



THE ASSAM GAZETTE

অসাধাৰণ

EXTRAORDINARY

প্ৰাপ্ত কৰ্তৃত্বৰ দ্বাৰা প্ৰকাশিত

PUBLISHED BY THE AUTHORITY

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No. 120 Dispur, Monday, 11th March, 2024, 21st Phalgun, 1945 (S. E.)

GOVERNMENT OF ASSAM

ORDERS BY THE GOVERNOR

DEPARTMENT OF HOUSING AND URBAN AFFAIRS

NOTIFICATION

The 18th December, 2023

DoHUA EcF No. 421193/2023/2.- In exercise of the powers conferred by the section 9 and sub-section (1) of section 10 of the Assam Town & Country Planning Act.1959 (as amended) and (Assam Act II of 1960) read with sub-rule (1) of Rule 3 of the Assam Town and Country Planning (Publication of Master Plan and Zoning Regulations) Rules 1962, the Governor of Assam is pleased to publish the following notice regarding the publication of Draft Master plan for **Fakiragram-2041**.

Notice for the Publication of Draft Master Plan for Fakiragram-2041

1. It is notified that the Draft Master plan for Fakiragram prepared by the Directorate of Town & Country Planning, Assam, under section 9 of the Assam Town & Country Planning Act 1959 (As amended), as described in the schedule below is hereby published.
2. Any person or persons affected by the Draft Master plan may submit their objection or opinion in writing to the Director, Town & Country Planning, Dispur, Guwahati-6 within two months from the date of publication.
3. The Draft Master plan for Fakiragram with all relevant papers and maps may be inspected free of Cost during office hours at the Office the Director, Town & Country Planning, Assam, Dispur, Guwahati-6, the Deputy Director, Town & Country Planning, District Office- Kokrajhar, the Circle office, Dotoma Revenue Circle, Office of the Chairman, Fakiragram Municipal Board, Fakiragram. Copies of the Draft Master plan for Fakiragram are available at the office of the Deputy Director, Town & Country Planning, Kokrajhar for sale on payment.

SCHEDULE**1) Situation and Area**

District	: Kokrajhar
Circle	: Dotoma Revenue Circle
Area covered by Master Plan	: 22.62 Sq.kms.
Fakiragram Municipal Area	: 8.25 Sq.kms.

2) Villages included in the Draft Master Plan for Fakiragram

Sl	Village	Mouza
1	Pakhritol	Fakiragram
2	Kodaldhoa	Fakiragram
3	Singimari	Fakiragram
4	Magumari	Fakiragram
5	Molandubi	Fakiragram
6	Dhopordol	Fakiragram
7	Koroitola	Fakiragram
8	Koraitari	Fakiragram
9	Duramari	Fakiragram
10	Moynartol	Fakiragram
11	Kunguri	Fakiragram
12	Totpara	Fakiragram
13	Dingram	Fakiragram
14	Pachagar	Fakiragram
15	Rabhapara	Fakiragram
16	Sandalatari	Fakiragram
17	Fakiragram	Fakiragram

3) Description of Fakiragram Master Plan Boundaries

North	: Chokapara, Mukhigaon, Dalowabari
South	: Bamunkura, Odlartal, Koraitala Muslimpara
East	: Samaguri, Paroguri, Bhaispara
West	: Kharida Chandala, Guabari, Chashapani

KAVITHA PADMANABHAN,
Commissioner & Secretary to the Government of Assam,
Department of Housing and Urban Affairs,
Dispur, Guwahati-6

1. INTRODUCTION TO MASTER PLAN AREA

1.1 INTRODUCTION

Fakiragram is located in Kokrajhar district and was elevated to the status of a town with the setting up of its first Municipal Board in 2019. The pattern of development is primarily along the State Highway 5. Though the town is missing a bustling commercial and manufacturing aspect, it nonetheless presents immense potential for growth. To make sure that the town becomes a capable centre of attracting and generating wealth, scientific planning of physical and social infrastructure needs to be emphasized.

1.1.1 Location

Fakiragram is located in the middle of the southern portion of Kokrajhar district, sharing a boundary with Dhubri district. It has a plain terrain with an elevation of 43 metres/141 feet. Along with the rest of the district, Fakiragram lies in the northern bank of the mighty Brahmaputra River.

1.1.2 Regional Setting

Fakiragram shares its boundary with Dhubri district and is well connected to it by road network. It is around 13 km from the district headquarters located in Kokrajhar town, and 240 km from the state capital; Dispur. The State Highway 5: Bilasipara Fakiragram Sherfanguri road passes through it. Fakiragram also has a railway junction.

1.1.3 Brief History of the Town

Fakiragram town derives its name from the Fakir Baba Mazar in Ward no. 8. Constructed almost a century ago, every year a 'mela' or fair is organized on Maghi Purnima on the field in front of it. People from all background come together and participate in the event enthusiastically.

Fakiragram was thriving commercially in the olden days. A tram line connected it to Phibsoo in Bhutan and timber was widely transported through this line. There were a number of other industries like saw-mill, rice-mill, oil mill, jute, Khattha etc. which are abandoned now.

Fakiragram also happens to be the first railway junction while entering the state. With the partition of India in 1947, when the railway link to Assam through East Bengal was broken and Assam got delinked from the rest of India; The Indian Railways took up the Assam Link Project in 1948 to build a rail link between Fakiragram and Kishanganj (Bihar).

1.2 PHYSICAL ENVIRONMENTAL CONDITION

1.2.1 Climate

The climate of Fakiragram is humid sub-tropical in nature, characterized by warm and humid summer and cool and dry winter. The average annual rainfall is around 3100 mm and the mean maximum and mean minimum temperature varies from 35-38°C and 10-13°C respectively.

1.2.2 Physiography

Fakiragram lies in the in alluvial area formed by Brahmaputra and its river system. It is a very fertile zone supporting luxurious vegetation growth.

1.2.3 Soil Condition

The soil is composed of sand and clay in varying proportion ranging from sandy in riverbeds to soft clay in different parts.

1.3 MASTER PLAN: DEFINITION AND FORMULATION

Most of the urban settlements, especially smaller urban settlements, are characterized by haphazard and unplanned growth, non-conforming land uses, mushrooming unauthorized colonies, and land conversion from agriculture to urban resulting in environmental degradation and poor quality of life.

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.

1.4 NEED OF MASTER PLAN

A master plan is a blueprint for the future. It will help the society-

- To control the development of various industries in a systematic way.
- To define public, semiprivate, and private spaces and public amenities
- To discourage the growth of town in an unplanned and unscientific way.
- To give a perspective picture of a fully developed town.
- To limit to a certain extent the unprecedented flow of rural population to the urban area.
- To offset the evils which have come up due to over-crowding of population such as acute shortage of houses, traffic congestion, inadequate open spaces and insufficiency in public amenities; etc.

1.5 PROJECT OBJECTIVES AND ITS VISION

The broad objective of this project is to prepare a Master Plan Report for Fakiragram Town. Report is the final output of the research.

Vision being a cherished dream, to achieve this vision it is necessary to break it into a number of goals and subsequently to objectives.

- Identifying existing gaps in physical and social infrastructure & to bridge those gaps
- By proper policy planning and strict adherence of the land use zoning and building byelaws.
- By submerging the planning with combing funds from the state as well as the centrally sponsored schemes
- Ensuring systematic, balanced & integrated development.
- Prioritizing Environmental Sustainability
- Facilitating Economic Development
- Enhancing Heritage, Culture & Public Life
- Improving Housing and Social Infrastructure
- Developing Resilient Physical infrastructure

1.6 SCOPE OF WORK

- To identify the gaps/ incongruities between the actual land use and the Master Plan proposals.
- To assess current situations, prospects, priorities and proposals for development.
- To identify the systematic and methodological deficiencies in implementation and preparation of Master Plan.

2. DEMOGRAPHY

2.1 INTRODUCTION

The Fakiragram Master Plan Area is located in Kokrajhar district covering an area of 22.62 sq. km. The Fakiragram Municipal Board area has 8 wards and covers an area of 8.25 sq. km. It has been formed by taking the following villages under its jurisdiction:

Table 2-1: Villages included under Fakiragram MB

Sl. No.	Villages
1	Fakiragram
2	Totpara
3	Kodaldhowa
4	Dhopertal
5	Ravapara
6	Pachagarh
7	Dingaon

2.1.1 Demographic Profile

2.1.1.1 Population

As per the Census of 2011, the population of Fakiragram Master Plan area is 22987 and that of Fakiragram Municipal Board area is 10622. In 2001, the former had a population of 20274 and the latter had a population of 9438. This implies a decadal population growth rate of 13.38% in Fakiragram MP Area and 12.55% in Fakiragram MB area.

2.1.1.2 Population Growth

The following table shows the decadal growth rate of population in Fakiragram Master Plan Area. Although the growth rate is significant in the MP area, it has declined from 16.35% in 2001 to 13.38% in 2011. On the other hand, Fakiragram Municipal Area has witnessed a tremendous decadal growth of population from 1.45% in 2001 to 12.55% in 2011. A growth in population without the development of social and physical infrastructure can be disastrous. Efficient government spending in the MP area is crucial which will also eventually attract private investments.

Table 2-2: Decadal growth rate of population, Fakiragram MP Area

Year	Fakiragram Municipal Area		Fakiragram Master Plan Area Excluding the Municipal area		Fakiragram Master Plan Area	
	Population	%variation	Population	%variation	Population	%variation
1991	9303	-	8121	-	17424	-
2001	9438	1.45%	10836	33.43%	20274	16.35%
2011	10622	12.55%	12365	14.11%	22987	13.38%

2.1.1.3 Population Trend

The following table shows the population distribution in Fakiragram Master Plan Area according to Census 2011:

Table 2-3: Fakiragram MP Area: Household and Population Size

Sl. No.	Village	No. of Households	Population Size
1	Fakiragram MB Area	2287	10622
2	Pakritol	294	1438
3	Molandubi	77	375
4	Kumguri	90	434
5	Koiratola	138	697
6	Koraitari	378	1784
7	Moinertol	35	184
8	Duramari	308	1621
9	Magurmari	254	1238
10	Sandalartari	502	2188
11	Singimari	494	2406
	Total	4857	22987

Source: District Census Handbook, 2011

2.1.1.4 Population and Area Distribution

The following table shows the population in person per hectare:

Table 2-4: Population and Area Distribution, Fakiragram MP Area

Category	Master Plan Area	Municipality Area
Area (HA)	2262	825
Total Population	22987	10622
Number of Wards	-	8
Density (ppha)	10.16	12.87

Source: District Census Handbook, 2011 and Fakiragram Municipal Board

2.1.1.5 Sex Ratio

The following table depicts the sex ratio of Fakiragram Master Plan area from 2001 to 2011:

Table 2-5: Sex Ratio, Fakiragram MP Area

Year	Fakiragram Municipal Board Area	Fakiragram Master Plan Area excluding the municipal area	Fakiragram Master Plan Area
2001	920	957	939
2011	940	953	947

Source: District Census Handbook, 2001, 2011

The total Master Plan area has seen an improvement in the sex ratio from 939 females per 1000 males in 2001 to 947 females per 1000 males in 2011. However, the areas excluding the Fakiragram municipal area has seen a deterioration from 957 to 953. The sex ratio of Fakiragram Master Plan area is also lower than the state measure of 958 and the Kokrajhar district measure of 957. This indicates that the

area is lagging behind socio-economically. The role of health and education sector needs to be enlarged in promoting gender equality. Awareness should be spread and proper monitoring should be done by the local administration to ensure that immunization and nutritional support reach to every infant irrespective of sex.

2.1.1.6 Child Population

The following table shows the child population size in Fakiragram MP Area. Here, out of a total population of 22987, the size of population belonging to the age group of 0-6 is 3292. This is 14.3% of the total population. The presence of a sizeable proportion of children population calls for more and better access to recreational facilities. The male population in this age group is 1705 and the female population is 1587. Accordingly, the sex ratio works out to be 981 females per 1000 males. In the Fakiragram municipal board area, the sex ratio for the age group of 0-6 is 914. This paints a worrying picture of the MP area.

Table 2-6: Child Population, Fakiragram MP Area

Age Group		Male Population	Female Population	Total
0-6	Master Plan Area (Excluding Municipality)	1086	1021	2107
	Municipality	619	566	1185
Total Population		1705	1587	3292

Source: District Census Handbook, 2011

2.1.1.7 Age-Sex Composition

The following table shows the age-sex composition of Fakiragram MP area. In the Fakiragram Municipal Area, while the child sex ratio is 914 females per 1000 males, in the age group of 7-60+, it is 943 females per 1000 males. This is a matter of grave concern and shows the general preference of males due to biased social and economic reasons.

Table 2-7: Age-Sex Composition, Fakiragram MP Area

Age Group	Fakiragram Municipal Area			Fakiragram Master Plan area Excluding Municipal Area		
	Male Population	Female Population	Total Population	Male Population	Female Population	Total Population
0-6	619	566	1185	1086	1021	2107
7-60+	4857	4580	9437	5245	5013	10258
Total	5476	5146	10622	6331	6034	12365

Source: District Census Handbook, 2011

2.1.1.8 Literacy Rate:

The following table shows the literacy rate in the Fakiragram MP area. The literacy rate here is lower than the state literacy rate of 72.19%, male literacy rate of 77.85%, and female literacy rate of 66.27%. Fakiragram Municipal Area's literacy rate is slightly better than the state average yet lower than the national literacy rate of 74.04%. Another area of concern is the wide disparity between male and female literacy rate. The local administration should spread awareness to bring about a behavioural change towards gender equality. Strict monitoring should be done to ensure that the current schemes promoting female health and education are efficiently implemented.

Table 2-8: Literacy Rate, Fakiragram MP Area

	Fakiragram Municipal Area	Fakiragram Master Plan area excluding the municipal area	Total Fakiragram Master Plan Area
Male Literacy	4350 (79.4%)	3974 (62.8%)	8325 (70.5%)
Female Literacy	3499 (67.9%)	3203 (53.1%)	6702 (59.9%)
Total Literacy	7849 (73.9%)	7178 (58.1%)	15027 (65.4%)

Source: District Census Handbook, 2011

2.1.1.9 SC-ST Population

From the table below, it is evident that 7.83% of the population belongs to SC and 4.38% belongs to ST in the Fakiragram MP Area. In the municipality area, as much as 12.03% belongs to SC.

Table 2-9: SC-ST Populace, Fakiragram MP Area

	SC Populace		ST Populace	
	Pop.	%	Pop.	%
Master Plan Area (Excluding Municipality)	521	4.21%	473	3.82%
Municipality	1278	12.03%	525	4.94%
Total	1799	7.83%	998	4.34%

Source: District Census Handbook, 2011

2.2 MIGRATION

Migration is the key force driving urbanisation. Urbanisation is the shift of population from rural areas to urban areas. It is the process by which towns and cities grow as more people come to live in it. It provides both opportunities and challenges to the urban centres. Migrants offer their skills at reasonable cost driving the growth of these centres. Challenges mostly appear in the area of their accommodation. The unskilled workers working at minimal wage find it difficult to land in a decent accommodation. Another challenge which the migrant workers especially the vendors create, is the haphazard and unorganized manner in which they conduct their vocation, often by the roadside, obstructing the free flow of traffic. They also do not practise sound waste disposal methods and litter here and there, creating an unsanitary environment.

In Fakiragram town, most of migrants are daily wage labourers, masons and carpenters. As of now, we do not have reliable data regarding the migrant population of the town. But in order to ensure a holistic growth and development of the town, it is very important to thoughtfully manage the migrants.

2.3 URBAN HOUSING

Traditionally, the people have been living in individual houses made up of bamboo and wood due to easy availability of the raw materials. Many of these buildings are not earthquake resistant. Further elaboration on *Housing* can be referred from Chapter 4.

2.3.1 Housing Density

The average household size of Fakiragram MP Area is 4.73 as per Census of 2011.

Table 2-10: Population and Household Size, Fakiragram Master Plan Area – 1991, 2001 & 2011

Town/ State/ Country	1991			2001			2011		
	Total Population	Number of Households	Household Size	Total Population	Number of Households	Household Size	Total Population	Number of Households	Household Size
Fakiragram Master Plan Area	17,424	-	-	20,274	-	-	22,987	4,857	4.73
Assam Urban Population	24,87,795	-	-	34,39,240	-	-	43,98,542	-	-
India Urban Population	21,32,83,817	3,99,37,922	5.3	2,81,61,19,689	5,58,32,570	5.12	37,71,05,760	7,88,65,937	4.78

*Source: Compiled from Housing and Household Tables, Census of India, 1991 & 2001, * Provisional Population Totals 2011*

As per Census 2011, Fakiragram Municipal Board has total administration over 2287 houses to which it supplies basic amenities. It is also authorized to build roads within Municipal Board limits and impose taxes on properties coming under its jurisdiction.

2.4 POPULATION PROJECTION

Population is the most important factor which is directly related to the various needs of the area. The prime objective of any Master Plan is to assess the present situation and project the future population for plan period, and accordingly calculate the requirements of both physical and social infrastructure in order to cater to the needs of such population. Therefore, population projection is the basic requirement for the projection of other needs of the area. From all these projections, the developmental plan of an area should be prepared which can fulfil the different needs of the people living therein.

To arrive at a conclusive projection figure, three methods of population projections have been used for the town as well as the whole MP Area. The methods used for projecting population are:

- i. Arithmetic Progression Method.
- ii. Geometric Progression Method.
- iii. Incremental Increase Method.

Based on the past population growth trends, population estimate for Fakiragram Master Plan Area for the year 2041 have been worked out assuming different growth rate for Municipal Area and Master Plan Area.

The following table shows the projected population of Fakiragram Municipal Area for 2041. The incremental increase method shows the highest population forecast of 18895 by 2041.

Table 2-11: Population estimates for Fakiragram Town- 2041

Method	2021	2031	2041
Arithmetic Progression method	11282	11941	12601
Geometric Progression method	11366	12161	13012
Incremental Increase method	12331	15088	18895
Average	11660	13063	14836

Source: Calculations based on AM, GM & Incr. Incr Method

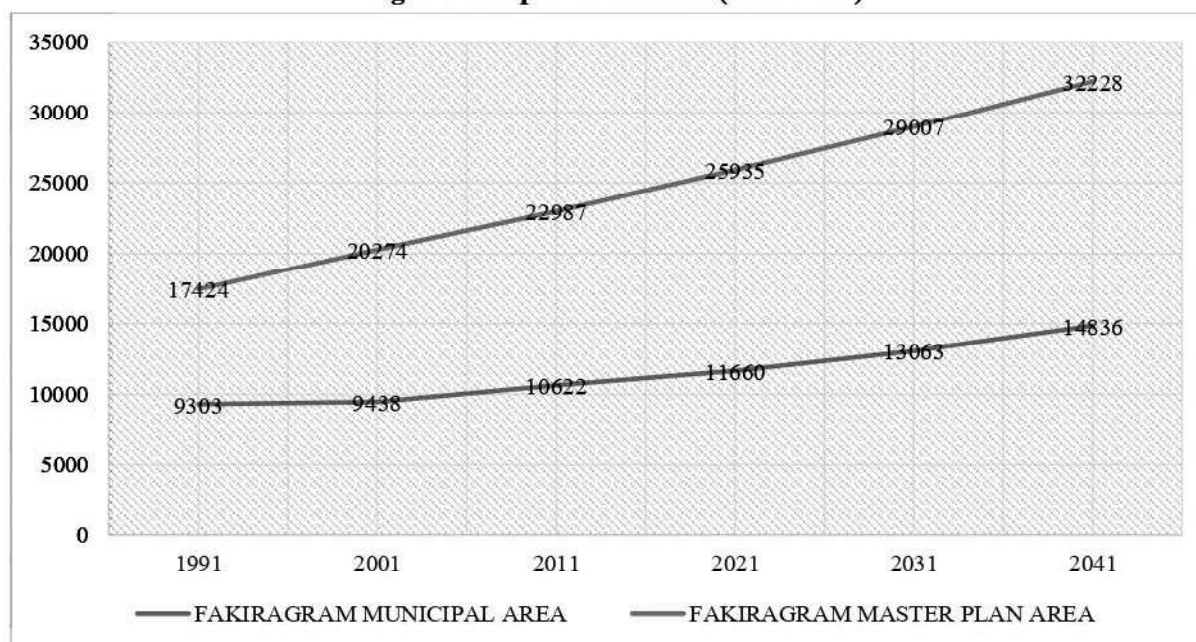
In the table below, the comparison of population projections done by different methods reveals that Geometric Increase method shows the highest population forecast with the estimation of 34842 by year 2041 in the Fakiragram Master Plan Area followed by Arithmetic Progression method at 31332 and by Incremental Increase method at 30510.

Table 2-12: Population estimates for Fakiragram Master Plan Area- 2041

Method	2021	2031	2041
Arithmetic Progression method	25769	28550	31332
Geometric Progression method	26405	30332	34842
Incremental Increase method	25632	28139	30510
Average	25935	29007	32228

Source: Calculations based on AM, GM & Incr. Incr Method

Figure 1: Population Trend (1991-2041)



The average of all the methods applied for population projection for horizon year 2041 has been obtained. Accordingly, the population forecast of Fakiragram Master Plan Area for the year 2021, 2031 and 2041 will be 25935, 29007, and 32228 respectively.

3. ECONOMIC BASE AND EMPLOYMENT

3.1 INTRODUCTION

The Fakiragram MP Area has an agrarian economy. Fakiragram town is lagging behind commercially and does not have diverse commercial atmosphere. It is facing development pressure due to competing commercial development outside the town centre. It needs economic incentives and opportunities for business revitalization. In Fakiragram town, there are a few administrative offices, banks, educational institutions, where the workforce is service based. A few commercial establishments meet day to day needs of the people. There are no prominent local assets as such. The town needs to adapt to the changing economic conditions and reinvent itself to optimally use its natural and physical resources. Community participation should be encouraged so that they feel empowered to contribute to the local economy. Existing assets which may range from natural beauty to cultural institutions need to be developed and promoted to attract consumers.

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 Fakiragram MP Area from 2001 to 2011:

Table 3-1: Working Population of Fakiragram Master Plan Area

Year	Fakiragram Municipal Area (A)			Fakiragram 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
2001	9438	2878	30.49%	10836	2832	26.14%	20274	5710	28.16%
2011	10622	3468	32.65%	12365	3693	29.87%	22987	7161	31.15%

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

There had been steady improvement in work participation rate in Fakiragram MP Area. The work participation rate in the Fakiragram Municipal Area has slightly improved from 30.49% in 2001 to 32.65% in 2011. In the MP area, it has increased from 28.16% in 2001 to 31.15% in 2011. However, it is to be noted that Fakiragram MP Area has a sizeable working age population and steps should be taken to absorb them into the labour force.

3.2.2 Non-Working Population

The table below shows the non-working participation rate from 2001 to 2011:

Table 3-2: Non-Working Population of Fakiragram Master Plan Area

Year	Fakiragram Municipal Area (A)			Fakiragram Master Plan Area excluding the Municipal Area (B)			Total Master Plan Area (A)+(B)		
	Total Population	Total Non-Workers	Non-Worker Participation Rate	Total Population	Total Non-Workers	Non-Worker Participation Rate	Total Population	Total Non-Workers	Non-Worker Participation Rate
2001	9438	6560	65.51%	10836	8004	73.86%	20274	14564	71.84%
2011	10622	7154	67.35%	12365	8672	70.13%	22987	15826	68.85%

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

3.3 OCCUPATION PATTERN:

The size of total workers in Fakiragram MP Area is 7161 of which 48.42% belongs to the Fakiragram Municipal Area and 51.58% belongs to the Master Plan Area excluding the municipal area. The table below shows the occupation pattern in the Fakiragram Master Plan Area.

Table 3-3: Occupational Structure of Fakiragram Master Plan Area

Sl. No.	Category	Municipality	Percentage (%)	Male	Female	Master Plan Area (Excluding Municipality)	Percentage (%)	Male	Female
1	Main Workers	2706	-	2484	222	2869	-	2629	240
i	Main Cultivators	316	11.68%	295	21	792	27.61%	768	24
ii	Main Agriculture Labourers	127	4.69%	97	30	449	15.65%	403	46
iii	Main Household Main Industry workers	54	2%	50	4	29	1.01%	25	4
iv	Other workers	2209	81.63%	2042	167	1599	55.73%	1433	166
2	Marginal Workers	762	-	601	161	824	-	667	157
i	Marginal Cultivators	39	5.12%	32	7	36	4.37%	31	5
ii	Marginal Agriculture Labourers	112	14.7%	89	23	189	22.94%	159	30
ii	Marginal Household Industry workers	11	1.44%	10	1	27	3.28%	21	6
iv	Marginal Other workers	600	78.74%	470	130	572	69.41%	456	116
Total Workers (Main + Marginal)		3468	-	3085	383	3693		3296	397

Source: District Statistical Handbook, Census of India, 2011

It is evident from the table that in the Fakiragram Master Plan Area excluding municipality, a sizable proportion of the workers are either cultivators or agricultural labourers. In order to improve the condition of this lot, the agricultural infrastructure needs to be augmented, ranging from modern and smart methods of irrigation to accessibility to high standard seeds. In the Fakiragram Municipal area, most of the workers are in the service sector or in trade and commerce.

3.4 INFORMAL SECTOR

The workforce engaged in the informal sector usually locate themselves strategically near work centres, commercial areas outside the boundaries of schools, colleges and hospitals, transport nodes and near large housing clusters. Often times, they create problems like obstruction of traffic. They also cause overcrowding and unsanitary conditions in public spaces and streets.

The size of informal sector is only bound to expand with the growth of Fakiragram Town. The sector must be integrated with city planning and development process in order to rationalise the town's growth and development. A supportive environment should be created to enable the vendors to carry out their vocation. The area where they carry out their trade should have suitable public convenience arrangements and must be kept clean.

3.5 MAJOR TRADE AREA: TRADE AND COMMERCE

Trade and commerce in Fakiragram town is along the main thoroughfares. Commercial establishments are packed especially along the State Highway 5. The loading and unloading of goods in these establishments take place along the road, creating bottlenecks in the flow of traffic.

- **Wholesale trade:** As per the information provided by Fakiragram Municipal Board, there are 6 wholesale commercial establishments in Fakiragram as on May, 2022.
- **Retail trade:** There are 781 retail commercial establishments scattered all over Fakiragram town as on May, 2022 and they cater to a variety of demands of the people.
- **Vendors and Stalls:** There are 11 vendors and stalls in Fakiragram town.
- **Daily Bazar & Haat:** There are 8 nos. of daily bazars and haats in Fakiragram town.

3.6 INDUSTRIAL DEVELOPMENT

Fakiragram MP Area is lagging behind industrially. There are no major industries here. Industries as per the natural resource endowment of the area may be taken up to promote sustainability and employability.

3.7 AGRICULTURAL DEVELOPMENT

Agriculture is the main occupation of the people in Fakiragram MP Area. The main crops cultivated here are paddy, rapeseed and mustard, kharif and rabi vegetables, etc. Majority of the farmers are small and marginal here. For development of agriculture and allied activities, financial support should be given to agriculture and rural start-ups. The MP area has immense scope in apiculture, aquaculture, and cultivation of high value vegetables. Agro-forestry also has high potential of development. In addition to providing products like fruits, nuts, medicines, woods, etc. agro-forestry provides benefits like improved soil structure and health.

4. HOUSING AND SHELTER

4.1 HOUSING SCENARIO

Housing may be defined as a unit of accommodation to protect its occupants from the forces of nature. It is an important component of human resource development, and is a prerequisite for healthy living. Defined broadly, housing encapsulates adequate space, lighting, ventilation, security and amenities like water supply, proper drainage, and sanitation, etc., to lead a dignified life. Houses provide physical and economic security and is considered a status symbol across the world. The United Nation's Universal Declaration of Human Rights, 1948, recognizes the need of housing along with food, clothing, medical care, etc. as a right to a standard living required for health and well-being of everyone.

In the Fakiragram MP area, there persists a gap between demand and supply of houses. The demand arises as the area is lagging behind in terms of adequate housing backed by proper facilities and basic amenities to lead a dignified life. The supply on the other hand is constrained by high construction cost. The problem in the Fakiragram MP area 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.

4.1.1 Types of Houses

In Fakiragram MP Area, 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 Fakiragram 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 Fakiragram are either self-occupied or rented. Rented accommodation is noticeable in the Fakiragram Municipal Area where 368 households or 16.09% live in rented accommodation. In the MP area, 7.76% of the households live in rented accommodation while in the area excluding the municipal area, it is only 10 households. The Table below shows the status of owned and rented houses in Fakiragram MP Area as per the Census of 2011:

Table 4-1: Housing Typology of Fakiragram Master Plan Area

Ownership Status	Fakiragram Municipal Area	Fakiragram Master Plan Area excluding the municipal Area	Total Fakiragram Master Plan Area
Owned	1864	2366	4230
Rented	368	10	377

Any others	55	194	250
Total	2287	2570	4857

Source: District Census Handbook, Census of India 2011

4.2 HOUSING SUPPLY MECHANISM

Majority of the houses in Fakiragram are self-built. However, there are government schemes in place to provide affordable housing to economically and socially backward sections of the society.

4.2.1 Housing Schemes in Fakiragram

1. **Prime Minister Awas Yojana:** The 'Housing for All' scheme was an initiative of the Indian government to establish housing facilities for the socio-economically disadvantaged segment of population. It was introduced by the Indian government's Ministry of Housing and Urban Affairs. It is for both people residing in urban and rural areas that fulfill certain criteria. The Pradhan Mantri Awas Yojana has been launched on 25 June 2015 by the Hon'ble Prime Minister Sri Narendra Modi. People who will be benefited through this scheme include: homeless citizens, poor urban people and citizens belonging to EWS and LIG categories.
2. **Individuals Household Latrine (IHHL) under Swachh Bharat Mission (SBM):** IHHL under SBM aims to eliminate open defecation in the country. Here applicants can approach the local authorities in their area to get central assistance for construction of toilets. They can also complete the process online through an official portal of the central government. Conversion of old toilets can also be applied for.
3. **National Urban Livelihood Mission (NULM):** Launched in 2013, NULM aims to provide permanent shelter equipped with essential services to the urban homeless in a phased manner under the scheme of Shelter for Urban Homeless (SUH). The objectives of the Shelter for Urban Homeless (SUH) component of NULM scheme are to:
 - Ensure availability and access of the urban homeless population to permanent shelters including the basic infrastructure facilities like water supply, sanitation, safety and security.
 - Cater to the needs of especially vulnerable segments of the urban homeless like the dependent children, aged, disabled, mentally ill and recovering gravely ill, by creating special sections within homeless shelters and provisioning special service linkages for them.
 - Provide access to various entitlements, viz. social security pensions, PDS, ICDS, identity, financial inclusion, education, affordable housing etc. for homeless populations.
 - Formulate structures and framework of engagement for development, management and monitoring of shelters and ensuring basic services to homeless persons, by state and civil society organisations including homeless collectives.
4. **Apun Ghar Home Loan:** The Government of Assam has initiated a housing scheme known as Apun Ghar Home Loan scheme to provide home loan for State Government employee on subsidized interest rates. Assam Government has signed a Memorandum of Understanding (MOU) with State Bank of India for the same. Under the home loan scheme, the eligible beneficiaries who are permanent residents and employee of State Government can avail a maximum loan amount of Rs.15 Lakhs without collateral security from the concerned bank.

The Assam Government will provide 3.5% subsidy of interest to the Government employee under this scheme. Once the application is approved, the interest of home loan will be 5% for women and 5.05% for men.

4.3 FAKIRAGRAM HOUSING STATUS

4.3.1 Housing Condition

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

- Those houses which do not require any repairs and are in good condition may be considered as 'Good'.
- Those houses which require minor repairs may be considered as 'Livable'.
- 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 distribution of households based on different housing condition in Fakiragram MP Area can be understood from the following table:

Table 4-2: Overall Housing condition in Fakiragram MP Area

Condition	Fakiragram Municipal Area	Fakiragram Master plan Area excluding the Municipal Area	Total Master Plan Area
Good	1011	508	1519
Livable	965	1439	2404
Dilapidated	311	623	934
Total	2287	2570	4857

Source: District Census Handbook, Census of India 2011

According to the table above, as per the Census of 2011, 934 households or 19.23% live in dilapidated houses. In the Municipal Area, 13.6% or 311 households live in dilapidated houses. However, it should be noted that since the Census of 2011, the housing condition has improved due to spread of financial literacy and introduction of affordable housing schemes.

Table 4-3: HHs Condition as Residence of Fakiragram MP Area

Condition of Census Households as Residence	Fakiragram Municipal Area	Fakiragram Master Plan Area (excluding MB area)	Total Master Plan Area
Good	979	503	1482
Livable	937	1425	2362
Dilapidated	310	623	933

Source: District Census Handbook, Census of India 2011

Table 4-4: HHs Condition as Residence-cum-other Use of Fakiragram MP Area

Condition of Census Households as Residence	Fakiragram Municipal Area	Fakiragram Master Plan Area (excluding MB area)	Total Master Plan Area
Good	32	5	37
Livable	28	14	42
Dilapidated	1	0	1

Source: District Census Handbook, Census of India 2011

4.3.2 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 4-5: Housing Structure of Fakiragram MP Area

Structure of the Households		Fakiragram Municipal Area	Fakiragram Master plan Area excluding the Municipal Area	Total Master Plan Area
Permanent		1025	473	1498
Semi-Permanent		1096	1767	2863
Total Temporary	Serviceable	8	2	10
	Non-Serviceable	134	325	459
Unclassifiable		24	3	27
Total		2287	2570	4857

Source: District Census Handbook, Census of India 2011

A majority of the households in both Fakiragram Municipal Area and in the Total Master Plan Area live in Semi-Permanent houses. 9.65% of the households or 459 households in the MP area live in total temporary structure.

4.3.3 Type of Structure

The following table depicts data on the type of predominant material of roof across households in Fakiragram.

Table 4-6: Housing roofing Material of Fakiragram MP Area

Material	Percentage of HHs		
	Fakiragram Municipal Area	Fakiragram Master Plan Area (excluding MB area)	Total Master Plan Area
Grass/Thatch/Bamboo/Wood/Mud etc.	101	142	243
Plastic/ Polythene	45	186	231
Handmade Tiles	225	314	539
Machine made Tiles	47	104	151
Burnt Brick	32	4	36
Stone/ Slate	27	78	105
G.I./Metal/Asbestos sheets	1687	1732	3419
Concrete	123	7	130
Any other material	0	3	3
Total	2287	2570	4857

Source: District Census Handbook, Census of India 2011

Majority of the people in Fakiragram Total master plan area used G.I./Metal/Asbestos sheets in their roofing constituting 70.4%.

4.3.4 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 Fakiragram:

Table 4-7: Availability of Kitchen in Fakiragram MP Area

Kitchen Facility		Fakiragram Municipal Area	Fakiragram Master Plan Area excluding the Municipal Area	Total Master Plan Area
Cooking inside house	Has Kitchen	1273	1083	2356
	Does not have kitchen	62	102	164
Has kitchen		776	1269	2045

Cooking outside house	Does not have kitchen	131	100	231
No Cooking		45	16	61
Total		2287	2570	4857

Source: District Census Handbook, Census of India 2011

2.7% of households in Fakiragram Municipal Area and 3.9% of households in areas excluding those under municipality cook inside the house but do not have kitchen. Here meals are cooked without proper ventilation which can cause nausea and headaches among other health effects.

4.3.5 Availability of Latrines

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 Fakiragram:

Table 4-8: Availability of Latrine in Fakiragram MP Area

Latrine Facility		Fakiragram Municipal Area	Fakiragram Master Plan Area excluding the Municipal Area	Total Master Plan Area
Flush/pour flush latrine	Piped sewer system	98	63	161
	Septic tank	703	85	789
	Other system	170	113	283
Pit latrine	With slab/ventilated improved pit	204	219	423
	Without slab/open slab	119	318	437
Night soil disposed into open drain		70	12	82
Service latrine	Night soil removed by human	35	0	35
	Night soil serviced by animal	0	0	0
Households not having latrine		888	1759	2647
Total		2287	2570	4857

Source: District Census Handbook, Census of India 2011

The table paints a gloomy picture of the sanitation condition in Fakiragram MP Area. However, it should be noted that the access to latrines have improved immensely in the recent times. Individual Household Latrines (IHHLs) have been constructed under the Swachh Bharat Mission launched on 2nd October, 2014. Accordingly, the Kokrajhar District has been declared Open Defecation Free (ODF).

4.3.6 Availability of Bathroom

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

Table 4-9: Availability of Bathroom in Fakiragram MP Area

Bathroom Facility		Fakiragram Municipal Area	Fakiragram Master Plan Area excluding the Municipal Area	Total Master Plan Area
Yes	Bathroom	797	195	992
	Enclosure without roof	196	70	266
No Bathroom		1294	2305	3599
Total		2287	2571	4857

Source: District Census Handbook, Census of India 2011

From the table, it is clear that 3599 households or 74.1% of the households under Fakiragram Master Plan Area do not have access to bathrooms. 266 households or 5.47% 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.

4.3.7 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 Fakiragram:

Table 4-10: Availability of drainage in Fakiragram MP Area

Waste water outlet connected to-	Fakiragram Municipal Area	Fakiragram Master Plan Area excluding the Municipal Area	Total Master Plan Area
Closed Drainage	33	1	34
Open Drainage	401	33	434
No Drainage	1853	2536	4389
Total	2287	2570	4857

Source: District Census Handbook, Census of India 2011

A proper drainage system is absent in the Fakiragram MP Area. In the municipal area, 1853 households or 81.02% do not have drainage facility, whereas in the overall MP Area, it is 90.36%.

4.4 HOUSING SITUATION

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

Table 4-11: Family household size in Fakiragram MP Area

Year	Number of Residential Houses	Total Population	Number of Persons per Houses
2011	4857	22987	4.73

Source: District Census Handbook, Census of India 2011

4.4.1 Housing Shortage

Housing shortage in Fakiragram 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.	934 HHs (refer in Table 4-2)
2	Temporary housing	All temporary houses should be considered as housing requirements as per 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	496 HHs (469+27) of total no. of HHs in Master plan area lived in temporary structure. (refer in Table 4-5)
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	1200 HHs (refer in Table 4-6)

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

Table 4-13: Computation of Current Housing Shortage in Fakiragram

Parameter	Number of Housing Units
1. Obsolescence factor	934
2. Temporary housing	496
3. Houses with predominantly katcha or semi pucca roof material	1200
Total Housing Shortage	2630
Total HHs in Fakiragram MP area (as per 2011 census)	4857

Housing Shortage in percent (Housing Shortage / No. of Urban HHs)	54.14%
--	---------------

Source: Calculated Values

Based on the above table, in 2011 the housing shortage works out to be around 2630 in Fakiragram Master Plan Area. However, it should be noted that these figures are tentative and there may be overlap between different housing shortage parameters.

4.4.2 Housing Need Assessment

The projected housing requirement in Fakiragram MP Area in 2041 is as follows:

Table 4-14: Future Housing Shortage in Fakiragram 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
2021	25935	-	4.7	5518	4857 (Census 2011)	661	2630 (Refer Table 4-13)	3291
2031	29007	3072	4.7	6171	-	1314	-	4605
2041	32228	3221	4.7	6857	-	2000	-	6605

Source: Calculated Values

It is seen from the Table that approximately 6605 new housing units needs to be distributed in the existing and new developments in the next 20 years.

4.5 IDENTIFICATION OF SUITABLE GOVERNMENT/ ULB LAND FOR HOUSING

The government land parcels in and around the Fakiragram 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.

5. TRANSPORTATION

5.1 INTRODUCTION

Transport is the backbone of economy and social structure of any region. If urban centres have been recognized as engines of economic growth, Traffic and Transportation has rightly been termed as wheels of such engines. Road and Rail network plays a vital role in the urban planning and traffic & transportation has been considered as a function of land use planning. Transport network is considered as the life line of the city and if any bottleneck or obstruction arises, it will pose a severe threat to day to day life of the city people. The good road and rail network is the symbol of the sound development of any city and the study of transportation helps in understanding the existing situation, potentials, weaknesses etc. and helps to draft out strategies and projects for the future development. A bad transportation infrastructure on the other hand makes vehicles susceptible to wear and tear, increases fuel consumption of automobiles, and increases the likelihood of accidents.

5.2 ROAD NETWORKS OF FAKIRAGRAM

Fakiragram town is connected to the District Headquarters, Kokrajhar by Kokrajhar-Monakosha Road via Fakiragram-Kokrajhar Road. The distance between these two towns through this road is approximately 11.9 km. It is also in proximity to Dhubri district and is connected to it by SH 5 and Fakiragram-Sapatgram Road.

A railway crossing is located in SH 5 in Fakiragram Town.

5.2.1 Major Roads and Intersection in Fakiragram

The major roads in Fakiragram along with their length and average width are as follows:

Table 5-1: Roads with their length and average width, Fakiragram

Roads	Length (meters)	Width (meters)
Fakiragram-Serfanguri Road	4500	5
Fakiragram-Sapatgram Road	3000	4.5
Fakiragram-Bichimari Road via Railway Road	2000	4
Ramkrishnapara to Pakritol CC Block Road	2000	4
Puran Bazar Fakirbaba Dan Bhandar to Pratapkhata road via- Moinartol		

Source: Fakiragram Municipal Board

There are 3 main intersections in Fakiragram Town. They are:

1. Sapatgram More
2. Sarkar Medical More
3. College More

5.2.2 Traffic Volume at Major Locations

Traffic volume surveys was conducted along the major transport routes and at the major intersection. This was carried out in order to generate an idea about the traffic volume along the major routes and at

the major intersections, the peak hour timing, the peak hour traffic, and the peak hour traffic composition.

**Table 5-2: Traffic Volume Survey 2022 (Nov), Fakiragram Town,
Morning (9 A.M to 12 Noon) - Incoming**

Road Name/Location	M-Cycle/Scooter	Car	Bicycle	E-Rickshaw	Rickshaw	Auto/Tempo	Mini-Bus/Truck	Truck	Bus	Thela	Tractor	Mini-Truck, Ape,	Total
Serfanguri to Bilasipara Main Road Location: Monakosha	231	33	67	108	1	23	12	3	0	2	10	14	504
Fakiragram to Sapatgram Location: Dhopteral	85	27	40	58	6	17	3	6	2	4	7	32	287
Bilasipara Main road to Fakiragram Location: Dhopteral	127	60	56	95	8	41	11	12	9	11	11	27	468
Fakiragram Railway Crossing Junction Point Location: Rail gate crossing	35	20	5	32	5	2	3	3	3	0	0	0	108
Total	478	140	168	293	20	83	29	24	14	17	28	73	1367

Source: Survey conducted by Town & Country Planning, Kokrajhar

It can be seen from the table above that Serfanguri to Bilasipara Main Road faces the highest incoming traffic volume in the morning hours followed by Bilasipara Main road to Fakiragram. M-Cycles/Scooters account for the dominant mode of transportation. E-Rickshaw has also emerged as a much sought-after mode of transportation in all the four roads wherein the survey was conducted. Bilasipara Main road to Fakiragram witnesses the most number of commercial vehicles like Auto/Tempo, Winger/Traveller, Truck and Bus.

**Table 5-3: Traffic Volume Survey 2022, Fakiragram Town,
Morning (9 A.M to 12 Noon) – Outgoing**

Road Name/Location	M-Cycle/Scooter	Car	Bicycle	E-Rickshaw	Rickshaw	Auto/Tempo	Mini-Bus/Truck	Truck	Bus	Thela	Tractor	Mini-Truck, Ape,	Total
Serfanguri to Bilasipara Main Road Location: Monakosha	255	58	46	99	1	20	15	2	2	2	11	25	536

Fakiragram to Sapatgram Location: Dhopteral	70	17	32	47	3	18	3	3	2	6	6	26	233
Bilasipara Main road to Fakiragram Location: Dhopteral	88	51	37	88	4	38	8	8	7	8	8	7	352
Fakiragram Railway Crossing Junction Point Location: Railgate crossing	95	18	60	70	3	17	21	5	3	7	3	3	305
Total	508	144	175	304	11	93	47	18	14	23	28	61	1426

Source: Survey conducted by Town & Country Planning, Kokrajhar

In the morning hours, Serfanguri to Bilasipara Main road faces the highest volume of outgoing traffic from Fakiragram town. Again, two-wheelers are the dominant mode of transportation followed by E-Rickshaws.

The figure below illustrates a comparative incoming and outgoing traffic volume in the 4 roads of Fakiragram town between 9 A.M and 12 Noon.

Figure 2: Traffic Volume in Fakiragram Town: 9 A.M-12 NOON

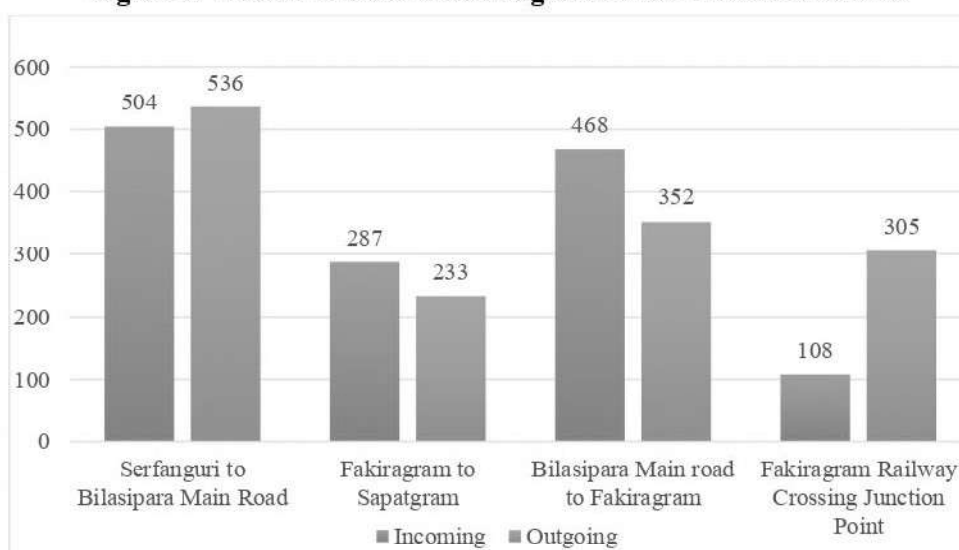


Table 5-4: Traffic Volume Survey 2022, Fakiragram Town, Afternoon (1 P.M to 4 P.M) – Incoming

Road Name/Location	M-Cycle/Scooter	Car	Bicycle	E-Rickshaw	Rickshaw	Auto/Tempo	Mini-Bus/Truck	Truck	Bus	Thela	Tractor	Mini-Truck,	Total
Serfanguri to Bilasipara Main Road Location: Monakosha	89	16	13	61	0	10	7	2	2	0	9	13	222

Fakiragram to Sapatgram Location: Dhopertal	38	12	23	32	1	12	3	2	0	2	2	8	135
Bilasipara Main road to Fakiragram Location: Dhopertal	83	15	57	45	0	26	8	2	3	8	3	3	253
Fakiragram Railway Crossing Junction Point Location: Railgate crossing	10												27
	0	20	67	58	0	17	0	1	0	2	2	5	22
Total	310	630	160	196	1	65	18	7	5	10	16	29	882

Source: Survey conducted by Town & Country Planning, Kokrajhar

From Table 5-4, it can be seen that in the afternoon hours, Fakiragram Railway crossing junction point witnesses the highest traffic volume among the 4 surveyed roads i.e, 272 followed by Bilasipara to Fakiragram main road i.e, 253.

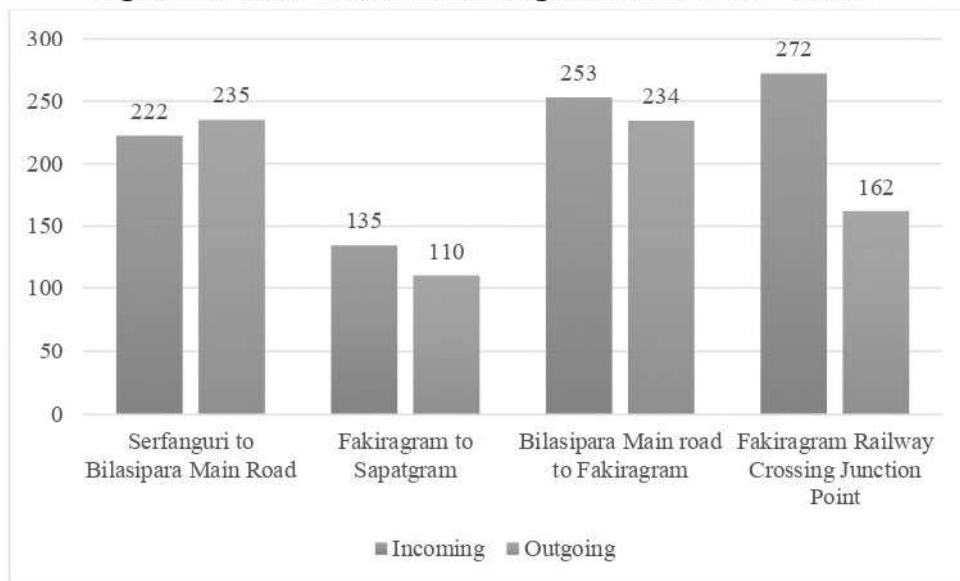
**Table 5-5: Traffic Volume Survey 2022, Fakiragram Town,
Afternoon (1 P.M to 4 P.M) - Outgoing**

Road Name/Location	M-Cycle/Scooter	Car	Bicycle	E-Rickshaw	Rickshaw	Auto/Tempo	Mini-Bus/ Traveller/	Truck	Bus	Thela	Tractor	Mini-Truck, Ape,	Total
Serfanguri to Bilasipara Main Road Location: Monakosha	105	23	15	50	1	9	9	3	1	0	8	11	235
Fakiragram to Sapatgram Location: Dhopertal	42	8	22	22	0	8	2	1	0	1	1	3	110
Bilasipara Main road to Fakiragram Location: Dhopertal	80	32	42	33	1	16	12	2	2	7	4	3	234
Fakiragram Railway Crossing Junction Point Location: Railgate crossing	75	8	40	10	2	5	5	5	2	3	3	4	162
Total	302	71	119	115	4	38	28	11	5	11	8	21	741

Source: Survey conducted by Town & Country Planning, Kokrajhar

From the above table, it can be seen that Serfanguri to Bilasipara Main road and Bilasipara to Fakiragram Main road faces the highest traffic volume in Fakiragram town.

The figure below illustrates the comparative incoming and outgoing traffic volume in the 4 roads in Fakiragram town during the afternoon hours.

Figure 3: Traffic Volume in Fakiragram Town: 1 P.M- 4 P.M

5.3 TRANSPORT INFRASTRUCTURE

Within Fakiragram town, there is no designated spot as such for bus stand, auto stand and rickshaw stand. They temporarily halt by the road side which creates traffic bottlenecks during peak hours. Since bus-stands and auto-stands cater to a large segment of the population daily, the infrastructure around them should be equipped with standard waiting rooms, toilet facilities, and dustbins to make them accessible, comfortable and sanitary.

5.4 FREIGHT ZONE AND LOGISTICS

As Fakiragram is located in proximity to Kokrajhar town and Dhubri district, a provision of efficient goods transportation facility is important to promote trade and commerce, and in turn economy of the town.

5.4.1 Movement of Goods Modes

The movement of goods modes on the road network needs to be rationalized. Goods modes can be grouped into three types as under:

- **Small sized vehicles like pickups:**

Small size vehicles like 'Pick ups' perform an essential distribution function. In space occupancy and manoeuvrability they are similar to cars. Their movement on all road sections, at all times of day may be permitted. As part of traffic management plans, separate parking areas for 'Pick ups' may be identified.

- **Medium sized vehicles like LCVs**

Medium size vehicles like LCVs are important to move goods to and from industries, warehouses and other major activities. They affect overall level of service of traffic.

- **Large size vehicles like 2/3 Axle Trucks, Truck Trailer & MAVs**

Large sized goods vehicles consume high proportion of road capacity, impede traffic flows, causes accidents, adversely affect environment and consume large extent of land for parking. As these

vehicles are bringing in/taking out traffic from/to other parts of the country, these vehicles need to be received at the urban periphery and facilitated in terms of planned terminals.

5.5 FOOTPATHS AND BICYCLE TRACKS

The length of footpath in Fakiragram town is approximately 1000 meters. However, they are prone to encroachment by the informal sector.

5.5.1 Pedestrian Facilities

Walking is a predominant mode of movement in the town. The transport system plan promotes and facilitates walking. The main strategies and measures proposed as part of the plan are as under:

- Provision of side-walks on primary arterials, sub-arterials and collectors on both sides of the road and on at least one side on local roads;
- Cross pedestrian facilities to be provided as per the warrants recommended by Indian Roads Congress;
- Side- walks on all the major roads;
- Improvement measures in terms of pedestrian controlled facilities at intersections, grade separators and widening of side- walks in the Central Area and along major corridors.
- Pedestrians should remain at ground level with comfortable and safe access and minimum detours from the most direct path, unless there is no other alternative.
- In-depth study will be made to declare many roads in market and office places as pedestrian roads.
- Local pedestrian and cyclist routes on the street will be preferred to rear and side yard pathways.
- A continuous unobstructed footpath on each side of all streets with ROW wider than 12m. Minimum width of footpath should be 1.8 m (with clear height 2.4 m.) in addition to space for trees/greenery/vending spaces and surface utilities. Width of footpath shall be determined based on pedestrian volume and have to be wider than 1.8 m wherever required.
- Natural Surveillance or “eyes on the street” should be enabled on all roads by removing setbacks and boundary walls and building to the edge of the street, wherever permitted as per norms. This would allow people from inside to look out on to the pavement, thus discouraging harassment of women on footpaths, bus-stops and public spaces.

5.6 PARKING

The Town has high inadequacy of organized parking space for the motorized vehicle. The vehicles are parked on the main road of the town creating congestion.

5.6.1 Parking Policy:

Every vehicle trip ends in a demand for parking of the vehicle at its trip end. The parking of vehicles needs extensive and exclusive land area. Otherwise parking would spill over to other use areas like road carriageway and footpaths, open spaces. In turn they would affect safety and environmental quality.

The escalating demand and varied needs of parking in Fakiragram can only be met and organized in the framework of a comprehensive Parking Policy. The recommended parking policy for the town should have the following salient features as per the Urban National Transport Policy (NUTP)-2006:

- Preferential allocation of parking space(s) for public transport vehicles and non-motorized modes of transport;
- Levy of graded scale of parking fee representing truly the value of the land occupied;
- Development of efficient accessibility to parking lots;
- Encourage to go in for electronic metering for better realization of parking fee;
- Development of underground parking in green areas (considering the social acceptance of the people);
- Encouraging people to use public transport to reach city centre(s);
- Development of parking lots on PPP format for reducing burden on public funds
- Restricted and high- priced public parking to discourage unnecessary private transport;
- Very low- priced public parking for bicycles and e-bikes to encourage bicycles and e-bikes.
- Schemes will be made for central municipal area to provide 1 Equivalent Car Space (ECS) per 100 sq.m. of covered area, with mandatory 5% of the parking area earmarked for bicycles, and wheelchairs.;
- At least 10% of the parking area shall be equipped with charging points for electric vehicles.
- Prohibit street parking or enforce high parking fines for private vehicles on public streets and Spaces (other than parking areas), in order to encourage use of other modes.

5.7 STREET LIGHTING AND PROPOSED IMPROVEMENT PLAN

Adequate street lighting is crucial for the safety of motorists and pedestrians. The provision of street lights is partly available in Fakiragram Town. The coverage of street lights is inadequate especially in the interior lanes. There is a need for installments of new street lights. Another problem is the frequent power outages affecting the lighting. It is proposed that technologies like standalone solar LED street lighting be explored. Scientific planning should go into determining the installation of street lights as lighting requirements of different areas vary. It is proposed that Fakiragram have an energy efficient street lighting, and continuity of street lighting for carriageway and pavements for safety purpose. The distance between poles should not be more than 30 meters.

5.8 SIGNAGE AVILABILITY AND REQUIREMENTS

5.8.1 Lane Markings and Signage

Very few Lane Markings and Signage has been observed throughout the Town. Traffic signals, signs and pavement markings are used for traffic control so that-

- All on-street parking spaces are clearly defined by lane markings.
- Adequate and appropriate signage's are installed at all places on the street network to identify 'parking' and 'no parking' areas.
- Off-street parking places are clearly identified by signs and distinguishing marks.

6. INRASTRUCTURE, PUBLIC UTILITIES & SERVICES

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

As per the Census data of 2011, the demand for water in Fakiragram MP Area is met mostly through private means like hand pumps and wells. The table below shows the sources of drinking water in the Master Plan Area:

Table 6-1: Main Source of Drinking Water in Fakiragram MP Area

Area	Number of HHs										Total
	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	
Municipality	557	75	7	104	1224	243	0	14	1	62	2287
Outside Municipal Boundary (inside MP Area)	5	0	11	256	2002	122	0	71	0	103	2570
Total Master Plan Area	562	75	18	360	3226	365	0	85	1	165	4857

Source: District Census Handbook, Census of India 2011

Currently, the Public Health Engineering (PHE) Department, Kokrajhar has been entrusted with the responsibility of providing clean drinking water to the households. Jal Jeevan Mission is being

implemented actively by the department which aims to provide Functional Household Tap Connection (FHTC) with service level at 55 lpcd to the rural households. Accordingly, the PHE has launched Magumari Pipe Water Supply Scheme (PWSS), Fakiragram Purani Bazar PWSS, Karaitari PWSS, Singimari PWSS.

6.1.1.1 Water Demand Estimation for Resident in Fakiragram 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 6-2: Water Demand Assessment

Description	2021	2031	2041
Total Population of Fakiragram Master Plan Area	25935	29007	32228
Projected Water Demand (MLD)			
Total Water Demand @ 135 LPCD	3.5	3.9	4.3
15 % O & M loss	0.53	0.59	0.65
Sub Total	4.13	4.49	4.95
2% Fire Fighting	0.08	0.09	0.10
Total Water Demand	4.11	4.58	5.05
Add 10% extra (Say for defense area, Floating population, Tourism, Service population etc.)	0.41	0.46	0.51
Overhead Population Water Demand	4.52	5.04	5.56

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

6.1.2 Drainage System

Fakiragram town does not have a scientific and well-defined drainage system. As per the Census of India, 2011, 81.02% of the households in Fakiragram Municipal Area and 90.36% households in the overall Master Plan Area do not have drainage facility. The rest are kutchha unlined roadside drains carrying storm waste to nearby low lying areas. Largely due to insensitivity of the public, garbage is often thrown in these open drains, causing water logging problems during rainy days. As per the information provided by Fakiragram Municipal Board, the roadside drains in Fakiragram town is approximately 500 m in length and is in poor condition. There are 25 culverts and 2 outlet points: Hell River, and Borjhora River. The sluice gate located at Ward No. 2 is opened during heavy flooding. Fakiragram town is prone to inundation during rainfall due to poor drainage system. Entire area under ward no. 5 and part of ward no. 2, 3, 6 and 8 gets water logged easily.

A lack of proper drainage system raises serious health and sanitation issues and causes public discomfort. Modernizing the drainage system is of utmost urgency to carry Fakiragram in the path of development. A scientific drainage system goes a long way in preventing vector borne diseases and saving what could otherwise be huge medical expenses.

6.1.3 Sanitation

As per Fakiragram Municipal Board, 90% of the households have toilets within their house premises. Under the Swachh Bharat Mission (G), toilets have been constructed across Kokrajhar district and subsequently, the district was declared Open Defecation Free (ODF).

6.1.4 Sewerage Network

A proper sewerage system includes collection of sewerage from source of generation through sewer network, treatment using appropriate available efficient technology, and safe disposal to natural water bodies. Fakiragram town does not have a well-integrated sewerage network. The drains here carry a mixture of domestic sewage and storm sewage. The individual households have their own septic tanks, soak pits, artificial pond for treatment of their liquid wastes. The effluent is released untreated into nearby drains and low-lying areas.

Untreated sewage is a leading cause of pollution of water bodies in Fakiragram, causing contamination of land and water, and degradation of the environment. In this context, establishment of Sewage Treatment Plant using affordable technology is crucial. The treated sewage water can be reused for different purposes like horticulture, irrigation, fire-fighting, industrial cooling, etc. thereby decreasing the water demand from sources like underground, rivers, lakes, etc.

6.1.5 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.

As per the information provided by Fakiragram Municipal Board, a plot at ward no. 8 has been identified for Solid Waste Management. According to the Solid Waste Management Rules, 2016, all the ULBs are responsible for Solid Waste Management activities within their respective jurisdiction. Instead of treating waste as a problem, it could be treated as an opportunity. Recovering materials from waste through recycling could potentially generate revenue. Zero-waste programmes should be adopted. Proper execution of such programmes will make it financially self-sufficient and even earn revenue in due course. Waste can be a useful resource for energy production, either through incineration or harnessing methane gas from bio-degradable waste. Public Private Partnership is key to successful Solid Waste Management.

6.1.6 Electric Sub-Station and Major Transformers

The Master Plan Area has one 33/11 KV sub-station at Fakiragram which meets the power needs of the MP area except Duramari village which is under the 33/11KV Sapatgram DSS. The Fakiragram DSS gets power from Joyma 132/33KV GSS, which is around 37 km away. This line is 40 years old, and restoration works take a lot of time during faults. As per the data provided by APDCL Fakiragram, a construction of 33KV line to draw power from Bilasipara 132/33KV GSS which is nearer to Fakiragram DSS compared to Joyma GSS will improve the quality of power supply.

There are 42 Transformers in the MP Area. The following table shows the number of transformers in the Fakiragram MP Area:

Table 6-3: Fakiragram MP Area- Electric Transformers

Village	No. of Transformer
Fakiragram MB Area	15
Pakritol	1
Molandubi	1

Kumguri	1
Koiratola	4
Koraitari	4
Moincrtol	1
Duramari	5
Magurmari	2
Sandalartari	3
Singimari	5

Source: APDCL, Fakiragram

At present, the connected load is 4.953MW. The number of connections under different categories are:

Table 6-4: Consumers under different categories

	No. of Consumers served	Domestic	General Purpose	Commercial
Fakiragram Municipal Area	2400	2094	28	278
Fakiragram Master Plan Area excluding the Municipal Area	2719	2668	24	27
Total MP Area	5119	4762	52	305

Source: APDCL, Fakiragram

For the plan period of 2041, the MP Area would require about 21 MW power supply for domestic purposes @ 3-4 kW per household. Further, DTR augmentation will be required to address voltage issues. The local administration of Fakiragram MP Area is involving themselves in strategic and sustainable energy planning. Around 15 bigha land in Moinertol has been likewise proposed to be developed as solar power plant. The project will reduce energy costs, improve public health and safety, enhance economic development and environmental quality, increase social equity and environmental justice, and raise living standards and the overall quality of life.

6.2 SOCIAL INFRASTRUCTURE

Health and education sector forms the backbone of social infrastructure. It also includes other facilities like banks, post offices, police stations, playgrounds, etc. Social Infrastructure supports the quality of life and access to it is crucial for an all-round human development.

6.2.1 Education

There are about 40 educational institutions in the Fakiragram MP Area ranging from primary schools to college.

The following table provides information of government schools and colleges in MP Area:

Table 6-5: Educational Institutions in Fakiragram MP Area

Standard	No. of Institutions	No. of Students	No. of Teachers
Primary Schools	22	1641	54
M.E schools	5	981	31
High Schools			
College for general education	1		

Source: District Elementary Education Office, Kokrajhar

The Pupil Teacher Ratio (PTR) for Primary and Middle Schools are 30:1 and 32:1 respectively. The Right of Children to Free and Compulsory Education (RTE) Act, 2009, in its Schedule lays down PTR for primary and upper primary level. At primary level, the PTR should be 30:1 and at the upper primary level, it should be 35:1. Comparing these ratios, the PTR is found to be satisfactory.

As per the data collected from the District Elementary Office, Kokrajhar, most of the government primary and M.E schools in the MP Area have open spaces. Open spaces is vital for students to development of vital cognitive skills, emotions and creativity.

The Master Plan envisages the establishment of integrated schools in new areas rather than opting for various levels of educational institutional facilities separately. Similarly, crèches and pre-nursery schools are permissible in the residential use as a part of the Mixed use Policy. In all educational institutions, proper provision for differently abled children shall be made.

6.2.2 Health

An adequate and well-distributed health infrastructure is crucial for efficient and timely response to health crisis. A quality health infrastructure plays a vital role in controlling various health related parameters like life expectancy, mortality rate, etc. to respectable level, and is also found to have a positive impact on speedy recovery from diseases. A sound health system is accessible and delivers high quality care at reasonable price.

In our MP Area, there is one Primary Health Centre i.e. Fakiragram PHC and 6 Sub Centres.

6.2.3 Recreational Facilities

6.2.3.1 Parks

As of now, there is no functioning parks within the limits of Fakiragram Town.

6.2.3.2 Playgrounds

There are a few playgrounds belonging to educational institutions like Puran Basti School Playground, Fakiragram High School Playground, etc. These playgrounds are not up to standard and are ill-equipped to smoothly accommodate crowd during social and political gatherings.

6.2.4 Communication and Other Facilities

6.2.4.1 Police Station

There is 1 Police Station at Gossaigaon-Chautara-Fakiragram Road, Kharida Chandala Ii.

6.2.4.2 Fire Service

Fire Services are needed for protecting people from fire hazards, building collapses, and other unforeseen emergencies. There are no fire protection service in the MP Area. The nearest fire service is Fire & Emergency Service at Sapatgram.

6.2.4.3 Postal Services

The MP Area has 1 sub post office at Fakiragram town and 1 branch office at Magurmari.

6.2.4.4 Banks

Assam Grameen Vikas Bank, Bandhan Bank and UCO Bank are the major banks located in the MP Area. There are Customer Service Points (CSP) and Business Correspondents to deliver banking and financial services especially to the rural areas.

6.2.4.5 Cremation and Burial Grounds

In Fakiragram town, there is 1 cremation ground near the Puran Bazar Bridge. In the MP Area, the burial grounds are located in Singimari and Sandalartari.

7. ENVIRONMENT AND CITY BEAUTIFICATION PLAN

7.1 INTRODUCTION

Fakiragram town is surrounded by farm lands, open spaces and eco-sensitive areas like river banks and embankments. However, very little area is developed under recreational land-use. This Master Plan proposes an enhanced recreational land-use while preserving the natural endowment elements and promoting ecological sustainability. Trails, parks, community gardens can be additions to a town that only improves the aesthetic characteristics but also have a calming effect on the minds of people. These will propagate a high quality living environment and improve physical health and mental well-being.

Furthermore, for creating a sustainable environment, citizen participation should be promoted. As the standard of living of the people improves, the per capita waste generation increases. Awareness drives should be conducted to bring about a positive community behaviour change ranging from control of greenhouse gases to reduction of single use plastics. Innovative technologies in partnership with different groups and organization should be embraced.

The aim of this Master Plan is to make the town a healthy and an enjoyable place to live in. Diversity of choices to the citizens should be expanded by constructing theatres, community halls, libraries, museums. Proper building codes is to be enforced. It has been proven that in the event of calamities, a well governed and scientifically planned city has lower risk of fatalities and is more resilient.

7.2 CITY BEAUTIFICATION PLANS/PROPOSALS

7.2.1 Roadside Plantation

One of the best examples of planned tree plantation along city roads in India is New Delhi. It is an exemplary model of architectural, structural and aesthetic excellence. Some of the remarkable features that can be attributed to its artistry are:

- Use of structurally large trees with very tall, straight trunks that form excellent sprawling crowns.
- The use of indigenous species that are hardy, sturdy and durable that makes them easy to grow and maintain. They are able to withstand the extreme environmental pollution from toxic automobile exhausts that usually threaten delicate trees.
- Evergreen varieties of trees used which lends to year-round green effect and protection from severe weather conditions.
- The entire expanse of open space between the concrete buildings and roads covered, creating a soothing visual effect.
- Avenues planted with single kind of trees that offers a glorious collective impact. The consistency, homogeneity of structure, texture and pattern it creates has helped bind the entire city together.
- Planting trees close to the verges, has helped separate vehicular and pedestrian traffic.
- All flowering species of trees that are structurally small, short-lived and difficult to grow and maintain have deliberately not been used for roadside plantation. Instead these have been

exclusively planted in parks and various open spaces where they grow well and provide colour and beauty to the city.

Benefits of road side planting

- Reduced soil erosion: holds soils in place
- Remove dust and other pollutants from the air, protecting crops and road-side communities
Wind break
- Flood control: slow and absorb road run-off
- Carbon dioxide sequestration
- Provide important pollinator habitat (honey production)
- Provide shade and keep the road cool for road users

7.2.2 Urban Forestry

Urban agriculture can be described as the growing of plants and the rearing of animals primarily for food and other domestic use within a city or a town and its environs. It also involves activities such as the production, processing, marketing, and delivery of farming products. Urban agriculture consists of a number of production systems. They vary from domestic production and household level processing to large scale agriculture. This is usually done within the city peripherals. Urban agriculture is known to improve the livability of cities and towns and contribute to their sustainability. Urban forestry can be defined as the management of tree population in urban settings for the purpose of improving the urban environment. Besides providing sociological, economic and aesthetic benefits, urban forestry can be a tool for mitigating carbon dioxide emissions as trees can help in its sequestration. It advocates the role of trees as a critical part of the urban infrastructure.

The Indian government's Ministry of Environment, Forests and Climate Change has been advocating the concept of Urban Forestry or Nagar Van in the recent times. In consonance with this, the Fakiragram MP Area has wooded land near the old Forest Depot which can developed as recreational land-use to make it accessible to the public. Trails may be added and the general layout may be planned without felling of any trees. This will add to the beauty and environment quotient of the town while also improving the physical and mental health of the residents. The said land can be used as a venue for picnics, local festivals, theatrical performance, etc.

Types of Urban Agriculture	<ul style="list-style-type: none"> • Backyard Gardens • Tactical Gardens • Street landscaping • Forest gardening • Greenhouses • Rooftop gardens • Green walls • Vertical farms • Animal husbandry • Urban beekeeping • Aquaponics
Benefits of Urban Agriculture	<ul style="list-style-type: none"> • Food Security • Healthy community participation

	<ul style="list-style-type: none"> • Offsets urban heat island effect • Decreases storm water runoff <p style="margin-left: 40px;">Boost the local economy</p>
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7.2.3 Rainwater Harvesting

Rain water harvesting (RWH) is the activity of direct collection of rain water. It involves the process of optimum utilization of the natural resource, i.e., water. With urbanization, increasing concrete constructions have reduced infiltration of rainwater into the sub-soil and recharging of ground water has diminished which has depleted aquifers. Many states in India has therefore formulated mandatory policies and laws to encourage construction of artificial recharge and rainwater harvesting structures. Rain water harvesting methods can be easily practiced in offices, parks, temples, and individual houses. RWH from roofs consists of collecting, storing, and putting to use rainwater from houses or any constructions. Rainwater can also be collected through percolation pits, open wells, or bore wells. The artificial recharge of ground water aims at augmentation of ground water reservoir by modifying the natural movement of surface water utilizing suitable civil construction techniques. India faces an erratic monsoon, and RHW can be an effective tool in water management and conservation.

7.2.4 Riverfront Development

Riverfront development can be undertaken as an additional buffer. Public spaces can be created to let residents enjoy the riverfront and its surrounding. Parks, walkways, and spaces to host festivals can be developed in order to enhance community culture and quality of life. The stretches of Hell river can be developed as fully accessible immersion ghat with recreational facilities such as yoga and meditation centre, open air theatres. Chhath Puja is also annually conducted along the banks of the Hell river, which can be improved by providing proper lighting facilities. No permanent structure is to be permitted in the buffer zone.

7.2.5 Multi-Purpose Public Spaces for Sports, Cultural Events, Ceremonies, etc.

Public spaces are an important asset to cities. They provide people with many opportunities to come together and engage with the community. They create a social space for everyone in the society to participate in. In the Fakiragram MP area, around 40 bigha of land at Moinertol has been proposed to be developed as stadium. This open public space may be used for hosting various events which will bring together multiple functions to help create a more sustainable future.

7.2.6 Garbage bins

Areas of high passersby like bus stands, auto stands, and marketplace have high waste generation potential. Without proper waste disposal facilities, these places are prone to be littered. Dual bin structure, coloured green and orange for organic and inorganic waste respectively should be installed to facilitate source separation. Proper graphics and labels should also be used for clear communication.

7.2.7 Road Signage

The purpose of street signage is to make it easy for visitors and residents to navigate around. It should highlight major locations in an appealing and informative manner. Old, cracked, faded and obsolete signs needs to be replaced, maintained or removed permanently.

7.2.8 Street Furniture

Street furniture including benches in areas of high pedestrian traffic and/or areas of interest is very important and the design must take into consideration the local context in terms of weather resistance and material selection.

8. LAND USE PLAN

8.1 EXISTING LAND USE

The Fakiragram Master Plan Area consists of 17 revenue villages along with the Fakiragram Municipality area, and covers a total area of 825 hectares. Predominantly an agriculture-based land, there are also low-lying marshy lands and ecologically fragile. Illegal construction and lack of scientific land-use control has led to unplanned and haphazard growth resulting in natural drainage to get affected in many areas. Natural and semi-natural vegetated areas have witnessed exploitation with these lands being often used for residential and other development. This has given rise to a threat of potential health hazards in addition to diminishing the aesthetic appeal of the Master Plan area.

8.2 LAND-USE PATTERN

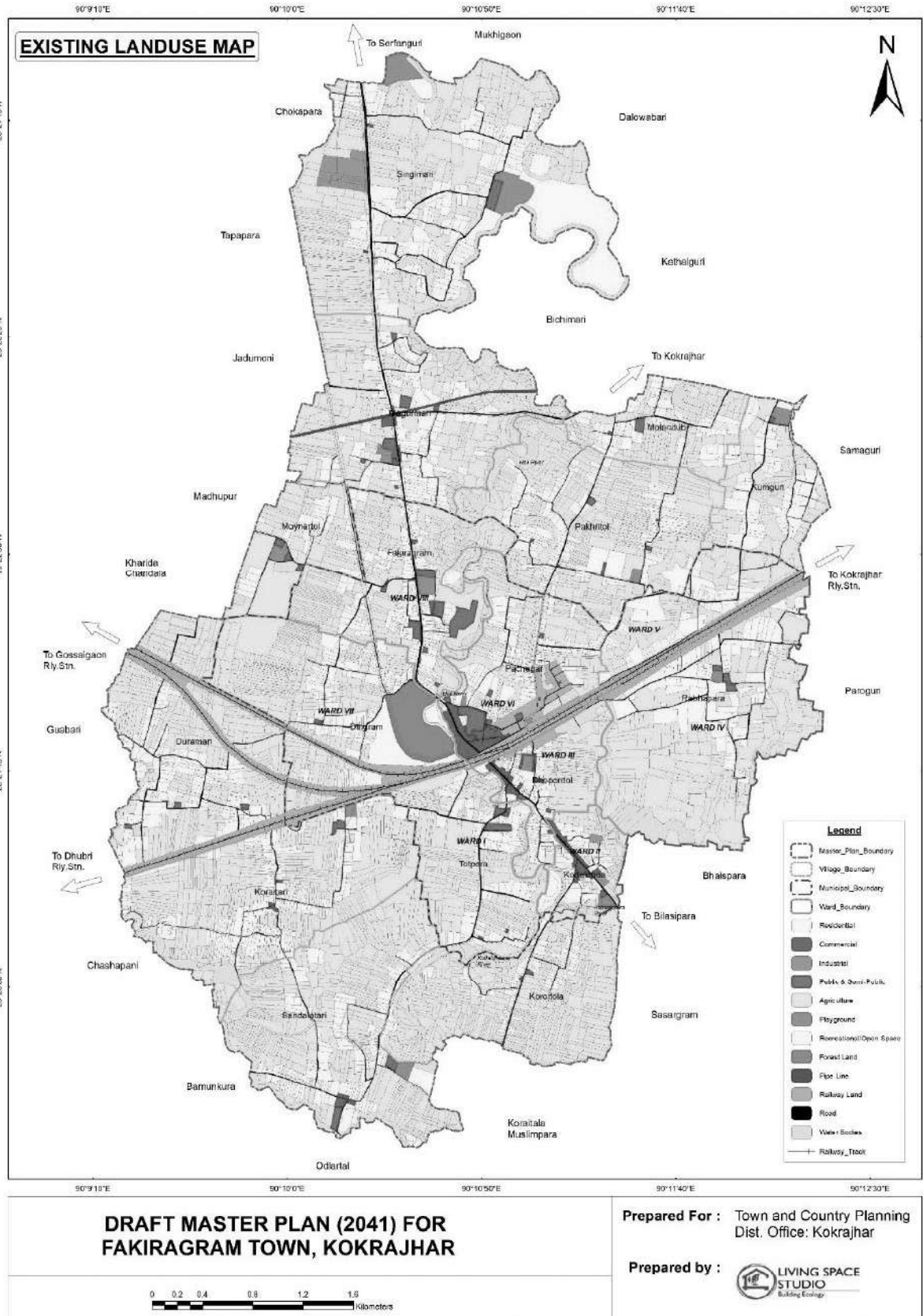
Land use survey was conducted for the Fakiragram Master Plan area by the Consultant.

Table 8-1: Existing Land-use Classification (2022)

Sl. No.	Land use	Total Master Plan Area		
		Area in Sq.km	% to Developed Area	% to Total Area
1	Residential	5.86	72.44	25.91
2	Commercial	0.13	1.61	0.57
3	Public & Semi public	0.24	2.97	1.06
4	Industrial	0.09	1.11	0.40
5	Transportation	1.33	16.44	5.88
6	Parks & Playground / Recreational	0.44	5.44	1.95
	Total developed area	8.09	100.00	35.76
7	Agriculture	13.06		57.74
8	Pipe Line	0.03		0.13
9	Forest Land	0.17		0.75
10	Water Bodies	1.27		5.61
	Total Area	22.62		100.00

It can be seen from the above table that 72.44% of the total developed area is under residential land-use and accommodate primarily single family, detached houses. 1.61% of the total developed area is under commercial land-use. Commercial establishments have developed along the Feeder Road and has extended to areas near the railway station. Industries occupy 1.11% of the total developed area. 2.97% of the total developed area is under public & semi-public land use. This is not enough and indicates a possible inconvenience and discomfort of the public in accessing public services. Transportation cover 1.33% (including Railway & Existing Roads) of the total developed area respectively. Recreational land-use is almost negligible covering 0.44%, indicating a lack of proper space for the people to relax and unwind.

Figure 4: Existing Land-Use, Fakiragram Master Plan Area



8.3 LAND-USE INTERACTIONS

The survey conducted by the Consultant in 2022 reveals that the planning area has mixed land-use especially within the Municipal area. This has created inefficient and non-conforming land-use and loss of inter-relationship between various land-use. It is observed that quite a no. of land-use does not have functional relationship with the surrounding area. A few of them cause nuisance in the area where they exist at present. Relocation of such incompatible land-use to suitable site is, therefore desirable.

8.4 PROPOSED LAND USE PLAN

All areas under the Fakiragram Master Plan have been designated as one of the following land use-zones, which are residential, commercial, industrial, public- and semi-public, recreational, transportation and agricultural.

The over-all land use break-up for the new proposed Planning Area measuring 6164 hectares. is as follows:

Table 8-2: Proposed Land-Use Classification

Sl. No.	Land use	Total Master Plan Area		
		Area (in Sq.km)	% to Developed Area	% to Total Area
1	Residential	9.13	66.69	40.36
2	Commercial	0.36	2.63	1.59
3	Public & Semi public	0.5	3.65	2.21
4	Industrial	0.40	2.92	1.77
5	Composite Use	0.15	1.10	0.66
6	Transportation	1.46	10.66	6.45
7	Parks & Playground / Recreation	1.69	12.34	7.47
	Total developed area	13.69	100.00	60.52
8	Agriculture	7.44		32.89
9	Green Belt Proposed	0.02		0.09
10	Pipe line	0.03		0.13
11	Forest Land	0.17		0.75
12	Water Bodies	1.27		5.61
	Total Area	22.62		100.00

- **Residential Area**

66.69% of the total developed area has been earmarked for residential land use. The residential areas are proposed to be developed as self-contained units with provisions of all community facilities and services, and work places within reasonable distances duly served by an efficient circulation system. Accessibility of the property by road and connectivity with the important nodes of the master plan area is proposed.

- **Commercial Area**

Commercial activities are critical to the economy of the community. 2.63% of the total developed area has been earmarked for commercial land-use. At present, retail trade is mixed with wholesale trade in the town which creates problems like traffic obstruction during loading and unloading activities. A lot of unregulated businesses have also sprung up in the Master Plan area which will be accommodated to ensure public convenience and a sanitary environment to conduct their vocation.

- **Industrial Area**

2.92% of the total developed area has been earmarked for industrial land-use. Fakiragram Master Plan area is favourably located, with advantages of a good transportation network and proximity to market.

- **Public & Semi-Public Area**

3.65 % of the total developed area has been earmarked for Public & Semi-Public land use.

- **Transportation**

10.66% of land has been earmarked for transportation and railways respectively. The improvement of transportation infrastructure will include road widening, road realignment and road extension.

- **Recreational Area**

12.34% have been proposed for recreational land-use. Public parks and immersion ghats will be developed and modernized to elevate public comfort and provide ease of access to them.

- **Solid Waste Management**

There is no organized garbage disposal site by the town Fakiragram. The garbage are generally disposed along the road side or in the existing river/streams which effects the water and lets to water contamination. Therefore, a suitable location at Fakiragram Village, Ward No. VIII near to Purani Bazar High School has been proposed for dumping ground Purposed.

- **Drainage and Sewerage**

To solve the drainage sewerage problem comprehensive drainage and sewerage schemes should be taken up or drainage Master plan for long term basis. From the hygienic point of view, the drainage and STP scheme should be on top priority. Accordingly, two site for FST have been proposed. The proper drainage master plan preparation has been proposed for long term solution of flood problem.

In the meantime, relief measures like opening up of blocked drains and their proper maintenance should be taken up to avoid further deterioration of drainage condition

- **Composite Use**

1.10% of land have been earmarked for Composite land use. "Composite Use Zone" is defined as a mixed-use zone, where Residential, Commercial, recreational are allowable except industrial use.

8.5 ZONING

8.5.1 CENTRAL BUSINESS DISTRICT (CBD):

Central Business District (CBD) is proposed in the Main Market area along the SH5 and nearby to the Fakiragram Railway Station. this area contains the principal commercial streets and these areas can be developed as focal high density commercial space. Also proposed CBD will enhance its attractive as a commercial/business hub and City Centre. Adequate Physical and social infrastructure and utilities are

to be developed to ensure smooth accessibility and healthy environment so that it gives way to a bustling social and business scene.

8.5.2 TOWN PLANNING SCHEMES:

TPS is proposed to be implemented in the following Greenfield areas within the periphery of the Fakiragram Town –

Table 8: Proposed Town Planning Schemes

Sl. No.	Scheme Name	Location
1	TPS I	Koroitola
2	TPS II	Magumari
3	TPS III	Duramari

Under TPS, planning will be done at local level for planned urbanization in the future. Land owners will derive immense benefits as they will receive developed plots within organized layout along with urban services like roads, drainage, etc.

8.5.3 LOCAL AREA PLANNING:

Existing areas/city core can be redeveloped by preparing a detailed Local Area based Plans (LAPs) for which Two LAP's Site has been identified-

1. **LAP I:** Near Greenland Public School (Fakiragram, Ward No. VIII)
2. **LAP II:** Near Railway Station (Rabhapara, Ward No. IV)

8.5.4 NO CONSTRUCTION ZONES:

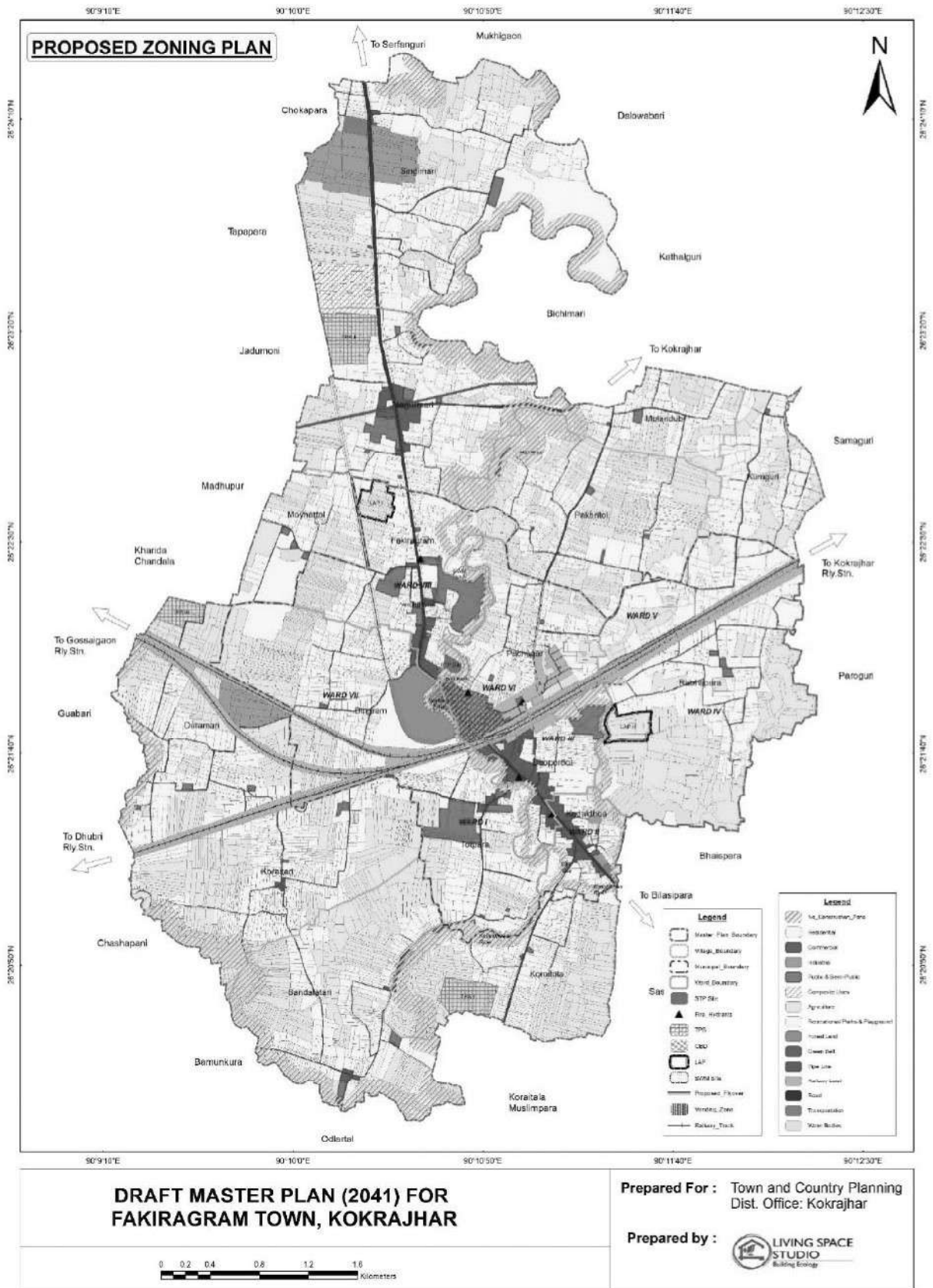
The banks of Hell River, Kodaldhowa River and all major water bodies is delineated as 'No Construction Zone' for protection of the fragile environment and prevention of residential encroachment. This zone will extend 15 metres in Municipal Board areas and 50 metres in rural areas from the banks of natural water bodies. No permanent construction will be permitted in the No-Construction Zone. In case, other land-uses such as 'industrial' is in vicinity or extending into this zone, their activities will be regulated and no physical alteration of the land will be permitted. The No-Construction Zone will be a sustainable zone to protect sensitive landscapes from negative external pressures.

8.5.5 VENDING ZONE

Keeping in mind that street vendors are indispensable part of any city, Two vending zones have been identified in Fakiragram town. These zones have been demarcated in the Zoning Map for reference and are as follows:

1. **Vending Zone I:** Near Proposed Bus Terminus (State Highway 5)
2. **Vending Zone II:** Near Fakiragram Police Station.

Figure 6: Zonal Landuse Plan, Fakiragram Master Plan Area



9. PROPOSED PROJECTS' BRIEF AND TENTATIVE FUNDING SOURCE

9.1 INTRODUCTION

Fakiragram town can be converted into a vibrant commercial centre by reaping the advantages that its location and demography presents. A smart communication and a harmonious interrelationship between different organizations and stakeholders entrusted with the development of the region is to be established so as ensure that growth is sustainable.

For achieving this, future urban planning decisions need to be based on the judicious disposition of activities along with greater planning expediency to align its role for prosperity and planned urban development. The planning decisions of the Fakiragram Master Plan are consciously aimed at sustained and planned city development. In order to generate positive urban development, the Master Plan would focus on conscious decisions to provide impetus and support to anticipated urbanization.

9.2 BASED ON EXISTING CONDITIONS AND PROJECTED REQUIREMENTS OF THE PLANNING AREA, IDENTIFY PRIORITY SECTORS AND PROJECTS

The Guiding Principles for preparation of Fakiragram Master Plan 2041 are derived from planning experiences and challenges confronted in the city which include as following:

- Environmentally and Ecological Suitable Development
- Local Economic Development
- Sustainable and Integrated Transport System
- Inclusive and Collaborative Integrated Urban Development
- Mixed-use Development Policy

9.2.1 Environmental and Ecological Suitable Development

The topography and drainage system of this region presents a unique challenge towards attaining the perfect balance between resource conservation and utilization. The incorporation of effective environment conservation and sustainability features will be an important aspect in the preparation of this Master Plan. Environment conservation is a major issue that needs to be tackled while planning the development of any area. Efficient measures towards conserving the natural surroundings will be adopted, since the balance between natural and man- made surroundings significantly enhances the quality of life of residents.

Protecting the irrigated and fertile land as well as forest area and development in the less fertile area, will be the aspect of the planning proposal. An appropriate balance between built and un-built areas is proposed to be established so as to provide a good quality of life to the people inhabiting the area.

9.2.2 Local Economic Development

Fakiragram is an important transit place in its region. Therefore, locational advantage of Fakiragram from economic and tourism point of view needs to be viewed as important economic ingredient. To

rejig its economy, local economic indicators need to be identified and objectively assessed for taking policy decisions. To improve the economic development in the region, promotion of different economic sectors has to be carried out for diversification and strengthening of economic base of the city. Job-oriented land-uses have to be propagated in the master plan so that present level of unemployment in the region is drastically brought down. The social infrastructure of the area has to be emphasized as well so that the youths can be skilled, upskilled and reskilled in accordance with the needs of the present times, converting them into sources of demographic dividends.

9.2.3 Sustainable and Integrated Transport System

Traffic congestion, faulty parking, insufficient Road widths, decreasing Level of Service (LoS) of most of the city roads, inefficient public transport, etc. are some of the problems of urban transport and transport network in the town. Apart from this, like other cities there is complete disconnect between land-use and transport network. Keeping this in view, attempt has to be made to connect the two in scientific manner to make the land-use plan more functional.

9.2.4 Inclusive and Collaborative Integrated Urban Development

The countryside is viewed as a potential area of urbanization for Fakiragram town in next two to three decades. Having good connectivity via road network and railway, the region presents a tremendous scope of growth. The basic planning principle is to create a sustainable blend of rural-urban continuum. The growth is proposed to be inclusive of all income groups integrating sectoral vision for holistic development of the region.

9.2.5 Mixed-use Development Policy Concept

Any building(s) having a combination of more than one use at a specific point of time is said to have 'mixed use'. For example, a building having one use in the ground floor and other use(s) in the upper floor(s) is said to have mixed use. The mixed use shall not be misconstrued with the mixed use of a plot or a parcel of land. It is a vertical land use change of a building across its floors rather than a change over space laterally. Mixed use is always a combination of main use and the uses which are incidental to the main use. While the main use is defined as the Primary use, the incidental use is construed as Secondary use. It is an important planning tool to accommodate the unforeseen land use changes resulting because of competitive market forces in city centres and along important streets. Mixed use has also become inevitable because of limited scope for horizontal expansion as well as scarcity of land in such areas. For example, commercialisation along main arterials within the residential areas is an illustration of land use conversion resulting because of such factors. The main requisite underlined for the mixed use model is the compatibility of the uses in terms of their type and intensity. In no case, the uses defined as obnoxious or hazardous in this master plan under land use regulations shall be permitted under mixed use category. The secondary use has to be essentially subsidiary or conforming in nature like convenient shopping, primary health and education facilities and basic public services and amenities having manageable impact on the surrounding land use. However, this trend has to be regulated and restricted as prescribed in this Master Plan for numerous benefits and as such, has been for purposes of this Master Plan defined objectively to avoid its misuse while issuing building permissions. For purposes of this Master Plan, mixed use is defined where:

In case of mixed use distribution, the secondary use shall be restricted to one floor only (preferably the ground floor) which is more susceptible to land use changes. While issuing the mixed use permits, care

should be taken to consider the Secondary use as ancillary use to the main use in size and scale within the structure.

9.3 Fund Requirement for each sector/project identified under the sectors

No fiscal plan has been worked out at this stage. The final Master Plan would provide a basis for preparation of five yearly development programmes and yearly fiscal plans for implementation.

9.3.1 Sources of fund: Specific Central Scheme funds (10%, NLCPR, AMRUT, Infrastructure Dev Fund, etc) Assam Finance Commission funds, CM's Special Package, Public Private Participation, Loan from (Externally aided Project (JICA-World Bank-ADB), etc.

- **MLAADs:** projects under this scheme must be developmental in nature and may include parks, urban forestry, etc.
- **Externally Aided Projects:** these are important potential sources of augmenting the state resources. it plays a significant role in the development process and includes project financing international institutions like adb, jica, international finance corporation, world bank, etc. goa has a dedicated cell called leap (lead externally aided projects) in the finance department to coordinate with external funding agencies to explore potential partnership.
- North East Special Infrastructure development Scheme
- Social & Infrastructure Development Fund
- North Eastern Road Sector Development Scheme.

Availability of adequate funds is an important determinant for successful implementation of the plan proposals. While conventional pattern of project financing is being in transition, the private investments and public private partnership modes of infrastructure development assumes greater significance. This apart, the programmes of the National Government provides greater opportunities for improving the status of infrastructure and service delivery. Hence, it is the responsibility of every development agency concerned to take initiatives to draw maximum funding for the plan implementation.

National Programmes and Funding agencies available for the resources in urban area.

Integrated development of Small and Medium town Programme, is a programme of national importance, which has identified the sectors and projects eligible for assistance, which include:

- i. Water Supply (including de-salination plants) and sanitation
- ii. Sewerage and Solid Waste Management
- iii. Construction and improvement of drains/storm water drains
- iv. Construction/Up-gradation of roads, highways/expressways
- v. Parking lots/spaces on Public Private Partnership basis
- vi. Development of heritage areas
- vii. Prevention & rehabilitation of soil erosion/landslides only in case of Special Category States where such problems are common and
- viii. Preservation of water bodies.

10. DISASTER PLAN

10.1 Introduction

The District Disaster Management Plan is an effective plan which envisages several measures that can be taken in the event of any kind of disaster. The State Policy recognizes that hazards are inevitable but these need not convert into disasters. This Policy is based on the twin principles of minimizing human suffering during disasters and reduction of financial losses through integration of disaster risk reduction activities into development planning.

Owing to a unique geographical and geo-climatic setting, the State of Assam has witnessed a number of disasters, ranging from incidents of fires to destructive floods and catastrophic earthquakes. The State has witnessed many natural and manmade disasters especially in the 19th and early 20th century. In the wake of recurring disasters, the State has always paid heavily in terms of loss of life and property. Like other parts of the State, Kokrajhar district and Fakiragram Town is a multi-hazard prone area. Multi Hazards which are confronted are detailed in table below-

Table 10-1: Multi Hazards Areas Covered

Sl.No.	Hazard	Areas Covered
I.	Floods	Kokrajhar is one of the flood prone districts of Assam. The general reason of occurrence of flood in Kokrajhar district is due to overflow of river Saralbhanga, Sonkosh, Gaurang, Hell, Gangiya, Champa and their tributaries. The entire area of the District is situated at the foothills of Himalayas. The rivers and tributaries of the district originated from the foothills of the Himalayan Range and are wild in nature. Flood occurs generally in the low lying areas of the district during May to August every year. Late flood during the later part of September & October also occurs.
II.	Earthquakes	The tectonics of the Assam region is dominated by convergence of the India, Burma and Eurasian plates and is categorized as Seismic Zone- V which would need special measures to mitigate, minimize and safeguard the life, property and infrastructure which makes structural safety important.
III.	Landslides	Areas along major Riverbank
IV.	Drought	Most of the paddy growing areas depend upon the rainfall. The monsoon commences around the middle of April/May. For timely agricultural operation, a few showers of pre-monsoon rain is absolutely necessary. Regular rainfall till the middle of October can ensure a good harvest. But, if the rainfall at any circumstances will not happen then this will lead to improper agricultural operation and growth of crop and finally the drought will occur. So drought is caused due to failure of rains in season. The areas under drought need recharging and retention of water table for both urban and agrarian activities.
V.	Wind storm	Occasional wind storms is destroying crops, horticulture and houses in Fakiragram & it is prone to high speed winds causing extensive damages to urban infrastructure and urban forestry.

VI.	Hailstorms	Although hailstorms rarely involve loss of lives, their economic impact can be severe. The damage appears to be a function of the intensity and duration of storms and the size of the hailstones, which these produce. The damage itself is often produced not only by the impact of falling hailstones, but also by the high winds and torrential rains that is part of the hailstorm.
VII.	Fires	In Assam due to peculiar housing patterns maximum fire accident cases takes place. These houses are of generally mud-built walls with thatched roofs made out of timber, bamboo and straw. They spring up in clusters. In summer fire accident becomes frequent; it destroys houses and properties and causes serious distress to the afflicted people. Incidents of fires are mostly recorded in the congested parts of the city and urban poor areas.
VIII.	Human induced disasters	All parts of the Fakiragram Town are vulnerable to man-made disasters due to competing urban uses, high cost of land and limited land resource.

District Disaster Management Authority should get area-specific hazard, vulnerability and risk maps prepared using GIS database for mitigation and emergency management. The plans so developed shall be operational, regularly reviewed and updated. This will help in the vulnerability assessment of town after proper zonation. Specific measures like micro-zonation of Fakiragram Master Plan based on disasters and integrating it with the land use planning and zoning regulations, retrofitting of infrastructure and buildings, disaster-safe construction technology and strengthening the capacities of communities shall be promoted in a time-bound manner. The construction work and other activities that that may lead to situations eventually resulting in disasters shall be monitored regularly in vulnerable areas like water-bodies, hill slopes.

Hazards like earthquakes and cyclones do not kill people but inadequately designed and badly constructed buildings do. Ensuring safe construction of new buildings and retrofitting of selected lifeline buildings is a critical step to be taken towards earthquake mitigation. The Building construction, material and design specifications as laid down in the National Building Code-2005 shall have to be a mandatory requirement for important and high rise buildings. In case of areas having moderate to high vulnerability of flash floods and landslides, the buffer zones envisaged in this Master Plan need to be implemented while permitting any development in such areas.

10.2 Safety against Natural Disasters

10.2.1 Earthquakes

The application for seeking building permit shall be accompanied with a report of Architect/Structural Engineer certifying that the proposed structure has been designed structurally keeping in view the safety measures against earthquakes as indicated in the following Bureau of Indian Standards (B.I.S).

Bureau of Indian Standards (B.I.S).

- a. IS: 13935: 1993
Repair and Seismic Strengthening of building guidelines
- b. IS: 1893 (part i): 2002
Criteria for Earth quake Resistant Design of structure
- c. IS: 4326 1993 (2002-04)

- Earthquake Resistant Design and Construction of building – Code of practice
- d. IS: 13920: 1993
Ductile Detailing of Reinforced Concrete structures subjected to seismic Forces – Codes of Practice
 - e. IS: 13827: 1993
Improving Earthquake Resistant of Earthen Building – Guidelines
 - f. IS: 13828: 1993
Improving Earthquake Resistance of low strength Masonry Building Guidelines

10.2.2 Fire Protection and Fire Requirements

This part covers the requirements of the fire protection for the multi-storied buildings (high rise buildings) and the buildings which are of 15 mtr. and above in height and low occupancies of categories such as Assembly, Institutional, and Educational more than two storeyed and built-up area exceeds 1000 sq.mt. Business where plot area exceeds 500 sq. mt., Mercantile where aggregate covered area needs 750 sq.mt., Hotel, Hospital, Nursing Homes, Underground complexes, Industrial storage, Meeting/Banquet halls Hazards Occupancies.

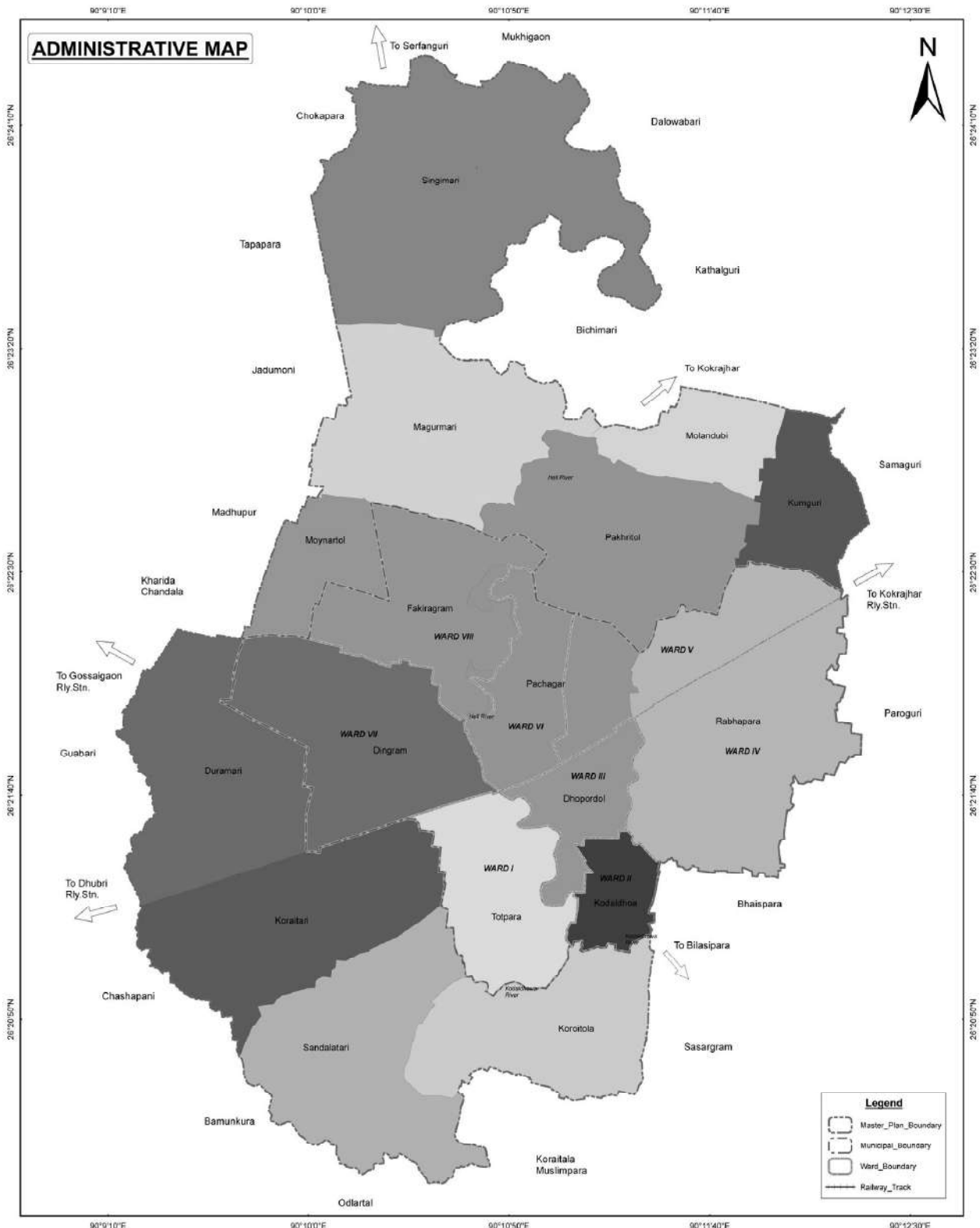
Fire protection requirements: Buildings shall be planned, designed and constructed to ensure fire safety and this shall be done in accordance with Part IV Fire protection of National Building Code of India. The building schemes as such also be cleared by the District Officer of the Fire and Emergency Services Department before issuance of building permit.

10.3 Standard Operational Procedure (SOP) on Disaster: Pre-disaster, During and Post disaster

The District Disaster Management Plan-2011-12 updated by District Disaster Management Authority is an effective plan which envisages several measures that can be taken in the event of any kind of disaster within its territorial limits.

The plan deals with Risk Assessment and Vulnerability Analysis, Identification of disaster prone areas, Response structures, Inventory of Resources, Standard Operating Procedures, Directory of Institutions and key Individuals. The plan is prepared to help the District Administration focus quickly on the essentials and crucial aspects of both preparedness and response.

The Master Plan proposes that the facilities like hospitals, fire services, police, schools, water supply, bridges, flyovers and underpasses, electricity, grid stations are critical in nature for post –disaster management. To ensure functioning of critical facilities, buildings occupying such facilities and falling in Seismic Zone- V shall be retrofitted. District Disaster Management Authority- Kokrajhar, shall develop a clear cut retrofitting strategy at its own level for this purpose. Safety audit of all existing important public and assembly buildings shall be done.

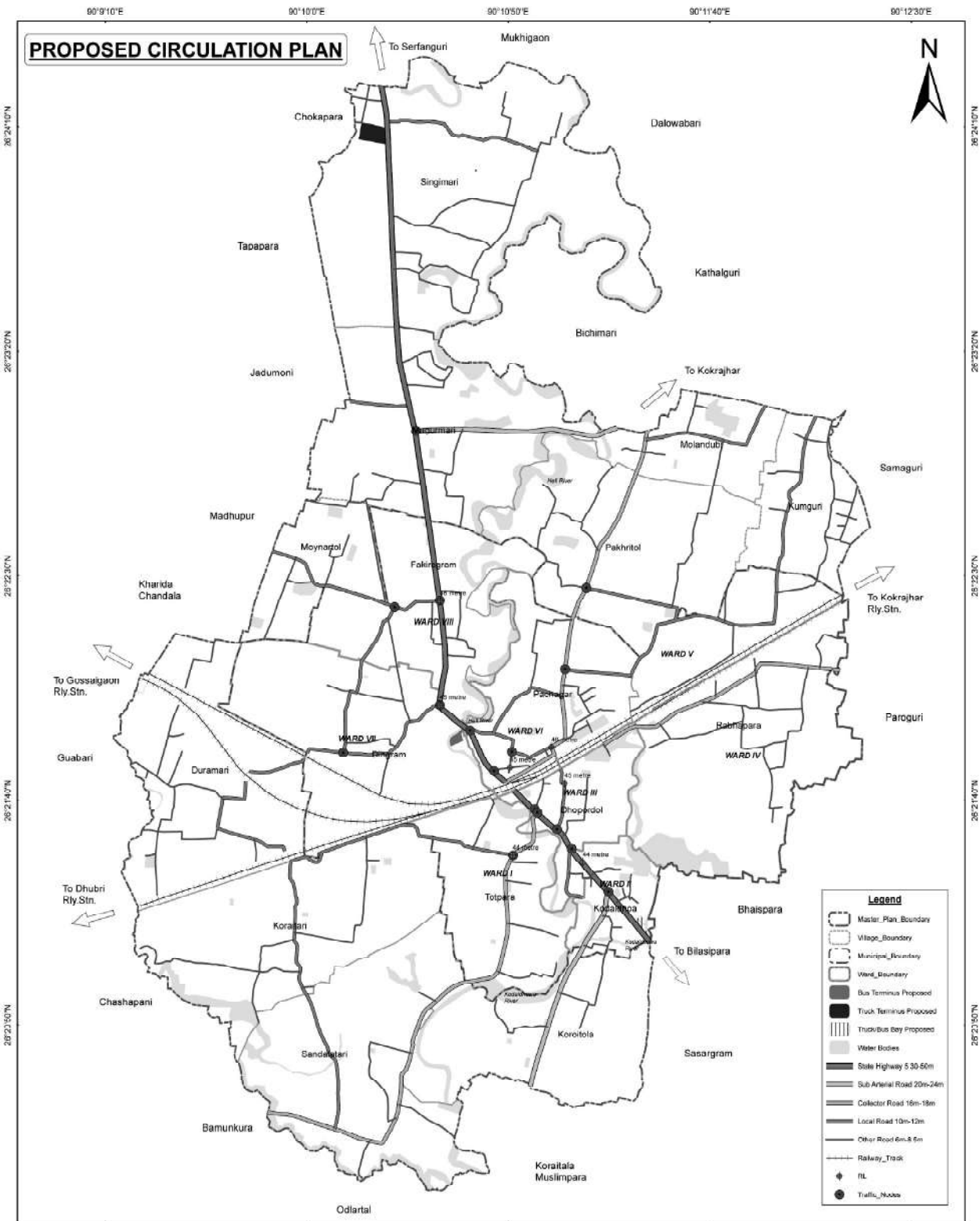


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Prepared For : Town and Country Planning
Dist. Office: Kokrajhar


Prepared by :  **LIVING SPACE STUDIO**
Building Ecology

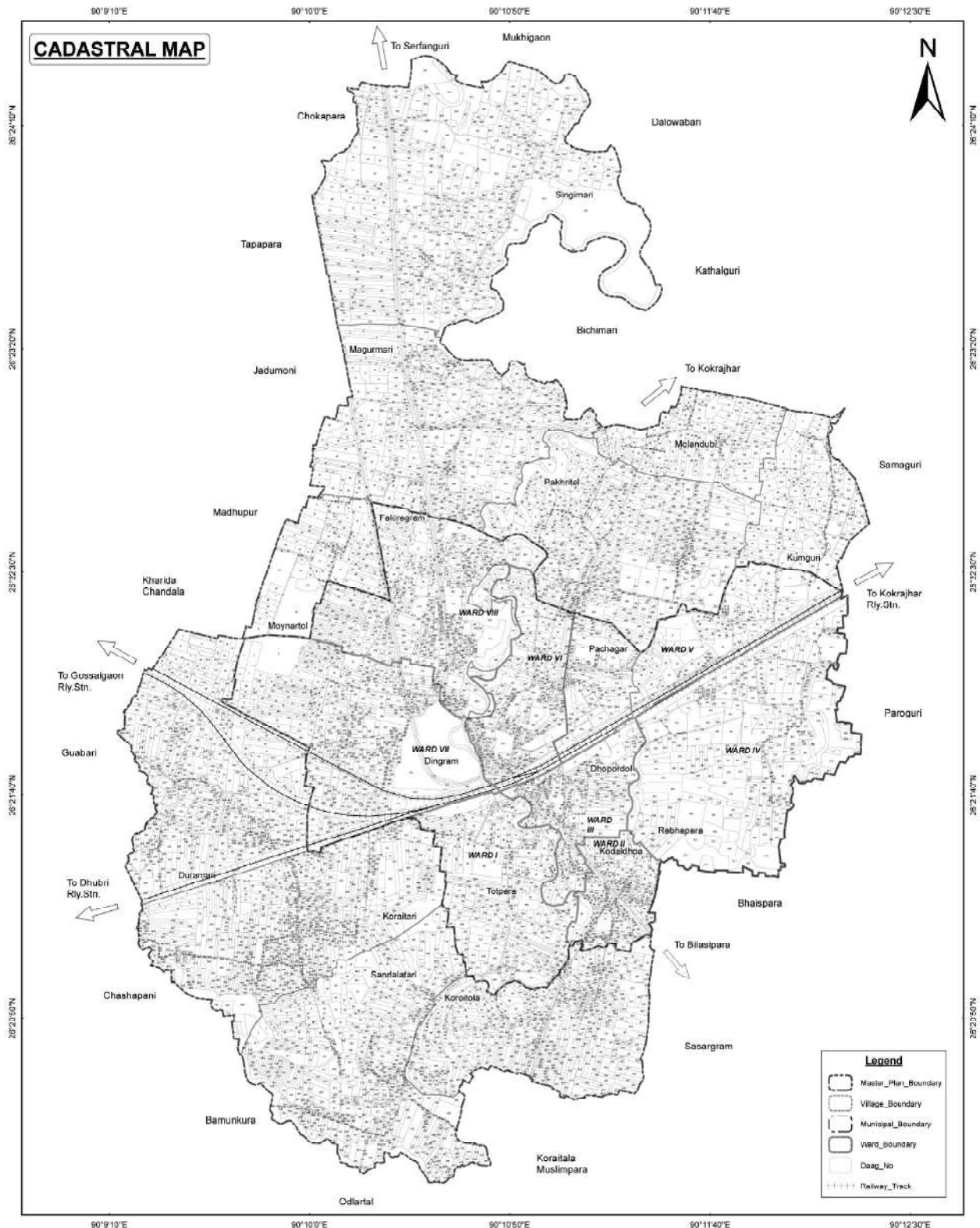


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Prepared For : Town and Country Planning
Dist. Office: Kokrajhar

Prepared by :  **LIVING SPACE STUDIO**
Building Strategy

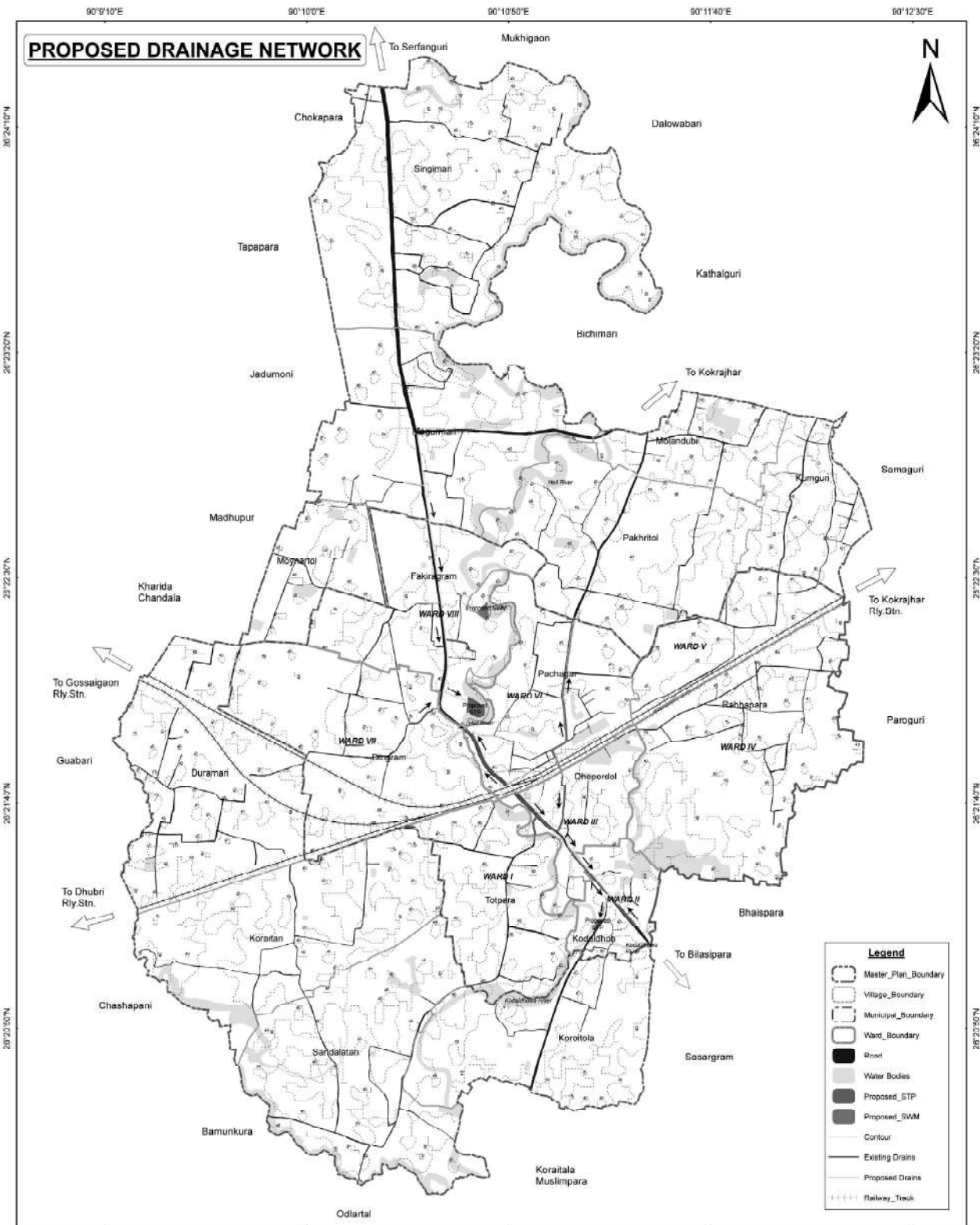


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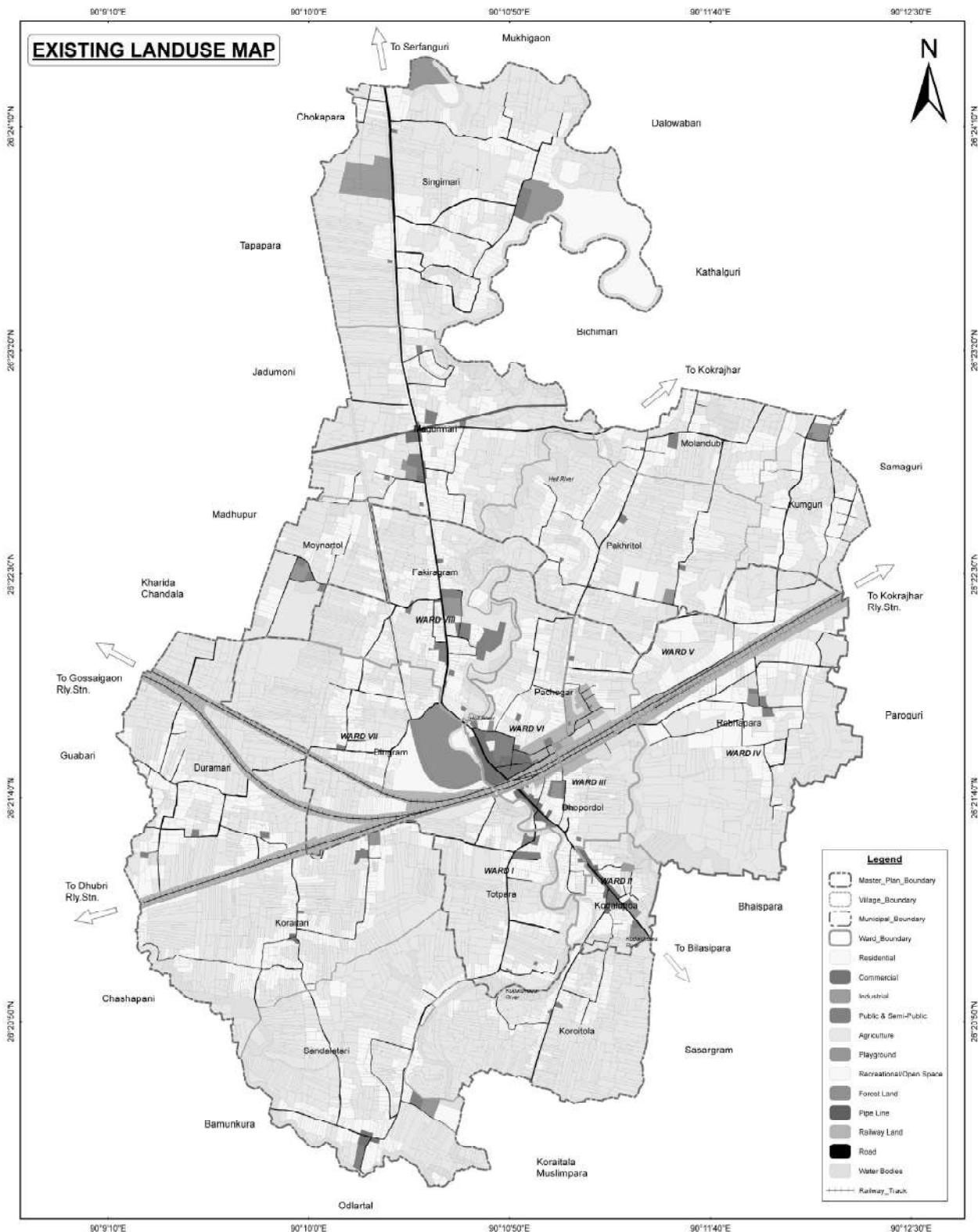


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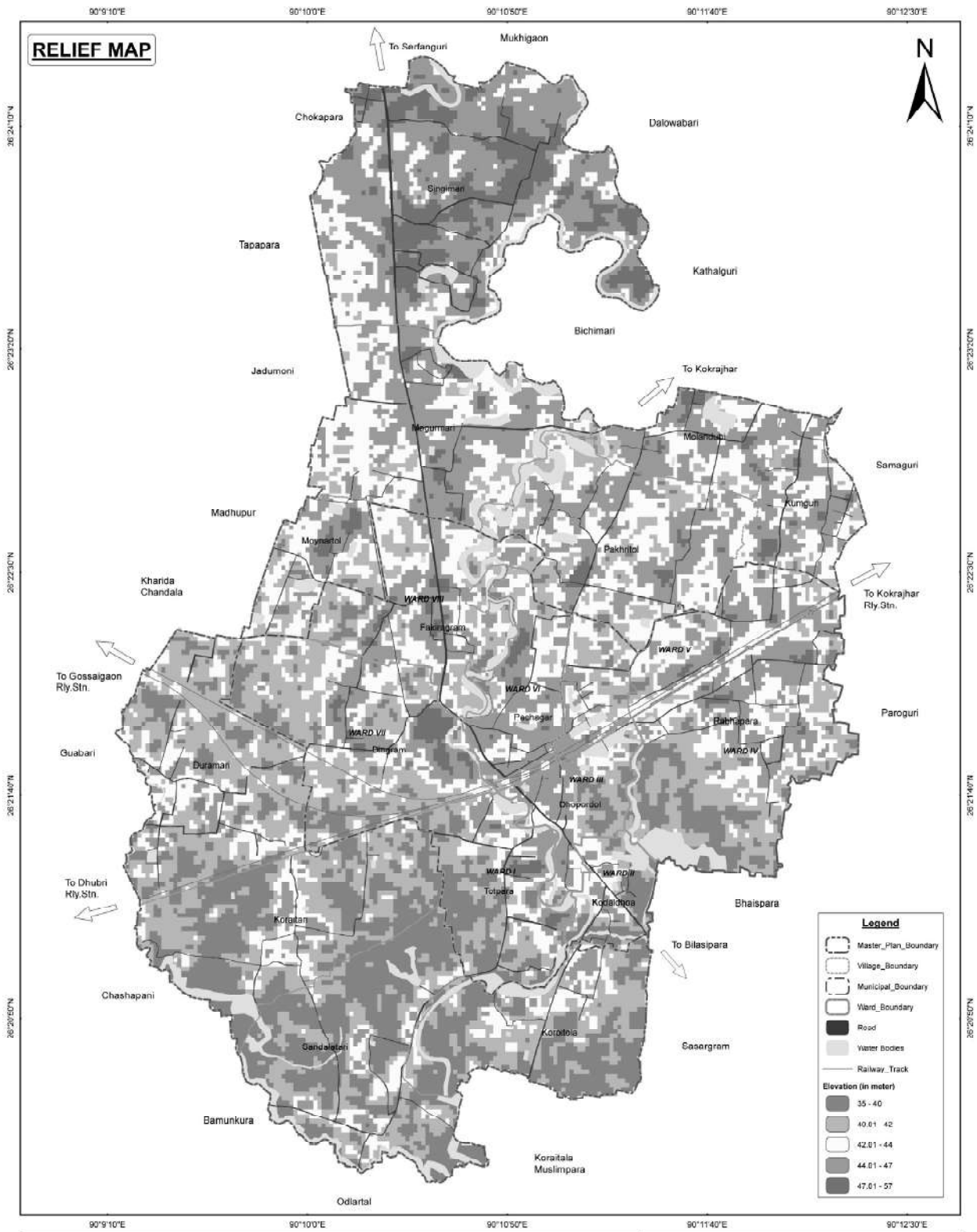


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Building Intelligence

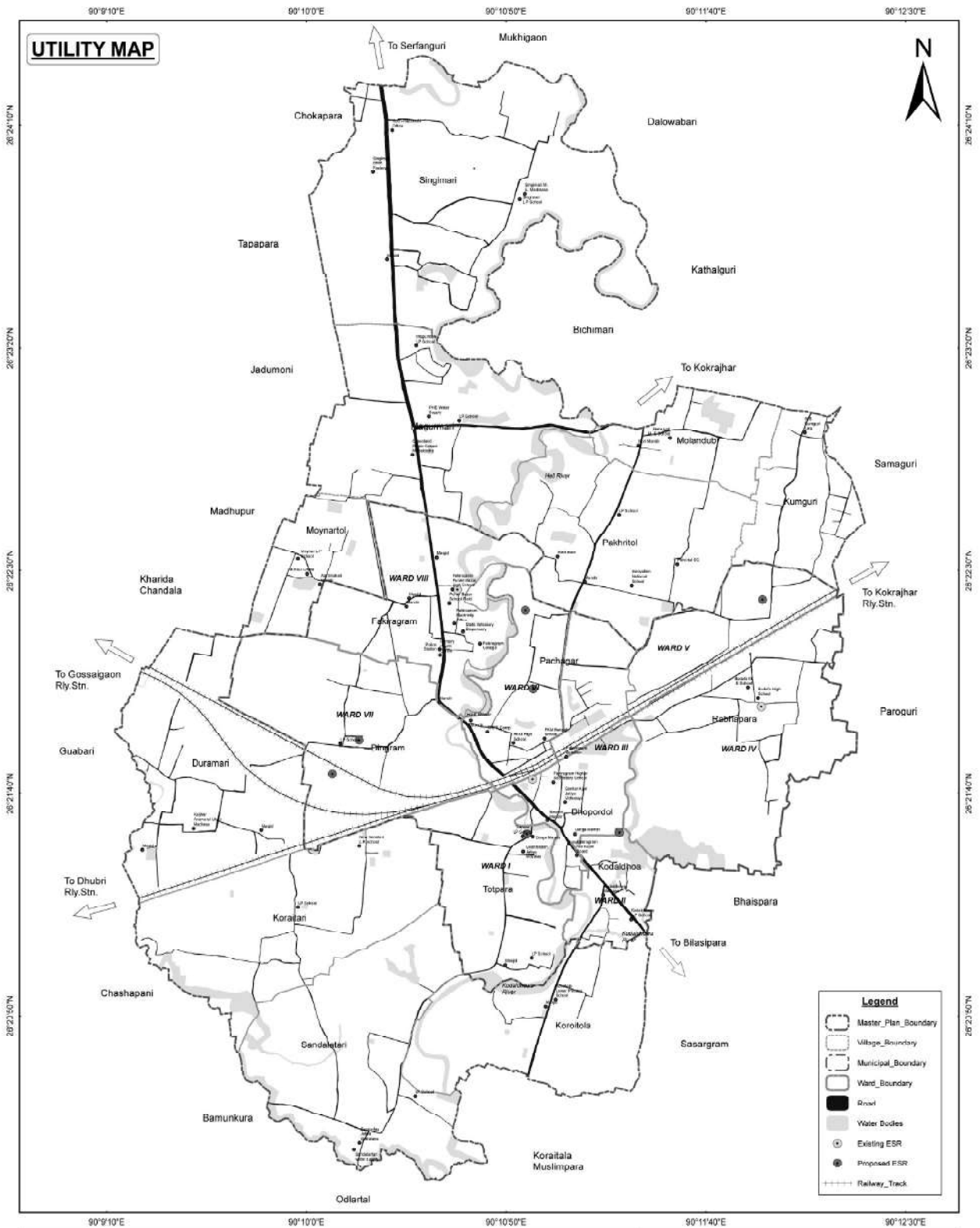


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