Chapter- 2
Critical Planning Issues

2.0 Introduction

The current chapter is about analyzing the existing development pattern of the project area. It includes such issues as residential, commercial and industrial development patterns, services facilities, and description about non-urbanized areas, infrastructure facilities and land value. It also includes population growth.

2.1 Existing Development Pattern

2.1.1 General

Development pattern of the project area shows spontaneous residential area development and linear commercial development in the eastern side of Pragati Sarani. Map-2.1 shows the pattern of spatial growth pattern in the project area.

The main characteristics of spatial growth in the project area are:

The growth usually follows major roads.

ii. Development takes place primarily in flood free lands.

iii. Housing estates have already purchased vast tracts of land. They usually choose land in low cost low lands to maximize profit and with a long term objectives of development.

ÏV. Development in general takes place in an unplanned way.

V. Most buildings with approval from RAJUK violate the approved plans.

2.1.2 Socio-economic Profile

a. Family Size

The household size in the area reflects that more than 55% households are with 3 to 4 family members. About 27% households have also been found with 5 to 6 family members, while more than 9% households have 7 to 8 family members. The national average household see is about 5.5 members/households.

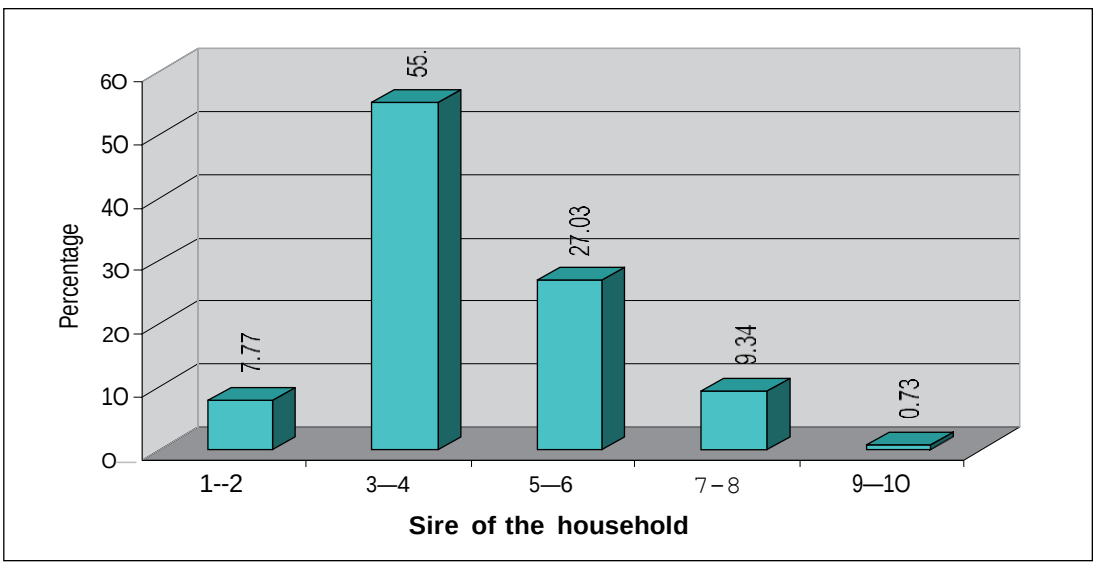

Figure-2.1: Percentage distribution of the study area population by family size

Table-2.1: Distribution of Area Wise Households by Household Size

Household size	DCC area (Part)		Other area		Total	
	No	°/»	No	%	No	%
)1-2	21	2.71	138	10.86	159	7.77
3-4	422	54.45	706	55.55	1128	55.13
5-6	194	25.03	359	28.25	553	27.03
)7-8	132	17.03	59	4.64	191	9.34
)9-10	6	0.77	9	0.71	15	0.73
Total	775	100.00	1271	100.00	2046	100.00

Source: *Household socio-economic survey, DAP for DMDP, Location-10, 2006*

Table-2.1 shows the union/municipality wise distribution of household size in the project area. The survey data presents condition in parts of DCC, Satarkul Union, Beraid Union and Bhatara Union. It has been observed that more than 54% households of DCC part, more than 55% of other areas have a household size having 3 to 4 members. Some households have been found with family members with 7 to 8 (about 17% in DCC part and 4.64% in other area).

b. Age and Sex Structure

The distribution of household population in the project area by age group and gender is shown in **Figure-2.2. It** has been found that in most of the age groups, distribution of males/females is almost close to equal. But variation has been found in the age group of 55-59. In this age group, male population is almost triple than the females (male 4.63% and female 1.64%).

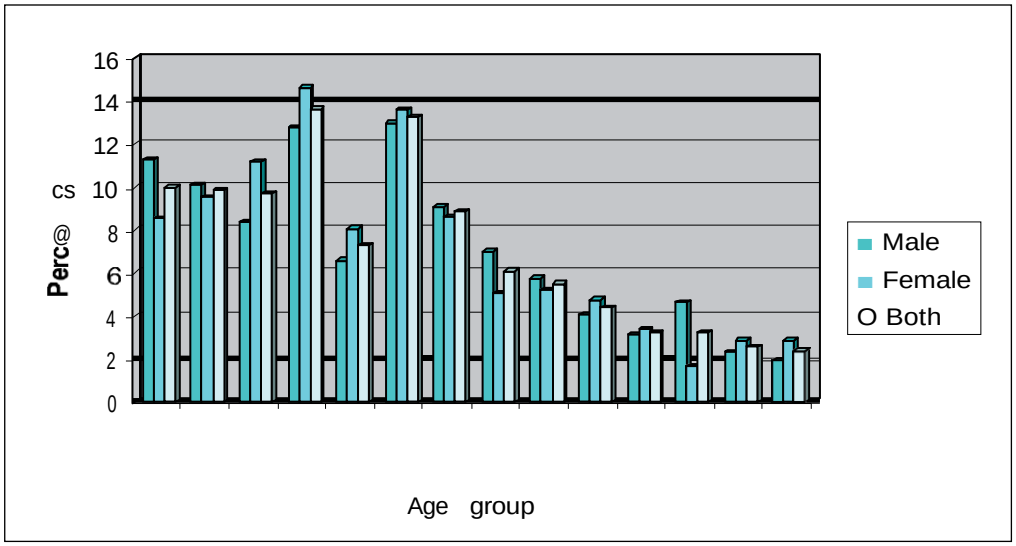

Figure-2.2: Percentage distribution of the project area population by age and gender

Table-2.2 presents the distribution of male and female population according to different age groups. About 43% of the population belongs up to 19 years of age; more than 29% belongs to age group 20-34 years, about 16% to 35-49 years. More than 9% are in age group 50-59 years and nearly 5% are of 60+ years. The age distribution of male and female populations is almost identical. However, the male population in the older age groups appears to be slightly higher compared to female.

Map-2.1: Existing Settlement Pattern of Location-10 Area

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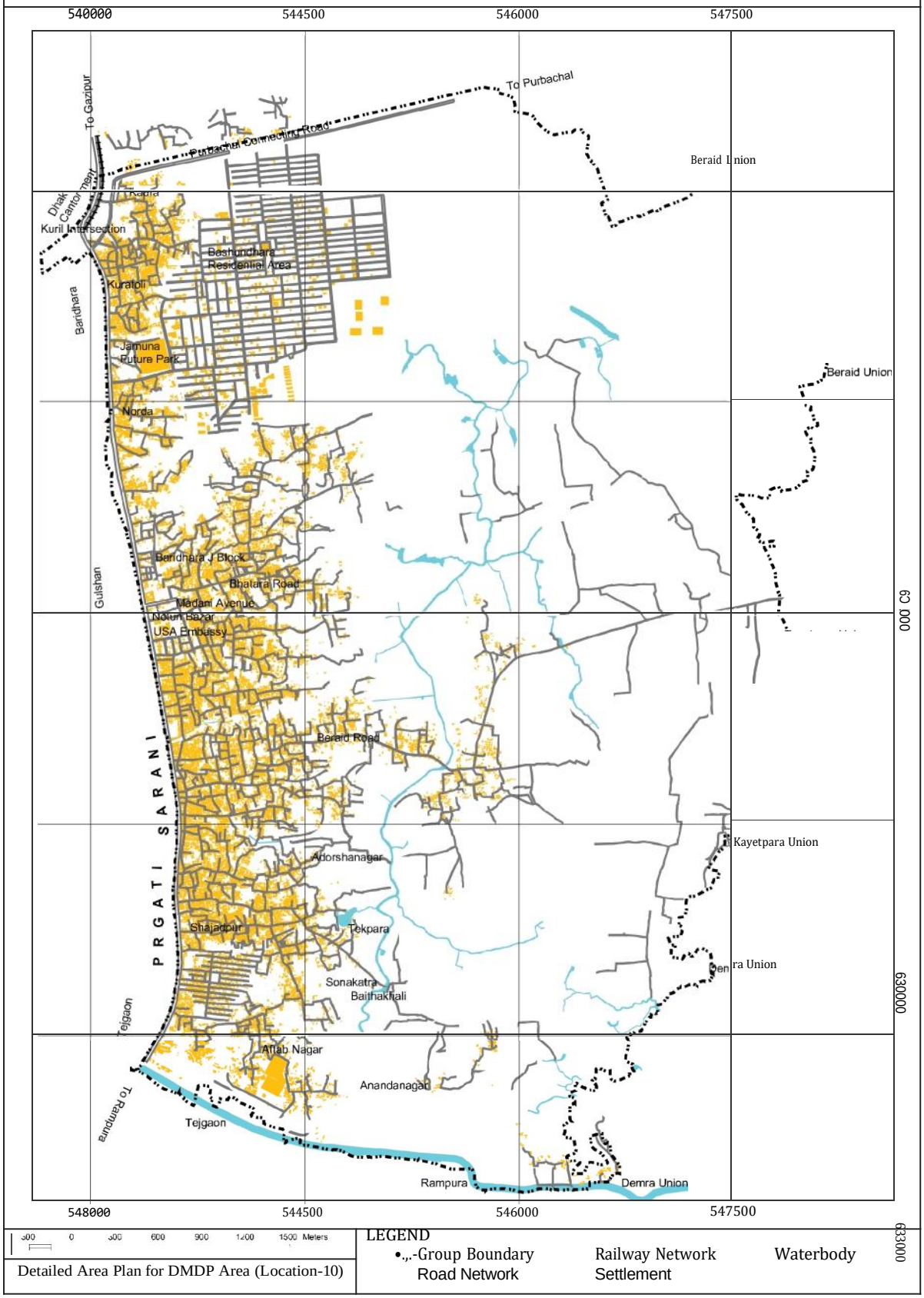


Detailed Area Plan for DMDP Area (Location-10)

LEGEND

•.,.-Group Boundary
Railway Network
Waterbody
Road Network
Settlement

Table-2.2: Distribution of the Study Area Population by Age and Gender

Age in Years	Male		Fema e		Tot l	
	'	'	'	'	N°	'
0-4	525	11.26	354	8.56	879	9.99
5-9	471	10.10	395	9.55	866	9.84
10-14	392	8.40	462	11.17	854	9.71
15-19	596	12.78	605	14.63	1201	13.65
20-24	307	6.58	334	8.08	641	7.28
25-29	606	12.99	563	13.62	1169	13.29
30-34	424	9.09	356	8.61	780	8.86
35-39	327	7.01	209	5.05	536	6.09
40-44	268	5.75	216	5.22	484	5.50
45-49	188	4.03	197	4.76	385	4.38
50-54	146	3.13	140	3.39	286	3.25
55-59	216	4.63	68	1.64	284	3.23
60-64	109	2.34	118	2.85	227	2.58
65+	89	1.91	118	2.85	207	2.35
Total	4664	100.00	4135	100.00	8799	100.00

Source- *Household socio-economic* survey, *DAP for DMDP, Location-10, 2006*

c. Religious Status

Religious composition of the population in an area has various implications for spatial planning and overall welfare of the population. Data collected through the socio-economic survey regarding religious status is given in the Table-2.3 About 88% households of the study area are belong to the Muslim community followed by Hindu (11.78%). Other religious community like Christian and Buddhist were found in a negligible number.

Table-2.3: Distribution of Area Wise Households by Religion

Religion	DCC area		Other area		Total	
	No	•/«	No	°/+	No	°/»
Muslim	742	95.74	1056	83.08	1798	87.88
Hindu	32	4.13	209	16.44	241	11.78
Buddhist	1	0.13	0	0.00	1	0.05
Christian	0	0.00	6	0.47	6	0.29
Total	775	100.00	1271	100.00	2046	100.00

Sovrce: *Household socio-economic survey, DAP for DMDP, Location-10, 2006*

d. Educational Status

Overall 14% of the total population aged 6 years or above have never attended school, and the remaining 79% have different levels of education. About 38% have completed or attended primary school, 22% have attained secondary level of education, only 8% have completed SSC and the remaining 18% have done HSC and the above level of education **(Figure-2.3).**

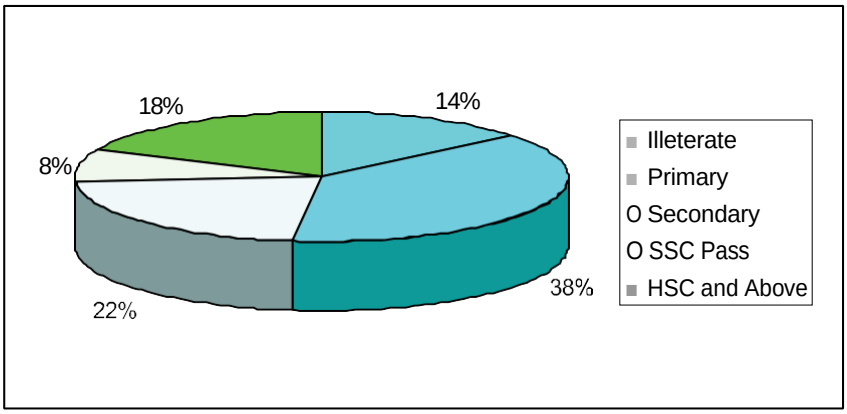


Figure-2.3: Percentage distribution of the study area population by level **of education**

The following tables (Table-2.4, 2.5) present the distributions of planning area male and female population aged 6 years or above by level of education completed or attended, according to area of residence. People with higher level of education are very insignificant in the planning area and education level is somewhat better in DCC part than in other parts of the planning area.

Table-2.4: Population of the Study Area aged 6 years or above by Level of Education

Level of education	Male		Femae		Total	
	No	%	No	%	No	Y«
Illiterate	446	10.73	619	16.63	1065	13.52
Primary	1575	37.89	1452	39.00	3027	38.41
Secondary	841	20.23	885	23.77	1726	21.90
)SSC	318	7.65	288	7.74	606	7.69
)HSC	246	5.92	229	6.15	475	6.03
Graduate	499	12.00	155	4.16	654	8.30
)Doctor	12	0.29	4	0.11	16	0.20
Masters	149	3.58	12	0.32	161	2.04
)Technical	2	0.05	7	0.19	9	0.11
)Vocational	7	0.17	1	0.03	8	0.10
)Religious	26	0.63	7	0.19	33	0.42
)Alem	2	0.05	0	0.00	2	0.03
)Others	34	0.82	64	1.72	98	1.24
Total	4157	100.00	3723	100.00	7880	100.00

Source: Household socio-economic survey, DAP for DMDP, Location-10, 2006

Table-2.5: **Percentage of** Population **Aged** 6 years or above **by Level of** Education

Education	DCC area			Other area			Study area		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	Female	Total
Illiterate	11.90	22.83	16.91	9.82	12.22	10.98	10.73	16.63	13.52
Primary	27.25	23.87	25.70	46.21	49.75	47.92	37.89	39.00	38.41
Secondary	16.28	20.31	18.13	23.32	26.23	24.72	20.23	23.77	21.90
SSC	7.13	10.09	8.49	8.06	6.06	7.10	7.65	7.74	7.69
HSC	5.32	12.29	8.52	6.39	1.79	4.17	5.92	6.15	6.03
Graduate	23.03	7.44	15.88	3.39	1.84	2.64	12.00	4.16	8.30
Doctor	100.00	0.13	0.24	0.26	0.09	0.18	0.29	0.11	0.20
Masters	6.69	0.00	3.62	1.16	0.55	0.86	3.58	0.32	2.04
Technical	0.11	0.00	0.06	0.00	0.32	0.16	0.05	0.19	0.11
Vocational	0.00	0.00	0.00	0.30	0.05	0.18	0.17	0.03	0.10
Religious	0.16	0.06	0.12	0.99	0.28	0.64	0.63	0.19	0.42
Alem	0.00	0.00	0.00	0.09	0.00	0.04	0.05	0.00	0.03
Others	1.81	2.98	2.34	0.04	0.83	0.42	0.82	1.72	1.24
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: *Household socio-economic survey, DAP for DMDP, Location-10, 2006*

About 90% of other area (outside DCC) male population has some level of education against 88% of DCC part male population. On the other hand, 88% of other area female population has some level of education against 77% of DCC part female population.

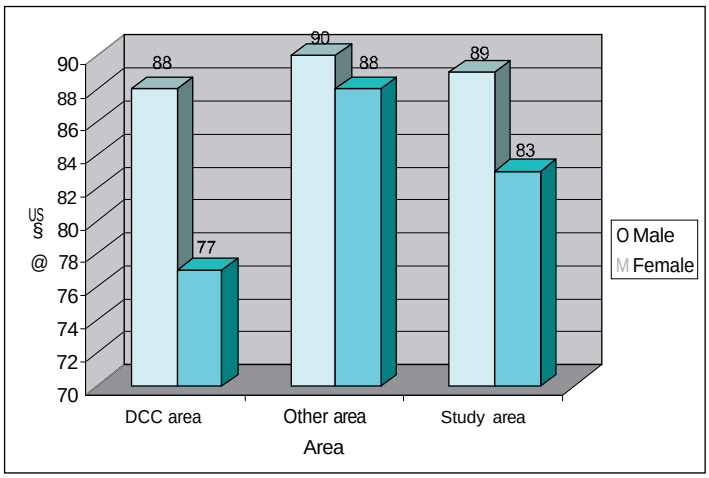


Figure-2.4: Union wise percentage distribution of literacy by sex in the study area

e. Occupation/Employment Pattern

Occupational pattern of population of the project area shows that most people are engaged in urban based jobs and businesses. About 24% is either underage or students and about 29% involved in household works. About 36% is engaged in some sort of income activities and 11% unemployed. About 10% work in government/private/autonomous organization, 6% involved in business, 10% day labours and 1% land owner farmers. The remaining 9% is involved in other activities like industrial labouring, skilled/unskilled professional works, etc. **(Figure-2.5).** Union/municipality wise occupational pattern of the population according to gender is given in Table-2.6

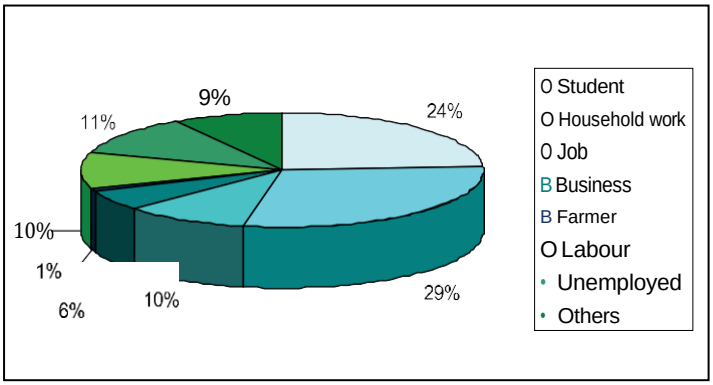


Figure-2.5: Percentage distribution of the study area population by occupation

Table-2.6: Distribution of the Study Area Population by Gender and Occupation

Category	Male		Female		Total	
	No	%a	No	%	No	%
SelfEmployed	47	1.13	13	0.35	60	0.76
Govt./Autonomous	230	5.53	14	0.38	244	3.10
PrivateCompany	426	10.25	78	2.10	504	6.40
Business	440	10.58	26	0.70	466	5.91
NGOWorker	2	0.05	18	0.48	20	0.25
Rickshaw/VanPuller	199	4.79	0	0.00	199	2.53
MotorDriver	96	2.31	0	0.00	96	1.22
SkilledMechanics	154	3.70	0	0.00	154	1.95
IndustrialLabour	70	1.68	28	0.75	98	1.24
DayLabour(Non-farm)	379	9.12	16	0.43	395	5.01
LandOwnerFarmer	52	1.25	0	0.00	52	0.66
Sharecropper	3	0.07	0	0.00	3	0.04
DayLabour(Agri.)	236	5.68	10	0.27	246	3.12
HouseholdWorks	24	0.58	2284	61.35	2308	29.29
Unemployed	494	11.88	361	9.70	855	10.85
Student	1093	26.29	813	21.84	1906	24.19
DayLabour	42	1.01	12	0.32	54	0.69
Others	170	4.09	50	1.34	220	2.79
Total	4157	100.00	3723	100.00	7880	100.00

Source: *Household socio-economic survey, DAP for DMDP, Location-10, 2006*

f. Income **and** Expenditure **Levels**

Monthly household income and expenditure indicate socio-economic status of the households. This also allows to examining the household saving rate. Here, income means income of a household for a month from all sources, such as production, property, salary and business; and expenditure means the amount of money that a household spends for all types of consumptions. Table-2.7 and 2.8 show that the households with monthly income of more than Tk. 6000 spend less and these households are able to save some money. But the situation is opposite among the low income households.

Table-2.7: Distribution of Area Wise Households by Monthly Household Income

Level of income	DCC area		Other area		**Total**	
	No	°/+	No	%	No	o/„
0-1500	1	0.13	0	0.00	1	0.05
1501-2500	2	0.26	18	1.42	20	0.98
2501-3500	30	3.87	277	21.79	307	15.00
3501-4500	52	6.71	240	18.88	292	14.27
4501-5500	129	16.65	166	13.06	295	14.42
5501-6500	74	9.55	154	12.12	228	11.14
6501-8000	124	16.00	164	12.90	288	14.08
8001-10000	105	13.55	120	9.44	225	11.00
10001-12000	44	5.68	20	1.57	64	3.13
12000+	214	27.61	112	8.81	326	15.93
Total	775	100.00	1271	100.00	2046	100.00

Source: Household socio-economic survey, DAP for DMDP, Location-10, 2006

Table-2.8: **Distribution of Area wise Households by Monthly Household Expenditure**

Level of income	DCC area		Other area		Total	
	No	°/+	No	%	No	°/+
0-1500	0	0.00	1	0.08	1	0.05
1501-2500	6	0.77	43	3.38	49	2.39
2501-3500	96	12.39	451	35.48	547	26.74
3501-4500	116	14.97	274	21.56	390	19.06
4501-5500	179	23.10	112	8.81	291	14.22
5501-6500	87	11.23	165	12.98	252	12.32
6501-8000	82	10.58	104	8.18	186	9.09
8001-10000	77	9.94	68	5.35	145	7.09
10001-12000	14	1.81	19	1.49	33	1.61
12000+	118	15.23	34	2.68	152	7.43
Total	775	100.00	1271	100.00	2046	100.00

Source- *Household socio-economic survey, DAP for DMDP, Location-10, 2006*

More than 30% households have monthly income within Tk. 4500, while 50.64% households have monthly income between Tk. 4501 and Tk. 10,000, and more than 19% have monthly income more than Tk. 10,000. As regards monthly expenditure, about 49.24% household expends Tk. 4500 or less, about 42.72% are able to spend Tk. 4501 to 10,000, and rest 9.04% spends more than Tk. 10,000 for a month.

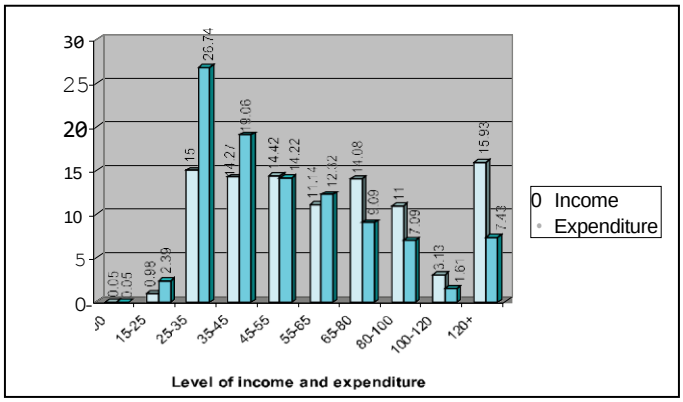


Figure-2.6: Percentage of the Study Area Household by Income and Expenditure

A study (1996) sponsored by Planning Commission and ADB set poverty line for the poor at monthly income/expenditure at Tk. 3500. Taking into account of inflation and cost of living, if current poverty level is set at Tk. 4500, then about 30% households of the study area will be below the poverty line in terms of cash income.

Table-2.9: Distribution of Households by Monthly Household Income and Expenditure

Level of income	Income		Expenditure	
	No	%	No	%
0-1500	1	0.05	1	0.05
1501-2500	20	0.98	49	2.39
2501-3500	307	15.00	547	**26.74**
3501-4500	292	14.27	390	**19.06**
4501-5500	295	14.42	291	**14.22**
5501-6500	228	11.14	252	**12.32**
6501-8000	288	14.08	186	9.09
8001-10000	225	11.00	145	7.09
10001-12000	64	3.13	33	1.61
12000+	326	15.93	152	7.43
Total	2046	100.00	**2046**	**100.00**

Source: *Household socio-economic survey, DAP for DMDP, Location-10, 2006*

g. Source of Income

Table-2.10 shows union/municipality wise households by sources of income. From the survey, it has been revealed that a household receives income from more than one source. In the planning area, daily wage accounts for more than 32% of all household income, followed by salary (27.58%), business (18.09%) and agriculture (6.28%). About 15.55% households also derive income from some other sources, like property, house rent, livestock, fisheries, handicrafts, remittance etc. and livestock.

Table-2.10: Distribution of Area wise Households by Sources of Household Income

Source of income	DCC area		Other area		Total	
	No	%	No	%	No	"/»
Salary	411	32.88	336	23.05	747	27.58
Property	62	4.96	7	0.48	69	2.55
Houserent	26	2.08	73	5.01	99	3.66
Business	225	18.00	265	18.18	490	1B.09
Dailywage	368	29.44	512	35.12	880	32.50
Agriculture	16	1.28	154	10.56	170	6.28
Livestock	0	0.00	3	0.21	3	0.11
Fisheries	2	0.16	8	0.55	10	0.37
Handicrafts	1	0.08	0	0.00	1	0.04
Remittance	80	6.40	70	4.80	150	5.54
Others	59	4.72	30	2.06	89	3.29
Total	1250	100.00	1458	100.00	2708	100.00

Source: *Household socio-economic* survey, *DAP for DMDP, Location-10, 2006*

h. Migration

Following graph (Figure-2.7) shows the status of migration in the study area. The household socio-economic survey reveals that about 40.81% of the households are local residents and about 59.19% are migrated from different parts of the country.

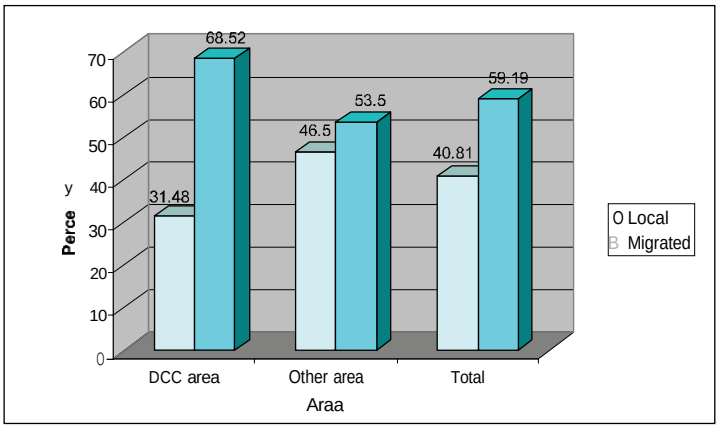


Figure-2.7: Area wise percentage of migration status

2.1.3 Land Use

a. Residential Areas

Residential settlements are normally found in areas of higher elevation following linear pattern along side the Pragati Sarani and along the internal roads. Badda, Bhatara and Joar Sahara areas, close to Pragati Sarani are the most populous parts of the planning area. In most areas new residential developments are coming up spontaneously which make provision of services difficult. A little over 19 percent of the planning area is occupied by residential land use. A vast tract of land towards periphery remains vacant because of lower elevation of lands that get flooded during monsoon as well as due to non-existence of road infrastructure. As a result development is costlier in these areas that involve large scale land filling. Large and small commercial developers and individual land developers are the main actors of land development in these areas. They are carrying on land development by filling up low lands and construct buildings with heavy structural foundations that make development costlier.

The planning area is the extended part of the main Dhaka City. It is experiencing rapid development pressure due to its location close to major thoroughfare and close to city's activity areas. Residential is the dominating land use in the area. About 19% of the study area is occupied by residential use including rural homesteads. It has been found that DCC part occupies about 63.45% of residential land followed by Satarkul Union 25.34%, Demra Union 9.61% and Beraid Union 1.59%.

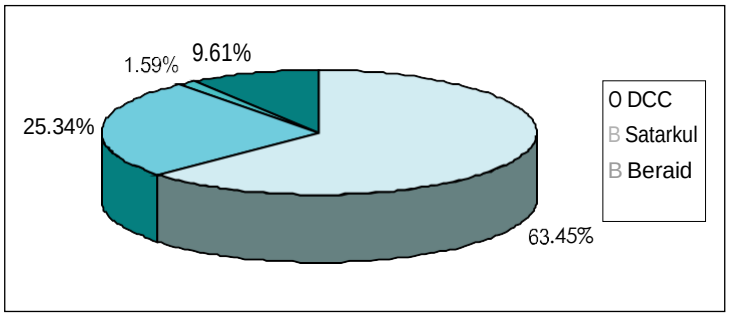


Figure-2.8: Union/municipality wise percentage of residential land use

b. Industrial Areas

The size of industrial land use is not significant. They follow along the roads taking a linear shape. There are different categories of industries. A few numbers of garment and knit wear factories have been found in the built up area, while large number of furniture making and other small scale home manufacturing and processing units exist in the interior where rent is low. However, the total coverage of all categories of industries is only about 106.79 acres that is very much insignificant compared to the total planning area. The main industrial agglomerations are observed in Badda, Satarkul and Bhatara mouzas. Commercial developments are found mainly along Pragati Sarani.

c. Commercial Areas

Commercial area occupies only 77.13 acres of land constituting 1.35% of the total area. Commercial areas mainly include road side shops, bazaars and shopping complexes. Except two kitchen markets, all commercial spaces are scattered. Concentration of commercial use is more prominent in (69.73%) in DCC part, because this is the most urbanized part of the study area, while Satarkul Union covers 30.27% of commercial spaces. No commercial spaces have been found from the land use survey.

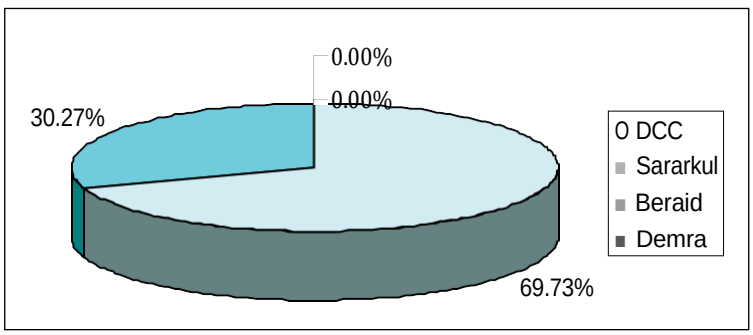


Figure-2.9: Union/municipality wise percentage of commercial land use

d. Amenities and Urban Facilities

It is ascertained from the study that there is serious shortage of play field and park for local level active and passive recreation. Absence of open space particularly affects children and the adolescent classes in terms of growth of their body and mind. Adolescents devoid of playing areas are often found to get involved in drug addiction and anti social activities. A variety of uses like bank, health facilities, power sub station, treatment plants, engineering workshops, hotel, restaurant, police, fire brigade and like are included in service category of land use that occupy 8.58 acres of land in the planning area.

e. Non Urbanized Area

Within the planning area major land coverage is non-urbanized. They are either low lying vacant land or belong to agriculture, and or water body. Non-urbanized land constitutes over 65 percent of the total planning area. So there are still vast opportunities for urban expansion in the area. But urbanization has to proceed with land filling to raise it above flood level which is costlier. Vacant lands are mostly fallow lands where no agriculture works are done due to indiscriminate land filling and for want of irrigation water after the monsoon.

2.1.4 Infrastructure

a. Circulation Network

The planning area lies on one of the most important north-south road (Pragati Sarani) connecting Dhaka City with north-eastern districts. Apart from Pragati Sarani, most of the roads of Location-10 area have been developed spontaneously through community initiative. A good proportion of roads are bituminous (45.58%) that have mainly been developed in DCC areas. Over 35 percent of the planning area roads have been found katcha or unpaved which exist in the areas outside DCC. The most important problem of roads is that they are very narrow and tortuous that makes movement of vehicles difficult. The area is connected with Gulshan-1 and Gulshan-2 with east-west collector roads.

b. Utility Services

i. Electricity

Electricity covers almost all part of the study area. High voltage towers and transformers are distributed evenly in all unions. Only 8 numbers of national power grid poles are found from the survey.

ii. Water Supply

Dhaka WASA is again responsible to supply water within its jurisdiction in the study area. The socio-economic survey revealed that about 44% have the access to water supplied by WASA. Others used tube well as the main source of drinking water supply all over the study area. No overhead tank and no deep tube well have been found in the study area from the physical infrastructure survey.

iii. Gas Supply

Titas Gas is responsible to supply gas in the Location-10 area. Gas supply is available in most part of the project area.

iv. Sewage Disposal

Provision of sewerage system is concerned with the activities of municipality. In Dhaka Metropolitan Area, it is the responsibility of Dhaka Water Supply and Sewerage Authority (WASA). About 7.84 km of sewerage system has been identified within the jurisdiction of WASA in the study area. DCC part covers maximum part of the sewerage system (5.66 km), while Satarkul Union covers only 2.18 km

v. Drainage

Before the urban invasion started in the planning area, there was a natural drainage system in the planning area that drained out the excess rain water during monsoon and saved the area from flooding. Almost entire planning area is without any man made drainage network, while rapid urban growth is being taken place everywhere. This is posing a serious threat to new settlements by water logging. Since most natural drainage systems are being filled up by new land owners. As a result rainwater will become clogged at certain places causing water stagnation and flooding. There is no drainage development plan for the planning area undertaken by LGED or Water Development Board. Local drainage is hampered due to non-existence of urban local government. With the rapid urbanization some of the natural drainage systems have already been filled up by new developers, at other places the land owners by the side of state owned water courses encroached into the drainage system. This tendency has caused the drainage network to squeeze down reducing their capacity to drain out enough water. Many of these natural drainage system still exist which must be protected to save the area from flood vulnerability.

vi. Solid Waste Disposal

Because of their particular consumption and production pattern the urban land uses produce more waste than rural land uses. As there is no urban local government (except ward no. 17, 18 and 21) these wastes are littered almost everywhere polluting the environment. There is no dumping site or transfer station, as a result waste is dumped everywhere.

2.1.5 Land Ownership and Land Value

a. Land Ownership

The socio-economic survey shows that more than half of the people live in rented houses. These constitute usually the lower middle income people.

Table-2.11: Area wise Households by Type of Living Pattern

Type of Living	DCC Area		Other Area		Total	
	No	%	No	%	No	%
Own	244	31.48	591	46.50	835	40.81
Rental	506	65.29	674	53.03	1180	57.67
Sublet	24	3.10	1	0.08	25	1.22
Others	1	0.13	5	0.39	6	0.29
Total	**775**	**100.00**	**1271**	**100.00**	**2046**	**100.00**

Source: *Household socio-economic survey, DAP for DMDP, Location-10, 2006*

From the **Table-2.12** it can be seen that individual house ownership is comparatively high in the area as people find lands in this area at a lower price compared to city's inner areas.

b. House Ownership Pattern

It is usual that most of the households have own homesteads in rural areas, which is comparatively low. In urban areas significant portion of the people are migrants from rural area who come for higher income and better quality of life.

It has been observed that the study area is mix of urban and semi-urban features and the socio-economic household survey shows that almost over 99.29% households have their own homesteads either individually or jointly (**Table-2.12**).

Table-2.12: Distribution of Area wise Households by Type of ownership of Homestead

Type of ownership	DCC area		Other area		Total	
	No	%	No	%	No	%
Individual ownership	216	88.16	576	96.64	792	94.17
Joint ownership	28	11.43	15	2.52	43	5.11
Unauthorized occupier	1	0.41	5	0.84	6	0.71
Total	**245**	**100.00**	**596**	**100.00**	**841**	**100.00**

Source: *Household socio-economic survey, DAP for DMDP, Location-10, 2006*

Household survey shows that more than 79% of the families owned landed property through the law of inheritance. About 12.72% became owner of land by means of purchase, while 5.47% received their land by means of gift. **Table-2.13** gives the detail about the source of homestead ownership.

Table-2.13: Area wise Households by Sources of Ownership of the Homestead

Source of ownership	DCC area		Othe		Tota	
	No	%	No	%	No	%
Inheritance	133	54.29	535	89.77	668	79.43
Purchase	71	28.98	36	6.04	107	12.72
Gift	28	11.43	18	3.02	46	5.47
Others	13	5.31	7	1.17	20	2.38
Total	245	100.00	596	100.00	841	100.00

Source: Household socio-economic survey, DAP for DMDP, Location-10, 2006

Type of dwelling houses and structures not only indicate the socio-economic level of the inhabitants, but also show the level of development in the area. **Figure-2.10** shows that 57% live in rental houses and 41% live in there own houses. Another 2% somehow managed their dwellings. Detailed ownership pattern of dwelling houses is given in **Table-2.12.**

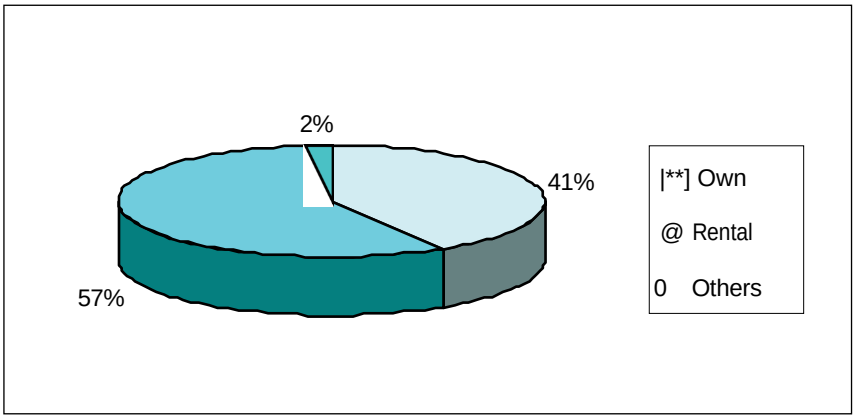


Figure-2.10: Percentage of household by living type in dwelling houses

Table-2.14: Area wise households by type of living in the dwelling houses

Type of living	DCC area		Other area		Total	
	No	%	No	%	No	%
Own	244	31.48	591	46.50	835	40.81
Rental	506	65.29	674	53.03	1180	57.67
Sublet	24	3.10	1	0.08	25	1.22
Others	1	0.13	5	0.39	6	0.29
Total	775	100.00	1271	100.00	2046	100.00

Source: Household socio-economic survey, DAP for DMDP, Location-10, 2006

2.2 Expected Development

2.2.1 Population

There is a rapid trend of urbanization in the western part of Location-10. Future population projection shows, a high growth of population in Location-10 area. Current population growth and increased density give evidence to this. Current gross density of the area is 33 persons per acre and net density is 287 persons per acre. Future projected population has bean compared in the following table with population of 2001. The projection shows that by the year 2015 the population of Location-10 area will be about 14 lakh. About 34% of the population groMh will take place in Badda and Bhatara mauzas. Please see Table-2.15.

Table- 2.15: **Projected Population** and **Household**

Ward/Union	Name of the Mauza	BBS Population		Projected Population (r = 13.24°/«)	
		1991	2001	2010	2015
Bhatara (part)	Bhatara	36274	73032	223555	416211
Badda (part)	Badda(part)	15493	71811	219818	409253
	Satarkul	6195	7504	22970	42765
Satarkul (part)	Sutibhola	1448	17049	521B8	97163
	BaraKathaldia	1145	1121	3431	6389
Ward no.21(part)	JoarSahara	0	44273	135522	252313
Ward no.17(part)	Badda(Part)	11778	36777	112577	209593
Ward no.18(part)	Badda(Part)	1000	2622	8026	14943
Total		**73333**	**254189**	**778088**	**1448629**

Source: BBS, and Compiled by Consultants

2.2.2 Economic Activities

The current socio-economic survey shows a significant number of people either jobless or has no contribution to GDP (involved in household work). 9.5% people are service holders in Government and private companies. More than 6 % people are engaged in some sort of business or entrepreneurship. So economic activities are very low in the project area. More employment opportunities are immediate needs for the area. Despite unemployment, there is a trend of growing economic activities in the area. In the built up parts, retail shops are coming up along major roads. Also include workshops for furniture making and knitwear manufacturing. These activities are creating new job opportunities. As a developing fringe, regular employments are being created in the construction sector, as new buildings are coming up in vacant plots. Real estate developers have already penetrated into this mixed income area as land for development is gradually shrinking in the city core areas leading to soaring prices.

2.2 Development Problems

Substantial part of the project area is devoid of infrastructure required to serve this rapidly growing suburb of mega Dhaka. The area is particularly deficient in physical infrastructure, like, standard road network, piped water supply, drainage and waste management. Following is a brief description of available social and physical facilities in the area.

2.2.1 Hydrology (Drainage and Flooding)

The drainage system in the project area can be classified into two types. One is the **natural drainage** system that has emerged as a natural process following the natural slope of the ground and khals. The other is the man-made drainage system that is provided by the municipal/LGED or any other local government to drain out the domestic wastewater from the houses and storm water. Man made drainage system is usually built as underground storm sewer beneath the road. Most new roads in the built up areas have such drainage system.

Flooding is a common phenomenon in Location-10 area. As there is no flood protection measure along this side of Dhaka, the area becomes flooded during every flood hazard (Flood 1988, 1998 and 2004). A vast tract of land is inundated every year due to lesser elevation.

Scarcity of Flood Free Land

The average elevation of Location-10 gives evidence of low lying characteristics of the area. As a result the area is flooded every year during the rainy season. Substantial land filling will be required for the area development. Construction of eastern embankment will provide flood free land for development when implemented.

2.3.2 Geological Fault

Geo-physical conditions are not favorable for vertical expansion. Rampura Fault on Begunbari-Jirani Khal make the planning are vulnerable to settlement due to unpredictable earthquake.

Development control should be exercised in these areas based on Building Construction Rules 2008 and Bangladesh National Building Code (BNBC) 2006 to avoid any possible disaster due to earthquake. Geological fault lines have been considered in DAP and development restriction in fault line areas would be followed as stated in DMDP Urban Area Plan Volume-II, (Part-3, Interim Planning Rules), page # 2. It has stated that ***"Structures above 2 storeys situated within 500 meters of a known geological fault is not allowed unless built to the BNBC standards for Seismic Zone 3 (BNBC Section 6 Chapter 2, 2.5)".*** Information about fault line has been mentioned in **Chapter-1.**

2.3.3 Spontaneous Development

Some major land filling projects have been undertaken within the project area. Haphazard land filling increase the frictional surface and further reduce the velocity of flow. As a consequence, it creates the problems of drainage congestion especially during the rainy season. Land grabbers are filling the natural drainage channels and khals not keeping in mind about the drainage congestion. This illegal land filling is aggravating the situation.

Indiscriminate and unplanned growth of settlements and shelters is a major problem for having livable environment. Settlements are developing in remote areas devoid of adequate basic services including road network. Development is taking place in areas without having any standard road, for example, narrow and zig zag roads. Development is taking place in low lying areas.

Development control function is very poor in the project area. With present capacity RAJUK cannot oversee or pro-act to guide and steer development in desired areas of urban expansion.

No Initiative for Retention Pond

Retention ponds are proposed to keep the urban area free from internal drainage congestion. These retention ponds will contain the rain water until they are pumped to natural drainage channels. But no initiative was taken before DAP to demarcate the exact location of retention ponds.

Encroachment to Flood Plain from Outside

Immediately after the major flood of 1988, to protect Dhaka City from inundation "The Greater Dhaka Flood Control Committee" was established. But no proposal was implemented in the eastern fringe area. As a result these areas suffer from regular flooding (for example in 1998, 2004) etc.

Blockage of Storm Water Drainage

Water logging is a common problem in the project area. Indiscriminate land filling is rapidly aggravating the situation. The Dhaka Structure Plan's "Rural and Spatial Area (RS) Policy" RS/5- Flood Retention Ponds says that Flood retention ponds need to be designed to reduce the intensity of local flooding within the protected areas and to reduce pumping requirements, and as such, are an integral part of the proposed flood protection schemes.

2.3.4 Transportation

a. Road

The entire area lacks systematic and planned road network. No road network plan was ever drawn up for this high intensity development area. As a result narrow and unplanned meandering roads have been developed spontaneously by the community efforts. If this trend continues then there will be no scope for future intervention. Due to high demand for land by a fast growing economy, rapid development is taking place in the area without considering the suitability of road network and quality. Since the investors have little or no option, they are forced to choose lands on narrow and low standard roads. Narrow and meandering roads pose impediments to smooth movement of vehicular traffic.

b. Transportation Problem versus Urban Land Use

The plan would not be successful if there is no balance between landuse and transport planning. Many of the transportation problems are emanating from the conflict with the landuse. It is found that congestions are created due to the landuse along the side of the major roads. More over, linear development along the major road substantially reduces the efficiency of a road. Roads are also constructed with complete disregard to the projected generation of

trips. Conflicting land uses also result in unnecessary congestion which could be otherwise avoided. Commercial landuse should not be allowed along the major roads as they generate traffic and consequently congestion.

2.3.5 Amenities and Urban Facilities

a. Active and Passive Recreation

Active Recreation

Active recreational facilities furnish opportunities for the physical growth of body by actively engaging muscles in various games. Playground, stadium and playing fields offer active type of recreation. The demand for playgrounds in recent time has greatly increased due to the rapid development of organized athletic games. Specific problems of active recreational facilities are summarized below:

i. Absence of City level open space;
ii. There exist no park;
iii. Play fields are rare

Passive Recreation

Passive recreational facilities are provided to meet needs of fresh air and enjoyment of the unspoiled nature. In congested city areas, it is not possible for the inhabitants to secure this type of recreation and therefore, the parks should invariably be provided for the benefit of such people. Thus the open spaces in the form of parks furnish the passive type of recreation. Specific problems of active recreation facilities are summarized below:

i. No central auditorium with modern facilities
ii. No city level community center;

b. Educational Facilities

i. Fallowing the education to includes probates.
ii. No public or private university
iii. No medical college
iv. No national level school/college

c. Market Facilities

No hat or bazaar has been found in the study area formally provided by authority. Only two small daily kitchen markets have been found in Badda and Satarkul area.

d. Community and Urban Facilities

The quality of life in any urban centre depends upon the availability of and accessibility to quality social infrastructure. Community facilities, which are indicated at the layout plan level in various use zones. Together, these include social Infrastructure facilities pertaining to health, education, sports facilities, socio-cultural activities, communications, security and safety, and other community facilities pertaining to recreation, religious activities, social congregations and community events, cremation/ burial grounds etc. These are generally planned in terms of population norms with stipulated permissibility conditions and development controls. Problems of community facilities are summarized below:

i. Graveyards and cremation grounds are inadequate
ii. At places religious facilities do not cater to the growing needs of the community
iii. General shortage of modern Community Centre facility
iv. Street light facilities should cover entire urban areas and rural settlement areas as well.
v. Hospital facility in both public and private sector is inadequate.
vi. There is no specific location for waste disposal

2.3.6 Environmental Concern

The plan will have positive environmental impacts as there will be remarkable improvement in the physical environment. Planned and systematic development of infrastructure and urban services and facilities would facilitate creation of improved urban environment. Drainage system it developed according to the plan recommendations will reduce flood vulnerability in the low lying parts of the study area,

a. Flood Flow and Water bodies

There are plenty of water bodies like pond, ditch, marshy land and khal in planning area. With urbanization and industrialization through this project, many ponds and ditches will be lost due to land filling by the owners caused by increasing land value.

b. Pollutions

As the area is still at developing stage and there are not too many industries in the area, pollution is yet to emerge as an environmental problem.

c. Loss of Bio-diversity

Urbanization like roads, infrastructure development, housing, commercial places, industrialization, etc; are fast replacing the green natural environment by man made environment. Trees are being cut down, water bodies filled up and polluted; birds and fishes disappear with lose of habitats resulting in big loss to biodiversity.

d. Potential Hazards

Groundwater is replenished or recharged through surface water seeping from lands surface, streams or lakes into the ground or through precipitation percolating into the ground. For the groundwater table to stay at the same level, the amount of recharge must equal the amount of discharge. It is reprehensible that vested quarters or groups all over the planning area make offence by diminishing the arable lands, grabbing lands by filling low lying areas, encroaching rivers, lakes, khals, etc. It is worth mentioning that urbanization poses a threat to groundwater supply. Indiscriminate urban development increases the amount of impervious (nonporous) surface in a watershed. Impervious surface inhibits groundwater recharge because precipitation cannot penetrate the surface. As a result, groundwater is being gradually depleted. There is a concern that if soil is contaminated or surface runoff is polluted, the quality of the groundwater will also be affected. Polluted groundwater and/or a diminished supply of groundwater are of particular concern where groundwater is the major source for drinking and irrigation water. With the growing industries of various kinds the risk of ground water pollution in the planning area is increasing fast.

e. Controlling Instruments

There are several laws and regulations by which the respective authorities could play vital role in controlling the unplanned development in the planning area. They are as follow:

i. Town Improvement Act, 1953
ii. Dhaka Master Plan, 1959
iii. Dhaka Metropolitan Development Plan, 1995-2015
iv. Bangladesh National Building Code, 2006
v. Dhaka Mahanagar Imarat Nirman Bidhimala, 2008
vi. Besarkari Abashik Prokolper Bhumi Unnayan Bidhimala, 2004
vii. Jaladhar Sangrakkhan Ain, 2000

But due to absence or inadequate of application, these acts and rules have become ineffective and plan violation has become a common practice.

2.3.7 Shelter and Settlement

Due to ineffective development control measures, indiscriminate and unplanned growth of settlements has become a common phenomenon. It has been found that new areas are brought under settlements without adequate provision of infrastructure and services. Due to enhanced demand of land by high income group, it has become very difficult to provide secured shelter to the urban poor at their affordable prices. The majority of the people of the project area are grouped in the middle and low income range and they are unable to buy land in the established urban areas. As a result, they are finding shelters in remote areas without basic services including access facilities. This is resulting in conversion of remote agricultural land into settlement where living environment provides little or no basic services resulting in urban deprivation.

2.3.8 Lack of Co-ordination among Agencies

There is lack of coordination among different public sector agencies about development management and service provision in the planning area covering following areas.

a. Duplication of Effort

Some agencies are performing same tasks without any intervention by the government. For building plan approval East Bengal Building Construction Act 1952 empowers RAJUK. But paurashavas building plans. These creates serious problems as paurashavas in most cases take a liberal attitude towards following building construction rules while giving construction approvals. Both Water Development Board and LGED undertake drainage and flood control schemes, sometimes without any coordination among them.

b. Disregard Plans by Line Agencies/Authorities

According to Dhaka Mahanagar Imarat Nirman Bidhimala, 2008 any construction by anyone must be preceded by approval from the development control authority (in this case RAJUK) before going for construction. But most public sector agencies do not seek permission either from RAJUK or from local paurashava. This is sheer violation of law by public sector agencies. Besides, most individual and real estate developers violate their approved plans during construction to add additional space to their structures.

2.4 Current Investment Program

No public sector current investment program in the Location-10 area has been found

2.5 Stakeholders Wish List of Projects

As per ToR the consultant carried out a series of consultations with the local stakeholders on various issues relating to planning and development. The stakeholders included local public sector agencies, local community, private developers and NGOs. Analyzing the discussions and findings a whish list of the stakeholders has been worked out as provided in **Table-2.16.**

Table-2.16: Problems and Wish List of the Stakeholders

Stakeholder	Identified Problem	Wish List
1. Satarkul Union Parishad	- Narrow roads (e.g. Satarkul roads) - Poor drainage system - Insufficient playground - Environmental pollution - Lack of Govt. hospital	- Development of road network. - Creation of park and play ground for children. - Provision of drainage network. - Provision for improved community facilities. - Re-excavation of Satarkul khal. - Agro market. - Widening of road from Suvastu Nazar Valley to Beraid road. - Widening of road from Moddho Badda to Satarkul.
2. Badda Union Parishad	- Insufficient playground, community centre, hospital - Absence of park - Insufficient drainage system - Water logging - No govt. high school - Land filling in Baradia khal - Encroachment of khas land - Insufficient playground, community centre, hospital - No gas supply	- Development of road network. - Provision of drainage network. - Provision for improved community facilities. - Creation of park and play ground for children. - North-south connecting road from Tongi to Demra - Construction of Daukandi (Induria) bridge.
3. Bhatara Union Parishad	- No solid waste disposal system - No street light - Poor condition of Natun bazaar road - Absence of park - Insufficient drainage system - Water logging	- Development of road network. - Creation of park and play ground for children. - Provision of drainage network. - Provision for improved community facilities, - Road widening from Natun Bazaar towards east.

Chapter- 3
Development Plan Proposal

3.0 Introduction

This Chapter of the Planning report describes the development plan proposals made for Location-10 area. The Chapter starts with DMDP policies as upper level frameworks, followed by a review of the policies in the light of prevailing conditions. The chapter also describes the planning principles, standards and strategies set for the plan. Lastly, sectoral development proposals have been set under the DMDP policy frameworks. The chapter also describes zoning provisions and makes some comments on some critical issues.

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 government approved Strategic Transport Plan (STP) for Dhaka have also been reviewed as an 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. In the following sections a brief review has been carried out on the policy guidelines of these two plans to establish a relationship between the higher level plans and the current detailed area plan.

Relevant Structure Plan Policies

- **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 –** 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 –** Discusses special uses, with extensive land allocation, are located outside the main urban area but within DMDP area. The DMDP Structure Plan suggested their 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 Recommendation

The ten year span DMDP Urban Area Plan (UAP) provides an interim mid-term strategy for the development of urban area 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.

Spatial Planning Zone-12: Eastern Fringe

The UAP made the following estimates for SPZ: 12: Eastern Fringe:

Table- 3.1: Population and Density of SPZ 12, 1991-2006

Year	Population	Density (ppa)	Urban Area (acres)
1991	144,000	35	4070
2006	423,000	128	

Source: *Urban Area Plan, p-68*

SPZ 12: Area Description

As stated in the table above SPZ 12 has a total area of about 4070 acres that stands on the eastern edge of Dhaka City. As prepared back in 1995 the report views the area as having "*mostly undeveloped with some rural village and fisheries settlements alongside the Balu River*. *The areas east to the Progoti Sarani are experiencing very rapid development by poor and comparatively low income people*" The trend of urbanization is moving a rapid manner changing the entire rural scenario in the western part of the SPZ 12.

Major Issues/Problems

Following were the observations of the UAP report (1995) about SPZ 12:

- The area is low lying, part of the flood plain of the Balu River and spawning ground of various species of fishes.
- It will require land fill for development even when protected from flooding by FAP-8A projects and
- Eastern Bypass.
- A system of canals fairly covers the area providing water transport, as other access facilities are very limited. The water transport and drainage network is under threat by indiscriminate land filling by private developers.
- As estimated by FAP 8A, 12% area should be reserved as retention pond.
- A large portion on the western periphery known as Badda and Bhatara areas have already been developed in most haphazard manner.
- Geo-physical conditions are not favourable for vertical expansion. Rampura fault on Begunbari – Jirani Khal makes the area vulnerable to unpredictable settlements in case of quake.
- Private developers are not taking into account the FAP 8A requirements, not even the geo-physical constraints.
- One of the private developer's projects, if realized, will destroy the effectiveness of Begunbari Khal, which drains out one third of the Dhaka's storm and waste water.
- The established areas are in short supply of all types of utility services and road network needs widening in view of the future anticipated densification.
- Absence of local administration makes delivery of essential services difficult.

Opportunities

The UAP observed the following opportunities in SPZ: 12:

- FAP 8A, if realized, will free the area from annual flooding and thereby augment the supply of flood free land for urban development.
- The Structure Plan and Urban Area Plan/DITS proposed east-west roads and north-south roads will provide access facilities in the area.
- Proximity of Gulshan-Baridhara makes some areas of the zone-preferred areas for development.
- As the area is within easy reach of several commercial centres, low and middle income people will find it suitable for living.
- A very large part of the zone is free from development, as such development of this area can be steered in a planned manner.
- Private developers are developing a substantial portion of the zone, which if coordinated and managed, will initiate planned development in the zone.

Actions Committed/Required

The following actions were recommended by the UAP for this SPZ:

- In order to realize FAP 8A proposals, areas for retention pond and east-west polders should be reserved.
- Detailed area plans should be prepared for the whole zone and make assessment of utility requirements and thereby provide adequate infrastructure for delivery of those services.
- Further analysis of fault line and geological condition should be made to ensure proper development**.**
- The development plans of Eastern Housing, a private developer, need to be reviewed with urgency to have it adhere to the water management requirements.

SPZ 13 (1): Area Description

A small portion of the Location-10 area has fallen under SPZ 13 (1). The SPZ named as Cantonment was within cantonment security zone. Now the Location-10 part of SPZ 13 (1) is outside the jurisdiction of Cantonment area. So UAP problems and opportunities were based upon this. Following **action committed/required** matches with the current status of the area:

Table- 3.2: Population and Density of SPZ 13, 1991-2006

Year	Population	Density (ppa)	Urban Area (acres)
1991	107,000	80	2141
2006	205,000	96	

Source: *Urban Area Plan, p-70*

Action committed/required:

- A detailed area plan should be prepared for the area to realize the Structure Plan proposals when the military status of the area is lifted.

3.2 Planning Principles and Standards

3.2.1 Guiding Principles

Proposed land uses for the project area has been prepared on the basis of following principles:

- Environment friendly sustainable development of the area.
- City function to develop as per major land use zones.
- Effective drainage through minimum hindrance to Flood Flow zone.
- Safe residential areas at proximity to place of work or major communication routes.
- Smooth and effective functioning of industries, specially export oriented industries.
- Safe yet faster connectivity.
- Develop to serve the surrounding hinterlands.

3.2.2 Planning Standards

The DMDP Urban Area Plan (UAP) report in its Section 1.2.8 (Page 12) recommended some planning standards and principles. These standards and principles have been recommended in conjunction with planning rules. The planning standards however, address only the community services, while the principles and rules cover wide areas of issues. In defining planning standard the UAP report states," *Planning standards define the target levels of publicly funded community provision needed for achieving minimum public health, education, safety, leisure and cultural levels, plus a few other essential urban services*." Before preparing the standards the DMDP experts considered the following issues:

- national goals, targets and practice;
- cultural practice;
- climatic conditions;
- resources likely to be available;
- competing demands for use of, and cost of land;
- flexibility to allow incremental improvement;
- simplicity of application and use.

For preparation of standards and principles the DMDP reviewed such reports as 1983 UDD Upazila Plan and Lands Study 1993. The experts, however, framed standards only for those services that are usually provided by the public sector. The services offered by the private sector in response to market forces have not been included in their recommendations. However, the studies on standards do not follow recommendations in all cases.

Standards and Design Principle for Community Services

Table-3.3 Preset recommendations of the UAP about community services:

Table-3.3: Standards for Provisions of Community Services

Type of Service	Number of Area Inhabitants served Per Unit	Surface Area Needed per Unit	Remark
Primary School	15000	1 acre	• 'ideal' standard is 1 per 7000; present situation is 1 per 220000. • 16% primary schools are government schools; • the 1 acre surface includes playgrounds; • can also have double shift / dual use.
Secondary School	23000	2 acres	• the surface area includes playgrounds.
Colleges	-	-	• Threshold number of students and area of land to be defined case by case.
Playground	Double usage of primary and secondary school yards.	-	-
Park	25000	4 acres	• Larger parks may serve larger number of inhabitants.
Graveyard	Ward basis	Minimum 5 acres	-
Neighbourhood center	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
Market	Ward basis	-	
Police/Fire Station	-	-	• To be determined in a case by case basis.

Source: *DMDP Urban Area Plan, 1995.*

Standard for Building Construction

For building construction in usual practice following rules will be applicable:

Dhaka Metropolitan Building Construction Rules, 2008

Government has formulated a new set of building construction rules in 2008. Following are the key features of the rules.

Table-3.4: Recommended New Setback for 33 m or up to 10 Storied Building

Plot size in sq meter	Minimum set back (rear) in meter	Minimum set back (Side) in meter
Up to 200	1.0	1.0
201-275	1.5	1.0
276-1300	2.0	1.25
1301 and above	2.0	1.5

Source: *Building Construction Rules, 2006*

Whatever the plot size if the height of the building is more than 33 meter or 10 storied the minimum set back for both rear and side will be 3 meters.

Planned development ensuring community's active participation is the key to successful transformation of today's Dhaka into tomorrows adorned green Dhaka. Keeping that vision in mind, DAP Consultants have developed an optimum standard for the amenities and community facilities that the city dwellers deserve (**Table-3.5**).

Table - 3.5: 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 include 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	

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

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 neighbourhood concept with following approximate standards. It will be free of through traffic.

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

Gross density : 225 to 250 persons per acre.

Standards for Road

The minimum road standards proposed in Structure plan are as follows:

Main Road	24.0 m	(78 ft.)	ROW
Arterial Road	14.5 m	(47.5 ft.)	ROW
Collector Road	13.0 m	(42.6 ft.)	ROW
Access Road	9.0 m	(29.5 ft.)	ROW
Access Road	6.0 m	(19.7 ft.)	ROW
Non Motorized Road	4.0 m	(13.0 ft.)	ROW
Footpath	2.5 m	(8.2 ft.)	ROW

Considering Structure Plan and other standards DAP consultants proposes the following road standards for Detailed Area Plan areas:

Table - 3.6: 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 the Consultants*

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 latter 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 to flood water flow 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 by 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 to ease movement of passersby.
- 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 facilities.
- Prohibit high hazard industries within the area.
- Heavy and noxious types of industries would be shifted in designated industrial zone;
- Heavy and polluting industries of category Orange-B and Red-B which 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 to use.
- Provide zebra crossing for road crossings instead of over bridge to ease the lives of major portion of low income workers.
- 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 passengers.
- Grade separation of National and Regional Highways from the local main roads, the latter being at grade and other two above grades.

3.3.6 Flood Flow Zone

- Strictly preserve the flood flow 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 homesteads keeping mandatory buffer to make way for the flood water to pass through.

3.3.8 Water Body and Open Spaces

- Strictly protect canal networks as far as possible 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.
- Prohibit construction of religious structure unless built on its own land.
- Relocate unauthorized religious structures from road right of way to safeguard greater interest of the people, specially the city dwellers.
- Evict unauthorized structures and uses from road right of way to safeguard greater interest of the people, specially the city dwellers.
- 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 ground 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 where their exist pipe water.

- Recycling of treated wastewater with separate lines for potable water and recycled water. For this, dual pipe supply system has to be introduced in a phased manner in all 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, sediments 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 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 heritages of planning area need 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 of 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 reasons or historical periods.
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
- 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 road. 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.

In the current section the consultant sets down the approach to providing major infrastructure and services in the project area in the light of policies expressed in the DMDP and other relevant documents. Apart from review of the Structure Plan and Urban Area Plan the plan also considers Strategic Transport Plan (STP) Project proposals and makes evaluation of the existing conditions about infrastructure and services in the project area.

3.4.1 Transport

Following is the description of proposed road network for Location-10. Three primary roads of varying widths and two secondary road of varying widths have bee proposed as shown in **Table-3.7.**
In total seven road development proposals have been given. Of them, three new primary roads, Type-1 and Type-2 have been proposed. The 100.00 ft.wide 7.35 km east-west primary road from Bhatara to Baro Kathaldia will be an extension of a major Bashundhara Housing Estate Road that will be linked with eastern embankment-cum-road. Another 64 ft. primary road will emanate from Gulshan-1to Badda Link Road and run eastward and will join Eastern Bypass. This will be a one km road. Another east-west primary road will be an extension of existing road passing on the northern periphery of RAJUK Housing project in Badda and will move eastward and join Eastern Bypass. The length of this road is 5.30 km. An 80 ft. wide and 11.60 km north-south secondary road type-1 from Aftabnagar,Badda will run northward crossing Badda, Sutibhola, Bhatara and Joarshahara, will join Kuril-Purbachal 300 ft. wide road. North-south 130 ft, road from from Badda will move through Satarkul, Bara Khathaldia, Joar Sahara and will join M6/C of DMDP. A north-south secondary road from Badda through Satarkul, Bara Khathaldia, Joar Sahara will join M6/C of DMDP. Besides, it is proposed to straighten and widen the widely used existing Badda- Satarkul road. It is proposed to widen by 64. ft. Details of road proposals have been shown in **Map-3.1.**

Table-3.7: Road Proposals for Location-10

Project Description	Site Location Including SPZ	Length	Implementing Agency
Madani Avenue Construction of Primary Road, (Type-1, width 100 ft)	Through Satarkul	5.9 km	RHD
Construction of Secondary Road (Type-3, width 64 ft)	Through Satarkul to Eastern Bypass	4 km	RAJUK
Construction of Primary Road (Type-3 width 100 ft)	From Badda to Eastern Bypass through Aftab Nagar Project, SPZ 12	5.30 km	RHD
Construction of Secondary Road (Type-4 width 40 ft)	From Badda to Eastern Bypass	4.1 km	RAJUK
Construction of Secondary Road (Type-1 width 64 ft)	From Joar shahara through Bashundhara city up to Primary road M/4A	3.359 km	RAJUK
Badda Road, Construction of Secondary Road (Type-4, width 50 ft)	From Badda to Eastern Bypass	4.2 km	
Widening of Existing narrow Road to 64 ft. Road	7. Existing Badda-Beraid Road passing through Satarkul.	-	RAJUK
	North South Road Network		
M/4A, 130 ft wide Structure Plan/STP Road	From Nandipur, Satarkul, to Barakathaldia		
Eastern Bypass Structure Plan/STP Road	Narayanganj link Road to Tongi Embankment through Satarkul and Barakathaldia		

Source : *Road Proposed by Consultant*

3.4.2 Utility Services

Sewerage and Drainage

For proper draining of storm water and household wastewater, Dhaka WASA needs to extend its services to the project area through extension of project. It is expected that on site septic tank system will continue for sewage disposal, but DWASA should initiate project to integrate the larges areas of the city into its existing sewerage system, that covers only about 20% of the city area.

Though the watercourses in the project area are the paths of discharging of flooding water accumulated in the core areas of the city, the natural water courses are important resources and therefore, must be protected them from destruction. Land grabbers in many areas fill khals indicated in CS mauza map. Attempts must be taken to re-excavate those khals. **Map-3.2** indicates the proposed natural drainage that needs preservation for the planning area.

3.5 Amenity and Urban Facility Proposals

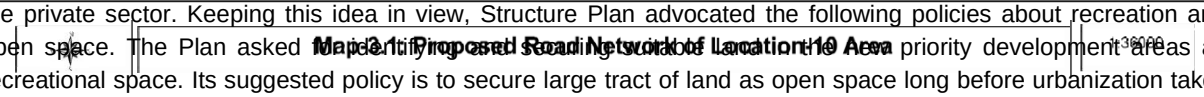
Urban Community/Social Services

Urban community services in the project area are expected to provide by the service giving agencies engaged in Dhaka city. The services like, water will be the task of Dhaka WASA, and power will be provided by the DESCO, Gas by TITAS Gas Co. There are several private sector telephone companies (including mobile) to provide telephone services. The public sector service agencies will promote services in the new areas through extension projects.

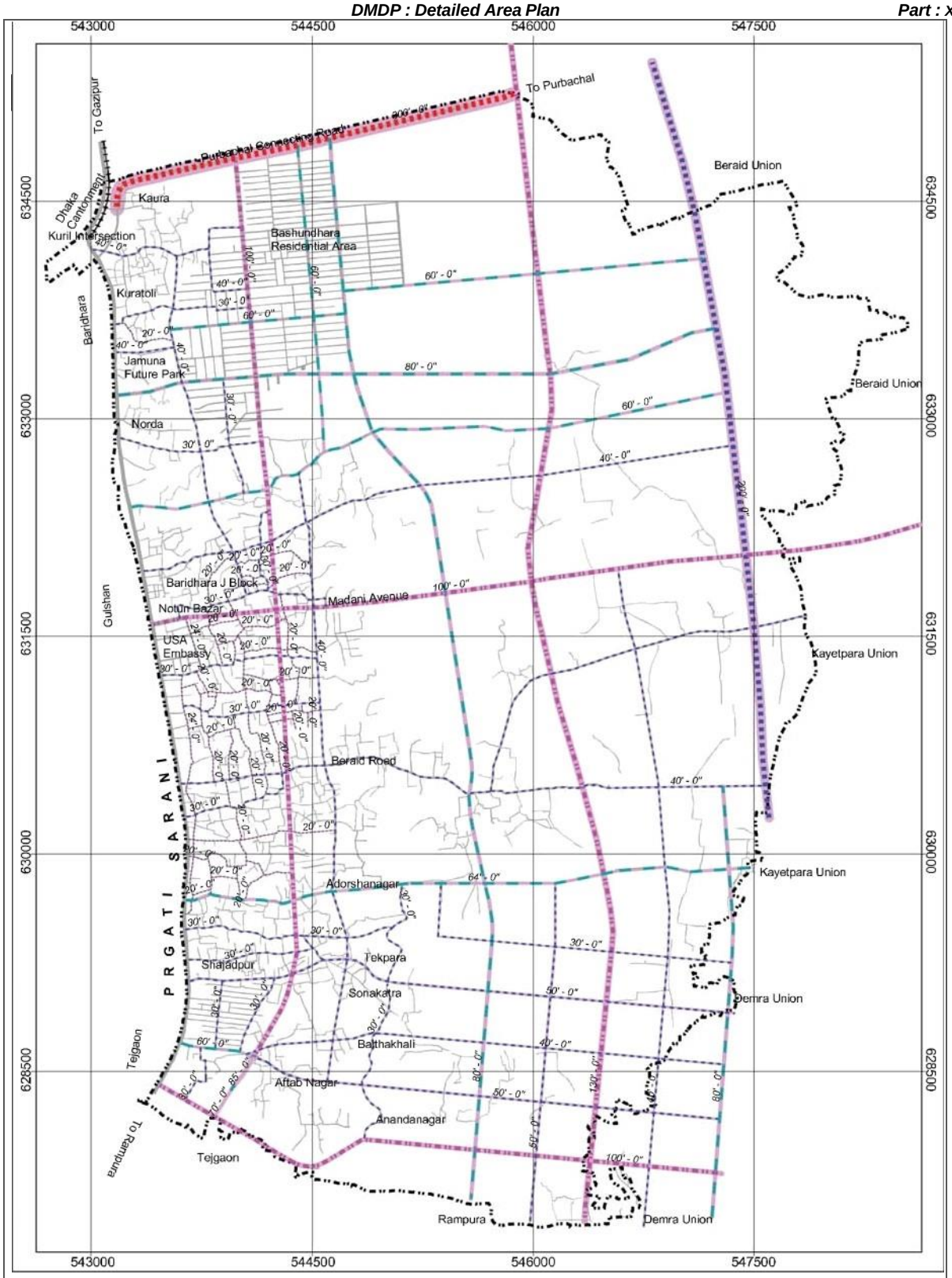
Parks and Playground

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 increases demand for leisure and so as the supply by the private sector to satisfy the demand. Structure Plan apprehended that by the year 2015 such a trend would unlikely to occur and the role of government, in providing recreation facilities, would be transferred to

the private sector. Keeping this idea in view, Structure Plan advocated the following policies about recreation and open space. The Plan asked for identifying and securing lands of Location-10 Area priority development areas as recreational space. Its suggested policy is to secure large tract of land as open space long before urbanization takes place and land price escalates. This suggestion was mainly for possible unused areas within the main city where numbers of retention ponds are to be created. Existing and proposed community facilities have been presented in **Map-3.3.**



Map-3.1: Proposed Road Network of Location-10 Area 1:36000



300 600 900 1200 1500 Meters

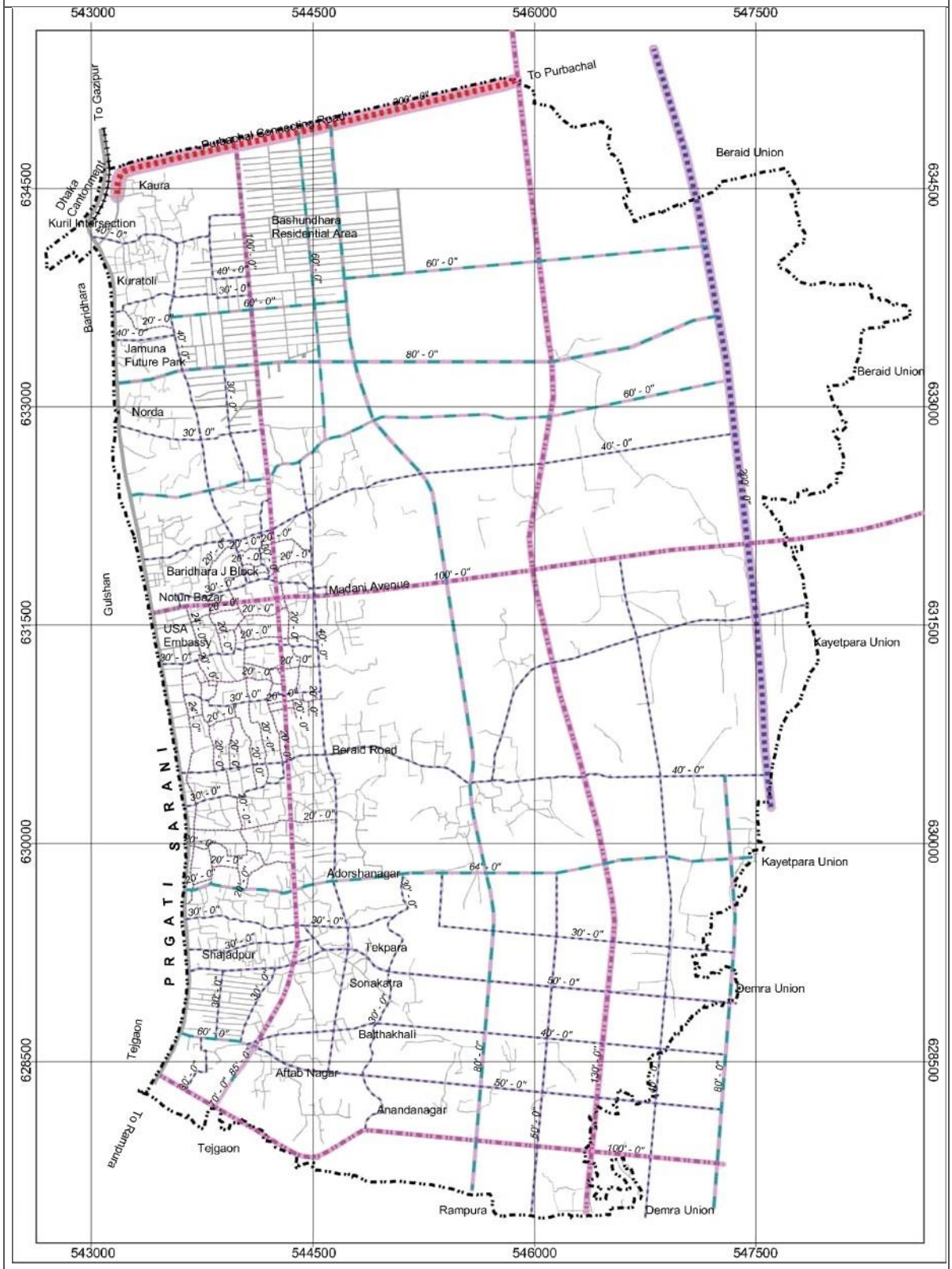
Detailed Area Plan for DMDP Area (Location-10)

LEGEND

Group Boundary
Railway Network
existing Road Network
Proposed Road Network
12 ft - 24 ft
60 ft
100 ft - 130 ft
160 ft - 170 ft
30 ft -
60 ft -

Map-3.1: Proposed Road Network of Location-10

1:36000



300 600 900 1200 1500 Meters

Detailed Area Plan for DMDP Area (Location-10)

LEGEND

- Group Boundary
- Railway Network
- existing Road Network
- Proposed Road Network

Proposed Road (ROW)

12 ft - 24 ft
60 ft
100 ft - 130 ft
160 ft - 170 ft

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