Preparation of Vision Document & Master Plan 2045 for Bundelkhand Industrial Development Authority (BIDA)



DRAFT MASTER PLAN

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01: Introduction

1.1 Background

Bundelkhand, a region spanning parts of Uttar Pradesh and Madhya Pradesh, encompasses 14 districts, with Jhansi as its largest city and the historical capital of Orchha. To promote industrialization in this area, the Uttar Pradesh government has initiated the Bundelkhand Industrial Development Authority (BIDA), a proposed greenfield industrial city established to elevate Bundelkhand's economic status. Established through a government order on September 14, 2023, under the Uttar Pradesh Industrial Area Development Act-1976, BIDA aims to oversee and manage the planned development of industrial, residential, and commercial activities in the western part of Jhansi District.

The initiative addresses challenges such as resource underutilization and inadequate infrastructure, striving to create self-sustaining communities and attract investments. Geographically, BIDA spans 253.33 sq. km, situated at the intersection of NH-44 and NH-27, consisting of 33 villages and falling entirely within Jhansi District. It is bordered by Madhya Pradesh to the west and north, with the Jhansi Development Authority to the east and Babina Cantonment to the south.

1.2 Need for Establishment of BIDA

The establishment of the Bundelkhand Industrial Development Authority is pivotal for the strategic growth and regional planning of the Bundelkhand area, particularly within the 33 villages of Jhansi District.

BIDA was created in alignment with national initiatives such as "Make in India" and the "National Industrial Corridor Programme," facilitating industrial growth by leveraging the region's abundant natural resources and robust agricultural base. Additionally, the existing infrastructure, including major highways and a comprehensive railway network, enhances the prospects for industrial development and logistics.

The industrialization efforts by BIDA are expected to attract a workforce from adjacent districts facing socio-economic difficulties, thereby improving job opportunities and elevating living standards. However, as urban centres like Gwalior, Sagar, and Bhopal present stable socio-economic conditions, it is essential for BIDA to strategically manage labour influx while fostering connections with more developed areas. This requires investments in both physical and social infrastructure to ensure sustainable and inclusive growth for both residents and incoming workers.

With a forward-looking vision, BIDA aims to capitalize on future connections, such as the Delhi-Nagpur and Uttar Pradesh Defence Industrial Corridors, while also planning for the development of an industrial and model city to attract a diverse range of sectors, including logistics, manufacturing, automobiles, healthcare, clean energy, and technology.

1.3 Objectives of Master Plan-2045

The Master Plan-2045 aims to create a framework for sustainable and inclusive industrial development within proposed BIDA area. Key objectives are:

- Focus on optimizing land use, leveraging strategic advantages, and establishing a roadmap for infrastructure development in line with national and regional policies.
- Boost economic activity, create job opportunities, and improve connectivity to create a globally competitive environment.
- Emphasis on integrating environmental safeguards and enhancing the quality of life for local communities.
- Promote development of a resilient industrial ecosystem that attracts significant investments and encourages economic diversification.

1.4 Planning Area Profile

BIDA region is strategically located between 24° to 25° N latitude and 78° to 79° E longitude, offering a pivotal position for regional and national connectivity. Encompassing approximately 253.33 sq. km, and 33 villages, BIDA region is well-connected through major transportation corridors, enhancing its appeal as a logistics and industrial hub.

BIDA's location provides proximity to key economic centres such as Gwalior (100 km), Agra (220 km), Sagar (200 km), Kanpur (230 km), and Delhi (450 km). Jhansi Junction, a major railway node, further strengthens the region's logistical potential. The Angoori River, Babina Fire Range, Madhya Pradesh and Jhansi Development Area surrounds the BIDA region. Transportation infrastructure, including the Delhi-Mumbai Railway Line, NH-27, NH-44 and Bundelkhand Expressway enhances economic potential and facilitates commerce, urban growth, and industrial expansion. This robust transport network ensures efficient goods movement across northern and southern markets.

1.4.1 Constituent Villages & Administrative Structure

The area's administrative headquarter falls under Jhansi District and Jhansi Division. 33 villages in the western part of the Jhansi District make up BIDA's administrative structure. It is surrounded by the Madhya Pradesh entirely in the West and North. Eastern side of BIDA area is completely bordered by the administrative boundary of Jhansi Development Authority. Southern part of BIDA area is adjacent to the Babina Cantonment.

All the notified villages under BIDA are in Jhansi Sadar Tehsil and are part of the Babina and Baragaon Blocks. The 33 villages of BIDA fall under "Babina assembly constituency" and they are within the wider "Jhansi parliamentary constituency".

These villages are:

Table 1 Villages under notified BIDA region.

S. No.	Tehsil	Block	Village Name
1	Jhansi Sadar	Baragaon	Ambabai
2			Kalothra
3			Sarmau
4			Simra
5		Babina	Gevra
6			Amarpur
7			Bachhauni
8			Badanpur
9			Bajna
10			Bamair
11			Baruapura
12			Basai
13			Baidora
14			Chamaraua
15			Dagarwaha
16			Dhikouli
17			Domagor
18			Dongri
19			Gagauni
20			Gurha
21			Imiliya
22			Khaira
23			Khajraha Buzurg
24			Khajraha Khurd
25			Kilchvara Buzurg
26			Kilchvara Khurd
27			Kotkhera
28			Math
29			Murari
30			Parasai
31			Punawali Kalan
32			Rajapur
33			Rampura

1.4.2 Linkages

BIDA region boasts a comprehensive transportation infrastructure, positioning it as a logistical hub for industrial development. Its strategic location at the crossroads of major national highways, rail corridors, and proximity to regional transport hubs enhances its accessibility and supports a well-integrated logistics framework crucial for attracting industrial investments.

As, Jhansi is well connected to Delhi, Mumbai, Lucknow, Kanpur, Agra, Gwalior, Indore, Kota, and Prayagraj through different road and rail networks. It is strategically linked by the East-West and North-South National Highway corridors. National Highway No. 27, also known as the Kanpur-Shivpuri Road, traverses the heart of Jhansi. Additionally, National Highway No. 44 provides a connection to Gwalior, while National Highway No. 39 links Jhansi to Banda and Allahabad. Other road networks include SH-42, SH-21, Bundelkhand Expressway, and proposed UPIEDA Link Expressway.

Virangana Laxmi Bai Jhansi railway station serves as a significant junction and functions as the divisional headquarters of Central Railway. Located just 10 km from BIDA, it is one of the busiest railway junctions in Northern India. Positioned at a key node in Delhi-Mumbai and Delhi-Chennai rail corridors, it plays a central role in moving goods to and from Jhansi. The region stands to benefit further from proposed Dedicated Freight Corridor under Delhi-Nagpur Industrial Corridor (DNIC).

Jhansi lacks a domestic or commercial airport, but nearby airports like Gwalior, Kanpur, Khajuraho and Chitrakoot offer domestic flights. Ongoings plans to develop nearby Datia Airstrip into an airport shall improve air connectivity, especially for high-value goods industries.

1.4.3 Physical Settings

Physiographic Features

The BIDA region is characterized by diverse landforms, including low plains, undulating hills, and river valleys. The region benefits from several water bodies, with seasonal rivers and smaller streams feeding into the Betwa River, supporting both irrigation and ecological balance.

The land is primarily agricultural, with varying elevation from 170 meters to 387 meters, sloping gradually from south to north. The central and northern areas are mostly flat and well-drained, while the southern region is more rugged with rocky outcrops.

Soil and Geomorphology

The region features red and yellow soils ideal for agriculture, while southern areas have lateritic soils that provide good drainage. The area's geomorphology allows for industrial growth on the flat lands while preserving the hilly areas for environmental conservation.

Seismicity

The BIDA region lies in Seismic Zone II, indicating a low risk of earthquakes. This geological stability enhances its attractiveness for industrial and infrastructure development.

Hydrological Characteristics

The hydrological system of the BIDA region is crucial for its development, supporting agriculture and sustaining ecosystems. Seasonal rivers and streams drain into the Betwa River, which plays a key role in

irrigation and ecological sustenance. Smaller tributaries and local watercourses also contribute to the river system.

The region's slope characteristics, ranging from flat to steep, influence water runoff, flood management, and soil erosion. The presence of numerous surface water bodies, including lakes and ponds, contributes to agricultural and domestic water needs.

Climate and Meteorological Patterns

The region has a semi-arid climate, with extreme temperature fluctuations between scorching summers with maximum temperatures reaching up to 48 deg C and mild winters with minimum temperatures dipping to 5 deg C.

Average annual rainfall is around 885 mm, mostly occurring during the monsoon season from June to September, though its erratic nature presents challenges such as droughts and waterlogging.

Wind patterns shift with the seasons, influencing air pollution dispersion. The prevailing wind direction is from west to north-east.

Geological Aspects and Resource Availability

The BIDA region lies within the Bundelkhand Craton, composed primarily of stable igneous rocks like granite and quartzite. The region is rich in mineral resources such as granite, basalt, limestone, and bauxite.

Groundwater availability is moderate but variable, influenced by the region's hard rock terrain. The geological stability and availability of construction materials make the area suitable for development.

Biodiversity and Conservation Considerations

BIDA area's proximity to the Betwa River and forest areas contributes to its rich biodiversity. The flora includes native tree species such as Acacia, Palas, and Tendu, while the river supports various fish species.

The region also has diverse birdlife and terrestrial animals, especially within the Orchha Wildlife Sanctuary, which plays a key role in preserving faunal diversity. Conservation efforts are essential to prevent industrial development from encroaching on critical habitats and to ensure the health of water bodies.

Renewable Energy Potential

The region is rich in natural resources, including vegetative cover, which plays an important role in carbon sequestration and soil erosion control. BIDA's semi-arid climate, combined with high solar insolation levels, makes it a prime location for solar energy projects, reducing reliance on fossil fuels and supporting the region's industrial zones. Sustainable land and resource management practices are crucial to ensure long-term ecological balance and economic growth.

1.4.4 Existing Land use

Agriculture dominates the land use in BIDA, with 92.65% of the land used for farming. The built-up area covers 3.32%, while surface water bodies account for 2.15%. Other land types include forests and hill/ ranges. The flat, well-drained areas are ideal for industrial development, though careful planning is needed to balance industrial growth with environmental conservation.

Table 2 Existing Land use distribution of BIDA project area, 2024.

Land Use Category	Area (Sq.km)	Land Cover (in %)
Aodhyogik	0.45	0.18
Avasiy	0.18	0.07
Gramin Abadi	5.11	2.01
Jalashay/ Talaab	0.40	0.17
Krushi	234.72	92.65
Nadi/Nala/Nahar	5.01	1.98
Pahadi	4.77	1.88
Rail	0.19	0.07
Sadak	2.15	0.85
Samudayik Suvidhaye	0.35	0.14
Total	**253.33**	**100**

02: Present Scenario of the BIDA Region

2.1 Existing Settlement Characteristics

The 33 villages in the region vary significantly in size, ranging from small hamlets with populations under 500 to larger villages with populations exceeding 3,000. Larger villages are typically located near water bodies and highways, which offer greater economic opportunities, while smaller villages tend to be more isolated.

2.2 Housing

The BIDA region's housing pattern mainly consists of traditional kuchha and semi-kuchha houses, with limited formal housing development due to its agrarian and greenfield nature. There is a lack of rental housing, as land ownership is more common in this rural area.

2.3 Demographic Characteristics

2.3.1 Population Size and Growth

The demographic landscape of the BIDA region is predominantly rural, with a population of 67,424 as per the 2011 Census. The region has witnessed modest population growth, primarily due to natural increases rather than in-migration.

Table 3 Decadal Population Growth for BIDA Region.

S. No.	Year	Population	Decadal Growth Rate
1	1981	32,726	
2	1991	42,242	29.08 %
3	2001	55,080	30.39 %
4	2011	67,424	22.41 %
Average Growth Rate			**27.29%**

The decadal growth rate from 2001 to 2011 was 22.41%. This growth trend is expected to accelerate with the initiation of industrialization, as BIDA's development is likely to attract workers and their families, driving significant demographic changes. Village wise decadal population of the region is listed as follows:

Table 4 Village wise decadal population growth in BIDA region.

S. No.	Name of Village	Population (as per Census)			
		1981	1991	2001	2011
1	Amarpur	966	1,209	1,433	1,843
2	Ambabai	2,575	3,210	4,283	5,815
3	Bachhauni	721	994	1,504	1,857
4	Badanpur	503	544	483	845
5	Bajna	1,000	1,609	1,889	2,448
6	Bamair	567	895	1,250	1,427
7	Baruapur	709	784	1,284	1,191
8	Basai	794	613	1,108	1,579
9	Baidora	2,802	3,499	4,223	4,975
10	Chamaraua	2,580	3,263	4,211	5,135
11	Dagarwaha	1,697	2,328	3,102	3,712
12	Dhikoli	1,003	1,484	1,824	2,279
13	Domagor	561	818	1,169	1,441
14	Dogri	353	395	601	651
15	Gagauni	300	383	526	688
16	Gevra	554	789	989	1,097
17	Gurha	428	540	596	655
18	Imiliya	814	1,052	1,189	1,606
19	Kalothra	59	123	176	231
20	Khaira	1,093	1,496	1,920	2,296
21	Khajuraha Buzurg	2,489	3,464	4,408	5,171
22	Khajuraha Khurd	1,339	1,546	1,894	2,194
23	Kichalwara Buzurg	1,147	1,368	1,825	2,025
24	Kichalwara Khurd	185	290	360	458
25	KotKhera	653	770	1,282	1,371
26	Math	286	373	480	597
27	Murari	762	966	1,268	1,576
28	Parasai	421	568	946	1,242
29	Punawali Kalan	1,847	2,332	2,984	3,604
30	Rajapur	1,490	2,001	2,419	3,047
31	Rampura	130	189	259	337
32	Saarmau	677	836	1,036	1,330
33	Simraa	1,221	1,511	2,159	2,701
	Total Population	**32,726**	**42,242**	**55,080**	**67,424**

2.3.2 Population Density

The population in the BIDA region is currently dispersed across 33 villages, with an overall population density of 2.49 people per hectare. Most residents are engaged in agricultural activities, with larger population densities found in villages like Gevra, Ambabai, and Baidora, where access to water and transportation networks is better. This uneven distribution is expected to change as the developments in BIDA advances.

As industrial zones are established, growth will concentrate around these new areas and along major transportation corridors. The influx of workers, both skilled and unskilled, will drive urbanization, leading to a more clustered population distribution.

By 2045, the expected population growth due to industrialization and infrastructure improvements will significantly alter the region's demographic makeup, with new residential areas and urban centres emerging to accommodate the growing population.

2.3.3 Age Group Analysis

The current age structure of the BIDA region is typical of a rural demographic, with a large proportion of the population under 30 years old. This youth population is largely engaged in agriculture.

As industries are developed, the area will likely attract a more diverse workforce, including both younger workers seeking employment and older individuals relocating for job opportunities. This influx will increase the working-age population and may reduce the dependency ratio, though it will also place increased demands on healthcare and social services.

2.3.4 Literacy Rate

Regarding literacy, the BIDA region currently lags the national average, with a literacy rate of 53.43%. The male literacy rate stands at 65.04%, while the female literacy rate is significantly lower at 40.18%. Educational access remains limited in the area. The industrialization of the region presents an opportunity to improve literacy rates, especially with the establishment of new schools and vocational training centres designed to meet the needs of a growing industrial workforce. The literacy rate is expected to rise, driven by the increasing demand for skilled labour and the expansion of educational infrastructure, which will play a key role in shaping the region’s future socio-economic dynamics.

2.3.5 Sex Ratio

The gender composition of the BIDA region is relatively balanced, with a sex ratio of 877 females for every 1,000 males. However, traditional gender roles remain prevalent, with men predominantly engaged in farming and women in household and supportive agricultural tasks.

2.3.6 Household Size

As per census-2011, there are about 11,995 households within the BIDA region. Household structures are predominantly large, extended families, with an average household size of 5.67 members. As industrialization takes hold, it is expected that household structures will shift, with a move toward smaller, nuclear family units, especially among those migrating to new industrial zones. This change will require the development of diverse housing solutions to cater to both traditional rural households and new, smaller family units emerging with the industrial workforce.

2.4 Urbanization & Migration Patterns

2.4.1 Urbanization

In Bundelkhand, urbanization is driven by economic opportunities, industrial growth, and improved infrastructure, with Jhansi recording the highest urbanization rate. This shift is largely due to limited agricultural opportunities in rural areas and the concentration of industries in Jhansi.

The region's urbanization rate is similar to the state average, but lower than the national average. Urbanization varies significantly across different regions of the state, with the western region exhibiting the highest levels.

2.4.2 Out-migration

Out-migration is notably high in Jhansi, especially among young adults, indicating a search for better education and employment opportunities. However, planned economic growth and investment are expected to create more local job opportunities, potentially reducing out-migration in the future.

2.5 Industrial and Economic Assessment

The Bundelkhand region’s economy is predominantly agrarian, with agriculture (21.55%), livestock (3.99%), and mining (7.18%) forming the backbone. Jhansi, a key city, contributes 21% to Bundelkhand’s GDDP and 5.9% to Uttar Pradesh’s GSDP, underscoring its role as a regional economic hub. The city's economy spans all three sectors: primary, secondary, and tertiary.

The primary sector contributes 28.73% to Jhansi’s GSDP, driven by agriculture, livestock, and mining. Major crops like wheat, gram, pea, and rice are vital, while livestock farming supports dairy and poultry. Mining, especially stone crushing, is one of the main local industries.

The secondary sector contributes 12.3% to GSDP, with manufacturing accounting for 5.47%. Prominent industries include Bharat Heavy Electricals Limited (BHEL), producing locomotives and transformers, and Concrete Udyog Ltd., specializing in engineered concrete products. Emerging industries like pharmaceuticals and paper manufacturing, including Baidyanath Group and Pitambra Books Pvt. Ltd., are contributing to industrial growth.

The tertiary sector is the largest contributor at 59%, encompassing trade (9.2%), transport (13.6%), financial services (4.9%), real estate (11.8%), and government services (14.2%). Key players like Nataraj Sarovar Portico and Lemon Tree strengthen the hospitality and tourism sectors, while Jhansi’s strategic location boosts transport and communication services. Real estate is growing with projects like Ansal Palm Court and Eldeco County are transforming the city’s landscape.

Jhansi holds significant growth potential in sectors like manufacturing, logistics, tourism, healthcare, education, and real estate. BIDA plays a pivotal role in unlocking this potential, focusing on strategic investments in manufacturing, logistics, agro-processing, and sustainable infrastructure. By promoting renewable energy and enhancing urban amenities, BIDA can drive Jhansi’s economic growth, making it a model for industrial expansion with environmental responsibility.

2.6 Traffic and Transportation

The region is connected to National Highways NH-27 and NH-44, as well as the Delhi-Mumbai Railway line. The internal network primarily consists of village roads and district roads. There is currently no direct connection to the existing EW Dedicated Freight Corridor, although the region is linked to the Bundelkhand Expressway via NH-27.

2.7 Existing Physical Infrastructure

The physical infrastructure in the BIDA region is currently catering to existing village settlements. Basic utilities such as water supply, sewage systems, and electricity are available Power infrastructure is managed by the UPPCL rural division. IT infrastructure is up to 4G cellular networks.

The region's infrastructure development is mainly funded through government grants, including Jal Jeevan Mission, Finance Commission Grants, Swachh Bharat Mission Rural Grants, and specific state and central government allocations aimed at addressing critical needs such as water, sanitation, waste management and power supply. There are recently laid underground gas pipeline network by GAIL and IHB Limited.

2.8 Existing Social Infrastructure

Social infrastructure in the BIDA region is currently catering to basic needs in education and healthcare. In the education sector, the region has government-run primary and secondary schools, along with a private engineering college in Ambabai village and a degree college. However, for secondary and higher education, residents largely rely on infrastructure available in Jhansi city, which provides more advanced education services. Healthcare infrastructure is similarly limited, with Sub Health Centres available to the population.

2.9 Land Suitability Analysis

A detailed land suitability analysis was carried out using GIS tools and the Multi-Criteria Decision-Making (MCDM) method to ensure sustainable, context-sensitive growth. This methodology was applied to evaluate the land's suitability for development.

2.9.1 Methodology and Criteria Selection

The land suitability analysis focused on the following criteria to determine the most suitable areas for industrial development:

1. Topography: Flat terrain with a slope range of 0°-2° was preferred for urban development, facilitating construction and minimizing site development challenges.
2. Proximity to Infrastructure: Access to essential infrastructure such as roads, railways, and water bodies was prioritized to support industrial operations.
3. Land Use Considerations: Wasteland and underutilized agricultural land were favoured over built-up, forested, or ecologically sensitive areas to minimize environmental impact.

2.9.2 Data Collection & GIS Mapping

Spatial data from sources like ALOS DEM, NRSC, and JDA were compiled into raster formats with a spatial resolution of 56m. This allowed for the creation of thematic maps representing key factors such as slope, land use, and proximity to infrastructure.

2.9.3 Scoring & Weighting

The suitability of each land parcel was evaluated across six parameters, each given specific weightage based on its importance for industrial development:

- Land Use Land Cover (P1): Weightage = 5 (0.27)
- Slope (P2): Weightage = 4 (0.22)
- Proximity to Railways (P3): Weightage = 3 (0.17)
- Proximity to Roads (P4): Weightage = 3 (0.17)
- Proximity to Water (P5): Weightage = 2 (0.11)
- Proximity to Built-up Areas (P6): Weightage = 1 (0.06)

Using these weights, the land suitability score for each grid cell was calculated with the formula: Land Suitability Score = W1×P1 + W2×P2 + W3×P3 + W4×P4 + W5×P5 + W6×P6. The scores ranged from 0.77 to 4.0, which were then classified into four suitability categories: High, Moderate, Less, and Unsuitable.

2.9.4 Classification of Suitability

BIDA area was divided into 500×500m grids and the results of the land suitability analysis were classified as follows:

- High Suitability (3.0 - 4.0): These areas are predominantly flat, with proximity to road and rail networks and minimal environmental constraints.
- Moderate Suitability (2.5 - 3.0): These are suitable for urban development but require infrastructural improvements.
- Less Suitable (2.0 - 2.5): These areas are less suitable due to terrain or distance from transportation infrastructure and other criteria.
- Unsuitable (< 2.0): These areas are considered unsuitable for industrial development, primarily due to steep slopes, water bodies, human settlements, or green areas.

2.10 SWOT Analysis

The SWOT analysis provides an overview of the region's current position and outlines strategies for future development.

Strengths

The BIDA region holds several key advantages that can drive growth:

- Strategic Location: Situated within major regional transport networks, offering strong connectivity for goods and people, making the region a prime hub for industry and logistics.
- Cultural and Natural Assets: Rich cultural heritage and natural landscapes present opportunities for tourism development, enhancing the local economy and preserving cultural identity.
- Land Availability: The availability of land supports industrial, residential, and infrastructural development, enabling sustainable urban growth.

Weaknesses

Despite its strengths, the region faces challenges that must be addressed for long-term sustainability:

- Water Availability: The region is water scarce and there is a need to identify a sustainable source of water for the city along with enforcement of water conservation and harvesting measures.
- Environmental Vulnerabilities: Issues like water scarcity and deforestation necessitate comprehensive environmental strategies for sustainability.
- Distance from Ports: While BIDA lies at the heart of India, the distance from ports is a challenge for export-oriented industries.

Opportunities

The region has several opportunities for innovation and growth:

- Industrial and Logistics Expansion: Existing transport corridors offer a chance to attract businesses and create jobs, driving economic development.
- Tourism Promotion: Leveraging the region’s historical and natural assets to tap into the growing trend of experiential tourism can boost tourism revenue.
- Green Technologies: Integrating green technologies into infrastructure development presents an opportunity to promote sustainability and spur economic growth through innovation and job creation.

Threats

The region also faces threats that could hinder progress:

- Environmental Degradation: Climate change and environmental degradation pose risks to ecosystems and public health, necessitating proactive environmental protection.
- Unplanned Urbanization: Rapid urbanization without proper planning can strain infrastructure and resources, making urban management essential.

03: Proposals of Master Plan

3.1 Vision Statement

"To Develop a new Gateway City to Bundelkhand, for growth and prosperity of the region, based on principles of sustainability, for future generations"

The Vision-2045 for BIDA aims to establish a transformative city in Bundelkhand, fostering economic growth, sustainability, and prosperity while creating a *Happy and Healthy Investment Destination*. This vision addresses regional challenges like economic diversification, migration, and environmental issues through innovative, inclusive, and sustainable development strategies.

3.2 Aim, Objectives and Goals

The vision strives to create a sustainable, competitive, and inclusive industrial ecosystem, with specific aims to:

1. Enhance regional economic competitiveness by fostering entrepreneurship and attracting investments.
2. Ensure sustainable and equitable development through environmentally conscious practices.
3. Empower the local workforce through meaningful employment and skill development.
4. Integrate innovative technologies for efficient and sustainable industrial operations.

To achieve its aims, the vision outlines the following objectives:

1. Drive sustainable economic growth by attracting businesses and creating job opportunities.
2. Build advanced infrastructure to support entrepreneurship and efficient business operations.
3. Reduce carbon emissions through renewable energy, waste management, and public transportation systems.
4. Prioritize social equity by involving the community in the planning process.
5. Equip the workforce with skills for emerging industries through education and training programs.
6. Promote environmental conservation to safeguard resources and improve ecological health.
7. Foster socio-economic upliftment by ensuring access to essential services and recreational facilities.
8. Celebrate and integrate Bundelkhand's cultural heritage into development plans to enhance community pride and promote tourism.

3.3 Proposed Land Use

The land use plan for BIDA Master Plan-2045 is designed to facilitate balanced growth, economic development, and sustainable urbanization in the Bundelkhand region. The allocation of land uses has been carefully crafted to accommodate the region's industrial, residential, commercial, and green space requirements while ensuring environmental protection, infrastructure development, and social welfare. The notified area of BIDA is divided into the following major land use zones:

1. Industrial
2. Residential
3. Commercial
4. Mixed Use
5. Public and Semi Public
6. Green Areas
7. Transportation
8. Waterbodies

3.3.1 Industrial Land Use

Industrial development is pivotal to BIDA's economic growth. The industrial zone will include small and large-scale manufacturing units, processing and assembly plants, and heavy engineering industries.

3.3.2 Residential Land Use

Residential: Enabling spacious housing & compact urban living with plotted development and multi-story apartments.

Existing Village Abadi: The village Abadi areas house the existing population of the BIDA area. Re-development in an Abadi area shall follow regulations those of this residential land use category.

3.3.3 Commercial Land Use

Allocated for all local and regional shopping centres, commercial business districts, corporate offices & wholesale trade, including bulk storage and distribution facilities

3.3.4 Mixed Use Development

The mixed-use zone promotes integration of residential, commercial, institutional and industrial uses in proximity, fostering vibrant, self-sufficient industrial landscape. It also encourages compact and walkable urban forms, reducing dependency on long commutes and enhancing livability.

3.3.5 Public and Semi-Public Land Use

Public and semi-public spaces will be established across various sectors for educational, government offices, healthcare, recreational, and utilities.

- Institutional Zone: Facilities for government offices/ buildings, education, healthcare, and socio-cultural activities, essential services such as police, fire, disaster management centres, religious places, and burial/ cremation grounds.

- Facilities & Utilities Zone: Utility-related institutions, such as transmission sites; Sites for water treatment plants (WTP), sewage treatment plants (STP), electricity substations, solid waste processing facilities, and drainage systems; Spaces for advanced waste management systems, including e-waste disposal units.

3.3.6 Green Land Use

A significant portion of the land is preserved for green spaces to ensure environmental sustainability and enhance the quality of life for residents. This includes area for various green areas:

- Recreational Green: Green or open spaces of varied sizes providing opportunities for recreation and leisure activities at neighborhood and/or city level.
- Masterplan Green/Belt: Large open spaces for contributing to urban greenery, also including areas preserved for biodiversity conservation, natural habitats, and ecological restoration.
- Green Buffer: Strategic green belts serving as separators between different land uses, particularly to mitigate environmental impacts from industrial or transport zones.

3.3.7 Transportation

Recognizing the significance of connectivity, transportation zones have been allocated for:

- Roads and Rail: All road and Rail networks
- Terminal, ISBT & Depot: Rail, metro, bus, and truck terminals to enhance freight movement.
- Logistics: Areas specified for Multi Modal Logistics Park (MMLP), Inland Container Depot (ICD), Warehousing activities.

3.3.8 Waterbodies

Area dedicated for waterbodies, ensuring sustainability, storm water management, promoting public recreation & waterfront development.

The proposed distribution of land use is given in the below table –

Land Use Category	Total (SQ.KM)	Percentage
Industrial	90.58	35.8
Residential	38.39	15.2
Village Abadi	5.11	2.0
Commercial	3.92	1.5
Mixed Use	13.01	5.1
Public Semi Public		
Institutional	9.39	3.7
Utilities	1.01	0.4
Green		
Recreational Green	3.74	1.5
Master Plan Green/Belt	26.93	10.6
Green Buffer	25.69	10.1
Transportation		
Road and Rail	26.56	10.5
Terminal, ISBT & Depot	0.32	0.1
Logistics	1.55	0.6
Water Bodies	7.13	2.8
Total	253.33	100.0

Table 5 Proposed Land use distribution of BIDA.

3.4 Population Projection

3.4.1 Methodology for Demographic Projection

The demographic projections for BIDA are conducted to estimate the employment generation and population growth required to support Jhansi's industrial expansion over the next 40-45 years. By assessing the future output of key industrial sectors, this analysis will forecast the number of direct and indirect employment, as well as the population necessary to sustain the projected industrial growth.

The methodology for these projections relies on data sourced from the Uttar Pradesh Annual Survey of Industries (ASI), Census data of the Ministry of Statistics and Programme Implementation and the Leontief model.

The first step is forecasting value of Jhansi's output which is determined by analysing its current share of Uttar Pradesh's industrial output and projecting incremental increases over the next 20 years to align with benchmarked districts. This approach, using data from the Annual Survey of Industries (ASI), provides a comprehensive view of Jhansi's growth potential across key sectors over the next 40-45 years. This methodology highlights the expected expansion in industrial land offtake, which is crucial for planning and development in the region.

The second step, forecasted total employment in Jhansi, includes both direct and indirect job opportunities resulting from the projected growth in output. Direct employment is calculated using the output-to-employment ratio for Uttar Pradesh, with ratios for sectors like food products, pharmaceuticals, and renewable energy equipment. Indirect employment, derived using the Leontief model, accounts for jobs created in supporting industries.

The final step in demographic projection involves forecasting the total population growth needed to support expanding workforce, crucial for planning social infrastructure like housing, healthcare, and public services. Using a multiplier derived from the average household size and the average number of workers per household based on Census data, estimation of population is conducted. This multiplier accounts for temporary construction workers and the floating population. These projections ensure effective planning and resource allocation for social infrastructure, vital for sustaining industrial growth and enhancing residents' quality of life.

3.4.2 Projected Population for Planning Area

The population projections for the BIDA region are based on the anticipated economic activities and envisaged employment. With industrial development as the primary growth driver, the area is expected to evolve into a vibrant hub, accommodating a significant population associated with both industrial and urban sectors.

When the BIDA region fully develops, it is projected to facilitate a total population of approximately 18.4 lakhs. This population projection reflects the region's potential to transform into a dynamic centre for industrial and urban growth.

The projected population is fundamentally tied to the employment opportunities generated by the industrial and urban sectors. The industrial sector will serve as the nucleus of growth, attracting a substantial workforce and their families, while urbanization will emerge as a complementary outcome, driven by demand for services such as education, healthcare, retail, and commerce. It is estimated that about 78% of the projected population will be from Industrial sector and remaining 22% of the projected population will be from urban developments.

The urban sector will contribute a sizable portion of the total population, encompassing those employed in service-oriented industries and their dependents. The projections consider not only the influx of residents due to employment but also the multiplier effect created by urban growth, ensuring the region becomes a self-sustaining ecosystem.

3.5 Delineation of peripheral village boundaries

A critical component of the overall development strategy is the seamless integration of the existing Village Abadi with the proposed land uses. The goal is to maximize the benefits of surrounding development while preserving the village’s character. To achieve this, peripheral roads have been strategically delineated as boundaries, effectively managing the growth of the Village Abadi while ensuring efficient connectivity with the broader BIDA Development. This approach not only helps in defining clear spatial limits but also facilitates structured expansion in a sustainable manner. Additionally, the space between the peripheral road and the Village Abadi has been designated for residential land use in the Development Plan. This area is envisioned to accommodate affordable housing solutions, catering to the needs of migrant workers and the expanding industrial workforce.

3.6 Sector Delineation

To ensure a well-structured and efficient development of BIDA, the proposed plan has been sub-divided into sectors. 135 Sectors are envisaged in the planning area. Sector delineation has been done with a strong emphasis on walkability and connectivity, facilitating ease of movement for residents. Sectors are enclosed by a comprehensive road network with primary roads of 60 meters or 45 meters forming their perimeters. The typical size of a sector ranges from 1.5km x 1.5km, 2 km x 2 km and larger, ensuring flexibility.

04: Action Plans

4.1 Activation Area

The Activation Area for BIDA, spanning approximately 505.83 hectares, is strategically planned to drive industrial growth while fostering urban development. Designed to attract anchor investors and stimulate immediate industrial activity, the site is selected based on key physical and economic parameters, including connectivity, visibility, land availability, and investment feasibility, ensuring optimal viability. The activation area seamlessly integrates industrial, residential, mixed-use, public-semi-public, and recreational spaces, creating a well-balanced and sustainable ecosystem. With robust transportation linkages, this Activation Area will serve as a catalyst for BIDA's transformation into a thriving industrial hub.

4.2 Area for Industrial Master Developer

The area for Industrial Mater developer, covering 400 hectares, is dedicated to attracting global investments and implementing advanced industrial practices. This area is specifically designed for industrial master developers to create and manage these advanced industrial environments. Positioned as a key part of the International City Development Strategy, it aims to foster high-value industries with cutting- edge infrastructure. By focusing on technology driven operations and eco-friendly logistics, this area will position BIDA as a globally competitive industrial hub, driving innovation and job creation.

4.3 Area for Institutional and Environmental Development

The Area for Institutional and Environmental Development, spanning 125 hectares, focuses on institutional growth and environmental sustainability. It complements the industrial expansion in the other areas by addressing educational, research, and administrative needs. The area will house BIDA's administrative office and support institutions for research and workforce training. Additionally, the inclusion of a waterbody for rainwater harvesting and green buffers will maintain ecological balance and promote sustainability.

05: Transportation Plan

The transport infrastructure proposals for the BIDA aim to establish a robust and sustainable network that caters to the growing industrial, residential, and commercial needs of the region. Key aspects include road infrastructure, regional connectivity strategies, and public transport systems, all designed to ensure seamless mobility and accessibility.

5.1 Regional Strategies

To strengthen regional links and integrate BIDA region with surrounding industrial and urban hubs:

i. **Extension of Agra-Gwalior Expressway**: Proposed extension to Jhansi, encompassing BIDA area, to improve connectivity with northern cities like Agra and Delhi.
ii. **Greenfield Expressway**: Linking Jhansi (BIDA region) to the Bundelkhand Expressway, enhancing access to industrial hubs in Kanpur and Lucknow.
iii. **Logistics Integration**: Seamless road and rail connectivity for freight and passenger movement through BIDA.
iv. **Spine Road**: A central spine as the logistics and truck utility corridor facilitating segregation of industrial and city traffic.

5.2 Road Hierarchy

The road network hierarchy within the Bundelkhand Industrial Development Authority (BIDA) area has been planned considering the existing village Abadi within BIDA area, Proposed land use, traffic type, public transport needs, and connectivity with Jhansi and the surrounding settlements. The hierarchy is categorized as follows:

1. Arterial Road: 60m ROW
2. Sub-Arterial Roads:
    - Sub-Arterial Road-1: 45m ROW
    - Sub-Arterial Road-2: 36m ROW
3. Collector/Distributor Roads: 24m ROW
4. Local Roads: 18m ROW and 12m ROW

A 60-meter ROW arterial road is planned with metro transit integration along its median, while sub-arterial roads of 45 meters and 36 meters ROW ensure efficient bus services and connectivity to key areas. Additional roads with ROWs of 24, and 18 meters enhance local accessibility. The comprehensive plan ensures sustainable, inclusive, and well-connected transportation for the township.

5.3 Public Transport Systems

i. **Metro-Neo System**: A phased development of the Metro-Neo system, with:

- **Phase I**: A 29 km network from Dhikoli to Khajuraha Bujurg, including seven stations with an average station spacing of 4.2 kilometres.
- **Phase II**: A 16 km network Khajuraha khurd and Ending at Dongri featuring 5 metro stations with an average station spacing of 3.2 kilometres.
- **Phase III** : A 28 km network starting from Karai at Avantibai Chowl including 5 metro stations with an average station spacing of 3.2 kilometres.

ii. **Bus Rapid Transit System (BRTS)**: A planned bus network within BIDA, offering public transport access within 500 meters of all locations.

- **Phase I:** A total Network length of **59 Kms** is being planned for Public Transport.
- **Phase II:** A Total Network length of **42 Kms** is being planned for Public Transport.
- **Phase III:** A Network length of **38 Kms** is being planned for Public Transport.

iii. Intermediate Public Transport (IPT), Cycle tracks and Non-motorized Trasport (NMT):

BIDA, being an industrial city, will focus on pedestrian and NMT friendly environment and last mile connectivity. Pedestrians and NMT shall be provided through traffic management plans, street improvements, creation of a fine network of pedestrian and NMT routes, restricted and high- priced public parking.

Provisions for City wide cycling network have been kept to make the region more accessible. These have been integrated with the green network of BIDA to promote green mobility and contribute to the ecological sustainability.

5.4 Freight Traffic Management

i. **Modal Split Strategy**: Focus on efficient freight movement using light commercial vehicles (40%), 2-axle (25%), 3-axle (20%), and multi-axle vehicles (15%).

ii. **Industrial Zone Connectivity**: Strategic allocation of industrial zones for optimized freight demand, with phased traffic planning for all industrial activities.

5.5 Planning for Multi Modal Logistics Park (MMLP) for BIDA

A Multi-Modal Logistics Park (MMLP) is being proposed in BIDA to support the logistics framework. With a focus on optimizing goods and cargo movement, this will integrate various modes of transportation, enhance storage capacities, and streamline distribution networks, all while contributing to the region's economic and environmental sustainability.

Area and Handling Capacity

- Total Area of 164 Ha.
- Handling Capacity – approx.10 million tons of cargo

Cargo Distribution

- 60% to be handled by Road – 6 MT
- 40% to be handled by Rail - 4 MT

Area Distribution

The proposed area distribution for MMLP is as follows:

- 30% is allocated for covered warehousing,
- 20% for open warehousing (dry port), facilitating bulk access,
- 20% for the railyard, enhancing intermodal connectivity; and
- 30% for circulation, commercial activities, and green spaces, promoting both efficiency and sustainability.

06: Physical Infrastructure

BIDA is designed to have a robust infrastructure which meets future needs, ensures environmental sustainability, and supports community well-being. The key pillars of infrastructure viz roads, water supply, wastewater management, stormwater management, power & ICT system and solid waste management shall be thoughtfully integrated to create a resilient, efficient, and sustainable urban environment. This chapter outlines conceptual framework for the proposed infrastructure.

6.1 Water Supply System

A city's water infrastructure system is crucial for ensuring a sustainable and safe supply of water for its residents, industries, and the environment. Based on the intended usage, the water requirement can be further classified into two broad groups viz. Potable water and non-potable water.

Potable water is primarily meant to meet the domestic /commercial /institutional /industrial requirements for the purpose of drinking, cooking, bathing, washing, firefighting etc. The raw water is sourced from a natural source such as ground water or surface water. The raw water is treated in a water treatment facility to remove the impurities and make it suitable for consumption.

Non-potable water can be used to meet the toilet flushing demand of domestic /commercial /institutional /industrial establishments and the horticulture demand covering the roadside greens and other green spaces across the city. In addition, non-potable water can be supplied to meet the industrial process water requirements. The source of non-potable water is treated effluent from wastewater treatment facilities.

6.1.1 Existing Water Supply Infrastructure

The present water supply system for the villages in BIDA region was commissioned under Jal Jeevan Mission (JJM). Jal Jeevan Mission is a nationwide program in India that aims to provide every rural household and public institution with a tap water connection. The scheme is reportedly designed for per capita supply of 55 litres per day.

The existing water supply system is designed as Rural water supply scheme. Further, the quantum of water supplied through the system is very less as compared to the estimated demand for BIDA region.

6.1.2 Water Supply Infrastructure Vision

An Integrated Urban Water Management (IUWM) approach is proposed to be adopted for the BIDA region where water supply, wastewater management and storm water drainage shall be interconnected for having 'water-linked infrastructures' in an urban water cycle. Surface water, rainwater and wastewater are considered here as three access points of water that must be managed together. The focus shall be on reducing reliance on surface water and ground water and realizing the potential of the non-traditional sources of water.

The IUWM approach, maximizes efficient water use. Additionally, the design must address the quantity, quality and long-term sustainability of the water sources while integrating technologies that enhance resource management and conservation. Some of the key aspects of the proposed water supply system for BIDA region, are summarized as under:

- Efficient treatment of both sewage and industrial wastewater to required reuse standards with close to 100% recycling. The treated effluent is termed as "Recycled Water."
- Provision of dual piping infrastructure; one for potable water and other for recycled water

- At least 50% of industrial water demand to be met from recycled water
- Entire horticulture water demand to be met from recycled water
- Implementation of rainwater harvesting systems to capture the rainwater
- Robust infrastructure to ensure 24x7 continuous pressurized supply with reduced leakages
- Smart water management system involving digital meters and sensors, supervisory control and data acquisition (SCADA) systems, and geographic information systems GIS) to provide a resilient and efficient water supply system.

6.1.3 Estimation of Water Demand

To determine the water demand for domestic/ commercial /institutional /industrial establishments, calculations were made using the guidelines established by the Central Public Health and Environmental Engineering Organization (CPHEEO) and National Building Code (NBC), supplemented by specific assumptions related to land use mix, development density for both industrial and non-industrial areas.

Total water demand has been computed for both potable water (PW) and non-potable water (NPW) separately for various types of users such as residential, industrial, offices, open areas, greens etc. The NPW demand is proposed to be met from recycled water. Norms followed for water demand calculation are presented below:

Table 6 Water Demand and Sewage/Wastewater Generation Assumptions for BIDA region.

S No	Category	Unit	Net Water Demand	Potable Water Demand	Non-Potable Water Demand	Sewage / Wastewater Generation
1	Industrial	Kl/ha/d	20	[1]2	18	70%
2	Residential	LPCD	135	90	45	80%
3	Offices	LPCD	45	25	20	80%
4	Visitors	LPCD	15	5	10	80%
5	Green Space Master Plan Greens Green Buffer	Kl/ha/d	 15 5	 0 0	 15 5	 - -

[1] Majority of industrial process water demand is considered to be supplied from recycle water to meet the target of zero liquid discharge.

Table 7 Estimated Gross Water Demand for BIDA region.

S No	Category	Total (MLD)	
		PW	**NPW**
1	Industrial[2]	15	121
2	Residential	202	100
3	Staff/Workers	3.5	2.7
4	Visitors	0.12	0.17
5	Greens	0	68
	Total	**221**	**292**

6.1.4 Proposed Water Supply System

The proposed source of water for BIDA is the Rajghat Dam. Raw water will be treated in a Water Treatment Plan (WTP). Water treatment is critical step for ensuring potability of the water and protecting of public health. Raw water from surface water sources contains various contaminants, which shall be removed to make the water suitable for human consumption. The total required capacity of WTP for BIDA is 225 MLD.

The proposed water supply scheme involves a combination of underground and overhead tanks. Treated water from WTP is proposed to be conveyed to zonal underground Clear Water Reservoirs (CWR) through a network of clear water transmission mains. These zonal reservoirs would further be connected to multiple overhead tanks for onward supply through the distribution system. These storage reservoirs would be designed to have adequate capacity to meet the fluctuation in water demand across the day.

The water supply system of BIDA region shall be developed as 24x7 continuous pressurized system. As per guidelines of the CPHEEO manual on Water Supply & Treatment, the network should be designed to have a minimum residual pressure of 21 m.

There shall be separate recycled water supply system including its transmission, storage and distribution. Recycled water system shall also be developed in sync with development in phased manner.

The ultimate non- potable for the BIDA region is estimated to be around 106 million cubic meters (MCM). The treated effluent from sewage treatment plant (STP) and common effluent treatment plant (CETP) will be recycled to meet the non-potable water demand along with part of industrial process water demand.

[2] Industrial water demand is for process water demand only. The demand for workers and employees at industries is covered in water demand under Residential and Staff/Worker category.

6.2 Wastewater Management

Effective wastewater management safeguards both public health and the environment. Wastewater system for the BIDA region involves creating a treatment framework that minimizes ecological impact while ensuring scalability and adaptability.

The following service level benchmarks shall be targeted for the BIDA region:

i. 100% coverage of Sewerage and Industrial wastewater collection and conveyance system
ii. Separate system for collection of sewage (from commercial, residential and amenities) and industrial wastewater (from industries)
iii. Decentralized wastewater management with Modular construction of treatment facilities
iv. Innovative technologies for wastewater treatment
v. Maximize recycling and reuse
vi. Resource recovery

There should be two independent systems for sewage and industrial wastewater, each having its own collection & conveyance network, intermediate pumping facilities and treatment facility. The sewage network will collect the sewage from the residential, commercial, institutional and amenities plots and convey it to the sewage treatment Plant (STP) located within the project area. The industrial wastewater network will collect the effluent from industrial plots and convey it to the common effluent treatment plant (CETP) located within the project area.

The estimated Sewage generated for BIDA area is 227 MLD and the Industrial Wastewater generated is 88 MLD. These numbers are based on factors mentioned above along with a 10% margin for infiltration.

The treated wastewater from STP and CETP is proposed to be used to meet the non-potable demand of domestic /commercial /institutional /industrial establishments and the horticulture demand covering the roadside greens and other green spaces across the city. In addition, non-potable water is proposed to be used to meet the industrial process water requitements, to achieve the target of zero liquid waste discharge into the water bodies / surrounding environment.

6.3 Stormwater management

The BIDA region can broadly be divided into three drainage basins:

- Drainage Basin I – covers majority of the area towards north of NH-27. This area naturally drains towards Angoori River and its tributaries.
- Drainage Basin II – covers the largest part of BIDA region including the area south of NH27. This area naturally drains towards Pahuj river and its tributaries
- Drainage Basin III – is the small basin. This area naturally drains towards Ghurari stream (tributary of Betwa river).

There shall be a separate storm water drainage system for the BIDA region for the collection, reuse and safe disposal of storm water. The system should be designed as per the relevant guidelines provided in the CPHEEO manual on Stormwater Drainage Systems and other IRC/IC publications.

The following aspects shall be considered for the development of stormwater drainage system:

i. Identification and marking of Catchment areas
ii. Identification and marking of probable drainage zones, the direction of gradients and selection of disposal points

iii. Preparation of topographical layout of collection and conveyance
iv. Storm water drainage plan should be separate from the sewerage system for all stages of planning and designing
v. Strategy for rainwater storage and its recharge to groundwater and disposal of excess storm water
vi. Strategy for arresting pollutants with urban runoff from entering waterbodies.
vii. Conserving the aesthetics, public safety and other social concerns of recreational open space and landscape to preserve the ecological nature of waterways
viii. Non-structural and structural measures should be studied, and components designed accordingly to provide relief during the occurrence of disasters due to flooding
ix. Water storage ponds should be rejuvenated within city.
x. Strategy for sustainable operation & maintenance of storm water systems
xi. Integrated water use planning: the plan preparation shall consider the integration of storm water, recycle and reuse of treated effluent and freshwater resources to address the urban flooding issue and water security issue of the city simultaneously

6.4 Solid Waste Management

The BIDA region will witness various types of waste generation due to its mixed-use nature, which will include residential, commercial, industrial, and institutional sectors. Identifying and categorizing these waste sources is critical to designing an efficient waste management system. The anticipated waste streams for BIDA are detailed in the table below:

Table 8 Potential Type and Sources of waste generation.

Type of Waste	Potential Sources of Waste Generation
Residential Waste	Waste generated from households, including organic waste, plastics, paper, and other domestic refuse.
Commercial Waste	Waste from commercial establishments such as shops, offices, malls, and banks. This includes packaging materials, papers, and food waste.
Institutional Waste	Waste from educational institutions, including paper, food waste, and other non-biodegradable materials.
Bio-medical Waste	Waste generated from hospitals, clinics, nursing homes, and healthcare facilities. This includes medical supplies, syringes, bandages, and other biohazardous materials.
Industrial Waste	Waste produced during industrial processes. This can include manufacturing by-products, chemicals, and other non-recyclable materials.
Hazardous Waste	Waste that poses a risk to human health or the environment. It can be generated from residential areas, industries, hospitals, and other sources.
Street Sweeping & Garden Waste	Waste collected from street cleaning and landscaping activities, including leaves, branches, and sewerage sludge.
Construction & Demolition Waste	Waste generated from construction and demolition activities, primarily comprising concrete, asphalt, stone, wood, and other building

Type of Waste	Potential Sources of Waste Generation
	materials. The quantity varies, being high during construction and lower during the operational phase.
Sludge from Effluent Treatment Plants	Includes sludge from wastewater treatment facilities such as sewerage sludge and chemical sludges, which require proper disposal or treatment.
Carcass Waste	Animal remains, blood, tissue, and fluids, primarily from slaughterhouses, fishery farms, and animal research centres.
Electronic Waste (E-waste)	Waste from obsolete or broken electrical and electronic devices, such as computers, phones, and office equipment. E-waste is typically generated from offices, commercial buildings, and industries.

Hazardous waste comes from industries, hospitals and CETPs while municipal waste includes waste generated from other areas.

Solid waste in BIDA will typically include Municipal Solid Waste (MSW), Construction & Demolition Waste and industrial waste generated from the industry. Municipal Solid Waste generation is estimate at 270 grams per capita per day while Industrial solid wastes have been computed with 60% efficiency for 25 grams per square meter of industrial land area. Additionally, Construction & Demolition (C&D) wastes have been taken 10% of the MSW.

BIDA region is estimated to generate approx. **1883 MT** solid waste per day as given in following table:

Table 9 Proposed solid waste generation for BIDA region.

Description of Waste	Total Waste Generation (MT/day)
Municipal Solid Waste	496.74
Industrial Waste	1336.5
Construction & Demolition (C&D)	49.67
Total	**1882.91**

The BIDA waste management system will focus on integrating global best practices. Key strategies will include:

- Source Segregation: Mandating 100% segregation at the source into biodegradable, recyclable, and inert categories.
- Collection Efficiency: Achieving full collection efficiency across all waste types within the BIDA region.
- Waste Processing: Ensuring minimal waste is sent to landfills by focusing on segregation and recovery.
- Scientific Disposal: Complying with the highest environmental standards for waste disposal and ensuring that no more than 15% of waste is landfilled.

Aligned with the Swachh Bharat Mission, an Integrated Solid Waste Management (ISWM) framework will be implemented. This system will be designed for a 20-year horizon, addressing both immediate and long-term needs for waste processing and disposal in BIDA.

To ensure the safe and scientific disposal of waste, an appropriate location for a sanitary landfill must be chosen. This site should be situated far from residential areas, forests, water bodies, and regions of cultural, historical, or religious importance. Additionally, it needs to be at least 20 km away from any airfield. There should be no significant concerns regarding social issues, resettlement, environmental impact, or geotechnical problems associated with the site.

6.5 Power Infrastructure

The Bundelkhand Industrial Development Area (BIDA) is set to undergo significant growth, and to support this, a comprehensive and reliable power infrastructure plan has been proposed. This plan is not only to address the power requirements for both industrial and urban development but also integrates renewable energy sources to ensure sustainability. The total power demand for the BIDA region is forecasted to reach **2614 MW**, with a future contingency of 10%, bringing the total to 3027 MVA. Total demand of 2614MW, 314MW (12% of Total Demand) is proposed as the renewable energy from the development of the solar park. These calculations are based on land-use assumptions and development density in both industrial and non-industrial zones, accounting for a 10% transmission and distribution loss.

In addition to the substantial grid infrastructure expansion, renewable energy will be a key component of the BIDA power strategy. The region will focus on large-scale solar power farms and encourage rooftop solar installations across buildings to meet up to 12% of the power demand through renewable sources. The ongoing development of a green energy corridor, which is expected to generate 3000 MW of solar energy, will further bolster the renewable energy supply.

Finally, the proposed energy infrastructure will be complemented by energy efficiency and conservation initiatives, including the use of energy-efficient appliances, green building codes, and demand-side management programs. These initiatives will help optimize energy use, reduce overall demand, and minimize environmental impact, contributing to a more sustainable and efficient power infrastructure.

6.6 ICT Infrastructure

BIDA Master Plan-2045 proposes on developing a strong ICT system, with the Integrated Command and Control Centre (ICCC) as main proposal for managing and improving urban management and services for BIDA will be developed as a central facility to monitor and manage key services like security, utilities and traffic in real time. It will feature tools for handling emergencies, analysing data for better decision-making, and simulating city scenarios using digital twin technologies. Secondary command centres shall also be developed to support local operations and ensure backup systems at each development phases.

Other supporting ICT proposals will include:

- Development of a comprehensive network of CCTV cameras and Video Incident Detection systems (VIDS) to ensure city-wide public safety and security,
- Use of smart devices like sensors and meters to monitor real-time management of water supply, electricity, waste collection and the environment through IoT sensors and SCADA systems,

- High-speed internet and Wi-Fi across the area using Bharat Net and National Knowledge Network (NKN),
- Development of Digital platforms for services like e-governance, public grievance redressal and feedback, and real-time updates of services,
- Inclusion of improved urban services like ITMS, smart traffic systems, digital signboards, emergency Call Boxes (ECBs), meteorological data systems, and public voice alarm systems for rapid emergency response, disaster simulation and management capabilities supported by predictive analytics & AI.

7: Social Infrastructure

Social infrastructure forms the backbone of any well-functioning urban or regional development. It encompasses a wide range of facilities and services that support the well-being, education, health, and overall quality of life of a community. BIDA places significant emphasis on creating a balanced and inclusive urban ecosystem. While industrial growth serves as the primary driver of economic activity, social infrastructure is the cornerstone for attracting a skilled workforce, fostering community resilience, and ensuring equitable access to basic and advanced amenities.

Objectives of the Social Infrastructure Plan

The Social Infrastructure Plan for the BIDA region aims to achieve the following:

1. Enhance Quality of Life: Provide high-quality health, education, and recreational facilities that contribute to overall well-being.
2. Equity and Inclusiveness: Ensure accessibility and affordability of services for diverse socio-economic groups, including workers, residents, and the local community.
3. Workforce Retention: Establish infrastructure that attracts and retains skilled professionals and workers within the region.
4. Planned Urban Growth: Integrate social amenities seamlessly into the urban fabric to support planned and sustainable growth.
5. Sustainability and Resilience: Develop eco-friendly, resource-efficient facilities with the capacity to adapt to future population growth and environmental challenges.

Key Components of Social Infrastructure

The plan identifies key components of social infrastructure essential for the holistic development of the BIDA region:

1. Healthcare Facilities: Ranging from primary health centres (PHCs) to multi-specialty hospitals, with a focus on accessibility, emergency care, and specialized treatment facilities.
2. Educational Institutions: Comprehensive provisions for primary, secondary, and higher education, including vocational and technical training institutes aligned with industry needs.
3. Affordable Housing: Housing for diverse socio-economic groups, with a special emphasis on the workforce employed in industrial and commercial sectors.
4. Recreational and Sports Facilities: Parks, playgrounds, sports complexes, and cultural centres to promote leisure and community engagement.
5. Public Amenities: Provision of community halls, libraries, and local retail centres to support social interaction and day-to-day needs.
6. Safety and Emergency Services: Police stations, fire stations, and disaster management centres to ensure community safety and resilience.
7. Cultural and Heritage Preservation: Promotion of the local identity and heritage through museums, heritage centres, and cultural activities.

The planning process for social infrastructure in the BIDA region is based on a structured, three-tiered spatial distribution model, which categorizes infrastructure allocation based on specific influence zones. This approach ensures an equitable distribution of facilities across the region, addressing accessibility, functionality, and the diverse needs of residents and workers. Each influence zone is further segmented

into numerous activity nodes to accommodate urban activities, social integration, institutional and workplace functions, essential services, emergency and distributive services, recreational needs, sports, and community activities. The three tiers of spatial distribution are as follows:

1. 04 km Radius – Zonal Influence Zone

This tier focuses on broader planning at the zonal level. Social infrastructure components required at a comprehensive level, such as police and fire station, large healthcare facilities (multi-specialty hospitals), higher education institutions (universities and vocational training centres), and major recreational complexes (city-level parks or sports complexes), are strategically placed within this influence zone. These facilities serve the entire planning zone, acting as anchor points for social and institutional services.

2. 02 km Radius – Sectoral Influence Zone

This tier accommodates moderately distributive facilities such as secondary schools, community health centres, smaller parks, and libraries. Each sector within a zone is typically served by two to three such units to ensure accessibility and balance within the zone. These facilities function as intermediaries, bridging the gap between localized and zonal infrastructure needs.

3. 800 Meter Radius – Local Influence Zone

This tier focuses on the universal and immediate needs of residents, providing primary-level infrastructure within a walkable radius. These facilities include primary schools, anganwadis, dispensaries, small community halls, local parks, playgrounds, and retail shops. Designed for daily convenience, these units are distributed evenly to ensure that every resident of BIDA has access to essential services within proximity.

7.1 Education Infrastructure

The demand for various educational infrastructure to accommodate estimated population is mentioned below in the table. The calculations are based on the URDPFI Guidelines 2015.

Table 10 URDPFI Projections for Educational Infrastructure.

Category/ Facility	Required Units	Total Area Required (Ha)
Integrated School without hostel facility (Class I to XII)	18	63
College	15	75
University Campus	1	50
Engineering College	2	12
Medical College	2	30
Other Professional Colleges	2	8
Nursing & Paramedical Institute	2	0.4

However, considering the prospected scenario of BIDA area, the need for required facility units and the infrastructure may vary with the development growth of the industrial sector. Therefore, instead of allocating the development of these facilities at government end, these will be shared with private sectors where government sector will aim towards developing primary level facilities while private sector for secondary and tertiary level facility development.

A City level schooling system shall be developed by inviting premiere institutes like KVS, Jawahar Navodaya Vidyalaya etc. with the authority helping in provisions of infrastructure and the remaining infrastructure can be developed by the private sector. Thus, private sector will largely contribute towards development of sectoral and local level infrastructure.

7.2 Healthcare Infrastructure

Currently, BIDA region has limited healthcare infrastructure which primarily consists of Sub-health centres established by the government. As per the estimated population, BIDA region is required to develop following facilities:

Table 11 URDPFI Projections for Healthcare Infrastructure.

Category/ Facility	Required Units	Total Area Required (Ha)
Diagnostic Centre	37	2.96
Dispensary	123	14.76
Intermediate Hospital (Category B- 80 Bed)	1	1
Intermediate Hospital (Category A- 200 Bed)	1	3.6
Multi-speciality Hospital (MSH-200 Bed)	1	9

Similarly to the educational facilities, primary healthcare facilities will be developed by the BIDA at zonal and regional level. However, to meet the demands of BIDA, secondary and tertiary level infrastructure will be developed by the private sector.

7.3 Socio-cultural Amenities

Computing with the URDPFI Guidelines, it is evident that BIDA region has significantly underdeveloped socio-cultural amenities at present as the region only exhibits unorganized and rural socio-cultural fabric.

Table 12 URDPFI Projections for Socio-cultural Amenities.

Category/ Facility	Required Units	Total Area Required (Ha)
Religious facilities at sub-city level	2	8
Adult Education Centre	2	0.2
Socio-cultural Centre	2	30
Science Centre	2	20*
International Convention Centre	1	20*

*Area requirement for Science Centre and International Convention Centre has been referenced with the standards in practice.

7.4 Other Public & Semi-Public Facilities

Baseline assessment of the region exhibits a weak structure for public and semi-public facilities. To accommodate the estimated population, the BIDA region is necessitated to develop following essential facilities to meet community needs.

Table 13 URDPFI Projections for Public and Semi-Public Facilities.

Category/ Facility	Required Units	Total Area Required (Ha)
Police Station	20	30
Police Line	1	6
Civil Defence and Home Guard Office	2	4
Fire Station	9	9
Disaster Management Centre	1	1
Fire training Institute/ College	1	3

7.5 Recreational Facilities

BIDA being a greenfield area illustrates undeveloped infrastructural status throughout the region. Presently, recreational facilities are not developed in an organized manner. However, to fulfil the forthcoming demands, there is need to develop following facilities:

Table 14 Proposed recreational facilities.

Category/ Facility	Required Units	Total Area Required (Ha)
Organized Green: Community Park	18	90
Organized Green: District Park	4	100
Organized Green: Sub-city Park	2	200
Multi-purpose Ground at Sub-city Level	2	16
Multi-purpose Ground at Community Level	4	16
Multi-purpose Ground at District Level	18	36
Sports Centre	18	144
Divisional Sports Centre	2	40

Well organized and sub-city parks are provisioned to promote greenery in the BIDA. A zoo has been proposed for the preservation of wildlife and eco-sensitivity in Phase-II. Multipurpose grounds at community and sub-city level are provisioned to promote local trade, art, sports and crafts. Additionally, a multi-sport Sports Stadium has proposed at the regional level.

To promote sustainable and green infrastructure in BIDA area, a trunk cycling network has been proposed throughout the region. The provision of the trunk cycling network aims to promote sustainability and green infrastructure by encouraging low-carbon mobility, reducing vehicle dependence, and fostering healthier lifestyles. This network will serve as the backbone for non-motorized transportation, integrating industrial, residential, and commercial zones while connecting green spaces and ecological corridors.

Design will be with eco-friendly features such as permeable paving, shaded avenues with native vegetation, and solar-powered lighting, the network will enhance environmental resilience. Dedicated cycling corridors and end of trip facilities, including parking and repair stations, will ensure safety and convenience for users. By embedding sustainability into urban mobility, the cycling network will contribute to a greener, healthier, and more inclusive industrial city.

The city-level social infrastructure in BIDA is designed to foster holistic urban development by integrating diverse facilities catering to education, healthcare, recreation, and governance. Key proposals include a Skill Development Centre, University, Science Centre, and Disaster Management Centre to enhance learning and resilience. Healthcare needs will be addressed through a Multi-Speciality Hospital, while recreational and cultural amenities like a Golf Course, Convention Centre, Zoo, Socio-Cultural Centre, Religious Facilities and Multi-Sports Stadium will improve quality of life. Additionally, critical facilities such as a Fire Training Institute, police line, administrative offices, and city-level religious spaces will ensure safety, governance, and inclusivity, creating a well-rounded, vibrant urban environment.

08: Environmental Planning & Disaster Management

8.1 Strategic Environmental Action Plan

The potential environmental action plan of Bundelkhand Industrial City is to embrace intelligent urban planning that creates safe, affordable and resilient city with green and culturally inspiring living conditions. BIDA city shall be developed to cultivate a strong environment that addresses future requirements, promoting ecological sustainability and enhances community well-being. The environmental considerations in the planning include development of green areas, water management, air quality control, waste minimization and renewable energy sources. All these shall be carefully integrated to establish a resilient efficient and sustainable urban areas. The major targets of BIDA Development Vision 2045 to make sustainable city are given as under:

Table 15 Sustainable Targets for BIDA.

Affordable and Sustainable Transport System	• Provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport and also access within 10-minute walking for majority of users. • Green Eco-loop as city wide cycle network. • Integrating mass rapid transport, light rail transit, bus and Intermediate Public Transport (IPT) systems for end-to-end connectivity. • Promote usage of “smart card” for effective data collection.
Provide access to Safe and Inclusive Green and Public Spaces	• Promote a ‘Central Recreational District’. • Access to green space within 10-minute walking for majority of users. • Provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.

Reduce the Environmental Impacts on BIDA City	• Paying special attention towards air quality, municipal and other waste management. • Implementation of zero liquid discharge. • Solar roof top buildings • Blue Green Corridors and Ecological Zones • Use of sustainable building material during construction activities • Proper disposal of solid waste materials.
Sustainable Water Management	• Rainwater harvesting and recharge of groundwater. • Revival and rejuvenation of existing water bodies • Stormwater management • Reduction in water loss • Application of Smart Meter to record usage of water. • Reuse and Recycling

8.2 Disaster Management Plan (DMP)

Disaster can occur at any point of time. It is essential to consider the mitigation plan and protection for all the staff and the environment during occurrence of any disaster. Disasters are often classified as natural such as earthquakes, landslides, floods, heatwave, cyclone etc and man-made disasters such as fire breakouts, handling of hazardous chemicals, explosions, release of toxic gases etc.

The Disaster Management Plan (DMP) is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. The key objectives of Disaster Management are:

- Assess various hazards, risks, vulnerabilities, and capacities both during and after project development
- Promote risk reduction measures
- Strengthen governance like supervision and monitoring across all levels
- Implement rapid and effective disaster response and relief mechanisms in the site.

All social infrastructure such as government buildings, schools, colleges, university buildings, hospitals, and other buildings of community importance are proposed to be designed as emergency shelters.

For effective disaster management in the city, information should be widely circulated, and a personnel training is to be provided through rehearsals/drills. DMP for proposed BIDA Industrial City shall be formulated with an integrated approach to address all individual industrial units also. The specific industrial team where the emergency has arisen would oversee the situation while the other teams would assist them as and when required.

Every establishment shall develop their individual disaster management plans. At BIDA level, a dedicated Disaster Management Committee (DMC) will coordinate with individual units. DMC is proposed to have the following establishments in the site:

- Emergency Control Centre
- On Site Emergency Plan/Off Site Emergency Plan
- Early Warning System and Risk Communication
- Counting of Personnel
- Assembly Points
- Training Centre for mock drills, fire drills etc.
- Medical Aid
- Security and Siren
- Escape routes and Evacuation information

09: Zoning Regulations

Within the notified area, zoning is a crucial planning tool for organizing land uses, controlling densities, and managing growth. Development control and zoning work together to determine the amount of built-up space and developable land available in different use zones. The Master Plan displays industrial, residential, commercial, mixed-use, transportation, public and semi-public, green, and water bodies and uses. These primary categories of the city's land use plan cover the main activities of the city. The Land Use Plan does not show the ancillary activities that support the primary activities in order to generalize the land use zones.

9.1 Use Zones

1. Industrial
2. Residential
    - Residential
    - Village Abadi
3. Commercial
4. Mixed Use
5. Public and Semi Public
    - Institutional
    - Utilities
6. Green Areas
    - Recreational Green
    - Masterplan Green
    - Green Buffer
7. Transportation
    - Road and Rail
    - Terminal, ISBT and Depots
    - Logistics
8. Waterbodies

9.2 Sub-division of Use Zones and Subdivision Regulation

The purpose of use zone subdivision is to guide the development of layout plans for various land use zones that have been outlined in the Master Plan. These regulations help with the preparation of service plans that correspond to these layout plans for the provision of physical infrastructure such as water supply, sewage, drainage, solid waste management, power, etc, and shall conform to the prescribed norms framed by the Authority.

9.2.1 Residential Use Zones

This use zone shall be governed by the following provisions:

- This Use Zone will have plotted or flatted development or group housing or a mix of both as per the scheme by the Authority.
- Green and Open Spaces

- The minimum area requirement under parks, playgrounds and tot-lots shall be 15%.
- Area under green and open spaces of the scheme or sector shall be in addition to the area under Master Plan green areas.
- The minimum width of the green and open space shall be 7.5 mt. The green and open spaces can be varied shapes provided they full fill the recreational need of the community.

- Certain open spaces shall be designated as playgrounds while preparation the sector layout plan.
- Landscape plan shall be prepared and submitted in accordance with the provisions of building regulations.

- The provisions for rainwater harvesting shall be in accordance with the provisions of Building Regulations or as per policies of the State Government issued from time to time.
- The maximum area under commercial use shall be as per population norms
- The minimum area under facilities shall be as per population norms.
- Provision of Social and Physical Infrastructure

Roads

- Minimum Right of Way (RoW) of a vehicular road shall be 12 mt for plotted residential areas. However, in case where the road adjoins a park or any open space with building only one side, the minimum road width can be 9 m.
- For Group Housing development, the minimum Right of Way (RoW) of vehicular road shall be 24 mt.
- The roads shall have minimum width depending on the length of the road as follows:
  Up to 400.0 mt. - 12.0 mt.
  401-600 mt. - 18.0 mt.
  601-1000 mt. - 24.0 mt.
  Above 1000.0 mt.- 30.0 mt.
- The minimum width of Loop Street shall be 12 mt. and maximum length of 400 mt.
- Maximum length of a 12.0 m wide dead-end road shall be 100.0mt. The road shall be provided with a cul-de-sac of 7.5 mt. radius at the dead end. Roads of less than 25 mt. length, cul-de-sac will not be required.

9.2.2 Non-Residential Use Areas

The sub-division of these use zones shall be governed by the provisions stated below:

- These use zones will have plotted development or flatted development or both as per the scheme
- Green and Open Spaces
- 10% of the total area of non-residential sector/area shall be green.
- Area under green and open spaces of the scheme or sector shall be in addition to the area under Master Plan green areas.
- The landscape plan shall be prepared and submitted in accordance with the provisions of building regulations.
- The provisions for rainwater harvesting shall be in accordance with the provisions of Building Regulations or as per policies of state Government issued from time to time.

Roads

- The minimum area under roads shall be 10%
- The roads shall have minimum width depending on the length of the road as follows:
  - Up to 400.0 m. - 18.0 m
  - 401-1000.0 m. - 24.0 m
  - Above 1000.0 m. - 30.0 m.
- Minimum Right of Way (RoW) of a vehicular road shall be 24 mt for mixed use and non-residential areas.

9.3 Permitted and Permissible Uses

The different activities/utilities to be provided or planned in the proposed main land-use categories are as under:

a. **Permissible Uses (P):** These activities/utilities which are ancillary to the main land-use and are planned and permitted.
b. **Permissible uses post approval / Conditional Uses (A):** These activities which are planned and permitted under the required terms and conditions in connections with the main land-use based on their specific requirements. These activities will be permitted after approval of the concerned Authority Authority keeping in view the infrastructure and its environmental impact on the surrounding area etc.
c. **Prohibited Activities:** These activities will generally not be permitted in the concerned land-use.

S.No.	Activity	Industrial	Residential	Commercial	Mixed use	PSP	Green Area	Transport
1.	Auditorium/ Open Air Theatre	A	P	P	P	P	P	
2.	Bank	A	P	P	P	P		
3.	Bird Sanctuary						P	
4.	Botanical Garden						P	
5.	Bus Depot and Workshop	A	P	P	P			P
6.	Bus Terminal	A		P	P			P
7.	Cargo & Booking Office	A		P	P			P
8.	Children Park		P		A	A	P	
9.	Cinema/ Multiplex		P	P	P			
10.	Clinic	A	P	P	P			
11.	Laboratory			P	P			
12.	Cold Storage	A	A	P	P			P
13.	College/ Institutes		A	A	P	P		
14.	Commercial & Secretarial	A	A	P	P			
15.	Training Centre	A		P	P	P		
16.	Commercial Office	A		P	P			
17.	Community Hall		P					
18.	Conference Hall	A		P	P	A		
19.	Convenient Shopping		P	P	P			
20.	Creche And Day Care Centre		P	P	P	P		

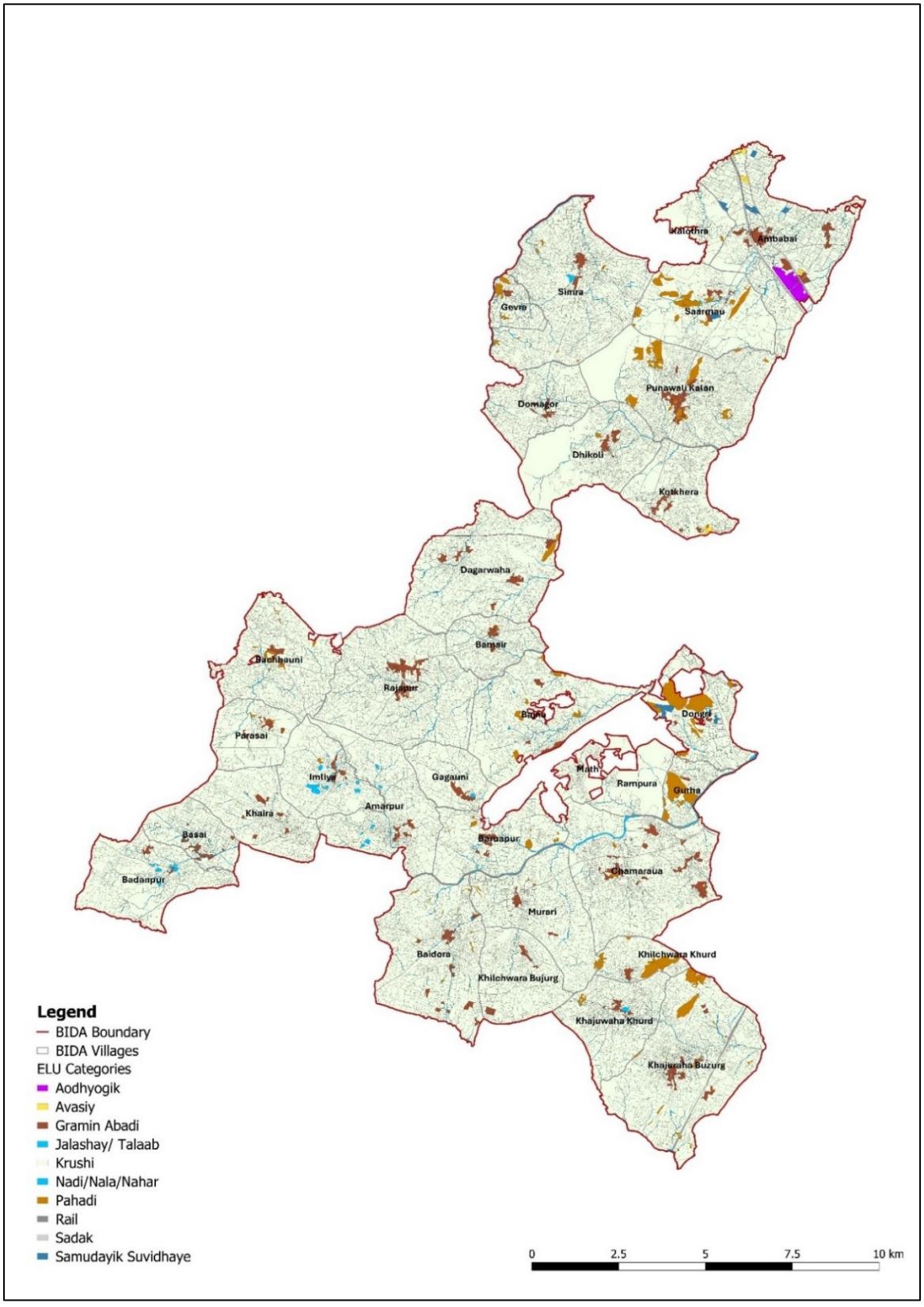
S.No.	Activity	Industrial	Residential	Commercial	Mixed use	PSP	Green Area	Transport
21.	Cultural And Information Centre		P	P	P	P		
22.	Data Centre	P						P
23.	Dharamshala		P		P			
24.	Dairy Farm	A					A	
25.	Dispensary	A	P		P			
26.	District Park						P	
27.	Drive In Cinema		P	P	P	P		
28.	Exhibition Centre & Art gallery/ pavilions			P	P	P		
29.	Fair Ground					P	P	
30.	Public Meeting Ground		P				P	
31.	Farmhouse						P	
32.	Fire Post	P	P	P	P	P	P	P
33.	Fire Station	P	P	P	P	P	P	P
34.	Flatted Group Industry	P		A	A			
35.	Flying Club			P	P			
36.	Forensic Science Lab			P				
37.	Forest						P	
38.	Gas Godown	P		P				P
39.	Guest House	A	P	P	P	A	A	
40.	Gym/spa		P	P	P			
41.	Health Club		P	P	P	A		
42.	Resorts		A	P			A	
43.	Hospital	A	P	P	P	P		
44.	Hostel	A	P	P	P	P		
45.	Hotel		A	P	P			
46.	Indoor Games Hall			P	P	P	A	
47.	Indoor Games Stadium			P	P	P	A	
48.	Motor Garage/ Repair	P	P	P	P			P
49.	Milk Chilling Center	P						

S.No.	Activity	Industrial	Residential	Commercial	Mixed use	PSP	Green Area	Transport
50.	Museum		A	P	P	P	A	
51.	Night Shelter	A	P	P	P	P	A	
52.	Nursing Home	A	P	P	P	P		
53.	Outdoor Stadium					P	P	
54.	Police Post	P	P	P	P	P	P	P
55.	Police Station	P	P	P	P	P	P	P
56.	Post Office	P	P	P	P	P	P	P
57.	Primary School		P			P		
58.	Public Utility	P		P		P		
59.	Petrol Pump	P	P	P	P	P		P
60.	Restaurant		P	P	P			
61.	Retail Shop		P	P	P			
62.	RTO					P		
63.	Secondary School		P	P	P	P		
64.	Senior Secondary School		P	P	P	P		
65.	Shooting Range						P	
66.	Shopping mall			P	P			
67.	Showroom			P	P			
68.	Swimming Pool		P		P		A	
69.	Taxi Stand	P	P	P	P	P		P
70.	Training Institute	A			P	P		
71.	Warehouse	P						P
72.	University					P		
73.	Weekly Market		P				P	
74.	Wholesale Market			P	P			
75.	Zoo					P	P	

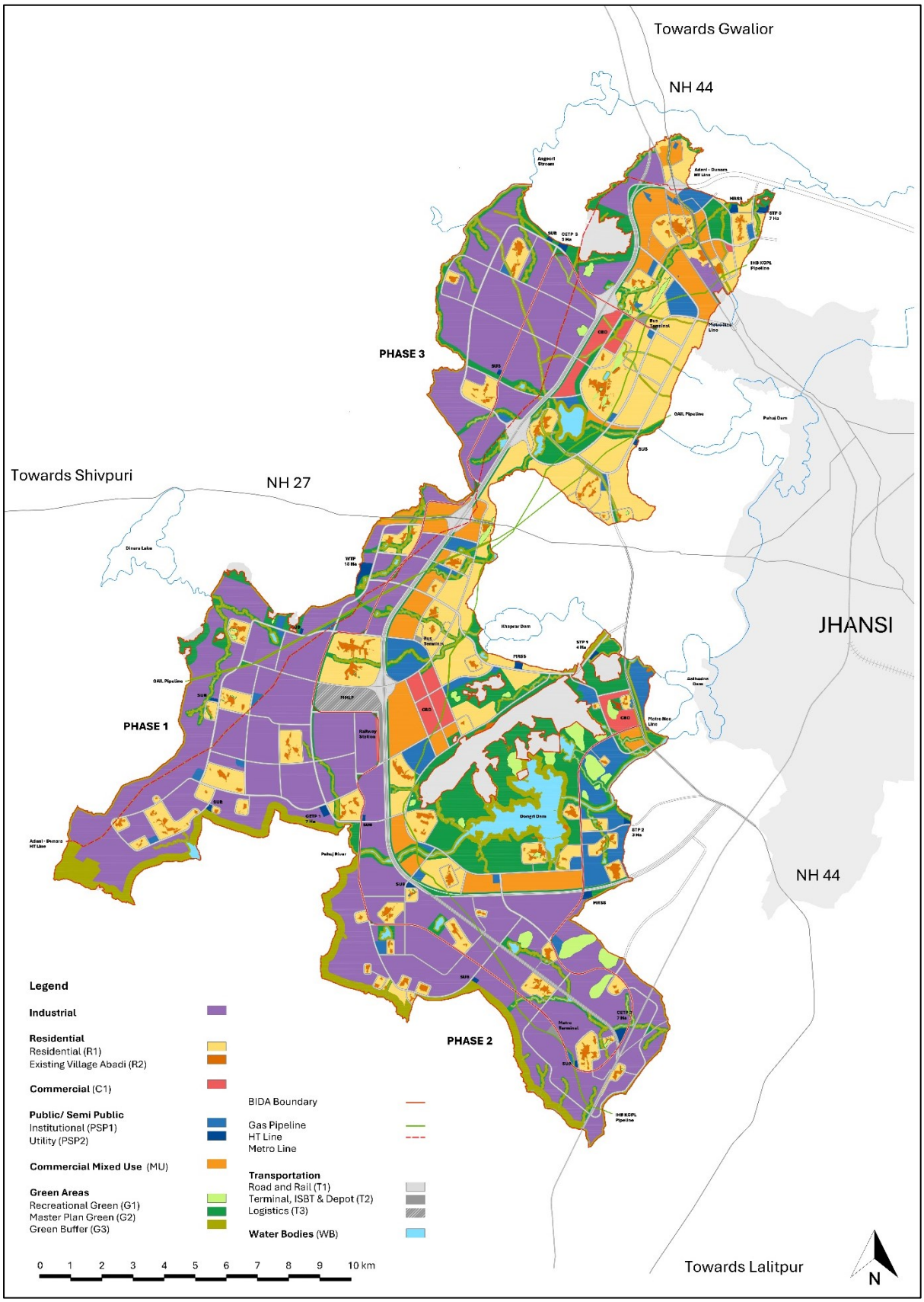
P = Permitted, A = Permissible post approval

Annexures

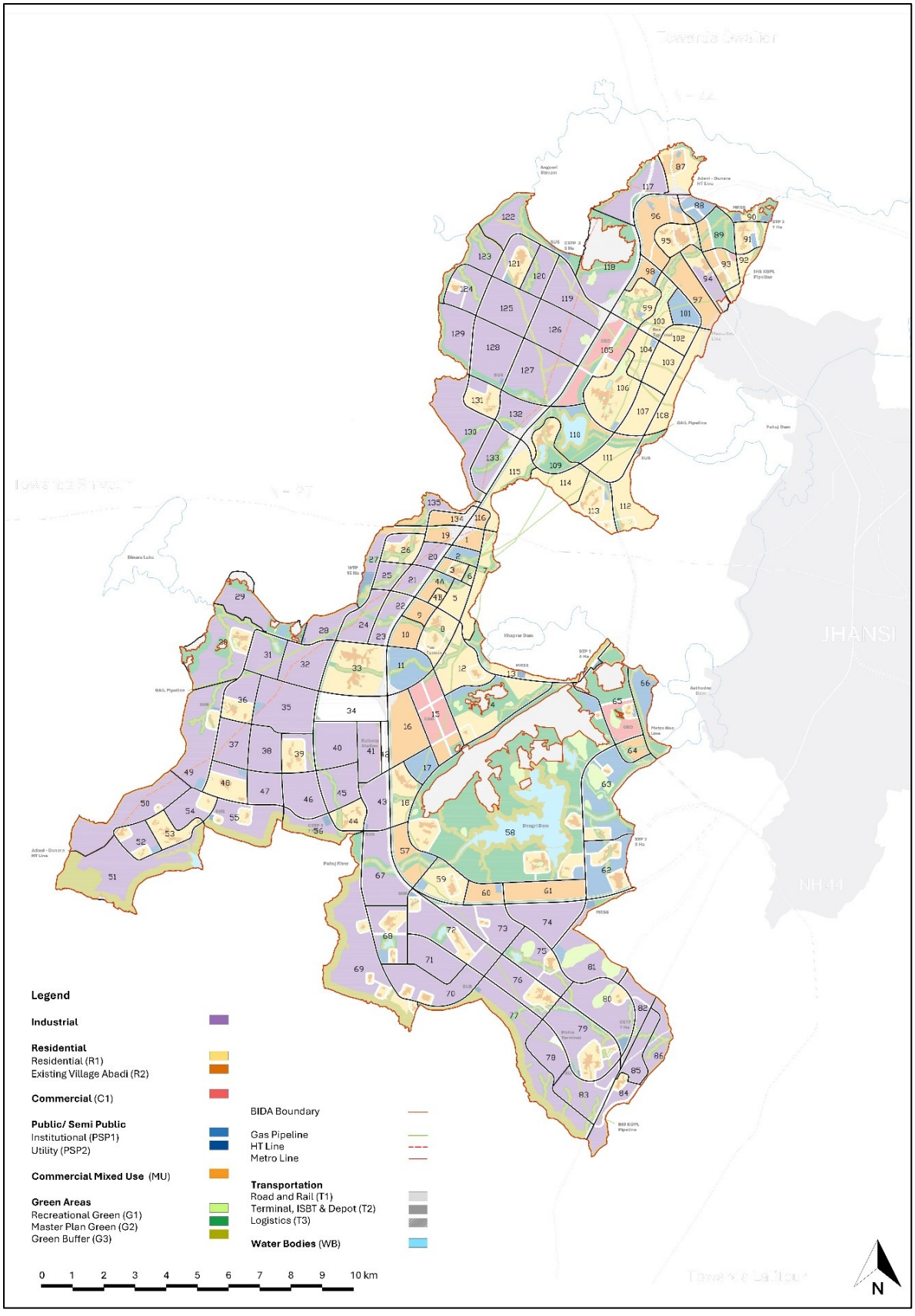
Annexure 01 – Existing land use map of BIDA, 2024.



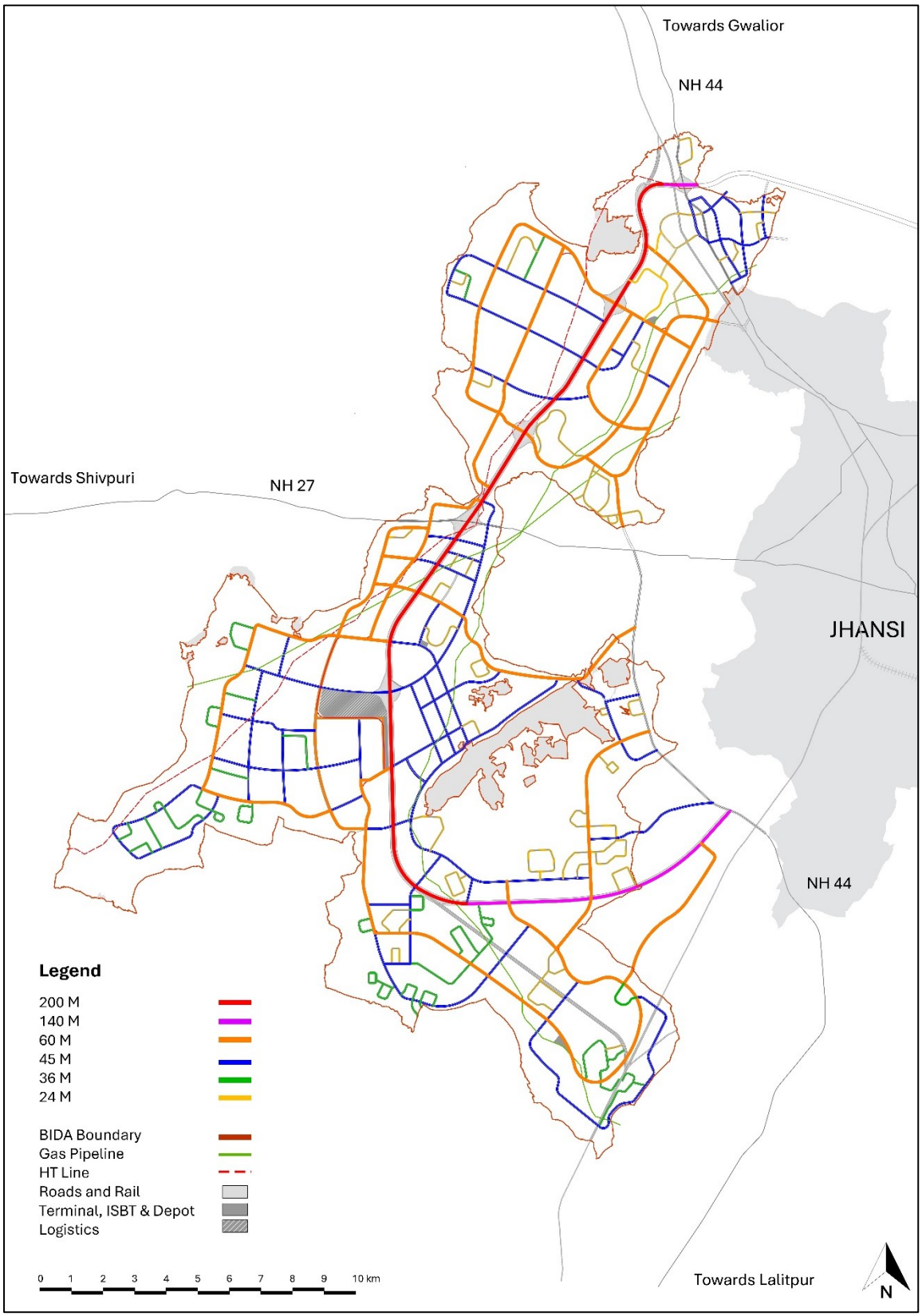
Annexure 02 – Proposed land use map for BIDA



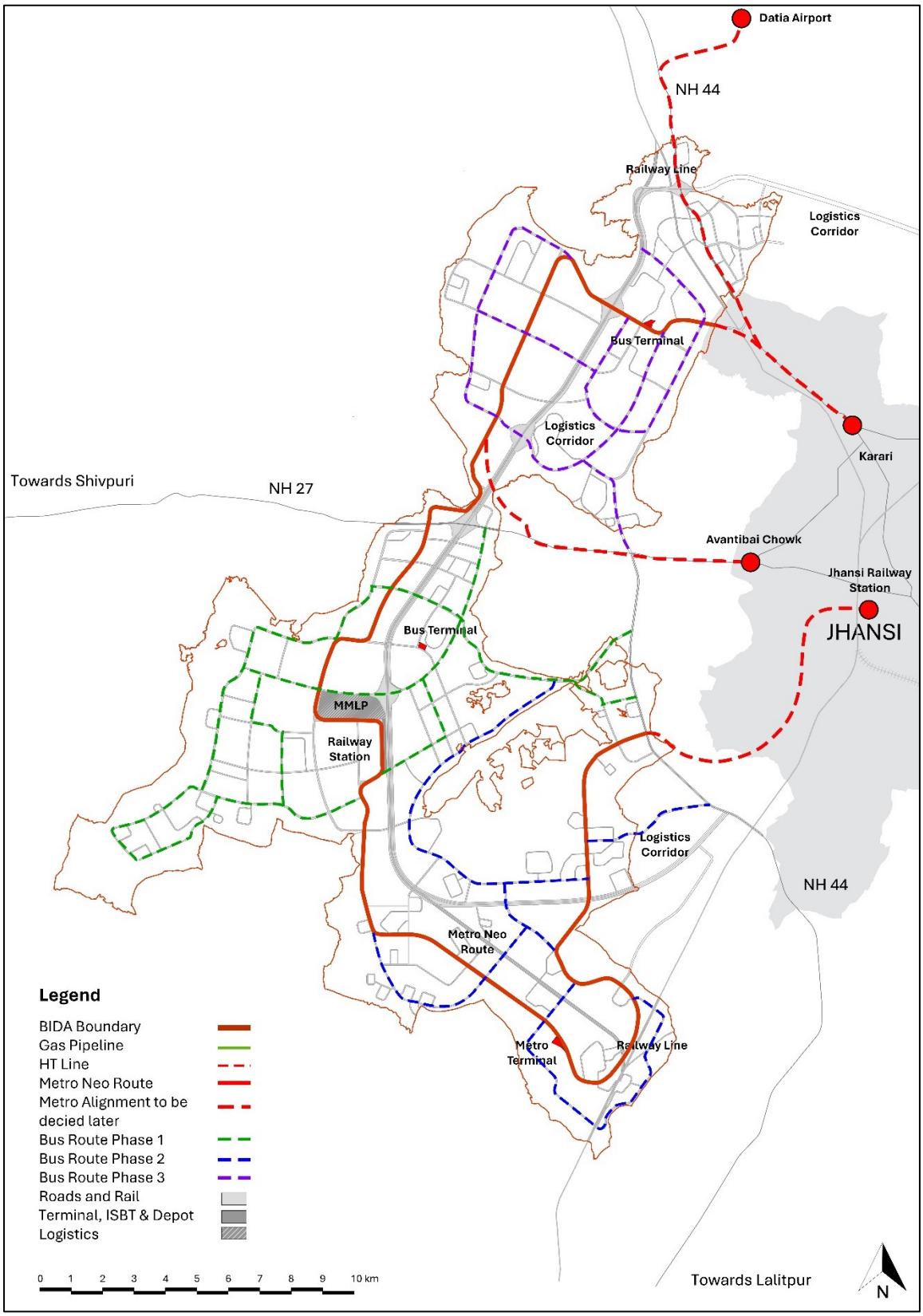
Annexure 03 – Envisaged Sectors for BIDA



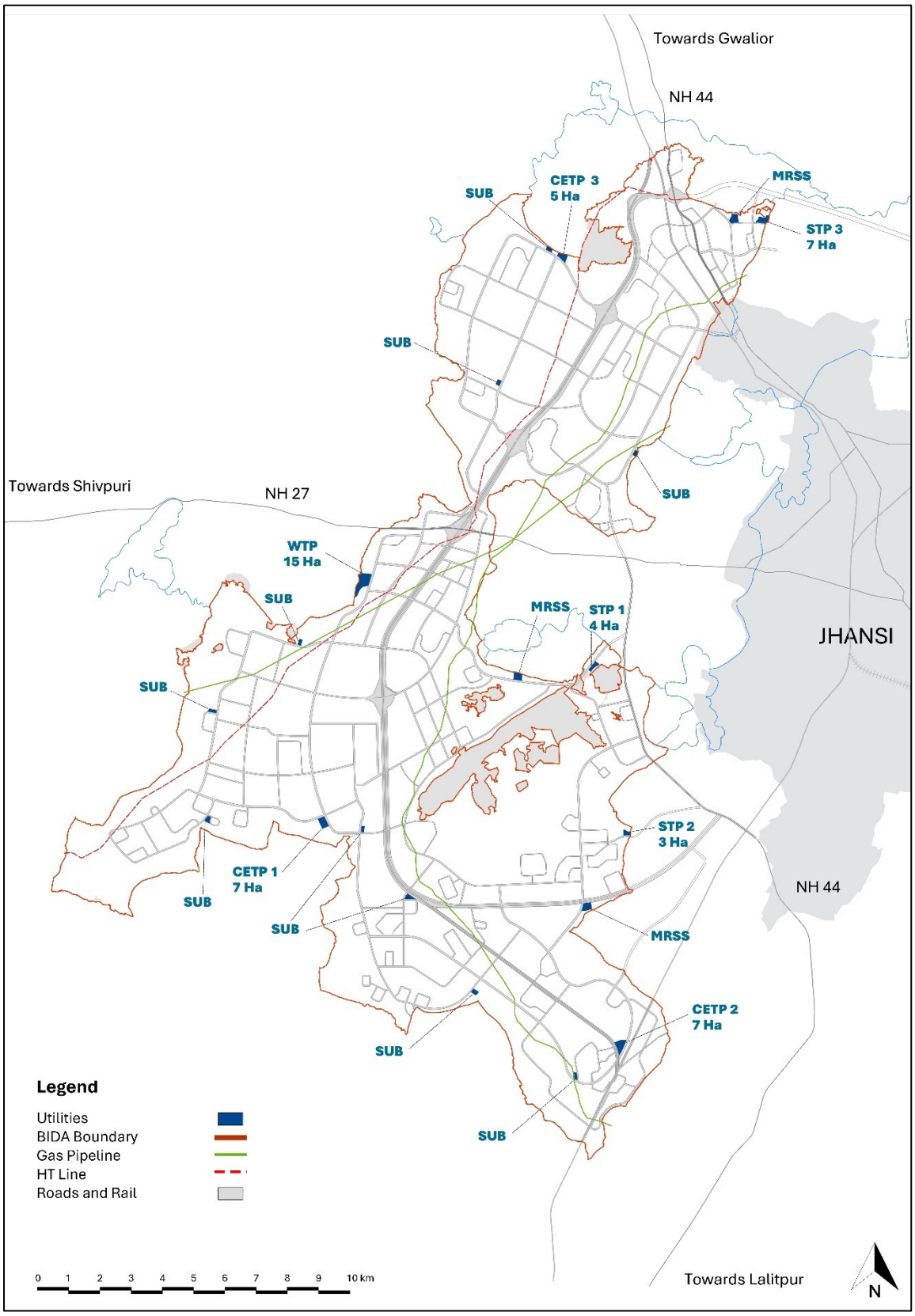
Annexure 04 – Proposed Road hierarchy for BIDA



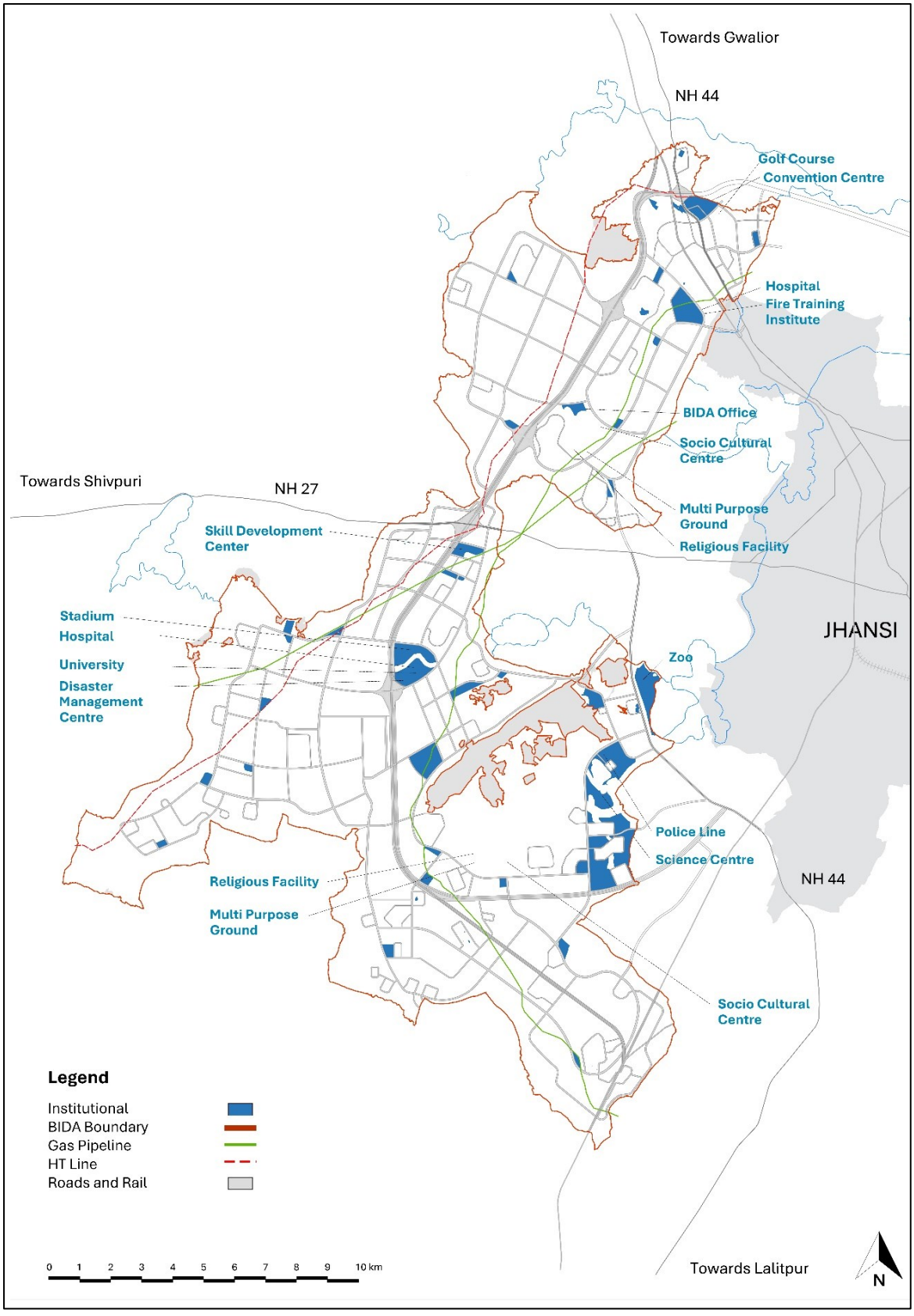
Annexure 05 – Proposed public transport for BIDA



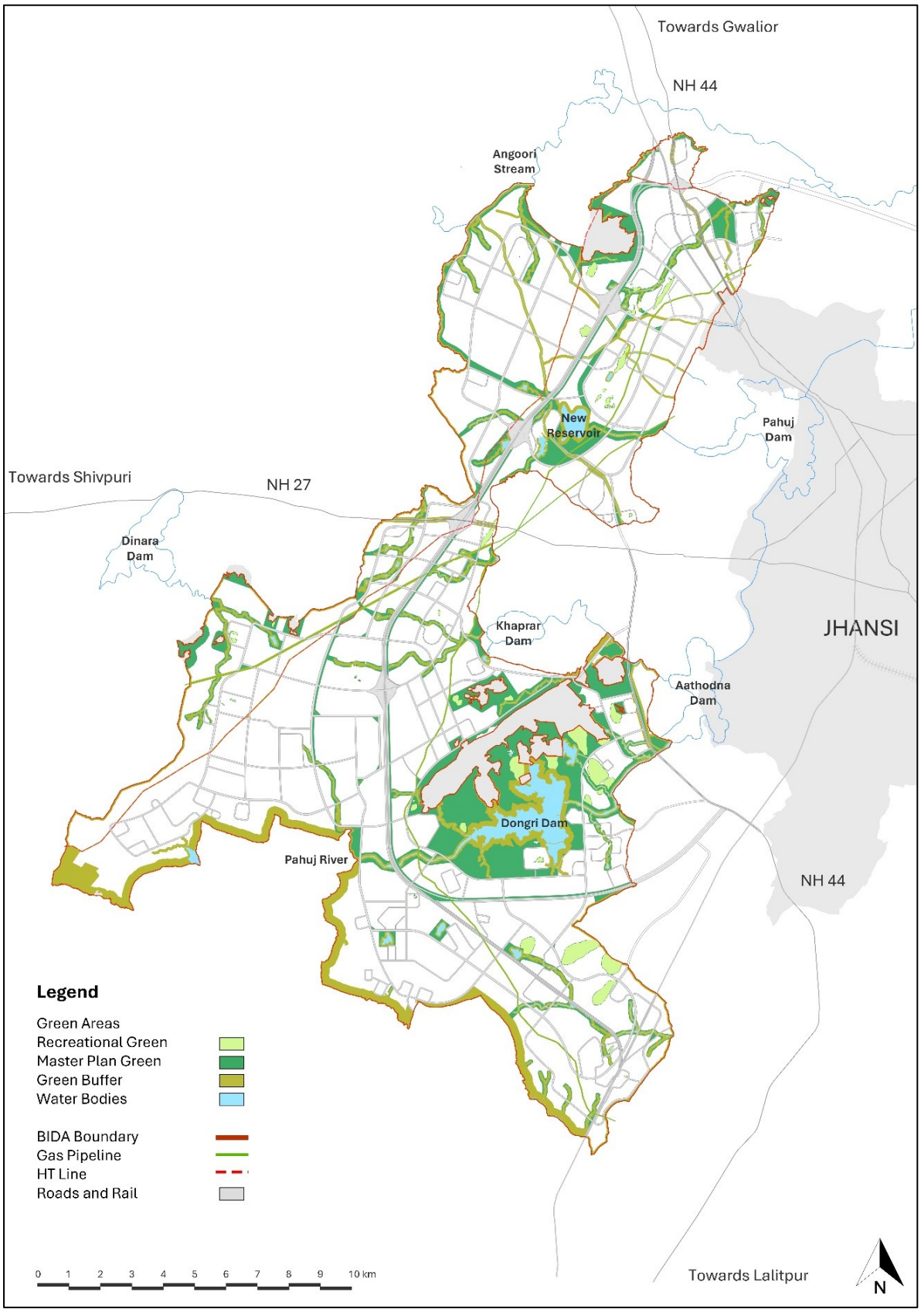
Annexure 06 – Proposed utilities for BIDA



Annexure 07 – Proposed city level social infrastructure for BIDA



Annexure 08 – Proposed green systems for BIDA



SAUMY MISHRA

Digitally signed by SAUMY MISHRA
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Date: 2025.04.09 19:29:25 +05'30'