BAREILLY DEVELOPMENT AUTHORITY

BDA

Vision, Implementation Strategy and Integrated Infrastructure Plan, Bareilly, 2071

DRAFT INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN REPORT

D – 6: FINAL REPORT

JULY 2023

Tender Ref. no.12-802021/BDA

MEINHARDT SINGAPORE PTE. LTD.

in association with

Mahindra Consulting Engineers Ltd

Ernst & Young Global Ltd

Tethys Development Services Pvt. Ltd.

MEINHARDT EY Mahindra Consulting Engineers

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AMRUT	Atal Mission for Rejuvenation and Urban Transformation
ASI	Archaeological Survey of India
BSCL	Bareilly Smart City Ltd.
BSNL	Bharat Sanchar Nigam Limited
BSUP	Basic Services to Urban Poor
BDA	Bareilly Development Authority
BMC	Bareilly Municipal Corporation
BSCL	Bareilly Smart City Ltd.
CISF	Central Industrial Security Force
CDP	Comprehensive Development Plan
CLS	Credit Linked Subsidy
CMP	Comprehensive Mobility Plan
CMSC	Central Sanctioning and Monitoring Committee
CREDAI	Confederation of Real Estate Developers' Associations of India
CSP	City Sanitation Plan
CWR	Clear Water Reservoir
DIC	District Industries Centre
DPR	Detailed Project Report
DUDA	District Urban Development Agency
EPA	Environment Protection Act
ETP	Effluent Treatment Plant
EPB	Export Promotion Bureau
EWS	Economically Weaker Section
FAR	Floor Area Ratio
FSI	Floor Space Index
GIS	Geographic Information System
GOI	Government of India
GOUP	Government of Uttar Pradesh
HA	Hectare
HH	Household
HIG	High Income Group
IIA	Indian Industries Association
IIT	Indian Institute of Technology
ITI	Industrial Training Institute
INR	Indian Rupee
ISBT	Inter-State Bus Terminal
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KMS	Kilometers
KVA	Kilo Volt Ampere
LIG	Low Income Group
MGD	Million Gallons per day
MIG	Middle Income Group

ML	Million Liters
MLD	Million Liters per day
MoHUA	Ministry of Housing and Urban Affairs
MoUD	Ministry of Urban Development
MPS	Major Pumping Station
MRTS	Mass Rapid Transit System
MSME	Micro, Small and Medium Enterprises
MSW	Municipal Solid Waste
MW	Megawatt
MT	Million Ton
NH	National Highway
NHAI	National Highway Authority of India
NNB	Nagar Nigam Bareilly
NPV	Net Present Value
ODOP	One District One Product
OHT	Over Head Tank
PMAY-U	Pradhan Mantri Awas Yojana – Urban
PMGEP	Prime Minister's Employment Generation Programme
POP	Plaster of Paris
PPH	Persons Per Hectare
PPP	Public-Private Partnerships
PVC	Polyvinyl chloride
RITES	Rail India Technical and Economic Service
SLB	Service Level Benchmark
STP	Sewage Treatment Plants
SPV	Special Purpose Vehicle
SQM	Square Meter
SUDA	State Urban Development Body
SWM	Solid Waste Management
SWOC	Strengths, Weaknesses, Opportunities, and Challenges
TDR	Transferable Development Right
TERI	The Energy and Resources Institute
TPD	Ton Per Day
UNESCO	United Nations Educational, Scientific and Cultural Organization
ULB	Urban Local Bodies
UP	Uttar Pradesh
UPJN	Uttar Pradesh Jal Nigam
UPSIDA	Uttar Pradesh State Industrial Development Corporation
URDPFI	Urban and Regional Development Plans. Formulation and Implementation Guidelines
WTP	Water Treatment Plan

Chapter 1. PRELUDE

1.1 Planning Strategy

Bareilly city is identified as the counter magnet of the National Capital Region along with nine other cities including Lucknow and Jaipur. The city has immense potential of growing as the major service urban center in the region. It is also known as the educational and healthcare service hub to the surrounding districts of Uttar Pradesh and neighboring state Uttarakhand. It has a rich cultural history dating back to Mahabharata which is well depicted by Nath Temples. Bareilly is also home to many industrial units producing goods of various types ranging from chemicals, plastic to Agro products.
Our strategy and planning will revolve around achieving envisioned outputs towards components of Vision Development. To achieve successful vision planning and development, these components will be studied in detail and form a part of our approach:

- Spatial Planning
- Tourism sector & visitor approach
- Industrial and Economic Base
- Heritage and cultural resource mapping
- Linkages of the proposed project

1.2 Population Estimation

The decadal rise of the population of Bareilly city has shown variable patterns, as indicated in table 1.1. During the decades 1931-41 and 1951-61, it increased by 33.78 percent and 31 percent, and during the decades 1971-81 and 1981-91, it increased by 37.82 percent and 36.07 percent, respectively. The town population of Bareilly M.C. was 903,668 as per census 2011. The town has experienced positive population growth in the last decade (42.30% from 2011 to 2021), compared to 26.4 % average decadal growth from 1951 to 2021. 2021 Population has been considered by referring Master Plan population, Master Plan Bareilly had estimated population 12,91,000 which is also close referred 2021 population. 11,40,717 and following Parabola Population Projection estimation for 2051 project horizon. There are total 19 census towns except M.C and Cantonment board in Project area i.e. Planning Boundary as per Enclosed list in Master Plan 2031. There are 149 villages within Project area and 54 villages are already engulfed within 2031 Master plan boundary. Based on the development plan proposals, taking into consideration the present trends and absorption capacity, above pattern of population distribution over space has been identified. Although there is no major change of total requirement of area so, Master plan boundary will be useful for spatial extent for 2031 Infrastructure Plan and rest years for Visionary estimation for requirement of physical Infrastructure will be attempted. The physical expanse of the city is expected to also incorporate as master plan suggested with the availability of physical infrastructure. As per URDPFI Guidelines Medium town density: 100-115 pph. As per trend developed area density assumed 125-135 pph (following other town with same class of population & growth pattern) New area density assumed for planning is 75-100 pph for 2036 & 2051 respectively.

So, spatial extent of the project Bareilly has three delineations:

1. **Bareilly Municipal Corporation**
2. **Bareilly Census Villages with Extension Areas**
3. **Bareilly Census Towns**

Table 1-1 Summary of Population Projections of Planning Boundary, 2051

	Details	2011	2021	2026	2031	2036	2041	2046	2051	2071
A	**Municipal Area**	903668	1140717	1246391	1431466	1561400	1698116	1841613	1991891	3125421
B	**Cantonment Board**	30003	37388	41990	46591	52326	65206	73231	81256	279265
C	**Total Villages within Planning Boundary**	279655	279655	314074	348492	391383	487722	547749	607775	2059691
D	**Total Census Towns within Planning Boundary**	98273	98273	110368	122463	137535	171389	192483	213577	723792
E	**Total Planning Boundary Population**	1311599	1556033	1712822	1949012	2142644	2422433	2655075	2894499	6188168
F	**Master Plan 2031 estimation of Total area**				1894211					

Based on the development plan proposals, taking into consideration the present trends and absorption capacity, following pattern of population distribution over space has been identified. Although there is no major changes of total requirement of area so, Master Plan boundary will be useful for spatial extent for 2031 Infrastructure Plan and followed by 2051 vision estimation has been considered.

1.3 Transport system & connectivity

The existing transport system of Bareilly city, comprises of road, rail and air transport services. For the purposes of existing situation analysis of the prevailing transport infrastructure, the transport infrastructure can be broadly subdivided into the following components.

1.3.1 Air Connectivity

At present, the Bareilly airport is a civil terminal located in Izzat Nager, which is located 6 km from north of Bareilly city. The terminal building is 2500 sqm, and can handle 150 passengers during the peak hours. In future, a new apron 9500 m provides parking space and 150 cars parking is expanded. A new terminal building was inaugurated in 2021 as a part of airport expansion. The building is spread over 3020 sqm and has a capacity to accommodate over 300 passengers. At present, Bareilly is connected with Delhi, Bangalore, Mumbai.

1.3.2 Rail Connectivity

Bareilly Junction railway station is the major railway station serving city. Bareilly railway station connects the Lucknow-Moradabad line and Lucknow-Sitapur-Lakhimpur-Pilibhit-Bareilly-Kasganj Line. The Bareilly Railway station is well connected to Lucknow, New Delhi, Amritsar, Ambala, Jalandhar, Pathankot, Gorakhpur, Howrah and other major destinations. Other railways station like Bareilly Cantt, Bareilly City, Bhojipura Junction, CB Ganj, Bohna, Izzatnagar, Parsakhara, Ramganga Bridge secondary railways stations in Bareilly area.

Figure 1-1 Railway Line Connecting With Bareilly

1.3.3 Road Connectivity

Bareilly has a radial pattern of road network. National Highways in Bareilly is well connected with its surrounding urban agglomeration, 4 major NH sections pass through Bareilly city are NH-30, NH 530,

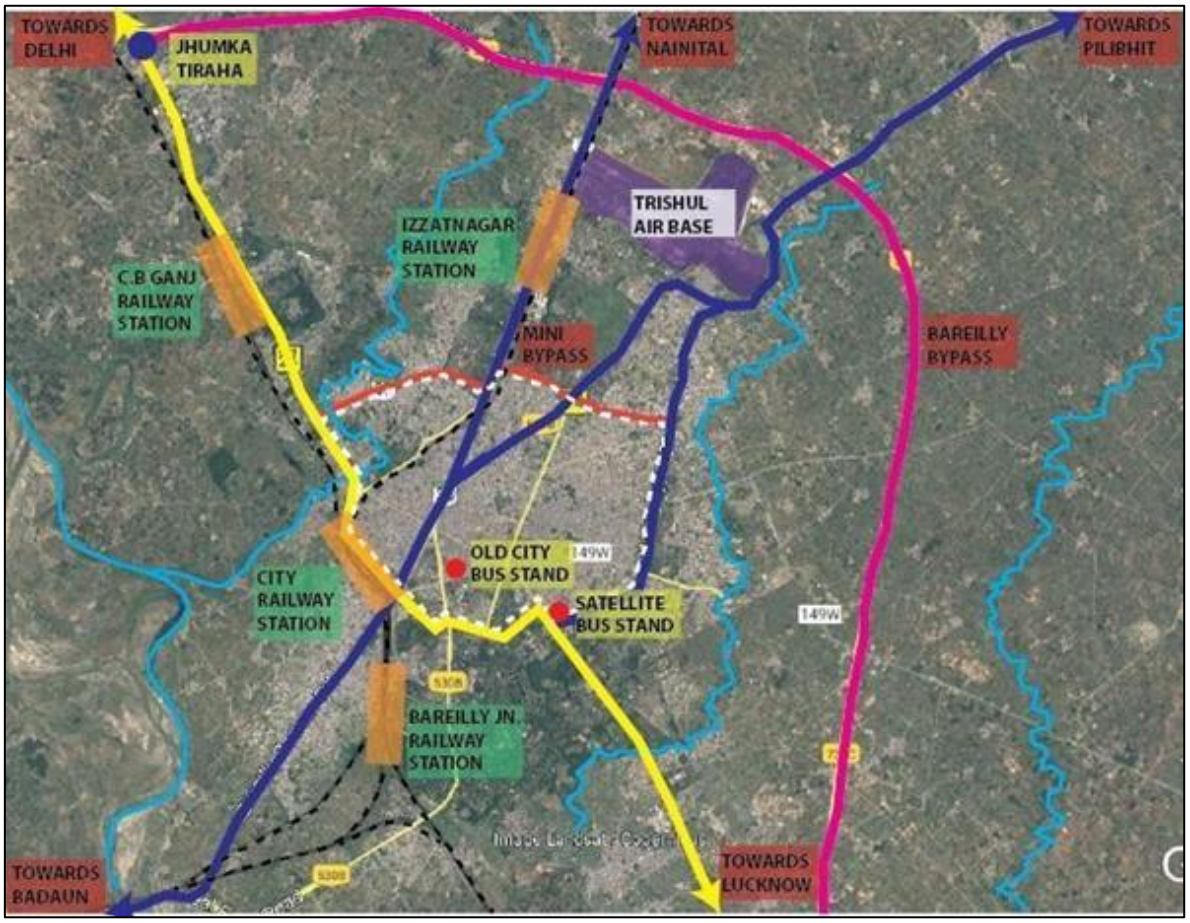


Figure 1-2 Major Road Network In Bareilly City

NH 530-B, NH 730-B and SH 37. The NH 30 is part of Bareilly Bypass section connects Sitarganj on the north and Lucknow, Allahabad on the south. NH 530 connect Bareilly to Rampur Road, NH 530-B connecting Bareilly to Mathura highway, NH 730-B connects (Bareilly to Bisalpur highway. UP state highway no 37 starts from Bareilly to Nainital Road. Bareilly Bypass section starts at Dhantiya village to Rajau Paraspur with total length of 30.1 km.

1.3.4 Major road corridor within Bareilly City

Some of the major roads within the Bareilly city is bearing the impact of traffic are

a. Stadium Road: Connecting Philibhit Road to Shyam Ganj
b. Macnair Road connecting Naintal Road to Stadium Road
c. Pilibhit Bypass road connecting Pilibhit road to Lucknow road
d. Sh-33 connecting Bareilly to Mathura
e. Mini-bypass connecting Delhi road to Nainital Road
f. Shyam ganj to Patel Chowk to CB Ganj
g. Shyam Ganj to Chaupla Road
h. Civil Lines Road

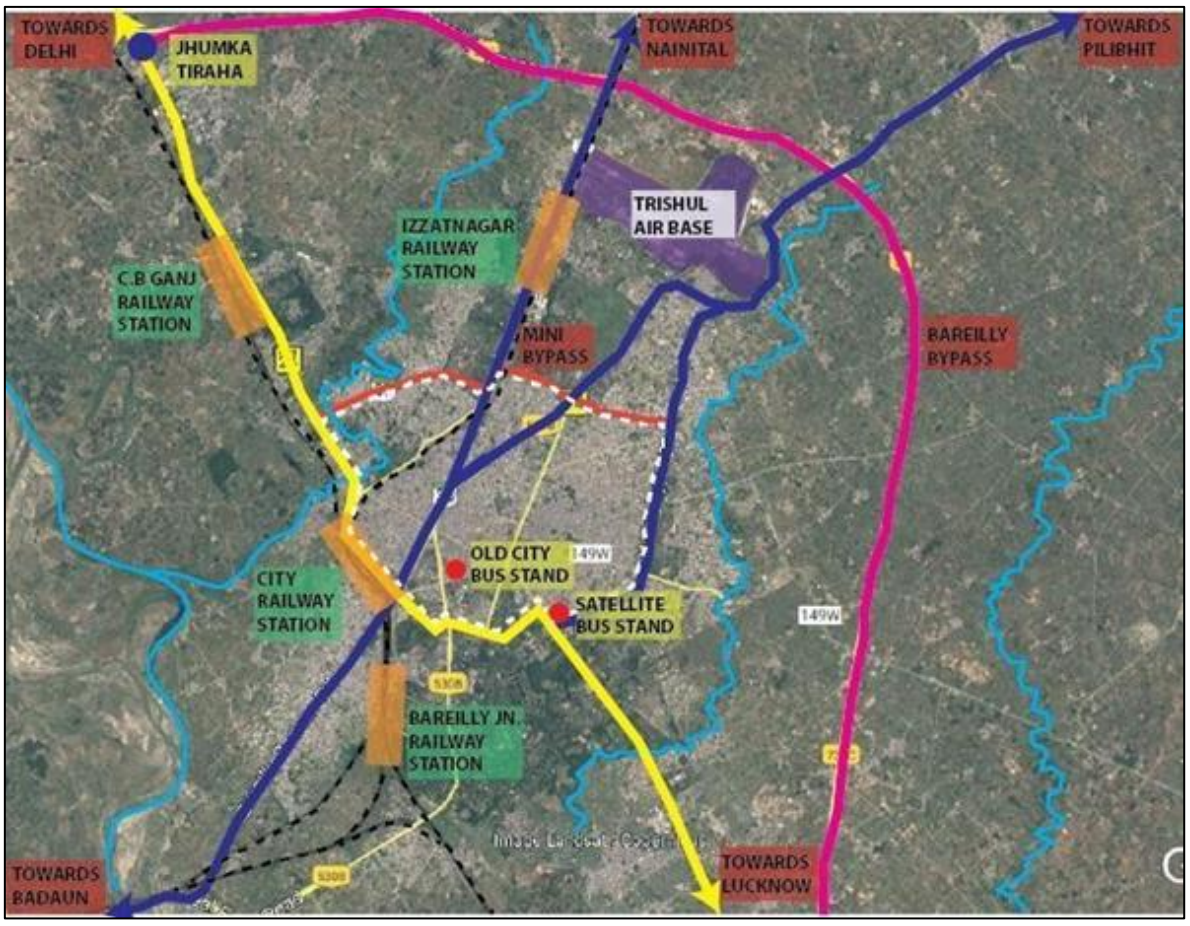


Figure 1-3 Major Road Network In Bareilly City

1.3.5 Major road corridor within Bareilly City

Some of the major roads within the Bareilly city is bearing the impact of traffic are

i. Stadium Road: Connecting Philibhit Road to Shyam Ganj
j. Macnair Road connecting Naintal Road to Stadium Road

k. Pilibhit Bypass road connecting Pilibhit road to Lucknow road
l. Sh-33 connecting Bareilly to Mathura
m. Mini-bypass connecting Delhi road to Nainital Road
n. Shyam ganj to Patel Chowk to CB Ganj
o. Shyam Ganj to Chaupla Road
p. Civil Lines Road

1.4 Public Transport System in Bareilly

At present in Bareilly city, 2 no of bus stands (Old bus stand and Satellite Bus Stand). Both the Bus Stand are in functional, as most of the Bus frequency is from Satellite Bus Stand. The old Bus stand is located in civil lines cater bus plying on routes towards Moradabad, Haldwani, Delhi, Naintal, Dehradun, Agra, Jaipur areas. Satellite bus station caters the bus services towards long distance to Kanpur, Lucknow, Prayagraj, and others.


Image 1 Existing condition of Satellite Bus Stand

UP State Transport Department has commissioned project for provisioning of electric buses in Bareilly city under FAME 2 Scheme, which will be taken up in two phases where phase 1 will house 23 locations for bus shelters and phase 2 will house 30 locations for bus Shelters. The Intra city bus route have been identified and passes throughout the Bareilly area.

Table 1-2 City Bus routes in Bareilly

City Transports Services Ltd						
Route Name	**Route Descriptions**	**Distance (KM)**	**Running Time (Min)**	**Layoff Time**	**Frequency Headway (Min)**	**Number of Buses required**
Bareilly Junction to Phonix Mall	Bareilly Junction to Air Force Station via Chowki Chauraha, Gandhi Udhyan, Satelite Bus Stand, Bisalpur Chauraha, Ruhelkhand University, Phonix Mall	11.9	60	320	20	5
Bareilly Junction to Cental Jail Colony via Swale Nagar	Bareilly Junction to Nagarya Prikshit via Chopla Chauraha, Dulha Miyan Mazar, Qila Pul, Swale Nagar Mini Bypass, Izzat Nagar Railway Station, Central Jail Colony	12.5	65	320	20	4

City Transports Services Ltd						
Route Name	**Route Descriptions**	**Distance (KM)**	**Running Time (Min)**	**Layoff Time**	**Frequency Headway (Min)**	**Number of Buses required**
Bareilly Junction to Persakhada via Qila Pul	Bareilly Junction to Parsakhada via Chopla Chauraha, Dulha Miyan Mazar, Qila Pul, Satya Prakesh Park, CB Gunj Police Station	13.6	70	280	20	5
Bareilly Junction to Fruit Mandi via Delapir Chauraha	Bareilly Junction to peerbhora Air Force Station via Chowki Chauraha, Gandhi Udhyan, Vikas Bhavan, Shyam Ganj Flyover Bridge, Eit Pajaya Chauraha, Bareilly Stadiam, Delapir Chauraha, Fruit Mundi	10.8	55	280	20	6
Bareilly Junction to Badaun Road Patel Vihar	Bareilly Junction to Badaun road Hindustan Petrol Pump via City Mall Godown, Chopla Chauraha, Chaurasi Ganta Mandir	5.1	25	320	20	5

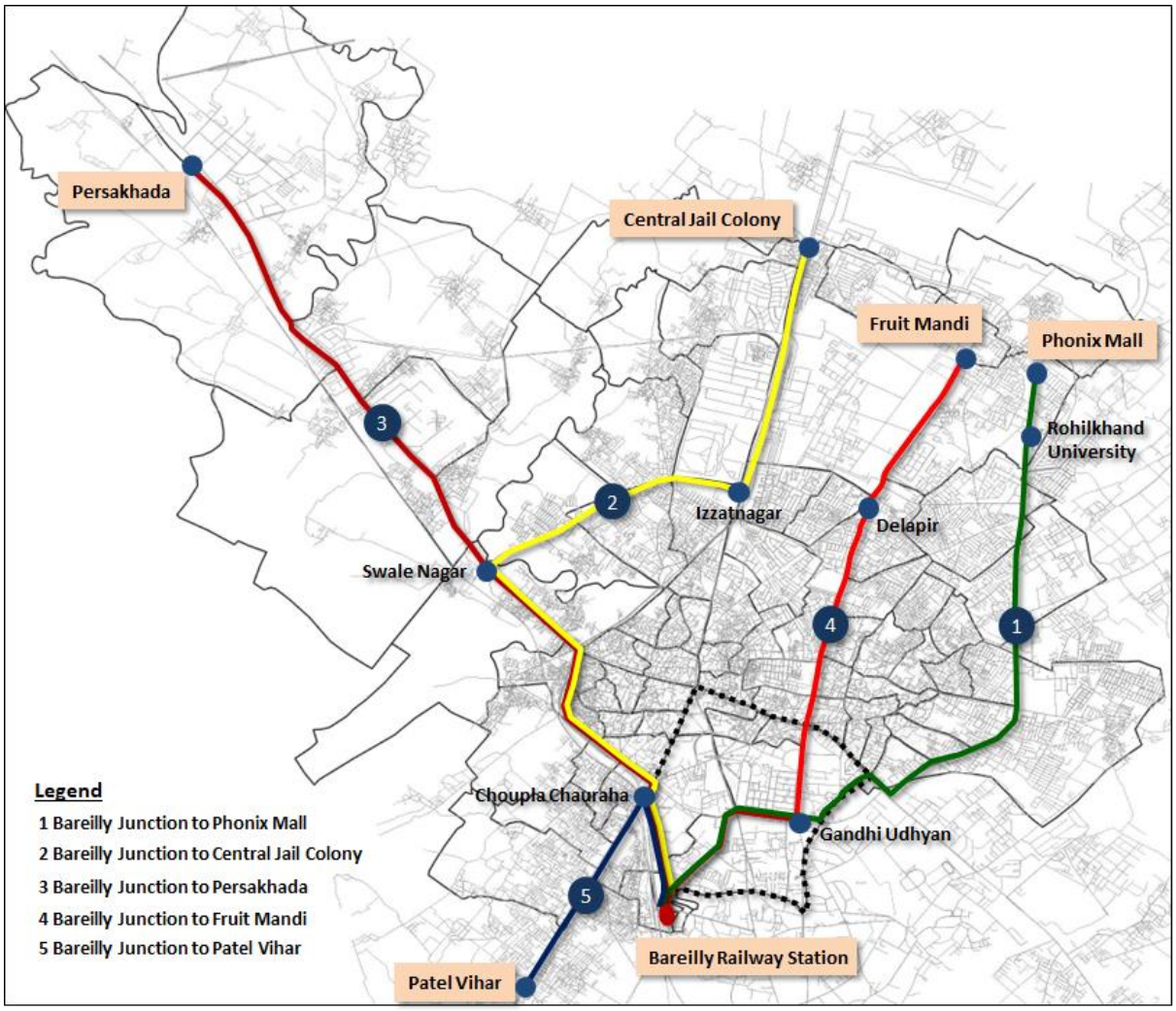


Figure 1-4 Location map of Bus route in Bareilly

1.5 Regional Ecological Features

The Ramganga is the district's primary river, which enters from the west and runs south-east. The Sidh Dejora, Bahgul, Sankha, Aril, Deoha, Deoanian, and Nakatia rivers, as well as their tributaries, all start in tarai and flow across the district in southern and south-eastern directions before joining it. In terms of geology, the district is alluvial. The district is separated into three sub-micro areas based on geology, soils, terrain, climate, and natural vegetation:

I. Bareilly Tarai
II. Bareilly Plain
III. Ram Ganga

Bareilly Tarai: The region is located in the district's north-western corner, encompassing a small portion of *Baheri* tehsil. It is the Tarai tract, where various streams flow in a north-south direction. Due to tarai region water retention in soil is high. Lack of drainage channel and storm water drain water logging areas are common in city.

1.6 Physical Infrastructure

Bareilly city is provided with water supply from ground water sources such as bore wells fitted with hand pumps or power pumps. Existing installed capacity of water supply to the city is about 143 MLD, where the volume capacity is 138 MLD and overall demand for city is 154 MLD in year 2021. The water treatment plant is not in operation. Water is only supplied with all 51-percentage coverage. Total billable volume of water supply connection is 109 MLD. To assess the future demand for all parts of Bareilly within Municipal area Water demand has been assessed by taking 150 LPCD i.e.. 135 LPCD with 15% unaccounted water demand of the area. To account the problem infrastructure Strategy Plan has been framed to make bulk costing and phasing for development plan.

The present population of Bareilly is approximately 1554063, as against the combined design population of 1140717 for stage I and stage II sewerage schemes. Thus even after the Stage II scheme, designed to cover 165 MLD for 2033 whereas by 2036 the discharge within Municipal area will be 169 MLD, the entire present population of the city will not be covered. Out of total households, only 50 properties have been connected to the sewers. Even allowing for some unauthorized connections, the utilization of the sewer network appears to be extremely poor. The number of properties connected to the sewer network is abysmally small. An urgent and concerted drive to increase the number of sewer connections is called for.

The total length of roads in the City of Bareilly is 832 km out of which only 105 km stretch has closed stormwater drains translating to 12.62%. There are three natural drains in the city namely the Deveraniya drain, Chaubari drain and Nakatiya river/drain

The total solid waste generated in Bareilly Is 447.18 Tonnes Per Day (TPD). However, at present, the amount of solid waste collected is only 430 TPD . Of the collected solid waste (Nearly) 140 TPD is processed while the remaining 290 TPD is disposed of in the dump yard. At present, there is no household source segregation. Two solid waste management plants exist (I) At Rajau Paraspur and (ii) At Bakarganj, out of which the SWM plant in Rajau Paraspur is non-operational. So, overall city's physical infrastructure is poor.

Chapter 2. IDENTIFICATION OF SCHEMES, STAKEHOLDERS FOR INTEGRATED INFRASTRUCTURE STRATEGY PLANNING

2.1 Planning Boundary and Area

2.1.1 Bareilly Development Authority

To govern the development and expansion of the city under proper planning, on November 1, 1971, regulated area of Bareilly city was declared under the Uttar Pradesh (Regulation of Construction Works) Act, 1958. This was enacted to limit the unauthorized use and development of land, as well as the increasing tendency of unplanned construction of buildings and low-level colonies. Bareilly development area boundary included the area of municipality and 198 surrounding revenue villages outside the municipality. Aggregately, an area of 36,558.70 hectare was included in the limits of the development authority. In May 2008, the development area of Bareilly was expanded to include an additional 66 revenue communities. As a result, the Bareilly development area encompasses a total of 264 revenue villages.

2.1.2 Bareilly Nagar Nigam

In the year 1858, Bareilly Municipal Board was constituted with the purpose to provide basic services. Now, Bareilly Nagar Nigam (Municipal Corporation) is spread in an area of 106.41 sq.km. or 10641 hectares. For efficient performance and better administration, it is divided into 4 zones, these zones are sub divided into 80 wards.

2.1.3 Bareilly Smart City

Bareilly Smart City works under two heads, Area Based Development and Pan City Development. Bareilly Municipal Corporation in consultation with citizens identified an area of 50 acres for redevelopment. This redevelopment will result in the replacement of the present built-up environment, as well as the co-creation of a new layout with improved infrastructure through the use of mixed land use and higher density. Pan City Development which focuses to strengthen city wide infrastructure covers an area of 276 sq.km.

2.1.4 Bareilly Cantonment Board

Bareilly Cantonment Board is an organization under Ministry of Defense which was established in 1811 for administrative and civil representation purposes. It covers 4259.42 acres, with a notified civil area of 139.5026 acres included. The board has been divided into seven wards.

2.2 Past and Current Planning Initiatives

2.2.1 Statutory Master Plan

Master Plan which acts as the statutory document to guide the regulated development of area and to develop different sectors have been formulated and are listed as follows:

Bareilly Master Plan 2001

The first master plan of Bareilly was made in 1971 for the year 1999 which was later revised in the year 1986 and was proposed for year 2001. Before this, the development of the city took place in small

pockets all across the city. Development area for the proposed Master Plan 2001 was proposed for 10,500 Hectares to accommodate the projected population of 9.10 lakhs.

Bareilly Master Plan 2021

Master Plan 2021 which was enacted in 2008 was proposed for the year 2021. It aims to facilitate projected population of 14.21 lakhs and covers a total area of 16721.83 hectares (as per Master Plan 2021) and area of 20563.82 (as per the GIS Survey carried out for making Master Plan 2031). This Master Plan was prepared by Town and Country Planning Department and Bareilly Development Authority.

Bareilly Master Plan 2031 (Draft)

Master Plan 2031 for Bareilly development area is proposed for a population of 18,94,211. Proposed Master Plan covers an area of 22815.76 Hectares and is prepared by V.K. Supreme Consultants Pvt. Ltd.

2.2.2 Other Planning Initiatives

Apart from the Master Plan there are several other planning initiatives which focuses on different sectors.

City Development Plan (2003-2023)

City Development Plan with a horizon year 2023 was prepared by Wilbur Smith Associates in association with Bareilly Development Authority.

Slum Free City Plan of Action (Bareilly)

The Indian government launched the "Rajiv Awas Yojana" (RAY) to envision a slum-free India. Under this scheme Slum Free city plan of Bareilly city was prepared Regional Centre for Urban and Environmental Studies – OU, Hyderabad. The plan of action included line estimates for housing and infrastructure shortages, as well as civic amenities proposed in accordance with RAY principles. The report also requested approval and action to produce DPRs.

City Wide Sanitation Plan

The National Urban sanitation Policy launched during 2008 envisages “All Indian cities and towns become totally sanitized, healthy and livable and ensure and sustain good public health and environmental outcomes for all their citizens with a special focus on hygienic and affordable sanitation facilities for the urban poor and women.” In the same line City wide sanitation plan have been prepared by Administrative Staff College of India in partnership of Uttar Pradesh Government and Nagar Nigam Bareilly.

2.2.3 Infrastructure Development Schemes

The following are the various infrastructure development schemes for various sectors:

Atal Mission for Rejuvenation and Urban Transformation (AMRUT):

AMRUT was established in June 2015 with the goal of establishing infrastructure that would allow for appropriate and reliable sewage networks and water supplies for urban transformation through the implementation of urban revival projects.

Smart Cities Mission: It was launched on June 25, 2015, with the goal of promoting cities that use 'smart solutions' to offer basic infrastructure, a clean and sustainable environment, and a reasonable quality of life for their residents.

Housing Schemes:

- Pradhan Mantri Aawas Yojna (Housing for All)

- Manyawar Shri Kanshiram Ji Shahri Garib Awas Yojna
- Asra Yojna
- Ramganga Nagar Awasiya Yojna
- Rajiv Awas Yojna (RAY)

Commercial Schemes:

- Transport Nagar, Bareilly
- Commercial area in Ramganga Nagar Scheme

2.2.4 Industrial Development Scheme

The different industrial development schemes are listed below:

- One District One Product (ODOP)
- Mukhyamantri Yuva Swarojgar Yojana, U.P
- Prime Minister's Employment Generation Programme (PMGEP)
- District Skill Development Plan for Bareilly

2.3 Stakeholder Mapping

2.3.1 Statutory Agencies

State Urban Development Agency (SUDA)

The State Urban Development Body (SUDA) has been established as the nodal agency in the Uttar Pradesh government under the Urban Employment and Poverty Alleviation Program Department. With effect from November 20, 1990, this agency is registered under the Societies Registration Act. At the district level, District Urban Development Agencies (DUDAs) have been established.

Various initiatives are being undertaken for the social and economic upliftment of the urban poor. The District Magistrate serves as the ex-officio chairman of the district's Urban Development Agency. Its members are the presidents of all of the district's municipal authorities.

Bareilly Development Authority

Bareilly Development Authority (BDA) Established in 19th April 1977 under the Uttar Pradesh Urban Planning & Development Act 1973. BDA is the principal agency of the Government of Uttar Pradesh responsible for taking ahead the tradition of planned and sustainable development of Bareilly.

Bareilly Development Authority is responsible for preparation and implementation of master plan for the development area. It takes up the infrastructural and basic amenity development for Bareilly besides environment conservation and development of rural areas around the mother city.

Bareilly Nagar Nigam

BNN (Bareilly Nagar Nigam) is a local government entity dedicated to delivering essential community services such as health care, sanitation, education, and housing. The city is organized into four zones and 80 wards, each of which has its own councilor.

Bareilly Cantonment Board

Under the provisions of the Cantonment Act, 2006, the Bareilly Cantonment Board is an autonomous organization under the Ministry of Defense of the Government of India that performs mandatory and discretionary functions such as education, water supply, birth and death registration, etc.

2.3.2 Urban Development and Infrastructure development agencies

National Highway Authority of India

The Ministry of Road Transport and Highways manages the National Highways Authority of India (NHAI), which was founded in 1988 by an Act of Parliament. The National Highways Authority of India

(NHAI) was founded by the Indian government as a central authority to build, maintain, and manage the National Highways entrusted to it. In February of 1995, the authority, on the other hand, commenced activities. Major highways passing from the Bareilly city are under the jurisdiction of NHAI.

Uttar Pradesh State Highway Authority (UPSHA)

U.P. State Highways Authority (UPSHA) works for the development, maintenance and management of state highways and related works. U.P. State Highways Authority is constituted by Uttar Pradesh under UP act no. 19 of 2004 dated Aug'13, 2004. All the state highways passing from Bareilly are under UPSHA.

Bareilly Smart City, Bareilly

Smart City, Bareilly is a Special purpose vehicle established as a company incorporated under the companies Act, 2013 and works under MoHUA. The SPV main function is to plan, appraise, approve, release funds, implement, manage, operate, monitor and evaluate the Smart City development projects. Smart City, Bareilly works as a SPV which is headed by a full time CEO and have nominees of Central Government, State Government and ULB on its Board.

UP Housing and Development Board

The UP Housing and Development Board is in charge of enacting and enforcing housing and some urban planning laws and policies. The board is also in charge of providing affordable housing to those in need through the Uttar Pradesh Housing and Development Board.

UPRERA (Uttar Pradesh Real Estate Regulatory Authority)

As a government agency, the State Real Estate Regulatory Authority aims to protect homebuyers while also assisting in the growth of the real estate business. It makes recommendations to the appropriate government on issues concerning the development and promotion of the real estate industry.

2.3.3 Industrial Development

District Industries Centre

The District Industries Centre (DIC) is a government relevant government aimed at fostering small village and cottage industries in a certain area. The DIC was founded in 1978. The District Industries Centers, which are located at the district level, provide all of the required services and support to help entrepreneurs develop MSMEs (Micro, Small and Medium enterprises).

Uttar Pradesh State Industrial Development Authority

The Uttar Pradesh State Industrial Development Authority (UPSIDA), originally the Uttar Pradesh State Industrial Development Company, is a government-owned corporation that supports industry and builds industrial infrastructure in Uttar Pradesh. The Uttar Pradesh State Industrial Development Authority is a Government of Uttar Pradesh Public Sector Undertaking. It fosters the development of industrial infrastructure in Uttar Pradesh, as well as assisting in the development of industrial zones and delivering iconic industrial locations. UPSIDA's mission is to enable entrepreneurs establishing enterprises and factories in Uttar Pradesh with modern infrastructure facilities and services.

2.3.4 Tourism Development Archaeological Survey of India

The Archaeological Survey of India (ASI), which is part of the Ministry of Culture, is the country's leading archaeological research and preservation body. The ASI's primary focus is the preservation of ancient monuments, archaeological sites, and national-historical relics. Furthermore, it governs all archaeological operations in the country in accordance with the rules of the Ancient Monuments and Archaeological Sites and Remains Act, 1958, as amicable under the AM & ASR (Amendment & Validation Act 2010). The Antiquities and Art Treasure Act of 1972 is also governed by it. ASI for its

effective work is branched into various circles. Bareilly city is currently part of newly formed Meerut ASI Circle.

Airport Authority of India

The Airports Authority of India (AAI) is a statutory agency that is controlled by the Directorate General of Civil Aviation of the Ministry of Civil Aviation of the Government of India. It is in charge of developing, improving, maintaining, and managing India's civil aviation infrastructure. Bareilly civil airport which is a wing of Trishul Air Base is governed by Airport Authority of India.

UP Tourism

Uttar Pradesh Tourism Department is a state government body in India that is responsible for tourism promotion in the state of Uttar Pradesh. The department is also in charge of designing and implementing Uttar Pradesh's tourism policies, which include heritage, air service, and eco-tourism regulations.

2.3.5 Private Sector Associations

Indian Industries Association

The Indian Industries Association (IIA) is a powerful representative organization for Micro, Small, and Medium Enterprises (MSME). It works with business, governmental, academic, and other thought leaders to influence global, regional, and industry agendas. In today's ever-changing and increasingly competitive industrial climate, IIAs focuses on creating an enabling environment for the development of MSMEs. In Bareilly, there IIA functions through its local chapter which has 360 registered units. Bareilly chapter actively participates in works related to industrial development. It also supports its member in getting finance, incentives through state and central policies, advocacy, etc.

Indian Medical Association

The Indian Medical Association is the only body in Bareilly which is a national level volunteer organization of doctors practicing the Modern Scientific System of Medicine. Its primary function is to promote and enhance medical and allied sciences in all of their forms, as well as to improve public health and medical education in India.

Confederation of Real Estate Developers' Associations of India (CREDAI)

The Confederation of Real Estate Developers' Associations of India (CREDAI) is India's top association of private real estate developers. This is an organization which is working in Bareilly to promote with the goal of changing the face of the real estate business with a mandate to promote housing and habitat.

To account the above stakeholders all will be involved to account the project planning and phasing of the development the following section has described the bouquets of project, phasing and bulk project costing for future growth in city.

Chapter 3. BOUQUET OF PROJECTS

After analyzing the existing situation, assessing demand and goals of the city's development and discussions held with higher government authorities, architects, planners, experts and consultants, several projects were identified focusing on each domain for the development of the city.

After the discussion with Divisional Commissioner and various stakeholders on the total identified projects the following projects were discussed for the further working:

Table 3-1 Project list finalized and endorsed by Mandal Commissioner on 13th July 2022

Project list finalized by Mandal Commissioner on 13th July 2022			
Sr. No.	**Project List under Bareilly City Vision Plan 2051**	**Domain**	**Nodal Department**
1	Residential Housing Node, a) Sri Jankipuram b). Greater Bareilly C) Nekpur (Phase 1 - 2022-23) d) Gangora Pikariyam e) Kargaina f) Tehtajpur (Area - 100 Ha each)	**Urban Planning**	BDA / Awas vikas / Private
2	Industrial Growth Center, a) Rajau Paraspur Phase 1 (2022-23) b) Parsakheda (2025-30) c) Kurtara (2030-35) (Area - 100 Ha each)		BDA / UPSIDC / Private
3	Integrated Freight Center cum Logistic Hub, Faridpur (35 Ha each)		BDA / Private
4	Access to Ganga Expressway through Radial Road and Outer Ring Road	**Transportation**	NHAI / PWD
5	Bareilly Lite Metro facility		BDA
6	Ahichchhatra Tourism Infrastructure upgradation	**Heritage and Tourism**	Tourism Department
7	Fist War of Independence (1857) museum: a) Bareilly College Campus		Tourism Department
8	Urban Renewal of Nath Temple circuit & Infrastructure improvement of all Seven Nath Temples	**Urban Design**	Tourism Department
9	River front development (Ramganga & Nakatiya)		PWD / Irrigation Department / BDA
10	Aero city integrated office complex near Airport development: Area - 30 Ha		BDA / Private
11	Zari - Zardozi Shyam Ganj and Sailani market Façade Development and streetscape		BDA / Nagar Nigam
12	Streetscape from Qila to Shyamganj along with development of Dargah precinct		BDA / Nagar Nigam

13	Development of new solid waste treatment plant for 2041, (Area -15 Ha)	**Infrastructure**	Nagar Nigam
14	City Plan for Water Logging / stagnant spots and flood prone areas		Jal Nigam / Nagar Nigam
15	Development of new Tertiary Sewage Treatment Plant (STP): Near Industrial Area.		Jal Nigam / Nagar Nigam
16	"Medicity" – designated area with multiple health business and activities	**Economy**	BDA / Nagar Nigam
17	Development of Handicraft Cluster/ Common Facility Centre (CFC) – Zari & Bamboo		BDA / Nagar Nigam
18	Demonstration of Solar Energy for streets and Gov. buildings.	**Solar**	UPNEDA

INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN FOR URBAN PLANNING PROJECTS

Chapter 4. URBAN PLANNING

4.1 Vision Statement for Urban Planning

"Inclusive city that is driver of economic growth with enhanced quality of life for citizen through large scale planned land development."

4.2 Approach and Methodology

To achieve successful demand assessment for vision planning and development, these components will be studied in detail and form a part of our approach:

- Population Projections until 2071
- Land Requirements for various uses
- Land use implications of Industrial and Economic Base
- Tourism sector infrastructure proposals
- Recommendations on Draft Master Plans
- Proposed shelf of Projects
- Convergence of proposed Urban Sector projects with existing programs/schemes and strategies:

4.3 SWOC of Urban Planning

It is crucial to carefully study all aspects of the city and evaluate them from the standpoint of urban design in order to move on with the creation of the Vision plan and the shortlisting of projects for Bareilly. The analysis of the city from the perspective of urban land use planning is provided below, taking into account stakeholder consultations and data from the city survey:

STRENGTHS

- **Location of Bareilly and its identification as Counter Magnet of National Capital Region**

Bareilly city is well connected to the region and prominent locations with road and rail networks. It is located on the National Highway 30, which connects Uttarakhand's Sitarganj with Andhra Pradesh's Vijaywada. The 2040-kilometer (1267.5-mile) highway begins at the NH 9 junction at Sitarganj and runs through Bareilly. Bareilly is connected to Pilibhit by National Highway NH30 and Shahjahanpur by NH730C on the east. National Highway 530B passes to the west of the city and connects the Badaun district. It is connected to the national capital New Delhi with NH530 till Rampur and with NH9 from Rampur to New Delhi passing through Moradabad. In the north lies Nainital which is connected with State Highway 39 till Kichha and with National Highway 109 hereafter.

- **Bareilly is an economic center and employment generator for people due to wood carving, hosiery, foundry and other industries.**

Bareilly is an important economy and employment generator in the Bareilly district due to the presence of industries delivering various services and products both nationally and worldwide. Due to the paucity of mineral resources in the region unlike other districts in Uttar Pradesh, the district developed agro-based industries. The agro based industries plays a significant role in not generating revenue and employment but also establishing a unique identity of the city in the international market. A variety of industrial enterprises are located here including chemicals, food manufacturing, beverages etc.

- **Only Municipal Corporation in the district**

Bareilly city has grown to be a major city in the Region. The city expansion has taken place along the major roads and led to urban sprawl and the presence of many vacant pockets closer to the cohesive developed area. Hence the availability of opportunities in the city, have pulled in the population influx from the neighboring villages as well. Other than the burgeoning population, the major reasons for the urban expansion and increasing migration in the city.

WEAKNESS

- **Lack of planned residential spaces**

Urban sprawl is a common issue in most of the urban developments and similar situation is being seen in Bareilly also, city requires planned residential areas for the influx and future population.

- **Lack of planned industrial areas**

As per the stakeholder consulatation there are many privately developed industrial areas in Bareilly but it lacks facalities and aminities which can throtle the growth of the industries in the city. Even areas which are setup by UPSIDA such as Parsakhera also don't score very well in the infastructure avalibilty matrix that is why city needs planned industrial areas.

- **Lack of supporting infrastructure for cane and bamboo industry**

Any industry or skill requires upgradation, exposure with time which lacks in the case of cane and bamboo industry of Bareilly. A common facility centre is been set-up under ODOP scheme but it requires exposure by making people aware of the historic craft.

OPPORTUNITIES

- **To develop Bareilly as the major industrial city in the state**

Bareilly has a strong historcial industrial background and has a strong base of cane and bamboo furniture which with the help of enabling infrastructure and exposure can be developed as a major economic driver of the city. Zari and Dardozi industry is also flourishing on a wide scale in the city so its potential can also be harnessed.

- **To develop Bareilly as a major educational and medical hub**

Major opportunity for Bareilly is that it lies on the base of Kumayun region (Hilly area) and serves as a major healthcare and educational service provider in the region. Its potential can be harnessed and can be developed as a major service provider in the city.

- **To provide residents of Bareilly a better quality of life**

By providing planned residential zones and decongested core area there is an opportunity to provide better lifestyle to the residents of the city.

CHALLENGES

- **Lack of industrial growth impacting economic growth**

The existing industrial landuse of 2021 has been estimated at 336.84 which is 3.30 % of the total existing landuse. Although, 1057.42 ha (6.32%) was proposed in the Bareilly Masterplan 2021, only 31.85 % have been achieved till now. In the same line, the distinctive cane and bamboo of the city may deteriorate as a result of improper native art exhibition and craftsman facilitation. Additionally,

the youth will get disengaged from this cultural treasure, which could lead to the eventual loss of the skilled workmanship.

- **Congested core areas**

Core area is congested because of dense commercial set-up. Existing situation of the core poses threats to lives as there is little scope of fire vechile movement.

- **Lack of transport infrastructure**

The city's growth has not been able to accommodate the increasing needs of transport infrastructure thus creating congestion and parking issues at various places through out the city.

4.4 Urban Planning Projects:

- Residential Housing Node, a) Nekpur (Phase 1 - 2022-23) b) Gangora Pikariyam c) Kargaina d) Tehtajpur
- Industrial Growth Centers, a) Rajau Paraspur Phase 1 (2022-23) b) Parsakheda (2025-30) c) Kurtara (2030-35)
- Integrated Freight Center, Faridpur
- Multi-Modal Logistics Hub, Kurtara

4.4.1 Project : Residential Housing Nodes

4.4.1.1 Residential Land use Demand

Draft Master Plan 2031 allocates a total of 8580.37 hectares of land under residential land use. Due to external growth drivers, a rising residential tendency in the city improved regional connectivity, and planned developments, the percentage of residential area is projected to be on the higher side i.e., 40 percent. Thus, a total of 14808.06 hectares of the land area needs to be under the umbrella of residential land use for 2071.

4.4.1.2 Zoning Regulations

Permissible Categories of Different Activities / Uses: The various activities/uses under the major land use zones proposed in the master plan will have the following permission categories:

Permissible Use: The activities/uses which will be ancillary to the major land-uses concerned and would normally be allowed.

Conditionally Permissible Uses: Those actions/uses which will be permissible based on work fulfillment in the respective major land-uses with mandatory means and restrictions are provided in section 6.4 of the Master Plan Document.

Permissible use with special permission of the Competent Authority: The activities/uses which are reckoned permissible during the approval process from the competent authority, based on the type of construction, infrastructure, and the environmental impact on the surrounding area, shall be permissible with special conditions. These are listed in section 6.3.3 of the Master Plan Document.

Prohibited use: All activities/uses that are not permissible in the master plan's major land-uses, those listed as prohibited activities; and all such activities that are not ancillary to the main land use or in the above three categories, or not included in the category's list of permissible actions, will be prohibited.

Floating Use: The proposal intends to improve the master plan's zoning system's flexibility. Certain activities/uses are proposed in response to a city's changing social, physical, and political context, but are not mentioned in zoning restrictions. For example, Bus/Rail/Air terminal Wholesale market, etc.

Rainwater harvesting: The existing actual use of natural reservoirs, ponds and lakes, etc. of one acre and above area under any land-use zone proposed in the master plans / zonal development plans of metropolitan areas, for the conservation and recharging of groundwater, will stay the same or supplementary thereto. The principal land use of the properties should have been shown differently in the same master plan. After listing all such reservoirs, ponds, lakes, and other bodies of water, it will be necessary to establish appropriate measures for their protection in the master plan / zonal plan layout plan.

Impact Fee: Applications for permission of certain other activities/uses in plans approved by the Competent Authority in planned developed areas where provision has been made for ancillary activities according to the standards will be received, as per the master plan. The regulations of the Zoning Regulations will apply to such applications. If permission for high use is given in the low land use zone, it will result in an impact on the traffic-transportation infrastructure and environment in the area concerned. The impact fee options were outlined in-depth in the master plan.

Exempted Land use Conversions:

1. For commonly permitted activities/uses in a built-up area.
2. Activities to be allowed temporarily (maximum time limit one week) in various major land use zones for public and semi-public facilities.
3. Activities to be developed by government and semi-government agencies in residential land use zones / for uses.
4. There will be no impact fee charged under various policies declared by the state government, such as tourist policy, information technology policy, film policy, and others, for which activities/uses have been approved in specified land-use zones as per government directives. Hotels with a star rating and information technology units/parks with a capacity of up to 5 KVA.

Procedure for Permission:

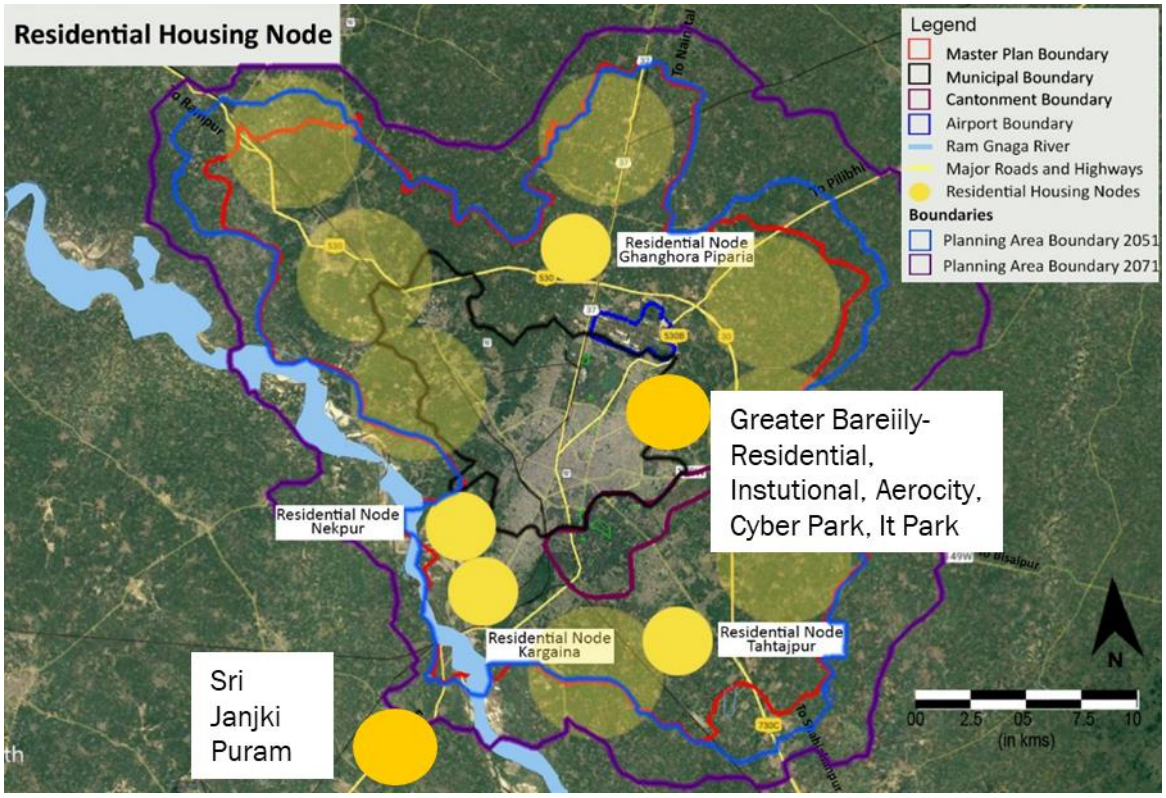
1. In any of the major land use zones under the development area, before special permission is given for other activities by the competent authority, a committee will examine each such case and the committee's recommendation will be presented to the authority board.
2. The said committee will have the following members:
   a. Chief Town and Country Planner, Uttar Pradesh or his representative.
   b. Vice-Chairman of the Development Authority or the officer nominated by him.
   c. A non-official member of the Authority Board nominated by the Chairman Development Authority.
3. The applicant shall not be entitled to any action or use under the zoning regulations. permission

Other Requirements:

1. Development/construction on a site proposed for any action or specific use under the master plan's major land use zones will be permitted only if that action or specific use is relevant to the master plan's major land use zones.
2. Existing forest areas or sites associated with public services and utilities, such as parks, playgrounds, and roads, will remain the same, regardless of where in the proposed master plan they are located.

3. If the zonal development plan or layout plan of a site/ plot has been approved by the competent authority, then in such a case the permissible land use of the said site/plot would be as specified in the zonal development plan or layout plan.
4. All development/construction works in all land use categories must comply with relevant building byelaws under the proposed zoning regulations.

4.4.1.3 Proposed Residential Housing Zones



Map 4-1: Residential Housing Nodes and Probable Residential Areas of Future

The population is projected to increase more than threefold and reach 38 lakhs within the horizon year. The growing population will need land for a habitat, but if these new regions are not built-in accordance with the laws and standards, it will exacerbate the already chaotic conditions in some sectors. New residential zones are suggested to handle the population growth and improve living conditions. Four residential zones or nodes are proposed to be developed following the study and demand evaluation. Out of these 2 residential zones are proposed on Aligarh Road near village Nekpur and Kargaina. Other residential zones are proposed on Lucknow Road near Tehtajpur and near Village Ghaghoria Piparia on Nainital Road. Each residential node is expected to be developed on 100 hectares each.

Additionally, it is anticipated that by 2051, the population will have spread out past the boundary of the Draft Master Plan 2031 and settled in various areas throughout the city.

4.4.1.4 Projected Housing Demand

Bareilly city is projected to accommodate 5,78,900 households by 2051 and 7,43,403 households by the horizon year 2071. It is as per the national average of 5.0 person per household. EWS Category which is considered to be 15 percent will have 86,835 units and 1,11060 units by 2051 and 2061 respectively. LIG category and MIG category both will constitute 35 percent each of the total share of

housing demand with 2,02,615 units in 2051 and 2,59,141 units by 2071. HIG category will constitute 15 percent and will require housing units similar to EWS category but 4 times the size of each unit. Below is a breakdown of demand by category according to the Draft Master Plan 2031:

Table 4-1: Housing Demand till 2071

Type of residential category as per economic status	Type of residential category as per economic status	No. of houses For 2031	No. of houses For 2041	No. of houses For 2051	No. of houses For 2061	No. of houses For 2071
EWS	15	58470	72673	86835	90884	111060
LIG	35	136431	169570	202615	212063	259141
MIG	35	136431	169570	202615	212063	259141
HIG	15	58470	72673	86835	90884	111060
Total	100	389802	484487	578900	605896	740403

Unit area for various groups is taken into consideration under socioeconomic requirements. Area for EWS category per unit is 50 sq.m., 80 sq.m. for LIG, 120 sq.m. for MIG and 200 sq.m. for HIG class. The total built-up area for 2031, 2041, and 2051 is computed based on these standards, as indicated in the table below:

Table 4-2: Built Up Area w.r.t. housing need till 2071

Type of residential category as per economic status	Unit Area Considered	Built-up area by 2031 (in sq.m.)	Built-up area by 2041 (in sq.m.)	Built-up area by 2051 (in sq.m.)	Built-up area by 2061 (in sq.m.)	Built-up area by 2071 (in sq.m.)
EWS	50	2923515	3633652.5	4341750	4544217	5553023
LIG	80	10914456	13565636	16209200	16965077	20731285
MIG	120	16371684	20348454	24313800	25447616	31096928
HIG	200	11694060	14534610	17367000	18176869	22212092
Total		41903715	52082352.5	62231750	65133779	79593328

No. of units for EWS and HIG is the same but due to the difference in unit size built-up area in the year, 2071 for EWS is 55,53,023 sq.m. and 2,22,12,092 sq.m. Similarly, HIG and MIG categories have similar no. of units in their share but a total built area of MIG will be 3,10,96,928 sq.m. and 2,07,31,285 sq.m. for LIG. Total built-up area required by 2051 will be 7,95,93,328 sq.m.

4.4.1.5 Infrastructure Requirements

Project - Residential Housing Nodes			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

4.4.1.6 Costing

Nekpur Residential Node costing - 100 Hectares		
S.no	Components	Development Cost (in INR)
1	Plumbing sewerage STP and all	74,13,150
2	Electricity ESS and all	74,13,150
3	Roads and landscaping	98,84,200
Infra Cost	**Total**	**2,47,10,500**

Kargaina Residential Node costing - 100 Hectares		
S.no	Components	Development Cost (in INR)
1	Plumbing sewerage STP and all	74,13,150
2	Electricity ESS and all	74,13,150
3	Roads and landscaping	98,84,200
Infra Cost	**Total**	**2,47,10,500**

Tehtajpur Residential Node costing - 100 Hectares		
S.no	Components	Development Cost (in INR)
1	Plumbing sewerage STP and all	74,13,150
2	Electricity ESS and all	74,13,150
3	Roads and landscaping	98,84,200
Infra Cost	**Total**	**2,47,10,500**

Ghaghoria Residential Node costing - 100 Hectares		
S.no	Components	Development Cost (in INR)
1	Plumbing sewerage STP and all	74,13,150
2	Electricity ESS and all	74,13,150
3	Roads and landscaping	98,84,200
Infra Cost	**Total**	**2,47,10,500**

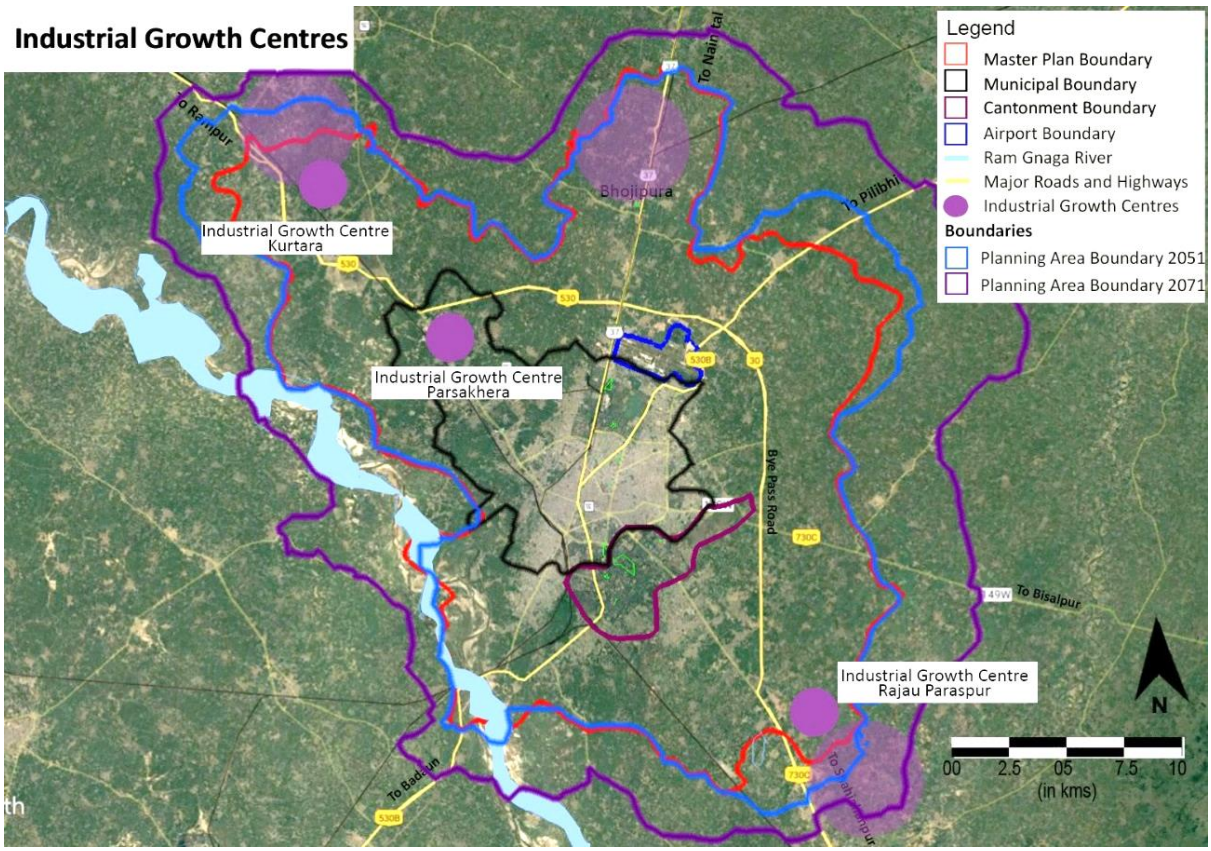
INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN under Urban Planning Sector Project 1

					Short Term (2022-28)			Medium Term (2028-37)			Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total (Rs Lakhs)**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Residential Housing Node				Hybrid Annuity Mode (HAM)									
a) Nekpur			2,47,10,500				2,47,10,500						
b) Gangora Pikariyam			2,47,10,500					2,47,10,500					
c) Kargaina			2,47,10,500				2,47,10,500						
d) Tehtajpur			2,47,10,500					2,47,10,500					
			9,88,42,000		**-**	**-**	**494**	**494**					

4.4.2 Project : Industrial Growth Centers

4.4.2.1 Proposed Industrial products as per the vision

Industries in Bareilly produce products of a varied range. While other industries are involved in generating items linked to chemicals, plastic, etc., major industries like Coco-Cola, Vadilal, and BL Agro produce agro-based products. Bareilly is an area that can procure raw material for agro-based industry from the surrounding region. As per the vision, Agro-based products which also include food processing and packaging are focused. In addition to this, Zari Zardozi is selected under the One District One Product Scheme so it is also focused under the vision and is proposed to provide enabling infrastructure for this.



Map 4-2: Proposed Industrial Growth Centers and Probable Industrial Areas of Future

4.4.2.2 Proposed Industrial Centers

Bareilly city has three UPSIDA industrial areas and one private industrial area which is near Invertis University on Lucknow Road. As per the demand assessment, three industrial areas are proposed. The first industrial area is proposed of area 50 hectares as an extension of the already existing Paraskhera Industrial area which is currently the major industrial area of Bareilly city. The second industrial area is also on Rampur/Delhi Road and lies near village Kurtara. It is proposed to cover 100 hectares of area. The third industrial area is proposed as an up-gradation and extension of the already existing private industrial area on Lucknow Road on an area of 100 hectares. Paraskhera industrial growth center is proposed in short term, Rajau Paraspur in the medium-term, and Kurtara in the long-term time frame.

In addition to these industrial zones, potential sites for industrial growth are also analyzed and displayed on the map above. It is anticipated that these areas would expand as an addition to the current or prospective industrial areas.

4.4.2.3 Proposed Industrial Typology

The city's identity originally rested on its small-scale industries of bamboo craft and zari zardozi, but these are now fast disappearing. Therefore, it is suggested that MSME households be increased. In Bareilly, small and medium-sized businesses that produce goods based on agriculture, chemicals, plastics, and other materials predominate. The main drivers of the economy in Bareilly are small and medium-sized businesses. Therefore, it is suggested to support small and medium-sized companies, for which space is designated under the Draft Master Plan 2031 and the necessary infrastructure is anticipated to be put in place during the project's medium-term time frame. According to the current situational study and demand assessment, there is no significant demand for large-scale industries.

4.4.2.4 Projected Industrial Land Demand

Table 4-3: Projected Industrial Land Use Demand

Year	Projected Population	Total Master Plan Area (Ha)	Proposed Percentage (Ha)	Required Commercial Area (Ha)	Additional Area Required additional to Master Plan 2031 (Ha)
2031	1949012	22815.76	8.8 (in Draft Master Plan 2031)	2008.76	0
2041	2422433	25499.25	12	3059.91	1051.15
2051	2894499	30468.41	15	4570.26	2561.50
2061	30,29,478	31889.24	15	4,783.39	2,774.63
2071	37,02,015	38968.58	15	5,845.29	3,836.53

8.8% of the overall Master Plan area, or 2008.76 hectares, has been allotted in the Draft Master Plan 2031. The city will need more land by 2041 for propelling industrial landuse at 12 percent, which will require an additional area of 1051.15 hectares. More industries will be needed to boost the economy and provide more employment opportunities, therefore from the year 2051, a 15% industrial landuse is recommended, requiring 2561.50 hectares of additional land. For the horizon year 2071, an area of 3836.53 hectares will be required in addition to the allocation in the Draft Master Plan for 2031, for a total of 5845.29 hectares.

4.4.2.5 Infrastructure Requirements

Project - Industrial Growth Centers			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

4.4.2.6 Costing

Kurtara Industrial Growth Centre		
S.no	Components	Development Cost (in INR)
1	Plumbing sewerage STP and all	74,13,150
2	Electricity ESS and all	74,13,150
3	Roads and landscaping	98,84,200
Infra Cost	**Total**	**2,47,10,500**

Rajau Paraspur Industrial Growth Centre		
S.no	Components	Development Cost (in INR)
1	Plumbing sewerage STP and all	74,13,150
2	Electricity ESS and all	74,13,150
3	Roads and landscaping	98,84,200
Infra Cost	**Total**	**2,47,10,500**

Paraskhera Industrial Growth Centre		
S.no	Components	Development Cost (in INR)
1	Plumbing sewerage STP and all	74,13,150
2	Electricity ESS and all	74,13,150
3	Roads and landscaping	98,84,200
Infra Cost	**Total**	**2,47,10,500**

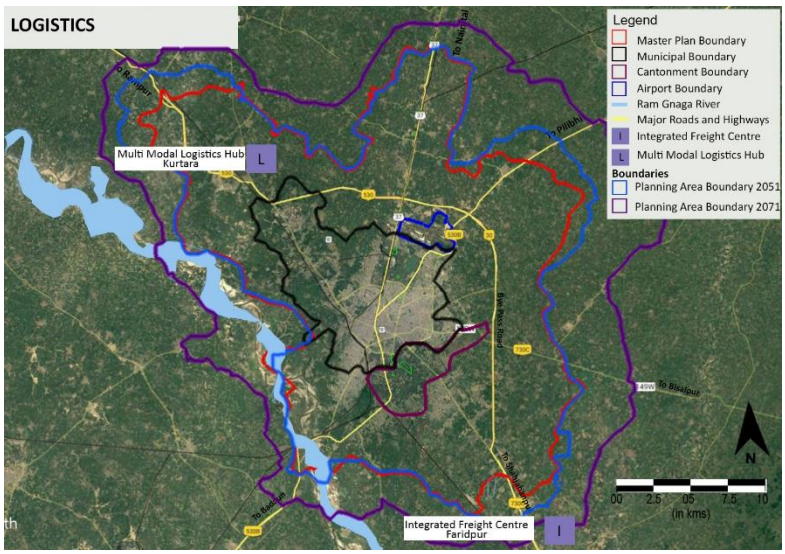
INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN under Urban Planning Sector Project 2

					Short Term (2022-28)			Medium Term (2028-37)			Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total (Rs Lakhs)**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Residential Housing Node													
a) Rajau Paraspur	2,47,10,500		2,47,10,500										
b) Parsakheda	2,47,10,500					2,47,10,500							
c) Kurtara	2,47,10,500							2,47,10,500					
				PPP									
	7,41,31,500		**247**			**247**		**247**					

4.4.3 Project : Logistics Hub and Integrated Fright Corridor

4.4.3.1 Logistics and Transportation

Industries require logistics support to facilitate the transfer of finished goods and raw materials. Currently, Transport Nagar on Lucknow Road is the major facility for logistics support which lies opposite the Paraskhera industrial area. An Integrated Freight Center in Faridpur for the Lucknow Road Industrial area and a Multi-Modal Logistics Hub close to Kurtara are proposed in order to assist the currently existing and newly projected industrial areas on Delhi Road and ensure efficient movement of goods and products. The area of the proposed Multi-Modal Logistics Hub and proposed Integrated Freight Centre will be approximately 35 hectares each.



Map 4-3: Proposed Logistics Hub

4.4.3.2 Common Facility Centers

A common facility center for Bamboo products and one for readymade garments has been set up in Bareilly recently to provide sill development and required infrastructure. As per the policy, CFC should provide the following facilities:

- Testing Lab
- Design Development and Training Center
- Technology Research and Development Center
- Product Demonstration cum Sale Center
- Raw-Material Banks/Common Resources Center
- Common Production/Processing Center
- Common Logistics Center
- Information collection, analysis, and broadcasting Center
- Packaging, Labelling, and Barcoding Facilities

4.4.3.3 Other Infrastructure

There is a lack of physical and road infrastructure in all the existing industrial areas, especially the privately set-up Lucknow rod industrial area. Providing enabling infrastructure will motivate the investors to set up new industries and will also positively affect the existing industries.

4.4.3.4 Infrastructure Requirements

Project - Integrated Freight Center cum Logistic Hub			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

4.4.3.5 Costing

Kurtara Integrated Freight Centre cum Logistic Hub		
S.no	**Components**	**Development Cost (in INR)**
1	Plumbing sewerage STP and all	25,94,607
2	Electricity ESS and all	25,94,607
3	Roads and landscaping	34,59,476
	Sub Total	86,48,690

Faridpur Integrated Freight Centre cum Logistic Hub		
S.no	**Components**	**Development Cost (in INR)**
1	Plumbing sewerage STP and all	25,94,607
2	Electricity ESS and all	25,94,607
3	Roads and landscaping	34,59,476
	Sub Total	86,48,690

INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN under Urban Planning Sector Project 3

					Short Term (2022-28)			Medium Term (2028-37)			Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total (Rs Lakhs)**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Logistics Hub Node				PPP									
Kurtara Integrated Freight Centre cum Logistic Hub		86,48,690				86,48,690							
Faridpur Integrated Freight Centre cum Logistic Hub		86,48,690				86,48,690							
Total Cost		**1,72,97,380**				**173**							

INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN FOR DEVELOPMENT OF URBAN DESIGN PROJECTS

Chapter 5. URBAN DESIGN

5.1 Urban Design Vision

"Envisioning Bareilly as a trade & craft destination, a place for spiritual tourism and an environment resilient city, to enhance the overall city identity, encourage growth & embrace the city's culture".

The vision aims to develop Bareilly with a holistic approach by integrating the ecological, economic, cultural & social aspect of the city. Considering the city data, it is witnessed that the city of Bareilly has a strong infrastructure in terms of trade and industry along with a strong religious identity owing to the seven Nath temples, the Not only that, but the city is also rich in terms of medical and educational infrastructure as well. The city is also enriched with many natural assets which completely go unnoticed due to lack of legibility.

In order to develop the Vision plan and shortlisting appropriate projects for Bareilly, the way forward is to conclude the data and SWOT analysis and picking specific sectors/ dimensions that possess a higher potential for City's future growth. Thus, the vision focuses development of all the dimensions that the city of Bareilly possesses through the following objectives:

- Strengthening the religious identity of 'Nath Nagri', the Dargah & associated public events for better tourism.
- Revival of City's essence along its trade & commerce infrastructure
- Establishing environmental resilience by integrating the blue-green assets with the city fabric
- Proposals that foster Socio-economic development for city residents.

5.2 SWOC of Urban Regeneration - Urban Design

To proceed further with the development of Vision plan and shortlisting of the projects for Bareilly, it is essential to observe all the aspects of the city precisely and examine them with respect to urban design perspective. Taking the **city survey data** and **stakeholder consultations** into consideration, following is the analysis of city from urban design perspective:

STRENGTH

- **NATH NAGRI -** Presence of Seven Nath temples envelope the seven major routes of the city, giving it the identity of Nath Nagri
- **TRADE AND BUSINESS -** With massive market infrastructure, the city is also well known for its trade to all its neighboring cities.
- **RELIGION AND CULTURE -** The city of Bareilly portraits a very strong religious & cultural identity.
- **ZARI ZARDOZI-** Bareilly is very well renowned for its native craft of Zari-Zardozi all over the country which initiates commerce & trade to the city.

WEAKNESS

- **LACK OF IDENTITY -** The city lacks the identity in terms of entrance gateways.
- **NO IMAGEABILITY -** Loss of Imageability of the city is seen beyond the old city core.

- **RELIGION AND CULTURE-** Despite of having a very rich cultural background; the religious precincts still lack the sense of Identity
- **ZARI ZARDOZI -** The traditional craft work trade is declining due to lack of display infrastructure and tax systems.

OPPORTUNITY

- **NATH NAGRI -** Development of Nath temple circuit & reviving religious precincts as the symbolic identity of Bareilly.
- **NATIVE CRAFT-** Creating a platform to preserve & elevate the city's local manufacturing industries.
- **WORK OPPORTUNITIES –** Development of infrastructure that provides work opportunities & initiates startups for city's economic growth.

CHALLENGES

- **EXISTING MARKET INFRASTRUCTURE -** The mobility infrastructure in main markets like Bada bazaar, Kutubkhana & Shyam ganj relentlessly lacks management.
- **SAFETY ASPECT OF THE CITY -** The current street scenario lacks the safety & security aspect of the residents which further affects nightlife for women & children.
- **THREAT TO THE NATIVE CRAFT -** The local Zari-Zardozi art could vanish with time if there's no infrastructure proposed to revive it.

5.3 Urban Design Projects

- Nath Temples facility improvement and beautification
- River front development of Ramganga and Nakatiya
- Aero city integrated office complex near Airport development
- Zari - Zardozi Shyam Ganj and Sailani market Façade Development and streetscape
- Streetscape from Qila to Shyamganj along with development of Dargah precinct

5.3.1 Project : Nath Temples facility improvement and beautification

5.3.1.1 Development of Spiritual Tourism by Creating Religious Circuit of All Seven Nath Temples

5.3.1.1.1 Background

The city has a strong religious essence and is called the Nath Nagri owing to the seven Nath temples located at seven entry gates to the city via different cities. The city inherits a very rich spiritual significance that brings pilgrims from many other cities to visit the Nath temples. These Nath temples witness their highest influx of visitors during the Saavan month and Maha Shivratri. Thousands of pilgrims also visit the city for Seven Nath temple parikrama which adds to the religious uniqueness of the city.

5.3.1.1.2 Problem Statement

Since the construction of Nath temples at the city periphery as its gateways, the city has expanded drastically on all sides and the expansion of the city fabric has enveloped all seven Nath temples, making their identity disappear as city gateways. The expansion of city has also resulted in loss of imageability of all Nath temple precincts over a period of time, which has further led to disappearing

of the overall circuit that connects all Nath temples. There are no proper legible gateways or routes that celebrate their essence and establish their strong image in the context of the city.

5.3.1.1.3 Key Intervention

- Identification of roads to develop the Nath temples circuit.
- Integrating IPT, NMT and other public transit nodes to enhance connectivity and accessibility along the circuit
- Development of Tourism infrastructure and public conveniences along the circuit.
- Redesigning Streetscape leading to temple precinct along with organized spaces for parking, pedestrians, hawkers etc.
- Integrating Math Tulsi Sthal in the Nath temples circuit.
- Streetscape for urban streets along the Nath circuit & restructuring its mobility network.
- Reclaiming the spaces for people under flyovers along the Nath circuit to create opportunities for public activity and enhance walkability.
- Strengthening the legibility and identity of the city chowks, chaurahas and market streets through signage's and visual landmarks.
- Creating public activity and vendor zones around the chowks along the circuit.

5.3.1.1.4 Site Delineation

Since the seven Nath temples are situated on different routes which are entrance gateways to the city from other cities, they can be accessed from any of these routes. These seven routes formed the base of city's connectivity to major cities like Nainital (Trivatinath Temple), Delhi (Alakhnath Temple), Chandausi (Madinath Temple), Badaun (Tapeshwar Nath Temple), Lucknow (Dopeshwar Nath Temple), Bilaspur (Pashupatinath Temple) and Pilibhit (Vankhandinath temple).

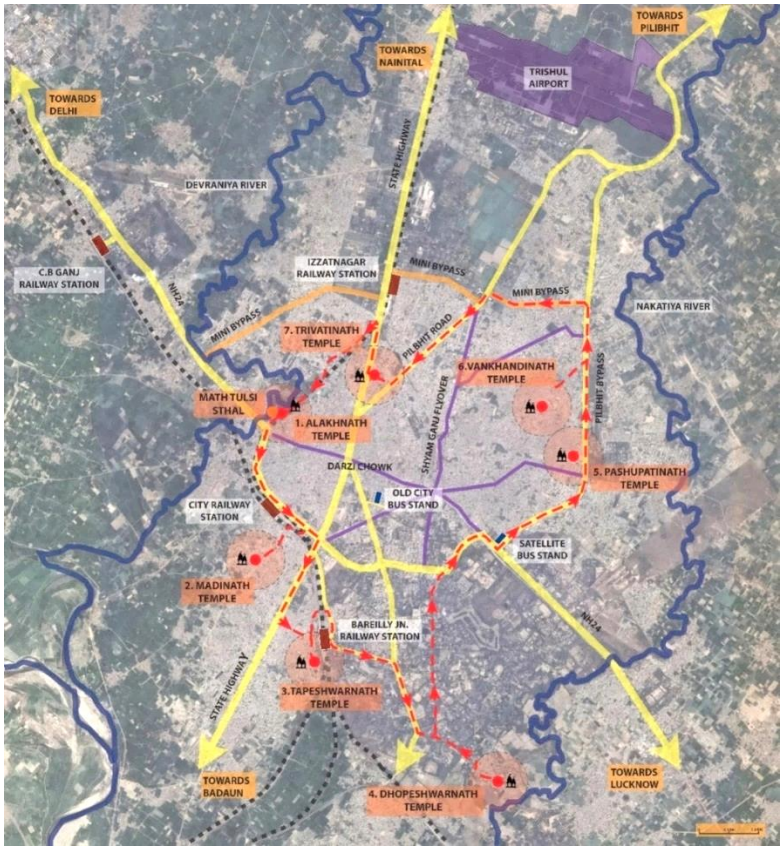
Though the city is known for being the **Nath Nagri**, this essence is not reflected in the precincts of the Nath temples and not even along the routes leading to the city. The temples are strategically located at entry gateways of the city but there is no expression and legibility to their approach. The streets leading to the temples lack the visual character which they should strongly portray.

5.3.1.1.5 Area of Intervention:

Identified pilgrimage route as marked in the map showcases formation of a circuit connecting all the Nath temples.

Alakhnath Temple to Madinath Temple - 4.2 Km
Madinath Temple to Tapeshwarnath Temple - 2.8 Km
Tapeshwarnath Temple to Dhopeshwarnath Temple - 5.4 Km
Dhopeshwarnath Temple to Pashupatinath Temple - 6.6 Km
Pashupatinath Temple to Vankhandinath Temple - 2.7 Km
Vankhandinath Temple to Trivatinath Temple - 5.3 Km
Trivatinath Temple to Alakhnath Temple - 3.2 km

Total Length of Nath Nagri Circuit to be developed - 30.2 Km



Map 5-1: Nath Temple Complex

5.3.1.1.6 Project Impact and its Benefits

Considering the spiritual significance of the Nath temple in the city, the development of a dedicated Nath Temple circuit becomes essential to restore city's cultural value. Developing corridor leading to the religious places will enhance the urban character of their precincts. Establishing the Significance of Bareilly as Nath Nagri would enhance the Tourism Potential of the City. Provision of public amenities like parking space, washrooms, etc. along the circuit will offer convenience to the visitors.

5.3.1.1.7 Stakeholders

Nodal Agency

Nath Temple Association, Bareilly

Bareilly Development Authority

Helping Agencies

Bareilly Smart City Limited (BSCL)

5.3.1.1.8 Bareilly Nagar Nigam

U.P Tourism

5.3.1.1.9 Infrastructure Requirements

8.Urban Renewal of Nath Temple circuit & Infrastructure improvement of all Seven Nath Temples			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Waste Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

5.3.1.1.10 Costing and Integrated Infrastructure Development Plan and Phasing of Urban Design Project - Urban Renewal of Nath Temple circuit & Infrastructure improvement of all Seven Nath Temples

				Short Term (2022-28)			**Medium Term (2028-37)**			**Long Term (2037-2071)**		
Components	**Cost for Facilitation (INR)**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
a) Nath Temple Circuit Development			Govt Fund									
b) Pilot Project - Vankhandinath Temple Precinct												
Entrance Gateway	20,00,000	20		20								
Pathway Development	56,97,000	57		57								
Fairground Entrance Gateways	16,00,000	16		16								
Services & Amenities Block	10,80,000	10		10								
Fair Ground development	7,12,13,000	712		712								

Promenade Space	60,75,000	61		61								
Visitor Parking	6,24,750	6		6								
Kiosks	9,60,70,000	961		961								
Signage and way finding	3,04,000	3		3								
Lighting	62,00,000	62		62								
Street furniture	9,30,000	9		9								
Total	**19,17,93,750**	**1,917**		**1,917**								

5.3.2 Project : River front development of Ramganga and Nakatiya

5.3.2.1 Ramganga Riverfront Development

5.3.2.1.1 Background

The Ramganga River is the largest river passing through the city and the river ghat is one of the well-known religious places in the city. The place inherits a rich historic as well as spiritual value that brings lakhs of pilgrims annually to the ghat. A fair after every 14 days is also organized on the riverbanks attracting tourists and pilgrims from all over the city. The riverbanks are flooded with people taking baths, performing religious activities and celebrating the festival.

Since the river crosses in close proximity to Chaubari village, a major fair is organized annually at the banks of the river known as Chaubari fair. The fair takes place on the occasion of Kartik purnima. One of the biggest attractions of this fair is the horse market, where people from far off areas visit the city to buy or sell horses. The fair is attended by lacks pilgrims, which initiates tourism for the city on a large scale.

5.3.2.1.2 Problem Statement

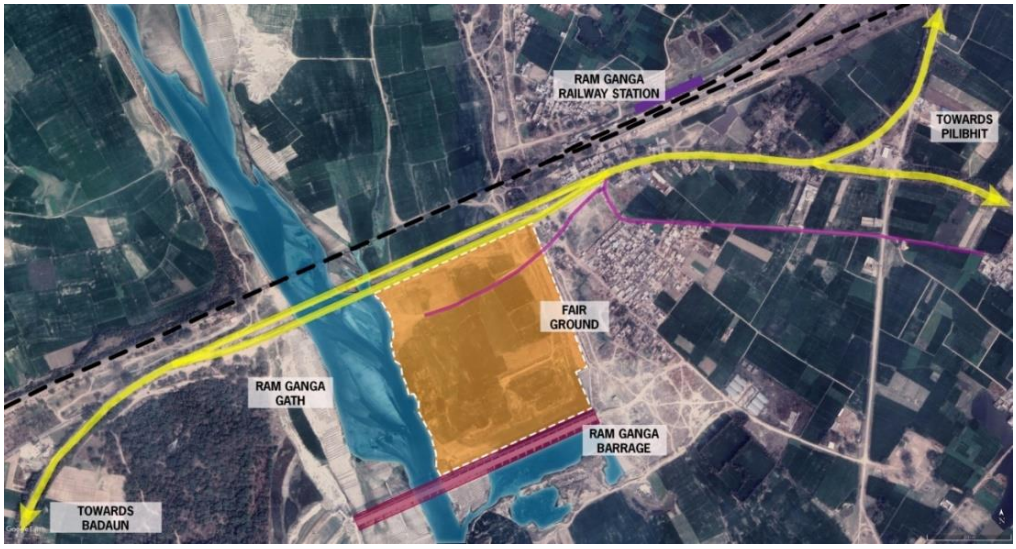
Despite of having a spiritual value of such prestige, the river ghat and the fairground still remains redundant. Due to lack of identity markers, entrance gateway and wayfinding, the approach to the ghat area is not feasible for the visitors. The Ramganga fairground is not only an ecological asset but also holds a significant value in the social infrastructure of Bareilly.

5.3.2.1.3 Key Activities, Task & Intervention

- Crafting Ramganga river ghat into a multi-functional public space that caters to all pilgrimage activity, fairs and festivals.
- Development of symbolic identity/ entrance gateway to the riverfront.
- Place making of their precinct with respect to the surrounding neighborhood.
- Revival of the existing precinct while adding public infrastructure like designated parking space, washrooms, etc.
- Up gradation of Ramganga Jn. Railway station and improving its connectivity with the riverfront

5.3.2.1.4 Site Delineation

The current scenario of riverfront displays a very abrupt image of city's natural features. Despite of being well connected to the city through state highway & railway line, the site completely lacks a prominent connectivity and a symbolic identity. The existing ghat and fairground does not contain any public infrastructure to support the monthly holy bath and Chaubari fair. This has led to the depletion of the condition of the riverine, eventually affecting the overall ecology.



Map 5-2: Ramganga Ghat and Fair Ground

Figure 5-1: Dilapidated Ghat along river edge and connecting bridge (left), Vacant Land Parcel near bridge (right)

Figure 5-2: Provision of boating to cross the river

5.3.2.1.5 Project Impact and its Benefits

Development of the riverfront will help in revival of the overall river edge and restoring its ecology as well. Integration of the riverfront along with the fairground will result in rejuvenation of the overall precinct benefiting the pilgrims and city residents. Also, provision of public amenities will add to the overall development and initiate more pilgrims to visit. The urban renewal of the existing ghat will eventually result in upliftment of the city social infrastructure.

5.3.2.1.6 Stakeholders

Nodal Agency

Bareilly Development Authority

Helping Agencies

Bareilly Smart City Limited (BSCL)

Bareilly Nagar Nigam

U.P Tourism

5.3.2.2 Nakatiya river front development into city level greens

5.3.2.2.1 Background

Devraniya and Nakatiya are the two main rivers of Bareilly. Both the rivers pass through the dense fabric of the city, thus becoming an integral part of the neighborhood. The organic growth of settlement along both the rivers has led to major encroachments and loss of green buffers. Over the years, the ecological condition of both the rivers has consequently depleted due to lack of infrastructure development and maintenance. Opening up of Sewage drains directly into the river has degraded the water quality, which has severely affected the overall riverine along with its flora and fauna.

5.3.2.2.2 Problem Statement

Due to lack of infrastructure development, Nakatiya River portrays a very dilapidated image with many ghats along the edge lie redundant over a period of time. With no preservation of the river edge, wetlands or development of public spaces, the condition of riverine ecology has consequently depleted over the period of time. Thus, the land parcels along the river have become dump yard for the neighbors and cattle herding/bathing area for some.

5.3.2.2.3 Key Intervention

- Development of the riverfront will help in revival of the overall river edge and restoring its ecology as well.
- Integration of the river edge along with the available land parcel will result in rejuvenation of the overall precinct, creating an active green asset for the city residents.
- The provision of public amenities will add to the overall development and public convenience.
- Development of available land parcels to facilitate a better open public green with a mix of 50% active and 50% passive recreational space.
- Development of plaza space along with provision of street furniture – benches, dustbins, lighting

5.3.2.2.4 Site Delineation

The land parcel identified for development lies on the banks of Nakatiya River on the way to Lucknow from Bareilly. Situated in the middle of cantonment area and a residential cluster, the strategic location of the site possesses a high potential for its revival. The existing Shiva temple and Nakatiya Masjid also adds spiritual dimension to the precinct. The two land parcels of size 1.4 hectares and 1.15 hectares share one edge with the river and a direct connection to the road, making it feasible for proposing active public zone.

Map 5-3: Nakatiya River, Cantonment Area

Figure 5-3: Approach Road to the land parcel (left), Existing Condition of Naktiya (right)

Figure 5-4: Abandoned land parcel on Nakatiya River

Figure 5-5: Nakatiya River, Cantonment Area

5.3.2.2.5 Project Impact and its Benefits

Development of abandoned land parcels along the river will help in revival of the river edge. Integration of these land parcels along with the abutting public spaces, open greens and spiritual places will result in rejuvenation of the overall precinct benefitting the visitors and city residents. The project will eventually result in upliftment of the city's social infrastructure. The development of this project will not only restore the overall ecology of this abandoned natural asset but will also help in revival of the overall precinct.

5.3.2.2.6 Stakeholders for the Project

Nodal Agency

Bareilly Development Authority

Helping Agency

Bareilly Smart City Limited (BSCL)

Bareilly Nagar Nigam

5.3.2.3 Infrastructure Requirements

River front development (Ramganga & Nakatiya)			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Waste Collection System			
Access of Road			
Access of Parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

5.3.2.4 Costing- INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN for River Front Development Project

					Short Term (2022-28)				**Medium Term (2028-2037)**			**Long Term (2037-2071)**	
Components	**Cost for Facilitation (INR)**	**Total Cost in Lakhs**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components				Govt Fund									
a) Ramganga Riverfront: 20 Hectares (49.4 Acres)													
Ghat Development	1,08,00,00,000		10,800		10,800								
Public amenities	3,78,00,000		378		378								
Naturopathy Centre	11,79,25,000		1,179				1,179						
Horse Training Centre	1,91,40,000		191			191							
Commercial Area	8,16,90,000		817			817							
Recreational Zone	76,98,00,000		7,698			7,698							

Parking & Drop-Off	4,21,95,000		422				422						
Signage and way finding	6,08,000		6				6						
Lighting	1,20,00,000		120				120						
Street furniture	18,90,000		19				19						
Total	**2,16,30,48,000**				**11,178**	**8,706**	**1,746**						
b) Nakatiya Riverfront: 2.13 Hectares (5.32 Acres)				**Govt Fund**									
Entrance Plaza	6,27,000		6		6								
Shaded Trellis	50,00,000		50		50								
Services & Amenities Block	24,30,000		24		24								
Open Area development	10,86,88,750		1,087		1,087								
River Edge Promenade & Open Amphitheatre	1,33,65,000		134			134							
Pedestrian Underpass connection	43,20,000		43			43							
Gateway Design	16,00,000		16			16							
Visitor Parking	4,41,000		4			4							
Signage and way finding	1,52,000		2			2							
Lighting	42,00,000		42			42							
Street furniture	13,50,000		14			14							
Total	**14,21,73,750**				**1,167**	**254**	**254**						

5.3.3 Project : Aero city integrated office complex near Airport development

5.3.3.1 Background:

Bareilly is listed as one of the nine counter magnets of the National Capital region which can be developed as the economic growth centre. Trade and commerce are one of the important sectors which can amplify the economy of the city. As per draft master plan 2031, the existing landuse of the commercial area is found to be 3.31 percent against the URDPFI guidelines of 4-6 percent. Lack of commercial space is also outlined by stakeholders such as Bareilly Vyapar Manadal, etc. Bareilly city needs commercial area as given below:

Year	Projected Population	Total Master Plan Area (Ha)	Proposed Percentage (Ha)	Commercial Area (Ha)	Additional Area additional to Master Plan 2031 (Ha)
2031	1949012	22815.76	4	912.63	0
2041	2422433	25499.25	4	1019.97	107.33
2051	2894499	30468.41	4	1218.73	306.10
2061	30,29,478	31889.24	4	1275.56	362.93
2071	37,02,015	38968.58	4	1558.74	646.11

5.3.3.2 Problem Statement:

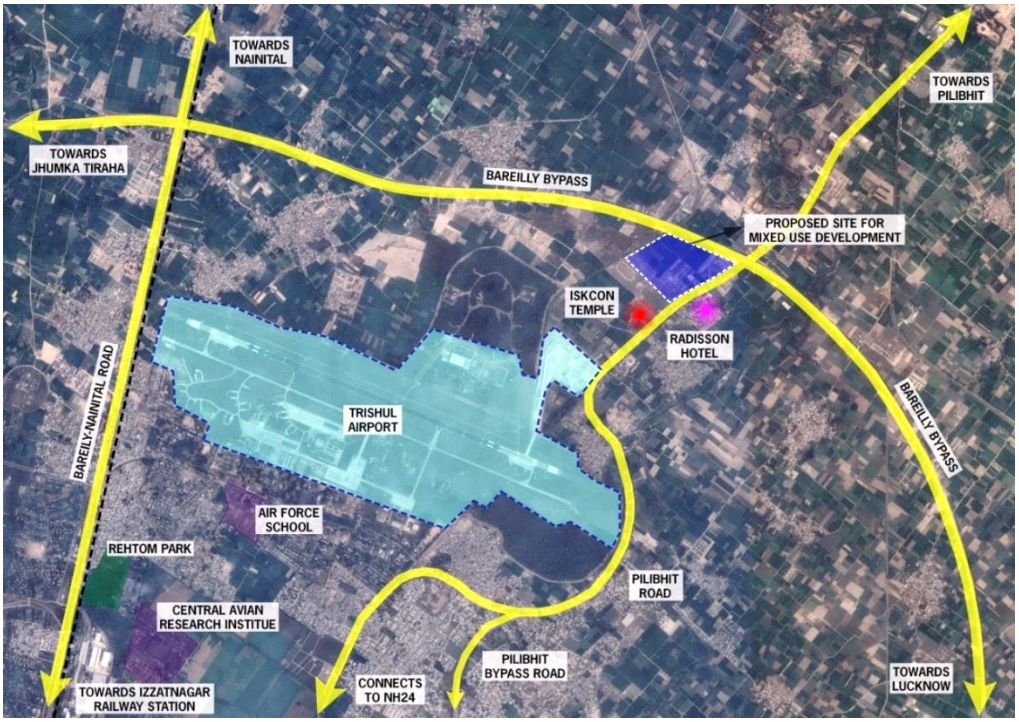
Lack of planned commercial spaces hinders the flourishing of economic trade and commerce activities in the city.

5.3.3.3 Key Interventions:

1. Development of Aero city by allocating a land parcel near the city airport for mixed use development to foster new growth opportunities for Bareilly.
2. Development of the allocated land parcel featuring state-of-the-art Retail centers, Offices, Hotels and convention centers will result in city's economic growth and generate new employment for the city residents.
3. The proposal will also act as a gateway to the city.

5.3.3.4 Site Delineation

Located at the intersection of the Bareilly bypass and Pilibhit road, the proposed site of size 30 hectare is a strategically selected location for the development of mixed-use development. Considering the context of the proposed site, the Radisson hotel and Airport in its close proximity can be foreseen as a supportive infrastructure for further development. Along with the existing mobility infrastructure and the available assets around the site, an integrated precinct for mixed-use development can be envisioned.



Map 5-4: Proposed Site for Mixed Use Development

5.3.3.5 Project Impact and its Benefits

The development of regional trade and commerce hub will expedite the speed of economic growth and will establish the city as a major economic generator and employment provider in the region. It will strengthen the economic base and to develop the city as prominent trade and commerce hub in the region.

5.3.3.6 Stakeholders for the Project

Nodal Agency

Bareilly Development Authority

Helping Agency

Bareilly Smart City Limited (BSCL)
Bareilly Nagar Nigam
Bareilly Airport Authority

5.3.3.7 Infrastructure Requirements

Facilities and Infrastructure	Available but Poor Condition	Not Available	To be Planned
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

5.3.3.8 Costing- Integrated Infrastructure Development and Strategy Plan- Aero city integrated office complex near Airport development

					Short Term (2022-28)			Medium Term (2028-2037)			Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total Cost in Lakhs**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components				Govt Fund									
a) Ramganga Riverfront: 20 Hectares (49.4 Acres)													
Ghat Development	1,08,00,00,000		10,800		10,800								
Public amenities	3,78,00,000		378		378								
Naturopathy Centre	11,79,25,000		1,179				1,179						

Horse Training Centre	1,91,40,000		191			191							
Commercial Area	8,16,90,000		817			817							
Recreational Zone	76,98,00,000		7,698			7,698							
Parking & Drop-Off	4,21,95,000		422				422						
Signage and way finding	6,08,000		6				6						
Lighting	1,20,00,000		120				120						
Street furniture	18,90,000		19				19						
Total	2,16,30,48,000				11,178	8,706	1,746						
b) Nakatiya Riverfront: 2.13 Hectares (5.32 Acres)				**Govt Fund**									
Entrance Plaza	6,27,000		6		6								
Shaded Trellis	50,00,000		50		50								
Services & Amenities Block	24,30,000		24		24								
Open Area development	10,86,88,750		1,087		1,087								
River Edge Promenade & Open Amphitheatre	1,33,65,000		134			134							
Pedestrian Underpass connection	43,20,000		43			43							
Gateway Design	16,00,000		16			16							
Visitor Parking	4,41,000		4			4							
Signage and way finding	1,52,000		2			2							
Lighting	42,00,000		42			42							
Street furniture	13,50,000		14			14							
Total	**14,21,73,750**				**1,167**	**254**	**254**						

5.3.4 Project : Rejuvenation of Zari – Zardozi (Shyam Ganj Market)

5.3.4.1 Background

Renowned all over the world, Bareilly is a city very well known for its craft of Zari and Zardozi. The native craft has established Bareilly's identity in the national as well as international market. The skill has eventually been carried on by generations of artisans over past many decades. Many artisans have adopted this as their main occupation or profession. It has provided employment opportunities to thousands of artisans spread over the city as most of the artisans have inherited art to be converted into an occupation.

5.3.4.2 Problem Statement

Situated in one of the dense fabrics of the city is the **Sailani market road** dedicated for retail of Zari Zardozi. Before the construction of Shyam gunj flyover, its prime location on Stadium Road made the market easily accessible from all parts of the city. The flyover passing over the market entrance has not only disrupted its linkage from the city's main arteries but has drastically changed the approach to the market underneath.

5.3.4.3 Key Intervention

- Designing the streetscape for pedestrians and NMT system
- Façade Development to establish the identity of the market
- Traffic decongestion of Market Street and parking proposals

5.3.4.4 Site Delineation

Despite of being covered by the Shyam ganj flyover, the strategic location of Sailani market road still holds a potential for an urban renewal for its transformation. The road from Patel chowk to Satellite bus stand passes under the flyover gives the site an advantage for a fair mobility. The space available underneath the flyover can be better utilized for place-making of the market's entrance.

5.3.4.5 Area of Intervention:

Shyam Ganj Flyover:
Total Road Stretch Underneath Flyover for redevelopment – 100 meters
Width of road – 9 meters (ROW based on existing situation)

Sailani Road:
Total Road Stretch for redevelopment – 600 meters
Width of road – 7 meters (ROW based on existing situation)

Map 5-5: Sailani Market Road

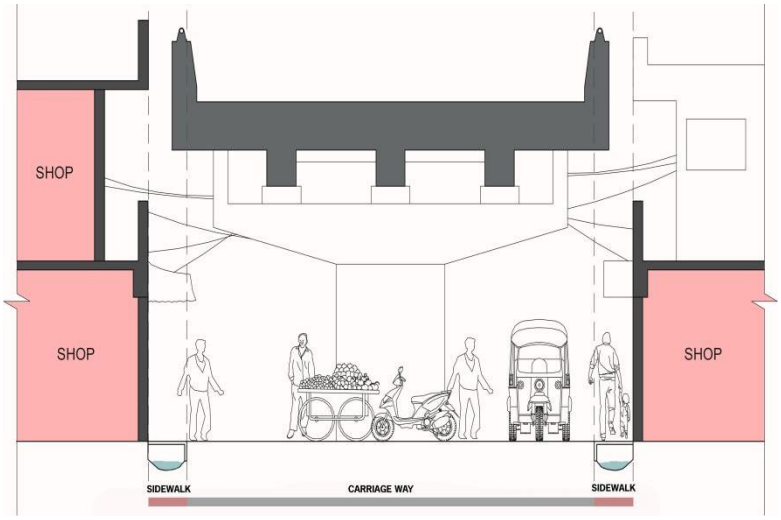


Figure 5-6: Shyam Ganj Flyover Road Section

Figure 5-7: Shyam Ganj Flyover Road

Figure 5-8: Sailani Market Road

5.3.4.6 Project Impact and its Benefits

Redevelopment of Sailani Market Road is one of the most significant developments needed for the revival of Bareilly's native craft. The urban renewal of the road underneath the flyover will not only enhance the approach to the Sailani market street but will also address a prominent access point for the visitors/tourists. The intervention will redefine the urban character of the whole market street and will also emphasize on the underlying market of Zari - Zardozi. This will initiate more influx to the market street and help in restoring the city's native craft.

5.3.4.7 Stakeholders

Nodal Agency

Bareilly Development Authority

Helping Agencies

Bareilly Smart City Limited (BSCL)
Bareilly Nagar Nigam
Bareilly Market Associations
Sailani Market Association
Bareilly Zari–Zardozi Association
U.P Tourism

5.3.4.8 Infrastructure Requirements

Project : Rejuvenation of Zari – Zardozi (Shyam Ganj Market)			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

5.3.4.9 Costing- Integrated Infrastructure Strategy and Development plan for Rejuvenation of Zari – Zardozi (Shyam Ganj Market)

					Short Term (2022-28)				Medium Term (2028-2037)		Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total Cost in Lakhs**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components				Govt Fund									
Construction cost		125			125								
Total		**125**			125								

5.3.5 Project : Streetscape of Market Street from Qila to Shyam Ganj Along with Urban Renewal of Dargah Precinct by Defining Entrance Gateways, Corridors and Enhancing the Public Infrastructure

5.3.5.1 Background

The city of Bareilly is a predominant trade city where different market typologies co-exist and form the base of the city economy and business culture. The market streets have a clear hierarchy based on the predominance of the functional activity and products sold as we move along the streets connecting Delhi to Lucknow. Upon arrival from Delhi, the Bada Bazaar market street stretches from Qila to Darzi chowk which caters to multiple segments of retail and wholesale markets, and from Darzi chowk to Shyam Ganj flyover is the Shyam Ganj market where Zari zardozi works and karkhanas used to flourish a few years back.

Situated in the dense fabric of Bada bazaar is the world famous - Dargah-e-Ala-Hazrat which invites lakhs of pilgrims from all over the country. It holds a historic and spiritual value of very high significance in the city. The dargah is also known for its annual Urs which takes place in the grounds of Islamia College of Bareilly, which invites over five lakh people to the city. Thus, the precinct of Dargah-e-Ala-Hazrat becomes a very important public node. Situated in its proximity is the Khanqah e Niazia, which is also a significant spiritual landmark of the city.

5.3.5.2 Problem Statement

The narrow street of Bada bazaar and Shyam ganj market is the harbor for all kinds of activity and with extended retail activities, IPT and light freight vehicles obstruct smooth pedestrian flow leading to congestion and noise pollution. Often the IPT is seen hitting the pedestrians, hence making the streets very uncomfortable to walk upon. Though a clear distinction can be observed in terms of function and products, the market streets lack imageability and a distinct character that can aid visitors in orienting themselves within the bazaars.

Situated in the close proximity of Bada bazaar and clock tower, Dargah e ala hazrat and Khanqah e Niazia have witnessed the effects of increasing density in the core. These religious precincts have lost their imageability and presence over a period of time. Absence of identity markers, gateways, designated corridors, signage, façade lighting has led to degradation of the overall urban character of the precincts.

5.3.5.3 Key Intervention

- Restructuring mobility networks to facilitate walkability and Para transit within the Bada bazaar and Shyam ganj market street
- Prioritize the use of public transport.
- Provision of signage design scheme for Bada Bazaar and Shyam Ganj market by standardizing the size & its location on the façade to create uniformity in streetscape.
- Development of symbolic identity/ entrance gateways for both, Dargah and Khanqah.
- Establishing a corridor leading to the religious precincts along with façade treatment guidelines.
- Place making of their precinct with respect to the surrounding neighborhood.

- Enhancing the spiritual character along the street.
- Restructuring the Dargah precinct while adding public infrastructure like designated parking space, washrooms, etc.

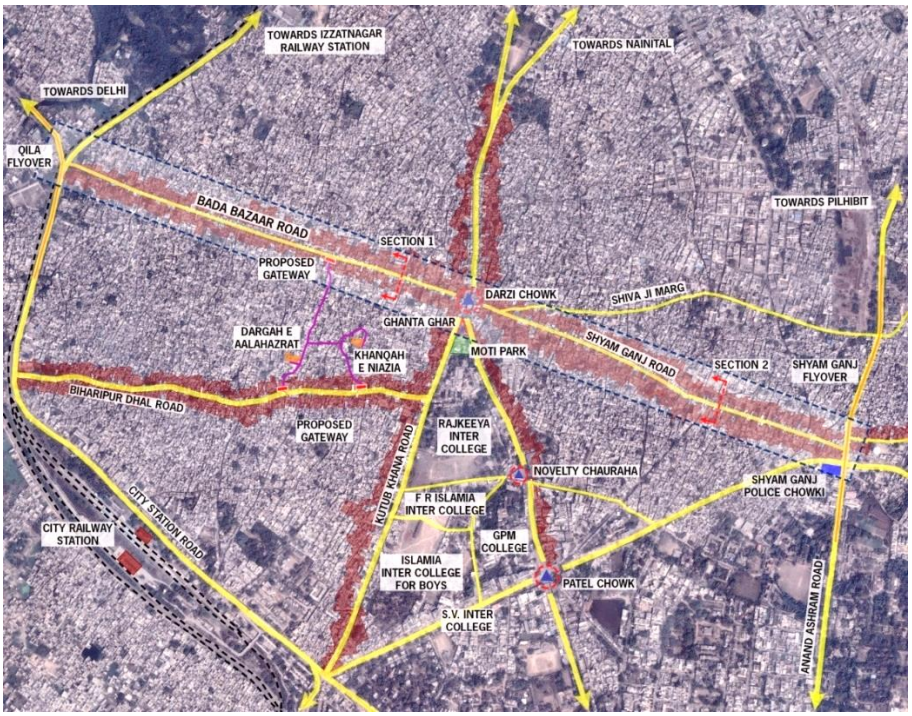
5.3.5.4 Site Delineation

Upon arrival from Delhi, the market streets start from Qila with the grain market and move in a straight line to Bada Bazaar featuring Sarafa Bazaar (gold and silver jewelry), Surma market, Cloth and cosmetic market respectively. Following the Bada Bazaar which terminates at the Darzi Chowk and further leads to Shiva ji marg road (featuring Sarafa bazaar) and Shyam ganj market (featuring utensils, Zari Zardosi and furniture markets respectively).

Situated in the dense fabric of city core is the Dargah e Ala hazrat, which is one of the important pilgrim destinations in the city. With no defined access point/ entrance gateway, the dargah is approached from various routes from Bada bazaar road and Kutub khana road. This results in an unfeasible approach for the pilgrims who are new to the city. Lack of identity markers and a designated corridor fails to establish imageability and legibility of the precinct. Due to the existing situation in the current scenario, the working of bazaar streets also get hampered, eventually affecting the business.

5.3.5.5 Area of Intervention:

Qila to Shyam Ganj Market Road:
Total Road Stretch of the Market – 3 Km
Width of road – Varies from 5 - 7 meters (ROW based on existing situation)
Biharipur Dhal Road to Dargah & Khanqah:
Total Road Stretch for redevelopment – 700 meters
Width of road – 3 meters (ROW based on existing situation)



Map 5-6: Qila to Shyam ganj Road, Dargah e Aalahazrat and Khanqah e Niazia Precinct

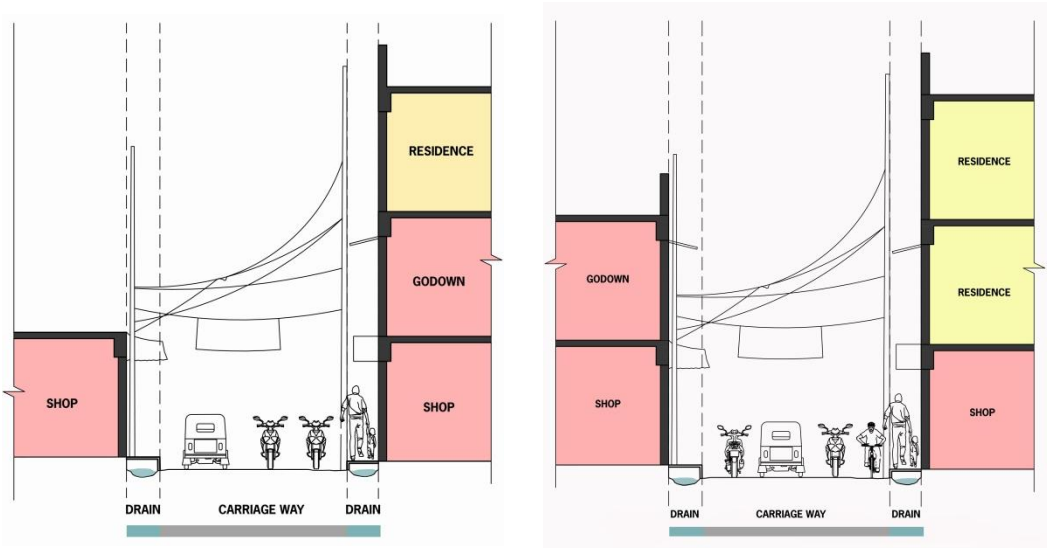


Figure 5-9: Bada Bazaar Street (Section - 1) (left) Shyamganj Market Street (section 2) (right)

Figure 5-10: Bada Bazaar Street (left), Shyam Ganj Market Street (right)

Figure 5-11: Street leading to Dargah-e -Aalahazrat (left), Dargah-e -Aalahazrat (right)

5.3.5.6 Project Impact and its Benefits

The project aims to define the character of the city market streets. The core city roads shall be defined as internal streets that will be prioritized on cycle and pedestrian infrastructure. These streets shall be designed to reduce the carriageway for low vehicular speed. The peripheral city streets will be developed as the outer loop where provisions for cycling, IPT, parking near intersections, cycle stands at regular intervals shall be given.

Taking the spiritual significance of the Dargah and Khanqah into the revival of these religious precincts becomes essential to restore city's cultural value. Designating corridor leading to these religious places and defining its street character will elevate the essence of the precinct. Establishing identity markers/ entrance gateways and development of public amenities like parking space, washrooms, etc. will offer convenience to visitors in terms of approach and user experience.

5.3.5.7 Stakeholders

Nodal Agency

Bareilly Market Associations
Dargah Association

Helping Agencies

Bareilly Development Authority
Bareilly Smart City Limited (BSCL)
Bareilly Nagar Nigam
U.P Tourism

5.3.5.8 Infrastructure Requirements

Facilities and Infrastructure	Available but Poor Condition	Not Available	To be Planned
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

5.3.6 Costing- INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN for Streetscape of Market Street from Qila to Shyam Ganj Along with Urban Renewal of Dargah Precinct by Defining Entrance Gateways, Corridors and Enhancing the Public Infrastructure

					Short Term (2022-28)				Medium Term (2028-2037)		Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total Cost in Lakhs**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components				Govt Fund									
Construction cost		402			402								
Total		**402**			402								

INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN FOR TRANSPORT PLANNING PROJECTS

Chapter 6. TRANSPORT PLANNING

6.1 Integrated infrastructure development strategy and action plan for Bareilly

"By 2030, provide access to safe, accessible, and sustainable transport systems for all, improving road safety, notable by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons".

6.1.1 Development Strategy for the Sustainable Urban Transportation:

To improve urban mobility certain measures would be taken, such as convert all buses into clean fuel, ethanol and hybrid technology driven to reduce the pollution level. GPS and GPRS systems would be made mandatory in all buses while vehicles fitted with solar panels would be plied in big cities. New routes will also be required to be formulated for better transportation in urban areas along with traffic regulation/management in the existing routes. Separate city bus track, multi-level parking, inter-state bus terminals (ISBT) and intrastate bus terminals will be developed by Bareilly Development Authority and Bareilly Nagar Nigam. All encroachments on roads will be removed by coordinating with all departments concerned.

- Providing dedicated city bus lane and double decker buses on demand routes.
- Urban transport services will be made disability and gender friendly.
- Utilisation of smart cards for ticketing services
- Providing double decker buses for attracting the tourist and joy-rides in the Bareilly city, connecting to the city with temple circuit.
- GPS/GPRS system, WIFI facility, bus stops/shelters and bio-toilets to be provided along the arterial roads and major connecting junctions of Bareilly.
- Modernisation and Redevelopment of the intrastate bus terminals with better facilities located at Satellite Bus Stand, Bareilly.
- Providing radio taxi services for faster access in Bareilly city.
- Conversion of all buses into clean fuel, ethanol and hybrid technology driven to reduce pollution levels.

6.1.2 Stakeholder Identification, Engagement and Empowerment

In the first stage all concerned authorities and stakeholders' access to infrastructure and its benefits, it is crucial to understand. Stakeholder identification and engagement should commence from a very early stage of planning the project when there is most scope for successfully influencing options and implementing change to respond to needs. It must also continue throughout the lifecycle of the project, offering opportunity to further strengthen benefits and feedback to future designs. There should be a documented process to collect feedback, to present it to technical teams for consideration, to evaluate proposed changes and to feed this back to stakeholders.

6.1.3 Process of Project Planning, Development, and Implementation stages

Project Planning, Development and Implementation stages applies to all the concerned stakeholder groups, and authorities that are in considering at all stages of the project cycle and Implementation. The beginning of the project planning process is the ideal time to assess and ensure that inclusivity of the project throughout the project lifecycle, including management, supervision, monitoring and evaluation stages. The practice should be integrated in the project planning phase, where it can affect the strategy and objectives of a project. This involves conducting demand studies and considering the needs of the project completion.

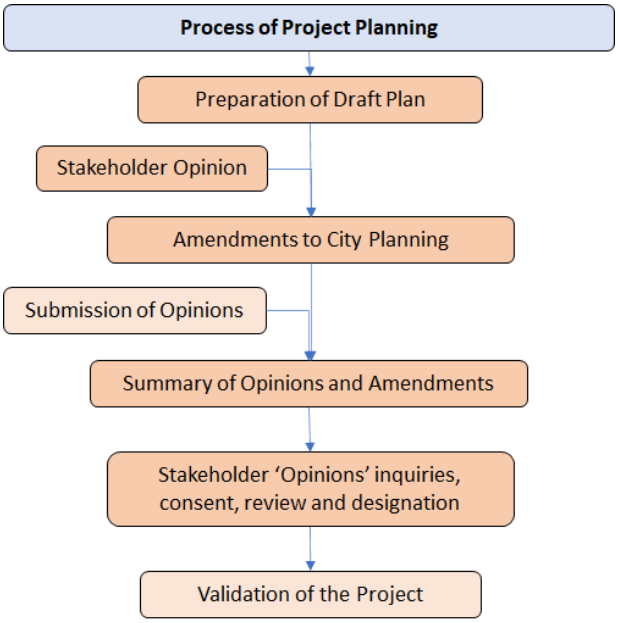


FIGURE 6-1 FLOW CHART OF PROCESS OF PROJECT PLANNING

a. Governance and Capacity Building

Leadership and governance systems are at the heart of decision-making that guides how resources are used and assets are developed to target inclusive outcomes. Leadership forms the foundation of how a vision on social inclusion is translated into reality. Important elements of good governance include transparency and accountability, which create trust between the government and society. Ease of access to information and modern communication tools can help to create an interactive and collaborative environment.

b. Private Sector Roles and Participation

The private sector can play a role in improving inclusivity in infrastructure projects, but careful planning is necessary to ensure these results. The appropriate application of incentives, such as the linking of government payments to inclusive outcomes, can help to align the private sector with government. The general principles and guidance under this Action Area are applicable to all stakeholders, but some of the recommended approaches to private sector participation in these Action Area are sector specific. All recommendations should, be adjusted, to consider the individual features of the infrastructure project under consideration, to optimise opportunities that will benefit targeted stakeholder groups.

c. Development Strategies adopted for Bareilly

The selected strategies to achieve the Goals are:

i. Preparation of Traffic Management Plans, for critical locations, corridors, and areas with emphasis on priority of access and movement for Passenger and goods in Bareilly to cater the inter-city and intra-city connectivity and addition of new lengths into the existing road network. Connecting the missing links of road network in Bareilly. construction of new flyovers, Bridges, RoBs, Under-passes sections and Grade separated intersections followed by improvement of existing Bridges, Flyovers, RoBs and Road crossings. Adopt 'Zero Fatal Accident' policy and promote high degree of safety in the planning, design and construction of transport facilities and operation of transport service.

ii. Providing Bareilly with intra & inter bus terminals, were passengers board and alight from personal and private vehicles. It also often provides a convenient point where services can be controlled from. Which will serve with all requisite facilities in the terminal area which helps to cater the needs of on-boarding and off-boarding passengers. Augment supply of mass transit systems like Metro-lite in future by 2031 which can Ensure adequate last mile connectivity mass transit stations and IPT and NMT locations to cater in horizon year 2031.

iii. Developing, Preparation and Adoption, a comprehensive Parking Policy, Which Discourages use of private modes for 'Work' and 'Education' trips, conserve space and prohibits encroachment on road space and capacity. For the present demand of parking in the core area of Bareilly, an innovative solution like MLCP, Boom barrier and Dedicated parking lanes can be adopted.

iv. Providing well designed pedestrian footpaths and cycle lanes along all arterial roads of Bareilly, with exclusive pedestrian phase at all inter-sections like grade separation facility. Improvement of existing junctions or intersections with pedestrian refuge islands of adequate size and street infrastructure facilities.

v. Providing city bus service along the major routes of the Bareilly city by Introducing Electric Buses with the support of Government of India's Initiation towards sustainable urban mobility places electrification of public transportation as high. Switching from ICE-powered buses to pure electric ones will have several advantages, including quickening the country's progress toward its 2071 net-zero goal.

vi. Development of integrated freight complex (IFC) or Integrated Logistic Hub (ILH) for facilitating urban freight movements and adopt city logistics facilities for sustainable urban freight deliveries

vii. Strengthen the capacity of institutional set-up in the study area of mobility planning and traffic engineering. By conducting safety audit at all stages – planning, design, construction, post construction and operation – of transport facilities and services. Explore innovative mechanism to finance urban transport & arrangement resource generation capacity of BDA.

6.2 PROJECT : STRENGTHENING OF RADIAL ROAD CONNECTIVITY FROM BAREILLY CITY TO GANGA EXPRESSWAY.

a. Vision Plan and Back ground of the study

The improvement section details of radial road connecting from Bareilly city to Ganga Expressway

Sl. No	Road Section		Length
1	Bareilly - Badaun Road (NH 530B)	**NH 530B:** Ramganga Bridge to Binawar (Near Badaun)	26.0 km
2		**Bareilly South Bypass:** Parsakhera - Ramganga Bridge - Tilhar Mod	31.0 km

To provide better facilities in terms of road infrastructure and a faster connectivity from Bareilly city towards proposed Ganga Expressway.

a. Smooth and uninterrupted traffic movement for all modes moving along the NH 530B section from Bareilly city towards proposed Ganga Expressway with total length of 26.0 km.
b. Consideration of present and future transportation proposals along/around the influence zone of the NH 530B till Ganga Expressway (i.e., near Binawar).
c. To provide faster connectivity of inter & intra-state public transport system for the influence zones through NH 530B.
d. Propose a comprehensive solution for truck lay-byes & paved shoulder for parking along the NH 530B.
e. Provision of street furniture like way-finding signboards, road signages, road markings, emergency services along road, public conveniences, etc.

b. Existing Situation Analysis of NH 530B (Bareilly to Budaun)

a. Ramganga Bridge to Binawar section (NH 530B): The Ramganga Bridge to Binawar (near Budaun) is part of NH 530B and currently it is a 4-lane divided carriageway in good condition. The total length between Ramganga Bridge to Binawar is about 26.0 km (Approx.), considered for the radial road connectivity between Bareilly city to Ganga Expressway link. At present, construction of flyover is in progress at Lal Phatak Railway Crossing, near Bareilly city.

- **Road Type:** NH 530B (Ramganga Bridge to Binawar (near Budaun))
- **Existing Lanes:** 4 lane road
- **Length from Ganga Expressway to Ramganga Bridge:** 26.0 km (Approx.)
- **Major Bridge & River:** Ramganga Bridge
- **Cantonment Area:** Civil Lines area, Near Circuit House, Bareilly

Figure 1: Existing situation of NH 530B, near Circuit House road

Figure 2: Flyover construction at Lal Phatak Railway Crossing

Figure 3: Major Bridge along Ramganga River

Figure 4: NH 530B near Binawar

b. **Bareilly South Bypass (Parsakhera-Ramganga Bridge-Tilhar Mod**): The proposed new greenfield alignment of 'Bareilly South Bypass' section starting from Parsakhera Industrial Area to Ramganga Bridge to Tilhar Mod (near Rajau Paraspur) with total length of 31.0 km (Approx.)

- **Road Type**: Bareilly South Bypass (Greenfield Road as per Master Plan 2031*)
- **Connectivity:** Parsakhera – Ramganga Bridge – Tilhar Mod (Near Rajau Paraspur)
- **Proposed Length:** 31.0 km (Approx.)
  - **Section 1:** Parsakhera Industrial Area to Ramganga Bridge**:** 18 km
  - **Section 2:** Ramganga Bridge to Tilhar Mod (Near Rajau Paraspur): 13.0 km
- **Major Bridge & River:** Ramganga Bridge

Figure 1: Jumkha Chauraha, near Parsakhera Industrial Area

Figure 2: Agricultural land, near Balla Kotha (near Clutterbuck Ganj Railway Station)

Figure 3: Major Bridge near Ramganga River

Figure 4: Bund Road near Jallapur Ram Dayal

c. Strengthening of Radial Roads to 6 lanes as per IRC:

As per the IRC guidelines, the proposed RoW of NH 530B to be strengthening as Radial Road connecting from Badaun (i.e. Binawar) to Bareilly is about 60m (200 feet) wide. This includes width of 33.0 m for roadways or built-up area those comprise of 6 lane carriage width of about 21.0 m wide, median of 5.0 m wide along with kerb shyness, paved shoulder width of 3.5 m wide and rest about 27.0 m will be used for future extension and development of highway facilities.

Figure 6-2: Typical Cross-section of 6 lane road

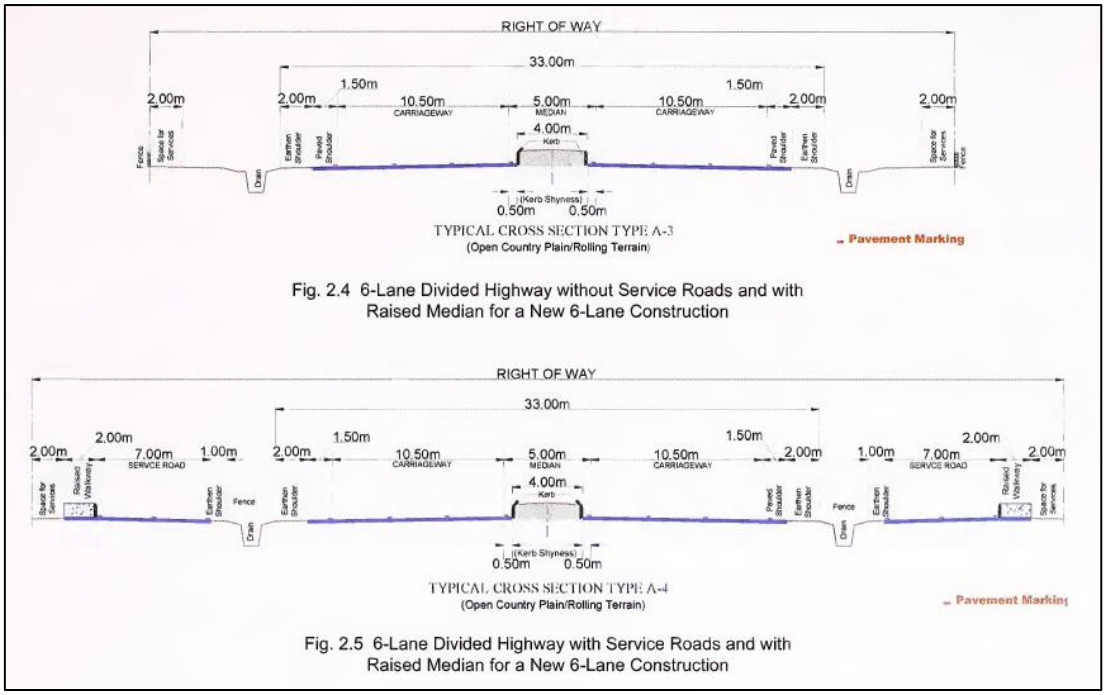


Figure 6-3: Typical Cross-section of 6 lane road with Raised Median

d. Improvement proposals listed along the road section (a & b)

a. Ramganga Bridge to Binawar section (NH 530B)

Corridor improvement plan	Ramganga Bridge to Binawar Section (near Badaun)
Total length	26.0 km
Road Category	NH 530B
Existing no. of Lanes	4 Lane Road
Major Bridge & River	Ramganga Bridge
Major Junctions along NH 530B	• Sardarnagar • Devchara • Bhamora • Binawar

Proposed Improvement along NH 530b	• Widening of the road from 4 lane to 6 lane
	• Improvement of Service Road at major Settlements with pedestrian grill
	• Junction Improvement Plan at
	  ○ Sardarnagar
	  ○ Chandpur
	  ○ Makrandpur
	  ○ Devchara
	  ○ Kheda
	  ○ Bhamora
	  ○ Binawar
	• Road Marking & Signages
	• Proposed Foot-over-Bridge
	  ○ Sardarnagar
	  ○ Chandpur
	  ○ Makrandpur
	  ○ Kheda

	○ Bhamora • Public Convivences (Toilets on both sides)
Proposed Grade separated flyovers at	• Grade Separated Flyover at ○ Sardarnagar ○ Binawar

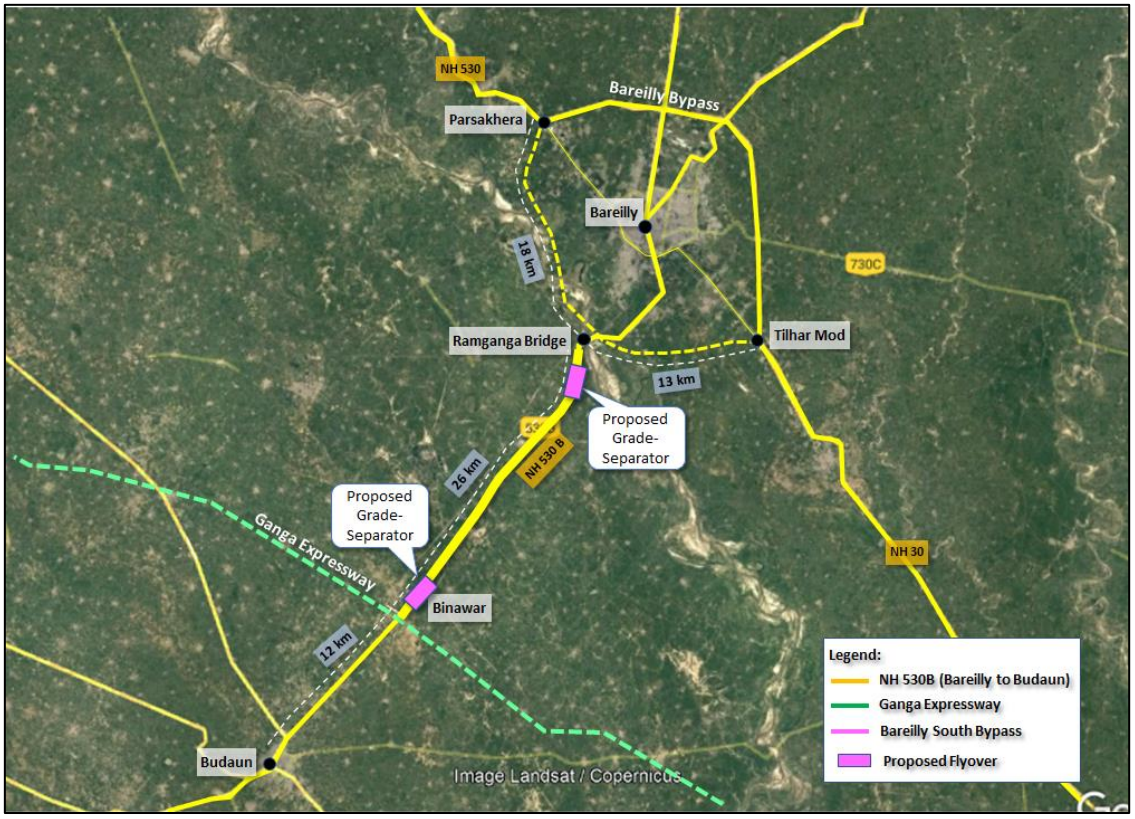


Figure 6-4: Proposed Grade Separators along NH 530B

b. Bareilly South Bypass (Parsakhera – Ramganga Bridge – Tilhar Mod (Near Rajau Paraspur))

Corridor improvement plan	Parsakhera – Ramganga Bridge – Tilhar Mod
Total length	**Total Length: 31.0 km** Section 1 = 18.0 km Section 2 = 13.0 km
Road Category	Bareilly South Bypass (Greenfield Alignment)
Major Bridge & River	Ramganga Bridge
Major Junctions	• Parsakhera Industrial Area • Ramganga • Mirjapur • Tilhar Mod
Proposed Improvement	• **New Greenfield alignment** • Road Improvement to 6 lanes • Junction Improvement Plan at ○ Parsakhera Industrial Area ○ Ramganga ○ Tilhar Mod • Public Convivences (Provision of Toilets)

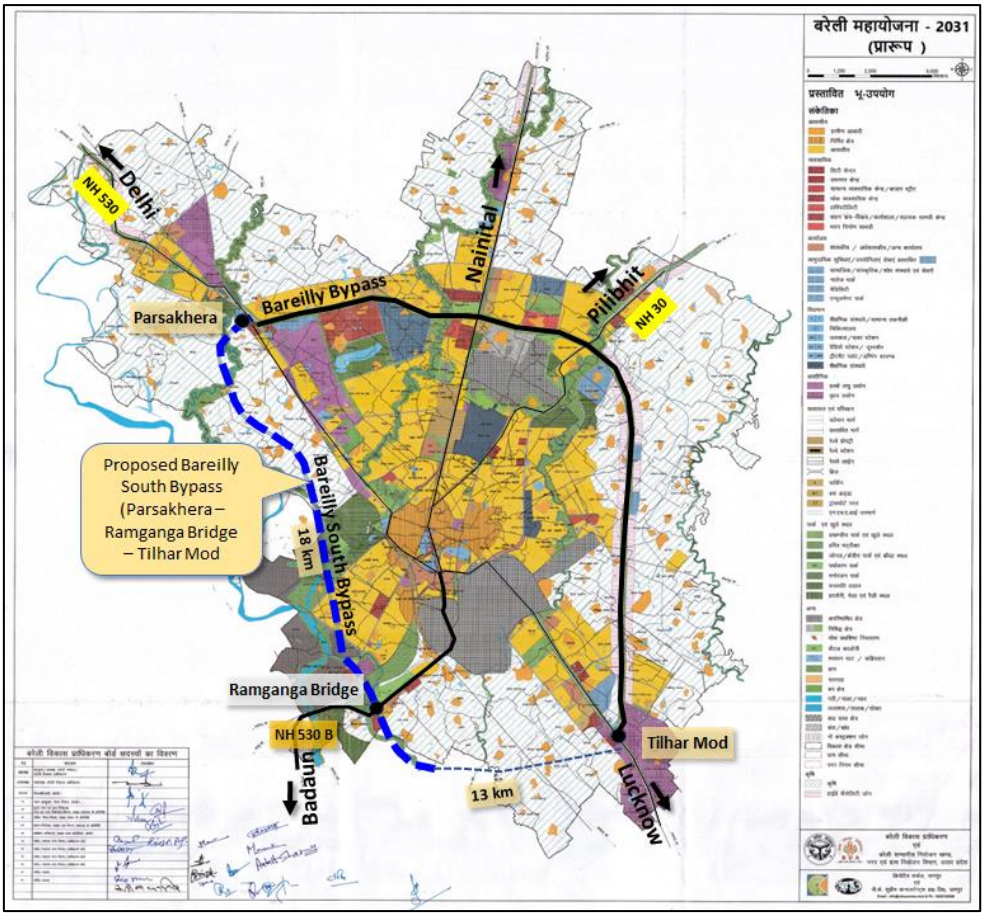


Figure 6-5: Proposed Bareilly South Bypass Road alignment mentioned in Master Plan-2031

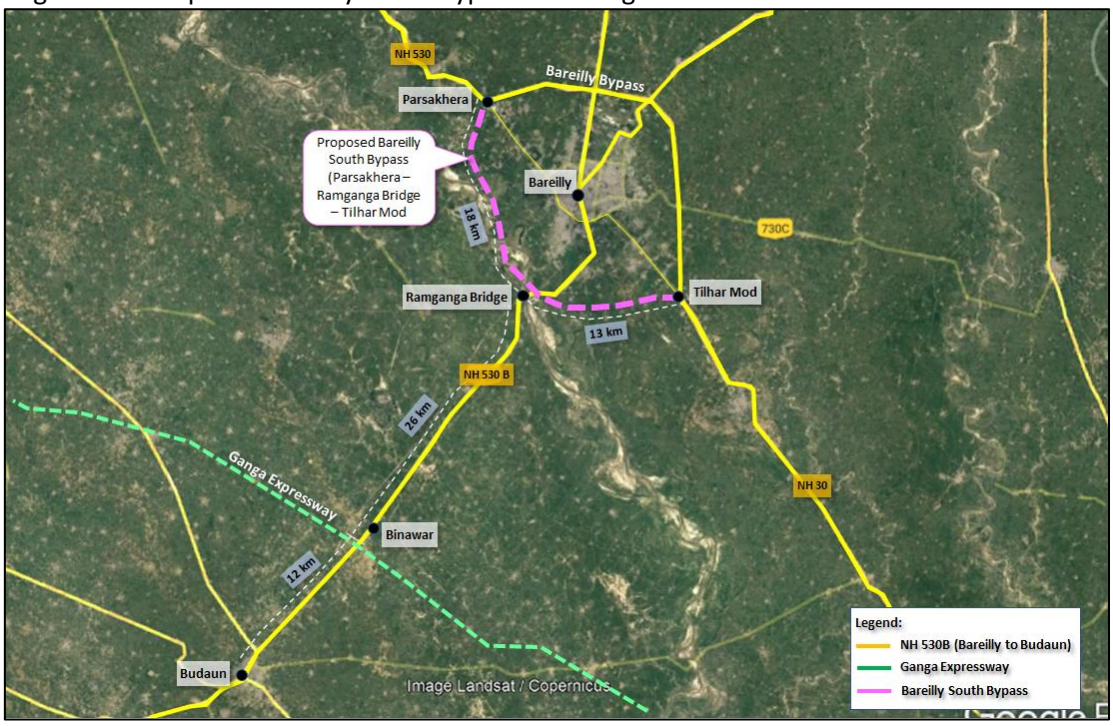


Figure 6-6: Ganga Expressway alignment and Bareilly South Bypass Road

e. Total project cost & Phasing

i. Cost estimates for Ramganga Bridge to Binawar Section

S. No.	Particulars	Amount (Rs in Cr.)

1	SITE CLEARANCE	₹ 28,15,80,000
2	EARTH WORK	₹ 8,07,60,069
3	SUB-BASE AND BASE COURSES	₹ 85,32,99,213
4	BITUMINOUS WORKS	₹ 94,09,58,655
5	PAVED SHOULDER	₹ 23,45,32,610
6	TRAFFIC SIGNAGES, ROAD MARKING AND OTHER APPURTENANCES	₹ 5,17,71,654
	TOTAL AMOUNT – A	**₹ 2,44,29,02,201**

ii. Cost estimates for Bareilly South Bypass (Parsakhera – Ramganga Bridge – Tilhar Mod)

S. No.	Particulars	Amount (Rs in Cr.)
1	SITE CLEARANCE	₹ 33,57,30,000
2	EARTH WORK	₹ 9,62,90,852
3	SUB-BASE AND BASE COURSES	₹ 1,01,73,95,216
4	BITUMINOUS WORKS	₹ 1,12,19,12,243
5	PAVED SHOULDER	₹ 27,96,35,035
6	TRAFFIC SIGNAGES, ROAD MARKING AND OTHER APPURTENANCES	₹ 6,16,95,616
	TOTAL AMOUNT - B	**₹ 2,91,26,58,960**

iii. Total Cost (a+b): ₹ 5,35,55,61,162.00 (Rs. 535.55 Crores)

iv. Project Phasing

Projects Name	Mode of Development	Short Term (2022-28)	Medium Term (2028-37)	Long Term (2037-71)
Strengthening of Radial Road connectivity from Bareilly city to Ganga Expressway.	EPC-HAM	2,44,29,02,201	2,91,26,58,960	-

f. List of Stakeholders

i. Bareilly Development Authority (BDA)
ii. Bareilly Nagar Nigam (BNN)
iii. PWD-Bareilly Dist.
iv. State Highways-Bareilly Dist.
v. NHAI-Bareilly Dist.

g. Project Time-line

The strengthening of Radial Road connectivity from Bareilly city to Ganga Expressway (i.e. Binawar) with construction time: 5-6 years

6.3 PROJECT : DEVELOPMENT OF PROPOSED METRO-LITE RAIL SYSTEM CONNECTIVITY IN BAREILLY CITY

a. Vision Plan and Back ground of the study

- To provide a safe, faster, and eco-friendly rail-based mass transit services to the public at affordable rates while simultaneously catalysing dense and orderly urban growth.
- Bareilly is a fast-growing city with the population of more than 10 lakhs. The city is expending in terms of commercial, educational, medical, industrial and transit activities. Bareilly serves a major population of nearby areas like Kumaun region, Budaun, Shahjahanpur, Pilibhit etc. which results increasing movement of traffic of the city.
- The proposed Metro-lite rail system in Bareilly city will be sustainable public transport system to provide hassle-free journey connecting major land-mark areas like Bareilly Junction Railway Station, Chowki Chauraha, Parsakhera Industrial Area, Izzatnagar, Bareilly Airport, IVRI, Stadium Road, Satellite Bus Stand, Gandhi Udhyan and Phoenix Mall in Bareilly.
- It is also an important factor to consider such as, the mobility of passenger's movement, available right-of-way in city, mobility system, environmental and social impact assessment.

b. Vehicular Growth in Bareilly: In Bareilly, the registered vehicles have been increased moderately over the past decade. It is significant to note that about 14 to 19% of the vehicle's growth in the past decade. The increase of two-wheelers could be attributed to the comparatively better economic status of people and lack of city-wide good PT system. The increase of private modes demands more road space and has resulted in dense concentration of traffic on roads with limited right of ways.

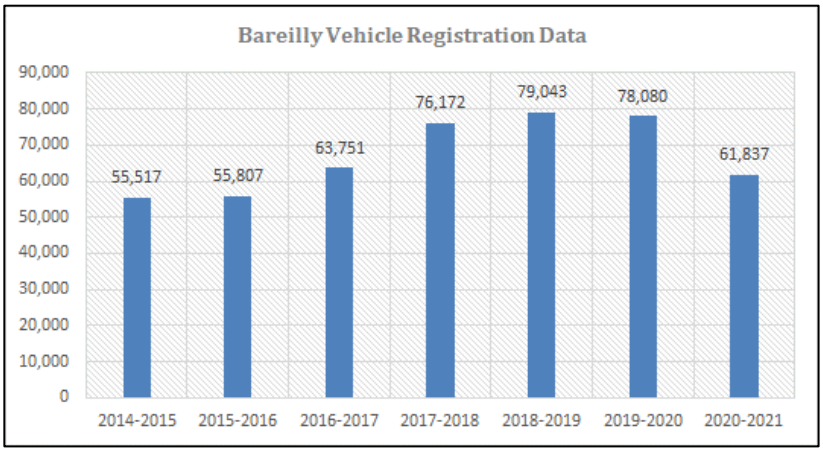


Figure 6-7**:** Vehicular Growth in Bareilly

c. Existing Situation of Transport in Bareilly

i. Public Transport system in Bareilly:

- At present Bareilly city, does not have intra-city public transport system. EV buses in Bareilly have just started their operations in fixed routes and their benefits are at a very nascent stage.
- For Inter-state transport at present in Bareilly, 2 no of bus stands (Old bus stand and Satellite Bus Stand). Both the Bus Stand are in functional, as most of the Bus frequency is from Satellite Bus Stand. The old Bus stand is located in civil lines cater bus plying on routes towards Moradabad, Haldwani, Delhi, Naintal, Dehradun, Agra, Jaipur areas. Satellite bus station caters the bus services towards long distance to Kanpur, Lucknow and others.

Table 6-1 Satellite Bus Stand in Bareilly

Figure 1: Existing condition of Satellite Bus Stand

Table 6-2 Passenger movement at Bus Terminal

Location	Daily Passengers (no.)			Peak Hour Passenger (no.)		
	In	Out	Total	In	Out	Total
Old Bus Stand	3630	3870	**7500**	60	25	**85**
Satellite Bus Stand	5555	6040	**11595**	35	40	**75**

- The commuters boarding and alighting at the both bus terminals (Satellite Bus Stand & Old Bus Stand), 50% travel for work, while 23% of the boarding passengers and 25% of the alighting passengers travel for business-related actives.
- Auto-rickshaws is the preferred access mode at the both the terminals, with a very high share of 64% and 69%.

ii. **Air Connectivity:** At present, the Bareilly airport is a civil terminal located in Izzat Nager, which is located 6 km from north of Bareilly city. The terminal building is 2500 sqm, and can handle 150 passengers during the peak hours. In future, a new apron 9500 m provides parking space and 150 cars parking is expanded. A new terminal building was inaugurated in 2021 as a part of airport expansion. The building is spread over 3020 sqm and has a capacity to accommodate over 300 passengers. At present, Bareilly has flight connectivity with Delhi, Bangalore, Mumbai.

Table 6.3 Passenger Traffic & Aircraft Movement

Year	Passenger Traffic	Aircraft Movement
2020-21	1,641	150
2021-22	1,03,667	1,086

Source: AAI annual report

iii. **Rail Transport system in Bareilly:** Bareilly Junction railway station is the major railway station serving city. Bareilly railway station connects the Lucknow-Moradabad line and Lucknow-Sitapur-Lakhimpur-Pilibhit-Bareilly-Kasganj Line. The Bareilly Railway station is well connected to Lucknow, New Delhi, Amritsar, Ambala, Jalandhar, Pathankot, Gorakhpur, Howrah and other major destinations. Other railways station like Bareilly Cantt, Bareilly City, Bhojipura Junction, CB Ganj, Bohna, Izzatnagar, Parsakhara, Ramganga Bridge secondary railways stations in Bareilly area.

Table 6-4 Passenger movement at Bareilly Railway Station

Location	Daily Passengers			Peak Hour Passenger		
	In	Out	Total	In	Out	Total
Bareilly Junction	3460	4960	**8420**	145	175	**320**
Izzat Nagar Railway Station	3035	2580	**5615**	190	230	**420**

- Passenger demand at the Bareilly Junction Railway Station and Izzat Nagar Railway Station, at current scenario is 8,500 and 5,500 passengers/day were observed, with about 300 and 400 passengers at the two junctions during the peak hour.
- Most of the passengers preferred to use auto-rickshaws as the access, with a very high share of 69% and 65%, as most of the trips are in the range of 5-10 km, mainly from residential areas in the vicinity, such as Karam Chari Nagar, Sahukara, Katghar, Qureshi Nagar, civil lines, Priyadarshini Nagar and Dwarika Puram Colony.

d. Process of Network Development

- **Road Network Survey:** Total length of individual Roads, width, RoW
- **Documentation:**
  - Activity pattern of the road
  - Pedestrian Flow
  - Land-use pattern, Heritage, Public & Semi-public
  - Building Character
- **Identifying present issues**: Encroachments, Informal activities, hawkers, vehicular movements, Traffic Signals, footpath and parking locations
- **Involving the citizens**: Public participation through social media survey, campaigning
- **Traffic Management**: Involving the authorities and smart techniques, variable display sign boards
- **Designing the streets**: Incorporating pedestrian pathways, dedicated lane for cycle tracks, street furniture, bollards, smart LED street lights, Signages, Parking Spaces.

e. Guidelines for Choice of Different Modes: The working group of Urban Transport has set the guidelines for the choice of different modes as

System	PHPDT in 2022	Population in 2021	Average Trip Length
Metro Rail	>= 15,000 for at least 5 km continuous length	More than 20 lakhs	More than 7 km
LRT System	=<10000	More than 10 lakhs	More than 7 km
Mono-Rail system	=<10000	More than 20 lakhs	About 5-6 km
BRTS	>=4,000 upto 20,000	More than 10 lakhs	>5 km
City Bus Services		>1 lakhs	>2-3 km

f. **Proposed Metro Routes in Bareilly:** The proposed Bareilly metro routes identified are

Sl No	Route Name		Length (km)
1	**Blue Line**	Bareilly Jn. Railway Station to Airport & Pilibhit Bypass	15.0 km
2	**Red Line**	Bareilly Jn. Railway Station to Parsakhera & Jumkha Chowk	16.0 km
3	**Green Line**	Mini bypass to Izzat Nagar to Gandhi Udhyan Chauraha	10.0 km
4	**Violet Line**	Satellite Bus Stand to Bisalpur Chauraha to Pilibhit Bypass to Bilwa to Jumkha Chowk	30.0 km
Total Proposed Metro Length			**71.0 km**

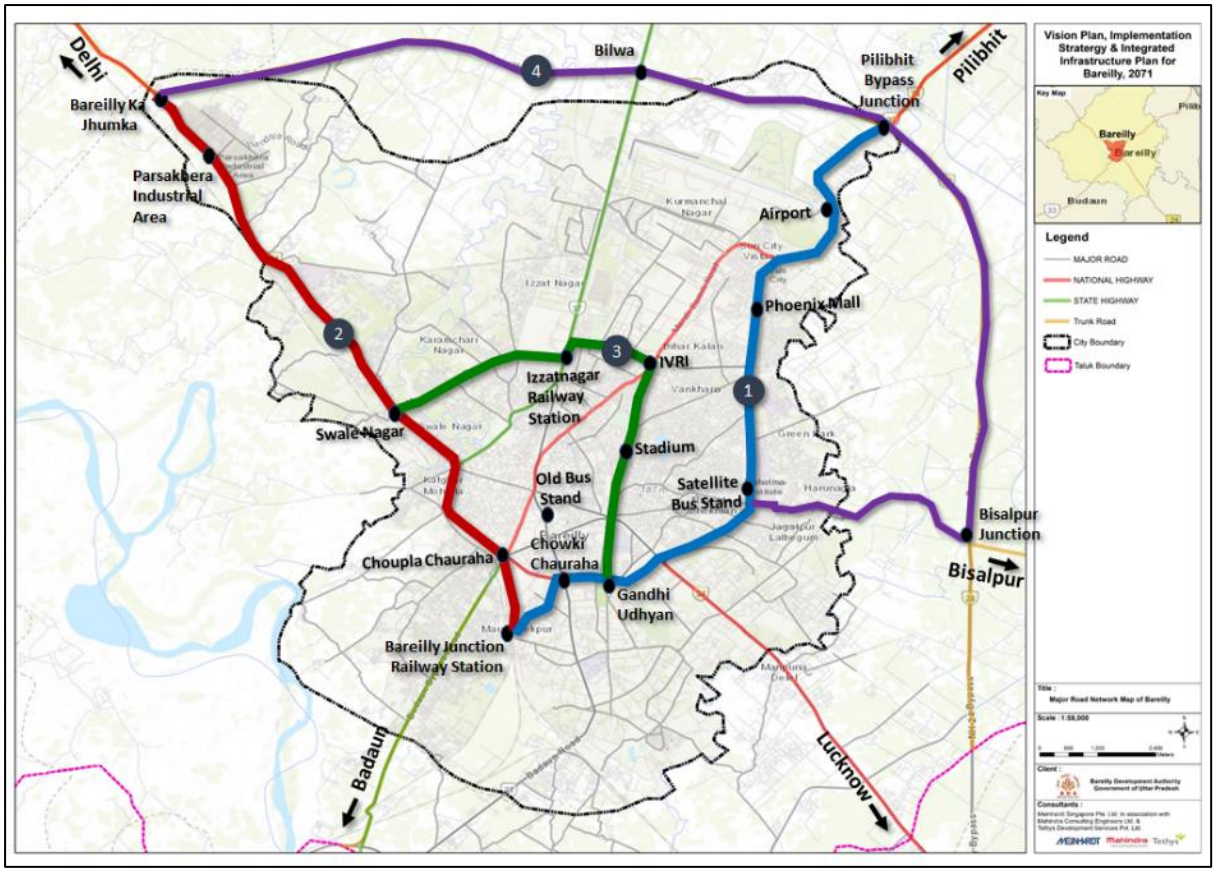


Figure 6-8: Proposed Metro Routes in Bareilly City

Figure 5: Typical view of the Bareilly Metro near Satellite Bus Stand & Gandhi Udhyan

g. Financial Analysis

Cost Estimates for Proposed Metro for 4 lanes

Sl No	Particulars	Section 1 Cost (Rs in Cr.) Blue Line	Section 2 Cost (Rs in Cr.) Red Line	Section 3 Cost (Rs in Cr.) Green Line	Section 4 Cost (Rs in Cr.) Violet Line		Total Cost (Rs in Cr.)
1	Alignment and Formation	7,50,00,00,000	8,00,00,00,000	5,00,00,00,000	15,00,00,00,000		35,50,00,00,000
2	Station Building	6,00,00,00,000	6,40,00,00,000	4,00,00,00,000	12,00,00,00,000		28,40,00,00,000
3	Depot	3,90,00,00,000	4,16,00,00,000	2,60,00,00,000	7,80,00,00,000		18,46,00,00,000
4	Rolling Stock	3,00,00,00,000	3,20,00,00,000	2,00,00,00,000	6,00,00,00,000		14,20,00,00,000
5	Misc. and Others comp.	15,19,50,00,000	16,20,80,00,000	10,13,00,00,000	30,39,00,00,000		71,92,30,00,000
Total		**35,59,50,00,000**	**37,96,80,00,000**	**23,73,00,00,000**	**71,19,00,00,000**		**1,68,48,30,00,000**
Continegencies@3%		1,06,78,50,000	1,13,90,40,000	71,19,00,000	2,13,57,00,000		5,05,44,90,000
Gross Total		**36,66,28,50,000**	**39,10,70,40,000**	**24,44,19,00,000**	**73,32,57,00,000**		**1,73,53,74,90,000**

Total Cost of the project for each section

Sl No	Route Name		Length (km)	Cost (Rs in Cr.)
1	**Blue Line**	Bareilly Jn. Railway Station to Airport & Pilibhit Bypass	15.0 km	3,666.28 Cr
2	**Red Line**	Bareilly Jn. Railway Station to Parsakhera & Jumkha Chowk	16.0 km	3,910.70 Cr
3	**Green Line**	Mini bypass to Izzat Nagar to Gandhi Udhyan Chauraha	10.0 km	2444.19 Cr
4	**Violet Line**	Satellite Bus Stand to Bisalpur Chauraha to Pilibhit Bypass to Bilwa to Jumkha Chowk	30.0 km	7332.57 Cr
Total Proposed Metro Length			**71.0 km**	**17,353.74 Cr**

h. Project Phasing

Projects Name	Mode of Development	Short Term (2022-28)	Medium Term (2028-37)	Long Term (2037-71)
Development of proposed Metro-Lite Rail System connectivity in Bareilly city	EPC-HAM	36,66,28,50,000	39,10,70,40,000	97,76,76,00,000

i. List of Stakeholders

a. Bareilly Development Authority
b. Bareilly Nagar Nigam
c. PWD-Bareilly
d. State Highways-Bareilly
e. NHAI-Bareilly
f. UP Metro Rail Corporation
g. UP State Road Transport Corporation
h. UP Traffic Police

j. Project Time-line

- The Development of proposed metro-lite rail system connectivity in Bareilly city with construction time: 5-7 years

6.4 PROJECT IMPLEMENTATION STRATEGY (RS IN CR.)

S. No.	Projects	Mode of Development	Short Term (2022-28)			Medium Term (2028-37)			Long Term (2037-51)		
			2022-24	2024-26	2026-28	2028-31	2031-34	2034-37	2044-53	2053-62	2062-71
1	A parking policy and construction of off-street parking lots in major market and commercial areas to accommodate the parking demand for nearly 12000 E.C.S.	EPC-HAM		10,50,00,000		10,50,00,000		10,50,00,000		10,50,00,000	
2	Strengthening of Radial Road connectivity from Bareilly city to Ganga Expressway.	EPC-HAM			2,44,29,02,201			2,91,26,58,960			
3	Interactive Bus Stop at various locations	PPP	5,00,00,000			5,00,00,000			5,00,00,000		
4	Development of Cycle Track Corridor	EPC-HAM	15,00,00,000			15,00,00,000			15,00,00,000		
5	Establishment of Freight Logistic Hub for efficient distribution of inter & intra urban freight movement in Bareilly	PPP	1,25,80,00,000								
6	Electric Vehicle Charging Station along the National Highway for Cars	PPP	5,00,00,000			5,00,00,000					
7	Development of proposed Metro-Lite Rail System connectivity in Bareilly city	EPC-HAM			36,66,28,50,000		39,10,70,40,000		24,44,19,00,000		73,32,57,00,000

6.4.1 Governance and Capacity Building

Leadership and governance systems are at the heart of decision-making that guides how resources are used and assets are developed to target inclusive outcomes. Leadership forms the foundation of how a vision on social inclusion is translated into reality. Important elements of good governance include transparency and accountability, which create trust between the government and society. Ease of access to information and modern communication tools can help to create an interactive and collaborative environment.

6.4.2 Private Sector Roles and Participation

The private sector can play a role in improving inclusivity in infrastructure projects, but careful planning is necessary to ensure these results. The appropriate application of incentives, such as the linking of government payments to inclusive outcomes, can help to align the private sector with government. The general principles and guidance under this Action Area are applicable to all stakeholders, but some of the recommended approaches to private sector participation in these Action Area are sector specific. All recommendations should, be adjusted, to consider the individual features of the infrastructure project under consideration, to optimise opportunities that will benefit targeted stakeholder groups.

6.4.3 Development Strategies adopted for Bareilly

The selected strategies to achieve the Goals are:

viii. Preparation of Traffic Management Plans, for critical locations, corridors, and areas with emphasis on priority of access and movement for Passenger and goods in Bareilly to cater the inter-city and intra-city connectivity and addition of new lengths into the existing road network. Connecting the missing links of road network in Bareilly. construction of new flyovers, Bridges, RoBs, Under-passes sections and Grade separated intersections followed by improvement of existing Bridges, Flyovers, RoBs and Road crossings. Adopt 'Zero Fatal Accident' policy and promote high degree of safety in the planning, design and construction of transport facilities and operation of transport service.

ix. Providing Bareilly with intra & inter bus terminals, were passengers board and alight from personal and private vehicles. It also often provides a convenient point where services can be controlled from. Which will serve with all requisite facilities in the terminal area which helps to cater the needs of on-boarding and off-boarding passengers. Augment supply of mass transit systems like Metro-lite in future by 2031 which can Ensure adequate last mile connectivity mass transit stations and IPT and NMT locations to cater in horizon year 2031.

x. Developing, Preparation and Adoption, a comprehensive Parking Policy, Which Discourages use of private modes for 'Work' and 'Education' trips, conserve space and prohibits encroachment on road space and capacity. For the present demand of parking in the core area of Bareilly, an innovative solution like MLCP, Boom barrier and Dedicated parking lanes can be adopted.

xi. Providing well designed pedestrian footpaths and cycle lanes along all arterial roads of Bareilly, with exclusive pedestrian phase at all inter-sections like grade separation facility. Improvement of existing junctions or intersections with pedestrian refuge islands of adequate size and street infrastructure facilities.

xii. Providing city bus service along the major routes of the Bareilly city by Introducing Electric Buses with the support of Government of India's Initiation towards sustainable urban mobility places electrification of public transportation as high. Switching from ICE-powered buses to pure electric ones will have several advantages, including quickening the country's progress toward its 2071 net-zero goal.

xiii. Development of integrated freight complex (IFC) or Integrated Logistic Hub (ILH) for facilitating urban freight movements and adopt city logistics facilities for sustainable urban freight deliveries

xiv. Strengthen the capacity of institutional set-up in the study area of mobility planning and traffic engineering. By conducting safety audit at all stages – planning, design, construction, post construction and operation – of transport facilities and services. Explore innovative mechanism to finance urban transport & arrangement resource generation capacity of BDA.

INTEGRATED DEVELOPMENT STRATEGY AND ACTION PLAN FOR PHYSICAL INFRASTRUCTURE PLANNING PROJECTS

Chapter 7. INFRASTRUCTURE PLANNING

7.1 VISION FOR PHYSICAL INFRASTRUCTURE

This consultancy project is supported by the Government of Uttar Pradesh which envisions for betterment of the city of Bareilly by enhancing its comprehensive development of physical, institutional, social and economic infrastructure in accordance with modern and innovative urban planning principles.

The project envisages to prepare the Vision, Implementation Strategy and integrated infrastructure plan to support objectives of holistic, sustainable and planned development of Bareilly city. It requires to take a much broader view of planning to allow for more integrated land use and infrastructure development schemes. The project is expected to drive economic growth, improve the quality of life of people by strengthening city's inherent potentials and augmenting its existing infrastructure. It should also contribute to enhancing the resilience of the city by incorporating policies to enable the city in coping with urban risks and climate change mitigation and adaptation. The Vision, Implementation Strategy and integrated infrastructure plan for Bareilly in Uttar Pradesh will further pave the way for project development, management and project implementation support.

Vision Plan- "Clean Green City"

7.2 SWOC of Infrastructure

The geographical scope of the environmental improvement of the Bareilly city study shall be based access of basic Needs to all citizen in equal quantity, clean and green environment for sustainable development. Basic needs for all include:

- Water Supply
- Wastewater
- Storm Water Drainage
- Solid Waste management
- Power
- Environmental quality assessment

STRENGTH

- Bareilly City falls under semi-arid region where ground water is not sufficient, city seeks surface water facility to substantiate demand. Nearby reservoirs, Ramganga River are major surface source to substantiate demand with needful action.
- Subsequently waste management can be managed with technological intervention to wards 3R principle- Reduce, recycle and reuse.

WEAKNESS

- The growth pattern of city is not planned, so laid of new network in old area places are troublesome.

OPPORTUNITY

- Govt policy and Citizen charter makes city clean green city to sustain resilient city.

CHALLENGES

- New land acquisition policy restricts spatial growth of city to laid new world class infrastructure for new city. So, retrofitting in places will only make city clean city in core area and new parts may be substantiate requirement to achieve future goal.

7.3 Water Supply

To assess the future demand for all parts of Bareilly within Municipal area Water demand has been assessed by taking 150 LPCD i.e. 135 LPCD with 15% unaccounted water demand of the area.

Table: water requirements

Water requirement		2021	2026	2031	2036	2041	2046	2051	2071
A	**Municipal Area**	154	168	193	211	229	249	269	422
B	**Cantonment Board**	5	6	6	7	9	10	11	38
C	**Total Villages within Planning Boundary**	38	42	47	53	66	74	82	23
D	**Total Census Towns within Planning Boundary**	13	15	17	19	23	26	29	17
E	**Total Planning Boundary Population**	210	231	263	289	327	358	391	500

Source: Analysis

Under Amrut 2.0 all are to be covered within municipal area to address 155 LPCD which is far higher side than the requirement of MoUD i.e. 135 LPCD. So, there is not to presume additional water augmentation to feed futuristic demand for ultimate project population for 2051. But there are 11 Urban agglomeration, and all villages are within planning Boundary which over the year will be amalgamated as a part of city. To estimate the population enhancement by accounting Rural to urban transformation and Urban agglomerated towns in city limit referring Master Plan 2031 document total water demand is estimated as under:

a. WASTAGE AND DISTRIBUTION LOSSES:

It has been observed that wastage of water at consumer's end in the City is substantial. Almost 30-40% of water supplied is lost in transmission and distribution.

b. SERVICE CONNECTIONS:

All property connections are unmetered. In addition, there are reported to be about 20, 540public stand posts, supplying water to economically backward households and slum areas.

c. ISSUES :

1. Scarcity in Source: Presently only 75% of the population is covered by municipal water supply. Raw water scarcity is experienced in summer, due to lack of flow of present source, Agra Canal water supply network needs to be implemented. Though, under Amrut 2.0 requirement are fulfilling total municipal area.

2. Exploitation of Ground Water Source: In the absence of a perennial water source, dependence on ground water continues to be high in the periphery. Apart from the municipal bores, a large number of private bores have been installed in various parts of the city. This has seriously affected the ground water level, which is depleting at the rate of 2 to 3m annually. Thus, the reliability and sustainability of the ground water source is questionable.

3. Operation of Water Treatment Plants: The present operation, including chemical dosing and back washing of filters, Chlorine dosing is arbitrary. All the equipment meant for these functions needs to be repaired, if required and a formal system of testing the raw water turbidity, administering the doses based on jar test and back washing of filters, when it is due, needs to be introduced. Additional gas cylinders have to be procured.

4. System Losses: Around 30%-40% of the water supplied gets lost during transmission and distribution. Scada system is only commissioning in Smart City ABD area.

5. Limited Duration of Supply: At present, the water is supplied only for one hour on fifth day. It is proposed to supply water for 24 hours and hence necessary modification including construction of ESR at each distribution station will be carried out.

6. Contamination of water due to old service connections: The consumer connections are of Galvanized iron, which has a life of 7-8 years. These connections are often not replaced on time and leads to the problems of leakage, low pressure and contamination.

16.1.6 Vision Plan for Water Supply

So basis of above requisite the water supply vision for 24X7 potable water supply to all area could cover by de centralize use of water and recycle of water as under:

Year	2026	2036	2051	2071
Action Plan	**Short Term**	**Mid Term**	**Long Term**	**Outline Plan**
Connection				
Water Augmentation from Canal				
enhancement of WTP &Reuse of Water				

Connection

Water Augmentation from Canal

enhancement of WTP &Reuse of Water

Project Phasing and Costing For Integrated Infrastructure development Strategy and Action Plan for Water Supply Service has already been considered under Amrut 2.0 for entire city and rural area under Jal Shakti Mission. So separate costing has not been done

7.4 Wastewater

There are properties with Sewer Connection 65201 and Properties with onsite sanitary disposal are 136275. Total water consumption (billed and unbilled) from ULB and Non ULB sources are accounted 110.8 MLD and volume of wastewater generated from Domestic water consumption is around 88.64 MLD (Source SLB 2019-20). There is no sewer Treatment plant. Although STP will be set up soon in two sites.

Total Length of sewerage network = 206.2 km
Total Wastewater produced = 99.2 MLD

Zone	**Sewer Lines**	
	Length (km)	**Area covered (sq. km)**
Zone- 1	43	9
Zone -2	71	8.46
Zone -3	59	3.97
Zone -4	33	4.33
Total	**206**	**25.76**

*Source: SLB 2012, NNB

INTERMEDIATE PUMPING STATION AND STP

ZONE-2 : In zone-2 is l 71 Km sewer length with MLD stp based on mid-year 2033 . there is MPS provided in the stp campus.
Zone 3: IPS-2 of I & D work. in zone-3 is proposed under I & D work of Bareilly city of 59 Km length
ZONE-4 : IPS-2 of I & D work. in zone-4 is proposed under I & D work of Bareilly city of 33 km length.
Works incorporated under this Detailed Project Report have been proposed for year of 2033.
Bareilly Smart City ''ABD'' Area is proposed to be covered with sewer system under Smart City Programme. Sewage Treatment Plants will also be provided for Treatment of sewage and discharge of effluent to the effluent management works for irrigation of cultivable land effluent will however by conveyed to the Natural Drainage when not required for Irrigation purposes.
Taking into consideration Topography/Gradient/Slope of Ground/Location of Railway Tracks i.e. from major drains under the Nagar Nigam area Total Smart City ABD area is proposed to be divided into 4 Zones, Zone-1 includes wards/area .
In the proposed sewer system AC Pressure Pipes Manufactured by MAZZA Processing sizes 150/200mm and in higher sizes RCC Non-Pressure Pipes Class NP3 and NP4 have been proposed in accordance with provisions under the Guidelines issued under Atal Mission for Rejuvenation and Urban Transformation (AMRUT) Programme “Manual of Sewerage and Sewage Treatment CPHEEO” Ministry of Urban Development Government of India New Delhi and Relevant code of Bureau of Indian Standards New Delhi.
From the Sewage Treatment Plant effluent will be conveyed to effluent management works i.e. applied for Irrigation iWan agriculture fields during the period effluent is not required for irrigation purposes, it will be discharged into river.
Land requirement for Sewage Treatment Plant: Total Land Requirement for 7 MLD plant on SBR based technology is = 7 x 0.08 hect = 0.56-hectare land is required
Further, drains will be tapped under Namami Gange program

7.4.1 ISSUES:

Over the year Sewerage Generation will be

Table: Sewerage Generation

	Sewerage Generation	2021	2026	2031	2036	2041	2046	2051	2071
A	**Municipal Area**	123	135	155	169	183	199	215	338
B	**Cantonment Board**	4	5	5	6	7	8	9	30
C	**Total Villages within Planning Boundary**	30	34	38	42	53	59	66	18
D	**Total Census Towns within Planning Boundary**	11	12	13	15	19	21	23	14
E	**Total Planning Boundary Population**	168	185	210	231	262	287	313	400

Source: Analysis

i) Coverage:

The present population of Bareilly is approximately 1554063, as against the combined design population of 1140717 for stage I and stage II sewerage schemes. Thus, even after the Stage II scheme, designed to cover 165 MLD for 2033 whereas by 2036 the discharge within Municipal area will be 169 MLD, the entire present population of the city will not be covered.

ii) Sewer Connections:

Out of total households, only 50 properties have been connected to the sewers. Even allowing for some unauthorized connections, the utilization of the sewer network appears to be extremely poor. The number of properties connected to the sewer network is abysmally small. An urgent and concerted drive to increase the number of sewer connections is called for.

iii) Need of Updated Map of Sewer Network:

Unless an updated map showing all the sewers laid so far is prepared, an action plan to improve the coverage and utilization of the sewerage system will not be accurate or fruitful.

iv) Unauthorized Lifting of Sewage:

Very little quantity of sewage appears to be reaching the treatment plant. Farmers lift the raw sewage from the manholes of out fall sewers and use it for agricultural purpose.

v) Performance of Sewage Treatment Plant

Measurement of sewage flow entering the sewage treatment plant and the characteristics of the influent and effluent needs to be done on a regular basis to know the effectiveness and efficiency of the sewer network and STP.

7.4.2 Vision for Sewerage Plan

Sewerage Vision Plan is to connect each household with sewer line for clean green city plan. Core area is very congested where existing STP could serve city but remaining all part of city should have sewer line. STP should be upgraded. As per requirement of improvement of STP MPS , IPS should be constructed, and trunk line should be enhanced.

Overall city's vision plan for STP area as under:

Year	2026	2036	2051	2071
Action Plan	Short Term	Mid Term	Long Term	
Connection				
STP & ETP				
Reuse				
Decentralized System				

The new industrial area development plan has been considered in terms of waste water management plan for city. The following manners the costing will be done>

15.Development of new Tertiary Sewage Treatment Plant (STP): Near Industrial Area.					
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**	**Cost for Facilitation**	**Total cost in Lakhs**
Access to Water Supply	y				
Access to Sewerage & Drainage	y				
Access to Drinking Water					
Access of Dustbin or Water Collection System					
Access of road	y				
Accesss of parking					
Access to Bus Stop					
Acess to Public Transport System					
Acess to Police Station					
Acess to Fire Fighting Station					
Acess to Electricity	y				

Project Costing for Development of new Tertiary Sewage Treatment Plant (STP): Near Industrial Area.

Facilities and Infrastructure	**Total cost in Lakhs**	**Fun ding**	**2022 -24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components											
Oxidation plant for tertiary Treatment for 338 MLd plant	1,20,000	PPP			24,000	24,000	24,000	24,000	24,000	24,000	24,000

7.5 Storm Water Drainage

There are three major drains in the Bareilly planning area. The problems of waterlogging, overflowing and choked drains and a host of water-borne diseases can be seen here. The details of these drains are as follows: -

Deveraniya Drain

Deveraniya Drain's originating point is Sarai Talfi. The drain starting point coordinates are Latitude: 28°24'31.60"N & longitude: 79°22'15.62"E. Deveraniya drain meeting to river Ramganga at village Virya Narainpur. Coordinate of the confluence point of the Deveraniya Drain is Latitude: 28°19'1.47"N & Longitude: 79°22'31.71"E. Covered Distance of Deveraniya drain from Bareilly town to its meeting point to river Ramganga in the village Virya Narainpur is approx.: 23.6 km. Detail of situated industry & discharge of their effluent to the drain Deveraniya drain carries domestic wastewater of Bareilly town as well as effluent from 02 Industrial units. Total Discharge from Deveraniya drain to Ramganga is 102.28 MLD, out of which 0.75 MLD is treated industrial effluent and the rest is untreated sewage of Bareilly Town. The Water Quality of Deveraniya Drain meeting in river Ramganaga having pH 7.2, BOD (mg/l) 39.8, COD (mg/l) 80, TSS (mg/l) 89.

Chaubari Drain

Chaubari Drain's originating point is Subhash Nagar. The drain starting point coordinates are Latitude: 28°22'4.95"N & longitude: 79°23'43.17" E. Chaubari Drain meets to the Ramganga River at Gomidpur. Coordinate of the confluence point of the Chaubari Drain is Latitude: 28°12'28.09"N & Longitude: 79°25'34.55"E. Covered Distance of Chaubari drain from Bareilly town to its meeting point to river Ramganga in Gomidpur is approx 10.7 km. Chaubari drain carries domestic wastewater of Bareilly. The total Discharge from Chaubari drain to Ramganga is Gomidpur, out of which 50.47MLD is untreated sewage of Bareilly city. The water quality of Chaubari Drain meeting in the river. Ramganaga having pH 7.1, BOD (mg/l) 33.2, COD (mg/l) 200, TSS (mg/l) 70.

Nakatiya River:

Nakatiya River/Drain's originating point is Deennagar. The drain starting point coordinates are Latitude: 28°36'16.14"N & longitude: 79°34'1.13"E. Nakatiya Drain meets to the Ramganga River at village Ahargauthiya. The Coordinate of the endpoint of the Nakatiya Drain is Latitude: 28° 8'9.06"N & Longitude: 79°29'4.08"E. Covered distance of the drain from Bareilly town to its meeting point into river Ramganga is approx.: 100 km. Detail of situated industry & discharge of their effluent to the drain Nakatiya Drain carries domestic wastewater of Bareilly, the town as well as effluent from 03 Industrial Units. Total Discharge from Nakatiya Drain to Ramganga is 24.13. The water quality of Nakatiya Drain meeting in river Ramganga having pH 7.3, BOD (mg/l)- 44.8, COD (mg/l)-120, TSS (mg/l)- 14.

The total road length is Bareilly is 832 kilometres out of which **493 kilometres** are serviceable by primary drains acting as stormwater drains during heavy rains. That translates to a drainage coverage of **59.3 per cent** in the city. All the primary drains have outfall in twelve major secondary drains listed in the table below:

Table 11.3: Location of Secondary Stormwater drains

S. No.	Name of Secondary Drains	Location	Ward Number
1	Bisalpur Road Nala	Haroongla	17
2	Rampur Road Nala	Swale Nagar	30

3	Peerbahoda Nala	Pirabahooda	70
4	Saufita Road Nala	Badi Bihar	10
5	Harunagla Nala	Haroongla	17
6	Badi Bihar Nala	Badi Bihar	10
7	Sufi Tola Nala	Sofi Tola	78
8	Tuliya Nala	Nandausi	37
9	Partappura Nala	Partapur Chaudhary	34
10	Sanjay Community Hall Nala	Elan Club	35
11	Akshar Vihar Nala	Bareilly Club	32
12	Delapeer Lake Nala	Near Satya Petrol Pump	10

Issues with the existing stormwater drainage system:

The sub-drain flows through the middle of the city starting near the BNN compound and empties out into river Nakatia. Several culverts are built up on it. Over the years, the lanes adjacent to the drain have risen because of repeated layering whereas all culverts have remained below the level of the lanes. When it rains, these culverts get flooded and underdrain the water. The filthy water enters the nearby houses and rises up to two feet. Before the monsoon commences, the BNN sanitation workers clean the drain, but heavy rainwater makes the area waterlogged. Following are some issues identified with the current system:

- Silting of the drain
- Unlined drains
- Dumping of debris and garbage into the open drains & nallah
- The roads are below the drains' top level which causes the overflow from drains to fill the roads and the low-lying areas
- The increased impervious areas also add to the worsening of the situation

Interventions required for stormwater drainage system:

- Govt should impose fines on those industries discharging wastewater into the stormwater drain
- All the house service connections shall be properly connected through the sewer network and shall be treated in the STPs to maintain the stormwater drain as a dedicated facility.
- All the untapped drains should be tapped and diverted to STP
- Ensure sufficient right-of-way provision for constructing drains in future proposals.
- Cost and O&M framework

Suggestions to be considered during the preparation of a detailed project report for the stormwater management plan:

- Assessment of existing stormwater drain condition ward wise
- Based on the assessment, provide recommendations for reconstruction of the structure wherever possible
- Analyze the surface runoff and increase the width of the drain wherever required
- Based on the assessment, identify the financial stability of the developer and workout the phase-wise implementation strategy
- Achieve 100% coverage through effective planning

- Remedial Measures for controlling water logging and ailing drains

An integrated stormwater network is required to be planned for the entire city based on contour maps. There should be realignment and upgradation of existing nallas. Cleaning of drains should take place at regular intervals. Finally, the separation of stormwater drains from the sewerage network should be executed on priority.

SILTING AND WEEDING OF DRAINS

- Almost all the length in the meter of the major drain is silted and weeded. The drain has to be de-silted and deseeded. Deweeding will be done on the bed, side slopes and 50 cm at the top on both sides of the drain.

INFLOW OF SEWAGE AND DUMPING OF SOLID WASTES INTO DRAINS

- With the implementation of sewerage and solid waste management sub-projects, it is expected that this problem would get solved. However, it has to be ensured by the implementing agencies that all residences are connected to branch sewers which in turn are connected to trunk sewers. A public awareness campaign by the city to educate people not to dump solid wastes into sewers/drains should be carried out.

SILTING, WEEDING AND BLOCKAGE OF TERTIARY DRAINS

- Regular cleaning and maintenance by Nagar Nigam coupled with deterrent punishment to persons who block the tertiary drains are to be carried out.

ENCROACHMENTS OF FLOW CHANNELS AND TANKS

- BNN and BDA must enforce measures to disallow any construction on drain/tank beds and periphery. The practice of drying tanks and reclaiming them for building must be stopped to preserve the depleting stormwater storage/buffer areas. Encroached drain sections are to be cleared and drains provided with an adequate cross-section to carry the flow.

- Within Municipal area road length is 634 Kilo Meter and total incurring cost would be INR 1985 Cr. The phasing of development would take place by following way.

#	Project Name	Location	Total Area / Length	Phasing Terms					
				Short		Mid		Long	
				Location / Part	Area / Length	Location / Part	Area / Length	Location / Part	Area / Length
16	City Plan for Water Logging / stagnant spots and flood prone areas	**Entire City**	634 km	Desilting and Deweeding of Existing Primary and Secondary Drains to Increase carrying capacity Procurement of Drain Cleaning Equipment	Improvement of Existing Major/ Primary Drains including Augmentation of Capacity of Pumping Stations	Improvement of Existing Secondary Drains including Augmentation of Capacity of Pumping Stations	New Primary Drains and Pumping Stations in Flood Affected/Water Logged Areas	New Secondary Drains and Pumping Stations in Flood Affected/Water Logged Areas	Cleaning of tertiary and deep drains

- Total project costing are as under:

City Plan for Water Logging / stagnant spots and flood prone areas		Short Term (2022-28)			Medium Term (2028-2037)			Long Term (2037-2071)		
Item of Work	**Cr Rs.**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Improvement of Existing Major/ Primary Drains including Augmentation of Capacity of Pumping Stations	199	-	49.63	49.63	49.63	49.63	-	-	-	
Improvement of Existing Secondary Drains including Augmentation of Capacity of Pumping Stations	99	99								
New Primary Drains and Pumping Stations in Flood Affected/Water Logged Areas	596		198.5	198.5	198.5					
New Secondary Drains and Pumping Stations in Flood Affected/Water Logged Areas	**794**				397	397				
Desilting and Deweeding of Existing Primary and Secondary Drains to Increase carrying capacity	99		33			33			33	
Cleaning of tertiary and deep drains	99	33			33			33		
Procurement of Drain Cleaning Equipment	99	99								
Total	1985									

7.6 Solid Waste management

The total solid waste generated in Bareilly Is 447.18 Tonnes Per Day (TPD). However, at present, the amount of solid waste collected is only 430 TPD . Of the collected solid waste (Nearly) 140 TPD is processed while the remaining 290 TPD is disposed of in the dump yard. At present, there is no household source segregation in place. At present two solid waste management plants exists (I) At Rajau Paraspur (non-operational) and (ii) At Bakarganj, out of which the SWM plant in Rajau Paraspur is non-operational.

The solid waste generation, though measured at the city level, should also be measured and calculated for the entire planning area considered in the ambit of the Vision Plan for Bareilly City. Hence, it is imperative to include those additional areas such as the Cantonment Board Area, Town Villages within the planning boundary and census towns in the planning boundary in addition to the existing Municipal Corporation Area. As a result, the total population for the Year 2021 (Base Year), the year 2036 (Intermediate Year) and the year 2051 (Ultimate Year) are considered for the projection of the solid waste generation as well. The ensuing sections discuss the solid waste generation projection for different scenarios. Table below represents the solid waste generation projection for the Municipal

Corporation area of Bareilly. Further 2071 Demand will be freezed for visionary outline development planning purpose

Table 7-1: Solid waste generation projection – Municipal Area

S. No	Population projected year	Population	Solid waste generation (TPD)	Organic waste (TPD)	Existing SWM plant capacity (TPD)	Proposed plant in Sathranur & Rajau	Total plant capacity (TPD)	Gap (TPD)	Inorganic waste (TPD)	MRF	MRF Existing	MRF Proposed	Gap (TPD)	Dumping / Landfill	Existing Landfill	Landfilling Proposed	Gap (TPD)
1	2021	13,11,599	564	338	600	0	600	0	226	56	0	120	56	169	0	280	169
2	2026	15,56,033	669	401	600	0	600	0	268	67	120		-53	201	280		-79
3	2031	17,12,822	737	442	600	0	600	0	295	74	120		-46	221	280		-59
4	2036	19,49,012	838	503	600	0	600	0	335	84	120		-36	251	280		-29
5	2041	21,42,644	921	553	600	0	600	0	369	92	120		-28	276	280		-4
6	2046	24,22,433	1042	625	600	850	1450	0	417	104	120	120	-16	312	280	690	32
7	2051	26,55,075	1142	685	600	850	1450	0	457	114	240		-126	343	690		-347
8	2056	28,94,499	1245	747	600	850	1450	0	498	124	240		-116	373	690		-317
9	2061	39,72,077	1708	1025	600	850	1450	0	683	171	240		-69	512	690		-178
10	2066	45,86,104	1972	1183	600	850	1450	0	789	197	240		-43	592	690		-98
11	2071	53,15,516	2286	1371	600	850	1450	0	914	229	240		-11	686	690		-4

Source: Bareilly Nagar Nigam & Consultant's analysis

Inference:

- The proposed plant in Sathrapur is planned over 10 acres of land with 500 TPD capacity.
- The proposed plant in Rajau Paraspur (disputed land) is planned with a treatment capacity of 300 TPD.
- The proposed plant in Rajau Paraspur (disputed land) will require an area of 20 acres for the proposed installed capacity of 300 TPD in an alternate land parcel since the existing plant is non-operational due to NGT litigations.
- For the purpose of solid waste projection over the planning horizon (2071), it is assumed that the above-mentioned two proposed SWM plants with a combined capacity of 850 TPD shall be developed before the year 2046.
- After the year 2046, the total treatment capacity of all the plants shall be 1450 TPD whereas the required excess capacity of treatment capacity due to population growth for 50-year period (i.e., 2071) is just 850 TPD.
- Hence, the proposed treatment plants namely the alternate plant in Rajau Paraspur and proposed Sathrapur plant will be sufficient to handle the increase in solid waste generation for the entire planning horizon of the Vision Plan thereby eliminating the need for any new solid waste management plant in addition

- Thus, a need for the development of a new facility doesn't arise if only the municipal area solid waste generation is projected over the project horizon
- 100% Source segregation to be ensured
- For, MRF centres and Landfill can be planned for new SWM plant (Inorganic waste) in year of 2023 and 2046 to monetise from the waste and to prevent environmental degradation to the ground.

The solid waste generation, though measured at the city level, should also be measured and calculated for the entire planning area considered in the ambit of the Vision Plan for Bareilly City. Hence, it is imperative to include those additional areas such as the Cantonment Board Area, Town Villages within the planning boundary and census towns in the planning boundary in addition to the existing Municipal Corporation Area. As a result, the total population for the Year 2021 (Base Year), the year 2036 (Intermediate Year) and the year 2051 (Ultimate Year) are considered for the projection of the solid waste generation as well. The ensuing sections discuss the solid waste generation projection for different scenarios. Table below represents the solid waste generation projection for the Municipal Corporation area of Bareilly. Further 2071 Demand will be freezed for visionary outline development planning purpose

Table 7-2: Solid waste generation projection – Municipal Area

S. No	Population projected year	Population	Solid waste generation (TPD)	Organic waste (TPD)	Existing SWM plant capacity (TPD)	Proposed plant in Sathranur & Raiau	Total plant capacity (TPD)	Gap (TPD)	Inorganic waste (TPD)	MRF	MRF Existing	MRF Proposed	Gap (TPD)	Dumping / Landfill	Existing Landfill	Landfilling Proposed	Gap (TPD)
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2	2026	15,56,033	669	401	600	0	600	0	268	67	120		-53	201	280		-79
3	2031	17,12,822	737	442	600	0	600	0	295	74	120		-46	221	280		-59
4	2036	19,49,012	838	503	600	0	600	0	335	84	120		-36	251	280		-29
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8	2056	28,94,499	1245	747	600	850	1450	0	498	124	240		-116	373	690		-317
9	2061	39,72,077	1708	1025	600	850	1450	0	683	171	240		-69	512	690		-178
10	2066	45,86,104	1972	1183	600	850	1450	0	789	197	240		-43	592	690		-98
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- Thus, a need for the development of a new facility doesn't arise if only the municipal area solid waste generation is projected over the project horizon
- 100% Source segregation to be ensured
- For, MRF centres and Landfill can be planned for new SWM plant (Inorganic waste) in year of 2023 and 2046 to monetize from the waste and to prevent environmental degradation to the ground.

Project Phasing and Development Cost for Solid waste Management Plan

Facilities and Infrastructure	**Total cost in Lakhs**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components	7,500	PPP		1,500	1,500	1,500	1,500	1,500	1,500		

INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN FOR HERITAGE AND TOURISM PROJECTS

Chapter 8. HARITAGE AND TOURISM

8.1 Vision Statement

At present the city of Bareilly is recognized as gateway to Kumaon Hills, but unfortunately has not been part of any tourist circuits of State. The Vision is to develop Bareilly as tourism destination by identification of the cultural and natural heritage, conservation and heritage sensitive development of the diverse Cultural Heritage Resource of the city and its nearby areas, developing infrastructure facilities for the tourists and local community aligning with the vision of Sustainable Development Goals 2030 adapted by the state of Uttar Pradesh.

8.2 SWOC of Heritage and Tourism

STRENGTH

- Bareilly is famous for Nath Temples and Dargah Ala Hazrat. Many people from the whole country to visit these religious sites and temples.
- The Heritage is a major attraction of Bareilly. Bareilly is an entry point for visiting Kumoun Region.

WEAKNESS

- Highly traffic congested urban area and lack of public and tourist facilities.
- Unmanaged public transport for visiting Heritage sites.
- Unauthorized development and Encroachment.
- Narrow connectivity to the Heritage site.
- Location is located in the dense city areas.

OPPORTUNITY

- Bareilly is located between national capital and state capital, also one of the counter magnets of NCR.

CHALLENGES

Lack of celebrated public life and underutilized public assets.

8.3 Heritage and Tourism Projects

- Ahichchhatra Tourism Infrastructure upgradation
- Fist War of Independence (1857) museum: a) Bareilly College Campus

8.3.1.1 Project : Ahichchhatra – Tourism Infrastructure Upgradation of ASI Site in consultation with ASI and UP Tourism Regional Managers

8.3.1.2 Background:

From archaeological point of view the district of Bareilly is very rich. The extensive remains of Ahichchhatra, the Capital town of Northern Panchala have been discovered near Ramnagar village of Aonla Tehsil in the district. The site of Ahichchhatra garh was briefly explored by Sir Alexander Cunningham in 1871, and then excavated by the ASI from 1940 for "about five years". The excavations found brick fortifications and continuity of occupation from a period before 600 BCE to 1100 CE. It was during the first excavations at Ahichchhatra (1940–44) that the painted grey ware, associated with the advent of the Aryans in the Ganges–Yamuna Valley, was recognised for the first time in the earliest levels of the site. Nearly five thousand coins belonging to periods earlier than that of Guptas have been yielded from Ahichchhatra. It has also been one of the richest sites in India from the point of view of the total yield of terracotta. Based on the existing material, the archaeology of the region helps us to get an idea of the cultural sequence from the beginning of the 2nd millennium BC up to the 11th century AD.

This site is located outside the Planning boundary of the Bareilly. The site is under the Archaeological Survey of India and Tourism Department is taking care of it to improve tourism. This Vision plan report consists this project to improve the tourism potential of Bareilly.

Near Ahichchhatra, 2 km to its west there is a big pond which is said to trace its ancestry to the time of Mahabharata. The pond, located in the village of Jagannathpur is said to have been made by the Pandavas at the time of their forest dwelling.

Table 8-1 List of ASI Sites in Bareilly District (3 sites in Bareilly, 7 sites in Ramnagar, 2 in Aonla and 1 site in Pachomi)

S.NO.	NAME	LOCATION	DISTRICT
1.	**Tomb of Hafiz-ul-Mulk Rahmet Khan, the Rohila Chief**	**Bareilly, Bakar Ganj**	**Bareilly**
2.	**Tomb of Hermit Shah Dana**	**Bareilly, BakarGanj**	**Bareilly**
3.	Large obelisk of red sandstone	Fateh Ganj	Bareilly
4.	Several ancients ruined mounds in which Indo-Scythian coins are found.	Pachomi or Wahidpur Pachaumi	Bareilly
5.	Ancient Site	Ramnagar, Alampur Kot	Bareilly
6.	Fort	Ramnagar	Bareilly
7.	Mound called Chikatia Khera	Ramnagar	Bareilly
8.	Mound to the south of the tans known as of the Gandhan Sagar and Adisagar	Ramnagar	Bareilly
9.	Small hillock called Katari Khera or Kottari Khera	Ramnagar	Bareilly
10.	Stupa mound	Ramnagar	Bareilly
11.	Two Buddhist mounds close to the Konwaru Tal	Ramnagar	Bareilly
12.	Begum's Masjid with three lofty domes	Aonla	Bareilly
13.	Site near Aonla railway station	Rehtoia	Bareilly

8.3.1.3 Problem statement:

The site is located at a distance of 55.4 kms from Bareilly with poor tourism infrastructure and site interpretation facilities. It is also located in close proximity of a Jain Teerth which is highly visited by the pilgrims as well as the visitors. There are 7 ASI protected sites in Ramnagar and other unprotected sites including Jain Temples Shri Ahichchhatra Parshvanath Atishaya Teerth Kshetra Digambar Jain Mandir, Ramnagar, Lakes and temples in Aonla etc. which are not explored to its full potential dues to

lack of awareness, poor infrastructure facilities, lack of connectivity and improper visitor infrastructure facilities.

8.3.1.4 Value addition of this project to the tentative vision:

The provision of proper visitor amenities, support infrastructure facilities and improved last mile connectivity will enhance the tourist footfall to these sites. The site interpretation would help to generate interest of different categories of tourists.

8.3.1.5 Key activities, tasks, interventions involved:

1. Identification of area for development of Museum.
2. Connectivity enhancement to the identified sites located in close proximity.
3. Site Development & Landscape Improvement.
4. Providing wayfinding and interpretative signages in and around the sites.

Site Delineation: The buffer area of the Ahichchhatra Fort identified in consultation with ASI.

8.3.1.6 Strategies for Precinct Level Development:

1. To improve last mile connectivity from towns / cities such as Bareilly, Badaun and other nearby towns.
2. Development of Site Interpretative Museum for creating awareness about site, and to develop outreach programmes.
3. Site development and landscape improvement to provide visitor amenities such as food and beverage, toilet facilities, tourist information centre.

8.3.1.7 Project Impact & Benefit:

- World Heritage Site Nomination
- Increase in tourist footfall both domestic and foreigner resulting in creation of more jobs and economic benefit of the district.

8.3.1.8 Stakeholders:

1. Department of Tourism, Government of Uttar Pradesh.
2. Archaeological Survey of India.
3. Bareilly District Administration.
4. Gram Panchayat / Tehsil.

8.3.1.9 Nodal Agency:

1. Archaeological Survey of India	For site development
2. Department of Tourism	For developing Tourism Infrastructure facilities

Data needs for the projects/ Obtained Data:

S.No.	Data	Status
1.	Visitors' footfall in Ahichachhatra, Aonla, Bareilly	**500 – 700 Daily (Average)**
2.	Tourist Profile	**No Records**
3.	Average stay of Tourist	**No Records**

8.3.1.10 Infrastructure Requirements

Project : Ahichchhatra – Tourism Infrastructure Upgradation of ASI Site			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

8.3.1.11 Costing and Integrated Infrastructure Development strategy and Action Plan

					Short Term (2022-28)			Medium Term (2028-2037)			Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total Cost in Lakhs**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components													
Provision of visitor parking, pathways toilets and drinking water Site survey and identification of number of visitors and requirements, Identification of location of provision for toilets and drinking water , Preparation of DPR for the toilet block and drinking water facility. Provision of site lighting along approach roads and boundary wall and entrance gates			300	Tourism Fund	300								

					Short Term (2022-28)			Medium Term (2028-2037)			Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total Cost in Lakhs**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Provision of permeable boundary wall , security room, ticket counter and pathways Brick boundary wall to be provided			1,000		200	500	300						
Research for Interpretative material and Signages including Providing wayfinding and interpretative signages in and around the sites. Research on history and significance of site to create story board and interpretative materials and interpretation techniques, Preparation of design of signages and DPR for execution of signages , Preparation of Digital Media platforms : QR codes, Websites , App , Audio content and graphics for the information on site Preparation of signages and material for outreach at regional level :			500				500						
Identification of area for development of Museum. Identification of location for the museum and interpretation center Preparation of design and DPR for the museum Preparation of Working drawings and Estimates			1,000		500	500							
Site Development & Landscape Improvement. Parking and street lights and pavement including the landscaping along the boundary wall and around the site.													
TOTAL			**2,800**		**1,000**	**1,000**	**800**						

8.3.2 Project : Developing a Theme based Museum on First War of Independence 1857

8.3.2.1 Project Background:

During 1857, Bareilly became a major centre of revolt under the leadership of Khan Bahadur Khan while maintaining the communal harmony despite the efforts by Company officers to create trouble by inciting Rajputs against Khan Bahadur Khan. Bareilly was the last to fall (May 1858). British order was restored on 13 May 1858 by an expeditionary force lent by Commander Colin Campbell of 9th Regiment of Foot with the help of Captain William George Drummond Stewart of 93rd Regiment of Foot, after winning the Bareilly battle. Some of the mutineers were captured and sentenced to death. When the Indian Rebellion of 1857 failed Bareilly, too, was subjugated. Khan Bahadur Khan was sentenced to death and hanged in the Kotwali on 24 February 1860.

8.3.2.2 Problem statement:

There is lack of awareness about the city as a major centre of the first war of independence. A theme based interpretative Museum development would address this and also enhance the future tourism prospects. Bareilly has potential to develop a museum based on the theme of First War of Independence by Adaptive Reuse of a historic building.

Value addition of this project to the tentative vision:

Potential for Tourism Development, Creating awareness and recreational facility at city level.

8.3.2.3 Objectives:

1. Develop Bareilly as Tourist destination and Enhance the Tourism potential of the city.
2. Reviving the memory of the First War of Independence.

8.3.2.4 Key activities, tasks, interventions involved:

- Development of Theme based Museum.
- Interpretative displays of the history of the region and associated personalities, role of Bareilly.
- Visitor Management Plan.
- Development of visitor amenities.
- Site improvement.
- Building Conservation for Adaptive Reuse.
- Signages and way finding.

8.3.2.5 Site Delineation:

Based on stakeholder consultation, the possibility of developing the theme-based museum in some parts of the Bareilly College is being explored. The college is a historic building which is in use currently.

Figure 8-1 Bareilly College – Gangapur, Bareilly Source: Project Team

8.3.2.6 Strategies for Precinct Level Development:

1. NOC and approval from the college for the Adaptive Reuse and Development of Museum
2. Museum Design and Planning
3. Visitor Information
4. Visitor Amenities

8.3.2.7 Project Impact & Benefit:

The Project would help to create a tourist site by development of the Museum. It would also help to create awareness about the rich cultural past of the city at the local as well as at the State level. It will also be one of the contributing factors in celebrating "Azaadi ka Amrit Mahotsav" celebrating 75 years of India's Independence. It will also help to increase tourist footfall in the city by making it as a one/ two day stay destination to visit the local sites of freedom movement as well as the regional sites.

8.3.2.8 Nodal Agency:

Bareilly Municipal Corporation	Site Development
UP Tourism	Funding and Tourism Infrastructure
Education	Institutional Services and Guidelines for Visitor Management

8.3.2.9 Stakeholders:

Bareilly Municipal Corporation, UP Tourism, Education Department

8.3.2.10 Infrastructure Requirements

Project : Developing a Theme based Museum on First War of Independence 1857			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

8.3.2.11 Costing and Integrated Infrastructure Development and Strategy and Action Plan Developing a theme based Museum on First War of Independence 1857

					Short Term (2022-28)			Medium Term (2028-2037)			Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total Cost in Lakhs**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components													
Phase one : site analysis and priority identification and conservation preliminary reports for each structure. Total Station Surveys, Site analysis and identification of structural distress and structural analysis and Identification of phasing and priority works			100	Tourism Fund	100								

Identification and structural stability of emergency works for the buildings with in the complex - Propping strutting of structures , Water management and consolidation of roofsand Addressing major structural issues for stabilization of buildings			2,000		2,000								
Phase I : Identification and upgradation of structures for improvement and upgradation works There are approximately 27 structures with in the complex. Conservation DPR preparation for structures in phase 1 (approximately 13 structures) : including upgradation, repairs, electrical, plumbing, finishes, interiors etc (1500 Per SQM)			5,000		5,000								
Phase II : Facade upgradation and Consolidation and conservation works for priority 2 sites Preparation of DPR for the conservation upgradation and façade improvement of sites in better condition. Re-establishing the circulation, spatial planning , area diagrams if required for each structures with in the current use. (1250 Per SQM			3,000			3000							
Upgradation of boundary walls and entrance gates Documentation of existing boundary wall and entrances Design development for the interventions in boundary wall and upgradation of the gates Design consultancy for the new design f the gateways and conservation - Repair and consolidation works for the boundary walls			-										
Road improvement Provision of parking and upgradation of existing parking			500		500								
Upgradation of sports areas: hockey ground, tennis court			500				500						
Upgradation and upkeep of green areas			200		100		100						
Development of Theme based Museum.			221			100	121						
Interpretative displays of the history of the region and associated personalities, role of Bareilly.			100			25	75						
			11,621		**7,700**	**3,125**	**796**						

INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN FOR ECONOMIC DEVELOPMENT PROJECTS

Chapter 9. ECONOMY

9.1 Economy Vision

To assess the demand, the team has formulated a methodology which consists of three major components namely – (i) Secondary data analysis, (ii) Stakeholder consultations with various associations, federations, private entities, and representatives from various bodies, (iii) multi-stakeholder workshop held in BDA in the presence of various government and private bodies.

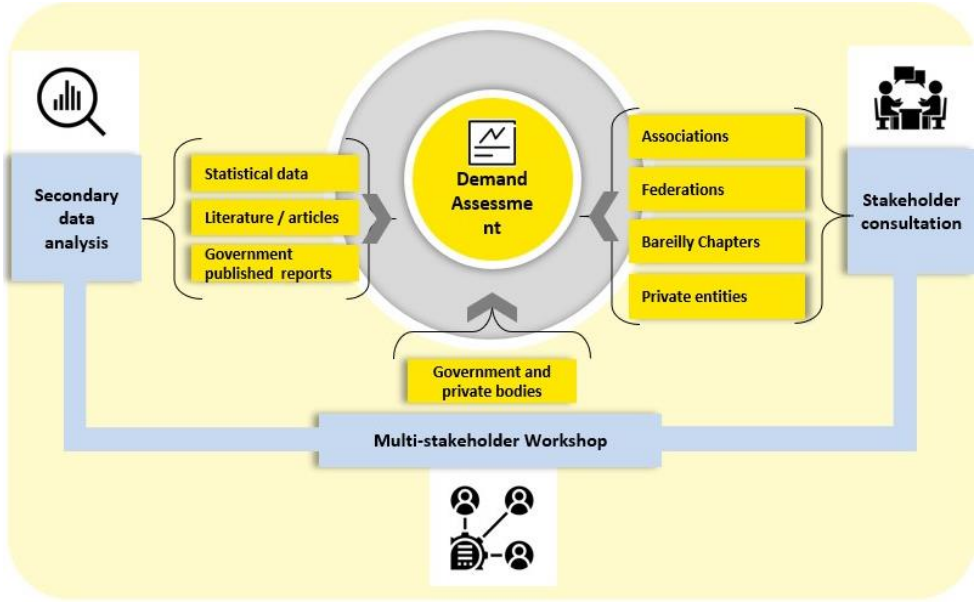


Figure 9-1: Demand assessment methodology

Multiple discussions with stakeholders e.g., representatives of various bodies like Central U.P. Chamber of Commerce, Office of Development Commissioner (Handicrafts), Dastkaar Bunkar Welfare Association, Office of medical officer and CREDAI Chapter of Bareilly; has been conducted at in order to analyze the qualitative and quantitative demand. The Multi – stakeholder workshop conducted had the representatives from Chamber of Commerce, Indian Industry Associations (IIA), Laghu Udyog Bharti, UP Nursing Home Council and Udhyog Mandal, etc.
For quantitative assessment, the team has utilized secondary data available in public domain including statistical data from district development indicators 2020, district industrial profile 2020, etc.

Based on assessment of handicraft, health, education as key sectors of economy, the team has identified a few projects for overall improvement and development of the Bareilly city in a wholistic manner in synchronization with exiting activities vis a vis potential of the city. These projects were agreed to take further in reference to meeting held on 13th July 2022.
This chapter elaborates the handicraft, health, and education sector in terms of interventions in Bareilly as presented in following sections.

9.2 SWOC of Economy

STRENGTHS

- Presence of well-known handicraft sector and artisans in Bareilly. There are approximately 1.7 lakh Zari Zardozi artisans in Bareilly
- Existing Medical infrastructure base and Medical Staff. Bareilly is among one of the leading cities of Uttar Pradesh in terms of medical facilities, the city serves as a gateway to the patients of the nearby areas as well as Kumaon, Rohilkhand, and West Nepal region.
- Two sectors namely Food Processing & packaging, Beverages, and Petroleum & Chemical Products are the major contributing sectors across the district.
- Presence of agricultural products for the raw material
- Proximity to upcoming Ganga Expressway

WEAKNESSES

- Lack of work sheds in hygienic condition with supporting infrastructure such as sanitation, lighting and appropriate place for their tools, equipment, raw and processed material as well as finished products etc.
- Discussions with Health Associations and health sector bodies, it has come up that there is a need of an organized healthcare facility in the Bareilly. As currently, the existing healthcare facilities are present in various parts of the city which are facing issues such as parking, traffic and proper access.

OPPORTUNITIES

- Potential for revival of existing handcraft ecosystem through cluster development
- Development of working shed for Zari Handicraft artisans along with supporting infrastructure.
- As per norms, there will be requirements of additional multi-specialty hospitals and specialty hospitals in Bareilly. The existing health facilities needs to be upgraded in terms of technologies, resources, and facility. Development of “Medi City” designated area with multiple health business and activities.
- Potential for Food Processing, Beverages, and packaging sector based on industrial output trend.
- Development of ring road for improved connectivity and development of southern area.

CHALLENGES

- Physical constraints of the city in southern direction with respect to presence of river Ram Ganga for physical growth of the city
- Unavailability of large vacant land parcels for development of infrastructure

9.3 Economy Projects

- “Medicity” – designated area with multiple health business and activities
- Development of Handicraft Cluster/ Common Facility Centre (CFC) – Zari & Bamboo

9.3.1 Project : Development of “Medicity” designated area with multiple health business and activities

The concept of modern medical cities or special health care facilities has been in place for some time, but has gained renewed interest, particularly in rapidly developing economies. The concept of a Medi City or health city defines a cluster of hospitals, a holistic healthcare center; a large hospital sprawled

across acres of land. Medi-city can be a new township or a zone of a city, where medical facilities are provided releasing pressure from the main city or to promote medical tourism attracting new sources of economic growth.

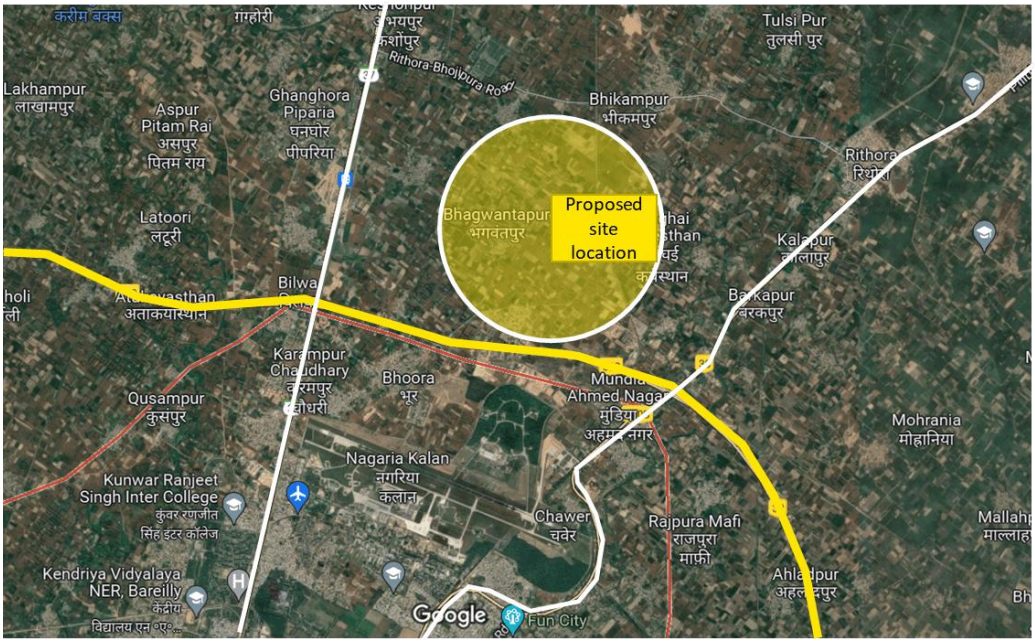
Medi-cities have been designed to be comprehensive in scope and incorporate advanced technologies and medical practices. The scale and scope of medical cities usually demands an advanced level of care, both in technology and approaches to create an attractive destination for care to ensure the high level of patient volumes required to support such a large setup.

9.3.1.1 Planning strategy

Medi cities have the ability to support services that are highly specialized, services that often struggle to see sufficient volume to support a business case. Medi-cities need to have a strong higher and medical educational system and complete and stable infrastructure to become an ideal location for specialization. Due to the interplay of economies of scale, the Medi-city creates an interesting and opportunistic intersection with medical tourism as mentioned earlier. For those organizations providing medical tourism services, this integration extends beyond the immediate community into the global healthcare delivery system.

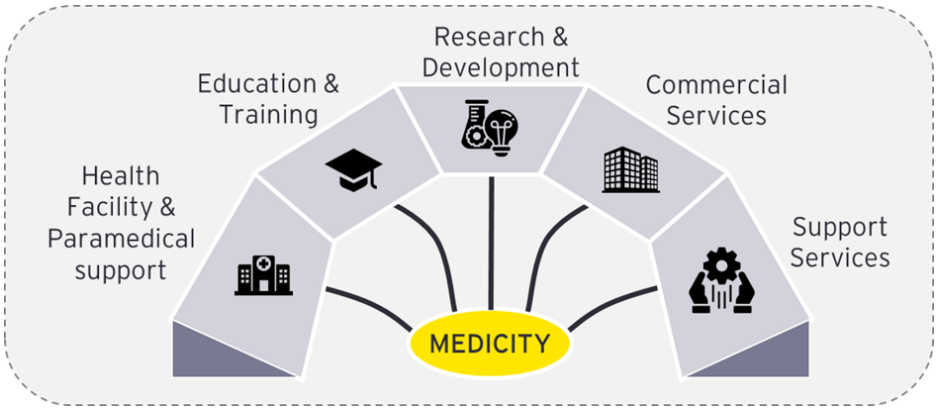
9.3.1.2 Location

Proposed Medi City land in Master plan 2021 may be utilised for this proposal



9.3.1.3 Components proposed

Medi City aims to functionally integrate within one campus and one management of the facilities related to medical care, teaching, research, and development. It also offers to explore the possibility of integrating knowledge of traditional and alternative medicine with modern medicine, through means of scientific research.



- Medical College & Hospital
- Super speciality Centre of Excellence
- Paramedical education hub
- Medical Research Centre
- Traditional Medical Practices
- Manufacturing and technology
- Convention Centre and hotel accommodation

9.3.1.4 Stakeholders

- Bareilly development authority
- Indian Medical Association
- Chief Medical Officer Office Bareilly
- UP nurses and midwife Council Bareilly

9.3.1.5 Benefits of the project

Development of a comprehensive facility integrating health facilities, institutions, research labs etc.

9.3.1.6 Infrastructure Requirements

Project : Development of "Medicity" designated area with multiple health business and activities			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

9.3.1.7 Costing

					Short Term (2022-28)			Medium Term (2028-2037)			Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total Cost in Lakhs**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components				PPP									
Staff & Worker Hostel		737			737								
Budget Hotel		2,371			2,371								
Wellness & Rehabilitation Centre		3,831					3,831						
Multi-speciality Hospital		21,581			13,602	7,979							
Convenience stores (incl. Pharmacy)		886			886								
Housing for Hospital staff		4,166			2,607	1,599							
Nursing & para-medic college		1,520					1,520						
Garden & Green area													
Infrastructure, Services & roads, etc.													
Total		**35,132.50**	**-**	**PPP**	**-**	**20,203**	**9,578**	**5,351**					

9.3.2 Project : Development of working shed for Zari Handicraft artisans

The Work shed project for Handicraft Artisans is an attempt to facilitate the development of artisans and their families by way of providing them financial assistance for construction of work sheds.

9.3.2.1 Probable Locations

Approximately 6-8 locations namely:

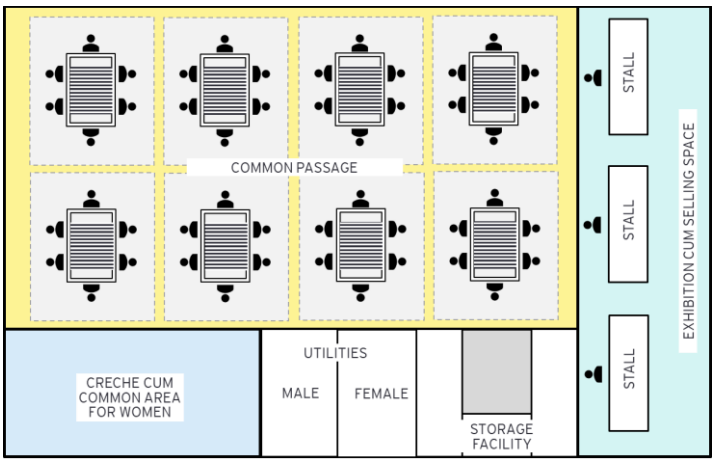
(i) Near Paraskhera,
(ii) Near Invertis Chauraha,
(iii) Biharipur,
(iv) Kasgaran,
(v) Puranashahar,
(vi) Katrachand Khan,
(vii) Chhipitola,
(viii) Partapur

9.3.2.2 Components proposed

- Working shed (temporary / permanent) with specific number of "Adda (wooden frame)" and circulation space (maximum 40 – 50 artisans per shed)
- Paved area to place "Adda or Wooden frame"
- Exhibition / selling area – to showcase the final product
- Toilet and rest room
- Creche area for children

9.3.2.3 Concept

Broad layout of the working shed area



- The working shed area requirement will vary from **3000-4000 Sq. ft. for minimum sitting capacity of 40-50 artisans at a stretch.**
- Based on the interviews and qualitative survey during assessment studies, it was observed that approximately an artisan takes approximately 10 days for completion of a product.
- A single working shed can facilitate approximately 2500 workers in a year.
- 8-10 such working shed can provide a healthy and efficient working environment to **approximately 10% of the total workers** in Bareilly.

9.3.2.4 Model

- **Land:** To be identified and provided by Bareilly Development Authority based upon availability in a particular location
- **Phasing:** Pilot shed for 6-8 location and then based on success of these, implementation on multiple locations (phase wise) for multiple locations with availability of artisans.

- **O&M -** District Handicraft Department in coherence with District Industries Centre (DIC). The operation responsibility may be leased out on turn basis to the Self-Help Groups (SHGs) / community associations / similar bodies.
- **Financial assistance -** The financial assistance will be in the form of 80% assistance from Office of DC (H) subject to the ceiling and 20% will be contributed by the implementing agency under the "COMPERHENSIVE HANDICRAFTS CLUSTER DEVELOPMENT SCHEME (CHCDS)".

9.3.2.5 Stakeholders

- District Handicraft Department
- Bareilly development authority
- District Industries Centre (DIC)
- Existing CFCs
- Artisans (registered and non-registered)
- Skill development institutions
- NGOs working for artisans

9.3.2.6 Objectives of the Comprehensive Handicrafts Cluster Development Scheme (CHCDS)

(i) To provide requisite support in terms of infrastructure, technology, product diversification, design development, marketing and promotion, social security and other components that are necessary for the sustainability of craftsmen/artisans engaged in the Handicrafts sector,

(ii) To create additional livelihood opportunities to the people through specific intervention in the industry and to increase the income of the craftsmen/artisans engaged in this sector.

9.3.2.7 Infrastructure Requirements

Project : Development of "CHCDS" designated area with multiple health business and activities			
Facilities and Infrastructure	**Available but Poor Condition**	**Not Available**	**To be Planned**
Access to Water Supply			
Access to Sewerage & Drainage			
Access to Drinking Water			
Access of Dustbin or Water Collection System			
Access of road			
Access of parking			
Access to Bus Stop			
Access to Public Transport System			
Access to Police Station			
Access to Fire Fighting Station			
Access to Electricity			

9.3.2.8 Costing

					Short Term (2022-28)			Medium Term (2028-2037)			Long Term (2037-2071)		
Components	**Cost for Facilitation (INR)**	**Total Cost in Lakhs**	**Total (Rs Lakhs)**	**Funding**	**2022-24**	**2024-26**	**2026-28**	**2028-31**	**2031-34**	**2034-37**	**2037-42**	**2042-47**	**2047-71**
Components				Govt Fund									
Zari Work-shed cum CFC			7.59			7.59							

INTEGRATED INFRASTRUCTURE DEVELOPMENT STRATEGY AND ACTION PLAN FOR SOLAR PROJECTS

Chapter 10. SOLAR

10.1 Vision for Solar Projects

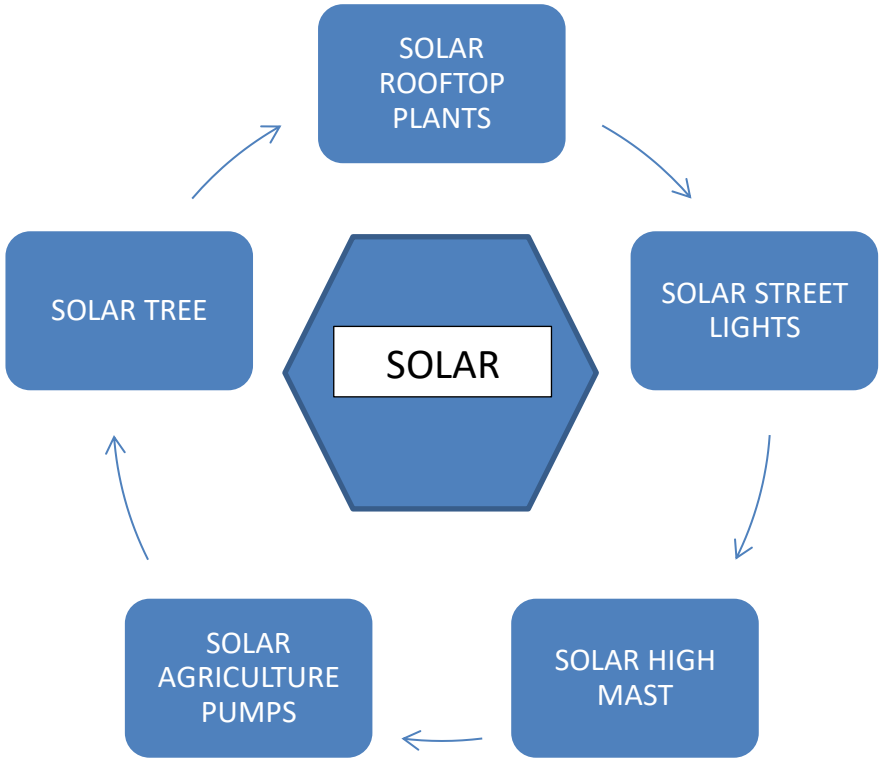


Figure 10-1: Solar Projects Vision

The vision to develop Bareilly a clean, green, pollution free city & self-dependable in power generation.

As the city enjoys ample sunlight to generate solar power from sun, it is advisable to install solar product for daily utilization. Solar power is free of cost & the system life is 25 years with almost zero maintenance cost.

AWARENESS

People from all sectors should be made aware to use solar power & encourage them with the benefits of renewable power. Rooftops for residential should be brought up under subsidized schemes. Solar power for HT consumers should be made compulsory beyond certain limits.

ENCOURAGEMENT

UPNEDA & UPPCL should be flexible in their regulations & policies to encourage people to use solar power, government should float schemes for subsidy for all solar products, should run a campaign through camps.

10.2 SOLAR PROJECTS

10.2.1 Project : Demonstration of Solar Energy for streets and Gov. buildings

10.2.1.1 INTRODUCTION

The world is moving on renewable power, the easiest way to generate electricity through sun is solar power. Its cleanest, greenest & cheapest mode of power where power is generated through array of photo voltaic panels.

The solar power plant comes as :

10.2.1.2 ON GRID SYSTEM

The solar power is directly connected to the grid & the generated power is fed to the grid.

The system converts DC power from array to AC through solar inverter, incorporated with Net & Generation meter.

10.2.1.3 OFF GRID OF HYBRID SYSTEM

As the name suggest, the system generates & distributes self-generated power to the load, thereby storing power in the battery bank for night use.

10.2.1.4 PARAMETERS FOR SELECTION OF SOLAR POWER PLANT

A : **Civil Set Up.**

RCC Rooftops (tin / profile sheet) & Ground mounted structure

Open to Sky, shadow free & ample of sunlight from 8 AM to 4:45 PM.

B : **Atmospheric Condition** : Bareilly is normally having clear sky over the course of the year, the temperature typically varies from 47°F to 105°F and is rarely below 41°F or above 111°F.

C : **Weather Criteria:** Taken Average Solar radiation/kWh/m^2/day.

D : **Solar Calculation** : Monocrystalline Technology (18% eff). Generation Capacity for 1kWp setup at 100% eff (5.85m2 with 545 Wp modules). Thereby calculating Annual Average Units generation.

E : **Electrical Parameters** : Study of transformer capacity, LT panel, distribution of load, DG Change Over, distance from solar power plant to LT Panel, Scope of installation of Inverter, SPD & ACDB DCDB.

F **: Electricity bill analysis :** To analysis yearly, monthly & daily electrical units consumption for the exact capacity of solar plant.

As Nagar Nigam & PWD spends huge amount on paying electricity bills on lights at main streets, chavurah, gardens & public utility places.

This can be minimized by replacing standalone atomized semi integrated or fully integrated LED solar street lights. Centralizes off grid solar plants or on grid solar plants can be good suggestion for dedicated power to such lights.

Same can be incorporated with high masts, hoardings & flood lights.

10.2.1.5 CALCULATIONS

Project	Latest Tariff	Total Consumption	Savings after solar
Street Lights	Rs.4200 / KW + 20 % demand value of bill.	3850 KW	16,170.000=00
High Mast	Rs.4200 / KW + 20 % demand value of bill.	105 KW	4,41,000=00
Flood Lights	Rs.4200 / KW + 20 % demand value of bill.	905 KW	3,801,000=00

Traffic Signals	Rs.4200 / KW + 20 % demand value of bill.	622 KW	21,62,400=00

10.2.1.6 PROJECTS PROJECTIONS

The suggested projects are categorized as below & the capacity is in megawatts.

Project A (Solar Power Plant)	**Short Term (2022- 2028)**	**Medium Term (2028 - 2037)**	**Long Term (2037 - 2071)**
Govt. Offices	1.5	2 - 10	10 - 25
Finance Required	90,000,000	600,000,000	1,500,000,000
Schools	0.5	1	1.5
Finance Required	30,000,000	60,000,000	90,000,000
Collages & University	0.8	1.2	5
Finance Required	48,000,000	72,000,000	300,000,000
Residentials (Subsidy)	2	8	15
Finance Required	120,000,000	480,000,000	900,000,000
Project B Street Lights	0.5	1.2	3.5
Finance Required	55,00,000	127,00,000	295,00,000
Project C: High Mast	0.2	0.8	2.8
Finance Required	42,00,000	108,00,00	210,00,000
Project D: Solar Tree	0.05	0.08	0.2
Finance Required	6,00,000	9,00,000	22,00,00
Project E: Solar EV Charging Station	0.03	0.08	0.2
Finance Required	9,000,000	13,000,000	21,000,000

10.3 Conclusion

According to National Capital Region Planning Board (NCRPB) 2041 plan Bareilly has been identified as Counter Magnet Area (CMA) for future development. It is equidistant from New Delhi with 250 kilometers and Lucknow with 252 kilometers. This equidistant makes Bareilly a nodal point between two significant urban communities of India. It is located as Eastern Dedicated Freight Corridor Node. It is famously known as the Zari Nagar for Zari zardozi handicrafts works on dress materials of Uttar Pradesh. These enormous potentialities of the town will make city self-sustainable economic cluster city for hinterlands. To make city 3 times population development by 2071 several work opportunities in terms of industrial cluster development, residential nodes as term of new Bareilly, Metro lite city makes city high speed transportation plan, several multi-level parking, radial road connectivity enhance quality of life. City has its own self-sustaining mechanism with historical foot prints of Nath temple. Rejuvenation plan of Nath temple to term as Nath temple, enhance river front development plan for city. Zari zardozi is one of the major iconic products in India map, has been portrayed as major highlighting part of city. Water logging removal and drainage plan will make city resilient city. Waste to energy plant and Solar makes city self sustainable 3Rs principle based city to achieve Vision Plan - **"Drive economic Growth, Improve Quality of life by Strengthening city's inherent potentials, augmenting existing infrastructure and plan its growth which is sustainable and resilient in future."**

List of Projects

Bareilly Vision Plan 2071														
Bareilly Vision Plan 2071							Short Term (2022-28)			Medium Term (2028-2037)			Long Term (2037-2071)		
Project list finalized and endorsed by Mandal Commissioner on 13th July 2022				Total cost in INR Lakhs	Total (INR Lakhs)	Funding	2022-24	2024-26	2026-28	2028-31	2031-34	2034-37	2037-42	2042-47	2047-51
Sr. No.	Project List under Bareilly City Vision Plan 2051	Domain	Nodal Department												
1	Residential Housing Node, a) Sri Jankipuram b) Greater Bareilly C). Nekpur (d) Gangora Pikariyam e) Kargaina f) Tehtajpur (Area - 100 Ha each)	Urban Planning	BDA / Awas vikas / Private Builders	988.42	-	Hybrid Annuity Mode (HAM)	-	494	-	494	-	-	-	-	-
2	Industrial Growth Centers, a) Rajau Paraspur Phase 1 (2022-23) b) Parsakheda (2025-30) c) Kurtara (2030-35) (Area - 100 Ha each)		BDA / UPSIDC / Private Builders	741.32	-	PPP	247	247	-	-	-	247	-	-	-
3	Integrated Freight Center cum Logistic Hub , Faridpur (35 Ha each)		BDA / Private BuildeRS	172.97	-	PPP	-	-	173	-	-	-	-	-	-
4	Access to Ganga Expressway through Radial Road and Outer Ring Road	Transportation	NHAI / PWD	53,555.61	-	EPC-HAM	-	-	24,429	-	-	29,127	-	-	-

5	Bareilly Lite Metro facility		BDA	**17,35,374.90**	-	**EPC-HAM**	-	-	**3,66,629**	-	**3,91,070**	-	**2,44,419**	-	**7,33,257**
6	Ahichchhatra Tourism Infrastructure upgradation	**Heritage and Tourism**	Tourism Department	**2,800.00**	-	**Tourism Fund**	**1,000**	**1,000**	**800**	-	-	-	-	-	-
7	Fist War of Independence (1857) museum : a) Bareilly College Campus		Tourism Department	**11,621.00**	-	**Tourism Fund**	**7,700**	**3,125**	**796**	-	-	-	-	-	-
8	Urban Renewal of Nath Temple circuit & Infrastructure improvement of all Seven Nath Temples	**Urban Design**	Tourism Department	**1,917.14**	-	**Govt Fund**	**1,917**	-	-	-	-	-	-	-	-
9	River front development (Ramganga & Nakatiya)		PWD / Irrigation Department / BDA	**1,421.74**	-	**Govt Fund**	**1,167**	**254**	-	-	-	-	-	-	-
10	Aerocity integrated office complex near Airport development : Area - 30 Ha		BDA / Private Builder	**1,76,070.00**	-	**PPP**	**29,345**	**29,345**	**29,345**	**29,345**	**29,345**	**29,345**	-	-	-
11	Zari - Zardozi Shyam Ganj and Sailani market Façade Development and streetscape		BDA / Nagar Nigam	**125.00**	-	**Govt Fund**	**125**	-	-	-	-	-	-	-	-
12	Streetscape from Qila to Shyamganj along with development of Dargah precinct		BDA / Nagar Nigam	**402**	-	**Govt Fund**	**402**	-	-	-	-	-	-	-	-
13	Development of new solid waste treatment plant for 2041, (Area -15 Ha)	**Infrastructure**	Nagar Nigam	**9,000.00**	-	**PPP**	-	**1,500**	**1,500**	**1,500**	**1,500**	**1,500**	**1,500**	-	-
14	City Plan for Water Logging / stagnant spots and flood prone areas		Jal Nigam / Nagar Nigam	**7,500.00**	-	**Govt Fund**	-	**1,500**	**1,500**	**1,500**	**1,500**	**1,500**	**1,500**	-	-

15	Development of new Tertiary Sewage Treatment Plant (STP): Near Industrial Area.		Jal Nigam / Nagar Nigam	**1,68,000.00**	-	**Govt Fund**	-	-	**24,000**	**24,000**	**24,000**	**24,000**	**24,000**	**24,000**	**24,000**
16	"Medicity" – designated area with multiple health business and activities	**Economy**	BDA / Nagar Nigam	**35,132.50**	-	**PPP**	-	**20,203**	**9,578**	**5,351**	-	-	-	-	-
17	Development of Handicraft Cluster/ Common Facility Centre (CFC) – Zari & Bamboo		BDA / Nagar Nigam	**7.59**	-	**Govt Fund**	**7.59**	-	-	-	-	-	-	-	-
18	Demonstration of Solar Energy for streets and Gov. buildings.	**Solar**	UPNEDA	**15.40**	-	**Govt Fund**	**15.00**	**0.40**	-	-	-	-	**15.40**		-