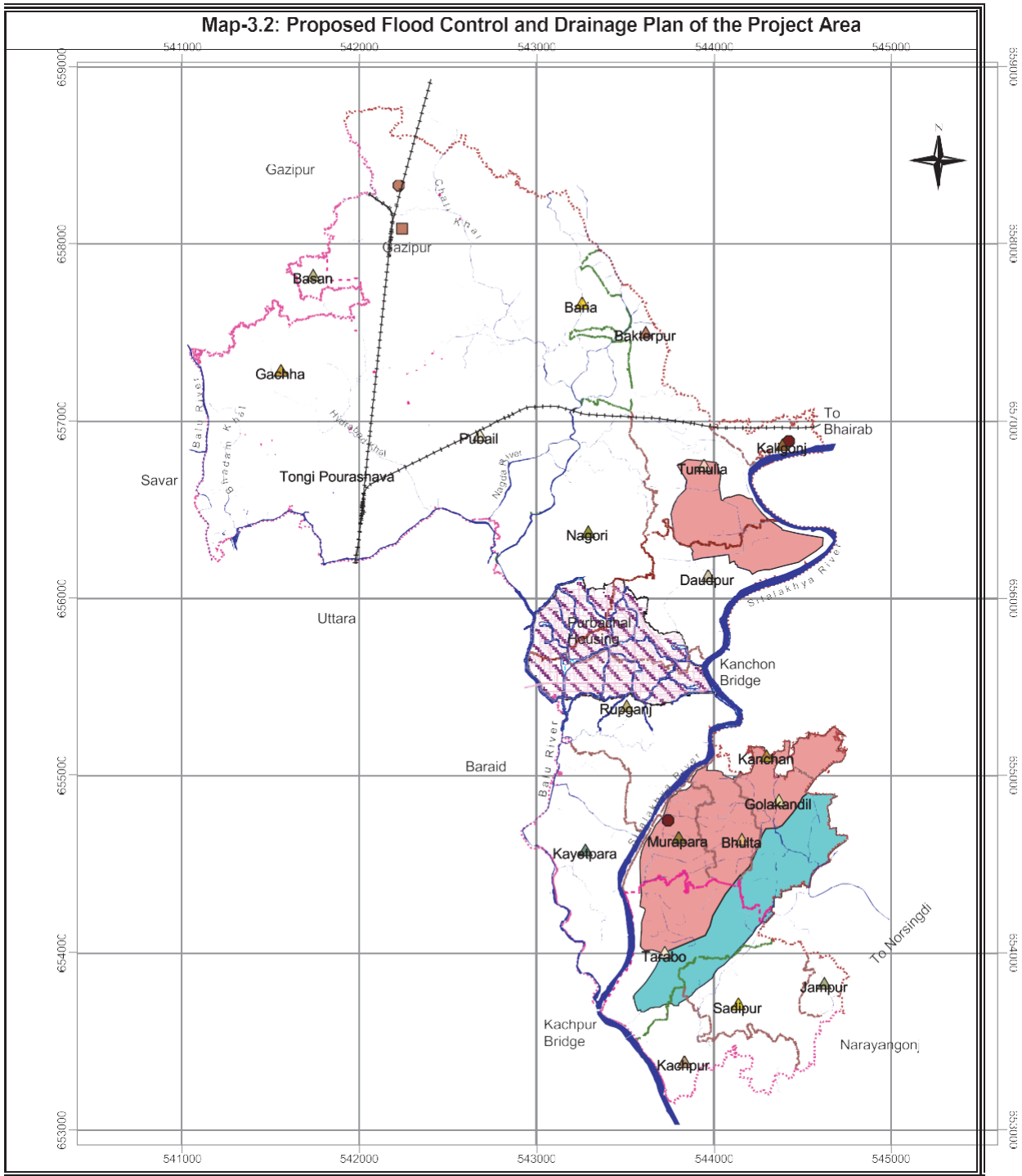


Map-3.2: Proposed Flood Control and Drainage Plan of the Project Area

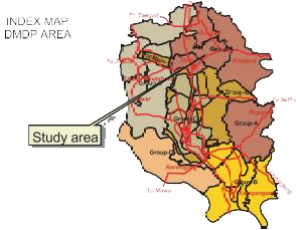


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 Divine Associates Limited

Detailed Area Plan for DMDP Area, Group-A



CLIENT
 Government of the People's Republic of Bangladesh
 Ministry of Housing and Public Works
 Rajdhani Unnayan Karttripakha (RAJUK)



LEGEND

- Admin. Boundary
- Project Boundary
- District boundary
- Thana boundary
- Union boundary
- Paurashava boundary
- Ward boundary
- Rail Line
- Union Hq
- Thana Hq
- District Hq
- Purbachal
- Waterbody
- Existing FCDI Project
- Proposed FCDI Project

NOTES

Data Source
 GPS & Total Station based advanced topographic physical feature and land use survey conducted by Development Design Consultants Ltd.

Reference Bench Mark (BM)
 * SCS (ICAK-3487 and 30E (ICAK-3489) for Latitude, Northing & Longitude Easting
 * SCS (S-54) and S-06 (S-03) for Best-fit Local (L) adjustment

Projection Parameters
 Projection System : Bangladesh Transverse Mercator (BTM)
 Spheroid : Everest 1830
 Scale Factor : 0.9996
 Central Meridian : 93 degree East
 False Easting : 500,000 Meter
 False Northing : -2000,000 Meter
 Latitude of Origin : 0 degree (Equator)
 Seven-parameters for User Defined Datum : 283.729, 735.842, 261.143, 0.0, 0.0, 0.0, 0.0, 1.0

Telephone: The main considerations for telephone standards in land development areas are the adequacy of trench sizes and clearance for underground line installation with suitable clearances to poles and wires. It virtually made no recommendations about telephone.

Gas supply: DMDP did not suggest for setting up of special standards for gas supply. The concerned company like Titas Gas Co. is applying them effectively. Demand for this service currently exceeds supply. Most gas consumption is by non-domestic users. Changing pattern of industrial distribution will therefore affect demand priorities. Densification will also increase demand pressure in established areas. Provision of community cooking facilities will be needed.

Most of the urban areas of Group-A are with Gas facilities except some slum areas, agriculture land and non-urban areas.

- More pipelines should be provided to cover the whole study area within 2015.
- CNG Gas filling stations should be expanded at Tongi to Gazipur highway and Tongi and Gazipur Pourashava area and main roadside of Kaliganj, Rupganj and Sonargaon.
- Different categories of consumers like domestic, industrial, commercial and CNG filling stations should disburse regular payment for consumption of gas through meter.

Sanitation and solid waste: Sanitation recommendations cover sewers and on-site sewerage systems. However, increasing density of development in the city will require more consideration of sustainable sanitary and sewerage systems. In established and near fringe areas, on-site systems will become increasingly difficult to provide and more expensive. In peripheral areas, slow rate of land development will be expensive in providing initial services at affordable levels.

The DMDP report addressed some issues regarding solid waste management.

These are:

- Location of collection points;
- Ease of vehicular access;
- Adequate space around container for workers engaged in disposal and cleaning;
- Well drained container base and;
- An open location visible to the public to minimize misuse of the waste.

Waste disposal facilities run by the Pourashava under solid waste management programs exist in two Pourashava areas which cover the central and core areas. There are well-established solid waste dumping sites in each of the Pourashava. The main dumping site (10.0 acres) of Gazipur Pourashava is located beside the highway in Bhurulia, north of the Pourashava area. Present dumping site is not sufficient as per information received from the conservancy department. So, the department is trying to find additional space to use it as dumping place and it is appreciated.

In Tongi, there are two solid waste dumping sites. The Meghna dumping site is located about one kilometer away from the municipal area and contains 1.5 acres only. In this dumping site, the solid waste is recycled for producing compost. In the compost plant, there are 100 sheets having capacity of producing 3 tons in each. It can produce about 60 tons fertilizer in every month. Such procedure is appreciated and proposed that **at least one solid waste recycling plant should be erected near the dumping site.**

3.1 Amenity and Urban Facility Proposals

Health: A wide range of area for health services is proposed in Pubail. The area may be developed as an agglomeration of modern and high-tech health complex. Foreign investment rather than local investment will be highly encouraged. More information is presented in the relevant DPZs.

Education: An educational zone is proposed in the north of Baria Union, extreme north of DMDP area. The area is adjacent to the institutional zone of Gazipur Pourashava. Development of public and private university including relocation of university from the central area of Dhaka will be encouraged. Detail information about this educational zone is presented in the relevant DPZ.

Recreation: Two recreational areas have been proposed in the study area, one in Daudpur and another in Pubail. In Daudpur (by the side of Sitalakkhya River) river-bases recreational facilities are proposing and in Pubail (south of the Pubail Rail Station) undulating sloping land encourages land-base recreational facilities. Detail of those recreational facilities is presented in the DPZ.

3.2 Description of the Plan

Plan proposal for the Group-A area includes various types of land uses. The Tongi, Gazipur, Kaliganj, Rugganj, Pubail and Purbachal areas are designated as future urban expansion areas of central Dhaka. It is expected that at the end of the plan period the area will accommodate about 1.5 million additional people. To meet the future requirement of circulation network and right of ways for utility provisions, roads with appropriate widths have been proposed. Proposals of land uses and infrastructures have been given dividing the whole study area into smaller parts namely Detailed Planning Zone (DPZ).

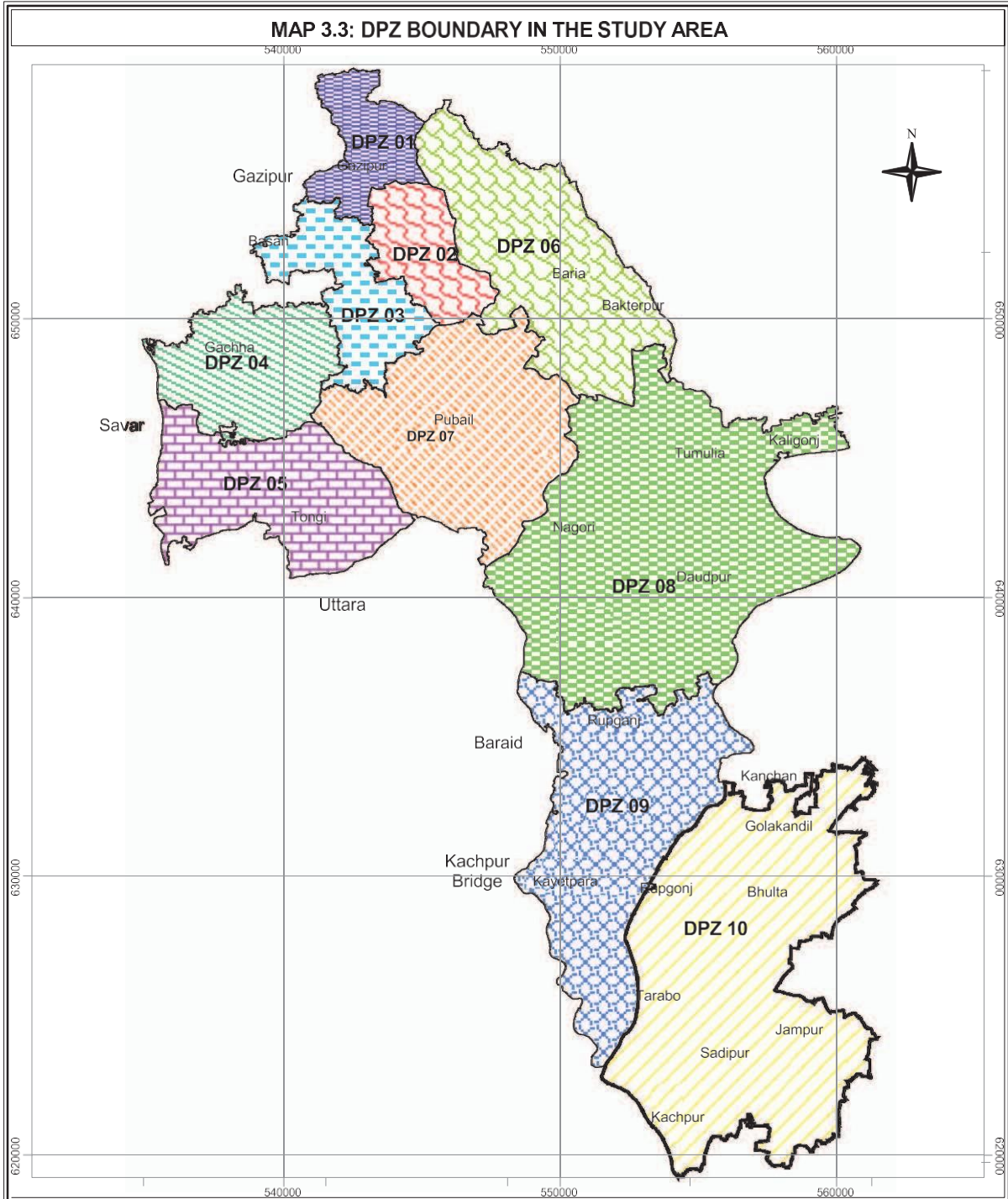
Detailed Planning Zone (DPZ)

In most cases, Detailed Area Plan does not coincide with Strategic Planning Zones (SPZs). As per instruction of ToR, SPZs are divided into different sub-planning zones (Ref.Map 1.4). Those sub-planning zones are named as Detailed Planning Zones (DPZs). Several considerations are applied in the formation of DPZ viz. Existing Urban Area (Pourashava) and New Urban Area (Union). Administrative jurisdiction is considered for the formulation of DPZ boundaries. At the same time, similar type of landuse has also been considered. These are 2 Pourashavas and 17 Unions in the study area. The Tongi Pourashava contains 12 Wards and is divided into 2 Detailed Planning Zones. The Gazipur Pourashava contains 9 Wards and is divided into 3 Detailed Planning Zones. On the other hand, there are 17 Unions which are classified into 5 DPZs. So, the study area has been sub-divided into 10 Detailed Planning Zones. The DPZs are discussed in details according to the different development issues. Physical and overall planning scenarios and proposals for future development of 10 Detailed Planning Zones are discussed below.

Guiding Principles

1. Rehabilitation of khals, excavation of new khals, building of embankments, sluices, regulators, navigation gates and excavation of retention ponds are incorporated in the Detailed Planning Zones.
2. Following recommendations on natural khals, a 20ft. reserve has been kept on both sides of the natural khals as a buffer. This buffer will be used for maintaining a green belt along the stream and for installing future underground sanitary sewer. The green belt can be a landscaped stream front with pedestrian area. It can also give emergency access for fire fighting vehicles and ambulances when needed.
3. By following drainage hierarchy, explained earlier, there should be provisions for drains on both sides of all primary roads, district roads, local roads and access roads.
4. Self-cleansing channels and drains cannot be constructed throughout the city because of its topography. Therefore, de-silting of khals at regular intervals will be necessary.
5. Some low-lying areas in the city have small or no difference in level with the water level in the adjacent khals and rivers. Raising the low-lying lands by earth filling might be an option for development of these areas.
6. Dumping of solid waste in the drains is a behavioral problem commonly observed in all the cities of Bangladesh. Massive awareness campaign is to be launched against dumping of solid waste in the drains. An incentive scheme, tagged with the payment of municipal taxes, can be thought of to encourage people to keep their surrounding drains clean and waste free.

MAP 3.3: DPZ BOUNDARY IN THE STUDY AREA



<p>CONSULTANT Development Design Consultants Ltd. 47 Mohakhali C/A, Dhaka 1212, Bangladesh Divine Associates Limited</p>	<p>Detailed Area Plan for DMDP Area ,Group-A</p>	<p>CLIENT Government of the People's Republic of Bangladesh Ministry of Housing and Public Works Rajdhani Unnayan Karttripakkha (RAJUK)</p>																				
<p>INDEX MAP DMDP AREA</p>	<p>LEGEND</p> <p>DPZ BOUNDARY</p> <table border="0"> <tr> <td></td> <td>DPZ 01</td> <td></td> <td>DPZ 06</td> </tr> <tr> <td></td> <td>DPZ 02</td> <td></td> <td>DPZ 07</td> </tr> <tr> <td></td> <td>DPZ 03</td> <td></td> <td>DPZ 08</td> </tr> <tr> <td></td> <td>DPZ 04</td> <td></td> <td>DPZ 09</td> </tr> <tr> <td></td> <td>DPZ 05</td> <td></td> <td>DPZ 10</td> </tr> </table>		DPZ 01		DPZ 06		DPZ 02		DPZ 07		DPZ 03		DPZ 08		DPZ 04		DPZ 09		DPZ 05		DPZ 10	<p>NOTES</p> <p>Data Source GPS & Total Station based advanced topographic physical feature and landuse survey conducted by Development Design Consultants Ltd.</p> <p>Reference Bench Mark (BM) * SOB (JICA)-3407 and SOB (JICA)-3469 for Latitude (Northing & Longitude/Easting) * SOB-542 and SOB-6039 for Reduce Level (RL) adjustment</p> <p>Projection Parameters Projection System : Bangladesh Transverse Mercator (BTM) Spheroid : Everest 1830 Scale Factor : 0.9996 Central Meridian : 90 degree East False Easting : 500,000 Meter False Northing : -2000,000 Meter Latitude of Origin : 0 degree (Equator) Seven parameters for User Defined Datum : 283.729, 735.942, 261.143, 0.0, 0.0, 0.0, 1.0</p>
	DPZ 01		DPZ 06																			
	DPZ 02		DPZ 07																			
	DPZ 03		DPZ 08																			
	DPZ 04		DPZ 09																			
	DPZ 05		DPZ 10																			

DPZ-01 GAZIPUR POURASHAVA WARD 01, WARD 02 AND WARD 03

The SPZ 15 includes Gazipur Pourashava only. For the necessity of detailed planning activities, the SPZ 15 has further been sub-divided into 3 Detailed Planning Zones (DPZs) as DPZ-1, 2 & 3.

Gazipur is the districts headquarter, located about 35km north of the Dhaka City. Total area of the DPZ-01 is 3247 acres. Three unions named Basan, Kaultai and Prohaladpur are included in DPZ-01. Differences of land elevation between the high land and the paddy field are generally 1.5 meter to 3.5 meter.

Table-3.8: Population projection and density of DPZ-01

	Pourashava	Area in acre		Population				Population Density per acre			
	Ward	Small Ar.Ats.of Bang.	2005	2001	2005	2010	2015	2001	2005	2010	2015
DP Z-1	Ward-1	808	818.86	7189	10583	12971	15658	9	13	16	19
	Ward-2	1664	1699.67	22002	27281	33436	40363	13	16	20	24
	Ward-3	735.05	740.59	20509	22184	27189	32821	28	30	37	44
	Total :	3207.05	3259.11	49700	60049	73596	88842	15	18	23	27

Source: Population statistics published in the B.B.S 2001.

According to the Population Census 2001, population of the DPZ-01 was 49700. An average annual growth rate (compounded) was 0.480. The projected population in 2015 is 88842.

Existing Landuse

Spontaneous urban growth is found in this DPZ concentrated around the institutions viz. Bangladesh Agriculture Research Institute, Rice Research Institute and Dhaka University of Engineering & Technology (DUET). Ordnance Factory, Security Printing Press and RAB training center are also situated here. Residential (40%), agriculture (32%) and restricted (19%) area are the major landuses in this area. Existing landuse pattern of the study area as ascertained from the field survey is presented in Table-3.9.

There are 6603 residential structures in the DPZ-01 of which 13.98% is pucca, 45.43% semi pucca and 17.39% Katcha buildings. Residential growth has widely taken place at Shibbari moar Road, Upazila Road, Chattar area, Mariali area and Bhurulia area. In these areas, unplanned and dense development has taken place along the roadsides in a series of ribbon or linear shapes, which surrounds a complex network of narrow and congested road with small lanes. Despite the high density of much new development, many opportunities exist for infill development. Due to rapid urbanization, a lot of agriculture land will be changed soon into residential use. Agriculture practice like low land rice and upland vegetable, high value cash crops, fisheries, dairy, etc. is found in the area.

Small number of manufacturing industries has developed without proper planning. There are some light and medium scale industries in this zone which contains a huge number of poultry farms, saw mills, dyeing industry, iron and steel processing industry, textile mill and rice mills in DPZ-01. Total road network in the area covered by DPZ-01 is 97.56 km. of which 43km. is pucca, 42.35 km. semi-pucca and 12.21 km. katcha.

Table-3.9: Existing Landuse of the DPZ – 1

Type of Land use	Area in Acres	Percentage (%)
Residential	1285.75	39.69
Agriculture	1029.79	31.56
Restricted Area	602.75	18.61
Water body	154.63	4.77
Transport & Communication	81.78	2.52
Education & Research	40.1	1.24
Forest Area	29.19	0.90
Commercial Activity	10.29	0.32
Service Activity	5.18	0.16
Governmental Services	4.77	0.15
Manufacturing & Processing Activity	2.13	0.07
Recreational Facilities	0.34	0.01
Open Space	0.07	0.00
Total	3246.76	100.00

Source: Landuse survey, 2006.

Major Issues and Problems

- Absence of co-ordination between various modes of public transport facilities.
- Haphazard development in urban fringe areas.
- Absence of neighborhood development in the residential areas.
- Ribbon or linear development along with the main road.
- Absence of parking facilities for the vehicles.
- Insufficiency of main traffic routes.
- Lack of sanitation and proper drainage facilities which cause environmental degradation.
- Improper grouping of the buildings causing inconvenience to the public.
- Intrusion of undesirable industries and shops into residential areas.
- Inadequate provision and distribution of the parks and playgrounds.
- Limited commuter facilities contributing to slow development.
- Construction of highrise buildings without any consideration of light and ventilation.
- Development of residential areas over new lands without any considerations for structural safety, convenience and health.

Opportunities

- The area is comparatively flood free and development cost is less.
- Accessibility to good highway communications with the rest of the country.
- There are patches of rural land in the zone, that can be developed as planned urban area.

Priority Action Required

- Adequate measure to create commuter facility with Dhaka should be created.
- Restrict linear or ribbon development along main road.
- Gazipur should be promoted as a healthy location for further institutional development.
- Spell out short-term and long-term measures for future growth of town.

- To take up adequate measures to control the future growth and development of the town.
- To attempt for an orderly, appropriate and balanced pattern of landuse.
- To develop healthy, attractive and efficient environment within the available resources.
- Continuous efforts should be made to maintain current delivery system of water supply to meet the requirement even after densification.

Detailed Area Development Proposals

Restricted area is the major concern of this zone. Improving environmental condition, controlling haphazard development and ensuring adequate urban facility is the major aim of this proposal.

Urban Residential Zone

(Implementing Agency: Pourashava/private sector/local residents/NGO)

The authority shall prepare a guided land development programme in Ward No.01 in proposed residential area. But surrounding area of Gazipur chowrasta (Ward No. 03) where the area has been developed in haphazard manner which calls for urban renewal.

Overlay Zone

The restricted areas viz. RAB training centre, Takshal, Machine Tools Factory etc. have been proposed as Overlay Zone. This area is necessary to be well defined by the boundary wall..

Flood Flow Zone

About 500 meter buffer (west side) from the Chilai Khal is recommended as flood flow zone in this region.

Mixed Use (Residential-Commercial)

Both sides of the Takshal Road have developed as residential area. In addition to residential use, a certain scale of commercial use as well as mixed used is recommended.

Waterbody

The quantum of waterbody which is more than 0.3 acres in this region, is recommended to be preserved These include khal, pond, marshland etc.

Table-3.10: Proposed Landuse of DPZ - 1

Proposed Land use Type	Area (acre)	%
Agricultural Zone	777.24	23.94
Urban Residential Zone	672.14	20.70
Overlay Zone	550.89	16.97
Non-Conforming Use	421.48	12.98
Flood Flow Zone	215.16	6.63
Proposed Road Network	193.90	5.97
Rural Settlement Zone	183.99	5.67
Mixed Use Zone (Residential-Commercial)	95.29	2.93
Waterbody	77.86	2.40
Transportation & Communication	36.02	1.11
Open Space	22.80	0.70
Total	3246.78	100.00

Drainage

(Implementing Agency: Pourashava/BWDB)

In the central part and some other areas like Chhayatoru, all access or minor roads should have drains connecting the main drain by the main road, and they should fall in the khal. The Chilai River / Khal surrounds the northern, eastern and western part of the Pourashava. It flows through the middle of the Pourashava. So, Chilai River / Khal is the main drainage channel. The plan proposes for necessary excavation of the Chilai Khal and utilization of the Railway borrow pitss as the main drainage channel. The plan also suggests for keeping all other drainage channels free from encroachment and unauthorized filling. The drainage plans are as follows:

1. Construction of pipe drain along the road from B IDC road to Chatar Chayataru road. Ch 00-501(part)

Total length 409m, size 0.305m dia

- a) Earth excavation, sand filling, etc.
- b) R.C.C Pipe laying, brick flat soling, reinforcement cement concreting, steel fabrication and fixing etc.

2. Construction of drain from Joydepur Central road Mosque to B IDC road via Munishipara.

Total length 266m, size 700mm X 950mm

- a) Earth excavation, sand filling, back filling, CC, BSF and RCC etc.

3. Construction of Rajbari roadside drain starting from Rail Crossing to ShibBari Ch00-467m

Total length 467m, size 1220mm x 680mm.

- a) Earth excavation, sand filling, back filling CC, BSF, and RCC etc.

Urban Facilities (Implementing Agency: Pourashava/Private sector/NGOs)

Various facilities are proposed in the area under DPZ-01 depending on the size of the projected population of 2015. Existing facilities and their area coverage are properly evaluated to set proposal for various amenities. Following the standards mentioned in Table-3.5, community facilities have been recommended in this zone. Table-3.11 presents the scenario of existing and proposed facilities for the DPZ-01.

At present, there is no community center in DPZ-01. Three numbers of community centers (one in every Ward) for DPZ-01 has been proposed. Those community centers should be located in the same building for Ward Commissioner's Office in every Ward. The same building may be used for clinical purposes (like Family Planning Centre, NGO clinic, etc.). Two graveyards are proposed in DPZ-1 with an area of 10.0 acres.

A park with greeneries for recreational purposes of the inhabitants has been proposed in this area with 15.00 acres of land. Three numbers of playgrounds in different locations of DPZ-01 have been proposed to facilitate sports and cultural activities of the inhabitants. The proposal covers an area of 12.748 acres of land.

Solid Waste Management (Implementing Agency: Pourashava/NGOs)

There are well-established solid waste dumping sites in Gazipur Pourashava. The main dumping site (10.0 acres) is located beside the highway in Bhurulia, which is in the north of the Pourashava area. Present dumping site is not sufficient as per information received from the conservancy department. So the department is trying to find additional space to use it as dumping place. Therefore, it is recommended that existing dumping site should be expanded.

Table-3.11: Existing and proposed urban facilities of the DPZ - 1

Types	Existing No.	Proposed No.	Area in acre (Proposed)
Bus Terminal	1	1	10.907
College	0	2	3.633
Community Center	0	3	4.543
Graveyard	0	2	10.202
Hospital	0	1	2.459
Kitchen Market	2	2	3.815
Park	0	2	17.617
Playground	0	1	1.508
Police Box	1	1	0.196
Post Office	0	2	1.168
Secondary School	6	2	2.392
Total	10	27	58

Source: DMDP Urban Area Plan (1995-2005), Volume-II, Page # 14.

Road Network Proposal

In order to promote development in a planned manner in less developed areas and to improve circulation in the built-up and semi built-up areas, a network of Primary and Secondary roads have been proposed. Within the framework of these major roads, a network of tertiary and access roads have also been proposed, which is presented in detailed map of the DPZ-01.