



गोरखपुर औद्योगिक विकास प्राधिकरण, सेक्टर-7, गीडा, गोरखपुर

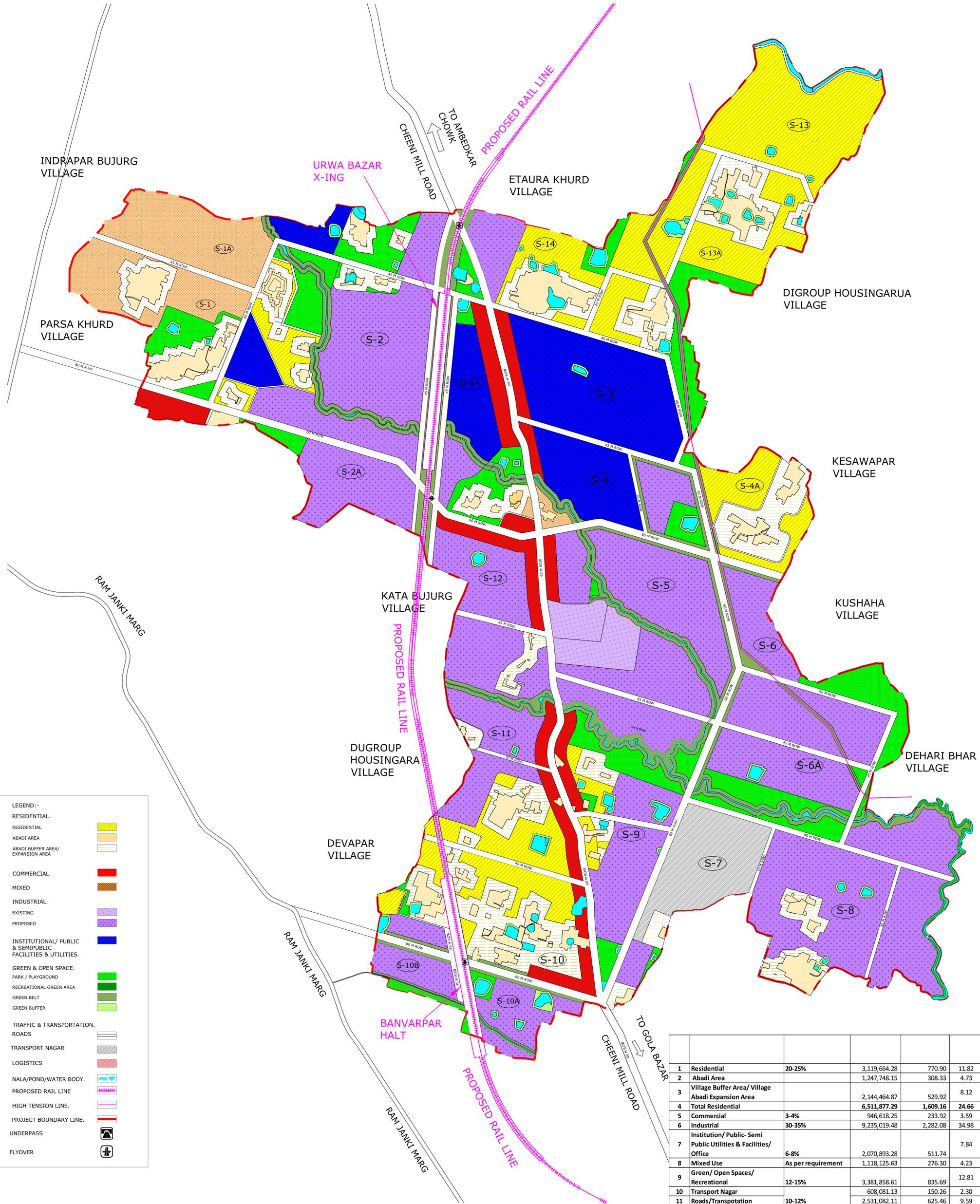
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सार्वजनिक सूचना

सर्वसाधारण को एतद्द्वारा सूचित किया जाता है कि गोरखपुर औद्योगिक विकास प्राधिकरण (गीडा) के धुरियापार, तहसील-गोला, जिला-गोरखपुर क्षेत्र के अन्तर्गत आने वाले 18 ग्रामों को औद्योगिक विकास के दृष्टिगत सुनियोजित विकास करने के लिए ड्राफ्ट मास्टर प्लान तैयार किया गया है। जिसकी एक प्रति कार्यालय गोरखपुर औद्योगिक विकास प्राधिकरण (गीडा), सेक्टर-7 गीडा, गोरखपुर-273212 में दिनांक 27.06.2024 से 12.07.2024 के बीच सभी कार्यालय दिवसों में प्रातः 9:30 से सायं 6:00 बजे तक एवं गीडा वेबसाइट www.gidagkp.in पर निरीक्षण हेतु उपलब्ध रहेगा। यह मसौदा योजना के सम्बन्ध में आपत्ति/सुझाव आमंत्रित किया जा रहा है। आपत्ति/सुझाव को कार्यालय मुख्य कार्यपालक अधिकारी, गोरखपुर औद्योगिक विकास प्राधिकरण (गीडा), सेक्टर-7 गीडा, गोरखपुर-273212 में एवं गीडा के ई-मेल ceogida-up@up.gov.in/ceogida@rediffmail.com पर एवं कार्यालय में लिखित रूप में दिया जा सकता है। आपत्ति/सुझाव देने वाले व्यक्ति को अपना नाम और पता एवं पूर्ण विवरण भी देना होगा।

मुख्य कार्यपालक अधिकारी, (गीडा), गोरखपुर

GIS BASED MASTER PLAN FOR DEVELOPMENT OF INDUSTRIAL CORRIDOR AT DHURIYAPAR



LEGEND:-

RESIDENTIAL	
RESIDENTIAL ABADI AREA	
ABADI BUFFER AREA/ EXPANSION AREA	
COMMERCIAL	
MIXED	
INDUSTRIAL	
EXISTING	
PROPOSED	
INSTITUTIONAL/ PUBLIC & SEMIPUBLIC FACILITIES & UTILITIES.	
GREEN & OPEN SPACE.	
PARK / PLAYGROUND	
RECREATIONAL GREEN AREA	
GREEN BELT	
GREEN BUFFER	
TRAFFIC & TRANSPORTATION. ROADS	
TRANSPORT NAGAR	
LOGISTICS	
NALA/POND/WATER BODY.	
PROPOSED RAIL LINE	
HIGH TENSION LINE.	
PROJECT BOUNDARY LINE.	
UNDERPASS	
FLYOVER	

S.No	Category	Percentage	Area (sq. m)	Area (ha)	Area (ac)
1	Residential	20-25%	3,119,664.28	770.90	11.82
2	Abadi Area		1,247,748.15	308.33	4.73
3	Village Buffer Area/ Village Abadi Expansion Area		2,144,464.87	529.92	8.12
4	Total Residential		6,511,877.29	1,609.16	24.66
5	Commercial	3-4%	946,618.25	233.92	3.59
6	Industrial	30-35%	9,235,019.48	2,282.08	34.98
7	Institution/ Public- Semi Public Utilities & Facilities/ Office	6-8%	2,070,893.28	511.74	7.84
8	Mixed Use	As per requirement	1,118,125.63	276.30	4.23
9	Green/ Open Spaces/ Recreational	12-15%	3,381,858.61	835.69	12.81
10	Transport Nagar		608,081.13	150.26	2.30
11	Roads/Transportation	10-12%	2,531,082.11	625.46	9.59
	Total		26,403,555.77	6,524.61	100.00

PROJECT GIS BASED MASTER PLAN FOR DEVELOPMENT OF INDUSTRIAL CORRIDOR AT DHURIYAPAR	DRAWING TITLE MASTER PLAN	CLIENT GORAKHPUR INDUSTRIAL DEVELOPMENT AUTHORITY	CONSULTANT: RUDRABHISHEK ENTERPRISES LTD. A-6, SECTOR- 58, NOIDA - 201303, U.P. PH 0120-4022333 FAX 0120-4022301	SCALE 1:10,000	
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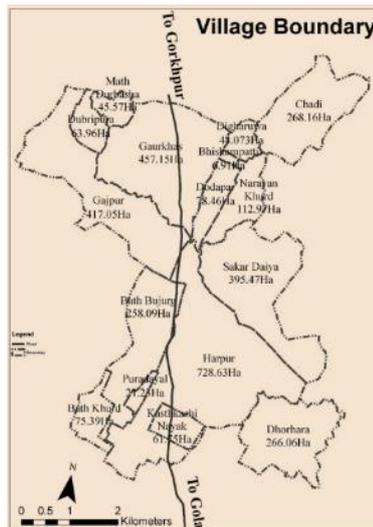


MASTER PLAN REPORT (FINAL DRAFT)

GIS Based Master Plan & Sectoral Plan for Development of Industrial Corridor
Dhuriyapar at GIDA



Gorakhpur Industrial Development Authority



JULY 11, 2024

RUDRABHISHEK ENTERPRISES LTD.

A-6,Sec-58, Noida, U.P-201301

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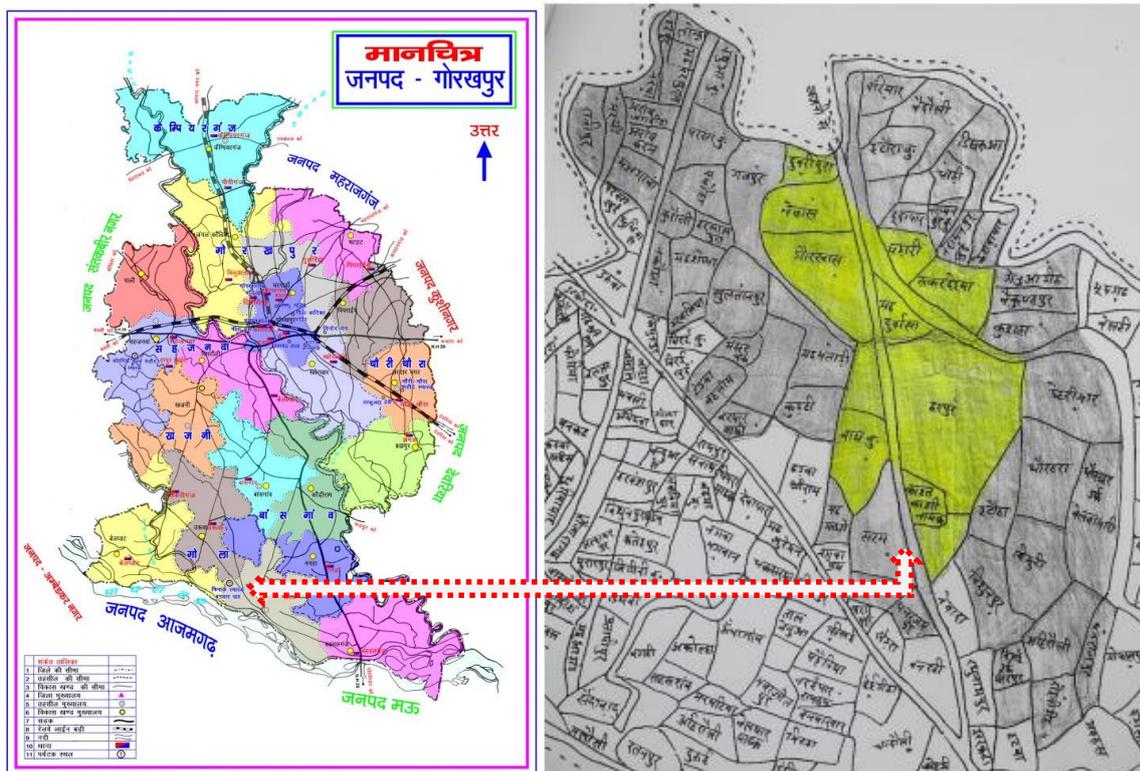
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1 THE PROJECT AND ITS COMPONENTS

1.1 THE ASSIGNMENT

Gorakhpur city spread across 144 sq km, is situated on the banks of River Rapti in north-eastern part of Uttar Pradesh. It is the administrative headquarters of Gorakhpur District and Gorakhpur Division and is divided into 70 wards for which elections are held every 5 years. The population of Gorakhpur city is 6.73 lakh comprising of 353,907 males and 319,539 females as per Census 2011. The Gorakhpur Industrial Development Authority (GIDA) has been formulated under the Uttar Pradesh Industrial Area Development Act, 1976 with an objective to support the planned development of the industrial area falling under the jurisdiction of GIDA in Gorakhpur. It provides services with regard to land allotment for various uses such as residential, commercial, transport, housing and industrial, provision of basic amenities and infrastructure for sites, regulate the construction of buildings and industries and so on. The GIDA intends to appoint consultants for providing consultancy services for preparing GIS based Master Plan & sectoral plan for development of industrial corridor Dhuriyapar. The project site spanning over 5500 Acres (2300 Ha approx.) is located at, GIDA, Gorakhpur, (U.P). Layout of the proposed is presented in the image below:

Figure 1-1 District Map and Layout of the proposed site



Source: RFP document for "Preparation of GIS based Master Plan & sectoral plan for development of industrial corridor Dhuriyapar of 5500 acres (approx.)" area.

1.2 SCOPE OF WORK

The scope of work is "Preparation of GIS based Master Plan with suitable zoning and sectoral plan over 5500 acres" for the purpose of firming up the GIDA's requirements in respect of development of the proposed industrial corridor at Dhuriyapar Gorakhpur.

1.2.1 Key Activities

The Key activities envisaged for the preparation of Master Plan is as follows:

- Collection and review of available data
- Site analysis
- Boundary survey
- Market study and demand assessment
- Planning the development needs
- Preparation of GIS based Master Plan with suitable zoning
- Study of Internal & External Infrastructure (Roads, Water, Sewerage, Storm Water, Power, Solid Waste Management)
- Development of sectoral plans & project structuring
- Initial environmental and social impact assessment
- Project Implementation Plan

1.2.2 Detailed scope of work

A. Collection and review of available data

On award of work, consultant will collect the available data from GIDA/parastatal agencies and from other sources relevant to the project. The consultant will also identify the additional data and collect the same from the concerned authorities.

B. Site analysis

The consultant will carry out an analysis of the proposed site and its surroundings. The site analysis shall include

- Location study
- Hinterland connectivity (Road, Rail, Port and Airport)
- Condition of existing roads and traffic pattern
- Socio-economic profile
- Available social infrastructure
- Existing and proposed developments in the region
- Land use pattern, Catchment study
- Existing visible utilities
- Details of nearby water sources, power and status of availability for the project
- Identification of environmentally/ecologically sensitive areas

The above information shall be supported with the data reference and maps of relevant scale (wherever applicable).

C. Market Study and Demand Assessment

The Consultant will review the findings of the perspective plan and information related to economic sectors and industry types to carry out a focused market survey and demand assessment specific to the proposed Industrial Corridor for the next 25 years. The tasks expected to be carried out as part of the study include

I. Market Study

- A macroeconomic review of the region to assess regional and locational strengths and constraints and analysing the investment climate with respect to existing resources and potential sectors that would influence the successful development of the proposed project;
- Competitor analysis for similar developments in the project area and sub-region and Demand Assessment to analyse future development prospects, identify target sectors/markets based on the competitive and comparative advantage to enhance the pace of economic development, and ensure balanced development.
- This detailed overview includes the details of existing clusters, classification of existing heavy engineering industry, backward linkages for raw material and technology, forward linkages (markets and marketing channels), share in national production/ exports, segment wise number of units, turnover, exports, employment, etc.

- Developing the estimate for the likely space demand from the identified target industries for space within the project.
- Special infrastructure requirements to market the project to targeted companies. Identify services that could help the project, such as retail, community level facilities and so on, or that could exploit location-specific resources;
- An analysis of the regulatory and policy scenario and institutional mechanism along with the incentives offered by the Central/State Government. In addition, the consultant will identify policy incentives available as per Central and State Government policies for applicable industries to promote industrialization (sector specific policies/support programmes, support under a policy for MSME or pro industries etc.)
- Inventory of existing, on-going and proposed land use, industry and infrastructure development initiatives in the vicinity of the proposed project area;
- Development of a product mix to be used as a basis for master planning of the project which will include among other things, a list of industries and activities with land requirements, estimate of land and building area for commercial, retail, institutional and supporting amenity developments along with an estimate of housing demand by housing type, with number of resident population, and employment estimates.
- Study of Economic and Investments Scenario in Uttar Pradesh including the trends in economy, investment attractiveness, comparison with other states and regions, leading destinations of investments, attractiveness of proposed hub from the view of foreign investor etc., shall be studied.
- Study the upcoming and proposed major infrastructure developments in the hinterland.
- Carry out SWOT analysis
- Carry out one to one interaction with segment wise key players to elicit their expansion plans and their requirements.
- Organize stakeholder consultations and extract the view of the prospective tenants into the proposed industrial region.

II. Benchmarking with other industrial corridor plans.

Consultant will examine similar hubs/estates being planned elsewhere and benchmark the proposed industrial region in terms of

- Land usage mix with the area under commercial, residential, recreational, public and semi-public amenities
- Support infrastructure such as truck terminals, warehouses, service units, parking, testing labs, training and research centers etc.
- Business facilities such as convention centre, conference halls, exhibition centers.
- Social infrastructure such as medical facilities, community centers, post office, banks, educational institutions etc.

III. Demand Assessment

The Demand for the proposed industrial corridor shall be assessed taking into account the trends in industrial growth, macro-economic and demographic indicators and the location's potential to attract end users. The assessment shall include demand projections for each of the development components over the project period. The phasing of the development would be based on the demand potential identified.

- Target groups perceptions & requirements
 - ❖ Perception about the location
 - ❖ Relocation/Expansion/Investment plans
 - ❖ Preferred space profile sale/lease terms and utility pricing policies
 - ❖ Regulatory framework and Government support requirement related inputs.
- Choosing appropriate activities/products

The consultant will adopt the following approach in selecting the products/activities after successive rounds of elimination:

- ❖ List all major products and activities that may possibly be considered based on market studies and value addition/economic impact criteria.
- ❖ Determine sectors where the proposed location/region exhibit competitive strengths-skilled human resource, resource base, cost advantage and large domestic markets.
- ❖ Understand global trends in various sectors especially-outsourcing and contract manufacturing.
- ❖ Determine the broad domestic and international market potential of the selected activities and shortlist those worth considering.
- ❖ Identify constraints in entering select sectors based on user perception/ attitudes; infrastructure and government policy dictate.
- ❖ Finalize on industries within each sector in which the local area holds clear advantage-like local skill availability, market access, raw material availability, external infrastructure quality and linkages, foreign FDI interests etc.
- Based on market studies, the consultant shall prepare an implementable marketing strategy

D. Infrastructure Demand

Based on the product mix and the industrial/social facilities defined in the demand assessment, the consultant will quantify the following infrastructure requirements for proposed industrial region

- Road network along with capacities by assessing the traffic expected from the proposed facilities.
- Estimate the water demand for Industrial and domestic demand based on the defined product mix. Identify the potential water resources and assess its capacity to meet the required demand.
- Estimate the wastewater generation from the proposed facilities. Identify the treatment requirements and plan for reuse/safe disposal
- Estimate the runoff and prepare the storm water management plan for the proposed site.
- Estimate the waste generation form the proposed site and land requirement for establishing treatment unit.
- Estimate the power demand for the Industrial, commercial, social and other supporting infrastructure facilities. Identify nearest source for drawing the power.

E. GIS Based Master Plan

The preparation of a Detailed GIS based Master Plan with suitable zoning will be preceded by the formulation key design and development principles for the Master Plan. Among other things these will include KPIs (Key Performance Indicators) for sustainable development. These principles and KPIs will also become the basis of evaluation for three master plan options to be developed and presented to the client for their consideration. Each of the concepts will at a minimum include the following:

- Overall illustrative master plan at a scale of 1:2500 illustrating general delineation of proposed land uses, building massing, vehicular and pedestrian circulation, open space relationships, and development character
- Circulation plan at the level of arterial, sub-arterial and collector street network, including site ingress/egress, vehicular circulation patterns, pedestrian circulation and vehicular parking
- Broad location, demand and plots identified for various infrastructure components including but not limited to water, sewerage, drainage, power, gas and telecommunication infrastructure
- Preliminary open space plan
- Land and building area statement with ground coverage, FSI, building mass and bulk metrics.
- In consultation with the client, carry out an assessment of the three-concept master plans using the KPIs and assessment criteria and provide recommendation on the preferred master plan.

- Draft master plan will be submitted to client for the review and modification if any.
- F. Develop the Client approved master plan option with the following:**
- Overall illustrative master plan at a scale of 1:2500 illustrating final delineation of proposed land uses, building massing, vehicular and pedestrian circulation, open space relationships, and development character
 - Circulation plan at the level of arterial, sub-arteria and collector street network, including site ingress/egress, vehicular circulation patterns, pedestrian circulation and vehicular parking
 - Firm location and plots identified for various infrastructure components including but not limited to water, sewerage, drainage, power, gas and telecommunication infrastructure.
 - Final open space plan and landscape development strategy.
 - Up to 5 final high-quality 3D aerial or eye-level renderings for design theme and character of the development.
 - Final land and building area statement with ground coverage, FSI, building mass and bulk metrics.

G. Detailing of the final Master plan will include the following:

Land use mix and land area allocation for various uses in a form of land use map with illustrative building footprints and tabulation of land areas.

- Identification of Right-of-Way for all major utility corridors, transportation networks etc.
 - Urban Design guidelines to supplement statutory development control regulations to bring about a cohesive development pattern and design element into the development.
 - Numbered plot plan with sizing for each developable parcel within the proposed development.
 - Schematic representation of key design features within the development like gateways, key nodes, junctions, plazas etc., as a guidance for development by the clients in the future.
 - Open space and landscape strategy with typical details for three typologies of landscape – maintained parks and gardens with hardscape, softscape and street/park furniture; basic ground covered landscape areas with shrubs and planting; natural areas with native vegetation and managed landscapes.
 - Prepare a 4-minute 3D aerial fly-through video (with background score and narration) of the Detailed Master Plan, highlighting the thematic elements, the quality of the built environment including scale and massing of the buildings, landscape in order to convey the economic context and business advantages of the proposed development.
- H. Study of External Infrastructure**
- Road Connectivity- Consultant will study the present condition of the access road leading to the project site. Traffic studies will be carried out to assess the existing traffic density. Generated traffic and induced traffic will be estimated and the condition of the existing access road will be provided along with suggestions for improvement.
 - Water- Based on the identified source of water, the consultant will design the facilities required for drawing the water from the source to the proposed facility.
 - Sewerage Network- Consultant will prepare sewerage network plan as per the estimated demand.
 - Storm Water Management- Consultant will prepare storm water management plan.
 - Power– Consultant will provide the details for drawing the power from the identified substation to the proposed facility.
- I. Preparation of Sectoral Plans**
- Identify the different sector which need to be plan in proposed site as per the bylaws.
 - Sector specific plan should be made along with complete details such as road network, water supply facilities, sewerage network etc.
- J. Project Structuring for Implementation the Project**

Different implementation options will be analysed based on the viability and sensitivity analysis. The following details will be captured under this section.

- Identify all income streams, financial structure the project and to work out the financial viability indicators of the project by considering different revenue models.
- Examine and establish the feasibility of financing the project on various modes with least support/no support from GIDA including the PPP mode.
- Examine and suggest suitable legal and institutional framework for the project development.
- The consultant shall examine the advantages and disadvantages of different modes/method by which the project could be implemented.
- Prepare the implementation strategy for the project where the details regarding responsibilities involved in the project development and operation stage identified and listed.

K. Initial Environment and Social Impact Assessment

Consultant will conduct initial Environment and Social Impact assessment studies. The assessment will flag the environment and social issues that are expected due to the proposed project. The consultant will also study the compatibility of the present project with respect to the EIA notification and suggest plan of action for undertaking environmental clearances.

The current report includes revision of tasks A – Collection and Review of Available Data, Task B - Site Assessment and Task C – Market Study and Demand Assessment.

2 AIM & OBJECTIVE

2.1 AIM & OBJECTIVE OF STUDY UNDERTAKEN

Aim of the Study - Review the findings of the perspective plan and information related to economic sectors and industry types to carry out a focused market survey and demand assessment specific to the proposed Industrial Corridor for the next 25 years.

Objective of the Study – On the basis of the data analysed and trends studied, estimate the demand for different land uses in the proposed Dhuriyapar Industrial Corridor, and propose a product mix, on the basis of which a Draft Master Plan can be prepared for discussion.

2.2 FACTORS IMPACTING GROWTH OF INDUSTRIES IN A REGION

The key factors that impact the growth of industries in a region are:

- Availability of Land for industrial development
- Availability of Raw materials
- Availability of Skilled man power and technology
- Availability of Consumer market
- Access to funding

All these 5 factors have a significant impact on the industrial growth rate. Un-availability of one can hamper the growth rate, by make industries economically unviable.

In our study we have assessed the Gorakhpur district, and the Dhuriyapar region marked for industrial development on these parameters, to estimate the demand and proposing a product mix.

Scope of Work for the Study

- Review of macroeconomic review of the region, with an assessment of Investment climate
- Competition assessment & existing industrial clusters
- Identifying target Industries, and their space requirements
- Broadly comment on Infrastructure requirement
- Analysis of regulatory and policy scenario
- Study existing, ongoing and proposed land use
- Develop a product mix inclusive of a list of industries that can come, land requirements for services, and other real estate asset classes.
- Interaction with key potential players and stakeholder survey
- Benchmarking with other Industrial corridors and do a gap analysis for the existing industrial areas in Gorakhpur

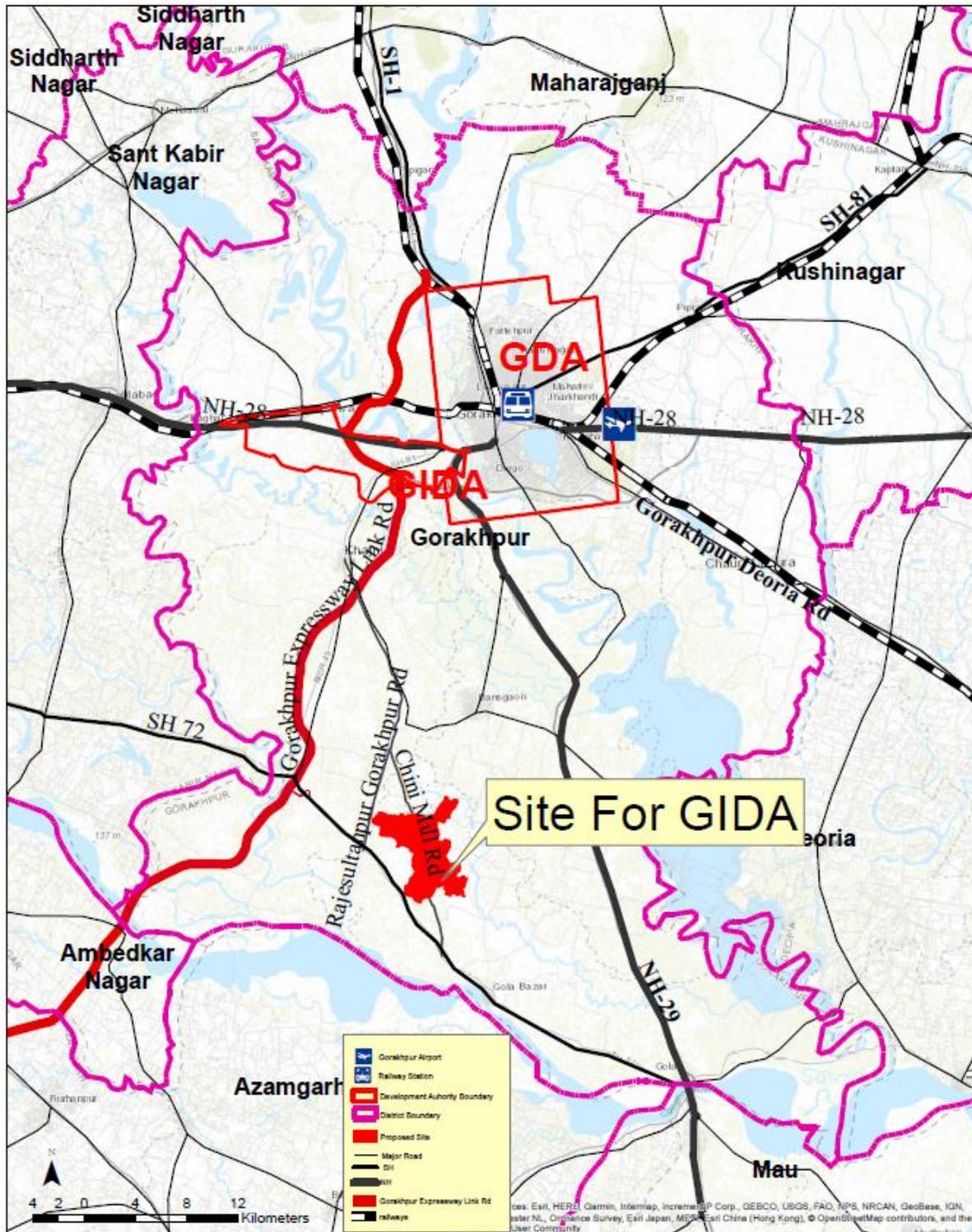
3 SITE ASSESSMENT

3.1 LOCATION STUDY

Gorakhpur District: Situated on the basin of Rivers Rapti and Rohini the geographical shape of the Gorakhpur City is of bowl. Gorakhpur division consists of four districts namely- Gorakhpur, Deoria, Kushinagar and Maharajganj, and is headed by the Divisional Commissioner of Gorakhpur. The district is divided into 7 sub-divisions and 19 development blocks. Total geographical area of Gorakhpur district is 3321 km² and it is the 36th smallest district by area in the state. The present district of Gorakhpur, 265 Kms east of capital Lucknow, on National Highway -28 lies between Latitude 26° 46' N and Longitude 83° 22' E. Gorakhpur District is sharing border with Azamgarh District to the South, Deoria District to the East, Kushi Nagar District to the East, Maharajganj District to the North, Mau District to the South, Sant Kabeer Nagar District to the west.

Dhuriyapar Industrial Corridor: The proposed Industrial Corridor at Dhuriyapar is located towards southern part of Gorakhpur District and in close proximity to proposed Gorakhpur Expressway Link Road and proposed Airport announced in October 2020. Other added advantage of the site is close proximity to existing industrial area developed by GIDA and its proximity with the States of Madhya Pradesh and Bihar and international boundary of Nepal. Proposed site of DIC is well connected via Village road which is called Chini Mill Road (approx. 9 meter wide undivided road) to State Highway 81 which finally links to National Highway 28 (connecting Lucknow in Uttar Pradesh and Barauni in Bihar).

Map 3-1: Gorakhpur District Map Showing location of proposed DIC



<p>PROJECT NAME: GIS Based Master Plan & Sectoral Plan for Development of Industrial Corridor, Dhuriyapar(GIDA)</p>	<p>DRG. TITLE: Connectivity Map</p>		<p>CONSULTANT: Rudrabhishek Enterprises Limited (REPL)B20, Antriksh Bhawan, 22 KG Marg, Connaught Place, New Delhi - 110001 www.repl.global</p>
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3.2 SITE AREA PROFILE

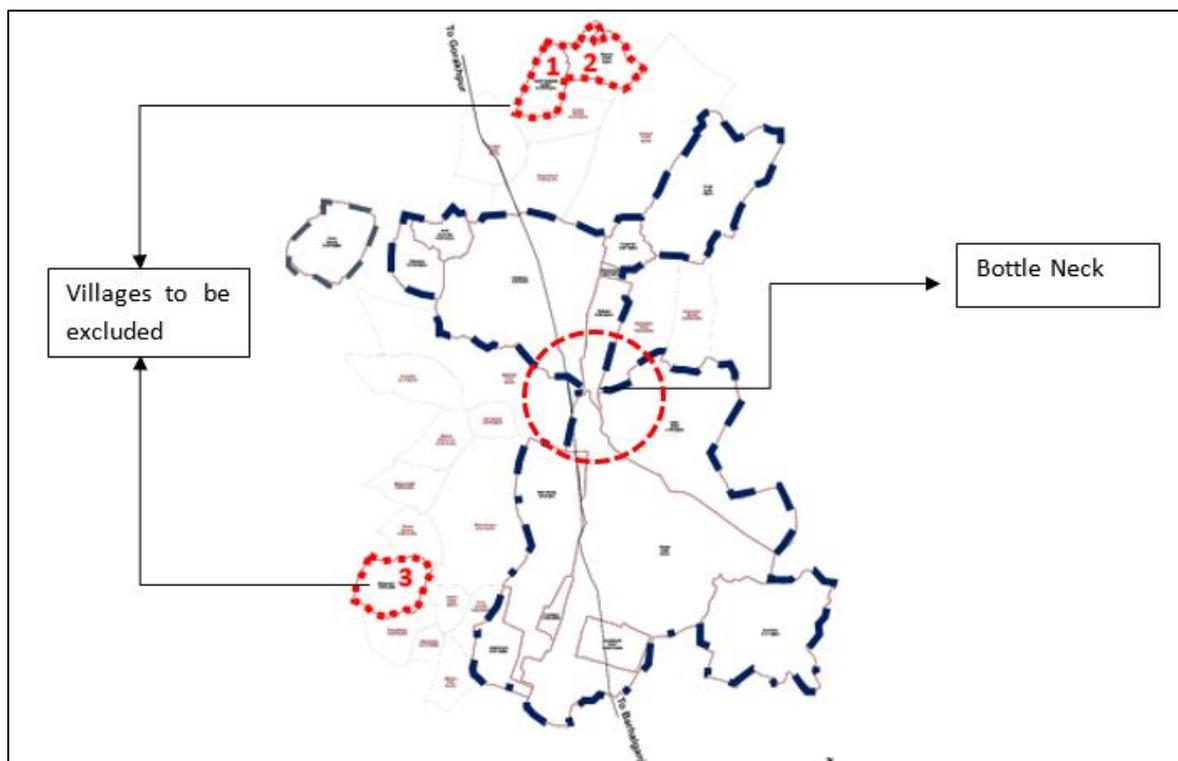
As per contract agreement 18 villages under Gola Tehsil of Gorakhpur district were selected for the Development of Industrial Corridor Dhuriyapar with approx. area of 5500 Acres. Below is the map shown with location of 18 villages. Name of the villages are given below.

Table 3-1 Villages falling under DIC region

Village Code	Village Name	Total Geographical Area (in Hectares)
187584	Harpur	574.608
187876	Gaur Khas	246.940
187885	Sakar Deia	335.129
187878	Chari	211.090
187684	Dhurahra	210.105
187580	Bath Bujurg	192.867
187881	Dodapar	61.081
187585	Bath Khurd	58.348
187582	Kastkasinayak	50.203
187454	Dubri Purwa	51.138
187875	Math Durabasa	36.248
187879	Digharua	34.152
187581	Pura Dayal	18.413
187880	Bhikham Patti	5.557
187453	Parsa Bujurg	89.583
187870	Kast Subans Dubey	6.669
187871	Gharari	51.168
187588	Barparmafi	63.319
Total Area		2296.618

Source: GIDA

Map 3-2: Map Showing 18 villages initially selected by GIDA



Source: Boundary delineation of 18 villages by REPL Team

Looking at the final shape of the area and location of villages, we raised few concerns during meeting with GIDA officials, which needs to be taken care before starting work on master planning of the area.

1. As we can see from the map 15 villages are forming one chunk of land, whereas three villages are located in segregated form. Looking at the area, we like to mention that from master planning perspective it would not be feasible to include these three villages and resulting into area wastage.
2. Also in the middle of the area, a bottle neck is being formed, which can lead to wastage of land and will divide the area in two parcels resulting into minimise the use of available land parcel for large scale industries.

To develop the industrial corridor it is advisable to have a single piece of symmetrical land so that all the components of master plan and its land uses i.e. industrial, commercial, residential, utilities etc. can fit into the proposed area and resulting into maximum use of the area and minimise the land wastage. In the meeting with CEO Gida dated 9th February 2021, it was decided to exclude three villages located in segregated manner and include two villages to form a symmetrical area as per below details. For that a revised notification will be released.

Table 3-2: Three deleted Villages are mentioned below

S. No.	Name of Village
1	Kast Subans Dubey
2	Gharari
3	Barparmafi

Source: Meeting with CEO-GIDA dated 19-02-2021

Table 3-3: Two newly added Villages

S. No.	Name of Village	Area in Hectare
1	Narayanpur Khurd	92.984
2	Gajpur	327.621

Source: Meeting with CEO-GIDA dated 19-02-2021

Area As per Khatauni received from concerned Lekhpal of Gola

Followed with above discussion with GIDA, we had compared village wise area collected from various sources i.e. Census of India, Bhunaksha, Notification of villages from GIDA, Lekhpal of Gola tehsil, GIS mapping via GCS projection and GIS mapping via UTM projections. Below is the village wise details of area captured through various sources:

Table 3-4 Villages area from various sources

S.n o.	Village Code	Name	Area as per census	Area as per GIDA Notification	Area(Ha) In GCS	Area(Ha) In UTM WGS84	Bhunak sha
1	187580	Bath Bujurg	203.49	192.88	258.09	206.20	203.358
2	187585	Bath Khurd	60.32	58.35	75.39	60.25	60.26
3	187880	Bhikham Patti	5.63	5.56	6.91	5.52	5.557
4	187878	Chadi	210.76	211.09	268.16	214.10	211.09
5	187684	Dhorhara	208.68	210.11	266.06	212.62	210.106
6	187879	Digharuwa	33.44	34.15	44.073	35.19	34.152

S.no.	Village Code	Name	Area as per census	Area as per GIDA Notification	Area(Ha) In GCS	Area(Ha) In UTM WGS84	Bhunaksha
7	187881	Dodapar	67.08	61.08	78.46	62.67	61.081
8	187454	Dubripura	54.50	51.14	63.96	51.07	50.948
9	187455	Gajpur	340.76	327.62	417.05	333.04	327.62
10	187876	Gaurkhas	375.18	246.94	457.15	365.05	361.61 67
11	187584	Harpur	576.49	574.61	728.63	582.33	574.61
12	187582	Kasthkashi Nayak	55.92	50.20	61.75	49.35	50.203
13	187875	Math Durbasha	42.50	36.25	45.57	36.39	36.25
14	187882	Narayan Khurd	98.98	92.98	112.97	90.22	92.98
15	187453	Parsa Bujurg	92.06	89.58	92.53	91.11	89.146
16	187581	Puradayal	17.18	18.41	21.23	16.96	17.175
17	187885	Sakar Daiya	311.01	335.13	395.47	315.91	312.86 1
Total			2753.98	2596.08	3393.45	2727.98	2699.0 2

Source: Various Sources

As we can see from the above table, there are five sources for the area; however, area projected through **UTM WGS84** is closest to other area from **Census on India, GIDA** and **Bhunaksha**. **Therefore, we suggest to consider suggested area which is 2727.98 hectare.**

Table 3-5: Final list of 17 Villages and area

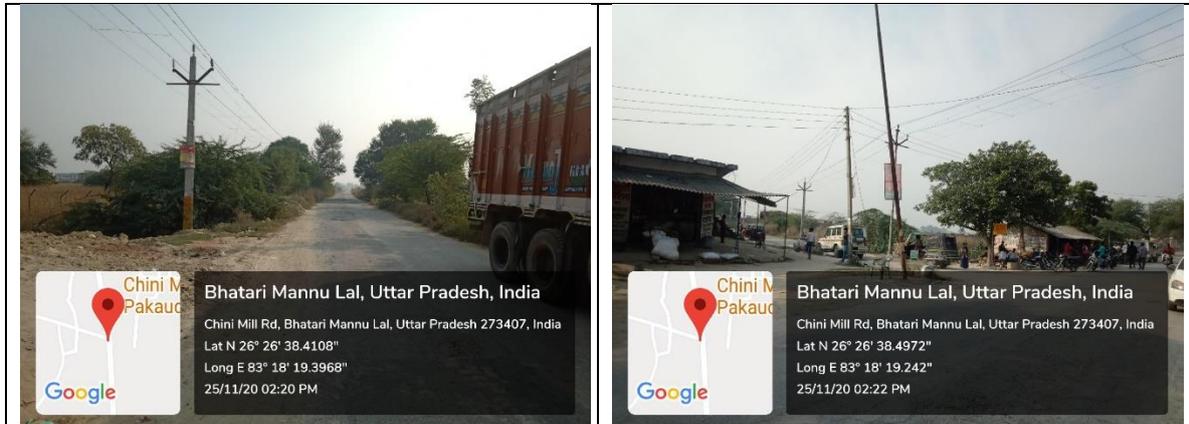
S.no.	Village Code	Name	Area(Ha) In UTM WGS84 on GIS Platform
1	187580	Bath Bujurg	206.20
2	187585	Bath Khurd	60.25
3	187880	Bhikham Patti	5.52
4	187878	Chadi	214.10
5	187684	Dhorhara	212.62
6	187879	Digharuwa	35.19
7	187881	Dodapar	62.67
8	187454	Dubripura	51.07
9	187455	Gajpur	333.04
10	187876	Gaurkhas	365.05
11	187584	Harpur	582.33
12	187582	Kasthkashi Nayak	49.35
13	187875	Math Durbasha	36.39
14	187882	Narayan Khurd	90.22
15	187453	Parsa Bujurg	91.11
16	187581	Puradayal	16.96
17	187885	Sakar Daiya	315.91
		Total	2727.98

Source: GIS platform via UTM WGS84

The Final Area of the site after the finalization of 17 villages comes out to be 2727.98 ha (6740.98 Acres).

3.3 BOUNDARY SURVEY

Site survey was conducted by REPL team in coordination with GIDA officials to analyses the site surroundings, existing built-up area, accessibility to the site, existing natural and man-made features on the site, existing residential areas etc. Following are the few observation from the site visit with still photographs.

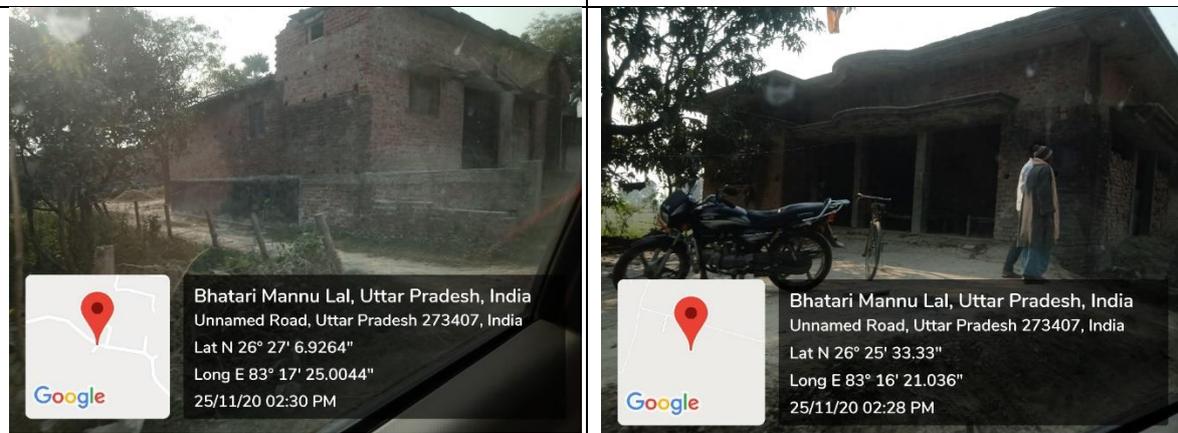


Electricity Supply is available to every village pocket.



Farmers Cooperative Sugar Mill Harpur Gajpur Dhuriyapar, built at a cost of Rs 60 crore, is expected to be started again. This hope is hidden in the announcement of the Chief Minister Yogi Adityanath's construction of an ethanol plant a cost of Rs 1200 crore near the mill.

Social Infrastructure like schools, Banks, Hospitals etc can be seen in the site & proximity which will complement the development.



Habitation can be in the site & nearby areas which will provide the work force easily at low cost

The boundary survey all the 17 villages was also conducted to trace the physical features on the ground and then the sajars were geo referenced using the same reference point. Then the whole site boundary has been delineated and finalised based on the boundary survey. Following are the list of 17 villages with area (in Ha) that has been included within the delineated boundary of the proposed site.

Table 3-6: Name of villages included within the delineated boundary of the proposed site.

S.no.	Village Code	Name	Area(Ha) In UTM WGS84
1	187580	Bath Bujurg	206.20
2	187585	Bath Khurd	60.25
3	187880	Bhikham Patti	5.52
4	187878	Chadi	214.10
5	187684	Dhorhara	212.62
6	187879	Digharuwa	35.19
7	187881	Dodapar	62.67
8	187454	Dubripura	51.07
9	187455	Gajpur	333.04
10	187876	Gaurkhas	365.05
11	187584	Harpur	582.33
12	187582	Kasthkashi Nayak	49.35
13	187875	Math Durbasha	36.39
14	187882	Narayan Khurd	90.22
15	187453	Parsa Bujurg	91.11
16	187581	Puradayal	16.96
17	187885	Sakar Daiya	315.91
Total			2727.98

Source: Area calculated on GIS Platform

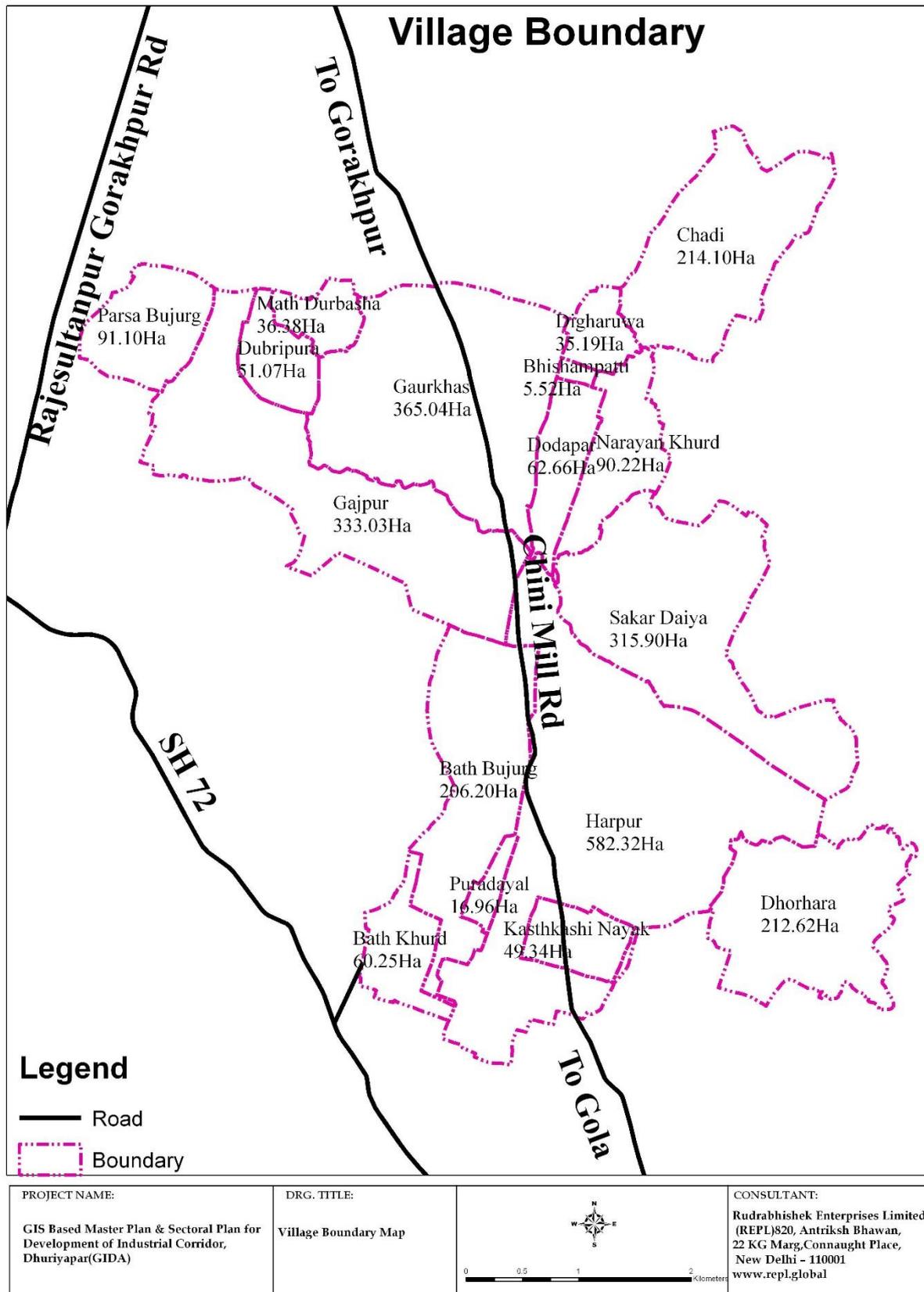
Figure 3-1 Site Visit with GIDA Officials



Source: Captured by REPL Team

Based on the boundary survey, a final boundary has been delineated of the proposed site and a map has been generated using GIS platform. The map shown below shows the final delineated boundary.

Map 3-3: Boundary Delineation of the site based on Boundary Survey



Source: Boundary Delineation on GIS platform by REPL Team

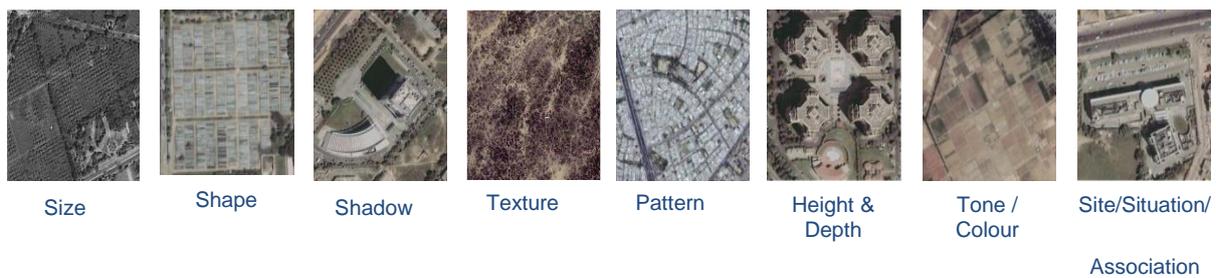
3.3.1 Survey results and base map preparation

The GIS Base Map and Land Use Map is prepared on 1:2500 scale using following GIS and Remote Sensing based methodologies.

Collection and Collation of the Input Data: REPL project team collected all the necessary input data such as Cadastral Map from concerned authority and High Resolution Satellite Imagery and digital elevation model (DEM) from open source for the area of interest.

Generation of Digital GIS Base Map: The GIS Base map is generated at the scale of 1:2500 by utilizing the below mentioned Image interpretation techniques.

Digital Image Interpretation: The principle of visual image interpretation techniques are used for better identification of the features. The elements of image interpretation viz. location, size, shape, shadow, tone/color, texture, pattern, height/depth and site/situation/association are worked upon by using digital image processing techniques so that they give a more precise and unbiased representation of the objects present within the study area. The digital image processing techniques including filter operations are deployed to make the boundaries of objects more sharp and clear. Contrast of the image is also adjusted, besides, applying other processing techniques depending on the status of digital data obtained. This ensured a good quality image data that is utilized for interpretation and mapping of the study area with the accuracy as desired in this project work.



2D Feature Extraction for Base Map:

REPL project team used its GIS and Image Processing software to perform the 2D feature extraction for preparation of Base Map. The geo-referenced Satellite Imagery is used to vectorize the point, line and polygon features using Image Interpretation techniques as explained above.

Proper grid system and common projection (UTM, WGS-84) is maintained for the project area. This is used for appropriate representation of graphical data and location-related unique IDs for each feature, which is a part of GIS and can be used for spatial analyses. During digitization process the data is checked for geometric errors such as dimensional accuracy, completeness, displacement, edge matching, symbology and layering. All topological errors such as undershoots, overshoots, dangles are removed in the process.

During digitization, minor attribute attachment to the features are done with unique IDs. The heads up manual digitization technique is used to get high level of accuracy. The uniformity in layers, line type, color and units are maintained.

REPL’s qualified and skilled technicians and engineers captured the required following features as depicted on the imageries as per the requirement of Base Map. All the features are captured as the project specification and guidelines.

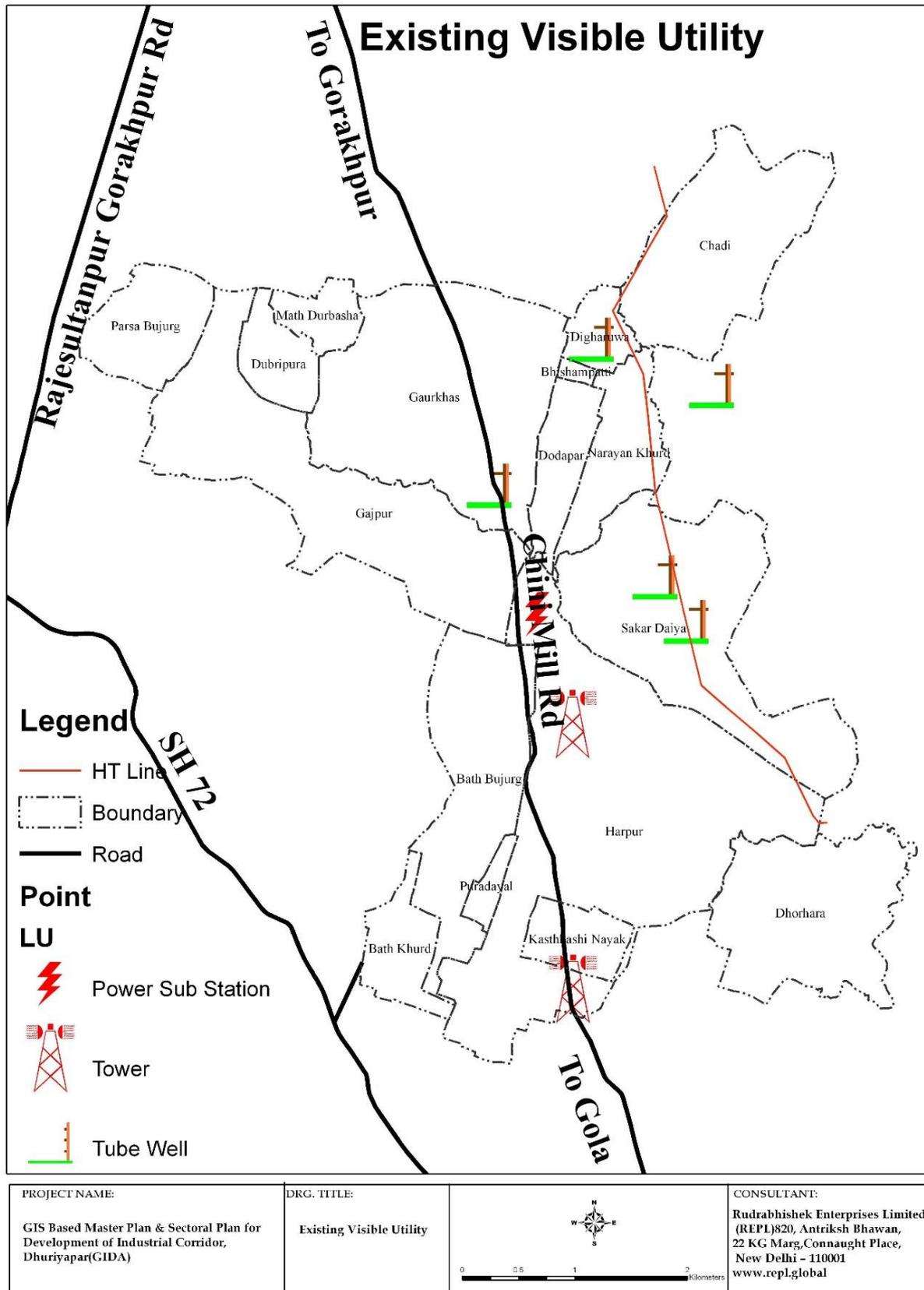
Base Map Features		
Rural Built-up	Urban Built-up	Agriculture

Open	Waterbody	Road
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3.4 EXISTING VISIBLE UTILITIES

Based on the primary survey following existing visible utilities has been recorded on the site. There is one power sub-station, two mobile towers and five tube wells in Dhuriyapar Industrial Corridor. HT line also crosses through village Harpur, Sakar Daiya, Narayan Khurd, Digharuwa and Chadi.

Map 3-4 Map Showing the Visible Utilities on the Site



Source: Primary Survey, REPL-2021

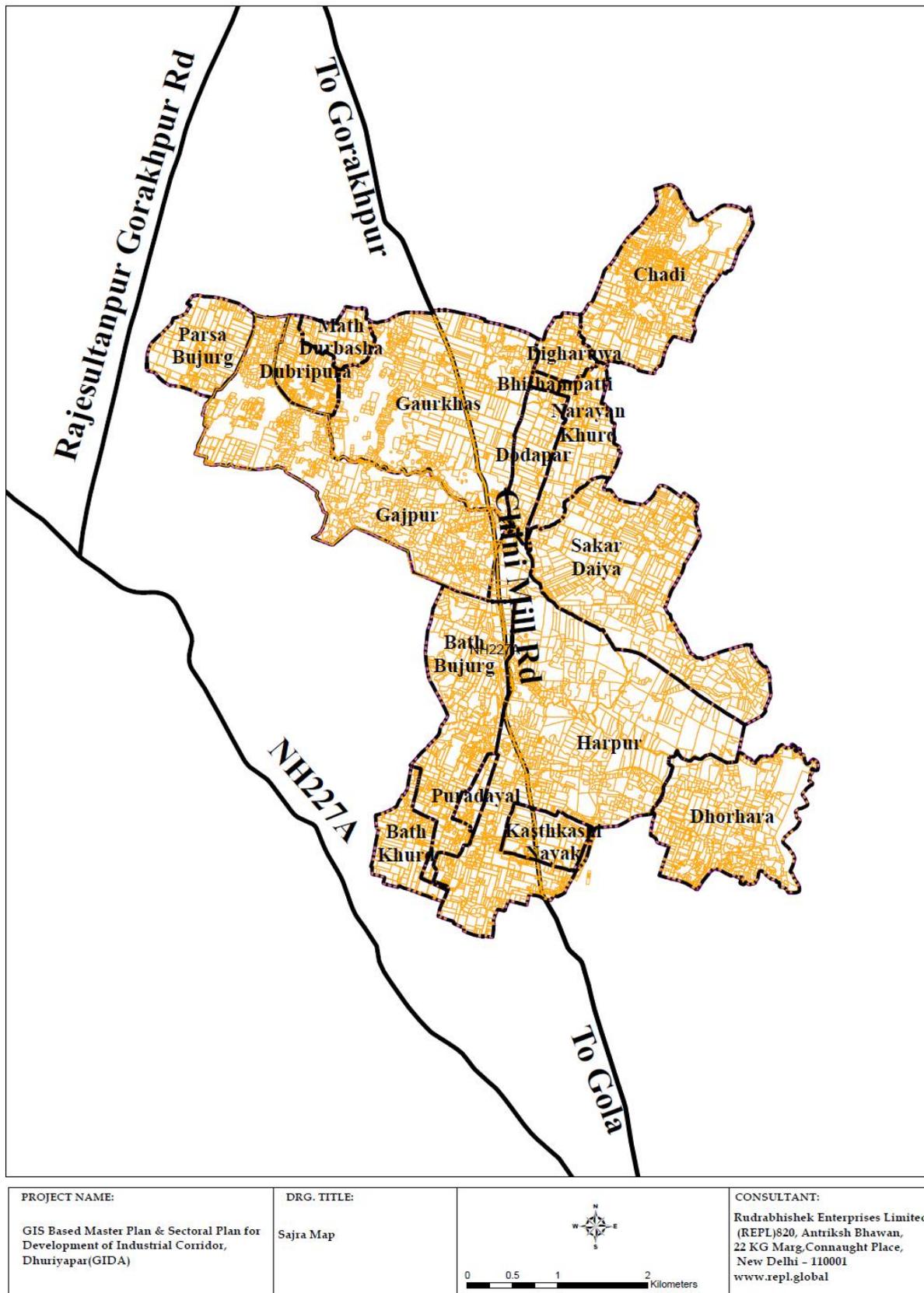
3.4.1 Sajra Mapping

The Cadastral Maps are geo-rectified using geo-referenced satellite imageries. Number of GCPs on identified permanent features on Cadastral Maps like road intersection, canal and drains are used for geo-referencing, depending upon the length and area covered in map sheet. The GCPs selected for geo-referencing of secondary maps are uniformly distributed so as to achieve least RMS error.

Our skilled technicians and engineers carried out digitization of cadastral parcels from collected Cadastral Maps using heads-up manual digitization with high level of accuracy. The uniformity in layers, line type, colour and units are maintained during digitization of the parcels. While digitization, unique IDs are assigned to each boundary and scale factors are maintained accurately so that output is in 1:1 source map scale, hence digitized output exactly matches with paper original maps and is replica of original boundary that depicted on the map. The digitized Cadastral Maps and data is integrated with the GIS Base Map.

Sajras of all the 17 villages have been procured from the revenue department and the same have been digitized and georeferenced on GIS Platform. The map below shows the digitized & geo referenced Sajras of all the 17 Villages.

Map 3-5: Digitised & geo-referenced Sajras of 17 villages in proposed site



Source: Boundary Delineation on GIS platform by REPL Team

3.5 EXISTING LAND USE OF DIC

Spatial distribution of land use/ land cover information and its changes is desirable for any planning, management and monitoring programs at local, regional and national levels. This information not only provides a better understanding of land utilization aspects but also plays an imperative role in the formulation of policies and program required for developmental planning.

The existing Land Use Map is prepared using ground truthing data. Hybrid plots are prepared in large scale for field verification of the features captured from satellite data. For the collection of attribute data, field data collection forms are used as per the data model for collection of attribute information. The survey team updated and carried out ground validation of base map features on the prepared hybrid plots at appropriate scale. These plots have the road IDs printed on them, which were allotted during digitization of features. The already mapped features verified on the ground by the survey team. In case of features interpreted wrongly, the necessary corrections has been made with different colors/ symbology on the field plots along with missing features if any. Unique IDs has been assigned to each feature captured by the surveyor. The field survey is conducted in all type of land parcels irrespective of land use/land cover for the entire project area. The dominant land use or major activity in the parcels is considered as land use of that particular parcel.

The required and pertinent attribute data collected for each and every feature to subsequently incorporate into the spatial database.

REPL project team prepared Existing Land Use Map along with Rural Settlement Map, Road Network Map, Utility Map and Social Infrastructure Map by updating and integrating the ground verification data in the created GIS Base Map. Land Use Map is prepared by classifying into following Land Use classes.

Existing Land use Survey was conducted by REPL team, based on which an existing land use map was prepared on GIS Platform. Out of total area of the proposed site, 78.22% of the land falls under agricultural and plantation use followed by open spaces which is around 10.5%, rural built-up is 5.12%, water bodies cover 1.97%, roads cover 1.9% and other land uses cover around 2%.

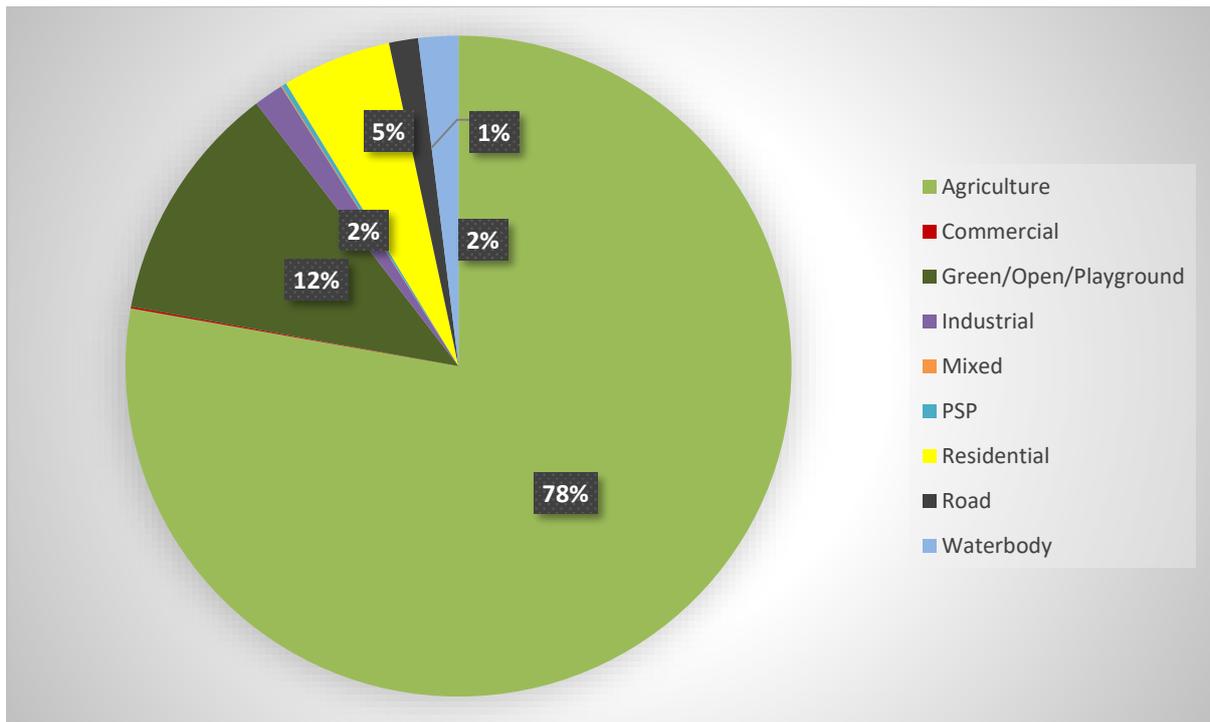
Table 3-7: Existing Land Use

S. No.	Land Use	Area In HA	% of Land use
1	Agriculture	2122.36	77.80%
2	Commercial	2.31	0.08%
3	Green/Open/Playground	319.96	11.73%
4	Industrial	39.21	1.44%
5	Mixed	1.34	0.05%
6	PSP	6.36	0.23%
7	Residential	144.94	5.31%
8	Road	38.58	1.41%
9	Waterbody	52.88	1.94%
	Total	2727.98	100%

Source: Land use Survey by REPL Team

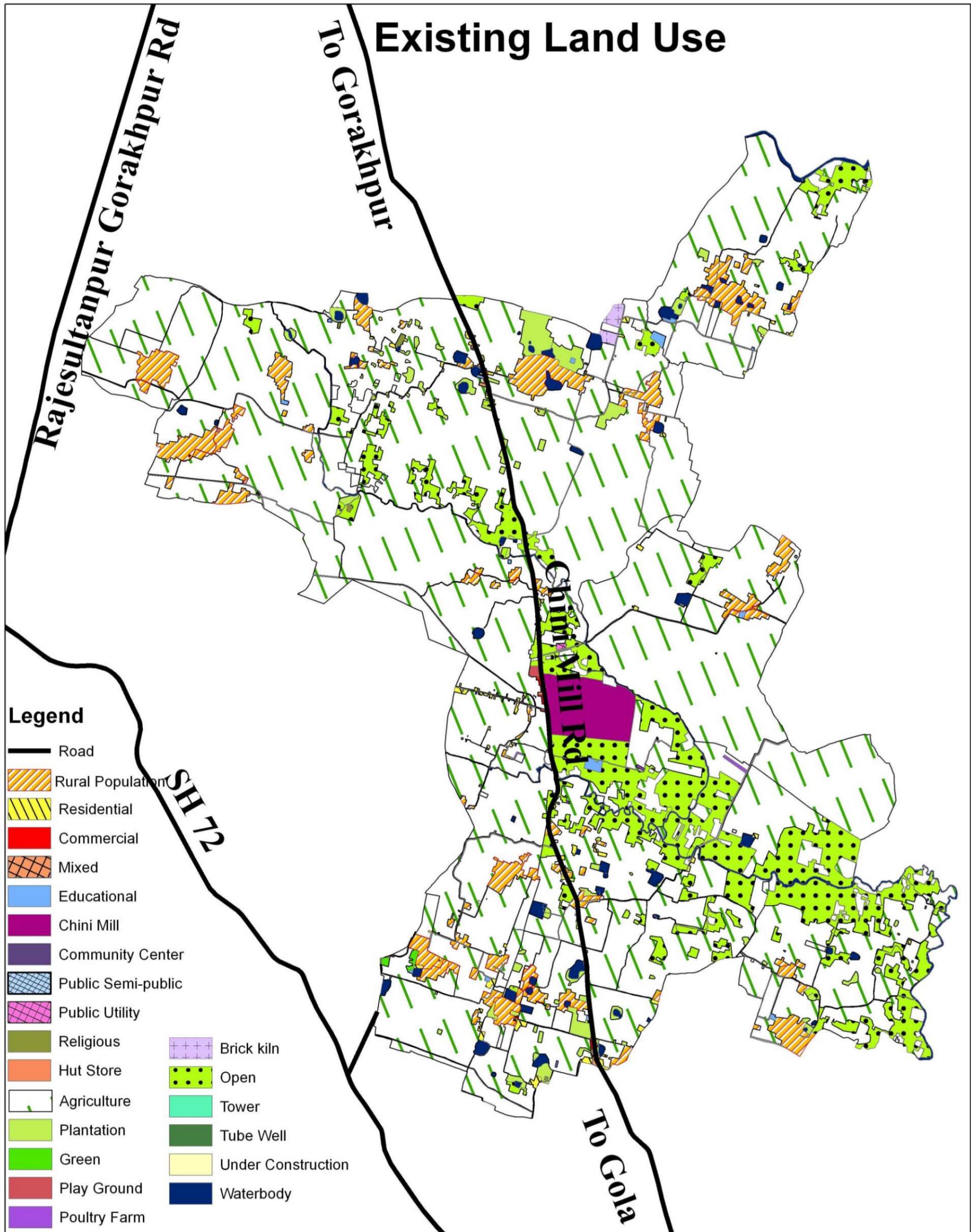
As the majority of the land is vacant and falls under agricultural use. So, it may be considered as green field development.

Figure 3-2 Area Break up of existing Land use of Proposed Site



Source: Landuse Survey by REPL Team

Map 3-6: Existing Land Use Map



<p>PROJECT NAME: GIS Based Master Plan & Sectoral Plan for Development of Industrial Corridor, Dhuriyapar(GIDA)</p>	<p>DRG. TITLE: Existing Land Use Map</p>		<p>CONSULTANT: Rudrabhishek Enterprises Limited (REPL)820, Antriksh Bhawan, 22 KG Marg, Connaught Place, New Delhi - 110001 www.repl.global</p>
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Source: Land use Survey by REPL Team

3.6 EXISTING LAND USE DISTRIBUTION

Densities mentioned in URDPFI Guidelines are the Gross Population Densities [defined as person per unit area (in hectares)] for developed area only.

3.6.1 Residential

The residential land use pattern is growing along the major roads. In the new developments plotted housing and group housing can be seen as the housing typology. Major development can be seen in the outer areas away from centre mainly in south-west direction. It therefore indicates that the residential land use need to be proposed in these areas for proper implementation. The residential area is 144.94 ha (5.31%) of total area (2727.98 ha).

3.6.2 Commercial

Commercial areas in Gorakhpur is 2.31 ha (0.08 %) of total area (2727.98 ha)

3.6.3 Industrial

Gorakhpur has a substantial industrial base. A city that has stood in all its cultural glory over time, Gorakhpur has a variety of industries that provide the livelihood of its residents. Its industries have been growing as well as evolving over time, and much of the city's cultural relevance can be seen in the types of industries that define this city. A lot of manufacturing plants and industry related wholesale markets is prominent in Gorakhpur. Gorakhpur has developed an important market for the Chini Mill which is located in the centre. The various industries in Gorakhpur can be largely split up into the following categories for better classification: Cotton textiles, Food products, Beverages, Tobacco and Tobacco products, Wool, silk and synthetic fibre textiles, Terracotta products, Jute, hemp and mesta textiles, Hoisery and garments, Leather products, Wood products, Paper products and printing, Chemical and chemical products, Transport equipments and parts, Rubber and plastic products, Metal products, Non-metallic mineral products, Basic metal industries, Machinery and parts, excepts electrical, Electrical machinery and apparatus, Repairing and servicing industries. Of the above-listed industries, the following are most renowned in Gorakhpur and its surrounding regions, and offer high employment to people of the area. Those are Handloom Industry, Terracotta Products and Power Industry.

The industrial area is 39.21 ha (1.44%) of total area.

3.6.4 Public and Semi-Public

Gorakhpur has only 0.23% i.e. 6.36 ha of Public & Semi-Public land use of total area.

3.6.5 Mixed

Gorakhpur has only 0.05% i.e. 1.34 ha of mixed land use of total area.

3.6.6 Transportation

Gorakhpur being an old town, has narrow roads with unplanned haphazard growth. Road widening is to be done along the main and congested roads. 38.58 Ha (1.41 %) of total area comes under road.

3.6.7 Green, Open and Playground

The area under green and open spaces/ Recreational use is 319.96 ha (11.73%) of total area. Most of the green spaces are located in the centre and towards south-east direction.

3.6.8 Agricultural

In Gorakhpur, maximum area i.e. 2122.36 ha (77.80 %) of total area is used for agriculture. Dominant cropping system is Rice- Wheat which is grown in about 80% area. Major crops are Rice, wheat, pigeon pea, S. Cane, Mustard and pea. Abundant natural resources are available hence there is large scope of increase the crop productivity in Gorakhpur. This land occupies a major portion of the town and will play a pivotal role while formulating various scenarios and alternatives for its growth.

3.6.9 Water bodies

A total of 52.88 ha (1.94 %) land is under water bodies which is majorly available in North and South-west direction. There are 77 water bodies which varies from 0.04 Ha to 5.25 Ha.

3.7 COMPARISON OF EXISTING LAND USE (ELU) WITH URDPFI GUIDELINES

As the planning area is to be developed as Industrial corridor, it falls under the category of Industrial Town. Therefore, comparing the survey data with the guidelines norms (in the table given below), the existing condition has been assessed.

Table 3-8 Comparison of ELU with URDPFI Guidelines

Sr.	Land use Category	Percentage of Developed Area	
		Industrial Town	Gorakhpur
1	Residential	20-25	5.31
2	Commercial	3-4	0.08
3	Industrial	30-35	1.44
4	Pub. & Semi Public	6-8	0.23
5	Recreational	12-15	11.73
6	Transport & Communication (including Logistics)	10-12	1.41
7	Water Bodies and Special Areas	Balance	1.94
8	Agriculture		77.80
	Total Area	100	100

Source: REPL Survey and Analysis, 2020

3.8 OWNERSHIP

The Ownership details of all the villages has been procured from Bhu-naksha Uttar Pradesh. Following is the table showing the ownership of the land under various heads. However, the ownership details of Harpur & Math Durvasa cannot be procured from Bhunaksha hence remain blank in the table below.

Table 3-9 Ownership Details of Various villages

S.No.	S.No.	Village Code	Name	अन्य कृषि योग्य बंजर भूमि।	भूमि जो संक्रमणीय भूमिधरो के अधिकार में हो।	अकृषिक भूमि - जलमग्न भूमि।	अकृषिक भूमि - स्थल, सड़कें, रेलवे, भवन और ऐसी दूसरी भूमियां जो अकृषित उपयोगों के काम में लायी जाती हो।	ऐसी भूमि जो गवर्नमेंट ग्रांट एक्ट के अन्तर्गत व्यक्तियों के पास हो।	ऐसी भूमि, जिसमें सरकार अथवा गाँवसभा या अन्य स्थानीय अधिकारिकी जिसे 1950 ई. के उ. प्र. ज. वि. एवं भू. व्य. अधि. की धारा 117 - क के अधीन भूमि का प्रबन्ध सौंपा गया हो, खेती करता हो।	कृषि योग्य बंजर - ऐसे वन जिसमें अन्य प्रकार के वृक्ष, झाड़ियों के झुन्ड, झाड़ियाँ इत्यादि हों।	कब्रिस्तान और श्मशान (मरघट), ऐसे कब्रिस्तानों और श्मशानों को छोड़ कर जो खातेदारों की भूमि या आबादी क्षेत्र में स्थित हो।	भूमि जो असंक्रमणीय भूमिधरो के अधिकार में हो।	कृषि योग्य भूमि - पुरानी परती (परतीकदीम)	कृषि योग्य भूमि - नई परती (परतीजदीद)	जो अन्य कारणों से अकृषित हो	Total
1	1	187580	Bath Bujurg	0.247	172.6165	7.2385	13.681		3.084	2.832		2.833		0.777	0.049	203.358
2	2	187585	Bath Khurd	0.236	54.967	1.237	3.23					0.038		0.3	0.254	60.262
3	3	187880	Bhikham Patti		5.282	0.032	0.223							0.02		5.557
4	4	187878	Chadi	0.967	189.538	7.34	9.038				2.701	0.475	0.016	1.015		211.09
5	5	187684	Dhorhara	0.128	194.437	3.428	5.95			0.142		4.951		0.555	0.515	210.106
6	6	187879	Digharuwa		31.38	2.058	0.706							0.008		34.152
7	7	187881	Dodapar		56.201	2.639	1.036		0.125			0.971		0.109		61.081
8	8	187454	Dubripura	0.247	40.311	0.838	3.001					6.284		0.049	0.218	50.948
9	9	187455	Gajpur	2.691	301.118	13.928	0	0		0	0.263	8.476		0.376	0.769	327.621
10	10	187876	Gaurkhas	0.634	338.2877	5.951	12.724	0		0.137	0.179	0.324		2.271	1.109	361.6167
11	11	187584	Harpur													0
12	12	187582	Kasthkashi Nayak	0.04	43.703	2.314	2.721	0			0	0.347		0.192	0.886	50.203

S.No.	S.No.	Village Code	Name	अन्य कृषि योग्य बंजर भूमि।	भूमि जो संक्रमणीय भूमिधरो के अधिकार में हो।	अकृषिक भूमि - जलमग्न भूमि।	अकृषिक भूमि - स्थल, सड़कें, रेलवे, भवन और ऐसी दूसरी भूमियां जो अकृषित उपयोगों के काम में लायी जाती हो।	ऐसी भूमि जो गवर्नमेंट ग्रांट एक्ट के अन्तर्गत व्यक्ति यों के पास हो।	ऐसी भूमि, जिसमें सरकार अथवा गाँवसभा या अन्य स्थानीय अधिकारिकी जिसे 1950 ई. के उ. प्र. ज. वि. एवं भू. व्य. अधि. की धारा 117 - क के अधीन भूमि का प्रबन्ध सौंपा गया हो, खेती करता हो।	कृषि योग्य बंजर - ऐसे वन जिसमें अन्य प्रकार के वृक्ष, झाड़ियों के झून्ड, झाड़ियाँ इत्यादि हों।	कब्रिस्तान और श्मशान (मरघट) ऐसे कब्रिस्तानों और श्मशानों को छोड़ कर जो खातेदारों की भूमि या आबादी क्षेत्र में स्थित हो।	भूमि जो असंक्रमणीय भूमिधरो के अधिकार में हो।	कृषि योग्य भूमि - पुरानी परती (परतीकदीम)	कृषि योग्य भूमि - नई परती (परतीजदीद)	जो अन्य कारणों से अकृषित हो	Total	
13	13	187875	Math Durbasha														0
14	14	187882	Narayan Khurd	0.26 2	83.716	1.797	5.164	0			0.097	1.154		0.7	0.094		92.984
15	15	187453	Parsa Bujurg	0	80.573	2.549	4.588	0			0	0.109		1.327	0		89.146
16	16	187581	Puradayal	0.15 8	15.072	0.728	0.885	0			0	0		0.162	0.17		17.175
17	17	187885	Sakar Daiya	1.65 5	297.908	1.937	7.338	0.122			0	0.941		2.005	0.955		312.861
Total				7.26 5	1905.11 02	54.014 5	70.285	0.122	3.209	3.111	3.24	26.903	0.016	9.866	5.019		2088.16 07
Percentage				0.35 %	91.23%	2.59%	3.37%	0.01%	0.15%	0.15%	0.16%	1.29%	0.00%	0.47%	0.24%		100.00%

Source: Bhunaksha Uttar Pradesh

From the above table it can be seen that 91% of the land is under private ownership. The same was confirmed from respective Lekhpals.

3.9 SOCIO-ECONOMIC PROFILE

3.9.1.1 Literacy Rate (trend analysis)

Literacy rate is one of the key parameters for socio-economic analysis. The literacy rate in the DIC area is 70% in 2011. The overall literacy rate is more than the state average, i.e., 56.4% (2011).

Table 3-10 Literacy Rate in Agra Planning Area, 2011

Name of Village	Population Literate	Literate Rate
Parsa Bujurg	473	75%
Dubri Purwa	388	82%
Gajpur	915	70%
Bath Bujurg	666	69%
Pura Dayal	133	63%
Kastkasinayak	237	77%
Harpur	1376	70%
Bath Khurd	296	66%
Dhurahra	752	74%
Math Durabasa	222	66%
Gaur Khas	1122	72%
Chari	1211	67%
Digharua	15	47%
Bhikham Patti	60	66%
Narayanpur Khurd	981	77%
Sakar Deia	612	73%
Dodapar	119	76%
Total	9578	70%

Source: (Census of India)-2011

3.9.1.2 SC ST population

The table below shows that the concentration and distribution of SC and ST population in different villages of DIC.

Table 3-11: SC, ST population in Dhuriyapar Industrial Corridor

Name of Village	Total Population	SC Population	ST Population	% Reserved
Parsa Bujurg	703	43	0	6%
Dubri Purwa	573	122	0	21%
Gajpur	1509	106	0	7%
Bath Bujurg	1133	306	0	27%
Pura Dayal	241	85	0	35%
Kastkasinayak	341	80	0	23%
Harpur	2212	568	0	26%
Bath Khurd	519	201	0	39%
Dhurahra	1164	582	0	50%
Math Durabasa	411	142	0	35%
Gaur Khas	1778	523	0	29%
Chari	2132	1151	0	54%
Digharua	44	19	0	43%
Bhikham Patti	101	22	0	22%
Narayanpur Khurd	1447	485	0	34%
Sakar Deia	947	281	0	30%

Dodapar	179	0	0	0%
Total	15434	4716	0	28%

Source: (Census of India)-2011

In Dhuriyapar Industrial Corridor, around 28 % of the total population belongs to reserved category.

3.9.1.3 Workforce participation rate (WFPR)

As per census 2011, the WFPR of the DIC area is 28.85%. As per Census 2011, the working population of the area stands at 4452, out of which 2307 are main workers.

Table 3-12 WFPR in DIC

S. No.	Particulars	No.
1	Total Population	15434
2	Total Workers	4452
3	Main Workers	2307
4	Marginal Workers	2145
5	Non-Workers	10982
6	WFPR (in %)	28.85%

Source: Census of India, 2011

3.10 CIRCLE RATES FOR SELECTED VILLAGES

Below are the circle rates of the selected villages:

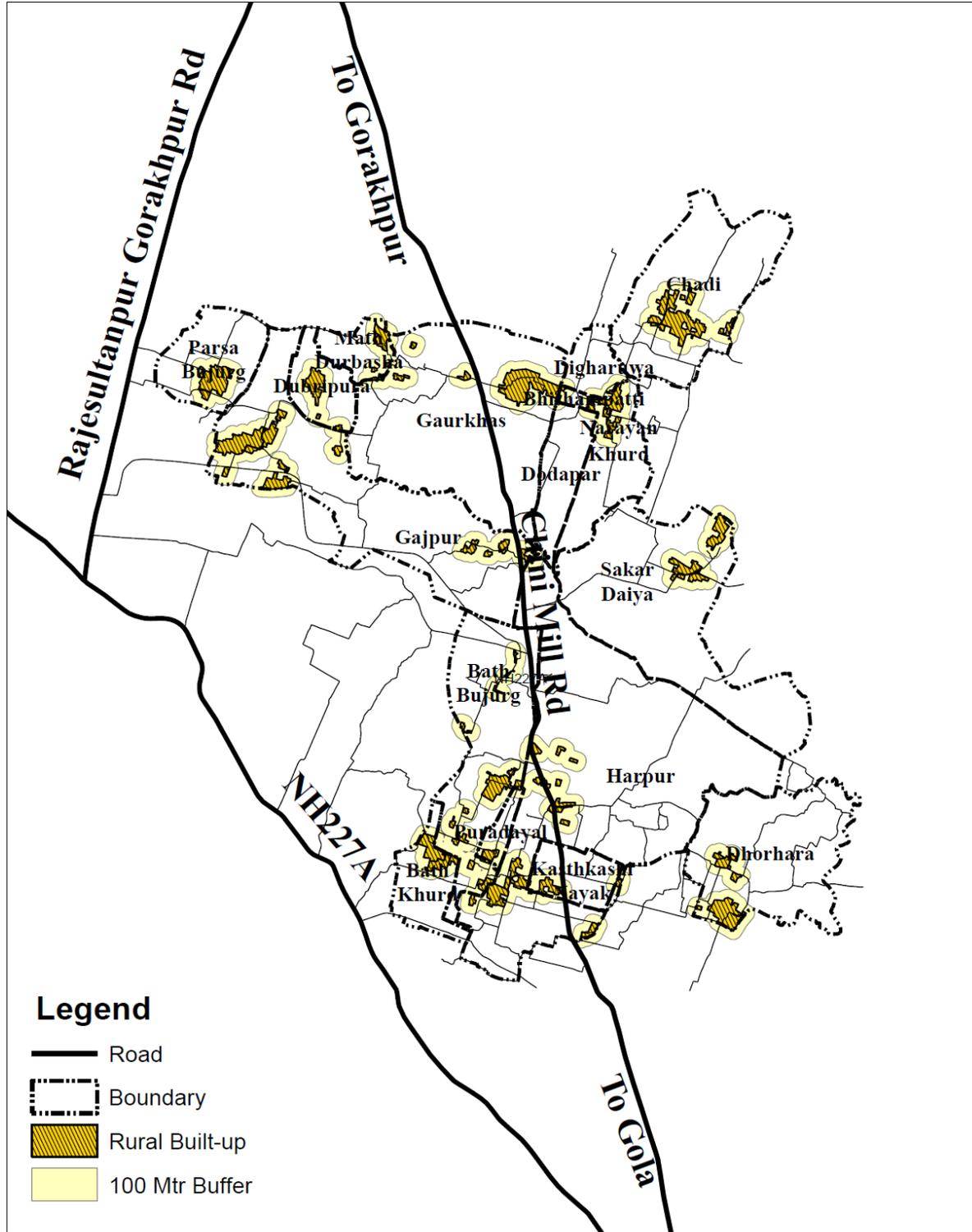
Table 3-13: Circle rates of villages falling under DIC

Minimum Circle Rate of Villages in Dhuriyapar Site			
Rate in Lacs per Ha			
Sr. No.	Village name	Along the District Road	Areas other than District Road
1	Bath Khurd	58	38
2	Puradayal	58	38
3	Dhorahra	58	38
5	Harpur	58	38
6	Dodapar	58	38
7	Bhishampatti	58	38
8	Digharuwa	58	38
9	Dubaripura	56	38
10	Math Durbasha	58	38
11	Chadi	58	38
12	Narayanpur Khurd	58	38
13	Gajpur	58	38
17	Kasthkashi Nayak	58	38
14	Gaur Khas	64	44
15	Sakar Daiya	77	44
4	Bath bujurg	79	46
16	Parsa Bujurg	79	46
Note- Rate per ha (In lacs)			

Source: Circle Rates

3.11 SETTLEMENTS IN PROPOSED DIC

Map 3-7: Map Showing Settlements in the proposed area



<p>PROJECT NAME: GIS Based Master Plan & Sectoral Plan for Development of Industrial Corridor, Dhuriyapar(GIDA)</p>	<p>DRG. TITLE: Rural Settlement Map</p>		<p>CONSULTANT: Rudrabhishek Enterprises Limited (REPL)820, Antriksh Bhawan, 22 KG Marg, Connaught Place, New Delhi - 110001 www.replglobal</p>
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3.12 EXISTING AND PROPOSED DEVELOPMENTS IN THE REGION

Various departments have been visited for the existing & proposed development in Dhuriyapar. Following are the list of departments visited to gather information of proposed development:

S. No.	Department Visited	Data Received
1	Chief Engineer, Jal Nigam, Gorakhpur	No Proposed & Existing Project
2	Chief Engineer, Sichai Vibhag, Gorakhpur	Map of Slope of water flow
3	Chief Engineer, P.W.D., Gorakhpur	NA
4	Chief Engineer, Vidyut Vibhag, Gorakhpur	Capacity and supply of power house
5	Saksham Adhikari, Under Ground Water department, Gorakhpur	Data received, Last 5 year water level record
6	Mahaprabandhar Udyog, Gorakhpur	List of Industries
7	Adhishashi Abhiyanta, Rural Engineering Department, Gorakhpur	No Proposed & Existing Project

Apart from this, the site of Dhuriyapar have been in news for the proposed development in and around the site which mean that the master plan proposal in the site. Few snapshots of the news regarding Dhuriyapar have been shown below.

Table 3-14: News about Dhuriyapar & Gorakhpur

<p>Cabinet approves Rs 3,500 crore subsidy for sugarcane farmers</p> <p>The CCEC observed that sugarcane farmers sell their produce to sugar mills but they do not get their dues from the mill owners as they have surplus sugar stock.</p> <p>BusinessToday.In December 16, 2020 Updated 16:50 IST</p> 	<p>गोरखपुर के धुरियापार में बनेगा नया एयरपोर्ट</p>  <p>Publish Date: Thu, 29 Oct 2020 08:02 AM (IST) Author: Sotish Shukla</p> <p>गोरखपुर के धुरियापार में 1600 एकड़ में नया एयरपोर्ट बनाने का पार्षदों की मंजूरी मिली है।</p> <p>गोरखपुर, जेएनएन। धुरियापार में उच्च स्तर पर नया एयरपोर्ट बनाने का पार्षदों की मंजूरी मिली है।</p> <p>1600 एकड़ में बनेगा नया एयरपोर्ट</p>
<p>UP CM, Union petroleum minister lay foundation stone of biofuel plant in Gorakhpur</p> <p>PTI Sep 18, 2019, 22:11 IST</p>  <p>Gorakhpur, Sep 18 () Uttar Pradesh Chief Minister Yogi Adityanath and Union Petroleum Minister Dharmendra Pradhan on Wednesday laid the foundation stone of a bio fuel plant to be built in Gorakhpur at Rs 1,200 crore.</p>	<p>Dharmendra Pradhan to launch IOC's Rs 800-cr ethanol project in Gorakhpur</p> <p>The unit is proposed to be set up on 50 acres of land in the premises of the now-defunct Dhuriyapar Co-operative Sugar Mill</p> <p>Topics IOC Dharmendra Pradhan ethanol</p> <p>Virendra Singh Rawat Lucknow Last Updated at August 8, 2019 16:56 IST</p>

4 PHYSICAL INFRASTRUCTURE ASSESSMENT

This chapter intends to present an assessment of the infrastructure available at the project site located in Dhuriyapar, Gorakhpur. Dhuriyapar Industrial Corridor would be the hub of various categories of industries with state of the art infrastructure and R&D. The assessment of the available social and physical infrastructure, connectivity and logistics infrastructure would provide the status of gaps in the current supply scenario and the required demand for development of the DIC.

4.1 TRANSPORT AND LOGISTIC INFRASTRUCTURE

4.1.1 Road Connectivity

4.1.1.1 District Connectivity

District Headquarters Gorakhpur is well connected by road. Gorakhpur is having road connectivity to major towns and remote villages via NH, SH and MDRs. The major roads radiate from city in all direction. NH28 approaching towards Delhi- Lucknow in west goes to Gopalganj in Bihar and onward to Kolkata and Assam in east. Another important road connects the city to Deoria, and Kolkata through Bihar. Indo- Nepal border to Varanasi and Allahabad through this city NH29 connect the city to southern part of the country. Another local road radiated from the city to Maharajganj, Thothibari (Indo- Nepal Border) and other towards Captainganj and Baghaha in Bihar. Below is the list of major highways and roads crossing through the district.

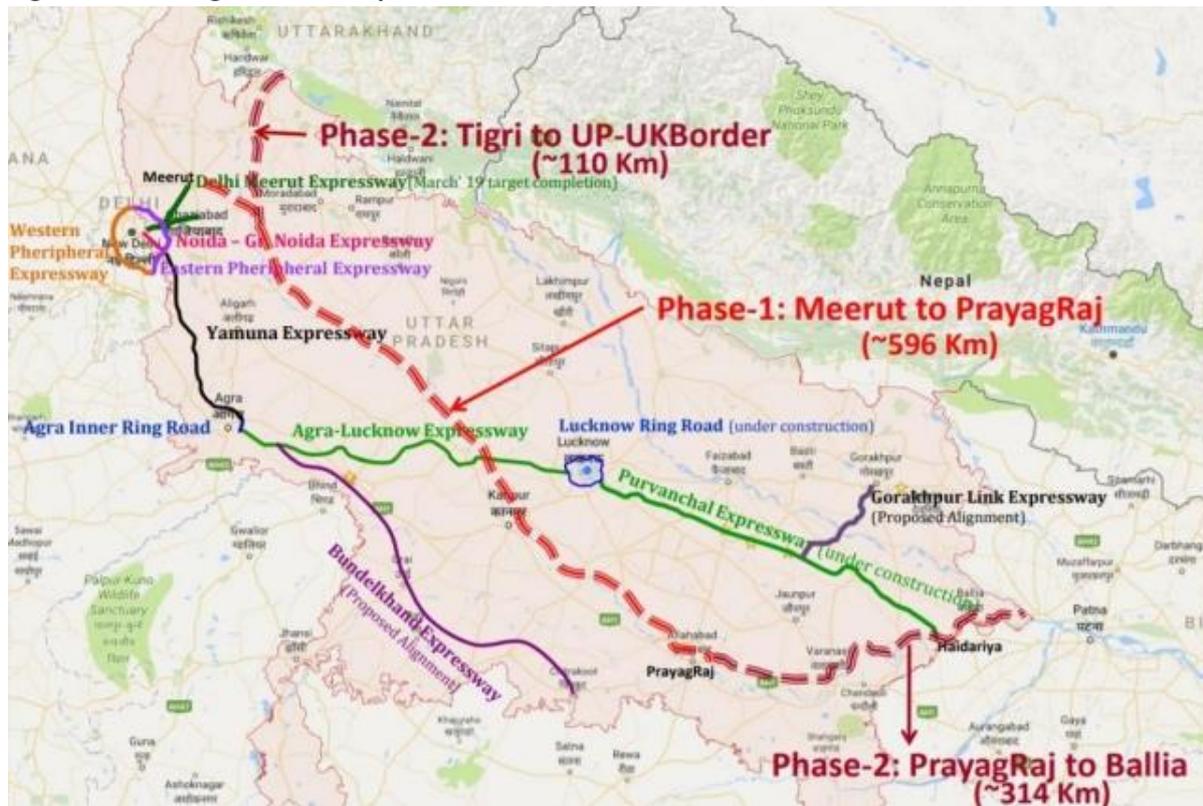
Table 4-1: List of Major Roads Crossing through the district

Sl. No.	Sub Category Name	Road Number	Name of Road	Length (in Km.)
1.	Major District Road	MD573E	Gorkhpur Piptaich Kaptanganj Nourgiya Marg	12.600
2.	Major District Road	MD163E	Khajni Malhanpar Dashavpur Marg	34.800
3.	Major District Road	MD49E	Gorakhpur Khajni Sikriganj Marg	31.440
4.	State Highway	SH0081	Gorakhpur Maharajganj Nichloul Marg	21.000
5.	State Highway	SH0072	Km 160 of NH28 Balwari Dhanchhawa Sikariganj Uswa Bazar Gol Bazar Barhalganj Barhajganj Lar Guthni	62.412
6.	State Highway	SH0064	Basti Mehdawal Kaptanganj Tamkuhi Marg	14.000
7.	State Highway	SH0001	Sonauli (Nepal) Nautanwa, Gorakhpur, Ballia Marg	25.025
8.	National Highway	NH0730	Pilibhit on NH 74 Puranpur Kutar Gola Gokharnath Lakhimpur Isanagar Nanpara (On N H 28c) Bahraich On Nh 28 C Balrampur Maharajgang Pandaruna On N H 28	13.000
9.	National Highway	NH029E	Gorakhpur Farenda Nautanwa Sonauli	44.000
10.	National Highway	NH0029	Varanasi Ghazipur Gorakhpur Marg	54.280
11.	National Highway	NH0028	Lucknow Mokama Road	48.000

Source: <http://www.uppwd.gov.in/en/districtwiseroad?Type=RD>

Apart from internal road network within the district and connecting links to nearby places, road networks connecting the district to rest of the states are quite strong. Under various proposed road networks and expressway links Gorakhpur is going to well connected with whole of the state and nearby states as shown in the figure below.

Figure 4-1: Linkages of Gorakhpur District to rest of Uttar Pradesh



4.1.1.2 DIC Connectivity links with Major Corridors in the region

Positioning of DIC in the region wrt EDFC: One of the attractions of DIC is its positioning with respect to Eastern Dedicated Freight Corridor (EDFC) and direct connectivity to upcoming major highways in the region. Also, Dhuriyapar will leverage many benefits as it falls within 150 km of EDFC which is designated as Amritsar Delhi Kolkata Industrial corridor (ADKIC). The cities which will be covered by the ADKIC Project are Meerut, Muzaffarnagar, Bareilly, Aligarh, Kanpur, Lucknow, Allahabad, Varanasi. Varanasi is the nearest city under ADKIC from the proposed Dhuriyapar Industrial Corridor located.

The Purvanchal Expressway: Purvanchal Expressway is an under construction 340 km long, 6-lane wide access-controlled expressway in Uttar Pradesh. According to UPEIDA, it is expected to be opened to public by July 2021. The expressway is to be linked with Varanasi–Azamgarh highway through a separate link road. UPEIDA is also constructing the Gorakhpur Link Expressway, which will connect Jaitpur bypass in Gorakhpur district with Purvanchal Expressway at Salarpur village in Azamgarh district.

The Gorakhpur Link Expressway will span through four Uttar Pradesh districts; Sant Kabir Nagar, Azamgarh, Gorakhpur, and Azamgarh. The expressway will ensure hassle-free movement of vehicular traffic from Delhi, Lucknow and Agra. The Gorakhpur Link Expressway, once completed, will provide a better commuter experience and faster connectivity.



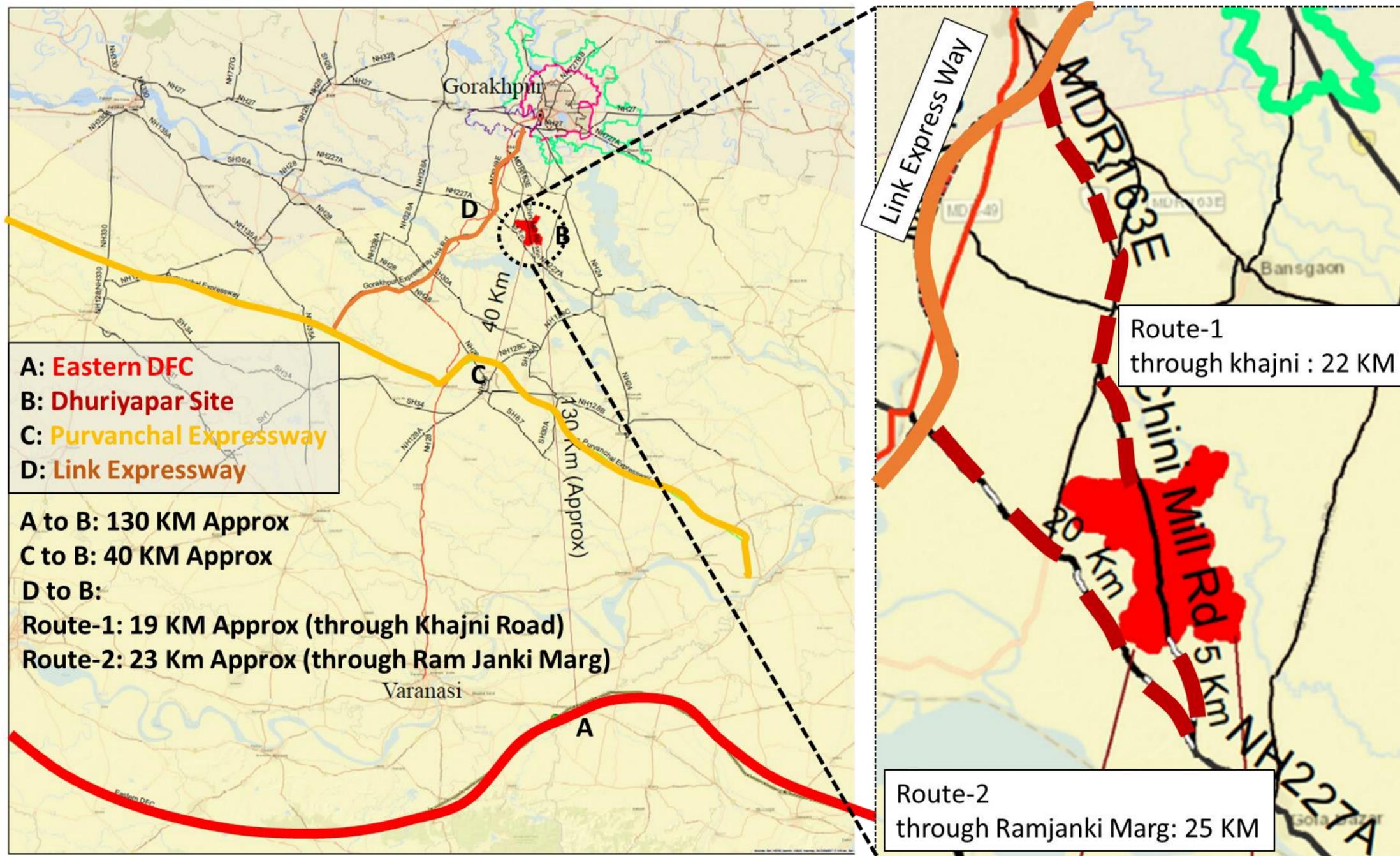
Under construction Gorakhpur Expressway Link Road on Ghaghra River



Under construction Gorakhpur Expressway Link Road near DIC

NH 227A: NH-227A traverses the states of Bihar and Uttar Pradesh. The highway is the key connecting road between DIC and other regional roads in Uttar Pradesh. It crosses through south of Gorakhpur district.

Map 4-1: Regional Connectivity to the Site



Site Connectivity:

The Proposed Dhuriyapar Industrial Corridor (DIC) is located in Gola Tehsil and approx. 48 km from Gorakhpur city and 40 km from Gorakhpur Industrial Development Authority. Gorakhpur Bypass is the major link between Gorakhpur city and DIC, where MDR 49E Gorakhpur Khajni Sikriganj Marg intersects.

Proposed Gorakhpur link express way is the main connection which will enable the Industrial corridor at Dhuriyapar to become successful. The connectivity from link express way to the site is from 2 routes:

- Route-1 is from Khajni through MDR 163E intersecting with Chini Mill Road (village road) at Khajni. This is the shortest route to the site which is approx. 22 km from Khajni. This route is also going from middle of the site.
- Route-2 is through Ram janki marg which is 5 Kms south to our site and connects to the link express way at a distance of approx. 20 km.

Gorakhpur Expressway Link Road will further connect DIC to Purvanchal Expressway at the distance of 63 km.

Condition of existing roads and traffic pattern: Chini Mill Road passes through the centre of the site and is the main connection to the site. However, the condition of the road is not very good including potholes and eroding roads. Major traffic is of motor bikes, cycles, and cattle roaming on roads. Public auto, transport trucks and public buses can also be spotted at hourly intervals. The Road network within the proposed site may be divided into 2 categories.

Table 4-2 Road Network within proposed site

S. No.	Road	Existing Road width (in M)	Material	Condition
1	Chinni Mill Road	7	Bituminous road	not very good including potholes and eroding roads
2	All other internal road	6	WBM road (At few places concrete block roads are also seen)	Majorly roads are not in good condition. However, few new roads can be seen at very few places.

Source: Primary Survey by REPL Team

<p>Chini Mill Road</p>	<p>Chini Mill Road (ROW 7 m)</p>
<p>Chini Mill Road – Poor road condition</p>	<p>Chini Mill Road - Settlement along road</p>
<p>Bhatari Mannu Lal, Uttar Pradesh, India Chini Mill Rd, Bhatari Mannu Lal, Uttar Pradesh 273407, India Lat N 26° 27' 44.9964" Long E 83° 18' 9.0504" 25/11/20 01:49 PM</p>	<p>Chini M Pakaud Bhatari Mannu Lal, Uttar Pradesh, India Chini Mill Rd, Bhatari Mannu Lal, Uttar Pradesh 273407, India Lat N 26° 26' 38.4972" Long E 83° 18' 19.242" 25/11/20 02:22 PM</p>
<p>Chiini Mill road poor condition</p>	<p>IPT options like Auto can been which makes the site accessible for workers from the nearby city</p>



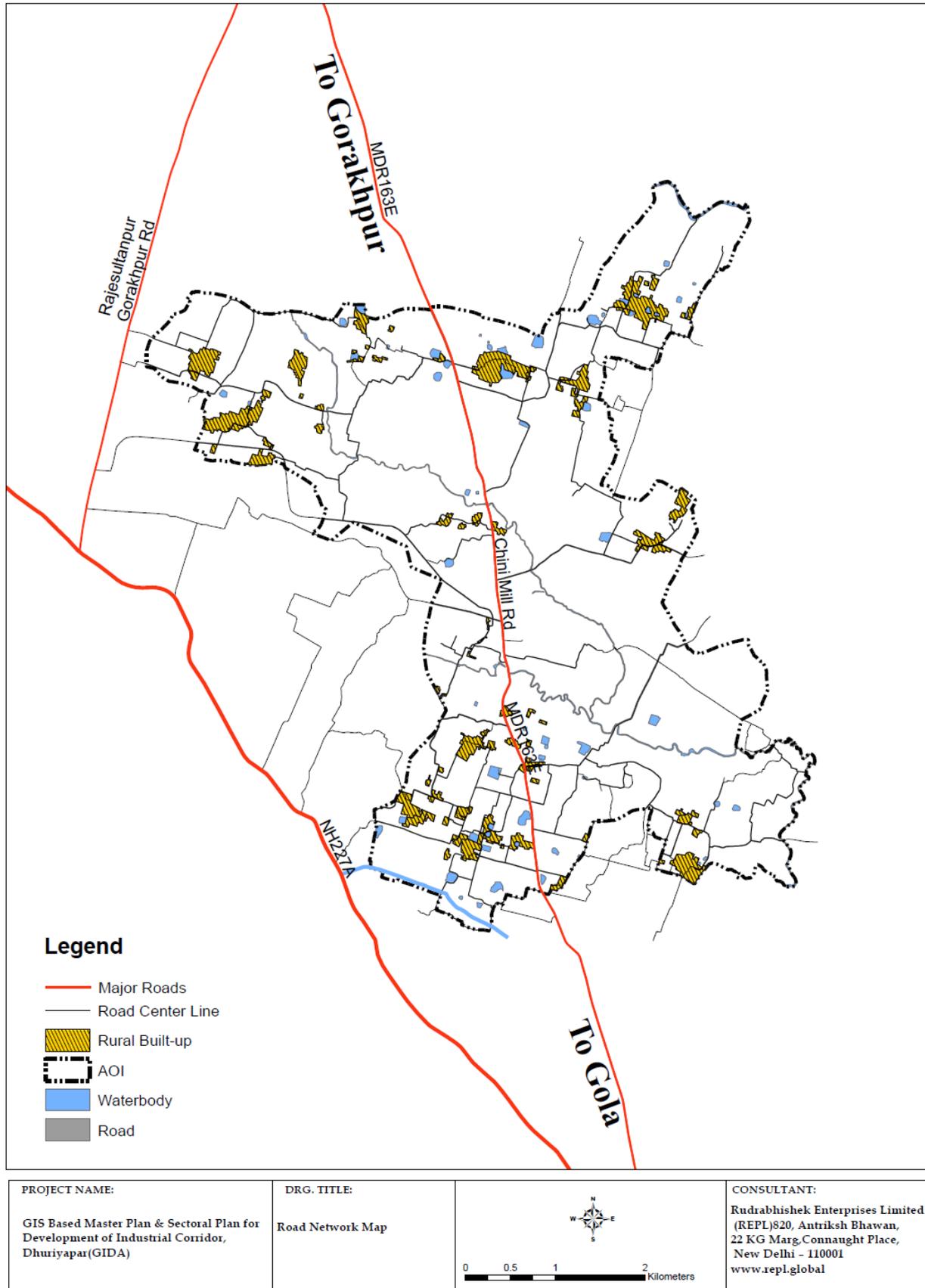
Chini Mill Road to Urua – ROW 3 m



Urua Block road running parallel to Chini Mill Road

Local Roads and Internal Roads: There are minor village roads which connects nearby settlements to DIC, one such important road is connecting Chini Mill Road to Urua block road and then connecting back to Chini Mill Road in northern side of DIC. These roads can play major role in the future and provide connectivity to workers staying in nearby settlements.

Map 4-2: Existing Road pattern within the proposed site.

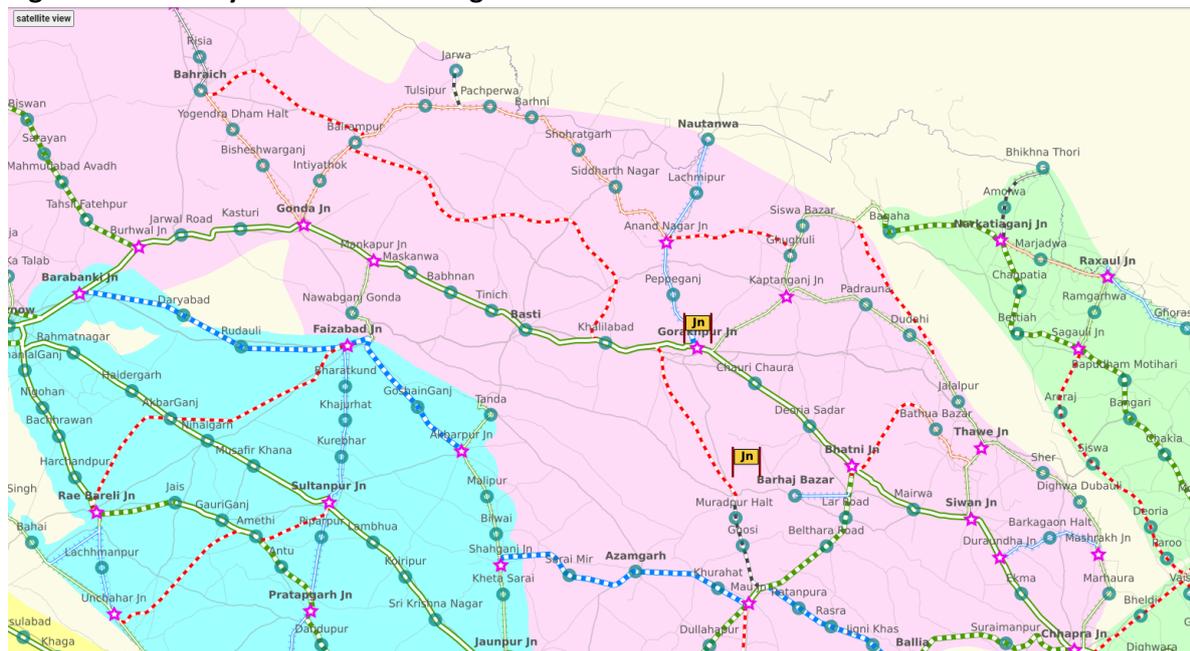


Source: Primary Survey, REPL-2021

4.1.2 Rail Connectivity

Gorakhpur is major junction in eastern part of Uttar Pradesh and it serves as headquarter of North Eastern Railways. North Eastern Railway is one of the most important transit zones, that is, it is used to take in loaded wagons, especially food grains, from Northern Railway divisions like Firozpur, and move it towards Eastern belt and the Northern Frontier region (Seven Sister States). Thus, it acts as an essential cog in the food security of the country. Apart from being an important transit zone, it is also at the center-stage for much inward traffic from the neighbouring zones. Gorakhpur Junction railway station is a major railway station in the state of Uttar Pradesh especially in the Purvanchal region (Eastern Uttar Pradesh) and it connects Eastern Uttar Pradesh to Bihar, Nepal and Northern India to Bihar and has both double and single electric lanes. Gorakhpur is amongst the top hundred booking stations of Indian Railways, It handles over 190 trains daily. At present, Gorakhpur has the world's longest railway platform, measuring 1,366m.

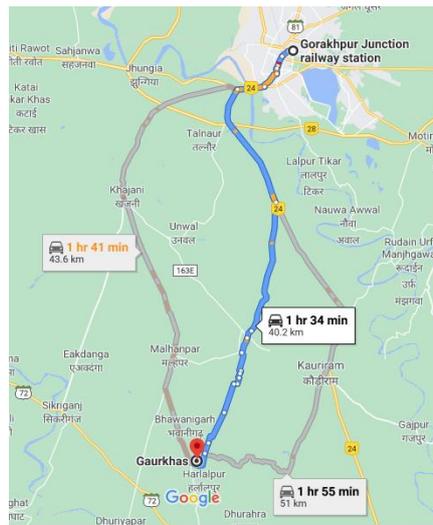
Figure 4-2: Railway Network in the Region



North East broad gauge railway line passes through the city and connects to the other parts of the country. It is the main line joining the capital of the country to Guwahati and Kolkata. Two Branch lines one meter gauge which is on the verge of conversion into broad gauge, goes to Nautanwan near Indo- Nepal International border. Another broad gauge loop line connects Gorakhpur to Chhapra and Siwan as well as Rakhsaul near Indo- Nepal Border. The main route Delhi and onwards to Assam and West Bengal in the east is the backbone of the transport in the region.

Gorakhpur Junction is the nearest railway station from Dhuriyapar Industrial Corridor. It is around 40 km away from DIC and takes around 1.5 hours of time.

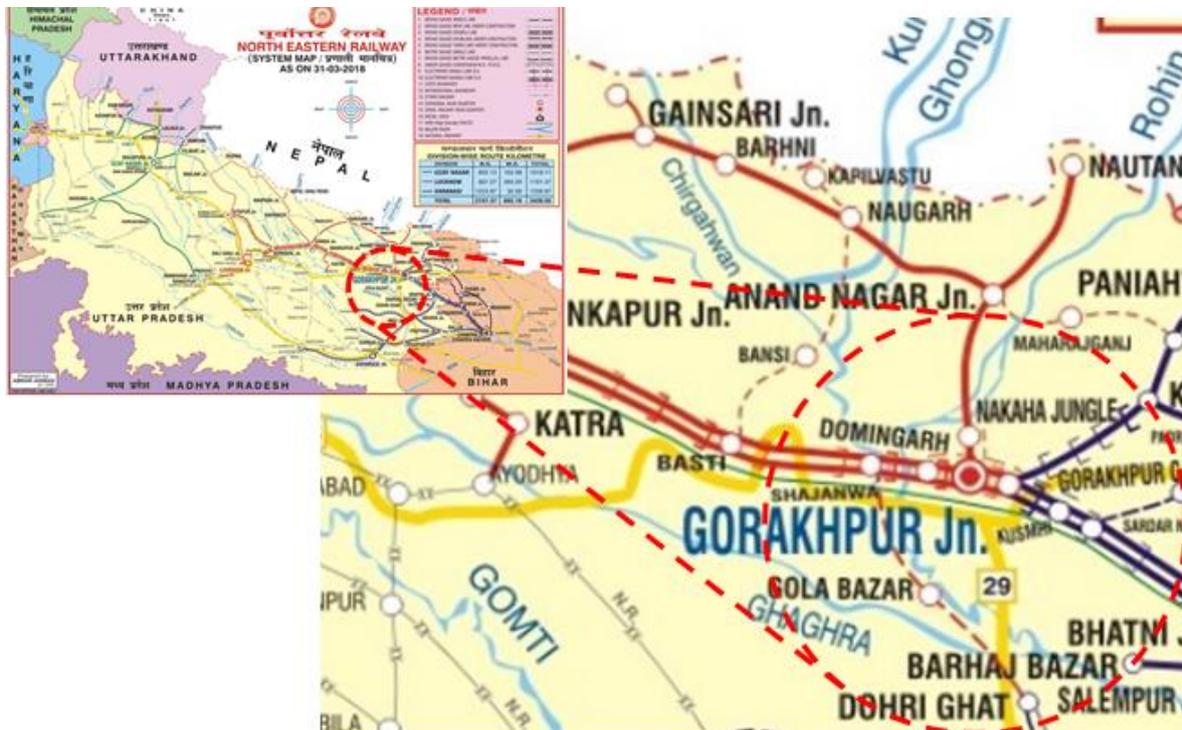
Figure 4-3: Connectivity of proposed site to Gorakhpur junction



Source: Google Map

In addition to the present rail connectivity, a new track has been proposed and under development by the North Eastern Railway. The proposed track is being planned to connect Sahjanwa Railway Station to Dohri Ghat. The proposed railway track consist of 12 stations including Sahjanwa and Dohri Ghat stations. Out of the 12 stations, 2 stations named Urwa Bazar Crossing and Banwarapar Halt are falling within the Dhuriyapar Industrial Site. On completion of the proposed track, these two stations will act as direct access to the site in terms of rail connectivity.

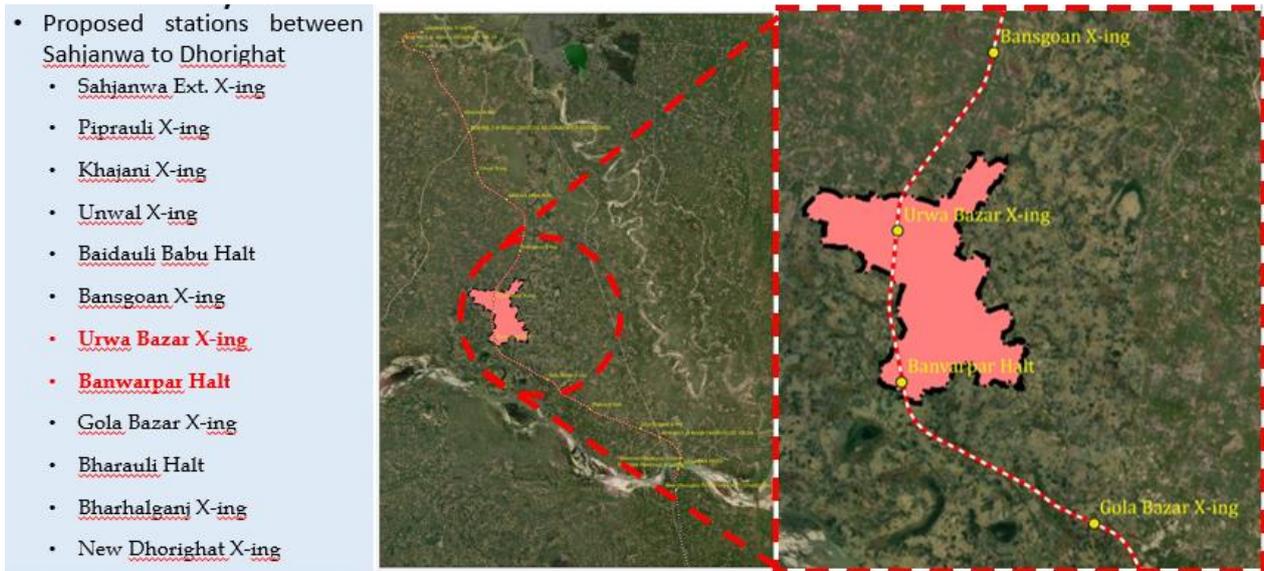
Figure 4-4: Proposed Railway Track between Sahjanwa to Dohri Ghat



Source: North Eastern Railway website

https://ner.indianrailways.gov.in/view_section.jsp?lang=0&id=0,1,735

Figure 4-5: Proposed Railway Track Crossing Dhuriyapar Industrial Site



Source: North Eastern Railway and REPL analysis

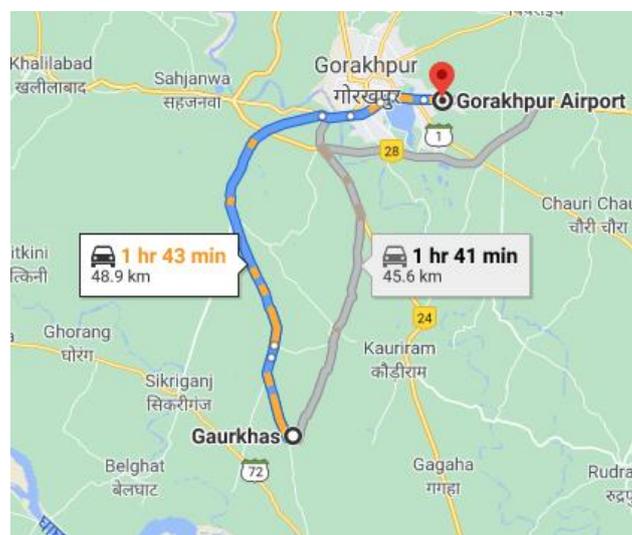
4.1.3 Port Connectivity

Nearest port from Gorakhpur is Kolkata (West Bengal) located approx. 800 km, Haldia (West Bengal) 900 km and Paradeep (Odisha) which is almost 1000 km away. There is no nearby water port situated around Dhuriyapar Industrial Corridor. When one have to ship containers of goods from or to Gorakhpur via sea freight the Adnavem Marketplace can be used where one can easily search how much it costs to ship overseas.

4.1.4 Airport Connectivity

Air Force Station is 8 Km. from the railway station. On 8th March, 2003 it has been inaugurated as a commercial airport. Daily flights are available from Gorakhpur to Delhi and Calcutta via Lucknow. Nearest other commercial Airports are Lucknow and Varanasi. Mahayogi Gorakhnath International Airport is located 49 km from Dhuriyapar Industrial Corridor.

Figure 4-6: Connectivity of proposed site to Mahayogi Gorakhnath International Airport



Source: Google Map

4.2 EXISTING SURFACE WATER SOURCES

4.2.1 Surface Water Sources (Existing)

The main system known as the Rapti system is confined to the west side of the Gorakhpur city. The valleys of the Ghaghra, the Rapti, the Rohini, and the Ami. The drainage of the entire district, excepting that carried off by the Great Gandak is discharged into Ghaghra. Below is the summary of key surface water sources in the district.

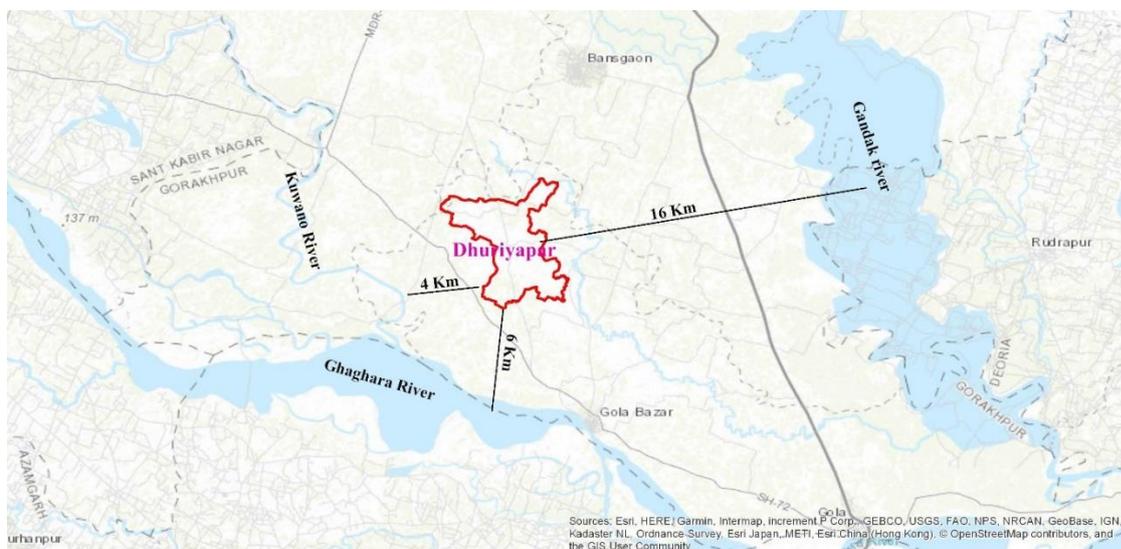
A. Rivers

Nearest water sources available to Dhuriyapar Industrial Corridor are Kuwana River which distance is 4km, Ghaghara River which is 6km away and Gandak river which is 16 km from the site.

SN	Name	Location and Description	Distance from DIC
1	Rapti River and its tributaries– Ghonghi, Rohin, Ami, Taraina	Travels throughout the district from north to south Usage in current water supply system: No	
2	Ghaghra	The deep stream forms the boundary between this district on the north and Azamgarh on the south. The river first touches Gorakhpur at majhdip in pargana Dhuriapar and then flows towards east touching the market towns of Gola and Barhalganj. Usage in current water supply system: No	6 km
3	Kuwana	It separates Gorakhpur district from the Basti district, and then passes through the west of pargana Dhuriapar to join the Ghaghra near Shahpur. Usage in current water supply system: No	4 km
4	Great Gandak, Choti Gandak Nadi	This river takes its rise in the snowy range of Nepal and leaves the hill by the gorge near Tribenighat, about 16 km. north of the boundary of the district. The river flows towards eastern side of the district. Usage in current water supply system: No	16 km

Source: Gorakhpur Gazetteer and discussion with Irrigation Department

Figure 4-7: Nearby Water Sources



B. Lakes

1.	Ramgarh Tal	On the south-east of Gorakhpur city
2.	Narhai Tal	A few kilometers south-east of Ramgarh Tal a much smaller sheet of water living in the Kachhar of the Rapti is known as Narhai Tal.
3.	Domingarh and Karmaini Tals	These lakes in the west of Gorakhpur city are formed by the overflow of the Rohin just before its confluence with the Rapti.
4.	Nandaur Tal	About 9.6 km. south from the Gorakhpur lying close to the east of the Azamgarh road, is the Nandaur Tal.
5.	Amiar Tal	A few kilometers south of Nandaur Tal is Amiar Tal, formed by the flood waters of the Ami River
6.	Bhenri Tal	This lake lies between the Rapti and the Ghaghra rivers in pargana Chillupar and is formed by the excess waters of the Taraina river which passes through the lake.
7.	Chillua Tal	The Chillua Tal is formed by the overflow of the Chillua nala in pargana Haveli about 11 km. north of Gorakhpur.

Source: Gorakhpur Gazeteer

4.2.2 Status of Drinking Water in Gorakhpur, Tehsils of Gola and selected villages

Gorakhpur District:

Below table highlight the source of drinking water in Gorakhpur district and Gola Tehsil. As per Infrastructure Census 2011¹ at the district level availability of tap water supply is provided to 23% households, while approximately 77% households depend on the ground water and surface water resources by way of wells, hand-pumps, river etc. At the tehsil level Gola is also having similar scale data i.e. 23% and 77% respectively.

Table 4-3: Gorakhpur district and Gola tehsil water supply status as per Census 2011

Particulars		Total Households	Tapwater from treated source	Tapwater from untreated source	Covered well	Un-covered well	Handpump	Tube well/Borehole	Spring	River/Canal	Tank/Pond/Lake	Other sources
Gorakhpur District	Total	6,95,366	1,62,473	75,931	2,765	934	4,30,127	16,143	308	807	926	4,952
	Rural	5,59,062	1,14,208	65,059	2,338	807	3,68,653	2,037	239	724	665	4,332
	Urban	1,36,304	48,265	10,872	427	127	61,474	14,106	69	83	261	620
Gola Tehsil	Total	78,892	9,989	6,914	320	130	50,417	379	31	65	62	585
	Rural	7,74,310	8,900	6,595	303	128	47,577	143	29	53	58	524
	Urban	4,582	1,089	319	17	2	2,840	236	2	12	4	61

Source: Census of India, 2011

Gorakhpur City: As per AMRUT SLIP water report 2015, there is no surface water supply in Gorakhpur city but city proposes for surface water supply for which survey is going on by UP Jal Nigam. The

¹ Data for infrastructure status at tehsil level and urban centers level is available only for census 2011.

existing source of water is under ground water. There are 108 Tube wells and 37 Mini Tube wells with average water discharge of 0.71 MLD and total comes to 102.8MLD. The water is being supplied to consumers through direct pumping in the places where elevated reservoirs are not available in Gorakhpur City. In rest of the wards/areas water is being supplied through 27 OHT (Capacity- 26.44 MLD) and 1 underground reservoir (Capacity- 1.35 MLD). Looking at the scenario only 60% of the population is covered with piped water supply, where rest of the population manages of their own. For Ground water, chlorination is done at OHTs and chlorination is done in direct supply tube wells through Dozers. Treatment Capacity of Ground water is 87.2 MLD.

Table 4-4: DIC village water supply status as per Census 2011

S. No	Villages	Total Households	Tap water from treated source	Tap water from untreated source	Covered well	Un-covered well	Hand pump	Tube well/Borehole	Spring	River/ Canal	Tank/ Pond/ Lake	Other sources
1	Parsa Bujurg	123					123					
2	Dubri Purwa	65	2	1	1	-	61	-	-	-	-	-
3	Bath Bujurg	177	119	25	2	-	29	-	-	1	-	-
4	Pura Dayal	39	-	1	-	-	38	-	-	-	-	-
5	Kastkasinaya k	46	-	-	-	-	46	-	-	-	-	-
6	Harpur	344	10	102	-	17	212	-	-	-	-	3
7	Bath Khurd	86	75	11	-	-	-	-	-	-	-	-
8	Dhurahra	176	118	38	-	-	20	-	-	-	-	-
9	Kast Subans Dubey	2	-	-	-	-	2	-	-	-	-	-
10	Math Durabasa	66	66	-	-	-	-	-	-	-	-	-
11	Gaur Khas	314	22	4	2	-	287	-	-	-	-	-
12	Chari	364	10	-	2	-	351	-	-	1	-	-
13	Digharua	9	-	-	-	-	9	-	-	-	-	-
14	Bhikham Patti	17	-	-	-	-	17	-	-	-	-	-
15	Sakar Deia	104	-	1	2	-	99	-	-	-	-	2
16	Dodapar	0	-	-	-	-	-	-	-	-	-	-
17	Gajpur	220	93	29	1	-	96	-	1	-	-	-
	Total	2152	514	213	10	17	1390	0	1	2	0	5

Source: Census of India, 2011

4.2.3 Industrial Water Supply in the Region

As per the discussions with various stakeholders, currently no water is allocated for the industrial purposes till date from the existing sources. Most of the industries use ground water as a source of supply. There are no water sources which are developed for augmenting the demand of industrial water supply.

4.2.4 Groundwater source

Occurrence of ground water in the area is controlled by Ghaghra and Rapti and their main tributaries. Fine to coarse grained sand, mixed with gravel and kankar form the principal aquifer in the district. Ground water in the area occurs both under confined and water table conditions. It occurs in the zone of saturation within the granular zones encountered below land surface. South and East of Rapti the formation are sandy and suitable for construction of shallow and deep tube wells.

As per ground water level data between year 2011 and 2020, during pre-monsoon the depth to water level ranges from 5.04 to 5.10 mbgl. Along the river water level varies from 7.00 to 8.00 mbgl show that river is effluent in nature. During the post monsoon water becomes shallower in the interfluvium and ranges from 3.32 to 2.12 mbgl, 70% to 80% of the area during this period is under water level 2.00 to 4.00 mbgl indicating excellent recharge due to monsoon as shown in **Figure 4-8**.

The movement of ground water is towards the Rapti river which is flowing in N-S direction.. Occurrences of ground water in the area is mainly controlled by three major rivers Ghaghra, Rapti and Kuwana.

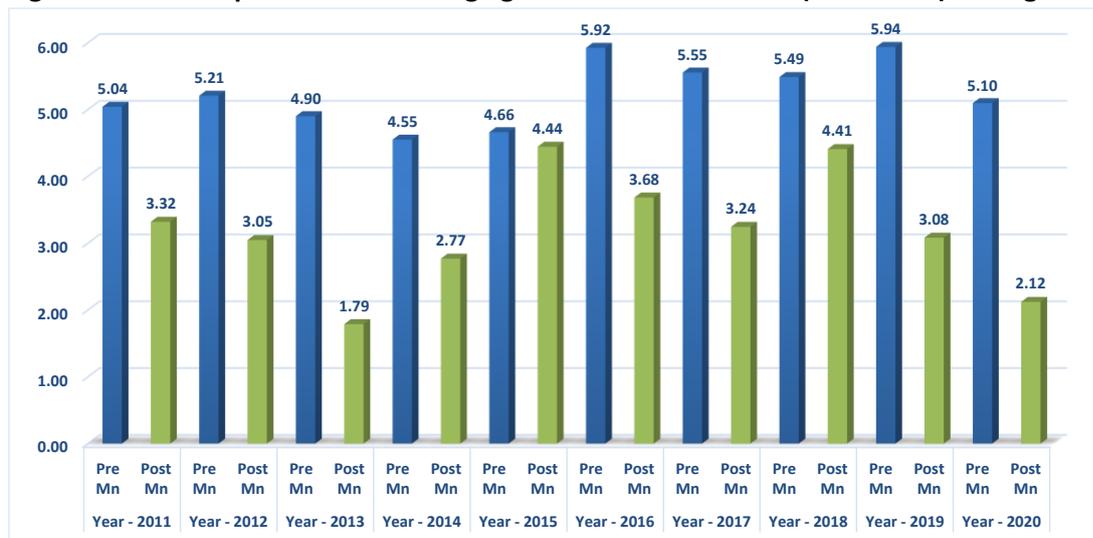
During pre-monsoon Hydrograph Station wells at Deideeha, Deokali bazar and Kakrahi in Gola Block have shown falling trend, particularly in the year 2019 and 2020 post monsoon trends have declined drastically as shown in **Figure 4-9**.

Table 4-5: Pre & Post-monsoon ground water level data (bgl in Meter)

DIS TR I C T	B L O C K	HYDRO GRAPH STATION	Year - 2011		Year - 2012		Year - 2013		Year - 2014		Year - 2015		Year - 2016		Year - 2017		Year - 2018		Year - 2019		Year - 2020	
			Pr e M n	Po st M n	Pr e M n	Po st M n	Pr e M n	Po st M n	Pr e M n	Po st M n	Pr e M n	Po st M n	Pr e M n	Po st M n	Pr e M n	Po st M n	Pr e M n	Po st M n	Pr e M n	Po st M n	Pr e M n	Po st M n
			Go rak hp ur		5.04	3.32	5.21	3.05	4.90	1.79	4.55	2.77	4.66	4.44	5.92	3.68	5.55	3.24	5.49	4.41	5.94	3.08
	Dei deeha	5.50	3.45	5.25	3.20	5.52	2.65	4.90	1.50	4.33	2.80	5.50	2.45	5.45	2.45	3.80	2.70	4.45	2.50	3.95	2.15	
	Deokali bazar	5.65	3.95	6.18	2.95	5.87	1.10	5.50	3.70	Dr y	4.00	DR Y	1.95	DR Y	4.40	DR Y	2.00	DR Y	0.20	DR Y	0.00	
	Kakrahi	5.00	3.53	5.08	3.13	4.48	1.28	3.93	2.36	3.98	3.98	5.53	1.98	4.98	2.33	4.88	3.57	6.00	1.23	4.23	0.43	
Average of Gola Block		5.38	3.66	5.57	3.11	5.18	1.63	4.69	2.65	4.24	3.44	5.67	2.14	5.22	3.39	5.34	3.14	5.23	3.31	4.09	2.29	

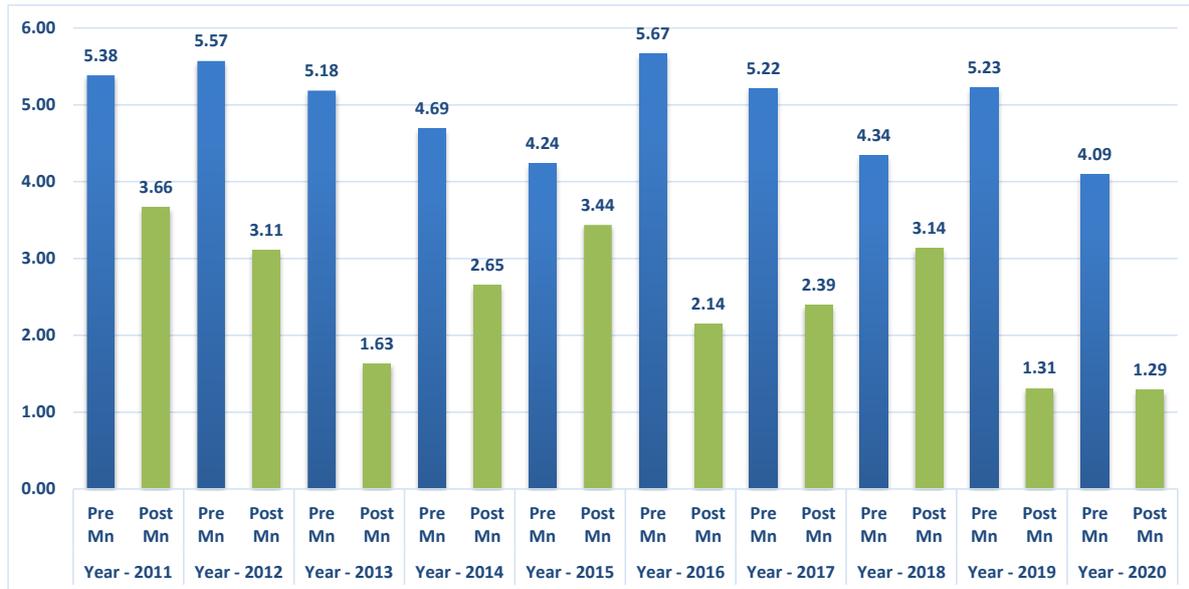
Source: Ground Water Department, Government of Uttar Pradesh

Figure 4-8: Gorakhpur District - Average ground water level data (2011-2020) in mbgl



Source: Ground Water Department, Government of Uttar Pradesh

Figure 4-9: Gola Block - Average ground water level data (2011-2020) in mbgl



Source: Ground Water Department, Government of Uttar Pradesh

Aquifer Characteristics: In Gorakhpur district five number of tubewells have been constructed by CGWB upto 200 mbgl depth and one tube well at Sarpataha upto depth 450 mbgl. Tubewells upto 200 mbgl depth tapped aquifers zones ranging from 40.00 to 50.00mbgl, 80 mbgl - 100.00 mbgl and 180 mbgl – 195.00 mbgl indicating existence of three tier aquifer system. The discharge varies from 1100 to 2350 lpm and transmissivity range from 113 to 1032 m²/day. First and second aquifers upto 100.00 metre and second and third aquifer below 200 metre depth. The deepest tubewell in the district is Sarpataha where tapping of zones start from 236.00 mbgl and zone tapped from 223 to 335.00 mbgl. The discharge of well was 2195 lpm. Except this in the entire district 70 to 180.00 m depth of tubewells were constructed and tapped first and second aquifer upto 100.00 metre and some where second and third aquifer below 180.00 mbgl. The discharge vary from 2733 to 3450 mbgl. The discharge vary from 2733 to 3450 lpm. Deeper tubewells are found in Khajani and Piprauli block area due to thick clay band between first aquifer and second aquifer which range from 85-95 m, 135-170 m of depth respectively. The discharge of tubewells ranges from 1500 to 2100 lpm. Except this area tubewells are down to depth of 100.00 m and discharge vary from 1200 to 1800 lpm, and along flood plains area the shallow aquifers constructed down to 60 to 70 m tubewells yield 1200 lpm using centrifugal pumps. The existing data show that 1.50 mm slot size with pea gravel has been used for construction of tubewells. The deeper aquifers have not been utilized as yet. **However, the electrical and lithological logs indicate that they have good potential for future development.**

The dynamic ground water resources of Gorakhpur district have been estimated jointly by CGWB and State Ground Water Department following norms laid down by GEC 1997 methodology and projected as on 2009. The reconciled figures are as under:

- Ground water availability: 147151.44 ham
- Existing gross ground water draft for irrigation: 89616.46 ham
- Existing gross ground water draft for domestic and industrial water supply: 7477.26 ham
- Existing gross ground water draft for all uses: 97093.72 ham
- Net ground water availability for future irrigation development: 11431.21 ham
- Stage of ground water development: 65.98%
- Category of block: All are safe
- **Allocation for domestic and industrial supply requirement upto 2025: 46103.77 ham**

Figure 4-10: Ground water resource potential, Gorakhpur district

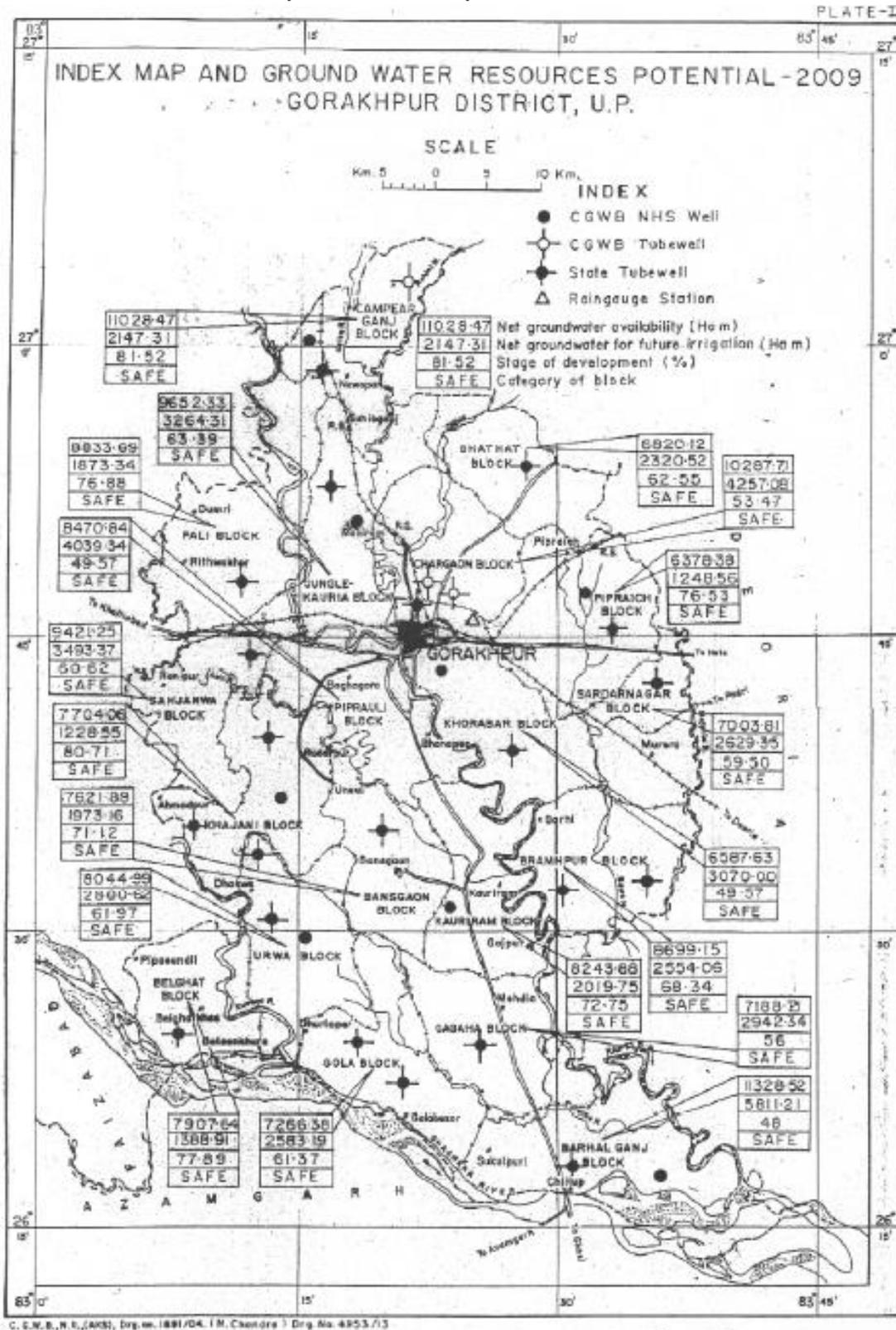


Table 4-6: Block wise dynamic ground water resources of Gorakhpur district

Sl. No.	Assessment units Block / District	Net annual ground water availability	Existing gross ground water draft for irrigation	Existing gross ground water draft for domestic & industrial water supply	Existing gross ground water draft for all uses (11+12)	Provision for domestic and industrial requirement supply for 2025	Net ground water availability for future irrigation development (10-11-14)	Stage of ground water development (13/10)*100 (%)	Category
1	2	3	10	11	12	13	14	15	16
1.	Bansgaon	7612.89	5036.39	378.14	5414.53	603.34	1973.16	71.12	Safe
2.	Barahalganj	11328.52	5294.00	143.93	5437.93	223.31	5811.21	48.00	Safe
3.	Belghat	7907.64	5744.55	414.32	6158.87	774.18	1388.91	77.89	Safe
4.	Bhatahat	6820.12	3869.73	396.43	4266.16	629.87	2320.52	62.55	Safe
5.	Brahmpur	8699.15	5542.06	402.53	5944.59	603.03	2554.06	68.34	Safe
6.	Campierganj	11028.47	8363.16	606.89	8990.05	498.00	2147.31	81.52	Safe
7.	Chargawan	10287.71	5142.39	358.25	5500.64	618.24	4527.08	53.47	Safe
8.	Gagaha	7188.21	3622.80	402.56	4025.36	623.07	2942.34	56.00	Safe
9.	Gola	7266.38	4082.94	376.23	4459.17	600.25	2583.19	61.37	Safe
10.	Jangle Kuriya	9652.33	5597.40	521.62	6119.02	790.62	3264.31	63.39	Safe
11.	Kauriram	8243.88	5598.63	398.52	5997.15	625.50	2019.75	72.75	Safe
12.	Khajani	7704.06	5786.88	431.08	6217.96	688.63	1228.55	80.71	Safe
13.	Khorabar	6587.63	2854.08	411.58	3265.66	663.55	3070.00	49.57	Safe
14.	Pali	8833.69	6471.31	319.72	6791.03	489.04	1873.34	76.88	Safe
15.	Pipraich	6378.38	4458.51	412.59	4881.10	661.31	1248.56	76.53	Safe
16.	Piprauli	8470.84	3788.25	410.49	4198.74	643.25	4039.34	49.57	Safe
17.	Sahjanwa	9421.25	5304.32	406.44	5710.76	623.56	3493.37	60.62	Safe
18.	Uruwa	8044.99	4551.35	434.26	4985.61	693.02	2800.62	61.97	Safe
	TOTAL	151476.14	91108.75	7225.58	98364.33	11051.77	49285.62	64.70	

Source: Central Ground Water Board

Ground water related issues and problems

- **Ground water quality:** The sugar industries in Gola block, Sahjanawa block area whose untreated effluent may result in ground water pollution. The low cost Katcha latrines in the village area may lead to problem of ground water pollution high Nitrate in the district.
- **Water logged area:** The depth to water table condition in the district does not confirm any water logging conditions but prone to water logged area exists in canal commands in north eastern & southern part of district.
- **Areas showing declining in water level:** The long-term water level indicate a declining trend in Kauriram, Urwa Bazar and Jangal Kauri blocks.
- **Drilling problem:** Only one deep tubewell upto depth of 450.00 mbgl have been drilled so far, High-capacity drilling rig is required to explore beyond 450 mbgl to know deeper aquifer geometry & characteristics.
- **Risk to natural disasters:** Natural erosion along the banks of the Ghaghra and Rapti River causing huge loss agricultural and residential land particularly in rainy season is a serious problem in the blocks along the river banks.

4.3 SEWERAGE AND DRAINAGE

4.3.1 Sewerage and Drainage network in Gorakhpur District, Gola Tehsil and selected villages

Status of drainage and sanitation facility is average in Gorakhpur city, presently there is no systematic drainage and sewerage facility in the city. Waste water from the city meets the large drains of the city through the small drainage channels.

Presently the delineated DIC site does not have any linkage to sewage system, wastewater and sewage treatment facility. It is proposed to build a CETP within the site for treatment of wastewater and industrial waste water. The proposed site is also not covered by any systematic drainage network.

Sewerage Network: The Census 2011 statistics indicate that out of the total households in the district only 32% of households have toilet facilities. Of the households that have toilet facilities only 6% households have piped sewerage system and 24% have pit latrines or septic tank system. Maximum percentage of households (68%) does not have any toilet facilities.

Table 4-7: Toilet facility (2011)

Particulars	Character	Total House holds	Flush/Pour latrine			Pit Latrine		Night soil disposed into open drain	Service latrine		No latrine within premises	
			Piped sewer System	Septic Tank	Other System	with slab/Ventilated improved pit	without slab/open Pit		Night soil removed by human	Night soil Serviced by animals	Public latrine	Open
Gorakhpur District	Total	695,366	41410	136741	13085	14319	4067	1601	292	2014	11642	470195
	Rural	559,062	11751	63753	10412	11631	3495	993	206	1645	7815	447361
	Urban	136,304	26659	72988	2673	2688	572	608	86	369	3827	22834
Gola Tehsil	Total	78,892	2391	12324	1702	1452	548	175	0	429	1443	58428
	Rural	774,310	2055	10755	1617	1400	544	164	0	388	1363	56024

Particulars	Character	Total House holds	Flush/Pour latrine			Pit Latrine		Night soil disposed into open drain	Service latrine		No latrine within premises	
			Piped sewer System	Septic Tank	Other System	with slab/Ventilated improved pit	without slab/open Pit		Night soil removed by human	Night soil Serviced by animals	Public latrine	Open
	Urban	4,582	336	1569	85	52	4	11	0	41	80	2404

Source: Census of India 2011

The situation is almost similar in villages falling under DIC region as given in below table.

Table 4-8: Toilet Facility in DIC Villages (2011)

S.No	Villages	Total Households	Number of households having latrine facility within the premises	Flush/pour flush latrine connected to			Pit latrine		Night soil disposed into open drain	Service Latrine		Number of households not having latrine facility within the premises	Alternative source	
				Piped sewer system	Septic tank	Other system	With slab/ventilated improved pit	Without slab/open pit		Night soil removed by human	Night soil serviced by animal		Public latrine	Open
1	Parsa Bujurg	123	18	-	18	-	-	-	-	-	-	105	-	105
2	Dubri Purwa	65	20	2	18	-	-	-	-	-	-	45	-	45
3	Bath Bujurg	177	110	19	90	-	1	-	1	-	-	67	-	67
4	Pura Dayal	39	7	-	5	1	1	-	-	-	-	32	-	32
5	Kastkasinayak	46	2	-	2	-	-	-	-	-	-	44	-	44
6	Harpur	344	24	-	8	1	9	6	-	-	-	320	-	320
7	Bath Khurd	86	5	-	3	2	-	-	-	-	-	81	-	81
8	Dhurahra	176	33	8	25	-	-	-	-	-	-	143	1	143
9	Kast Subans Dubey	2	-	-	-	-	-	-	-	-	-	2	-	2
10	Math Durabasa	66	11	-	3	-	8	-	-	-	-	55	-	55
11	Gaur Khas	314	70	25	45	-	-	-	-	-	-	244	-	244
12	Chari	364	66	11	44	9	-	-	1	-	-	298	-	298
13	Digharua	9	9	9	-	-	-	-	-	-	-	-	-	-
14	Bhikham Patti	17	-	-	-	-	-	-	-	-	-	17	-	17
15	Sakar Deia	104	20	-	19	1	-	-	-	-	-	84	-	84
16	Dodapar	0	-	-	-	-	-	-	-	-	-	-	-	-
17	Gajpur	220	34	2	27	2	2	-	-	-	1	186	46	140

Source: Census of India 2011

Drainage Network: More than 40% households in the district are not connected with any form of drainage networks. 60% of the households having connectivity for waste water outlet maximum households (46%) are connected with only open drainage networks. At the Gola Tehsil level, in terms of close drainage facility is better which 17% as compared to 14% is in whole district. 65% of the households are connected with closed drains and open drains.

Table 4-9: Type of Connectivity for Waste Water Outlet (2001)

Connectivity for Waste Water Outlet						
Particulars	Character	Total Households	Type of connectivity for waste water outlet			% HH with Closed Drainage
			Closed Drainage	Open Drainage	No drainage	
Gorakhpur District	Total	695,366	95,556	319,188	280,622	13.74
	Rural	559,062	56,667	239,254	263,141	10.14
	Urban	136,304	38,889	79,934	17,481	28.53
Gola Tehsil	Total	78,892	13,442	37,671	27,779	17.04
	Rural	774,310	12,418	34,767	27,125	16.71
	Urban	4,582	1,024	2,904	654	22.35

Source: Census of India 2011

Table 4-10: Villages-Drainage Facility (2011)

S.No	Area Name	Total Households	Number of households having bathing facility within the premises			Waste water outlet connected to			% of HHS with Closed Drainage
			Yes		No	Closed drainage	Open drainage	No drainage	
			Bathroom	Enclosure without roof					
1	Parsa Bujurg	123	19	97	7	54	53	16	43.9
2	Dubri Purwa	65	5	20	40	3	37	25	4.6
3	Bath Bujurg	177	91	15	71	16	112	50	8.8
4	Pura Dayal	39	4	8	27	3	17	19	7.7
5	Kastkasinayak	46	1	2	43	7	18	22	14.9
6	Harpur	344	103	78	163	30	117	197	8.6
7	Bath Khurd	86	11	12	62	11	17	58	13.3
8	Dhurahra	176	11	91	74	19	112	45	10.9
9	Kast Subans Dubey	2	-	2	-	-	2	-	0
10	Math Durabasa	66	8	42	17	-	65	1	0
11	Gaur Khas	314	52	145	117	53	178	83	16.9
12	Chari	364	39	126	200	49	155	160	13.5
13	Digharua	9	9	-	-	-	9	-	0
14	Bhikham Patti	17	2	-	15	-	9	9	0
15	Sakar Deia	104	13	2	89	-	5	99	0
16	Dodapar	0	-	-	-	-	-	-	14.3
17	Gajpur	220	24	39	158	10	158	51	4.7

Source: Census of India 2011

4.4 POWER AND STATUS OF AVAILABILITY FOR THE PROJECT

UP Power Transmission Corporation Limited, is responsible for acquire, establish, construct, take over, erect, lay, operate, run, manage, hire, lease, buy, sell, maintain, enlarge, alter, renovate, modernize, work and use electrical transmission lines and/or network through extra high voltage, high voltage and associated sub-stations, cables, wires, connected with transmission ancillary services, telecommunication and telemetering equipment in the State of Uttar Pradesh. For efficient operation & management Uttar Pradesh Power Corporation Limited (UPPCL) is further restructured into five zones. Gorakhpur district falls under Purvanchal Vidyut Vitaran Nigam Ltd (PUVVNL).

4.4.1 Power supply status in district

The time series data for connected load in Kwh and no. of consumers from 2016 to 2020 is illustrated in table below. The data suggests an upward trend in all the entities. The number of consumer in the district has risen at a CAGR of 10.17% % whereas in case of connected load, the CAGR's are approaching almost 8%, representing increasing per capita consumption in successive years.

Table 4-11: Growth trends of power consumers and connected load between 2016 and 2020

Year	Number of consumers	CAGR	Connected load in MW	CAGR
2016	483248	10.17%	1092	8%
2017	495319		1081	
2018	563219		1326	
2019	668102		1387	
2020	711965		1483	

Source: Statistics from UP Power Transmission Corporation Limited

Primary electricity line crosses through Gorakhpur district are as follows:

- SC 440 KV Gorakhpur-Azamgarh running through 90 km of length
- SC 220 KV 35.5 km long Gorakhpur-Deoria line
- SC 25 km long Gorakhpur (440 KV) – Gorakhpur (220 KV) interconnector I
- SC 25.6 km long Gorakhpur (440 KV) – Gorakhpur (220 KV) interconnector II
- SC 220 KV line is 55.62 km running through Gorakhpur – Basti
- DC 5 km 132 KV Lilo of Gorakhpur – Khalilabad at GIDA
- DC 10.5 km 132 KV line at FCI Gorakhpur (220 KV)
- SC 28.7 km 132 KV Gorakhpur (220 KV) Shatrughanpur
- SC 59.4 km 132 KV Kasia-Gorakhpur FCI
- SC 41.5 km 132 KV Gorakhpur – Anand Nagar
- SC 96 km 132 KV Gorakhpur – Mau
- DC 2.14 km 132 KV Lilo Mau Gorakhpur (II Ckt at Barhalganj)

Transformation capacity at grid stations (132 KV and above)

- Zone Transmission East (TE) Gorakhpur, Substation Gorakhpur – 400/220/132 KV: 1X315+1X500+1X240 (Capacity in MVA (No. X MVA))
- Zone Transmission South (TS) Gorakhpur, Substation Gorakhpur – 220/132 KV: 2X160 and 1X100; 132/37.5/33 KV: 1X40 and 1X63
- Zone TE Gorakhpur, substation at Barhalganj - 132/37.5/33 KV: 2X20
- Zone TE Gorakhpur, substation at FCI - 132/37.5/33 KV: 1X40 and 2X63
- Zone TE Gorakhpur, substation at Mohaddipur - 132/37.5/33 KV: 3X40
- Zone TE Gorakhpur, substation at GIDA - 132/37.5/33 KV: 2X20
- Zone TE Gorakhpur, substation at Kauriram - 132/37.5/33 KV: 1X63 and 1X40
- Zone TE Gorakhpur, substation at Shatrughanpur - 132/37.5/33 KV: 1X20 and 2X40

- Bathat Gorakhpur - 132/37.5/33 KV: 2X40

Transformation capacity (33 KV and above)

- Primary substation 220/132 KV and 400/132/33 KV, 400/220/33 KV: 760 MVA
- Secondary substation 132/66, 132/66 KV substation and 220/33/132/25 KV: 1320 MVA
- Secondary substation 37.5. 33/11, 6.6, 3.3, 132/11 KV: 912 MVA
- Secondary substation 33KV/11: 768 MVA

4.4.2 Power supply in Gola Tehsil and proposed DIC

Currently power supply for domestic usage is available approx. for 24 hrs in Gorakhpur city and 18 hrs for villages in the district. For industrial use, electric supply is available for 24 hrs. For the proposed industrial areas in the district, power supply is not an issue and supply is provided on 24X7 basis. As far as the site is concerned In Gola tehsil, there are three substations of 33/11 KV each located at Pakdi 3 MVA feeding substation at Kasauriram, Ahirauli 5 MVA feeding substation at Barhalganj and Gola Bazar 8 MVA feeding substation at Kasauriram. A Low Tension (HT) line passes transversely through the site, which needs alteration. Site selected for DIC covers area from 17 villages, have power supply for approx. 18 hrs.

4.5 SOLID WASTE MANAGEMENT

Currently there is no proper solid waste management facility in Gorakhpur District; solid waste is dumped in open and no treatment is done for the waste dumped here hence it is polluting the nearby places in the town.

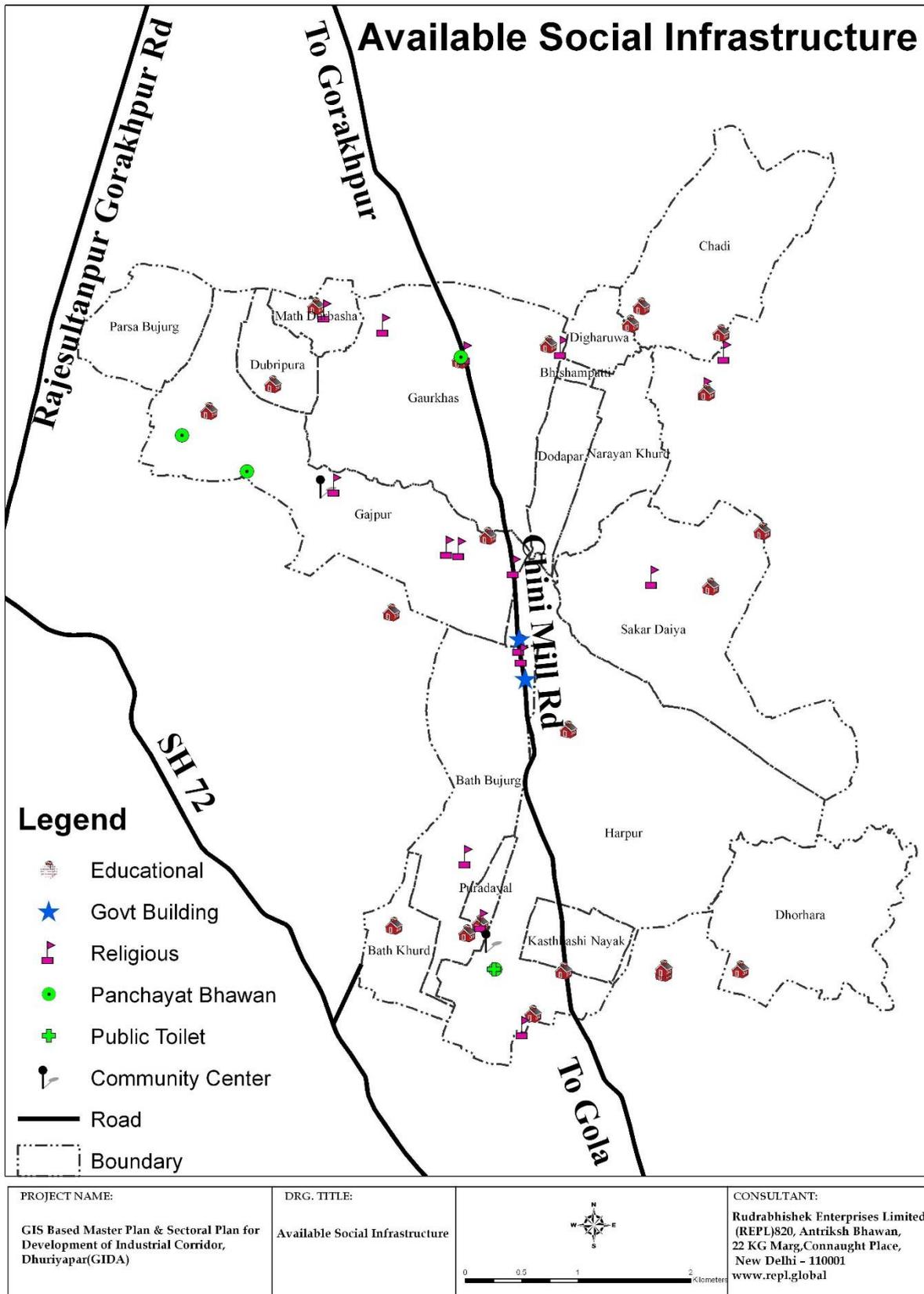
The villages falling under the delineated site also do not have any solid waste management facility. The proposed project is likely to generate a sizeable amount of industrial processing waste for which a solid waste management system needs to be designed.

4.6 AVAILABLE SOCIAL INFRASTRUCTURE

Based on the primary survey following social infrastructure has been recorded on the site:

- Four panchayat bhawan,
- Two government offices,
- Four community centres,
- Four tube wells,
- Fourteen temples and
- Two mosque.
- Every village has one government primary school and there are total twenty educational centres with two private senior secondary school and one private degree college.
- There is no government or private hospital or dispensary in DIC, people have to visit Uruwa which is 5km away to avail health services.

Map 4-3: Available Social Infrastructure



Source: Primary Survey, REPL-2021

5 MEETINGS & PRESENTATIONS

Various Meetings & presentations have been conducted to understand the ground realities of the project & monitor the progress of the work. Following are the pictures of some meetings with the points discussed.

5.1 INCEPTION STAGE MEETING:

Date: 17th December, 2020



S.No.	Points Discussed
1	An area comparison chart shall be prepared to add the villages to have a regular shape of the site for the preparation of Master Plan
2	A representative shall be deployed at GIDA for regular coordination
3	Payment against the first deliverable shall be released

5.2 INTERIM STAGE MEETING -1:

Date: 9th February, 2021



S.No.	Points Discussed
1	Status of work done till date Inception report- Done Site analysis-Done Existing landuse survey- Done Land use map- Done Sajra procurement-Done

	Sajra georeferencing-Done Sajra digitization-Done Boundary finalization-Done Secondary study for market survey-Done Primary market survey- Team mobilised																																				
1	Deletion of 3 Villages (Kast Subans Dubey, Gharari, Barparmafi) and addition of 2 New Villages (Gajpur & Narayan Khurd) to have a regular shape of the site for Industrial Development. New List includes following 17 Villages. <table border="1" data-bbox="300 548 810 1294"> <thead> <tr> <th>S.No.</th> <th>Name of Village</th> </tr> </thead> <tbody> <tr><td>1</td><td>Bath Bujurg</td></tr> <tr><td>2</td><td>Bath Khurd</td></tr> <tr><td>3</td><td>Bhishampatti</td></tr> <tr><td>4</td><td>Chadi</td></tr> <tr><td>5</td><td>Dhorhara</td></tr> <tr><td>6</td><td>Digharuwa</td></tr> <tr><td>7</td><td>Dodapar</td></tr> <tr><td>8</td><td>Dubripura</td></tr> <tr><td>9</td><td>Gajpur</td></tr> <tr><td>10</td><td>Gaurkhas</td></tr> <tr><td>11</td><td>Harpur</td></tr> <tr><td>12</td><td>Kasthkashi Nayak</td></tr> <tr><td>13</td><td>Math Durbasha</td></tr> <tr><td>14</td><td>Narayan Khurd</td></tr> <tr><td>15</td><td>Puradayal</td></tr> <tr><td>16</td><td>Sakar Daiya</td></tr> <tr><td>17</td><td>Parsa Bujurg</td></tr> </tbody> </table>	S.No.	Name of Village	1	Bath Bujurg	2	Bath Khurd	3	Bhishampatti	4	Chadi	5	Dhorhara	6	Digharuwa	7	Dodapar	8	Dubripura	9	Gajpur	10	Gaurkhas	11	Harpur	12	Kasthkashi Nayak	13	Math Durbasha	14	Narayan Khurd	15	Puradayal	16	Sakar Daiya	17	Parsa Bujurg
S.No.	Name of Village																																				
1	Bath Bujurg																																				
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15	Puradayal																																				
16	Sakar Daiya																																				
17	Parsa Bujurg																																				
2	Revised Area of site in Approx. 8385 Acres which was approx. 5500 Acres earlier as per RFP																																				
3	Existing Land Use Map is prepared and presented after Land Use Survey																																				
4	Secondary data analysis-market survey was presented & Discussed																																				
5	Team will be introduced to the local industrialist to start the primary Market Survey																																				

Committee’s feedback:

- The Revised area needs to be notified again
- Contour Map needs to be Revised
- A Map to be generated showing distance of site from Purvanchal expressway, Gorakpur link road, National highway.
- A Map to be generated showing the Gorakhpur Master plan 2001-2021 and after GIDA Master Plan and the Dhuriyapur Site to understand the connectivity between them.
- DMIDC can support in funding if site location is less than 150 km from Amritsar-Delhi- Kolkata Industrial corridor. This option needs to be explored more
- Heavy industries may be preferred for the site. Industries like electric vehicle manufacturing shall be contacted.
- Payment against the first Deliverable shall be released.

5.3 INTERIM STAGE MEETING -2:

Date: 9th February, 2021



S. No.	Points Discussed
1	Map showing GIDA Master Plan & GDA Master Plan to be prepared
2	Map showing the Impact area of DFC to be prepared
3	Payment against the first Deliverable shall be released

5.4 INTERIM STAGE MEETING -3 (ONLINE)

An online meeting was conducted dated 1st June 2021 to present results of demand assessment and product mix. The meeting was chaired by CEO GIDA and attended by GIDA officials and REPL team. Below are some of the comments received on the presentation:

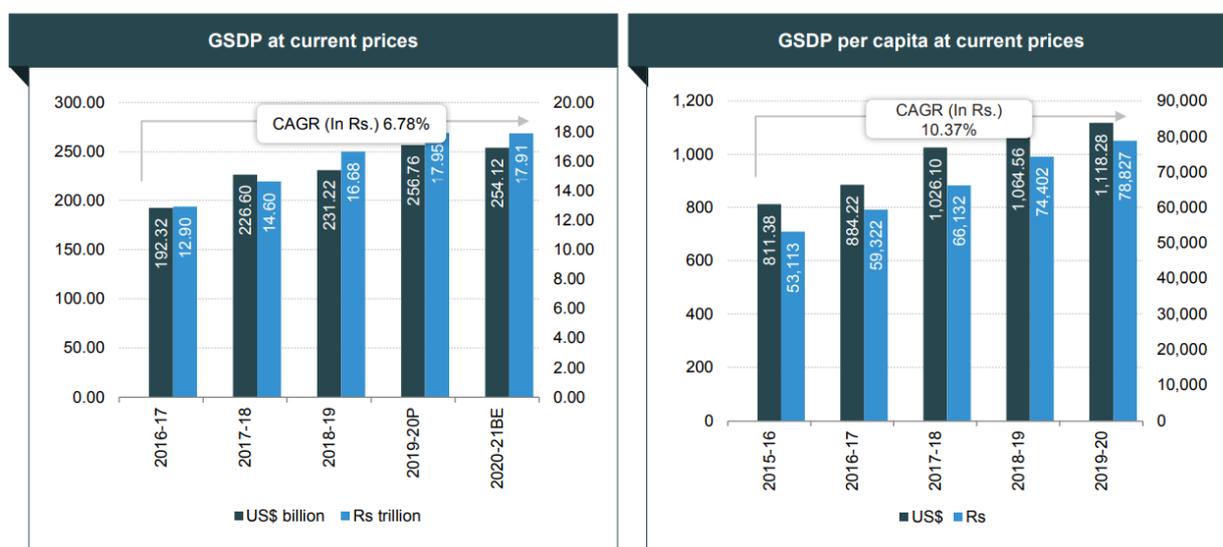
- Revision of product mix based on the local demand and presence of DIC within 150 km of AKIC.
- Preparation of DIC map positioning with respect to AKIC.
- Revision in plot size of industries proposed for DIC.
- Detailing of land rates for DIC region.
- Looking for financial feasibility options for DIC.
- Marking road width of internal roads within DIC.

6 MACRO ECONOMIC REVIEW OF UTTAR PRADESH

6.1 ECONOMIC TRENDS OF UTTAR PRADESH

6.1.1 Economic Trends of Uttar Pradesh

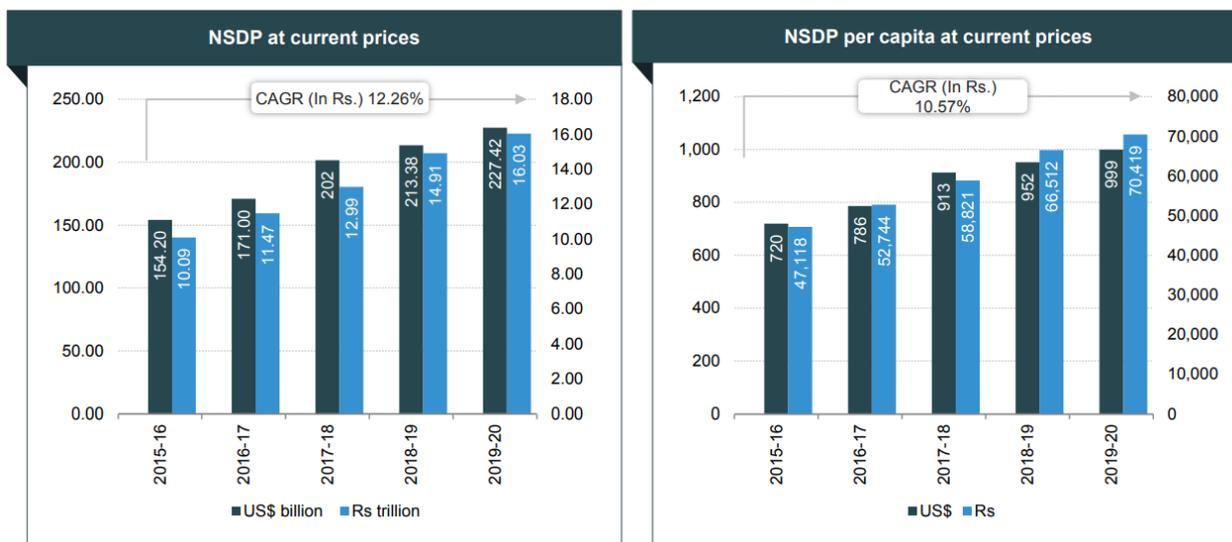
Amongst the northern states of India, Uttar Pradesh is situated at 23°52'N and 31°28'N latitudes and 77°3' and 84°39'E longitudes. The state shares its boundary with Nepal and nine other states of India. Those states are Himachal Pradesh, Delhi, Haryana on the North West; Uttarakhand in the north; Rajasthan on the west; Madhya Pradesh and Chhattisgarh on the south; Jharkhand to the south-east & Bihar in the east. Though Uttar Pradesh is a land locked state, it however is a part of the Ganga basin. The total area of Uttar Pradesh is 29.4 m ha, thus making it the fourth largest state in Indian. Uttar Pradesh is also the most populous state in India with a population of 20.42 crore as per census 2011. The state has 71 districts, 312 sub-districts, 915 towns, 106773 villages and 823 CD blocks.



GSDP current prices and per capita at current prices.
 IBEF Sep 2020, Directorate of Economics and Statics of Uttar Pradesh)

(Source:

At current prices, Gross State Domestic Product (GSDP) of Uttar Pradesh is Rs. 17.91 trillion (US\$ 254.12 billion) in 2020-21. The GSDP grew at a CAGR of 6.78 % from 2016-17 to 2020- 21. The state’s per capita GSDP in 2019-20 was Rs. 78, 8277 (US\$ 1,118). Per capita GSDP increased at a CAGR of 10.37% between 2015-16 and 2019-20. (Data Source: IBEF September 2020 presentation)



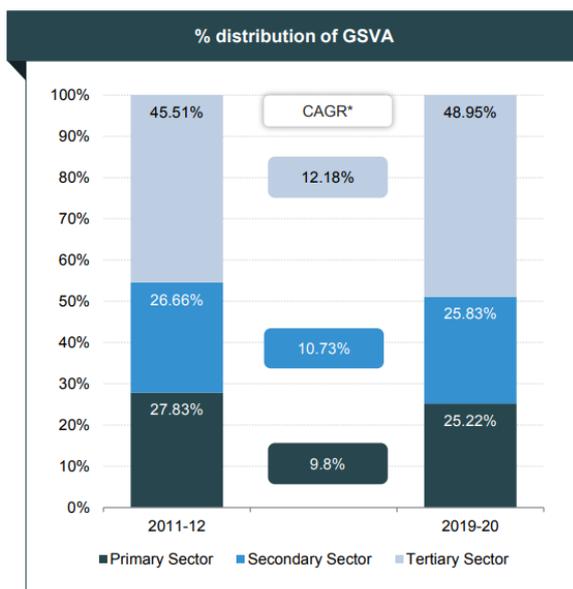
NSDP current prices and per capita at current prices.
 IBEF Sep 2020, Directorate of Economics and Statics of Uttar Pradesh)

(Source:

The net state domestic product (NSDP) of Uttar Pradesh was Rs. 16.03 trillion (US\$ 227.42 billion) in 2019-20. The NSDP grew at a CAGR of 12.26 % between 2015-16 and 2019-20. The state’s per capita NSDP in 2019-20 was Rs. 70,419 (US\$ 999). Per capita NSDP increased at a CAGR of 10.57 % between 2015-16 and 2019-20. (Data Source: IBEF September 2020 presentation)

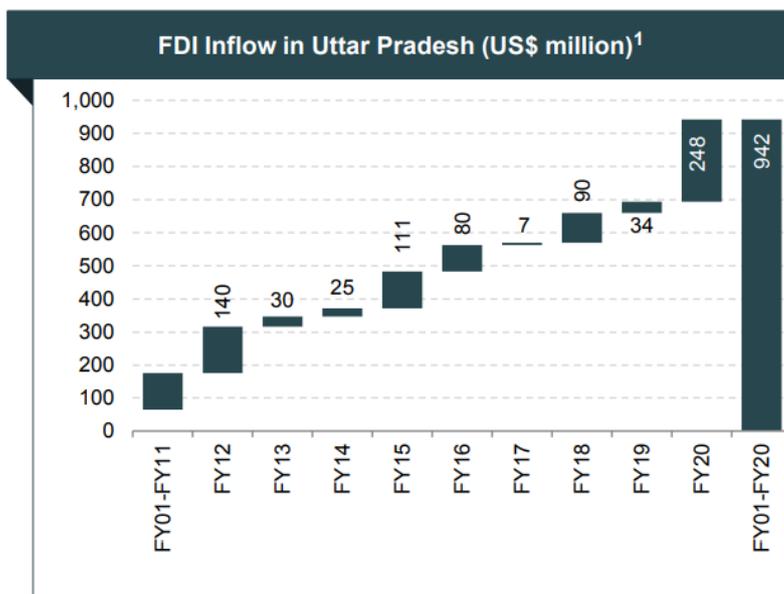
Uttar Pradesh is also a major tourist destination with cities like Lucknow and Agra attracting foreign tourists. In 2019 the count of domestic tourist reached 535.8 million and foreign tourist count reached 4.74 million. Thus, the tourism industry is one of the major industries in the state.

Uttar Pradesh is also the largest producer of food grains in India and contributes 17.83% share in the countries total food grain output in the year 2016 – 2017. In the year 2016 – 2017 the food grain production in the state stood at 49,903.1 thousand tonnes and 51,251.7 thousand tonnes in the year 2017 – 2018. The major food grains produced in the state include rice, wheat, maize, bajra, gram, pea and lentils. Pulses production in the state is 2,208.0 thousand tonnes in the year 2017-18. The state is also the largest producer of vegetables in India and produced 1,002.64 thousand metric tonnes of vegetables in 2018-19. The soil in the state is also favourable for fruit production.



Percentage distribution of GSVA (Source: IBEF Sep 2020, Directorate of Economics and Statics of Uttar Pradesh)

In 2019-20, the tertiary sector contributed 48.95% to Uttar Pradesh’s Gross State Value Added (GSVA) at current prices, followed by the secondary sector (25.83%) and primary sector (25.22%). The tertiary sector grew the fastest among the three sectors from 2011-12 to 2019-20 (12.18% CAGR). The growth was driven by trade, hotels, real estate, finance, insurance, transport, communications and other services. The primary sector expanded at a CAGR of 9.8% between 2011-12 and 2019-20. The growth was driven by agriculture and forestry. The secondary sector expanded at a CAGR of 10.73% between 2011-12 and 2019-20. This was driven by manufacturing, construction, electricity and gas & water supply. (Data Source: IBEF September 2020 presentation).



FDI Inflow in Uttar Pradesh (US\$ million) (Source: IBEF Sep 2020, Directorate of Economics and Statics of Uttar Pradesh)

According to Department for Promotion of Industry and Internal Trade (DPIIT), cumulative FDI inflow¹ in Uttar Pradesh stood at US\$ 942 million between April 2000 and March 2020. In February 2020, state organized Defense Expo-2020 and received proposals worth Rs. 5 lakh crore (US\$ 70.93 billion) for investment. In August 2020, Kodak TV has highlighted a plan to invest Rs. 500 crore (US\$ 715 million) in Hapur, Uttar Pradesh, to set up a fully automated television manufacturing plant. (Data Source: IBEF September 2020 presentation).

The state of Uttar Pradesh is ranked 5th amongst Landlocked States on Export Preparedness Index 2020. The State has observed a per capita Income growth of 23% during the period from 2016 – 2020



45% GSDP Share of
Tertiary sector



23% GSDP Share
of Secondary Sector

Top 5 districts leading State's GSDP Include

GBNagar (10%)	Lucknow (4%)	Agra (3.5%)	Prayagraj (3.3%)	Meerut (3%)
------------------	-----------------	----------------	---------------------	----------------

4th Largest State by land area (2.4 lakh Sq.kms)

75
Districts

689 City
Towns

18
Divisions

820
Blocks

Shares inland borders with
7 STATES & 1 INTERNATIONAL BORDER

7 INDUSTRIAL PROFILE AT A GLANCE

7.1 INDUSTRIAL GROWTH SCENARIO IN UTTAR PRADESH

The state of Uttar Pradesh is among the top 5 most industrialized states of India, contributing more than 8% of national manufacturing output. As per data available with UP micro, small and medium enterprises (MSME) department, there are about 9,30,348 Industrial units in the state. During the 12th five year plan period i.e. 2012 – 2017, Uttar Pradesh saw over 143,000 MSMEs and heavy industrial unit’s set-up their bases in the state. The state has the highest number of Micro, Medium and Small enterprises (MSMEs) in India.

The key industries in the state include food processing, information technology (IT), tourism, mineral-based industries, auto components, textiles, handlooms and handicrafts, biotechnology, leather-based and sports goods industries.

With the efforts being put in by the state government UP has climbed up 10 positions in the “Ease of Doing Business” rankings over the last three years, and now stands at 2nd position in the country. By giving a favourable investment climate in the state the government aims at promoting the development and growth of industries and creating employment.

Uttar Pradesh aims to become a trillion dollar economy in the next 5 years, and have therefore have started taking steps towards organisational restructuring, with focused policies and rules for more effective governance. Develop frameworks for faster decision-making process and improved accountability. If these steps get implemented on ground, then the pace of industrial growth in the state would get a significant push forward.

7.1.1 Focus Sectors for Investment in UP

 <p>Food Processing & Dairy</p>	<ul style="list-style-type: none"> • 15 Agro & Food Processing Parks/clusters • 100% FDI allowed through automatic route (including trading, ecommerce) • 9 AGRO CLIMATIC ZONES in UP with varied forms of agro specialties • Key Policy Support Provided – Subsidy in Capital Investment, & Interest, Export promotion Incentives
 <p>Handloom and Textile</p>	<ul style="list-style-type: none"> • UP is 3rd largest producer of fabric in India • 9 AGRO CLIMATIC ZONES in UP with varied forms of agro specialties • 47 Approved Textile Parks/clusters
 <p>ITES</p>	<ul style="list-style-type: none"> • Uttar Pradesh is one of the leading exporters of software in India, with wide availability of skilled manpower • State has More Than 40 IT&ITeS Parks and more than 25 SEZ IT&ITeS • Rebate given on land, subsidy on interest. There is provision for exemption of stamp duty and subsidy for employment generation & cheap electricity

 <p>Startup</p>	<ul style="list-style-type: none"> • Emerging as the start-up hub of India, with the National Capital Region as the epicenter. • 1000 Crore Uttar Pradesh Start Ups fund has been set up • 150 Crore Corpus setup by the state with AKTU to fund start-ups • 100 Upcoming Incubators in the state • Key enablers like Interest subsidy, rebate on lease rentals, electricity duty exemption provided.
 <p>Tourism</p>	<ul style="list-style-type: none"> • State has the highest domestic and 3rd highest international tourist footfall in India. Besides heritage, religious and cultural tourism, the State is an emerging destination for wellness, MICE, adventure and eco-tourism in India
 <p>MSME</p>	<ul style="list-style-type: none"> • Being amongst the Top 5 manufacturing state in India, contributing nearly 8% to the national manufacturing output, UP has a strong ancillary base with highest number of MSMEs in India. • Key enablers like interest subsidy, land use conversion fee waiver, etc. provided
 <p>Electronics Manufacturing</p>	<ul style="list-style-type: none"> • Largest Exporter of consumer electronics in India • 196 ESDM (electronics & semiconductor manufacturing) companies presently operating in the State • 40% of all mobiles and 55% of all mobile components are being manufactured in UP • Rebate given on land, subsidy on interest, Capital cost subsidy, other ESDM Park incentives provided
 <p>Film</p>	<ul style="list-style-type: none"> • Emerging as one of the hotspots for film shooting in India • Biggest Film City of the country is coming up in the State
 <p>Renewable Energy</p>	<ul style="list-style-type: none"> • 28GW Capacity to produce renewable energy in the State • 30% Increase in production capacity of grid connected renewable energy(2017-2018) in the State
 <p>Civil Aviation</p>	<ul style="list-style-type: none"> • With rapidly growing passenger air traffic and air cargo traffic, the opportunities in aviation sector in UP are widely multiplying. • 7 Existing Airports/ Airstrips, 5 Domestic Airports & 2 International Airports • 25 airports targeted under UDAN Regional Connectivity Scheme
<p>Sunrise Sectors in Uttar Pradesh</p>	
 <p>Pharmaceuticals</p>	<ul style="list-style-type: none"> • 9 existing Pharma Clusters 1 Biotech Park • Expanding Manufacturing base with 354 Formulation units, 38 Bulk Drug units, 54 Cosmetic Units, 22 Medical Devices manufacturing Units

	<ul style="list-style-type: none"> • Incentives given for Pvt Pharma Parks, with interest subsidy given • 100% FDI allowed under the automatic route for greenfield & brownfield pharma
	<ul style="list-style-type: none"> • UP is Strategically located adjacent to NCR gateway to eastern & southern exporting hubs • 8.5% DMIC (Delhi Mumbai Industrial Corridor), & 57% AKIC (Amritsar Kolkata Industrial Corridor) catchment area in located within UP • Land Use & Development charges waiver given & Interest subsidy given. Incentives given for Pvt Logistics Parks
	<ul style="list-style-type: none"> • Largest SME base With favorable ecosystem for automobile & battery manufacturing • 100% FDI allowed through automatic route in automobile sector • Rapid Transitioning of public vehicles to EVs in UP viz. public buses, Govt office vehicles, etc. • Capital Subsidy given to Charging Station developers, along with subsidy given on land and interest fee.
	<ul style="list-style-type: none"> • Defense Industrial Corridor Announced by Gol in Bundelkhand region • 5000 hectares of developed land for Defense Industrial Corridor has been marked • 100% FDI is allowed in Defence industry

7.1.2 Industrial Land Bank in Uttar Pradesh

Uttar Pradesh has a Large Land Bank for industrial development. To facilitate the growth of industries in the state. The government has set up different Industrial development authorities, in the state. The main responsibility of these industrial development authorities is to acquire land and develop the required infrastructure to promote development of industries in the state.

The main Industrial development authorities in UP are:

1.	Uttar Pradesh State Industrial Development Authority(UPSIDA)
2.	Greater Noida Industrial Development Authority(GNIDA)
3.	Yamuna Expressway Industrial Development Authority(YEIDA)
4.	New Okhla Industrial Development Authority(NOIDA)
5	Gorakhpur Industrial Development Authority (GIDA)

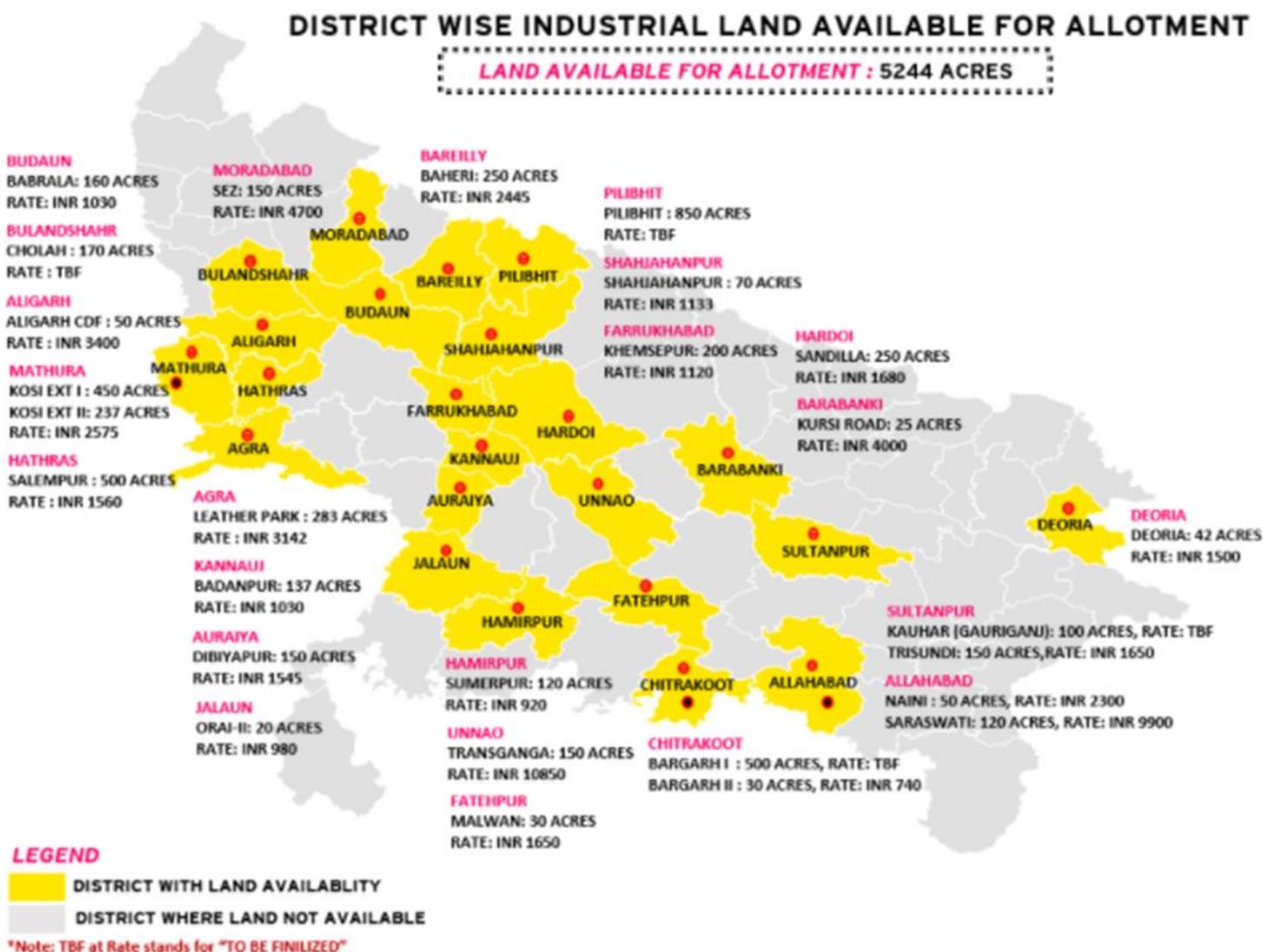
A target has been set to create a land bank of 4,940 acres during the financial year 2020-21. The action plan has set the annual target of 1545.85 acres to UP State Industrial Development Authority (UPSIDA) to carve out a land bank. Similarly, a target of 400 acres has been fixed for NOIDA, 1752.78 acres for Greater Noida, 1071.77 acres for Yamuna Expressway Industrial Development Authority (YEIDA) and 170 acres of land bank for Gorakhpur Industrial Development Authority (GIDA).

A total of 21,301.57 acres of land in 14 districts has been identified for the development of industrial parks/industrial areas. This includes 1768.60 acres in Agra, 7027.85 acres in Firozabad, 490.79 acres in Auraiya, 162.54 acres in Kannauj, 692.64 acres in Mainpuri, 123.55 acres in Etawah, 1937.03 acres in Unnao, 3890.91 acres in Azamgarh, 396.32 acres in Mau, 1086.12 acres in Gorakhpur, 98.42 acres in Chitrakoot, 988.42 acres in Hamirpur, 766.03 acres in Mahoba and 983.15 acres in Jhansi.

Existing Land Available for allotment with UPSIDC

7.2 KEY EXISTING INDUSTRIAL SECTORS IN UTTAR PRADESH

Figure 7-1: Key Industrial Sectors in Uttar Pradesh



Sr.no.	Industry Type	Remark
1	Leather	<ul style="list-style-type: none"> Uttar Pradesh has a well-developed leather industry. The state has one of the largest The state is the second largest producer of leather goods after Tamil Nadu. Livestock populations in the country, which provides a strong raw material base required for the industry. Kanpur & Agra have been notified as “Towns of Export Excellence” for leather products.
2	Textiles	<ul style="list-style-type: none"> Uttar Pradesh is the third highest fabric producing State of India producing 13.24% of the national production. The State ranks 5th in total silk production in the country. The State has fifth highest number of handlooms in India and has about 2.58 Lakh Handloom weavers and about 4.21 Lakh power loom weavers. The total exports of textile sector from U.P. were 15.93 thousand crores during 2016-17
3	Sugar	<ul style="list-style-type: none"> U.P. is the largest sugarcane producer of India. It accounts for about 47.30 % of total production in the country. Further, it has easy access to raw material & has huge potential to establish new units in eastern U.P. To revive the shutdown sugarcane industry, the State Government had launched Sugarcane Policy-2013.
4	Engineering Goods	<ul style="list-style-type: none"> The state is a leading producer in engineering goods sector. Several Engg. & Auto components are manufactured in Lucknow, Noida & Ghaziabad.
5	Electronics Manufacturing	<ul style="list-style-type: none"> Uttar Pradesh is the largest exporter of consumer electronics in India. The state has become a hub for the semiconductor industry with several major players having their Offices and Research and Development (R&D) centers in Noida and Greater Noida.
6	Dairy	<ul style="list-style-type: none"> Uttar Pradesh is the largest milk producing State in India. In 2015-16, the State produced 26,387 thousand tonnes of milk contributing to 17% of the total milk production in India
7	Agro and Food Processing	<ul style="list-style-type: none"> Uttar Pradesh is one of the major producers of horticulture crops and food grains in India, which serves as a lucrative base for the food processing industry. It is one of the most predominant sector in UP Largest producer of fruits and vegetables in India. It Ranks no. 1 in production of food grains, milk, sugarcane, potato, peas, mango, gooseberry and watermelon.

Sr.no.	Industry Type	Remark
8	Chemicals & Fertilizers	<ul style="list-style-type: none"> U.P contributes about 6% of India's total production of chemicals. There is huge availability of raw materials for production of fertilizer in Bundelkhand area. Rock phosphate found in Lalitpur is sold as direct fertilizer & also used as raw material for phosphorus plants.
9	Information Technology	<ul style="list-style-type: none"> Uttar Pradesh has emerged as the hub of IT and ITES sector, including software and captive business process outsourcing. Noida is one of the key IT cluster of the country Uttar Pradesh has 25 plus Special Economic Zones for IT and ITES and more than 40 IT and ITES Parks. Software Technology Parks have also been set up at Lucknow, Kanpur & Allahabad. Agra has emerged as preferred investment location of IT due to its world class infrastructure & proximity to IT hubs; Noida & Gurgaon

Industrial Infrastructure Facilities to Investors:

Industrial infrastructure facilities are provided in order to promote investments and also boost industrialization in Uttar Pradesh. The following are some of the initiatives taken by the state government.

Special Economic Zone

In SEZs, Government of Uttar Pradesh aims to provide simplified clearances, world class infrastructure and a stable fiscal regime to attract investments. The SEZ Policy passed in 2007 which was amended later to foster required facilities for the development of this sector.

SEZ proposals recommended by the state government: 56

Notified SEZ's: 21

Formal Approval granted by Government of India (SEZ): 34

In-principal Approval granted by Government of India (SEZ): 1

Functional SEZ's: 8

Out of 8 functional SEZs, number of SEZ's developed by private sector: 6

SEZ's developed by government sector: 2 (Moradabad SEZ and Noida SEZ)

Integrated Industrial Township

An Integrated Industrial Township (IIT) is envisaged to attract Hi-Tech an R&D industries and will in turn promote industrial and manufacturing activities.

Ex: Tronica City, Ghaziabad and Greater Noida (largest Industrial Township in Asia)

Integrated Industrial Development Center

Integrated industrial development townships have been developed to encourage small and tiny industries. Examples of already developed centers are Kosi Kotwan (Mathura), Musuri Gulawati (Ghaziabad), Banthar (Unnao), etc.

Greenfield Integrated Townships

To improve the development scenario the Uttar Pradesh state government has launched Greenfield integrated townships such as Trans Ganga Project and Naini Allahabad project.

Plastic City:

Plastic City is being developed at Auraiya in a land of 100 acres to attract investors. GAIL is the main supplier of raw material for the plastic city.

Industrial Projects Completed:

1. Leather Technology Park at Banthar, Unnao.
2. Apparel Park, Tronica City, Ghaziabad.
3. Textile & Hosiery Park, Rooma, Kanpur.
4. Special Economic Zone, Moradabad.
5. Export Promotion Industrial Park (EPIP), Greater Noida.
6. Export Promotion Industrial Park (EPIP), Agra.
7. Agro Parks, Barabanki & Varanasi.
8. Growth centres at Jhansi, Jainpur & Shahjahanpur.

Industrial Projects Recently Completed in the pipeline:

1. Mega Leather Clusters at Sandila, Kanpur Dehat & Agra.
2. Greater Mathura Knowledge City.
3. Hi-Tech Industrial Town ship at Chola, Bulandshahar.
4. Amul Integrated Dairy Plants (Operational in Sadullapur, Greater Noida).
5. HCL - IT City, Lucknow.
6. NIMZ at Auraiya, Jhansi & Dadri-Noida –Ghaziabad.

Uttar Pradesh Investor Summit

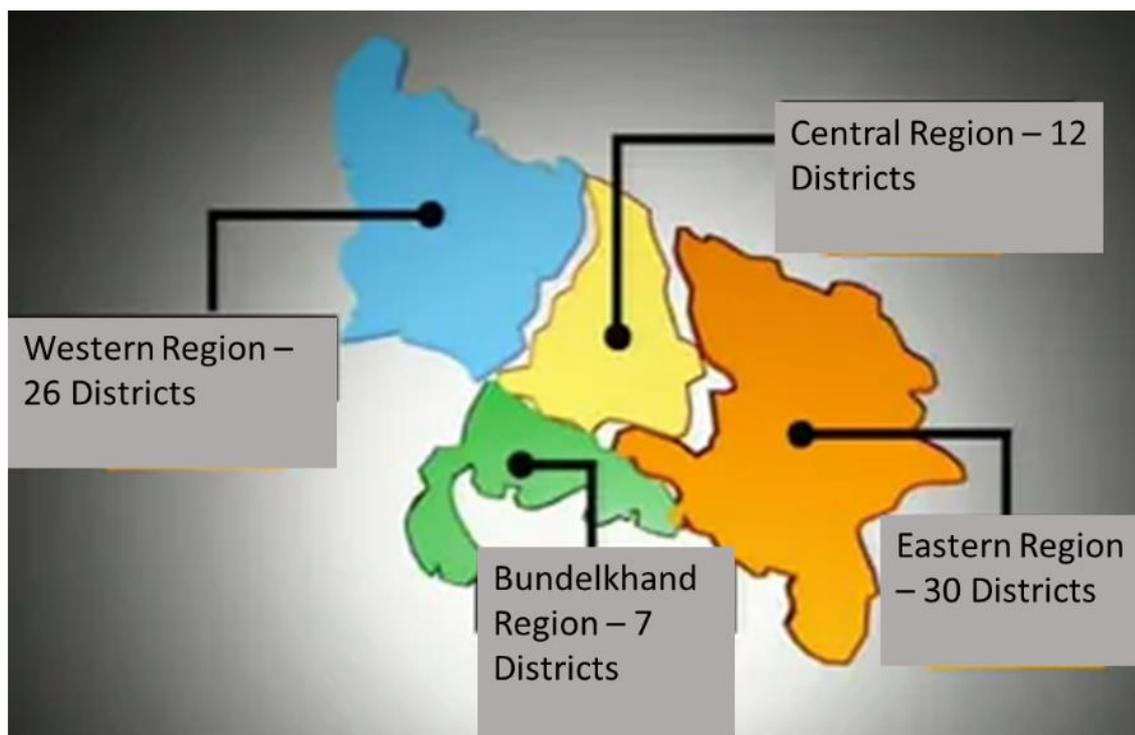
The State Government organizes annual U.P. Investors Summit in Lucknow city. This event aims to showcase investment opportunities and potential across various sectors in Uttar Pradesh. The mega event is organised to bring together heads of states and governments, ministers, leaders from the corporate world, senior policy makers, heads of international institutions and academicians from around the world to further the cause of economic development in the state and promote cooperation to pave way for better investments, according to an official statement.

7.3 KEY EXISTING ECONOMIC REGIONS IN UTTAR PRADESH

The state of U.P is divided into 4 Economic Regions, the 75 districts in the state are divided into these 4 economic regions. These 4 regions vary in their existing level of development, the type of industrial clusters located in these regions, locational strengths and constraints etc. these 4 economic regions are:

1. Bundelkhand Region
2. Central Region
3. Eastern Region
4. Western Region

Out of these 4 regions, Bundelkhand and Eastern region (Purvanchal) are behind the other two regions, in terms of industrial development.



Bundelkhand Region		Central Region	
1. Banda	5. Jalaun	8. Auraiya	14. Hardoi
2. Chitrakoot	6. Jhansi	9. Etawah	15. Lakhimpur Kheri
3. Hamirpur	7. Lalitpur	10. Farrukhabad	16. Lucknow
4. Mahoba		11. Kannauj	17. Rae Bareli
		12. Kanpur Dehat	18. Sitapur
		13. Kanpur Nagar	19. Unnao
Total 7 Districts		Total 12 Districts	

Eastern Region		Western Region	
20. Allahabad	35. Barabanki	50. Agra	63. Ghaziabad
21. Fatehpur	36. Faizabad	51. Mathura	64. Baghpat
22. Kaushambi	37. Sultanpur	52. Firozabad	65. Bulandshahar
23. Pratapgarh	38. Amethi	53. Mainpuri	66. Gautam Buddha Nagar
24. Azamgarh	39. Deoria	54. Aligarh	67. Hapur
25. Ballia	40. Gorakhpur	55. Etah	68. Bijnor
26. Mau	41. Kushinagar	56. Hathras	69. Moradabad
27. Basti	42. Maharajganj	57. Kashganj	70. Rampur
28. Sant Kabir Nagar	43. Chandauli	58. Bareilly	71. Amroha
29. Siddharth Nagar	44. Ghazipur	59. Budaun	72. Sambhal
30. Balrampur	45. Jaunpur	60. Pilibhit	73. Saharanpur
31. Bahraich	46. Varanasi	61. Shahjahanpur	74. Muzaffarnagar

32. Gonda	47. Mirzapur	62. Meerut	75. Shamli
33. Shravasti	48. Sant Ravidas Nagar		
34. Ambedkar Nagar	49. Sonbhadra		
Total 30 Districts		Total 26 Districts	

7.4 ONGOING & PROPOSED INFRASTRUCTURE PROJECTS IN UTTAR PRADESH

Roads & Expressways

- UP has the largest road network in India, having a total length of over 4 lakh Km., out of which about 12,000 Km of National Highway & about 7,000 Km of State Highway
- State of the art expressways for seamless connectivity with access controlled navigation
- Existing Yamuna & Agra-Lucknow Expressway connecting the State Capital to National Capital Region
- 302 kms Agra Lucknow Expressway is one of the longest expressways in India
- Proposed Poorvanchal Expressway & Bundelkhand Expressway to connect the exporting hubs in eastern and Bundelkhand region
- Lucknow-Azamgarh-Ghazipur- Expressway known as Purvanchal Expressway is an under construction 6-lane, divided and access-controlled 343 km long
- Upcoming 603 kms long Ganga Expressway will be one of India’s longest expressway, connecting key exporting hubs
- 296 kms long Bundelkhand Expressway is an under construction, 4lane Controlled-access highway, Broad route, connecting Chitrakoot-Banda-Orai-Jalaun-Auraiya-Etawah
- Gorakhpur Link Expressway will connect North eastern UP viz. Gorakhpur area through the Purvanchal Expressway to Lucknow, Agra and Delhi with smooth traffic corridor.

Railways

- Largest rail track length of about 9000 km. within the state
- There are 5 railway zones in the state. UP has the highest density of railway tracks, which is almost twice the national average.
- There is a proposal to develop a electric locomotive shed in Gorakhpur

Airports

- Air Connectivity – 7 Airports (5 Domestic & 2 International)
- 6 Ongoing projects under the regional connectivity scheme

Electricity and Wireless Connectivity

While the state currently **generates 5,474 MW**, the upcoming power stations will **add another 7,260 MW by 2022**. Of this, 1,320 MW power generated will be commissioned by the end of this year.

UP State has an existing **consumer base of 5.18 Crore Internet Subscribers (2017), 17.36 Crore Wireless data subscribers (2017)**

7.5 INDUSTRIAL AREA IN EASTERN UTTAR PRADESH (PURVANCHAL)

With increased focus from the government, Purvanchal is growing as an important industrial centre. The major industrial districts of Purvanchal are like Gorakhpur, Auria, Varanasi, & Tanda (Ambedkar Nagar), and some industries in Sant Kabir Nagar.

List of Industrial Estates in Purvanchal Districts

District	Name of the Industrial Estate	Type	Total area	Industrial	Land Available	
Allahabad	Saraswati Hitech City	Mixed	532.00		70.53	
Fatehpur	Malwan Industrial Area	Mixed	197.00		15.72	
Pratapgarh	Pratapgarh Industrial Area	Mixed	45.38			
Mau	Mau Industrial Area	Mixed	41.17		0.72	
Basti	Basti Industrial Area	Mixed	33.4			
Sant Kabir Nagar	Khalilabad Industrial Area	Mixed	97.66			
Barabanki	Kursi Road Industrial Area	Mixed	136.36		2.97	
	Agro Park Phase 1	Mixed	17.76			
	Agro Park Phase 2	Mixed	79.87		2.2	
Faizabad	Faizabad Industrial Area 1	Mixed	28.07			
	Faizabad Industrial Area 2	Mixed	20.61			
	M/s Yash Paper	Mixed	24.31			
Deoria	Deoria Industrial Area	Mixed	64.85		14.38	
Gorakhpur	Sector 13	Mixed	102.22			
	Sector 15	Mixed	170.79			
	Gorakhpur Industrial Area	Mixed	22.8			
Chandauli	Ram Nagar Industrial Area 1	Mixed	119.35			
	Ram Nagar Industrial Area 2	Mixed	62.15			
Jaunpur	Sidhwan Industrial Area	Mixed	62.15			
Varanasi	Karkhiyaon Industrial Area	Mixed	109.6		0.61	
Amethi	Jagdishpur Industrial Area	Mixed	723.11			
	Utelwa Industrial Area	Mixed	104.79			
	Industrial Township Amethi(Kauhur)	Mixed	124.17			
	Salon RBL Industrial Area	Mixed	124.17			
	Singhpur Industrial Estate	Mixed	2.87			
	Tiloi Industrial Area	Mixed	5.96			
	Jais Industrial Estate	Mixed	5.97			
	Chhatoh Industrial Area	Mixed	5.81			
	Parsadepur Industrial Area	Mixed	14.98			
	Salon Industrial Area	Mixed	5.90			
	Industrial Estate Sukulbazar	Mixed	1.26			
	Musafirkhana	Mixed	3.71			
	Industrial Estate Jamo	Mixed	1.37			
	Industrial Estate Bhadar	Mixed	2.23			
	Sangrampur Industrial Area	Mixed	1.34			
			Total	3,095.14		107.13

Out of the industrial estates developed in different districts of Eastern (Purvanchal) region, a total of 107.13 acres of land is available for allotment. Most of these industrial estates have been developed by UPSIDC.

List of MSME Clusters in the Purvanchal Region of Uttar Pradesh

S. No.	Cluster Identified	Place and District
1	Leather Cluster	Chauri Chaura, Gorakhpur
2	Plastic Cluster	Gorakhpur
3	Power Loom Cluster	Gorakhpur City, Gorakhpur
4	Ready Made Garments	Gorakhpur City, Gorakhpur
5	Stationary Cluster	Gorakhpur
6	Jewelry Cluster	Gorakhpur
7	Pottery Cluster	Bhathat & Chargawan Block, Gorakhpur
8	Ready Made Garment Cluster	Faizabad
9	Carpet Making	Sant Ravidas Nagar
10	Glass Beed	Chandpur, Varanasi
11	Brassware	Mirzapur
12	Wooden Furniture	Maharajgunj
13	Brassware	Sant Kabir Nagar
14	Aonla	Pratapgarh
15	Silk Brocades	Lohta, Varanasi
16	Stone Carving	Khojwa, varanasi
17	Jute Ball Hanging	Pahadpur, Kala, Ghazipur
18	Power loom	Mau
19	Black Pottery	Nizambad, Azamgarh
20	Jute Rope/Yarn	Kaulasa, Azamgarh
21	Jute Rope/Yarn	Rani Ki Sarai, Azamgarh
22	Hi-Tech Silk Weaving	Varanasi
23	Rice	Mirzapur
24	Fabrication	Allahabad

7.6 INDUSTRIAL PROFILE OF GORAKHPUR

Gorakhpur is one of the 30 districts in the eastern region of Uttar Pradesh covering a total area of 3321sq.km. The total urban and rural area in the district are 215 sq.km and 3106 sq.km respectively. Gorakhpur also has seven sub districts also known as tehsil with 19 blocks.

The total population of Gorakhpur as per census 2011 was 44,40,895 people with 36,04,766 rural population and 8,36,129 urban population which is 81% and 19% of the total population of Gorakhpur.

7.6.1 Existing Industrial Zones in Gorakhpur

Gorakhpur district has two development authorities. One is Gorakhpur Development Authority (GDA) & Gorakhpur Industrial Development Authority (GIDA). Gorakhpur Development Authority was formed in 1973 for the Construction and Development of Infrastructure in the City. GDA has taken up the responsibility of development of the city as per its needs, by developing land for residential, commercial and other required regions.

GIDA was established by the Uttar Pradesh Government in 1989, with the objective of establishing on integrated model township which will have Industrial Facilities, for setting up of various large/medium and small scale industries, residential facilities, Commercial areas, spaces for institutions of national importance as well as office complexes.

GIDA under its development plan has a total area of 13,135 Acres. Currently the development plan has been subdivided in to 32 sectors in which there are

- 11 Residential Schemes
- 4 Residential / Commercial Schemes
- 1 Residential / Industrial Scheme
- 1 Transport / Commercial Scheme
- 2 Institutional Scheme
- 1 Institutional/ Commercial Scheme
- 12 Industrial Sectors

Till now 1,543 Acres of land area have been developed by GIDA and 1,170.49 Acres area have been allotted by GIDA.

In the GDA area, UPSIDC earmarked 187.35 acres of land for industrial development, but only about 38.35 acres of land has been developed as industrial plots, the remaining area has been developed mostly as residential development. Currently UPSIDC does not have any industrial land bank in Gorakhpur district, and the task of industrial development lies totally on GIDA.

GIDA proposed a master plan for the period of 1992 – 2012, the development of area under GIDA. As per this master plan a total of 937.49 Hectares of land was earmarked to be developed for industrial land use. At the end of this planning period in 2012, a survey was conducted to analyze the extent of growth of different land uses in GIDA area. It was found that only about 107.71 hectares of land was developed for industrial use. Similarly for other land uses, the actual extent of the areas developed were significantly less than the land area proposed to be developed under each land use.

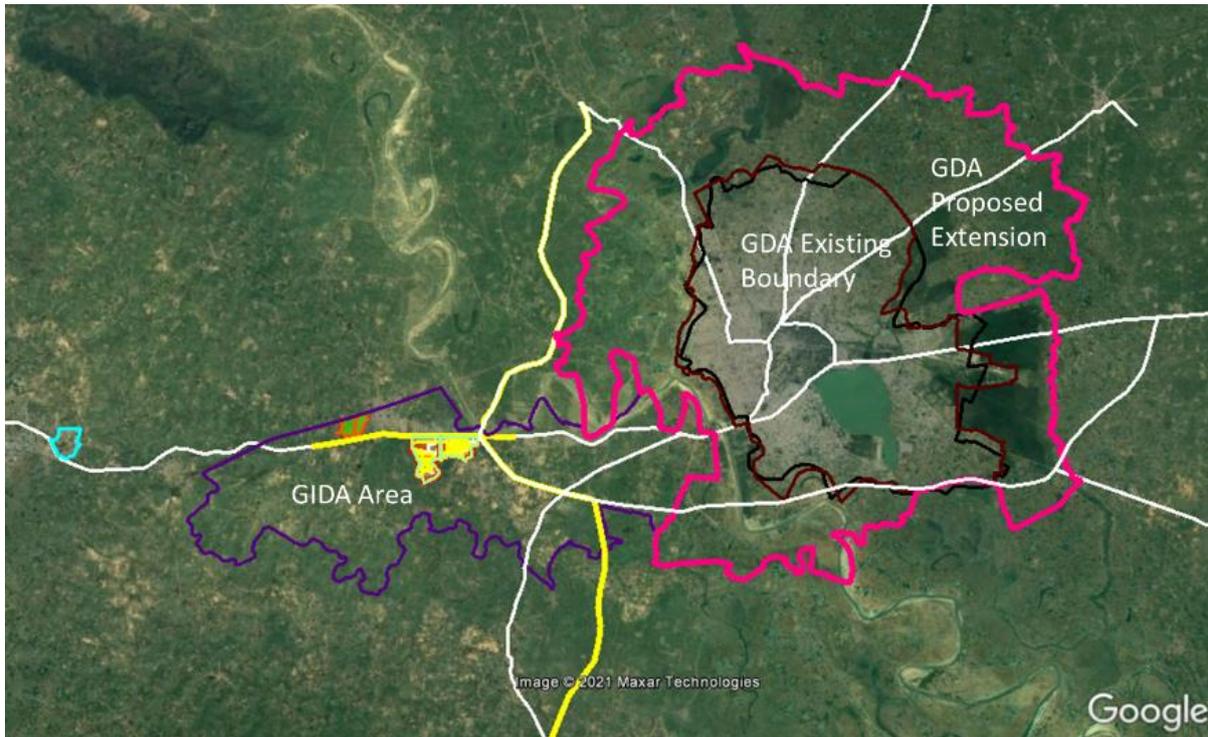
As of end of the year 2020, GIDA has developed and allotted approximately 377 hectares of land for Industrial use. Majority of this land has been developed in two industrial sectors i.e. sector 13 & sector 15 of GIDA. The remaining area has been allotted to 2 industrial groups, out of which on one plot of 117 acres (47.37 Hectares) an operational integrated steel plant, and on other plot also a steel products manufacturing unit is proposed.

GIDA Industrial area developed as in December 2020		
GIDA Sector 13	102.22	
Area under Industrial Plots in sector 13	59	58%
GIDA Sector 15	170.79	
Abadi area in sector 15	10	
Area under Industrial Plots in sector 15	102.79	64%
Area allotted to Galant Ispat (Sector 23)	47.37	
Additional Area sought by Galant Ispat adjacent to existing Plot	24.29	
Area allotted to Ankur Udyog (Steel)	32.39	
Total Industrial area developed in GIDA as in December 2020	377.06	

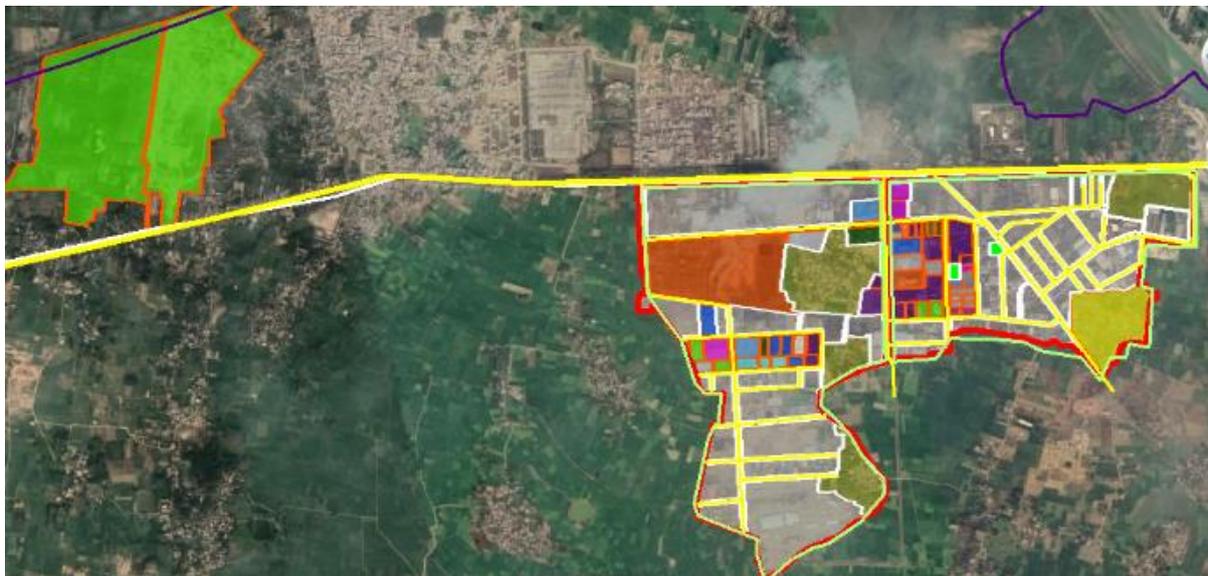
As per GIDA master plan of 2012 – 2032, the total land area marked for industrial land use is 1,192.77 hectares. To this area an additional land area of 202.43 hectares (500 acres) in the adjoining village of Bhati Rawat, has been added to this master plan, making the total area for industrial development as 1,395.20 Hectares.

If we reduce the present day development of 377.06 hectares for the total industrial land use area, we get about 1,018 hectares of land yet to be developed for Industrial use in GIDA area. In any industrial sector developed only about 60% to 70% of land is available as industrial plots for

allotment. The remaining area is for development of roads and allied facilities and amenities. This implies that when this remaining 1,108 hectares of land is developed for industrial use, about 611 hectares of land would be available as Industrial plots for allotment, i.e. about 1,500 acres of land.

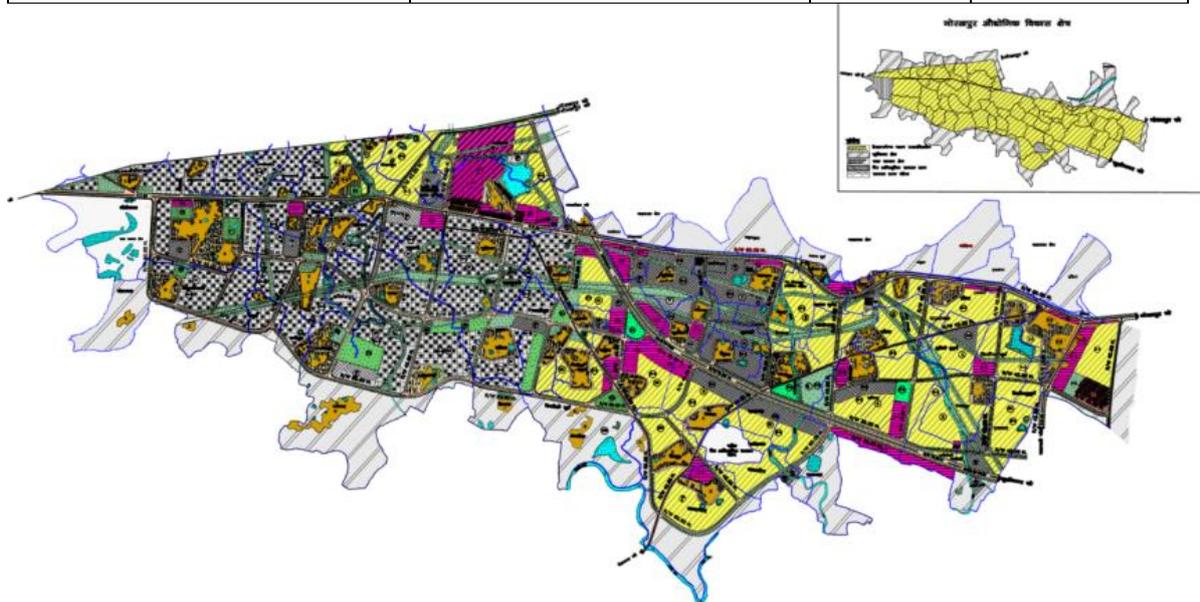


Map showing tentative boundaries of GDA existing area, its proposed extended area and tentative boundary of GIDA area. The map shows the location of GIDA area with respect to GDA area and Gorakhpur City. Below map shows the industrial sectors of GIDA i.e., sectors 13, 15 & sector 23



GIDA Sector 13 - Plot area wise			
Sl. No.	Plot Size (Acre)	Total No	Percentage
1	0 - 0.5	302	82.51%
2	0.6 - 1	32	8.74%
3	1.1 - 1.5	10	2.73%

4	1.7 - 2	3	0.82%
5	2.1 - 3	10	2.73%
6	3.1 - 4	6	1.64%
7	5 - 10.0	2	0.55%
8	> 10	1	0.27%
Total number of plots (approx.)		366	
GIDA Sector 15 - Plot area wise			
Sl. No.	Plot Size (Acre)	Total No	Percentage
1	0 - 1.5	293	77.51%
2	0.6 - 1	29	7.67%
3	1.1 - 2	27	7.14%
4	2.1 - 3	16	4.23%
5	3.1 - 4	8	2.12%
6	4.1 - 5	2	0.53%
7	> 20	3	0.79%
		378	



Map showing Developed Industrial areas by GIDA, i.e. sector 13 & sector 15 of GIDA, along with land for the two steel plants.

GIDA Master Plan 2021 - 2032

As per this master plan the land use proposed for GIDA area developed is as follows:

Sr.no.	Land Use	Area (Hect.)	Percentage
1.0	Residential	1,876.87	35.29%
1.1	Residential	1,577.76	84.06%
1.2	Abadi	299.11	15.94%
2.0	Commercial	254.38	4.78%
2.1	Commercial	110.30	43.36%
2.2	Wholesale & Warehouse	144.08	56.64%

3.0	Public & Semi Public	270.67	5.09%
3.1	Institutional	139.23	51.44%
3.2	Amenities & Services	131.44	48.56%
4.0	Leisure	1,087.28	20.45%
4.1	Parks & Play Ground	138.17	12.71%
4.2	Leisure Green	70.62	6.50%
4.3	Green Belt	878.49	80.80%
5.0	Industrial	1,192.77	22.43%
5.1	Small & Service Industries	434.59	36%
5.2	Large Industries	758.18	64%
6.0	Transport	573.96	10.79%
6.1	Existing Roads	280.64	48.90%
6.2	Proposed Roads	254.94	44.42%
6.3	Bus & Truck Terminal	38.38	6.69%
7.0	Others	61.94	1.16%
7.1	Cremation / Burrial	0.30	0.48%
7.2	Water Bodies	61.64	99.52%
	Total	5,317.87	100.00%

7.6.2 Major Industry Types in Gorakhpur

As per the survey conducted in 2012, for the preparation of 2012 – 2032 master plan, an inventory of industries located in Gorakhpur was formulated. As per this list the major industry type in Gorakhpur were the food processing industries, followed by Steel, Engineering, Fabrication and textile industries. The table below lists the different industry types, their no. of units, area covered by these industries and the no. of people working in them.

Sr.no.	Industry Type	Nos.	Land Area (sqm)	Employment
1	Food Processing	21	4,03,174	524
2	Tobacco products	1	200	5
3	Wood & Wood Work	5	14,578	96
4	Textile	14	56,812	567
5	Chemical	8	9,179	83
6	Paper & Packaging	3	11,311	145
7	Rubber, Plastic	26	43,848	404
8	Disposable Syringe	5	24,153	147
9	Garments	1	1,000	11
10	Electrical	7	3,830	66
11	Steel, Engineering, Fabrication	15	7,725	128
12	Others	28	56,055	347
	Total	134	6,31,865	2523

Small Enterprises and artisan units in the district

As per MSME department's report for the year 2016, there were a total of 12,324 Industrial units in Gorakhpur District. The total large and medium industrial units are 14nos. In the small-scale industries, the estimated average number of daily workers are 47336 numbers and in the large and medium scale industries there are a total of 7160 number of daily workers. As in the year 2016 and 2017 the investment in plant and machinery in MSE's was Rs. 148.15 crore and investment in plant and machinery in medium and large-scale industry was Rs. 109.48 crore.

The table below shows various types of small enterprises and artisan units along with their investments and the number of people employed.

NIC GROUP	Industries	No. of Units			Investments			Employment		
		H.I.	SSI	TOTAL	H.I.	SSI	TOTAL	H.I.	SSI	TOTAL
20-21	FOOD PRODUCTS	6	1899	1905	20.34	36.27	56.61	2329	6823	9152
22	BEVERAGES, TOBA. & TOBA. PRODUCT	1	32	33	0.42	1.24	1.66	337	193	530
23	COTTON TEXTILES	1	110	111	0.02	15.63	15.65	53	901	954
24	WOOL,SILK & SYNTHETIC FIBRE TEXTILE	0	36	36	0	3.21	3.21	0	216	216
25	JUTE,HEMP & MESTA TEXTILES	1	72	73	0.87	0.02	0.89	975	120	1095
26	HOISERY & GARMENTS	0	1101	1101	0	4.99	4.99	0	3432	3432
27	WOOD PRODUCTS	0	713	713	0	3.44	3.44	0	2534	2534
28	PAPER PRODUCTS & PRINTING	0	472	472	0	8.23	8.23	0	1826	1826
29	LEATHER PRODUCTS	0	117	117	0	0.68	0.68	0	403	403
30	RUBBER & PLASTIC PRODUCTS	1	164	165	0.12	16.01	16.13	35	969	1004
31	CHEMICAL & CHEMICAL PRODUCTS	2	287	289	86.42	7.24	93.66	3200	1170	4370
32	NON-METALLIC MINERAL PRODUCTS	0	71	71	0	3.56	3.56	0	354	354
33	BASIC METAL INDUSTRIES	2	123	125	1.29	2.15	3.44	177	564	741
34	METAL PRODUCTS	0	443	443	0	4.08	4.08	0	1873	1873
35	MACHINERY & PART EXCEPT ELECTRICAL	0	51	51	0	3.11	3.11	0	361	361
36	ELECTRICAL MACNINERY & APPARATUS	0	127	127	0	2.28	2.28	0	498	498
37	TRANSPORT EQUIPMENTS & PARTS	0	49	49	0	0.56	0.56	0	198	198
38	MISCELLANEOUS MFG.	0	1392	1392	0	18.64	18.64	0	5144	5144
96-97	REPAIRING & SERVICING INDUSTRIES	0	2985	2985	0	16.81	16.81	0	8140	8140

NIC GROUP	Industries	No. of Units			Investments			Employment		
		H.I.	SSI	TOTAL	H.I.	SSI	TOTAL	H.I.	SSI	TOTAL
	TOTAL	14	10244	10258	109.48	148.15	257.63	7106	35719	42825

Major Industry Types and number of Industries located in GIDA sectors and in Industrial areas within Gorakhpur city as at the end of 2020.

For the demand assessment for industrial land, we conducted a market survey to identify the major industry types in Gorakhpur city and in GIDA sectors. As per our estimate, there are approximately 400 industrial units in Gorakhpur. Majority of these are located in GIDA developed industrial sectors 13 & 15. The list below gives the details of the industry types and their number of units counted in Gorakhpur.

sr.no.	Industry category	No. of units	Percentage of Units
1	Agro	28	7%
2	Food Processing	83	22%
3	Plastic	67	18%
4	Steel, Engineering, Fabrication	58	15%
5	Textile	24	6%
6	Garment	10	3%
7	Paper & Packaging	25	7%
8	Wood & Wood Works	17	5%
9	Chemical	26	7%
10	Building Material	5	1%
11	Electrical	10	3%
12	Medical Equipment	7	2%
13	Pharma	3	1%
14	Printing	10	3%
15	Rubber	4	1%
	total	377	

7.7 LOCATIONAL STRENGTHS & CONSTRAINTS

Gorakhpur District is one of the most industrialized districts of Eastern Uttar Pradesh. But in comparison to other regions in Uttar Pradesh, the industrial development in Gorakhpur district seems lagging behind.

The Gorakhpur region has primarily food processing and agro based industries, this is due to abundant supply of agriculture produce as raw material. In future also food processing industries, and food parks can be developed in Gorakhpur.

Textile Industries are another type which has good scope of further development, owing to locational strengths like availability of raw materials, large consumer base etc.

Plastic industries are another prominent type in this district. These industries get their raw materials from GAIL and Reliance. Gorakhpur has further potential for development of plastic industries, due to a set environment, existing industries, technical knowhow etc.

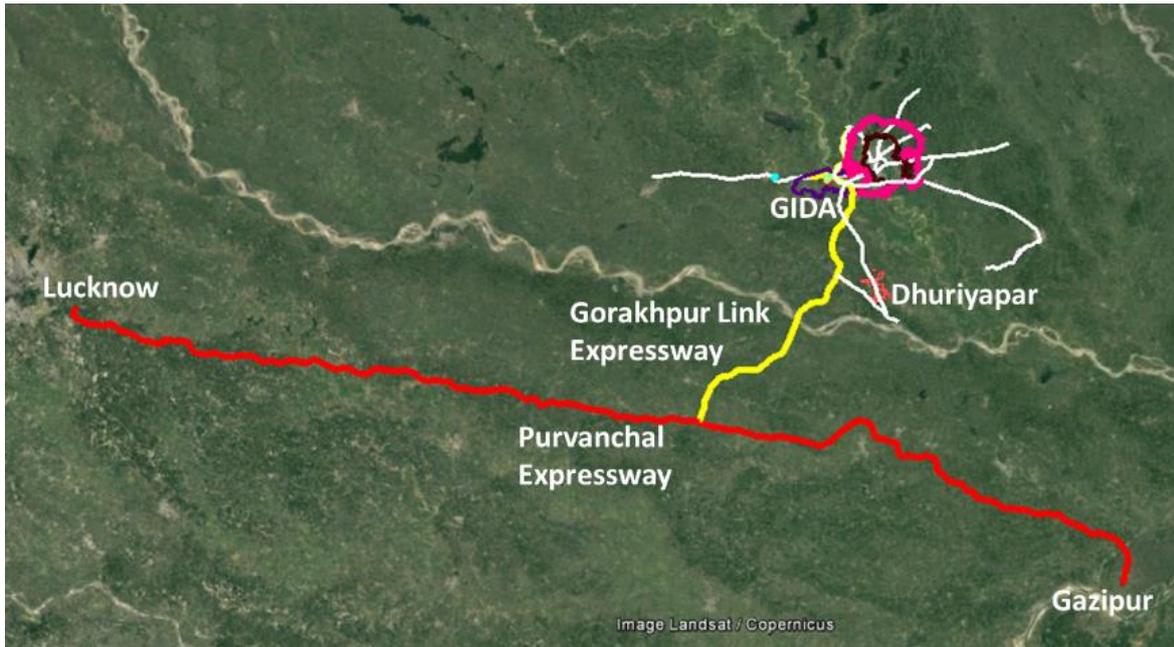
Availability of large land bank for industrial development is another positive sign for growth of industries in the region. Along with this improving social and physical infrastructure in the district can attract investors towards this district.

The major locational constraints are there is shortage of skilled workforce, also people from other parts of the country may be reluctant to get settled in Gorakhpur. Development of Amritsar Kolkata Industrial corridor, may act as a counter magnet for industries and they may move out from the district to be more near to the industrial corridor.

Industrial growth inducing factors in Gorakhpur
Enhanced focus of UP govt. towards promotion of Industrial development in Gorakhpur
Gorakhpur has been identified as a key industrial destination in Purvanchal region
Proposed Plastic park
Demand for setting up a textile park
development of Gorakhpur link expressway
development of Purvanchal expressway
Proposed Sahjanwa & Dhurighat railway line
Growth inhibitors for Industrial development in Gorakhpur
Competition for other more developed Industrial regions of UP
Limited skilled man power in Gorakhpur
No major USP for a large industry from outside to come and expand or relocate in Gorakhpur
Single window clearance has not been implemented in its true sense
Industrial growth inducing factors for Proposed Industrial corridor at Dhuriyapar
development of Gorakhpur link expressway
development of Purvanchal expressway
Proposed Sahjanwa & Dhurighat railway line
Growth inhibitors for Proposed Industrial corridor at Dhuriyapar
Significant distance from existing City
Connectivity is not good at present
Competition from existing land bank of GIDA near City
Negative perception of people for the Dhuriyapar location

7.8 PROPOSED AND ONGOING INFRASTRUCTURE PROJECTS

There are multiple ongoing projects at Gorakhpur such as the road construction project work from Jaswal intersection to Jungle Kauriya. The construction of Gorakhpur Link Expressway is also an ongoing project. The Gorakhpur link expressway crosses four districts including Gorakhpur, Sant Kabir Nagar, Ambedkar Nagar and Azamgarh, involves an investment of ₹5,800 crore. In October 2020 there was also the proposal for 177 development projects with an investment of 122crore. The projects ranges from improvement of roads, storm water drains in areas across Sadar rural area to Sahjanwa.

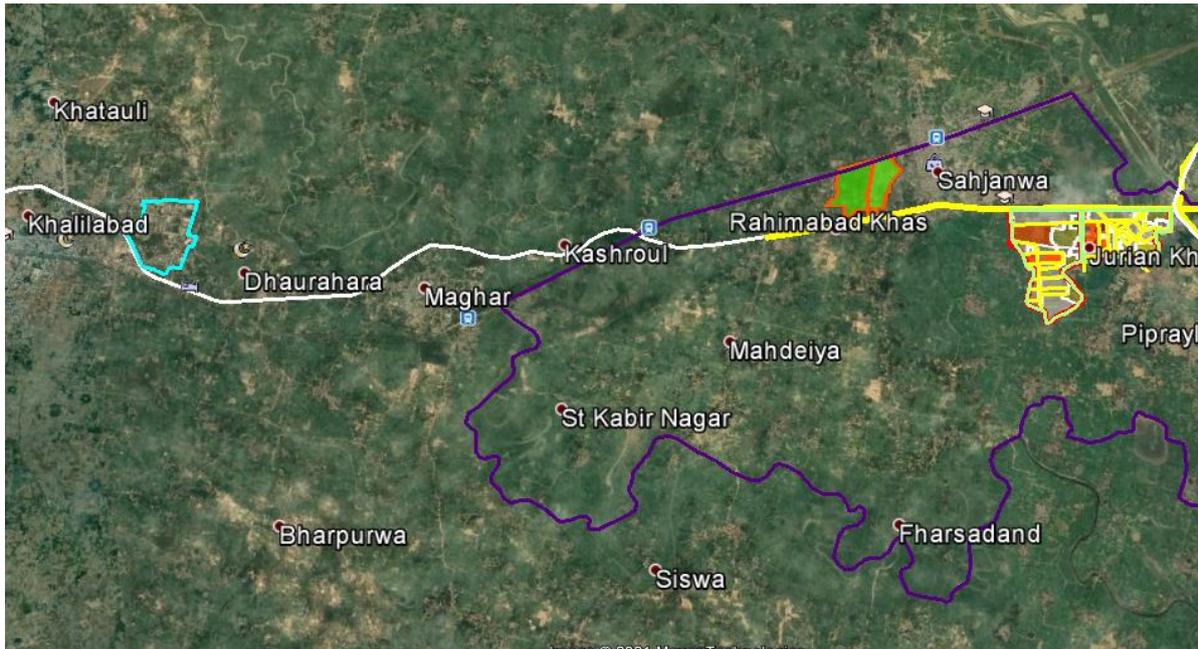


Sahjanwa -Dohrighat Railway Line Project got approved but has been put on hold by the railways, which is currently focusing on maintenance of existing railway line in the district.



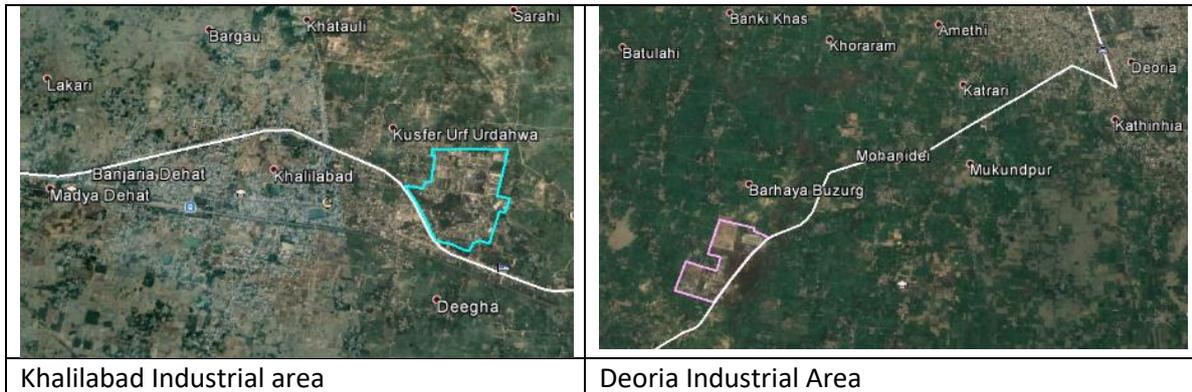
7.9 COMPETITION SCAN IN PROJECT REGION & SUB- REGION

The main competition for the proposed Industrial Corridor at Dhuriyapar in Gorakhpur District would be the remaining un-developed land bank of GIDA. This area when developed would be closer to the city, thus travelling for the workforce would not be a challenge. Also this area would be nearby to the existing domestic airport and the railway line.



Undeveloped Industrial land Bank in GIDA area is estimated to be more than 1500 acres of land for industrial plots.

Another competition would be from industrial plots available at Khalilabad Industrial area and Industrial area being developed near Deoria.



The main competition for Dhuriyapar for establishing itself, ahead of Khalilabad and Deoria would be in terms of allotment rate of industrial plots. As the prevailing rates at these two locations are significantly less. Allotment rate can be a deciding factor for entrepreneurs in deciding upon the location of setting up a new industry.

8 EXISTING POLICIES PROMOTING VARIOUS INDUSTRIES IN UP

Policy	Objective	Policy Incentives
Uttar Pradesh Electronics Manufacturing Policy 2020	Establishing Uttar Pradesh as the preferred destination for manufacturing electronics industry by facilitating favourable policy incentives and providing high quality infrastructure, to drive growth through optimal use of resources and skilled manpower	<ul style="list-style-type: none"> - Provision of Capital subsidy on Fixed Capital Investments (building, plant, machinery, etc.), subject to a few terms & conditions. - Provision of subsidy of 5% on interest on loans obtained from Financial Institutions for investment into the units. - Provision of Exemption on Stamp Duty on purchase/leasing of production units - Provision of reimbursement on cost of successful patents' registration - Provision of subsidy on land, subject to certain conditions; FAR of 3.0 + purchasable FAR of 1.0, and allowance for welfare facilities like dormitories for industrial workers. - Exemption of electricity duty for a period of 10 years - Assistance in the skill development of manpower
Uttar Pradesh Pharmaceutical Industry Policy, 2018	Establishment of specialized Pharmaceutical Parks with high-class infrastructure, encouraging research in the field and promoting of AYUSH	<ul style="list-style-type: none"> - Provision of interest subsidy on loan taken for capital investments (plant & machinery) - Provision of interest subsidy on loan taken for development of infrastructural facilities for self-usage - Provision of interest subsidy on loan taken to carry out industrial research, quality improvement and product development - Provision of exemption of electricity duty - 100% exemption on stamp duty for all new units across the state - Reimbursement of SGST Pharma sector, with certain conditions - Exemption on Mandi Fee for the purchase of raw materials for 5 years
Uttar Pradesh Warehousing and Logistics Policy 2018	With Logistics & Warehousing given the status of Industry in 2020, the policy has the following objectives <ul style="list-style-type: none"> - promoting private investments in setting up logistics facilities with forward and backward linkages - upgrading and improving the existing infrastructure to boost economic activities 	<ul style="list-style-type: none"> - Provision of interest subsidy on loan taken for capital investments (plant & machinery, material handling equipment, loading & unloading units, etc.) - Provision of interest subsidy on loan taken for development of infrastructural facilities - Provision of 100% exemption/reimbursement of stamp duty on purchase of land - Exemption of electricity duty for a period of 10 years - Exemption of road tax & registration charges on purchase of transport vehicles

Policy	Objective	Policy Incentives
	<p>and generate employment</p> <ul style="list-style-type: none"> - enhance warehousing capacity to attract both primary and secondary sectors - promote green and innovative practices to develop a competitive logistics infrastructure 	<ul style="list-style-type: none"> - EPF reimbursement facility - 50% concession on land use conversion charges to the developer - Assistance on skill development of manpower
Textile Policy 2017	<ul style="list-style-type: none"> - to foster investment and generate employment in the textile industry of the state - Fulfil the demand of textile in India as well as export products abroad as well - to develop textile industry in the backward areas of the state 	<ul style="list-style-type: none"> - Provision of capital subsidy of upto 50% of land cost when land bought directly from government agencies - Setting up of textile parks - Provision of land use conversion and basic physical infrastructure - Provision of ready to use standard sized sheds and other facilities - Exemption on stamp duties for development of staff quarters, hostels, dormitories, etc - Provision of interest free loans - Exemption on electricity duty - Exemption on Mandi Fee for the purchase of raw materials for 5 years - Provision of EPF reimbursement - Special subsidy and reservation for SC/ST/WOMEN/SPECIALLY ENABLED ENTREPRENEURS
Uttar Pradesh Electric Vehicle Manufacturing and Mobility Policy 2019	to promote adoption of EVs in the state, attract investments for manufacturing of EVs, and create employment opportunities at both supply & demand side	<ul style="list-style-type: none"> - Provision of subsidy on the purchase of land, capital subsidy on fixed investments. - Establishment of waste treatment plants and battery recycling units
Bio-Energy Policy 2018	To promote bio-energy based environment friendly sustainable development, and creation of sustainable employment	<ul style="list-style-type: none"> - Provision of subsidy on capital investments - Exemption of stamp duty of purchase of land for setting up of unit - Reimbursement of SGST for 10 years, capped at the amount of fixed capital investment
Special Economic Zone Policy 2007	To promote rapid economic & industrial growth and employment generation by providing world class infrastructure facilities	<ul style="list-style-type: none"> - Exemption on all kinds of taxes, cess and levies from the state government & local bodies - Exemption on stamp duty and registration charges on first transaction for developers / co-developers.

Policy	Objective	Policy Incentives
Tourism Policy 2018	To promote the growth of the tourism industry in the state, attract investment and generate employment by improving regional connectivity & standards of service of the tourist destinations in the state	<ul style="list-style-type: none"> - Provision of subsidy on capital investments - Provision of subsidy on interest on loan taken for tourism units - Exemption on stamp duty and registration fee on sale/ lease/ transfer of land - Waiver on land use conversion and development charges for all new tourism units - Assistance to carry out energy audit - Monetary incentives for adoption of technological innovations - Support for marketing and promotion of the tourism sector - Assistance in skill development of the manpower - Reimbursement of EPF expenditure - Assistance for research in tourism / hospitality sector - special payroll assistance for employment of specially abled
Defense and Aerospace Units and Employment Promotion Policy 2018	<ul style="list-style-type: none"> - Promote the manufacturing of Defence & Aerospace equipment and bridge the gaps between ancillary units - to develop and export oriented manufacturing base for the defence sector - Promote R&D and encourage skill development in the domain 	<ul style="list-style-type: none"> - Reimbursement of upto 25% of the cost of land at prevalent circle rates/purchase price, whichever less to anchor D&A units - Provision of subsidy on transportation charges for transporting related Plant & Machinery, and finished products - Provision for setting up Effluent Treatment Plants - Provision of limited reimbursement on cost of technology transfer to the vendors
Sugar Industry, Co-generation and Distillery Promotion Policy, 2013	To utilize the potential of sugarcane processing, carry out capacity development and boost the cultivation of sugarcane in the state	<ul style="list-style-type: none"> - Exemption / Reimbursement of interest on loans, sugarcane purchase tax, reservation of molasses, administrative charges and society commission, on setting up of new sugar mills - Reimbursement on interest on loan, and exemption of stamp duty & land registration fee, for installation of co-generation plant in existing sugar mill - Reimbursement on interest on loan, exemption from administrative charges on molasses, exemption from stamp duty & land registration, and interest free, as per conditions, for setting up of distillery in an existing sugar mill

Policy	Objective	Policy Incentives
<p>Information Technology & Start-Up Policy 2017-2022</p>	<ul style="list-style-type: none"> - To develop and promote attractive business ecosystem in the state by offering congenial, business friendly and progressive reforms, initiatives and unique value propositions - To promote human development and infrastructure development by means of IT Cities, IT Parks, IT-BPM units - To instill and nourish entrepreneurship and innovation by providing impetus to Start-ups, Incubators, Centers of Excellence - To lead digital empowerment through creation of citizen centric services, whereby welfare is generated across all sections of the society 	<ul style="list-style-type: none"> - Provision of interest subsidy on loans taken from Financial Institutions - 100% exemption of stamp duty on purchase/lease of land/office space/ buildings for IT/ITeS use with condition of commencing operations within 3 years - 100% reimbursement on Electricity duty for new IT/ITeS units - Reimbursement of the cost of securing quality & IT related certifications, etc. - 100% reimbursement of the total EPF amount paid for IT/ITeS Professionals - Assistance for recruitment of employees - Provision of reimbursement of up to 100% of actual filing costs on awarded patents - Provision of reimbursement on the cost of land, additional FAR, exemption from land use classification for IT/BPO units employing between 20 - 50 people
<p>Industrial Investment and Employment Promotion Policy 2017</p>	<p>To increase capital investments in industries in the state by providing quality infrastructure, facilitating business friendly environment, providing skills & training to workforce and generate maximum direct & indirect employment</p>	<ul style="list-style-type: none"> - Provision of subsidy on interest payable on loan taken to purchase land, Plant & Machinery, infrastructure development - Exemption / reimbursement of stamp duty on purchase of land - Provision of reimbursement of employer's contribution towards EPF - Provision of reimbursement of VAT and Central Sales Tax deposited in State's account, subject to certain conditions - Exemption from electricity duty - Exemption from Mandi Fees for all new food processing units on purchase of raw material for 5 years

Policy	Objective	Policy Incentives
Civil Aviation Promotion Policy 2017	<ul style="list-style-type: none"> - Provide enabling environment for development of robust civil aviation infrastructure and to aid in attracting investments to realize the untapped potential in the aviation sector - To realize the full potential of tourism by linking major state tourist destinations with rest of India and the world - To facilitate trade and generation of employment opportunities 	<ul style="list-style-type: none"> - Provision of no VAT on Aviation Turbine Fuel (ATF) for 10 years - Provision of Viability Gap Funding for 50% of total seats - Security arrangements at Regional Connectivity Scheme (RCS) Airports to be provided by State govt. - Fire service to be provided by the state govt. free of cost - Provision of electricity at concessional rate - Provision of free availability of water by the state government - Provision to facilitate and provide necessary land at zero rental to Oil Marketing Companies to develop ATF fueling facilities at RCS Airports owned by the State Government - Ensuring Road Connectivity for all RCS airports and maintenance by the PWD Department of the state govt. from its own resources - Bus Service to all RCS airports to be ensured and maintained by UPSRTC - Ambulance and medical facilities to be made available by the Medical & Health department of the state government - Provision of Reimbursement of S-GST on sale of air tickets on RCS flights
The Food Processing Industry Policy 2017	<p>To ensure fair and remunerative price of the produce to the growers, value addition to the price of raw produce, promote setting up of food processing industries, easy availability of processed food products to consumers at competitive prices, generation of new employment opportunities to build capacities and increase the skill level of the manpower in this sector and also make available additionally required manpower</p>	<ul style="list-style-type: none"> - Provision of subsidy on incurred expenses and interest payable on loans taken for plant machinery, technical civil work and purchase of Reefer vehicles & mobile pre-cooling vans in respect of setting up, expansion and modernization/up gradation of the food processing units - provision of additional capital investment subsidy under the Pradhan Mantri Kisan Sampada Yojana Scheme - Assistance in providing training, entrepreneurship development programmes and setting up of Food Science Training Centres

Policy	Objective	Policy Incentives
Solar Energy Policy 2017	To encourage participation of private sector and provide investment opportunities to establish solar power projects, promote R&D, innovation & skill development, and provide environment friendly and affordable power to all	<ul style="list-style-type: none"> - Solar Power Plants established for the generation of electricity have been accorded the status of 'industry' - Provision of no objection on purchase of land more than 5.058 hectare under land ceiling by Project developer in interest of Public to set up Solar Power Plants for generation of electricity - 100 % exemption on chargeable stamp duty on setting up Solar Energy units - Exemption from electricity duty for 10 years - Solar PV projects shall be exempted from obtaining Environmental clearance - Grid connected Solar PV Projects will be exempted from obtaining any NOC/ Consent for establishment and operation under pollution control laws
Data Centre Policy 2021	<ul style="list-style-type: none"> - To develop 250MW Data Centre industry in the state - To attract investment worth Rs. 20,000 crore in the state - Establish at least 3 state of the art Private Data Centre Parks 	<ul style="list-style-type: none"> Incentives to Data Centre Parks Developer - - Reimbursement of interest subsidy, and provision of land subsidy on purchase/lease of land in certain regions - Provision of exemption of stamp duty, subject to certain to certain conditions - Provision of dual power grid lines, subject to certain policy conditions - Provision of partial exemption on wheeling charges / transmission charges Incentives to Data Centre Units - - Provision of subsidy on fixed capital investment - Provision of land subsidy on purchase/lease of land in certain regions - Provision of exemption of stamp duty for purchase / lease of land - Provision of exemption of electricity duty for 10 years - Provision to provide dual-grid lines power supply - Provision of partial exemption on wheeling charges / transmission charges

Policy	Objective	Policy Incentives
Milk Policy 2018	<ul style="list-style-type: none"> - To promote capital investment and establishment of milk industries in the state -To reduce the loss of milk and enhance the per capita availability of milk - To encourage the export of milk from the state - To enhance capacity and skill of human resources in the milk industry and generate new employment opportunities 	<ul style="list-style-type: none"> - Provision of partial subsidy / grant on expenditure incurred on plant & machinery, technical civil work in respect of setting up, expansion and modernization/up gradation of the milk processing units - Provision of subsidy on interest payable on loan taken for meeting the expenditure on plant machinery, technical civil work and spare parts for establishing the micro and small milk processing unit - Provision of subsidy on transportation cost - Provision of subsidy / reimbursement as a onetime support for registering patents/design - Provision to ensure availability of skilled human resources and training of cooperative & non-cooperative workers for milk processing - Provision to encourage R&D in the sector to enhance productivity
MSME Policy 2017	<ul style="list-style-type: none"> - To attain 15% annual growth rate by establishing Uttar Pradesh as an attractive investment destination for setting up of large number of new micro, small and medium enterprises - To attain 15% annual growth rate in employment by creating maximum employment in new units and expansion and upgradation of existing units - Endeavour to reduce the regional inequalities on the parameters of entrepreneurship, employment and per capita income and to decrease disparities amongst different classes of society - Evolving high-end modern technology driven sensitive administrative system for upgrading existing units and resolution of issues of entrepreneurs 	<ul style="list-style-type: none"> - Provision of subsidy on interest payable on loan taken to purchase land, Plant & Machinery, infrastructure development - Exemption / reimbursement of stamp duty on purchase of land - Provision of reimbursement of employer's contribution towards EPF - Exemption from electricity duty - Provision of exemption from land use change fee for the agricultural land under the development authorities - Provision of electricity at concessional rate - Provision of cost of one time guarantee fees and annual service-fee charged for credit guarantee fund trust for micro and small enterprises for collateral free loan, subject to certain conditions, will be borne by the state government

9 STAKEHOLDER SURVEY FOR DEMAND ASSESSMENT

To understand the needs of the industrialists of Gorakhpur and get their opinion on the proposed development of Dhuriyapar Industrial Corridor, a stakeholder survey was conducted along with one to one interactions with different industrialists from the city.

A questionnaire was prepared for the one to one interactions. The questions were formed to get specific information from the entrepreneurs and can be divided into 4 parts. These 4 parts are:

<p>Basic details of the industry</p> <ol style="list-style-type: none"> 1. Name of the Company 2. Type of Company 3. Name and position of the interviewee 4. Contact details of the interviewee 5. Number of industrial units 	<p>The present condition and future needs of the industry</p> <ol style="list-style-type: none"> 1. Current location of the industrial unit 2. Number and areas of the existing industrial plots 3. Number of employees 4. Main raw material required 5. Current location of procuring raw materials 6. Locations to which finished goods are supplied 7. Future expansion plan 8. Land area requirements in the near future
<p>The existing issues and requirements</p> <ol style="list-style-type: none"> 1. Issues with existing industries 2. Infrastructure Requirements 3. Problems currently faced in operations related to location 4. Incentives required to facilitate future growth 	<p>Opinion on Dhuriyapar Industrial Corridor</p> <ol style="list-style-type: none"> 1. Opinion on the location 2. Preference of relocation or expansion to Dhuriyapar in future 3. Reasons for the preference 4. Preferred terms for sale/lease of space and pricing

As per our estimate there are around 400 to 500 industries in Gorakhpur which are located within GDA or GIDA boundaries, out of these we did a one on one interaction with 52 Industrialists, managing industries of different type and scale – from large to small.

No. of surveys conducted for different Industry types:

- Food Processing - 17
- Steel and Steel Fabrication - 7
- Textile - 6
- Plastic - 5
- Wood and Wood works - 5
- Paper and Printing - 4
- Chemical - 4
- Electrical - 2
- Medicine and Medical Equipment – 2

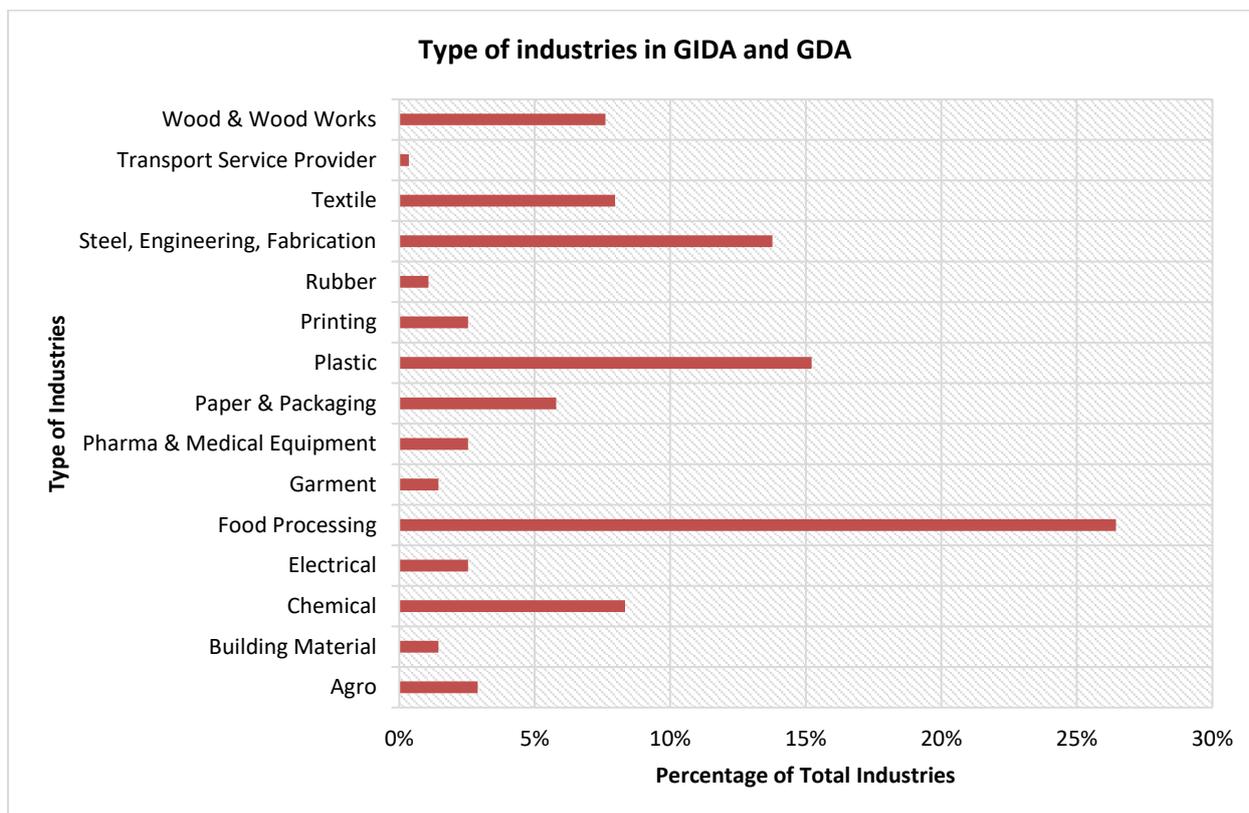
9.1.1 Analysis of Responses of Stakeholder Survey Conducted

Part 1

According to the survey conducted it was observed that there are a total of 15 major type of industries present at Gorakhpur. These industries are located at Gorakhpur Industrial Development Area (GIDA) and Gorakhpur Development Area (GDA). From these 15 different types of industries the most dominating is the food industry with 26% of the total number of industries. Considering the soil around Gorakhpur is ideal for growing wheat, rice and various kind of fruits such as pineapple, banana, sugarcane etc. Gorakhpur is in abundance of wheat and rice mills with many industries producing products for export purpose. Multiple frozen fruit and meat producing industries also dominate the region.

The second most dominating food industry are the steel, engineering, fabrication industry and plastic industry with 14% and 15% of the total industries present at GIDA and GDA. Big industry like Gallantt Ispat limited have set up their steel plant at Gorakhpur along with other small steel fabricating industries such are spread across the region. However, the metal is exported from other regions considering there are no queries in and around Gorakhpur. Other industries such as textile, chemical, wood and wood works consist of 22%, 23% and 21%. There is only one transport service provider at Gorakhpur.

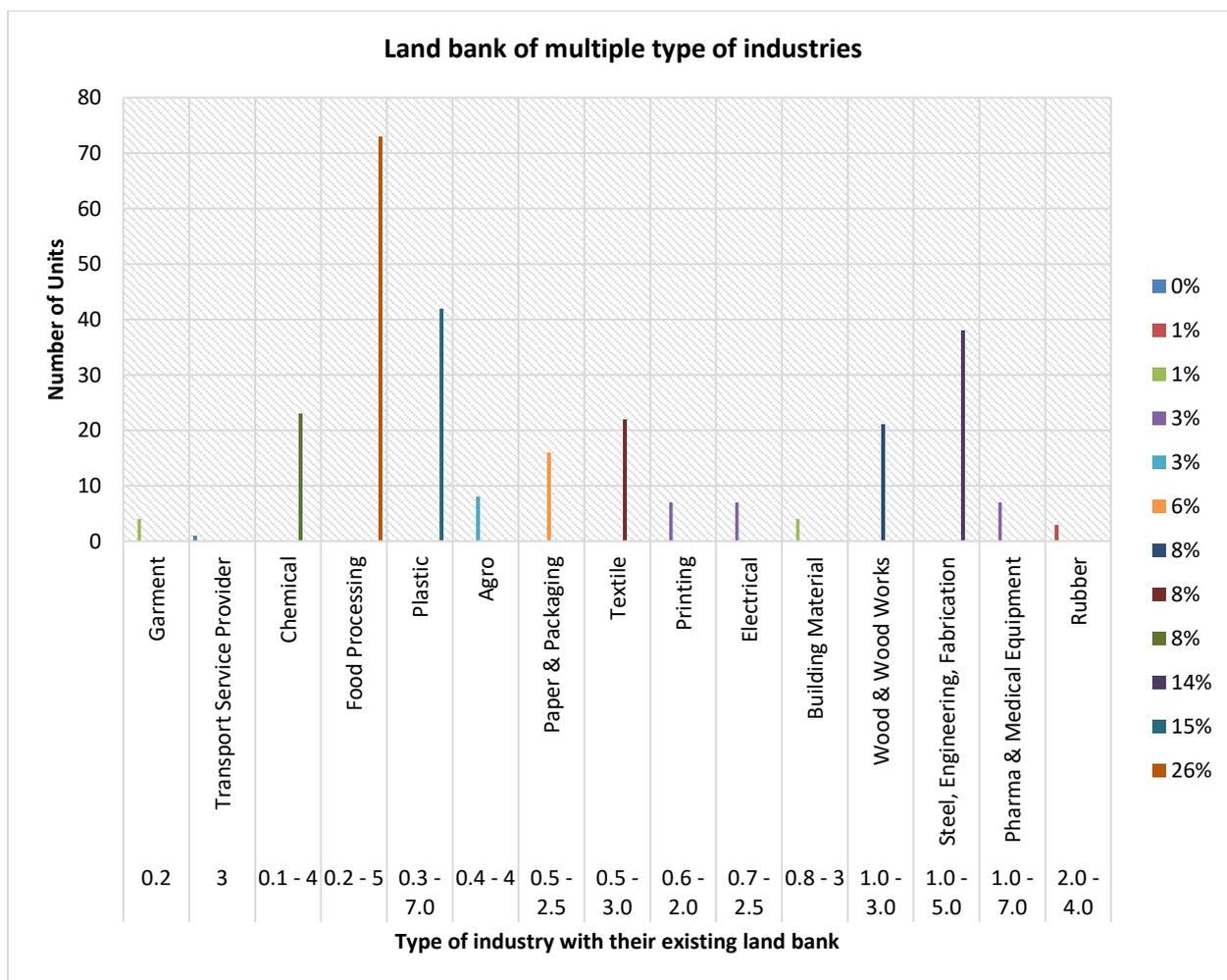
The chart below shows the percentage of various types of industries present at Gorakhpur.



Part 2

According to the market survey conducted the food processing unit which consist of maximum number of industries requires plot area ranging from 0.2 to 5 acres. Thus, one can conclude that food processing units present at Gorakhpur does not require huge land bank for its production purpose. However, big food processing industries such as Britannia Industries limited or Hindustan Unilever limited may require larger land bank depending upon its variety and quantity of production.

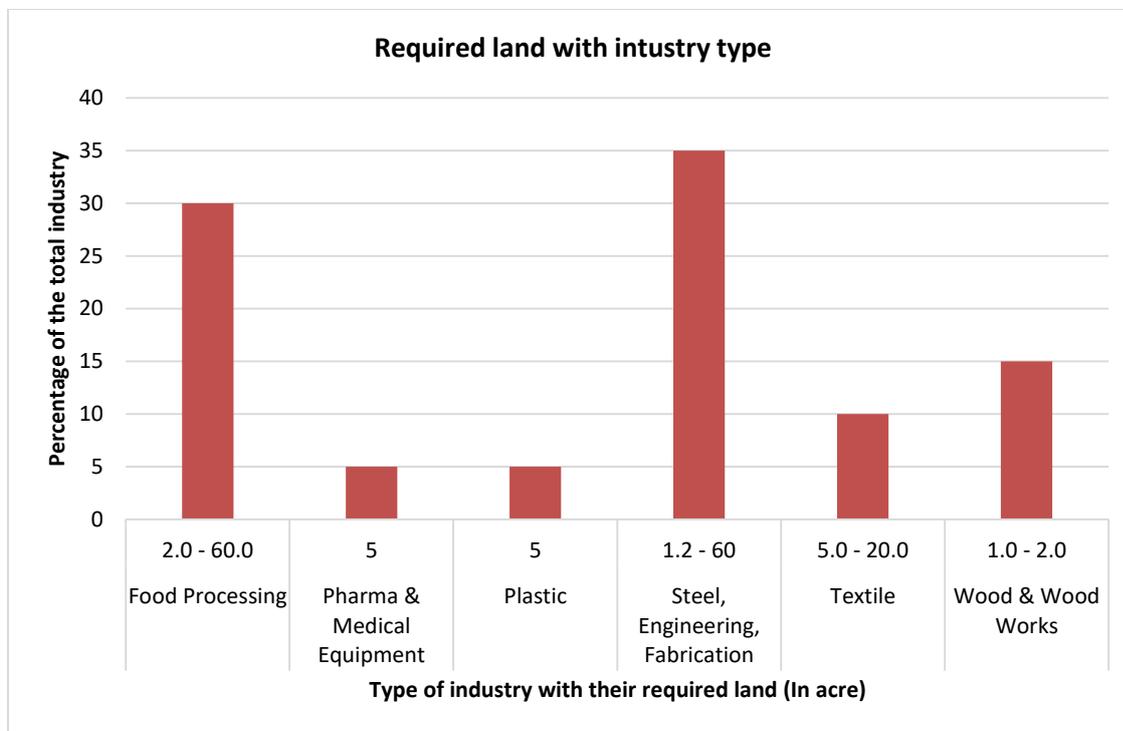
On the other hand textile and garment industry which consists of yarn, processing, spinning, dyeing and weaving sections require different range of land bank. In Gorakhpur textile industry which consist of 8% of the total number and garment industry which consist of 1% of the total number consist of land bank ranging from 0.5 to 2 acre. This, requirement of land is highly dependent upon the services the industry provides. On an average in textile industry, spinning section requires 2000 sqm of land and weaving section requires 4000sqm of land. However a textile processing industry with provision for spinning and weaving requires a minimum of 5 acres of land. A 2000sqm spinning industry would employ 500 labours on an average and a 4000sqm weaving industry would employ 50 to 100 labours on an average. Thus, from the graph below it is evident that there are no large textile processing industry that caters spinning, weaving and processing all together in Gorakhpur though there are a total to 22 textile industries.



The graph above also shows that the maximum amount of land required is by the steel, pharmacy, medical and rubber industry. However, the steel industry only covers 14% and pharmacy, medical,

rubber covers 3% and 1% of the total number of units in Gorakhpur. This, indicates that there is a requirement of land in these sectors but they are not expanding or setting up new industries.

As per the analysis done based on the market survey the following chart shows the various types of industries with the percentage of the same that are willing to expand or relocate in the future thus, will require land and the amount of land required for future expansion or relocation.



The above chart shows that from all the industries that are willing to relocate or expand in the future at Dhuriyapar, 35% of the total industries which is the Steel, engineering and fabrication sector, would require 1.2 to 60 acres of land. Furthermore, the food processing industry which is 30% of the total existing industries interested in relocation or expansion would require 2 to 60 acres of land. This shows that the existing steel and food sector do require land for expansion or relocation in the future but also facing some challenges in the present industrial area that are restricting them to expand at present.

Along with steel and food other industries that showed interest are wood, plastic, pharmacy and medical. Pharmacy medical and plastic which is 5% of the total industry interested for future expansion require 5 acre of land. Textile processing industries requires 5 to 20 acres of land and it is 10% of the total industries interested.

Part 3



Open solid waste dumping

There are multiple areas in GIDA, especially at the corner of the road junctions it was observed that there was solid waste dumping. On enquiring with the industrialists it was found that there are no dedicated solid waste dumping areas in the industrial belt. Often industrial waste also gets dumped in these areas.



Unconstructed roads

In GIDA, especially in sector 15 there are multiple internal roads that are not yet constructed. Though the adjacent plots are mostly allotted, as per the industrialists, the dust created due to the unconstructed roads creates additional issues. According to industrialists the roads are often uneven and this creates an issue for the loaded trucks. Thus resulting in delay for service provision.



Unmaintained storm water open drains

Most of the storm water drains in GIDA and GDA are open drains but most of these drains are not maintained properly. There is open dumping surrounding the open drains. This creates clogging and overflow.

	<p>The internal roads in GIDA and GDA are narrow with no space for loading and unloading of materials. Thus, in most areas this loading and unloading process is carried out on road.</p> <p>The construction materials are also dumped on road which further creates congestion.</p>
<p>Lack of loading and unloading space</p> 	<p>Lack of parking spaces in GIDA and GDA often results in vehicles like cars and trucks parked on road.</p> <p>According to some industrialists multiple trucks parked on road for the purpose of loading and unloading results in congestion on roads.</p>
<p>Lack of parking space</p> 	<p>Approach road in bad condition</p> <p>The approach roads for most of the industries are in a bad condition with kachcha roads and dumping done on side of the roads.</p>

The present study conducted show that there are multiple issues that the industrialists are facing and the industrial area lack based on the provided infrastructure. Based on a market survey conducted the following are the major concerns related to physical infrastructure in the existing industrial area.

Based on a market survey conducted there are other issues that the industrialists area facing at present apart from the infrastructure related concerns. These issues are as follows;

1. Government Interaction

To open an industry in GIDA or to apply for the requirement of land for industrial use there are multiple layers of government approvals that are required to be taken from GIDA. The time line for receiving the required approvals area also long. Often the industrialists have to visit the office several times to receive the required approvals from various departments. There is a lack of single window government management system to look into the aspect of approvals and issues.

2. Land

The land provided at GIDA are acquired by the authority. However, often it is found that the land is not acquired properly and allotted to the industries with land unclear status. Thus, the disputed land often result in issues with setting up of industries. This additional issue are often left unmanaged by the authority and thus creates an unnecessary harassment for the industries.

3. Pollution

There is existing air and water pollution issues in the area. The industrial clustering is such that most polluting and nonpolluting industries are grouped together without considering the type of industries and the wind direction. There is also no provision for Common Effluent Treatment Plant (CETP). Most of the industries that require water use bore well for the purpose as there are no provision for other sources of water.

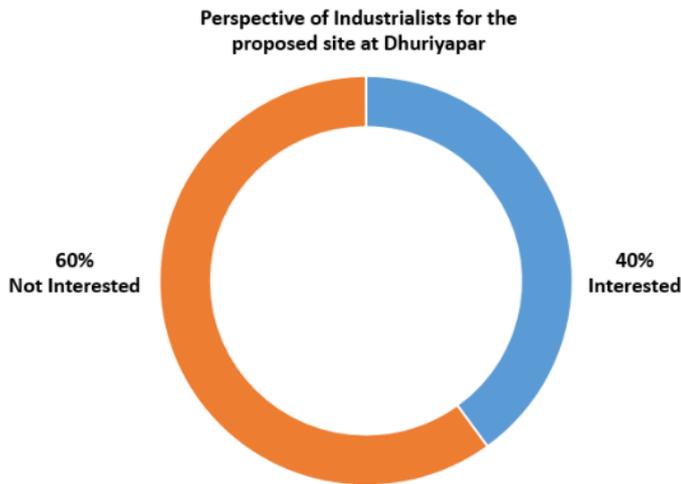
4. Other Facilities

The labours working in the industries often stay at illegal buildings and rooms constructed as there are no provision for EWS housing in the area. The industrial area also lacks provision of proper health care, commercial and recreational facilities.

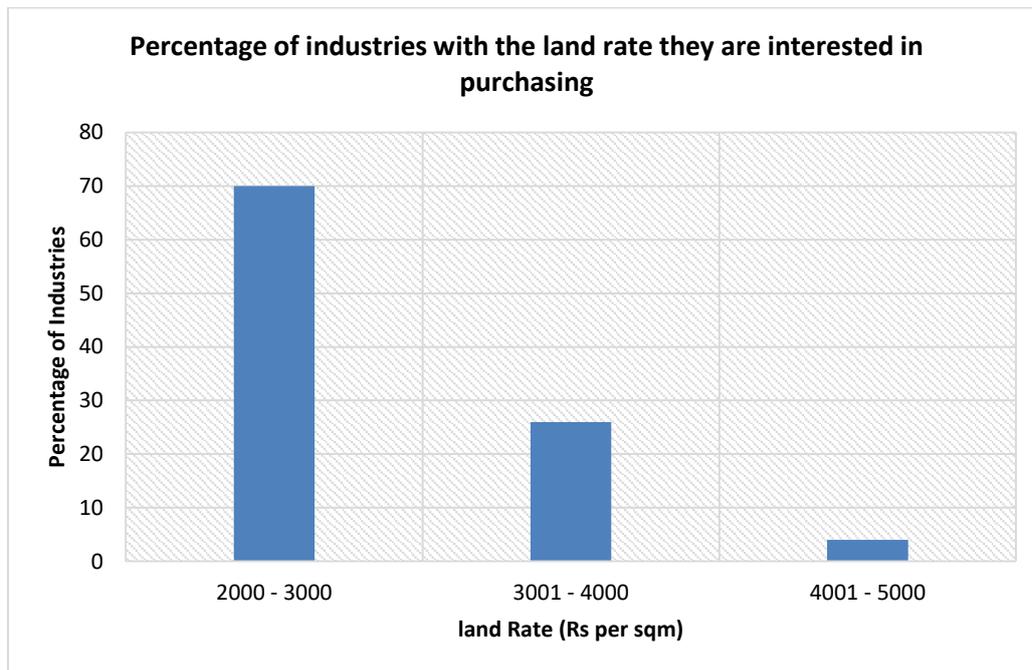
Part 4

Based on the interviews conducted, the fourth part of the questionnaire is concerned about opinion on the industrial corridor at Dhuriyapar and the favorable land rate that needs to be put to facilitate the industries for relocating or expanding to Dhuriyapar. However, based on the interviews conducted 40% of the industries are interested in relocating or expanding to Dhuriyapar. However, there interest is based on the provisions that area required by the industrialists and appropriate land rate.

There are 60% of the industries that are interested in relocating or expanding. However, their interest is based on the facilities that area required and are lacking in the current industrial area. The other issues listed by the industries also need to get addressed in order to encourage the existing industries in relocating or expanding to Dhuriyapar.



From the market study it was observed that the existing land rate at GIDA, which is Rs.6000 per sqm is too high for medium and small scale industries to set up. Thus, according to the industrialists the land per square meter rate at Dhuriyapar needs to be in the range of Rs.2000 to Rs.5000. The chart below shows that 70% of the industrialists would like to consider the industrial area at Dhuriyapar to be in the range of Rs.2000 to Rs.3000 per sqm. Whereas 26% of the industries are interested to relocate/extend considering the land rate to be within Rs.3001 – Rs.4000 per sqm. Lastly, only 4% of the industries area interested considering the land rate to be within Rs.4001 – Rs.5000 per sqm.



The photographs below show the various industries where the industries were the interviews were conducted and also various associations such as ‘Chamber of Industries’ that cooperated in collecting the required data.

Photographs of Stake Holders Interview and Industries





10 SWOT ANALYSIS

The following is a SWOT analysis for Industrial Corridor, Dhuriyapar, Gorakhpur to determine the strengths, opportunities, weaknesses and threats in achieving the favourable outcome.

STRENGTHS	WEAKNESS
<ul style="list-style-type: none"> • Proposed and ongoing construction of Gorakhpur link expressway connecting Gorakhpur with Purvanchal Expressway at Azamgarh. The road passing within a close proximity from the proposed site. • Proposed Lucknow to Kanpur Purvanchal Expressway passing from the southern part of the proposed Dhuriyapar industrial corridor. The Purvanchal Expressway is connected with the link road at a distance of approximately 50km. 	<ul style="list-style-type: none"> • The proposed Dhuriyapar industrial corridor is approximately 30km from the city of Gorakhpur. • The distance is a problem to cater the small scale industries that need close proximity to the city such as Bakery or garment industry. • Other industrial areas in the vicinity within a radius of approximately 50km, such as GIDA, GDA, Khililabad and Deoria. • Current transportation mode considering no railway line or airport near the project site. • Currently an unsafe area as per the word of mouth from the local inhabitants.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • The planning for Dhuriyapar Industrial Development Corridor can be done based on the existing issues and requirements of the current industries in the region. Thus, the area can be planned based on all the required facilities and provisions that would help in proper industrial development. • The fertile land which is favorable for various kind of crops such as wheat, rice etc. and various kind of fruits shows an opportunity for food industry to develop in this region. 	<ul style="list-style-type: none"> • At present maximum number of existing industries are small and medium in scale and they are not willing expand or relocate considering the distance from the city and existing issues with the authority. • The ancillary industries are only willing to set up their units in Dhuriyapar on confirmation of any large scale industry setting up unit in the region. • The cancellation of the proposed railway line of Gorakhpur Varanasi route which was supposed to pass nearby Dhuriyapar Industrial corridor.

11 DEMAND ASSESSMENT AND PRODUCT MIX

Trends of Industrial development in Gorakhpur

As per the information collected, in 2012, about 107.71 hectares of land was developed in GIDA area for industrial land use. As per our estimate as of now (2020) about 377.06 hectares of industrial use land has been developed. This indicates a 31% average annual growth rate of Industrial use land in Gorakhpur between 2012 and 2020. Also this indicates development of 33 hectares of Industrial use land year on year.

Also as per proposed land use plan of GIDA, there is scope for development of a total of 2282.08 hectares of Industrial use land. If all this land would develop in Gorakhpur as proposed, then it would grow at an average growth rate of 42%.

Year	2012	2020	2032
Developed Industrial Land (Hectares)	107.71	377.06	2282.08
Annual Growth Rate		31%	42%

As it has been shown how the number of industries of different types have increased in Gorakhpur between 2012 and 2020. If we compare the number of units of different industry types, we can estimate the average annual growth rate of these industries. This growth is simply an indication of the total number of units, and not on the scale or production capacity of these units.

growth rate considering that the no. of units given for 2012 is for both GIDA area and Gorakhpur city				
Sr.no.	Industry Type	2012	2020	annual growth rate
1	Food Processing	21	83	36.90%
3	Wood & Wood Work	5	17	30.00%
4	Textile	14	24	8.93%
5	Chemical	8	26	28.13%
6	Paper & Packaging	3	25	91.67%
7	Rubber, Plastic	26	71	21.63%
8	Medical Equipment	5	7	5.00%
9	Garments	1	10	112.50%
10	Electrical	7	10	5.36%
11	Steel, Engineering, Fabrication	15	58	35.83%

Also we have data related to the number of Small, micro and medium and Large industries in Gorakhpur district. From MSME reports on the district from 2011 & 2016. If we compare these data sets then we get the following growth rates for different industry types.

Industry Type	2011	2016	Annual Growth Rate	Percentage of units for each industry type, 2016
Chemical	280	289	0.64%	4%
Electrical	126	127	0.16%	2%
Food Processing	1808	1938	1.44%	27%
Garment	1052	1101	0.93%	15%

Industry Type	2011	2016	Annual Growth Rate	Percentage of units for each industry type, 2016
Leather Products	111	117	1.08%	2%
Paper & Packaging & Printing	461	472	0.48%	7%
Plastic & Rubber	160	165	0.63%	2%
Steel, Engineering, Fabrication	644	668	0.75%	9%
Textile	209	220	1.05%	3%
Wood & Wood Works	701	713	0.34%	10%
Mislanious Manufacturing	1307	1392	1.30%	19%
Total	6,859	7,202	1.00%	

These low growth rates indicate two things, that:

- Most of the growth in the number of industrial units is in the formal industrial regions located within GDA and GIDA boundaries
- The growth of industrial units could have increased post 2016.

Growth rate trends of key industries in Gorakhpur at all India level

Identified key industries in Gorakhpur	annual growth rate in India
Food Processing	8.41%
Textile	8.70%
Plastic	13%
Garments	8.70%

Trend in the GSDP for manufacturing sector in Uttar Pradesh from 2011 to 2020

For Uttar Pradesh - Economic trend	
Gross State Domestic product for Manufacturing Sector	
Growth over previous year	
2011 - 12	
2012 - 13	4.1
2013 - 14	13.7
2014 - 15	-10
2015 - 16	26.4
2016 - 17	47
2017 - 18	2.9
2018 - 19	3.9
2019 - 20	-1.5
Average Growth rate of Manufacturing Sector Contribution to GSDP in UP, Over Last 9 Years	10.81
assumption	

Between 2011 to 2020, the average growth rate of Manufacturing sector contribution to UP's GDP	10.81%
The increase in contribution can be due to	Ratio assumption
i) Increase in production and sale of existing industries	30%
ii) Increase in the number of Industries	70%
Therefore average annual growth rate of Industries in UP	7.57%

On the basis of the survey conducted and the data analysed we have estimated that at present there are about 400 industrial units in Gorakhpur within the boundaries of GIDA and GDA. The percentage of units of each type of industry estimated and the number of units for each industry type are as follows:

As per market survey and analysis of primary and secondary data, percentage of units for each industry type		
Agro & Food Processing	25%	100
Plastic	15%	60
Textile	5%	20
Garment	5%	20
Chemical	5%	20
Steel, Engineering, Fabrication	15%	60
Paper & Packaging	5%	20
Wood & Wood Works	5%	20
All other type of Industries	20%	80
Total	100%	400

General growth promoting factors for all industry types
Demographic Dividend
Large Consumer market of Purvanchal, Bihar and even Nepal
Gorakhpur along with Varanasi are two biggest industrial areas in Purvanchal
Improvement of Physical Infrastructure

The development of the proposed Dhuriyapar Industrial Corridor would be completed in different phases. As per our estimate, the overall development of this much area can take about 25 years. Therefore, we have assumed 5 phases of development of this industrial corridor. The period of these 5 phases is as follows:

2021 - 2022	Approval of Master Plan & Issue of Tender for development
2022 - 2026	Phase 1
2027 - 2031	Phase 2
2032 - 2036	Phase 3
2037 - 2041	Phase 4
2042 - 2046	Phase 5

Assumptions for Growth of different industry Types in Gorakhpur

These assumptions are based on, the past trends, locational strengths and constraints, trends forecasted in different industry reports and opinion of experts.

Industry Type	Growth rate assumed	Justification
Food Processing & Agro		Growth rate in India had been 8.41% between FY 2014 - 2018. Projected to grow at 11.5%, from 2018 - 2023, In India
Phase 1 - 2021 - 2026	7.0%	Past growth rate of about 22% in Gorakhpur, between 2012 - 2020. Push given by UP Govt. (2017 Policy) to Food Processing Industries, development of new industrial sectors, Improved Infrastructure, Food Park development
Phase 2 - 2027 - 2031	6.0%	Advancement in technology, implementation of single window clearance, improvement in ease of doing business, development, Improved Infrastructure.
Phase 3 - 2032 - 2036	6%	Moving towards saturation, Decrease in primary sector growth with people moving away from agriculture, decrease in cultivable land
Phase 4 - 2037 - 2041	4%	Moving towards Saturation, Competition from industrial estates developed in other districts of UP
Phase 5 - 2042 - 2046	4%	Moving towards Saturation, Competition from industrial estates developed in other districts of UP
Plastic Industries		
Phase 1 - 2021 - 2026	7%	India's plastic Industry has grown 13% annually in the last 5 years and similar growth is expected even in the future.
Phase 2 - 2027 - 2031	7%	Past annual growth rate of about 18% from 2012 - 2020, in Gorakhpur. Development of Plastic park - Magnet pull
Phase 3 - 2032 - 2036	6%	Reaching saturation, less availability of raw material - plastic granules, Competition from other industrial areas
Phase 4 - 2037 - 2041	4%	Move towards more biodegradable options, impact of people being more sensitized towards environment
Phase 5 - 2042 - 2046	3%	Move towards more biodegradable options, impact of people being more sensitized towards environment
Textile Industries		
Phase 1 - 2021 - 2026	7.0%	The growth rate of textile industry across India was estimated to be 8.7 percent from fiscal year 2015 to 2020. Push given by Indian and UP govt. to promote textile Industries - Policies promoting textile industries. Indian Textile and Apparel Market to Grow by 14.2% up Until the Year 2024
Phase 2 - 2027 - 2031	6%	Operational - Textile park in the district and its magnetic pull for other smaller textile units.
Phase 3 - 2032 - 2036	6%	Further growth of industry in the District due to advancement of technology, better availability of raw materials
Phase 4 - 2037 - 2041	5%	Move towards saturation and competition from other industrial areas
Phase 5 - 2042 - 2046	3%	Move towards saturation and competition from other industrial areas
Garment Industries		

Industry Type	Growth rate assumed	Justification
Phase 1 - 2021 - 2026	7%	As per present market survey, the entrepreneurs of the district are willing to invest in textile industries, also there are textile units that can provide raw material to garment industry, further development of textile park in the district
Phase 2 - 2027 - 2031	7%	Slight decrease in growth rate as natural progression to period of growth
Phase 3 - 2032 - 2036	6%	Move towards saturation and competition from other industrial areas
Phase 4 - 2037 - 2041	5%	Move towards saturation and competition from other industrial areas
Phase 5 - 2042 - 2046	5%	Move towards saturation and competition from other industrial areas
Chemical Industries		
Phase 1 - 2021 - 2026	7%	Between 2006 and 2019, the compound annual growth rate (CAGR) in TRS for India's chemical companies was 15 %, this growth rate is expected to continue in the future
Phase 2 - 2027 - 2031	5%	In Gorakhpur also the no. of Chemical industries increased at 15% per annum in the past
Phase 3 - 2032 - 2036	5%	Saturation and competition from other industrial areas
Phase 4 - 2037 - 2041	3%	Movement away from polluting industries, Saturation and competition from other industrial areas
Phase 5 - 2042 - 2046	3%	Movement away from polluting industries, Saturation and competition from other industrial areas
Steel, Heavy Engineering, Fabrication		
Phase 1 - 2021 - 2026	8%	Major ancillary industries supporting other industries & fabrication Industries. Existing Galant Ispat has already identified 60 acres land, adjacent to their present location
Phase 2 - 2027 - 2031	7%	Growth of more ancillary, industrial components, industries
Phase 3 - 2032 - 2036	6%	Stable growth with major units being small & micro
Phase 4 - 2037 - 2041	5%	Stable growth with major units being small & micro
Phase 5 - 2042 - 2046	5%	Stable growth with major units being small & micro
Paper & Packaging		
Phase 1 - 2021 - 2026	7%	Major ancillary industries supporting other industries, less capital cost of establishment in comparison
Phase 2 - 2027 - 2031	6%	Growth of more ancillary - packaging for industrial goods produced by other industries
Phase 3 - 2032 - 2036	6%	Stable growth with major units being small & micro
Phase 4 - 2037 - 2041	5%	Stable growth with major units being small & micro
Phase 5 - 2042 - 2046	3%	Stable growth with major units being small & micro
Wood & Wood Works		
Phase 1 - 2021 - 2026	7%	Goods produced are consumed within the district and in nearby district thus have regular consumer base,

Industry Type	Growth rate assumed	Justification
Phase 2 - 2027 - 2031	6%	with the growth of the city, and development of new area within GIDA and GDA boundaries, demand would increase
Phase 3 - 2032 - 2036	5%	More focus on preserving trees and restrictions on cutting
Phase 4 - 2037 - 2041	5%	Moving towards Saturation, Competition from industrial estates developed in other districts of UP
Phase 5 - 2042 - 2046	3%	Moving towards Saturation, Competition from industrial estates developed in other districts of UP
Medical equipment's & Hygiene Products		
Phase 1 - 2021 - 2026	7.00%	Growth due to demand from nearby areas
Phase 2 - 2027 - 2031	5.00%	Gradual growth with the economy of the region
Phase 3 - 2032 - 2036	5.00%	Gradual growth with the economy of the region
Phase 4 - 2037 - 2041	3.00%	Gradual growth with the economy of the region
Phase 5 - 2042 - 2046	3.00%	Gradual growth with the economy of the region
All other type of Industries		
Phase 1 - 2021 - 2026	5.00%	As per general growth rate of Manufacturing Industries in India
Phase 2 - 2027 - 2031	5.00%	As per general growth rate of Manufacturing Industries in India
Phase 3 - 2032 - 2036	3.00%	As per general growth rate of Manufacturing Industries in India
Phase 4 - 2037 - 2041	3.00%	As per general growth rate of Manufacturing Industries in India
Phase 5 - 2042 - 2046	3.00%	As per general growth rate of Manufacturing Industries in India

Apart from these industries which already exist in Gorakhpur, Dhuriyapar Industrial area will also be targeting to bring in Warehousing and Logistics centres to open up.

On the basis of these assumptions if we project the growth of industrial units of different types we get the following estimate for the number of units getting operational in each phase.

Total no. of industries under each phase	Phase 1 (2022 – 2026)	Phase 2 (2027 – 2031)	Phase 3 (2032 – 2036)	Phase 4 (2037 – 2041)	Phase 5 (2042 – 2046)
Agro & Food Processing	43	51	68	58	71
Plastic	26	36	43	37	33
Textile	9	10	14	15	11
Garments	10	13	15	16	21
Chemical	9	8	11	8	9
Steel, Engineering, Fabrication	30	32	43	47	35
Paper & Packaging	9	10	14	15	11
Wood & Wood Works	9	10	11	14	10
Medical equipments & Hygiene Products	9	8	11	8	9

Total no. of industries under each phase	Phase 1 (2022 – 2026)	Phase 2 (2027 – 2031)	Phase 3 (2032 – 2036)	Phase 4 (2037 – 2041)	Phase 5 (2042 – 2046)
other industries	23	30	22	25	29
Total	176	209	250	243	239

On the basis of market survey and stakeholder survey, plot sizes have been identified and the share (%) of units for each plot size has been estimated.

Recommended Plot Areas for Dhuriyapar development (Acres)	
0.20	15%
0.50	15%
1.50	15%
5.00	15%
10.00	15%
15.00	15%
50.00	5%

Estimation of demand for industrial land in each phase of development

Phase	Phase 1 (2021 - 2026)	Phase 2 (2027 - 2031)	Phase 3 (2032 - 2036)	Phase 4 (2037 - 2041)	Phase 5 (2042 - 2046)
no. of industrial units estimated for each phase	204	209	250	243	239
% of Units that set up their Units in Dhuriyapar (result of the initiatives taken)	10%	12%	15%	20%	12%
Number of Units setting up in Dhuriyapar in each phase	20	25	37	49	29
No. of units as per plot size					
0.20	3	4	6	7	4
0.50	3	4	6	7	4
1.50	3	4	6	7	4
5.00	3	4	6	7	4
10.00	3	4	6	7	4
15.00	3	4	6	7	4
50.00	2	3	4	5	3
Total area under industrial plots in each phase	201	246	369	478	282

To make the Dhuriyapar Industrial area attractive for people to set industries, certain necessary initiatives would be required. If these initiatives are taken then the percentage assumed for the number of industries setting up their units in Dhuriyapar can be expected.

Industrial Land Demand estimation for Dhuriyapar

Total Industrial Units in Dhuriyapar	160
Total area to be developed under industrial plots in Dhuriyapar	1,575

Total area under industrial sectors	2,048
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Factoring in the additional area required for roads, infrastructure like STP and ETP, and green areas, 30% additional area has been considered, over and above the area of industrial plots estimated.

Residential area demand for Dhuriyapar estimation

Requirement for industrial land demand has been estimated based on the number of employee projection for each industry type in each phase. For this estimation we have made assumptions for average number of workers in a single industrial unit of each type. These assumptions have been made on the basis of the market survey conducted and through data collected from secondary sources.

Units to be set up in Phase 1	Avg. no. of workers per unit
Agro & Food Processing	100
Plastic	75
Textile	75
Garments	75
Chemical	75
Steel, Engineering, Fabrication	75
Paper & Packaging	75
Wood & Wood Works	75
Medical equipment's & Hygiene Products	75
Logistics and Warehousing	100
other industries	60

Phase & Industry Type wise number estimation of Number of Formal Employees

Units to be setup in Phase 1	Percentage	Phase 1		Phase 2		Phase 3		Phase 4		Phase 5	
		No. of units	No. of Formal employees	No. of units	No. of Formal employees	No. of units	No. of Formal employees	No. of units	No. of Formal employees	No. of units	No. of Formal employees
Agro & Food Processing	20%	4	409	5	501	7	750	10	972	6	573
Plastic	15%	3	230	4	282	6	422	7	547	4	322
Textile	5%	1	77	1	94	2	141	2	182	1	107
Garments	5%	1	77	1	94	2	141	2	182	1	107
Chemical	5%	1	77	1	94	2	141	2	182	1	107
Steel, Engineering, Fabrication	15%	3	230	4	282	6	422	7	547	4	322
Paper & Packaging	5%	1	77	1	94	2	141	2	182	1	107
Wood & Wood Works	5%	1	77	1	94	2	141	2	182	1	107
Medical equipments & Hygiene Products	5%	1	77	1	94	2	141	2	182	1	107
Logistics and Warehousing	5%	1	102	1	125	2	187	2	243	1	143
other industries	15%	3	184	4	225	6	337	7	438	4	258
Total		20	1,614	25	1,978	37	2,962	49	3,840	29	2,264

Apart from the existing industries, one area of focus will be to bring in warehousing, logistics companies to set up their base in this proposed industrial corridor. Companies in the business of warehousing and logistics should find Dhuriyapar area an optimum location to open a warehouse, or dry port and serve the markets of eastern UP, Bihar, and Nepal from this location.

Assumption formal to informal employment ratio - 01:03, i.e. it has been assumed that for each formal employment in industries in Dhuriyapar, an informal or non-industry related job would be created.

Workforce division assumption – 80% workers, 20% management

Total no. of employees	Industrial	Workers (80%)	Management (20%)	Non Industrial workforce	Total working population in each Phase
Phase 1	1,614	1,291	323	4,842.20	6,456
Phase 2	1,978	1,582	396	5,932.84	7,910
Phase 3	2,962	2,370	592	8,886.51	11,849
Phase 4	3,840	3,072	768	11,521.03	15,361
Phase 5	2,264	1,811	453	6,792.51	9,057
Total employees in 5 Large anchor Industries	3,500	2,800	700	10,500	14,000
Total	16,158	12,927	3,232	48,475	64,633

The area marked for the development of Dhuriyapar Industrial corridor has a number of villages which would turn into abadi areas when the development gets complete. As per 2011 census the total population of the villages which form the Dhuriyapar industrial region was 14,552 persons. Now a significant number of working age population from the village would start working in the industries that get set up in this industrial region.

	Total Population of the villages in the industrial area	% Working Population	Working population	% working in Industries	No. of Persons working in Industries	% of workers in other non-industrial jobs	No. of workers in Non-industrial jobs
2011	14,552	30%	4,366	6%			
2021	16,735	30%	5,020	10%			
Phase 1	17,764	30%	5,329	10%	533	15%	799
Phase 2	18,670	30%	5,601	15%	840	30%	1,680
Phase 3	19,623	30%	5,887	20%	1,177	30%	1,766
Phase 4	20,420	30%	6,126	25%	1,532	35%	2,144
Phase 5	21,250	30%	6,375	25%	1,594	35%	2,231

Residential Land Demand Estimation:

Residential area demand estimation	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Phase wise total no. of workers	1,614	1,978	2,962	3,840	2,264
No. of industrial workers from existing abadi and future residential areas within the industrial estate	533	840	1,177	1,532	1,594
Remaining Industrial workers	1,081	1,137	1,785	2,309	300
% of Industrial workers travelling from nearby areas (like Khajani)	50%	30%	20%	15%	15%
No. of Ind. workers requiring Housing in Dhuriyapar Industrial Township	541	796	1,428	1,962	255
% of Industrial workers in abadi areas shifting to residential zone of Dhuriyapar Industrial Township	0%	30%	40%	40%	40%
No. of industrial workers shifting from abadi to Resi zone	-	252	471	613	638
Total no. of Industrial workers requiring housing	541	1,048	1,899	2,575	893
Total no. of other workers (apart from those working in Industries)	5,342	6,433	9,387	12,021	7,293
No. of other workers living in abadi areas future residential areas within the industrial estate	799	1,680	1,766	2,144	2,231
Remaining other workers	4,543	4,752	7,620	9,877	5,061
% of other workers travelling from nearby areas (like Khajani)	30%	20%	15%	10%	10%
No. of Other workers requiring Housing in Dhuriyapar Industrial Township	3,180	3,802	6,477	8,889	4,555
% of Other workers in abadi areas shifting to residential zone of Dhuriyapar Industrial Township	10%	20%	30%	30%	30%
No. of Other workers shifting from abadi to Resi zone	80	336	530	643	669
Total no. of Other workers requiring Houseing	3,260	4,138	7,007	9,532	5,224
Total Management level workers	323	396	592	768	453
% of Management level workers living in Dhuriyapar Industrial area	10%	40%	60%	80%	90%
No. of Management level employees requiring housing in Dhuriyapar	32	158	355	614	408
LIG Hosuing required in Dhuriyapar in each phase	3,800	5,186	8,906	12,108	6,117
MIG & HIG Housing units in each Phase	32	158	355	614	408
Average Household size of Workers	6	6	5	5	5
Average Family size of Management	4.0	4.0	4.0	4	4
Total Population for Dhuriyapar	22,932	31,751	45,952	56,942	29,157
Cumulative Population		54,683	100,634	157,576	186,733

Population density considered as per Gorakhpur's Character		
R1 zone - Plotted Housing	175	Persons per Hectare
R2 zone - Group Housing	750	Persons per Hectare

% of Plotted Households					
Industrial & Other workers	70%	60%	60%	60%	60%
No. of Industrial & Other workers Plotted Housing units	2,660	3,112	5,344	7,265	3,670
Population living in Industrial & Other worker plotted housing	15,962	18,671	26,718	32,690	16,516
Land area required for Industrial & Other workers Plotted Housing (Acres) (LIG)	91	107	153	187	94
Management Employees living in Plotted Housing	100%	100%	100%	100%	100%
Population living in Management emp. plotted housing	129	633	1,422	2,458	1,630
Land area required for Management emp. workers Plotted Housing (Acres) (HIG)	0.74	3.62	8.12	14.04	9.32
No. of Industrial & Other workers Group Housing units	1,140	2,075	3,562	4,843	2,447
Population living in Industrial & Other worker Group housing	6,841	12,447	17,812	21,794	11,011
Land Area required for Group Housing in Each phase (Acres)	9	17	24	29	15
Total Land Area for Plotted Housing (R1)	92	110	161	201	104
Total Land Area for Group Hosuing (R2)	9	17	24	29	15
Total Land Area under Residential Use	101	127	185	230	118

Total area under Residential use	761	Acres
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Proposed Product Mix for Development of Dhuriyapar Industrial Corridor

Phase	Phase 1 (2021 - 2026)	Phase 2 (2027 - 2031)	Phase 3 (2032 - 2036)	Phase 4 (2037 - 2041)	Phase 5 (2042 - 2046)
Industrial use					
Number of Units setting up in Dhuriyapar in each phase	20	25	37	49	29
No. of units as per plot size					
0.20	3	4	6	7	4
0.50	3	4	6	7	4
1.50	3	4	6	7	4
5.00	3	4	6	7	4
10.00	3	4	6	7	4
15.00	3	4	6	7	4
50.00	2	3	4	5	3

Phase	Phase 1 (2021 - 2026)	Phase 2 (2027 - 2031)	Phase 3 (2032 - 2036)	Phase 4 (2037 - 2041)	Phase 5 (2042 - 2046)
Total area under industrial plots in each phase	201	246	369	478	282
Industrial Plots comprise of 70% of required Industrial area developed - Industrial area to be developed	261	320	479	621	366
Cumulative Industrial Workforce Population	2,114	4,592	8,054	12,394	15,158
Residential Use					
Total Land Area for Plotted Housing (R1) (for all LIG, MIG & HIG)	92	110	161	201	104
Total Land Area for Affordable Group Housing (R2)	9	17	24	29	15
Total Area under Residential land use	101	127	185	230	
Total Population Projection for each Phase					
Population living in Residential Zone	22,932	54,683	100,634	157,576	186,733
Population living in Abadi areas (existing villages)	17,764	15,142	14,619	14,769	15,369
Planning Standards for facilities incidental to Use Zones M0- M5 (F1)					
no. of Shops Formal (1 for 100 Industrial work force)	21	46	81	124	152
No. to be provided	21	25	35	43	28
no. of Informal Shops (1 for 400 Industrial work force)	5	11	20	31	38
No. to be provided	5	6	9	11	7
Space for Service Providers in Industrial area (1 per 200 Industrial Workforce)	11	23	40	62	76
No. to be provided	11	12	17	22	14
Child Creches (1 for 500 Industrial work force)	4	9	16	25	30
No. to be provided	4	5	7	9	6
Community Hall (1 for 5000 Industrial work force)	-	1	2	2	3
No. to be provided		2	1	1	1
To be provided Petrol Pump (1 per 40 hectares of industrial development)	3	3	5	6	4

Phase	Phase 1 (2021 - 2026)	Phase 2 (2027 - 2031)	Phase 3 (2032 - 2036)	Phase 4 (2037 - 2041)	Phase 5 (2042 - 2046)
Dharamkanta/ Weigh Bridge	1	1	2	2	3
No. to be provided		0	1	1	1

For F1 Zone					
Pre - Primary school	9	22	40	63	75
No. to be provided	9	13	18	23	12
Primary School	6	14	25	39	47
No. to be provided	4	8	11	14	7
Convinient Shopping plots (1 for 1000)	23	55	101	158	187
No. to be provided	23	32	46	57	29
Shops integrated (1 for 100)	229	547	1,006	1,576	1,867
No. of formal shops to be provided	229	318	460	569	292
Shops informal	57	137	252	394	467
No. of informal shops to be provided	57	79	115	142	73
Grocery Market	2	4	7	11	12
No. to be provided	2	2	3	4	2

For F2 Zone					
Community Centre /Club / Restaurant / Bank-Post office	5	11	20	32	37
No. to be provided	5	6	9	11	6
Dispansary	2	5	10	16	19
No. to be provided	2	3	7	9	10
No. of Milk Booths to be provided (1 per 5000)	5	6	9	11	6
Police Picket Posts to be provided (1 per 5000)	5	6	9	11	6

For Zone F3					
Junior Secondary School (1 per 7500)	3	7	13	21	25
No. to be provided	3	4	6	8	4
Senior Secondary School (1 per 10,000)	2	5	10	16	19
No. to be provided	2	3	5	6	3
Community-Banquet hall/ Barat Ghar (1per 15,000)	2	4	7	11	12
No. to be provided	2	2	3	4	2
Nursing Home (1 per 15,000)	2	4	7	11	12
No. to be provided	2	2	3	4	2

Petrol Pump for resi Zone			1	1	1
Fire Station		1 for 2 Lakh Population			
Police Station (1 per 40,000 population)	1	1	3	4	5
No. to be provided		1	2	1	1

Total area to be acquired for Dhuriyapar Industrial Corridor development – 6,741.14 Acres

Area under existing villages, with a buffer around villages for future growth – 838.25 Acres

Area under Water Bodies/ Pond/ Nala/ Nahar- 129.26 Acres

Area under Railway track and its buffer Zone – 87.28 Acres

Area available for development of Dhuriyapar Industrial Corridor – 5,686.35 Acres

Proposed Product Mix

S.N	Particular	Area (in sq m)	Area (Acre)			
a	Total Site Area (1)	27279814.96	6,741.14			
b	Area under Water Bodies/ Pond/ Nala/ Nahar	523076.34	129.26			
c	Area under Railway track and its buffer Zone (4)	353,183	87.28			
d	Project Area excluding Water Bodies/ Pond/ Nala/ Nahar/Railway	26403555.77	6,524.61			
e	Total Projected Population for 2046 (in number of person)	1,86,733				
S.N	Land use Analysis	Area (in sq m)	Area in Acre	%	Norms	
					URDPFI	YEIDA
1.1	Residential	3,119,664.28	770.90	11.82		
1.2	Abadi Area	1,247,748.15	308.33	4.73		
1.3	Village Buffer Area/ Village Abadi Expansion Area	2,144,464.87	529.92	8.12		
1	Total Residential	6,511,877.29	1,609.16	24.66	20-25%	18.47
2	Commercial	946,618.25	233.92	3.59	3-4%	5.15
3	Industrial	9,235,019.48	2,282.08	34.98	30-35%	18.99
4	Institution/ Public- Semi Public Utilities & Facilities/ Office	2,070,893.28	511.74	7.84	6-8%	7.11
5	Mixed Use	1,118,125.63	276.30	4.23		
6	Green/ Open Spaces/ Recreational	3,381,858.61	835.69	12.81	12-15%	20.81
7	Transport Nagar	608,081.13	150.26	2.30	10-12%	
8	Roads/ Transportation	2,531,082.11	625.46	9.59		14.2
	Total	26,403,555.77	6,524.61	100		

Development of residential land would facilitate development of the industrial area, and would also improve the demand for industrial plots in Dhuriyapar area.

Sale of this residential land would also help in the financing of infrastructure development for industrial area.

As per the stakeholder survey conducted it was observed that there is large demand for Institutional land, for development of colleges and other institutional buildings. Keeping in view of this the institutional area planned has been taken as 10%.

Large size industrial plots i.e. 10 acres, 15 acres and 50 acres are 35% of the total plots to be developed in each phase. This is as per stakeholder survey and discussion with GIDA, to focus of bringing in relatively large industries in about 30% of the industrial plots.

The marketing strategy would be such to that to attract warehousing and logistics companies to set up their bases and reach out to markets of Eastern UP, Bihar and even Nepal.

12 CONCLUSION

On the basis of the market survey done, industrial growth trends assessed, expert's opinion taken and analysis of primary and secondary data collected. We conclude that

- For making Dhuriyapar project a success, it would be of extreme importance to get a large industry to setup their base over there.
- Even if a large industry has to be given land for free then also it should be done, for overall success of the project.
- To attract other industrialists towards Dhuriyapar, it would be necessary to keep allotment rates well subsidized, at least for the first phase of development.
- Many earlier mini industrial estates planned in Gorakhpur have failed as no one wanted to relocate over there. Therefore, it would be necessary to give valid reasons for people to choose Dhuriyapar as a destination for industrial development
- It should also be looked into if a Public sector unit can be established first over there
- For MSME's to develop in Dhuriyapar, actual hand holding would be required from govt. authority's side.
- Authority should look into development of industrial sheds and giving them out on rent, this would substantially decrease the capital cost requirement of setting up industries, and can make the destination attractive.
- Another option can be development of flatted factories and giving these out on lease.
- Food processing, Textile and Plastic are some of the existing sectors which have potential of growing.
- Infrastructure developed in Dhuriyapar should be way better than what is present in existing industrial areas of Gorakhpur
- Different cluster of plots should be made for similar industries, requiring similar infrastructure and effluent treatment plants
- It is of extreme importance that actual single window clearance is implemented for getting various approvals for setting up industries. GIDA should become the one point contact for Industrialists and should facilitate in getting approvals from all other concerned authorities and departments.
- Common infrastructure should be created for pollution control, as pollution norms are very strict, and becomes very difficult for a small or medium unit to invest in all pollution control measures. Like common ETP and STP.
- Law and Order situation should be improved in Dhuriyapar area.

Sell the industrial plots both to investors and end users, just keep a stipulation that an industry would have to be operationalized on the allotted land within 3 years, post allotment. If this is not done then allotment would get either cancelled or re-allotment prices would have to be paid.

Out of the total industrial plots developed, mark a percentage of plots (at least 50) to be developed as Industrial sheds, which can be given out on lease of not more than 1.5 to 2 lakh monthly rent.

Create 1000 sq.mt. flatted factories and lease out the space, this could especially be in demand by Garment factories.

Development of amenities and facilities like banks, post office, police station, fire brigade is vital for attracting entrepreneurs to Dhuriyapar.

The 35% of relatively larger Industrial plots (10, 15 & 50 acres) it would be necessary to bring in large industries from outside. Probable sector could be warehousing giants like amazon or flipkart, electric vehicle manufacturers, pharma companies, food processing large companies. Allot the land to these companies at a very nominal rates, especially in the 1st and 2nd phase of the development.

Starting a skill development institute in the region for skill development of workers and villagers can take the success of this project a long way. Any institute would be required for setting up the demand for residential zone.

Development of community centers and clubs are also necessary along with setting up dispensaries for making the location suitable for living of workers.

Width of roads should be such that loading and unloading from trucks parked in front of industries should not block the roads. Provide loading unloading docks for larger plots.

Key Initiatives to be taken for attracting Industrialists to Dhuriyapar
Marketing the project, highlighting its advantages like
Focused marketing & road shows
Inviting large Industrialists and allotting them land at very nominal rates
Pricing of allotment rates of other plots in Dhuriyapar, in the first phase to be kept less than 50% of GIDA sectors
Creating world class Infrastructure
Creating cluster of plots for same industry types requiring similar infrastructure, especially for pollution control
Developing small industrial sheds on 800 to 1000 mts plot and giving them out on rent
Developing Flatted factories and giving out on rent
Developing amenities like Bank, Police station, Club, Community center, Dispensary
Housing for workers should be provided

Industrial land demand	Year	Project Planning	Phase 1								Phase 2					Phase 3					Phase 4					Phase 5		
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Textile no. of units	20	21	23	25	26	28	30	32	34	36	38	40	43	45	48	51	54	56	59	62	65	69	71	73	75	77	80	
Cumulative growth		1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	
Garmen ts growth rate		8%	8%	8%	8%	8%	8%	7%	7%	7%	7%	7%	6%	6%	6%	6%	6%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	
Garmen ts no. of units	20	22	23	25	27	29	32	34	36	39	42	45	47	50	53	56	60	63	66	69	72	76	80	84	88	92	97	
Cumulative growth		2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	
Chemic al growth rate		7%	7%	7%	7%	7%	7%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
Chemica l no. of units	20	21	23	25	26	28	30	32	33	35	36	38	40	42	44	47	49	50	52	53	55	57	58	60	62	64	66	
Cumulative growth		1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	
Steel, Heavy Eng., Fabricat ion		8%	8%	8%	8%	8%	8%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	

Industrial land demand	Year	Project Planning	Phase 1							Phase 2					Phase 3					Phase 4				Phase 5				
			2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
growth rate																												
Steel, Engineering, Fabrication	60	65	70	76	82	88	95	101	107	113	120	127	135	143	152	161	171	179	188	197	207	218	224	231	238	245	252	
Cumulative growth		5	5	6	6	7	7	6	6	6	7	7	8	8	9	9	10	9	9	9	10	10	7	7	7	7	7	
Paper & Packaging growth rate		7%	7%	7%	7%	7%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	
Paper & Packaging no. of units	20	21	23	25	26	28	30	32	34	36	38	40	43	45	48	51	54	56	59	62	65	69	71	73	75	77	80	
Cumulative growth		1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	
Wood & Wood Works growth rate		7%	7%	7%	7%	7%	7%	6%	6%	6%	6%	6%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	
Wood & Wood Works no. of units	20	21	23	25	26	28	30	32	34	36	38	40	42	44	46	49	51	54	57	59	62	65	67	69	71	74	76	

Industrial land demand	Year	Project Planning	Phase 1							Phase 2					Phase 3					Phase 4					Phase 5			
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Cumulative growth		1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	2	2	2	2
other industries growth rate		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
other industries no. of units	80	84	88	93	97	102	107	113	118	124	130	137	141	145	150	154	159	163	168	173	179	184	189	195	201	207	213	
Cumulative growth		4	4	4	5	5	5	5	6	6	6	7	4	4	4	4	5	5	5	5	5	5	6	6	6	6	6	
Medical equipment's & Hygiene Products Growth Rate		7%	7%	7%	7%	7%	7%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Medical equipment's & Hygiene Products no. of units	20	21	23	25	26	28	30	32	33	35	36	38	40	42	44	47	49	50	52	53	55	57	58	60	62	64	66	

Industrial land demand	Project Planning	Phase 1								Phase 2					Phase 3					Phase 4					Phase 5			
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Cumulative growth	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2

Estimation of No. of plots of different sizes for each industry type and the total area under each plot size, based on existing trends and stakeholder survey.

Agro Food processing &	Average plot size (Acres)	% of plots of each plot size	Phase 1 (Units)	Area (Phase 1)	Phase 2 (Units)	Area (Phase 2)	Phase 3 (Units)	Area (Phase 3)	Phase 4 (Units)	Area (Phase 4)	Phase 5 (units)	Area (Phase 5)
0.1 to 0.5	0.2	27%	14	2.72	14	2.75	18	3.68	16	3.16	19	3.84
0.6 - 1.2	0.8	24%	12	9.51	12	9.64	16	12.89	14	11.05	17	13.45
1.3 - 2	1.2	19%	9	11.20	9	11.36	13	15.20	11	13.03	13	15.85
2.1 - 3	2.5	15%	8	19.10	8	19.36	10	25.90	9	22.21	11	27.02
3.1 - 5	3.5	10%	5	17.82	5	18.07	7	24.18	6	20.72	7	25.22
> 5	5	5%	3	12.73	3	12.90	3	17.27	3	14.80	4	18.01
One unit 56 Acres			50	73	51	74	68	99	58	85	71	103
Plastic												
0.05 - 0.5	0.2	35%	10	2.08	13	2.51	15	2.96	13	2.53	11	2.27
0.6 - 1.2	0.8	31%	9	7.40	11	8.92	13	10.51	11	9.01	10	8.06
1.3 - 2	1.2	12%	3	4.16	4	5.02	5	5.91	4	5.07	4	4.53
2.1 - 3	2.5	8%	2	5.78	3	6.97	3	8.21	3	7.04	3	6.30
3.1 - 5	3.5	12%	3	12.13	4	14.64	5	17.25	4	14.79	4	13.23
> 5	5	4%	1	5.78	1	6.97	2	8.21	1	7.04	1	6.30

Agro & Food processing	Average plot size (Acres)	% of plots of each plot size	Phase 1 (Units)	Area (Phase 1)	Phase 2 (Units)	Area (Phase 2)	Phase 3 (Units)	Area (Phase 3)	Phase 4 (Units)	Area (Phase 4)	Phase 5 (units)	Area (Phase 5)
			30	37	36	45	43	53	37	45	33	41
Textile												
0.5 - 1	0.2	50%	5	1.00	5	1.02	7	1.36	7	1.49	5	1.09
1.1 - 2	1	18%	2	1.77	2	1.79	2	2.40	3	2.62	2	1.93
2.1 - 3	2	17%	2	3.40	2	3.45	2	4.62	3	5.05	2	3.72
> 5	3	15%	2	4.51	2	4.57	2	6.11	2	6.68	2	4.92
			10	11	10	11	14	14	15	16	11	12
Garment												
0.5 - 1	0.5	65%	8	3.81	8	4.15	10	4.89	11	5.35	14	6.83
1 - 1.5	1	30%	4	3.52	4	3.83	5	4.52	5	4.94	6	6.30
1.6 - 3	2	5%	1	1.17	1	1.28	1	1.51	1	1.65	1	2.10
			12	9	13	9	15	11	16	12	21	15
Chemical												
0.02 - 0.6	0.3	47%	5	1.40	4	1.16	5	1.48	4	1.09	4	1.26
0.7 - 1.5	1.2	27%	3	3.20	2	2.65	3	3.39	2	2.49	2	2.89
2.0 - 4.0	3	27%	3	8.01	2	6.63	3	8.47	2	6.23	2	7.22
			10	13	8	10	11	13	8	10	9	11
Steel, Eng., & Fabri												
0.1 - 1	0.5	40%	14	7.04	13	6.44	17	8.62	19	9.42	14	6.93
1.1 - 2.5	1.5	45%	16	23.77	14	21.74	19	29.09	21	31.80	16	23.40
> 5	3	15%	5	15.85	5	14.49	6	19.39	7	21.20	5	15.60
One unit 117 Acres			35	47	32	43	43	57	47	62	35	46

Agro & Food processing	Average plot size (Acres)	% of plots of each plot size	Phase 1 (Units)	Area (Phase 1)	Phase 2 (Units)	Area (Phase 2)	Phase 3 (Units)	Area (Phase 3)	Phase 4 (Units)	Area (Phase 4)	Phase 5 (units)	Area (Phase 5)
Paper & Packaging												
0.5 - 1	0.7	75%	8	5.26	8	5.33	10	7.13	11	7.80	8	5.74
1.5 - 2.5	2	25%	3	5.01	3	5.08	3	6.79	4	7.43	3	5.46
			10	10	10	10	14	14	15	15	11	11
Wood & Wood Working												
0.1 - 1	0.5	53%	5	2.65	5	2.69	6	2.94	7	3.75	6	2.76
1.1 - 2	1.5	18%	2	2.65	2	2.69	2	2.94	2	3.75	2	2.76
2.1 - 3	2	29%	3	5.89	3	5.97	3	6.53	4	8.33	3	6.13
			10	11	10	11	11	12	14	16	10	12
Other Industries												
0.1 - 1	0.5	40%	11	5.44	12	5.92	9	4.36	10	5.05	12	5.86
1.1 - 2.5	1.5	30%	8	12.24	9	13.33	7	9.81	8	11.37	9	13.18
2.6 - 5	2.5	25%	7	17.00	7	18.51	5	13.62	6	15.79	7	18.30
>5	3	5%	1	4.08	1	4.44	1	3.27	1	3.79	1	4.39
			27	39	30	42	22	31	25	36	29	42
Medical equipments & Hygiene Products												
	1	10%	1	1.00	1	0.83	1	1.06	1	0.78	1	0.90
	1.5	30%	3	4.51	2	3.73	3	4.76	2	3.50	3	4.06
	2.5	30%	3	7.51	2	6.22	3	7.94	2	5.84	3	6.77

Agro & Food processing	Average plot size (Acres)	% of plots of each plot size	Phase 1 (Units)	Area (Phase 1)	Phase 2 (Units)	Area (Phase 2)	Phase 3 (Units)	Area (Phase 3)	Phase 4 (Units)	Area (Phase 4)	Phase 5 (units)	Area (Phase 5)
	3	30%	3	9.01	2	7.46	3	9.53	2	7.01	3	8.12
			10	22	8	18	11	23	8	17	9	20
Total			204	271	209	275	250	329	243	315	239	313

13 INFRASTRUCTURE CALCULATION

13.1 WATER SUPPLY

The primary source of domestic water supply is intended to be taken from bore wells of sufficient numbers spread out across the entire Gorakhpur Development of Industrial Corridor at Dhuriyapar area. It is intended to pump water from each bore well to an overhead tank located in the vicinity of the respective bore well. Based on the current available information of the town planning, the domestic water distribution conceptual schematic layouts are only indicated on the master plan.

Water requirement has been calculated for the projected population & floating population for the horizon year of 2046 (Domestic & Industrial requirement) based on URDPFI guidelines. Total water requirement included unaccounted flow of water (UFW) @ 15% and Firefighting requirement. Total water requirement comes out to be 33.01 MLD as shown in table below.

Table 13-1 Water requirement at proposed site at Dhuriyapar

Sr.no.	Use	Projected Population (2046)	Water Supply required for Projected Population @ 135 for domestic & 40 Ipcd for Industrial use (in_MLD)	UFW (15%) (in MLD)	@ Firefighting 100VP	Total Water Requirement (in MLD)
1	Domestic	1,86,733	25.21	3.78	0.04	29.03
2	Industrial	85,884	3.44	0.52	0.03	3.98
Total						33.01

Source: Calculation based of URDPFI guidelines

The total domestic water supply is estimated at 25.21. Considering discharge rate of bore wells as 120 KL per hour for 6 hours working time duration per day, the number of bore wells works out to be 39 nos. with 10% safety factor considerations.

13.1.1 Land requirement of water treatment plant (WTP)

Based on the water requirement needed to suffice the domestic and industrial need for the projected population at proposed site in Dhuriyapar, the area needed for water treatment plan (WTP) is 0.93ha. (as per standard given in URDPFI guidelines). For 33.01 MLD water requirement, norms given for 50 MLD has been taken.

Table 8.35: Recommended land Requirement based on capacities

S.No.	Identified Capacities	Land Requirement (Hectares)
1	5 MLD	0.10
2	10 MLD	0.19
3	50 MLD	0.93
4	100 MLD	1.87
5	200 MLD	3.73
6	500 MLD	9.34

Source: CPHEEO.

Water Supply and Recycled Water Supply Schematic layout Plan:

The conceptual schematic layout plans for water supply and Recycled Water supply plans are prepared based on the current master layout plans for Gorakhpur Development of Industrial Corridor at Dhuriyapar. The water supply distribution line is distributed evenly within the planning area with 7 O.H.Ts. There are 6 Treated Effluent Pond located evenly in all direction within the planning area. Water Supply and Recycled Water supply Schematic layout Plans are attached in below Annexure 1.

13.2 SEWERAGE

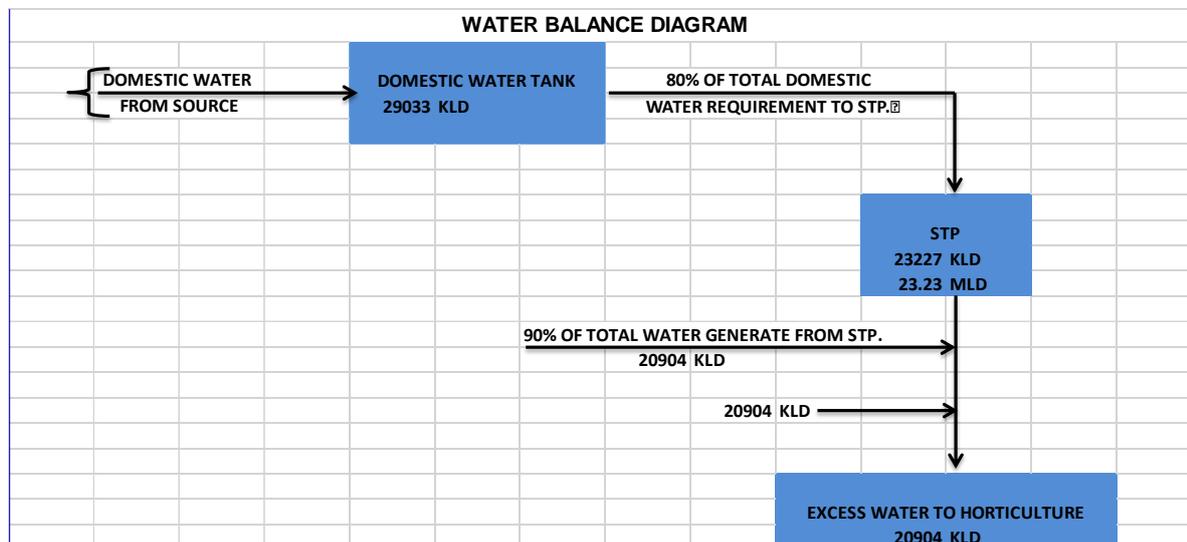
As per CPHEEO manual, 80% of water supply may be expected to reach the sewers. Based on the same standard, total sewage generation is calculated to be 26.41 MLD to suffice the requirement of projected population for the horizon year 2046.

Table 13-2 Sewage generation

Sr.no.	Area	Sewage generation by Projected Population @ 80 % of water supply (MLD)
1	Proposed Site at Dhuriyapar	26.41

Source: Calculation based of CPHEEO manual

Since the detailed plots development is not considered in the initial stages of the subject Industrial corridor development, therefore specific STP details cannot be ascertained at this stage of the design development. However, for the conceptual scheme purpose for the overall land development, the STP overall capacity is considered based on the following water balance diagrammatic representation.



Source: REPL Analysis

13.2.1 Land required for sewage treatment plant (STP)

Land area required for STP (in Ha) has been calculated based on the standard (0.2 ha per MLD of sewage) given in URDPFI guidelines. The recycling technique proposed in Activated Sludge Process (ASP). The total area comes out is 5.28 ha.

Sewage, Drainage and Rain Water Harvesting Schematic Layout Plan:

The conceptual schematic layout plans for sewage, drainage and rain water harvesting plans are prepared based on the current master layout plans for Gorakhpur Development of Industrial Corridor at Dhuriyapar. Sewer line is distributed evenly in the planning area for better sewerage discharge with 6 STPs. Drainage line is distributed in a planned manner within the planning area with 3 outfalls in North, West and South direction. There are more than 150 Rain Water Recharge Pits evenly distributed within the planning area. Sewage, Drainage and Rain Water Harvesting Schematic layout plans are attached in below Annexure 2.

13.3 ELECTRICITY

Primary power supply from the main grid reliable supply of electrical power shall be provided from the UPPCL network for the entire new Gorakhpur Development of Industrial Corridor at Dhuriyapar.

The power demand is estimated at 1556.1 MVA. As it is not technically feasible to supply such capacity at the 11 kV distribution level, the power supply shall be based on 33 kV or higher feeder lines into the new Gorakhpur Development of Industrial Corridor at Dhuriyapar.

Based on the general provision of one electric substation of 11 KV for a population of 15,000 person as specified in URDPFI guidelines, the requirement of 13 electric substations of 11 KV has been calculated.

Table 13-3 Requirement for electric sub station

Projected Population +Floating Population (2046)	Requirement @ one electric substation of 11KV for a population of 15,000
186733	12

Source: Calculation based of URDPFI guidelines

The preliminary estimate of the power demand is given in the table-1 below.

UPERC-Electricity Supply Code has been used as the basis of the electrical load estimates and for diversity factors has been considered as per clause number 3.3 and 4.2.2.2 of Part 8, NBC 2016.

ELECTRICAL LOAD SUMMARY FOR GORAKHPUR INDUSTRIAL DEVELOPMENT										
	Area (in sq m)	Area after deducting 30% land for Services	Total Area (in sq m)	Area in Acre	FAR	Load Per sqm (watt)	Connected Load (kW)	D.F.	Demand Load (in KW)	Total Demand Load (in KW)
Industrial	9,235,019	6,464,514	6,464,514	1,597	1.20	150	1,163,612.45	0.75	872,709	872,709
TOTAL INSUSTRIAL										872,709
COMMERCIAL										
Commercial	946,618	662,633	662,633	164	3.00	150	298,184.75	0.75	223,639	223,639
TOTAL COMMERCIAL										223,639
Residential										
Residential	3,119,664	2,183,765	2,183,765	540	2.00	50	218,376.50	0.50	109,188	109,188
TOTAL RESIDENTIAL										109,188
PSP										
PSP	2,070,893	1,449,625	1,449,625	358	2.00	150	434,887.59	0.75	326,166	326,166
TOTAL PSP										326,166
LOGISTIC HUB										
Transport Nagar	608,081	425,657	425,657	105	1.20	150	76,618.22	0.75	57,464	57,464
TOTAL LH										57,464
External lighting									250	250
	Grand Total Load(KW)									1589416 KW
	Grand Total Load(MW)									1589.4 MW
	Add 10% Extra for STP, WIP,ETP and other Miscellaneous load									1748.4 MW
	Overall Diversity Factor 0.7									1223.8 MW
	Transformer Capacity Considering 0.9 Power Factor									1359.8 MVA
	Load in MVA									1359.8 MVA

13.4 SOLID WASTE MANAGEMENT

Municipal Solid Waste (MSW) is the trash or garbage that is discarded day to day in a human settlement. According to MSW Rules 2000 MSW includes commercial and residential wastes generated in a municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes. Waste generation encompasses activities in which materials are identified as no longer being of value (being in the present form) and are either thrown away or gathered together for disposal. The following table indicates the waste generation per capita per day for estimation and forecast of waste generation for future for planning purposes:

Table 13-4 Forecast of Waste Generation for Future

Sr.no.	Area	Projected Population	Solid waste generation @ 0.5 kg/capita/day (Tones per day , TPD)	5 ha Land required for Composting for 500 TPD
1	Dhuriyapar	186733	93.37	0.93

Source: Manual on Solid Waste Management, CPHEEO – 2000

It is projected that 93.37 TPD waste will be generated for which proper management system need to be planned.

Solid Waste Management Schematic Layout Plan:

The conceptual schematic layout plans for solid waste management plan is prepared based on the current master layout plans for Gorakhpur Development of Industrial Corridor at Dhuriyapar. There are more than 133 bins in the planning area with 5 collection depots. There are 6 Vermi Compost Plant located evenly in the planning area for better solid waste management and 2 transit point in the north and south direction. Solid Waste Management Schematic layout Plan is attached below in Annexure 3.

13.5 ROAD NETWORK DETAILS

The different hierarchy of road network specified in the planning area are 60m road having total length of 18.27 km, 45m road having length of 28.44 km and 30m road having length of 3.37 km. For financial purpose, the specification considered for all the hierarchy of roads is from Vol I & II of 2019 of Central PWD, subject to change in design at the time of execution.

Road hierarchy plan and road sections are attached in Annexure 4 below.

Right of way shall be as per the hierarchy of roads. Road of 60m consist 6 lane with median, both side service lane and footpath. Road of 45m and 30m consist 4 lane with median and both side footpath and road of 10m consist 2 lane without median and both side footpath. Earth work in excavation shall be consider more than 30 cm in depth. Granular sub-base shall be with graded material confirming to specification, as per design for carriage way. Surface course shall be in two layer i.e. dense graded bituminous macadam and bituminous concrete for carriage way. Service lane shall be of cement concrete. Provision has been taken for rain harvesting, street light with LED and for intelligence surveillance system, provided CCTV. Horticulture including grassing tree, plantation/shrub and potted plants and vertical plantations is considered. Provision has been taken for earth feeling for green belt, soil corrosion of ROW by providing dry stone pitching and tactile tile

has considered for person with disability. Provision has been considered for thermoplastic paint for marking strip on bituminous /concrete surface.

13.6 ESTIMATED COSTING OF EXTERNAL WORK

The estimated costing of external work is calculated from past similar project experience and mentioned in the table below:

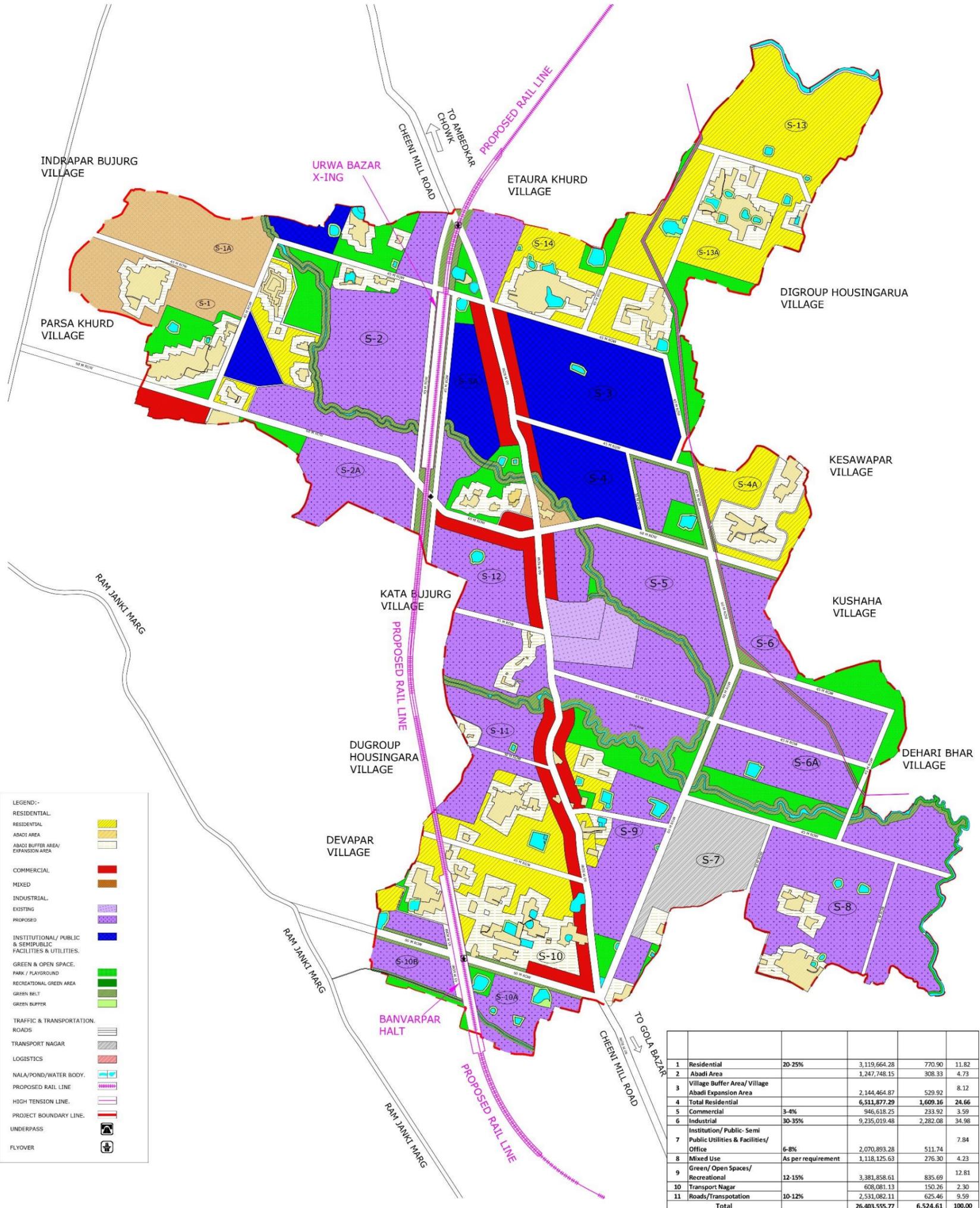
ESTIMATED COST				
EXTERNAL WORKS FOR GORAKHPUR INDUSTRIAL TOWNSHIP AT GORAKHPUR				
S. NO.	DESCRIPTION	AREA (ACRE)	RATE /ACRE. IN RS.	AMOUNT (INR)
	PLUMBING, ELECTRICAL & ROAD			
1	EXTERNAL ELECTRICAL CABLING, SEWERAGE, DRAINAGE & WATER SUPPLY WORKS	6,525	3,200,000	20,878,752,000
2	ELECTRICAL SUBSTATION & PUMP EQUIPMENTS	6,525	3,900,000	25,445,979,000
3	CONSTRUCTION OF SEWAGE TREATMENT PLANT (23564 KLD.)			1,178,200,000
4	Road			4,025,893,433
	TOTAL			61,528,824,433

The total cost required for the external work in Gorakhpur Industrial Township is INR 61,528,824,433.

14 DEVELOPMENT PLAN

Figure 14-1: Proposed Landuse Plan for Dhuriyapar Industrial Township

GIS BASED MASTER PLAN FOR DEVELOPMENT OF INDUSTRIAL CORRIDOR AT DHURIYAPAR



PROJECT GIS BASED MASTER PLAN FOR DEVELOPMENT OF INDUSTRIAL CORRIDOR AT DHURIYAPAR	DRAWING TITLE MASTER PLAN	CLIENT GORAKHPUR INDUSTRIAL DEVELOPMENT AUTHORITY	CONSULTANT: RUDRABHISHEK ENTERPRISES LTD. A-6, SECTOR- 58, NOIDA - 201303, U.P. PH 0120-4022333 FAX 0120-4022301	SCALE 1:10,000	
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14.1 PROPOSED LAND USE DISTRIBUTION

14.1.1 Residential use:

For the plan period of 2031, it is estimated that the population of the master plan area will increased to 1,89,448. It is estimated that total land of 1609.16 Acres will be required to suffice the housing need of the additional population of 2046.

14.1.2 Commercial use:

As per the guideline for the Industrial town, a range between 3-4 percent can be taken for city like Gorakhpur.

The total area under commercial land use is 233.92 Acres i.e. 3.59% of total area which is within the permissible percentage of commercial as per URDPFI guidelines. The commercial landuse has been equitably distributed in the township, to avoid a concentrated one big parcel of land.

14.1.3 Public and Semi Public Areas

Provisions have been made for public and semi-public, institutions and club house. A total area of 368 Acres has been allocated for facilities for education, health care, religious functions, cultural activities, fire-fighting, police protection, cremation and burial grounds, distributive services such as petrol pumps, LPG godown, and host of other facilities normally needed by residents of a town. The Public semi-public land use comprises 511.74 Ha which is 7.84% of the total area.

14.1.4 Green and Open Spaces

Approximately 835.69 Acres (12.81% of total area) is allocated under organised recreational and garden areas.

Recreational facilities too have been provided at different level the facilities are namely:

- I. Tot lots at housing cluster level
- II. Park and Playground at the sector level
- III. Major green space at the community level.

The existing water bodies in the area has been preserved by providing 15 meters of green buffer around the waterbody. This will help to maintain the ecology of the area and prevent the waterbodies from encroachments.

The canals passing through the site has been preserved by providing 30 meters of green buffer on the both side. Central green area have been connected with green buffers to create a big continuous community space. These proposed green areas will act as lungs for area.

Industrial areas are the major pollution generating areas, therefore the all the industrial areas adjoining to residential, commercial, public-semi public/ institutional landuse has been segregated with 20m wide green buffer.

14.1.5 Industrial

As per the URDPFI guideline, a range between 30-35 percentages can be taken for Industrial Towns. But keeping in consideration the context of the Gorakhpur city and demand assessment for the industrial use, a total of 2,282.08 Acres (34.98% of the total area) has been allocated under Industrial land use.

14.1.6 Traffic and Transportation

Total area allocated under traffic and transportation use is 775.72 Acres which is 11.89% of the total area.

The area covers road network of the planning area and the proposed Logistic and Transport Nagar. The proposed Logistic and Transport Nagar have an area of 150.26 acres, which is 2.30% of total. It has been proposed close to the proposed railway line and Urwa Bazaar X-ing, so that various components of traffic and transportation system can be integrated. This will help the transportation system to sustain for longer period.

The balance 625.46 acres of area has been covered by circulation Roads. For circulations the proposed road hierarchy varies between 60m to 30m. Existing Chini Mill Road has been proposed for widening upto 24 m by PWD. In the proposed master plan, the same has been proposed with 60m width of RoW considering the future demands in the proposed industrial area. The Chini Mill Road will be acting as main spine road for the area.

14.1.7 Mixed Landuse

Considering the increasing demand of Mixed use in the planning, a total of 276.30 acres (4.23%) of land has been allocated for Mixed Landuse.

14.1.8 Landuse Distribution Chart

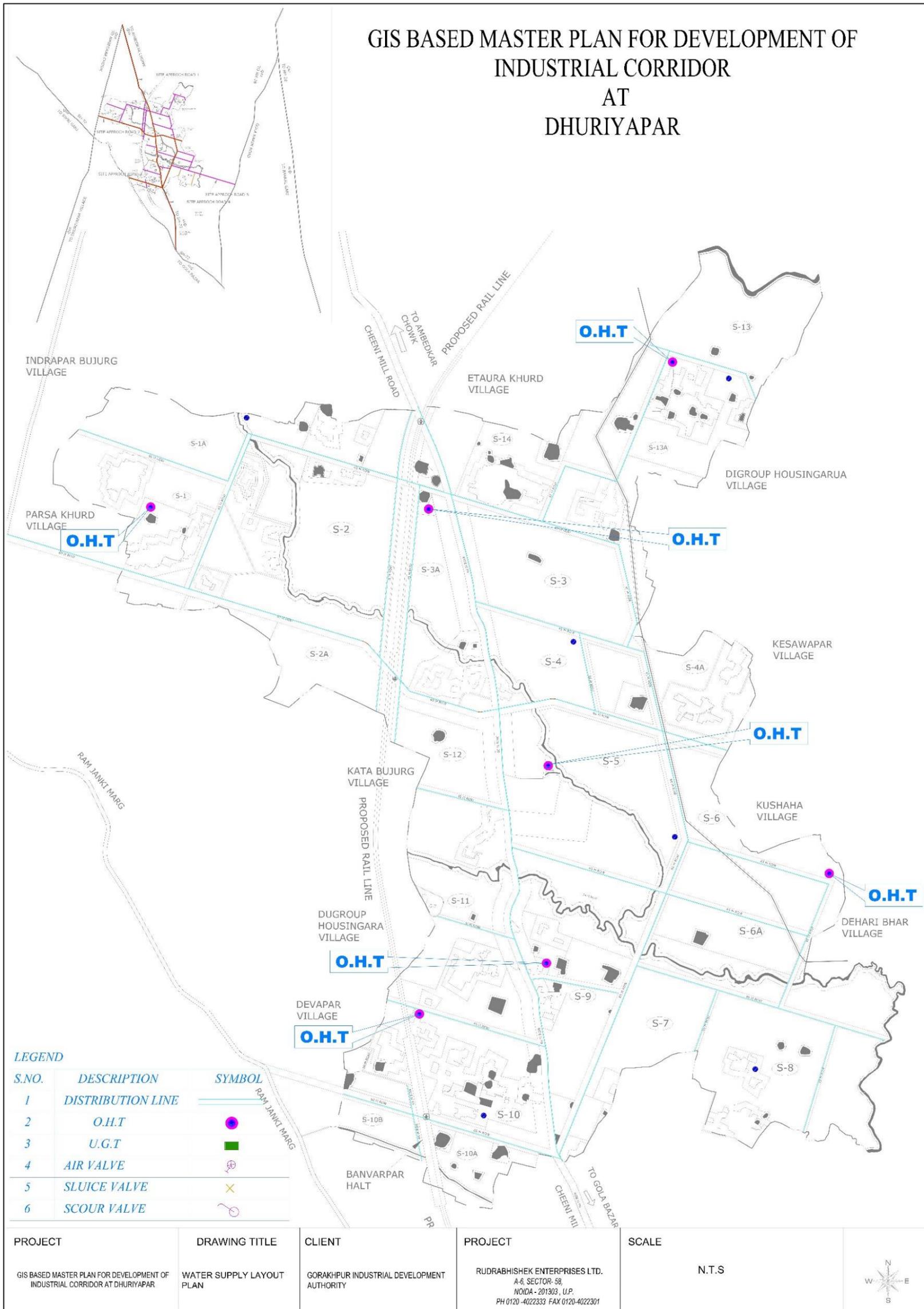
Table 14-1: Area Statement and Landuse Distribution

S. No.	Particular	Area (in sq m)	Area in Acre
1	Total Site Area (1)	27279814.96	6,741.14
2	Area under Water Bodies/ Pond/ Nala/ Nahar (2)	523076.34	129.26
3	Area under Railway track and its buffer Zone (3)	353,183	87.28
4	Project Area excluding Water Bodies/ Pond/ Nala/ Nahar/Railway (5)=(1)-(2+3)	26403555.77	6,524.61
5	Total Projected Population for 2031 (in number of person)	189,448	

S.No.	Land use Analysis	Norms as per URDPFI Guidelines for Industrial Area	Area (in sq m)	Area in Acre	%
1	Residential		3,119,664.28	770.90	11.82
2	Abadi Area		1,247,748.15	308.33	4.73
3	Village Buffer Area/ Village Abadi Expansion Area		2,144,464.87	529.92	8.12
4	Total Residential	20-25%	6,511,877.29	1,609.16	24.66
5	Commercial	3-4%	946,618.25	233.92	3.59
6	Industrial	30-35%	9,235,019.48	2,282.08	34.98
7	Institution/ Public- Semi Public Utilities & Facilities/ Office	6-8%	2,070,893.28	511.74	7.84
8	Mixed Use	As per requirement	1,118,125.63	276.30	4.23

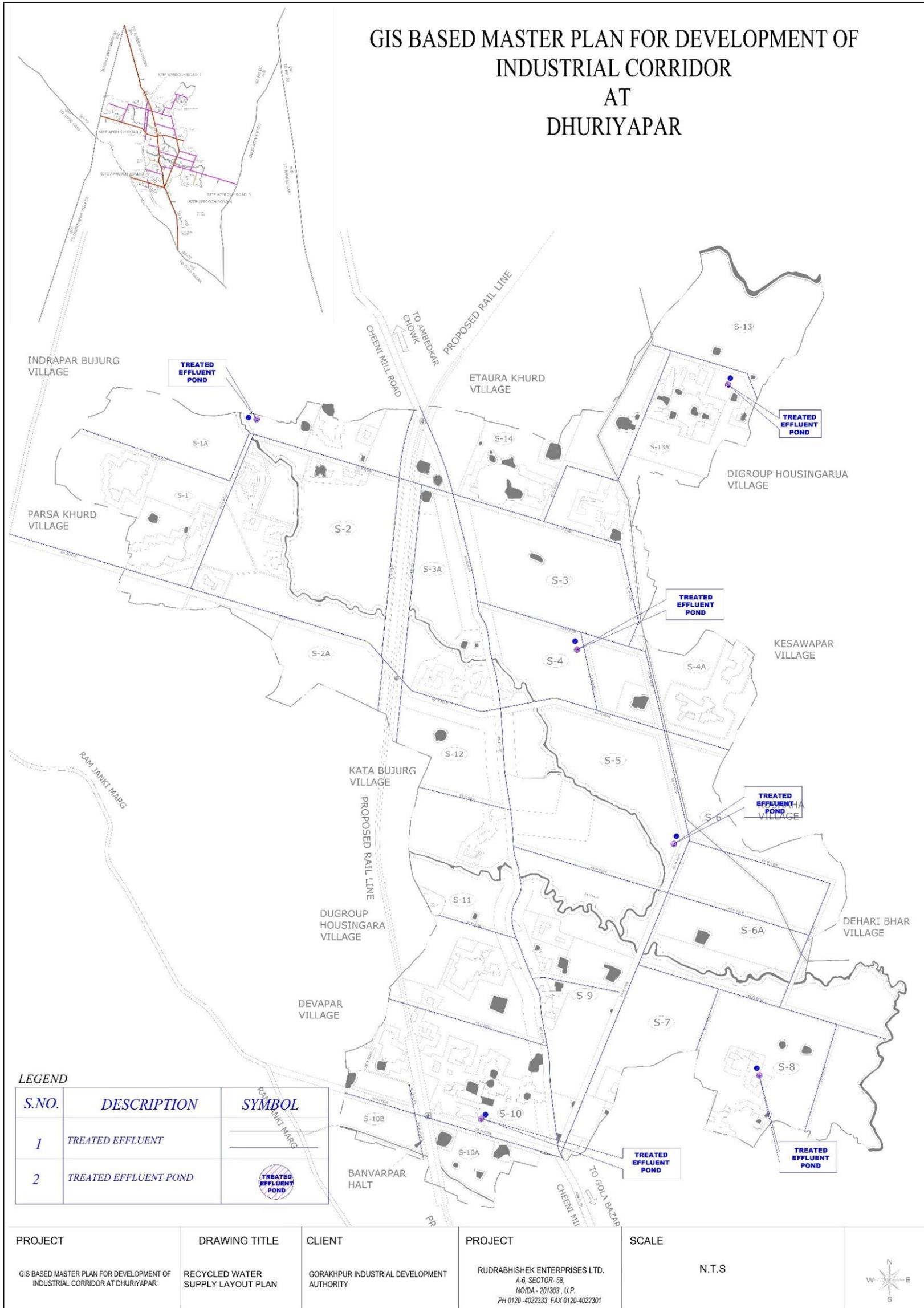
9	Green/ Open Spaces/ Recreational	12-15%	3,381,858.61	835.69	12.81
10	Transport Nagar	10-12%	608,081.13	150.26	2.30
11	Roads/ Transportation		2,531,082.11	625.46	9.59
Total			26,403,555.77	6,524.61	100.00

14.2 ANNEXURE 1
Water Supply Schematic layout Plan:



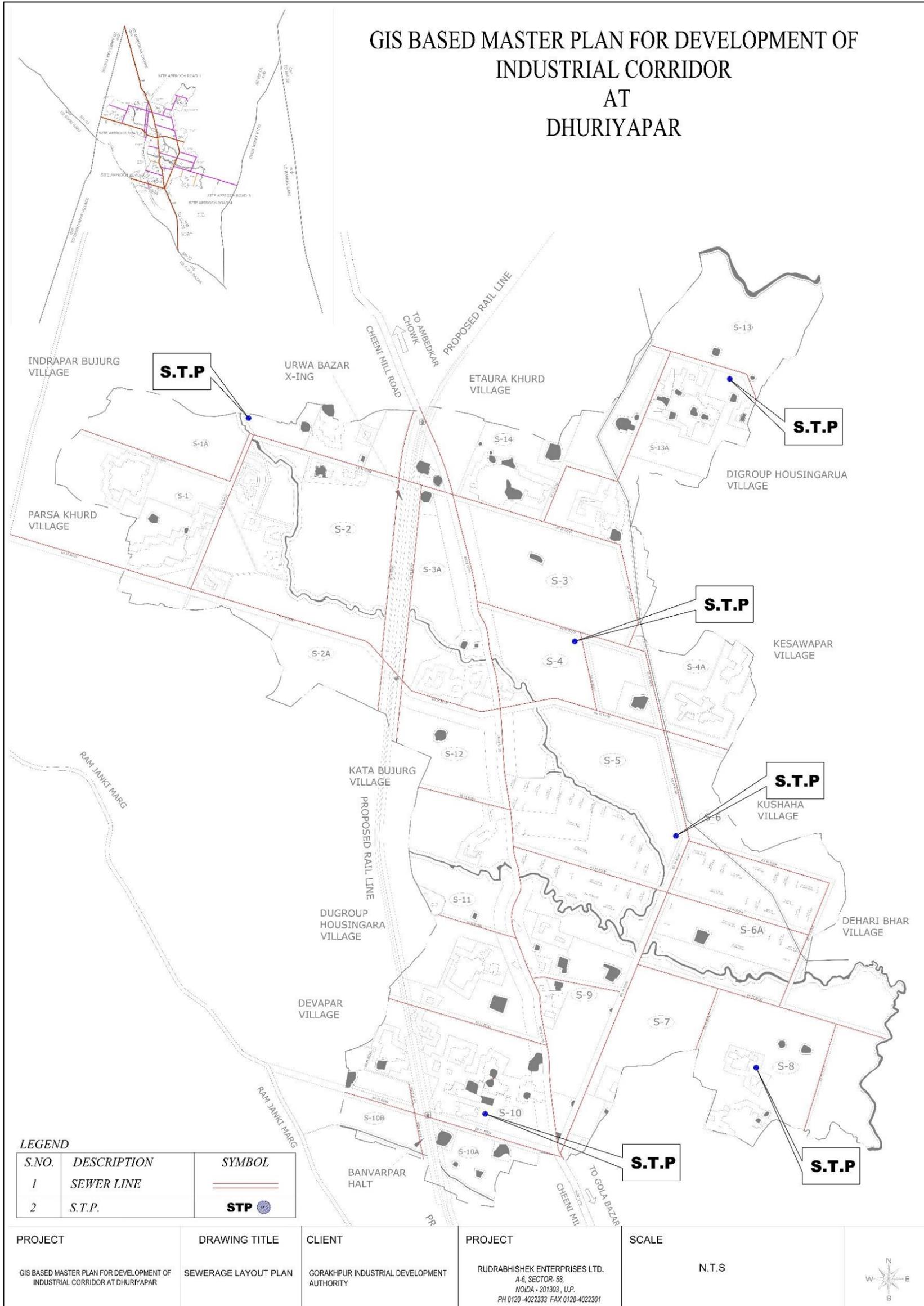
Source: REPL Analysis

Recycled Water supply Schematic layout Plan:



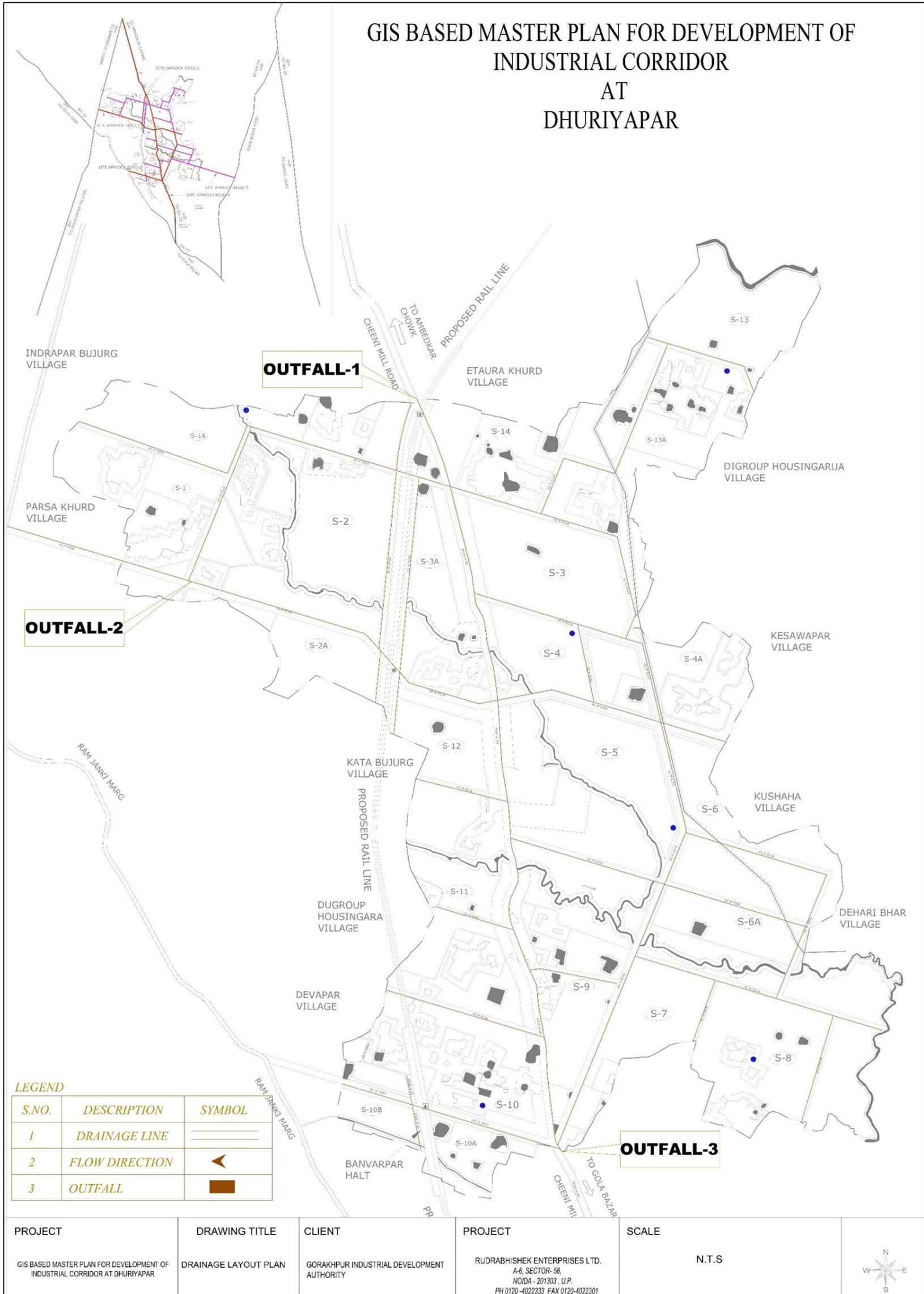
Source: REPL Analysis

14.3 ANNEXURE 2
Sewage Schematic layout Plan:



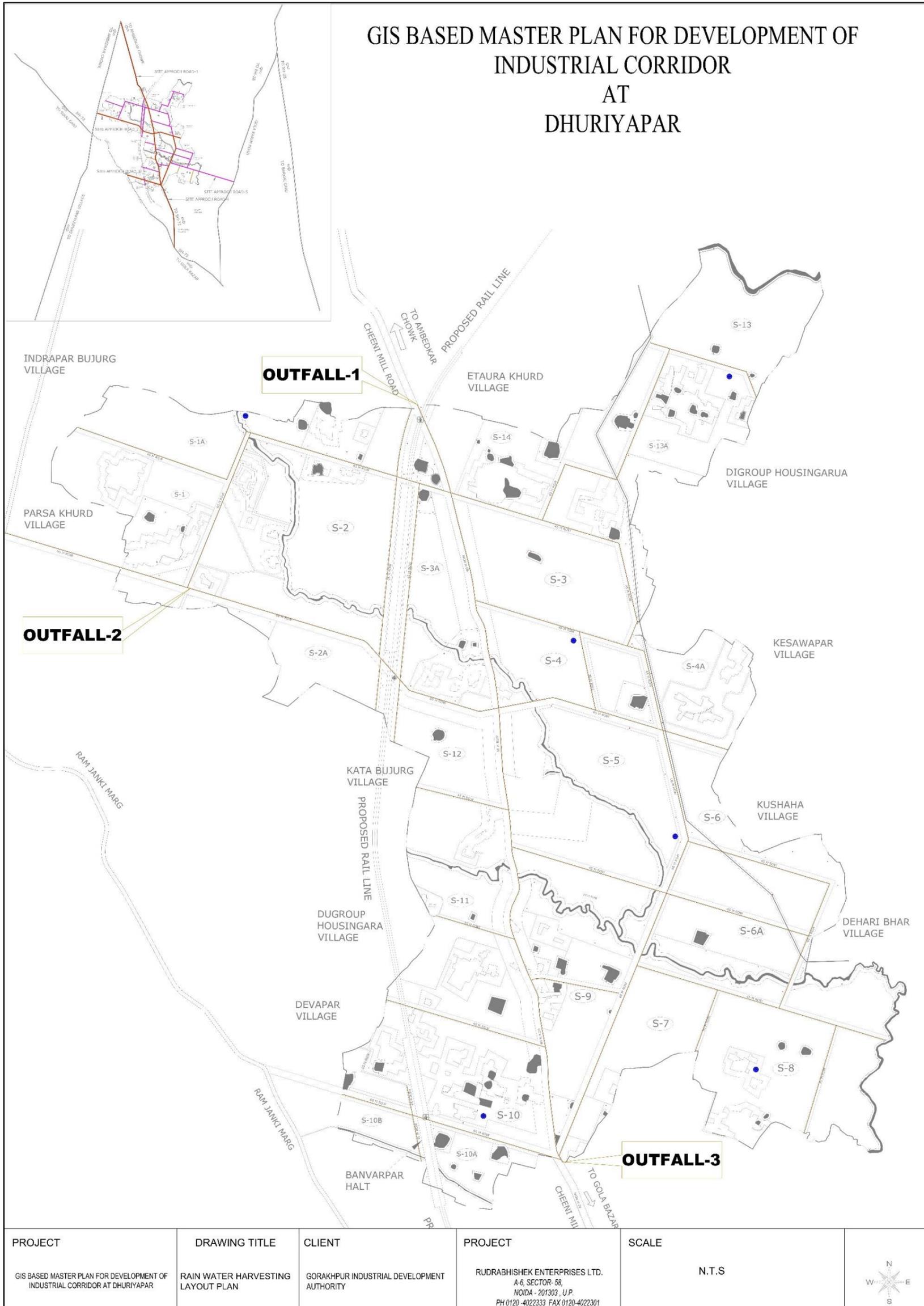
Source: REPL Analysis

Drainage Schematic Layout Plan:



Source: REPL Analysis

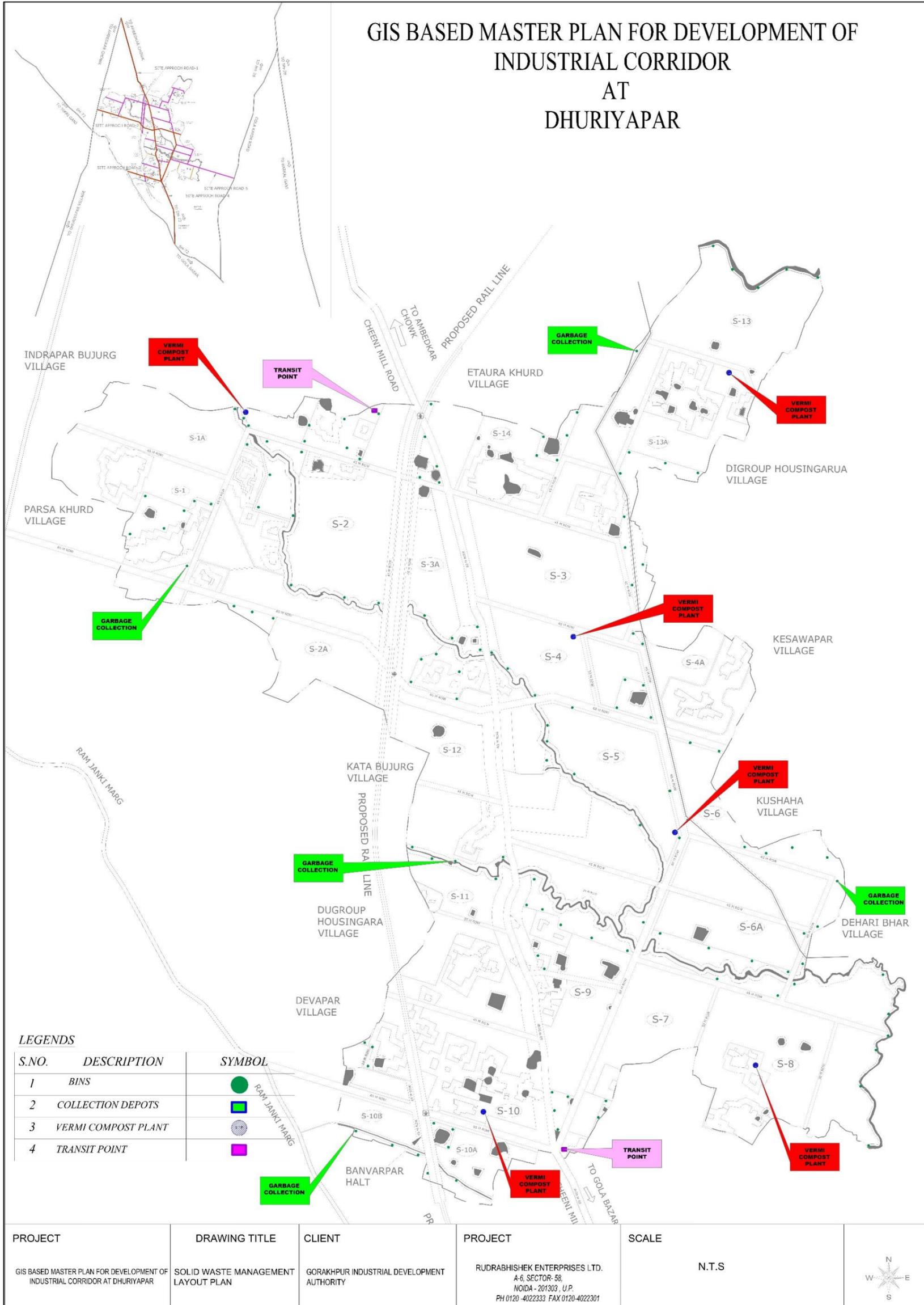
Rain Water Harvesting Schematic layout Plan:



Source: REPL Analysis

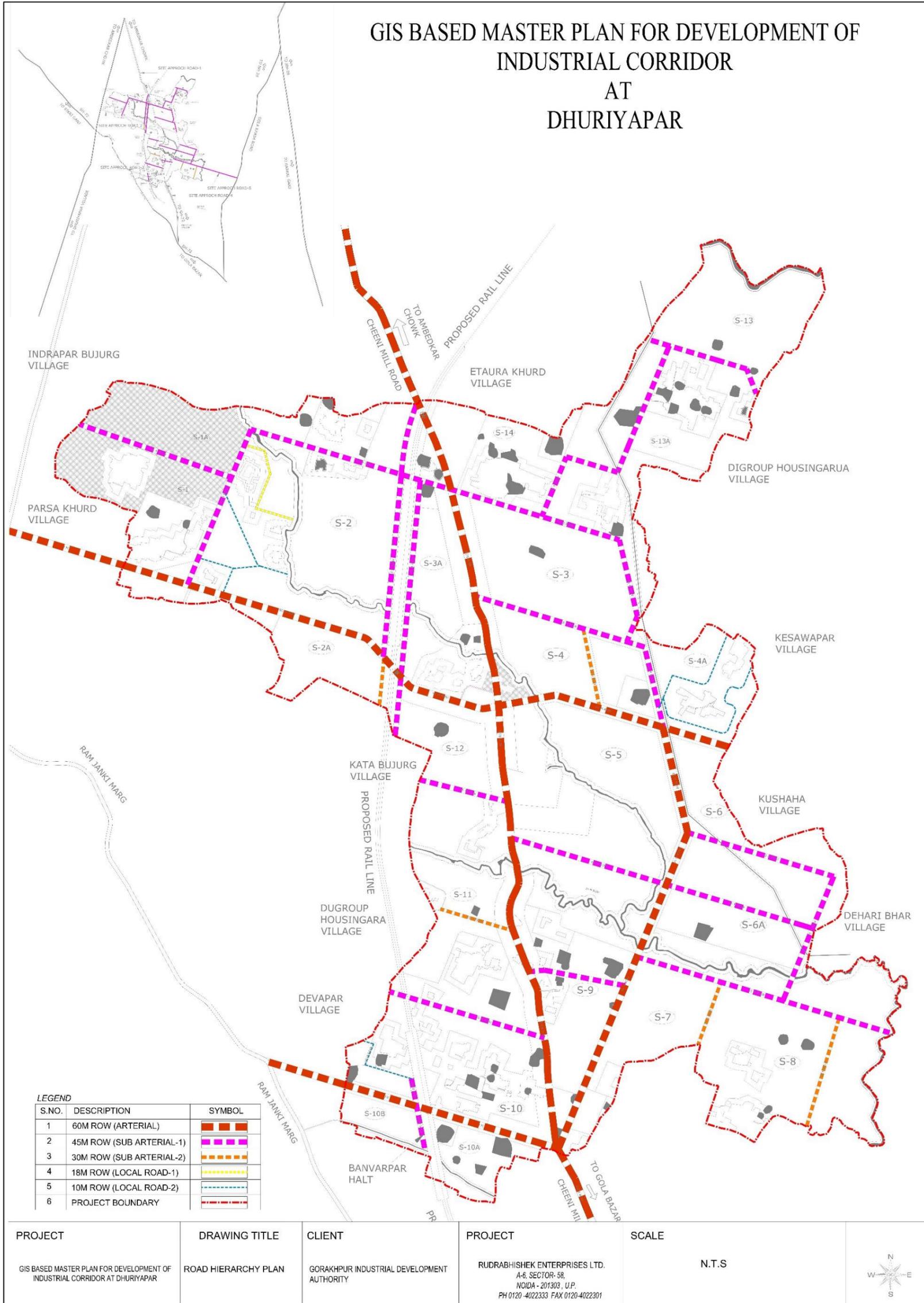
14.4 ANNEXURE 3

Solid Waste Management Schematic Layout Plan:



Source: REPL Analysis

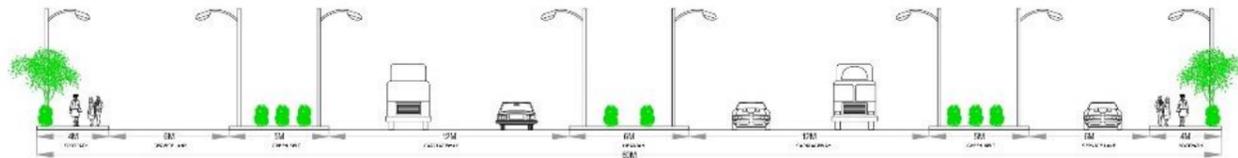
14.5 ANNEXURE 4
Road Hierarchy Plan:



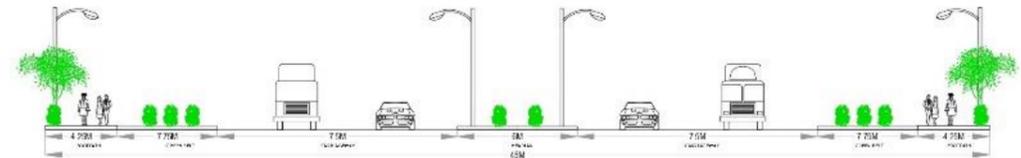
Source: REPL Analysis

Road Sections:

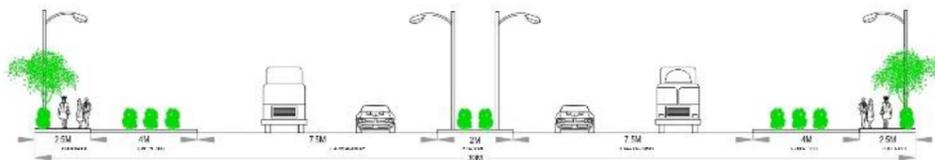
GIS BASED MASTER PLAN FOR DEVELOPMENT OF INDUSTRIAL CORRIDOR AT DHURIYAPAR



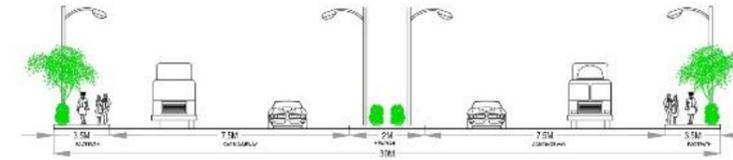
60 M WIDE ROAD CROSS SECTION



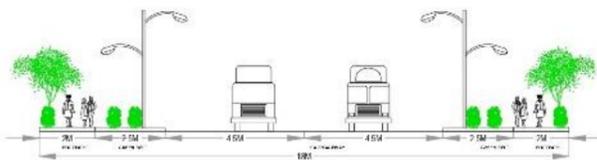
45 M WIDE ROAD CROSS SECTION



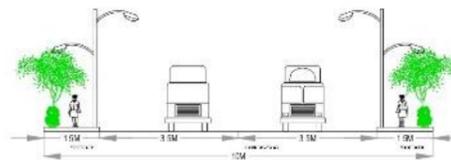
30 M WIDE ROAD CROSS SECTION



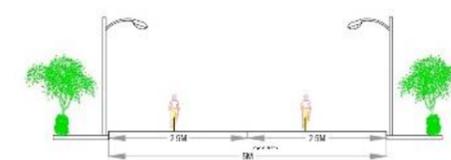
24 M WIDE ROAD CROSS SECTION



18 M WIDE ROAD CROSS SECTION



10 M WIDE ROAD CROSS SECTION



5 M WIDE CYCLE TRACK CROSS SECTION

<p>PROJECT</p> <p>GIS BASED MASTER PLAN FOR DEVELOPMENT OF INDUSTRIAL CORRIDOR AT DHURIYAPAR</p>	<p>DRAWING TITLE</p> <p>PROPOSED ROAD SECTIONS</p>	<p>CLIENT</p> <p>GORAKHPUR INDUSTRIAL DEVELOPMENT AUTHORITY</p>	<p>PROJECT</p> <p>RUDRABHISHEK ENTERPRISES LTD. A-6, SECTOR- 58, NOIDA - 201303 , U.P. PH 0120 -4022333 FAX 0120-4022301</p>	<p>SCALE</p> <p>NTS</p>	
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Source: REPL Analysis

15 ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT & MITIGATION MEASURES

15.1 INTRODUCTION

In this chapter, the environmental impacts associated with the proposed development of of Industrial Corridor Dhuriyapar of 5500 Acres (approx.) at GIDA are identified, characterized, and evaluated systematically. The extent of impact on air, water, soil, noise are evaluated in relation to the environmental pollution. The impacts may be distinctly direct and indirect, positive and negative, reversible and irreversible. The prediction of impacts on various environmental parameters during pre-operational, operational and post-operational activities assists in effective identification of mitigation measures to minimize the adverse impacts on environmental quality. Such predictions are superimposed over the baseline (pre-project) status of environmental quality to develop the ultimate (post project) scenario of the environmental conditions. The successful environmental impact assessment process requires proper identification, prediction, assessment, and also communication of the significant environmental impacts to the public. The details on impact of the project activity on each of the disciplines mentioned above are discussed below. The environmental impacts associated due to the proposed Industrial area are assessed during construction phase

15.2 PREDICTION OF IMPACTS

The prediction of impacts during the construction phase is an important aspect of the present study as the implementation of the EMP during construction. The critical areas of environmental concerns for which the impacts and their predictions are taken into consideration are listed below:

1. Topography
2. Air Environment
3. Water Environment
4. Noise Environment
5. Land Environment
6. Solid Waste Generation
7. Demography and Socio-Economics

The impacts can be further categorized as positive impacts and negative impacts depending upon their nature, potential and magnitude.

15.2.1 TOPOGRAPHY

As per the topographic survey of the proposed project site, level difference is about 29m. To develop the site as a state-of-the-art industrial area and to ensure uniformity in the topographic condition of the site, site preparation activities like cut and fill operations will be performed. This operation will be done by J.C.B or equivalent Dumpers, Mechanical Hammers and Tractors. Due care will be taken to maintain the natural slope of the project site so that the developmental activity will not alter the natural drainage system to a considerable degree. The trees present in the project site will be conserved as much as possible. Afforestation as green buffer has been envisaged in plan. Care will be taken to reduce the impact on biological diversity of the project site due to the proposed project.



Figure 15-1: Cut and fill operations with the help of JCB

15.2.2 AIR ENVIRONMENT

The potential sources of air emission during construction phase will include site clearing, vehicle movement, material storage and handling and operation of construction equipment's. Emissions from them are expected to result in temporary degradation of air quality, primarily in the work environment affecting construction employees. However, Particulate Matters rise in ambient air will be coarse and will settle within a short distance close to the construction site. Hence, dust and other emissions are unlikely to spread sufficiently to affect the surroundings of construction site

15.2.2.1 Status of Air Quality & Its Trend in Gorakhpur

The non-attainment status of a city is implicative of a consistently high level of air pollutants above the national ambient air quality standards. Exponential growth in construction and demolition activities, increase in the number of vehicles, roadside encroachments, and expansion of industries in Gorakhpur city resulted in poor regional air quality problems characterized by inhalable particulate matter (PM10) and fine particles (PM2.5). Long-term exposure to particulate matter gives rise to chronic lung and heart disease in humans. High pollutant level in the air also deteriorates the ecological and aesthetic balance of the city.

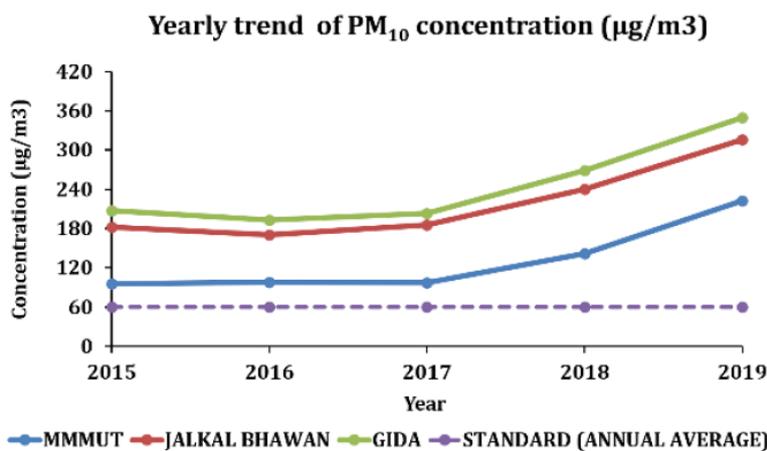


Figure 15-2: Yearly trend of PM10 concentration (µg/m3) in Gorakhpur

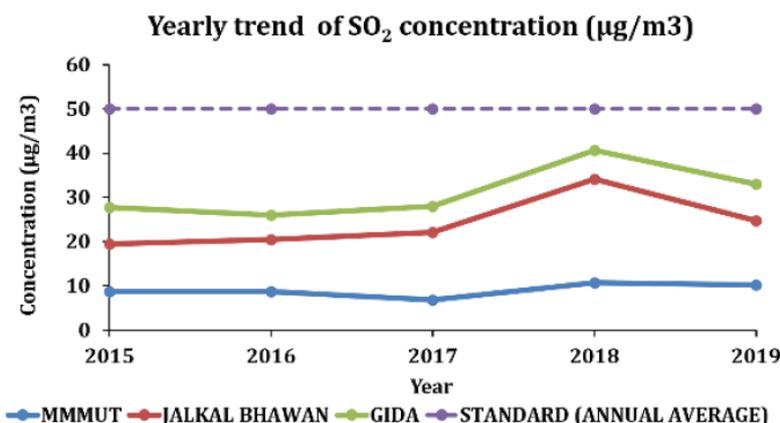


Figure 15-3: Yearly trend of SO₂ concentration (µg/m³) in Gorakhpur

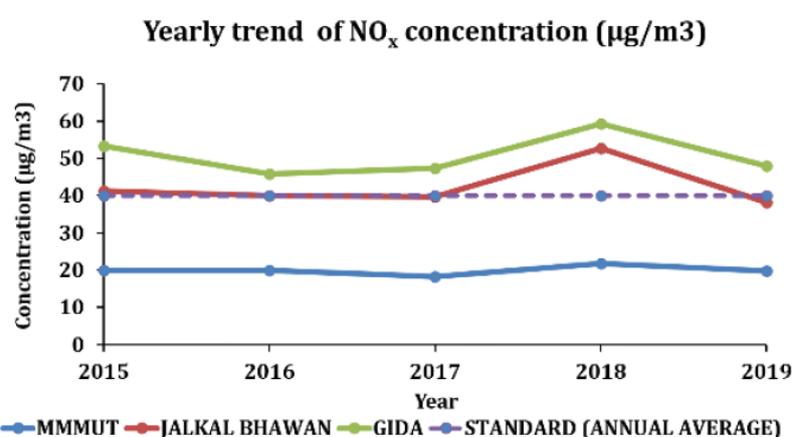


Figure 15-4: Yearly trend of NO_x concentration (µg/m³) in Gorakhpur city

Air Quality Index is a tool for effective communication of air quality status to people in terms, which are easy to understand. It transforms complex air quality data of various pollutants into a single number (index value), nomenclature and colour as shown below.

Table 15-1: Categories of Air Quality Index along with the expected impact

Good (0 - 50)	Minimal Impact
Satisfactory (51-100)	Minor breathing discomfort sensitive people
Moderate (101-200)	Breathing discomfort to the people with lung, heart disease, children and older adults
Poor (201-300)	Breathing discomfort to people on prolonged exposure
Very Poor (301-400)	Respiratory illness to the people on prolonged exposure
Severe (>401)	Respiratory effects even on healthy people

Air Quality Index for the last 5 years has been calculated for the three manual monitoring stations based on three parameters PM₁₀, SO₂, and NO₂. While it is imperative to note that the AQI of Gorakhpur has changed from a moderate category to poor since the winters of 2018. The main causes of this decline in the air quality of Gorakhpur are recent escalation in construction and industrial pursuit accompanied by poor or no control measures. Also increase in the number of

vehicles, traffic congestion due to inadequate road width and increase in roadside encroachments hampering the free flow of traffic, increase in the influx of non-destined traffic has increased the PM10, SO2 & NO2 levels. The spike in the SO2 & NO2 levels in 2018 may be attributed to local factors also. COVID-19 pandemic and the subsequent lockdown have some positive impact on the environment across the world. Similarly, the AQI of Gorakhpur also improved. There is 78% decline in AQI of industrial areas respectively in the month of April 2020 with respect to the previous year due to pandemic-lockdown. AQI in the residential area of Gorakhpur is in the satisfactory category till October 2020. Without effective measures, the AQI is set to move into the poor category and hence an effective clean air action plan addressing all the major air pollution-related issues is essential.

Table 15-2: Air Quality Index trend at GIDA monitoring station (Industrial)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2015	146.0	191.0	146.0	202.0	195.0	182.0	145.0	186.0	162.0	159.0	163.0	184.0
2016	189.0	192.0	190.0	196.0	195.0	194.0	115.0	119.0	122.0	123.0	121.0	185.0
2017	186.0	186.0	185.0	187.0	188.0	187.0	168.0	106.0	113.0	123.0	217.0	187.0
2018	192.0	193.0	194.0	191.0	191.0	188.0	182.0	174.0	187.0	265.0	356.0	402.0
2019	409.0	289.0	296.0	293.0	302.0	275.0	239.0	272.0	271.0	291.0	344.0	358.0
2020	282.0	193.0	296.0	65.0	121.0	145.0	160.0	106.0	115.0	125.0		

15.2.2.2 Emission due to Site Preparation Activities

Cutting and filling method will be adopted for site preparation. Tractor, J.C.B. or equivalent Dumper and mechanical hammer will be used for this purpose. The major chunk of the land being Rocky, coarse particulate emission is expected from site preparation activities. However, the coarse particles will not travel a long distance and expected to settle within the project site as manual operation with mechanical hammer is envisaged instead of blasting operation. Prepared site will be well compacted to restrain the further emissions.

15.2.2.3 Emission due to Construction Equipment's

The only construction equipment's which will be used on-site are Paver finishers and Road Rollers. Besides, J.C.B. or equivalent Dumpers and tractors will also be used. Hot Mix Plant, concrete mixing plant will not be used on site. The material will be prepared in some off-site workshop of Contract awardee and will be transported to the site. Thus, the emission due to the construction equipment's will only include particulate emission and not gaseous emission (except from vehicles). Combustion of hydrocarbon from preparation of bituminous macadam is not expected, as the same will not be done on-site.

15.2.2.4 Fugitive Emissions

The source of fugitive emissions due to the proposed project will be loading and unloading of materials, handling of materials, cement and earth mixing etc. However, these impacts will be local to their source and will not affect the project site and its surrounding as a whole.

The impact of the above mentioned activities would be temporary and will be restricted to the constructional phase. However, the impact is generally confined to the Industrial Area and is expected to be negligible outside the boundary. Nevertheless, the following mitigation measures will be adopted to limit the environmental impact during constructional phase.

Mitigation Measures

Control of fugitive emissions:

- All dust producing construction materials would be transported to site with proper cover as tarpaulins.
- Water will be sprayed in the cement and earth mixing sites as well as after compaction. Regular water sprinkling will be done to reduce the dustiness of materials entering into the atmosphere. Furthermore, during windy days, the frequency of the water sprinkling will be increased.
- Dust suppression foam may also be used to minimize use of water.
- Water will be sprayed on the haul road.
- In high dust areas, workers will be provided and encouraged to use nose masks.

Control of Vehicular Emissions

- Vehicular movement will be minimized, with a planned scheduling, to reduce the emission of pollutants.
- Regular maintenance, servicing of the vehicles and periodic emission check for equipment and machinery would be carried out in conformity with the Central Motor Vehicles Rules, 1989.
- Materials will be transported in covered conditions.
- All the vehicles entering the project site will be checked for Pollution-Under-Control Certificates.

General Measures:

- All the vehicles carrying raw materials will be covered with tarpaulin/plastic sheet; unloading and loading activity will be stopped during windy period
- Temporary thin sheets of sufficient height (3m) will be erected around the proposed site as a barrier for dust control.
- The excavated material shall be reused within the boundary and the movement of cut and fill material will be limited.
- Plantation of trees around the boundary will be initiated at the early stages by plantation of 2 to 3 years old saplings using drip irrigation so that the area will be moist for most part of the day.

15.2.3 WATER ENVIRONMENT

The proposed project involves various construction activities and the impact on water quality associated with each of these construction activities are described below:

15.2.3.1 Site preparation:

The preparation of land required for the subsequent development activities generates a significant amount of construction waste. The site formation may produce large quantities of run-off with high suspended solids in the absence of appropriate mitigation measures. This potential problem will be intensified during rainy season.

15.2.3.2 Construction of buildings:

During rainy season, due to the construction of various civil structures, the site runoff results in significant pollution in the receiving water bodies and washing of various construction equipments will also result in water pollution.

15.2.3.3 Site workshop:

The storage of used engine oil and lubricants as waste materials has a potential to create impacts if spillage occurs. Waste oil may infiltrate into the surface soil layers or in the form of runoff into local watercourses which increases the hydrocarbon levels.

There will be water requirement of approximately 5 KLD domestic water requirements for workers (45 lpcd for 100 workers) during the construction phase based on construction activity requirement.

The water requirement during this phase will be met from water tankers. Drinking water through cans will be provided by RIICO at construction sites.

Wastewater will be generated from eating areas and the sewage will be generated from temporary sanitary facilities. Significant impact on water quality is envisaged if the sewage is discharged directly into the receiving waters without any prior treatment. Water supply will be sourced through tanker provided by RIICO during construction phase and no significant impact is anticipated on ground water resources. No impact is anticipated on surface water resources as due to non-perennial nature of existing small pond in the project area.

Mitigation Measures:

- Natural slope will be maintained during the site preparation to avoid any effect on the natural drainage pattern of the site.
- During the construction phase, the storm-water may be contaminated with particulate matter and the turbidity of the same may increase. Temporary gully network will be formed during the construction work to channelize the storm-water in a temporary garland drain surrounding the proposed project site.
- Contamination of storm-water by oil and grease from the construction machinery/ maintenance areas of the construction equipments/ vehicles will be strictly avoided. It is also suggested to provide oil & grease traps near the vehicle maintenance area.
- The excavation and site preparation activities shall be avoided during the monsoon season.
- On-site septic tank followed by soak pit will be provided for discharge of the domestic effluent.
- All loose materials will be kept in covered storage.

Table 15-3: Designated Best Use Water Quality Criteria by CPCB

Designated-Best-Use	Class of Water	Cr'iteria
Drinking Water Source Without Conventional treatment but afte disinfection	A	Total Colifomis Organism MPN/100.nl shall be 50 or less pH between 6.5 Md 8.5
		Dissolved Oxygen 6mg/I or more
		Biochemical Oxygen Demand S days 20C 2mg/I or less
Outdoor bathing (Organised)	B	Total Colifomis Organism MPN/1 ()().nl shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5mg/1 or more Biochemical Oxygen Demand 5 days 20C 3mg/I or less.
Drinking water source after conventional treatment and disinfection	C	Total Coliforms Organism MPN/ 100ml shll be 5000 or less pH between 6 to 9 Dissolved Oxygen 4mg/1 or more Biochemical Oxygen Demand 5 days 20C 3mg/I or less
Propagation of Wild life and Fisheries	D	pH between 6.S to S.S Dissolved Oxygen 4mg/I or more Free Ammonia (as N) 1.2 mg/1 or less
Irrigation. Industrial Cooling, Controlled Waste disposal	E	pH between 6.0 to 8.5 Electrical Conductivity at 25C micro mhos/cm Max.2250 Sodium absorption Ratio Max. 26 Boron Mox. 2mg/

15.2.4 NOISE ENVIRONMENT

The major activities, which produce periodic noise, during construction phase, are as follows:

- Foundation works
- Fabrication of structures
- Plant erection
- Operation of construction equipment

- Movement of vehicles

Ambient noise levels may increase temporarily in the close vicinity of various construction activities, maintenance workshops, earth cutting and filling activities, vehicles and earthmoving equipment movement areas. These construction activities are expected to generate peak noise levels in the range of 114.5 dB (A) (at a distance of about 1 m from the source). No blasting will be applied for cutting and, levelling and site preparation. Overall, the impact of construction noise on the environment will be insignificant, reversible and mainly confined to the day hours. Noisy construction activities will be carried during the day time only and this will effectively not have impact on the night time ambient noise level.

15.2.4.1 Indian Standards for Ambient Noise Levels

The standards for noise level in India are prescribed by Central Pollution Control Board of India. The noise level is divided into two categories- Day (Time 6.00 a.m. to 10.00 p.m) and Night (10.00 p.m. to 6.00 a.m). The sound levels are prescribed in the units of decibels.

Table 15-4: Ambient Noise level prescribed by CPCB

Area	Noise limits, Leq, dB (A)	
	Day time	Night time
Silence zone	50	45
Residential area	55	45
Commercial area	65	55
Industrial area	75	65

Mitigation Measures:

- All equipment shall be fitted with silencers and will be properly maintained to minimize its operational noise.
- Noise level will be one of the considerations in equipment selection which will favour lower sound power levels.
- Stationary noise making equipment shall be placed along uninhabited stretches
- The timing for construction activities shall be regulated, such that all noise generating construction activities in day time only. The provision of temporary noise barrier (barricading) shall be made near identified sensitive locations or near the noise source during construction.
- Plantation along with a boundary wall shall be made at start of construction itself.
- Protection devices (earplugs or earmuffs) shall be provided to the workers operating near high noise generating machines and their shifts shall be rotated.
- Noise measurements shall be carried out to ensure the effectiveness of mitigation measures and develop a mechanism to record and respond to complaints on noise. Data shall be reviewed and analyzed by the project manager for adherence to any strict measure
- Smooth flow of traffic shall be ensured on the internal road to avoid idling and honking of vehicles.

15.2.5 LAND ENVIRONMENT

There will not be any adverse impact on the land use as the allotted land falls under industrial area approved by Govt. of Rajasthan State. Furthermore, the impact on surrounding land use, during the constructional activity, is negligible as all the raw materials required will be stored in the designated area within the boundary of the Industrial Area

Impacts

During construction phase, the waste generation will include the construction waste and municipal solid waste from labor activity. No hazardous waste generation is anticipated during the construction phase of the proposed project.

15.2.6 SOLID WASTE GENERATION

During the constructional stage, the solid waste generated is required to be disposed in an appropriate and environmentally acceptable manner. The waste generated from different activities of constructional phase include following

- Vegetation and demolition waste from site clearance
- Excavated materials from earthworks like cuttings, grading, & foundation works
- General construction waste like wood, scrap metal, & concrete debris
- Domestic waste generated by site workers
- bricks, tiles, cement plaster, steel (from RCC, door/ window frames, roofing support, railings of staircase etc), rubble, sand, stone (Marble, granite, sand stone), timber/wood, paints/varnishes

Besides above there are some major and minor components namely conduits, pipes, electrical fixtures, panels, etc in all the proposed projects. In addition, the packing material used for packing of various items used in creation of sports infrastructure and others also constitutes the solid waste.

Mitigation Measure

The solid waste generated during this period being predominantly inert in nature, construction and demolition waste does not create chemical or biochemical pollution. Hence maximum effort would be made to reuse and recycle them. The most of the solid waste material can be used for filing/leveling of low-laying areas. All attempts should be made to stick to the following measures-

- All construction waste shall be stored within the proposed site itself. A proper screen will be provided so that the waste does not get scattered.
- Attempts will be made to keep the waste segregated into different heaps as far as possible so that their further gradation and reuse is facilitated.
- Materials, which can be reused for purpose of construction, levelling, making roads/pavement will also be kept in separate heaps from those which are to be sold or land filled.
- The local body or a private company may be arranged to provide appropriate number of skip containers/ trolleys on hire.

The use of the construction material basically depends on their separation and conditions of the separated material. A majority of these materials are durable and therefore, have a high potential for reuse. It would, however, be desirable to have quality standards for the recycled materials. Construction waste can be used in the following manner.

Reuse of bricks, tiles, stone slabs, timber, piping railings etc to the extent possible and depending upon their conditions.

Municipal Solid Waste Management

Approximately 55 kg/d of municipal solid waste will be generated from the project site during the construction phase @0.55 kg/capita/day. This will be segregated at source and the biodegradable portion will be collected and disposed off in a fenced pit dugout at the site and covered properly so that it can be used as manure later on during green belt plantation to be started during construction phase only after completion of construction activity.

15.2.7 DEMOGRAPHY AND SOCIO-ECONOMICS

All the activities to be carried out during the construction phase will require skilled, semi-skilled and unskilled labours, which will create employment opportunity for the local people during this phase, which will spread for about 3 years. It is expected that, during construction phase the requirement of labour will be 100 persons per day. Local labours will be employed from the surrounding villages.

A temporary labour camp also may be provided as per the situation. However, the responsibility of constructing a labour camp, if the need be will lie with the civil contract awardee. Most of the unskilled and semi-skilled labour will be by and large available from the nearby villages. Thus impact on the physical and aesthetic resources will be minimal. Further, local skilled, semi-skilled and unskilled labours will get direct and indirect employment during the construction phase. This might result in a steep rise in agricultural wages in the surrounding villages. Hence, the short term positive impacts on socio-economic conditions of the area are anticipated during the construction phase. The impact due to the proposed Industrial Area on demography and socio economic conditions of the study area would be as follows.

- Increase of floating population Additional strain on civic amenities like road, transport, communication, drinking water, sanitation, and other facilities to meet the work force requirement
- Increase in demand for services like hotels, lodges, public transport, etc
- Employment opportunities for construction laborers, skilled and unskilled workers, etc. economic upliftment of the area
- Raising of home rents and land prices and increase in labour rates
- Rapid growth of service sector will result in increase of incomes in the area
- More work to civil construction and transportation companies
- Expanding of services like retail shops, banks, automobile workshop, schools, hospitals, etc

16 IMPLEMENTATION STRATEGY AND FINANCIAL FEASIBILITY

16.1 FORMULATING AN IMPLEMENTATION STRATEGY

For the purpose of implementation of planned industrial development in Dhuriyapar region as per the proposed master plan, it would be necessary to maximize the below three benefits for the three main stakeholders for the project. These benefits are as follows:

1. Increasing land value for investors
2. Concentration of manufacturing value chains for businesses
3. Healthy and high-quality living conditions for people employed in the industries and other ancillary activities.

This envisioned large scale development project would be led by Land acquisition, and driven by infrastructure development. This is vital to achieve the above mentioned three benefits for the three main stakeholders i.e. Investors, Businesses (Industrialists) & Workers.

In any project where large scale land acquisition is required, usually private developers only get associated if the responsibility of acquiring land vests with the government body/ development authority. Also, as per RBI guidelines regular debt funding from banks for acquiring land can only be given to public agencies. Therefore, in formulating an implementation strategy for this project, there can be two main options.

- First and the more probable option is the traditional way in which the GIDA has the responsibility for land acquisition.
 - For financing this large-scale land acquisition, the development authority would either have to be allocated a budget from the State Government, or take a development loan from a bank, by keeping the land it acquires as a security with the financial institution.
 - Another avenue that can be explored for raising funds for land acquisition can be issuing development bonds, and paying back by capturing through land value capture mechanisms.
 - Developing the proposed finalized master plan using both Land Pooling and Land Acquisition as tools, for implementation of the project. Land areas that come
- Another option for implementing this development is through land pooling technique, where existing land owners surrender their land in existing condition, i.e. without any infrastructure development. After getting the land, authority gets the land developed, and returns back a plot to the land owner, which would be smaller in area, but with complete supporting infrastructure, with a designated land use as per master plan. Land Pooling can be an excellent strategy for this development, as per print media reports, Uttar Pradesh cabinet has given approval to land pooling policy for promotion of industrial development in the state. Although as per our understanding this policy has still not been notified.

Based on the assessment of the finalized Master Plan for the project, based on the above scenarios we have formulated the above two strategies to access their potential, in executing the project. As the land pooling policy of Uttar Pradesh has been notified, as this would remove the need for large

volume of up-front funding requirement for land acquisition. In the next stage we would further detail out different project implementation strategies and would assess their financial feasibility.

16.2 IMPLEMENTATION STRATEGY OPTIONS

16.2.1 Development by GIDA

As stated above the first strategy explored for carrying out this development is to be carried out by GIDA (i.e. Development authority), for executing the project.

16.2.1.1 Tentative Project Structuring

The development authority, who would bring the funding required for development of the project, and would carry out the development of the required infrastructure. The responsibilities of the development authority can be as follows:

Key Responsibilities of the Development Authority

- Carry out land acquisition as per the Right to Fair. Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
- Assist in getting all required approvals and permissions for carrying out this development
- In case of sale, assist in mutation of title to the allottees.
- Arrange funding for development of the project
- Complete the development work as per the approved master plan, within the stipulated timeline.
- Till project is completed carry out maintenance of the developed areas
- Prepare marketing strategy for the sale/ lease of developed inventory of plots
- Carry out road shows to bring large industries, which can catapult this development, by increasing the demand

Land Ownership: After acquisition, the ownership of the land would rest with the development authority, till the time the acquired land is sold post development. In a long-term lease model, the ownership of the land would remain with the development authority. In sale model, after complete payments for a plot has been done by an allottee, the land title would be mutated and transferred to him.

Development Rights: Development Rights would be with the development authority. The development authority would have the right to appoint sub-contractors for carrying out different works.

Project Funding: As mentioned earlier, the development authority for raising funds for land acquisition would either rely on budgetary allocation from the state government under some scheme. Or can raise funds by issuing bonds or by taking loan from a bank, and keeping the acquired land as security with the bank, with a clause for sub-division and transfer of developed land to the allottees.

16.2.1.2 Financial Feasibility of Development by GIDA

For assessing the financial feasibility of carrying out the proposed development by GIDA, we have made various assumptions to project the cash-flows to estimate the net revenue on a year-on-year basis. On the basis of the project net revenue cash-flow, the internal rate of return of the project was estimated, to assess the financial viability.

Assumptions for Cash Flow Projection

Notification for Land Acquisition for the complete area would be given, stating that the acquisition would take place in 5 phases.

Land Acquisition: On the basis of the proposed land areas, under different land use categories we have assessed the total land to be acquired, marked under different land uses in the 5 phases. The table below indicates this division of land area to be acquired in the 5 phases.

Phase wise total Land to be developed	PHASE-1	PHASE-2	PHASE-3	PHASE-4	PHASE-5	Total
Area to be developed (sqm)	3,987,498	4,201,319	5,127,988	4,975,628	4,709,524	23,001,958
Area to be developed (Acres)	985.33	1,038.17	1,267.15	1,229.50	1,163.75	5,684

Phase wise total Land to be Acquired	PHASE-1	PHASE-2	PHASE-3	PHASE-4	PHASE-5	Total
Area to be acquired (sqm)	2,015,059	4,201,319	5,027,626	4,975,628	4,709,524	20,929,157
Area to be acquired (Acres)	497.93	1,038.17	1,242.35	1,229.50	1,163.75	5,172

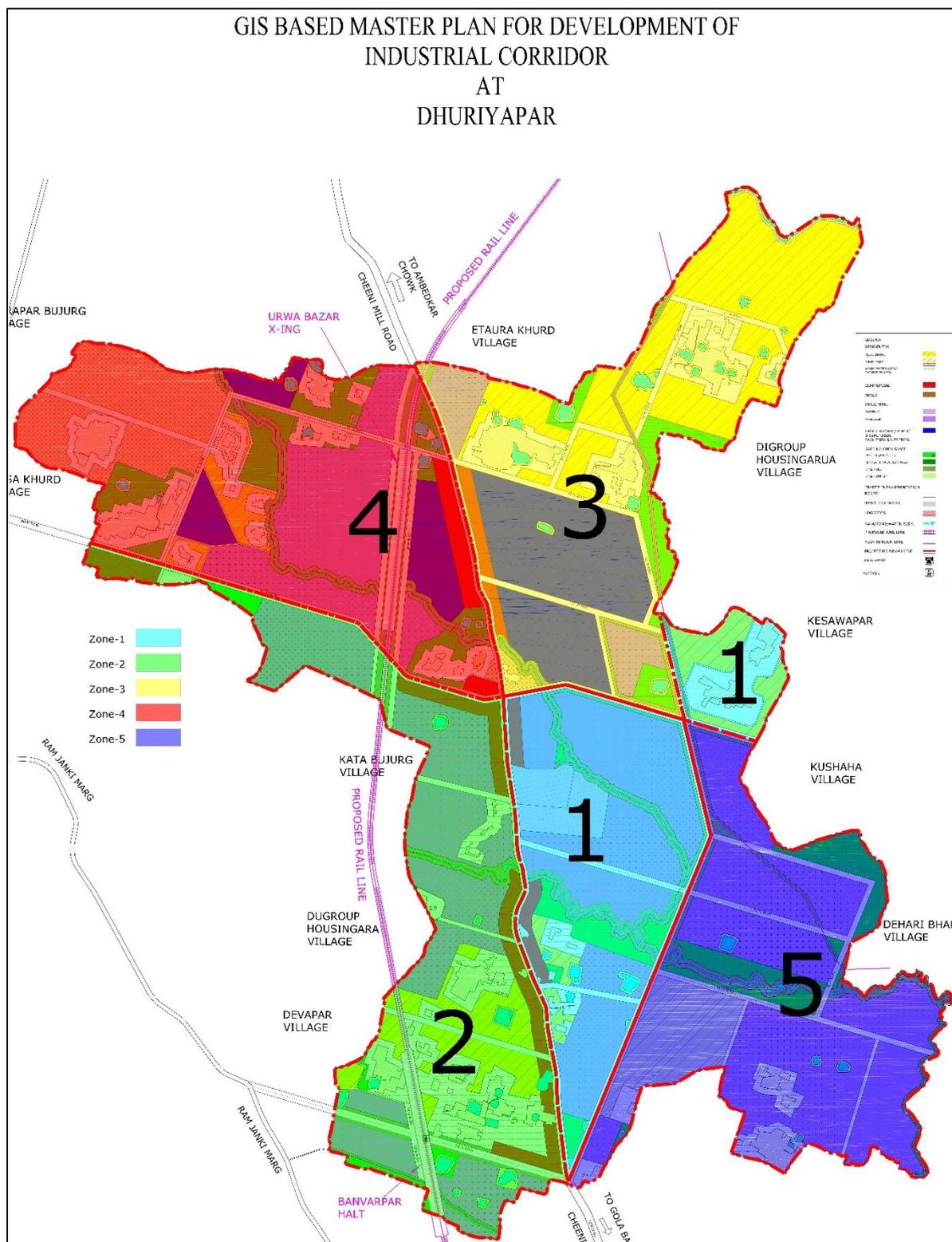
In the above table the land use category of village Abadi area would not be acquired, as the people living in the villages would not be asked to vacate and relocate for this proposed development. For future growth of the villages a buffer area has been kept, as per norms and this buffer area would also not be acquired. Therefore, out of the total 6741.14 acre land area marked for this development, about 5172 acre land would have to be acquired.

Identifying Main Revenue Streams:

At the draft master plan stage, we have assessed the financial feasibility of the sale model, in which we have assumed that the developed land would be sold in the forms of plots of different sizes, with different designated land uses. Out of the above given land use categories the land uses under which plots can be sold for generating revenue are as follows:

1	Residential Plotted
2	Commercial
3	Mixed
4	Logistics & Warehousing
5	Industrial
6	Institutional

Map showing the areas identified for land acquisition in the five phases:



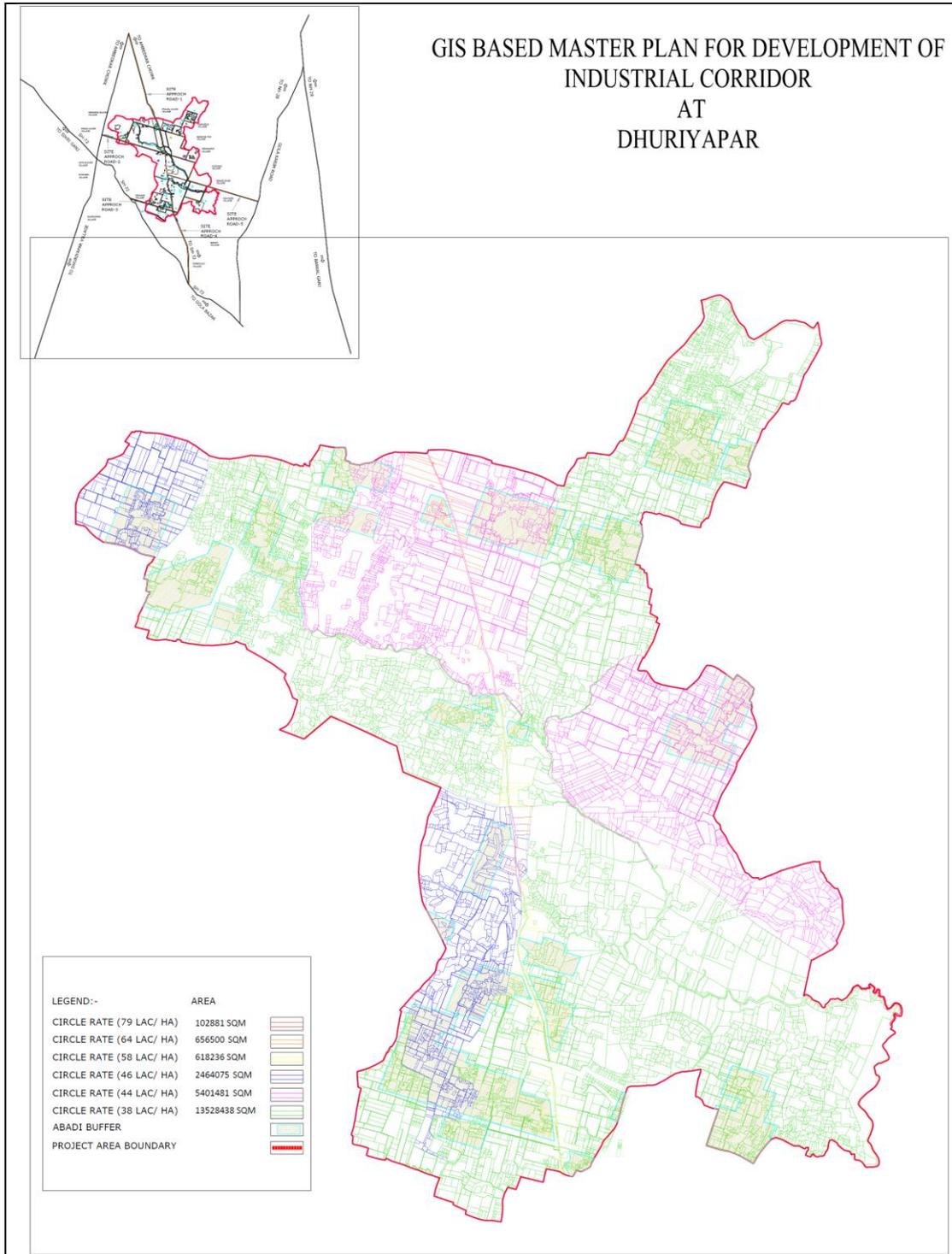
As per RBI guidelines to Banks for funding Land Acquisition, we have assumed that the land marked for acquisition under each phase would be completed in 3 years' time.

Cost of Land Acquisition

For the assumption of the cost at which the land would be acquired, we have relied upon the prevailing circle rates in the villages under which the land marked for the proposed development

comes. Then as per the land acquisition act we have derived the cost of acquisition at 4 times the prevailing circle rate.

The map below indicates the division of the total land to be acquired under different circle rate zones



The table below indicates the total land areas in different colour zones

Circle Rate Regions	Area Under Each Boundary (sqm)	Area Under Each Boundary (Hectare)	Area Under Each Boundary (Acres)
Land Marked with Red Boundary	1,02,881	10.29	25.42
Land Marked with Orange Boundary	6,56,500	65.65	162.22
Land Marked with Yellow Boundary	6,18,236	61.82	152.77
Land Marked with Blue Boundary	24,64,057	246.41	608.88
Land Marked with Pink Boundary	54,01,481	540.15	1,334.73
Land Marked with Green Boundary	1,35,28,438	1,352.84	3,342.95
Total	2,27,71,593	2,277.16	5,626.98

Prevailing Circle Rates for each Colour Zone

Circle Rate Regions	Area Under Each Boundary (Hectare)	Prevailing Circle (Lakhs/ Hectare)
Land Marked with Red Boundary	10.29	79
Land Marked with Orange Boundary	65.65	64
Land Marked with Yellow Boundary	61.82	58
Land Marked with Blue Boundary	246.41	46
Land Marked with Pink Boundary	540.15	44
Land Marked with Green Boundary	1,352.84	38
Total	2,277.16	

From the above data we have assessed the cost of land acquisition in the five phases. After assessment we get the following rates:

Average Cost of Land Acquisition in Phase 1	1,696	Rs. /Sqm	4 Times the Circle Rate Value
Escalation every 3 years	10%		4 Times the Circle Rate Value + 10% Escalation

To factor in the time period that would elapse before the acquisition under 2nd stage would commence, we have assumed an escalation of 10% over the rate derived from the prevailing circle rates.

Cost of Development

We have assumed the starting cost of development at INR 1.10 Cr./ Acre of land, this cost would be inclusive of cost towards development of roads, sewerage, water supply, electrification, telecom, etc. We have also assumed an annual escalation of 5% on this cost, to factor in the impact of inflation. The table below indicates different works for which this combined development cost would be spent on.

Present day Cost of Land & Infrastructure Development	1,00,00,000	INR/ Acre
Additional Cost	10,00,000	INR/ Acre
Total Project Cost	1,10,00,000	INR/ Acre
Annual Escalation	5%	

We have assumed “other costs” starting at Rs10 Lakhs / acre. This is the cost incurred towards, getting approvals and permissions, admin expenses, consultants fee, contingencies, etc.

Assumption for Development Timeline

For projecting the cost of development, we have assumed that the total development of the complete 5686.36 acres (excluding water bodies, railway track, village and expansion area) would take place in 14 years. With about on an average 406 acres of land the development authority would develop each year, depending upon the revenue inflow from the project.

Financial Year	2024 - 2025	2025 - 2026	2026 - 2027	2027 - 2028	2028 - 2029	2029 - 2030	2030 - 2031	2031 - 2032	2032 - 2033	2033 - 2034	2034 - 2035
Area of Land Developed per year (Acres)	150	200	210	210	300	300	300	350	350	350	250

Financial Year	2035 - 2036	2036 - 2037	2037 - 2038	2038 - 2039	2039 - 2040	2040 - 2041	2041 - 2042	2042 - 2043	2043 - 2044	2044 - 2045	2045 - 2046
Area of Land Developed per year (Acres)	300	506	250	200.35	300	310	200	160	170	150	170

Assumption for Starting Sale Rate, Sale Timeline and Escalations in Sale Price

For estimation of the starting sale price, we relied on the market survey for prevailing sale rate for land parcels under different land uses. We have also relied on the prevailing allotment rates given in different notifications published by GIDA for allotment of plots in different categories, located in Sahjanwa and GIDA sectors.

As per our market research we have found that the prevailing market rate for residential plots in Sahjanwa are in the range of 10,000 to 12,000 Rs/sqm. As per notification for allotment of commercial plots in GIDA sectors we have found that the prevailing rate for commercial plots is about 30,000 Rs/sqm in that location. Similarly plots in transport nagar are available at an allotment rate of 20,000 Rs/sqm. Based on this data and considering the location of the area marked for Dhuriyapar Industrial Corridor, we have assumed discounted starting sale rates.

Considering as when the project would be announced, and initially notification would come for allotment, most of the plots would be taken up by investors rather than end users, therefore we have assumed a total sales timeline of 10 years to 12 years for different land uses.

Land Use	Starting Sale Rate (Rs. / sqm)	Escalation timeline	Annual Escalation in Sale Rate
Plotted	8000	Every Year	6% to 10%
Group Housing	6000		4% to 8%
Commercial/ Office	8000		6% to 10%
Service Industries	7000		6% to 10%
Logistics & Warehousing	6500		6% to 10%
Industrial	6500		6% to 10%
Public/ Semi- Public/ Institutional	7500		6% to 10%
Mixed Use	9000		6% to 10%
Recreational	2500		6%
Floating Activities	8000		6% to 10%

For revenue estimation we have assumed that out of the total land areas developed in different sectors under different land uses, we would get only about 75% of the land under plots for sale. The remaining 25% would go towards development of internal roads and green spaces.

Annual escalation of sale prices have been considered between a ranges of 6% to 10%, with initially prices being escalated at 6% annually. As the development of a phase progresses, and the demand for different land uses would increase the escalation of sale prices is increases from 6% to 8% annually to 10% annually.

Based on the above assumptions we have projected the cash flows under this development strategy

Project Cost Projection

No. of Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Financial Year	2023 - 2024	2024 - 2025	2025 - 2026	2026 - 2027	2027 - 2028	2028 - 2029	2029 - 2030	2030 - 2031	2031 - 2032	2032 - 2033	2033 - 2034	2034 - 2035	2035 - 2036	2036 - 2037	2037 - 2038	2038 - 2039	2039 - 2040	2040 - 2041	2041 - 2042	2042 - 2043	2043 - 2044	2044 - 2045	2045 - 2046
Land Acquisition																							
Cost Of Land Acquisition (Rs./sqm)	1,696	1,696	1,781	1,781	1,781	1,870	1,870	1,870	1,963	1,963	1,963	2,061	2,061	2,061	2,165	2,165	2,165	2,273	2,273	2,273	2,386	2,386	2,386
Phase 1																							
% Area of Land Acquired	20%	40%	40%																				
Area of Land Acquired (sqm)	403,012	806,023	806,023	-																			
Total Cost of Land Acquisition for Phase 1 (INR Cr.)	68.35	136.70	143.54																				
Phase 2																							
% Area of Land Acquired					30%	30%	30%	10%															
Area of Land Acquired (sqm)					1,260,396	1,260,396	1,260,396	420,132															
Total Cost of Land Acquisition for Phase 2 (INR Cr.)					224.4512878	235.6738522	235.6738522	78.55795074															
Phase 3																							
% Area of Land Acquired									20%	30%	25%	15%	10%										
Area of Land Acquired (sqm)									1,005,525	1,508,288	1,256,906	754,144	502,763										
Total Cost of Land Acquisition for Phase 3 (INR Cr.)									197	296	247	155	104										
Phase 4																							
% Area of Land Acquired														24%	30%	20%	16%	10%					
Area of Land Acquired (sqm)														1,194,151	1,492,689	995,126	796,101	497,563					
Total Cost of Land Acquisition for Phase 4 (INR Cr.)														246	323	215	172	113					
Phase 5																							
% Area of Land Acquired																			23%	23%	24%	15%	15%
Area of Land Acquired (sqm)																			1,083,191	1,083,191	1,130,286	706,429	706,429
Total Cost of Land Acquisition for Phase 5 (INR Cr.)																			246	246	270	169	169
Total Cost of Land Acquisition (INR Cr.)	68	137	144	-	224	236	236	79	197	296	247	155	104	246	323	215	172	113	246	246	270	169	169

- We have assumed that the land marked for acquisition under each phase would be completed in 3 years' time.
- Based on the projected cash flows we have estimated that the total cost of land acquisition would be around ₹ 4,291.74 Cr.

No. of Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Financial Year	2023 - 2024	2024 - 2025	2025 - 2026	2026 - 2027	2027 - 2028	2028 - 2029	2029 - 2030	2030 - 2031	2031 - 2032	2032 - 2033	2033 - 2034	2034 - 2035	2035 - 2036	2036 - 2037	2037 - 2038	2038 - 2039	2039 - 2040	2040 - 2041	2041 - 2042	2042 - 2043	2043 - 2044	2044 - 2045	2045 - 2046
Project Development																							
All Inclusive Cost of Development (INR Cr.)	1.10	1.16	1.21	1.27	1.34	1.40	1.47	1.55	1.63	1.71	1.79	1.88	1.98	2.07	2.18	2.29	2.40	2.52	2.65	2.78	2.92	3.06	3.22
Phase 1																							
% of Land Area Developed		60%	40%																				
Area of Land Developed		591.20	394.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60% of Infra work done		682.83	477.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remaining 40% of Infra work done																							
Total Cost of Development in Phase 1	-	682.83	477.98	-																			
Phase 2																							
% of Land Area Developed				10%	15%	25%	25%	25%															
Area of Land Developed				103.82	155.73	259.54	259.54	259.54															
60% of Infra work done				132.20	208.21	364.37	382.59	401.72															
Remaining 40% of Infra work done																							
Total Cost of Development in Phase 2	-	-	-	132.20	208.21	364.37	382.59	401.72	-														
Phase 3																							
% of Land Area Developed									15%	20%	20%	20%	25%										
Area of Land Developed									190.07	253.43	253.43	253.43	316.79										
60% of Infra work done									308.91	432.47	454.09	286.08	375.48										
Remaining 40% of Infra work done												190.72	250.32										
Total Cost of Development in Phase 3	-	-	-	-	-	-	-	-	308.91	432.47	454.09	476.80	625.80	-									
Phase 4																							
% of Land Area Developed														15%	20%	20%	20%	25%					
Area of Land Developed														184.43	245.90	245.90	245.90	307.38					
60% of Infra work done														382.54	535.55	337.40	354.27	464.98					
Remaining 40% of Infra work done																224.93	236.18	309.98					
Total Cost of Development in Phase 4	-	-	-	-	-	-	-	-	-	-	-	-	-	382.54	535.55	562.33	590.45	774.96	-	-	-	-	-
Phase 5																							
% of Land Area Developed																			15%	20%	20%	20%	25%
Area of Land Developed																			174.56	232.75	232.75	232.75	290.94
60% of Infra work done																			462.12	646.96	679.31	713.27	936.17
Remaining 40% of Infra work done																			184.85	258.78	271.72	285.31	374.47
Total Cost of Development in Phase 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	646.96	905.75	951.03	998.58	1,310.64
Total Cost of Development	-	682.83	477.98	132.20	208.21	364.37	382.59	401.72	308.91	432.47	454.09	476.80	625.80	382.54	535.55	562.33	590.45	774.96	646.96	905.75	951.03	998.58	1,310.64

- We have estimated that the development of the project will be completed in a period of 16 years from 2024 – 2040 under 5 phases. The total cost of development is estimated to be about INR 12,607 Cr.
- The total cost for land acquisition and development has been estimated to be about INR 16,899 Cr.

Revenue Projections

Area to be developed under each Phase	PHASE-1	PHASE-2	PHASE-3	PHASE-4	PHASE-5
Land use	Area (sqmt)				
Residential	402730.57	604249.53	1963103.92	149580.27	0.00
Commercial	131682.66	509152.07	123162.09	182621.43	0.00
Industrial	2385754.96	2199217.38	367207.46	1429645.09	2853194.60
Institution/ Public- Semi Public Utilities & Facilities/ Office	0.00	0.00	1497877.48	573015.80	0.00
Mixed Use	0.00	0.00	34810.25	1083315.37	0.00
Green/ Open Spaces	617066.06	345347.53	619290.03	1006425.53	793729.45
Logistics & Transport Nagar	0.00	0.00	0.00	0.00	608081.13
Village Buffer Area/ Village Abadi Expansion Area/ Village Abadi/ Water Body	524604.67	1117288.10	879326.03	993953.03	400117.53
Railway Land	0.00	165930.10	0.00	187252.74	0.00
Roads/ Transportation	450263.96	543352.90	522536.64	551024.88	454519.16
Total Area (sqmt)	4512102.88	5484537.60	6007313.89	6156834.14	5109641.87

- The saleable area is being categorised under each phase based on the areas developed for each land use.
- For revenue estimation we have assumed that out of the total land areas developed in different sectors under different land uses, we would get only about 75% of the land under plots for sale. The remaining 25% would go towards development of internal roads and green spaces.

Phase – 1

No. of Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Financial Year	2023 - 2024	2024 - 2025	2025 - 2026	2026 - 2027	2027 - 2028	2028 - 2029	2029 - 2030	2030 - 2031	2031 - 2032	2032 - 2033	2033 - 2034	2034 - 2035	2035 - 2036	2036 - 2037	2037 - 2038	2038 - 2039	2039 - 2040	2040 - 2041	2041 - 2042	2042 - 2043	2043 - 2044	2044 - 2045	2045 - 2046	
Phase 1																								
Residential																								
Residential Plots Sale Rate Annual Escalation		6%	6%	6%	8%	10%	10%	10%	10%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Residential Land sale rate (Rs/sqm)	8000	8,480	8,989	9,528	10,290	11,319	12,451	13,696	15,066	15,970	16,928	17,944	19,021	20,162	21,372	22,654	24,013	25,454	26,981	28,600	30,316	32,135	34,063	
Percentage of Area Sold		50%	50%																					
Residential Land Sold (sqm)		151,024	151,024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue from Sale of Residential Plots (INR Cr.)		128.07	135.75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	263.82
Industrial																								
Industrial Plots Sale Rate Annual Escalation		6%	6%	6%	8%	8%	10%	10%	10%	10%	10%	8%	8%	8%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Industrial Land sale rate (Rs/sqm)	6500	6,890	7,303	7,742	8,361	9,030	9,933	10,926	12,019	13,221	14,543	15,706	16,962	18,319	19,419	20,584	21,819	23,128	24,516	25,987	27,546	29,198	30,950	
Percentage of Area Sold		50%	50%																					
Industrial Land Sold (sqm)		894,658	894,658	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue from Sale of Industrial Plots (INR Cr.)		616.42	653.40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,269.82
Commercial																								
Commercial Plots Sale Rate Annual Escalation		6%	6%	8%	10%	10%	10%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Commercial Land sale rate (Rs/sqm)	8000	8,480	8,989	9,708	10,679	11,747	12,921	13,696	14,518	15,389	16,313	17,292	18,329	19,429	20,594	21,830	23,140	24,528	26,000	27,560	29,214	30,966	32,824	
Percentage of Area Sold		30%	70%																					
Commercial Land Sold (sqm)		29,629	69,133	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue from Sale of Commercial Plots (INR Cr.)		25.13	62.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87.27
Mixed Use																								
Mixed use Plots Sale Rate Annual Escalation		6%	6%	8%	8%	10%	10%	10%	10%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Mixed use Land for Sale (On NPPL basis) sale rate (Rs/sqm)	9000	9,540	10,112	10,921	11,795	12,975	14,272	15,699	17,269	18,305	19,404	20,568	21,802	23,110	24,497	25,967	27,524	29,176	30,927	32,782	34,749	36,834	39,044	
Percentage of Area Sold		30%	70%																					
Mixed use Land Sold (sqm)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue from Sale of Mixed use land (INR Cr.)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Revenue in Phase 1		769.61	851.30																					1,620.91

- Residential, commercial, industrial, and mixed-use land are being sold in this phase over a few years, as determined by the cash flows. Our assumption and current market trends are used for estimating the starting sale rate and annual escalation.
- We have assumed a sale velocity under each land use in all phases. Basis that and the escalated sale rate at that year, we estimated the total revenue under each land use.
- The total revenue projected in phase – 1 is **INR 1620.91 Cr.**

Phase – 2

No. of Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Financial Year	2023 - 2024	2024 - 2025	2025 - 2026	2026 - 2027	2027 - 2028	2028 - 2029	2029 - 2030	2030 - 2031	2031 - 2032	2032 - 2033	2033 - 2034	2034 - 2035	2035 - 2036	2036 - 2037	2037 - 2038	2038 - 2039	2039 - 2040	2040 - 2041	2041 - 2042	2042 - 2043	2043 - 2044	2044 - 2045	2045 - 2046	
Phase 2																								
Residential																								
Residential Plots Sale Rate Annual Escalation		6%	6%	6%	6%	8%	8%	8%	10%	10%	10%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Residential Land sale rate (Rs/sqm)	8000	8,480	8,989	9,528	10,100	10,908	11,780	12,723	13,995	15,395	16,934	17,950	19,027	20,169	21,379	22,662	24,021	25,463	26,990	28,610	30,326	32,146	34,075	
Percentage of Area Sold				20%	20%	20%	20%	20%																
Residential Land Sold (sqm)				90,637	90,637	90,637	90,637	90,637	-															
Total Revenue from Sale of Residential Plots (INR Cr.)				86.36	91.54	98.87	106.77	115.32	-															498.86
Commercial																								
Commercial Plots Sale Rate Annual Escalation		6%	6%	6%	6%	10%	8%	10%	10%	10%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Commercial Land sale rate (Rs/sqm)	8000	8,480	8,989	9,528	10,100	11,110	11,999	13,198	14,518	15,970	16,928	17,944	19,021	20,162	21,372	22,654	24,013	25,454	26,981	28,600	30,316	32,135	34,063	
Percentage of Area Sold				20%	20%	20%	20%	20%																
Commercial Land Sold (sqm)				76,373	76,373	76,373	76,373	76,373	-															
Total Revenue from Sale of Commercial Plots (INR Cr.)				72.77	77.14	84.85	91.64	100.80	-															427.19
Industrial																								
Industrial Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	8%	10%	10%	10%	10%	10%	10%	10%	10%	8%	8%	6%	6%	6%	6%	6%	6%
Industrial Land sale rate (Rs/sqm)	6500	6,890	7,303	7,742	8,206	8,698	9,220	9,958	10,954	12,049	13,254	14,580	16,037	17,641	19,405	21,346	23,054	24,898	26,992	27,975	29,654	31,433	33,319	
Percentage of Area Sold				10%	20%	20%	30%	20%																
Industrial Land Sold (sqm)				164,941	329,883	329,883	494,824	329,883	-															
Total Revenue from Sale of Industrial Plots (INR Cr.)				127.69	270.70	286.95	456.25	328.50	-															1,470.09
Total Revenue in Phase 2	-	-	-	286.82	439.38	470.66	654.66	544.61	-															2,396.14

- Residential, commercial, industrial, and logistics & warehousing are being sold in this phase over a few years, as determined by the cash flows. Our assumption and current market trends are used for estimating the starting sale rate and annual escalation.
- The total revenue projected in phase – 2 is INR 2396.14 Cr.

Phase – 3

No. of Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Financial Year	2023 - 2024	2024 - 2025	2025 - 2026	2026 - 2027	2027 - 2028	2028 - 2029	2029 - 2030	2030 - 2031	2031 - 2032	2032 - 2033	2033 - 2034	2034 - 2035	2035 - 2036	2036 - 2037	2037 - 2038	2038 - 2039	2039 - 2040	2040 - 2041	2041 - 2042	2042 - 2043	2043 - 2044	2044 - 2045	2045 - 2046	
Phase 3																								
Residential																								
Residential Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	6%	8%	10%	10%	10%	10%	10%	10%	10%	10%	6%	6%	6%	6%	6%	6%	6%
Residential Land sale rate (Rs/sqm)	8000	8,480	8,989	9,528	10,100	10,706	11,348	12,029	12,991	14,291	15,720	17,292	19,021	20,923	23,015	25,316	27,848	29,519	31,290	33,168	35,158	37,267	39,503	
Percentage of Area Sold									30%	30%	15%	15%	10%											
Residential Land Sold (sqm)									441,698	441,698	220,849	220,849	147,233	-	-	-	-	-	-	-	-	-	-	-
Total Revenue from Sale of Residential Plots (INR Cr.)									573.83	631.21	347.17	381.88	280.05	-	-	-	-	-	-	-	-	-	-	2,214.13
Commercial																								
Commercial Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	8%	10%	10%	10%	10%	10%	10%	10%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Commercial Land sale rate (Rs/sqm)	8000	8,480	8,989	9,528	10,100	10,706	11,348	12,256	13,482	14,830	16,313	17,944	19,738	21,712	23,015	24,396	25,860	27,411	29,056	30,799	32,647	34,606	36,682	
Percentage of Area Sold									20%	25%	25%	25%	5%											
Commercial Land Sold (sqm)									18,474	23,093	23,093	23,093	4,619	-	-	-	-	-	-	-	-	-	-	-
Total Revenue from Sale of Commercial Plots (INR Cr.)									24.91	34.25	37.67	41.44	9.12	-	-	-	-	-	-	-	-	-	-	147.38
Industrial																								
Industrial Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	6%	8%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	6%	6%	6%
Industrial Land sale rate (Rs/sqm)	6500	6,890	7,303	7,742	8,206	8,698	9,220	9,774	10,555	11,611	12,772	14,049	15,454	17,000	18,700	20,570	22,627	24,889	27,378	30,116	31,923	33,838	35,869	
Percentage of Area Sold									20%	20%	20%	20%	20%											
Industrial Land Sold (sqm)									2,243	2,243	2,243	2,243	2,243	-	-	-	-	-	-	-	-	-	-	-
Total Revenue from Sale of Industrial Plots (INR Cr.)									2.37	2.60	2.87	3.15	3.47	-	-	-	-	-	-	-	-	-	-	14.46
Institutional/ Public-Semi Public																								
Insti-Public-Semi Public Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	8%	10%	10%	10%	8%	8%	8%	8%	8%	6%	6%	6%	6%	6%	6%	6%	6%
Insti-Public-Semi Public Land for Sale (On NPPL basis) sale rate (Rs/sqm)	7500	7,950	8,427	8,933	9,469	10,037	10,639	11,490	12,639	13,903	15,293	16,517	17,838	19,265	20,806	22,471	23,819	25,248	26,763	28,369	30,071	31,875	33,788	
Insti-Percentage of Area Sold									20%	20%	20%	20%	20%											
Insti-Public-Semi Public Land Sold (sqm)									224,682	224,682	224,682	224,682	224,682	-	-	-	-	-	-	-	-	-	-	-
Total Revenue from Sale of Insti-Public-Semi Public Plots (INR Cr.)									283.98	312.37	343.61	371.10	400.79	-	-	-	-	-	-	-	-	-	-	1,711.84
Recreational																								
Recreational Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Recreational Land sale rate (Rs/sqm)	2500	2,650	2,809	2,978	3,156	3,346	3,546	3,759	3,985	4,224	4,477	4,746	5,030	5,332	5,652	5,991	6,351	6,732	7,136	7,564	8,018	8,499	9,009	
Percentage of Area Sold									25%	25%	25%	25%												
Recreational Land Land Sold (sqm)									50,729	50,729	50,729	50,729												
Total Revenue from Sale of Recreational Land Plots (INR Cr.)									20.21	21.43	22.71	24.07												88.43
Total Revenue in Phase 3	-	-	-	-	-	-	-	-	905.29	1,001.86	754.02	821.64	693.42	-	-	-	-	-	-	-	-	-	-	4,176.23

- The total revenue projected in phase – 3 is INR 4176.23 Cr.

Phase – 4

No. of Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Financial Year	2023 - 2024	2024 - 2025	2025 - 2026	2026 - 2027	2027 - 2028	2028 - 2029	2029 - 2030	2030 - 2031	2031 - 2032	2032 - 2033	2033 - 2034	2034 - 2035	2035 - 2036	2036 - 2037	2037 - 2038	2038 - 2039	2039 - 2040	2040 - 2041	2041 - 2042	2042 - 2043	2043 - 2044	2044 - 2045	2045 - 2046
Phase 4																							
Residential																							
Residential Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	8%	8%	10%	10%	10%	10%	10%	10%	10%	6%	6%	6%
Residential Land sale rate (Rs/sqm)	8000	8,480	8,989	9,528	10,100	10,706	11,348	12,029	12,751	13,516	14,327	15,473	16,711	18,382	20,220	22,242	24,466	26,913	29,604	32,565	34,518	36,590	38,785
Percentage of Area Sold														15%	20%	20%	20%	25%					
Residential Land Sold (sqm)														16,828	22,437	22,437	22,437	28,046	-	-			
Total Revenue from Sale of Residential Plots (INR Cr.)														30.93	45.37	49.90	54.89	75.48	-	-			256.58
Commercial																							
Commercial Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	6%	6%	6%	10%	10%	10%	10%	10%	10%	6%	6%	6%	6%	6%	6%	6%
Commercial Land sale rate (Rs/sqm)	8000	8,480	8,989	9,528	10,100	10,706	11,348	12,029	12,751	13,516	14,867	16,354	17,990	19,789	21,767	23,944	25,381	26,904	28,518	30,229	32,043	33,965	36,003
Percentage of Area Sold														10%	25%	25%	25%	15%					
Commercial Land Sold (sqm)														13,697	34,242	34,242	34,242	20,545					
Total Revenue from Sale of Commercial Plots (INR Cr.)														27.10	74.53	81.99	86.91	55.27					325.81
Industrial																							
Industrial Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	10%	10%	10%	10%	10%	6%	6%	6%	6%	6%	6%	6%
Industrial Land sale rate (Rs/sqm)	6500	6,890	7,303	7,742	8,206	8,698	9,220	9,774	10,360	10,982	11,641	12,805	14,085	15,494	17,043	18,747	20,622	21,859	23,171	24,561	26,035	27,597	29,253
Percentage of Area Sold														20%	20%	20%	20%						
Industrial Land Sold (sqm)														3,096	3,096	3,096	3,096	3,096					
Total Revenue from Sale of Industrial Plots (INR Cr.)														4.80	5.28	5.80	6.39	6.77					29.03
Recreational																							
Recreational Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Recreational Land sale rate (Rs/sqm)	2500	2,650	2,809	2,978	3,156	3,346	3,546	3,759	3,985	4,224	4,477	4,746	5,030	5,332	5,652	5,991	6,351	6,732	7,136	7,564	8,018	8,499	9,009
Percentage of Area Sold														20%	20%	20%	20%						
Recreational Land Sold (sqm)														60,875	60,875	60,875	60,875	60,875					
Total Revenue from Sale of Recreational Land Plots (INR Cr.)														32.46	34.41	36.47	38.66	40.98					182.98
Total Revenue in Phase 4	-	-	-	-	-	-	-	-	-	-	-	-	-	95.29	159.59	174.17	186.85	178.50	-	-	-	-	794.40

- The total revenue projected in phase – 4 is **INR 7,94.40 Cr.**

Phase – 5

No. of Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Financial Year	2023 - 2024	2024 - 2025	2025 - 2026	2026 - 2027	2027 - 2028	2028 - 2029	2029 - 2030	2030 - 2031	2031 - 2032	2032 - 2033	2033 - 2034	2034 - 2035	2035 - 2036	2036 - 2037	2037 - 2038	2038 - 2039	2039 - 2040	2040 - 2041	2041 - 2042	2042 - 2043	2043 - 2044	2044 - 2045	2045 - 2046	
Phase 5																								
Industrial																								
Industrial Plots Sale Rate Annual Escalation		6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	8%	8%	10%	10%	10%	10%	10%	10%	10%	10%	8%	
Industrial Land sale rate (Rs/sqm)	6500	6,890	7,303	7,742	8,206	8,698	9,220	9,774	10,360	10,982	11,641	12,339	13,079	14,126	15,256	16,781	18,459	20,305	22,336	24,569	27,026	29,729	32,107	
Percentage of Area Sold																			20%	20%	20%	20%	20%	
Industrial Land Sold (sqm)																			427,979	427,979	427,979	427,979	427,979	
Total Revenue from Sale of Industrial Plots (INR Cr.)																			955.93	1,051.52	1,156.67	1,272.34	1,374.13	5,810.58
Total Revenue in Phase 5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	955.93	1,051.52	1,156.67	1,272.34	1,374.13	5,810.58

- The total revenue projected in phase – 5 is **INR 5810.58 Cr.**

16.2.2 Development through Land Pooling

On 22nd September 2020, Uttar Pradesh government introduced the land pooling policy for the state. The policy has been introduced to facilitate the development of Industries in the state. As per print media reports this policy has been given approval from the Cabinet, but most probably has still not been notified.

Considering the huge cost required for Land Acquisition, this policy even if not yet notified, can be looked into to implement this project.

Under the Land Pooling Policy of UP, 2020.

- Under the land pooling policy Industrial Development Authorities, within their territory, after getting the consent from 80% farmers, can take the land for development.
- If remaining 20% farmers do not agree, then land acquisition mechanism can be utilized for taking the remaining land.
- Development Authorities can only take land located along a minimum of 18 meters wide road, in chunks of 25 Acres land parcels
- After development, the land owners would get plots of area equivalent to 25% of the plot areas surrendered by them, along with payment at a rate of 5000 Rs/ Acre for next five years, for the area of land surrendered.

Images Showing Clippings from news websites on UP Land Pooling Policy

यूपी कैबिनेट: औद्योगिक विकास प्राधिकरणों के लिए 'लैंड पूलिंग' नीति मंजूर

अमर उजाला नेटवर्क, लखनऊ Published by: दुष्यंत शर्मा Updated Wed, 23 Sep 2020 11:27 AM IST

सार

- जमीन देने वाले व्यक्ति को 25 विकसित भूमि, पांच वर्ष तक 5,000 रुपये महीने मिलेगा
- किसानों की सहमति से सड़क किनारे लेंगे भूमि, उद्योग स्थापना के लिए होगा आवंटन

₹5K/ACRE TO BE GIVEN TO FARMERS

THE NEW AMENDMENTS

<ul style="list-style-type: none">➤ Consent of only 60% farmers will be required against the earlier 80%➤ 25% of the developed land will be handed back to farmers➤ Farm compensation at a rate of ₹5,000/acre will be	<ul style="list-style-type: none">given to farmers for 5 years➤ Relaxations in stamp duty➤ The authorities will utilise 40% of the land in developing basic amenities such as roads, drainage parks, streetlights, hospitals, schools etc.
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16.3 CONCLUSION

On the basis of the development strategies envisioned, we believe the following small strategies could fast track this development.

- For making Dhuriyapar project a success, it would be of extreme importance to get a large industry to setup their base over there.
- Even if a large industry has to be given land for free then also it should be done, for overall success of the project.
- To attract other industrialists towards Dhuriyapar, it would be necessary to keep allotment rates well subsidized, at least for the first phase of development.
- Many earlier mini industrial estates planned in Gorakhpur have failed as no one wanted to relocate over there. Therefore, it would be necessary to give valid reasons for people to choose Dhuriyapar as a destination for industrial development
- It should also be looked into if a Public sector unit can be established first over there
- For MSME's to develop in Dhuriyapar, actual hand holding would be required from govt. authority's side.
- Authority should look into development of industrial sheds and giving them out on rent, this would substantially decrease the capital cost requirement of setting up industries, and can make the destination attractive.
- Another option can be development of flatted factories and giving these out on lease.
- Food processing, Textile and Plastic are some of the existing sectors which have potential of growing.
- Infrastructure developed in Dhuriyapar should be way better than what is present in existing industrial areas of Gorakhpur
- Different cluster of plots should be made for similar industries, requiring similar infrastructure and effluent treatment plants
- It is of extreme importance that actual single window clearance is implemented for getting various approvals for setting up industries. GIDA should become the one point contact for Industrialists and should facilitate in getting approvals from all other concerned authorities and departments.
- Common infrastructure should be created for pollution control, as pollution norms are very strict, and becomes very difficult for a small or medium unit to invest in all pollution control measures. Like common ETP and STP.
- Law and Order situation should be improved in Dhuriyapar area.

Sell the industrial plots both to investors and end users, just keep a stipulation that an industry would have to be operationalized on the allotted land within 3 years, post allotment. If this is not done then allotment would get either cancelled or re-allotment prices would have to be paid.

Out of the total industrial plots developed, mark a percentage of plots (at least 50) to be developed as Industrial sheds, which can be given out on lease of not more than 1.5 to 2 lakh monthly rent.

Create 1000 sq.mt. flatted factories and lease out the space, this could especially be in demand by Garment factories.

Development of amenities and facilities like banks, post office, police station, fire brigade is vital for attracting entrepreneurs to Dhuriyapar.

The 35% of relatively larger Industrial plots (10, 15 & 50 acres) it would be necessary to bring in large industries from outside. Probable sector could be warehousing giants like amazon or flipkart, electric vehicle manufacturers, pharma companies, food processing large companies. Allot the land to these companies at a very nominal rates, especially in the 1st and 2nd phase of the development.

Starting a skill development institute in the region for skill development of workers and villagers can take the success of this project a long way. Any institute would be required for setting up the demand for residential zone.

Development of community centers and clubs are also necessary along with setting up dispensaries for making the location suitable for living of workers.

Width of roads should be such that loading and unloading from trucks parked in front of industries should not block the roads. Provide loading unloading docks for larger plots.

Key Initiatives to be taken for attracting Industrialists to Dhuriyapar
Marketing the project, highlighting its advantages like
Focused marketing & road shows
Inviting large Industrialists and allotting them land at very nominal rates
Pricing of allotment rates of other plots in Dhuriyapar, in the first phase to be kept less than 50% of GIDA sectors
Creating world class Infrastructure
Creating cluster of plots for same industry types requiring similar infrastructure, especially for pollution control
Developing small industrial sheds on 800 to 1000 mts plot and giving them out on rent
Developing Flatted factories and giving out on rent
Developing amenities like Bank, Police station, Club, Community center, Dispensary
Housing for workers should be provided

17 ZONING REGULATIONS

Urbanisable area for GIDA extends to an area of about 5500 Ha approximately, expecting to provide a home to about 1,7 lakhs people. It would be crucial to organize this growth in a manner that maintains the quality of life and livability standards within the area while keeping it economically vibrant and environmentally sustainable. This development plan aims to satisfy these needs through various tools and mechanisms available under the existing legal frameworks and in a manner that is consistent with the overarching vision and principles of this plan.

Zoning is one of the important planning tools to manage growth, regulate density and organize land uses within the urban area. By regulating land uses it helps to segregate incompatible uses, increase liveability, and create desirable character for different areas for the city. Zoning combined with development regulations determines the supply of developable land and built space in various zones. However, before arriving at various proposals to accommodate growth and organize land uses, it is important to first understand the demand for development and various considerations to organize land use and densities.

17.1 ZONES- MASTER PLAN 2031

The zoning regulations are regulations which try to achieve the vision and objectives of the development. These objectives are placed along with the projections for population. The major consideration for these zoning regulations were

- Existing Growth pattern and trend
- Population projections for 2031
- Comprehensive assessment of existing conditions, land uses, development typologies, socio-economic parameters etc
- Existing supply of buildable land in approved layouts
- Availability of land suitable for urbanization
- The overarching vision for GIDA 2031, the planning and growth management principles including compact growth, land use -transportation co-ordination, green network, sustainable environment, and affordable development
- Incorporation of comments and suggestions from Working group and stakeholder meetings

17.2 USE ZONES

1. Residential:
 - R1-Residential
 - R2-rural settlement/ Abadi
2. Commercial:
 - C1-commercial,
 - C2- Logistics
3. Mixed use
4. Industrial:
5. Institutional:
 - PS1-institutional,
 - PS2-facilities and utilities
6. Transportation
7. Recreational:
 - P1-Recreational Green,
 - P2-Public parks and Playgrounds including water bodies falling within
 - P3- Green Belt including water bodies
8. Agriculture/water bodies:
 - A1-agricultural land,

17.3 DEFINING LAND USE/ ACTIVITIES

Table 12-3: Activities in a Use Premise

S. no	Activities /Uses	Definition
1.	Residential	
1.1	Single House/ Plot/ Flat	Residential House/Plot – Plotted Housing: A premise for one or more than one dwelling unit and may have on it one main building block and one accessory block for garage / garages and servant quarters. Residential Flat: Residential accommodation for one family (one household) which may occur as part of group housing or independently
1.2	Group Housing	A premise of size not less than 2000 sq.m. comprising of residential flats with basic amenities like parking, park, convenient shops, public utilities etc.
1.3	Staff Housing	A premise comprising of residential units which may occur as a part of group housing or independent that are dedicated to the staff of the principal land use
1.4	Guard chaukidar residence	Residential accommodation for watch and ward staff responsible for security and/or maintenance of principal use.
2.	Commercial	
2.1	Retail shops/Platform	A premise for sale of commodities directly to consumers with necessary storage
2.2	Repair shops	A premise equivalent of a retail shop for carrying out repair of household goods, electronic gadgets, automobiles, cycles etc.
2.3	Personal Service shops	A premise equivalent of a retail shop providing personal service like tailor, barber etc.
2.4	Vending booth	A premise in the form of booth for sale of commodities of daily needs either through a mechanical installation or otherwise.
2.5	Showroom	A premise with facilities for display, sale, and storage of commodities.
2.6	Weekly market	An area used in a week by a group of informal shop establishments in the form of a market. These markets shift from one area to another on different days of the week.
2.7	Convenience shopping centre	A group of shops not exceeding 50 in number in residential areas serving a population of about 5,000 persons
2.8	Local/sector level shopping centre	A group of shops not exceeding 75 in number in residential areas serving a population of about 15,000 persons.

2.9	Shopping centre/ commercial centre/ shopping mall	<p>Shopping Centre/Commercial Centre: A premise having group of shops/commercial establishments Constructed on designated plots.</p> <p>Shopping Mall: A Shopping Mall is one or more buildings forming a complex of shops representing merchandisers, with interconnecting walkways enabling 2.visitors to easily walk from unit to unit, along with a parking area – a modern, indoor version of the traditional marketplace with controlled Environment.</p>
2.10	Informal unit/platform commercial	A premise meant for commercial activities for informal sector.
2.11	Wholesale market/Mandi	A premise from where goods and commodities are sold/ delivered to retailers. The premise includes storage, godown, loading and unloading
2.12	Bakery/Confectionary/Atta Chakki	<p>Bakery: A Bakery (also called baker’s shop or bakehouse) is an establishment which produces or/and sells baked goods from an oven such as bread, pies, bagels etc.</p> <p>Confectionary: A premise for retail sale of confectionary items directly to consumers with necessary storage.</p> <p>Atta Chakki: A premise where grinding of grain, spices and dried eatables are carried out.</p>
2.13	Coal/wood/Building material market	<p>Coal Market: A premise for retail sale of coal directly to consumers with necessary storage.</p> <p>Wood Market: A premise for retail sale of fuel wood directly to consumers with necessary storage</p> <p>Building Material Market: A premise for retail sale of building materials like timber, stone, bricks, cement, hardware, paints etc. directly to consumers with necessary storage.</p>
2.14	Vegetable/Fruit market	A premise for retail sale of fruits and vegetables in shops (area not more than 10 sq.m.) or platforms.
2.15	Cold storage	A premise where perishable commodities are stored in covered space using mechanical and electrical devices to maintain the required temperature etc.
2.16	Storage godown	A premise where commodities are stored in covered space

2.17	Hotels	A premise used for lodging of 15 persons or more on payment with or without meals.
2.18	Service Apartment	A serviced Apartment is a type of furnished apartment available for short term or long-term stays, which provides amenities for daily use.
2.19	Restaurant/ Canteen/ Food Court	<p>Restaurant: A premise used for serving food items on commercial basis including cooking facilities. It may have covered or openspace or both for sitting arrangement.</p> <p>Canteen: A premise used for serving food items to workers in an institution including cooking facilities. It may have covered or open space or both for sitting arrangement.</p> <p>Food Court: A Food Court is a (usually) indoor plaza or common area within a facility that is contiguous with the counters of multiple food vendors and provides a common area for self-serve dining. Food Courts may be part of shopping malls etc. or may be stand-alone development.</p>
2.20	Cinema/Multiplex	A premise with facilities for projection of movies and stills with a covered space to seat audience
2.21	Drive-in cinema	A cinema with facilities for projection of movies and stills for car audience including an audience for other audience.
2.22	Exhibition hall/ Exhibition centre	<p>Exhibition Hall: A hall or part of a premise with facilities for exhibition and display of paintings, photographs, sculptures, murals, ceramics, handicrafts or products of specific category/ class.</p> <p>Exhibition Centre: A premise with facilities for exhibition, display and storage of paintings, photographs, sculptures, murals, ceramics, handicrafts, or products of specific category/ class</p>
2.23	Banquet hall/ Barat Ghar	A premise used for marriage and other social functions and run by an individual, or institution or a public agency.
2.24	Petrol pump/Diesel station	Petrol/Diesel / Gas filling station Public Electric Charging Station: A premise for sale of petroleum products to consumers. It is also an infrastructure that supplies electric energy for the recharging of plugin electric vehicles-including electric cars, neighbourhood electric vehicles and plugin-hybrid to consumers. It may include servicing of automobiles.
2.25	Oil depot and LPG refilling plant	<p>Oil Depot: A premise for storage of petroleum products with all related facilities</p> <p>LPG Refilling Plant: A premise for refilling facilities of LPG on bulk basis</p>

2.26	Gas godown	Gas Godown: A premise where cylinders of cooking gas or other gas are stored.
2.27	Warehouses for non-hazardous items	Warehouse/ Godown for Non-Hazardous items: A premise for exclusive use of storage of non-hazardous goods and commodities in a manner as per requirement of respective goods/ commodities. The premises include loading and unloading facilities
2.28	Warehouses for hazardous items	Warehouse/ Godown for Hazardous items: A premise for exclusive use of storage of hazardous goods and commodities in a manner as per requirement of respective goods/ commodities. The premises include loading and unloading facilities
2.29	Automobiles showroom/ Automobile Showroom cum Service Station	Automobiles Showroom: A premise for display, sale, and repair of automobiles. Automobile Showroom cum Service Station: A premise for display, sale, repair and servicing of automobiles.
2.30	Freight complex/ Logistic Park	Freight Complex: A complex having premises for booking and storage of goods that a train, truck, ship, or aircraft carries Logistic Park: A premise within which all activities related to transport, logistics and the distribution of goods- both of national and international Transmit, are carried out by various operators on commercial basis and includes facilities like warehouses, distribution centres, storage areas, offices, truck services etc. and relates public facilities.
2.31	Hardware and building material yard	A premise having storage and sale facilities for bulk building materials like cement, steel etc
2.32	Weigh bridge	A premise with weighing facilities for empty or loaded trucks.
2.33	Motor garage and -workshops	Premise having facility for repair and servicing of automobiles/ other electronics/ electrical etc.
2.34	Resort	A place that is frequented for holidays or recreation or for a particular purpose
2.35	Informal Vending	Individual food retailers who generally operate outside the formal food provisioning system
3.	Industrial	
3.1	Service industries	Any industry which is engaged in producing, servicing or repairing goods, or articles for consumption in the neighbourhood/local area.
3.2	Cottage industries	An industry where the creation of products and services is home based, rather than factory based
3.3	Flatted factories	A premise having a group of small industrial units having upto 50 workers with non-hazardous performance. These units may be located in multi-storeyed buildings
3.4	Shedded factories	A premise having a group of small industrial units having upto 50 workers with non-hazardous performance
3.5	Information/ technology industry software	A premise where computer software etc. is prepared for information technology and I.T. enabled services

3.6	Small/light industry	Small/light industries as per classification of the State Government
3.7	Industrial plot (specific industry type)	A premise for a unit within a group of such units for manufacturing of specific products like electric goods etc.
3.8	Industrial Plot (integrated use)	A premise where industrial use is allowed along with staff housing commercial and facilities as an integrated use.
3.9	Medium & Large-scale industry	Medium and large-scale industries as per classification of the State Government.
3.10	Film centre/ TV radio programme production centre	A premise with facilities for shooting, recording, broadcasting and transmission of news and other programs through the respective medium. It may include some hostel accommodation for guest artists, and transmission facilities like tower.
3.11	Biotechnology/ Biotech Park	A Premise which is dedicated to scientific research or production, or business related to biotechnology.
3.12	Manufacturing units	A premise having a group of industrial units with non-hazardous performance
3.13	Obnoxious and Hazardous Industry	Any industry being listed as hazardous or obnoxious by MoEF or state pollution control boards
3.14	Agro based & food processing units	A premise having a group of industrial units with non-hazardous performance primarily working on agro based products
3.15	Household industries	A premise having industrial unit/s with non-hazardous performance working from a residence with a maximum of 9 workers and 11KW power
4.	Office	
4.1	Govt./Semi Govt./Public undertaking/local body office	A premise used for offices of the Union and State Governments, semi Government organizations, Public Sector Undertakings and Local Body Offices.
4.2	Office/corporate office	A premise used for office of commercial establishment, profit making organization
4.3	Professional/personal office	A premise where professional consultancy services are provided by an individual or a small group of professionals like Chartered Accountant, Lawyer, Doctor, Architect, Designer, Computer Programmer, Tour & Travel Agent etc.
4.4	Banks	A premise for office to perform banking functions and operations.
4.5	ATM	A premise that allows customers to complete basic transactions without the aid of a branch representative or teller.
4.6	Project development/management/maintenance office	A premise used by a Real Estate Developer for project development, management office within the project site for a specified period with previous approval of the Authority.
4.7	Satellite/wireless/Telecommunication centre	A premise used for installation of a tower for communication purpose.
5.	Public/ Institutional facilities	

5.1	Guest house/boarding house	Guest House is a premise for housing the staff of Government, Semi- Government, Public Undertaking and Private Limited Company for short duration. Boarding house is a premise in which rooms are let out on a long-term basis as compared to hotels. Lodging House is a premise used for lodging of less than 50 persons.
5.2	Hostel	A premise in which rooms attached to "Institutions" or otherwise, are let out on a long-term basis.
5.3	Reformatory & Orphanage	Orphanage would mean a premise with facilities for boarding of children who are bereaved of parents. It may or may not have educational facilities. Reformatory would mean a premise with facilities for confinement and reform of offenders.
5.4	Old age home	A premise with commercial or non-commercial arrangement for long or short term stay of old people. It may include arrangement for recreation, general health, catering etc. which may be managed by an individual or an institution.
5.5	School for mentally challenged persons	A premise with facilities for education, treatment, reformation, and empowerment of mentally and/or physically challenged persons. It may be managed by an individual or institution on commercial or non-commercial basis.
5.6	Crèche & day care centre/ play & nursery school	A premise having nursery facilities for infants during daytime. The centre may be managed by an individual or institution on commercial or non-commercial basis.
5.7	Primary school	A premise having educational and playing facilities for students up to 5 th standard.
5.8	Secondary school/ integrated residential school	A premise having educational and playing facilities for students from VI to X standard. It shall include existing middle schools, which are up to VIII standard for the purpose of this code.
5.9	Vocational Institute / training Institute / ITI	A premise with training facilities for short term courses for discipline, predatory to the employment in certain profession and trade. It shall be run by public or charitable institution on non-commercial basis. It includes training-cum-work centre.
5.10	Degree / PG college	A premise with educational and playing facilities for under-graduate and post-graduate courses under a university. It includes all professional disciplines
5.11	University	An institution for higher learning with teaching and research facilities. A university may exist without having any college connected with it but have assemblage of colleges affiliated to it.
5.12	Post office	A premise with facilities for postal communication for use by the public
5.13	Telephone exchange	A premise having facilities for central operation of telephone system for a designated area.
5.14	Police station	A premise having facilities for the offices of local police station.
5.15	Fire station	A premise with facilities for firefighting for a catchment area assigned to it. It may include residence of essential staff.

5.16	Police post	A premise having facilities for a local police post of a temporary nature or on small scale as compared to a police station
5.17	Library	A premise having large selection of books for reading and reference for general public or specific class
5.18	R & D centre	A premise having facilities for research and development for any specialized field.
5.19	Health centre/ family welfare centre	A premise having facilities for treatment of indoor and outdoor patients having up to 30 beds. The health centre may be managed by a public or a charitable institution on non-commercial basis. It includes family welfare centre
5.20	Trauma centre	A premise having medical facilities of specialized nature for providing instant treatment to patients under trauma.
5.21	Medical college/ hospital	Medical College: A premise where teaching, treatment, operation, and research & development related to human bodies is carried out. Hospital: A premise providing medical facilities of general or specialized nature for treatment of indoor and outdoor patients.
5.22	Clinic	A premise with facilities for treatment of outdoor patients by a doctor. In case of a polyclinic, it shall be managed by a group of doctors
5.23	Nursing home	A premise having medical facilities for indoor and outdoor patients having up to 30 beds. It shall be managed by a doctor on commercial basis.
5.24	Clinical laboratory / Diagnostic centre	A premise with facilities for carrying out various tests for confirmation of symptoms of a disease.
5.25	Veterinary hospital/ Dispensary	A premise offering medical and similar facilities for domestic pet care.
5.26	Health club/ Gym	A room or building equipped for indoor sports.
5.27	Dance/ Music/Art centre	A premise having facilities for imparting training and coaching for dance, music, and art.
5.28	Yoga/ Meditation centre	A premise having facilities for self-attainment, achieving higher quality of mind and body etc.
5.29	Religious building/centre	A premise dedicated to accommodations and service of God and other objects of religious nature. It may have different nomenclature in different religions like temple for all faiths, mosque, church, gurudwara, synagogue, ashram, bathing ghats, gaushala etc.
5.30	Community centre	A premise having an enclosed space for various social and cultural activities of a neighbourhood of 15000 population.
5.31	Convention centre/ conference centre/ Auditorium	A premise having all facilities for meeting, symposium, seminar etc. where a number of people from different organizations will be participating.

5.32	Socio-Cultural centre	A premise with facilities for activities of socio-cultural nature runs by a public, voluntary or individual on primarily non-commercial basis.
5.33	PCO Public call office	A premise with facilities to make phone calls from telephone to local, STD and international subscribers on payment basis.
5.34	Internet/Information centre	A premise used for internet system for communication purposes
5.35	Social welfare centre	A premise with facilities for welfare and promotion of community development. It shall be run by a public or charitable institution.
5.36	Crematorium/ Burial ground/ cremation	Cremation ground would mean a premise with facilities for performing last rites of dead bodies by burning. Burial ground would mean a premise with facilities for burying of dead bodies. Crematorium would mean a premise with facilities for disposing off dead bodies in an electrical/ electronic furnace
5.37	Night shelter (rain basera)	Premise with facilities for accommodation usually given without fees or a minimal fee for resting during night
5.38	Disaster management centre	Premise having facilities for carrying out studies and identify the potential risks related to any disasters
5.39	Metrological station	Premise having facility for meteorological observations, weather forecasting facility, seismology etc.
5.40	Milk Booth	A premise for retail sale of milk directly to consumers by manual or other means.
6.	Recreational facilities	
6.1	Park/Playground	Park: A premise used for recreational leisure activities. It may have on it related landscaping, parking facilities, public toilet, fencing etc. It will include synonyms like lawn, open space, green etc. Playground: A premise used for outdoor games. It may have on it landscaping, parking facilities, public toilet etc.
6.2	Multipurpose open spaces	Space / Area which is essentially open and can be used for multiple temporal functions.
6.3	Golf course/ Racecourse	Golf course: Area earmarked for playing golf sport which is essentially open along with minimal built space which supports the sports. Racecourse: Area earmarked for racing with minimal built space for supporting the race.

6.4	Stadium/ Sports training centre/Sports complex	<p>Stadium: A premise for outdoor games with pavilion building and stadium structure to seat spectators including related facilities for players</p> <p>Sports training centre: A premise having facilities for training and coaching for different indoor and outdoor games including swimming. It shall also include centre for physical education</p> <p>Sports Complex: A premise for outdoor and indoor games with pavilion building, stadium, and related facilities.</p>
6.5	Picnic spot	A premise within the tourist/ recreational centre which is used for short duration stay for recreational or holiday purpose.
6.6	Indoor stadium/ games hall	A premise for indoor stadium with play area and spectator seating including related facilities for players.
6.7	Planetarium	A premise with necessary facilities and equipment for studying planets
6.8	Aquarium	A premise with necessary facilities and equipment in which aquatic plants or animals are kept or displayed
6.9	Recreational club/ Swimming pool	A premise for outdoor and indoor games with pavilion building
6.10	Museum cum Auditorium	Museum means a premise with facilities for storage and exhibition of objects illustrating antiques, natural history, art etc... Auditorium means a premise having an enclosed space to seat audience and stage for various performance like concerts, play, recitals, functions etc.
6.11	Open air theatre	A premise having facilities for audience seating and a stage for performance open to sky.
6.12	National Memorials	A protected area that memorializes a historic person or event of national importance. The memorial need not be located on a site directly related to the subject.
6.13	Biodiversity Park	Premise having facility for conservation of flora and fauna.
6.14	Amusement/ Specialized/ Theme Park	Amusement Park and Theme Park are terms for a group of rides and other entertainment attractions assembled for the purpose of entertaining a large group of people. An Amusement Park is more elaborate than a simple park or playground, usually providing attractions meant to cater to children, teenagers, and adults.
6.15	Tourist Facility Centre	Premise having facility for receiving tourists, guiding, and providing necessary information and support during their visit.
7.	Public Utilities	
7.1	Sewerage treatment plant	A premise with treatment facilities used for treatment of sewage.
7.2	Pumping station	A premise with a pumping station used for pumping sewage/ water on to a higher gradient.

7.3	Sanitary landfill site/ solid waste treatment plant	<p>Sanitary Landfill Site: A Premise where solid waste is disposed of for short or specific period.</p> <p>Solid Waste Treatment Plant: A premise where solid waste is collected, treated mechanically / Electrically and processed for reuse.</p>
7.4	Recycling plant	A premise with treatment facilities used for recycling of solid waste
7.5	Tube well/ Overhead tanks/ Underground tanks/ Renny wall	<p>Tube well: A system to extract water from underground sources using mechanical means. It may consist of a room for operation and maintenance.</p> <p>Overhead tank: A premise having overhead tank for storage and supply of water to its neighbouring areas. It may or may not include a pump house.</p> <p>Underground tank: A premise having underground tank for storage and supply of water to its neighbouring areas. It may or may not include a pump house.</p>
		Rainy well: A system to extract water from underground sources on the banks of a water body.
7.6	Water treatment plants	A premise with treatment facilities used for treatment of water
7.7	Electric sub station	A premise having electrical installation and transformation for distribution of power
7.8	Public toilets	A premise having latrines and urinals for use of public.
7.9	Transmission tower/ mobile tower as per GIDA policy	A transmission tower or Cellular mobile tower which may be erected on ground or roof top of a building as per policy of GIDA
7.10	Drinking water booths	Premise having water distribution kiosk for use of public
7.11	Electric Post	An electric tower which is erected on the ground for distribution of power
8.	Transportation	
8.1	open Parking	A premise open to sky used for parking of vehicles. The public parking lots may be run on commercial or non-commercial basis
8.2	Covered/ multi-level parking	A covered premise of one or more levels for parking of vehicles. It may be run on commercial or non-commercial basis
8.3	Taxi/Auto stand	A premise used for parking of intermediate public transport vehicles run on commercial basis. The parking lots may be run on commercial or non-commercial basis

8.4	Truck terminal/ transport Nagar	A premise for parking of trucks on short term or long-term basis. It may include agency offices, workshops, Dhaba's, spare part shops, god owns, petrol/ diesel filling stations and such other operational facilities
8.5	Bus depot/Bus terminal	Bus Depot: A premise used by a public transport agency or any othersuch agency for parking, maintenance, and repair of buses. This may or may not include a workshop Bus Terminal: A premise used by a public transport agency to park the buses for short
8.6	Bus stand	A Bus Stand or Bus Shelter is a designated location on a road away from carriageway to park buses for short time periods for embarkation and disembarkation of passengers
8.7	Motor garage/ service workshop	A premise for servicing and repair of automobiles
8.8	Traffic Park/ children traffic park/ training centre	A premise in the form of park with facilities for introducing and
		Educating public/ children about traffic and signals. The training centre shall have facilities for training of driving automobiles.
8.9	Loading/ Unloading facilities	The provision and management of loading and unloading facilities / spaces for pickup-delivery vehicles
8.10	transport/ cargo booking centre	Place where (advance) arrangements made for a specific shipment of goods.
8.11	Container depot	Open storage area for shipping containers
8.12	Toll plaza	A premise/facility for collection of tolls for use of toll road. It may include office building for management of toll collection process.
8.13	Heli pad	Helipad (helicopter landing pad) is a landing area for helicopters. Usually a helipad does not have fuel and service facilities, and does not maintain a full-time air traffic controller
8.14	Freight complex	Includes all large-scale logistics (freight handling) and trading Activities (wholesale or retail) with ancillary activities such as office complexes,
8.15	Roads	Premise for travel in roads which are primarily paved
9.	Agriculture	
9.1	Orchard/ Plant nursery/ Social forestry	Orchard would mean a premise with a thick growth of fruit trees. It may also include garden with fruit trees. Plant nursery would mean a premise with facilities for rearing and sale of young plants. Forestry would mean a premise with thick natural flora including social forestry, which may have part natural flora and part man made flora.
9.2	Farmhouse	A dwelling house on a farm.

9.3	Dairy/ Poultry Farm	A premise with facilities for rearing and processing of dairy/ poultry products. It may have temporary structures for sheds of cows/ birds
9.4	Agriculture Equipment workshop/ Service Centre	A premise with facilities for servicing and repair of agricultural equipment's like tractor, trolley, harvesters etc.
9.5	Apiary/ Pisci Culture	A premise with facilities for rearing and processing of bee/ fisheries products. It may have temporary structures for sheds of birds/ fish

1.1 Permissible Uses in a Land Use Zone

Table 12-4: Permissible and Supporting Activities of a Use Premise

	Activities /Uses	Permissible Uses
1	Residential	
1.1	Single House/ Plot/ Flat	Residence Support Facilities- Professional practice by the residents
1.2	Group Housing	As per Building Regulations Support Facilities- As per Building Regulations
1.3	Township	As per Building Regulations Support Facilities- As per Building Regulations
1.4	Guard chaukidar residence	Guard/Chaukidar residence Permissible uses- Residence for Guard/ Chowkidar
1.5	Staff Housing	As per Building Regulations Support Facilities As per building regulations
2	Commercial	
2.1	Retail shops/Platform	Retail Shop/Plat Form Permissible uses- Retail Shop, Hawkers' Platform
2.2	Repair shops	Permissible uses- Repair shop, spare parts shop
2.3	Personal Service shops	Permissible uses- Personal service shop
2.4	Vending booth	Permissible uses- Vending booth/kiosk
2.5	Showroom	Permissible uses- Showroom
2.6	Weekly market	Permissible uses- Weekly market, informal retail trade, kiosks, (all structures will be temporary and mobile, only for one day in a week, public conveniences temporary or permanent as per decision of the Authority)
2.7	Convenience shopping centre	Permissible uses- Retail, Repair and Personal Service shop, Showroom, Restaurant, Canteen, Food Court, Clinic and Polyclinic, Clinical Laboratory, Kiosk/ Vending booth, Bakery, Confectionary, Atta Chakki , Office, Bank, Coaching Centres/ Training Institutes, Informal Commercial units / platform, Multilevel Parking. Support Facilities- Guest House, Service Apartment, Health centre/ Dispensary, Nursing home, Health club/Gym, Yoga/ Meditation centre, Dance/Music/Art centre, religious centre, Barat Ghar, Exhibition Hall
2.8	Local/sector level shopping centre	Permissible uses- Retail, Repair and Personal Service shops, Showroom, Restaurant, Canteen, Food Court, Clinic and Polyclinic, Clinical Laboratory, Kiosks, Vending booth, Bakery, Confectionary, Atta Chakki , Office, Bank,

		Coaching Centres/ Training Institutes, Informal commercial units / platform, Cinema/Multiplex, Multilevel Parking, Support Facilities- Guest House, Service Apartment, Banquet Hall, Exhibition Hall, Health Centre/Dispensary, Nursing home, Health club/Gym, Yoga/ Meditation centre, Dance/Music/Art centre, Religious centre, Convention/ Conference centre, Auditorium, Barat Ghar.
2.9	Shopping centre/ commercial centre/ shopping mall	Permissible uses- Retail shop, Showroom, Personal Service shop, Bakery, Confectionary, Food Court/ Canteen/ Restaurant, Office, Cinema/Multiplex, Drive in Cinema, Bank, Hotel, Guest House, Service Apartment, Banquet Hall/ Barat Ghar, Convention/ Conference centre, Auditorium, Art Gallery, Health Club/ Gym/ Spa, Guest House/ Lodging/ Boarding House, Vending Booth/ kiosk, Milk Booth, Clinic and Polyclinic, Clinical Lab, Internet/ Information Centre, Petrol / Diesel/ Gas filling Station, Coaching Centres/ Training Institutes, Fruit and Vegetable market, Informal Commercial unit/Platform, Multilevel Parking, Taxi/Auto/Rickshaw Stand, Bus Shelter, Transport /Cargo Booking Centre, Residential (as per Building Regulations) Support Facilities- Repair Shop, Motor garage and Workshop, Automobile showroom/ Showroom cum service centre, Warehousing, Exhibition Hall /Exhibition Centre, Recreational Club/Swimming pool, Socio Cultural centre, Dance/ Music/ Art Centre, Yoga/ Meditation Centre, Museum, Indoor Stadium/ Games Hall, Amusement/ Specialised /Theme Park, Open Air Theatre, Library, R&D Centre, Religious Centre, Community Centre, Social Welfare Centre, Health Centre/Family Welfare Centre/ Dispensary, Nursing Home
2.10	Informal commercial unit/platform	Permissible uses- Informal commercial unit / Platform
2.11	Wholesale market/Mandi	Permissible uses- Wholesale shop, Repair Shop, Bank, Automobile showroom/ Showroom cum service centre, Restaurant/Canteen/Food court, Coal/Wood/Building Material Market, Vegetable/ Fruit Market, Cold Storage, Warehouse/ Godown for Non-Hazardous items, Loading/unloading facility, Vending Booth/kiosk, Multilevel Parking, Taxi/Auto Rickshaw/Rickshaw stand, Office, Weighbridge/ Dharamkanta, Petrol / Diesel/ Gas filling Station, Cinema/Multiplex, Informal Commercial unit/Platform Support Facilities- Guest House/Lodging/Boarding House, Hotel, Showroom, Retail Shop, Personal Service Shop, Truck Parking and other logistics, Health Centre/Family Welfare Centre/ Dispensary, Nursing Home, Service apartment
2.12	Bakery/Confectionary/ Atta Chakki	Permissible uses- Bakery/Confectionary/Atta Chakki

2.13	Coal/wood/Building material market	<p>Permissible uses- Wholesale shop, Repair Shop, Showroom, Bank, Automobile showroom/ Showroom cum service centre, Restaurant/Canteen/Food court, Warehouse/ Godown for Non-Hazardous items, Loading/unloading facility, Truck Parking and other logistics, VendingBooth/ Kiosk, Multilevel Parking, Taxi/Auto Rickshaw/Rickshaw stand, Office, Weighbridge/Dharamkanta, Petrol / Diesel/ Gas filling Station, Informal Commercial unit/Platform,</p> <p>Support Facilities- Guest House/Lodging/Boarding House, Retail Shop, Personal Service Shop, Health Centre/Family Welfare Centre/ Dispensary, Nursing Home, Service apartment</p>
2.14	Vegetable/Fruit market	<p>Permissible uses- Wholesale shop, Retail Shop, Repair Shop, Personal Service Shop, Bank, Restaurant/Canteen/Food court, Warehouse/ Godown for Non-Hazardous items, Cold Storage, Gas Godown, Loading/unloading facility, Truck Parking and other logistics, Vending Booth/ Kiosk, Multilevel Parking, Taxi/ Auto Rickshaw/ Rickshaw stand, Weighbridge/ Dharamkanta, Petrol / Diesel/ Gas filling Station, Informal Commercial unit/Platform Support Facilities- Guest House/Lodging/Boarding House, Showroom, Office, Health Centre/Family Welfare Centre/ Dispensary, Nursing Home</p>
2.15	Cold storage	<p>Permissible uses- Cold storage, Loading/unloading facility, Truck Parking and other logistics,</p> <p>Support Facilities- Office, Canteen, Vending Booth/Kiosk,</p>
2.16	Storage godown	<p>Permissible uses- storage, Loading/unloading facility, Truck Parking and other logistics,</p> <p>Support Facilities- Office, Canteen, Vending Booth/Kiosk,</p>
2.17	Resort	<p>Permissible uses- Lodging facility, Restaurant /Canteen/ Food court, Dining hall, Cafeteria, Tourist Information centre, Convention Centre/Conference centre/ Auditorium, Seminar Hall, Exhibition Hall, Banquet Hall Laundry, Recreational Club/Swimming pool, Internet/Information Centre, Health Club/Gym/Spa, Discotheque, Yoga/ Meditation Centre, Multilevel Parking, Office,</p> <p>Support Facilities- Bank, Creche, Automobile showroom/ Showroom cum service centre, Retail Shop, Personal service shops, Showroom, Service Apartment, Health centre/Dispensary.</p>

2.18	Hotels	<p>Permissible uses- Lodging facility, Restaurant /Canteen/ Food court, Dining hall, Cafeteria, Tourist Information centre, Convention Centre/Conference centre/ Auditorium, Seminar Hall, Exhibition Hall, Banquet Hall Laundry, Recreational Club/Swimming pool, Internet/Information Centre, Health Club/Gym/Spa, Discotheque, Yoga/ Meditation Centre, Multilevel Parking, Office,</p> <p>Support Facilities- Bank, Creche, Automobile showroom/ Showroom cum service centre, Retail Shop, Personal service shops, Showroom, Service Apartment, Health centre/Dispensary.</p>
2.19	Service Apartment	<p>Permissible uses- Guest Suite, Conference Facilities, Office,</p> <p>Support Facilities- Bank, Creche, Health Centre/Dispensary, Retail Shop, Personal Service Shop, Restaurant/Canteen/Food Court.</p>
2.20	Restaurant/ Canteen/ Food Court	<p>Permissible uses- Restaurant, Canteen, Food court, Banquet Hall, Vending Booth,</p> <p>Support Facilities- Office, Bank extension counter</p>
2.21	Cinema/Multiplex	<p>Permissible uses- Cinema/ Multiplex, Retail Shop, Personal Service Shop, Showroom, Office, Restaurant, Food Court, Vending booth/ kiosk, Multilevel Parking</p> <p>Support Facilities- Bank, Gym/ Health club/ Spa, Taxi/Auto/Auto rickshaw stand,</p>
2.22	Drive-in cinema	<p>Permissible uses- Open air theatre, Drive in cinema, Open Air Restaurant,</p> <p>Support Facilities- Office related to cinema activity.</p>
2.23	Exhibition hall/ Exhibition centre	<p>Permissible uses- Exhibition Hall, Exhibition centre and art gallery, Library, Store/Godown facility, Auditorium, Multilevel Parking,</p> <p>Support Facilities- Office, Showroom, Dance/ Music/ Art Centre, Yoga/ Meditation Centre, Museum, Restaurant/Canteen/Food court, Vending Booth/Kiosk,</p>
2.24	Banquet hall/ Barat Ghar	<p>Permissible uses- Banquet Hall, Barat Ghar, Guest suite/room, Restaurant, Food court, Vending Booth/kiosk, Multilevel Parking</p> <p>Support Facilities- Retail shop, Personal service shop, Bank, Auto-rickshaw stand, Office</p>
2.25	Petrol/ Diesel/ Gas Filling Station/ public Electric Charging Station	<p>Permissible uses- Petrol/Diesel Pump/Fuel Station, Gas filling station, public electric charging station, Automobile Repair Shop, Automobile Service station,</p> <p>Support Facilities- Office, Retail shop/Departmental Store, Showroom.</p>
2.26	Oil depot and LPG refilling plant	<p>Permissible uses- Oil and Gas Depot, LPG refilling plant, Truck Parking</p> <p>Support Facilities- Booking Office</p>
2.27	Gas godown	<p>Permissible uses- Gas Godown, Truck Parking, Support Facilities- Booking Office,</p>

2.28	Warehouses for non-hazardous items	Permissible uses- Store/Godown, Loading unloading facility, Truck Parking, Support Facilities- Booking Office,
2.29	Warehouses for hazardous items	Permissible uses- Store/Godown, Loading unloading facility, Control/Inspection room, Truck Parking, Support Facilities- Booking Office,
2.30	Automobiles showroom/ Automobile Showroom cum Service Station	Permissible uses- Automobile showroom, Licensed service centre, Parking, Retail shop (Spare Parts), Truck Parking, Support Facilities- Office, Retail shop, Kiosk/Vending Booth,
2.31	Freight complex/ Logistic Park	Permissible uses- Booking Office, Warehouse, Store/ Godown, Cold Storage, Space for Container Stocking, Truck Parking, Loading /Unloading facilities, Repair shop, Weighbridge, Vending Booth/Kiosk Support Facilities- Office, Petrol/Diesel/Gas filling station, Bank, Service Station, Restaurant/Canteen/ Food court,
2.32	Hardware and building material yard	Permissible uses- Store/Godown, Loading unloading facility, Control/Inspection room, Truck Parking, Support Facilities- Booking Office,
2.33	Weigh bridge	Permissible Use Weigh Bridge Support Facilities- Booking Office,
2.34	Motar garage and workshops	Permissible Use Weigh Bridge Support Facilities- Booking Office,
2.35	Informal Vending	Permissible uses- Informal commercial unit / Platform
3	Industrial	
3.1	Service industries	Permissible uses- Service/Cottage Industry (Non-Hazardous, Non-polluting) as per stipulation of Industries department, residential unit Support Facilities- Crèche/ Day-care centre, Retail shop for the product manufactured, Storage
3.2	Cottage industries	Permissible uses- Service/Cottage Industry (Non-Hazardous, Non-polluting) as per stipulation of Industries department, residential unit Support Facilities- Crèche/ Day-care centre, Retail shop for the product manufactured, Storage

3.3	Flatted factories	<p>Permissible uses- Industrial units (Non-Hazardous, Non-polluting) as per stipulation of Industries department, Canteen, Loading Unloading Facility, Truck parking, Multilevel Parking</p> <p>Support Facilities- Office, Bank, Gym, Storage, Taxi/Auto/Auto rickshaw stand, vending booth/kiosk, internet Centre, Creche and Day care centre.</p>
3.4	Shaded factories	<p>Permissible uses- Industrial units (Non-Hazardous, Non-polluting) as per stipulation of Industries department, Canteen, Loading Unloading Facility, Truck parking, Multilevel Parking</p> <p>Support Facilities- Office, Bank, Gym, Storage, Taxi/Auto/Auto rickshaw stand, vending booth/kiosk, internet Centre, Creche and Day care centre.</p>
3.5	Information/ software technology industry	<p>Permissible uses- IT plots/buildings</p> <p>Support facilities</p> <p>a) Commercial Shops, Ares for storage, display and sale of merchandise, Cinema halls, Hotels, Restaurants, open eating kiosks</p> <p>b) Residential Residential uses, Hostel, Guest house, Staff quarters</p> <p>c) Institutional Facilities-</p> <p>Waiting and transit areas, Areas designated for public utilities, Travel services, Telephone Exchange, Electric substation, water works, Export related facilities, Canteen/Restaurant, Creche and day care centre, operation and maintenance by specialized agencies, Training centre and library, Health Club and Gym for users/residents of IT and ITES, Games/entertainment room for users/residents of IT and ITES, Banking and Financial services, Business and Financial services, Business Centre/Conference facilities, Shops, Open eating kiosks.</p> <p>Note: The extent of support facilities under Commercial, Residential, and Institutional uses for different size if plots shall be decided by the Authority in the scheme from time to time.</p>
3.6	Small/light industry	<p>Permissible uses-</p> <p>Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Canteen, Loading Unloading Facility, Truck parking, Vending booth/kiosk, Storage, Multilevel Parking</p> <p>Support Facilities-</p> <p>Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/ Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand,</p>
3.7	Industrial plot (specific industry type)	<p>Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Canteen, Loading Unloading Facility, Truck parking, Vending booth, kiosk, Storage, Internet centre, Multilevel Parking</p> <p>Support Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/ Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand,</p>

3.8	Industrial Plot(Integrated use)	<p>In Industrial plot having area more than 25 Acre, integrated use of Industrial, Commercial and Staff Housing shall be allowed, where industrial activity shall remain as a core activity with minimum 75% of permissible FAR.</p> <p>Staff Housing:- Dormitory, field hostel etc. other than Banglow shall be allowed with maximum 12% of permissible FAR.</p> <p>Commercial:- Commercial activity shall be allowed with maximum 8% of permissible FAR.</p> <p>Support Facilities:- Support facilities shall be allowed as- waiting transit area, area designated for public utilities, travel services, telephone exchange, Electric sub-station, water works, Export related facilities, canteen, creche and day care center, operations and maintenance by specialized agencies, training center and library, health center and Gym for end users if institutions. ATM services with 5% of permissible FAR.</p>
3.9	Medium & Large-scale industry	<p>Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Showroom for display/sale of industrial products Canteen, Creche and day-cares centre, Loading Unloading Facility, Truck parking, Vending booth/kiosk, Storage, Internet centre, Multilevel Parking</p> <p>Support Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/Health club, Crèche and day-care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand,</p>
3.10	Film centre/ TV radio programme production centre	<p>Permissible uses- Film Centre/TV Centre, Radio Programme Production Centre, Auditorium, Media Centre, Canteen, Library, Vending booth/ Kiosk</p> <p>Support Facilities- Office, Bank, counter Gym/ Health club, Creche and day-care centre, Taxi/Auto/Auto rickshaw stand.</p>
3.11	Biotechnology/ Biotech Park	<p>Permissible uses- BT plots/buildings/Incubators/labs/ Virtual information Centre/Patent Facilitating Centre/Central Analytical Instrumentation Facility/Bioprospecting facility/Micropropagation Facility/Medicinal Plant Extraction Facility/Fermentation Facility/Food processing/Testing facility/Bioinformatics Support facilities</p> <p>a) Commercial- Shops, Ares for storage, display and sale of merchandise, Cinema halls, Hotels, Restaurants, open eating kiosks</p> <p>b) Residential- Residential uses, Hostel, Guest house, Staff quarters</p> <p>c) Institutional Facilities- Waiting and transit areas, Areas designated for public utilities, Travel services, Telephone Exchange, Electric substation, Neutralization tank and guard pond for process effluents, water works, Compressed Air generators, Vacuum generators, Chemical Store building, central treatment facilities, Cold room, Export related facilities, Canteen/Restaurant, Creche and day care centre, operation and maintenance by specialized agencies, Training centre and library, Health Club and Gym for users/residents of BT park, Games/entertainment room for users/residents of BT park, Banking and Financial services, Business and Financial services, Business Centre/Conference facilities, Shops, Open eating kiosks,</p> <p>Note: The extent of support facilities under Commercial, Residential and Institutional uses for different size if plots shall be decided by the</p>

		Authority in the scheme from time to time.
3.12	Manufacturing units	Permissible uses- Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Canteen, Loading Unloading Facility, Truck parking, Vending booth/kiosk, Storage, Multilevel Parking Support Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/ Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand,
3.13	Obnoxious and Hazardous Industry	As stated by MoEF and concerned State Departments
3.14	Agrobased & food processing units	Permissible uses- Industrial units (Non-Hazardous, Non-polluting) as per stipulation of industry department, Canteen, Loading Unloading Facility, Truck parking, Vending booth/kiosk, Storage, Multilevel Parking Support Facilities- Office, Bank, Showroom for display/sale of industrial products manufactured in the unit, Gym/ Health club, Crèche and day care centre, Internet centre, Dispensary, Taxi/Auto/Auto rickshaw stand,
3.15	Household industries	Permissible Use Household Industries
4	Office	
4.1	Govt./Semi Govt./Public undertaking/local body office	Govt./Semi Govt. /Public Undertaking/Local Body Office Permissible uses- Govt./Semi Govt./Public Undertaking/Local Body Office, Multilevel parking, Conference facilities, Seminar Hall, Support Facilities- Auditorium, International conference centre, Cultural and information centre, Stationary shop, Book store, Chemist store, Vending booth/Kiosk, Health Club / Gym, Bank extension counter, General store, Crèche, Indoor games halls, Dispensary, Internet centre, Library, Museum, Planetarium, R&D centres, Radio and television station, Canteen, Staff Housing, Guest house, Hostel, Transit Hostel.
4.2	Office/corporate office	Permissible uses- Office/Corporate office, Conference room, Seminal Hall, Multilevel Parking Support Facilities- Auditorium, International conference centre, Cultural and information centre, Stationary shop, Book store, Chemist store, Vending booth/Kiosk, Health Club / Gym, Bank extension counter, General store, Crèche, Indoor games halls, Dispensary, Internet centre, Library, Museum, Planetarium, R&D centres, Radio and television station, Canteen, Staff Housing, Guest house, Hostel, Transit Hostel.
4.3	Professional/personal office	Permissible uses- Professional/Personal/Agent Office, Conference room, Support Facilities- Canteen, Bank extension counter
4.4	Banks	Permissible uses- Bank, Canteen

4.5	Project development/management/maintenance office	Permissible uses- Project development/ Management/ Maintenance office, Support Facilities- Bank extension counter, Canteen,
4.6	Satellite/wireless/Telecommunication centre	Permissible uses- Satellite/Wireless/Telecommunication Centre, residential flat (for maintenance staff), Support Facilities- Research laboratory, Canteen
5	Public/ Institutional facilities	
5.1	Guest house/lodging/boarding house	Guest house/lodging/boarding house Guest room/Suite, Conference Facilities, Banquet Hall, , Support Facilities- Office, Canteen, Retail Shop, Personal Service Shop, Bank, Crèche, Health Centre/Dispensary
5.2	Hostel	Permissible uses- Rooms/suites, dining facilities, Support Facilities- Office, Canteen, Personal service shops, retail store for daily needs, Indoor/ outdoor games facilities, Bank extension counter, Creche, Health Centre/Dispensary, Caretaker/ warden residence.
5.3	Reformatory & Orphanage	Permissible uses- Reformatory and orphanage, Hostel. Support Facilities- Health centre/ Dispensary, Residence of Caretaker and maintenance staff, Personal service shop
5.4	Old age home	
5.5	School for mentally challenged persons	Permissible uses- School for mentally, physically challenged, Hostel. Support Facilities- Health centre / Dispensary, Medicine shop, Residence of Caretaker, and maintenance staff, Personal service shop
5.6	Creche & day care centre/ play & nursery school	Permissible uses- Crèche & Day Care Centre/Play & Nursery School, Support Facilities- Residence of caretaker and maintenance staff,
5.7	Primary school	Permissible uses- Primary school, Canteen, Swimming pool, Auditorium, Library, Indoor games Hall, Hostel. Support Facilities- Retail shop for books and stationery, uniform, Bank extension counter, Staff housing, Vending booth/Kiosk

5.8	Secondary school/ integrated residential school	Permissible uses- Senior secondary school, Canteen, Swimming pool, Auditorium, Library, Indoor games Hall, Hostel Support Facilities- Retail shop for Books and Stationery, Uniform, Chemist; Bank extension counter, Vending booth/Kiosk, Staff housing
5.9	Vocational Institute	Permissible uses- Vocational training centre, Canteen, Swimming pool, Auditorium, Library, Indoor games Hall, Hostel Support Facilities- Guest house, Transit hostel, Retail shops for Books and Stationery, Chemist, Fruits and vegetables, general store; Personal service shop, Repair shop, Vending booth/Kiosk, Bank extension counter, Staff housing
5.10	Degree / PG college	Permissible uses- Degree/P G/professional (MBA /Engg etc.) college, Canteen, Swimming pool, Library, Auditorium, Indoor games Hall, Hostel Support Facilities- Guest house, Transit hostel, Retail shop for Books and Stationery, Chemist, Fruits and vegetables, general store; Personal service shop, Repair shop, vending booth/Kiosk; Bank extension counter, Staff housing
5.11	University	Permissible uses- University, Educational Colleges, Canteen, Swimming pool, Indoor games Hall, Convention Centre, Exhibition Hall, Support Facilities- Auditorium, Indoor games Hall, Hostel, Guest house, Canteen, Retail shop for Books and Stationery, Chemist, Flowers, Fruits and vegetables, general store; Personal service shop, Repair shop, Vending booth/Kiosk, Bank extension counter, Staff housing, Cultural and information centre, International conference centre, internet café, Library, Museum, Planetarium, R&D Centre, Radio and Television station, Gym/ Health club, Guest House, Transit Hostel
5.12	Post office	Permissible uses- Post and Telegraph Office, Canteen,
5.13	Telephone exchange	Permissible uses- Telephone exchange/RLU/RSU, Support Facilities- Canteen, Bank Extension Counter, Staff Housing,
5.14	Police station	Permissible uses- Police Station, Support Facilities- Canteen, Bank Extension Counter, Staff Housing,
5.15	Fire station	Permissible uses- Fire Station, Service workshop, Hostel/dormitory, , Support Facilities- Canteen, Bank extension counter, Staff Housing
5.16	Police post	Permissible uses- Police post Support Facilities- Canteen, Bank extension counter, Staff Housing

5.17	Library	Permissible uses- Library, Internet/information centre, Exhibition Hall, and art gallery, Support Facilities- Auditorium, Canteen, Staff housing, Bank extension counter,
5.18	R & D centre	Permissible uses- Research and Development Centre, internet/Information Centre, Hostel, Library, Support Facilities- Auditorium, Canteen, Staff housing, Guest House, Transit hostel, Bank Extension counter, Health/Gym
5.19	Health centre/ family welfare centre	Permissible uses- Health centre, Dispensary, Family welfare centre, Support Facilities- Canteen, Chemist shop, Vending Booth/kiosk, Office,
5.20	Trauma centre	Permissible uses Trauma centre, hostel, Support Facilities- Canteen, Vending Booth/ Kiosk, Bank extension counter, Chemist shop, Books/Stationery Shop, General Departmental store, Personal service Shop, Office, Staff Housing, Patient attendant accommodation, Gym,
5.21	Medical hospital college/	Permissible uses- Hospital Support Facilities- Auditorium, Bank extension counter, Cultural and Information Centre, Chemist shop, Canteen, Books/Stationery /Flower Shop, Indoor Games Hall, International conference centre, Internet Centre, Library, Museum, Planetarium, R&D centre, Radio and Television Centre, General Departmental store, Personal service Shop, Office, Staff Housing, Patient attendant accommodation, Health club/Gym, Guest House, Hostel, Transit Hostel, Vending booth/kiosk
5.22	Clinic	Permissible uses- Clinic Support Facilities- Chemist shop
5.23	Nursing home	Permissible uses- Nursing Home, Clinical lab, Support Facilities- Chemist shop, Vending booth/kiosk,
5.24	Clinical laboratory / Diagnostic centre	Permissible uses- Clinic laboratory, Support Facilities- Clinic, Chemist shop, Vending Booth/kiosk,
5.25	Veterinary hospital/ Dispensary	Permissible uses- Veterinary Hospital/Dispensary, Diagnostic Centre, Support Facilities- Canteen, Chemist shop, Staff Housing
5.26	Health club/ Gym	Permissible uses- Health club/Gym, Vending booth/Kiosk

5.27	Dance/ centre Music/Art	Permissible uses- Dance/Music/Art centre, Support Facilities- Auditorium, Guest House, Canteen, Vending booth/Kiosk, hostel
5.28	Yoga/ centre Meditation	Permissible uses- Yoga/Meditation centre, Library, Conference Facilities, , Hostel Support Facilities- Guest House, Auditorium, Canteen, Vending booth/Kiosk
5.29	Religious building/centre	Permissible uses- Religious Building/Centre, Yoga and Meditation Hall, Library, Ashram, Bathing Ghat, Gaushala, Dargah, Support Facilities- Residence for essential staff/ priest, Retail shop for flowers/ offerings, Charitable Dispensary, Dining Hall with kitchen,
5.30	Community centre	Permissible uses- Community centre/ Barat Ghar, Support Facilities- Indoor games, Library, Restaurant, Vending booth/kiosk, Guest rooms
5.31	Convention centre/ conference centre/ Auditorium	Permissible uses- Convention centre/Conference Centre/Auditorium, Exhibition Hall, Art Gallery, Internet/ information centre, Multilevel parking, Support Facilities- Restaurant, Hostel, Canteen, Library, Guest room, Bank extension counter, Caretaker and Maintenance Staff Housing,
5.32	Socio-Cultural centre	Permissible uses- Socio-cultural Centre, Exhibition Centre, Art Gallery, Dance/ Drama/Music Training centre, Swimming Pool, Multilevel parking,Support Facilities- Auditorium, Library, Museum, Canteen, Vending Booth/kiosk, Bank extension counter,
5.33	PCO Public call office	Permissible uses- PCO
5.34	Internet/Information centre	Permissible uses- Internet/Information Centre Support Facilities- Bank Extension counter, Canteen, Library
5.35	Social welfare centre	Permissible uses- Social Welfare centre, Support Facilities- Canteen, Library, Vending Booth/kiosk, Bank extension counter
5.36	Crematorium/ Burial ground/ cremation	Permissible uses- Cremation/Burial ground/Crematorium, Support Facilities- Retail shop of wood, flowers and related material, Maintenance staff residence
5.37	Night shelter	Permissible uses- Night shelter Support facilities

5.38	Disaster management centre	Permissible uses- Disaster Management Centre Support Facilities Office, Canteen, Training Centre,
5.39	Metrological station	Permissible uses- Metrological station Support Facilities Office, Canteen, Training Centre,
6	Recreational facilities	
6.1	Park/Playground	Permissible uses- Park, playground Support Facilities- Vending Booth/ Kiosk
6.2	Multipurpose open spaces	Permissible uses- Multipurpose open space Support Facilities- Vending Booth/ Kiosk
6.3	Golf course/ Racecourse	Permissible uses- Golf Course, Racecourse, Swimming Pool, Indoor/ Outdoor games facilities, Multilevel Parking Support Facilities- Pro shop/ Sports goods shop, Bar/ Restaurants, Vending booth/ Kiosk, Conference facilities, Bank extension counter, Caretaker Residence, Guest house, Golfers' temporary accommodation
6.4	Stadium/ Sports training centre/Sports complex	Permissible uses- Stadium/ Sports Training Centre/ Sports Complex, Indoor/ Outdoor games facilities, Hostel, Swimming pool, Multilevel parking Support Facilities- Staff housing, Grocery shop, Sports goods shop, Personal service shop, Canteen, Vending booth/ Kiosk, Conference facilities, Bank extension counter, Caretaker Residence, Guest house, Players' temporary accommodation
6.5	Picnic spot	Permissible uses- Picnic huts, Camping site, Park, playground, landscaped garden Support Facilities- Restaurant/Food court/ Canteen, Vending booth/ Kiosk, Caretaker Residence
6.6	Indoor stadium/ games hall	Permissible uses- Multipurpose Indoor Stadium, Indoor Games Hall, Indoor Games facilities, Swimming pool, Outdoor sports facilities, Park, Playground Support Facilities- Hostel, Canteen, Office related to sports facilities, Vending booth/ Kiosk, Conference facilities, Bank extension counter, Caretaker Residence, Guest house, Players' temporary accommodation
6.7	Amusement/ theme park	Permissible uses- Amusement/ Specialised/ Theme Park, Playground Support Facilities- Restaurant/ Food court/Canteen, Vending booth/ Kiosk, Bank extension counter, Indoor games, Retail shop, Caretaker Residence

6.8	Recreational club/ Swimming pool	Permissible uses- Recreational Club, Swimming Pool, Indoor/Outdoor games facilities, Park, playground Support Facilities- Restaurant/ Food court/ Canteen, Vending booth/ Kiosk, Caretaker residence, Library, Bank extension counter,
6.9	Museum cum Auditorium	Permissible uses- Museum cum Auditorium/Conference Hall/ Art Exhibition Gallery, Open air theatre, Multilevel Parking Support Facilities- Canteen, office, Vending booth/ Kiosk, Caretaker residence, Library, Bank extension counter,
6.10	Open air theatre	Permissible uses- Open Air Theatre, Support Facilities- Canteen, Office, Vending booth/ Kiosk, Caretaker residence,
6.11	National Memorials	Permissible uses- National Memorial, Support Facilities Canteen, Office, Card/gift shop, Vending booth/ Kiosk, Caretaker residence,
6.12	Biodiversity Park	
6.13	Amusement/ Specialized/ Theme Park	Permissible uses- Amusement/ Specialised/ Theme Park, Playground Support Facilities- Restaurant/ Food court/Canteen, Vending booth/ Kiosk, Bank extension counter, Indoor games, Retail shop, Caretaker Residence
6.14	Tourist Facility centre	Permissible uses Tourist facility Centre Support Facilities- Restaurant/ Food court/Canteen, Vending booth/ Kiosk, Bank extension counter, Indoor games, Retail shop, Caretaker Residence
6.15	Sports city	
7	Public Utilities	
7.1	Sewerage treatment plant	Permissible uses- Sewerage treatment plant/Pumping station, Support Facilities- Office, Maintenance staff residence
7.2	Pumping station	Permissible uses- Pumping Station Support Facilities- Office, Maintenance staff residence
7.3	Sanitary landfill site/ solid waste treatment plant	Permissible uses- Sanitary landfill site/Solid waste treatment plant Support Facilities- Office, Maintenance staff residence
7.4	Recycling plant	Permissible uses- Recycling Plant Support Facilities- Office, Maintenance staff residence

7.5	Tube well/ Overhead tanks/ Underground tanks/ Renny wall	Permissible uses- Tube well/Overhead tanks/Underground tanks/Rainy well Support Facilities- Office, Maintenance staff residence
7.6	Water treatment plants	Permissible uses- Water Treatment Plant Support Facilities- Office, Maintenance staff residence
7.7	Electric sub station	Permissible uses- Electric sub-station Support Facilities- Office, Maintenance staff residence
7.8	Public toilets	Permissible uses- Public toilet
7.9	Transmission tower/ mobile tower as per GIDA policy	Permissible uses- Transmission tower/Mobile tower as per Noida Policy
7.10	Drinking water booths	Permissible Use, Drinking Water Booth
8	Transportation	
8.1	open Parking	Permissible uses- Open Parking, Vending booth/Kiosk
8.2	Covered/ multi-level parking	Permissible uses- Multi-level parking, Support Facilities- Office, Maintenance staff residence
8.3	Taxi/Auto stand	Permissible uses- Taxi/Auto/Rickshaw Stand Support Facilities- Vending Booth/kiosk,
8.4	Truck terminal/ transport Nagar	Permissible uses- Truck parking, Service Garage, Spare parts shops, Repair shop, Transport Agencies offices and other related offices, Showroom, Weighbridge/Dharamkanta, Storage Godowns, Multi-level parking, Support Facilities- Retail shop, showroom, Office, Restaurant, Hotel, Bank, Vending booth/kiosk
8.5	Bus depot/Bus terminal	Permissible uses- Bus Terminal, Support Facilities- Office, Canteen
8.6	Bus stand	Permissible uses- Bus stand/ Shelter
8.7	Motor garage/ service workshop	Permissible uses- Motor Garage/Service Garage/Workshop, Service Station Support Facilities- Automobile showroom, Spare parts shop, office, Vending Booth/kiosk

8.8	Traffic Park/ children traffic park/ training centre	Permissible uses- Traffic Park/Children Traffic Park/Training Centre, Support Facilities- Restaurant, Vending Booth/kiosk
8.9	Loading/ Unloading facilities	Permissible uses- Loading/Unloading Facilities/Space, Weighbridge, Support Facilities- Vending booth/kiosk
8.10	transport/ cargo booking centre	Permissible uses- Transport/Cargo booking office, Warehousing/Godown, Truck Parking Support Facilities- Office, Vending booth/kiosk, Canteen,
8.11	Container depot	Permissible uses- Storage of Containers, Weighbridge, Truck parking, Warehousing/Storage Godown, Office Support Facilities- Vending booth/kiosk, Canteen,
8.12	Toll plaza	Permissible uses- Toll plaza, Maintenance office Support Facilities- Office
8.13	Helipad	Permissible uses- Helipad, Office, Waiting Area,
8.14	Freight complex	Includes all large-scale logistics (freight handling) and trading activities (wholesale or retail) with ancillary activities such as office complexes
8.15	Roads	Permissible Uses Roads, Green belt, footpath
9	Agriculture	
9.1	Orchard/ Plant nursery/ Social forestry	Permissible uses- Orchard/ Plant nursery/ Social forestry Support Facilities- Shop selling seeds, Plants, gardening equipment, Vending booth/ Kiosk, Caretaker residence (all structures shall be temporary in nature)
9.2	Farmhouse	Permissible uses- Farmhouse Support Facilities- Caretaker residence
9.3	Dairy/ Poultry Farm	Permissible uses- Dairy Farm, Poultry Farm Support Facilities- Caretaker residence
9.4	Agriculture Equipment workshop/ Service Centre	Permissible uses- Agriculture Equipment workshop/ service centre Support Facilities- Spare parts shop, Repair shop
9.5	Apiary/ Pisci Culture	Permissible uses- Fish Farm, Bee Farm Support Facilities- Caretaker residence

Note:

1. For support facilities maximum 25% of Permissible FAR may be allowed.
2. Support facilities mentioned below are permissible in all use premises mentioned except for residential (unless otherwise specifically prohibited by the Authority in any premise)
 - Guard/ Chowkidar residence
 - ATM
 - PCO
 - Open Parking, Covered parking
 - Public conveniences
 - Helipad
 - Public facilities and utilities (Post office counter, Post office, Post and Telegraph office, Police Post, Police Station, Fire Post, Fire Station, Telephone exchange, RLU/RSU, Electric Sub Station, Sewage Treatment plant, Sewage pumping station, Water works, Underground Reservoir, Water treatment plant)
 - Satellite wireless telecommunication centre or tower,
3. In addition to the permissible activities mentioned above, if any other uses have been permitted in earlier schemes, allotment or lease conditions prior to these regulations, the same uses shall continue to be permissible unless otherwise specially prohibited under special circumstances, if any by the Authority in any scheme.

17.4 SUBDIVISION OF USE ZONES AND SUBDIVISION REGULATION

The Subdivision of land with a view to prepare a layout plan is done for a sector or area, which is designated primarily for a specific use zone already specified earlier as per the Master Plan. The objective of regulations detailed herein is to guide the preparation of layout plans for use areas. These regulations include norms for provisions of circulation system, open spaces, and facilities. The service plans corresponding to these layout plans for provisions of physical infrastructure like water supply, sewerage, drainage, power, telecom, gas and solid waste management etc. shall conform to the norms framed by the Authority from time to time.

17.4.1 Residential Use Zones

The sub-division of this use zone shall be governed by the provisions stated below:

- This use zone will have plotted development or flatted development or group housing or mix of both or all as per the scheme.
- Green and Open Spaces
- The minimum area required under open space for tot-lots, parks and playground 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 average width of the green and open space shall be 7.5m. The green and open spaces can be of varied shapes provided they fulfil the recreational need of the community.
- The landscape plan shall be prepared and submitted in accordance with the provisions of building regulations.
- Certain open spaces shall be designated as playgrounds while preparing the layout plan.

Roads

- I. The minimum Right of Way of a vehicular road shall be 12 m. However, in situations where the road adjoins a park or any open space with building only one side, it may have a minimum width of 9 m.
- II. In case of group housing development, the minimum width of road shall be 18 meters.
- III. The roads shall have minimum width depending on the length of the road as follows
- IV. Up to 400.0m. - 12.0 m.
- V. 401-600.0m. - 18.0 m.
- VI. 601-1000.0 m. - 24.0 m.
- VII. Above 1000.0 m.- 30.0 m.
- VIII. The minimum width of Loop Street shall be 12.0 m. and maximum length 400.0 m.
- IX. Maximum length of a 12.0 m wide dead-end road shall be 100.0m. The road shall be provided with a cul-de-sac of 7.5 m radius at the dead end. Roads of less than 25 m length, cul-de-sac will not be required

- 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 5%.
- The minimum area under facilities shall be 5%.
- Provision of Social and Physical Infrastructure

17.4.2 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
 - I. 10% of the total area of non-residential sector/area shall be green
 - II. Area under green and open spaces of the scheme or sector shall be in addition to the area under Master Plan green areas.
 - III. The landscape plan shall be prepared and submitted in accordance with the provisions of building regulations.

Roads

- I. The minimum area under roads shall be 10%
 - II. The roads shall have minimum width depending on the length of the road as follows
 - a. Up to 400.0 m. - 18.0 m
 - b. 401-1000.0 m. - 24.0 m
 - c. Above 1000.0 m. - 30.0 m.
 - III. The width of other roads shall be in accordance with the width specified in Master Plan.
- 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.
 - The maximum area under commercial use shall be 2% (For areas other than commercial use zones) except for Multiple Use for which the decision is to be taken by the authority
Note: Above mentioned 2% shall not be binding if area/sector is identified for Warehousing/Logistics in Industrial Use . The Additional area (in excess of 2%) shall be used only for warehousing/Logistics.
 - The minimum area under facilities shall be 5%.

17.5 ZONING CHART

Permissibility of Various Activities/ Uses in Major Land Use Areas					
Abbreviations			Symbols		Change in Color
Resd: Residential	Insti: Institutional (Offices/ University/ Degree College/ Technical Institute/ Medical College/ Hospital)	Mxd Use: Mixed Use (Shop cum Office/ Residence cum Commercial)	Permissible Use		Green
Abadi: Village Abadi/ Village Extension	Faci: Facility/ Utility (Waterwork/ STP/ Sewage Farm/ Electric Station/ HT Line)	Transp: Transportation (Bus Terminal/ ISBT/ Truck Parking/ Transport Nagar/ Truck Parking)	Not Permissible		Red
Comm: Commercial (Major Commercial/ General Commercial/ Wholesale Mandi/ Storage Godown/ Agriculture Mandi)	Ind: Industrial (Small Industries/ Heavy Industries/ Service Industries/ Logistic Parks)	Rec Grn: Recreational Green (District Park/ Regional Park/ Amusement Park/ Recreation Club/ Green Belt)	Conditional Permissible Use		Yellow
	Agri: Agriculture		With Special Permission		Yellow

	Activities /Uses	Residential		Commerci al	Industri al	Institutional		Mixed -use	Transportation		Recreational green		
		Village Abadi	Residential	Commercial	Industrial	Institutional	Facilities/ Utilities	Mxd Use	Transportation	Logistics	Recreational green	Park	Green Belt
	Residential												
1	Single House/ Plot/ Flat	Green	Green	6	Red	Red	Red	Green	Red	Red	Red	Red	Red
2	Group Housing	Red	Green	6	Red	7	Red	Green	Red	Red	Red	Red	Red
3	Staff Housing	Red	Green	Red	Red	7	Red	Green	Red	Green	Red	Red	Red

	Activities /Uses	Residential		Commercial	Industrial	Institutional		Mixed-use	Transportation		Recreational green		
		Village Abadi	Residential	Commercial	Industrial	Institutional	Facilities/ Utilities	Mxd Use	Transportation	Logistics	Recreational green	Park	Green Belt
4	Guard chaukidar residence												
Commercial													
1	Retail shops/Platform		1		1	1	1		1				
2	Repair shops		1		1								
3	Personal Service shops		1				1						
4	Vending booth		1		1								
5	Showroom		1		2				1				
6	Weekly market		3	3	3				3	3			
7	Convenience shopping centre		1		1	1			1				
8	Local/sector level shopping centre		1			1							
9	Shopping centre/ commercial centre/shopping mall		1		1								
10	Informal commercial unit/platform		1										
11	Wholesale market/Mandi												
12	Bakery/Confectionary/Atta Chakki		1										
13	Coal/wood/ Building material market												
14	Vegetable/ Fruit market		1										
15	Cold storage									4			
16	Hotels		1		1	1	1						
17	Service Apartment					1	1						
18	Restaurant/ Canteen/ Food Court		1										
19	Cinema/Multiplex		1		1	1					1		
20	Drive-in cinema										1		
21	Exhibition hall/ Exhibition centre		1										
22	Banquet hall/ Barat Ghar		1			1	1						

	Activities /Uses	Residential		Commerci al	Industri al	Institutional		Mixed -use	Transportation		Recreational green		
		Village Abadi	Residential	Commercial	Industrial	Institutional	Facilities/ Utilities	Mxd Use	Transportation	Logistics	Recreational green	Park	Green Belt
6	Household industries												
7	Pasturing Plant/Milk Collection Centre												
Office													
1	Govt./Semi Govt./Public undertaking/local body office		5		5								
2	Office/corporate office		5		5								
3	Professional/personal office												
4	Project evelopment/ management/maintenance office		5		5								
5	PAC/ Police Line												
6	Satellite/wireless/Telecommunicatio n centre		5										
Public/ Institutional facilities (PSP)													
1	Guest house/lodging/boarding house		4										
2	Hostel		4										
3	Reformatory & Orphanage		4										
4	Old age home												
5	School for mentally challenged persons		4										
6	Creche & day care centre/ play & nursery school												
7	Primary school		4			4							
8	Secondary school/ integrated residential school		4			4							
9	Vocational Institute / training Institute / ITI		4			4							
10	Degree / PG college/ Professional College		4			4							

	Activities /Uses	Residential		Commercial	Industrial	Institutional		Mixed-use	Transportation		Recreational green		
		Village Abadi	Residential	Commercial	Industrial	Institutional	Facilities/Utilities	Mxd Use	Transportation	Logistics	Recreational green	Park	Green Belt
7	Abadi Extension, Resettlement & Rehabilitation	4	4	4	4	4	4	4	4	4	4	4	4

Conditions	
	1. In planned designated commercial plot area
	2. Only for the products of industry factory
	3. Only for 30m or more wide roads earmarked by GIDA
	4. Planned and designated plot
	5. Planned facility or institutional plot
	6. The Authority may allow maximum 30% of permissible FAR for residential activities in the commercial plots of 4 hectare and above size, but the rate applicable in the total plot shall be that of the commercial land
	7. Authority may allow a maximum of 20% permissible FAR in industrial plots of 4 hectares and above size. Rates applicable in the plot would be that of primary Land Use
	8. Allowed only in dedicated Vending Zones decided by the authority
	9. <u>Within 500 m of existing Abadi</u>
	10. <u>State Highways/National Highways/MDR/Major Roads (excluding green belt)</u>
	11. <u>Within 200 m of existing Abadi</u>
Notes:	
	1. These zoning regulations shall be applicable for planning of land uses at Master Planning/ Sector level
	2. The Authority may decide the activities to be permitted in Special Projects
	3. The authority may decide the activities to be permitted within Abadi Settlements.
	4. Activities already permitted in the various schemes shall continue as per the terms & conditions specified in the scheme
	5. Commercial activities in other land uses shall be permitted on the basis of impact fee or additional reserve price as decided from time to time by the authority
	6. Non-residential activities in the Village Abadi/ Abadi extension shall be permitted only on 12.0 m or wider roads
	7. In SDZ core and non-core activities shall be permitted as per SDZ policy

	8. No activity other than incidental to riverfront development land use (to be decided by the authority) shall be permissible in river front development land use
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	9. Despite of anything proposed in the Master Plan, any project planned or sponsored by GIDA will have special permission.
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17.6 IMPACT FEE

Impact Fee

Impact Fee - for Land Use Zones								
No Impact Fees								
Non Commercial & Charitable Uses	1				Impact fees not applicable			
Service & Cottage Industry	2				No impact fees			
Group Housing	3				Impact fees required			
Activities (Proposed)	Bu it up	LAND USE ZONES						
		Developing or under developed Zones (Existing)						
		Agriculture, urban	Public & Semi Publi	Transport ation	Comm ercial	Resid ential	O ffi ces	Industrial
Agriculture, urban Agriculture, Green Areas, park, landfills								
Public & Semi Public Activities		0.25 (1)				0.25 (1)		
Traffic and Transportation		0.3	0.1			0.25		
Industrial		0.4 (2)	0.25 (2)	0.25 (2)		0.5		
Residential		0.5	0.4	0.4	0.25 (3)			
Offices		1	0.75	0.75	0.75	0.5		
Commercial	1.5	1.5	1.25	1.25	1	1	0.5	
Permissible / Conditionally permissible	Land Area x Circle Rate x Coefficient x 0.25							
Special Permission	Land Area x Circle Rate x Coefficient x 0.5							
Example								
For petrol pump to be built in Agriculture Zone								
Area	500	sqm						
Circle rates for agriculture land	200	per sqm						
Impact Fee	500 x 200 x 1.5 x 0.25		75000					

Activities are arranged in ascending order of their impacts with agriculture having the least while commercial having the highest.