is the design criteria for planning pumping capacity in view of technical and financial reasons. Pump water drainage system is very expensive as both investment cost and maintenance cost are very high. To compensate part of expense it is essential to provide retention ponds. The purpose of flood retention ponds are to reduce the intensity of local flooding by rainwater, within the protected areas and thus allow reduction of pumping requirements at time of maximum surface water run-off. Alternative way of improvement of storm water drainage is by gravity flow, which has no hazard, requires no maintenance.

Planning of the drainage system starts with zoning of the area based on ground elevation. Zoning is important to determine area whether gravity drainage system is feasible and where pump drainage system is required. The area above the flood water level plus 0.5m to 1.0m can be drained by gravity flow. The area below flood water level and area less than 0.5m above the flood water level cannot be drained by gravity system. A pump drainage system is required.

In Savar Thana and Kayaltia and Basan Union of Gazipur, a good percentage of land is flood free. The Danger Water Level of Savar north is 7.40m PWD and Savar south is 6.50 PWD. It may be concluded that gravity of flow storm water drainage system can be applied for this area. The drainage area of Savar phase-I and Savar phase-II are 13980 acre and 18031acre respectively. The existing drainage system in general consists of local open khals connected to the regional rivers. The existing khals of this area has been investigated for length, condition and serviceability. From the present condition almost all the khals can be operationalized. Al these khals are to be improved in order to serve the present as well as future drainage need. The improvement plan comprises the following works.


MAP-3.2: LOCATION OF SOCIAL SERVICES OF GROUP-E
1:150000
520000
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625000
Kayaltia
Dhaka Mymensingh Road
Kashimpur
Simulia
Basan
Dhamsona
Yearpur
Savar EPZ Road
BANGSHI RIVER
Pathalia
Dhaka Aricha Road
Savar
Ashulia
Biralia
TURAG RIVER
Kaundia
Banagram
Tetuljhora
Aminbazar
Bhakurta
1000 0 1000 2000 3000 4000 5000 Meters
Detailed Area Plan for DMDP Area (Group-E)
LEGEND
DMDP Boundary
Group Boundary
Union Boundary
Road Network
Fire Service Station
Park
Playground
Civic Center
Cinema Hall
College
Fire Service
Police Station
Post Office
School