



THE ASSAM GAZETTE

অসাধাৰণ

EXTRAORDINARY

প্ৰাপ্ত কৰ্তৃত্বৰ দ্বাৰা প্ৰকাশিত

PUBLISHED BY THE AUTHORITY

নং 376 দিশপুৰ, মঙ্গলবাৰ, 3 জুন, 2025, 13 জেঠ, 1947 (শক)
No. 376 Dispur, Tuesday, 3rd June, 2025, 13th Jaistha, 1947 (S. E.)

GOVERNMENT OF ASSAM
ORDERS BY THE GOVERNOR
DEPARTMENT OF HOUSING & URBAN AFFAIRS

NOTIFICATION

The 19th August, 2024

DoHUA EcF No. 450508/2024/31.- In exercise of the powers conferred by the Sub- Section (2) and (3) of Section 10 of the Assam Town and Country Planning Act, 1959 (as amended) read with Rule 6 of the Assam Town & Country Planning (Publication of Master Plan and Zoning Regulation) Rules, 1962, the Governor of Assam is pleased to publish the following notice regarding the publication of the Final Master Plan for Morigaon.

Notice for publication of the Final Master Plan for Morigaon

1. It is notified that the Final Master Plan for Morigaon is prepared by the Directorate of Town & Country Planning, Government of Assam and adopted by the State Government under sub section (2) and (3) of Section 10 of the Assam Town & Country Planning Act, 1959 (as amended) read with Section 6 of the Assam Town and Country Planning (Amendment) Rule, 1962 for the area described in the schedule below, is hereby published.
2. The Final Master Plan with all relevant papers and maps may be inspected free of cost during the office hours at the office of Director, Town & Country Planning, Dispur, Guwahati-6, Deputy Director, Town & Country Planning, Dist Office – Guwahati, office of the Chairman, Morigaon Municipal Board & Morigaon Revenue Circle Office. Copies of the Final Master Plan is also available in the office of the Director, Town & Country Planning, Dispur, Guwahati-6 and Deputy Director, Town & Country Planning, Dist Office – Guwahati for sale on payment.

SCHEDULE**A. LOCATION AND AREA**

DISTRICT	:	MORIGAON
SUB-DIVISION	:	MORIGAON
STATE	:	ASSAM
MASTER PLAN AREA	:	49.37 Sq. Km
MUNICIPAL AREA	:	4.00 Sq. Km.

B. AREA INCLUDED IN THE MORIGAON MASTER PLAN- 2041

Apart from the Morigaon Municipal area, Morigaon Master Plan area covers 21 nearby villages. The villages included in the Final Master Plan for Morigaon with Mouzas are as follows:-

<u>Mouza</u>		<u>Villages</u>
Morigaon	:	Rajagaon , Basanaghat, Ojari Pathar, Ojari Gaon, Noagaon, Ghoramora Pathar, Ahatguri Nauta Gaon
Dandua	:	Niz Dandua – II, Doloi Chuba, Naokata, Sidabari, Banpara – I, Banpara – II, Niz Dandua –I, Kachamari Pathar
Tetelia	:	Burhagaon, Barigaon, RainaPathar, Maidhali pathar, Mori Pachatia, Mora Kolong -II

C. DESCRIPTION OF BOUNDARIES

NORTH :- Satarguri, Oguri, Barangabari

SOUTH :- Tengaguri, Hakanamara, Dandua Bilartup ,Salmara Mikirgaon, Niz Tetelia

EAST :- Barapujia, Nabhanga beel

WEST :- Bar Manipur, Barunguri, Ulubari

PABITRA RAM KHAUND,
Secretary to the Government of Assam,
Department of Housing & Urban Affairs.

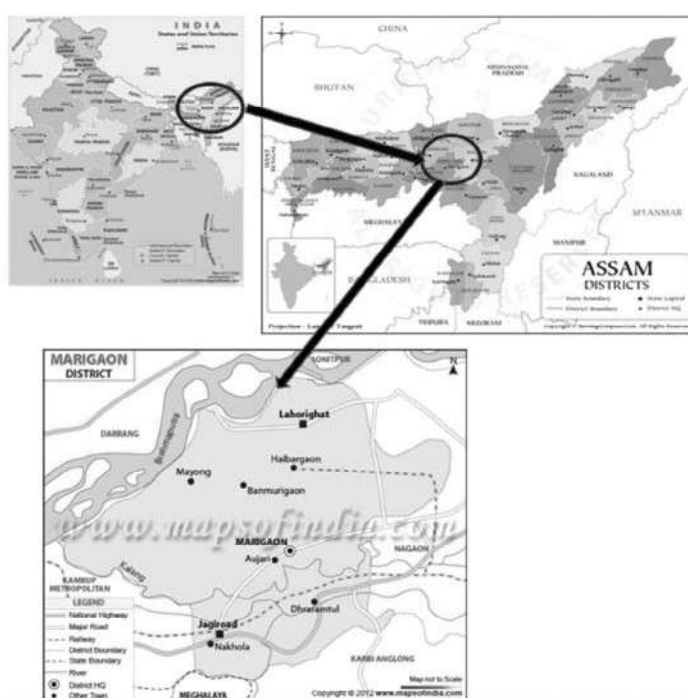
CHAPTER -1

INTRODUCTIONS TO MASTER PLAN AREA

1.1.LOCATION:

The Morigaon district, the erstwhile subdivision of parent district Nagaon till to September 1989. Morigaon town is the Head Quarter town of the Morigaon District. The District is situated on the south bank of the Brahmaputra River in Assam Valley. The district of Morigaon lies between 26° 31'' and 26° 33'' North Latitude and 91° 59'' and 92° 35'' East Longitudes.

Morigaon Town is the administrative Head Quarter of Morigaon District. Morigaon District was created in 1989 and till that it had been a sub division of Nagaon District. Morigaon District is the smallest and most backward District of Assam. Morigaon town was declared as a town in 1973. Till the creation of Morigaon District, the town was sub-divisional head quarter town. Apart from administrative activities, the town is a centre of education, trade and commerce of the entire District.

**1.2. REGIONAL SETTING:**

The district is surrounded by Nagaon District on the east, the Brahmaputra on the North, Karbi-Anglong district on the south and Kamrup district on the West.

1.3. BRIEF HISTORY OF THE TOWN AND THE SURROUNDING:

The history of Morigaon is obscure. One famous traditional ruler of the region was Arimatta whose history is shrouded in mystery. After Arimattas's death, Jongalbalahu, his son ruled over the region. Jongalbalahu was ultimately killed by the Kacharis with a bamboo spear near Kajalimukh.

The legend further goes on to say that Jongalbalahu to escape his pursuers, submerged himself in Kollong river and emerge at Raha to quench his thirst and again dived here to emerge at Jagi. From this incident were derived the names of present day Raha and Jagi.

The writing of Bhimsingh throws some light on the history of present Morigaon town and its adjoining areas. This region was ruled independently by six rulers. According to some historians in the 17th century, during the region of Ahom King Chandra Kanta Singh, two princes of the King

of Darrang (Darrangi Konwar) fled from Darrang due to some internal feud with the King. The two princes along with 72 families (Ryots) crossed the mighty Brahmaputra River at Chaulkhuwa ghat, came towards Borbari. The place Borbari was then under sixth subordinate Kings of Ahom. They allowed the two princes along with 72 families to settle at Borbari, which is under Sukhanagog. Supradhawas Singh was the King of Sukhanagog. He has two sons named Ram Singh and Bhim Singh.

Due to insufficient land, the two princes left in Sukhanagog (Borbari) in search of new fertile land. After few days they came a long distance and took rest by the side of a big tank (Beel). There they made some Bhur (a Kind of boat) and with help of these Bhur they went further in search of new land. Thus, from that time this place was known as Bhurbandha. They settled in Bhurbandha for a short period. Later, due to some internal conflict between them, Prince Ram Singh along with his followers returned to his father's Kingdom, but Bhim Singh stayed there after finding a suitable place nearby a Beel. The Beel was the dead stream of the Kolong; they named the place as Morikolong. To the east of Morikolong Prince Bhim Singh established a small village and named it as Morigaon.

1.4. PHYSICAL ENVIRONMENTAL CONDITION

1.4.1. Climate:

The climate of the district as well as Morigaon is characterized by a highly humid atmosphere all through the year. Summer heat is released to a great extent by the cool breeze of the river Brahmaputra. The monsoon starts from the month of May and continues up to August. The winter is cool and starts from November and continues up to February. Generally weather is dry. The maximum and minimum temperature varies from 29.9 C to 18.9 C. The maximum rain occurs between June to September and average annual rainfall of the District is 421.71 cm.

Annual Rainfall	Ranges from 1500mm to 2600mm
Average Humidity	75%
Max.Temp.	37-39 degree C
Min. Temp.	6-7 degree C

1.4.2. Topography and soil condition:

The natural topography of the district is a belt of flooded land. The great part of the district is an alluvial plain criss-crossed with number of rivers and waterways and dotted over with beels and marshes. In place like the banks of Kalong it is densely populated. The area on the south bank of the Brahmaputra is liable to deep floods which are nothing but wide stretches of wastelands usually covered with tall grasses. The waste lands have however been occupied by the migrant people. The district comprises of scattered small hills on the western part. The general appearance of the district is extremely picturesque. During the rainy season the district is covered with a green carpet of rice which gradually turn to gold during harvest time and on every side there are swamps, beels, rivers, small hills and woods which lend variety to the scene. The greater part of the district is low-lying area and is flood prone zone. Hence the growth of trees in

the district is very limited but in the higher lands different kinds of tree are seen.

The soil of the district is alluvial and mostly loamy and consists of mixture of clay and sand in varying proportions. Marshy soil is mainly found in the low-lying water logged areas. These are black in colour. The red soil is generally found in the hill slopes and foothill. The granite-gneiss as seen near Jagiroad is a medium grained rock, gray to light pink in colour. In this place, isolated outcrops of granodiorite are also found.

(source: District Census Handbook Morigaon)

1.5. CITY INFLUENCE AND ITS CHARACTERISTICS INCLUDING SETTLEMENT PATTERN:

The evils of unplanned growth have caused enormous problems in our towns and cities. As population grows, the town expands naturally to the surrounding villages. The Master Plan envisages a scientific co-ordinated approach which guides the future development and to achieve a balanced growth are the main objectives of a Master Plan for an urban area.

The demarcation of the planning area of Morigaon has been made considering the present growth of the town, the physical feature of the surrounding areas, communication network, different type of developmental works already come up in nearby villages and potential for future development of the region. The town has been growing towards Jagi and Barpujia. Some major developments also come along the major roads connecting NH-37.

Morigaon Master Plan covers Morigaon Town Committee area along with 14 (fourteen) nearby villages with an area of 36.11 Sq km. accommodating a total population of 41,753 as per Census of India, 2001.

Before finalization of the planning area, discussion were held with district level officers dealing with developmental works headed by Deputy Commissioner, Morigaon and the elected representative of Morigaon Town Committee as well as Hon'ble MLA Morigaon Constituency.

The District Head Quarter, Morigaon town is situated at a distance of 75 km. from the Guwahati City and 45 km. away from Nagaon town. The tourist attraction places of the District viz. Jagiroad, Sita Jokhola, Mahadeo Sal are well connected with Morigaon Town. Apart from these, the Pobitora wildlife century is situated at a distance of 45 km away from Morigaon Town, which is also a tourist attraction place.

1.6.MASTER PLAN: DEFINITION & FORMULATION

Urbanization has been witnessing a faster pace. Almost 50% of world populations live in urban areas today as per UN-HABITAT journal. It is a natural process. Apart from the natural growth, rural people migrate to urban area seeking better jobs and higher wages. Contribution to Nation's income from urban sector is much higher than that of rural sector. Thus planning of an urban area is utmost important for overall development of not only the particular town but also the Nation as a whole.

Master Plan/Development Plan is the major tool for urban land management, providing detailed land-use allocation for the sustainable development of city/town. Most master/development plans are made for 20-25 year periods, in phases of five years for periodic review and revision. A master plan is prepared either for improvement of an old city or for a new town to be developed on a virgin soil.

The purpose of the master plan is to set down as clearly and practically as possible the best and most appropriate future development of the town. For physical planning to be successful, it must develop a consensus on sound principles while balancing the visionary with the realistic. Formulation of master plans start with base map preparation, existing land use surveys and collection of socio-economic data necessary for reviewing the existing situation and proposing the future land use plan. With the advances in remote sensing and geographic information system, the plan making process can be expedited with integration of both spatial and attribute data, which enables detailed assessment of spatial growth of towns/cities, land use status, physical infrastructure facilities, etc. in anticipation of the projected population growth.

1.7.NEED OF THE MASTER PLAN

The Morigaon town area has been growing haphazardly as the other town of Assam. This has created enormous problems to the habitant of town. In this context, "Final Master Plan Morigaon 2041" is prepared to guide the physical development of the town with some surrounding villages in future. This plan is prepared, basically a land use plan considering all the urban development aspects, (within the constrain) with forecasting all the services (including deficiencies) up to 2041. By and large, this Master plan has been prepared as per the provision of URBAN DEVELOPMENT PLANS, FORMULATION AND IMPLEMENTATION, GUIDELINES, 1996 prepared by the INSTITUTE OF TOWN PLANNERS, INDIA NEW DELHI under the assistance of the Ministry of Urban Affairs and Employment, Govt. of India, New Delhi and Circulars issued by U.D.D (T &CP Wing), Govt. of Assam time to time. Uniform Zoning Regulations are considered as it is already approved for all the town of Assam including MORIGAON TOWN by the Govt. of Assam.

CHAPTER – 2

DEMOGRAPHY

2.1. INTRODUCTION:

An analysis of demographic features like growth of population, its distribution & composition etc. is absolutely necessary to assess the various civic needs like housing facilities, urban infrastructure and other basic services and the amenities. These important aspects of demography both present and future have been thoroughly studied at the time of preparation of Morigaon Master Plan.

As per 1971 census of India, Morigaon district had a population of 4, 23,911 (though Morigaon District was created in 1986, the figure is taken from the population of then Morigaon Sub-division of Nagaon District).The District population increased to 6,39,682 as per 1991 census with a growth rate of 50.90% out of which 3,29,613 were male population and 3,10,069 were female population. Again in 1991, the District was predominantly rural with only 5.16 % of the total population living in urban areas. But as per census of India, 2001 the level of urbanization in the District decreased to 4.91% against the national level of 27.8% and the state level of 12.7% shows the clear dominance of the rural sector in the District. Morigaon District ranks 22nd among 23 Districts of Assam in 2001, whereas Kamrup district 1st with 36.01% in case of level of urbanization.

2.2. GROWTH OF POPULATION

The population of Morigaon town, as per 2001 census is 20811. It is 54.67% of urban population of the District as the rate of urban population reside in the only other urban centre of the District i.e. Jagiroad. The following table shows the population growth of Morigaon Town Committee since its creation 1973.

Table -2.1: Population growth of Morigaon Town

Year	Population	Annual Growth Rate	Remarks
1971	8371	-	Though the town was created 1973 the population had been calculated from 1971 Census of India
1991	15,587	4.31	1981 census was not held in Assam.
2001	20,811	3.35	-
2011	29.164	4.01	

Source:- Census of India.1991,2001&2011

Morigaon town experienced a comparatively higher growth rate during 1973 to 1991. It may be because of creation of the town first and then establishment of Headquarter of Morigaon District in 1986 which lead to migration of people from nearby villages for better jobs as well as other opportunities.

The population of Morigaon Master Plan area shows a steady growth as given in the following table.

Table -2.2: Population growth of Morigaon Master Plan Area Excluding Town Area

Year	Population	Annual growth rate	Remarks
1971	11,552	-	-
1991	17,227	2.46	1981 Census was not held in Assam.
2001	20,942	2.16	-
2011	29,164	13.2	Compared to 2001, 8 more nos. of villages are added

Source:- Census of India.1991,2001 and 2011

From the table it is seen that growth of population in rural area of Morigaon Master Plan area is at a lower rate than in town area, as the population at the town area is growing both naturally as well as through in migration.

2.3. DENSITY OF POPULATION

The size and growth of population determine the density of population for a particular area. The density of population of Morigaon district as per 1991 census was found 375 persons/sq.km, which has increased to 456 persons per sq.km in 2001 census.

The density of population of Morigaon town area as per 1991 census, it was 3897 persons per sq.km and it has increased to 5203 persons per sq.km.in 2001 census and it implies the rapid growth of population during the period. Regarding the Morigaon Master Plan area, the density of population increased to 1156 persons per sq. km. in the year 2001 which was 909 persons per sq. km. in 1991.

Table-2.3: Density of population of Morigaon district and Master Plan Area.

Year	District (Person/ Sq Km)	Town Area (Person/ SqKm)	Master Plan area (Person/ Sq Km)
1991	375	3897	909
2001	455	5203	1156
2011	617	7290	1322

Source :- Census of India 1991 & 2001,2011.

2.3.1. SEX RATIO

The number of female per 1000 male in the Morigaon District shows an improvement from 941 in 1991 to 945 in 2001.

The sex ratio i.e the number of female per 1000 males in the Morigaon town area was 874 as per 1991 census and it has increased only to 875 in 2001 census.

Table 2.4: Sex Ratio of Morigaon District & Master Plan Area

Year	District (Females/1000 Males)	Town Area (Females/1000 Males)	Master Plan Area (Females/1000 Males)
1991	941	874	952
2001	945	875	956

Source : Census of India 2001 & Statistical Hand book of Assam, 2003

The above table also depicts that the number of female population per 1000 male has increased from 952 in 1991 census to 956 in 2001.

2.3.2. LITERACY

The literacy rate of the Morigaon district is 58.53 per cent as against of 63.25 per cent of the state total. Of this, the male literacy rate is 65.15 per cent and female literacy is 51.51 per cent.

2.4. POPULATION PROJECTION

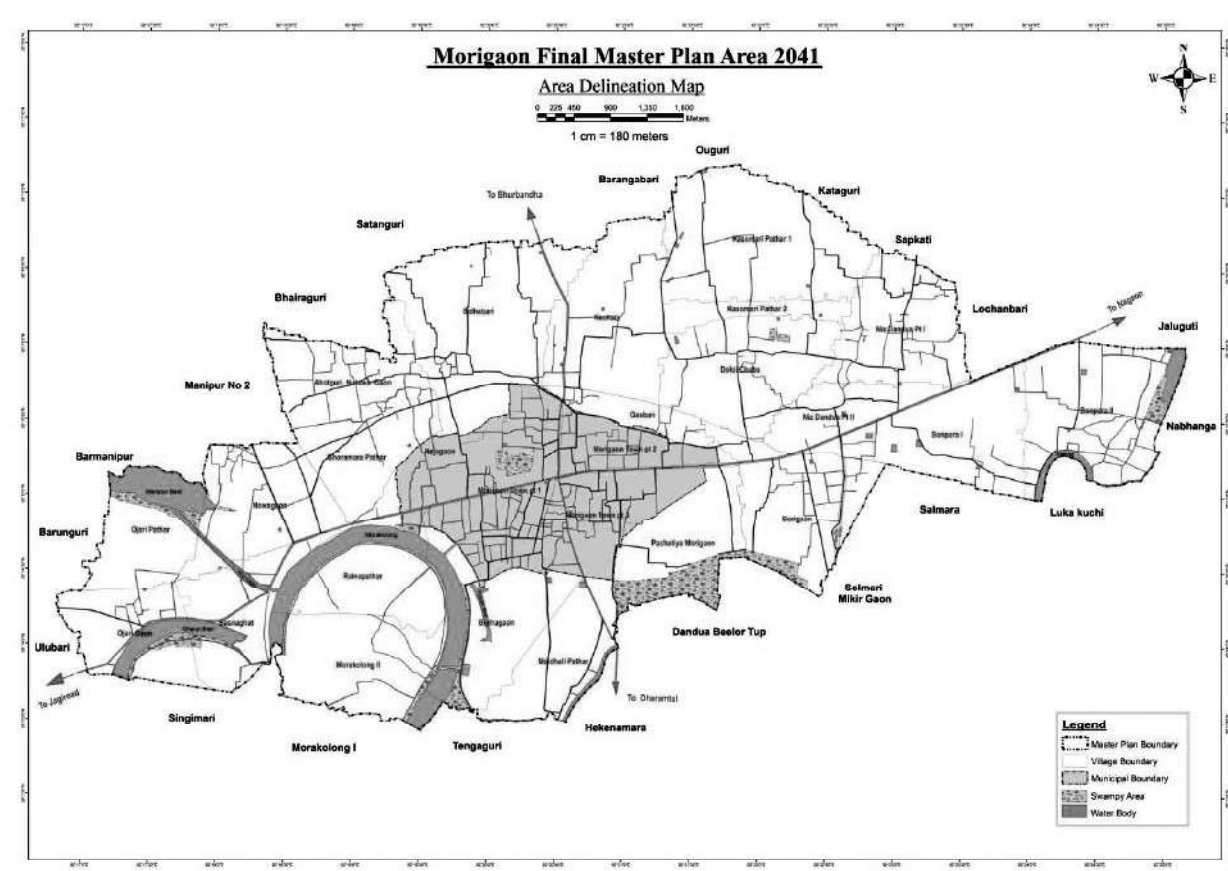
The decadal growth rates have POPULATION PROJECTION been carefully studied and growth rates for coming decades have been fixed and the future populations are projected for 2041.

Table No.2.5: Showing the population projection till 2041

Year	Morigaon T.C. Area	Decadal Growth	Morigaon Master Plan Area (Rural)	Decadal Growth	Total Master Plan Area
1971	8371	-	11,552	-	19,923
1991	15,587	86.20	17,227	49.31	32,814
2001	20,811	33.52	20,942	21.56	41,753
2011	29,164	40.13	36,063	13.20	65,227
2021 (P)	40,829	30%	40823	20%	81,652
2031 (P)	51,036	25%	48987	20%	1,00,023
2041 (P)	63,795	20%	57314	17%	1,21,109

Thirty years Growth rate, (P) = project

The total population as projected for 2041 is 1,21,109. The Present Morigaon Masterplan will be prepared considering the total population of 1,21,109.



CHAPTER – 3

ECONOMIC BASE AND EMPLOYMENT

3.1. INTRODUCTION

The district had not received due attention in regard to the development during the British period. The lower level of development of the initial stages in the start of the planning process has been one of the reasons for accentuation of the difference in the level of development. The role and share of different sector of the economy of Morigaon district show that agriculture plays an important role in terms of contribution to the total GDP of the district and the percentage share of total population engaged in agriculture.

The economy of Morigaon is completely agro-based where large number of people involves to manage their livelihood which is 72.25%, the economy of Morigaon is very backward with comparison to other districts of Assam where per capita gross district domestic product is 5848, and working population structure is shown in table no.1

Table 3.1: Working Status of total population in Morigaon District , 2001.

Category of workers	Person	Percentage
Main Worker	200132	25.78
Marginal Worker	62692	8.07
Non Worker	513432	66.15
Cultivators	138083	52.53
Agricultural Labour	51858	19.72
Household industry worker	861	3.29
Other than household industry	64225	24.43

Source : - Statistical Hand Book of Assam 2004.

3.2 WORK PARTICIPATION RATE AND NON-WORKERS

As per the Census of India, the population can be divided into main workers, marginal workers and non-workers. They can be defined as:

- Main Worker: One who has worked in any economically productive work for at least 183 days/6 months in a year.
- Marginal Worker: One who has engaged in economically productive work for less than 183 days/6 months in a year.
- The ones who have not participated in any economically productive activity constitutes the 'Non-Workers'.

These main workers and marginal workers can again be classified as Cultivators, Agricultural Labourers, Household Industry Workers, and Other Workers. They can be defined in the following way:

1. Cultivator: One who is engaged in the cultivation of land owned or held from Government or held from private persons or institution for payment in money, kind or share, is a cultivator. A person who gives out his/her land for cultivation to another person(s) or institution for money, kind or share of crop, and is not involved in the supervision or direction of the cultivation of land, does not constitute a cultivator. Similarly, a person who is working on someone else's land for cash or kind or combination of both is not a cultivator.
2. Agricultural Labourer: An agricultural Labourer is one who works on someone else's land for wages or kind or share. He/she has no right of lease or contract on land on which he/she works.
3. Household Industry: It may be defined as an industry conducted by the head of the household and/or by the members of the household at home or within the village in rural areas, and only within the precincts of the house where the households live in urban areas. The larger proportion of workers in the household industry consists of members of the household. Household industry relates to production, processing, servicing, repairing or making and selling of goods.
4. Other Workers: All the workers other than cultivators or agricultural labourers or household industry workers are Other Workers. They include all government servants, municipal employees, teachers, factory workers, plantation workers, those involved in trade, commerce, banking, construction, political or social works, etc.

3.2.1. Working Population

The table below shows the work participation rate in Morigaon from 1991 to 2011:

Table3.2 : Working Population of Morigaon Master Plan Area

Year	Morigaon Municipal Area (A)			Morigaon Master Plan Area excluding the Municipal Area (B)			Total Master Plan Area (A)+(B)		
	Total Population	Total Workers	Work Participation Rate	Total Population	Total Workers	Work Participation Rate	Total Population	Total Workers	Work Participation Rate
1991	15,587	4968	31.88%	17,227	5734	33.29%	32,814	10,702	32.61%
2001	20,811	6550	31.47%	20,942	7674	36.64%	41,753	14,224	34.07%
2011	29,164	10,104	34.65%	23,705	13,098	55.25%	52,869	23,202	43.89%

Source: District Statistical Handbook, Census of India, 1991, 2001, 2011

The above chart shows a very steady improvement in work participation rate in Morigaon Masterplan Area. In 2011 the work-participation rate is 43.89% compared to 32.61% in 2001. More job opportunities has been created due to improvement of the overall economy and the consequent emergence of more and newer demands for goods and services.

3.3 OCCUPATIONAL PATTERN

Out of 11,337 nos of employed persons in 2001 in the Morigaon Master Plan Area, 32.51% employed in the primary sector, 2.62% in the secondary sector and tertiary sector accounts for the rest 64.87% of the employment of Morigaon Master Plan Area excluding the Town, where as in Morigaon town area, out of 5998 nos of employed person in 2001, 11.70% employed in the primary sector, 2.39 % in the secondary sector and 85.91% employed in tertiary sector. The following tables show the occupational pattern in Morigaon town as well as Morigaon Master Plan Area

Table 3.3: Occupational Pattern in 2001

Sectors	Morigaon Town		Morigaon Master Plan area excluding Town area		Total	
	No.	%	No.	%	No.	%
Primary Sector	702	11.70	2984	55.89	3686	32.50
Secondary Sector	143	2.39	154	2.88	297	2.62
Tertiary Sector	5153	85.91	2201	41.23	7354	64.87

Source – Census of India, 2001

3.4. COMMERCIAL ACTIVITIES

Though the Morigaon Town is the district head quarter town of Morigaon District, the urban activities of the town has not been growing like the other head-quarter towns of Assam.

There are 2 (two) daily markets in the town and 1(one) weekly market on Saturday at ward no 3 in the town. Total no of retail shops in town area is 730 for all kind of goods. A few shopping complexes have been coming up in Morigaon town recently.

The villages of the Morigaon Master Plan are, having a few retail shops, fair priced shops etc. Again a weekly market is held on Saturday at village PachatiaMorigaon in the Master Plan Area.

The three most important commodities imported from Morigaon town are wheat, pulses and sugar and the three most important commodities exported from Morigaon town are rice, jute & vegetables.

Table 3.4: Agricultural products in the planning area

Sl No.	Name of Crops	Products (Qntl.)
1	Paddy	77,900
2	Oil Seed	10,308
3	Pulse	994
4	Wheat	976

5	Jute	1792
6	Summer Vegetables	15,085
7	Winter Vegetables	15,620
8.	Potato	16,655

Source: Deptt. of Agriculture (Morigaon District Office)2006.

The wholesale trade in the town is mixed with retail trade and no specific area is found where whole sale trade is being done. There are 7(seven) nos. grocery and 1(one) no. hardware whole sale shops in Morigaon town area.

3.5. INDUSTRIES

Morigaon is not industrially developed district of Assam. There is no public sector industry set up in the Master Plan area of Morigaon .In spite of the presence of District Industries Centre (DIC) and government of Assam Industrial policies, nothing tangible has been seen in the field of Industrial infrastructures. The existing industries can be classified mainly into

- (i) food and kindred products
- (ii) forest products
- (iii) manufacturing excluding transport equipment and
- (iv) cotton textile.

3.6. AGRICULTURE

According to Census, most of the population of the district is engaged in Agriculture. Agriculture is highly depended upon the nature of soils. The district is under the Agro-climate zone of "Lower Brahmaputra Valley". Agriculture is the main livelihood for majority of the people of the district. About one third of the total workforce has taken agro-based activities as means of livelihood. The principal crops are Autumn paddy, Winter paddy, Mustard, Rape seeds, Wheat and Jute. Other than agriculture, a small portion of work-force is engaged in live- stock, forestry, fishery etc. The Agricultural as well as natural resource is not satisfactorily exploited for industrial purpose.

28.70 % of the total area of the master plan area is under Agricultural zone. There are numerous schemes in place to promote agricultural development in the region. Some of them are NFSM-RICE, NFSM- Pulse, ATMA, BGREI, PMFBY, PMKISAN, etc. There is immense scope for agricultural development in the region. Allied agricultural activities such as horticulture, bee-keeping, mushroom cultivation, and vermi-composting can be explored on a larger scale.

3.7. ANIMAL HUSBANDRY AND VETERINARY

Morigaon district is full of livestock. Cattle and Goats are very common domestic animals for most of the households of the district. Moreover, buffaloes, sheep, pigs, horse, ducks etc are found in the district. People generally graze their domestic animals on the rice fields after harvesting of crops. In the night, the animals are kept in sheds by the owners and give them paddy straw for food which are kept in stock in the courtyard. Besides, there are the village grazing reserves where the villagers can graze their animals.

The Department of Animal Husbandry and Veterinary has been constantly helping the farmers for their animals. In order to improve the cattle breed, measures have been adopted by the above Department. Contagious and infectious diseases are also prevalent in the district. To protect animals from various diseases preventive measures are taken by the Department.

3.8. FISHERY

Pisciculture is the becoming popular among all section of the people irrespective of caste and creed. Fisheries in Assam are of various kinds. It is a profitable business particularly for the beel bidders who through auction can exploit either from the Government or from the local authority. In the Morigaon district there are 84 Beel fisheries and 4798 Pond & Tank fisheries which covered 8299 hec and 720 hec area of land respectively.

3.9. PLANTATION AND HORTICULTURE

The district has vast potential for development of plantation and horticultural crops. There has been an impressive growth of horticultural crops in the district in recent years. Rubber cultivation is an emerging activity in the district for which endeavour is to be made by the Rubber Board. Besides rubber, coconut, banana, and black pepper are some of the important horticultural crops of the district.

In respect of sericulture activities, Morigaon is one of the important locations in Assam for producing the good quality Eri cocoons and its fabric. Since the feedstock is abundantly available, the district has very good potential for the development of eri culture in particular. Commercial cropping of Jute, Tea and rubber has potentialities in the district. However, these areas have not been made commercially viable.

3.10. LIVESTOCK AND DIARY

Livestock and dairy farming are common practices in the rural households of Morigaon district. As per the Livestock Census of 2003, the district has different types of livestock including cattle, buffaloes, sheep, goats, pigs, horses, fowls and ducks.

The poultry farming is a growing business in Morigaon. The district is dependent on nearby districts like Kamrup for supply of inputs such as day old chicks and feed for the units in the district.

3.11. OFFICES

Most of the District level offices are situated in Morigaon town as it is the District head quarter of Morigaon District. Most of the offices have been established newly, they have been running in rented houses. A few nos. of offices have their own building.

CHAPTER –4

HOUSING AND SHELTER

4.1. HOUSING ENVIRONMENT

The social and cultural life in an urban centre is greatly influenced by the living condition and total environment of its residential area which is generally the largest land use in an urban settlement. Housing contributes to the overall urban form and makes significant impact on its functioning. Housing environment which includes living condition within and outside dwelling unit is to be taken care of at the time preparing a master plan for an urban centre. The site condition, provision of water supply, drainage, road network, other amenities like education, health, recreation are significant aspects of external housing environment and dwelling unit space per person, nature of utilities within the house, tenure status, occupancy, age and structural condition are vital aspects of internal housing environment.

In India, the Census office defines a house as a building or part of a building having separate main entrance from the road or common courtyard or staircase, etc. used or recognised as a separate unit. It may be occupied or vacant. It may be used for residential or non residential purpose, or both.

The housing scenario in Morigaon Master Plan Area has witnessed a change in the recent years due to government schemes and spread of loan related financial literacy, but there still persists a gap between the demand and supply of dwelling units. The issue is somewhat pronounced in Morigaon Municipal Area, which has seen influx of job seekers especially menial workers in search of better economic prospects. This has necessitated the development of shelters and low cost houses to prevent sprouting of slums and squatters without basic amenities. The problem regarding housing in MorigaonMunicipal Area is also of unsatisfactory physical and social conditions due to overcrowding and congestion factor. In the rural areas, the problem is of unsound housing quality. Some of the housing problems being faced in rural areas are:

- Rural houses lack basic amenities like sanitation.
- The houses do not provide adequate protection to occupants against wind, rain and cold.
- The houses are infested with insects and rodents, which are major health hazards.

While changes are happening in the housing scenario of Morigaon, the process has been slow primarily due to high construction costs which most people are unable to afford. As a result, Morigaon is lagging behind in terms of adequate housing backed by proper facilities and basic amenities to lead a dignified life.

4.1.1. TYPES OF HOUSES

In Morigaon, basically 3 types of houses are being built-

- Kutch House: A house having mud floor, bamboo wall plastered with mud and thatch roof.
- Assam Type (Semi pucca): A house having brick wall, cement concrete flooring, CGI/AC sheet roofing.
- Pucca House: A house having cement concrete flooring, brick wall and RCC slab roofing.

Most of the houses in Morigaon are self-built. There is no presence of private builders in the scene. To provide assistance for house construction and renovation, especially to the Economically Weaker Section (EWS), Low Income Group (LIG), Middle Income Group (MIG), minorities, socially backward sections of society and physically challenged, the government has put in place affordable housing schemes. These have brought about a perceptible change in the housing scenario.

The houses constructed in Morigaon are either self-occupied or rented. Rented accommodation is particularly noticeable in Morigaon Municipal Area due to the presence of workers and students from peripheral villages. In Morigaon Master Plan Area excluding the Municipal Area, an insignificant proportion of houses are rented. The Table below shows the status of owned and rented houses in Morigaon as per Morigaon District Census Handbook, 2011:

Table 4.1:Housing Typology of Morigaon Master Plan Area

Ownership Status	Morigaon Municipal Area	Morigaon Master Plan Area excluding the municipal Area	Total Morigaon Master Plan Area
Owned	5111	5245	10356
Rented	1265	70	1335
Any others	251	104	355
Total	6627	5419	12046

Source: District Census Handbook, Census of India 2011

1265 households live in rented accommodation in Morigaon Municipal Area, which is 10% of the total households. In Morigaon Master Plan Area excluding the Municipal Area, 5245 households which is 43.54% of the total households are owned and only 70 is rented.

4.2. CONDITION OF DWELLING UNITS

Housing condition indicates the physical state of the house or dwelling unit. Census has classified dwelling units into good, livable, and dilapidated. They can be defined in the following manner-

- a) Those houses which do not require any repairs and are in good condition may be considered as 'Good'.
- b) Those houses which require minor repairs may be considered as 'Livable'.

c) Those houses which are showing signs of decay or those breaking down and require major repairs or those houses decayed or ruined and are far from being in conditions that can be restored or repaired may be considered as 'Dilapidated'.

The percentage distribution of households based on different housing condition in Morigaon can be understood from the following table:

Table 4-2: Structural condition of houses in Morigaon Master Plan Area, 2011(% of HHs)

Condition of Census houses as	Morigaon Municipal Area	Morigaon Master plan Area excluding the Municipal Area	Total Master Plan Area
Good	3679	1892	5571
Livable	2585	2863	5448
Dilapidated	363	664	1044
Total	6627	5419	12046

Source: District Census Handbook, Census of India 2011

The table above reveals that 46.24 per cent households in Morigaon Master Plan Area live in 'good' houses, while another 45.22 per cent live in 'liveable' houses. Since livable houses means houses that require only minor repairs, while good houses require no repairs, it indicates that majority of the houses are structurally stable. In the total master plan area of Morigaon only 8.67 per cent houses are dilapidated. Such houses require intervention through the various housing supply schemes of the government which may be looked into through planning by the Morigaon Municipal Board and the various Panchayats, who are responsible for implementation of government funded schemes.

4.3 HOUSING STRUCTURE:

The Housing Structure can be classified into the following categories:

- **Permanent:** Houses with wall and roof made of permanent materials. Wall can be made of G.I., Stone packed with Mortar, Stone not packed with Mortar, Metal, Asbestos sheets, Burnt bricks, Stone or Concrete. Roof can be made of Hand-made tiles, Machine made tiles, Slate, G.I., Metal, Asbestos sheets, Brick, Stone or Concrete.
- **Semi-Permanent:** Either wall or roof is made of permanent material, and the other is made of temporary material.
- **Temporary:** Houses with wall and roof made of temporary material. Wall can be made of Grass, Thatch, Bamboo etc., Plastic, Polythene, Mud, Unburnt brick or Wood. Roof can be made of Grass, Thatch, Bamboo, Wood, Mud, Plastic or Polythene.
- **Serviceable temporary:** Wall is made of Mud, Un-burnt brick or Wood.
- **Non-serviceable:** Wall is made of Grass, Thatch, Bamboo etc., Plastic or Polythene.

The following table shows the distribution of households based on the structure:

Table 4.3: Housing Structure of Morigaon MP Area

Structure of the Households		Morigaon Municipal Area	Morigaon Master plan Area excluding the Municipal Area	Total Master Plan Area
Permanent		3830	1633	5463
Semi-Permanent		2573	3420	5993
Total Temporary	Serviceable	6	15	21
	Non-Serviceable	201	333	534
Unclassifiable		16	19	35
Total		1042	5044	12046

Source: District Census Handbook, Census of India 2011

A sizeable portion of the population in Morigaon lives in Temporary, Serviceable, and Non-Serviceable houses. These houses are easily prone to damage due to rainfall or natural calamities like earthquakes and floods.

4.4. HOUSING CONSTRUCTION MATERIAL: ROOF, WALL AND FLOOR

The condition of housing can be analysed through the study of the materials used in the construction of the roof, floor and walls. These three components help in understanding the viability of the house as an all-weather house. This is especially important in the flood plains of Assam, where floods are an annual occurrence across various locations in the state.

Table 4.4: Roofing Material of Morigaon Master Plan Area, 2011 (% of HHs)

Roof Material	Morigaon Municipal Area	Morigaon Master Plan Area (excluding MB area)	Total Master Plan Area
Grass/Thatch/Bamboo/Wood/Mud etc.	3%	6.2%	4.4%
Plastic/ Polythene	0.16%	0.9%	0.49%
Handmade Tiles	0.29%	0.23%	0.25%
Machine made Tiles	0.01%	0.18%	0.01%
Burnt Brick	0.10%	0.18%	0.07%
Stone/ Slate	1.16%	0.25%	0.76%
G.I./Metal/Asbestos sheets	91.5%	92%	91.83%
Concrete	3.47%	0.59%	2.17%
Any other material	0.27%	0.9%	0.19%

Source: District Census Handbook, Census of India 2011

The housing census information in the table above reveals that across the Morigaon Master Plan area, more than 91.83 per cent houses use G.I., metal and asbestos sheets in the construction of their roofs. This makes it clear majority homes in Morigaon master plan area are Assam-type houses. Another 4.4 per cent houses in the total area use degradable natural products like grass, thatch, bamboo, wood, mud, etc. These houses would require frequent maintenance and change in the roofing material to keep the houses safe from the heavy monsoon rains. The growing trend across the state is to construct completely concrete homes, with RCC roofs. However in Morigaon Master plan Area it is seen that only 2.17 per cent of houses have concrete or RCC roofs.

Table 4.5: Wall Material used in the Morigaon Master Plan Area, 2011(% of HHs)

Wall Material	Morigaon Municipal Area	Morigaon Master Plan Area (excluding MB area)	Total Master Plan Area
Grass/ Thatch/ Bamboo etc.	34.53%	63%	38%
Plastic/ Polythene	0.62%	0.7%	0.65%
Mud/ Unburnt brick	3.49%	5%	3%
Wood	0.23%	1%	0.53%
Stone not packed with mortar	1.77%	0.36%	1.13%
Stone packed with mortar	2.8%	1.44%	2.2%
G.I./ Metal/ Asbestos sheets	0.06%	0.03%	0.05%
Burnt brick	54.63%	25.8%	41.67%
Concrete	1.75%	2.56%	2.11%
Any other material	0.13%	0.25%	0.18%

Source: District Census Handbook, Census of India 2011

Continuing the trend of Assam-type homes in Morigaon, it is seen that 38 per cent houses use biodegradable materials like bamboo, thatch, etc., to construct the walls. 34.53 per cent houses in the Morigaon Municipal area comprise of such houses while 63 per cent houses in the extended municipal area in the surrounding rural hinterlands have degradable wall materials. In the total master plan area, 41.67 per cent houses use burnt bricks, a permanent material for constructing walls. The share of such houses in the municipal area is 54.63 per cent, while in the extended master plan area this share is 25.8 per cent. Mud and un-burnt bricks for walls is used by a considerable 3 per cent houses in the total master plan area. It is noticeable that a less percentage of houses use concrete walls, in the entire planning area. Even in the Municipal area the share is similarly low.

Table 4.6: Floor material used in Morigaon Master Plan Area, 2011 (% of HHs)

Floor Material	Morigaon Municipal Area	Morigaon Master Plan Area (excluding MB area)	Total Master Plan Area

Mud	44.15%	83.44%	61.83%
Wood/ Bamboo	0.15%	0.12%	0.13%
Burnt Brick	33.04%	4.58%	20.23%
Stone	0.04%	0.28%	0.16%
Cement	20.98%	10.25%	16.15%
Mosaic/ Floor tiles	1.57%	1.29%	1.44%
Any other material	0.01%	0.05%	0.03%

Source: District Census Handbook, Census of India 2011

The table above analyses the floor material used in the Morigaon Master Plan Area and it shows that 61.83 per cent households have reported using mud as the dominant material. This share in the Municipal area alone is only 44.15 per cent, while in the extended rural hinterlands, the share is a high 83.44 per cent. Other significant material used for floor construction is cement, of which the share in municipal area is 20.98 per cent, while in the extended area is 10.25 per cent. In the Municipal Area, a considerable 1.57 per cent houses are using floor tiles and mosaic in their floors, but in the rest of the master plan area this share is still a lower 1.29 per cent.

4.5 AVAILABILITY OF KITCHEN:

Meals may be prepared by the household under the following settings:

- In a separate room inside the house.
- Inside the house but in an unenclosed space. No separate kitchen is available.
- In a separate room outside the house.
- Outside the house in an open space.

The following table depicts the availability of kitchen across households in Morigaon

Table 4.7: Availability of Kitchen in Morigaon MP Area

Kitchen Facility		Morigaon Municipal Area	Morigaon Master Plan Area excluding the Municipal Area	Total Morigaon Master Plan Area
Cooking inside house	Has Kitchen	5529	4238	9767
	Does not have kitchen	686	293	979
Cooking outside house	Has kitchen	340	715	1055
	Does not have kitchen	45	165	211
No Cooking		27	8	34
Total		6627	5419	12046

Source: District Census Handbook, Census of India 2011

4.6. AVAILABILITY OF LATRINE:

Availability of proper latrine with piped sewer system or septic tank is a must for households to lead a dignified life. Lack of access to latrine results in a plethora of problems. Open defecation and outdated latrines like Pit Latrine and Service Latrine creates an unhealthy environment by attracting flies and contaminating land and water sources. It is known to spread fatal diarrhoeal diseases especially among children. It also creates discomfort and raises security issues among adolescent girls and women.

The following table depicts the distribution of the availability of latrine facilities across households in Morigaon:

Table 4.8 : Availability of Latrine in Morigaon MP Area

Latrine Facility		Morigaon Municipal Area	Morigaon Master Plan Area excluding the Municipal Area	Total Morigaon Master Plan Area
Flush/pour flush latrine	Piped sewer system	1000	357	1357
	Septic tank	3019	430	3449
	Other system	532	605	1137
Pit latrine	With slab/ventilated improved pit	740	925	1665
	Without slab/open slab	744	942	1686
Night soil disposed into open drain		10	53	63
Service latrine	Night soil removed by human	212	0	212
	Night soil serviced by animal	5	20	25
Households not having latrine		365	2087	2452
Total		6627	5419	12046

Source: District Census Handbook, Census of India 2011

The table paints a gloomy picture of the sanitation condition in Morigaon. However, it should be noted that the access to latrines have improved immensely in the recent times. Individual Household Latrines (IHLs) have been constructed under the Swachh Bharat Mission launched on 2nd October, 2014.

4.7. AVAILABILITY OF BATHROOM:

The following table shows the availability of bathroom across households in Morigaon:

Table 4.9 : Availability of Bathroom in Morigaon MP Area

Bathroom Facility		Morigaon Municipal Area	Morigaon Master Plan Area excluding the Municipal Area	Total Morigaon Master Plan Area
Yes	Bathroom	4071	1049	5120
	Enclosure without roof	1047	1050	2097
No Bathroom		1509	3320	4829
Total		6627	5419	12046

Source: District Census Handbook, Census of India 2011

From the table, it is clear that 4829 households or 40% of the households under Morigaon Master Plan Area do not have access to bathrooms. 2097 households or 16.5% have only enclosures without roof. This is a major barrier in the way of living a dignified life, and reflects how the master plan area is lagging behind.

4.8. AVAILABILITY OF DRAINAGE FACILITY:

Drainage system is used for disposal of waste water and other liquid waste from the house. It can be either closed or open. If a house has water outlet to carry away the waste water to an underground network, it is termed as closed drainage. If the water outlet is connected to open drains, it is called open drainage. If open drainage is used to carry sanitary wastes, it can be very unhygienic and pose health risks. Proper drainage system is crucial to prevent water logging and property damage.

The following table shows the availability of drainage facility in Morigaon:

Table 4.10 : Availability of drainage in Morigaon MP Area

Waste water outlet connected to-	Morigaon Municipal Area	Morigaon Master Plan Area excluding the Municipal Area	Total Morigaon Master Plan Area
Closed Drainage	914	105	1019
Open Drainage	1284	474	1758
No Drainage	4429	4840	9269
Total	6627	5419	12046

Source: District Census Handbook, Census of India 2011

4840 households or 89.31% of the households in Morigaon Master Plan Area excluding the Municipal Area do not have any drainage facility. Closed drainage system accounts for only 13.79% of the availability of drainage in Morigaon Municipal Area, and 1.93% in Morigaon Master Plan Area. This paints a sad picture of the overall sanitation condition in Morigaon.

4.9.HOUSING SITUATION

4.8.1. Household Family size

The following table shows the no. of person per house in Morigaon MP area:

Table 4.11 : Family household size in Morigaon MP Area

Year	Number of Residential Houses	Total Population	Number of Persons per Houses
2011	12046	52869	4.4

Source: District Census Handbook, Census of India 2011

4.8.2. Housing Shortage

Housing shortage in Morigaon Master Plan Area considering census 2011 housing data has been taken into consideration.

Table 4.12 : Factors taken into considerations for Housing Shortage

Sl. No	Factors	Description	Remarks
1	Obsolescence factor	As decided by ninth plan working group committee of GoI, dwelling units aged 80 years or more are treated as obsolete. Percentage of households living in the dwelling units having age 40-80 years and in bad condition and percentage of households living in all structures aged 80+ years, irrespective of condition of structure, taken together as obsolescence factor and considered as housing requirement.	1044 HHs (refer in Table 4-2)
2	Temporary housing	All temporary houses should be considered as housing requirements as per	555 HHs (21+534) of total no. of HHs in Master plan area

		recommendations. According to census data both Temporary houses and unclassifiable houses should be taken into consideration to arrive at the total number of temporary housing	<i>lived in temporary structure. (refer in Table 4-5)</i>
3	Houses with predominantly katcha or semi pucca roof material	Houses with Katcha and Semi Pucca roof in the cities are considered to be contributing towards the actual housing stock	639 HHs <i>(refer in Table 4-6)</i>

*Source: Assam Urban Affordable Housing & Habitat Policy
Analysis by DD Dist. office, Guwahati*

Therefore the total housing shortage for Morigaon Town is calculated as follows:

Table 4.13 : Computation of Current Housing Shortage in Morigaon

Parameter	Number of Housing Units
1. Obsolescence factor	1044
2. Temporary housing	555
3. Houses with predominantly katcha or semi pucca roof material	639
Total Housing Shortage	2238
Total HHs in Morigaon MP area (as per 2011 census)	12046
Housing Shortage in percent (Housing Shortage / No. of Urban HHs)	18.57%

Source: Calculated Values

Based on the above table 4-13, in 2011 the housing shortage works out to be around 2238 in Morigaon Master Plan Area.

4.8.3. Housing Need assessment:

The numbers of dwelling units available in comparison to the total population reveals that there is congestion both in the town as well as in surrounding villages within the Master Plan Area. So there will be a demand of additional houses in the MP area in future.

The projected housing requirement in Morigaon Master Plan area in 2041 is as under:

Table 4.14 : Future Housing Shortage in Morigaon MP Area in a decade

Year	Projected Population	Incremental Population in a decade	No. of persons per households	No. of HHs needed	No. of HHs Available	Housing Demand	Shortage in 2011	Total Deficit
2011	65227	-	5.41	12056	12046	10	2238	2248
2021	81,652		5.41	15092	-	3036	-	5284
2031	1,00,023		5.41	18488	-	3396	-	8680
2041	1,21,109		5.41	22386	-	3898	-	12578

Source: Calculated Values

It is seen from the Table that approximately 12578 new housing units needs to be distributed in the existing and new developments in the next 30 years. Also, it is enunciated to provide 20% allocation of dwelling units in the flatted group housing projects for Economically Weaker Section (EWS) and Low Income Group (LIG) preferably at cross-subsidized rates.

4.10. IDENTIFICATION OF SUITABLE GOVERNMENT/ULB LAND FOR HOUSING

The government land parcels in and around the Morigaon town can be used for developing affordable housing. Most of these lands are underutilized and prone to encroachment. Rental housing complexes can be developed to accommodate migrant workers and prevent the sprouting of slums and squatters. Private investments in government lands can be explored. Different models of PPP can be adopted to make use of these underutilized lands and move closer to the target of achieving Housing for All by 2022. Private real estate developers should be invited to partner with the government to build affordable residential projects. This will ensure efficiency and faster delivery of houses. The area under the Municipal Board considering ward no. 2,3,7 and 11 may be taken for Local Area Planning Projects. Further the area

CHAPTER 5

TRANSPORTATION

5.1. INTRODUCTION

Transportation facilitates commerce and communication. It provides access to places of employment, recreational centres and medical facilities. It is also the engine of economic growth. It is an integral component of supply chain management and therefore, a sound transportation infrastructure is crucial for maintaining price stability.

Transportation network of a town increases its efficiency. The study of traffic volume in different roads, condition of roads etc. are necessary to evolve a suitable circulation plan of the planning area and also provide with short term as well as long term measures for an efficient system.

5.2. NETWORK OF ROADS

The Morigaon town is connected with NH-37 by all weather surface roads such as

1. Raha Barapujia Morigaon Road
2. Nagaon-Via –Barapujia Sidha Morigaon Road
3. Morigaon Pachatia Darial Motiparbat Road
4. Jagiroad –Morigaon –Via Bhakat gaon Road.
5. Dharamtol Dandua Road.

Two more surface roads –Morigaon Lowbhuruga Kutibali Road and Baruaghat Bhuragaon Road are connecting the town with the surrounding villages. Means of transport generally used for travel to and fro from the town are as follows –Bus, Truck and Light Vehicle etc.

Morigaon district Headquarter is not connected with railway. The nearest railway station to the town is Dharamtul, which is situated at a distance of 8 kms from the town. So the people of the Morigaon town do not enjoy the benefit of railway connection directly. There is no navigable river or canal passing through Morigaon Master Plan Area, thus no water ways is found in the Planning Area. Morigaon town is not connected by Airways too. The nearest airport is at Barjhar, Guwahati 78 kms. away from Morigaon town.

The town is well connected with State Capital Dispur (Guwahati) Via Jagiroad by all weather surface roads, which is about 80 kms away from the town. The nearest District Head Quarter town Nagaon is situated at a distance of 45 kms away from Morigaon town which is also well connected by no. of roads to Morigaon Town. Thus Morigaon Master Plan Area is connected by surface transport only.

REDUCED LEVEL(RL) for some of the important places of Morigaon town are mentioned below:

Sl.	Name of the Places	RL
1.	Morigaon Domal road at CH.0.00 on left side	59.48
2.	Pachatia, Ukha Chariali Point	59.15
3.	Punjab National Bank entrance	59.75
4.	Morigaon college Gate at Road Top Level	60.67
5.	Morigaon Burbandha road oppo. Manju Fashion	59.55
6.	Barangabari Petrol Pump Entrance	59.30
7.	Maya Bazar Entrance	59.71
8.	DC office backside near Tarun Field	59.19
9.	Dumping ground field at Road Top Level	59.62
10.	At the top of the end chainage of the Drainage lengthat Malpota.	60.34
11.	Khandajan Bridge	62.75

Source: PWD Roads, Morigaon

As discussed the Zero Point has been fixed within the premises of the Office of the Deputy commissioner, Morigaon.

5.3. CIRCULATION PATTERN

The road from Jagiroad to Nagaon passes through Morigaon town which acts as a mainroad of the town. The other roads are connected to this road. The road condition of Morigaon Town and Morigaon Master Plan Area is not good.

5.4. MAJOR TRAFFIC NODES

Primary survey has been conducted to find out the different traffic generating nodes and their characteristics have been noted as follows:

Table 5.1: Traffic generating nodes in Morigaon M.P Area. (Source: Primary survey by T& C.P.)

Area	Location	Description
A. Town Area	(i) Police point	Connecting main market area and linking administrative offices
	(ii) M.M Choudhary Road & Uttar PachimParibahan Santha Bus Stand	Connecting Bus stop and town level activities
	(iii) Tiniali Intersection point of Morigaon-Jagiroad towards	Connecting Administrative offices.

B. Borigaon	stadium	Connecting town with NH-37
C.	i) BarigaonDobari point	
Morakolong	ii) Khanajan point	

Connecting nearby hinterland with town for trading of rural products.

The number of fast moving vehicles given in the table below pertains to whole jurisdiction of D.T.O Morigaon.

Table 5.2. : Growth of fast moving vehicle.

Year	Truck	Light Vehicle		Bus
		Four wheeler	Three Wheeler	
2001	215	191	13	-
2002	388	111	16	13
2003	134	98	24	5
2004	19	74	120	5
2005	74	108	52	5

Source: - DTO, Morigaon

5.5. TRANSPORT TERMINALS

The following are the transport terminals in Morigaon Town.

Terminals Centre	Location	Observation
Intercity	Bus Station	
	1) ASTC Bus Station	-Waiting Shed/Toilet available but quality should be improved - More or less planned - Run by ASTC-
	2) North West Public Bus Stand	-No waiting Shed/ Toilet -Gravel surface -Unplanned
	3) Nagaon Dhing Bus Stand	-No waiting Shed/ Toilet - Gravel surface -Unplanned
	4) Bhurbandha Bus Stand	- No waiting Shed/ Toilet - Gravel surface

		-Unplanned
Mini Bus Stand	Two Number of Mini Bus Stands	-Road side parking -Totally unplanned
Auto Rickshaw Stand	1)Near Tarun Tokies Cinema Hall 2)Near NWPB Stand	-Road side parking
Tracker Stand	In front of APEX Bank	- Road side parking
Truck Terminus	By the side of Weekly Market	- Unorganized - No loading unloading shed

The following table shows the no. of passenger buses getting in and out from different Bus Terminals of Morigaon Town.

Table 5.3 : Incoming & Outgoing no. of Buses from different Bus Terminals

Name of Bus Terminals	In	Out
1. ASTC Bus Stand	21	21
2. Noth west Public Bus Stand	17	17
3. Nagaon Dhing Buragaon Bus Stand	21	21
4. Bhurbandha Bus Stand	25	25

Source: Primary survey, T&CP Nagaon.

5.6. TRAFFIC VOLUME

The Traffic volume survey was done by T&CP and the following table shows the Traffic volume at different points of different roads within Morigaon Town area during peak hours ie from 9.00 AM to 10.00 AM.

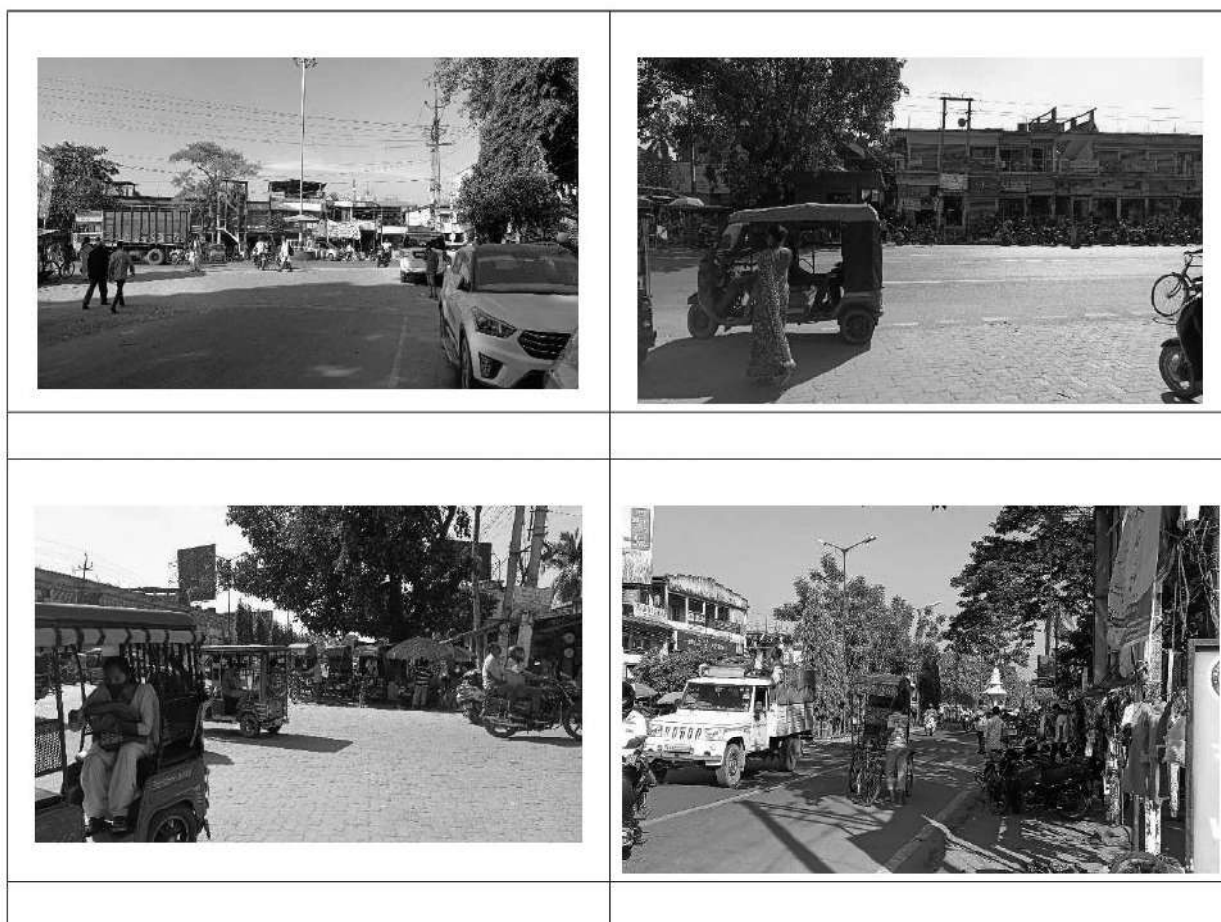
Table 5.4.: Traffic volume survey data

Sl No	Name of the Road	Name of the Point	Incoming		Outgoing	
			Fast moving	Slow moving	Fast moving	Slow moving
1	Morigaon Town to Nagaon Road	In front of Morigaon College	137	281	130	236
2	Morigaon Town to Jagiraod Town Road	In front of GKB College	71	167	61	53
3	Morigaon Bhurbhandha Road	Near PWD office	203	321	130	167

Source: - T&CP

5.7. MAJOR CONGESTIONS

It has been observed from the traffic survey that areas of New Chowk, Morigaon Station Chowk, Morigaon College Chowk, face traffic congestion especially during peak hours. In New Chowk, it has been observed that frequent closure of the rail gate obstructs the flow of traffic and causes jams.



Pic. Showing some of the scenes from Morigaon Traffic congestion area

CHAPTER-6

INFRASTRUCTURE

6.1. PHYSICAL INFRASTRUCTURE

To ensure that urbanization happens sustainably, a well-executed delivery of urban services is a must. A sound infrastructure of urban services is necessary for combating diseases and poverty and improving the quality of life. Accordingly, the urban service profile refers to the current state of infrastructure and utility systems in the city. It indicates the adequacy or inadequacy of infrastructure services in terms of coverage, quantity, and quality, and attempts to identify the factors responsible for inadequate development of infrastructure services. It measures the gap between demand and supply of different infrastructure services, and examines the factors that explain the gap.

6.1.1. Water Supply

In Morigaon Master Plan Area, the need for water is primarily met through private means like hand-pumps. The following table gives the percentage distribution of the sources of drinking water in Morigaon as per the Census of India, 2011:

Table 6.1 : Main Source of Drinking Water in Morigaon

Area	Percentage of HHs-										
	Tap water from treated source	Tap water from untreated source	Covered well	Un-covered well	Handpump	Tubewell/Borehole	Spring	River/Canal	Tank/Pond/Lake	Other sources	Total
Municipality	513	77	62	64	5772	66	0	3	4	66	6627
Outside Municipal Boundary (inside MP Area)	73	29	19	107	5027	45	0	1	1	117	5419

Source: District Census Handbook, Census of India 2011

87.09% of the people in Morigaon Municipal Area use hand-pumps as their main source of drinking water. Only 7.74% use tap water from treated sources. This figure is even lower outside the municipal boundary at only 1.10%.

6.1.2. Present Water Supply Status:

A majority of the people in Morigaon Master Plan area depend on their own sources for water like hand-pumps, tube-wells, etc. The Public Health engineering Department has been given the responsibility of supplying water in Morigaon district. The table below shows tap water connections in the following villages of the Morigaon Master Plan area:

Table 6.2 :Ongoing Scheme and targets set

Location	EXISTING SCHEME	EXISTING SCHEME FHTC	NEW SCHEME PROPOSED	NEW SCHEME FHTC	SOURCE OF WATER	REMARKS
OjariPathar			Ojaripwss	434	Ground water	
Ojarigaon			Ojaripwss	434	Ground water	
Nowagaon	Ahatguri Natuagaon pwss	352			Ground water	
Basanaghat			Khandajan Bilamur pwss	444	Ground water	
Ahatguri Natuagaon	Ahatguri Natuagaon pwss	352			Ground water	
Ghoramara Pathar	Ghoramara Pathar pwss	218			Ground water	
Rajagaon						Town Area
Raina Pathar			Khandajan Bilamur pwss	444	Ground water	
Morakolong 2			Morakolong no 2 pwss	723		Process ongoing for land allocation
Sidhabari			Narayan Bazar pwss	155		Process ongoing for land allocation
Naokata			Naokata pwss	258		Process ongoing for land allocation
Kachmari Pathar Part-I	Kachamar ipwss	323			Ground water	
Kachamari Pathar Part-II	Kachamari pwss	323			Ground water	
Dolichuba	Doloichuba pwss	327			Ground water	

Niz Dandua Part -I	Haldibari pwss	365			Ground water	
Nix Dandua Part II	Sapkati pwss	438			Ground water	
Banpara Part-I			Banpara pwss	352		Process ongoing for land allocation
Banpara Part-II			Banpara pwss	352		Process ongoing for land allocation
Borigaon			Solmari Barigaon pwss	570		Process ongoing for land allocation
Gosbari						Town Area
Mori Pasatia						Town Area
Morigaon Part-1			Town Scheme(Near Civil Hospital)		Ground water	
Morigaon Part-2			Town Scheme(Near DC Qtr)	126	Ground water	
Morigaon Part-3						Town Area
MaidhaliPathar			Maidhali Pathar pwss	303		Process ongoing for land allocation
Burhagaon						Town Area

Source: PHE ,Morigaon.

6.1.3. Water Demand Estimation for Resident in Morigaon MP Area:

As per the water supply demand calculation, the existing water supply demand is 5.5 MLD, whereas the demand will increase to 6.05 MLD by 2031 and 6.6 MLD in 2041.

Table 6.3: Water Demand Assessment

Description	2021	2031	2041
Total Population of Morigaon Master Plan Area	81652	100023	121109
Projected Water Demand (MLD)			
Total Water Demand @ 135 LPCD	11	13.5	16
15 % O & M loss	0.6	0.7	0.8
Sub Total	11.6	14.2	16.8
2% Fire Fighting	0.23	0.29	0.34
Total Water Demand	11.83	14.49	17.14
Grand Total Water Demand (Say)	12	14.5	17.5
Add 10% extra (Say for defense area, Floating	1.2	1.45	1.75

population, Tourism, Service population etc.)			
Overhead Population Water Demand	13.2	15.95	19.25

Note: Cities provided with piped water supply where sewerage system is existing / contemplated- 135 lpcd (URDPFI Guidelines)

6.2. DRAINAGE

There is no planned drainage network for Morigaon town. Water logging is common phenomenon in rainy seasons in Morigaon town. In town, some drains are constructed along some selected roads on piece-meal basis to solve the water logging problem in the town area without constructing the ultimate outlet points. The Town Committee has been constructed kutchra drain along most of the roads and pucca drains have been constructed along a few road. In the villages of Morigaon Master Plan area, only in few villages like Borigaon, kutchra drains along roads are found here and there.

Table 6.4.: Different type of Drains with length in Morigaon Master Plan Area

Type of drain	Morigaon town Area	Morigaon Master Plan Area excluding Town area
Kutchra	72.00 Kms	6.20Kms
Pucca	2.00 Kms	-

Source: - MTC & Primary Survey by T&CP Nagaon.

6.3. SEWERAGE

There is no sewerage network in the planning area. Sanitary latrines with septic tanks and soak pit have been found in all newly constructed houses in the planning area, but a quite no. of old houses have kutchra latrines.

Table 6.5.: % of different Type of Latrines in Morigaon Master Plan Area

Type of Latrine	Morigaon Town Area	Morigaon Master Plan Area excluding Town area	Total
Sanitary	54.52%	28.43%	41.48%
Kutchra	45.48%	71.57%	58.52%

Source: - MTC & Primary Survey by T&CP Nagaon.

As per Morigaon Municipal Board records, there are 1713 nos. sanitary latrines, 463 nos. low cost latrines and 2920 kutchra latrines in Morigaon town in 2006-07.

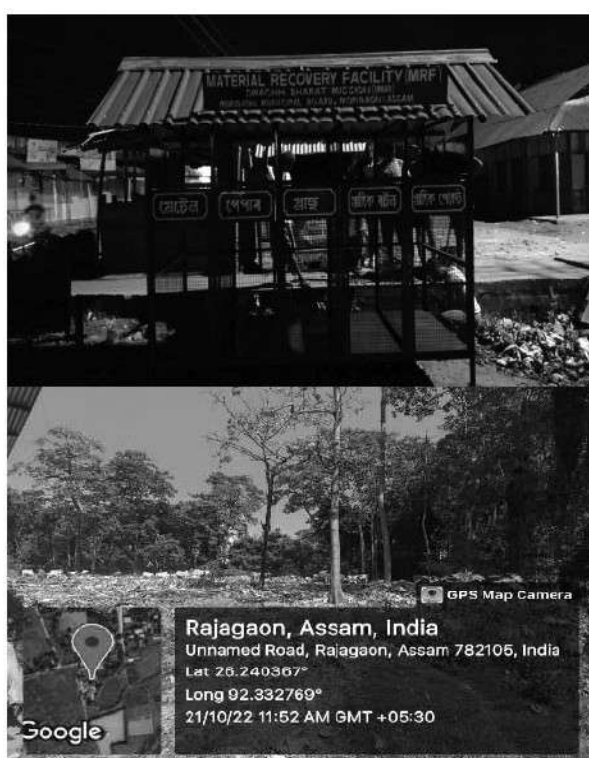
6.4. SOLID WASTE MANAGEMENT

Solid Waste Management refers to the practice of collecting, treating and disposing municipal wastes originating from materials which have lost its purpose and are of no value,

in accordance with the principles of public health, engineering, economics, aesthetics, etc. The sources of municipal solid wastes are- (i) residential wastes (ii) commercial wastes (iii) wastes from rituals (iv) desilting wastes (v) treated bio-medical wastes.

According to the Solid Waste Management Rules, 2016, all the ULBs are responsible for Solid Waste Management activities within their respective jurisdiction. In Morigaon, the waste collected are disposed in to a 3 bigha low lying land at Morakolong village near the burial ground.

Currently a total of 11.5 TPD waste is generated in the Municipal Board Area and 8.5 TPD waste is processed on daily basis. The Morigaon Municipal Board is comprises of 10 van for collecting garbage, a material recovery facility with a capacity of 500Kg is installed in the waste disposal area and an Organic Waste Converter with a capacity of 500 Kg.



6.5. ELECTRIC SUB STATION & MAJOR TRANSFORMER

Morigaon Town and the whole planning area are electrified from 132/33kv. Grid Sub-Station at Baghjap under the control of ASEB. One local Sub-Station 33/11kv. with 2.5 x 2MVA is in Morigaon Town. The detail status of various categories of consumers within the Master Plan Area are given below

Table 6.6.: Different categories of consumers of Electricity in Morigaon M.P Area

Sl No.	Category	Number	%
1	Domestic	4219	96.39
2	Commercial	100	2.97

3	Industrial	23	0.53
4	Others	5	0.11
	Total	4377	100%

Source: MTC & Primary Survey by T&CP Nagaon

6.6. HEALTH

Morigaon civil Hospital has only 100 beds at present with 23 no. Doctors and 20 no Nurses. Besides the Civil Hospital, there are only 1(one) no Dispensary, 1(one) no Maternity & Child welfare centre, 4(four) no sub-centers within Morigaon Master Plan Area.

As per the population in the planning area in 2001, there is 1(one) bed for 418 persons. Though this hospital serves the entire population of the district except Jagiroad thus 1(one) bed of the hospital has to serve more persons. There are few nos. private nursing home centre in the planning area; that too within the town limit .

6.7. EDUCATION

According to 2001 census of India, the literacy rate of Morigaon Town is 74.48% while in planning area excluding Town area is 62.48 %. As per primary survey conducted by Town & Country planning, Nagaon, and information collected from different offices of Education Deptt., Morigaon. The following table is prepared to show the number of educational institutions available in the planning area along with no. of student and teachers.

Table 6.7. : Educational Institutions with Enrolment & Teachers in Morigaon M.P

Category of Institutions	Total No. of Institutions	Enrolment	Teachers
1. Lower Primary School	29	3946	133
2. Middle English School	10	1113	96
3.High School	8	1808	108
4.Higher Secondary School	2	1405	70
5.Colleges			
i) General College	2	2458	88
ii) B.T College	1	NA	NA
6.Others, ITI	1	NA	NA

Source: Education Deptt. Offices, Morigaon.

There are no any professional colleges like Engineering College, Medical College, Law College, etc. in planning area. Morigaon College imparts education up to graduate level in Science & Arts streams, while GKB College imparts only Arts stream up to graduate level.

Novodaya Vidyalaya of Morigaon District is situated at village Doloichuba within Morigaon Master Plan Area. The only technical institution 'Industrial Training Institute' (ITI) Morigaon is situated at village Banpara I within Master Plan Area, which offers short term courses in few trades.

There are few private English as well as Assamese medium schools in Morigaon town viz. St. Theresa School, Mahila Home School, Model School, Sankardev Vidya Niketan etc. Type Writing, Shorthand Training Institutions are found in Morigaon Town. Computer Training Institutions for both software and hardware are found in the town.

6.8. CREMATION AND BURIAL GROUND

There are 17 (Seventeen) cremation grounds and 4(four) burial grounds in Morigaon town. The villages in Morigaon Master Plan area have cremation grounds or burial grounds.

6.9. COMMUNICATION

Morigaon town and the villages of Morigaon Master Plan area are well connected by Telecommunication through Optical Fibre Cable. FAX and INTERNET facilities are also available in the Master Plan Area.

There is one Head Post Office and one Telegraph Office in Morigaon Town. Moreover, there are Sub-Post Offices in Morigaon town. Raja Gaon, Doloichuba, Niz-Dandua and Banpara village.

6.10. POLICE STATION AND FIRE FIGHTING SERVICES

The entire Morigaon Master Plan Area comes under the Jurisdiction of Morigaon Police Station. The town has a police reserve and district police head quarter. Morigaon town has a district level fire fighting units.

CHAPTER – 7

ENVIRONMENT AND CITY BEAUTIFICATION PLAN

7.1. INTRODUCTION:

Urbanization is now a global megatrend and, around 64% of the developing and 86% of the developed world is expected to be urbanized by 2050. The beautification Plan envisions the creation of a network of richly landscaped parkways and public parks which will help preserve the cities bucolic past through a comprehensive greening of the city's public realm.

Beautification is the process of making visual improvements to a person, place, or thing, however, in the case of City beautification of Morigaon Master Plan area, a more comprehensive and detailed effort is required. The improvement of Morigaon requires a massive effort not only by the governmental agencies and authorities but also civic sense awareness is needed. Simply by adding purely visual elements, such as landscaping, planting trees, flowers, shrubbery or functional elements such as urban design, streetscape, street furniture, lighting, signage, bus shelters and fountains will not beautify the city. Morigaon requires an out of the box thinking which will encompass the entire city and will mitigate the effects of over population, lack of forward thinking and major projects which in the long term will enhance the beauty of the town and to attract people.

The vision for a city beautification plan should be:

“To Protect and enhance the quality of life through beautification of the built and natural environment and provision of outstanding public amenities”.

7.1.1. NEED FOR A BEAUTIFICATION PLAN:

Beautiful Towns are a source of civic pride for the people who live there. As the Morigaon town is growing haphazardly, so the town requires an uplift and revitalization of its resources which would enhance maximally the quality of life for its residents and provide them a desirable environment in which to live. A strategic plan has to be conceived with long term goals; the elements of the master plan will then be implemented progressively towards achieving the final goal.

The main benefits of having a strategic plan for beautification of Morigaon are:

- **Ability to make informed and consistent decisions** – the Beautification Plan provides facts on existing conditions and trends, enabling decision makers to better understand the impact of their decisions. In doing so, it gives decision makers a consistent reference point for directing beautification efforts and selecting beautification projects.
- **Wise use of resources** – The information in the Beautification Plan can be used in deciding and prioritizing which projects to undertake at what particular time.

- Preserving natural beauty – The Beautification Plan describes the town's beautification efforts in preserving the natural beauty.

7.1.2. CITY BEAUTIFICATION ISSUES:

Morigaon's high population growth, combined with difficulties in governance and inadequate investment in urban development, has resulted in uncontrolled and unplanned development in most areas of the city, deterioration in the existing urban environment and deficiencies in all forms of urban services. These include water supply, sewerage, roads, drainage, recreational spaces and solid waste management.

The city's major beautification issues can be summarized as follows:

- Lack of effective urban planning, land use control, and building regulations, coupled with limited financial capacities and inappropriate human skill resources.
- Absence of identification of strengths and promotion of opportunities which are unique to Morigaon.
- The lack of the context of arrival and welcome to its entry points.
- The absence of appreciation of the role played by the town's existing parks and public spaces.
- Excessive and indiscriminate littering throughout the town, especially along its roads and canals.
- Indiscriminate encroachment upon public areas and utilities such as roads, canals and parks.
- Poor management and lack of maintenance for physical urban features such as fountains, street lights, curbs and landscaped areas.
- Virtual non-existence and lack of maintenance of public amenity buildings such as public toilets and bus shelters.
- Need to improve traffic flow through introduction of a traffic management plan.

7.1.3. CONSTRAINTS IN BEAUTIFICATION OF CITY:

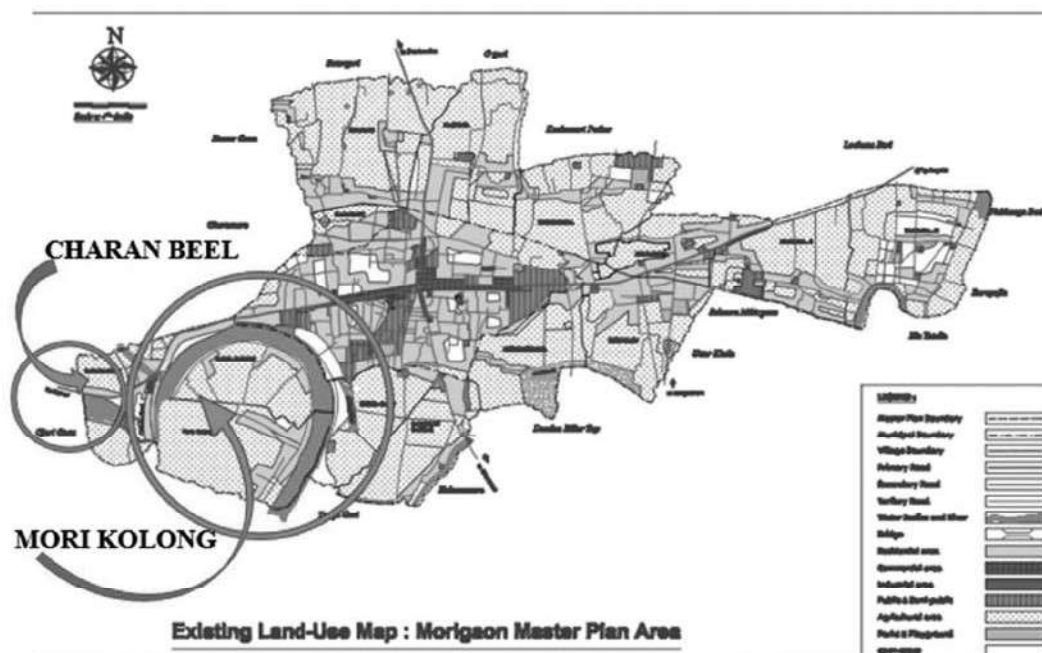
In addition to the issues pointed out, there are certain inherent constraints which indirectly adversely affect the planning, designing, development, implementation and management of projects related to beautification of the city – including, but not limited to:

- Existing physical conditions and a deteriorating urban environment.
- Ownership issues
- Lack of urban management and coordination among various agencies and authorities
- Lack of institutional capacity
- Absence of GIS based Information System and absence of a continuous feedback system
- Lack of any conservation, preservation and restoration activities
- Lack of financial resources.

7.2. DESCRIPTION OF ECO-FRIENDLY AREAS:

Wetlands have been one of earth's most important ecosystems providing food and habitat for aquatic life. The proposed area of Morigaon Master Plan includes important wetland area of Morigaon district which are mentioned below

1. Charan beel: A small part of the Charan beel falls in the Basanghat Gaon which is included in the master plan area of Morigaon. Charan beel is a freshwater perennial oxbow shaped wetland, situated in the district of Morigaon, Assam. Geographically, it is situated at longitude 92 17' 29" to 92 18' 13" (E) and latitude 26 12' 48" to 26 14' 2" (N). It covers an area of 63.34 hectares. The beel gives a very pleasant entry to the Morigaon district. Morigaon town is almost 4-5 kms away from the Charan beel. Besides it being a provider to the flora and fauna, the Beel has also paved paths for swimmers of the region to hone their craft and participate in water sports like Kayaking and Canoeing since the conduct of the 2007 National Games.
2. Morikolong Beel (also spelled as Morikalong or Marikalong) is a U-shaped lake located in Morigaon district of Assam. This lake is surrounded by Raina Pathar Village and Buhagaon village. Morakolongbeel located in the southern parts of Morigaon district of Central Brahmaputra Valley Zone, Assam at latitude 26°20'61.98" N and longitude 92°42'30.93" E. The beel was created by Kolong River, which is one of the largest rivers flowing through this sub-zone. This is an open beel which retain it connection with Kolong River through a connecting channel (Morakolong Jan). The total area of the beel is 25 ha.



3. Besides the two above mentioned water bodies few small water bodies are also present in the master plan area such as the Rupohibeel in Burha Gaon village, a small part of the

Kolong River in the Banpara-I and Banpara-II villages. Few ponds are also seen in the Proposed Master Plan Area which are shown in the existing land use Map of Morigaon Master Plan Area.

4. A huge area of swampy land is also present in the Morigaon Village and Borigaon Village shown in the existing land use Map of Morigaon Master Plan Area.

7.3. PLAN/MEASURES FOR PROTECTION AND CONSERVATION OF ENVIRONMENTALLY-FRIENDLY ZONES

Environmental conservation is the practice of us humans saving the environment from the loss of species, and the destruction of the ecosystem, primarily due to pollution and human activities. Conservation is vital in saving and helping both animals and trees as we are all dependent on one another for survival.

Environmental conservation and preservation are two terms that are often used interchangeably, although they are quite different. Conservation refers to the responsible management of the environment and its resources for present and future use. Preservation, on the other hand, is a much stricter approach where the environment, lands and natural resources are put away, not to be consumed by humans, but are instead maintained in their pristine form. If the land is to be used by humans, it should only be utilized for its natural beauty and inspiration.

METHODS OF ENVIRONMENTAL CONSERVATION

1. FOREST CONSERVATION AFFORESTATION AND REFORESTATION HELP IN CONSERVING THE FORESTS, WHICH ARE RESPONSIBLE FOR TRAPPING ABSORBING A HUGE AMOUNT OF CARBON DIOXIDE FROM REACHING THE ATMOSPHERE. WE SHOULD MAKE IT OUR LIFE MISSION TO PLANT TREES AS MUCH AS POSSIBLE, BOTH ON PUBLIC AND PRIVATE LANDS, AND TAKE CARE OF THEM. ADDITIONALLY, LEGISLATION THAT PROTECTS THE FORESTS SHOULD BE HIGHLIGHTED, SO THAT WE HELP IN ENVIRONMENTAL CONSERVATION.

2. Soil conservation

Soil conservation helps control erosions and improves the soil for agricultural purposes. We should plant more trees, protect pasture lands, and grow cover crops which regulate the blowing away of soils. We should also minimize the use of chemicals, use compost fertilizers and terrace farms on slopy lands.

3. Managing waste

Solid waste is produced by market areas, industries, homes, settlement areas and many other locations. We should therefore manage our solid wastes and help keep the environment healthy. Municipalities should also conduct programs that manage solid wastes, designating litter bins all over the towns and collecting the waste regularly.

4. Recycling

Glass, paper, plastic and even metal are reusable, and should not be thrown away after its original use. Reusing these bottles, containers, bags and more will help in environmental conservation.

5. Reducing our water consumption

Clean, fresh and safe water is precious and not easily available. It is therefore very crucial to save as much water as possible, and prevent water pollution, otherwise, it will be scarce in years to come.

6. Control pollution

Composting also avoids littering, and not only does it protect the environment, but is also a reliable source of natural manure. Avoid chemical fertilizers, herbicides, pesticides and insecticides that pollute the environment. We should control pollution in as much as it is possible, to conserve the environment.

7. Create public awareness

Make people aware of the consequences of our activities through the various means available such as social media, seminars and the traditional media. Also, discuss environmental protection with your friends and family members so that everyone is made aware of environmental conservation, ways to conserve the environment and potential consequences if we do not take care of the environment.

Besides these methods of Environment Conservation, Measure to be taken for protection of the wetland are mentioned below:

- Demarcation of wetlands using the latest technology, proper enforcement of laws and stringent punishments for violators.
- Preventing unsustainable aquaculture and cultivation of shellfish.
- Treating industrial effluents and water from farmlands before discharging into wetlands.
- Utilizing wetlands on a sustainable basis by giving enough time for natural regeneration.
- Afforestation, weed control, preventing invasive species is the key to wetland conservation.
- Preventive measures to stop the introduction of exotic invasive species like water hyacinth.
- Soil conservation measures & afforestation.
- Preventing grazing in peripherals of wetlands.
- Wildlife conservation, sustainable tourism, eco-tourism and sensitizing local populace.
- Involving the local population in the conservation of wetlands

7.4. EXISTING RECREATIONAL FACILITIES :

There is 1(one) stadium in Morigaon town for public use by Morigaon District Sports Association. The other playground found in Morigaon town and within the planning area belongs to educational institute. 4 (four) nos. of such type of playgrounds are found in the Morigaon Master Plan Area.

There are 5(five) nos. of parks in Morigaon town. There is 1 (one) Cinema Hall and 1(one) Auditorium in Morigaon town. District Library is the only public library in Morigaon town.

7.5. CITY BEAUTIFICATION PLAN/PROPOSAL:

No single action or project can beautify a city or a town. It is a combination of several integrated projects related to beautification which jointly can enhance the aesthetic beauty of city or a town.

The main components could be summarized as follows:

- ✓ Open spaces and parks
- ✓ Urban design
- ✓ Landscaping and vegetation
- ✓ Streetscape and street furniture
- ✓ Beautification of roads
- ✓ Water front / canals
- ✓ Heritage
- ✓ Outdoor advertisements
- ✓ Traffic and transportation
- ✓ Other components
 - Maintenance & management
 - Up-gradation and regeneration
 - Tourism aspects
 - Environmental improvement
 - Creation of a central area or “downtown”
 - Entry and exit Points
 - Public amenity buildings
 - Landmarks
 - Decorative walls
 - Bridges and under passes & check posts
 - “Food streets”
 - Removal of encroachments. etc

Keeping in mind all the above mentioned components the City beautification proposals for the Proposed Morigaon Master Plan are described below:

1. Roadside plantation: Trees play tremendous role in conditioning our environment, they cut off sun's heat from the ground, reduce dust pollution, noise pollution, wind velocity, and more important, produce oxygen and consume carbon dioxide free of cost. Planting trees is the most effective and economical method to improve physical environment. The goal of beautifying cities and protecting trees can be carried out simultaneously in the Morigaon Master Plan Area.
2. Development of Parks and Recreational spaces:
 - As the condition of the no. of parks and playgrounds within Morigaon town and villages within Morigaon Master Plan is not good. These areas are to be upgraded and modified in a more sustainable and modern way.
 - A new playground is proposed in the Raina Pathar village.
 - Two parks have been proposed one in the Charan Beel and another park along with water front development project is proposed on both sides of the Morikolong river.
3. Identification and demarcation of multi-purpose open spaces for sports, cultural functions, fairs, circus. Etc.:
 - There is a newly constructed stadium in the town area.
 - A new playground is proposed in the Raina Pathar village which can be further used for cultural functions, fairs, circus etc.
 - There are 2 3 big playgrounds which are owned by some schools and college.
 - In the Banpara-I village there is large area where cultural functions like Raas Mela, Fairs also held.
4. Beautification of major transit zones (Major Junctions, Bus Depot, Raiway Station, Market Zones, etc.):
 - There are three major junctions in the Morigaon Municipal area which can be beautified with more plants, trees.
 - A proper area should be demarcated and designated only to the weekly market area providing all the basic facilities such as toilet facility, shades for the vendor including green beautification.

CHAPTER – 8

LAND USE PLAN

8.1. DEVELOPABLE AND NON-DEVELOPABLE AREA OF THE MASTER PLAN

The detailed land use analysis of the Morigaon Master Plan area gives the picture of the status of the urban land for various activities highlighting the inadequacies of land use for various uses as per norms.

Morigaon Master Plan covers an area of 49.38 Sq km out of which 16.84 Sq km is already developed i.e 34%. Out of the undeveloped area 2.38Sq km occupies by water bodies and an area of 1.93 Sq km of open space .

Out of the developed land of Morigaon Master Plan the predominant use is residential which covers as 11.93% and of total area of area of the Master Plan the predominant use is agriculture which comes as 27.16%.

8.2. EXISTING LANDUSE AND ITS ANALYSIS

Urban sprawl is often a combination of different natural landscape like hills, water bodies, forest and man-made impedians like Railways line, Roads cannels etc. Morigaon Master Plan areas have a quite no. beels (Small lakes). Morigaon Town has been witnessing a slow pace of development due to lack of any economic base. Functional relationship amongst various land use gives a clear picture of the functional efficiency of urban area.

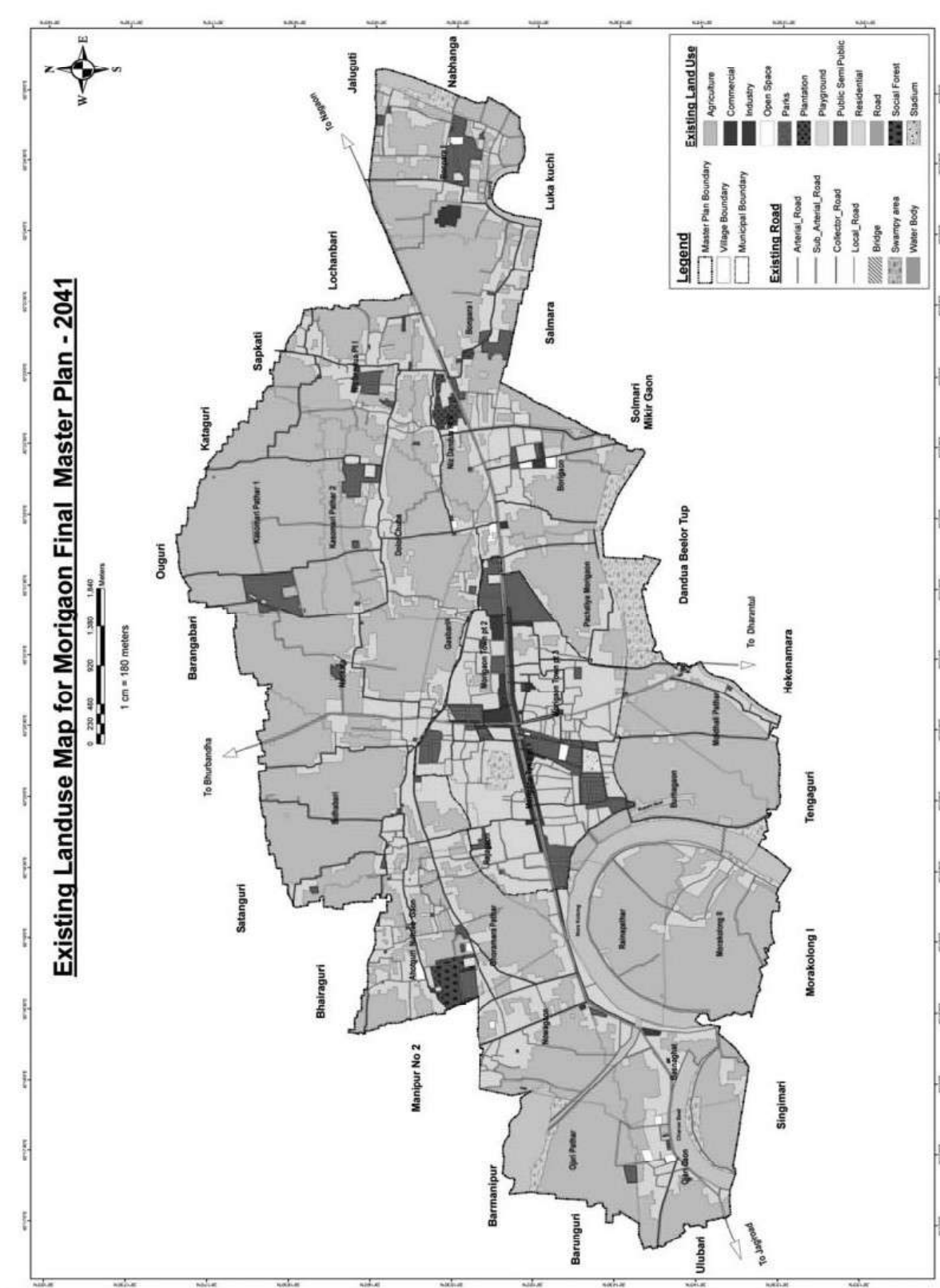
8.3. EXISTING LAND USE OF MORIGAON MASTER PLAN AREA

The study of the existing land use pattern of the Master plan area was carried out in order to formulate future policies so that a balanced approach can be made in allocating the future land uses. The existing land use in Morigaon Master plan area has been grouped into the following 10 (ten) categories:

Table 8.1 : Existing Land use of Morigaon Master Plan Area

Sl. No.	Land Use	Area (Sq Km)	% of Total Developed Area	% of Total Area
1	Residential	11.77	70.48	23.68
2	Commercial	0.42	2.51	0.85
3	Public & Semi public	1.98	11.86	3.98
4	Industrial	0.11	0.66	0.22
5	Transportation	2.36	14.13	4.75
6	Recreation	0.06	0.36	0.12
	Total Developed Land	16.70	100.00	33.60
7	Agriculture	28.70		57.75
8	Green Belt	1.48		2.98
9	Open Spaces	0.36		0.72
10	Water Bodies	2.46		4.95
	Total Master Plan Area	49.70		100.00

The Existing Land use map is shown in the next page.



CHAPTER – 9

PROPOSED PROJECTS' BRIEF AND TANTATIVE FUNDING SOURCE PROJECTIONS AND PROPOSALS

In preparing the Master Plan for Morigaon efforts have been made to evolved scientific and rational policies which will meet functional needs of Morigaon Master Plan Area and also satisfy the aesthetic which emotional aspirations of its citizen

The existing deficits of all facilities and services have been calculated and the future needs have been projected which are incorporated in the Master Plan.

9.1. PLAN PERIOD

Any development plan requires a time frame for its implementation, though the growth of an urban area is a continuous process. The plan period adopted for Morigaon Master Plan is up to 2041. All the projection and future requirements are calculated for 2041 but the urban dynamism will carry over beyond this plan period. The Master Plan for Morigaon, 2041 is in fact expected to lay the foundation for well planned Greater Morigaon contributing to the economy of the state.

9.2. POPULATION PROJECTION

The decadal growth rates have been carefully studied and growth rates for coming decades have been fixed and the future populations are projected for 2041.

Year	Morigaon T.C. Area	Decadal Growth	Morigaon Master Plan Area (Rural)	Decadal Growth	Total Master Plan Area
1971	8371	-	11,552	-	19,923
1991	15,587	86.20	17,227	49.31	32,814
2001	20,811	33.52	20,942	21.56	41,753
2011	29,164	40.13	23,705	13.20	54,273
2021 (P)	40,829	30%	40823	20%	81,652
2031 (P)	51,036	25%	48987	20%	1,00,023
2041 (P)	63,795	20%	57314	17%	1,21,109

Twenty years Growth rate, (P) = projected.

9.3. EXISTING DEFICITS AND FUTURE NEEDS

The existing deficit of different facilities and services of the Morigaon Master Plan area has been calculated as per the norms and standards as stated in URDPFI Guidelines.

Housing requirements :

As per the housing analysis the numbers of dwelling units available in comparison to the total population reveals that there is congestion both in the town as well as in surrounding villages within the Master Plan Area. So there will be a demand of additional houses in the MP area in future.

The projected housing requirement in Morigaon Master Plan area in 2041 is as under:

Future Housing Shortage in Morigaon MP Area in a decade

Year	Projected Population	Incremental Population in a decade	No. of persons per households	No. of HHs needed	No. of HHs Available	Housing Demand	Shortage in 2011	Total Deficit
2011	65227	-	5.41	12056	12046	10	2238	2248
2021	81,652		5.41	15092	-	3036	-	5284
2031	1,00,023		5.41	18488	-	3396	-	8680
2041	1,21,109		5.41	22386	-	3898	-	12578

Source: Calculated Values

It is seen from the Table that approximately 12578 new housing units needs to be distributed in the existing and new developments in the next 30 years. Also, it is enunciated to provide 20% allocation of dwelling units in the flatted group housing projects for Economically Weaker Section (EWS) and Low Income Group (LIG) preferably at cross-subsidized rates.

Infrastructure requirements:WATER SUPPLY

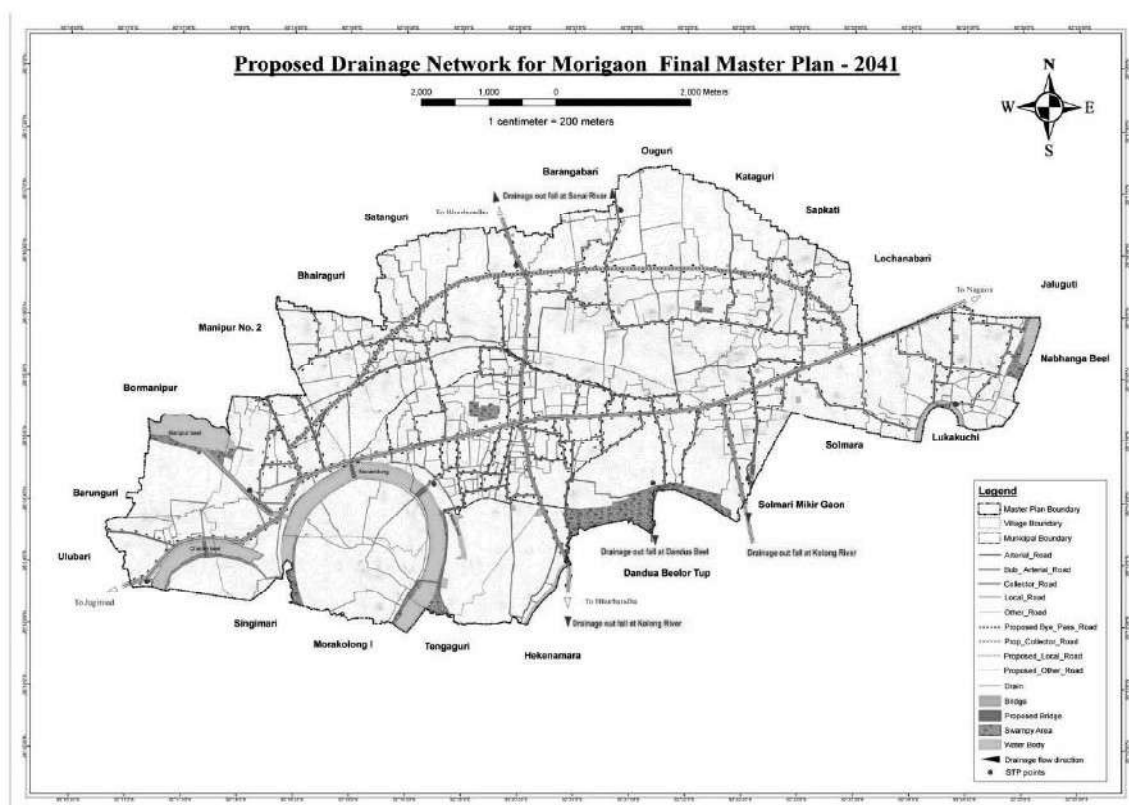
- 87.09% of the people in Morigaon Municipal Area use hand-pumps as their main source of drinking water.
- Only 7.74% use tap water from treated sources. This figure is even lower outside the municipal boundary at only 1.10%.
- There are 26 PWSS functioning in the Master Plan area
- However, most of the water requirement in the Master Plan Area is still met through own sources like handpumps, tube wells, borewells.
- As per the water supply demand calculation, the existing water supply demand is 5.5 MLD, whereas the demand will increase to 6.05 MLD by 2031 and 6.6 MLD in 2041.

SEWERAGE

A scientific sewerage disposal system will be required for Morigaon Master Plan – 2041. The Drainage & Sewerage Division, Town & Country Planning, Guwahati will prepare a scientific sewerage plan for Morigaon Master Plan Area within the plan period.

DRAINAGE

Based on the existing water bodies and its flow in the Masterplan area, a Drainage map is prepared to understand the flow of the water.



However drainage plan for the rural areas of Morigaon Master Plan Area is to be prepared by the Drainage and Sewerage Division, T&CP and implement during the plan period to solve the drainage problem of whole Master Plan Area.

ELECTRICITY

The provision of one electric sub-station of 11KV for a population of 15,000 is taken as a general standard, thus 6(Six) nos of substation of 11KV capacity will be required for Morigaon Master Plan -2041.

SOLID WASTE DISPOSAL

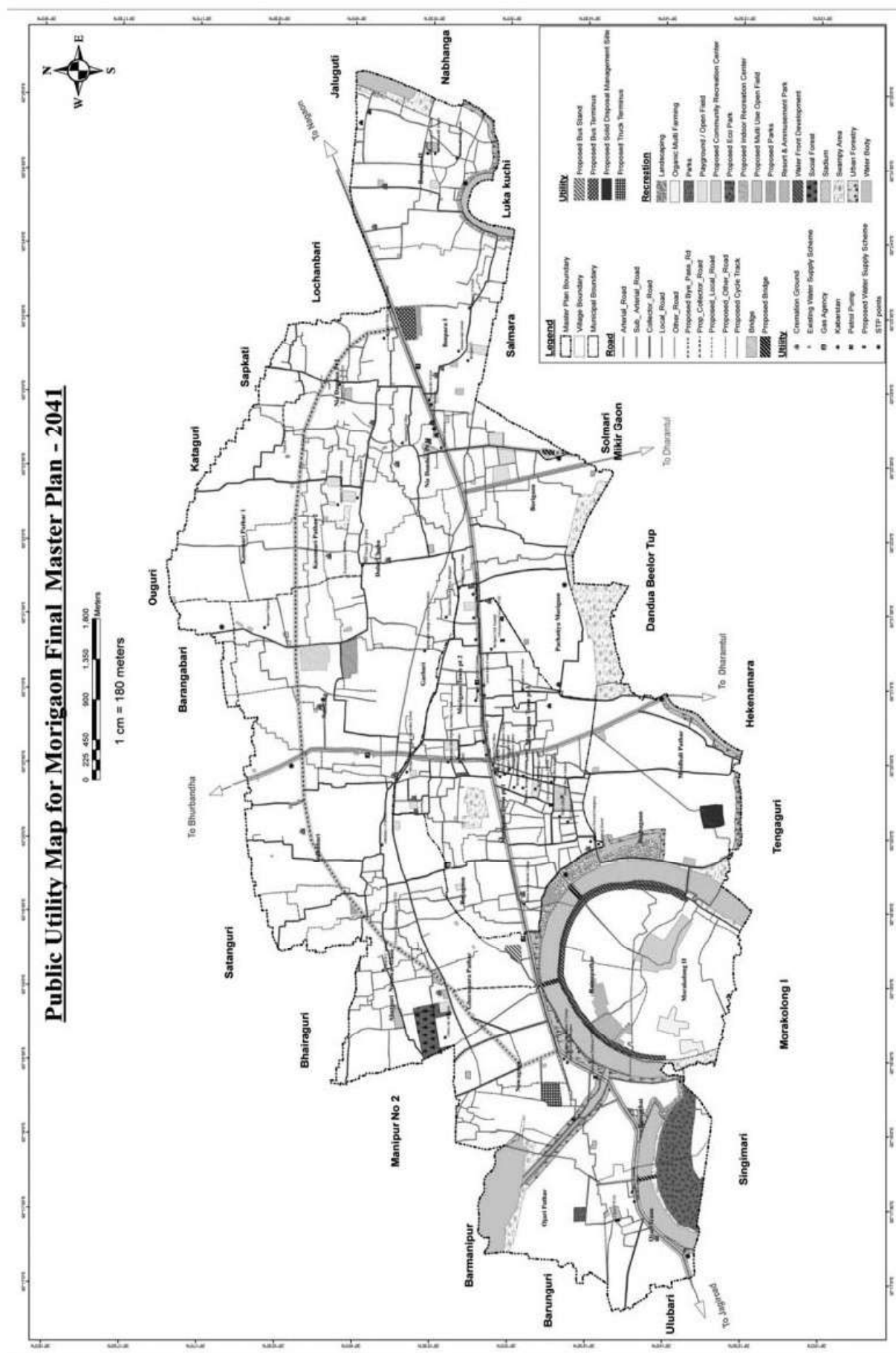
A site has been already earmarked in village Burhagaon with an area of almost 50 Bigha, for scientific management of solid waste of Morigaon Master Plan Area.

SOCIAL INFRASTRUCTURE

Dept.	Norms	Existing	Deficit	Future requirement including deficit
(i) Educational				
(a) Primary	1 in 2500 population	29	-	19
(b) Middle School	1 in 5000 population	10	-	14
(c) High School	1 in 7500 population	8	-	8
(d) Higher Secondary School	1 in 90,000 population	2	-	-
(e) College	1 in 1,25,000 population	2	-	-
(ii) Health				
(a) Intermediate Hospital	1 in 1,00,000 population	1	-	-
(b) Nursing Home, Child welfare and Maternity Home	1 in 45,000 population	2	-	1
(c) Dispensary	1 in 15,000 population	1	-	7
(iii) Social Cultural Facilities				
(a) Community Room	1 in 5000 population	4	-	20
(b) Community Hall and Library	1 in 15,000 population	2	-	6
(c) Music Dance &	1 in 1,00,000	1	-	-

Drama Center	population			
(d) Religious site	1 in 5,000 population	24	-	-
(iv) Communication				
(a) Telephone Exchange		1	-	Capacity to be improved
(b) Post Office	1 in 15,000 population	6	-	-
(c) Police Station	1 in 90,000 population	1	-	-
(d) Fire Station	1 in 2,00,000 population	1	-	-

All the Govt. Land are reserved for different uses which is mentioned in the Landuse plan. And these reserve land may be used to balance the social infrastructure deficits.



9.4. PROPOSED LAND USE FOR MORIGAON MASTER PLAN AREA

Considering all the existing deficit and future requirement, the proposed land use plan for Morigaon Master Plan Area has been prepared keeping in mind that Morigaon can be inferred to have the following major functions to decide its future growth –

- (i) to function as a District head quarter town,
- (ii) to function as a trade and commerce centre in the District
- (iii) to continue as an educational centre and
- (iv) to grow as growth centre for small scale industry.
- (v) to grow as tourist hub

9.5. AIMS AND OBJECTIVES:

The major aims and objectives which attempted to be achieved for Morigaon greater through Morigaon Master Plan are as follows;

1. To improve the existing conditions of all facilities services of Morigaon Master Plan area and to develop all the urban infrastructures for a population of 1,21,109.
2. To integrate the development of various activities of Morigaon town with the adjoining areas.
3. To distribute functionally the work centres and residential areas so as to minimize the travel distance and increase efficient functioning of activities.
4. To design a safe easy and speedy circulation system so as to achieve an efficient transportation network for movement of goods and passengers.
5. To accelerate the economic growth by increasing economic activities like industries, services and trade and commerce.
6. To develop the recreational facilities inorder to promote tourism.

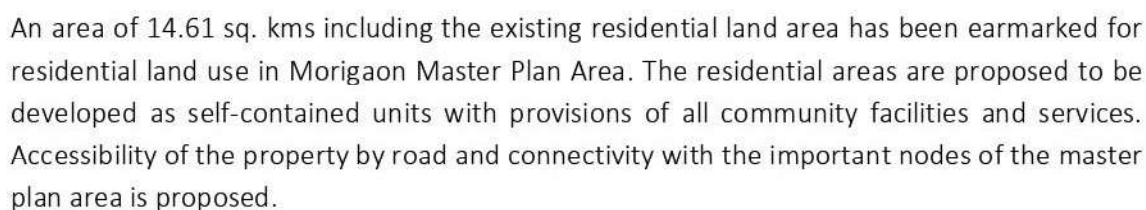
9.6. PLAN CONCEPT AND DIRECTIONS OF GROWTH:

Typical ribbon type development has been observed in Morigaon Master Plan Area along the roads going from the town connecting NH-37. Major activities are all situated along the Jagi - Morigaon Road and Morigaon - Sidha Nagaon Road. It has been conceptually envisaged that the functions and activities in the entire Master Plan Area will be knitted together and it will function as one entity.

9.7. PROPOSED LAND USE IN MORIGAON MASTER PLAN AREA

The proposed land use in Morigaon Master Plan Area for 2041, considering all the above analysis can be summarized as below :-

Sl. No.	Land Use	Area (Sq Km)	% of Total Developed Area	% of Total Area
1	Residential	14.61	48.70	29.40
2	Commercial	0.89	2.97	1.79
3	Public & Semi public	2.30	7.67	4.63
4	Industrial	2.14	7.13	4.31
5	Composite Use	4.18	13.94	8.41
6	Transportation	3.97	13.24	7.99
7	Recreation	1.89	6.30	3.80
	Total Developed Land	30.00	100.00	60.36
8	Agriculture	14.80		29.78
9	Green Belt	1.93		3.88
10	Open Spaces	0.55		1.11
11	Water Bodies	2.44		4.91
	Total Master Plan Area	49.70		100.00



9.7.2. PROPOSED COMMERCIAL LAND USE:

An area of 0.89 sq.km. including the existing one has been earmarked as commercial area in the Morigaon Master Plan.

CBD: The existing market areas within the Morigaon Town Committee area have been extended and proposed as a Central Business District (CBD) for Morigaon Master Plan 2041 which is shown in the Zoning map. The wholesale commercial activities of the planning area proposed to be accommodated in the zone. Also three vending areas are earmarked within the commercial zone which are shown in the circulation map. The other land-use in this zone will be as per the proposed land use plan.

Retail Commercial: The other commercial areas of the Morigaon Master Plan area have been proposed for retail commercial activities.

9.7.3. PROPOSED INDUSTRIAL LAND USE :

An area of 2.14sq. km. including the existing industrial has been earmarked as industrial area in the Morigaon Master Plan Area. The area towards Nagaon has been proposed to be developed as industrial zone. Industries like warehousing, R&D labs, cold storage, service centres among others may be promoted here.

9.7.4. PROPOSED COMPOSITE LANDUSE:

An area of 4.18Sq. km has been earmarked as composite land use, where almost 0.47sq.kms is considered for Town Planning scheme in the village Oujari Pathar. This category of land use is introduced as per T&CP Act.2022 under which the mixed use of commercial, residential, public-semi public, existing industrial etc. may include.

Further a Transit Oriented Development corridor of 10.35kms length with a buffer of 200 mtrs. is proposed along the proposed bypass road for Morigaon master plan area. The other land-use in this zone will be as per the proposed land use plan.

9.7.5. PROPOSED PUBLIC AND SEMI-PUBLIC USE

An area of 2.30 sq. km. is proposed as public and semi-public use. The public and semi-public uses have been proposed on Govt. land and also few areas in different areas for Morigaon Master Plan Area.

9.7.6. PROPOSED CIRCULATION PLAN :

The land use proposed under transportation will be 3.97 sq.km. for Morigaon Master Plan - 2041. The road from Morigaon Town to Jagiroad and to Barapujia is to be widened and improved immediately.

All the major junction points should be developed in a planned manner. Modern traffic signalling system is to be proposed within the Morigaon Master Plan Area.

- A bypass road of 10.36 Kms length and 50m width starting from Nowagaon till Niz Dandua -I has been proposed for better circulation within the Masterplan Area.
- An Inter District Bus Terminus (IDBT) has been proposed at Banpara I village allotting an area of approx..39.45 Bigha .
- A mini bus stand is also proposed in Rajagaon allotting a land of approx.. 19.77 Bigha.
- A truck terminus has been proposed at NowagaonVillage allotting a land of approx..36.36 Bigha.
- One bridge is also proposed in the Charan beeland also two more Bridges are proposed in the Morakolong river in Rainapathar village.
- A bridge is also proposed in the Borigaon Village.
- Within the town, Bus Bays should be constructed with divider, differentiating from the main road.

Hierarchy of Road proposed within the Masterplan area is a follows

- 1) Arterial Road - 60mtrs
- 2) Sub Arterial -50mtrs
- 3) Collector Road -30mtrs
- 4) Local Road -20mtrs
- 5) Other Road -10mtrs
- 6) Proposed Bypass -50mtrs

Also as both the rural and urban areas are covered within the Morigaon Master plan area, so cycle tracks are proposed along the arterial and sub arterial road which will help in smooth communication of the rural commuters .

Three vending zones are also proposed within the Master Plan Area which are shown in the Circulation map. Fire hydrants are to be installed in all the public buildings, market areas, vending zones etc.

The proposed circulation prepared is shown in the next page.



As the Master Plan area is 40 Kms away from the Pobitora Wild life Sanctuary therefore, few proposals has been made to uplift the opportunity of Charan beel area and the Morakolong area as spot for tourism. Based on this, the proposals made for recreational activities are mentioned below :

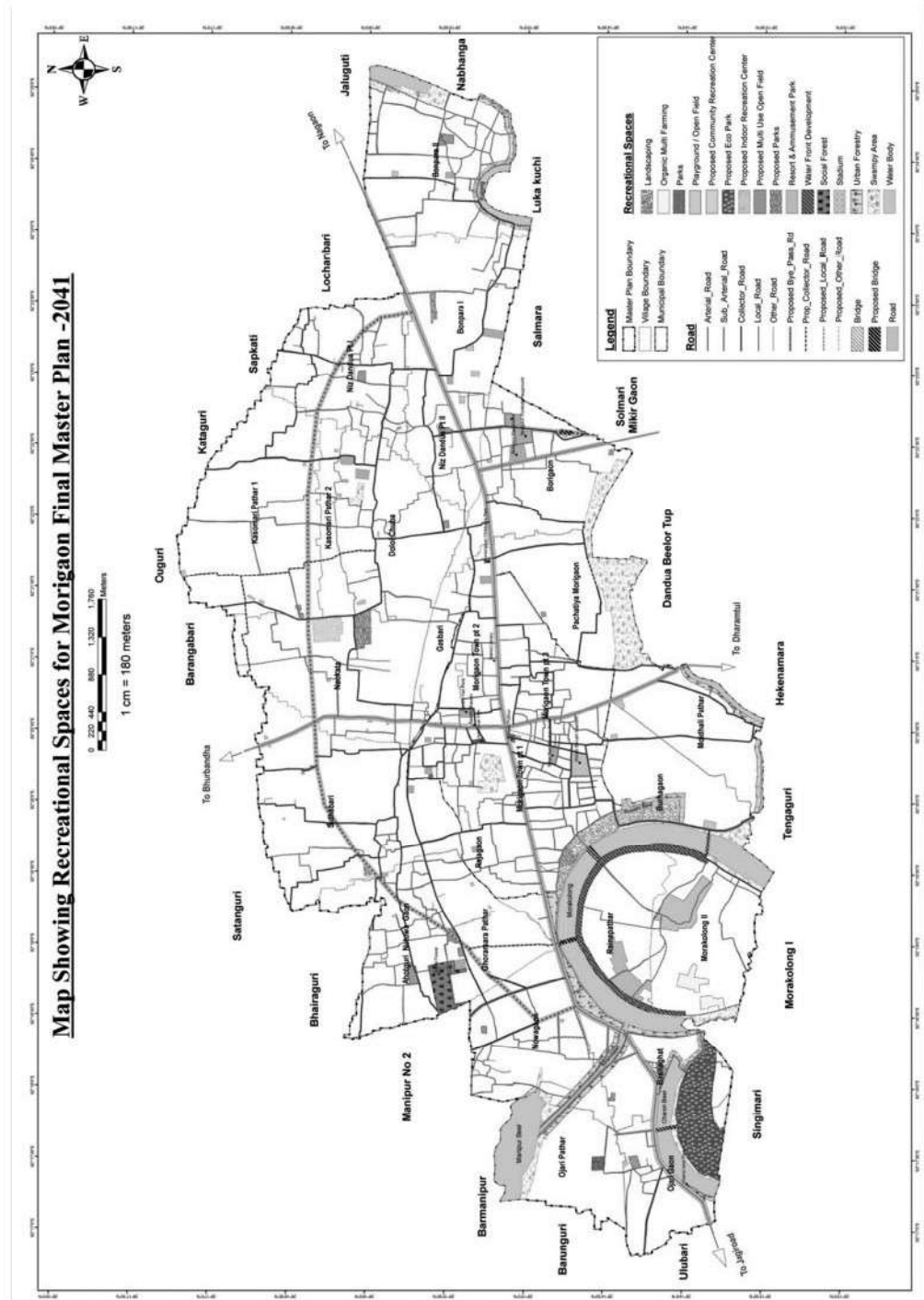
- An Eco park has been proposed with an area of 403 Bigha, in the Oujarigaon and Basanaghat Village along Charan Beel .
- A waterfront beautification project with an area of 194 Bigha along the bank of Morakolong lake has been proposed where a buffer of 50 meters proposed to keep as no- construction zone on both side of the Morakolong lake .
- A vernacular resort and amusement park with an area of 112 Bigha land is proposed in the Rainapathar Village.
- An Urban forestry area is also proposed with an area of 403 Bigha, in which Approx.50 mtrs along both sides of all the water bodies is to be treated as no construction zone .
- A community recreation centre is also proposed with an area of 149.50 bigha.
- Also an organic multi farm proposed in an area of which 67.27 bigha can attract tourist.

Along with these few more proposals are made for Morigaon Master plan area to develop its recreational facilities such as:

1. Landscaping in Burhagaon village ,Morigaon town along the water bodies is proposed with an area of 25 Bigha .
2. Community Recreation centre is proposed with an area of 108.39 Bigha at Morakolong Village.
3. An Indoor Recreation Center at Naokata with an area of 67.27 bigha , also a community park is proposed in the Naokata village,
4. A few small parks are also proposed in different areas of the Masterplan which are marked in the Proposed Landuse Plan.
5. Open spaces are earmarked for multipurpose use for the Masterplan area in the Rainapathar ,Rajagaon , Niz Dandua part I, Part II , Banpara II villages .

Morigaon town and villages within Morigaon Master Plan have a quite no. of parks and playgrounds, though the quality is not good which is to be taken in consideration for development. A full-fledged Stadium is constructed in the Morigaon town. There is also a social forest in the Ahatguri Notuagaon Village developed by the Forest Department. Thus an area of 2.46 sq. km area including both the existing recreation area and the proposed recreation area has been proposed for Recreational facilities for Morigaon Master Plan 2041.

A map prepared showing all the Recreational facilities proposed in the MasterPlan area is shown in the map below :



9.7.8. PROPOSED AGRICULTURE USE

14.80 Sq. Kms of land have been earmarked for agricultural land use. It has been found that large tracts of agricultural lands are lying fallow. Economic growth is accompanied by shift of these lands from agriculture to other uses. With increase in the value of these lands, they are fast getting converted into residential and commercial land-uses.

An area of 1.93 sq. Km has been proposed as green belt for Morigaon Master Plan – 2041 considering all the the Urban Forestry, Swampy Area,, Along the water bodies, few low lying areas within the villages and Social forestry maintain by the Forest Department is marked as Green Belt area .

9.7.10. PROPOSED NON-CONSTRUCTION ZONE :

Map showing Green Belt Area for Morigaon Final Master Plan - 2041

Scale: 1 cm = 180 meters

Legend

- Master Plan Boundary
- Village Boundary
- Municipal Boundary

Road

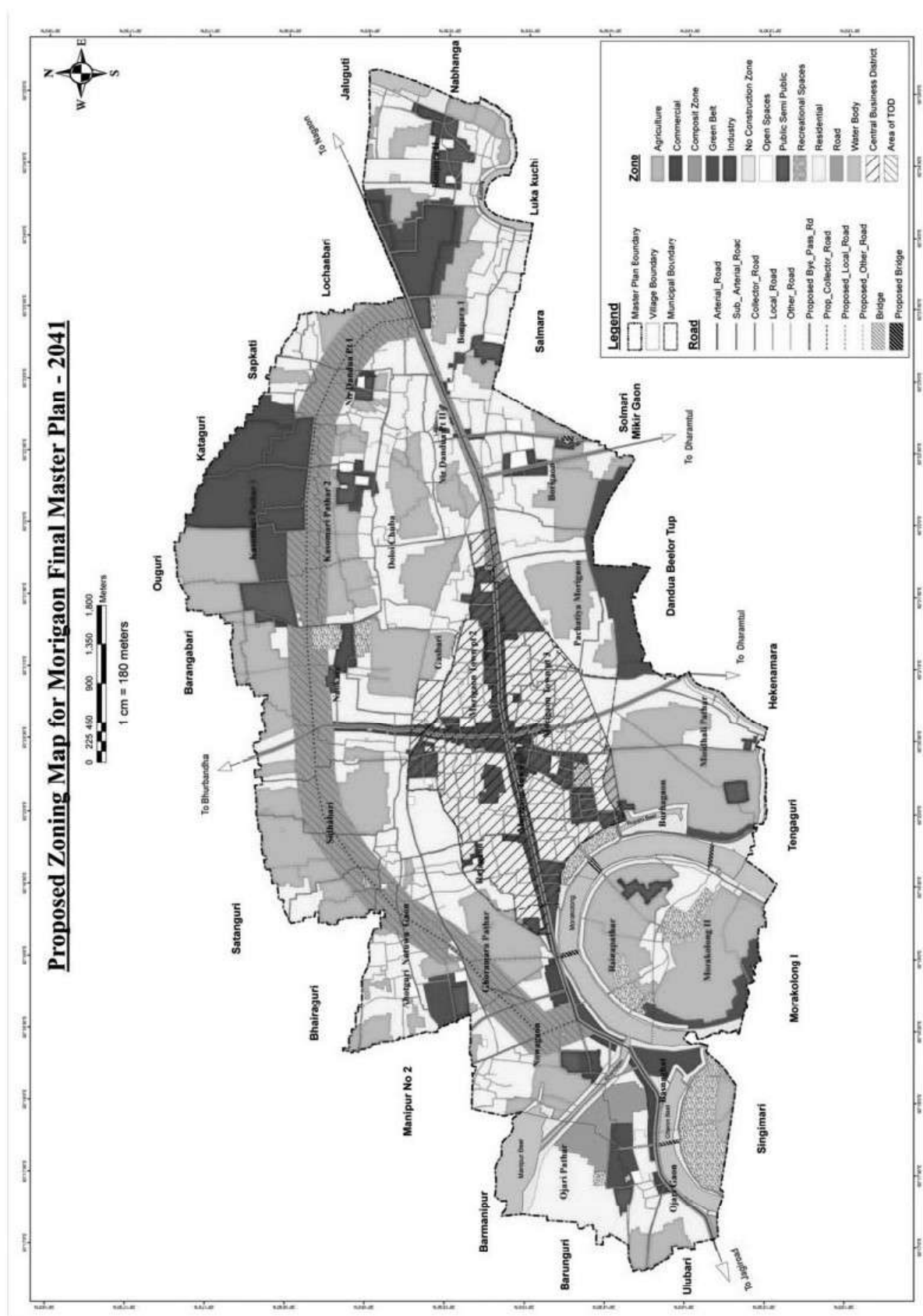
- Arterial_Road
- Sub_Arterial_Road
- Collector_Road
- Local_Road
- Other_Road
- Proposed type_Pave_rtr
- Proposed Collector_Road
- Proposed Local_Road
- Proposed Other_Road
- Bridge
- Proposed Bridge

GREENBELT AREA

- Promission
- Social Forest
- Swampy Area
- Urban Forestry
- Water Body

The Master Plan for Morigaon - 2041 will be implemented as the Assam Town & Country Planning Act, 1959 (As amended) after finalization of the plan and approved by the Govt of Assam. Government of Assam may create Morigaon Development Authority for implementation of the Master Plan. All the new constructions and land sub-divisions must be allowed as per the Master plan Guidelines with approval from Town & Country Planning officer of the Development Authority appointed by Government of Assam.

For the implementation of the Morigaon Master plan a Zoning map is prepared showing all the zones to be considered while giving building permissions. The map prepared is shown in the next page.



CHAPTER 10

DISASTER PLAN

10.1. INTRODUCTION

Disasters occur with unfailing regularity in India causing immense loss of life, assets and livelihood. In the present executive structure of the country, the district administration is bestowed with the nodal responsibility of implementing a major portion of all disaster management activities. The increasingly shifting paradigm from a reactive response orientation to a proactive prevention mechanism has put the pressure to build a fool-proof system, including, within its ambit, the components of prevention, mitigation, rescue, relief and rehabilitation. Pre-disaster planning is crucial for ensuring an efficient response at the time of a disaster. A well-planned and well-rehearsed response system can deal with the exigencies of calamities and also put up a resilient coping mechanism. Optimal utilization of scarce resources for rescue, relief and rehabilitation during times of crisis is possible only with detailed planning and preparation. Keeping in view the nodal role of the district administration in disaster management, preparation of District Disaster Management Plans (DDMP) is imperative. Each DDMP needs to be prepared on the basis of the vulnerability of the district to various disasters and the resources available.

The district of Morigaon in Assam is vulnerable to the natural disaster like floods, cyclones, earth-quakes, etc. This needs a District Disaster Management Plan (DDMP) for Morigaon District with a special stress on floods which mostly becomes a seasonal disaster. The DDMP is so planned that it can be pressed into action in case of any emergency, be it – natural or human induced.

The Disaster Management Act. 2005 has further clarified the role of the District Disaster Management Authority (DDMA) as an apex body for implementing for all disaster management related functions and activities. These functions include mitigation and preparedness measures alongside response, relief and rehabilitation. A key role has been assigned to the local authority for ensuring training of its officers and employees, maintenance of resources so that these are readily available for use in the event of a disaster. The local authority shall also carry out relief rehabilitation and reconstruction activities in the affected areas, conforming to the guidelines for mitigation activities. The present roadmap chalked out by Morigaon DDMA intends to strengthen the disaster management activities in this district.

10.2 HAZARD, RISK, VULNERABILITY & CAPACITY ANALYSIS

Morigaon district is highly prone to multihazards like earthquake, flood, storm, drought, river soil erosion etc.

History of Disaster in the District

Sl. No	Type of Hazards	Year of occurrence	Area affected	Consequences
1	Flood	2004,2007,2009	Morigaon, Lahorighat, Bhuragaon and Mayong Revenue Circle	Loss of human life, Damage and destruction of public and private property, Crop and livestock.
2	Cyclone	2008,2009,2010	Entire Morigaon district	Loss and Damage of crop, Public and private property.
3	Terrorist activities	2004	Morigaon Revenue Circle	Loss of human life
4	Riots	1985	Morigaon Revenue Circle	Loss of human life, Damage and destruction of public and private property,
5	Fire	2007	Entire Morigaon district	Damage and destruction of public and private property,
6	Earthquake	2009,2010,2011	Entire Morigaon district	NA
7	River Erosion	2006,2007,2008	Lahorighat, Bhuragaon and Mayong Revenue Circle	Displacement, Loss of Land and livelihood.

The District Disaster Management Authority (DDMA) is the apex planning body at the district level and will play a major role in preparedness and mitigation. A DDMA has to be formed in the district to assist the Collector in

- Reviewing the threat of disasters
- Vulnerability of the district to different disasters
- Evacuation process to reduce risk and emergency response

- Considering suggestions for improvement of the response Document i.e. District Disaster Management Plan Responsibility of The Committee
- To educate the public on different flood and cyclone hazards and what Protective steps should be taken
- To make arrangements for emergency action
- To effect evacuation from the Villages when necessary
- Rescue and Rehabilitation
- Post- hazard like earthquake, flood action and review

Structure of DDMA Members of the District Disaster Management Authority, Morigaon, Assam

1. Deputy Commissioner, Morigaon Chairperson
2. President, Zilla Parishad, Morigaon Co-chairperson
3. Addl. Deputy Commissioner (Disaster Management) CEO
4. Superintendent of Police, Morigaon Member.
5. Project Director, D.R.D.A., Morigaon Member.
6. Joint Director of Health Services, Morigaon Member.
7. Exe Engr., PWD, Rural Roads Div, Morigaon Member.
8. Exe Engr., Water Resources, Morigaon Member.

DISTRICT CONTROL ROOM:

The District Control Room aims for an effective and realistic District Disaster Management Plan with fail proof communication, accurate databases in order to make optimal utilization of Men, Material and Resources to prevent the loss to lives as well as minimize the loss of property ensuring fastest restoration of the situations.

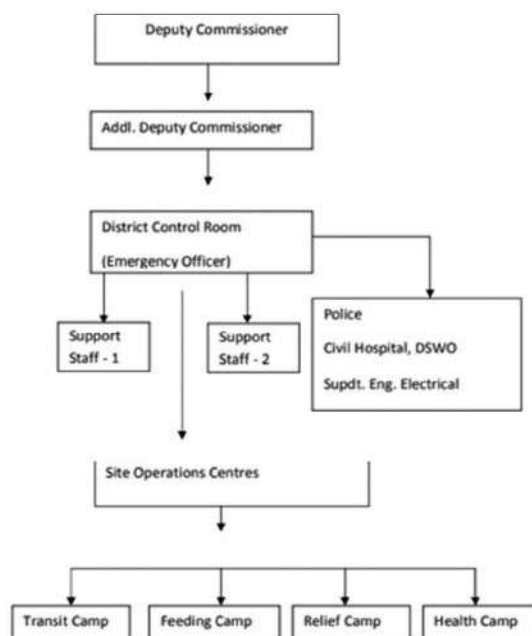
Preparatory Actions for DDMIRC(District Disaster Management Information and Response Centre):

Following preparatory steps will be taken up for keeping the Control Room functional during emergency.

- a. Shift one more phone line to Control Room.
- b. Keep the Radio with new batteries ready, Generators sets to be kept ready.
- c. Kerosene as well as petrol to be stocked for running the generators.
- d. Charge the VHF sets and testing to be done.
- e. Keep two four wheelers ready for emergency operations.
- f. Alert all field officers like BDOs/CO/MOs/VAS/ Telephone Operators/Agriculture/R.W.S.S./R.D./R.&B./ICDS/Irrigation/NH/NESCO/PHD/ Municipality /MLAs/MPs/Station Director, AIR/DDIPR who will inform the Media.

Co-ordination
Disaster
Information and

structure of District
Management
Response Centre



10.3 STANDARD OPERATING PROCEDURES AND CHECKLISTS

All the actions mentioned above are to be carried out by different departments / agencies participating in the DDMP. It is necessary that all the departments have well-defined standard operating procedures and preparedness checklists. The Deputy Commissioner must circulate the standard operating procedures among the departments / agencies, and ask for compliance of the preparedness measures in the District Disaster Preparedness Committee meetings. It is absolutely important that all the departments / agencies are very familiar with the overall plan and the procedures specifically applicable to them and report diligently upon their implementation.

Standard Operating Procedures should be modified/updated and improved upon in light of changing circumstances. The District Magistrate should encourage all the departments to suggest changes in these procedures with a view to enhance the effectiveness of the District Disaster Management Plan. The Standard Operating Procedures (SOPs) of various departments at district level are given as under:

Standard Operating Procedures For District Administration In-charge Officer: DC

Preparedness

- Convene the meetings of District Disaster Management Authority
- Update the District Disaster Management Plan.
- Maintain and activate the District and Sub-divisional Control Rooms
- Check upon inventory of resources.
- Check the supplies of food grains through the Public Distribution System.
- Prepare a list of relief items to be distributed.
- Prepare a transportation plan for supply of relief items.
- Prepare an evacuation plan for the villages which are marooned / devastated.
- Prepare a list of transit / temporary shelters, and check upon their suitability for accommodating people.
- Convene meetings of NGOs in the district, and assign them specific responsibilities for relief, recovery and rehabilitation.
- Constitute / activate Village-level Preparedness Committees with the help of local NGOs and District Administration.
- Coordinate with Police, CRPF, BRTF and NHPC for support towards rescue, evacuation and relief during disaster.

Standard Operating Procedures for the Police In-charge Officer: Superintendent of Police, Morigaon

Preparedness

- Prepare a Deployment Plan for the Police force, based on the needs of the most vulnerable areas. Maintain a list of disaster prone areas in the district.
- Ensure that a sufficient number of police force is available for responding to the flood situation during monsoon.
- Constitute 'Search & Rescue' Teams from the Police force, and arrange training for these units.
- Establish coordination with the Fire Services,
- Check the wireless communication network, and secure additional wireless sets for deployment during a disaster.
- Check communication links with the District and Sub-divisional Control Rooms.
- Keep the police vehicles and boats in readiness for deployment of the police.
- Identify anti-social elements in the area and take appropriate preventive steps to ensure smooth response and relief operations.

Standard Operating Procedures for Water Resource Department : In-charge Officer: Executive Engineer, WRD Morigaon

Preparedness

- Prepare and update the flood risk map. The map should show the river system, nalas, embankments and irrigation structures. Distribute the copy of maps to all the control rooms.
- Prepare a contingency plan for the maintenance and repairs of Bundhs and embankments.
- Prepare a duty chart for In-charge Junior Engineer. Make available the list of In-charge Junior Engineers to District / Sub-divisional Magistrates, and all the control rooms.
- Make a physical inspection of all the embankments after the last floods for seepage, piping, rat holes and assess needs for repairs and reinforcement. Identify Bundhs, which are critical for flood protection and control.
- Prepare a list of critical Bundhs/embankments, which need repairs and reinforcement after the last floods. Submit a list of these Bundhs/embankments to the District Magistrate and the state government, and ask for necessary financial allocation.
- Commence repairs of Bundhs/embankments in the month of January every year after surveying the damages of floods last year, and ensure that all the repairs are completed in the month of March.
- Provide special attention to those places where the Bundhs/embankments were breached and repaired during the last floods. These are the Bundhs, which will be threatened first, when the floods approach.
- Undertake channel improvement for rivers and nalas. Undertake de-silting / cleaning of and canals to improve the flow of water.
- Check all the siphons and regulators on the Bundhs/embankments and canals. Clean siphons before the monsoon. Increase their capacity or replace them if the size of siphons and regulators is too small to prevent water from flowing in.
- Check all the rain-gauze stations and ensure that they are functioning properly. Check that the readings from these stations are available immediately to the Water Resource Department. Prescribe a register for recording of rainfall.
- Check the wireless network connecting flood stations and undertake necessary repairs.
- Set up the protocol for exchange of information with Flood Control Division of District and NHPC.
- Set up the protocol for reporting of flood situation to the District Magistrate / District Control Room.

- Keep in readiness essential tool kits and protection material at critical places for emergency deployment. These may include:
 - Empty cement bags
 - Boulders
 - Ropes
 - Sand
 - Wire mesh
 - Shovels
 - Baskets
 - Lights
- Inform the district administration of the places where these materials have been stored.

Standard Operating Procedures For Health Department : In-charge Officer: Jt Director Health Services, Morigaon.

Preparedness

- Prepare a health contingency plan for the district. It should include a list of civil hospitals, primary health centres and sub-centres, and medical personnel. The contingency plan should also include the details of hospitals and medical practitioners in the private sector.
- Constitute mobile health units consisting of a doctor, health workers and ANMs, ASHA Karmis and prepare a deployment plan. Each mobile health unit may cover a number of villages.
- Determine types of injuries / illnesses expected. In case of floods, it should mostly be cases of drowning, snake bites, and water-borne diseases.
- Undertake vaccination in the villages most vulnerable to floods.
- Secure medical supplies in adequate quantity for dealing with these situations, which may include:
 - Oral Rehydration Solutions
 - Chlorine Tablets
 - Bleaching Powder
 - Anti-snake Venom
 - Anti diarrheal and Anti emetic Medicines
 - Intravenous fluids
 - Suture Materials
 - Surgical Dressings
 - Splints
 - Plaster Rolls
 - Disposable Needles and Syringes
 - Local Antiseptics
- Ensure adequate supplies of blood in the district.
- Keeps one operating facility in each block in readiness. Maintain all the equipment necessary for operations.

- Prepare a maternity facility for pregnant women in every block.
- Seek mutual aid arrangement with civil and military hospitals in the district.
- Arrange provision of clean water in hospitals and Primary Health Centres.

Standard Operating Procedures for Agriculture Department In-charge Officer: District Agriculture Officer, Morigaon

Preparedness

- Ensure that certified seeds of required varieties are available in adequate quantities. The Agriculture Department should work with National Seeds Corporation and other suppliers and ensure availability at their depots or have agents appointed for the same.
- Print and widely distribute the list of points where certified seeds are available along with names of varieties and rates. Notices may be affixed at public places such as bus stands, on buses themselves, PHCs, Block headquarters, etc.
- Suggest variety of seeds and cropping pattern, which can cut losses and reduce the risks to farmers.
- Develop a pest and disease monitoring system so that timely steps can be taken to reduce damage to crops.
- To keep in readiness of their departmental boat/ferry.

Standard Operating Procedures For Animal Husbandry : In-charge Officer: District Veterinary Officer, Morigaon

Preparedness

- Prepare a list of flood-related diseases that are preventable by vaccination. Publicize the information about common diseases afflicting livestock and the precautions that need to be taken.
- Assist the District Administration in preparing plans for cattle camps and cattle feeding centres.
- Organize vaccination campaigns in flood-prone villages before, during and after the floods.
- Prepare kits for veterinary diseases, which could be provided to veterinary doctors at the block level and Extension Officers at the village level. Kits can also be provided to the private veterinary doctors.

Standard Operating Principles for PHE In-charge Officer: Executive Engineer, PHE, Morigaon

Preparedness

- Check all the pumps available with PHE for draining floodwater. All the pumps should be in working condition.

- Survey all the flood-affected villages, and find out where the people had taken shelter. Install hand pumps at all such locations. Check these pumps before the monsoon.
- Increase the height of pipe by adding a pipe of 3 to 10 feet. It helps extract clean drinking water during the floods.
- Keep hand pumps, pipes and sockets in readiness and install them as soon as flood situation arises.
- Protect pump stations from water logging.
- Rain water may be harvested during rainy season for alternative drinking water during flood.

Standard Operating Procedures for Forest Department: In-charge Officer: Divisional Forest Officer

Preparedness

- Open the forest land for free grazing when flood waters enter villages, and there is not enough fodder available.
- Allow the transportation of fodder from forest areas, when the fodder is not freely available.
- Provide wooden poles and bamboo for relief and reconstruction at subsidized rate. Provide these materials to all the technical departments, which need them.
- To keep in readiness of Departmental boat/ferry.

Standard Operating Procedures for Public Works Department In-charge Officer: Executive Engineer, PWD.

Preparedness

- Clean the area beneath bridges before the monsoon so that floodwaters can flow more freely.
- Maintain all the highways and access roads, which are critical from the point of view of supplying relief.
- Increase the size of bridges, if necessary, so as to prevent breach of roads and Bundhs. Smaller bridges prevent flow of water.
- Construct / reinforce the connecting roads from villages to roads, canals and Bundhs/embankments and raise their level so that people can access the high ground during the floods.
- All equipments ie Bulldozers, Crane, Truck etc. must be checked and keep in readiness for use during disaster.

Standard Operating Procedures for the ASEB In-charge Officer: Executive Engineer

Preparedness

- Protect Power Stations from water logging. Raise the height of compound walls. Arrange gunny bags. Install pump sets for draining water.

- Check the electrical lines on a continuous basis. Switch off the power supply, where the lines have tripped. There are many cases of electrocution.
- Provide information to the people about the state of electrical supply. It is one of the most important sources of information.
- Take special care to ensure that all the critical facilities like hospitals, Control Rooms, etc. continue to get power and they are functional.
- Alternative arrangements should be made for emergency services.

Standard Operating Procedure for Department Of Transportation In-charge Officer: District Transport Officer.

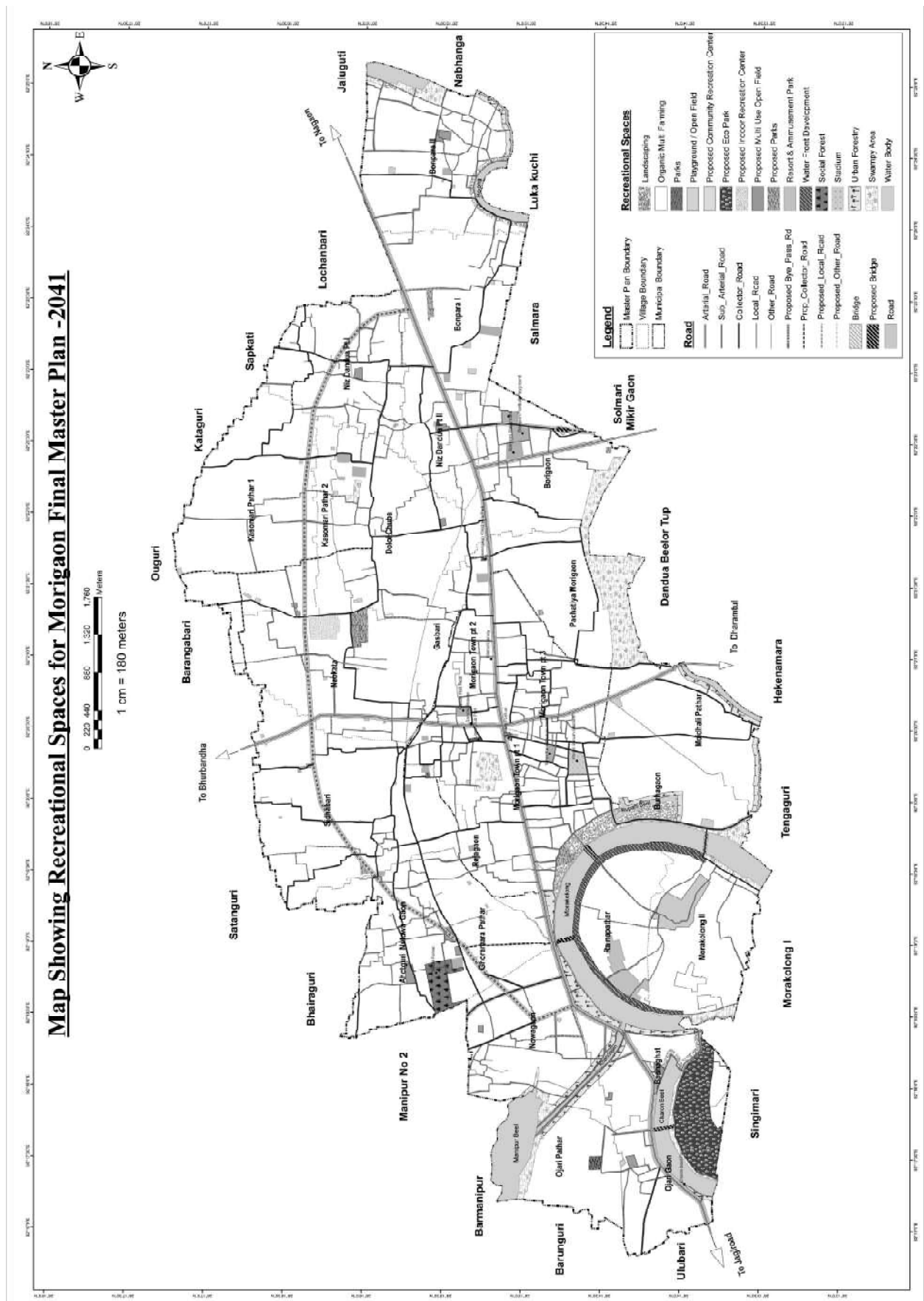
Preparedness

- Prepare a list of vehicles—trucks, buses, and jeeps—in the district and provide the list to the District Control Room.
- Provide jeeps and other vehicles for mobile health and animal husbandry teams.
- Provide trucks, buses and jeeps for evacuation and relief supplies.
- Issue standing instructions to the Suptd of ASTC for providing buses for evacuation and relief.

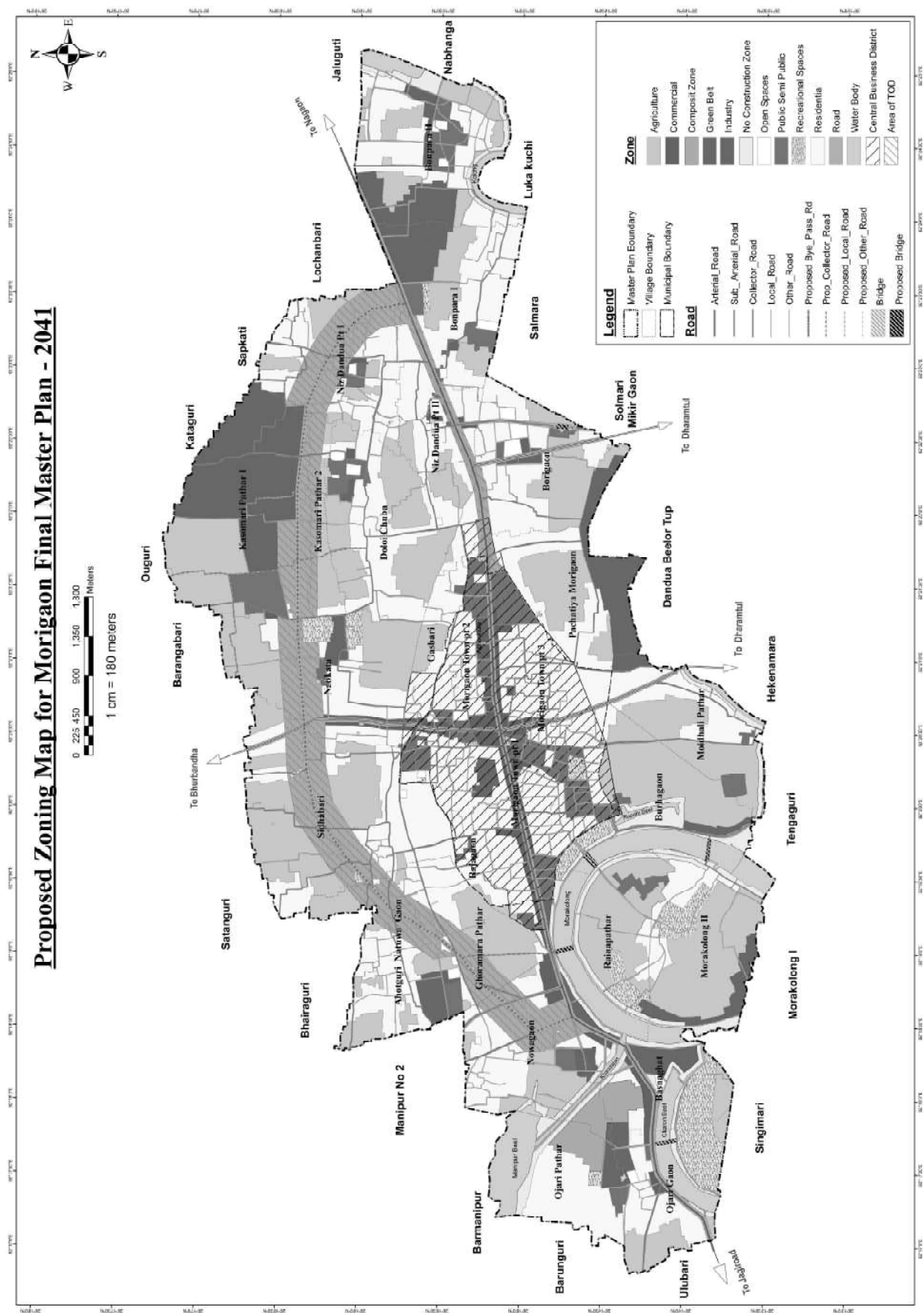
10.4 LINKING WITH THE DEVELOPMENTAL PLAN

Disaster management is no more confined to revenue department. It is a subject of all the departments. The following activities have been considered in mainstreaming it into development activities.

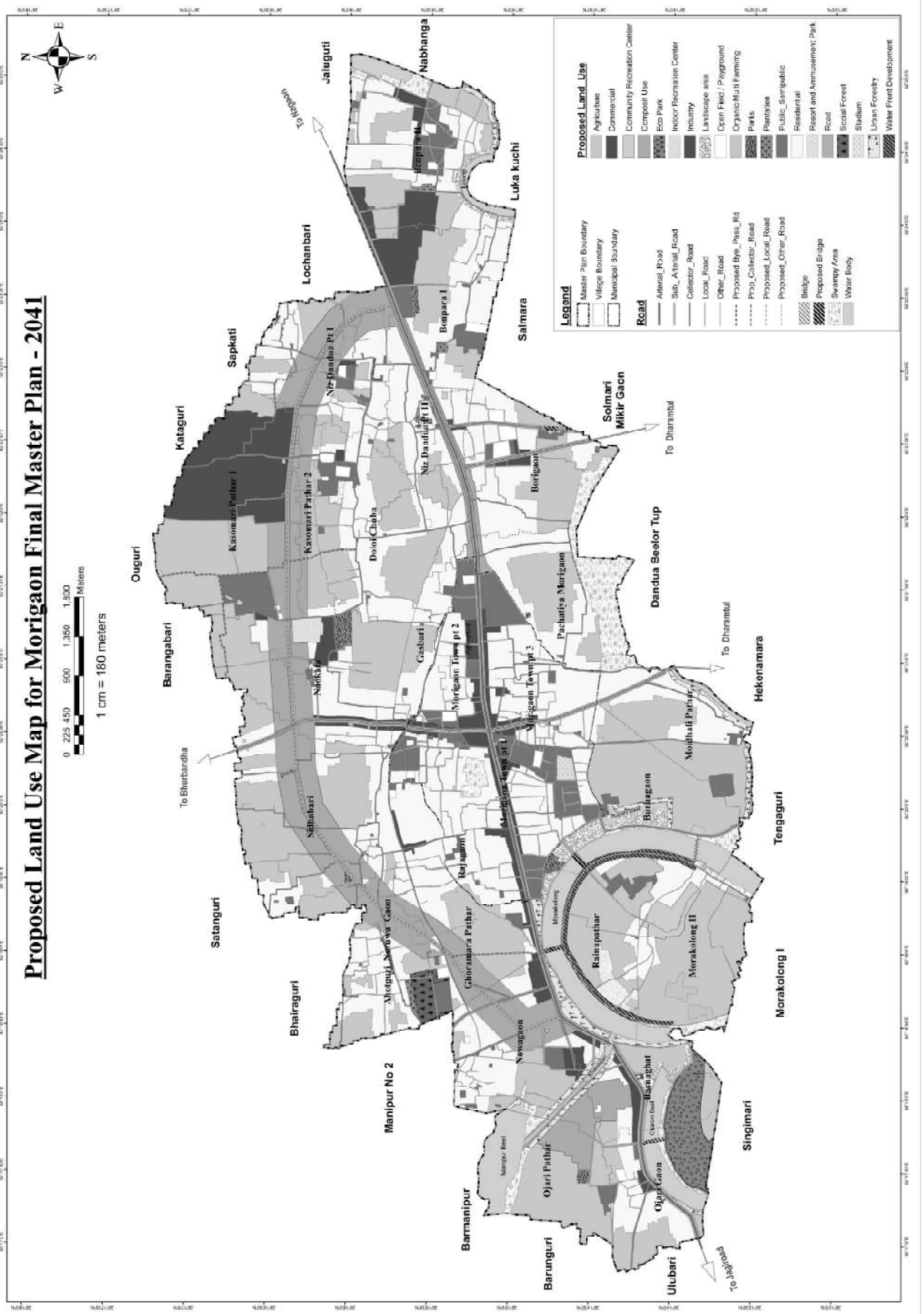
1. In construction work the civil engineers have to follow Bureau of Indian Standards (BIS) to construct resistant structures. Special budget at district, taluka and village level should be allocated for training of various teams against disaster, purchasing of equipments to save the life and property of the people, organising mock drills to create awareness among the people, updating the disaster management plans, etc.
2. Government officers, staff are also trained under disaster management, so that their skill will be helpful at the time of disaster.
3. Earthquake resistant principle may be followed in Indira Awas Yojana, lifeline Structures, all buildings may be insured by bank, private companies.
4. At district, taluka and Panchayat level the plan should be adopted to reduce the risk and vulnerability in various activities.
5. Fund allocation should be made by Zilla Parishad, Panchayat Samiti and Gram Panchayat to carry out the following DRM activities:-
 - a. To train Search and Rescue, First Aid groups.
 - b. To create awareness among the people.
 - c. To procure search and rescue materials.
 - d. To set up temporary shelter for disaster victims.

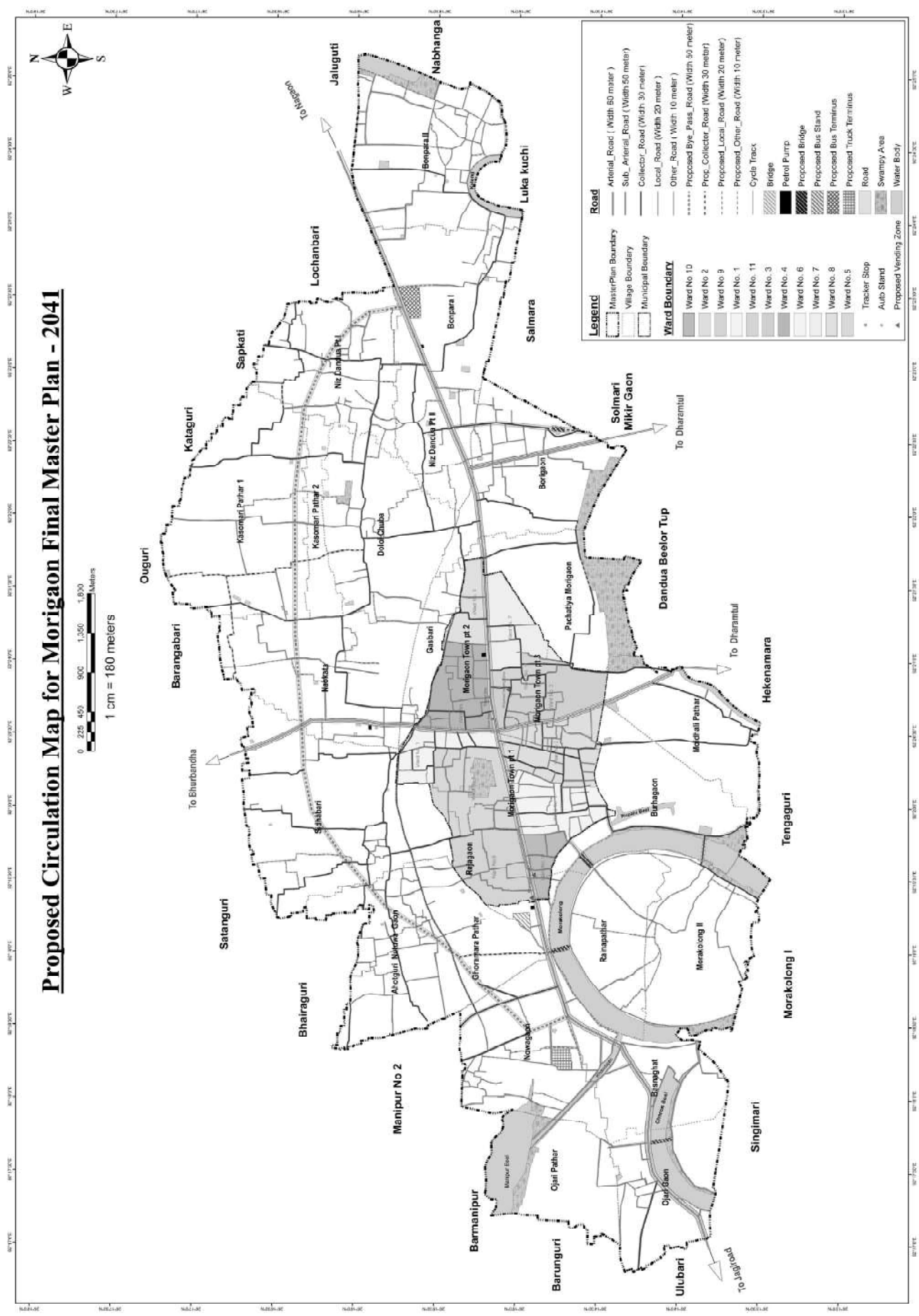


Proposed Zoning Map for Morigaon Final Master Plan - 2041



Proposed Land Use Map for Morigaon Final Master Plan - 2041





0 225 450 900 1,350 1,800
Meters

1 cm = 180 meters

