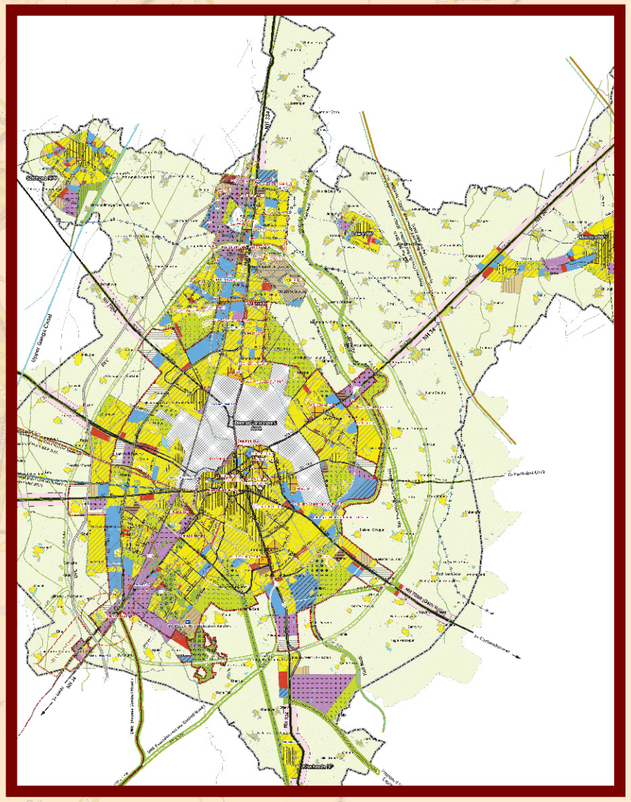
Meerut Master Plan – 2031 (Draft)



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Acronym

AMRUT	Atal Mission for Rejuvenation and Urban Transformation
Admin	Administrative
AOI	Area of Interest
ASPRS	American Society for Photogrammetry and Remote Sensing
ATM	Automated Teller Machine
BOD	Biological Oxygen Demand
BPL	Below Poverty Level
BRTS	Bus Rapid Transit System
CBR	Crude Birth Rate
CE	Circular Error
CFL	Compact fluorescent lamp
CGWB	Central Ground Water Board
CHC	Community Health Centre
Cline	Central Line
CNG	Compressed Natural Gas
CO	Carbon Monoxide
D.P	Development Plan
DD	Date
DEM	Digital Elevation Model
DGPS	Differential Global Positioning System
Dia	Diameter
DIC	District Industries Centre
DoS	Department of Space
Drain	Drainage
DTM	Digital Terrain Model
DU	Dwelling Unit
EB	Enumeration Block
EO	Earth Observation
GCP	Ground Control Point
GDOP	Geometric Dilution of Precision
GIS	Geographic Information System
GLR	Ground Level Reservoir
GoI	Government of India
GPS	Global Positioning System
GSI	Geological Survey of India

HH	Household
HHI	Household Industry
HP	Horse Power
HPMV	High Pressure Mercury Vapor
HQ	Head quarters
HRIDAY	Heritage City Development and Augmentation Yojna
HUDCO	Housing and Urban Development Corporation
hrs.	Hours
HT	High Tension
ID	Identification Number
IGS	International Ground Station
IMR	Infant Mortality Rate
INR	Indian Rupees
IR	Infra-red
IRC	Indian Roads Congress
ISO	International Organization for Standardization
ISRO	Indian Space Research Organization
IT	Information Technology
ITRF	International Terrestrial Reference Frame
LE	Linear Error
LFDC	Large Format Digital Camera
LISS	Linear Imaging Self-Scanner
LPCD	Liter per Capita per Day
LPG	Liquefied Petroleum Gas
LT	Low Tension
Mat	Material
mg/L	Milligrams per Litre
MILMA	Brand household name of The Kerala Co-operative Milk Marketing Federation
MKWH	Million Kilowatt per Hour
MLD	Mega Litter per Day = 10*6 L/day
MMTS	Multi-Modal Transport System
MoUD	Ministry of Urban Development
MRTS	Metro Rapid Transit System
MSL	Mean Sea Level
MW	Megawatt
NAS	Network Attached Storage

NCC	Natural Color Composite
NDMA	National Disaster Management Authority
NGO	Non-Government Organization
NHAI	National Highway Authority of India
NMP	National Map Policy
NNRMS	National Natural Resource Management System
NO	Nitric Oxide also known as Nitrogen Monoxide
NRSC	National Remote Sensing Centre
NSDI	National Spatial Data Infrastructure
NSSO	National Sample Survey Organization
NUIS	National Urban Information System
OGC	Open Geospatial Consortium
PAN	Panchromatic
pH	Potential of Hydrogen
PHC	Primary Health Care
PPP	Public Private Partnership
QA	Quality Assurance
QC	Quality Check
R& B Dept.	Roads and Buildings Department
RGI	Registrar General of India
RMSE	Root Mean Square Error
RPC	Rational Polynomial Coefficient
RWA	Resident Welfare Association
SEZ	Special Economic Zone
SO2	Sulphur di-oxide
SPM	Suspended Particulate Matter
STPD	State Town Planning Department
TCPO	Town & Country Planning Organization
TV	Television
UA	Urban Agglomeration
UFS	Urban Framework Survey
ULB	Urban Local Body
ULU	Urban land use/land cover
URDPFI	Urban and Regional Development Plans Formulation and Implementation
UT	Union Territory
UTM	Universal Transverse Mercator

VHRS	Very High Resolution Satellite
WBM	Water Bound Macadam
WFPR	Workforce Participation Rate
WGS84	World Geodetic System (WGS) established in 1984
SHG	Self Help Group
LCS	Low Cost Sanitation
WTP	Water Treatment Plant

Chapter 1

Introduction

Chapter 1. Introduction

The chapter provides a brief background of the AMRUT scheme and the project, key aims & objective; methodology and the time lines of the project. It also establishes the relationship between different levels of statutory plans that are preapred at different scales of urban & regional planning.

1.1 Project Brief

In year 2015, the Government of India, ***launched Atal Mission for Rejuvenation and Urban Transformation (AMRUT)***, as a centrally sponsored scheme. The scheme aims to provide basic civic amenities like water supply, sewerage, urban transport, parks as to improve the quality of life for all, especially the poor and the disadvantaged. It mainly focusses on infrastructure creation that has a direct link to provision of better services. One of the key purposes of the Mission is to improve governance through a set of reforms. During the Mission period, eleven reforms are being implemented.

Master Plan/Development Plan is the major tool for urban land management, providing detailed land use allocation for the sustainable development of city/town. Most master/development plans are made for 10 to 20-year periods, in phases, for periodic review and revision. The most crucial information for formulation of Master Plan is an accurate and updated Base Map of the planning area. ***'Formulation of GIS-based Master/Development Plans for 500 AMRUT Cities' is one of the important reforms under AMRUT, which has been approved in October 2015 as a 100% centrally funded sub-scheme***.

The objectives of this sub-scheme are, (1) to develop common digital geo-referenced base maps & land use maps using Geographical Information System (GIS), and (2) Master Plan Formulation for 500 cities that are selected as AMRUT Cities.

In Uttar Pradesh, a total of 61 cities are covered by the AMRUT scheme, which includes around 14 Nagar Nigam/Municipal Corporation and 46 Nagar Palika/Parishad. The State Mission Directorate, GoUP, proposed to undertake the GIS-based master plan formulation under *"Uttar Pradesh (Regulation and Building Operation) Act, 1958"* and "*Uttar Pradesh Urban Planning and Development Act, 1973*", while instituting development authorities/regulated areas for their respective cities.

As a part of the Sub-scheme, the concerned controlling authorities of selected cities passed resolution in their respective boards to prepare new/revised/reformation (conversion) of master plan of these cities. Town & Country Planning Dept., Govt. of U.P. has been declared as Nodal Department for the same

Town and Country Planning Department floated the tender for the Master Plan preparation under AMRUT, with towns grouped in clusters. Almondz Global Infra Consultant Limited, in association with DMG Consulting Private Limited (here after referred to as Consultants), were selected as the consultants for preparation of master plan.

Meerut is well known industrial centre with micro, small and medium enterprises as core industrial strength. Situated in the Doab area of Ganga and Yamuna, the city observes pleasant climate throughout the year. The master plan preparation would focus on the deviation occurred in present day land use compared to the MP 2021 and prepare proposals as per the present-day requirements. The planning process inculcated thorough stakeholder discussions with officials of line departments, secondary and primary data collection, exhaustive analytical understanding of the issues as well as aspirations, new and upcoming projects in different sector. The proposal would focus on the holistic development of the city so as to realize its industrial potential and harnessing its favorable factors, and project the city to further advancement.

1.2 AMRUT Sub-Scheme Objectives

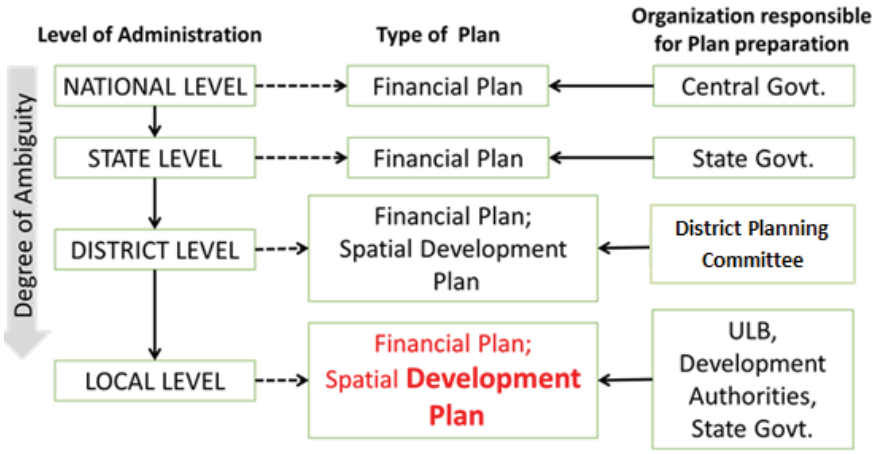
The objective of the sub scheme is to develop common digital georeferenced base maps and land use maps using Geographical Information System (GIS) in each AMRUT city to enable them to make more informed strategic decisions. The major components are:

- Generation of Base Map & Thematic Maps and Urban Database Creation at the scale of 1:4000 as per Design & Standards
- Formulation of Master Plan: Formulation of Master Plan of city as per State Town & Country Planning Act on the GIS base map and sector-wise data analysis. The implementing agency is State Mission Director/ULBs.
- Capacity Building: The training is at 3 levels, Implementing agency State Mission Directors
- Administrators level –three days duration.
- Planning level –two weeks duration.
- Operators and Technicians level –four weeks duration

1.3 Hierarchy of Plans

Planning in India is majorly of two types: socio-economic and physical. Under these there are various plans available to direct the development in urban areas. The levels at which they operate is different & similarly the nature and details provided in each type is different. Hierarchy and Types of Plans are explained below:

Figure 1-1 Types of plan

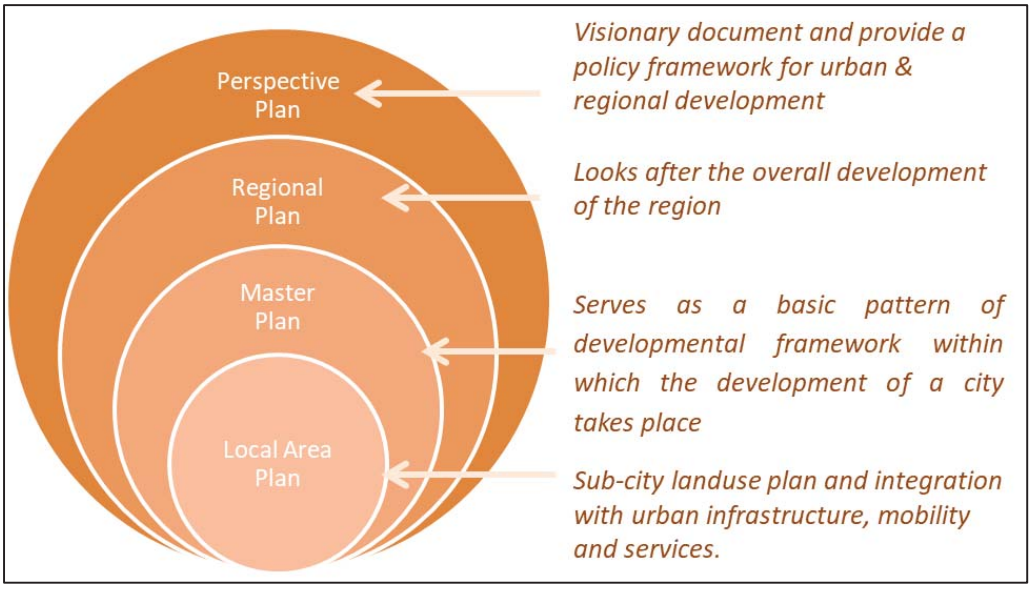


Source: *Consultant analysis*

1.3.1 Correlation between different Plans

Planning system in India (Perspective Plan, Regional Plan, Development/ Master Plan, and Local Area Plan etc.) has evolved based on its spatial extent, scale of planning, its function and spatiality. The details of different levels of plans are highlighted.

Figure 1-2 Hierarchy of Plans



Source: URDPFI Guidelines

Perspective Plan: A Perspective Plan is a long-term perspective vision document stating the social, spatial and economic development goals, policies, strategies and programs towards the

intended development of the State or district. In general, the plan period is 20-25 years coinciding with National/ State five years plan. It serves as a guide to Urban Local Body and Regional Development Authorities in preparation of Master Plan or Regional Plan.

Regional Plan: For planned balanced regional development of human settlement and infrastructure, Regional Plans come into play. Where Master plan concerns only with a city or delineated urban area, the regional plan constitutes both urban as well as rural areas. This requires different government/ departments and municipalities to work together for mutual and overall development of region.

Master Plan: Master Plan or Development Plan is a statutory plan prepared under relevant Act. Master Plan details out policies suggested in the perspective or regional plan, into physical proposals and possible strategies. In general, the time line of master plan is 20 years. For the periodic review and revision, a Master Plan is in phases of 5 years. ***In U.P. state, Master Plan of cities having Development Authorities are prepared under U.P. Urban Planning and Development Act, 1973 whereas for cities under regulated areas is prepared under the Uttar Pradesh (Regulation and Building Operations) Act, 1958.***

Local Area Plan/ Zonal Plan: For the implementation of Master Plan, the plan is divided into various Zones/ Areas. Zoning generally take into account the compatibility of land uses thus details out the land use planning to make Master Plan effective at grass root level. The plan delineates reservation of land for roads and other public purposes.

1.3.2 Need for GIS based Master plan

A Master Plan ensures orderly development of a city. It acts as a guiding document for the future physical development of the city and provides a framework for preserving the city's unique character, ensuring its diversity, supporting investment and promoting desired change. It also counterbalances the problems which may have come up due to over-crowding of population. The formulation of Master Plan starts with preparation of Base Map, socio economic data collection, existing land-use survey, analyzing the existing situation and then proposing future land use plan. For the master plan to be more effective, an accurate and updated base map showing current status of the roads, built up structures, land uses, water bodies and other natural resources etc. is crucial.

In conventional way of preparation of Master Plan, the mapping and data gathering could not keep pace with the rapid population growth, urban sprawl and change in land-use. But with the advancement in Remote-Sensing and Geographic Information System (GIS) and its usage in Master Plan has expedited the process. With this advances technology of remote sensing and geographic information system, these process of making plan, is expedited with an integration

of both spatial and attribute data on a single platform, where a number of analytical tools are available which help us in detailed assessment and helps in defining the spatial growth of towns/cities, Land uses, physical infrastructure facilities, etc. in anticipation of the projected population growth. GIS technology is used for preparation of base map for preparation/ revisions of Master Plan and helps us to bring all the relevant data, both spatial and informative, on a single platform which is easy to study for assessment and is geo-referenced.

1.3.3 Vision and Objectives of Master Plan Preparation

Vision:

Aim is to promote integrated physical and socio-economic growth by protecting the environment. Also the heritage of the city should be preserved. The urban sustainability should also be promoted.

Objective:

The objective of the long-term master plan is to prepare a detailed land use plan, development program, mainly for the overall development of the notified development area, with a view to utilize the resources available in the best possible form for future potential population and urban activities. To achieve the above general and comprehensive level objectives, the following work targets have been set under Meerut Master Plan-2031.

- Socio-Economic Development by using local resources.
- Improvement in physical infrastructure.
- Enhancing the use of Public transport by promoting the use of Non-motorized transport system.
- Focuses on Environmental sustainability by reducing the pollution levels and by greening of built environments.
- Promoting Affordable housing for all.
- Enhance and preserve the Culture and Heritage of the city.

1.3.4 Methodology

Preparation of Master Plan involves analysis of the urban sprawl study of existing land use, assessment for future needs, determination of suitability of available land for various activities/uses, planning of new road links, reserving land for public facilities and services, zoning and framing suitable development promotion and control regulations. Various steps involved in the preparation of Master Plan include: -

- Evaluation of existing Master Plan for both Meerut, Daurala and area included in 2017
- Preparation of base map and existing land use map using GIS technology

- Surveys and studies of existing-conditions, major problems and development issues
- Projection of requirements and assessment of deficiencies
- Establishment of development aims and objectives
- Consultation with Public, Private, Co-operative Sectors and all other Stakeholders
- Development Policies and Proposals
- Resource Mobilization Proposals
- Phasing and Implementation
- Monitoring and evaluation

1.4 Structure of report

The present report is submited as Draft Master Plan report. The report comprises of following : (1) brief introduction to the city; (2) asessment of the previous master plan (Year 2011- 2021) and deviations occurred in the then proposed land uses; (3) existing situation analysis for the town (covering such aspects as demographic asssesment, economic and socio cultural aspects, physical & social infrastrucure and gaps, public & semi public areas and traffic and transportation assessments etc; this ESA will include the outcomes of the the traffic surveys and existing landuse surveys done during ground truthing of Base Map . With the sector wise data analysis, major problems/issues and potential will be also identified. Different projects, schemes and proposals by Central and State government and its effect has also been studied and incorporated. (4) preparation and assessment of existing land use (ELU); and preparation of proposed landuse and pre draft master plan .

Chapter 1: "Introduction", provides a background, key objectives and aims of the project; it also establishes the relationship between different levels of statutory plans that are preapred at different scales

Chapter 2: "Existing Situation", gives an introduction to the city and focusses on its profile covering topics such as the history, growth and evolution, regional settings, settlement hierarchy in proposed planning area (*Area of Interest or AoI*). City's existing land use and its built-up nature/character will be analyzed. Trend of physical expansion and major developmental issues prevalent in the city will be discussed in this chapter.

Chapter 3: "Evaluation of existing Master Plan 2021, and land use deviations", focusses on the previously proposed landuses, development parameters, extent of land-use changes and deviations (as compared to the ELU), planning proposals and relevant progress.

Chapter 4: "Population & Demography", includes assessment of the demographic indicators such as population growth, gender ratios, literacy rates, urbanization. The chapter also includes the population forecast of the AoI and the methods employed for the same.

Chapter 5: "Economic Base & Employment", covers the economic profile of Meerut city, covering indicators such as workforce participation, main and marginal workers, work force participation etc. The chapter describes the industrial profile of the region, including the conditions & trends in informal sector. The chapter includes workforce projections.

Chapter 6: "Resources and other Government Agencies" discusses the technical manpower and financial capacity of the planning authority. The chapter includes assessment of the implementation aspects of the master plan such as land management schemes as well as investment made by private sector or government agencies for planning and development of infrastructure or in any other schemes in the city

Chapter 7: "Housing", contains census data analysis on the housing stock for indicators such as household sizes, type of housing units etc. Recent housing trends are analyzed and relevant policy evaluation done in relation to densification, regularization/improvement in current housing stock etc.

Chapter 8: "Traffic and Transportation", contains analysis of the data as collected from traffic surveys such as traffic volume count, origin and destination etc. Issues related to traffic and transportation is highlighted. Proposals are accordingly made as per the analysis of existing condition in the city.

Chapter 9: Industry, discusses industrial profile of the city and the region. Environmental impact of these industries is discussed, in addition to the relevant industrial policies. Future estimate and land requirement for industries will be calculated based on the projected workers population and government policies.

Chapter 10: Commerce: Discusses the commercial development of the city.

Chapter 11: Public and Semi-Public facilities, discusses the existing condition of social infrastructure: educational, health, post, fire station etc. Demand and gap assessment is carried out for the entire social infrastructure and subsequently, future requirement is projected for the population of horizon year 2031.

Chapter 12: Infrastructure, this chapter includes analysis of the current status of physical infrastructure such as water supply, sewerage, drainage and solid waste management system, as well as demand and gap assessment for the same.

Chapter 13: Recreational and Leisure. In continuance to the social infrastructure, this chapter covers the recreational and tourism aspects of the city such as parks, playgrounds, lakes, water bodies, tourist or pilgrim centers and historical monuments and archeological sites. It will

assess the recent trends, land requirements for recreational activities in the future and policy requirements for conservation planning.

Chapter 14: Conservation Townscape & Landscape: The present chapter provides an overview of the conservation of heritage and historical buildings; townscape and landscape aspects such as topographical features etc., and the role of private and governmental organizations in conserving the city landscape.

Chapter 15: Proposed Land use Structure & Development Strategy. The proposed land use structure and development strategy for the city is discussed in this chapter. It describes the thematic conceptual plan for the future development of the city along with proposed land use for the planning area and development strategies for redevelopment, decongestion decentralization and for environmentally sustainable development.

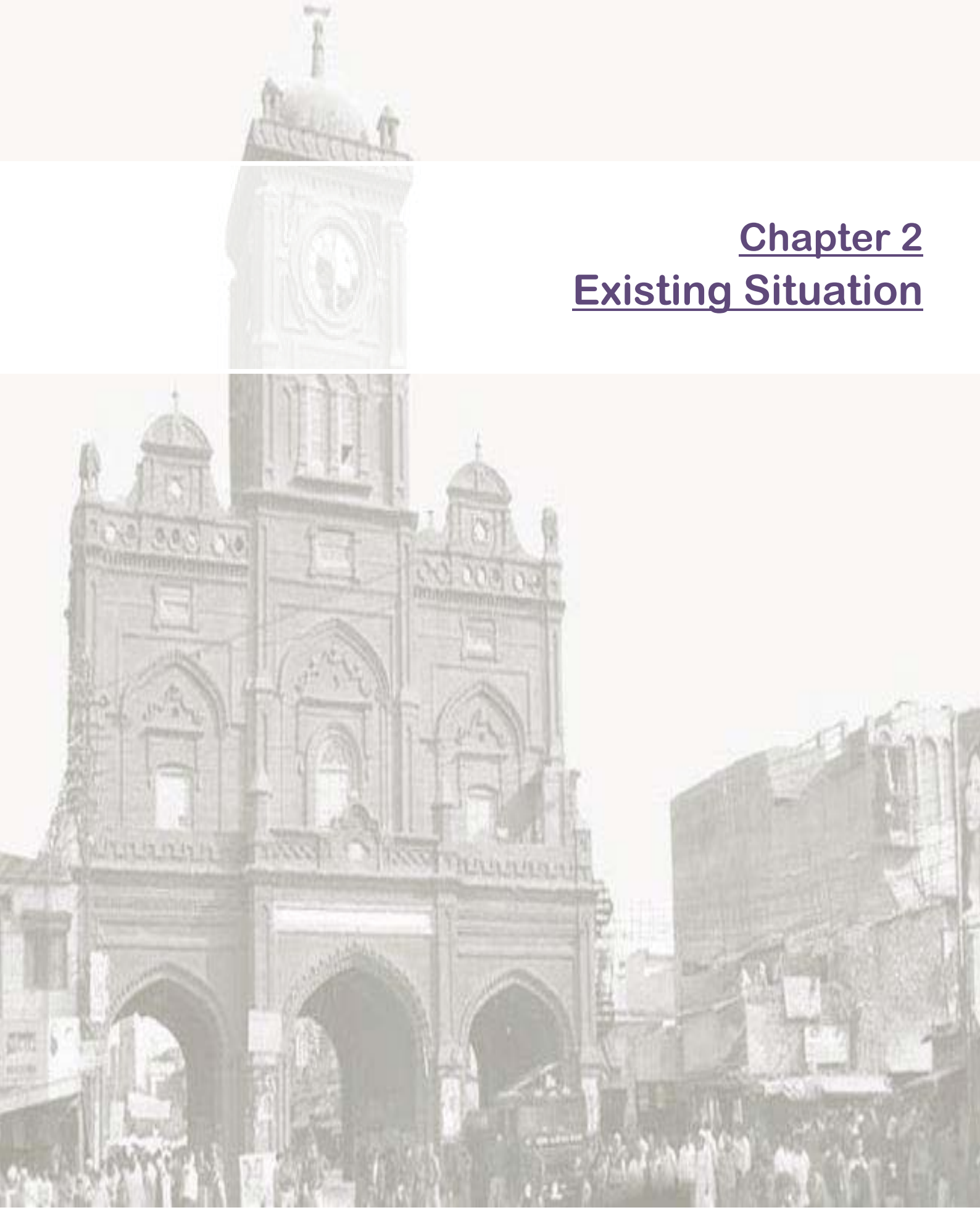
Chapter 16: Analysis and Compliance of Government Policies will cover assessment of the relevant government policies, to lay base for the future framework for the possible zonal plans and development of the city. Delineation of zones, their functional characteristics, strategy for their development and zoning regulations and development controls are discussed.

Chapter 17: Zoning regulations: This chapter provides zoning regulations for the proposed master plan area. The zoning regulations are prepared with standard regulations available on the Urban Housing & Planning department for Uttar Pradesh.

Chapter 18: Phasing of Master Plan: This chapter explains the phasing to be done in the Master Plan 2031. Phasing is done to ensure the planned development. The Meerut Master Plan is being prepared for the interval of 10 years so the phasing is done for the period of 5-5 years.

Chapter 19: Resource Mobilization for Implementation: The report is concluded proposals in relation to possible revenue model including private and public participation required in terms of finances to achieve the implementation of different aspects of the master plan. The chapter further discusses the factors related to master plan implementation fund.

Chapter 2
Existing Situation



Chapter 2. Existing Structure

This chapter gives an introduction to the city and focusses on its profile, covering topics such as the history, growth and evolution, regional settings, settlement hierarchy in proposed planning area (Area of Interest or AoI). City's existing land use and its built-up nature/character is analyzed. Trend of physical expansion and major developmental issues prevalent in the city are discussed.

2.1 Introduction

Meerut city is the administrative headquarters of Meerut district of Uttar Pradesh state. It is an ancient city with settlements dating back to the Indus Valley civilization having been found in and around the area. The city has the one of the largest army cantonment in the country. The city is one of the largest producers of sports goods, and the largest producer of musical instruments in India. It is also the largest producers of bicycle rickshaw in world. The city is also an education hub in western Uttar Pradesh. The city is the second largest city under National Capital Region (NCR). Meerut district is the part of upper Gagna-Yamuna doaba, which lies between 28° 47' and 29° 18' north latitudes and between 77° 7' and 78° 7' east longitudes. The city is situated at a distance of only 70 Kms from the National Capital of India, New Delhi. The historical background of the city has always been its USP. However, a clear understanding of urban growth, clarifies that it is not the city that made history but history that made the city gain importance. Due to its location and setting, nearness to the national capital and rich agricultural activity in the surrounding region, Meerut city presently acts as a major distribution center for the diverse agriculture produce such as sugarcane, food-grains etc. There is several large scale industries located in Meerut.

In spite of the various facts highlighting the importance of the city in the region it faces challenges of unplanned and organic growth. Infrastructural deficits in almost all the sectors coupled with an un-proportionately large poor class population limit the growth potential of the city. However the city holds potentials that are inherent in its character; such as a vibrant trade and commerce sector and cottage industry, the rich agricultural land and favorable geographical conditions around the city areas, numerous higher education institutes, availability of adequate skilled and semi-skilled work force, and proximity to Delhi etc. In addition to the stated strengths of the city, the proposed decentralization of NCT via the NCR formation and resultant spillover of activities should be a major factor in giving a boost to the city's future.

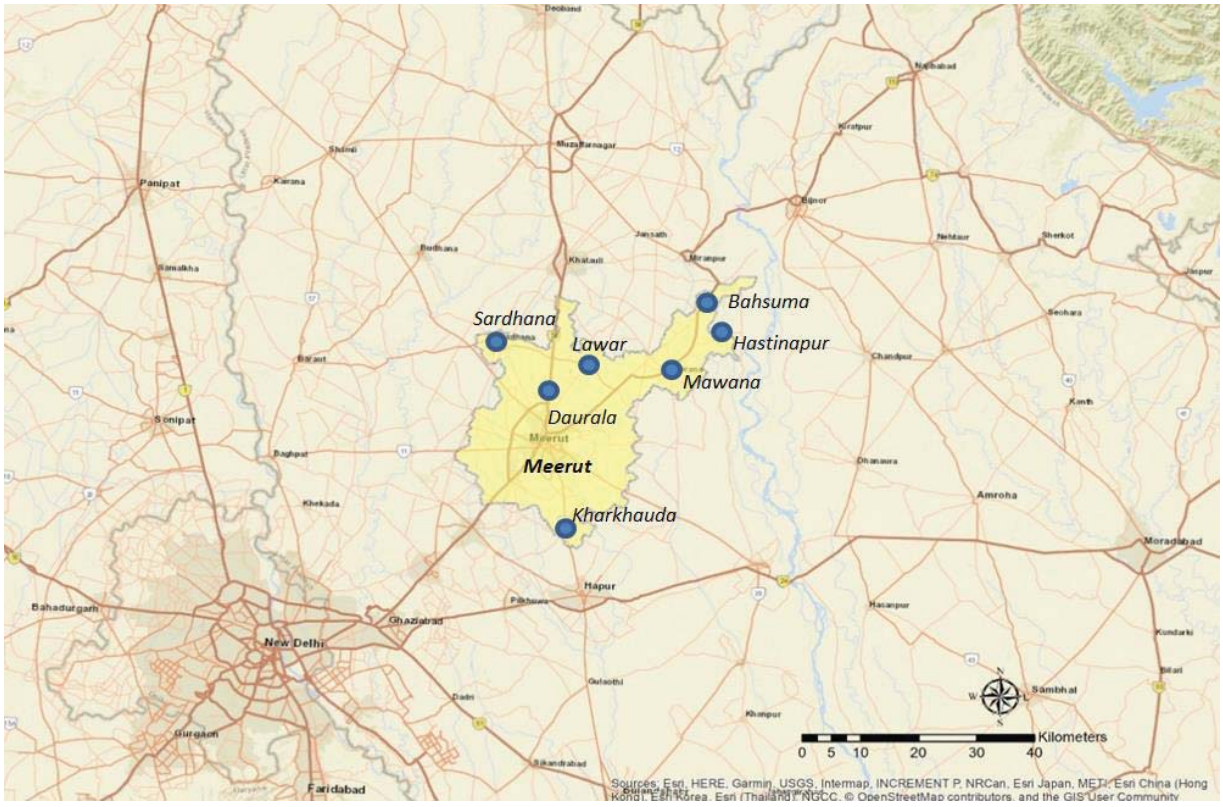
This section also introduces the new inclusive areas/towns in the Meerut development area such as Sardhana, Daurala, Mawana, Lawar, Hastinapur and Kharkhauda.

Daurala is a Nagar Palika Parishad (NPP) located adjacent to Meerut urbanizable limits towards the noth. Daurala is situated 84 km in north from national capital Delhi. Daurala town falls on

national highway 58 and has a dual right angled metalled road to make a square route (Chaudhary Charan Singh Chowk), one of this road is joining Daurala to Baraut while other to national highway at Meerut. The connectivity between Meerut and Daurala is excellent as it is difficult to identify physical boundaries between them.

Sardhana is a Muncipal board in Meerut district in Uttar Pradesh. It is 85 Km northeast of new Delhi. It is 5 Km from Meerut Karnal National Highway and 12 Km from national Highway 58. It is famous for its Cloth and timber industries, and its church. Some 19 Km north-west of Meerut there lays a renowned christan shrine in India-the church of Sardhana also known as the basilica of our lady of Grace. The sardhana village has population of 12465 of which 6546 are male while 5919 are females as per population census 2011.

Map 1 Location map of Meerut city



Mawana is a city in Meerut District in Uttar Pradesh sstate of India. Its name comes from the word “Muhana” which means gateway. It is supposed to be the Muhana of Hastinapur Kingdom Hastinapur is a Mahabharata Period town situated 9 km from the city centre. The river Ganga is 10 km from Mawana, NH-34 joints Meerut to Mawana and Mawana to Bijnor. Mawana is the nagar palika parishad city in district of Meerut, Uttar Pradesh. Mawana city is divided into 25 wards for which elections are held every five years. As of 2011 Indian census, mawana had a total population of 81443 of which 43029 were males and 38414 were females. The scheduled

castes and scheduled tribe population was 8347 and 48 respectively. Mawana had 13566 household in 2011. Out of the total population, 23562 were engaged in work or business activity.

Hastinapur is a city in the Meerut District in the Indian city state of UP. Hastinapur described in Hindu texts such as the Mahabharata and the Puranas as the capital of the Kuru kingdom, is also mentoned in ancient jain text. Hastinapur is located on the right bank of the Ganga river. Present day Hastinapur is a town in the Doad region of UP in India, about 37 kmfrom Meerut and nearly 96 km northeast of delhi on national highway 34. It is a small township re-established by Jawaharlal Nehru on feburary 6, 1949. According to the 2001 census of India hastinapur had a population of 58452 with males constituting 53% of the population and females accounting for the remaining 47%. According to the 2011 census of India haastinapur's population had reduced to 21,249.

Lawar is a small town and Nagar Palika located next to Daurala urban area and Bahsuma is also a small town and Nagar Palika located on NH 34 near Hastinapur.

Meerut city in NCR

The key features and advantages of Meerut city with respect to NCR is as mentioned below:

- National Capital Region ("NCR") is a multi-state region with Nation Capital Delhi as its centre.
- Meerut District and city has a special role in NCR due to its growth factors and influential attributes of urbanity.
- The city is a potential node of development and has shown promising trends for economic Growth of 15% from 2001-2011.
- The district has 15,248 registered industrial units with around 1,68,000 workers engaged in industrial employment.
- To enhance regional mobility and to boost economic activities in the region, the NCRTC has proposed three priority sections of Regional Rapid Transit System (RRTS) of which Delhi-Ghaziabad-Meerut corridor is under construction.
- In order to reduce travel time between Delhi and Meerut and to boost economic activities, the Delhi Meerut Expressway (DME) is constructed and is fully operational since April 2021. An extension of the same DME is also under construction which will connect the Meerut- Hapur road.
- Many other proposed key regional projects like Ganga Expressway (GE), and Eastern Dedicated Freight Corridor (EDFC) will play an important role in economic activities of Meerut.

Map 2 Location of Meerut in NCR

2.2 Town Location and regional setting, linkages and relationship with hinterland

The Meerut district is bounded by Muzaffarnagar district in the north; in the south by Bulandshahar district while Ghaziabad and Baghpat districts form the southern and western limits. Ganga River makes its boundary in the east direction a separates it from the districts of Moradabad and Bijnor. Hindon River makes its western Boundary in the west and separates it from the Baghpat district. The city lies south of the cantonment, and owes its modern importance to its selection by the British government as the site of a great military station. The cantonment, established in 1806, was the headquarters of the 7th division of the northern army.

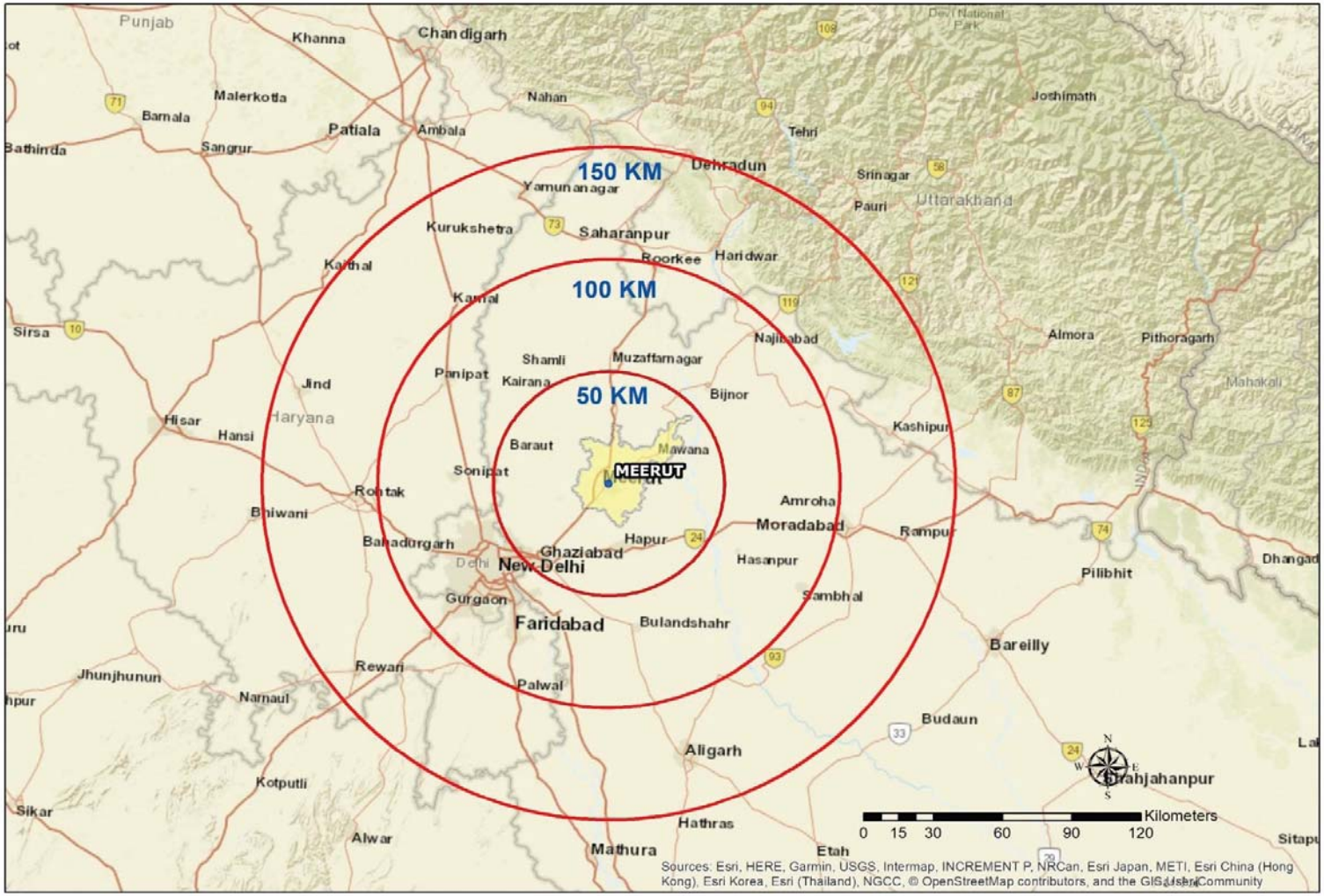
The administration of the cantonment area and running of its urban and other functions is still outside the jurisdiction of Meerut Nagar Nigam. Being part of Nation Capital Region Meerut

plays a major role in contribution towards overall economic development of the region. By road, Meerut city is well-connected to major cities like Delhi, Noida, Faridabad, Ghaziabad, Haridwar, and other cities. A large number of people commute to Delhi, Noida, Greater Noida, Ghaziabad and Gurgaon every day for work. There are 3 national highways (NH 58, NH-119 & NH-235) that pass through Meerut.

To enhance regional mobility and to boost economic activities in the region, the NCRTC has proposed three priority sections of Regional Rapid Transit System (RRTS) of which Delhi-Ghaziabad-Meerut corridor is under construction. Currently the regional connectivity of the city has the following key features as mentioned below:

- Meerut city, the head quarter of Meerut Division, situated 70 Km northeast of the national capital New Delhi, and 453 Km northwest of the state capital Lucknow.
- The metropolitan city of Meerut is a vibrant growing city and it is the biggest city of NCR after Delhi.
- Meerut Development Area includes other towns like Mawana, Sardhana, Hastinapur, Lawar, Bahsuma and Kharkhauda.
- Being strategically located, Meerut is one of the fastest developing city of Uttar Pradesh and is well connected to Delhi via Delhi Meerut Expressway (DME).
- Being part of National Capital Region Meerut plays a major role in contribution towards overall socio economic development of the region.
- The city is an upcoming industrial hub with its vast hinterland workforce engaged mainly in agricultural activities.
- By road, Meerut city is well-connected to other key major cities like Delhi, Noida, Faridabad, Ghaziabad, Haridwar, Roorkee, Khurja, Bulandshahar, Hapur etc.
- Many key projects are proposed in the region like Delhi Meerut Expressway extension, Ganaga Expressway, Regional Rapid Trasnit System, Dedicated Freight Corridor, NH Byepass connecting Hapur road from the south to Daurala in the north, NCR orbital rail and road corridors etc.

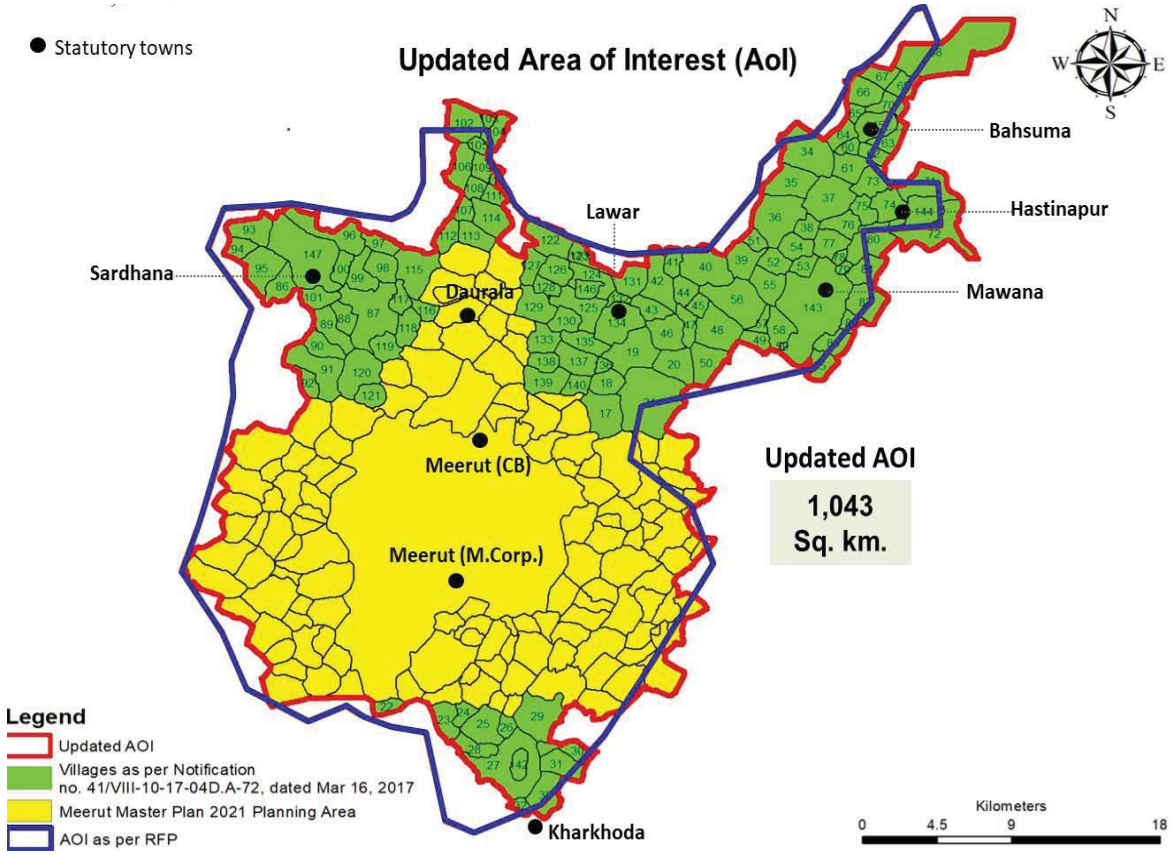
Map 3 Regional setting of Meerut



2.3 Planning Area notification and extent

The total planning area demarcated for Meerut spreads over an area of 1043 sq. km. There are 9 urban centres and 305 villages within the AoI. Urban centres include one municipal corporation (Meerut), one cantonment board (Meerut), two NPPs (Sardhana and Mawana) and five NPs i.e. Daurala, Lawar, Bahsuma, Hastinapur and Kharkhoda within the AoI.

Map 4 Map showing AoI as per RFP and updated AoI boundary with villages



Planning Area in Meerut MP 2021	• Villages: 123 • Towns: 3
Extended boundary in MDA after notification in 2017	• Villages: 182 • Towns: 6
Total/ Updated AoI	• Villages: 305 • Towns: 9

The list of villages within the development area of MDA is listed below:

Table 2.1 List of Notified Villages within MDA

S.No.	Village/ Urban center	S. No.	Village/ Urban center	S.No.	Village/ Urban center
1	Aad	103	Incholi	205	Mohkampur
2	Abdullahpur	104	Islamabad Chhilora	206	Morna
3	Achronda	105	Itahara	207	Mubarikpur
4	Afjalpur Urf Raninagla	106	Jafarnagar Begvabad	208	Mubarikpur
5	Afzalpur Pawati	107	Jafrabad Darveshpur	209	Mukhtyarpur Nagla
6	Ajhota	108	Jainpur	210	Mukkrabpur Palhera
7	Ajhota	109	Jalalabad Urf Jalalpur	211	Murlipur Gulab
8	Ajnauli	110	Jalalpur	212	Murlipur Phool
9	Akbarpur Sadat	111	Jalalpur Khirwa	213	Mustafabad Urf Baukharpur
10	Akherpur	112	Jalaluddinpur Masoodpur Gawri	214	Muzaffarnagar Saini
11	Alampur Buzurg	113	Jamalpur	215	Nagla Jarif
12	Allipur Jijmana	114	Jamalpur Goma	216	Nagla Patu
13	Amehra Adipur (CT)	115	Jamalpur Jalapur	217	Nagla Shekhu
14	Amehra sani	116	Jangethi	218	Nagli Majra Mator
15	Aminagar urf Bhurbaral (CT)	117	Jani Buzurg	219	Nalpur
16	Andawali	118	Jani Khurd	220	Nangla Batu
17	Arnawali	119	Janjokhar	221	Nangla Isa
18	Assa	120	Jasrathpur	222	Nangla Kaboolpur
19	Atmadnagar Allipur	121	Jatoli	223	Nangla Mal
20	Aurang Shahpur Diggi	122	Jee	224	Nangla sahu
21	Aurang Shahpur Golabad	123	Jeori	225	Nangla Sani
22	Azampur	124	Jhunjhunee	226	Nangla Sherkhan
23	Azizpur	125	Jithauli	227	Nanglatashi Kasimpur
24	Badha Girdharpur	126	Jitpur	228	Narahara
25	Badhala Kaithwara	127	Jitpur	229	Niloha
26	Bafar	128	Julehra	230	Nimka Viran
27	Bahadurpur	129	Jurranpur	231	Noor Nagar
28	Bahadurpur	130	Kajipur	232	Pabla
29	Bahchaula	131	Kalanjari	233	Pachgaon Patti Amar Singh
30	Bahorpur	132	Kamalpur	234	Pachgaon Patti Gopal
31	Bahrala	133	Kamaruddinnagar Madhiyai	235	Pachgaon Patti Sanwal
32	Bahsuma (NP)	134	Kanchanpur Ghopla	236	Pachpeda
33	Bajaut	135	Kanoda	237	Pahadpur
34	Bana	136	Kansi	238	Palra
35	Baparsa	137	Kareempur	239	Panchli Khurd
36	Baral Partapur	138	Kaseru Baksar	240	Panwari
37	Barauda	139	kaseru Khera	241	Patti Khedki
38	Basiviran	140	Kastala Shamsher Nagar	242	Pavla

S.No.	Village/ Urban center	S. No.	Village/ Urban center	S.No.	Village/ Urban center
39	Batjeora	141	Katra	243	Pavli khas
40	Behsuma	142	Kayastha Badda	244	Pavli Khurd
41	Bhagawanpur	143	Kehlata	245	Peepli Khera
42	Bhagvanpur	144	Khadoli	246	Pepla
43	Bhagwanpur Chittawan	145	Khandawali	247	Pilna sufipur
44	Bhagwanpur Khadar	146	Khanpur	248	Pohali
45	Bhainsa	147	Khanuda	249	Puth Khas
46	Bharota	148	Kharbadi	250	Puthri
47	Bhawanpur	149	Khardoni Shekhupur	251	Rafan
48	Bhndora	150	Kharkhauda	252	Rahmapur
49	Bhojpur	151	Kharkhoda (NP)	253	Raisna
50	Bhurpur	152	Khawajahanpur	254	Rajpura
51	Bihta	153	Khera Balrampur	255	Rajupur
52	Bijoli	154	Kheri Manihar	256	Rali Chauhan
53	Bisola	155	Kheri Tappa Lawar	257	Rampur Pawti
54	Bohla	156	Kherki Muzakkipur	258	Rasulpur Aurangabad
55	Bubakpur	157	Khirwa Nauabad	259	Rithani
56	Budhera Zihidpur	158	Khurampur	260	Roshanpur Daurli
57	Chandna	159	Kinannagar	261	Rukanpur
58	Chandsara	160	Kitholi	262	Ruknuddinpur urf Phaphun
59	Chanju	161	Kol	263	Sadarpur
60	Chhabariya	162	Kola	264	Sadullapur Urf Chandpura
61	Chhajmalpur Urf Chhajupur	163	Kunda	265	Sahirpur Daurala
62	Chhattri	164	Kuri Kamalpur	266	Saidipur Seth
63	Dabathuwa	165	Kuthla	267	Saidpur Husainpur Dalna
64	Dabathuwa Garhi	166	Ladpura	268	Saifpur Firojpur
65	Dadri	167	Lakhwaya Rasulpur	269	Sakoti
66	Dalampur	168	Lawar (NP)	270	Salarpur
67	Dantal	169	Lawar Janaali Rural	271	Salarpur Jalalpur
68	Datavali Gesupur	170	Lawar Khas Rural	272	Salempur
69	Daulatpur Fakhrabad Urf Kayast	171	Lawri Hiranpur	273	Samaspur
70	Daurala (NP)	172	Lisari	274	Samaspur Surani
71	Daurala Sugarmill	173	Loiya	275	Sameypur
72	Dhanota	174	Machri	276	Samoli-Salempur
73	Dhikauli	175	Madaripur	277	Saray Kaji
74	Dhikauli	176	Madarpura	278	Sardhana (NPP)
75	Dhindala	177	Mahroli	279	Sardhana (Rural)
76	Dilwara	178	Mail	280	Sarswa
77	Dimoli	179	Maithna Indersingh	281	Set Kuan
78	Dudheli Bangar	180	Makhannagar	282	Shahpur Jainpur

S.No.	Village/ Urban center	S. No.	Village/ Urban center	S.No.	Village/ Urban center
79	Dulehra Chauhan	181	Malyana	283	Shahpur Pirpur
80	Dungrawali	182	Mamipur	284	Shekhpur
81	Fajilpur	183	Mamupur Urf Dedwa	285	Shobhapur
82	Fatehullahpur	184	Manpur	286	Sikhera
83	Fitkari	185	Masoori	287	Sindhawali
84	Ftahpur Hansapur	186	Mataur	288	Sisola Buzurg
85	Gagaul	187	Mau Khas	289	Sisola Khurd
86	Ganeshpur	188	Mawana (NPP)	290	Sisoli
87	Gesupur Baphawat	189	Mawana Kala Gramin	291	Siwaya-Jamalullapur
88	Ghat	190	Mawana Khurd	292	Soharka
89	Ghosipur	191	Mawi Mira	293	Solana
90	Govindpur Urf Ghasauli	192	Medpur	294	Sudpur Urf Pathanpura
91	Gyanpur	193	Meerut (NPP)	295	Sundra Urf Pootha
92	Hafizabad Mewla	194	Meharmati Ganeshpur	296	Syal
93	Hajipur	195	Mewla	297	Tajpura
94	Harisinghpur	196	Mithepur	298	Tatina Sani
95	Hasanpur Qadimpur	197	Modkala	299	Teharki
96	Hastinapur (NP)	198	Modpur Khurd	300	Tigri
97	Hastinapur Kaurwan	199	Mohammadpur Hayak	301	Ulakhpur
98	Hastinapur Pandvan	200	Mohammadpur Lala	302	Uldeypur
99	Hazratpur	201	Mohammadpur Shakistmukri	303	Uplehra
100	Idris Pur	202	Mohd.Pur Gumi	304	Walidpur
101	Ikhlas Nagar Dabka	203	Mohiuddinpur	305	Yusufabad
102	Ikla	204	Mohiuddinpur Lalsana		

Source: As per government notification no. 2223/9Aa-6-03-4D.A/72, Dated June 26, 2003 and No. 41/VIII-10-17-04D.A-72**, Dated March 16, 2017, 140 more villages has been added in Meerut development area (Refer Annexure 6).*

- **In the rural area 17 villages & 1 urban centre had been incorporated in the Meerut Development Area.*
- ***Additional 123 villages and 5 urban areas incorporated in the Meerut Development Area.*

2.4 Physical features including hydro geomorphology and climate

The district Meerut is a part of northern upper Ganga plain. It lies in the upper Ganga Doab roughly in a rectangular shape. The Ganga and Hindon form its boundaries in the east and west respectively. The district is almost a levelled alluvial plain with a slight slope from north to south or south to east. The whole of the district is a well-cultivated plain and there is no uneven ground except in the area of ravines near the river valleys and the scattered bhur ridges in the upland tract. The whole district is a tract of extraordinary fertile soil. On the basis of Geology, Soils, Topography, Climate and natural vegetation the district is divided into the following four sub-micro regions-

1) Hindon Plain
2) Meerut Plain
3) Mawana Bhur Tract
4) Ganga Khadar.

Hindon Plain

The region covers a small portion of Sardhana and Meerut tehsils. It slopes towards south. The Hindon is the main river in the region. The tributaries of the Hindon flow parallel to it before joining at different places in the region. The tributaries are non-perennial. Physiographically the area is dull. Geographically, this region belongs to Alluvium, Dun gravels of recent age.

Meerut Plain

It is a flat plain sloping towards south. Compared to its peripheral areas, the central portion is lower. Physiography is monotonous. Few depressions are the main geographic feature. The plain can be said as a 'bread basket' tract of western Uttar Pradesh. Geologically, this region belongs to Alluvium, Dun gravels of recent age.

Mawana Bhur Tract

The region is spread over in an elongated shape extending in north-south direction in Mawana tehsil. There is a chain of Bhur or sand ridges located in this belt. These sand dunes are locally known as Palauta. Most of the sand dunes are reclaimed and the area is used for agriculture. The area slopes towards south. Geologically the region belongs to Alluvium, Dun gravels (recent).

Ganga Khadar

The region is situated parallel to Ganga River in north-south direction in Mawana tahsil. Slope of the region is governed by the Ganga River which flows from north to south. Dead arms of rivers, swamps, local depressions are the main topographical features. Sand dunes are located sporadically. Geologically, the region belongs to Alluvium, Dun gravels of recent age.

2.4.1 Drainage

The rivers Ganga and Hindon are the principal rivers of the district. Burhi Ganga is a tributary of Ganga while Kali Nadi is a tributary of Hindon River. These tributaries are non-perennial. The area is flat with very little variation in slope. There are few patches of rugged surface along the river Hindon in the sourthern part. The Ganga River flows from north to south direction in Mawana Tehsil. There are number of small rivulets along the Ganga which are actually the abandoned old course of the main stream. Sand dunes are located sporadically. There is a chain of Bhur or Sand Ridges along the river side in this tract. The land has become uneven on the sides of the river. Still there is no problem of drainage in the district as 90% part of the district is leveled alluvial plain.

2.4.2 Climate

This area has climate variation of extreme kind, ranging from extremely hot in summers and extremely cold in winters. The temperature starts rising from the beginning of March signifying the onset of summer. The western wind locally known as 'Loo' begins to blow in April. The heat is maximum in May and June when the temperature goes up to 40-45 centigrade. The season of monsoon is humid. Thus this region goes through various seasonal vagaries throughout the year. October and November are the ideal months for sowing of Rabi crop. Scarcity of rain occurs in the district. Thunderstorms occur in the summer and monsoon months, their frequency being higher in the month of June and September. Dust raising winds are common in the summer afternoons. Fieldwork especially agricultural operations are carried out in the district from July to March / April after the harvesting of crops is over

2.4.3 Soil

The soil is highly fertile and rich. The slope of the district being north to south, there are long patches of different kinds of soil. In the khadar area of Ganga the soil is sandy while in the surrounding areas of Hindon and Kali rivers the types of soil is bhur and in the central part, the soil is hard.

2.5 Existing Land use

2.5.1 Rationale

The rational application of the planning process in the preparation of the future master plan is possible only when there is a clear understanding of existing conditions and relationships between land uses. This includes understanding the shortages and issues pertaining to the current land use and creating proposal in future master plan, for not only current but also for estimated forecast population. Knowledge of existing land development furnishes the basic information by which decisions can be made concerning proposals for future residential, commercial, industrial, and public land use activities.

For the purpose of planning and controlling the physical spread of the city, the first Meerut Master Plan (1971-91) was implemented after establishing the Meerut Development Zone, by the Uttar Pradesh government. Master Plan (1971-91) was revised in year 1996 till 2001. The second revision and the prevailing Master Plan 2021 were notified in May 2006. Keeping in mind the unauthorized development on a large scale, the direction for future growth was finalized int his plan. For the preparation of Master Plan 2031 existing landuse were provided by NRSC on which the consultant studied the changes on ground by conducting ground truthing surveys and rectified it to maximize the authenticity of existing land use in the year 2031. Following table shows the existing land use share for Meerut Development Area in the year 2031.

Table 2.2 Existing Landuse of MDA 2021

Land use	Area (ha)	%age
Residential	6,204.11	5.95

Land use	Area (ha)	%age
Commercial	229.40	0.22
Industrial	1,151.75	1.10
Mixed	4.67	0.00
Educational	818.14	0.78
Health	32.12	0.03
Central Govt Property	100.59	0.10
State Govt Property	205.33	0.20
Railway Property	25.06	0.02
Public Semi Public	2,763.67	2.65
Religious	55.05	0.05
Recreational	147.44	0.14
Public Utilities	133.62	0.13
Communication	3.10	0.00
Heritage	0.39	0.00
Vacant Land	4,101.12	3.93
Transportation	138.97	0.13
Traffic related	85.47	0.08
Rural	3,846.58	3.69
Green areas	962.60	0.92
Agricultural Land	77,694.55	74.49
Wetlands	12.06	0.01
Wasteland	1,445.79	1.39
Others	296.92	0.28
Roads	2419.66	2.32
Water bodies	1426.49	1.37
Total	**1,04,304.66**	**100.00**

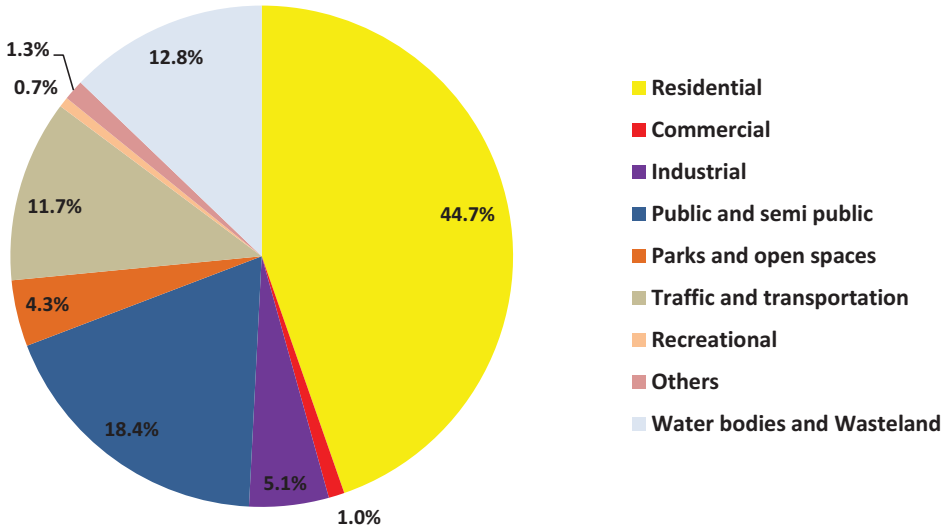
Source: NRSC Landuse and Ground Truthing

Table 2.3 Existing Landuse of MDA 2021 (Broad Categories)

Sr. No	Land use category	Existing Land use	%age
1	Residential	10,055.36	44.7
2	Commercial	229.40	1.0
3	Industrial	1,151.75	5.1
4	Public and semi public	4,137.08	18.4
5	Parks and open spaces	962.60	4.3
6	Traffic and transportation	2,644.10	11.7
7	Recreational	147.44	0.7
8	Others	296.92	1.3
9	Water bodies, Wastelands and Wetlands	2,884.34	12.8
Total		**22,508.99**	**100.0**

Source: NRSC Landuse and Ground Truthing

Figure 2-1 Existing Landuse of MDA 2021



For the broad landuse calculations the residential land use is considered with rural areas. Also, the broad existing land use calculations are done after excluding Agriculture and vacant land. The total MDA area including Agriculture and vacant land is 1,04,304.66 ha.

2.6 Built-up area-extent and character

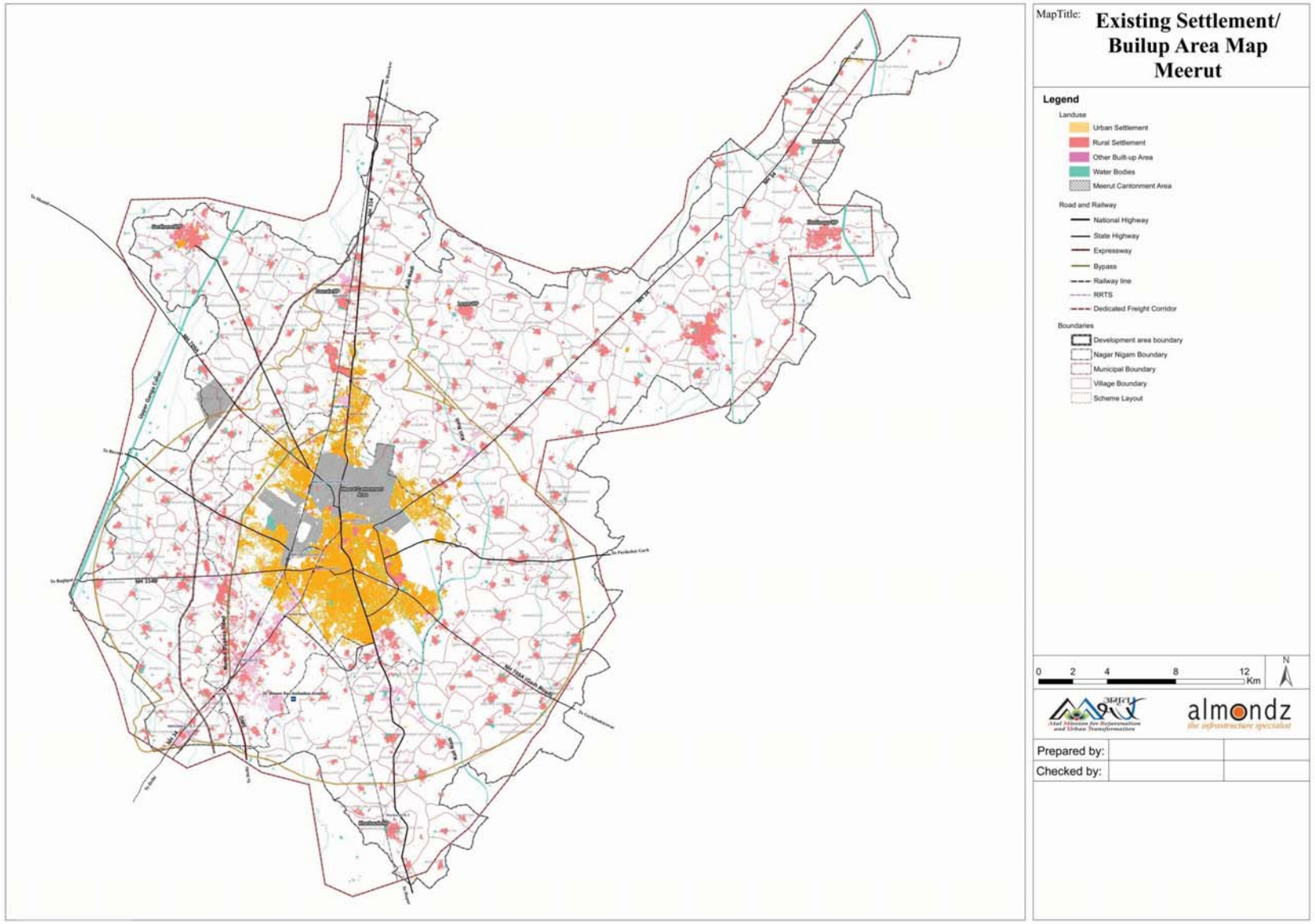
The growth of Meerut city shows a finger shaped development pattern along the major radial roads passing through the city. Till 1971 the growth was confined in and around core city areas. From 1971-1991, the development of Meerut was at peak during which the growth took place towards the southern direction. With the commencement of Meerut bypass, the city witnessed development on the western side in a linear fashion. The growth towards northern side is limited due to the presence of cantonment area, which is also one of the reasons for southbound spread. Year 2001 onwards growth of the city is observed along Meerut bypass road and NH 334. The urban extent density is always lower than built-up area density. Meerut is a historical city. Remnants of famous ancient Harappan urban civilization are found in many parts of Ganga Yamuna Doab also in Meerut urban area, from time to time the remains of settlements have been found, many of these remains are dated by archeology from 1300 to 1500 years. According to the historical evidences received, the ancient urban settlement of Meerut predates the great emperor Ashoka, because after his Kalinga conquest, Ashoka had established pillars in different parts of India. It was established in the outskirts near the settlement, which was later established in Delhi by Firoz Shah Tughlaq in the year 1360 AD after rising from Meerut. It is now known as Meerut Sangh.

Until the early twentieth century, the development of the city of Meerut was mainly confined to the interior of the ancient fort and its surrounding area, much along the Delhi-Meerut rail route in the west and the civil line area of the British administration in the east connecting the main city. There was little development. In the 70s, the development of new residential colonies and industrial estates was started in various outskirts of the city by Uttar Pradesh Housing and Development Board, Uttar Pradesh Industrial Development Corporation and Meerut Development Authority.

This process gained rapid momentum in the 80s and 90s with the financial support of the Housing and Urban Development Corporation (HUDCO). Due to which the internal population of the city in different areas of the city and the migration of population from outside areas was attracted and gradually this urban area was converted into a metropolis by the year 2001. In the last decades, urban development and expansion have taken place in a planned as well as unplanned and uncontrolled in many parts.

Keeping this potential of development in view, with the aim of encouraging planned development, in the first year 1965 by the Government of Uttar Pradesh, Meerut Municipality and an area of 8 km from its surroundings was regulated under Section 3 of the Uttar Pradesh Construction Works Regulation Act 1958. Till the year 1991, only 3177.95 hectares of land was developed in Meerut city area. Relative to which in 2001 14223.40 hectare land was reserved for urban activities.

Map 6 Built up area extent



Till the year 2001, about 5,712 hectares of land was actually found to be doing urban activities, whereas about 1,000 hectares of such land had been developed but yet to be used for urban activities. In 2021 master plan around 19,718.64[1] hectares of land is proposed for urban activities. But in the existing situation as per ground truthing and surveys only 7786.8[2] hectares of land is developed within Master Plan 2021 area. Other than Meerut and Daurala cities like Sardhana, Mawana and Hastinapur are also growing at a higher pace.

As the population of the city increases the land requirement of the city also increases. In 1990 the built up area is in the center part of the city. In 2001 they propose growth with in 8Km radius. In 2020 the growth starts increasing on the Hapur road and along the Delhi Meerut road. This growth is aligned with the proposed master plan of 2021. The built up area increase in this is due to the development of industries in the area and this area is along the NH-58 which is Delhi Meerut Highway. This is a very busy route. And the urban activities are increasing along this road. The growth of the city is in the south direction of the city due to good road network and due to industrial development in the area.

2.7 Key Problems in the city and Meerut Development Area

2.7.1 Disaster Prone areas

The hazard maps of various disasters for the state of Uttar Pradesh are given below. The maps include the earthquake hazard, flood hazards and wind hazard map. Meerut city lies in zone 4 of earthquake which is high damage risk zone. The city also lies in very damage risk zone for wind hazards.

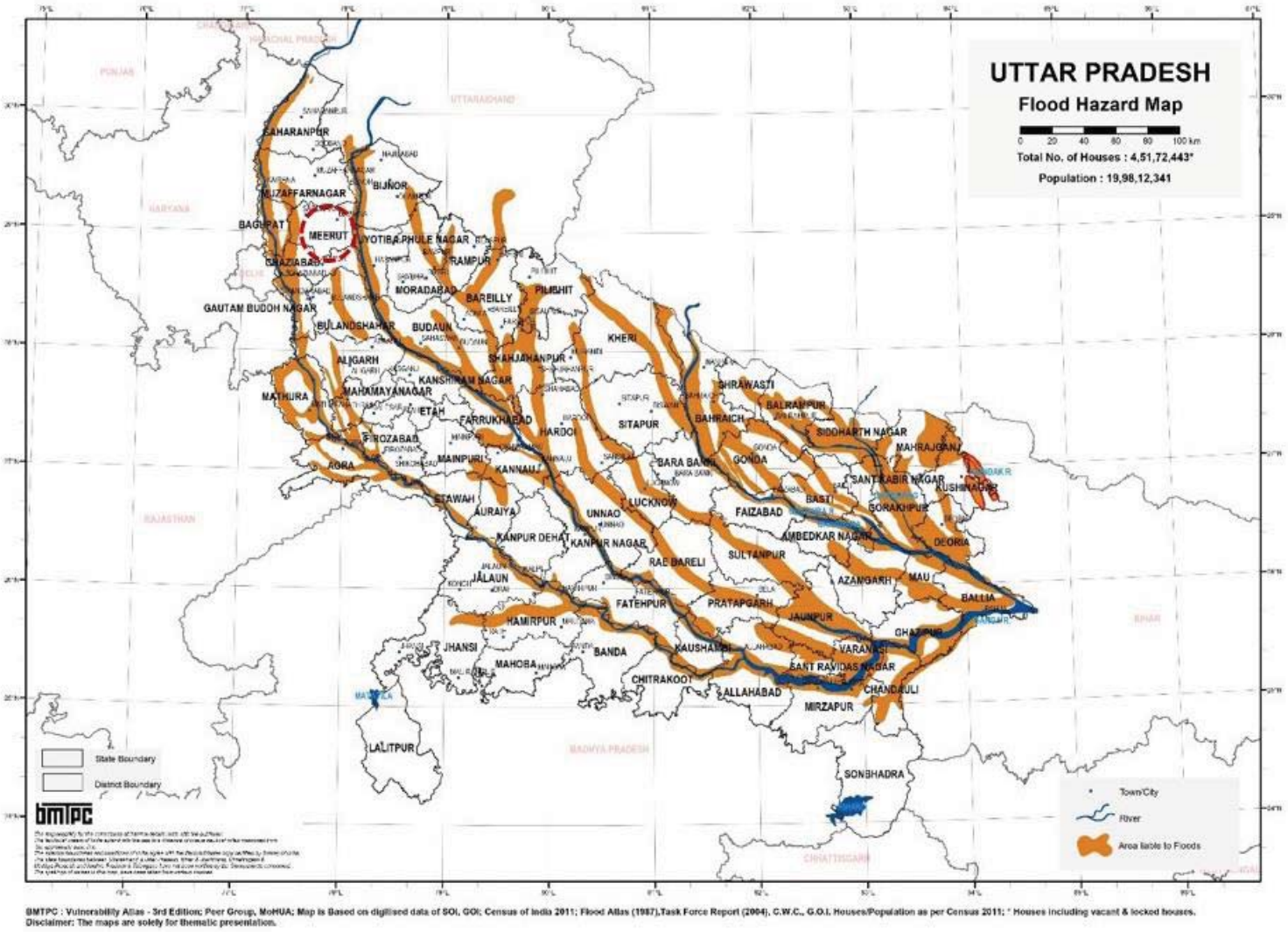
2.7.2 Mixed and non-conforming land uses

Mixed and non-conforming land uses create the land-use conflict in the city. This is happening because of conflicting problems related to the expansion and growth of city, such as increasing population, land use demand, land supply without planning etc.

Mixed and non-conforming land use in the city is contributor to noise, air and water pollution. Apart from the noise released by industries, pollution is also caused by the vehicles which carry materials to and from industries, which contributing to incessant noises and smoke. Heavy road traffic also causing traffic congestion, affecting many nearby residents. In addition to factories, the presence of unplanned mixed land uses on main roads also affects residents, causing the same problems as mentioned above.

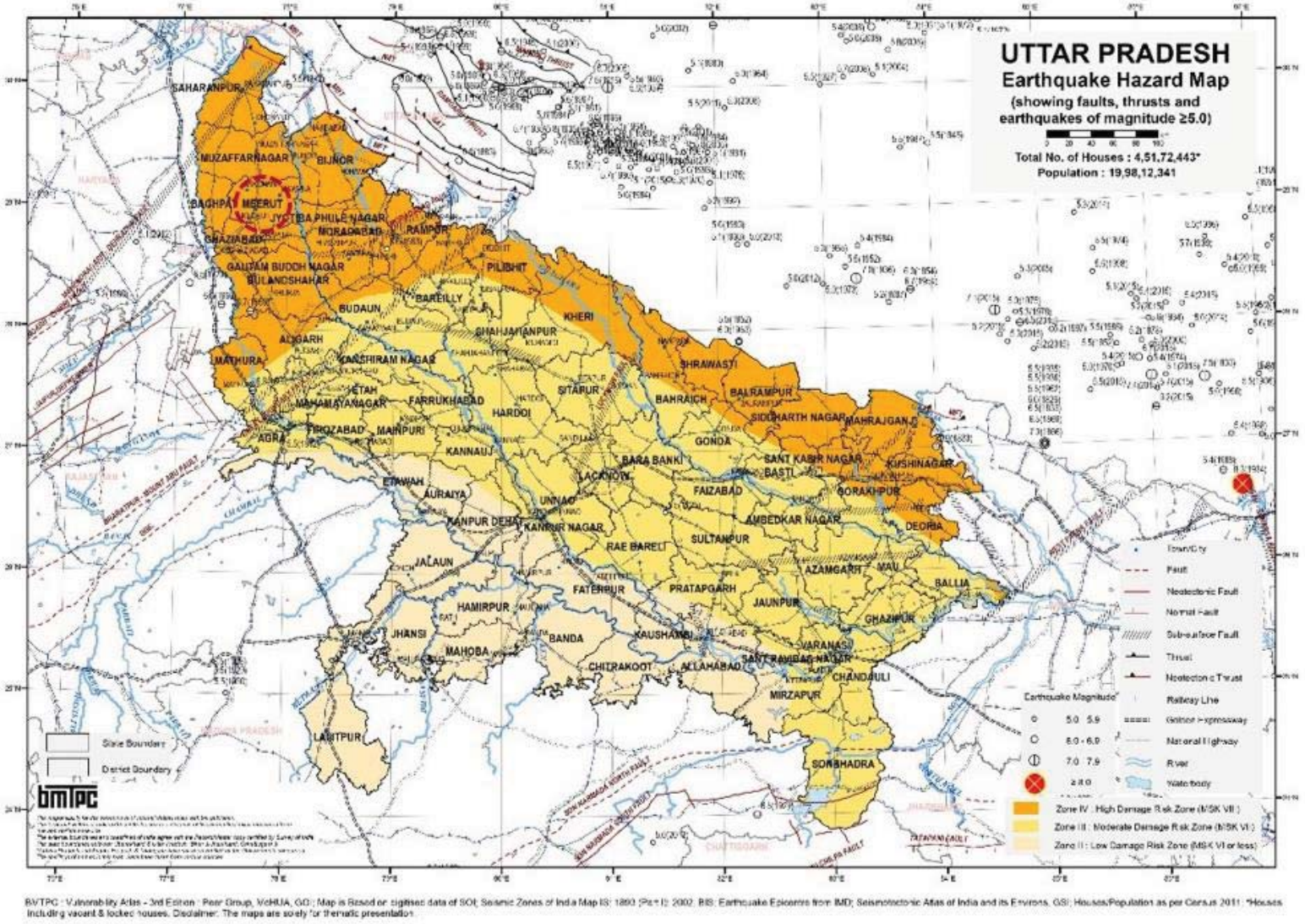
[1] Combined Proposed Landuse of Meerut and Daurala Master Plan 2021.
[2] 39.6% of the total proposed landuse as per MP 2021.

Map 7 Flood hazard map of Uttar Pradesh



Source – BMTPC (www.bmtpc.org)

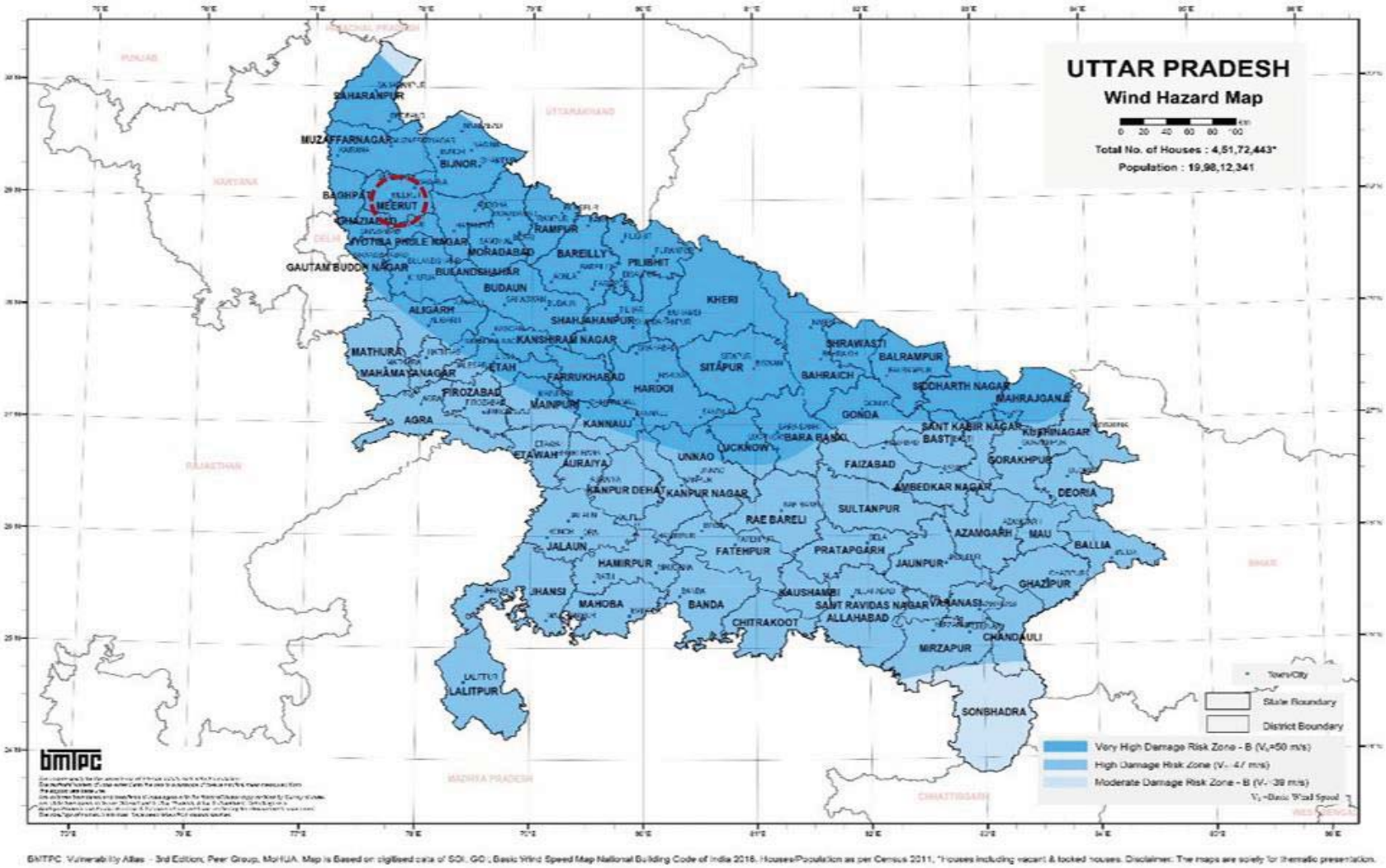
Map 8 Earthquake hazard map of Uttar Pradesh



BMTPC : Vulnerability Atlas - 3rd Edition ; Peer Group, MoHUA, GOI ; Map is Based on digitised data of SOI; Seismic Zones of India Map IS: 1893 (Part I): 2002, BIS; Earthquake Epicentre from IMD; Seismotectonic Atlas of India and its Environs, GSI; Houses/Population as per Census 2011; *Houses including vacant & locked houses. Disclaimer: The maps are solely for thematic presentation.

Source – BMTPC (www.bmtpc.org)

Map 9 Wind hazard map of Uttar Pradesh



Source – BMTPC (www.bmtpc.org)

2.7.3 Traffic and Transportation

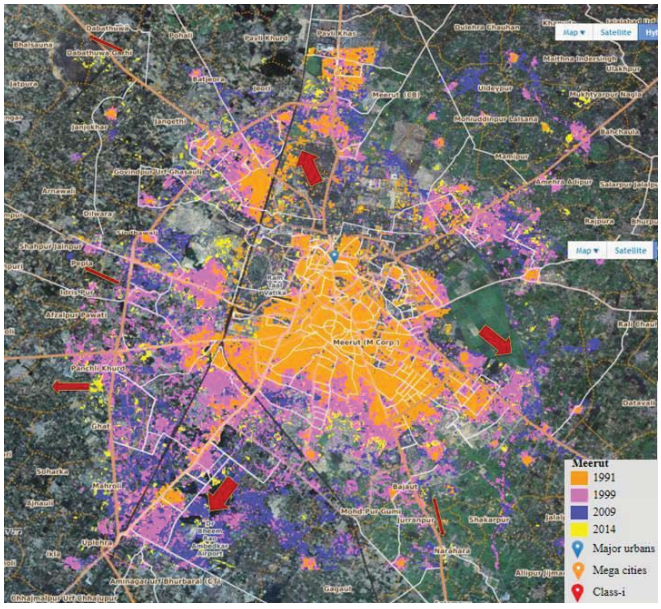
The list of major problems which the city is facing regarding the traffic and transportation is given below:

- On-street parking is a common phenomenon.
- Absence of pedestrian friendly infrastructure.
- No facilities for special groups.
- Insufficient carriageway width resulting in congestion.
- Intersection falls along NH-709A and is surrounded by several small commercial establishments, and receives a large volume of heavy vehicles. Junction also suffers due to its poor geometry, hawking and encroachment, on-street parking of e-rickshaws, and heavy pedestrian movement
- The Ghantaghar Junction intersection is surrounded by a large number of commercial establishments, educational institutes, densely populated residential areas and markets and is highly congested. It also suffers from improper geometry, a large number of temporary and permanent encroachments by roadside vendors, on-street parking of rickshaws and private vehicles, and receives large pedestrian footfall.

2.8 Physical Expansion trends and potential of development

Meerut city has experienced expansion in the past years owing to the population growth and economic development. The expansion trend shows that the major growth has taken place along the major roads like Delhi-Meerut, Delhi-Hapur, Delhi-Roorkee and Meerut-Baghpat roads. The below maps depicts the urban land cover of Meerut city from 2005 to 2015.

Map 10 Meerut city expansion from 1991 to 2014



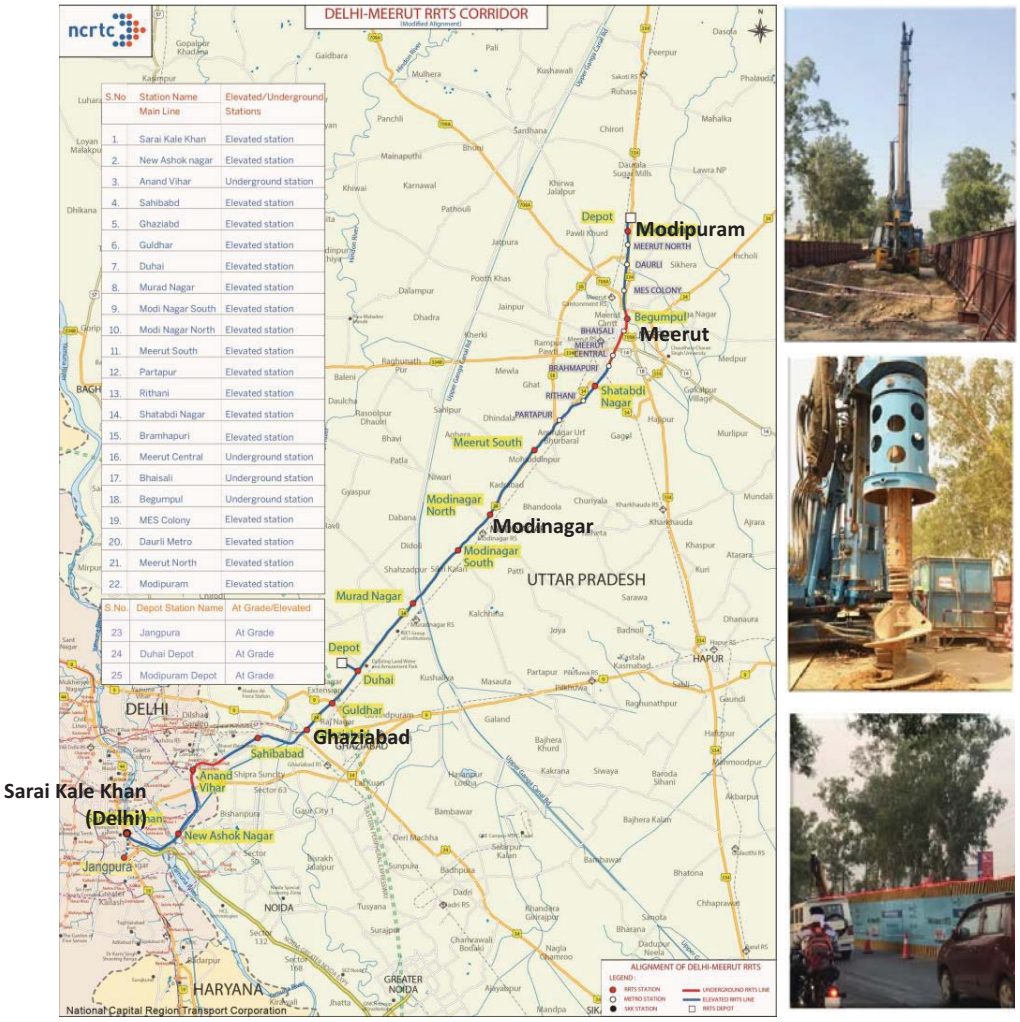
Source: Consultant's Analysis

2.9 Major ongoing, recently completed or proposed projects and policies

Regional Rapid Transit System (RRTS)

The Delhi–Meerut Regional Rapid Transit System (Delhi–Meerut RRTS) is an 82.15 km long, under-construction, semi-high speed rail corridor connecting Delhi, Ghaziabad, and Meerut. It is one of the three rapid-rail corridors planned under Phase-I of Regional Rapid Transport System (RRTS) project of National Capital Region Transport Corporation (NCRTC). With maximum speed of 180 km/h (111.85 mph), the distance between Delhi and Meerut will be covered in less than 60 minutes.

Figure 2-2 Regional Rapid Transit System (RRTS) from Delhi to Meerut (Under Construction)



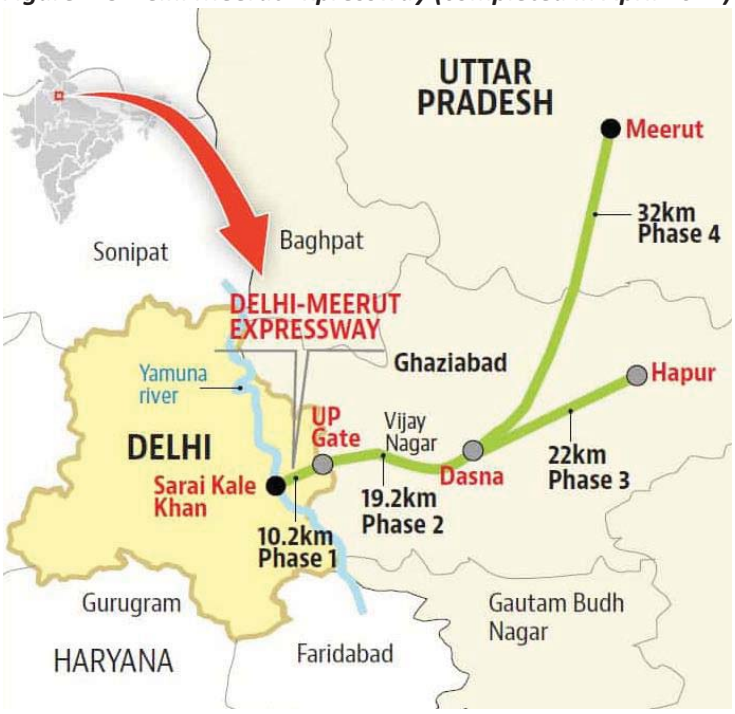
On 8 March 2019, the Prime Minister of India laid the Foundation Stone of this corridor. Key features of this project are:

- The prioritized three corridors in Phase I consist of Delhi-Ghaziabad-Meerut corridor, sanctioned by GoI in 2019 and is under implementation phase.
- Total length is 82.15 km of which 68.03 km is elevated and 14.12 km is underground.
- Total numbers of RRTS stations are 22 with train every 5-10 minutes, serving traffic nodes every 5-10 kms.
- Estimated time travel between Delhi and Meerut is 60 minutes with significant reduction in travel time (60-70%).
- Integration with Metro Rail systems and seamless multimodal connectivity.
- Will serve 0.8 Million passenger trips per day. Modal shift from private to public transport 37% to 63% – 0.1 Million vehicles off the road.

Delhi Meerut Expressway

An expressway from Delhi to Meerut via Ghaziabad was proposed under the NCR Transport Plan 2021, which was notified in September 2005. The Delhi to Ghaziabad section was to be taken up in 2001–11 with the Ghaziabad to Meerut scheduled 2011–21. The actual construction of this project begun in August 2018 and the last pahse of the project is on the verge of completion and is fully operational for public.

Figure 2-3 Delhi Meerut Expressway (completed in April 2021)



The key features of this project are:

- DME is a controlled-access expressway as it connects Delhi to Meerut via Dasna in Ghaziabad.
- The project was divided into 4 phases.

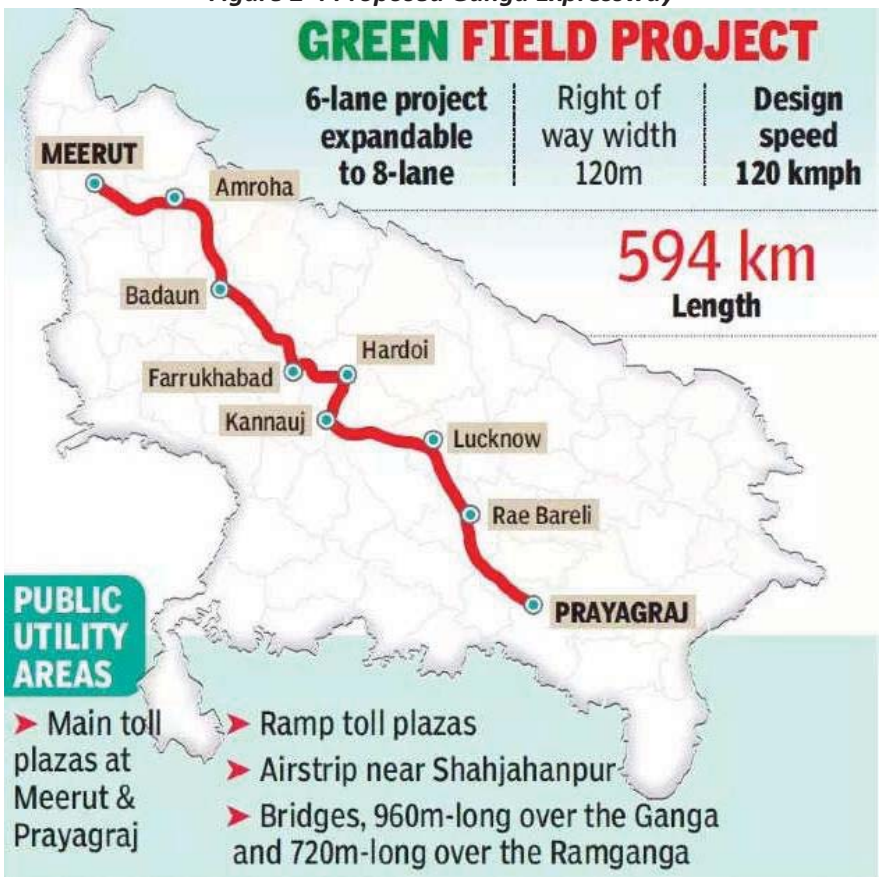
- Phase I: Sarai Kale Khan to UP Gate was inaugurated in May 2018.
- Phase III: from Dasna to Hapur was inaugurated in September 2019.
- Phase II: from UP Gate to Dasna was inaugurated in April 2021.
- Phase IV: from Dasna to Meerut was inaugurated in April 2021. DME Meerut extension link work is in full progress and can be innaugrated soon.

- Previous travel time of 2.5 hours is significantly reduced to 45 minutes.
- Travel time to hill stations like Dehradun, Rishikesh, Haridwar reduced by nearly 2 hours.

Ganga Expressway

Ganga Expressway is an approved 594 km long, 6-lane wide (expandable to 8) Greenfield expressway project of UPEIDA in the state of Uttar Pradesh, India. Phase-1 will connect Bijauli village (near Kharkhauda) on NH-334 in Meerut district with Judapur Dandu village on NH-19 in Prayagraj District. The Uttar Pradesh cabinet met at Prayagraj, the venue of the Kumbh Mela and cleared the decks to construct the Ganga Expressway between Meerut and Prayagraj on 29 January 2019. It will pass through 12 districts of Uttar Pradesh namely (from west to east), Meerut, Hapur, Bulandshahr, Amroha, Sambhal, Budaun, Shahjahanpur, Hardoi, Unnao, Raebareli, Pratapgarh and Prayagraj.

Figure 2-4 Proposed Ganga Expressway



Key features of this project are:

- Total Estimated Cost: INR 40,000 crore
- Project's Total Length: 594 km
- Lanes: 6 (expandable to 8)
- Status: Land acquisition (82.04% complete as of July 11, 2021) and RFQ-RFP bidding underway
- Deadline: Not Announced
- Owner: Uttar Pradesh Expressways Industrial Development Authority (UPEIDA)

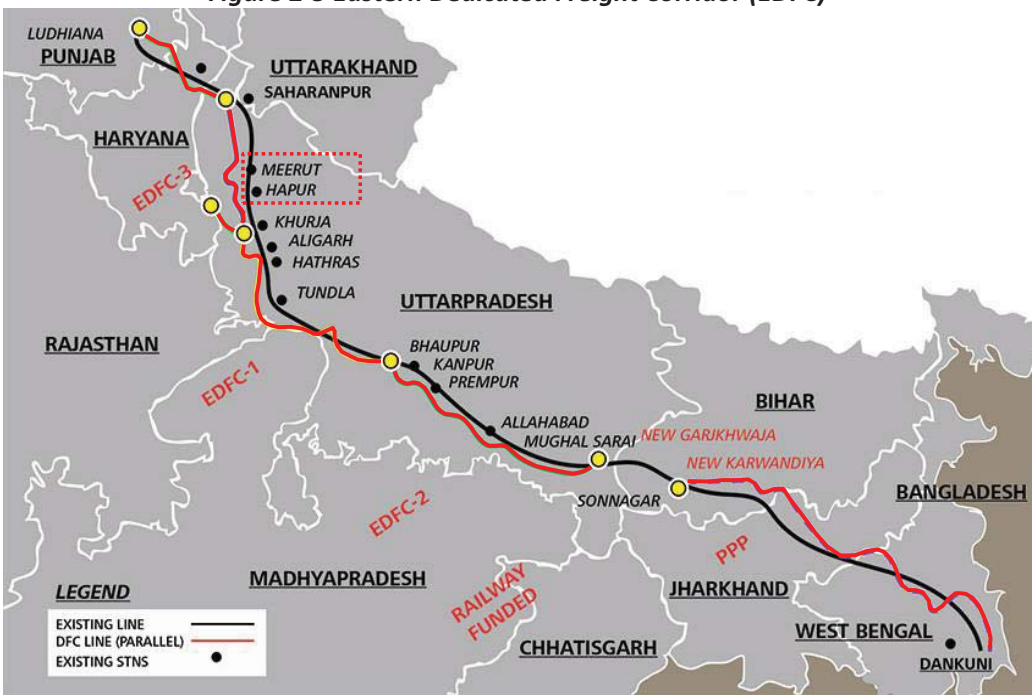
The land acquisition process is underway for the Ganga Expressway project.

Eastern Dedicated Freight Corridor

The Eastern Dedicated Freight Corridor (EDFC) project is part of India's Dedicated Freight Corridor (DFC) programme, which aims to create one of the world's biggest cargo operations. The EDFC project involves the construction of a 1,839km-long freight line extending from Ludhiana in the Indian state of Punjab to Dankuni near Kolkata, the capital city of West Bengal.

The main objective of the project is to support freight movement on the Eastern Corridor, which starts in West Bengal, and passes through the states of Jharkhand, Bihar, Uttar Pradesh (UP) and Haryana before finally ending at Punjab. The project will ease congestion in the existing railway system, reduce travel time for passenger trains, and create additional rail transport and freight capacities.

Figure 2-5 Eastern Dedicated Freight Corridor (EDFC)



The line will comprise a 1,409km electrified double-track line between Dankuni in West Bengal and Khurja in UP, as well as a 447km single-track line stopping at Ludhiana, Khurja, Dadri and Haryana. The project will be delivered in three sections with potentially overlapping construction schedules. The three sections include EDFC-1, a 343km double-track line between Khurja and Kanpur.

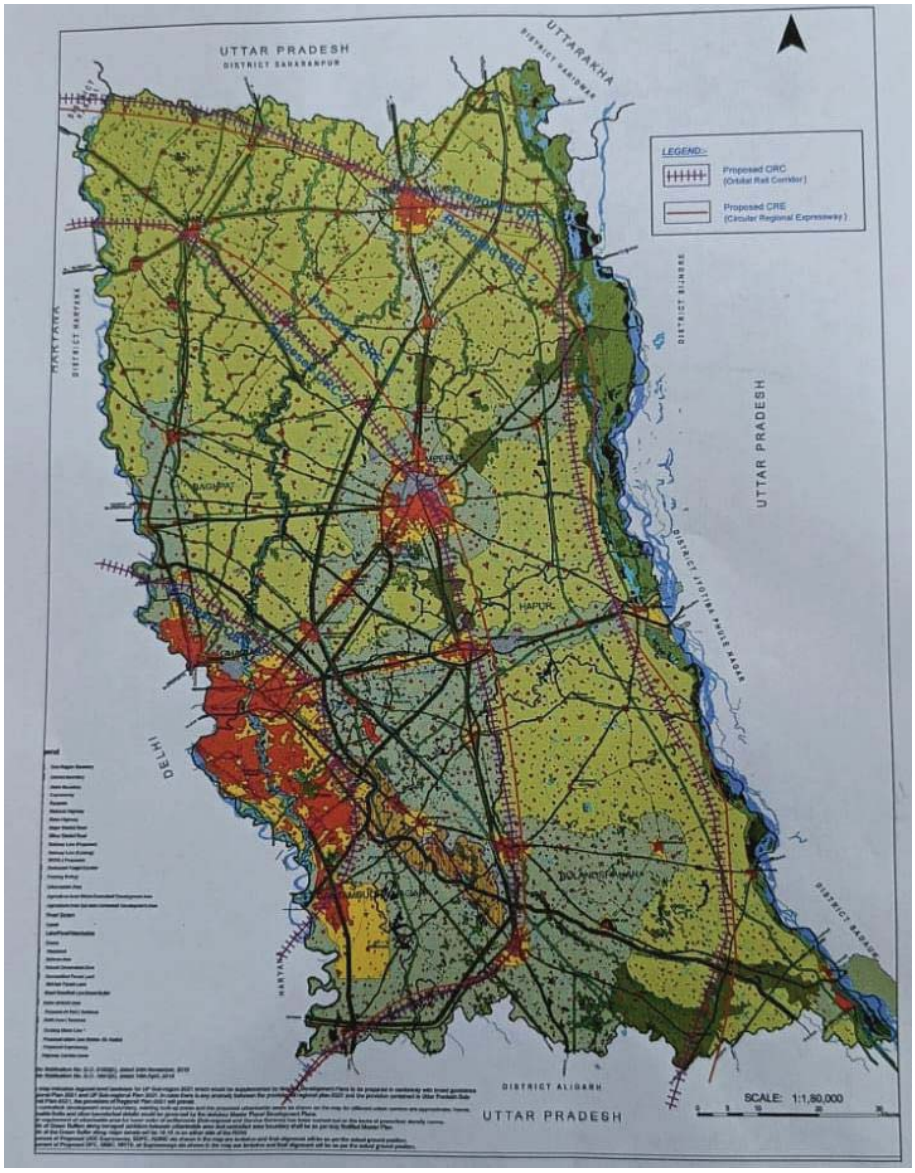
EDFC-2 will be a 393km-long double-track line between Kanpur and Mughal Sarai. The last section, EDFC-3, will be a single-track line between Ludhiana, Khurja and Dadri that will stretch over a length of 397km. The corridor will bypass densely populated towns, including Mughalsarai, Allahabad, Kanpur, Etawah, Ferozabad, Tundla, Barhan, Hathras, Aligarh, Hapur, Meerut, Saharanpur, Ambala, Rajpura, Sirhind, Doraha and Sanehwal.

EDFC-3 will involve construction of a 404km-long electrified single-track between Khurja, Meerut, Saharanpur, Ambala and Sahnewal, and approximately 46km of electrified double-line connecting Khurja and Dadri. The project will boost economic activites in the region including Meerut district.

Orbital Rail and Road Corridors (Proposed in NCR Sub Regional Plan 2041)

The prime objective of proposed Regional Rail and Road Network is to connect the regional towns with each other and with Delhi, on dedicated lines to meet the demand of specific corridors.

As per NCR Plan, to reduce the pressure of through passenger/ commuter traffic to Delhi, the Regional Orbital Rail connecting of Indian Railways from CNCR towns and Regional Centres, has been proposed as a Bypass for a number of trains. Simialary, Orbital Road Corridor is proposed to reduce the road traffic as shown in the Map below.



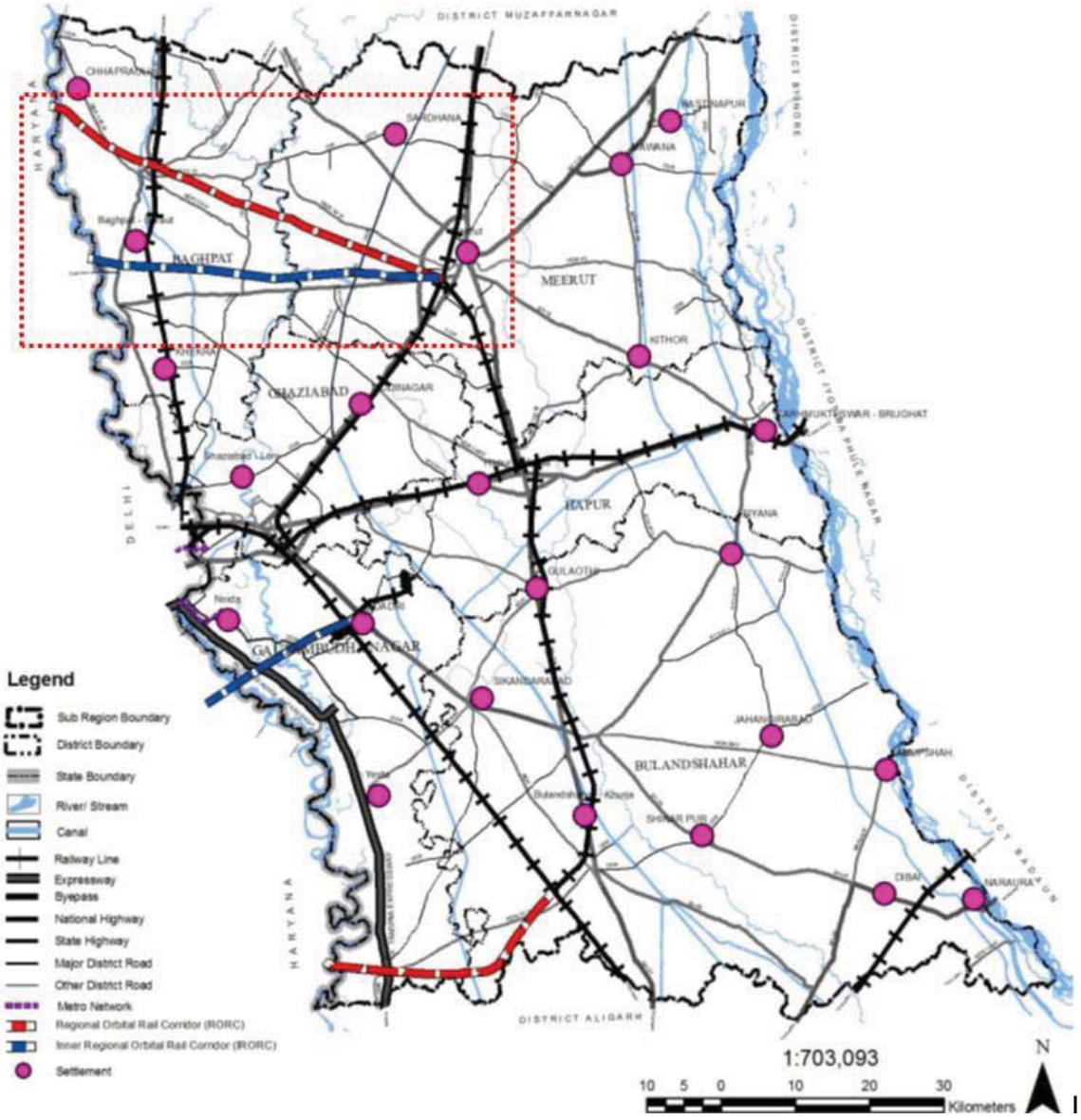
Regional Rail Corridors (Proposed in NCR Sub Regional Plan 2021)

The prime objective of proposed Regional Rail Network in SRP is to connect the regional towns with each other and with Delhi, on dedicated lines to meet the demand of specific corridors.

As per Sub Regional Plan of NCR UP, to reduce the pressure of through passenger/ commuter traffic to Delhi, the Regional Orbital Rail connecting the 8 Radials of Indian Railways from CNCR towns and Regional Centres, has been proposed as a Bypass for a number of trains. Panipat-Gohana-Rohtak-Jhajjar-Rewari-Palwal-Khurja- Bulandshahr- Hapur- Meerut- Baraut- Panipat rail corridor is proposed as the Regional Orbital Rail Corridor (RORC). The existing rail link between Khurja and Meerut along with the proposed new rail links between Meerut - Panipat and Khurja- Palwal will complete the RORC in UP Sub-region. As per Railway Board, the rail network Meerut City- Sonipat

through Baghpat needs to be connected. In addition, a Railway Chord between Palwal- Khurja will establish the RORC.

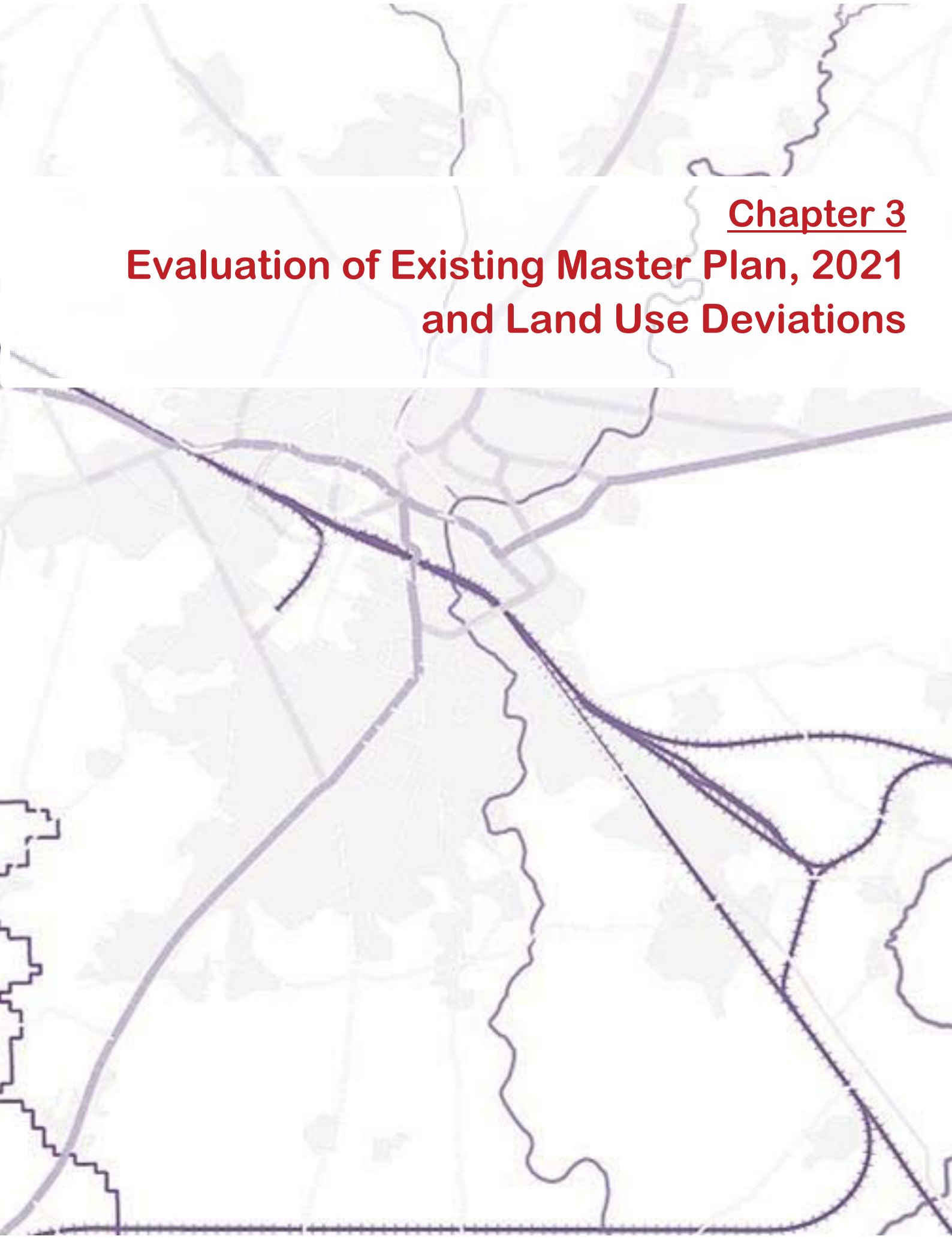
In addition to Outer RORC, the Inner RORC (Sonipat- Kharkhauda- Sampla- Jhajjar- Gurgaon- Faridabad- Dadri- Ghaziabad- Meerut- Baghpat- Sonipat) has been proposed to cater to intense commuter movement within NCR. Two new rail lines namely Meerut- Sonipat (66 km) and Gurgaon- Faridabad- Dadri (53 Km) are proposed to complete IRORC within UP Sub-region so as to strengthen the connectivity of the rail system. As per Railway Board, the Inner RORC can be conciniently established by connecting Adarsh Nagar with Loni- Ghaziabad, since there is already connectivity between Ghaziabad- TKD- Delhi Cantt- Adarsh Nagar.



One District, one product (ODOP) Scheme

The UP government's One District, One Product (ODOP) scheme aims to encourage such indigenous and specialized products and crafts. There are products in UP that are found nowhere else – like the ancient and nutritious kalanamak chawal, the rare and intriguing wheat-stalk craft, world-famous chikankari and zari-zardozi work on clothes, and the intricate and stunning horn and bone work that uses the remains of dead animals rather than live ones, a nature-friendly replacement for ivory. Many of these products are GI-tagged, which means they are certified as being specific to that region in Uttar Pradesh. Many of these were also dying community traditions that are being revived through modernization and publicization. Other district-specific industries are more commonplace, but their products are still unique to those regions. Heeng, desi ghee, fancy glassware, bedsheets, gud, leather goods – the districts that specialize in these crafts are in UP, and you might already own or use a UP product without knowing it. These are also small and medium industries that need modernization, machinery and productivity enhancement

Meerut district is famous all over the world for its sports goods industries. The district is the second largest producer of sporting goods and accessories in India after Jalandhar. The products made here are quite popular in the country as well as abroad. Small and medium scale units are engaged in producing sports goods. These products have a lot of scope to do well in the export sector. Some of the sports products manufactured here includes inflatable balls and accessories, nets, general exercise equipment, boxing equipment, toys and games, protective equipment, cricket equipment, sportswear, carom boards and hammock etc. The sports goods manufactured here are not only supplied nationally but are also exported internationally.



Chapter 3

Evaluation of Existing Master Plan, 2021 and Land Use Deviations

Chapter 3. Evaluation of Existing Master Plan & Land use Deviations

This chapter presents the detailed assessment of the planning area, population served, and critical evaluation of the master plan 2021, and its proposed land uses.

Meerut Master Plan MP(1971-1991) was the first master plan notified in year 1978 prepared for Meerut development Area established on 03/11/1976 under the provision of 'Urban Planning and Development Act, 1973'. Later on second Master Plan 2001 of the city was prepared and further MP 2021 was prepared for 23 lakhs population notified in year 2004.

Observing the rapid development, the boundary of Meerut Development Authority was expanded and simultaneously the urban area also changed in different master plan from 1991 to 2021. Prior to the expansion, Meerut Master Plan 1991 had urban area of about 3177.95 ha which drastically changed to 14,223.40 ha in MP 2001. But the development was happened in 5712 ha of urban area only. Existing Master Plan of Meerut city, 2021 also proposed for same area of 14223.40 ha.

3.1 Constituents of planning area

The master Plan of Meerut 2021 is reviewed in the context of the proposal, area planned, population served, objectives planned to achieve and to identify the deviation at present from the planned.

Planning Area, Meerut Master Plan 2021: There are 143 villages and 3 urban centres within Planning Area of Meerut Master Plan 2021. The three urban centres under Meerut Master Plan 2021 are Meerut Municipal Corporation, Meerut Cantonment Board and Daurala Nagar Panchayat.

Meerut Development Area Boundary: 17 villages in the north of Meerut development area have been included in Meerut development area by the notification no. 1223/9Aa-6-03-4D.A/72, Dated June 26, 2003[3] of the session.

[3] In the rural area 17 villages had been inserted in the Meerut Development Area for which a separate Master Plan namely Daurala Master Plan 2021 was sanctioned by Govt. of UP.

3.2 Future estimates/projections for:-

3.2.1 Population:-

The population projection for the development area, of the Master plan 2021 was projected by using 3 methods I.e. Arithmetic, Geometric and parabolic and average of it was taken as a final projected population. The details are presented in the table given below.

Table 3.1: Projected population of regulated area as per Master Plan-2021

Year	Population
Base year 2001	11,70,985
Projected for 2011	15,27,156
Projected for 2021	20,80,000 (19,28,821 Urban +1,50,000 Rural)
Projected for 2021 as per NCR Plan	23,00,000

Source- Meerut Master Plan 2021

3.2.2 Household Size:-

The average household size considered for projections of master plan 2021 was **5** whereas the household size of base year 2001 was considered 6. The average household size as per census 2011 is 6.1.

3.2.3 Occupational Structure:-

Sector wise working population of 2001 (base year) and projected for 2021 is given below:

Table 3.2: Occupational structure

Sector	Working population share in 2001 (%)	Projected Working Population share (%)		Working Population COI
		2011	2021	2011
Primary	8	6	4	6
Secondary	31	32	33	32
Tertiary	61	62	63	62

Source: Meerut Master Plan 2021 and COI, 2011

3.2.4 Density Pattern:-

For the estimated 23 lakh population in the year 2021, it has been proposed to achieve a density of about 153 person per hectare, excluding the forest area. It was estimated that the residential area density will gradually increase to more than 300 persons per hecatre during the planning period itself. The target population of Meerut city has been kept as 23 lakh in the year 2021. Thus on the basis of 153 person per hecatre standard for 23 lakh population of the city total 15,033 hecatre land is required. As per census 2011 the density of meerut city is 91.97

3.2.5 Work force:-

The working population projected for 2021 is 7,13,000 which is around 31% of the total population. The working population taken for study of 2001 is 3,27,875 which were also around 28% of the total population. At present as per census 2011, the working population in Meerut city is 4,07,274 which is roughly 31% of total population.

3.2.6 Housing

Total dwelling units proposed in master plan 2021 was 1,90,593 for which 3,600 ha land were required. In this area 23% EWS, 39% LIG, 34% MIG and 14% HIG was proposed.

3.3 Traffic and Transportation

3.3.1 Road Network

The type of road, as well as traffic and transportation, are essential for any area's growth. Traffic and transportation operations have a significant impact on the city's economic and social activities, as well as its physical infrastructure. The road should be developed and constructed in accordance with traffic regulation. Some of the major regional roads listed in the Master Plan 2021 are NH-58 (Delhi-Mana Pass), NH-34, NH-334, NH-334B, and NH-709A. Other inter-city roads include Meerut-Bidaun (SH-18), Garhmukteshwar-Meerut-Karnal (SH-82), Meerut-Bagpath-Sonipat (SH-14), Meerut-Bijnor-Pandi road, and Meerut-Parikshitgarh road. Important city arterial road includes Delhi road, Abu lane, Mawana road, Budhana Road, and Baghpat Road. These roads primarily cater to the large volume of intracity traffic. The total length of (NH) and (SH) is observed to be 356 km. two transport nagar and one bus stand on each regional road has been proposed which has a total area of 1549.65 Ha. The proposed outer ring road is yet not completed or internal connecting road are only 30% developed as per master plan 2021.

3.3.2 Bus Service

From Meerut to go to other cities the transport corporation of Uttar Pradesh has allotted 175 Private buses, 56 contracted buses and 481 Private sector buses from which an average of 52,502 passengers arrive in Meerut every day and 51,190 passengers flow from Meerut.

3.3.3 Traffic and Transportation Proposals according to MP 2021:

To meet the transportation related demand projected for 2021 following proposals were suggested regarding transportation and connectivity.

Proposal	Status
Ghaziabad- Meerut expressway	Completed but the route and the alignment is different from the proposed one.
Widening and electrification of Delhi- Saharanpur and Meerut-Hapur railway line	Completed
Delhi- Meerut rapid rail connectivity	RRTS under Construction
Rail over bridge and flyover at various locations	Only a few Master Plan proposals, mainly on National Highways (NH) & schemes of MDA & Housing Board were implemented
Development of major junctions and major roads	
Improvement of inter and intra city bus service	
Preparation of mobility plan	Completed
Relocation of bus station at the outskirt of the city	Project not yet undertaken
Transport nagar on Baghpat and Garhmukhteshwar road	Project not yet undertaken

Source: Meerut Master Plan 2021 and existing situation analysis

3.4 Community facilities and services

3.4.1 Educational:-

Following numbers of facilities were proposed for 2021

- Primary/ junior high school – 1380
- High school and inter college – 69
- College – 8

3.4.2 Medical and Health:-

Following number of facilities were proposed for 2021

- Hospital – 11
- Specialty hospital - 28
- Health center/ Dispensaries - 153
- Poly Clinic – 28
- Medical college – 2

3.4.3 Other community facilities and services (e.g. Post and Telegraph, Police station, Fire station, Community centres etc.)

Following number of facilities are proposed for 2021

- Police station – 23
- Community centre – 153
- Regional cultural centre – 2

- Club – 23
- Play area at various sectors

3.5 Public Utilities

3.5.1 Water supply:-

In Meerut the ground water source is available in abundance but due to excessive agricultural activities, industrial activities the ground water sources are depleting rapidly. 460 MLD of water requirement was estimated to serve 2021 population (based on 200 LPCD standard) which was assumed to be provided by Upper Ganga canal & UG water. As per Meerut Nagar Nigam, the current water supply in the city is 360 MLD.

3.5.2 Sewerage and Drainage:-

In 2001, inadequate area has been covered with sewer line, so sewerage system was proposed in rest of the area along with 3 STPs. In addition, the up gradation of existing drainage lines and its purification was also proposed. Detail plan and drainage management plan for the same need to be prepared was proposed in MP 2021. According to the 2021 Master plan report the water flow is carried to the Kali River through the three main drains already constructed for disposal of water. There is a sewer line in only about 25% of city, and drainage has also been added to the sewer line in many places. The Meerut Nagar Nigam has built a total of 155 kilometres of sewer line, including 23 kilometres of truck line and 132 kilometres of branch line, as well as seven pumping stations.

Currently, 14 STP's are located in various zones of Meerut with a total capacity of 179 MLD. 13 STPs with varying capacities are maintained by MDA for the colonies developed by MDA. The largest STP of Meerut with 72 MLD of capacity is maintained by UP Jal Nigam located at Garh Road. The discharge point for treated sewage is River Kali. A new STP is under consideration with capacity of 250 MLD at Kamalpur Village[4].

3.5.3 Solid waste management:-

1150 TPD of solid waste generation was estimated as per MP 2021. Currently, 2 dumping sites are available in the city i.e. Gawri Waste disposal site and Lohia Nagar trenching Ground. The city of Meerut has a 100% door to door collection of solid waste in all 90 Wards.

A total of 45 acre (18.2 ha) land is utilised for dumping at village Gawri which had around 2.5 lakh ton of legacy waste in year 2019. As per the guidelines of Hon. NGT, a waste processing plant was established there, which is operational since 2019. The processed compost obtained

[4] Land Area 5.5ha. Land is with UP Jal Nigam. Proposed under Namami Gange Project, National Mission for Clean Ganga.

from site is being distributed to farmers free of cost. Extensive Plantation has been done on the site in the year 2020.

Lohia Nagar trenching ground site has approx. 7-8 lakh tonne of legacy solid waste. Nagar Nigam Meerut has installed a processing plant here. The processing plant is running at a capacity of 600 TPD day and Night. Rest of the solid waste of city, approximately 200 TPD, is being currently dumped at Lohia Nagar, Hapur Road, Mangatpuram, and Delhi Road.

3.5.4 Power:-

According to the estimates of the electricity Department, by the year 2021, the metropolitan area will increase and the demand of electricity will also increase. According to master plan report 2021, Uttar Pradesh Power Corporation has set up 220 K and 132 K power stations in the Meerut city area, through which electricity is supplied to the entire city area, for which a total of 16 power sub-stations are setup Sector wise new power stations and sub-stations of 400 Kv, 332 kv, 33/ 11kv was required to meet the gap raised in 2021 which was proposed to be supplied by UP Power Corporation.

3.6 Development of land under various uses

3.6.1 Development of land

Meerut city is connected with other main cities of the state by important routes. These roads pass through the centre of the city and forming a radial pattern in the city. In the Meerut Master Plan 2001, the development of the city was proposed around the present city and in the master plan, land use was proposed according to the standard of 110 persons per hectare city density. A total of 14223.40 hectares of land was proposed for urbanization for the fixed population 15.50 lakh for the year 2001.

In the Meerut Master Plan 2021, by combining these areas by three ring roads, the road structure of the city was proposed on the ring radial pattern and the development of the city was proposed around the present city and in the master plan, land use was proposed according to the standard of 153 persons per hectare city density. A total of 15,590.00 hectares of land was proposed for urbanization for the projected population of 23 lakh for the year 2021. In contrast to the proposed land use in the year 2021, 19,192.09 Hectare of land has been developed. As a result of this, the urban density of Meerut was 119 persons per hectare as against 153 persons per hectare. The urban density in the year 1991 was about 215 persons per hectare. It is clear from this that urban density is being worked out, but it is decreasing at a relatively slow pace. The reason for the decreasing trend of urban density is migration of people from the inner city to outer areas and the vast area developed by development authority and colonies in the private sector, in which wide roads have been constructed along with the provision of open areas and other facilities according to the standards.

According to Meerut Master plan 2021, 15,607.97 Ha land is proposed for development but in 2001 5712.00 Ha land is already developed there is gap of 9,895.97 Ha. For the development of land under various land uses the proposed land use of the 2021 master plan, was compared with standards given in URDPFI guidelines and RFP document for Metro city. It is assessed that the percentage share of residential area proposed in 2021 master plan is higher as per the RFP document and the URDPFI guidelines. The traffic and transportation facility is also less in the city as compare to the RFP document. The commercial and industrial areas are meeting with the standards provided in the RFP document.

Table 3.3 Comparative assessment of proposed land use, 2021 in comparison with the RFP document and URDPFI guideline 2014

S.No.	Proposed land use	Proposed area-2021 (in Ha)	%age	Existing Landuse 2002	%age	As per RFP	As per URDPFI Guidelines	% met with RFP
1	Nirmit Kshetra	1540.14	9.9	-	-	-	-	-
2	Residential	6201	39.7	4010.69	70.22 %	30-35	36-38	Higher
3	Commercial	352.8	2.3	406.20	7.11%	4-6	5-6	Within range
4	Industrial	1228.85	7.9	323.70	5.66%	8-10	7-8	Within range
5	Office	351.17	2.2					-
6	Pub. & semi Public	1486.65	9.5	389.06	6.81%	10-12	10-12	Within range
7	Traffic and Transportation	1549.65	9.9	432.60	7.57%	18-20	12-14	Less
8	Parks and open spaces/Green cover	2897.71	18.6	104.41	1.82%	15-20	14-16	Higher

Source: Master Plan – 2021, RFP and URDPFI guidelines 2014

Residential: It is clear from above table that against the proposed 6,201ha residential area in Meerut master plan around 4,010.69 Ha land is already developed and still there is gap of 2,191 Ha. In 2002 the share of residential use was 70.22% which is higher if we compare it with the RFP and URDPFI guidelines. In 2021, the land use of the housing schemes implemented and to be done by Meerut Development Authority and Housing and Development Board has been kept as residential. Adjusting the existing unauthorized residential construction, after studying the trend of current residential development, 6,201 hectares of residential land use was determined to meet the projected population.

Commercial: In master plan 2021 around 352.8 Ha land is proposed for commercial uses. But in 2002 only 406.20 Ha land was developed as commercial, with a gap of 53.4 Ha. In 2021 the

share of commercial use was 7.11% which is higher if we compare it with RFP and URDPFI guidelines.

Industrial: Industrial development plays an important role in strengthening the economic base of any city. Keeping this in view, 1,228.85 Ha of area was proposed that had to be used for industry in Master plan 2021. In 2002 around 323.70 ha land was already developed with a gap of 905.17Ha.

Traffic and Transportation: In 2021 Meerut Master Plan the widening of existing roads is done and bus stand is constructed on all new proposed regional roads. In master plan 2021 around 1,549.65 Ha land is proposed for traffic and transportation sector. In 2002, 432.60 Ha land was already developed with a gap of 1,117.05Ha. In master plan 2021, 10% of the total proposed land was kept reserved for transportation sector. Under the traffic and transport land use, two transport nagar and one bus stand each on all regional routes were proposed. Various regional routes were combined with each other by proposing three ring roads in the south of the city. It is also proposed to expand the railway station and set up a cargo station at Modipuram.

Public and semi-public:

An area of 1,486.65 hectares was earmarked under public and semi-public facilities land use. Community land use was proposed in different areas for local needs. For regional level public facilities, public facilities were proposed on the outskirts of the city, especially on the by-passes. The land proosed under Public and Semi-Public was not fully utilised.

Parks and Open spaces:

To create a healthy environment in the city, an area of 2,897.71 hectares was earmarked under park and an open area. About 550 hectares of forest department's land was also included in the park and open area. Waste disposal and sewage treatment plant was also proposed within the park and open area.

3.7 Sector vise Key Issues & Planning Strategies in Master Plan, 2021

The sector wise key issues & developmental strategies proposed in the Master Plan 2021 are as follows:

Land Use/ Sector	Major Issues	Main Planning / development strategies
Built up areas	• Traffic increase in the roads in the residential areas • On road parking of the shops resulting in reduced RoW • Limited commercial development	• Key commercial areas encroachment in the core residential should be discouraged • Separate regulations to be

Land Use/ Sector	Major Issues	Main Planning / development strategies
	on fringe areas • Adverse impact on the residential development	planned in the zonal plans for commercial areas abutting roads • For congested locations where plot areas are 100mtrs or less 1.5m setback to be provisioned • Maximum 3 floors should permissible in buildings
Animal husbandry and dairy	• Nuisance created in city due to soiling and traffic hindrance by animals, due to animal shelters and dairy located in the city areas in scattered small pockets	• Relocation of dairy and animal shelters to the fringe, allowing these in agriculture zone • Proposing a Dairy Nagar in outskirts of the city
Residential	• Land use deviations and unregistered residential properties • Residential development in non-conforming zones • Patchy High density/ commercial development along road	• Permitting and adding the existing residential areas, by suitable assessment of pros and cons • Proposing TOD development along the proposed RRTS route • Zonal development plans based on land pooling schemes • Developing core residential zones to avoid pollution due to non-compatible uses
Commercial	• High intensity commercial development in core city, as compared to sparse commercial development in outer parts of city • Commercial development in strip pattern abutting road sides • Concentrated around city commercial center	• Proper dedicated commercial strips along key roads of the city, with dedicated parking areas (on steeet or off street)
Industry	• Patchy industrial development in many areas of the city; along Delhi Meerut Road, Hapur Meerut road etc.	• New industrial area development along major connectivity routes • Effective power supply, support infrastructure etc. to encourage new industries in the city
Parks and Open Spaces	• Encroachment in the open areas, parks • Noncompliance of the parks and open spaces as per master plan	• Restricted any other use • Transferable development rights to the owners who are willing to provide land for such use to residential areas and equal land area

Land Use/ Sector	Major Issues	Main Planning / development strategies
		• Incentivizing by provisioning a portion of land given by any land owner for park/ open spaces as buildable to the owner,
Traffic and Transportation	• Under Utilization of the land use under roads observed, whereas there was substantial increase in the density of population residing in the city, hence leading to congestion and insufficiency of carrying capacity of roads. • The non-implementation of proposed master plan road network	• Increase RoW, while maintaining the radial pattern of the streets in the city • Provision of employing ring cordon to ensure the smooth running of the major roads in the city • Proposed regional connectivity road to connect all notified urban areas from Sardhana to Bahsuma. • Proposed other internal and external roads in the extended urbanizable area
Agricultural Green Belt	• Possible encroachment in the green belt resulting in haphazard city development and limiting agricultural areas	• Allowing activities required for agricultural work in zoning regulations • Allowing construction only for the villagers residing in the settlement for more than 10 years, then the sale of the property is not allowed for next ten years

Source : Consultant's Analysis

3.8 Landuse Proposed in Master Plan 2021 (Meerut and Daurala) and the Deviations observed

3.8.1 Landuse in Proposed Master Plan 2021 (Meerut and Daurala)

A total of 19718.64 ha is proposed as per Master Plan 2021 of Meerut and Daurala. The detailed breakup of proposed landuses for both Meerut and Daurala MP 2021 is mentioned in the below given table.

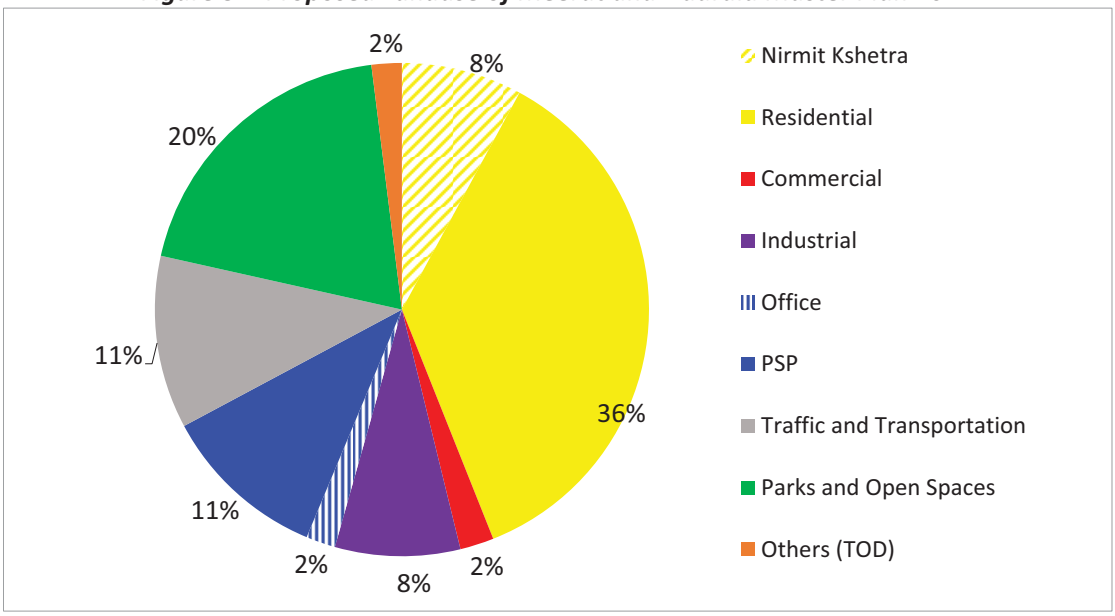
Table 3.4 Proposed Landuse of Meerut and Daurala Master Plan 2021

Sr. No.	Land use Category	Meerut Area (ha)	%age	Daurala Area (ha)	%age	Total MP 2021 Area	%age
1	Nirmit Kshetra	1540.14	9.87	17.95	0.44	1558.09	7.90
2	Residential	6201	39.73	911.49	22.17	7112.49	36.07
3	Commercial	352.8	2.26	84.08	2.05	436.88	2.22

4	Industrial	1228.85	7.87	385.62	9.38	1614.47	8.19
5	Office	351.17	2.25	28.72	0.70	379.89	1.93
6	PSP	1486.65	9.52	658.44	16.02	2145.09	10.88
7	Traffic and Transportation	1549.65	9.93	683.13	16.62	2232.78	11.32
8	Parks and Open Spaces	2897.71	18.57	951.68	23.15	3849.39	19.52
9	Others (TOD)			389.56	9.48	389.56	1.98
	Total	**15607.97**	**100.00**	**4110.67**	**100.00**	**19718.64**	**100.00**

Source: Master Plan 2021 of Meerut and Daurala

Figure 3-1 Proposed Landuse of Meerut and Daurala Master Plan 2021



Source: Master Plan 2021 of Meerut and Daurala

3.8.2 Master Plan 2021 area as per GIS

The Master Plan 2021 has been digitised and superimposed on Geographical Information System (GIS). There are some variations found in the proposed land use areas in the Master Plan 2021 after this process. Overall further difference found to be 44.29 ha (around 0.22%) as shown in the below given table.

Land use Category	Area as per MP 2021	%age	Area as per GIS	Difference in Ha	%age	% variation
Residential	8670.58	44.0	9040.7	+370.16	46.0	2.0
Commercial	436.88	2.2	399.7	-37.14	2.0	-0.2
Industrial	1614.47	8.2	1802.5	+187.99	9.2	1.0
PSP	2524.98	12.8	2582.6	+57.61	13.1	0.3
Parks & Open Spaces	3849.39	19.5	3320.7	-528.67	16.9	-2.6
Traffic &	2232.78	11.3	2144.2	-88.55	10.9	-0.4

Transportation						
Others	389.56	2.0	383.9	-5.69	2.0	0.0
Total	**19718.64**	**100.0**	**19674.3**	**-44.29**	**100.0**	0.0

Source: Consultant's Analysis

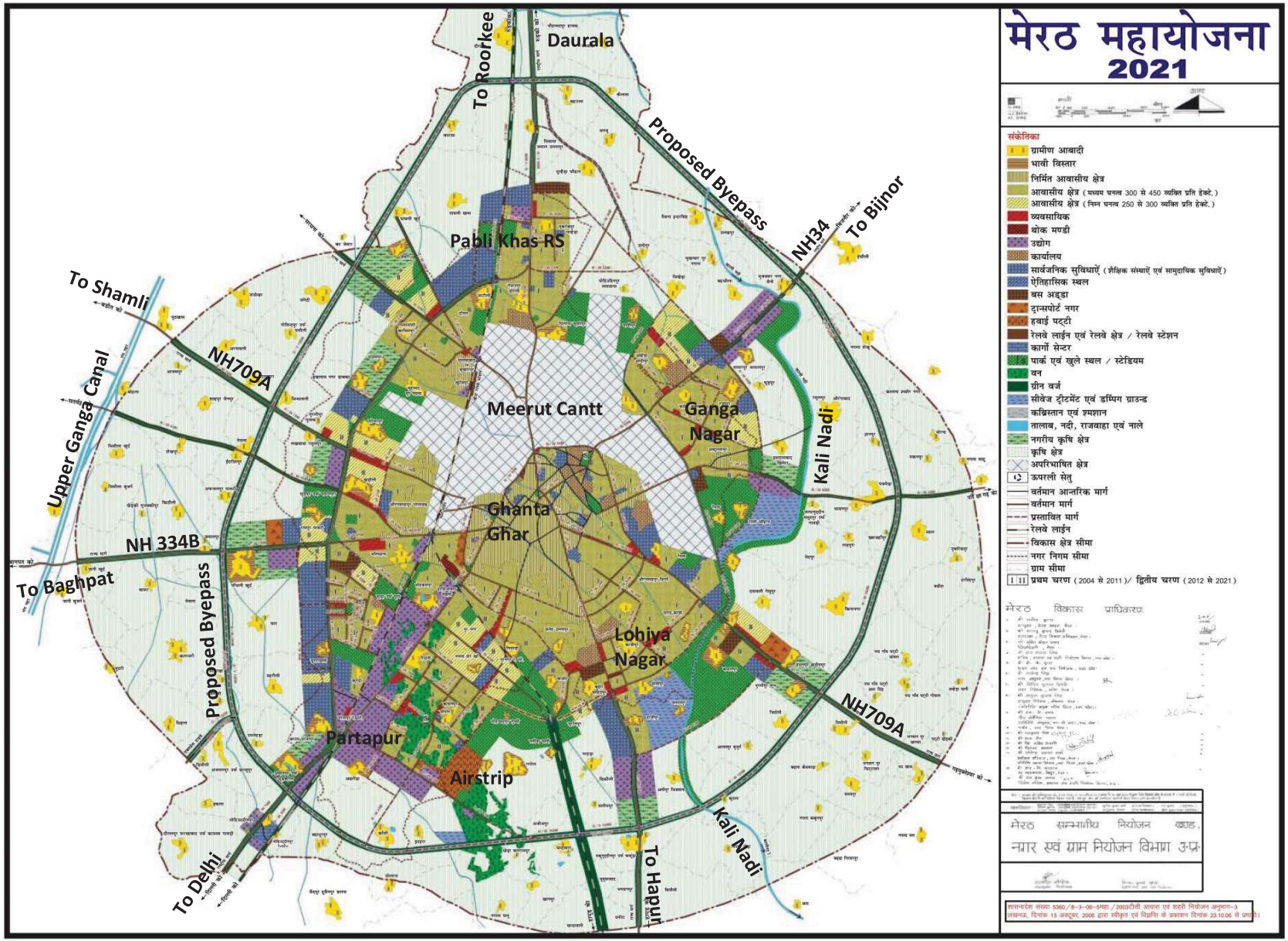
Now, further analysis and calculations have been done keeping 19674.3 ha of area as base area of Master Plan 2021. Based on which Master Plan 2021 land use analysis has been done which indicates that around 39.1% of Master Plan 2021 area is developed and rest of the area is still available for further development. The Master Plan 2021 land use analysis is shown in the below given table.

Land use Category	Area MP 2021 As per GIS	%age	Area Developed 2021 (Within MP boundary)	%age	Area Not Developed 2021 (Within MP boundary)	%age
Residential	9040.74	46.0	5324.46	58.9	3716.28	41.1
Commercial	399.74	2.0	181.34	45.4	218.41	54.6
Industrial	1802.46	9.2	773.22	42.9	1029.24	57.1
PSP	2582.59	13.1	1275.36	49.4	1307.23	50.6
Parks & Open Spaces	3320.72	16.9	144.46	4.4	3176.25	95.6
Traffic & Transportation	2144.23	10.9	87.93	4.1	2056.29	95.9
Others	383.87	2.0	0.00	0.0	383.87	100.0
Total	**19674.35**	**100.0**	**7786.8**	**39.6**	**11887.6**	**60.4**

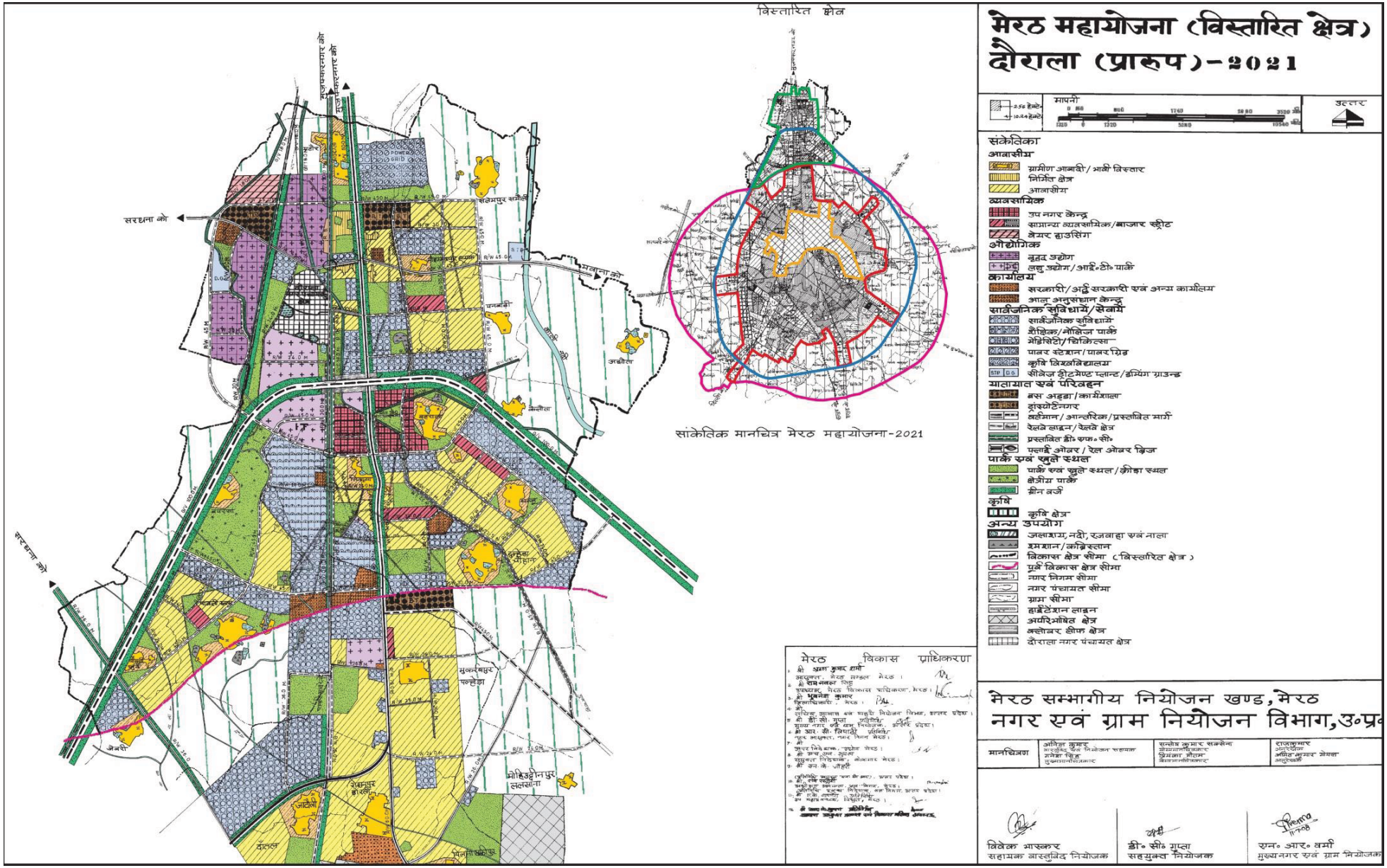
Source: Consultant's Analysis

.

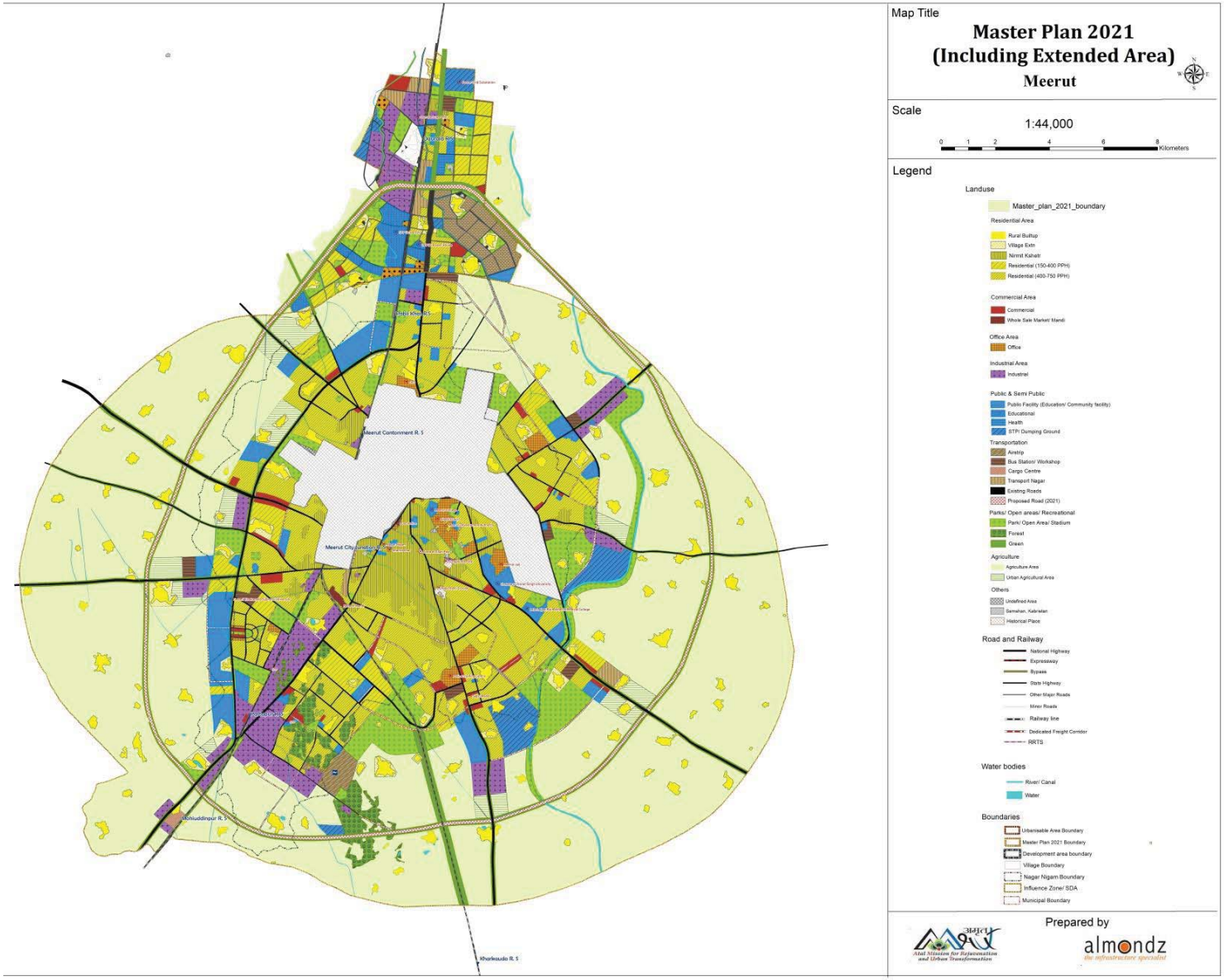
Map 11 Meerut Master Plan 2021



Map 12 Daurala Master Plan 2021



Map 13 Meerut and Daurala Master Plan 2021 (Combined)



3.8.3 Extent of the Landuse Changes

The land use area proposed in the Master Plan 2021, was about 19674.3 ha, of which residential area consituted as 46%, commercial 2%, industrial 9.2% , public and semi public 13.1%, parks & open spaces 16.9%, traffic and transportation 10.9%. The total developed area is 7786.8 ha which is around 39.6% of the proposed land use in Master Plan 2021. This 7786.8 ha of area includes 2355.68 ha of deviation as per MP 2021 which is allowed as per zoning regulations of MP 2021. For example commercial is allowed in industrial land use as per zoning regulations, roads are allowed in most of the land uses etc. The issues are such that on the one hand there has been under utilisation of the landuses, on the other hand there have been significant deivations of the land uses , located elsewhere from the demarcated areas. This has given rise to improper and non compatible land use, concentrated development, and on registered residential areas, congestion and traffic issues, lack of parking and such . The purpose of the furture proposed land use 2031 would be to focus on such deviations and plan strategies to counter this situation. In many residential areas mixed use developement have occurred, unlike as planned in the erstwile master plan. Such uses are more like household enterprises, petty shops etc. Such assessment of the deviation would direct strategical decision and policy making in future master plan.

Please refer below Table for the analysis of the land use proposed in the erstwhile Master Plan, 2021 and the deviations, observed in the existing land use plans, as compared to the previously proposed Master Plan 2021. Please Refer the below given maps for the Landuse Proposed in Master Plan 2021 (Meerut and Daurala) and subsequent map for the deviations marked on the Landuse as compared to the ELU assessment conducted for the present study.

3.8.4 Residential land use deviations

From the total proposed residential land use of 9040.74 Ha, around 5099.33 Ha was developed as per master plan 2021. Around 160.72 ha is developed as deviation (non-allowed). Of this deviation area around 82.02 ha (51.03%) is deviated as industrial and 49.3 ha (30.67%) is deviated as PSP. These are mere encroachments resulting in congestion, lack of parking etc. such spaces. The issue of encroachments was discussed in the master plan report 2021 as well. It is observed that to some extent similar issue prevails in Meerut and needs planning focus.

3.8.5 Commercial land use deviations

The total proposed commercial land use was 399.742 Ha (Meerut and Daurala). Of this, around 179.19 Ha of land has been developed as per master plan 2021, which is approximately 44% of the total proposed. Around 6.47 ha is developed as deviation (non-allowed). Of this deviation area around 3.11 ha (48.07%) is deviated as industrial and 3.36 ha (51.93%) is deviated as PSP.

The commercial landuse is observed to be more in the residential pockets in form of commercial strip along side roads. This has become a serious concern over the years. As there are no designated parking areas in the central core, private vehicles can be found mostly parked along the roads. On-street parking happens on either sides of the commercial stretches, and this reduces the effective carriageway resulting in hindrance to the regular flow of traffic.

3.8.6 Industries land use deviations

The total proposed industrial land use was 1802.46 Ha (Meerut and Daurala). Of this, only around 986.19 Ha of land has been developed as per master plan 2021, which is approximately 54% of the total proposed. Around 18.87 ha is developed as deviation (non-allowed). Of this deviation area around 18.38 ha (97.4%) is deviated as PSP.

It can be stated that as the MSME sector has been eventually growing these have taken shape in the core city, near respective residences.

3.8.7 Public & Semi Public land use deviations

The total proposed PSP land use was 2175.61 Ha (Meerut and Daurala). Of this, only around 970.16 Ha of land has been developed as per master plan 2021, which is approximately 44% of the total proposed. Around 43.31 ha is developed as deviation (non-allowed). Of this deviation area around 26.97 ha (62.2%) is deviated as industrial and 12.11 ha (27.9%) is deviated as Office.

3.8.8 Parks and Open Spaces land use deviations

The total proposed parks and open spaces land use was 3320.72 Ha (Meerut and Daurala). Of this, around 654.51 Ha of land has been developed as per master plan 2021, which is around 19% of the total proposed. Around 236.19 ha is developed as deviation (non-allowed). Of this deviation area around 143.11 ha (60.59%) is deviated as Residential, 61.75 ha (26.14%) is deviated as PSP and 17.82 ha (7.54%) is deviated as industrial. Negligible parks and open spaces are developed as per Master Plan 2021 proposals.

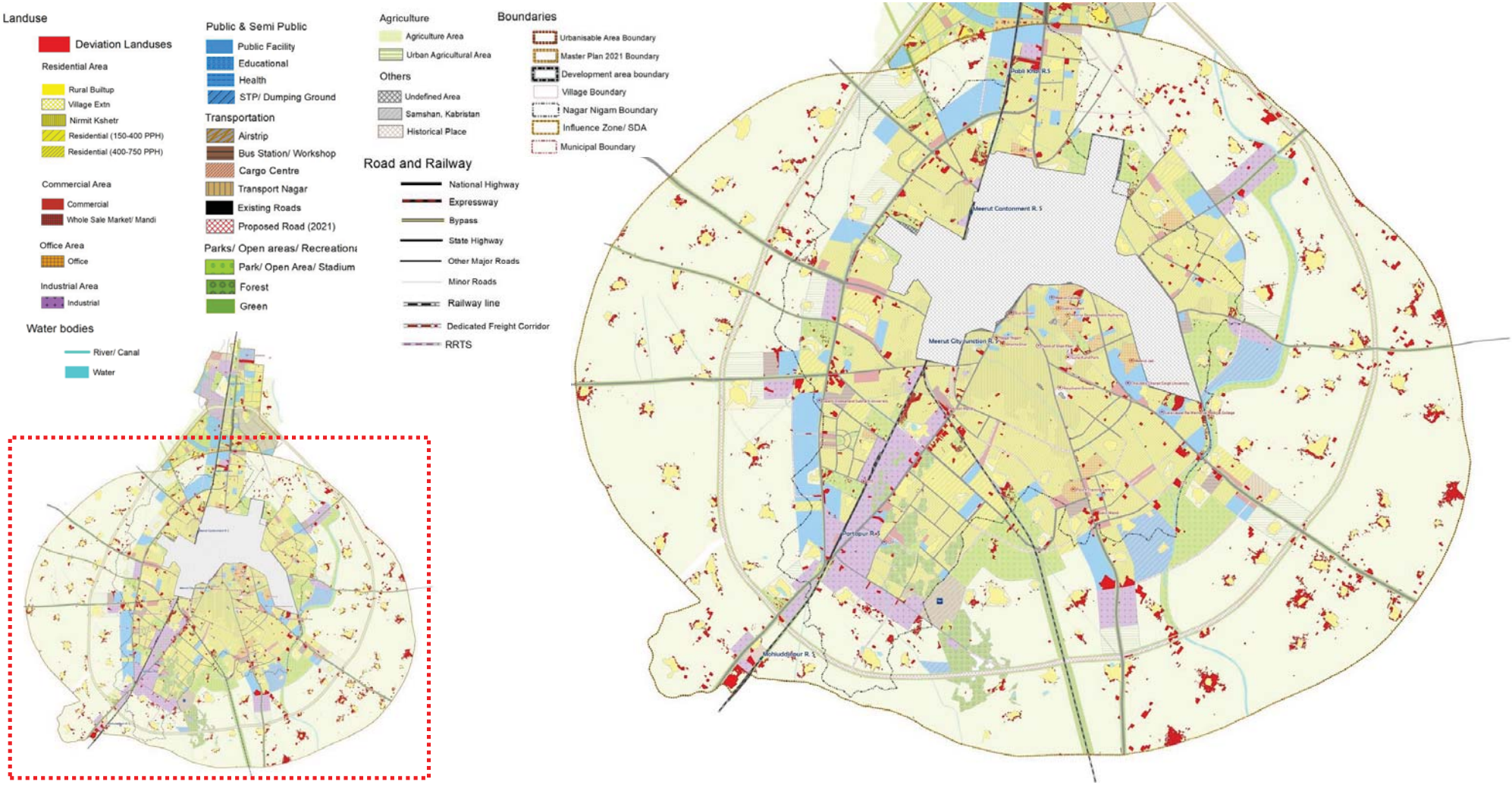
In addition, out of these, there has been a considerable encroachment in the lands dedicated to open areas and playgrounds etc.

3.8.9 Traffic & Transportation land use deviations

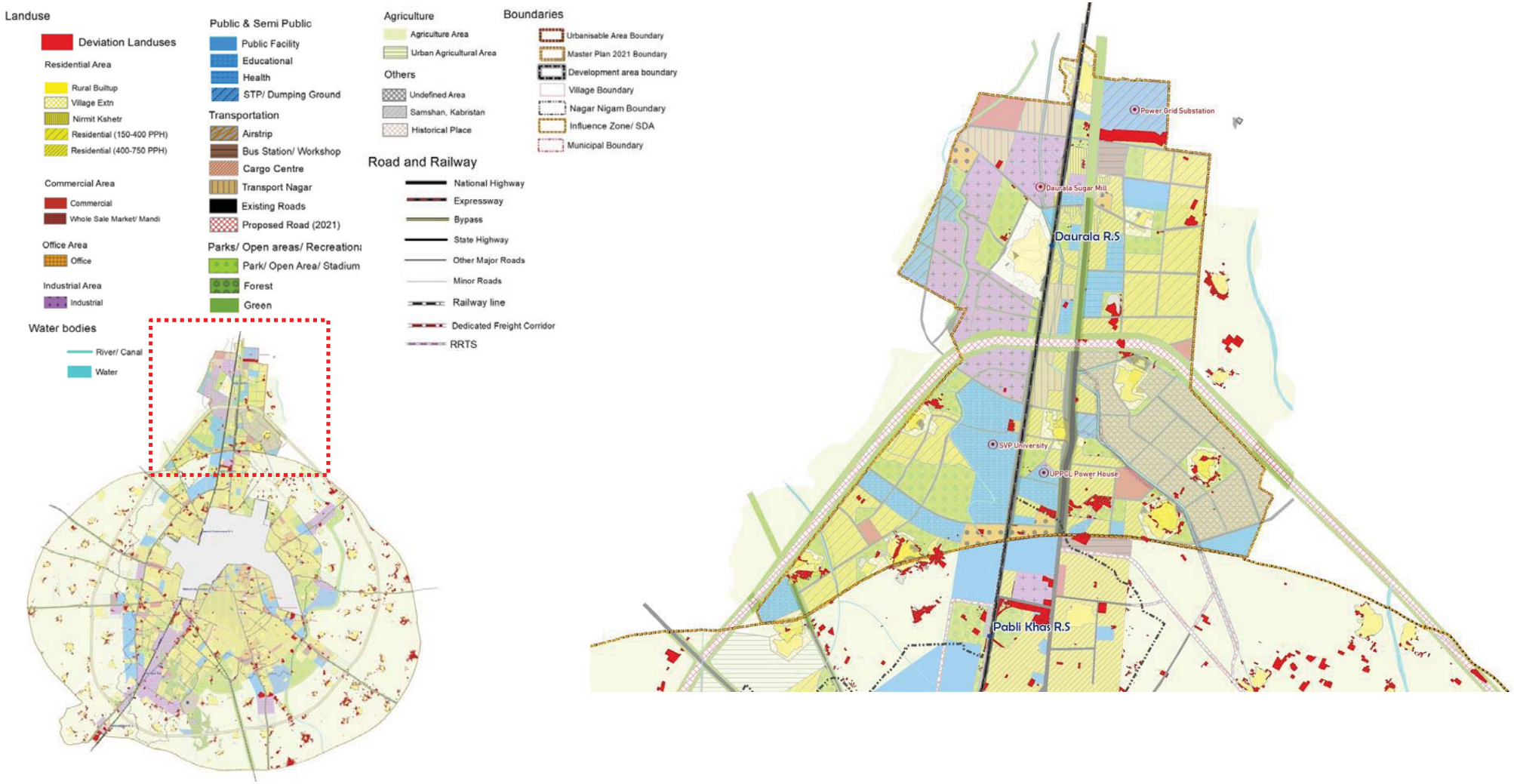
The total proposed traffic and transportation land use was 2144.23 Ha (Meerut and Daurala). Of this, 594.32 Ha of land has been developed as per master plan 2021, which is around 27% of the total proposed. Around 49.2 ha is developed as deviation (non-allowed). Of this deviation area around 33 ha (67.07%) is deviated as Industrial and 14.23 ha (28.92%) is deviated as PSP.

No proposed bus stands and transport nagar is developed as per Master Plan 2021 proposals, mainly due to land acquisition issues.

Map 14 Land Use Deviations observed in the Meerut Master Plan – 2021, as compared to the ELU



Map 15 Land Use Deviations observed in the Daurala Master Plan – 2021, as compared to the ELU



3.9 Extent of Land use change

Table 3.5 Extent of Landuse Change

S. No	Land use Category	Proposed Land use as per Master Plan 2021		Proposed Land use as per GIS 2021		Total Area (Deviation + Development as per MP 2021)		Actual Development as per Master Plan 2021		Deviation (Non Allowed)		Land use Deviation and Violations in Prevailing Master Plan 2021											
												Residential		Commercial		Industrial		Office		PSP		Traffic and Transportation	
		Area (ha)	%age	Area (ha)	%age	Area (ha)	%age	Area (ha)	%age	Area (ha)	%age	Area (ha)	%age of total	Area (ha)	%age of total	Area (ha)	%age of total	Area (ha)	%age of total	Area (ha)	%age of total	Area (ha)	%age of total
1	Nirmit Kshetra	1558.1	7.90	1211.45	6.16	1211.45	100.00	1211.45	100.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Residential	7112.5	36.07	7829.29	39.79	3968.60	50.69	3807.88	95.95	160.72	4.05	-	-	27.32	17.00	82.02	51.03	-	-	49.3	30.67	2.08	1.29
3	Commercial	436.88	2.22	399.742	2.03	185.66	46.44	179.19	96.52	6.47	3.48	-	-	-	0.00	3.11	48.07	-	-	3.36	51.93	-	-
4	Industrial	1614.5	8.19	1802.46	9.16	1005.06	55.76	986.19	98.12	18.87	1.88	-	-	0.49	2.60	-	-	-	-	18.38	97.40	-	-
5	Office	379.89	1.93	406.98	2.07	371.73	91.34	367.22	98.79	4.51	1.21	-	-	2.12	47.01	2.39	52.99	-	-	-	-	-	-
6	PSP	2145.1	10.88	2175.61	11.06	1013.47	46.58	970.16	95.73	43.31	4.27	-	-	3.95	9.12	26.97	62.27	12.11	27.96	-	-	0.28	0.65
7	Traffic and Transportation	2232.8	11.32	2144.23	10.90	643.52	30.01	594.32	92.35	49.2	7.65	-	-	0.21	0.43	33	67.07	1.76	3.58	14.23	28.92	-	-
8	Parks and Open Spaces	3849.4	19.52	3320.72	16.88	890.70	26.82	654.51	73.48	236.19	26.52	143.11	60.59	10.12	4.28	17.82	7.54	1.78	0.75	61.75	26.14	1.61	0.68
9	Agriculture	-	-	-	-	852.28	-	-	-	852.28	100.00	634.28	74.42	0.26	0.03	190.04	22.30	0.16	0.02	27.54	3.23	-	-
10	Others	389.56	1.98	383.87	1.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		**19719**	**100**	**19674.3**	**100**	**10142.48**	**51.55**	**8770.93**	**86.48**	**1371.55**	**13.52**	**777.39**		**44.47**		**355.35**		**15.81**		**174.56**		**3.97**	

Source: Consultant's Analysis

The total developed area is 10,142.48 ha. which is around 51.55% of the proposed land use in Master Plan 2021. This 10,142.48 ha of area includes 2,355.68 ha of deviations as per MP 2021 which is allowed as per zoning regulations of MP 2021. For example commercial is allowed in industrial land use, roads are allowed in most of the land uses etc.

3.10 Evaluation of Other key projects which will impact proposed Master Plan 2031

The other proposals given in the master plan are mentioned in this section. The progress status of various projects proposed in the 2021 master plan is mentioned here. Some of the projects are Delhi-Meerut expressway, RRTS, NH Proposals in Meerut, Ganga Express way and Airport/Airstrip in Meerut.

Delhi Meerut Expressway and its extension:

Delhi–Meerut Expressway or National Expressway 3 is controlled-access expressway, connecting Delhi with Meerut via Dasna in Ghaziabad in India.

- **Current status:** The express way is divided into 4 sections. Section one is from Nizamuddin Bridge to Delhi UP border this is completed on April 2018. Second section is from Delhi UP border to Dasna and complete on 1st April 2021 third section is from Dasna to Hapur and completed on September 2019 and forth section is from Dasna to Meerut and completed on 1st April 2021. This express way is complete and opened for public on 1st April 2021. An extension of DME is under progress which will connect the Meerut via DME on Hapur road.

Ganga expressway:

594 km Ganga Expressway project by UPEIDA is an approved 6 lane access-controlled road with a route alignment connecting NH-334 in Meerut District with NH-2 at Prayagraj (Allahabad) Bypass in Prayagraj District. The Ganga Expressway will connect the districts along the Ganga River, starting from Meerut till Varanasi, via Prayagraj

This Greenfield project was first announced in 2008 connects Noida with Ballia. Since then, the project in Phase 1 has been revised to connect Meerut with Prayagraj. In Phase 2, the expressway will be extended by 110 km to Tigri on the Uttar Pradesh / Uttrakhand Border and by 314 km to Ballia near Varanasi.

- **Current status** In February 2021, Uttar Pradesh's state government decided to extend the project on either end – from Meerut to Haridwar and from Prayagraj to Varanasi from the get-go. Ganga Expressway's land acquisition for about 6,556 hectares started in December 2020. As of April 2021, 1900 hectares have been acquired. In March 2021, UPEIDA invited tenders (RFQ & RFP) for the expressway's development through 4 groups each consisting of 3 packages. Land acquisition is under process for this project.

Rapid Rail Transit System (RRTS):

The Delhi–Meerut Regional Rapid Transit System or Delhi–Meerut RRTS is an 82.15 km long under-construction project, semi-high speed rail corridor connecting Delhi, Ghaziabad,

and Meerut. It is one of the three rapid-rail corridors planned under Phase-I of Regional Rapid Transport System (RRTS) project of National Capital Region Transport Corporation (NCRTC). With maximum speed of 180 km/h (111.85 mph), the distance between Delhi and Meerut will be covered in less than 60 minutes. The project will cost ₹30,274 crore (US$4.2 billion) and will have 24 stations including two depots at Duhai and Modipuram. On 8 March 2019, the Hon'ble Prime Minister of India laid the Foundation Stone of this corridor. Local transit services will also be provided on the Delhi - Meerut RRTS network in Meerut with a span of 21 km for the local transit needs.

- **Current status:** Construction of Delhi Meerut RRTS corridor is in full swing and likely to be completed by 2024.

Airport/Airstrip in Meerut:

Government of Meerut is likely to acquire land for the Meerut airport project and can be initiated after the land acquisition.

NH Proposals in Meerut:

In addition to laying a network of expressways and highways in Meerut district, there is also an exercise to eliminate jams in Meerut city. For this, a proposal of another bye-pass has been taken up from Hapur road in the south of the city to Roorkee road in the north of the city connecting Garhmukteswar road and Bijnor road.

- **Current status:** Land Acquisition process and parallely the onsite construction is underway.

Orbital Rail and Road Corridors (Proposed in NCR Sub Regional Plan 2041)

The prime objective of proposed Regional Rail and Road Network is to connect the regional towns with each other and with Delhi, on dedicated lines to meet the demand of specific corridors.

- **Current status** of these Orbital Rail and Road corridors are at conceptual stage.

Regional Rail Corridors (Proposed in NCR Sub Regional Plan 2021)

The prime objective of proposed Regional Rail Network in SRP is to connect the regional towns with each other and with Delhi, on dedicated lines to meet the demand of specific corridors.

- **Current status** of these Regional Rail corridors is at conceptual stage.

SFAP:

The slum free action plan was launched to achieving inclusive and sustainable development of the city, state and the nation, the Slum Free City Plan of Action for Meerut city is prepared to provide a systematic and holistic approach to tackle with existing slums in the city and to prevent the formation of new slums in future.

3.11 SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
– The city is a vibrant growth centre, serves the entire hinterland with employment opportunities and resources. – The city is a potential node of development and has shown promising trends for economic Growth of 15% from 2001-2011 – Being part of National Capital Region Meerut plays a major role in contribution towards overall socio economic development of the region – Proximity to the major urban centres such as Delhi, Noida, Faridabad, Ghaziabad, Haridwar, Roorkee, Khurja, Bulandshahar, Hapur etc. – The city is directly connected to Delhi via Delhi Meerut Expressway starting near Partapur in the south of the city.	– Underutilized industrial potential spatially as well as economically – The non-implementation of master plan road network – Encroachment in the open areas, parks; noncompliance of the parks and open spaces; land use deviations and unauthorised residential and commercial development; industrial development in residential zones – Issues of congestion of traffic in built up area (in the walled city) resulting in frequent traffic jams and narrowing the RoWs. – Inadequate physical infrastructure in the city.	– With the construction of Delhi Meerut Expressway and RRTS, the city will have kick start of industrial and logistic activities. – The connectivity of city would be enhanced with proposed Ganga Expressway. This will enable direct and fast connectivity to the Major city of Prayagraj via many key districts. – As per the economic profiling of NCR, the Meerut region has tremendous scope for development of industries and logistics as EDFC is passing from the development area of MDA. – The strong regional and local linkages are fundamental for inducing economic development in the region. – The city's physical location provides agricultural resources in abundance. Hence the food based industries can be developed in the city – Tourism potential will increase due to the inclusion of Hastinapur and Sardhana in MDA.	– Lack of developed dedicated industrial areas in the city, lack of infrastructure and issues in traffic and transportation would fail to encourage new industrial investors in the city and the city potential would not be harnessed to its fullest. – Encroachments specially in green areas and near water bodies would lead to further issues in pollution with low quality of life for the citizens. – Ground water extraction and industrial pollution dumping along the nalas. – The highly congested core areas with lack of breathing spaces can lead to disastrous situations – Lack of adequate solid waste management.

Chapter 4
Population & Demography

Chapter 4. Population and Demography

The chapter presents a detailed overview of the demographic profile of the city and its overall position with reference to the state and district. It also describes the population growth trends, spatial distribution and other demographic characteristics of the city. In addition to that, based on the past trends and potential of the city. The future population has been estimated through various scientific methods which is shown in the proposal (section 3) of the report.

4.1 Existing total at base date for the town and whole planning area

As per the Census 2011, Meerut city has a population of 1,305,429 with 688118 males (52.71%) and 617311 (47.29%) females, and it is the 5th largest city among cities having more than 1 lakh population in the state. Total geographical area of Meerut Nagar Nigam is 141.94 km2 as per census 2011. Population density of the city is 9197 persons per km2. Meerut NPP comprise of about 38% of the total population of district.

Table 4.1 Population of Uttar Pradesh, Meerut District and Meerut city as per census 2011

Administrative units	Population (lakhs) as per Census 2011			% of urban population w.r.t. total population
	Total	Rural	Urban	
Uttar Pradesh	199,812,341	155,317,278	44,495,063	22.27%
Meerut district	34,43,689	16,84,507	17,59,182	51.08%
Meerut city	1,305,429	0	1,305,429	100.00%

Source: census of India, 2011

As per 2011 census, there are 80 wards in the city. Ward no. 11 is the most populous ward with a population of 28576 and ward 55 is the least populous ward with a population of 8096.

Table 4.2 Ward wise population of Meerut city in 2011

Ward No.	Population			Ward No.	Population		
	Total	Males	Females		Total	Males	Females
1	21173	11374	9799	41	13653	7068	6585
2	16864	8941	7923	42	11871	6142	5729
3	13612	7333	6279	43	12067	6315	5752
4	19720	10418	9302	44	8737	4621	4116
5	20757	11119	9638	45	10854	5681	5173
6	19060	10103	8957	46	15747	8202	7545
7	23054	12140	10914	47	14965	7826	7139

Ward No.	Population			Ward No.	Population		
	Total	Males	Females		Total	Males	Females
8	14274	7519	6755	**48**	10180	5292	4888
9	17926	9504	8422	**49**	15594	8178	7416
10	19418	10328	9090	**50**	11780	6065	5715
11	28576	15480	13096	**51**	9903	5200	4703
12	16931	9077	7854	**52**	15075	7961	7114
13	24884	13440	11444	**53**	12175	6330	5845
14	23977	12825	11152	**54**	12665	6600	6065
15	19630	10351	9279	**55**	8096	4235	3861
16	17742	9379	8363	**56**	13414	6858	6556
17	16603	8799	7804	**57**	20263	10775	9488
18	18212	9583	8629	**58**	14511	7476	7035
19	15001	7833	7168	**59**	11061	5713	5348
20	17485	9412	8073	**60**	13581	7061	6520
21	17780	9900	7880	**61**	12162	6340	5822
22	12091	6278	5813	**62**	12453	6390	6063
23	21345	11282	10063	**63**	20480	10925	9555
24	16653	8824	7829	**64**	10916	5717	5199
25	25350	13525	11825	**65**	13303	6950	6353
26	21485	11385	10100	**66**	11121	5849	5272
27	27472	14744	12728	**67**	23441	12295	11146
28	20507	10799	9708	**68**	16118	8613	7505
29	15155	8019	7136	**69**	13433	6980	6453
30	21660	11469	10191	**70**	11208	5741	5467
31	17344	9180	8164	**71**	24596	12748	11848
32	14066	7487	6579	**72**	19324	10163	9161
33	21863	11508	10355	**73**	25368	13183	12185
34	17197	8937	8260	**74**	14004	7214	6790
35	12219	6371	5848	**75**	19391	9985	9406
36	11892	6279	5613	**76**	13774	7098	6676
37	13260	6879	6381	**77**	17218	8990	8228
38	9849	5246	4603	**78**	17904	9201	8703
39	16074	8836	7238	**79**	12808	6652	6156
40	11126	5878	5248	**80**	10928	5701	5227

Source: Census of India, 2011

There are 9 urban centers and 305 villages within the AoI. Urban centers include one municipal corporation (Meerut), one cantonment board (Meerut), two NPPs (Sardhana and Mawana) and five NPs (Daurala, Lawar, Bahsuma, Hastinapur and Kharkhoda within the AoI.

The population detail of villages and urban centres within AoI is mentioned in the table given below.

Table 4.3 Population of villages and urban centres within AoI

S. No	Village name	Population (2011)	S. No	Village name	Population (2011)
1	Aad	3215	154	Kheri Manihar	3245
2	Abdalpur	83	155	Kheri Tappa Lawar	2452
3	Achronda	1192	156	Kherki Muzakkipur	896
4	Afjalpur Urf Raninagla	1342	157	Khirwa Nauabad	2086
5	Afzalpur Pawati	2879	158	Khurmmpur	1339
6	Ajhota	3100	159	Kinannagar	7783
7	Ajhota	3100	160	Kitholi	3485
8	Ajnauli	1020	161	Kohla	1513
9	Akbarpur Sadat	4496	162	Kol	2465
10	Akheypur	179	163	Kudhla	2362
11	Alampur Buzurg	1934	164	Kuri Kamalpur	1577
12	Allipur Jijmana	4097	165	Kothla	42
13	Amehra Adipur (CT)	5485	166	Ladpura	1919
14	Amhera Sani	703	167	Lakhwaya Rasulpur	489
15	Aminagar urf Bhurbaral (CT)	6141	168	Lawar (NP)	22024
16	Andawali	1346	169	Lawar Janaali Rural	
17	Arnawali	2509	170	Lawar Khas Rural	0
18	Assa	3396	171	'Lawri Haranpur	0
19	Atmadnagar Allipur	4623	172	Lisari	1194
20	Aurangshahpur Diggi	1244	173	Loiya	4601
21	Aurang Shahpur Golabad	922	174	Machhri	1911
22	Azampur	1687	175	Madaripur	837
23	Azizpur	0	176	Madarpura	1111
24	Badha Girdharpur	99	177	Mahroli	2711
25	Badhala Kaithwara	4510	178	Mail	5392
26	Bafar	2454	179	Maithna Indersingh	3721
27	Bahadurpur	3709	180	Makhannagar	2804
28	Bahadurpur	2777	181	Maliana	5762
29	Bahchaula	2286	182	Mamipur	879
30	Bahorpur	2962	183	Mamupur Urf Dedwa	2570
31	Bahrala	2999	184	Mamuri	798
32	Bahsuma (NP)	11753	185	Masoori	5736
33	Bajaut	2009	186	Mataur	4891
34	Bana	3324	187	Mau Khas	4159
35	Baparsa	2645	188	Mawana (NPP)	81443
36	Baral Partapur	1017	189	Mawana Kalan	57
37	Barauda	245	190	Mawana Khurd	6399
38	Basiviran	7	191	Mawi Mira	3322

S. No	Village name	Population (2011)	S. No	Village name	Population (2011)
39	Batjeora	2249	192	Medpur	3576
40	Behsuma	50	193	Meerut (M Corp.)	1305429
41	Bhagawanpur	2301	194	Meharmati Ganeshpur	2860
42	Bhagvanpur	1233	195	Mewala	0
43	Bhagwanpur Chittawan	3076	196	Mithepur	2948
44	Bhagwanpur Khadar	161	197	Modkalan	608
45	Bhainsa	7391	198	Mod Khurd	1200
46	Bharota	1025	199	Mohammadpur Hayak	535
47	Bhawanpur	2860	200	Mohammadpur Lala	821
48	Bhndora	1103	201	Mohammadpur Shakist	1717
49	Bhojpur	0	202	Mohd.Pur Gumi	674
50	Bhurpur	1281	203	Mohiuddinpur	5200
51	Bihta	782	204	Mohiuddinpur Lalsana	1790
52	Bijoli	6062	205	Mor Kalan	1522
53	Bisola	4909	206	Morkhurd	3847
54	Bohla	4523	207	Mubarikpur	2920
55	Bubakpur	1336	208	Mubarikpur	2261
56	Budhera Zahidpur	783	209	Mukhtyarpur Nagla	1351
57	Chandna	1129	210	Muqarrabpur Palehra	1230
58	Chandsara	1943	211	Murlipur Gulab	296
59	Chajjupur	2119	212	Murlipur Phool	3704
60	Chhabariya	3020	213	Mustafabad Urf baukharpur	
61	Chhajmalpur Urf Chhajupur	3934	214	Muzaffarnagar Saini	4658
62	Chhattri	1741	215	Nagla Zarif	0
63	Dabathuwa	7517	216	Nagla Patu	1141
64	Dabathuwa Garhi	947	217	Nagli Shekhu	
65	Dadri	5068	218	Nagli Mazra Mataur	76
66	Dalampur	2998	219	Nalpur	3238
67	Dantal		220	Nagla Batu	151
68	Datavali Gesupur	7047	221	Nagla Isa	1517
69	Daulatpur Fakhrabad Urf Kayast	4408	222	Nagla kaboolpur	2859
70	Daurala (NP)	19776	223	Nagla Mal	2436
71	Daurala Sugarmill	2599	224	Nagla sahu	1150
72	Dhanota	1039	225	Nagla Sani	81
73	Dhikauli	55	226	Nagla Sherkhan	281
74	Dhikauli	55	227	Nagla Tashi Qasimpur	1429
75	Dhindala	2516	228	Narahara	4795
76	Dilwara	825	229	Niloha	5602
77	Dimoli	2179	230	Nimak Viran	0
78	Dudheli Bangar	447	231	Noor Nagar	
79	Dulehra Chauhan	4394	232	Pabla	995

S. No	Village name	Population (2011)	S. No	Village name	Population (2011)
80	Dungar	2824	**233**	Pachgaon Patti Amar Singh	3227
81	Fajilpur	370	**234**	Pachgaon Patti Gopal	15
82	Fatehullahpur	193	**235**	Pachgaon Patti Sanwal	1737
83	Phit Kheri	1454	**236**	Pachpera	7023
84	Ftahpur Hansapur	547	**237**	Paharpur	1685
85	Gagaul	7673	**238**	Palra	2334
86	Ganeshpur	4820	**239**	Panchli Khurd	8282
87	Gesupur Baphawat	2013	**240**	Panwari	2495
88	Ghat	5175	**241**	Patti kherki	166
89	Ghosipur	1512	**242**	Pavla	
90	Govindpur Urf Ghasauli	4205	**243**	Pavli Khas	9386
91	Gyanpur	2755	**244**	Pavli Khurd	2317
92	Hafizabad Meola	78	**245**	Peepli Khera	7862
93	Hajipur	1537	**246**	Pepla	2527
94	Harsinghpur	1499	**247**	Pilna Sufipur	2522
95	Hasanpur Qadim	4791	**248**	Pohali	5474
96	Hastinapur (NP)	26452	**249**	Puth Khas	6608
97	Hastinapur Kaurwan	35	**250**	Phitkari	4343
98	Hastinapur Pandvan	726	**251**	Rafan	
99	Hazratpur	130	**252**	Rahmapur	926
100	Idris Pur	1979	**253**	Ruhasa	6423
101	Ikhlasnagar Dabaka	1187	**254**	Rajpur	0
102	Ikla	1401	**255**	Rajpura	591
103	Incholi	14914	**256**	Rali Chauhan	3183
104	Islamabad Chhilora	3411	**257**	Rampur Paoti	499
105	Itayira	2219	**258**	Rasulpur Aurangabad	9890
106	Jafarnagar-Begamabad	1806	**259**	Ratauli	1127
107	Jafrabad Darveshpur		**260**	Rasulpur Dhantala	2123
108	Jainpur	849	**261**	Rukanpur	2915
109	Jalalabad Urf Jalalpur	3966	**262**	Ruknuddinpur Misri Urf Phaphun	7104
110	Jalalpur	1525	**263**	Sadarpur	1905
111	Jalalpur Khirwa	2709	**264**	Sadullapur Urf Chandpura	2069
112	Jalaluddinpur Masoodpur Gawri	845	**265**	Sahipur Daurala	0
113	Jamalpur	0	**266**	Saidipur Seth	852
114	Jamalpur Goma	1310	**267**	Saidpur Husainpur dalan	0
115	Jamalpur Jalalpur	2994	**268**	Saifpur Firozpur	535
116	Jangethi	4859	**269**	Sakoti	5510
117	Jani Buzurg	7837	**270**	Salahpur	3430
118	Jani Khurd	8859	**271**	Salarpur jalalpur	909

S. No	Village name	Population (2011)	S. No	Village name	Population (2011)
119	Janjokhar	3973	**272**	Salempur	500
120	Jasrathpur	965	**273**	Samaspur	2106
121	Jithauli .	693	**274**	Samaspur Surani	2105
122	Jee	2266	**275**	Sameypur	4434
123	Jeori	3758	**276**	Samoli-Salempur	4530
124	Jhunjhunee	2717	**277**	Saray Kaji	
125	Jithauli	2418	**278**	Sardhana (NPP)	58252
126	Jitpur	1775	**279**	Sardhana (Rural)	12465
127	Jitpur	1775	**280**	Sarswa	3309
128	Julehra	2198	**281**	Set Kuan	1459
129	Jurranpur	1109	**282**	Shahpur Jainpur	3000
130	Kazipur	1209	**283**	Shahpur Pirpur	271
131	Kalanjari	4154	**284**	Shakarpur	1047
132	Kamalpur	6234	**285**	Sobahpur	307
133	Kamaruddinnagar Madhiyai	3131	**286**	Sikhera	4794
134	Kanchanpur Ghopla	776	**287**	Sindhawali	5335
135	Kanoda	609	**288**	Sisola Buzurg	5143
136	Kanshi	2144	**289**	Sisola Khurd	2455
137	Kareempur	1608	**290**	Sisoli	6178
138	Kaseru Baksar	924	**291**	Siwaya-Jamalullapur	5035
139	Kaseru Khera		**292**	Soharka	941
140	Kastala Shamshernagar	1624	**293**	Solana	764
141	Katra	0	**294**	Sudhpur urf pathanpur	0
142	Kayasth Badha	2773	**295**	Sundra urf pootha	774
143	Khatta Pahladpur	4001	**296**	Sial	4322
144	Khadoli	2205	**297**	Tajpura	1284
145	Khandawali	1040	**298**	Tatina Sani	1689
146	Khanpur	2555	**299**	Teharki	3994
147	Khanuda	1557	**300**	Tigri	2397
148	Kharbadi	6196	**301**	Ulakhpur	1588
149	Khardoni Sheikhupur	1609	**302**	Uldeypur	2120
150	Kharkhauda	458	**303**	Uplehra	1657
151	Kharkhoda (NP)	14364	**304**	Walidpur	2669
152	Khawajahanpur	799	**305**	Yusufabad	0
153	Khera Balrampur	1550			

Source: Census of India, 2011

4.2 Growth trends for the past ten years

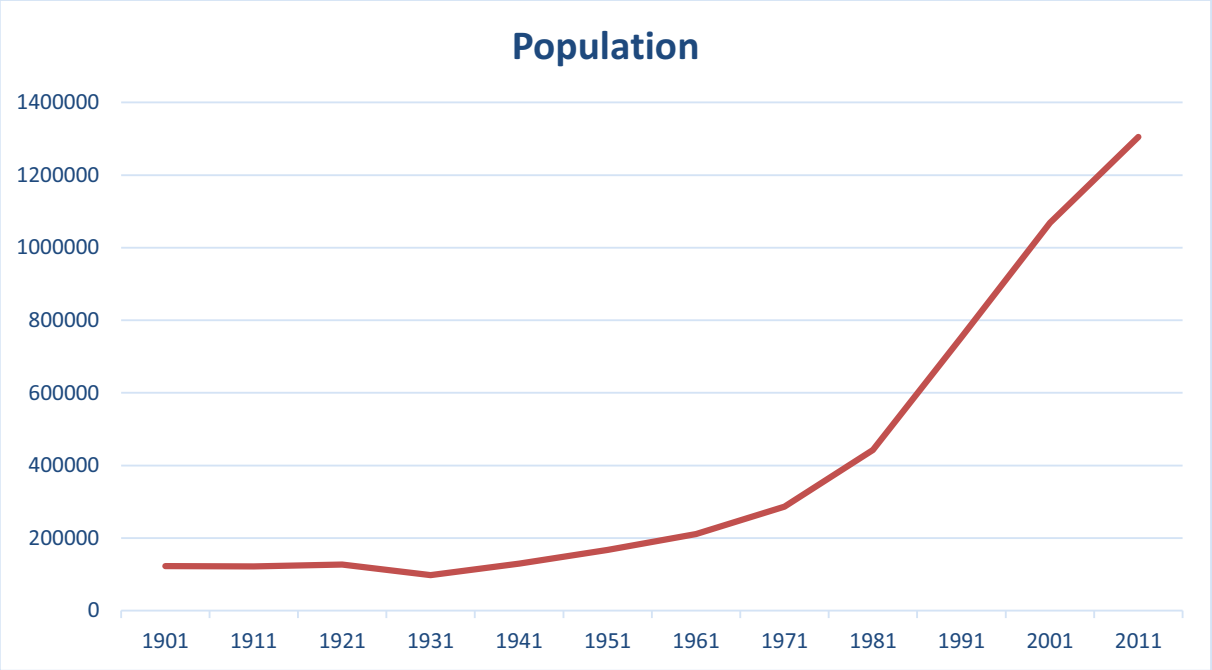
The population growth curve for Meerut city shows that there has been a significant increase in the population in the past years (Refer below given table).

Table 4.4 Decadal Population growth of Meerut M. Corp - 1901 to 2011

Year	Population	Decadal variation	Growth
1901	122981	-	-
1911	121477	-1504	-1.22%
1921	126996	5519	4.54%
1931	97580	-29416	-23.16%
1941	129309	31729	32.52%
1951	167315	38006	29.39%
Year	**Population**	**Decadal variation**	**Growth**
1961	211326	44011	26.30%
1971	286345	75019	35.50%
1981	442405	156060	54.50%
1991	753778	311373	70.38%
2001	1068772	314994	41.79%
2011	1305429	236657	22.14%

Source: Census of India, 1901 to 2011

Figure 4-1 Decadal Population growth of Meerut M. Corp - 1901 to 2011

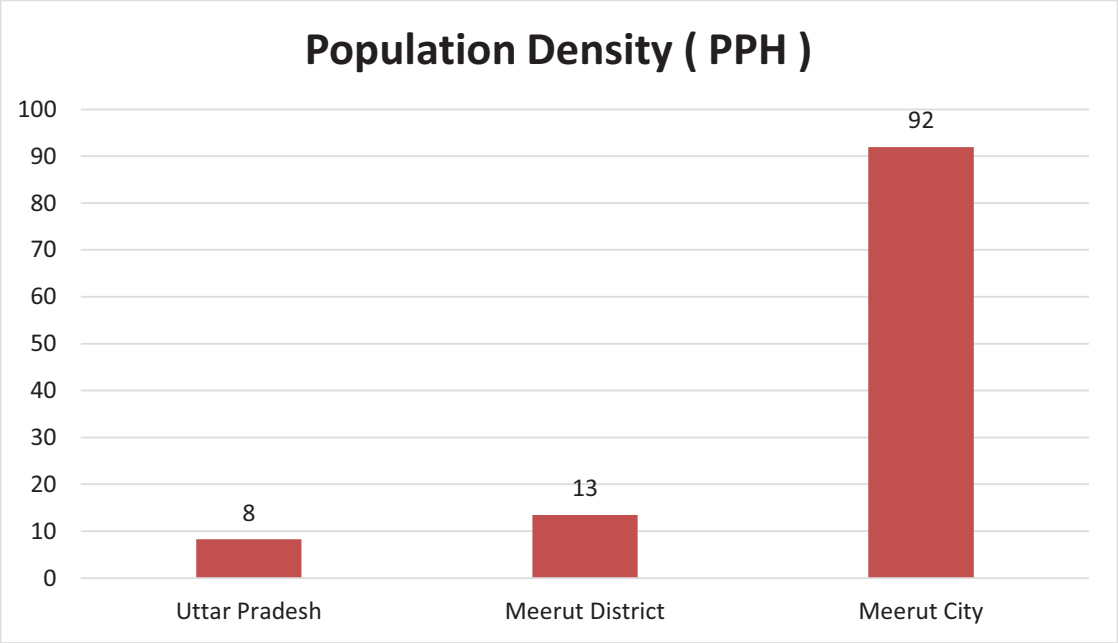


Source: Census of India, 1901 to 2011

4.2.1 Density of Population

The total area of Meerut Nagar Nigam as per census 2011 is 141.94 Sq km. accordingly its density is 92 Persons Per Hectare (PPH). The population densities of Uttar Pradesh state, Meerut district and Meerut city is given in the figure below:

Figure 4-2 Population density of Uttar Pradesh, Meerut district and Meerut city - 2011



Source: Census of India, 2011

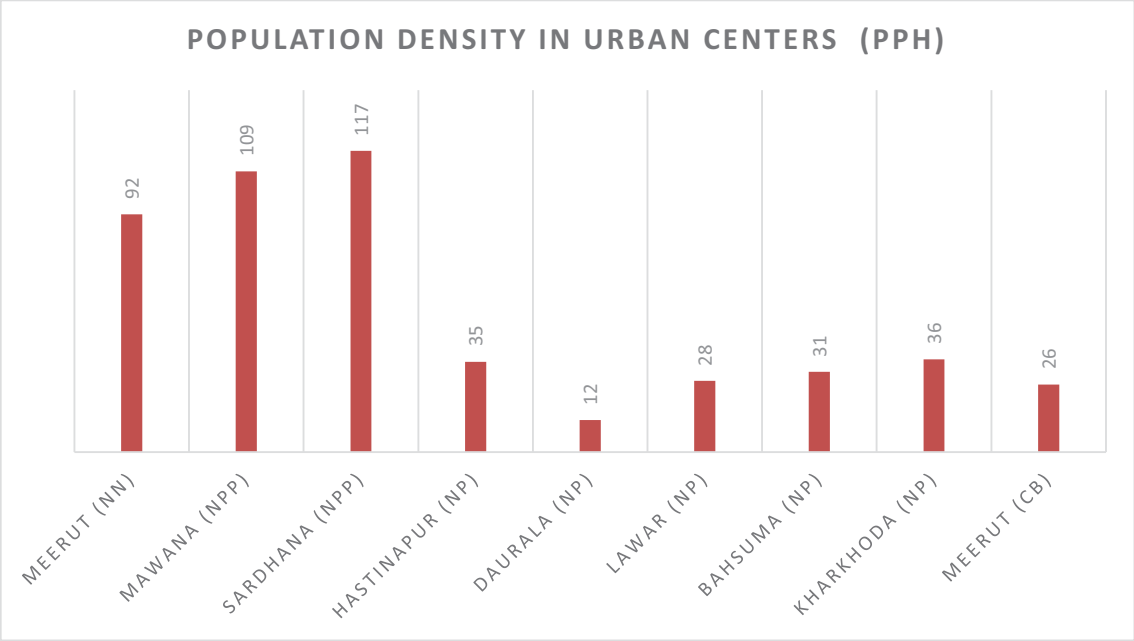
The population density details of Meerut and other urban centers within the AoI is given below. Sardhana NPP is having highest population density with 117 PPH followed by Mawana NPP (109 PPH) and Meerut NN (92 PPH). The least population density is for Daurala (12 PPH).

Table 4.5 Population density details of urban centres within the AoI - 2011

Urban center	Population (2011)	Area (Ha)	Population density (PPH)
Meerut (NN)	1305429	14194	92
Mawana (NPP)	81443	750	109
Sardhana (NPP)	58252	500	117
Hastinapur (NP)	26452	757	35
Daurala (NP)	19776	1600	12
Lawar (NP)	22024	800	28
Bahsuma (NP)	11753	379	31
Kharkhoda (NP)	14364	400	36
Meerut (CB)	93312	3567	26

Source: Census of India, 2011

Figure 4-3 Population densities of urban centres within AoI



Source: Census of India, 2011

4.3 Existing composition of age, sex, literacy and household size

4.3.1 Age profile

Age profile for the city is assessed from the census 2011 data which shows that, the majority of the population is young. The trend is similar to the national level trend where most of the population is young. In Meerut, the age of about 68% of the total population ranges between 0-35 years and about 33% of total population ranges between 10 to 25 years of Age. It is a strong indication, which highlighted that Meerut has a valuable youth crowd that could play an important role in the future economic development of the city.

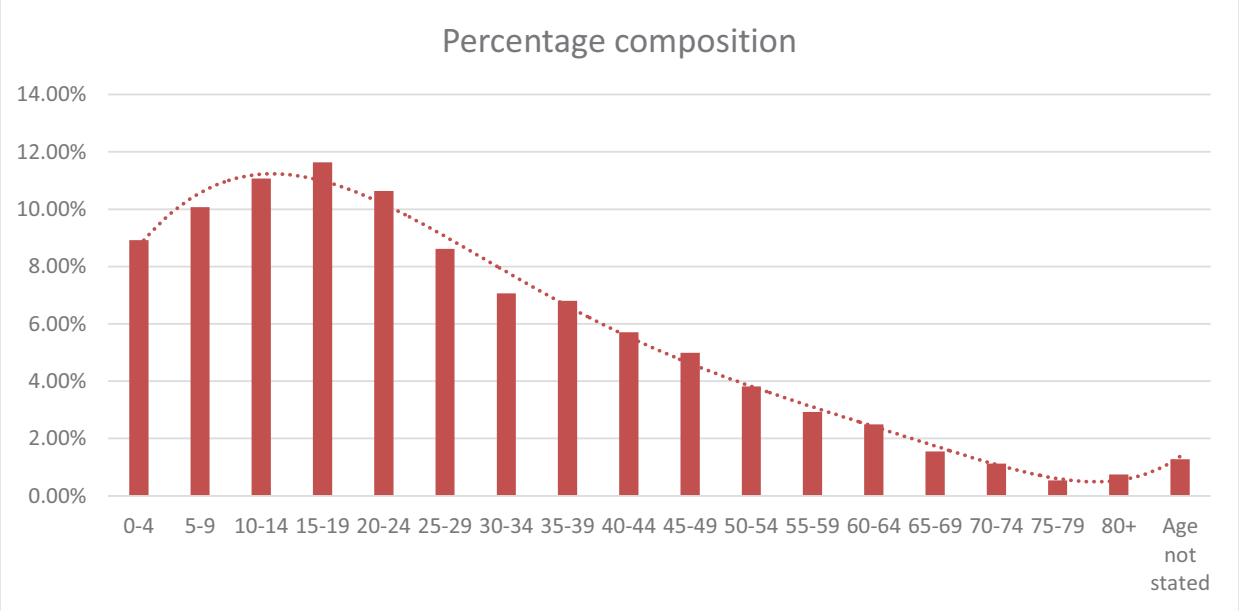
Table 4.6 Age profile of Meerut city - 2011

Age slab	Percentage composition
0-4	8.92%
5-9	10.07%
10-14	11.07%
15-19	11.63%
20-24	10.63%
25-29	8.62%
30-34	7.06%
35-39	6.80%
40-44	5.71%

Age slab	Percentage composition
45-49	4.99%
50-54	3.82%
55-59	2.93%
60-64	2.49%
65-69	1.55%
70-74	1.12%
75-79	0.54%
80+	0.75%
Age not stated	1.28%

Source: Census of India, 2011

Figure 4-4 Age profile of Meerut city - 2011

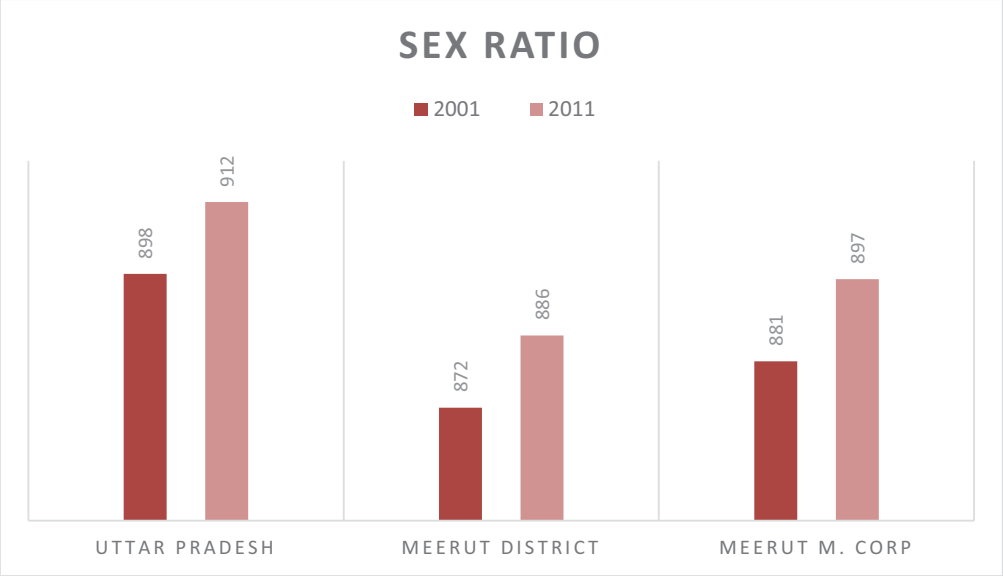


Source: Census of India, 2011

4.3.2 Sex Ratio

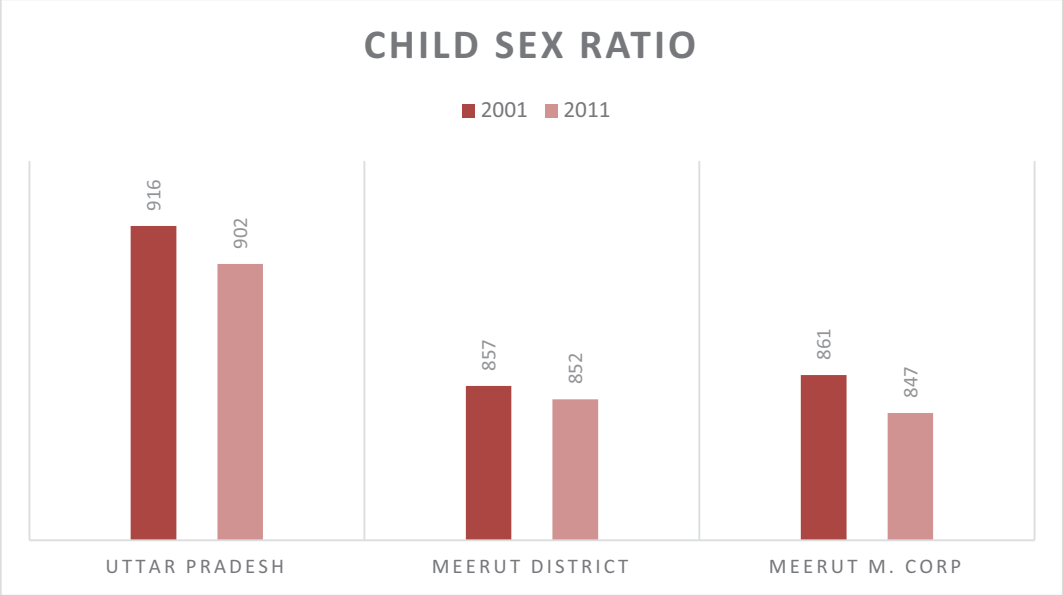
Sex ratio is one of the major social indicators of any city or district. Sex ratio of Meerut city increased from 881 in 2001 to 897 in 2011. As per Census 2011, the sex ratio of Meerut district stands at 886, lower than the state sex ratio of 912 and that of India which is 943.

Figure 4-5 Decadal change in the sex ratio of Uttar Pradesh, Meerut district and Meerut city -2001 & 2011



Source: Census of India, 2011

Figure 4-6 Decadal change in the child sex ratio of Uttar Pradesh, Meerut district and Meerut city – 2001 & 2011



Source: Census of India, 2011

The child sex ratio is defined as number of female children ranging 0-6 years per 1000 male children ranging 0-6 years. Both Meerut city and district is showing declining trend for child sex

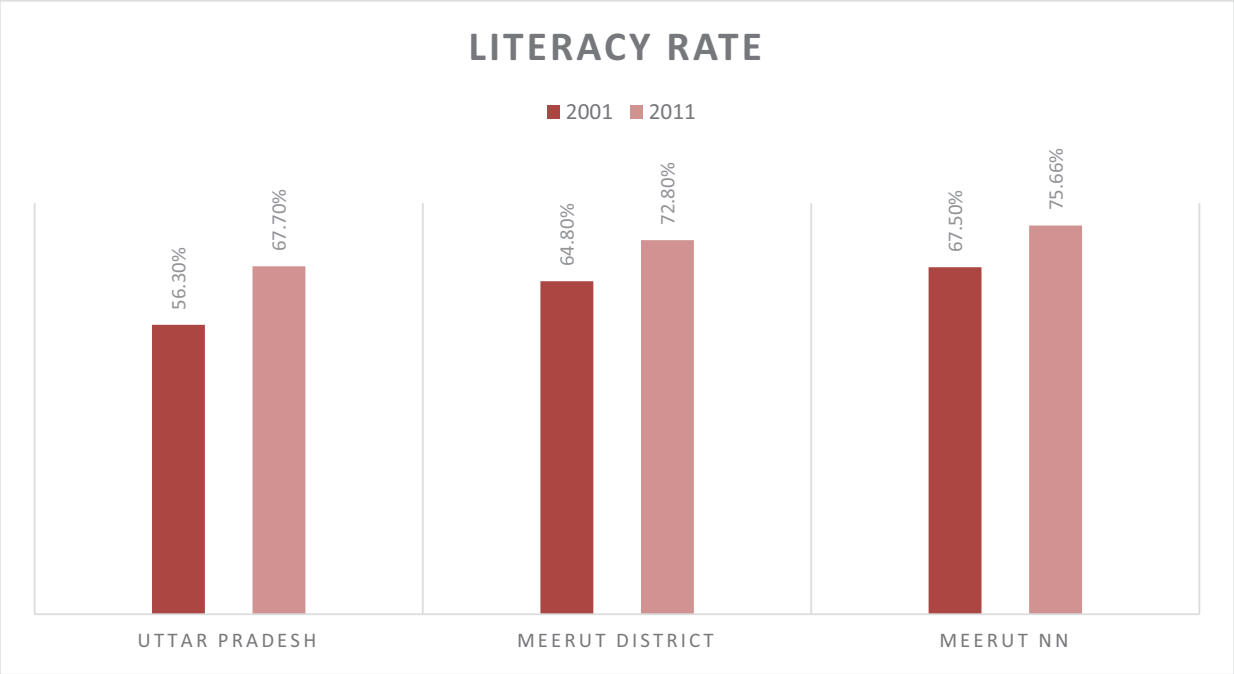
ratio similar to the state. For Meerut district, child sex ratio declined from 857 to 852 between 2001 and 2011 where as for the city it reduced from 861 to 847.

4.3.3 Literacy rate

As per census 2011, literacy rate of Meerut city is 75.66%, which is higher than the state average of 67.70 %. In comparison with 2001, the overall literacy rate increased in 2011 with an improvement in both male and female literacy rates.

As per census 2011, at district level, the literacy rate of Meerut district was 72.8%

Figure 4-7 Decadal change in the child sex ratio of Uttar Pradesh, Meerut district and Meerut city – 2001 & 2011

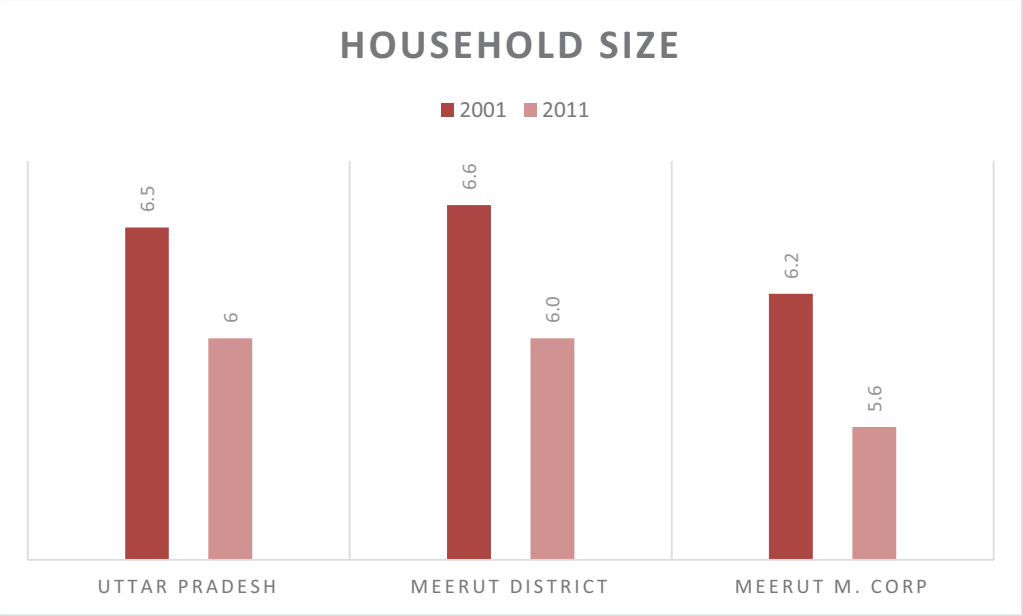


Source: Census of India, 2011

4.3.4 Household size

The numbers of households in Meerut city increased from 171142 in 2001 to 232144 in 2011, experiencing a decadal growth of about 36%. There has been substantial decrease in the household size in Meerut city i.e., from 6.2 in 2001 to 5.6 in 2011. City's household size is on the lower side in comparison with household size at state and district levels.

Figure 4-8 Decadal change in the household size of Uttar Pradesh, Meerut district and Meerut city – 2001 & 2011



Source: Census of India, 2011

4.4 Recent trend through natural increase and migration

According to Annual health survey report of Uttar Pradesh the crude birth rate increased from the year 2010-13. The crude death rate is constant from year 2010-2012 and slight decrease in the year 2013. The infant mortality rate decreased from year 2010-13 which shows improvement in health infrastructure because of various schemes implemented by the government in state. Natural growth rate decreased from year 2010-2013 as indicated in the below given table. According to 2011 census data Meerut is at 62nd position in case of infant mortality rate.

Table 4.7 Year wise health indicates responsible for population growth

	2010-2011	2011-2012	2012-2013
Crude Birth Rate (%)	24.6	24.3	23.9
Crude Death Rate (%)	6.4	6.4	6.3
Infant Mortality Rate (%)	56	52	50
Natural Growth Rate (%)	18.2	17.0	17.7

Source- Annual Health Survey Report (UP)

4.5 Existing density pattern within town

The total Population of Meerut Nagar Nigam is 13,05,429 and area of Meerut Nagar Nigam as per census 2011 is 14,194Ha. Accordingly the density of Meerut NN is density is 91.9 Persons

per Hectare (PPH) which is less than the standard of 200-250PPH for Metropolitan cities like Meerut. Meerut NPP comprise of about 38% of the total population of district.

4.6 Existing composition on the basis of economic status

Meerut metropolitan area does not have any settlements in the form of slums, but many such settlements have developed as form of unauthorized grounp of kutcha/pucca houses, which lacks with basic infrastructure facilities. These settlements are mostly in the southern part of the city. There is extreme density of population, lack of public facilities like water supply, sewerage, wase disposal, street lighting etc. In these settlements, most of the people belong to the economically weaker sections. Providing basic facilities and amenities in all these slums is a very complex task.

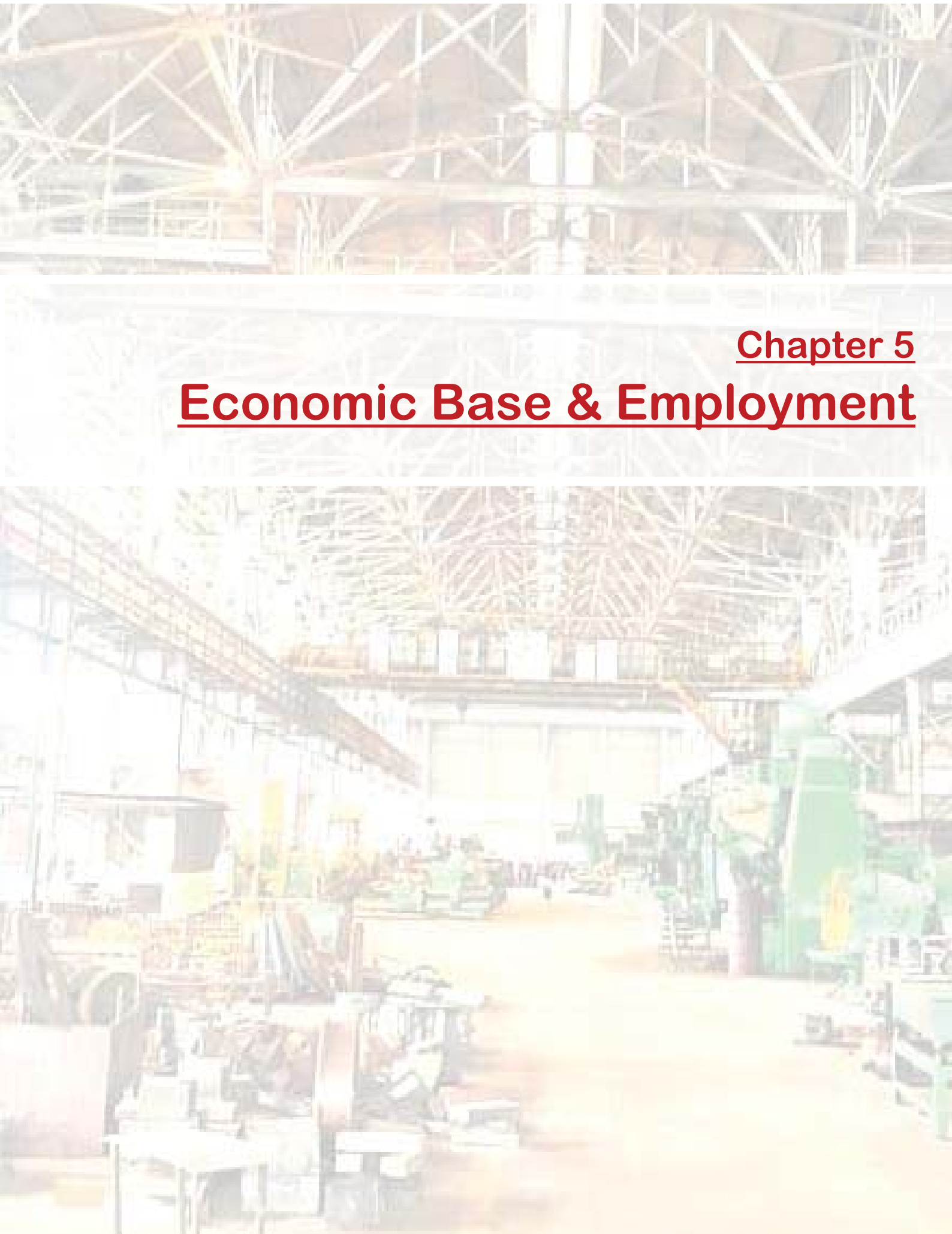
Many effective steps have been taken for the betterment of these slums by the government but at the same time these slum areas are expanding also. Following steps can be followed in form of policy for the improvement of these slums:

- In all housing schemes, 15% residential plots/buildings can be reserved for low income group and workers engaged in informal sector and building construction work. The authority itself should develop housing schemes for low income group on priority basis and private developers should also be encouraged to develop residential colonies in these areas.
- Efforts should be made to provide loans on easy terms for construction and improvement of buildings in slum areas.
- Development of infrastructure facilities in slums should be done on priority basis.

Due to lack of expected development of various land uses proposed in the Master Plan 2021, the existing problems of the city have become worse. Traffic problem has increased due to non-implementation of proposal in the Master Plan of Traffic and Transport. There are frequent traffic jams in the city at various locations. The environment of the city has been polluted due to non-implementation of proposals for parks and open spaces. Due to lack of proper development in the industrial sector, the economic base of the city has weakened. The lack of infrastructure facilities has increased due to the development of many unauthorized and unplanned residential areas in the southern area of the city due to social security, apathy towards planned development, poverty and other reasons. Due to the continuous spread of commercial activities along the main roads in all parts of the city and the increasing trend of using the roads by them, many such problems have arisen, for which the determination of alternative policies is very necessary.

4.7 Conclusion

From the analysis of the past and existing population it is concluded that the population of the city is increasing at constant rate from 1991 to 2011 as the census of India. In 2001 the population of Meerut is 1068772 and in 2011 the population reaches to 1305429. There is a gap of 236657. The decadal growth rate of Meerut Municipal Corporation is 22.14%. The highest percentage in age profile is falling under the age group of 15 to 19. Sex ratio of Meerut Municipal Corporation is also improved from year 2001 to 2011. As per 2011 census there are 80 wards in the Meerut municipal corporation area. Density of Meerut nagar nigam is 92PPH as per 2001 census.



Chapter 5
Economic Base & Employment

Chapter 5. Economic Base and Employment

Meerut is one of the industrial towns of importance as well as an agricultural area with a few pockets that are not suitable for the purpose of crop plantation. As the city is near to delhi, it is a good site for making industries. Works of handlooms and even scissors industry has been going on since the older days. Some of the prominent industries in the city are textile, tyres, sugar, transformer, chemicals, distillery, paper, and engineering, sports good and publishing. Some of the industries like IT and ITes have good growth potential. Some famous pharmaceutical companies have their presence in Meerut such as Bestochem, Mankind Pharma, perk Pharmaceuticals, etc. The region is one of the country's most flourishing regions for sports goods manufacturing.

5.1 Workforce at base date

As per census 2011, there were 4,07,274 number of workers registered in Meerut city from a total population of 13,05,429. Work force participation ratio (WFPR) in Meerut city is 31 %, which means for every 100 person in the city about 31 people are employed in some economic activites. The WFPR increased from 26% to 31% between 2001 and 2011

Table 5.1 Workforce participation ratio of Meerut city - 2001 & 2011

Year	Total workers	Total Population	WFPR
2011	4,07,274	13,05429	**29.50%**
2001	2,75,880	10,68,772	**28.00%**

Source: Census of India

Work force participation ratio among men is about 50% while that among women is only about 11% in Meerut. The tables below indicates the absolute numbers of existing workers and gender wise distribution of workers active in the Municipal Corporation jurisdiction area of Meerut city in 2011

Table 5.2 Workforce in Meerut city - 2011

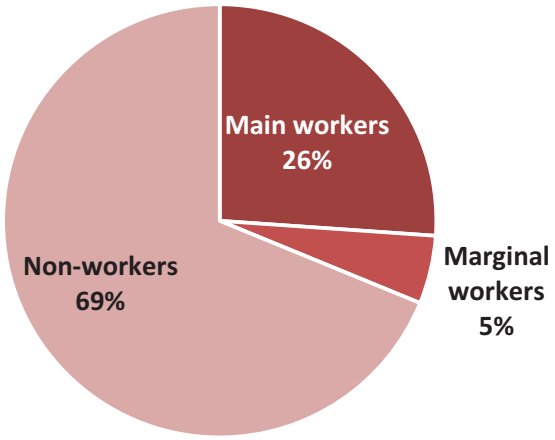
City	Total workers	Main workers	Marginal workers	Non-workers
Meerut city	407,274	340,730	66,544	898,155

Source: Census of India

Table 5.3 Workforce (gender wise distribution) in Meerut city-2011

City	Total workers		Main workers		Marginal workers		Non workers	
	Males	Females	Males	Females	Males	Females	Males	Females
Meerut city	3,41,008	66,266	296,839	43,891	44,169	22375	315,724	477,168

Figure 5-1 Workers distribution in Meerut city - 2011



5.2 Existing occupational structure

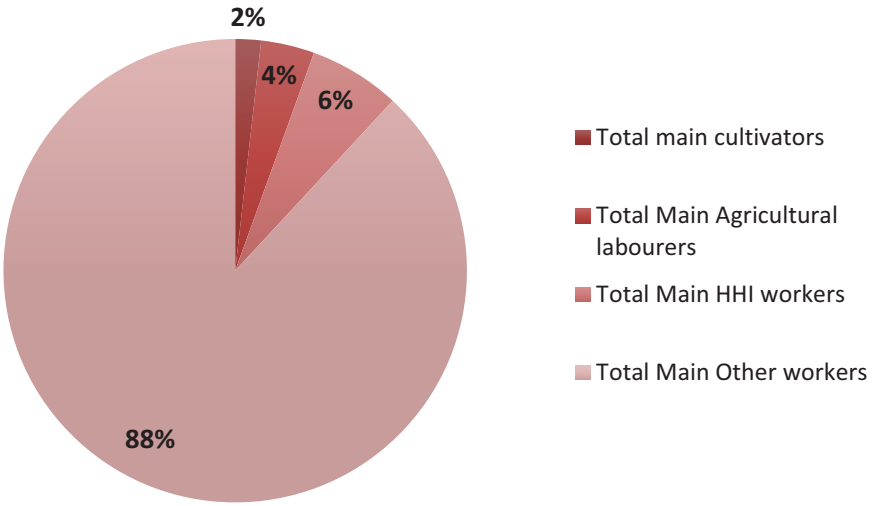
The Table below indicates the classification of main workers based on their occupational structure. The workers classification includes cultivators, agricultural laborers, household industry workers and workers engaged in other activities. Below given figure represents the percentage distribution of various classes of main workers in Meerut city. As per census 2011, about 8% of main workers were engaged in agriculture related activities and about 6% are engaged in household industrial activities. 88% of the total main workers were engaged in activities other than agriculture and household industries.

Table 5.4 Main worker classification in Meerut city - 2011

City	Total main cultivators	Total Main Agricultural labourers	Total Main HHI workers	Total Main Other workers
Meerut city	6,106	12,719	21,710	3,00,195

Source: Census of India

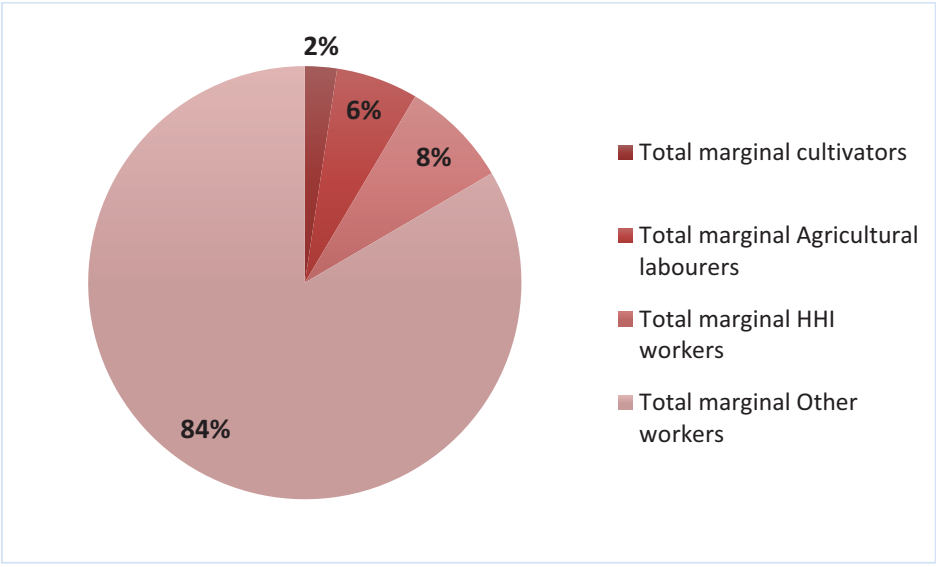
Figure 5-2 Main workers classification in Meerut city - 2011



Source: Census of India

Similarly the distribution of marginal workers in the city of Meerut during 2011 is given below. As per census 2011, about 8% of marginal workers were engaged in agriculture related activities and about 8% are engaged in household industrial activities. 83% of the total marginal workers were engaged in activities other than agriculture and household industries.

Figure 5-3 Marginal workers classification in Meerut city - 2011



Source: Census of India, 2011

Table 5.5 Marginal workers classification in Meerut city - 2011

City	Total marginal cultivators	Total marginal Agricultural labourers	Total marginal HHI workers	Total marginal Other workers
Meerut city	1,591	4,079	5359	55,515

Source: Census of India

5.3 Recent trends in employment and occupational structure

Meerut is one of the important industrial towns of western Uttar Pradesh famous for handloom works and scissors industry from olden age. Meerut was one of the first cities in northern India where publishing was set up during the 19th century. It was a major center of commercial publishing during 1860s and 1870s. Meerut district is famous all over the world for its sports goods industries. The district is the second largest producer of sporting goods and accessories in India after Jalandhar. Sports goods is the product selected for Meerut under the Uttar Pradesh Government's One District- One Product scheme.

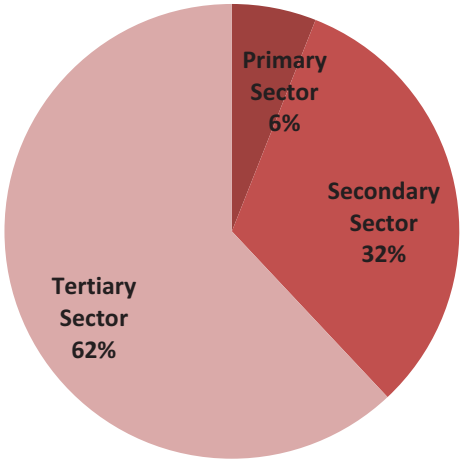
Table 5.6 Number of workers employed and projected in Meerut Urban area

Number of workers employed and projected in Meerut Urban area									
Sr. No.	Commercial Class	1991		2001		2011		2021	
		Total worker	Percentage	Total worker	Percentage	Total worker	Percentage	Total worker	Percentage
1	**Primary Sector**	23,912	10.25	26,230	8	27,030	6	28,520	4
	1.1 Cultivators	7,358	3.15	6,557	2	6,758	1.5	7,130	1
	1.2 Agricultural Labour	12,905	5.53	13,935	4.25	13,514	3	14,260	2
	1.3 Animal Husbandry	3,649	1.57	5,738	1.75	6,758	1.5	7,130	1
2	**Secondary Sector**	71,399	30.61	1,01,641	31	1,44,163	32	2,35,290	33
	2.1 Household Industries	12,178	5.22	17,213	5.25	24,778	5.5	39,215	5.5
	2.2 Industry other than household industry	51,109	21.91	72,133	22	1,01,365	22.5	1,63,990	23
	2.3 Construction	8,112	3.84	12,295	3.75	18,020	4	32,085	4.5
3	**Tertiary Sector**	1,37,929	59.14	2,00,004	61	2,79,317	62	4,49,190	63
	3.1 Trade and commerce	49,174	21.08	68,854	21	96,860	21.5	1,53,295	21.5
	3.2 Transport and communication	15,197	6.52	24,591	7.5	36,041	7.5	60,605	8.5
	3.3 Other industries	69,784	29.9	1,06,559	32.5	1,46,416	32.5	2,35,290	33
	3.4 Marginal workers	3,810	1.64	_	_	_	_	_	_
	Total Number of workers	**2,33,240**	**100**	**3,27,875**	**100**	**4,50,510**	**100**	**7,13,000**	**100**
	Population	**8,49,799**		**1170985**		**15,27,156**		**2300000**	
	Ratio of worker participation		**27.44**		**28**		**29.5**		**31**

Source: Consultant Analysis

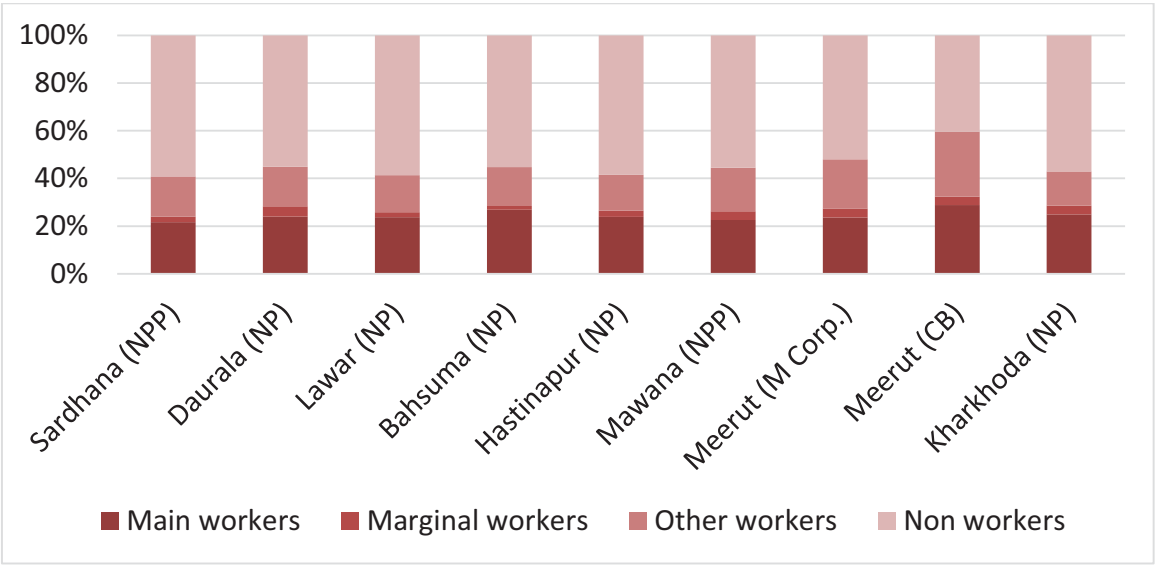
As per census 2011, economic activity share of Meerut Nagar Nigam is more inclined towards service sector than secondary and tertiory sector. The sectoral share of workers is indicated in the below given figure. From the past trends the recent trends in employment sector is calculated. The total number of workers in merrut and there occupational structure is mentioned in above given table. From the past trends it is estimated that the work force participation ratio is increasing at a constatnt rate and this is due to the the increase in industrial activities in Meerut.

Figure 5-4 Occupational Structure of Meerut 2011



Source: Census of India, 2011

Figure 5-5 Occupational Structure in urban Centers



Source: Census of India, 2011

The occupational structure in the urban center is mentioned in the above given figure. In this the share of main workers, marginal workers, other workers and non-worker is mentioned. The percentage of marginal workers is less in Mawana and Sardhana and percentage of non-workers are high in lawar. Low progress is reported in terms of modern economic development. Some key challenges in Meerut include:

- Land acquisition and land availability
- Inability of Meerut to perform well irrespective of many old industrial clusters.
- Comprehensive policy for MSMEs is almost nonexistent

5.4 Informal sector employment

In most towns or cities in India, there is a large sector of the economy that is called the informal sector or the unorganized sector. Although the informal sector makes up a significant portion of the local economy, it is sometimes stigmatized as troublesome and unmanageable; the Meerut city is no exception to the same. As Meerut is a very important industrial town it will lead to the development of informal sector in the area. The handloom industry the production of sports goods these all are included in small and micro industries so they also lead to informal sector development. Meerut is home to the highest number of artisanal work.

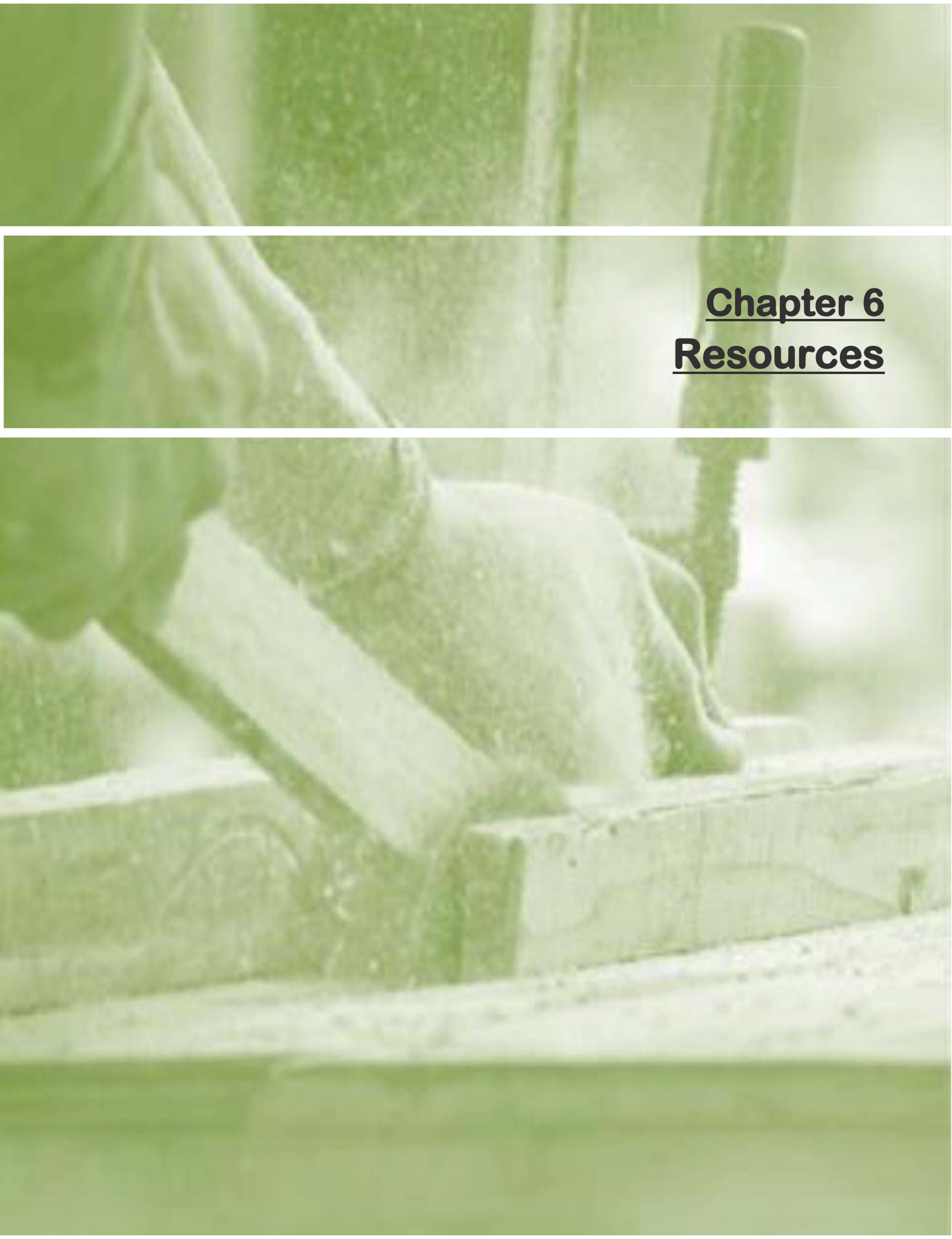
Leather footwear-products, devices and rugs by hand, zari work and textile hand printed, are few of the common artisanal works prevalently in the area. Workers in the informal sector earn an unstable and comparatively low income, and don't have access to basic protections and services. Informal businesses also lack the potential for growth, trapping employees in menial jobs indefinitely. On the other hand, the informal sector can allow a large proportion of the population to escape extreme poverty and earn an income that is satisfactory for survival.

Street Vendors:

Street vending is an exceptionally normal and unavoidable monetary action in metropolitan India. It is the biggest casual area which upholds the occupation of metropolitan poor. Road merchants offers types of assistance to a larger part of the metropolitan populace by selling merchandise of every day needs at cost not exactly marked items or those found in block mortar shops. Report on Conditions of Work and Promotion of Livelihoods in the informal Sector, 2007 of the National Commission for Enterprises in the informal Sector (NCEUS), recommend that the vendors‟ profit are low despite the fact that they fluctuate from one exchange to another and from one area to another". Like any remaining urban areas and towns, Meerut also has large number of street vendors.

5.5 Conclusion

In the whole Meerut Development Area, the Meerut city plays a significant role in different areas of economy in the modern times that includes trade & commerce, tourism & pilgrimage, transportation & distribution. The work force participation ratio of Meerut in 2001 is 26%, in 2011 it reaches to 31%. As per the master plan 2021 it is 31%. 88% of the total main workers were engaged in activities other than agriculture and household industries. This increase in WFPR is due to the growth of sectors like Trade and commerce, Industry and Tourism etc. in Meerut. And it is going to increase in future due to good connectivity of Meerut to the national capital Delhi and due to the natural resources present in the city.



Chapter 6
Resources

Chapter 6. Resources

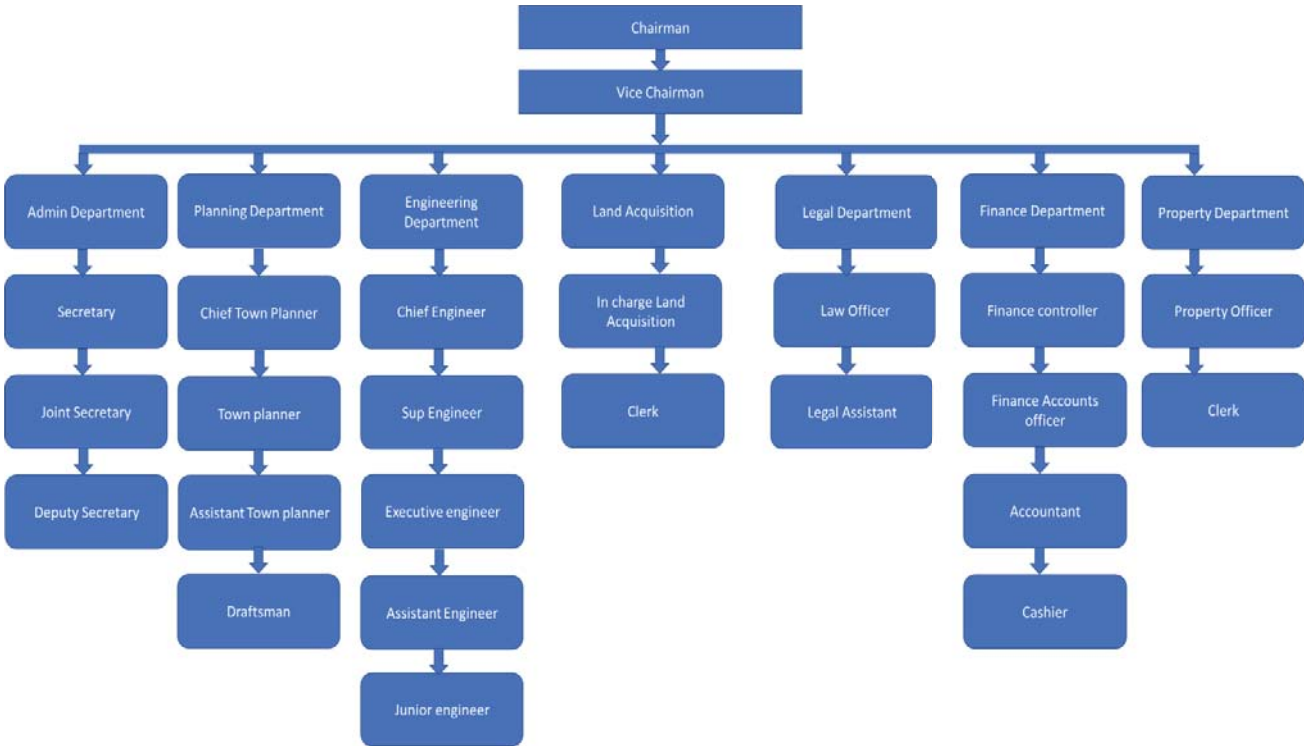
6.1 Manpower and technical capacity

This chapter covers a broad assessment of the existing institutional framework for urban development in Meerut. The various agencies involved in urban management in Meerut are primarily:

Meerut Development Authority (MDA)

MDA was formed under the vide notification dated 3 Novemenr, 1976 published under vide G.O. 6218/37-2-4 D.A/72 and is governed under the Uttar Pradesh Urban Planning and Development Act, 1973. The primary ojective of MDA is preparation and implementation of development plan for the development area, which includes the jurisdiction of the Meerut Municipal Corporation and surrounding villages. It also executes projects of regional and to execute these projects, the Act empowers MDA to levy development charges and allows them to raise resources through borrowings from banks and other financial institutions. The organizationsl structure is given below:

Figure 6-1 Organizational Structure of Meerut Development Authority



Source: Meerut Development Authority

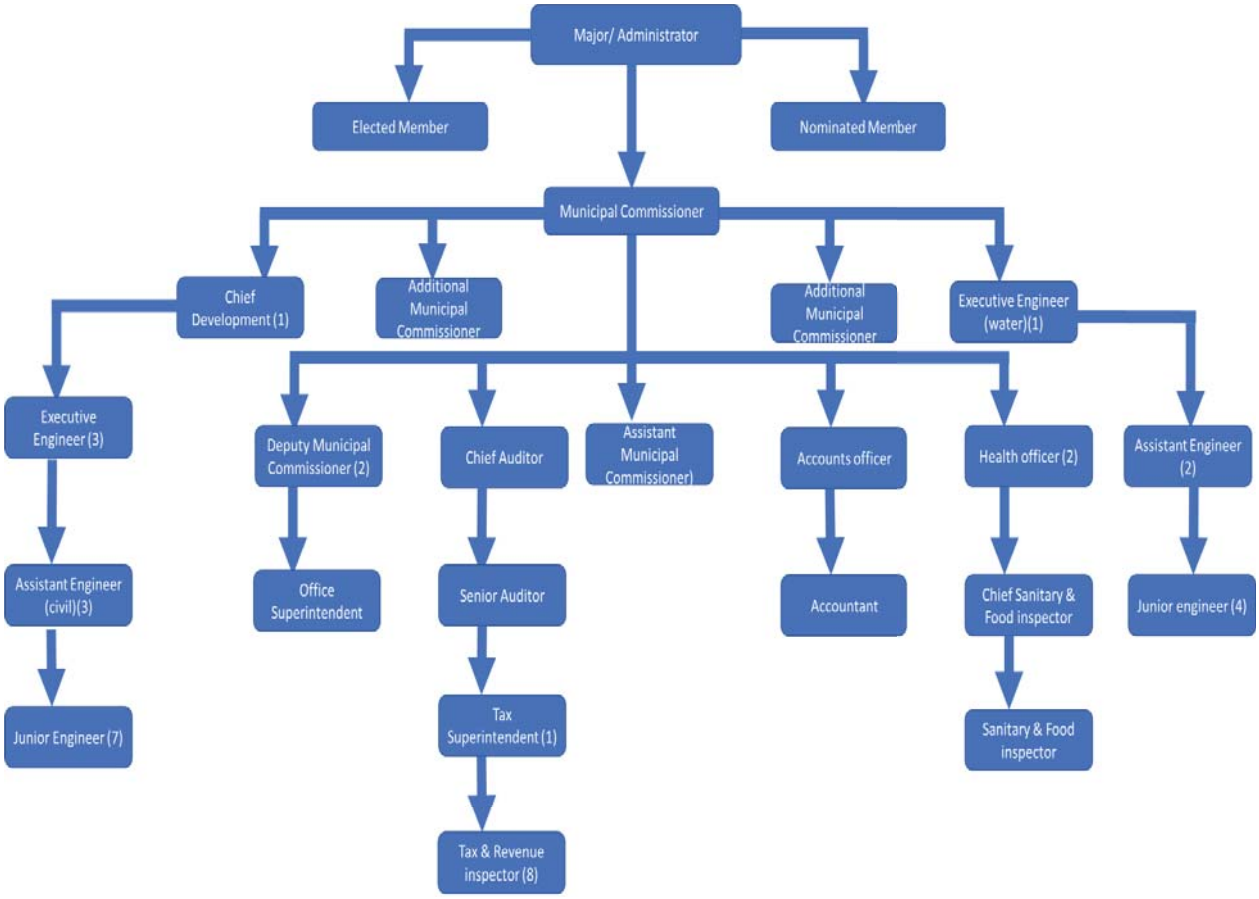
Meerut Municipal Corporation (MMC)

MMC Carries out a wide range of functions related to provision and maintenance of core civic services and ensures a panned and orderly development of the city. The corporation also collects fees and revenue from various users carries out obligatory and discretionary functions as per the provision of the Municipal Corporation Act-1959, section 114 and 115. The corporation has a democratically elected leadership from the constituencies within the geographic jurisdiction of the corporation boundaries. The Act has been amended in 1994 by UP Act 12 of 1994, UP Act 26 of 1995 and incorporates the amendments made in 74th CAA, 992 including the functions given in 12th schedule of the constitution. The administration is headed by an Executive Officer as Commissioner of Municipal Corporation. The Governing body or elected wing of Meerut Nagar Nigam consists of a Mayor and 90 ward councillors (refer below figure for the Organizational Structure).

Some of the important services/duties undertaken by MMC for the citizens include:

- Sanitation and Cleaning of Public streets and Drains
- Cleaning of Public Toilets and Urinals
- Repair and Maintenance of Drains
- Emancipation of dead dogs
- Measures to control spreading of contagious/infectious/ infectious disease 9e.g. sprating of antibacterial spray using gun spray- basically diseases like Malaria etc.)
- To remove the heaps of Garbage
- To remove the debris
- Sanitation and cleanliness of Garbage Houses
- Other works related to garbage disposal
- Cattle catching (catching rowdy animals)
- Dog catching (catching stray/ aggressive dogs)
- Disposal of dead bodies of dead cown and buffaloes
- Maintenance of parks
- Securing the green trees in public places
- Release proceedings of dangerous and dried trees

Figure 6-2 Organizational Structure of MMC



The MMC has following main department:

- **Accounts Department (Lekha Vibhag):** Accounts Department is headed by Chief Finance cum Accounts Officer. There is one Assistant Officer and two Accountants in the department.
- **Health Department (Swasth Vibhag):** Health Department is headed by the City Health Officer (CHO). There are many additional City Health Officers, Veternity Doctors, and Zonal Health Officers etc. It also covers sanitation Department which is headed by Chief Sanitary Inspector (CSI) who is assited by many sanitary inspectors, Safai Nayak, Sweepers.
- **Engineering Department (Nirman Vibhag):** Engineering department is headed by Chief Engineer (CE) who is assisted by three Executive Engineers, three Assistant Engineer and Six Junior Engineers. Department also has many supervisors, clerks, mates, and peons. The city also has Street Lighting Department which is headed by Inspector, Street Lighting (ISL). Solar Lights, LED Lights are used in major parts of the city.

- **Water Works Department (Jalkal VIbhag):** This department is headed by General Manager, supported by three Assistnat Engineers, two Junior Engineers.
- **Taxation Department (Kar VIbhag):** Taxation Department is headed by Chief Tax Assessment Officer (CTAO). There are two Tax Assessment Officer and four Tax Supretendents in the department. Department also has many Assistant Tax Superitendents, Revenue Inspectors, Clerks and Peons.

Uttar Pradesh State Road Transport Corporation (UPSRTC)

Passenger road transport services in the state of UP started on 15th May,1947 with the operation of bus service on the Lucknow-Barabanki route by the erstwhile UP Government Roadways (refer below figure for the organizational structure).

Subsequently, during the fourth Five Year Plan, the erstwhile UP Government Roadways was rechristened as Uttar Pradesh State Road Transport Corporation (UPSRTC) on 1-6-72 under the provisions of the Road Transport Act, 1950 with the following objectives:

- For the development of the road transport sector correlated to which would be the overall development of trade and industry.
- For coordination of the road transport services with other modes of transport.
- For providing or causing the provision of an adequate, economical and efificently coordinated road transport service to the residents of the state.

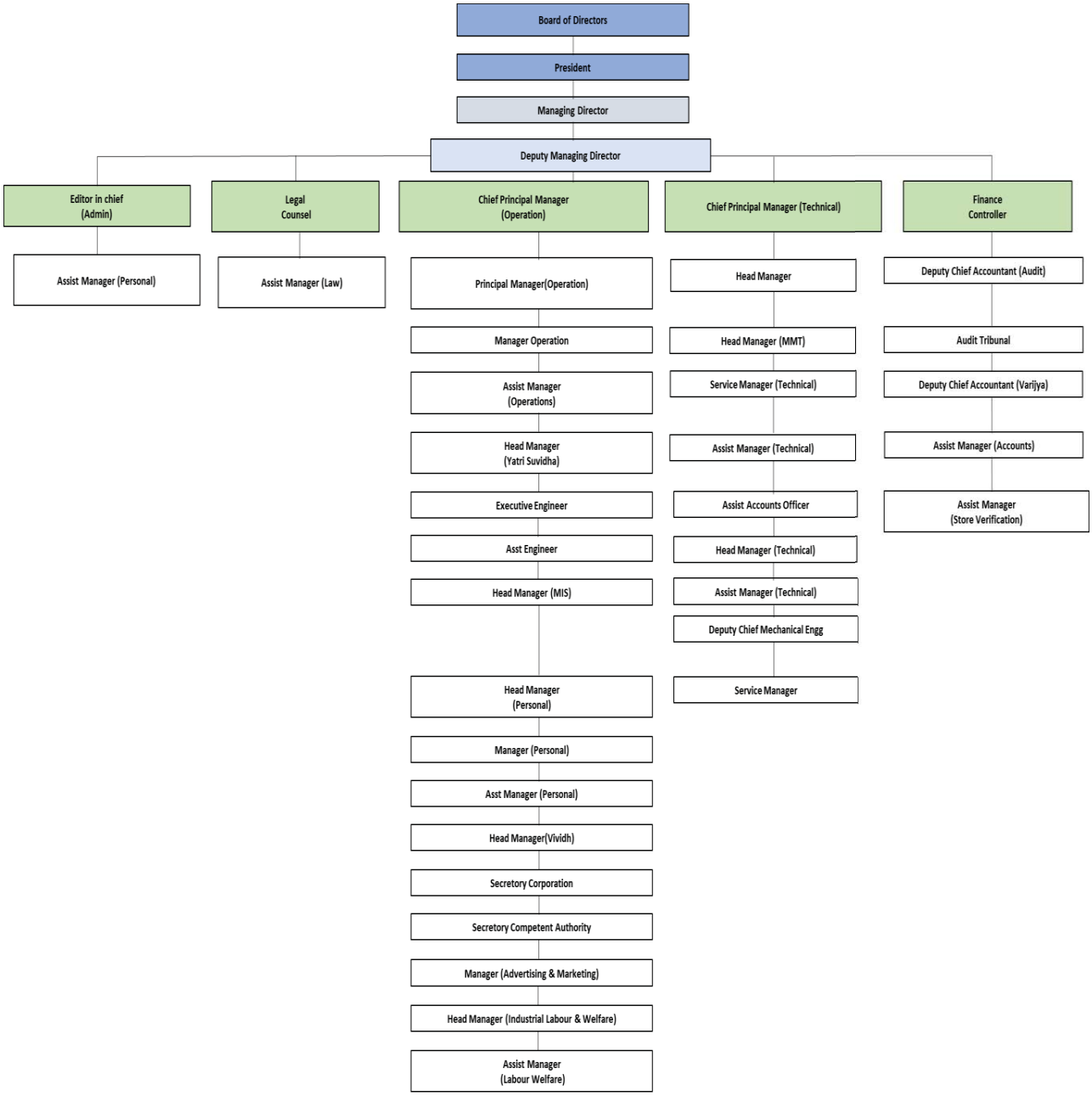
The corporate office of the corporation is situated at Lucknow. The corporation has been reconstituted on 30.10.03 with the services in the state of Uttranchal firming a separate corporation.

For efficient functioning the corporation has been divided into 20 regions of which 1 region operates urban and sub urban services. Each region has a regional workshop where major repair and maintenance work as well as assembly reconditioning work is performed.

Each region has been further divided into operational units called depots. The total number of depots in the corporation is 115, including car-section. Each depot has a depot wotkshop attached to it to provide supportive maintenance facilities.

Its buses which operate over 4.1 million kilometres catering to the travel nees of over 1.8 million people and earning over INR 119.8 million every day. Provision of adequalte, efficient, well coordinated, comfortable and economical services to our passesngers, while earning enough for self-sustennce and growth.

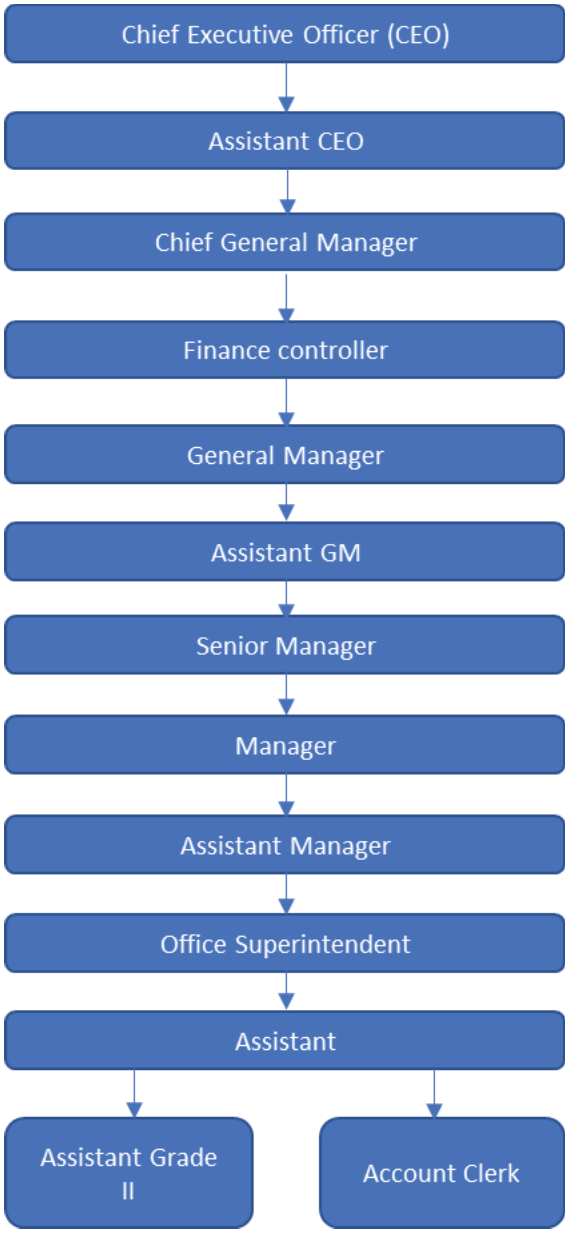
Figure 6-3 Organizational Structure of UPSRTC



Uttar Pradesh State Industrial Development Corporation (UPSIDC/UPSIDA)

UPSIDA, a public sector undertaking of the Corporation of Uttar Pradesh spearheading the development of industrial infrastructure in the State since last 56 years Pioneer in development of industrial areas, townships ans industrial parks on more than 42,000 acres of land which houses more than 26,000 units providing direct employment to lakhs of people (refer below figure for organizational structure of UPSIDA).

Figure 6-4 Organizational Structure of UPSIDA



UPSIDA provides contempory infrastructure facilities and services to entrepreneurs as prime objective. To cater to the modern demands of High-tech quality infrastructure, the Corporation has ventures into many new areas by developing High-tech integrated industrial townships like Trans Ganga and Saraswati High-tech cities and also sector specific industrial areas like Plastic City, Agro Parks, Apparel Park, Leather Park, among others.

Due to the specialised infrastrucre and amenities provided by UPSIDC, thousands of small, medium and large industrial units have been setup in our various industrial Areas including

Amul, Alien Cooper, Asian Painfs, Arihant Industries, Avon Cycles, Ambuja, Agro, Bhushan Steel, Bharat Electronics Lts, Birla Cement, Bisleri, Coca-Coal, ConAgro, Central Electronics Ltsd. Dabur, Dalmia, Escorts, Gyan Diary, Nerolac, Hawkins, Hindustan Petroleum, Indo-Gulf Fertilizers, JP Industries, Piaggio, Nirma, Pepsi, Parle, Raunaq, Raymonds, Rathi Steels, Red Chief, Nerolac, TELCO, TATA Fertilizer, Dey's Medical, Precision Tools and Casting etc. to name a few.

Uttar Pradesh Jal Nigam

Jal Nigam is responsible for planning, design and construction of water supply, sewerage networks, drainage, storm water drainage in the city where as its operation and maintenance rests with Meerut Nagar Nigam. UP Jal Nigam was created under the Water Supply and Sewerage Act 1975.

District Urban Development Authority (DUDA)

DUDA has a structural network of Resident Community Volunteers (RCVs) Neighbourhood Groups (NHGs), Neighbourhood Committes (NHCs) and Community Development Societies (CDS) in the urban slum areas of Meerut. The functionaries of DUDA work in close association with public and private medical practitioners.

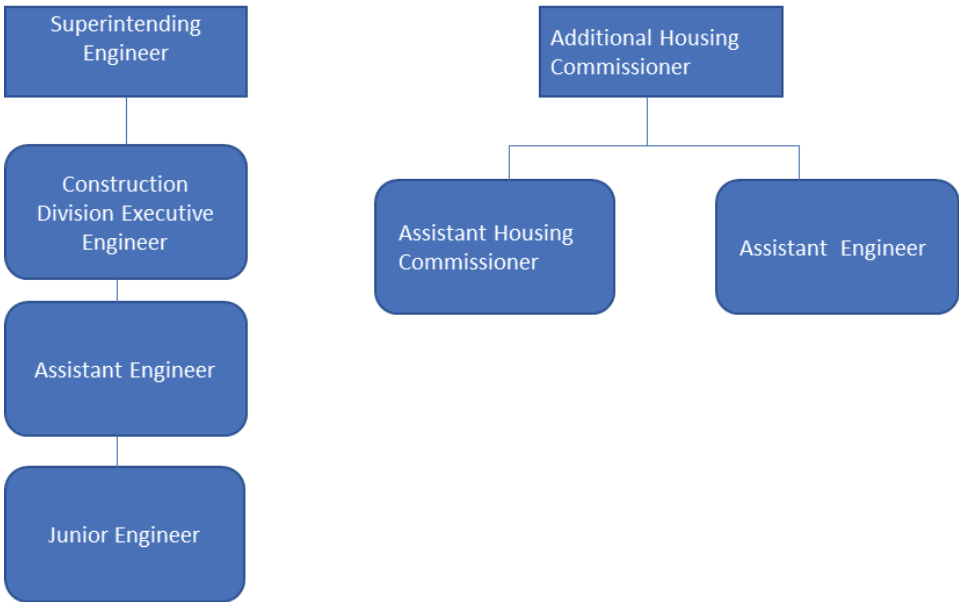
Public Works Department (PWD)

PWD in Meerut is responsible for the construction, maintenance and repair work of government buildings, roads, bridges and construction of pulias 9bridges) etc. outside the Municipal Limits, whereas for areas within Municipal Corporation limits, the MNN takes care of maintenance and reapir works. The supridendent engineer heads the PWD department and is responsible for all the executive engineer offices, which include offices at Meerut; construction Division, temporary departmental construction unit (Building), and National Highway Division.

Uttar Pradesh Housing Development Board (UPHDB)

UPHDB was set up under the Act of 1965 in April 1966. It used to implement housing and development projects, prior to the establishment of MDA. It was also functioning as the prime executing/ planning agency in Meerut. In order to ensure quick implementation of projects, MDA started undertaking development works (inclusing building constructing activities). Much of the tasks of UPHDB have been taken over by MDA though UPHB still continues to undertake certain housing projects for various income groups in Meerut (refer below figure for organization structre).

Figure 6-5 Organizational Structure of UPHDB



Town and Country Planning Department (TCPD)

The Town and Country Planning Department (TCDP), UP is the government department for the preparation of master plan for cities and towns, along with Zonal Development Plan. Department is also technical advisor to the Government for all matters related to Urban Planning. It also provides guidance and technical assistance to all the Development Authorities, Regulated Areas and Urban Local Bodies of the State of Uttar Pradesh. Other than this the department is also involved in framing out the State Housing Policies, Building Bye Laws, Zoning Regulations with reference to the administrative control of Housing and Urban Planinng Department of the State of Uttar Pradesh. The department also assists the government for creation of new Regulated Areas, Developemnt Authorities and Special Area Development Authorities etc. The ojective of the Town and Country Planning Department is to guide physical development of towns through preparation of master plans, sector/zonal plans, schemes along with providing technical advice to various government departments, local bodies and other government agencies.

Uttar Pradesh Pollution Control Board (UPPCB)

UPPCB has been constituted under the rules of the CPCB for implementation, supervision and monitoring activities pertaining to Centrial Pollution Control Acts. The Regional office at Meerut carries out operations of Uttar Pradesh Pollution Control Board which primarily is responsible for monitoring quality of the differnet elements and environmental parameters and various enforcement measures through:

- Implementation of provisions of various Acts governing pollution control and prevention
- Implementation of Municipal Solid Waste (Management and Handling) Rules, 2006 of CPCB
- Ground Water, Ambient Air, and Compost Quality in urban areas

Prevision of Services in Meerut

Sector eise responsibility of differnent institutions involved in service provision in Meerut city by activity is presented in below table:

Table 6.1 Institutional Responsibility

Urban Infrastrucutre	Planning and Design	Construction	Operation and Maintenance (O & M)
Water Supply	UP Jal Nigam	UP Jal Nigam	MMC
Sewerage	UP Jal Nigam	UP Jal Nigam	MMC
Drainage	UP Jal Nigam	UP Jal Nigam	MMC
Storm Water Drainage	UP Jal Nigam	UP Jal Nigam	MMC
Solid Waste Disposal	MNN	MNN	MMC
Municipal Roads (including Flyovers)	PWD, MNN, MDA, CB, UP Bridge Cooperation	PWD, MNN, MDA, CB, UP Bridge Cooperation	PWD, MNN, CB

Private Sector Particiaption

The private sector has minimal role to play in provision of basic infrastructure facilities here. The below table presents participation of private sector in provision of basic urban infrastructure facilities:

Table 6.2 Role of Private Sector in Urban Infrastructure Services in Meerut

Urban Infrastructure	Role of Private Sector
Water Supply	Private Parties supply through water tankers
Sewerage	-
Storm Water Drainage	-
Solid Waste Disposal	• Environ Organic Works and Supplier (EOWS) has been contracted by the Meerut Municipal Corporation (MMC) to operate the land fill site • Unorganised involvement of rag pickers facilitating segregation of solid waste
Street Light	A private company Energy Efficiency Services Limited (EESL) has been engaged by MNN to replace all the sodium lights with LED

The institutional framework for urban governance needs a major overhaul if cities are to play a dynamic role in the development. The present institutional structure is not very effective.

One of the major challenges of urban infrastructure development and delivery of basic public services is the problem of fragmented and/or overlapping institutional responsibilities (intra-departmental coordination at the ULB). It is important to ensure that responsibilities converge at the office of the empowred. Another challenge is institutional capacity of staff at ULB level. A radical change is needed if city is to provide a socio-economic environment that will be inclusive, contribute to better quality of life, and sustain rapid growth.

The executive head of the city needs to be empowred to run an efficient system of delivering urban services in a manner which harnesses agglomeration economics, minimizes congestion diseconomics, and creates a socio-economic environment that attracts investment and generates livelihoods whilst adhering to the constitutional requirements of a duly elected legislative body, the third tier of government.

Chapter 7
Housing

Chapter 7. Housing

7.1 Analysis of existing situation

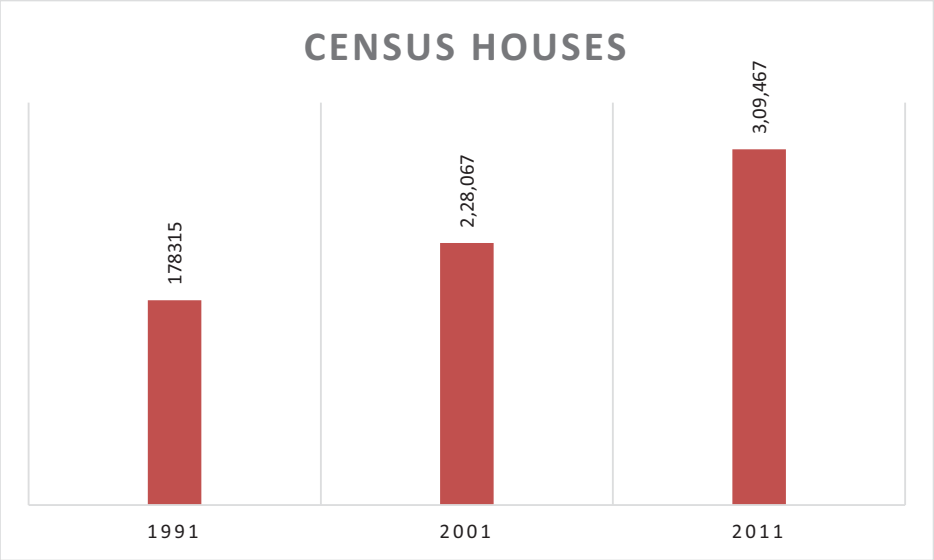
The section provides a detailed over view of the existing housing scenario in the city in terms of present housing stock, and quality of housing. Housing status of the city can be assessed from the available census data. The houses based on census can be categorized on the basis of its use, type of roof material, floor material, number of rooms and ownership status. There has been a gradual increase in the number of census houses from 1991 to 2011 as indicated in the figure below.

Table 7.1 Details of census houses in Meerut city - 1991 to 2011

Year	1991	2001	2011
Census houses	1,78,315	2,28,067	3,09,467

Source: Census of India, 2011

Figure 7-1 Details of census houses in Meerut city - 1991 to 2011 (Nagar Nigam Area)



Source: Census of India, 2011

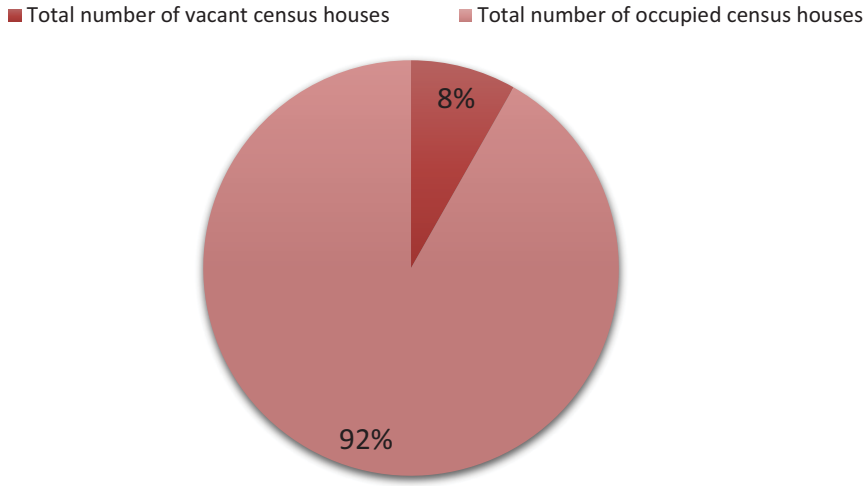
The details of the existing housing stock in the city as per census of India, 2011 is given below

Table 7.2 Existing housing stock in Meerut city - 2011

Total number of census houses	Total number of vacant census houses	Total number of occupied census houses
309,467	25,424	2,84,043

Source: Census of India, 2011

Figure 7-2 Existing housing stock in Meerut city - 2011



Source: Census of India, 2011

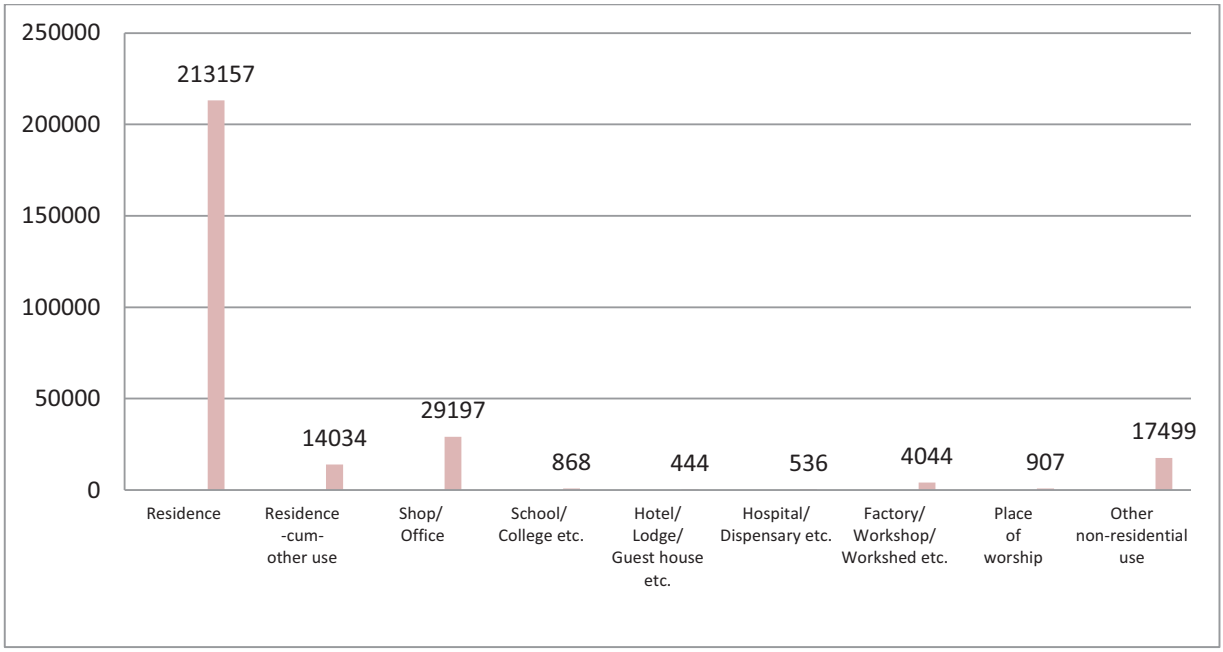
As per census of India, 2011, out of 3,09,467 total houses in Meerut city, 284043 (92%) are occupied and only 25424(7%) are vacant. Out of total occupied houses, around 69% is residential and around 5% belongs to residential-cum-other uses. Also, 29197 i.e. 9% of the total occupied houses are shop/ office.

Table 7.3 Occupied housing use in Meerut city - 2011

Occupied Census Houses used as								
Residence	Residence -cum- other use	Shop/ Office	School/ College etc.	Hotel/ Lodge/ Guest house etc.	Hospital/ Dispensary etc.	Factory/ Workshop/ Workshed etc.	Place of worship	Other non-residential use
213,157	14,034	29,197	868	444	536	4,044	907	17,499

Source: Census of India, 2011

Figure 7-3 Occupied housing use in Meerut city - 2011



Source: Census of India, 2011

7.1.1 Housing Condition

As per Census of India, 2011, the quality of housing stock in Meerut city shows that around 65% of the total houses are in good condition and 33% is in livable condition. Only 2% of the total housing stock is in dilapidated condition.

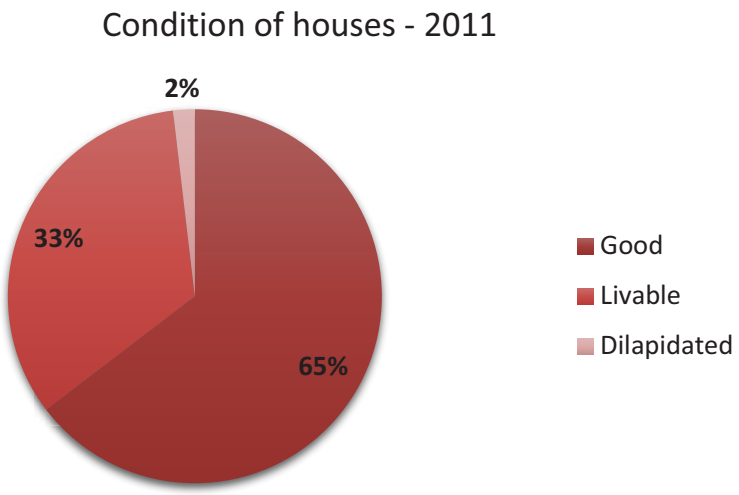
Figure 7-4 Conditions of census houses in Meerut city-2011

Condition of census House (Excluding Locked/Vacant Houses)											
Total	Total			Residence				Residence-Cum other use			
	Good	Liveable	Dilapidated	Total	Good	Liveable	Dilapidated	Total	Good	Liveable	Dilapidated
2,27,191	146828	76116	4247	213157	138756	70363	4038	14034	8072	5753	209

Source: Census of India, 2011

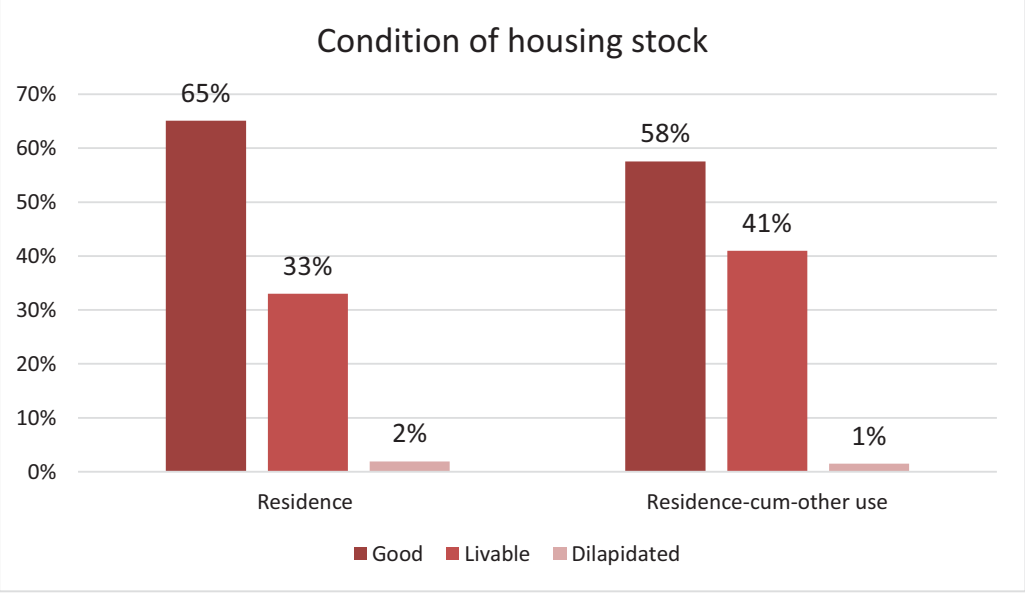
Further analysis of quality of residential and residential-cum-other use houses shows that around 65% of the residential and around 58% of the residential-cum-other used houses are in good conditions. About 33% of the residential and around 41% of residential-cum-other use houses are in livable conditions. The housing stock facing dilapidation among residential and residential-cum-other houses are only 2% and around 1% respectively.

Figure 7-5 Condition of census houses in Meerut city - 2011



Source: Census of India, 2011

Figure 7-6 Condition of housing stock in Meerut city - 2011



Source: Census of India, 2011

7.1.2 Type of housing stock and quality of housing material

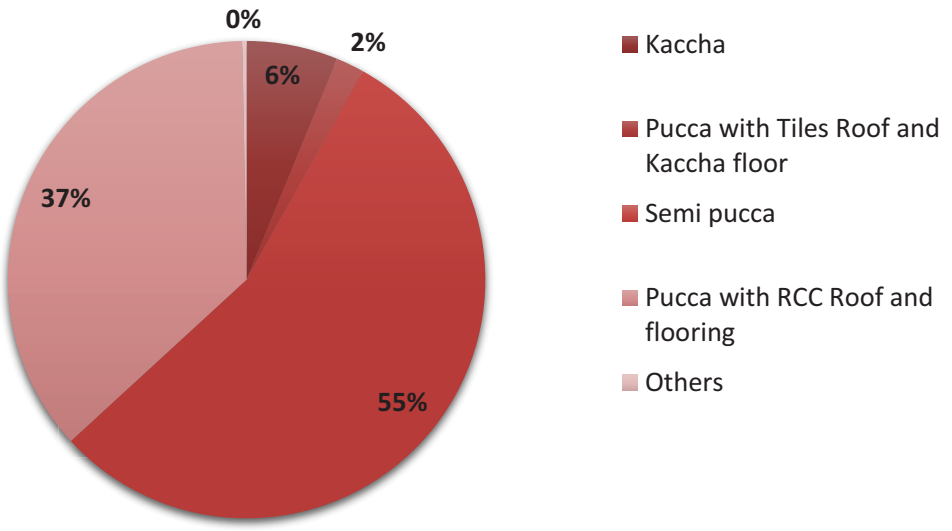
The following table shows the distribution of census houses in the city based upon the type of materials used for its roof and walls.

Table 7.4 Type of housing in Meerut city - 2011

	Kaccha	Pucca with Tiles Roof and Kaccha floor	Semi pucca	Pucca with RCC Roof and flooring	Others	Total
Meerut (M Corp.)	17359	5,374	154581	102564	808	280,686

Source: Census of India, 2011

Figure 7-7 Type of housing in Meerut city - 2011



Source: Census of India, 2011

7.1.3 Ownership

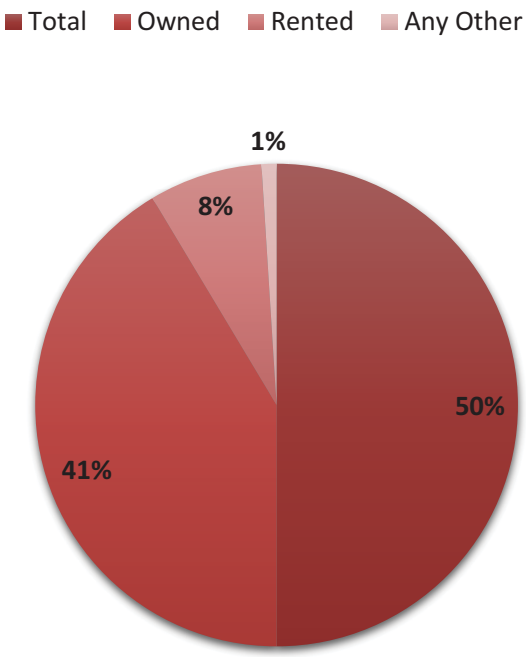
The below Table, indicates the households having different number of dwelling rooms. The household having no exclusive rooms are considered to be contributor of housing shortage in the city which is around 1.4% (3221) of the total number of households.

Table 7.5 Ownership status of houses in Meerut city - 2011

Ownership status	Total number of households	Households having number of dwelling rooms						
		No exclusive room	One room	Two rooms	Three rooms	Four rooms	Five rooms	Six rooms and above
Total	**228,991**	3,221	70,912	69,498	43,258	24,930	8,779	8,393
Owned	**189,592**	2,479	49,368	58,484	39,114	23,596	8,439	8,112
Rented	**34,803**	584	19,870	9,436	3,311	1111	275	216
Any Other	**4,596**	158	1,674	1578	833	223	65	65

Source: Census of India, 2011

Figure 7-8 Ownership status of houses in Meerut city - 2011



Source: Census of India, 2011

The below Table indicates the number of married couples in houses with different number of dwelling rooms. As per census of India, 2011, households in which the number of married couples exceeds the number of exclusive rooms in Meerut city is around 10650 and it forms the part of housing shortage in the city.

Table 7.6 Number of married couples in houses with different number of dwelling rooms

Number of married couples in a household	Total number of households	Number of Dwelling Rooms						
		No exclusive room	One room	Two rooms	Three rooms	Four rooms	Five rooms	Six rooms and above
Total	228,991	3,221	70,912	69,498	43,258	24,930	8,779	8,393
None	16,370	1079	6,655	4,504	2,302	1127	356	347
1	161,082	1,611	58,593	50,876	28,199	13,770	4,403	3,630
2	38,299	391	4,951	12,002	9,456	6,700	2,473	2326
3	10,118	104	572	1731	2,736	2494	1104	1377
4	2358	26	110	299	446	676	327	474
5+	764	10	31	86	119	163	116	239

Source: Census of India, 2011

7.2 Contribution of public, private, co-operative sectors and self-help groups

Government schemes/projects

There are number schemes available by government for houseless population. Below table indicates the Pradhan Mantri Awas Yojna progress status in Meerut city.

Table 7.7 PMAY Scheme Progress Status

District name	Dwelling constructed during last five years	Size of the Dwelling Unit in sq.mt.	Price of house	Mode of payment	No of Household Benifited
Meerut	9616	30	3,80,827.00	Online PFMS portal	9,616

Source: DUDA

7.3 Recent trends in housing

Currently the prices of properties in Meerut start from around Rs.2.10Lacs while the average prices of properties in Meerut are Rs.62.48Lacs. There are nearly 5 localities in Meerut which are showing an upward price trend these are Jagrati Vihar, Rohta Road, Shatabdi Nagar Daurala

Masuri Road, Meerut Bypass Road while 3 localities are witnessing a downward trend. Overall, Meerut has a price trend which is moving up since the last six months. Based on the primary reconnaissance surveys few observations regarding recent trends in housing is given below:

- The number of good condition houses increased. At the same time proportion and number of liveable houses saw an increasing trend.
- Increase of construction along the roads.
- Increase of housing in other towns like Mawana, Sardhana and Hastinapur.

7.4 Housing demand assessment for significant stages

Housing demand for any town is the function of various factors such as migration, condition of existing houses, slums and their living conditions, moreover, the natural growth of the town, number of rental houses and their tenure etc.

Housing demand assessment is done by considering the shortage at the base year and the demand due to natural increase of population. The census data for the year 2011 is considered for estimating the housing shortage. The various categories considered includes dilapidated houses, kutcha houses, houses with no exclusive rooms, rental houses and the houseless households. The number of households under each category is shown in the below given table.

Table 7.8 Existing shortage in housing of Meerut city - 2011

S. No	Category	Number of households
A	Dilapidated Houses	4,247
B	Kuccha Houses (based on roof and wall material)	17,359
C	Houses with No. of Married couples exceeding No. of exclusive rooms	10,650
D	Rental Houses	34,803
E	Houseless Households	453
	Total	**67,512**

7.5 Conclusion

As per 2001 census there are total of 3,09,467 census houses in Meerut. Out of which 25,424 are vacant. This is due to the dilapidated conditions of these houses. These vacant houses increase the housing shortage. There is need to increase the number of house as the population is increasing so the demand of housing will also get increased. The details of housing in towns of Mawana NP, Hastinapur NP, Sardhana NPP needs to be analysed further to get more insights regarding the housing situation.

Chapter 8

Traffic & Transportation

Chapter 8. Traffic and Transportation

8.1 Analysis of existing network

8.1.1 Roads

Major roads in Meerut suffer from traffic congestion due to various inadequacies in the transportation network. These include capacity constraints, poor definition of road hierarchy, encroachments, on-street parking, poor traffic management, inefficient safety and security, inadequate enforcement of traffic rules, lack of pedestrian zones, and inadequate street furniture. Upcoming developments along already congested roads, encroachment by hawkers, and unauthorized on-street parking add to the problems by increasing traffic and parking issues in the area.

The total length of National Highways (NH) and State Highways (SH) is observed to be 356 km. Almost all major roads in Meerut Corporation jurisdiction are constructed and maintained by Meerut Municipal Corporation, whereas, highways and other district-level roads belong to the Public Works Department (PWD). Internal roads, constructed in colonies, are under the responsibility of the Meerut Development Authority (MDA) and respective private developers.

Total road maintained by Municipal Corporation is around 920 km, of which kutcha (un-surfaced) roads account for nearly 50% of the total road length.

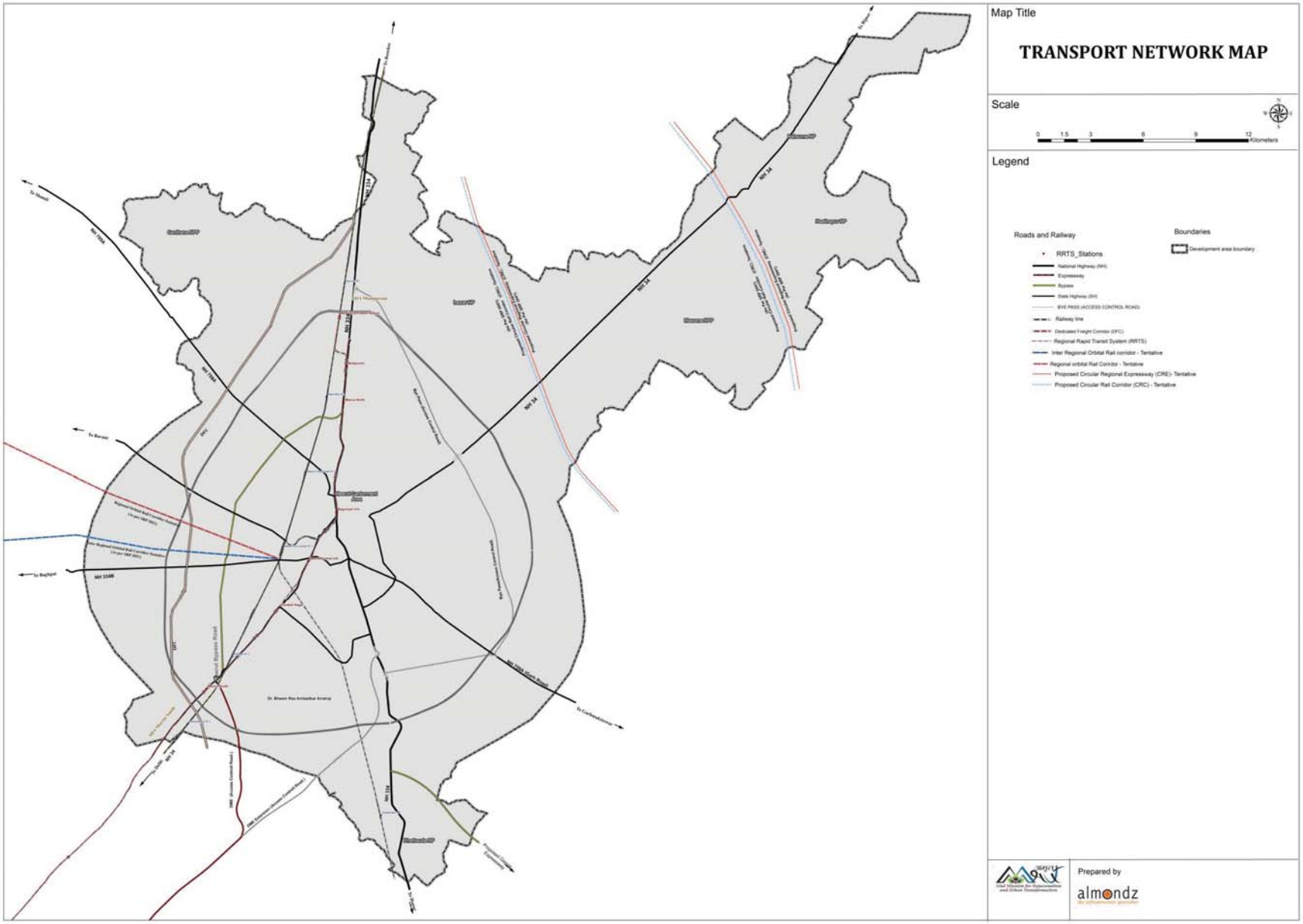
Table 8.1Category wise distribution of roads

Road type	Road length (in Km)	Percentage of road length	Juristriction
National Highway	12	0.90%	NHAI
State Highway	243	19.10%	PWD
District roads	100	7.90%	PWD
Municipal roads	920	72.10%	M. Corp.
TOTAL	1275	100%	

Source: Consultant's Estimate

Four national highways (NH-34, NH-334, NH-334B, and NH-709A) pass through Meerut. Upper Ganga Canal Expressway, which passes through the outskirts of the city, is under development. These roads primarily cater to the 'through traffic', though 'destined traffic' also accounts for a certain percentage. Other inter-city roads include Meerut-Bidaun (SH-18), Garhmukteshwar-Meerut-Karnal (SH-82), Meerut-Bagpath-Sonipat (SH-14), Meerut-Bijnor-Pandi road, and Meerut-Parikshitgarh Road.

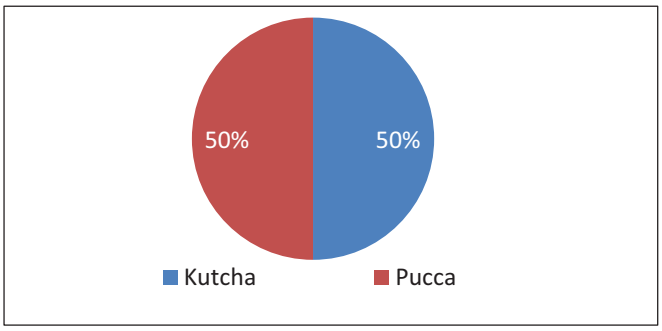
Map 16 Road network map of Meerut AoI highlighting different categories of roads



Important city arterial road includes Delhi Road, Abu Lane, Mawana road, Budhana Road, and Baghpat Road. These roads primarily cater to the large volume of intracity traffic.

The total road maintained by Municipal Corporation is around 920 km, of which kutcha (un-surfaced) roads account for nearly 50% of the total road length.

Figure 8-1 Percentage bifurcation by the condition of the road



Source: Estimated by consultant

8.1.2 Airport

The nearest major airport to Meerut city is Indira Gandhi International airport in New Delhi which is around 86 Kms away from the city by road. B.R. Ambedkar Airport of Meerut spread over 47 kilometers is presently is used for functional purposes only, such as refueling, unloading, etc. After being shelved off a couple of times in the past couple of years, the state government has given the 'go ahead signal' for finalizing and carry on with the development of this airstrip into a full-fledged national airport. Jolly grant airport in Dehradun is around 181 Km away from the city by road.

8.1.3 Railway

Meerut city has 3 railway stations, named Meerut Junction, Meerut Cantonment Station, and Partapur Railway Station. Of these, Meerut Junction is the major railway station in the city. It is a junction of Meerut–Bulandshahr–Khurja line and Delhi–Meerut–Saharanpur line. It lies on the Northern Railway zone of India under Delhi division. Meerut Cantonment is another major railway station in the city.

Table 8.2 Details of Rail Transit

Particular	Details
Number of the railway station	3
Length of the rail network (in km)	44
Type of rail gauge	Broad gauge
Number of yards	1

Map 17 Railway map of Meerut

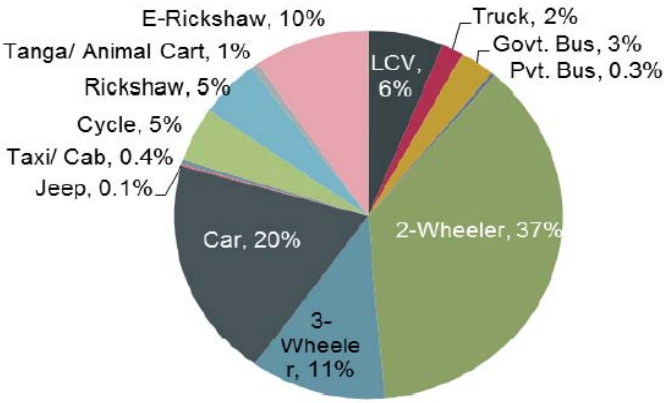
Source indianrailinfo

8.2 Existing Pattern of travel

8.2.1 Modal split

A large population in Meerut uses 2-wheeler for commuting to different places. 2-wheelers account for 37% of the total vehicular traffic in Meerut. This is followed by cars and 3-wheelers, accounting for 20% and 11%, respectively. Goods carrying vehicles, including LCV (6%) and Truck (2%), collectively account for 8% of the total traffic. Non-motorized modes, including cycles (5%), rickshaws (5%), and animal-driven carts (1%), collectively comprise 11% of the total traffic.

Figure 8-2 Modal classification in the city of Meerut



8.2.2 Vehicle registration and ownership

As highlighted in the below given table, there has been an annual average increase in the number of vehicles registered, of about 2.7% year-on-year, from 2011 to 2020. In terms of the composition of traffic, it is observed that 2-wheelers accounts for the largest share in the total registered vehicles in 2020 to 54,096 as compare to 76,323 total registered vehicles in 2019, registering a decline of 29%.

Table 8.3 Year wise vehicle registration details

Road type	*2011*	2012	2013	2014	2015	2016	2017	2018	2019	2020
Passenger vehicles										
2-wheeler	37,045	39,752	42,496	47,380	47,980	49,078	56,749	67,452	60,547	40,764
3-wheeler	842	1,410	1,440	1,247	1,057	1,243	4,140	1,750	1,127	1,334
Light passenger vehicles	7,149	7,751	7,714	8,640	9,212	9,600	11,792	12,368	12,063	10,444
Medium passenger vehicles	41	47	54	44	44	48	37	96	78	36
Heavy passenger vehicles	208	157	157	115	106	410	222	105	77	25
Goods vehicles										
Light goods vehicles	891	1,092	1,198	1,161	797	932	1,300	1,904	1,763	1,159
Medium goods vehicles	146	98	61	40	63	78	112	112	116	58
Heavy goods vehicles	563	508	349	435	610	661	900	957	485	195
Others	-	1	1	1	15	8	15	49	67	81
TOTAL	**46,885**	**50,816**	**53,470**	**59,063**	**59,884**	**62,058**	**75,267**	**84,793**	**76,323**	**54,096**

Source Vahan dashboard (updated 2020), GoI

The total number of vehicles registered has increased to 9,20,512 in 2020, from 8,66,416 vehicles in 2019.

Table 8.4 Total registered vehicles in the city

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total vehicles registered	3.44,742	395,558	449,028	508,091	567,975	630,033	705,300	790,093	866,416	920,512

Source: Vahan dashboard (updated 2020), GoI

8.2.3 Pattern of travel and critical factors

8.2.3.1 Problems of central and core areas

Mostly all the commercial areas can be seen accumulated towards the center of the city. The commercial areas have been developed in the new parts of the city along the main streets of the city. Large wholesale markets can be seen developing near Delhi road, Hapur Road, Baccha Park Junction, Garh Road, and Lohia Nagar. Even though many wholesale markets have been shifted to the outskirts of the city, the central city remains the hub of wholesale activity of textiles & garments, gold, and food grains.

In the old part of the city, Ghanta Ghar Area, Veli Bazaar, Sarafa, Budhana Gate, Lisari Gate, Lala Bazaar, and Subhash Bazaar are the main market areas which are mainly operating with residential premises on the first floor. Narrow roads across these market streets are the major reason for congestion. Encroachment by shop-owners and hawkers further narrows down the ROW, worsening the scenario. No parking provisions are provided along with these market areas. Users coming to these markets usually park their vehicles along the edges of the road, leading to haphazard traffic flow.

This indicates the need to develop Commercial Complexes to ease the traffic at these locations. Some of these narrow lanes within the market should also be pedestrianized for easy accessibility to the shops. Parking of cycle-rickshaws and e-rickshaws is one of the most important concerns near these market spaces, as they are the major reason for traffic halts in these commercial areas

Figure 8-3 Image of critical roads in the city

Source: Primary Survey 2021

8.2.3.2 Parking

With the increase in personalized motor vehicles, one of the major problems being faced by urban centres today is the acute shortage of parking space. In the absence of adequate organized parking space and facilities, valuable road space is being used for vehicular parking. Parking in the city can be broadly divided into the following categories:

i. Along streets;
ii. In planned commercial centers;
iii. In residential colonies; and
iv. In the large institutional complexes.

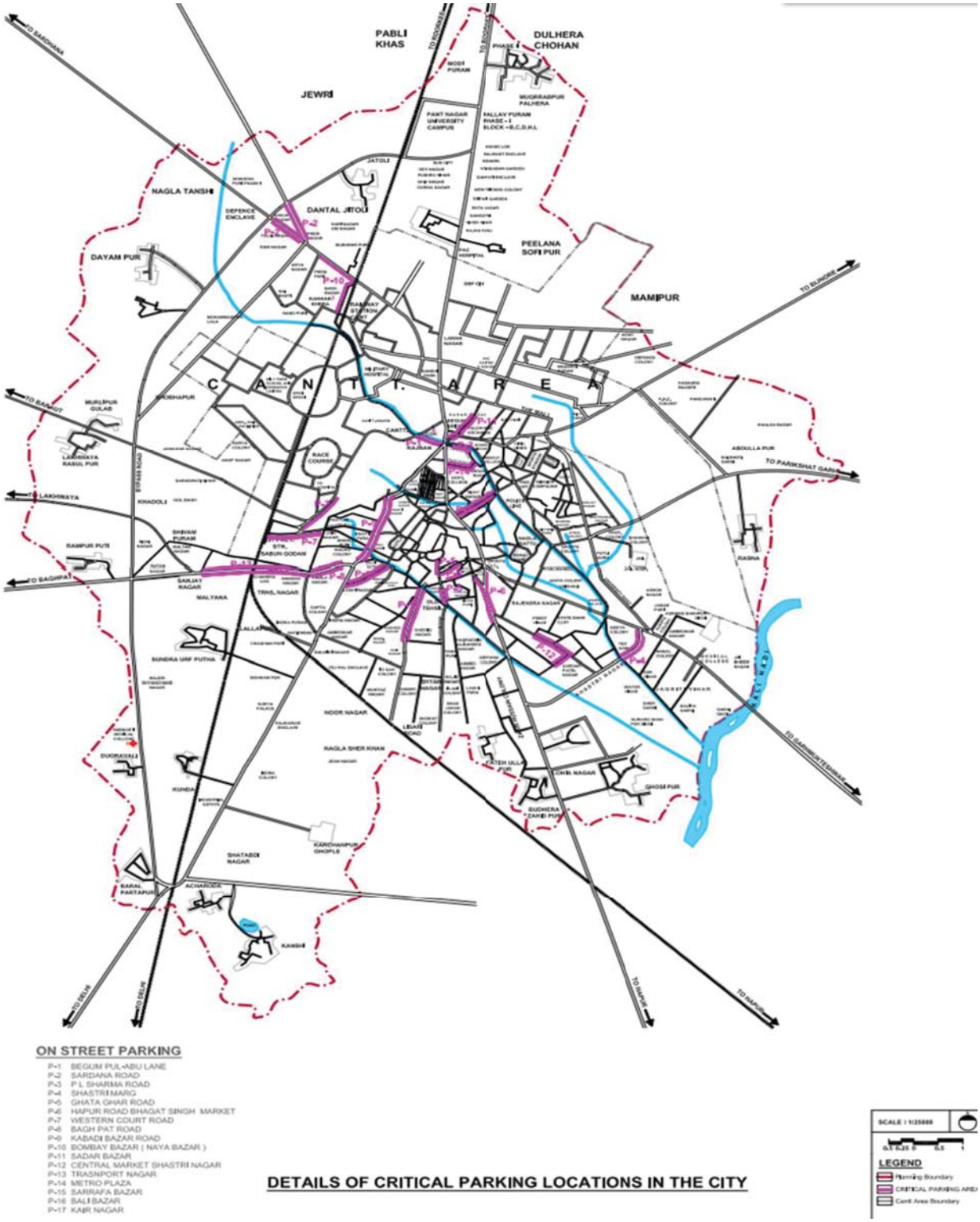
Parameters for the National Mission on Sustainable Habitat (NMSH) of 2011, as defined by the Ministry of Housing and Urban Affairs, state that parking management strategies should be aimed at encouraging more efficient use of existing parking facilities, reducing parking demand, and shifting travel to non-private modes. The personal vehicle should pay for the use of space for parking. A portion of the revenue generated could be used for the localized improvement of

footpaths, cycle tracks, and maintenance of facilities with the involvement of the local communities.

1. **Bus parking:** Large public parking facilities, the underside of flyovers, wide arterial roads, and underused areas of the city should be permitted for use in off-peak hours for parking of public/private buses and commercial vehicles, chargeable at appropriate rates. Planning and provision of space for private buses, private commercial vehicles, trucks, and logistics terminals at the peripheries of the city need to be planned at the Zonal Plan level.
2. **Residential parking:** Paid on-street and off-street parking should be developed for long-term and short-term parking provisions.
3. **Public parking:** Major efforts should be taken for the creation of public facilities in designated commercial centers and areas where significant commercial activity has developed in the form of mixed-use. Pedestrianization should also be considered in areas with heavy footfall.

A large number of markets, commercial and other activity centers on various roads in Meerut are suffering from inadequate parking facilities. On most of these stretches, the root cause of the congestion on the street is caused due to on-street parking.

Map 18 Parking area map



8.2.3.3 Major origin destination pairs

Major origin destination pairs of passenger trips are assessed and presented in below given figure.

Figure 8-4 Major OD pairs for passenger trips

% share	Major origin locations	Major destinations	% share
6.19%	Hapur Adda	Begam Bridge	8.08%
5.67%	Begam Bridge	Hapur Adda	6.59%
3.39%	Baghpat Adda	Bhainsali	3.84%
3.26%	Medical	Baghpat Adda	3.21%
2.64%	Muzaffarnagar	Court road	3.10%
2.53%	Ghantaghar	Baccha Park	2.57%
2.21%	Bhainsali	Medical	2.31%
2.14%	Court road	Khatauli	2.26%
2.01%	Baghpat Residences	Ghantaghar	2.10%
1.62%	Maliyana	Bulandshahr	1.89%
1.61%	Khatauli	Anand Vihar	1.57%
1.43%	Baccha Park	Muzaffarnagar	1.15%
1.17%	Tej Garhi	Ganganagar	1.14%
1.07%	Garh Road	Tej Garhi	1.12%
1.00%	Bulandshahr	Mawana Adda	1.04%
0.96%	Sohrab Gate	Maliyana	0.91%
0.92%	Shastri Nagar	Bijnor	0.86%
0.90%	Zakir Colony	Hapur city	0.84%
0.86%	Anand Vihar	Delhi	0.83%
0.77%	Delhi	Zakir Colony	0.81%
0.71%	Hapur city	Shastri Nagar	0.79%
0.70%	Bijnor	Garh Road	0.77%
0.70%	Koshambi	Meerut College	0.73%
0.67%	Haridwar	Shyam Nagar	0.65%
0.66%	Bhumiya Bridge	Maliyana Gate	0.64%
0.64%	Mauradnagar	Ghaziabad	0.61%

Source: Primary Survey

8.2.3.4 Impact on environment

Traffic congestion increases vehicle emission and degrades ambient air quality, and recent studies have shown excess morbidity and mortality for drivers, commuters and individuals living near major roadways.

Major harmful gases emitted by vehicles-

Carbon monoxide (CO):

This is a poisonous gas caused as a result of incomplete combustion;

Un-burnt hydrocarbons (HC):

This is caused by the evaporation of petrol and the discharge of only partially burnt hydrocarbons;

Other gases and deposits:

Nitrogen oxides, tetraethyl lead and carbon dust particles

Crop losses in agriculture and impacts on the biosphere:

Crops as well as forests and other ecosystems are damaged by acid deposition, ozone exposition and SO2.

Impacts on biodiversity and ecosystems (soil and water/groundwater):

The impacts on soil and groundwater are mainly caused by eutrophication and acidification due to the deposition of nitrogen oxides, as well as contamination with heavy metals (from tire wear and tear).

8.3 Traffic flow: people and goods

To assess the current situation of travel patterns and transportation characteristics in the city, volumetric traffic surveys were conducted at key roads and junctions in the city. The main aim of traffic assessment is to establish a reliable traffic database, including the base year daily traffic and travel characteristics on the project road and thereafter forecasting the level of traffic for future years.

This section presents traffic studies and analysis carried out by the Consultants for the assessment of road corridors and junctions as described in earlier chapters. The results of the analysis form the inputs for enhancing the transportation system in the city by identifying network gaps and developing capacity augmentation proposals.

8.3.1 Primary survey

The primary survey conducted at Meerut included

i) Classified Traffic Volumes Count(classified TVC), which identified traffic composition of the city, average daily traffic, the hourly variation of traffic and peak hours,
ii) Origin-Destination (OD) survey to identify influence area of the project road, trip generation and trip attraction zones and purpose of travel
iii) Turning Movement count(TMC)

All the performed surveys and investigations conform to relevant IRC and other publications and good industry practices. A brief note on each of these surveys and investigations follows in this chapter.

a) Classified Traffic Volume Count (TVC)

Classified TVC survey provides a mode-wise physical census of road traffic. TVC surveys were conducted for 24 hours period for 3 consecutive working days at each of the identified survey locations.

Survey methodology and vehicle classification used for all the traffic surveys are based on IRC Guideline IRC: 64-1990 and IRC: SP-41:1994. Traffic counting was carried out manually in three, eight-hour shifts each day by trained enumerators. A group of observers recorded the classification of the vehicles and vehicles' directions of travel. Count data were recorded at 15-minute intervals, using hand tallies and total vehicles per hour for each vehicle category were computed.

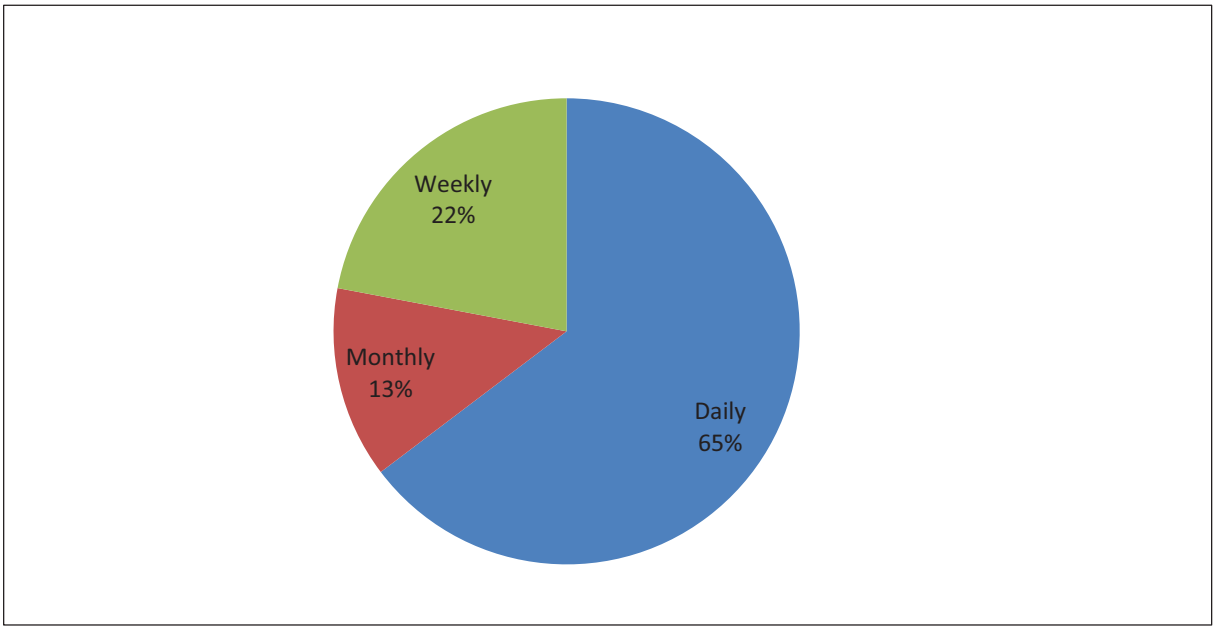
Data collected from the respective sites are analyzed to study daily variation and hourly variation of traffic, peak hour share, traffic composition, and Average Daily Traffic (ADT) at all the survey locations.

Analysis of traffic survey data provides the following traffic information on the project road.

1. Average Daily Traffic (ADT);
2. Traffic composition;
3. Annual Average Daily Traffic (AADT);
4. Identification of traffic homogenous sections;
5. Daily variation of traffic volume during the survey period;
6. Hourly variation of traffic within a day;
7. Peak hour periods and peak pour flows; and
8. Directional distribution of ADT

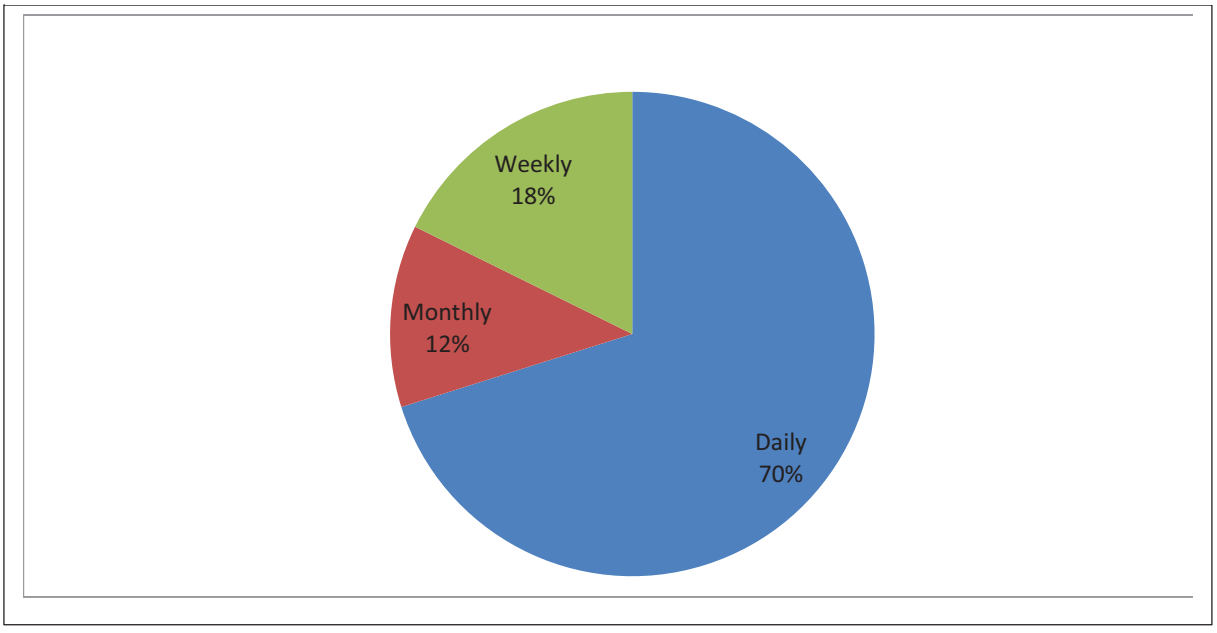
For OD survey five major routes is selected the first route is from Shivaji Chowk to Begumpul. The second route is from Begumpul to shivaji chowk. Third route is Baccha park to Hapur Adda, fourth route is from Bhagpat to Begumpur and the fifth route is from Football road to Delhi PSNGR. From there the frequency of vehicles on daily, weekly and monthly bases is calculated. The below given figure indicates the frequency percentage of traffic from Shivaji Chowk to Begumpul. This indicates that the out of total population surveyed 65% population visit these places on daily bases due to some work, 22% of the surveyed population visited these places on weekly bases. And 13% of the population visited this place on monthly bases.

Figure 8-5 Frequency of traffic flow from shivaji chowk to Begumpul



The five major routes are selected to check the frequency of traffic flow in the city. Below given figure shows the frequency of traffic flow on Daily, weekly and monthly basis. After completing the survey it is concluded that the 65% of total population visit these places on the daily basis. These are the main areas so people visit these places on daily bases due to work and some other purposes.

Figure 8-6 Frequency of Traffic flow



8.3.2 Turning Movement count survey at intersections

Intersection turning movement survey was conducted at major intersections to obtain information on classified turning movement of traffic at the intersection. Classified traffic volume count of all vehicles types are prepared separately for all possible turning movements from each approach, as per the guidelines specified in IRC SP-41:1994. The survey was conducted by recording traffic for each successive 15 minute interval, for 24 hours on working days with the help of trained enumerators.

Each turning movement at the intersection was recorded by deploying trained enumerators in sufficient numbers at appropriate locations. Data from daily turning flow and peak hour turning flow is used to understand the movement of traffic in the surrounding road network. This served as the basis for the design of the intersections.

8.3.3 Origin Destination (OD) survey

Origin-destination survey was carried out with the primary objective of studying the travel pattern of passenger traffic along the study corridor. O-D surveys were carried out 24 hours on weekdays. In most of the cases, these surveys were conducted at the same location where the classified traffic volume count survey was performed (i.e. parallel to the traffic volume counts). The roadside interview method is adopted for the survey in which the vehicles were stopped on a random sample basis with the help of the police. Trained enumerators interviewed the drivers to obtain the required data (origin, destination, trip length, trip purpose, commodity type, frequency, etc. as applicable for different vehicle types).

The results of this survey are useful for identifying the influence area of the project road, as well as in estimating the growth of traffic operating between different O-D pairs. Separate O-D matrices for each mode are generated for the observed sample first and then for the total traffic observed, by expending the sample O-D matrices. These matrices are currently developed for each survey location. These matrices are currently developed for each survey location. Analysis of O-D data gives the following traffic information on project road:

Major trip generating zones within the project influence area and its share in total trips;

i. Lead and load pattern of the vehicular movement on the project road;
ii. Type of commodities moving on the project road; and
iii. Frequency and purpose of travel.

8.4 Trends in public and private transport

To avoid obstructions to traffic in the main lanes, bus bays are preferably provided by recessing the kerb shoulder. Bus bays should not be located too close to intersections. Below given table depicts guidelines generally used for developing bus-bays.

Table 8.5 Guidelines for design of bus-bays

Particulars	Details
Minimum length of single bus stop	15 m
Minimum length for multiple bus stops	Additional 15 m per bus stops
Minimum depth of single bus stop	4.5 m
Minimum depth of multiple bus stops	7 m
Distance from intersection	At least 75 m

Source: Unified Traffic and Transportation Infrastructure (Planning and Engineering) Centre (UTTIPEC)

Private vehicles are predominant in Meerut. Intra-city buses are a major public transit mode in the city. To cater to a large demand for intercity passenger movement, several bus routes have been made operational.

8.4.1 Intra-city bus routes

Intra-city buses operate along 20 routes as identified in below given table. The city accommodates 112 buses, covering 60% of the total city through the public transportation network.

Table 8.6 Intra-city bus services details

S. No.	Intra-city bus route	Type of bus	Number of buses
1	Bhagwati college- Radhagovind	Mini bus	16
2	Bhagwati college- Radhagovind	Low floor bus	1
3	City station- Hapur Stand- Medical college	Mini bus	7
4	City station- CCSU- Medical college	Mini bus	6
5	Dhadhra- SAT- BHE- Meerut	Mini bus	1
6	Gangasagar- Rithani- Kalanjari	Mini bus	1
7	Kinanagar- Hapur Stand	Mini bus	3
8	Lohia Nagar- Kashiram- Jail- City station	Mini bus	1
9	Masoori- Modinagar	Mini bus	8
10	Modipuram- Modinagar	Mini bus	13
11	Modipuram- Modinagar	Low floor bus	7
12	Pathauli- Bhainsali	Mini bus	3
13	Saroorpur- Bhainsali	Mini bus	4
14	Satvayee- Medical college	Mini bus	2
15	Cantt. Station- Hapur Stand- Medical college	Big bus	4
16	Daurala/ Sivaya- Radhagovind	Big bus	6
17	Khanpur- Radhagovind	Big bus	4
18	Kithore- Hapur Stand- Shabgate	Big bus	9
19	Modinagar- Bhasali- Radhagovind	Big bus	6
20	Sardhana- Bhainsali	Big bus	10

Source Meerut city transport service limited (MCTSL), 2019

8.4.2 Key bus terminals

8.4.2.1 Bhainsali Bus stand

Bhainsali Bus Stand was upgraded in 2019, with improved parking and commercial developments. It is poorly maintained and is very crowded. It lacks proper seating, drinking water and toilet facilities. There is no buffer space between the bus stand and the road, leading to large traffic halts and congestion.

The road is surrounded by the large number of small commercial establishments and encroachment, reducing the ROW.

Figure 8-7 Traffic at Bhainsali Bus Stand

Source: Consultant's Assessment

Figure 8-8 Survey at Bhainsali Bus Stand

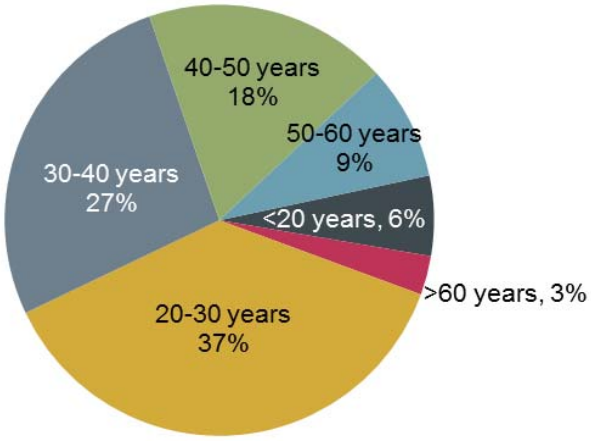
Source: Consultant's Assessment

A commuter survey was carried out for one day (24 hours) at the bus stand. The roadside interview method was adopted for the survey. The passengers were stopped on a random sample basis: trained enumerators interviewed the travellers and the required information/data was collected.

1. **Trip generating zones:** Survey suggests that major traffic is generated from Ghantaghar, Delhi, Meerut Cantonment, Hapur Adda, Shamli, and Ghaziabad, accounting for 30% of the inward passenger traffic at Bus Stand.
2. **Trip attracting zones:** Major trip attracting zones include Anand Vihar, Ghaziabad, Shamli, Haridwar, Bareilly, and Noida. These areas collectively attract around 35%of the outward passenger traffic passing through Bhainsali Bus Stand.

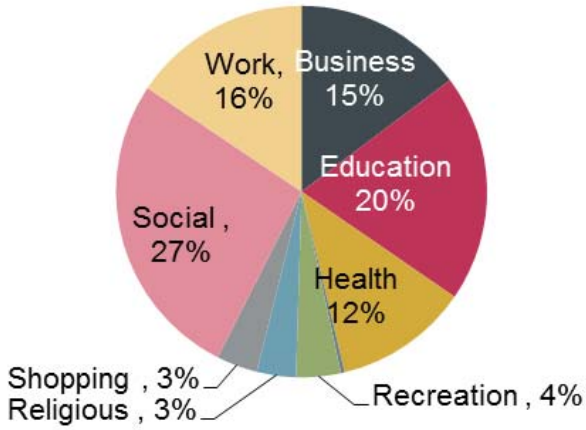
3. **Purpose of travel:** Passengers between 20-40 years age group accounts for 64% of the traffic at the bus stand. Social trips account for 27% of the total trips, followed by educational trips, accounting for 20% of the total traffic.

Figure 8-9 Age group classification of passengers at Bhainsali Bus Stand



Source: Consultant's assessment

Figure 8-10 Purpose of travel to/from Bhainsali Bus Stand



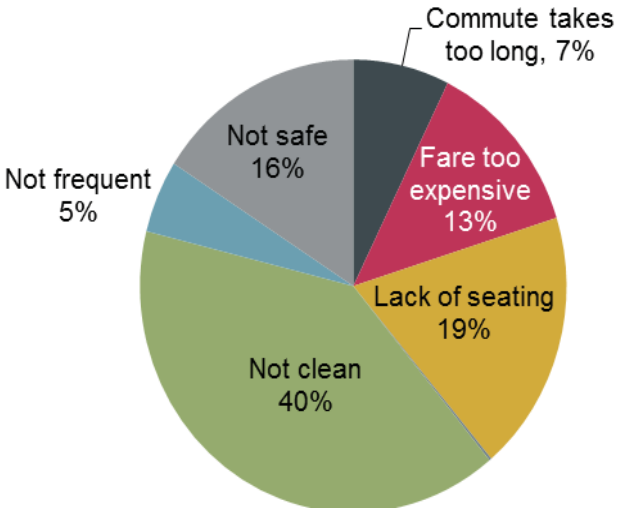
Source: Consultant's assessment

4. **Issues during travel:**

Around 40% of the passenger traffic has agreed to poor cleaning and maintenance of the bus stand. Other issues include lack of seating at the bus stand, and safety and security concerns.

Lack of CCTV cameras and police surveillance leads to less reliable trips, and is the major drawback of the bus stand.

Figure 8-11: Issues of travel at Bhainsali Bus Stand



Source: Consultant's assessment

8.4.2.2 Meerut city railway station

Meerut Railway Station comes within the Northern zone and is the busiest Railway Station in the city. Station also has a dedicated cargo siding for freight loading and unloading commodities like coal, cement, fertilizer, and petroleum.

The road is surrounded by a large number of small commercial establishments and encroachment, reducing the ROW.

Figure 8-12 Traffic at Meerut Railway Station

Source: Consultant's assessment

Figure 8-13 Survey at Railway Station

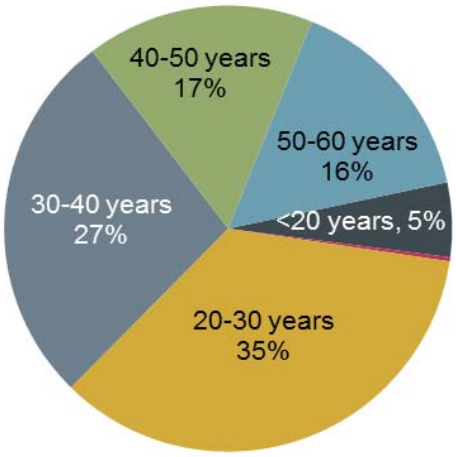
The survey was conducted at a mid-block location along the road for 3 days (24 hours) continuously in both directions. The count data was recorded at 15-minute intervals for each vehicle group in each direction.

Experienced supervisors supervised the traffic surveys along with sample checking of data being captured.

Source: Consultant's assessment

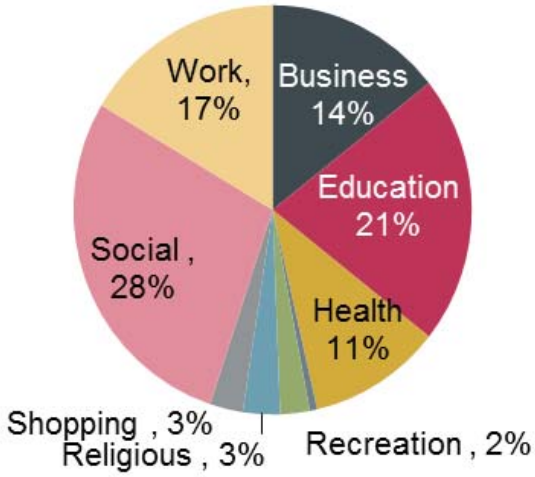
1. **Trip generating zones:** Survey suggests that major traffic is generated from Ghantaghar, Delhi, Meerut Cantonment, Begam Bridge, Madhavpuram, and Ghaziabad, accounting for 40% of the inward passenger traffic at Railway Station.
2. **Trip attracting zones:** Major trip attracting zones include Anand Vihar, Ghaziabad, Delhi, Modinagar, and Agra. These areas collectively attract around 80%of the outward passenger traffic passing through Railway Station.
3. **Purpose of travel:** Passengers between 20-40 years age group accounts for 62% of the traffic at the bus stand. Social trips account for 28% of the total trips, followed by educational trips, accounting for 21% of the total traffic.

Figure 8-14 Age group classification of passengers at Meerut Railway Station



Source: Consultant's assessment

Figure 8-15 Purpose of travel to/from Meerut Railway Station



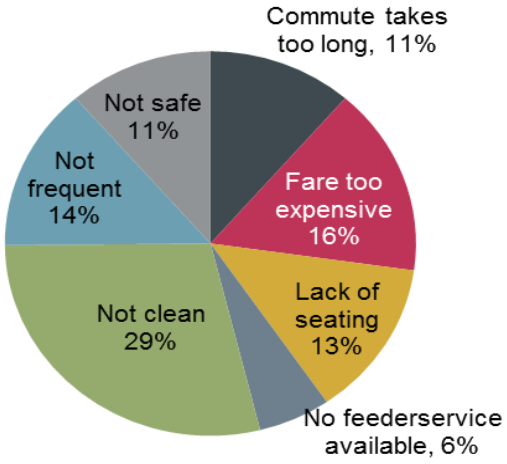
Source Consultant's assessment

4. Issues during travel

Around 29% of the passenger traffic has agreed to poor cleaning and maintenance of the bus stand. Other issues include the expensive fare, lack of seating at the railway station, and safety and security concerns.

Due to the large time taken for the commute, most passengers prefer to travel by bus, instead of train. Also, feeder services to the railway station are less frequent and costlier as compare to the bus stand.

***Figure 8-16* Issues of travel at Meerut Railway Station**



Source: Consultant's assessment

8.4.2.3 Sohrab Gate bus stand

Sohrab Gate Bus Stand is poorly maintained and is very crowded. It lacks proper seating, drinking water, and toilet facilities

There is no buffer space between the bus stand and the road, leading to large traffic halts and congestion.

The road is surrounded by a large number of small commercial establishments and encroachment, reducing the ROW.

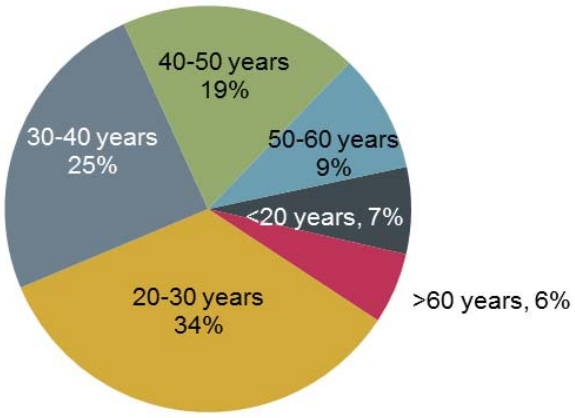
A commuter survey was carried out for one day (24 hours) at the bus stand. The roadside interview method was adopted for the survey.

Figure 8-17 Traffic at Sohrab Gate Bus Stand

Source: Consultant's assessment

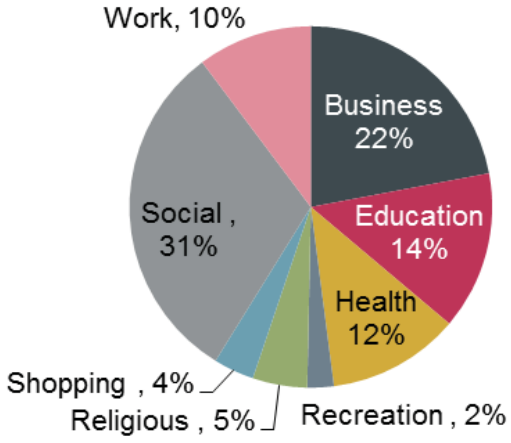
1. **Trip generating zones:** Survey suggests that major traffic is generated from Bareilly, Delhi, Ghantaghar, Hapur Adda, Shamli, and Ghaziabad, accounting for 25% of the inward passenger traffic at Bus Stand.
2. **Trip attracting zones:** Major trip attracting zones include Anand Vihar, Ghaziabad, Saharanpur, Haridwar, Bareilly, and Muzaffarnagar. These areas collectively attract around 38% of the outward passenger traffic passing through Bus Stand.
3. **Purpose of travel:** Passengers between 20-40 years age group accounts for 59% of the traffic at the bus stand. Social trips account for 31% of the total trips, followed by business trips, accounting for 22% of the total traffic.

Figure 8-18 Age group classification of passengers at Sohrab Gate Bus Stand



Source Consultant's assessment

***Figure 8-19* Purpose of travel to/from Sorhab Gate Bus Stand**



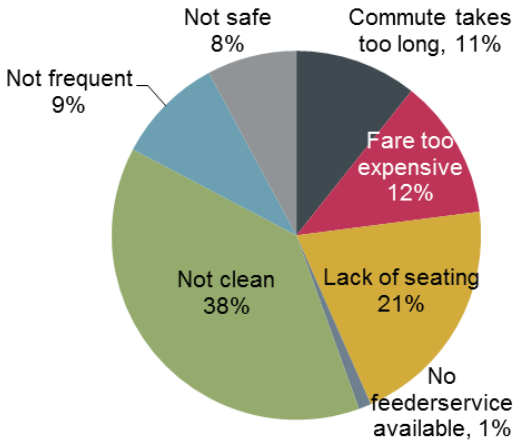
Source Consultant's assessment

4. Issues during travel

Around 38% of the passenger traffic has agreed to poor cleaning and maintenance of the bus stands. Other issues include lack of seating at the bus stand and expensive fares.

Lack of CCTV cameras and police surveillance, and untimely bus schedule leads to less reliable trips, and is the major drawback of the bus stand.

Figure 8-20 Issues of travel at Sohrab Gate Bus Stand



Source Consultant's assessment

8.5 Upcoming transport proposals in the vicinity of Meerut

There are several upcoming transport related projects coming up in and around Meerut city. The details of which are mentioned here with the current status of the projects. These projects will bring a significant change in the urban and overall structre of the Meerut Development Area. Some of the key projects are Delhi-Meerut expressway, RRTS, Ganga Express way, Orbital roads/railways, Dedicated Freight Corridor and Airport expansion in Meerut. Details of these projects are also given in section 2.9 above.

a. Delhi Meerut Expressway and its extension:

Delhi–Meerut Expressway or National Expressway 3 is controlled-access expressway, connecting Delhi with Meerut via Dasna in Ghaziabad in India.

- **Current status:** The express way is divided into 4 sections. Section one is from Nizamuddin Bridge to Delhi UP border this is completed on April 2018. Second section is from Delhi UP border to Dasna and complete on 1st April 2021 third section is from Dasna to Hapur and completed on September 2019 and forth section is from Dasna to Meerut and completed on 1st April 2021. This express way is complete and opened for public on 1st April 2021. An extension of DME is under progress which will connect the Meerut via DME on Hapur road.

b. Ganga expressway:

594 km Ganga Expressway project by UPEIDA is an approved 6 lane access-controlled road with a route alignment connecting NH-334 in Meerut District with NH-2 at Prayagraj (Allahabad)

Bypass in Prayagraj District. The Ganga Expressway will connect the districts along the Ganga River, starting from Meerut till Varanasi, via Prayagraj

This Greenfield project was first announced in 2008 connects Noida with Ballia. Since then, the project in Phase 1 has been revised to connect Meerut with Prayagraj. In Phase 2, the expressway will be extended by 110 km to Tigri on the Uttar Pradesh / Uttrakhand Border and by 314 km to Ballia near Varanasi.

- **Current status** In February 2021, Uttar Pradesh's state government decided to extend the project on either end – from Meerut to Haridwar and from Prayagraj to Varanasi from the get-go. Ganga Expressway's land acquisition for about 6,556 hectares started in December 2020. As of April 2021, 1900 hectares have been acquired. In March 2021, UPEIDA invited tenders (RFQ & RFP) for the expressway's development through 4 groups each consisting of 3 packages. Land Acquisition process for Ganaga Expressway is ongoing.

c. Rapid Rail Transit System (RRTS):

The Delhi–Meerut Regional Rapid Transit System or Delhi–Meerut RRTS is an 82.15 km long under-construction project, semi-high speed rail corridor connecting Delhi, Ghaziabad, and Meerut. It is one of the three rapid-rail corridors planned under Phase-I of Regional Rapid Transport System (RRTS) project of National Capital Region Transport Corporation (NCRTC). With maximum speed of 180 km/h (111.85 mph), the distance between Delhi and Meerut will be covered in less than 60 minutes. The project will cost ₹30,274 crore (US$4.2 billion) and will have 24 stations including two depots at Duhai and Modipuram. On 8 March 2019, the Hon'ble Prime Minister of India laid the Foundation Stone of this corridor. Local transit services will also be provided on the Delhi - Meerut RRTS network in Meerut with a span of 21 km for the local transit needs.

- **Current status:** Construction of Delhi Meerut RRTS corridor is in full swing and likely to be completed by 2024.

d. Airport/Airstrip expansion in Meerut:

Expansion of Meerut Airstrip/Airport is under process.

e. NH Proposals in Meerut:

In addition to laying a network of expressways and highways in Meerut district, there is also an exercise to eliminate jams in Meerut city. For this, a proposal of another bye-pass has been taken up from Hapur road in the south of the city to Roorkee road in the north of the city connecting Garhmukteswar road and Bijnor road.

- **Current status:** Land Acquisition process and parallelly the onsite construction is underway.

f. Orbital Rail and Road Corridors (Proposed in NCR Sub Regional Plan 2041)

The prime objective of proposed Regional Rail and Road Network is to connect the regional towns with each other and with Delhi, on dedicated lines to meet the demand of specific corridors.

- **Current status** of these Orbital Rail and Road corridors are at conceptual stage.

g. Regional Rail Corridors (Proposed in NCR Sub Regional Plan 2021)

The prime objective of proposed Regional Rail Network in SRP is to connect the regional towns with each other and with Delhi, on dedicated lines to meet the demand of specific corridors.

- **Current status** of these Regional Rail corridors is at conceptual stage.

8.6 Traffic regulations and general policy management

Major roads in Meerut suffer from traffic congestion due to various inadequacies in the transportation network. These include capacity constraints, poor definition of road hierarchy, encroachments, on-street parking, poor traffic management, inefficient safety and security, inadequate enforcement of traffic rules, lack of pedestrian zones, and inadequate street furniture. Upcoming developments along already congested roads, encroachment by hawkers, and unauthorized on-street parking add to the problems by increasing traffic and parking issues in the area. Because of all these problems the Uttar Pradesh government has brought in effect new traffic fines in the state for traffic rules violations. The regulations are in tune with the latest amendment of the Motor Vehicle Act. For traffic and transportation regulation some acts and rule are considered these are:

UP state road transport corporation Rules, 1972

The Motor Vehicle Act, 1988

- This act is used to consolidate and amend the law relating to motor vehicles. This act categorizes motor vehicles into different types, generally the categorization is based on size, type and utility of such vehicles.
- The new motor vehicle act 2021 was enacted to collect fines for a number of offences such as over speed, drunk and drive etc. the motor vehicle act 2021 is an amendment of the motor vehicle act of 1988 which brings huge increase in fines aimed at making motorist more responsible road users.
- The objectives of motor vehicle act 1988 area

- To take care of the fast increasing number of both commercial vehicle and personal vehicles in the country
- The lead for encouraging adoption of higher technology in automotive sector
- The greater flow of passenger and freight with the least impediments so those islands of isolation are not created.
- Concern for road safety standard and pollution control measures, standards for transportation of hazardous and explosive materials
- Simplification of procedure and policy liberalization for private sector operation in the road transport field
- Need for effective ways of tracking down traffic offenders
- Rationalization of certain definitions with addition of certain new definitions of new types of vehicles
- Standards for anti-pollution control devices
- In this act Provision for issuing fitness certificates of vehicles also by authorized testing stations is also given.
- Enabling provisions for updating the system of registration marks.

National Transport policy

- The primary objective of transport policy must be to create or support an effective system which provides good transport facilities at the lowest cost in term of the resources used.
- To contribute to the economic growth of the country by providing and efficient economical and safe transport system.
- To improve the quality of life as well as maintain and improve living by providing transport requirements of the people.

8.7 Conclusion

The road network in Meerut is improving day by day by still there are some problems in the core area like on street parking due to lack of parking spaces in the city. The illegal encroachments are also one of the major problems of the area. In master plan 2021 three rings are provided. The completed ones are serving their purpose. There is still need to improve the road network in the area so that the problem of congestion can be removed. The proposal for same has been given in proposal section (section 3) of the report.

Chapter 9
Industry

Chapter 9. Industry

Meerut is one of the industrial towns of importance as well as an agricultural area in the state of Uttar Pradesh. Some of the prominent industries in the city are textile, tyres, sugar, transformer, chemicals, distillery, paper, and engineering, sports good and publishing. Some of the industries like IT and ITes have good growth potential. Some famous pharmaceutical companies have their presence in Meerut such as Bestochem, Mankind Pharma, perk Pharmaceuticals, etc. The region is one of the country's most flourishing regions for sports goods manufacturing. The manufacture of Cricket items mainly the SG brand is manufactured in the city of Meerut. This company also has a lot of export products which operate in Meerut. Musical instruments in India are maximally manufactured in the city of Meerut. Among the various cities in North India, Meerut was among the first cities where publishing industry first came up in the 19th century and since the 1860s, the place has become an important place for the commercial publishing.

9.1 Analysis of Existing situation

9.1.1 Type and scale of industries

Meerut is famous for Sports Goods world over and the demand of various sports goods has been increased over period of time. The following table shows the existing scenario of industries in Meerut.

Table 9.1 Types and Scale of Industries

Sl. No.	Head	Unit	Particulars
1	Registered industrial units	No.	8197
2	Total industrial units	No.	8197
3	Registered medium and large units	No.	13
4	Estimated average number of employed in small scale industries	No.	48280
5	Employment in large and medium industries	No.	3325
6	Number of industrial area	No.	4
7	Turnover of small scale industries	In Lacs	66856.49
8	Turnover of medium and large scale industries	In Lacs	10325

Source DIC Meerut

The major exportable items manufactured in Meerut include sports goods, musical instruments and frozen meat. The major large scale industrial units in the district includes Modi Tyers Co. Pvt. Ltd. in Modipuram, Mawana Sugar Works in Mawana, Bajaj Hindustan Ltd. in Maukhas, Daurala

Sugar Works in Daurala, Alps Industries Ltd. in Delhi Road, Paswara Impex Ltd. in Baghpat Road, Sangal Paper Ltd. in Mawana and Devpriya Papers Pvt. Ltd., Sani in Mawana Road. Details of existing micro & small enterprises and Artisan units in the district are given in the table below.

Table 9.2 Details of existing micro & small enterprises and Artisan units in Meerut district

NIC code No.	Type of Industry	No. of units	Investment (in Lakhs)	Employment
20	Agro based	304	2484.95	1791
22	Soda water	-	-	-
23	Cotton textile	76	620.92	447
24	Woolen, silk and artificial tread based cloths	23	187.91	135
25	Jute and jute based	-	-	-
26	Ready-made garments and embroidery	807	6593.19	4753
27	Wood/ wooden based furniture	213	1740.21	1255
28	Paper and paper products	63	514.71	371
29	Leather based	221	1805.57	1302
31	Chemical/ chemical based	57	465.69	336
30	Rubber, plastic and petro based	52	424.84	306
32	Mineral based	4	32.68	24
33	Metal based (steel fab.)	537	4381.29	3163
35	Engineering units	103	841.51	607
36	Electrical machinery and transport equipment	67	547.39	395
97	Repairing and servicing	2981	24240.46	17557
1	Others (Mfg. units)	2689	21969.13	15838
	Total	**8197**	**66856.49**	**48280**

Source DIC Meerut

9.1.2 Location Analysis

The following table shows the details of existing status of industrial area in the district. The land area acquired by the government industrial estate, Partapur is 16.18 acres. The prevailing rates per sq. m are Rs. 3350. Number of plots under govt. industrial estate partapur is 97. The prevailing rates per sq m is higher in sports goods complex which is Rs. 8000.

Table 9.3 Existing status of industrial areas in Meerut district

Sl. No.	Name of Industrial area	Land acquired (in acres)	Land developed (in acres)	Prevailing rate per Sq. m (in Rs)	No. of plots	No. of alloted plots	No. of Vacant plots	No. of units in production
1	Govt. Industrial estate, Partapur	16.18	16.18	3350	97	97	Nil	92
2	Sports goods complex	12.72	8.536	8000	51	51	Nil	39
3	Partapur industrial area	12.34	6.54	4000	40	40	Nil	30
4	Udhyogpuram	96.436	72.83	4000	312	312	Nil	216
	Total	**137.676**	**104.086**		**403**	**403**	**Nil**	**377**

Source DIC Meerut

9.1.3 Impact on environment

With the industrial development the bad impact on environment also increases. The city of Meerut has a large industrial setup that is also in some way or the other responsible for contributing to the pollution levels in the city. In terms of polluting industries, the city of Meerut has 40 polluting industries in the form of slaughter house, dyeing industry, meat processing industry etc.

Table 9.4 Details of Polluting industries in Meerut

S.No.	Types of Industries	No of industries
1	Slaughter House	1
2	Distilleries	2
3	Dairy and milk products	2
4	Paper industries	2
5	Pesticides	4
6	Dyeing Industries	25
7	Meat processing units	1
8	Electroplating units	3

Source: UP Pollution Control Board

9.2 Recent trends (Expansion, closure, conversion to other uses)

The following table shows the year wise trend of industrial units registered. The number of industrial units is mentioned in the table also the no be persons employed is mentioned in the table below.

Table 9.5 Year wise trend of industrial units registered in Meerut district

Sl. No.	Year	No. of registered units	Employment	Investment (lakh Rs.)
1	2006-07	2549	18336	21876.49
2	2007-08	1412	7222	3579
3	2008-09	1411	7440	3611
4	2009-10	1413	7545	26115
5	2010-11	1412	7737	11675
	Total	8197	48280	66856.49

Source DIC Meerut

9.2.1 One District, One Product (ODOP) Scheme

The UP government's One District, One Product (ODOP) scheme aims to encourage such indigenous and specialized products and crafts. There are products in UP that are found nowhere else – like the ancient and nutritious kalanamak chawal, the rare and intriguing wheat-stalk craft, world-famous chikankari and zari-zardozi work on clothes, and the intricate and stunning horn and bone work that uses the remains of dead animals rather than live ones, a nature-friendly replacement for ivory. Many of these products are GI-tagged, which means they are certified as being specific to that region in Uttar Pradesh. Many of these were also dying community traditions that are being revived through modernization and publicization. Other district-specific industries are more commonplace, but their products are still unique to those regions. Heeng, desi ghee, fancy glassware, bedsheets, gud, leather goods – the districts that specialize in these crafts are in UP, and you might already own or use a UP product without knowing it. These are also small and medium industries that need modernization, machinery and productivity enhancement

Table 9.6 List of Policies and Schemes for ODOP

S.No	Department	Scheme
1	Ministry of Food Processing	PMKSY (Pradhan Mantri Kisan SAMPADA Yojana)
2	UP Dept. of Horticulture & Food	Food Processing Industry Policy-2017
3	UP Dept. of Horticulture & Food Processing	Integrated Horticulture Development Mission Rashtriya Krishi Vikas Yojana
4	Ministry of Agriculture	Integrated Scheme for Agricultural Marketing(ISAM)
5	Ministry of Agriculture	National Agriculture Market(e-NAM)
6	Ministry of Agriculture	Mission for Integrated Development of Horticulture During XII Plan
7	APEDA (Agriculture & Processed Food Products Exports Development Authority)	APEDA Schemes for Infrastructure Development

S.No	Department	Scheme
8	APEDA (Agriculture &Processed Food Products Exports Development Authority)	APEDA Schemes for Market Development
9	APEDA (Agriculture &Processed Food Products Exports Development Authority)	APEDA Schemes for Quality Development
10	National Horticulture Board	Capital Investment Subsidy Scheme for Cold Storage Construction
11	National Horticulture Board	Development of Commercial Horticulture Scheme
12	National Horticulture Board	Technology Development and Transfer for Promotion of
13	National Horticulture Board	Market Information Services for Horticulture Crops
14	National Good Laboratory Practice Compliance Monitoring	Department of Science & Technology
15	Small Farmers' Agri-Business Consortium	Equity Grant Scheme
16	Department of Agriculture and Co-operation, Ministry of	Agmark
17	Ministry of Agriculture and Farmers Welfare	National Food Security Mission
18	Department of MSME & Export Promotion	MSME Schemes
19	Export Promotion Bureau, GoUP	Export Promotional Schemes
20	UP Agriculture Dept., UP	Facilities and Grants for Farmers
21	MSME Policy - 2017	Department of MSME & Export Promotion, GoUP
22	Infrastructure and Industrial Investment Policy - 2012	Department of MSME & Export Promotion, GoUP
23	CFC (Common Facility Centre) Scheme	ODOP
24	Market Development Assistance Scheme	ODOP
25	Finance Assistance Scheme	ODOP
26	Skill Development & Toolkit Distribution Scheme	ODOP

Meerut district is famous all over the world for its sports goods industries. The district is the second largest producer of sporting goods and accessories in India after Jalandhar. The products made here are quite popular in the country as well as abroad. Small and medium scale units are engaged in producing sports goods. These products have a lot of scope to do well in the export sector. Some of the sports products manufactured here includes inflatable balls and accessories, nets, general exercise equipment, boxing equipment, toys and games, protective equipment, cricket equipment, sportswear, carrom boards and hammock etc. The sports goods manufactured here are not only supplied nationally but are also exported internationally.

9.2.2 PM SVANIDHI

PM Street Vendor's Atma Nirbhar Nidhi is a scheme for providing affordable loans to street vendors. As per this scheme, those who were vending till 24 March, 2020 can avail the benefits of the scheme, the duration of which is till March 2022. The vendors can avail a working capital loan of up to Rs 10,000, which is repayable in monthly installments in the tenure of one year. On timely or early repayment of the loan, an interest subsidy of seven per cent per annum will be credited to the bank accounts of the beneficiaries through direct benefit transfer on six monthly bases. There will be no penalty on early repayment of loan.

9.3 Key Industries Located in other towns under Meerut Development Area

Other than Meerut, there are several big industries located in the Meerut Development Area. These industries are playing a key role in the economics of this region. Details of these key industries are as given below:

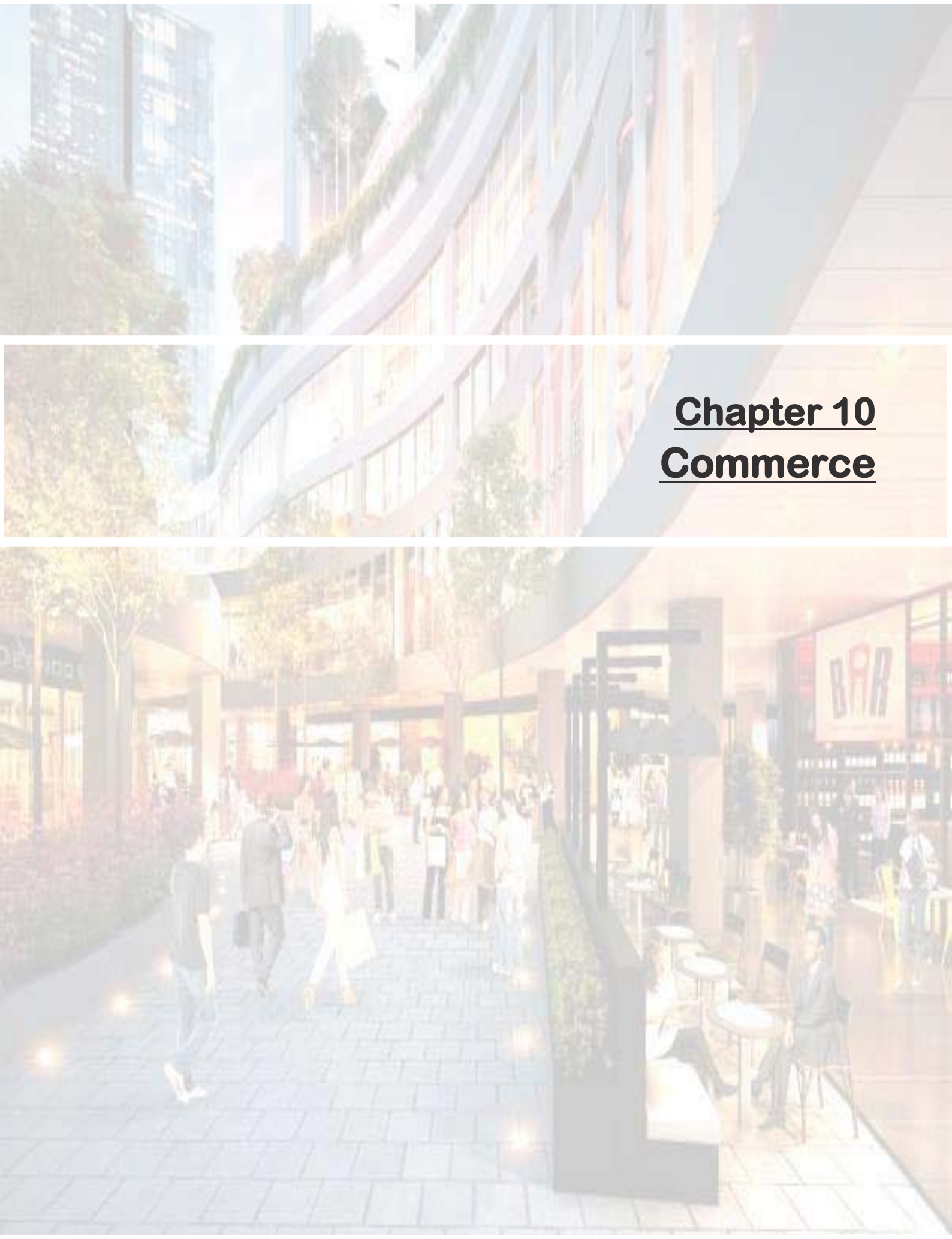
a) **Mawana Sugar Mill:** Mawana Sugars Limited is the sixth largest private sector sugar manufacturer in India; the Mill started operations in December 2003. The mill has an installed capacity of 29,500 cane crush and this is spread across manufacturing units at Mawana and Nanglamal; these are located in the fertile cane-rich region of West Uttar Pradesh in India. Around 500 direct employees are working in this industry.

b) **Small scale industries in Sardhana:** There are several small scale industries are located in Sardhana proving local level employment. The key industries are Hans Textiles, Sardhana Papers, Pal Agro, Hind Textiles etc. Around 1500 direct employees are working in these small scale industries.

c) **Small scale Timber industries in Hastinapur:** There are several small scale timber industries are located in Hastinapur area. These industries are providing employment at local level. Key industries are manufacturers of sports goods like cricket bats, hocey sticks etc.

9.4 Conclusion

The city of Meerut has a large industrial setup that is also in some way or the other responsible for contributing to the pollution levels in the city. In terms of polluting industries, the city of Meerut has 40 polluting industries in the form of slaughter house, dyeing industry, meat processing industry etc. Of the total workforce employed in industries nearly 94% is employed in the small and cottage industry. There is need to manage the existing and proposed industries to reduce the pollution level in area. There is also an urgent need to develop an integrated industrial township as there is an acute shortage of developed industrial plots in the city.



Chapter 10
Commerce

Chapter 10. Commerce

10.1 Analysis of Existing Situation

Meerut is one among the nine class I industrial towns of Uttar Pradesh ranking only next to Kanpur in industrial development. The position was however changed in 1976 when the Ghaziabad District was carved out from Meerut district. Meerut district as a result, has become predominantly Agricultural. Meerut's advantageous geographical location and availability of abundant productive rich fertile land form the basis of a strong economic growth for the city.

Traditionally the core economic activities in Meerut had primarily been trade and commerce, manufacturing of musical instruments, sports equipment, scissors, publication and printing, textiles & garments, engineering equipment's and machine tools, gold jewelry, etc

Figure 10-1 Shopprix Mall

Figure 10-2 Era Mall

Figure 10-3 Rajkmal Furniture Mall

Figure 10-4 Abu Lane Market

Shopprix Mall is the shopping mall with variety of retail stores and services plus Movie Theater this mall is in the center of the city and is easily accessible. Tej Garhi shopping complex, Era mall, Paradise mall, Rajkmal furniture mall all these are in the center of the city. Abu lane is the main market of Meerut with some high end showrooms.

This is almost a 1 km long market with shops on complexes on both side. Lot of food vendors at various places which are always crowded and people line up to have some snacks. Market has some good restaurants also. Only problem with the market is no proper parking space.

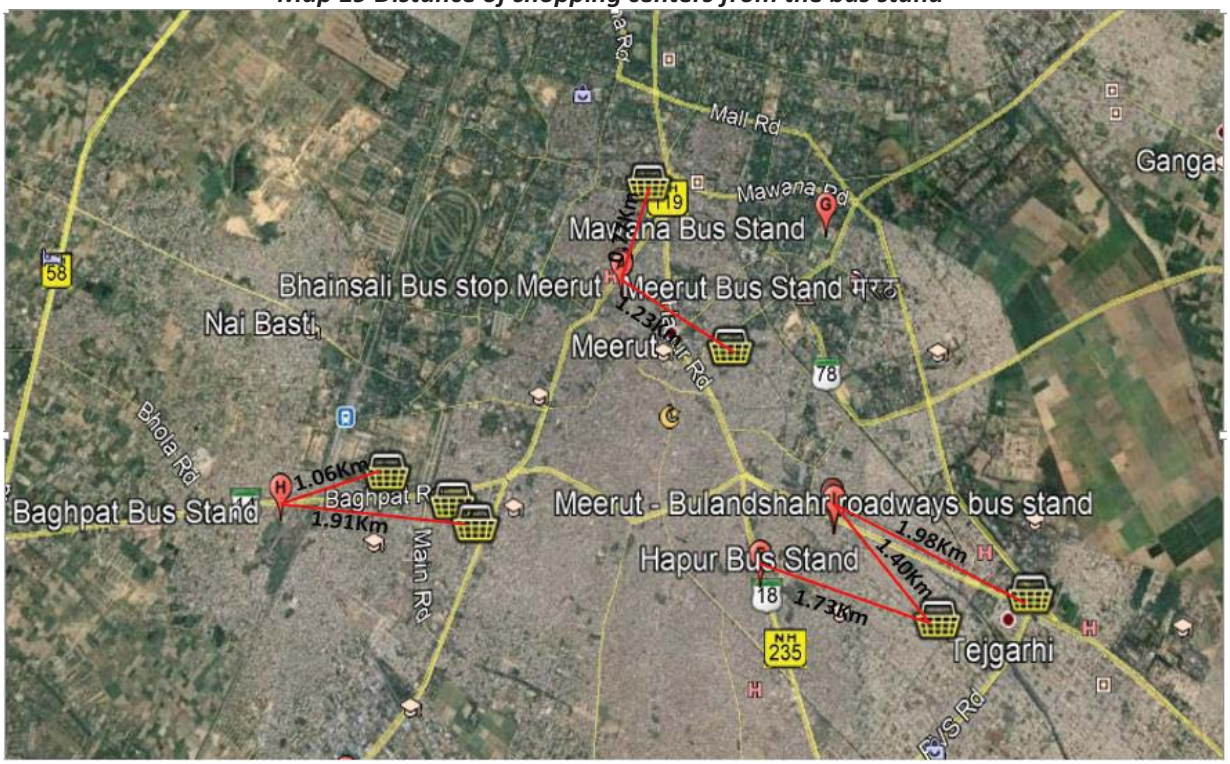
10.1.1 Distribution and accessibility of commercial centers

Traditionally the core economic activities in Meerut had primarily been trade and commerce. The main commercial centers are present in the core area of the Meerut city. The shopping complexes and hotels are present in the core area. Commercial areas are the heart of the city so many activities takes place in those areas.

The shopping complex is present along the Roorkee road and ghar road some malls are present on the state highway 14. Abu lane and pilokhari roads are the main commercial streets of the city. The accessibility of these malls and hotels for the bus stands is very good.

The distance of Tej Garhi shopping complex from the shorab gate bus stand is 1.98 Km. The accessibility of the commercial complexes from the bus stand is less than 2km. The distance of the commercial places from the bus terminals mentioned in the below given map.

Map 19 Distance of shopping centers from the bus stand



Source: Consultant's Analysis

Table 10.1 Accessibility of shopping Complexes from the Bus stands

Bus stand	Shopping malls	Distance
Shorab Gate bus stand	Tej grhi Shopping mall	1.98 Km
Shorab Gate bus stand	Minerva shopping mall	1.40KM
Baghpat Bus stand	Dulhan Shopping centre	1.06KM
Baghpat Bus stand	Era Mall	1.91Km
Meerut Bus stand	Gaurav Shopping mall	1.23KM
Meerut Bus stand	Abu mall	0.77Km
Hapur Bus stand	Minerva shopping mall	1.73Lm

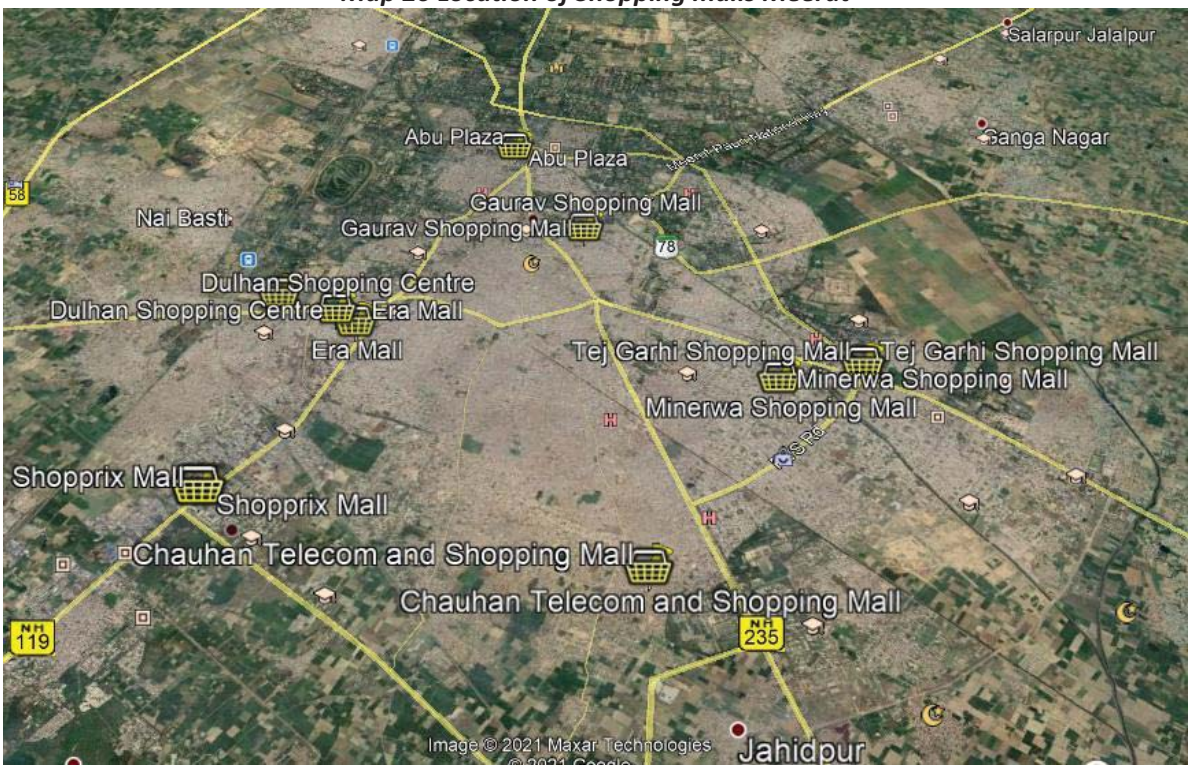
Source: Consultant's Analysis

10.2 Recent trends

10.2.1 Shopping Mall

In urban areas, as people's financial situations change, the appetite for a better shopping experience grows. Shopping malls have sprung up all over the city to fulfil these demands. In Meerut city, there are numerous shopping malls like Shopprix mall, Gaurav shopping mall, The garhi shopping mall, Minerva shopping mall, Abu plaza, Dulhan Shopping mall etc. the location of these malls are shown in the below given map.

Map 20 Location of Shopping malls Meerut

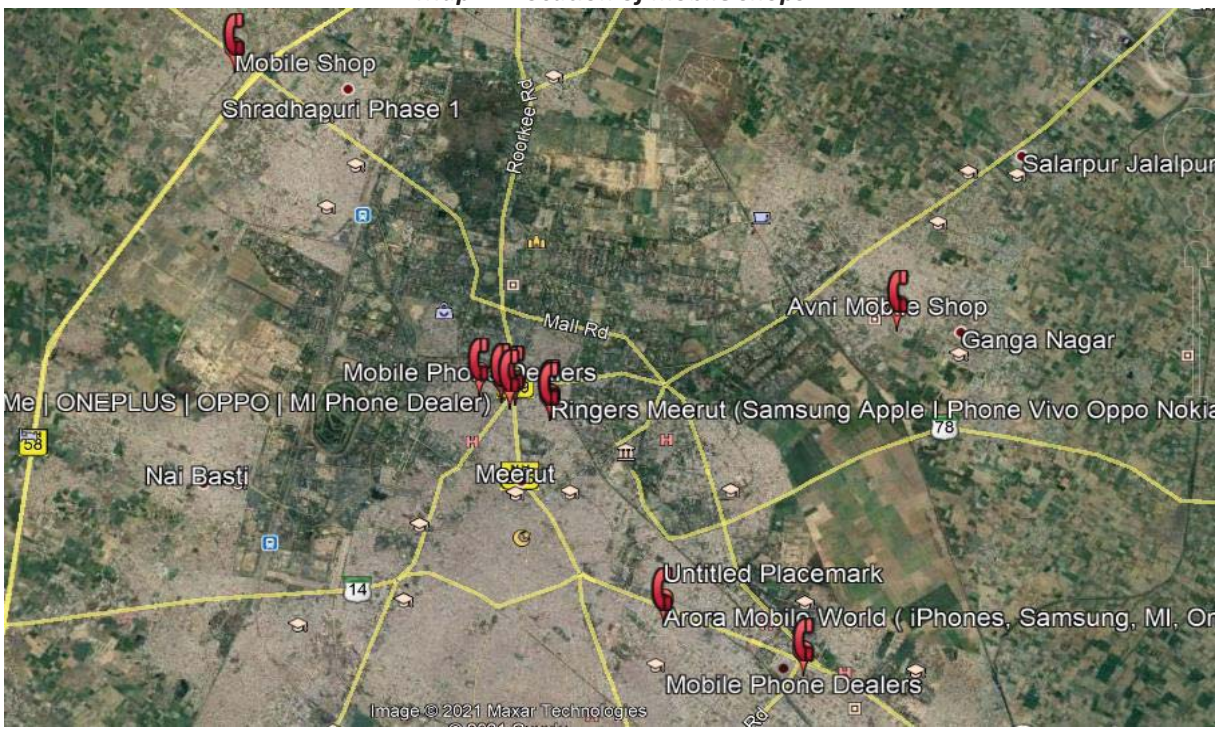


Source: Consultant's Analysis

10.2.2 Mobile shops

Mobile phones have become an integral part of our life. Mobile Shop business is one of the best small business ideas to start in India. Like any other city, Meerut has also many mobile shops. The location of few mobile shops has been indicated in the below given map.

Map 21 Location of mobile shops



Source: Consultant's Analysis

10.3 General Policy

Draft Uttar Pradesh Retail Trade policy 2016 Uttar Pradesh has huge potential to become one of the leading destinations for retail trade. This is reinforced by its large Consumer base, increasing per capita income, rapid urbanization and abundance of raw material. The State's per capita income as per Advance estimates of 2014-15, has posted a growth of 11.37%, reflecting enhanced standard of living and increased purchasing power. Percentage of urban population to total population in the State has also shown an upward trend, reaching 22.27% in 2011. This increase has helped in growth of retail ecosystem in the state.

Targets

- Attract new investments worth `5,000 crore in the sector by 2021.
- Create 20,000 additional employment opportunities in the sector by 2021.

This policy will help to improve the retail market in Meerut because from ancient times Meerut's advantageous geographical location and availability of abundant productive rich

fertile land form the basis of a strong economic growth for the city. And these resources will going to help Meerut to become a good retail market center in future.

10.4 Distribution of shopping area

10.4.1 Warehouse

One of the major warehouses by the state warehousing corporation is located at Naveen mandi. As in Meerut lot of industrial activities happen there are many warehouses present in Meerut. The list of the warehouses are mentioned in the below given table.

Table 10.2 List of location of Warehouses

S. No	District	Location of Warehouses, Storage & Logistics Hubs
1	Meerut	UPSWC Meerut, Naveen Mandi
2	Meerut	HLS Warehousing, Bhagpat road
3	Meerut	Ajanta Soya Limited Meerut depot, Mangal Pandey Nagar
4	Meerut	Fashion Warehouse. INC, Abu lane

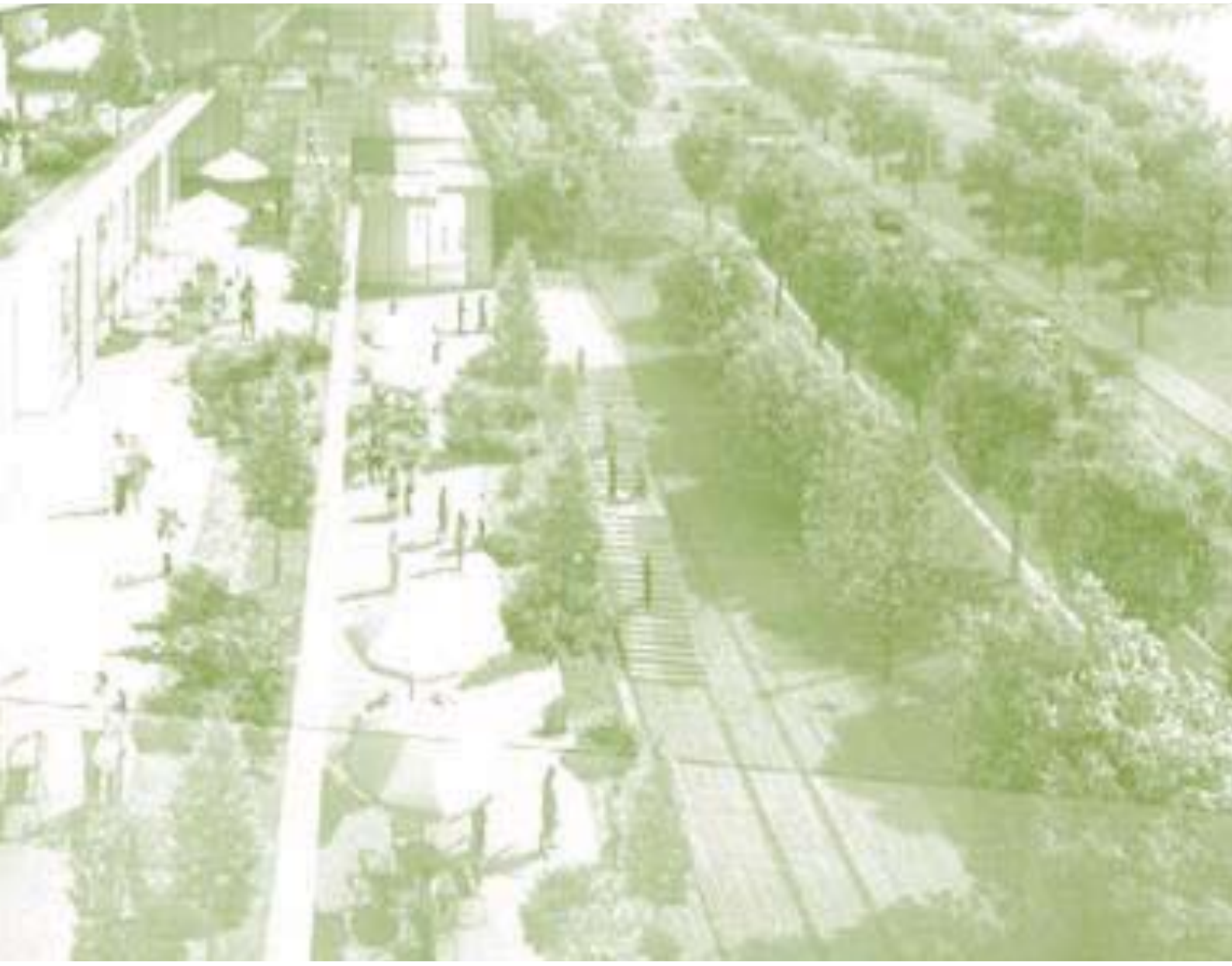
Source GM, DIC Meerut

There is no trend of shopping malls in other towns like Mawana, Hastinapur and Sardhana. The key commercial located in the cities are local level shops only. There is a potential for big level commercial in the furture days as the trend of shopping malls is increasing day by day.

10.5 Conclusion

Traditionally the core economic activities in Meerut had primarily been trade and commerce, manufacturing of musical instruments, sports equipment, scissors, publication and printing, textiles & garments, engineering equipment's and machine tools, gold jewellery, etc. Business and commerce activities are the primary employment generator in the city which accounts for over 21.06% of the total employment in the city, while other services account for nearly 30% of the total workforce in the city. Of the total workforce employed in industries nearly 94% is employed in the small and cottage industry. Trade and commerce can be promoted in more regulated way and lead to economic growth of the city and its development area.

Chapter 11
Public & Semi Public Places



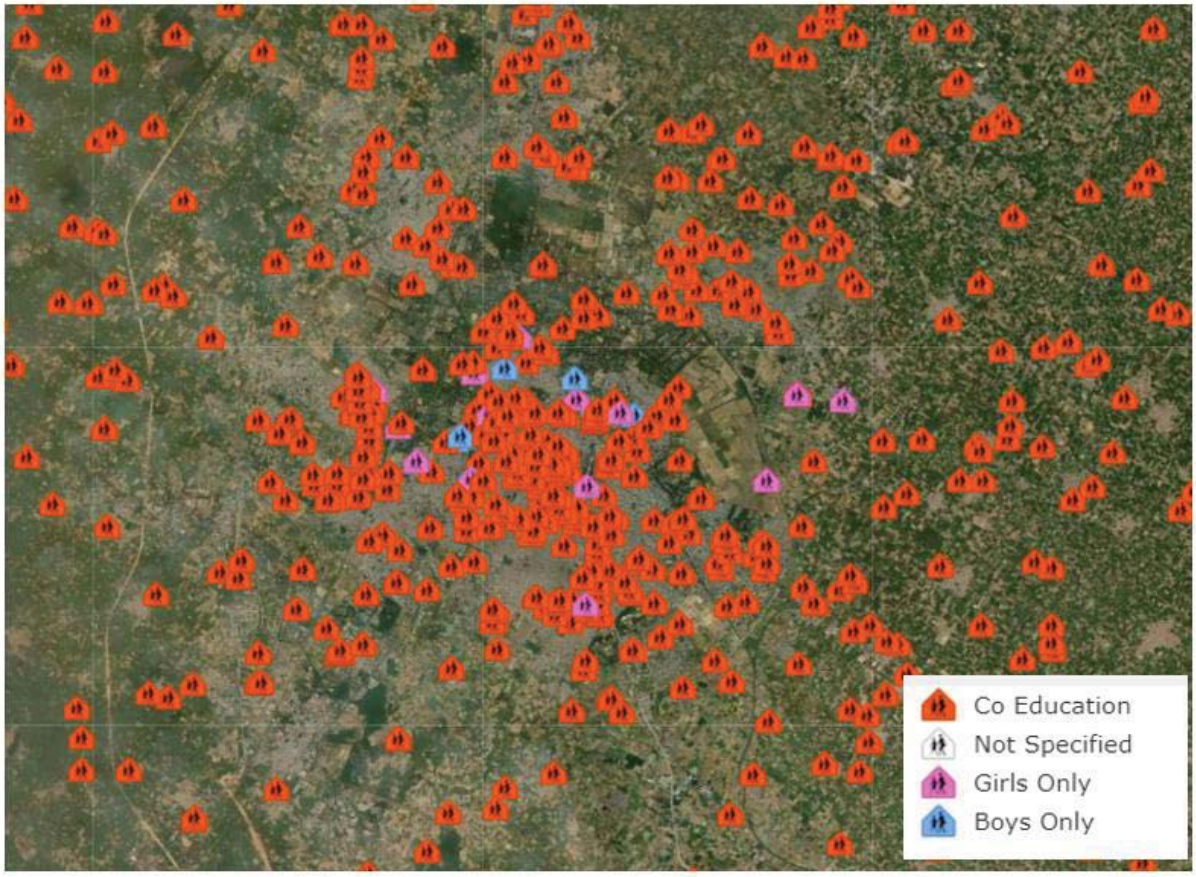
Chapter 11. Public and Semi Public

11.1 Analysis of existing situation

11.1.1 Educational

There are many play schools for kids in Meerut which offer nurturing environment for kids at an early age. These play schools provide an environment to learn & discover new things every day. The location of kids play schools within Meerut city is marked in the following given map.

Map 22 Location of Kids/ Play School



Source: *https://schoolgis.nic.in/*

The norms for providing access to basic education under centrally sponsored Programmes of Sarva Shiksha Abhiyan (SSA) for primary and upper primary education respectively is based on the distance and population criteria. This norm is of providing a primary school (Classes 1 to 5) in a radius of 1 Km. and at least 300 population and providing an Upper primary school (Classes 6 to 8) in a radius of 3 Km. and at least 800 population under Sarva Shiksha Abhiyan (SSA) in

order to fulfill the commitment under Right to Education Act (RTE) to provide free and compulsory education to children up to age of 14.

Meerut is an important education center for western UP. Meerut serves not only the higher education requirement for the city but also the entire region and the rural population surrounding Meerut. In Meerut there are also number of primary, secondary, senior secondary schools and colleges in the city. In Meerut there are 645 primary schools, 104 junior high schools, 74 higher secondary schools and 12 secondary schools. For higher education there are 2 universities, 1 medical college, 4 ITI and 8 other such higher education institutions. By state government, higher education policy, private institutions are encouraged and many private company are setting up institutions there. This city is evolving and re-evolving as an important educational center for the entire northern India. As per URDPFI guidelines, one primary school (Class I-V) is required for 5,000 Population and one Senior Secondary School (Class VI- XII) is required for 7,500 populations, one college is required for 1.25 lakh population, one medical college is required for 10 lakh population, one technical education institute like ITI is required for 10 lakh population.

11.1.2 Health

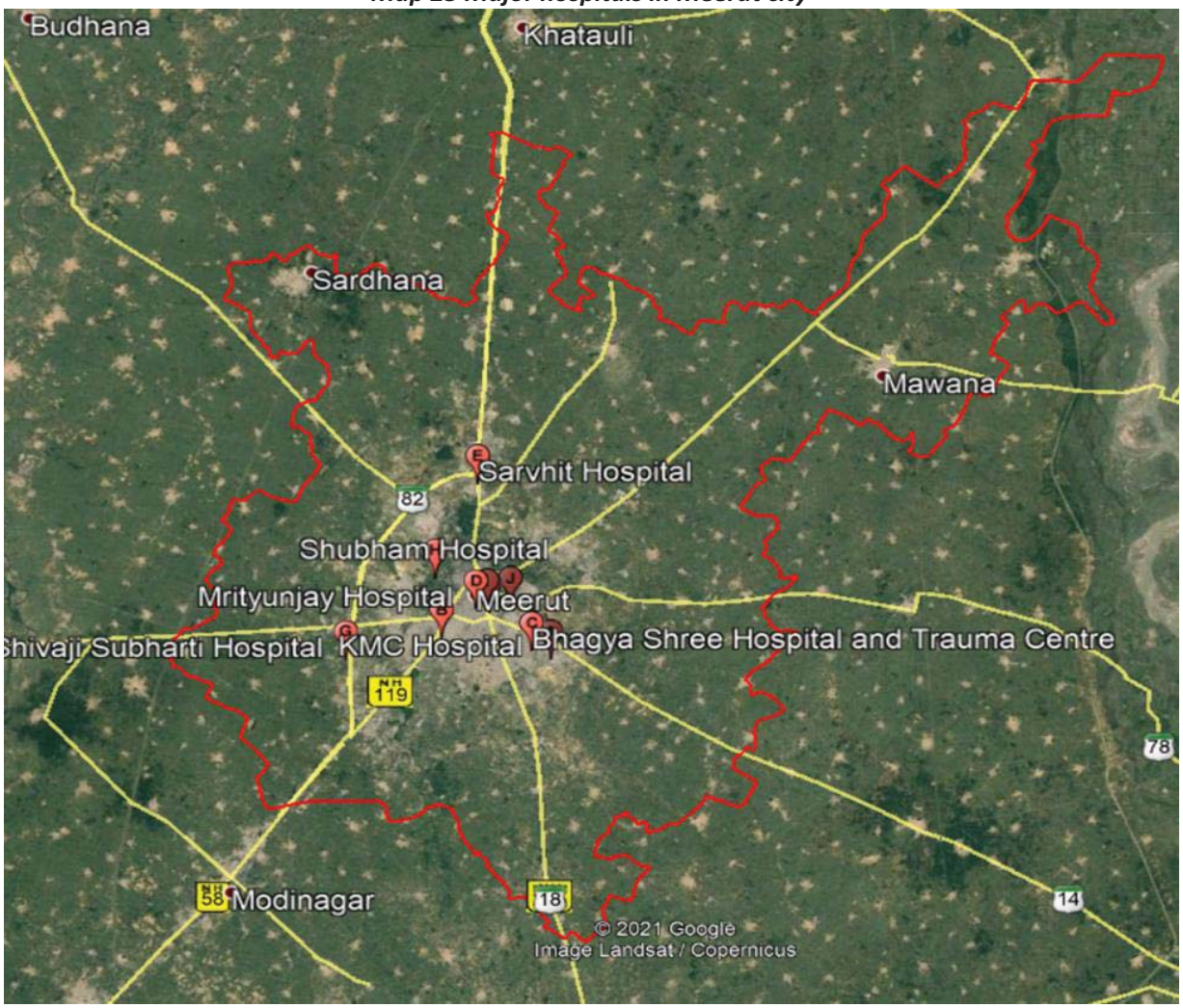
The existing health faciltiies available in city is shown in the below given table.

Table 11.1 Details of hospitals

Type of Hospital	No. of Units		No. of Beds		No. of Doctors		No. of Nurses		No. of Paramedical staff		Patients Treated	
Hospital	Govt	Pvt	Govt	Pvt	Govt	Pvt	Govt	Pvt	Govt	Pvt	Govt	Pvt
Allopathic	2	110	1466	4094	146	736	158	682	59	732	1421377	NA
Ayurvedic	15	NA	81	NA	12	NA	1	NA	19	NA	231763	NA
Homeopathic	0	0	0	0	0	0	0	0	0	0	0	0
Unani	3	NA	12	NA	2	NA	0	NA	1	NA	36995	NA
Family welfare & maternity center	1	61	100	536	13	936	12	89	11	109	102413	NA
Others	0	0	0	0	0	0	0	0	0	0	0	0
Dispensary												
Allopathic	0	0	0	0	0	0	0	0	0	0	0	0
Ayurvedic	3	257	0	NA	2	257	0	0	4	NA	36893	NA
Homeopathic	12	NA	0	NA	9	NA	0	NA	5	NA	130831	NA
Unani	1	68	0	0	0	68	0	NA	1	NA	14216	NA
Others	0	0	0	0	0	0	0	0	0	0	0	0
Primary	69		544		158		68		187		1232404	
Nursing Home	61		876		936		162		69		NA	

The major hospitals in Meerut city is mentioned in below given map.

Map 23 Major hospitals in Meerut city

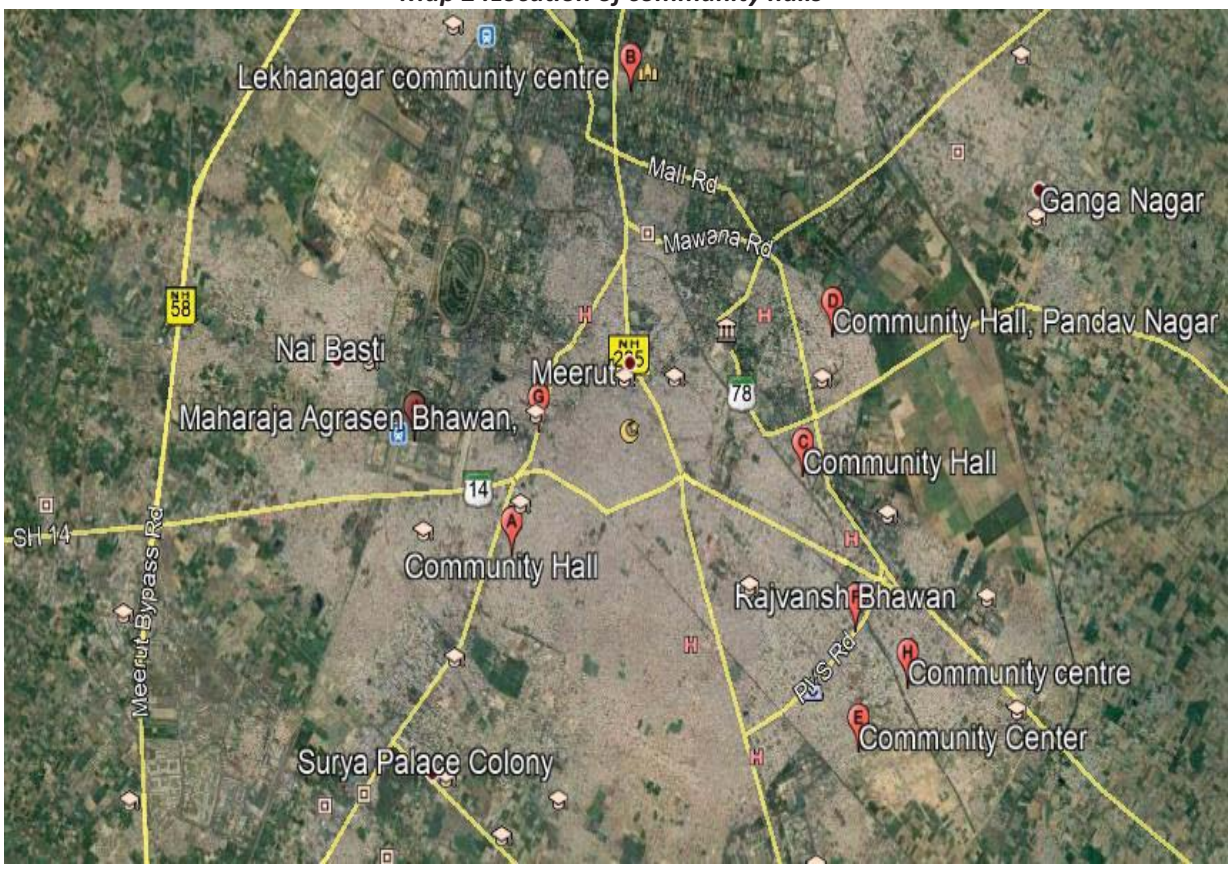


Sourc: CMO, Meerut and Consultant's Analysis

11.1.3 Community halls

Meerut has around 10 community halls. The location of community halls are shown in the below given map. These community halls are spreaded all over the city.

Map 24Location of community halls

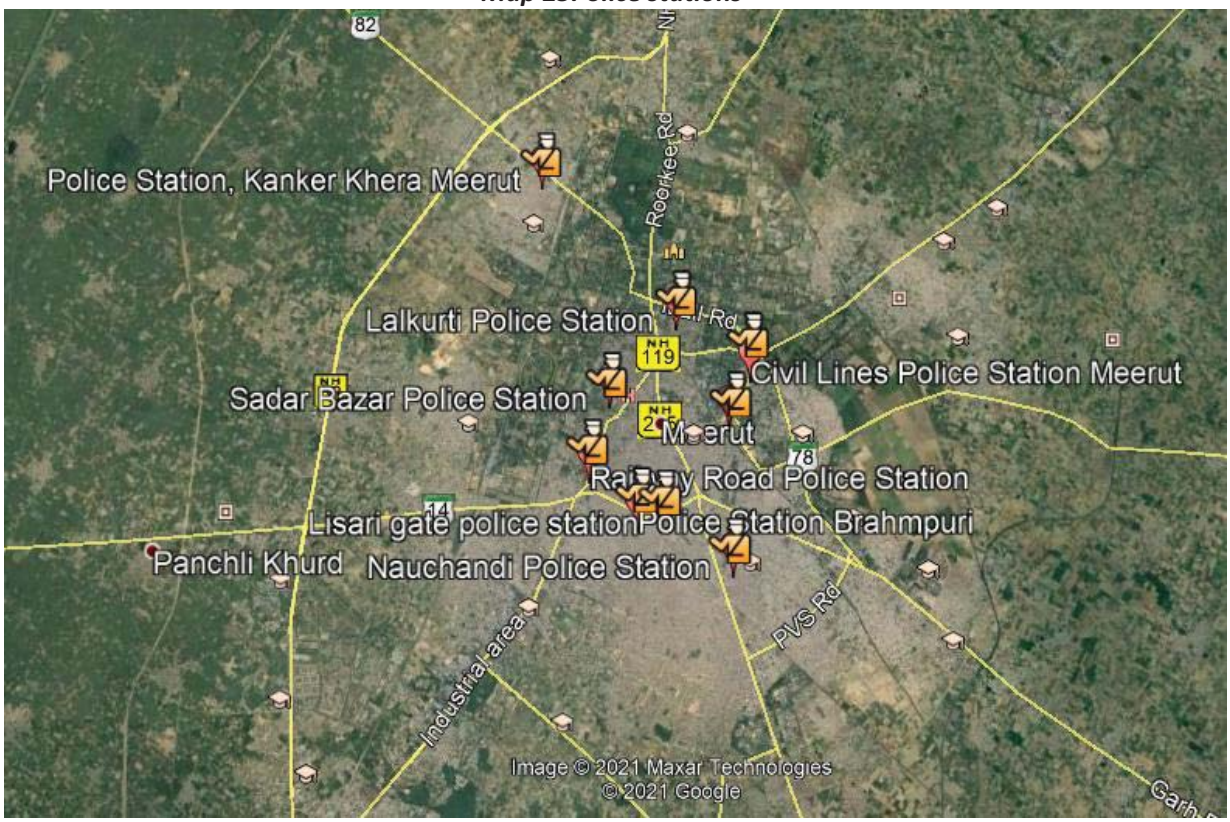


Source: Consultant's Analysis

11.1.4 Police stations

There are a total of 11 police stations located in Meerut. The names of the stations are Zahid nagar police station, police check post, Thana nochandi, city kotwali police station, police chawki, Abu lane police station, police post Topkhana, police station kanker khera, and police check post kirti palace.

Map 25Police stations



Source: Consultant's Analysis

11.1.5 Fire stations

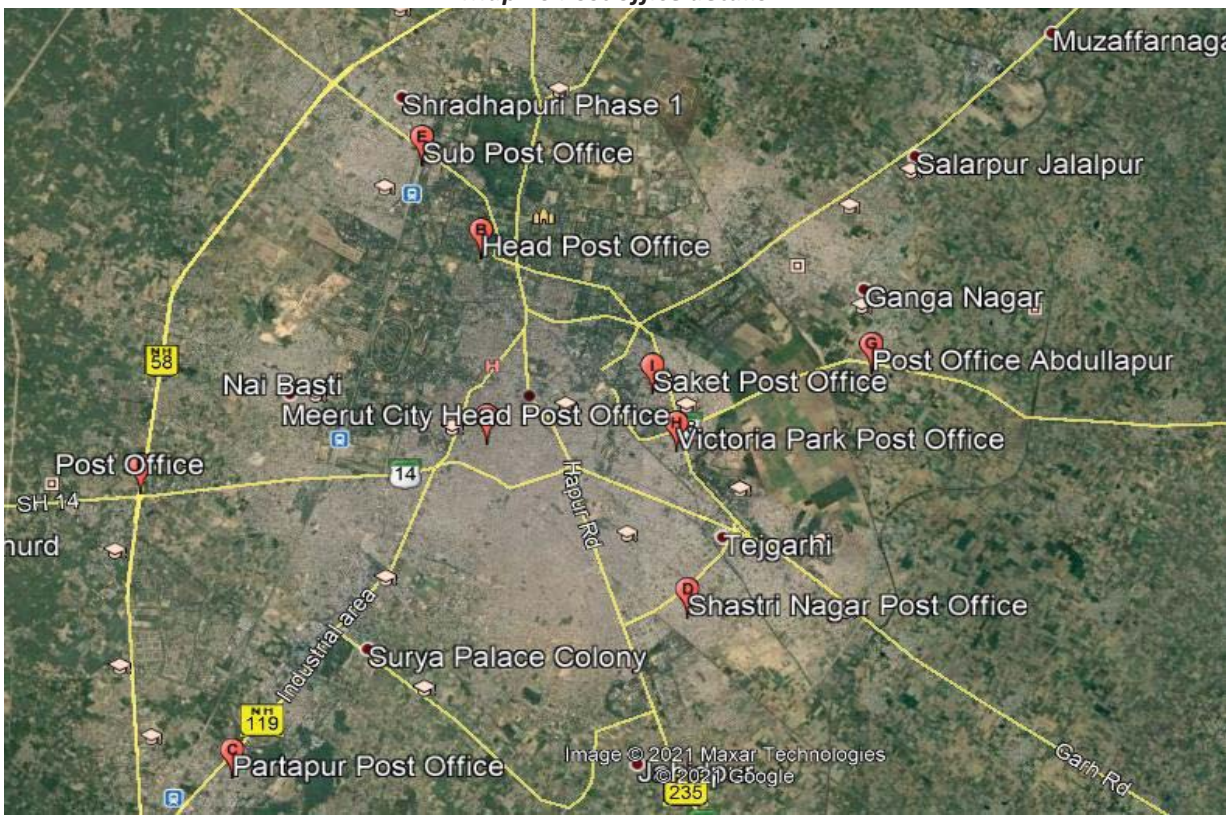
The existing details of the fire stations are given below. There are a total of 5 fire stations located in Meerut. The names of these fire stations are; Fire station Partapur, fire station Mawana, unitech fire services (Arya Nagar and Unitech fire services in patel nagar).

Figure 11-1 Fire station Partapur and Mawana

11.1.6 Post offices

The location of post offices are shown in the below given map. There are a total of 10 post offices located in Meerut. Cantonment post office is located near the cantonment station road. The Meerut city head post office is located near the Apsara cinema road.

Map 26 Post office details



Source: Consultant's Analysis

11.2 Recent trends

The recent trends of the educational facilities, medical facilities, community services, police and fire station services are mentioned in the table below.

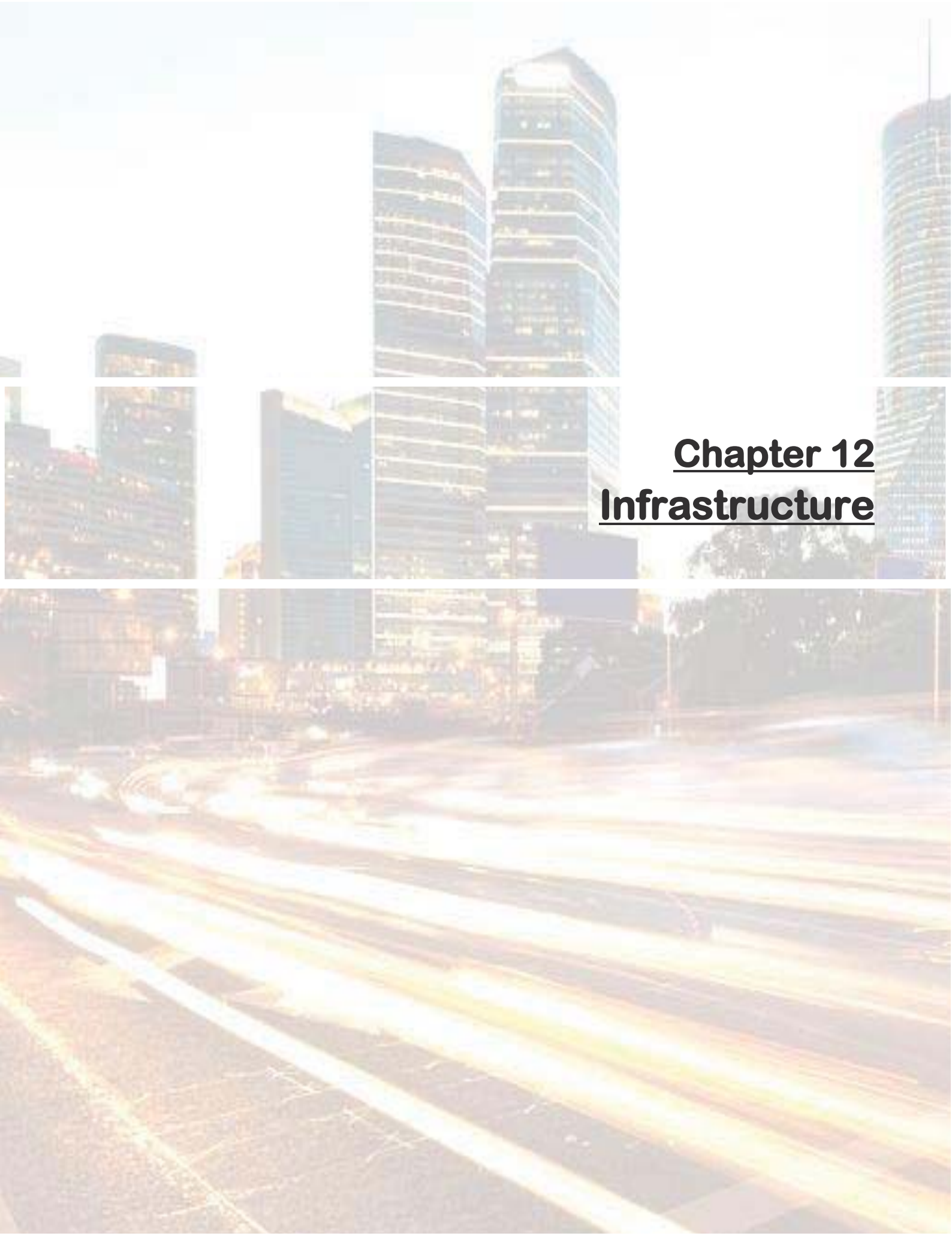
Table 11.2 Recent trends of Public/ semipublic facilities

Categories	Standards (URDPFI) Population standards	Existing Units
Educational (Primary schools)	2500	330
senior sec school	7500	124
colleges	1,25,000	27
Engineering colleges	10,00,000	14
medical colleges	10,00,000	2
Dispensary	15,000	8
Nursing home	1,00,000	33
Specialty hospital	1,00,000	20

Categories	Standards (URDPFI) Population standards	Existing Units
General hospitals	2,50,000	3
Community halls	15,000	32
Police stations	90,000	11
Fire stations	2,00,000	5

11.3 General policies for community facilities and services

The community facility and services elements contains policies and actions for public facilities that provide health other services as well as community facilities that includes library, police stations and other municipal facilities such as maintenance yards. A well balanced and adequate public facility system will lead to sustainability and enhance the quality of life for its residents. The goal for community services and facilities is to provide high quality, accessibility, efficiently managed, and properly funded community facilities to support the efficient, equitable and resilient delivery of municipal services.



Chapter 12
Infrastructure

Chapter 12. Infrastructure

12.1 Analysis of existing networks and installations

12.1.1 Water supply-water works and reservoirs

The following section provides details of the existing water supply system in Meerut City from source to consumer end. This section also presents the water supply related issues and the status of existing service levels. Water supply functions are taken care by Jal Nigam and Nagar Nigam. Jal Nigam is involved in planning, design, construction and implementation of water supply systems whereas Nagar Nigam only takes care of operation and maintenance.

Existing situation/Network

Currently, ground water is the main source of water for the city. There is no surface water source. There are 157 tube wells established at various locations within the city. The total capacity available from these sources is 259MLD. The per capita water supply is calculated to be 175 LPCD.

Refer below given table for the existing status of piped water supply in Meerut city.

Table 12.1 Existing status of water supply in Meerut city-2011

	Population – 13,05,429		
	Location of source of drinking water	**Total number of households**	**Households availing tap water from treated source**
2011 (Census data)	Within the premises	53,911	28,747
	Near the premises	34,626	6,539
	Away	13,208	842
	Total	**1,01,745**	**7,844**
2015 (as per Nagar Nigam)	**Population – 14,86,303**		
	Total	**2,32,144**	**1,17,526**

Source AMRUT SLIP

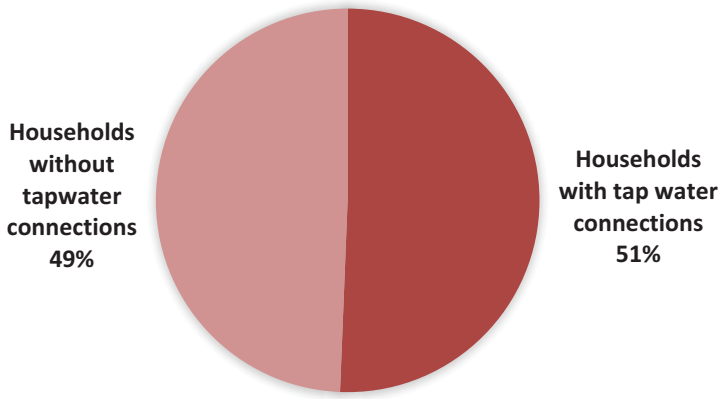
For water supply, the city is divided into 9 zones. The below table indicates the number of connections and the zone wise coverage of water supply.

Table 12.2 Coverage of water supply in Meerut city

Zone	Households with tap water connections	Households without tapwater connections
Zone 1	13951	13602
Zone 2	10018	9767
Zone 3	12219	11914
Zone 4	14731	14363
Zone 5	17559	17120
Zone 6	6796	6626
Zone 7	19420	18934
Zone 8	17395	16960
Zone 9	5453	5316
Total	**11,7,542**	**1,14,602**

Source AMRUT SLIP

Figure 12-1 Tap Water supply coverage in Meerut city



In Meerut city, the water is supplied to the consumers through direct pumping as well as elevated reservoirs. Around 55% of water available is supplied through direct pumping and 45% is supplied through reservoirs. The total water storage capacity in the city is 83.7 ML. The capacity of elevated tanks is 67.7 ML and ground water reserves are 16 ML. There are 56 over head tanks and 3 underground water tanks.

Water Source and Supply: The following table shows ward wise details of the water supply within the city.

Table 12.3 ward wise details of the water supply with in the city

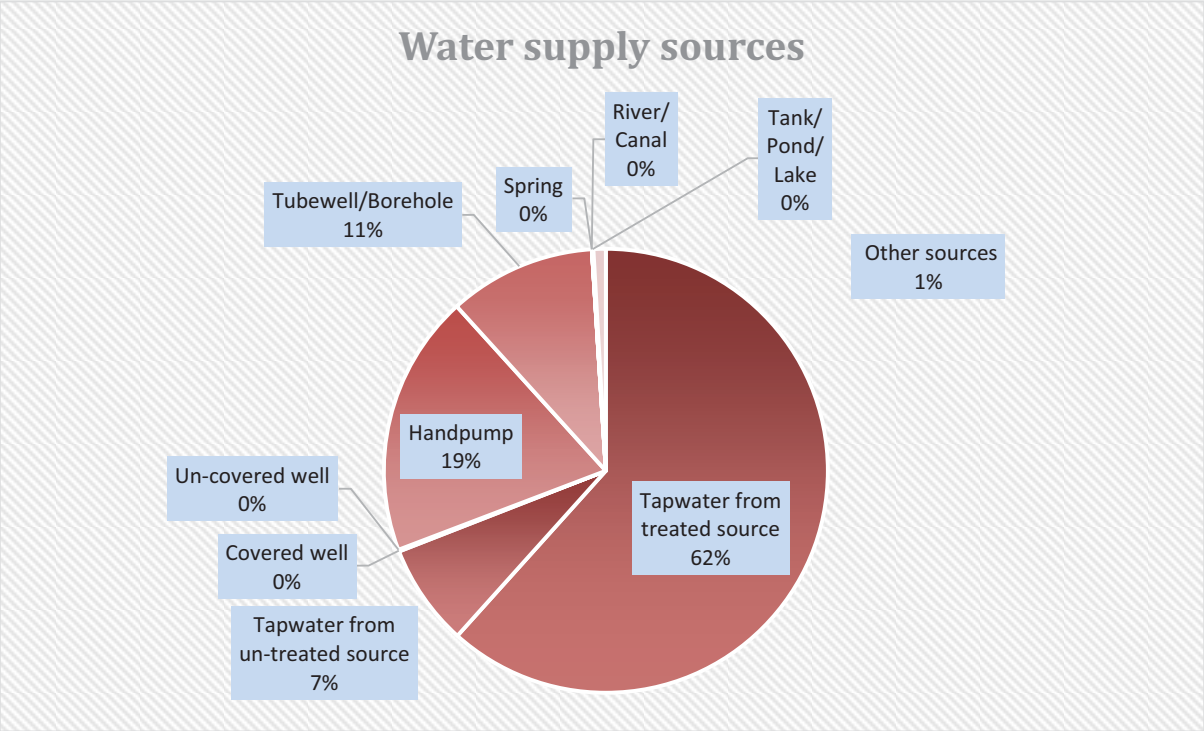
Ward	No. of Households covered by									
	Tap water									
	Tapwater from treated source	Tapwater from un-treated source	Covered well	Un-covered well	Hand pump	Tubewell/Borehole	Spring	River/ Canal	Tank/ Pond/ Lake	Other sources
Meerut (M Corp.)	143233	17179	232	0	44107	24839	0	0	232	2089
Ward No 1	1451	89	15	0	1625	627	0	0	0	62
Ward No 2	2653	293	0	3	27	42	0	0	0	3
Ward No 3	744	397	2	0	517	554	0	0	2	100
Ward No 4	1279	266	4	0	1214	1009	0	0	0	30
Ward No 5	1573	464	16	0	1307	582	0	0	0	16
Ward No 6	968	311	3	0	1521	343	0	0	0	124
Ward No 7	1106	114	30	0	2165	166	0	0	0	107
Ward No 8	1954	374	3	5	40	261	0	0	0	0
Ward No 9	566	271	10	0	1484	1119	0	0	0	21
Ward No 10	1617	169	4	0	1278	639	0	0	0	49
Ward No 11	1364	79	5	0	3154	585	5	0	0	74
Ward No 12	2052	386	6	0	454	272	0	0	0	71
Ward No 13	1498	286	5	0	2164	700	0	0	0	47
Ward No 14	2195	740	8	0	870	349	0	0	0	46
Ward No 15	2741	529	4	0	49	449	0	0	0	4
Ward No 16	2151	80	14	0	412	828	0	0	0	7
Ward No 17	3428	185	0	0	4	78	0	0	0	7
Ward No 18	3006	72	0	0	130	192	0	0	0	24
Ward No 19	1916	149	3	3	109	668	0	0	0	9
Ward No 20	2002	195	3	3	678	328	0	0	0	39
Ward No 21	1648	335	10	3	400	876	0	0	0	7
Ward No 22	2030	19	0	0	26	69	0	0	0	0

Ward	No. of Households covered by									
	Tap water									
	Tapwater from treated source	Tapwater from un-treated source	Covered well	Un-covered well	Hand pump	Tubewell/Borehole	Spring	River/ Canal	Tank/ Pond/ Lake	Other sources
Ward No 23	882	42	7	4	1813	682	0	0	0	84
Ward No 24	1830	102	3	0	900	319	0	0	13	29
Ward No 25	2341	935	0	5	1028	848	0	0	0	5
Ward No 26	907	89	4	7	2585	55	0	0	0	41
Ward No 27	2350	294	10	0	1224	1157	0	5	31	98
Ward No 28	2509	242	4	0	304	1018	0	0	0	29
Ward No 29	2842	97	0	0	3	181	0	0	0	3
Ward No 30	3456	343	4	0	59	314	0	0	0	0
Ward No 31	3007	31	7	0	114	215	0	0	0	94
Ward No 32	1391	74	0	0	322	834	0	0	0	16
Ward No 33	521	177	7	0	2483	413	0	0	0	18
Ward No 34	2839	459	4	0	36	240	0	0	0	4
Ward No 35	1938	187	0	0	84	66	0	0	0	0
Ward No 36	2123	12	0	0	74	99	0	0	0	2
Ward No 37	2283	21	0	0	16	0	0	0	0	2
Ward No 38	1193	675	2	0	29	8	0	0	0	0
Ward No 39	1553	194	3	0	420	1106	0	0	0	10
Ward No 40	1345	196	2	2	41	334	0	0	39	4
Ward No 41	2539	144	0	0	23	122	0	0	0	0
Ward No 42	2222	5	0	2	0	122	0	0	0	0

Ward	No. of Households covered by									
	Tap water									
	Tapwater from treated source	Tapwater from un-treated source	Covered well	Un-covered well	Hand pump	Tubewell/Borehole	Spring	River/ Canal	Tank/ Pond/ Lake	Other sources
Ward No 43	1972	322	0	0	20	161	0	0	0	0
Ward No 44	1401	123	0	0	76	6	0	0	0	10
Ward No 45	1913	96	0	0	11	106	0	0	0	0
Ward No 46	2908	19	0	3	34	137	0	0	0	3
Ward No 47	2528	203	0	0	6	200	0	0	0	3
Ward No 48	1186	462	0	0	3	42	0	2	0	0
Ward No 49	2579	385	0	0	22	96	0	0	6	12
Ward No 50	1922	51	0	0	12	288	0	0	0	30
Ward No 51	1606	254	0	0	11	38	0	0	2	0
Ward No 52	2442	248	0	0	14	22	0	0	0	0
Ward No 53	2097	204	0	0	54	88	0	0	0	7
Ward No 54	1449	642	4	0	13	11	0	0	0	0
Ward No 55	871	321	1	0	4	213	0	0	0	0
Ward No 56	1916	19	2	0	8	168	0	0	0	8
Ward No 57	3407	124	4	0	62	520	0	0	4	8
Ward No 58	1474	739	0	0	262	20	0	0	0	0
Ward No 59	1261	49	2	0	79	278	2	0	0	5
Ward No 60	2128	277	0	0	26	128	0	0	0	3
Ward No 61	1857	16	0	0	6	76	0	0	30	4
Ward No 62	1771	35	18	4	61	61	2	0	0	8

Ward	No. of Households covered by									
	Tap water									
	Tapwater from treated source	Tapwater from un-treated source	Covered well	Un-covered well	Hand pump	Tubewell/Borehole	Spring	River/ Canal	Tank/ Pond/ Lake	Other sources
Ward No 63	731	67	15	3	1963	202	0	3	0	76
Ward No 64	1911	2	0	0	83	128	2	0	0	0
Ward No 65	1462	188	7	0	66	122	0	0	0	0
Ward No 66	1819	17	0	0	32	9	0	0	0	2
Ward No 67	1480	410	3	0	1213	89	0	0	116	103
Ward No 68	2257	81	0	0	10	38	0	0	0	7
Ward No 69	1495	412	2	0	112	106	0	0	0	28
Ward No 70	1403	206	0	0	58	43	2	0	0	2
Ward No 71	2720	114	23	4	467	425	0	0	0	42
Ward No 72	979	255	9	0	1231	323	0	3	0	132
Ward No 73	1925	243	7	3	979	110	3	3	0	57
Ward No 74	179	24	4	0	1443	197	0	0	0	30
Ward No 75	690	85	3	0	1722	53	0	0	0	98
Ward No 76	644	40	7	0	944	76	0	0	0	12
Ward No 77	1096	139	5	0	866	347	0	0	0	27
Ward No 78	551	141	0	0	1037	710	0	0	0	42
Ward No 79	1466	70	2	4	162	219	2	0	16	18
Ward No 80	1372	30	2	2	16	153	0	0	0	0
Total	**286114**	**34414**	**555**	**61**	**88483**	**49715**	**18**	**16**	**491**	**4151**

Figure 12-2 Water supply sources in Meerut city



Source Census of India

According to the 2021 Master Plan 258MLD is proposed to be supplied in Meerut city but according to the existing situation 360 MLD of water is supplied in the city. The time hour for supply of water is 8 hours total number of connections is 123855. Per capita consumption is 155 lpcd. Still there is no metering facility available for the collection of water supply charges. The details of the water supply ward wise are mentioned in the below given table.

Table 12.4 Total Ward supply details year 2020-21

Wards	Quantity of water supplied (MLD)	Time hours of supply per day	No of connections	Per capita consumption	Metering Achieve
90	360	8	1,23,855	155	No Meter

Source Water supply department Meerut

Total numbers of overhead tanks/ reservoirs in Meerut are 52 OHT and 4 reserves. There is a water treatment plant and its capacity is 100MLD. Treated supply as percentage of total water supplied is 100%. Supply Infrastructure 2020-21 for all the wards in Meerut are mention in the below given table.

Table 12.5 Supply Infrastructure 2020-21

Wards	No of Overhead Tanks/Reservoirs	Capacity of WTPs	Treated supply as % of total water supplied
90	52 OHT, 04 Reserves	100	100%

Source Water supply department Meerut

12.1.2 Availability and Capcity of Water storage in other towns within MDA

Over Head Reservoirs are located in the towns of Mawana, Hastinapur and Sardhana. The capacities of water storage are as mentioned below:

- Mawana- 890 Kilo Litres (OHT)
- Sardhana- 225 Kilo Litres (OHT)
- Hastinapur- 100 Kilo Litres (OHT)
- Bahsuma- 650 Kilo Litres (OHT)
- Kharkhauda- 200 Kilo Litres (OHT)
- Lawar- 350 Kilo Litres (OHT)

The other sources to complete water demand is Tube Wells, Borewells and Hand Pumps consuming ground water.

Rain Water Harvesting

The government of Meerut is working on the implementation of the rain water harvesting scheme in the city. Notification number 1703A/9-A-1-29/ 98(A.B) dated April, 2001. According to this notification of Meerut Development Authority has taken various steps to preserve water under the rain water harvesting scheme these are as under:

For various schemes of 20 acres and more area, pond reservoirs should be constructed on about 5% of the land in the total planning area. In the plan of area less than 20 acres, pond reservoirs should be constructed. Plots of all uses of thousand square meter and more area and rainy water from all the open space and from the roofs in all group housing scheme should be made compulsory for groundwater recharge. Rooftop rain water harvesting and recharge system adopted in previously constructed government buildings and funding for the development should be collected by the department itself from their own budget.

Issues

MoUD has prepared the service-level benchmark (SLB) toolkit for gauging the performance of the basic urban services. It is a useful tool for monitoring performance and taking necessary actions to improve the service delivery. The following table shows the SLB for water supply in Meerut city for the year 2015

Table 12.6 Service level benchmark indicators for water supply in Meerut city

Sl. No.	Indicators	Present status	MoUD Benchmark
1	Coverage of water supply connections (117526/232144)	50.63%	100%
2	Per capita supply of water	175 LPCD	135 LPCD
3	Extent of metering of water connections	0%	100%
4	Extend of non-revenue water	65%	20%
5	Quantity of water supplied	100%	100%
6	Cost recovery in water supply services	40%	100%
7	Efficiency in collection of water supply related charges	70%	90%

Source AMRUT SLIP

The service level benchmark indicator assessment shows that the city lacks around 50% of water supply connections presently to achieve complete coverage. There is sufficient per capita water supply available than the desired level as per MoUD benchmark. Presently, the city doesn't have any metered water connections and cost recovery is only about 40%.

12.1.3 Sewerage- sewerage network and treatment plants

Existing situation/ Network

The sewerage system in Meerut city is partially developed. The total length of sewerage network in Meerut Nagar Nigam is about 209 Km, out if which 23 Km is trunk sewer. The details of total households with toilets in the city are given in the table below.

Table 12.7 Number of households with toilets and sanitation facilities

	Population	Total number of households	Total number of households with toilets
Census data (2011)	1305429	228991	218286
Departmental data (2015)	1486303	232144	117526

Source AMRUT SLIP

The zone wise coverage details of sewerage network in Meerut city is given in the table below.

Table 12.8 zone wise coverage details of sewerage network in Meerut city

Zone no.	Total no of households (HH)	Households with sewerage network	Coverage
1	27554	20800	75%
2	19785	8000	40%
3	24133	14500	60%
4	29094	11600	40%

5	34680	15500	50.40%
6	13421	10100	75%
7	38354	17889	50.60%
8	34355	13700	40%
9	10769	5453	50.64%
Total	232144	117542	50.63%

Source AMRUT SLIP

Sewer disposal

The grey water from the households and commercial establishments are directly released into open and closed drains running along the roads. These open drains serve the combined purpose of grey water discharge and channeling the rain water. While the black water is disposed into septic tanks constructed privately at household level. These septic tanks are there after cleaned periodically by households at personal level.

Sewage generated

At present, the sewerage generated in the city is around 378.5 MLD out of which 366.91 MLD is generated from Meerut Nagar Nigam and 11.59 is generated from the Cantonment Board area.

STP and its capacity

Presently, in Meerut city there are total 13 Sewage Treatment Plants (STPs) of varying capacities. 12 of these are maintained by Meerut Development Authority (MDA), while 1 STP of capacity 72 MLD located at Kamalpur is maintained by the Meerut Nagar Nigam through Uttar Pradesh Jal Nigam (UPJN). The following table shows the details of the STPs in the city.

Table 12.9 Details of the STPs in the city

Sl. No	Location	Capacity of STP in MLD	Present Collection and Treatment (MLD)	Discharge into	Maintained by
1	Pallavpuram Phase 2	11	8	Abu Nala - 1	Meerut Development Authority (MDA)
2	Pallavpuram Phase 1	7	6.5	Abu Nala - 1	
3	Rakshapuram	6	4.4	Abu Nala - 1	
4	Ansal Colony	5	3.5	Abu Nala - 1	
5	Ganga Nagar	10	3.8	Abu Nala - 1	
6	Pandav Nagar	3	2.7	Abu Nala - 2	
7	Sharadhapuri Phase 1	6	5.9	Abu Nala - 2	
8	Sainik Vihar/ Sharadhapuri Phase 2	6	5.6	Abu Nala - 2	
9	Ved Viyaspur	15	4.5	Kharauli Nala	
10	Shtabti Nagar	15	4.8	Kharauli Nala	
11	Sports Goods Complex	7	4	Kharauli Nala	
12	Lohia Nagar	10	2	Odean Nala	
13	Modipuram Tiraha	5	4.9	-	
14	Kamalpur Village	72	65	Kali Nadi	Meerut Nagar

					Nigam
	Total	**179**	**127.6**		

Source: National Inventory of STPs, March 2021, CPCB, Delhi

12.1.4 System of Sewerage disposal in other towns within MDA

There is no proper sewerage systems are laid in the towns located within MDA. Only in Hastinapur a pit type sewer system is located. The system of sewerage disposal located in towns is as mentioned below:

- Mawana- Open Sewer Drain
- Sardhana- Open Sewer Drain
- Hastinapur- Sewer System (Pit System)
- Bahsuma- Open Sewer Drain
- Kharkhauda- Open Sewer Drain
- Lawar- Open Sewer Drain

There is a strong need to provide proper sewerage system in the towns for hygine and better sanitation.

12.1.5 Solid waste management

The city of Meerut has a 100% door to door collection of solid waste. The Solid Waste generation in Meerut city is estimated to be 800 Ton per day. Meerut city is divided into 90 wards. Door to door collection of Solid waste is being practiced in all the 90 Wards. Partial source segregation of Solid waste is done. The city has a Air Ballistic Separator of 150 TPD at Village Gawri wherein the Separation of waste into Plastic waste, Inert waste and Bio degradable waste is done. The Plastic waste, after separation, is sent to Waste to Energy plant of 1.0 MW capacity at Mohiddinpur, Delhi Road, Meerut. For disposal of the Inert waste component is land filling site is not available.

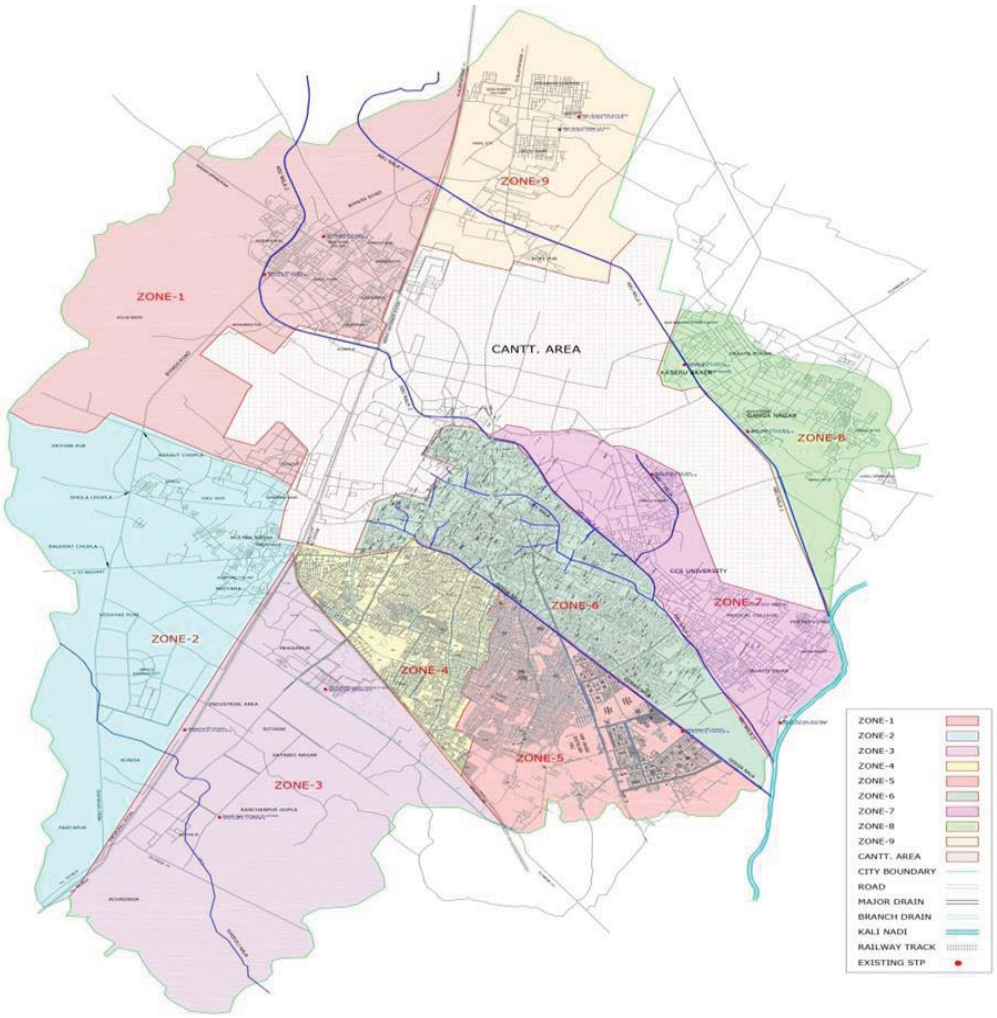
The Bio degradable constituent is being dumped at scattered sites and subjected to composting through temporary measures like mixing of culture etc. Rest of solid waste of city, approximately 650 TPD, is being dumped at present at Lohia Nagar, Hapur Road and Mangatpuram, Delhi Road, Meerut. It is evident from the table that due to the shortage of treatment and processing facility, most the garbage collected is either burnt or dumped in the dumping sites. This further adds in to the deterioration of air quality of the city. There is no propoer solid waste management in the towns located within the MDA.

12.1.6 Distribution Network

The distribution network is very important component of physical infrastructure planning the existing city zonal plan is mentioned in the below given map. In this map the location of existing sewerage treatment plant is mentioned in the city. The major drains and branch drains are also

mentioned as per the zones. The city is divided into total of nine zones. In nine zones total 13 Sewerage treatment plants are present.

Map 27 Infrastructre Distribution and Facility Zones



12.1.7 Commitments

1. Storm water drainage and rain water harvesting system in Modipuram, Meerut (UP)

The status of the work is ongoing. The scope of the work is:

- Planning and designing rain water harvesting and conservation measures / structures in factory area.
- Planning & Designing of the Roof-top rainwater harvesting system
- Artificial Recharge: Planning within the campus

(a) Design of drainage in the area

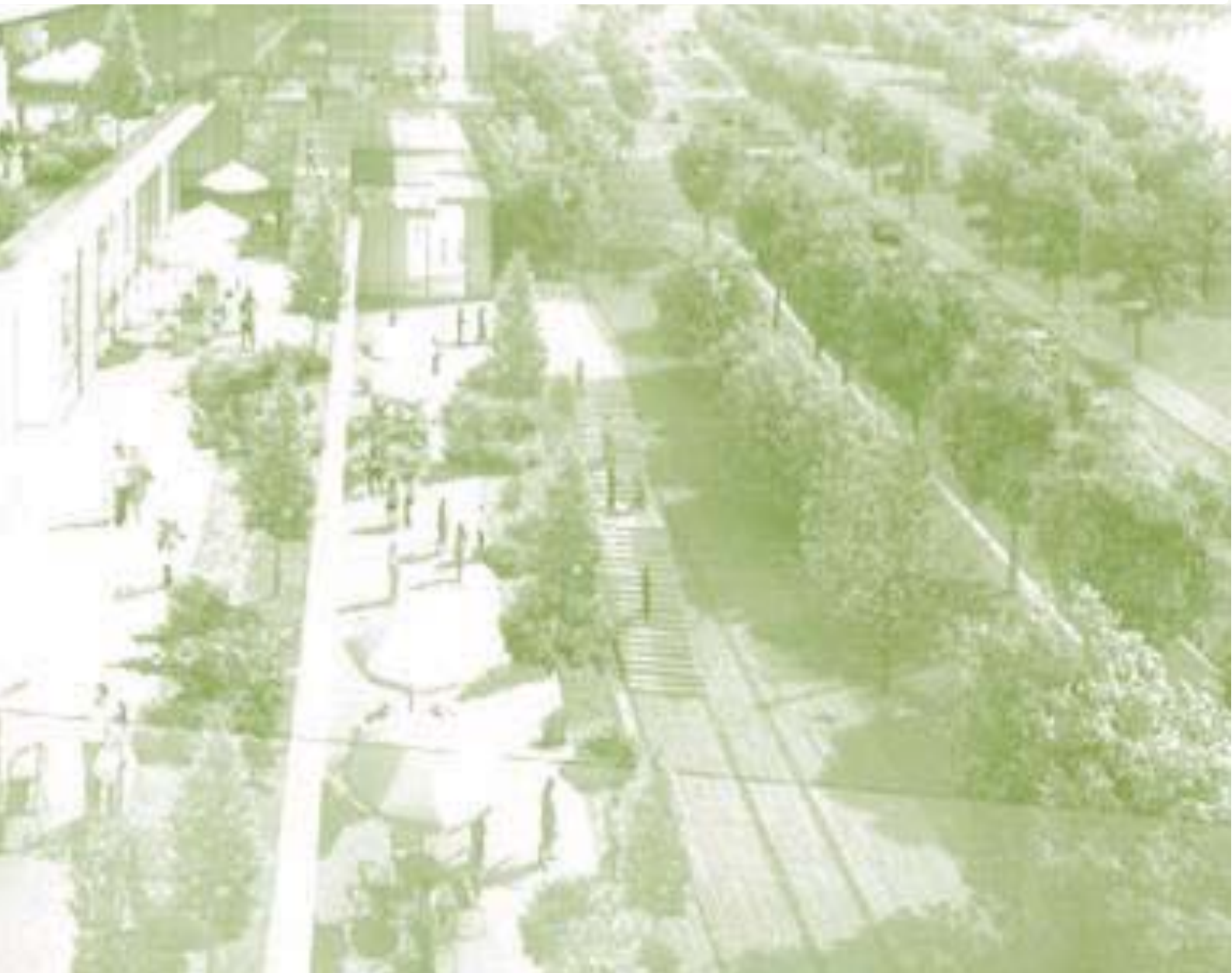
(b) Study of drainage pattern and planning for artificial recharge

(c) Design for artificial recharge structures

(d) Integration of drainage with recharge structures

- Storm water Drain System.

Chapter 13
Recreation & Leisure



Chapter 13. Recreation and leisure

13.1 Analysis of existing situation and potential

13.1.1 Parks and other recreational places in Meerut

Presently the total number of parks available in the city is 394 with a total area of around 67.6 hectares. The open space availability in the city is around 0.46 sqm per person which is lesser than the standard requirement of 3 Sq. m. The parks are jointly maintained by Nagar Nigam, MDA and UPAVP. The following table gives the hierarchy of organized greens in the city.

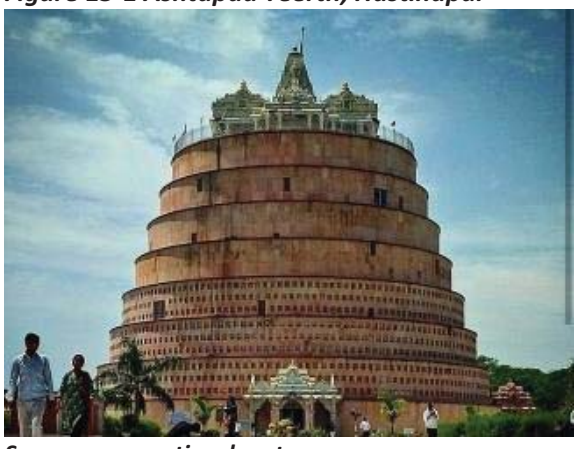
Sl. No	Category	No. of parks	Area under the category (in sq.m)
1	Housing area park (less than 5000 sq. m)	384	452555
2	Neighbourhood park (5000 - 10000 sq. m)	5	41500
3	Community park (10000 - 50000 sq.m)	4	97246
4	District park (50000 - 250000 sq.m)	1	85000
5	Sub-city park (250000 sq.m and above)	-	-
	Total	**394**	**676301**

13.1.2 Tourism/pilgrimage areas

The major tourism/ pilgrimage areas in Meerut are covered in this section

Ashtapad Teerth

Figure 13-1 Ashtapad Teerth, Hastinapur



Source www.nativeplanet.com

The Ashtapad Teerth is one of the major religious and tourist attractions in Meerut. It is located in Hastinapur in Meerut, nearly 40 kms away from Meerut city and Meerut City Railway Junction. It is a 151 feet high temple having four statues of Bhagwan Rishabhadev Ji facing in all the four directions with four Rang Mandaps (gates) attached with prayer halls.

The Ashtapad Teerth was founded by the Shri Hastinapur Jain Shwetambar Tirth Trust on January 31, 1996. It was inaugurated by Acharya Bhagwant Shrimad Vijay Indrditra Surishwar and is a shrine dedicated to Bhagwan Shri

Adinath Ji. Ashtapad Teerth is considered to be the tallest brick structure in Meerut district. It was re-established on December 2, 2009 by Gachhadipati Acharya Nityanand Surishwerji.

Augharnath Temple

Figure 13-2 Augharnath Temple, Meerut

The Augharnath Temple is one of the oldest Temples in Meerut city and is dedicated to Lord Shiva. The Temple holds a great significance in the History of India and is also called as the Kali Paltan Mandir. It is situated near the army barracks and housed many freedom fighters who came to visit and meet the head of army called the Kali Paltan (Black Army). The Fighters of war conducted their activities in and around this temple. On 10th May 1857, the Indian Soldiers took an oath to defeat the British Raj on the grounds of this temple. The Augharnath temple was originally composed of a small structure surrounded by trees and a well located at a distance. This well was used by the freedom fighters to quench their thirst. However, the main temple is now a part of a grand complex which is constructed in modern architecture.

Bhai Dharam Singh Gurudwara

Figure 13-3 Bhai Dharam Singh Gurudwara

Bhai Dharam Singh Gurudwara is a gurudwara located in Saifpur village, which is 2. 5 km away from the town of Hastinapur. It is dedicated to Bhai Dharam Singh, one of the five Sikhs of Panj Piare who created the first batch of Khalsa and received the Khanda di Pahul or the rites of the two-edged sword from Guru Gobind Singh. Born on 3rd November 1666, Bhai Dharam Singh had been a farmer when he answered a request of Guru Gobind Rai, which lead to his becoming one of the Panj Piare(the Five Beloved), the first five Sikhs to be initiated into the Khalsa. He was 33 years old when he was initiated int the Khalsa. He was the son of Bhai Sant Ram and Mai Sabho of Hastinapur. Dharam Singh died at Nanded in 1708 and a gurudwara preserves the memory of Bhai Dharam Singh. The Gurudwara is thus named after Bhai Dharam Singh and is one of the

holiest for Sikh community. Gurudwara means 'door to the guru' (guru + dwara). Over the years, the Sikh Gurus were revered spiritual instructors who built Sikhism. In Sikh gurdwaras, people of all faiths, as well as those who do not claim any faith, are welcome.

The scripture Guru Granth Sahib, the current and everlasting guru of the Sikhs, is placed on takhalmmlolt (an elevated throne) in a conspicuous central position in each gurdwara. Gurudwaras provide free vegetarian food for everyone in â˜langarsâ™. Bhai Dharam Singh Gurudwara is known for its beautiful architecture, spacious interiors, peaceful, divine and calm environment and stands as a true epitome of Sikh culture. The temple is not usually crowded and hence is recommended for those seeking a break from the humdrum of daily routine life.

Bhole ka Jal

Bhole ka Jal is named after Lord Shiva (Bholenath) and is situated near a temple abode to Lord Shiva and Parvati Ji. A branch of Ganga flows across this place and the water is considered holy. It is located at a distance of about 40 kms from Meerut on Baghpat road.

Figure 13-4 Bhole ka Jal

It has a British time power plant, a network of canals and a water treatment plant which are actually the main attraction of the place. A small rivulet runs through it where people enjoy a relaxing swim or a quick bath during summers. One can also learn about the different techniques of water usage, transportation and treatment during their visit. In addition to this, there is a devotional aspect to it as pilgrims go to worship Lord Shiva in the nearby temple. In fact, most people who visit the place are devotees of Lord Shiva and the scenic beauty around the Ganga canals makes it a wonderful picnic and pilgrimage destination at the same time.

Gandhi Park

Gandhi Park also known as Company Garden, is a gifted destination to Meerut's prestige. It is a semi-natural space kept aside from the busy lifestyle of Meerut. Adorably known for recreational and enjoyment purposes. Presently it's maintained by Meerut Cantonment Board but it was really embarked by East India Company. It reminds tourist about tinge of our unassertive past

Figure 13-5 Gandhi park, Meerut

Source *www.veethi.com*

Government Freedom Struggle Museum

Government Freedom Struggle Museum, established in 1997, is one of the main attractions in the Meerut City for visitors looking for a peak in the city's rich history and contribution in the freedom struggle. The museum is located at a distance of mere 1. 5 km from the Meerut city centre, well within the city limits. The museum is also just 6km away from Delhi Road within the compound of Martyr's Memorial or Shaheed Stambh, in the cantonment area in Meerut, U. P.

Figure 13-6 Government Freedom Struggle Museum

The Government Freedom Struggle Museum is rich in India's freedom struggle history and houses many stamps, collectables, art and artefacts, murals, paintings and memorabilia in very good conditions. The museum is particularly famous for beautifully preserving and depicting Meerut's role in the country's first freedom struggle of 1857.

The revolt of 1857 which began on 10th May 1857 in the form of a mutiny of soldiers in the East India Company's army in Meerut is the highlight of the museum. The museum consists of a total of five galleries of which three are open for visitors. The first Gallery has paintings, murals and antique letters depicting the early incidents of the rebellion and the various events that led to the war of 1857.

The museum showcases the painting of an elusive fakir distributing rotis (Chapatti) to his disciples. This fakir is believed to be a prominent figure in the revolt of 1857 and is renowned for planting the seeds of the rebellion in the Indian Soldiers. Another painting depicting the soldiers refusing to use the greased cartridges made out of Cow and Pig skin is housed in the first gallery of the museum. Other paintings depicting the court-martial of the 85 soldiers for refusing to use the cartridges and the subsequent events are also preserved in the museum.

The second gallery has paintings and artefacts depicting other great events of the war such as the attack and breakdown of the Baghpat Bridge, Lucknow Bagh and the siege of Lucknow, Sati Choura Ghat etc. The gallery also conserves a painting of Legendary Warrior and the icon of female power Rani Lakshmi Bai, the Queen of Jhansi during the war. Several collectables and priceless items such as the swords, Guns and the cartridges used during the war are on display in this part of the museum. The third gallery contains ancient coins and inscriptions that are collected from several excavation sites near the city that represents the heritage of the Meerut City. The museum also houses a library containing books about the incidents of the freedom struggle of the country.

Jama Masjid

Figure 13-7 Jama Masjid

Jama Masjid in Meerut is the sacred mosque for the followers of Islam. It was built by the Wazir of Sultan Mahmud Ghaznavi, Hassan Mahid, in the year 1019. It is located in the kotwali area of Meerut at a walking distance from the centre of the city. Jama Masjid is considered to be the first of it's kind in the entire northern part of India meaning that it is the oldest and the first mosque to be built in the region. Being an ancient building, it was refurbished by the Mughal Emperor Humayun in the 1500s. The tomb of Ghazi Sayyad Salar Masud, an Islamic saint was constructed by the first ruler of the Delhi Sultanate, Qutubuddin Aibak.

Since a number of Buddhist statuettes were found in the site during excavation, it is a popular belief that the Jama Masjid was built on the site near the remains of a Buddhist temple. The mosque has a quadrangular structure with an open sky courtyard and the walls have fine engravings on them,a beautiful sight to look at.

Sardhana Church

Sardhana Church which is also known as Basilica of Our Lady of Graces, is a Roman Catholic church in Sardhana. It is located at a distance of about 20 kms to the north-west of Meerut, Uttar Pradesh. It is dedicated to Virgin Mary and was built in 1809 by Begum Samru who converted to Roman Catholicism in 1781.

Figure 13-8Sardhana Church

The church is the largest in North India costing around 4 lakh rupees for construction; which was a huge amount in those days. The altar and it's surrounds are of marble set with coloured stones and the interior is of the highest craftmanship. The church is known for the use of semi-precious stone work on an elevated altar and three Roman domes which add to the building's grandeur. The cherry on the cake is a majestic 18 feet high edifice over the Begum's tomb which will probably take your breath away. The aura around the place is intense and one can spend a good amount of time just absorbing the presence of the tomb.

Hastinapur Wildlife Sanctuary

Hastinapur Wildlife Sanctuary is a national park in Hastinapur Kaurwan, Uttar Pradesh. It covers 2073 square kilometers and is located at a distance of 37 kms from Meerut. From Meerut buses are available from 7 am to 8:30 pm. One can also take the National Highway No. 119 to arrive at Hastinapur and take in some scenic views along the way.

Hastinapur Sanctuary was founded in 1986. It lies on the western bank of the river Ganga and is named after the ancient city of Hastinapur. The wildlife here ranges from wild pigs, tigers, hyenas, to birds of prey and, even our national bird, peacocks. In more swampy areas of the sanctuary, one can come across the twelve horned deer (Baara Singha).

Very rarely lucky tourists get a glimpse of the Gangetic dolphins. The famous Shuk Dev temple and the bathing Ghats at Braj Ghats are some of the major tourist attractions near the sanctuary.

13.2 Recent trends in recreation and leisure

According to the census 2011 there is seven stadiums in Meerut, 20 cinema theaters, and 15 community hall. As per the RFP document 3 percent of land should be under the recreational activities. But at present only 0.11 percent of land is under the recreational spaces. As per URDPFI guidelines one recreational club is required for the population of 1 lakh and area required for the recreational club is 10,000Sqm.

13.3 General policy for provision of recreational facilities

The objective of providing and creating the recreational facilities involving creation and up gradation of basic elements, especially for the youth, children and the elderly. Rejuvenation also includes involving local citizens and groups in the maintenance and upkeep of the park in order to make the development sustainable. Cost of this component will be met from the 2.5 per cent annual allocation for development of parks under the AMRUT Mission and used in accordance with its Guidelines.

According to the guidelines provided by the AMRUT Mission, the Development of green spaces and parks has to be done with special provision for child-friendly components. For parks, ULBs will have to establish a system for maintenance with local resident participation. One-half of the project cost by GoI and the total expenditure on these projects will not exceed 2.5% of the State Annual Action Plan (SAAP).

Chapter 14
Conservation, Townscape & Landscape

Chapter 14. Conservation, Townscape and Landscape

14.1 Analysis of existing character of urban and rural areas

14.1.1 Topographical features (Landscape)

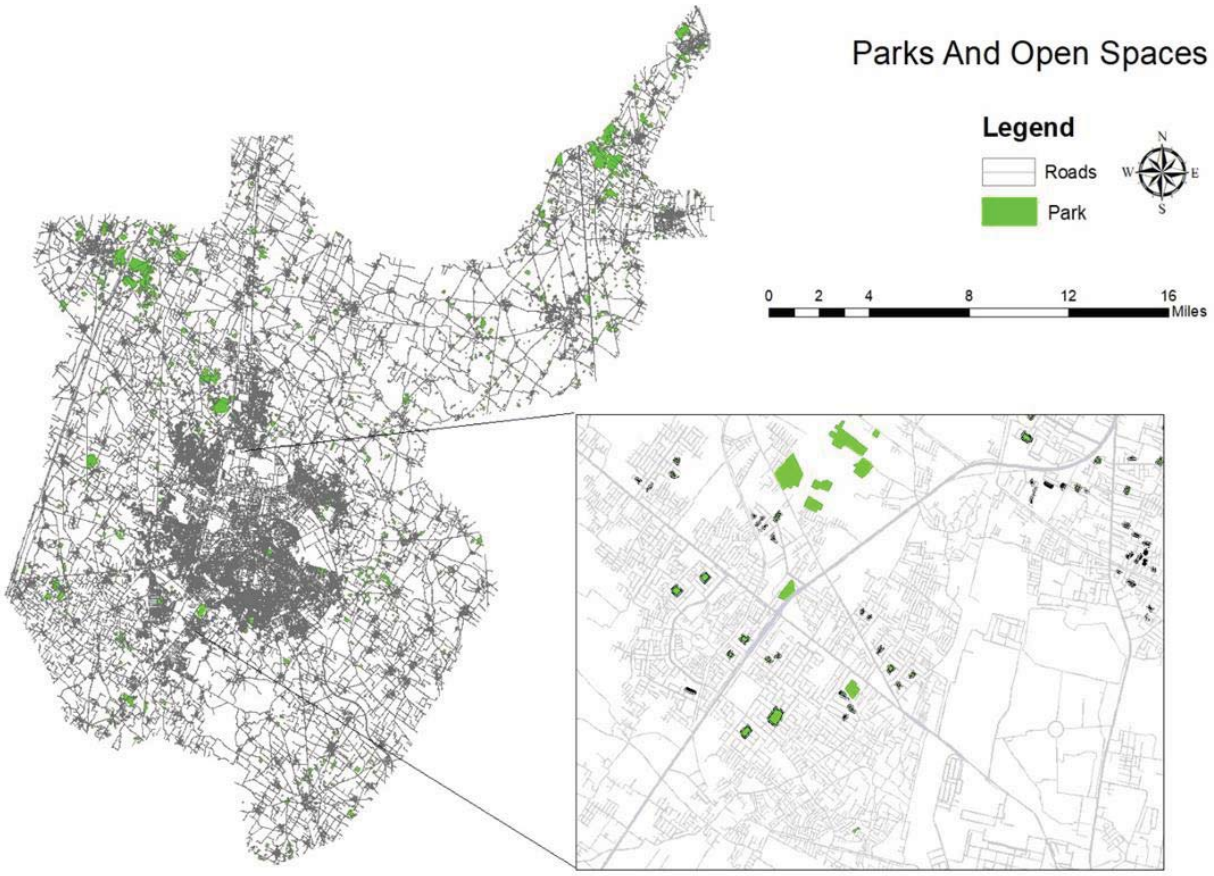
Meerut district lies between 28°57’ to 29°02’ North latitude and 77°40’ to 77°45’ East longitude in the Indo-Gangetic plains of India. It is bound on the north by Muzaffarnagar district, in the south by Bulandshahar district while Ghaziabad and Baghpat districts form the southern and western limits. The river Ganges forms the eastern boundary and separates the district from Moradabad district and Bijnor district.

The Hindon forms the western boundary and separates the district from Baghpat. The ground is not rocky and there are no mountains. The soil is composed of Pleistocene and sub-recent alluvial sediments transported and deposited by river action from the Himalayan region. These alluvial deposits are unconsolidated. Lithological, sediments consist of clay, silt and fine to coarse sand. Land is very fertile for growing crops, especially wheat, sugarcane and vegetables.

14.1.2 Pattern and form of settlement

The green cover is provided along the roads and there are many parks and opens spaces in the city. The total of 4493.25Ha area is covered under parks and open spaces in the city as shown in the below given figure.

Map 28Parks and Open Spaces



14.1.3 Historical monuments and archeological sites

State and centre identified monuments

The Archaeological Survey of India (ASI) under the provisions of the AMASR Act, 1958 protects monuments, sites and remains of national importance. As per the Archaeological Survey of India, ancient monument means any structure, erection or monument, or any tumulus or place of interment, or any cave, rock-sculpture, inscription or monolith that is of historical, archaeological, or artistic interest and which has been in existence for not less than 100 years and also includes

- Remains of an ancient monument,
- Site of an ancient monument,
- Such portion of land adjoining the site of an ancient monument as may be required for fencing or covering in or otherwise preserving such monument,
- The means of access to, and convenient inspection of, an ancient monument;

The city of Meerut is located near the national Capital Delhi and is an important ancient city of India. The city is also an important industrial town and is the largest manufacturer of musical instruments and sporting goods etc. in India.

The settlement in the area date back to the Indus Valley Civilization and the city has been mentioned as Hastinapur in the ancient epic Mahabharatha. Meerut was also an important center of Buddhism during the Mauryan Empire.

Table 14.1 Archeological Monuments and sites

Sr. No.	Name of Monuments/sites	Location	District
1	Baleshwarnath Temple	Meerut	Meerut
2	Begam Samru Mahal	Sardhana	Meerut
3	Augharnath Mandir	Meerut	Meerut
4	Hastinapur	Hastinapur	Meerut
5	Roman Catholic Church	Sardhana	Meerut
6	Hastinapur Wildlife sanctuary	Hastinapur	Meerut
7	Mound known as Ulta Khera and the mound or Raghunathji	Hastinapur	Meerut
8	Tomb of Shah Peer	Meerut	Meerut
9	Two mounds (Kheras) named Khorkali and Jalapar	Servara	Meerut

Source: www.asi.nic.in

Augarhnath Temple

Also known as Kalipatan Mandir, the Augarhnath Mandir is an important historical site in Meerut. The temple is although not a much frequented religious site was one of the centers where the mutineers planned their operations during the 1857 rebellion of India. The temple also has a memorial which was built in the honor of the 1857 revolutionaries.

Figure 14-1 Augarhnath Temple

Hastinapur

The ancient town of Hastinapur was once a booming capital of the Kuru kings in ancient India. The town is famous for being the birthplace of the Pandavas, the protagonists of the Hindu epic Mahabharata. The son of emperor Ashoka also built various temples around the city during his reign. Hastinapur is also famous for its Jain temple which belongs to the Digambar sect and various other Hindu temples

Figure 14-2Hastinapur

Begam Samru Mahal

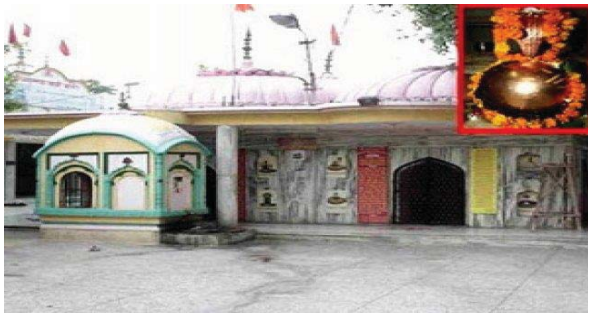
The palace built by her in Sardhana near Meerut was the centre of much activity during the reign of Mughal Emperor, Akbar Shah. Shah Alam II, the predecessor and father of Akbar Shah, regarded Begum Samru as his daughter. He did so because the Begum had saved Delhi from an invasion by a force of 30,000 Sikhs, under Baghel Singh in 1783. They had encamped at Tis Hazari (the name of the place being derived from the number of those who constituted the force, estimated at 30,000). Thanks to the Begum's parleys, the Sikhs did not enter the city and went back to Punjab after getting a generous monetary gift from Shah Alam.

Figure 14-3 Begam Samru Mahal

Baleshwarnath Temple Meerut

In the city of Meerut sidrpeeth and shid temple have their own separate history, but the city shiv Baleshwarnath temple located in sadar area has its own beliefs. It is said that in Treta Yuga, Ravana's wife Mandodari, along with her friends visitedthis temple to worship Lord Shiva every day.

Figure 14-4 Baleshwarnat Temple



Roman Catholic Church

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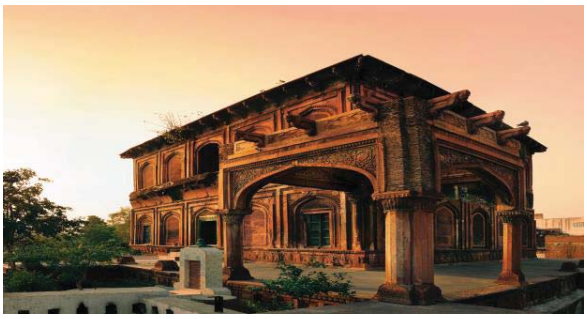
Figure 14-5 Roman Catholic Church

The church is the largest in North India costing around 4 lakh rupees for construction; which was a huge amount in those days. The altar and it's surrounds are of marble set with coloured stones and the interior is of the highest craftsmanship. The church is known for the use of semi-precious stone work on an elevated altar and three Roman domes which add to the building's grandeur. The cherry on the cake is a majestic 18 feet high edifice over the Begum's tomb which will probably take your breath away. The aura around the place is intense and one can spend a good amount of time just absorbing the presence of the tomb.

Tomb of shah peer

The tomb of Shah peer is the one of the popular monuments in Meerut that is considered to be the oldest tombs in North India. This was constructed by Noor Jahan, who was the wife of Jehangir, in solemn memory and respect of the local Muslim, Hazrat Shahpeer. The dargah was built in 1620 which is much earlier than even the Taj Mahal.

Figure 14-6Tomb of shah peer



It is learnt that Shahpeer was the teacher of Mughal Emperor Jehangir, and was the physician and advisor to Queen Noor Jahan. This monument is made of red sandstone and is intricately carved with designs and motifs. This open-to-sky structure has no roof; inspite of which the rain water does not fall on the main tomb

Hastinapur Wild life sanctuary

Hastinapur Wildlife Sanctuary is a protected area in the Gangetic plains of Uttar Pradesh, India. It was established in 1986 and covers 2,073 km2 (800 sq mi) across Meerut, Muzzafarnagar, Ghaziabad, Bijnor, Meerut and Amroha districts. This area has not enjoyed protection needed to check poaching and various other threats to wildlife due to lack of proper notification

Figure 14-7 Hastinapur wildlife sanctuary

14.2 Recent trends

14.2.1 Encroachments

An encroachment in the area leads to the traffic problems in the area. Due to encroachment problem in Meerut there are many points in Meerut which are highly congested and there is always traffic jam condition in that area. The encroachments are done by the street vendors or by the shopkeepers.

14.2.2 Air Quality

Air quality standards refer to levels of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area. When the concentration of the gases and particulate matter exceeds the standards, it results in air pollution. The Air Quality Index, AQI is an index for reporting daily air quality. An AQI value of 0-50 represents good air quality with little to no potential to affect public health, while an AQI value over 300 represents hazardous air quality as shown in the below given table.

Table 14.2Air quality Index

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

Source: http://www.uppcb.com/

The below provides the annual average ambient air quality data obtained in the year 2018-2019 for Meerut city. The single largest man-made source of pollution, which remains constant through the year, is vehicular emission.

Whilst other sources like pollution from the burning of biomass and other agricultural residues such as straw and leaves and the widespread use of fireworks occur at specific times of the year, vehicular pollution remains constant throughout the year. Meerut is also facing some serious pollution problems as per the data shown in the below given table, the air quality index in Meerut city is moderate but at some days the value becomes High.

Table 14.3Average Ambient Air Quality Data of Meerut city (Nov,2018 -oct,2019)

S. No.	City	Location	Category	Parameters (Values in µg/m3)			AQI
				PM 10	SO2	NO2	
Permissible Standards for Industrial, Residential, Rural & other areas				**60**	**50**	**40**	**(0-100)**
1.	Meerut	Begum Bridge	Commercial	224.46	10.4	76.43	181.66(Moderate)
		Kesarganj road	Residential	196.99	7.4	47.01	164.83(Moderate)

Source: http://www.uppcb.com/

Note: µg/m3=microgram per cubic meter (Unit of amount of chemical vapors, fumes, or dust in the ambient air), PM 10= Particles of 10 micrometers or less, SO_2=Sulphur Dioxide, NO_2= Nitrogen Dioxide

14.2.3 Noise Pollution

Noise levels have increased due to rapid industrialization (machinery, motors, DG sets etc.), and transportation and are a major source of environmental pollution in Meerut. Noise pollution level in Meerut is 58.13 which is moderate.

14.2.4 Water Pollution

Water quality is measured on parameters like Biochemical Oxygen Demand (BOD), Dissolved Oxygen (DO) and total Coliform Count (CC), hardness, alkaline, etc. The depth to water level of the Central Ground Water Board, CGWB monitoring stations ranges from 7.28 to 17.78 mbgl. The water quality parameters were evaluated to access the quality of ground water. The interpretation of physio-chemical analysis reveals that the groundwater in Meerut city is fresh to brackish and alkaline in nature, which is good for drinking and agricultural purposes.

The major cations (Ca and Mg) and major anions (Chloride, Bicarbonates, sulphates and Nitrates) of the study area are well within the permissible limits for the entire area. In major places, total hardness is generally within the limits in the groundwater, which makes the groundwater of the study area suitable for drinking. In general the quality of groundwater in Meerut city is good and moderate in most of the areas in Meerut.

14.3 Policies for conservation planning and development control

Development Authority Bye-laws for Conservation of Heritage Site

In case of streets, heritage precincts, areas and (where deemed necessary by the Heritage Conservation Committee) of natural features published as per the provisions of bye-law, development permissions shall be granted in accordance with the special separate bye-laws prescribed for respective streets, precincts/natural features, areas which shall be framed by the Authority with previous approval of the Government on the advice of the Heritage Conservation Committee.

Before finalizing the special bye-laws for precincts, streets, natural features, areas, the draft of the same shall be published by the Authority on behalf of the Heritage Conservation Committee in widely circulated two leading newspapers in the area for the purpose of inviting suggestions of objections from the public. All suggestions and objections received within a period of 30 days from the date of publication of the said draft in the newspapers shall be considered by the Authority as per the advice of Heritage Conservation Committee.

The U.P. Ancient and Historical Monuments and Archaeological Sites and Remains Preservation Act, 1956

An Act to provide for the preservation of ancient and historical monuments and archaeological sites and remains in Uttar Pradesh other than those declared by Parliament by law to be of national importance.

The Ancient Monuments and Archaeological Sites and Remains Act 1958

An Act to provide for the preservation of ancient and historical monuments and archaeological sites and remains of national importance, for the regulation of archaeological excavations and for the protection of sculptures, carvings and other like objects.

14.4 SWOT Analysis for Recreation and Leisure

SWOT analysis is done to represent the present conditions. SWOT analysis for the Meerut city has been carried out which aims to identify the potential and problem sector that calls for an immediate attention to achieve the envisaged vision for achieving a balanced development of the city of Meerut.

Strengths:

- Meerut's Connectivity with the national capital and its importance on the NCR planning imperatives
- Fairly strong Local Economic Development, in manufacturing Sports Goods, in the Handloom Sector, and in the traditional Scissor industry
- Fertile and agriculturally rich hinterland , as well as being part of the 'sugar belt‘

- An educational, health and trading center for its immediate region

Weakness:

- Poor Quality infrastructure with depleting water resources is a hindrance in growth
- Air and Water Pollution levels are rising to dangerous levels
- The city lacks a good and efficient Public Transport System
- There is congestion on roads and lack of Parking Facilities
- Safety and Security is a major social concern warranting the use of smart devices through command and control centers

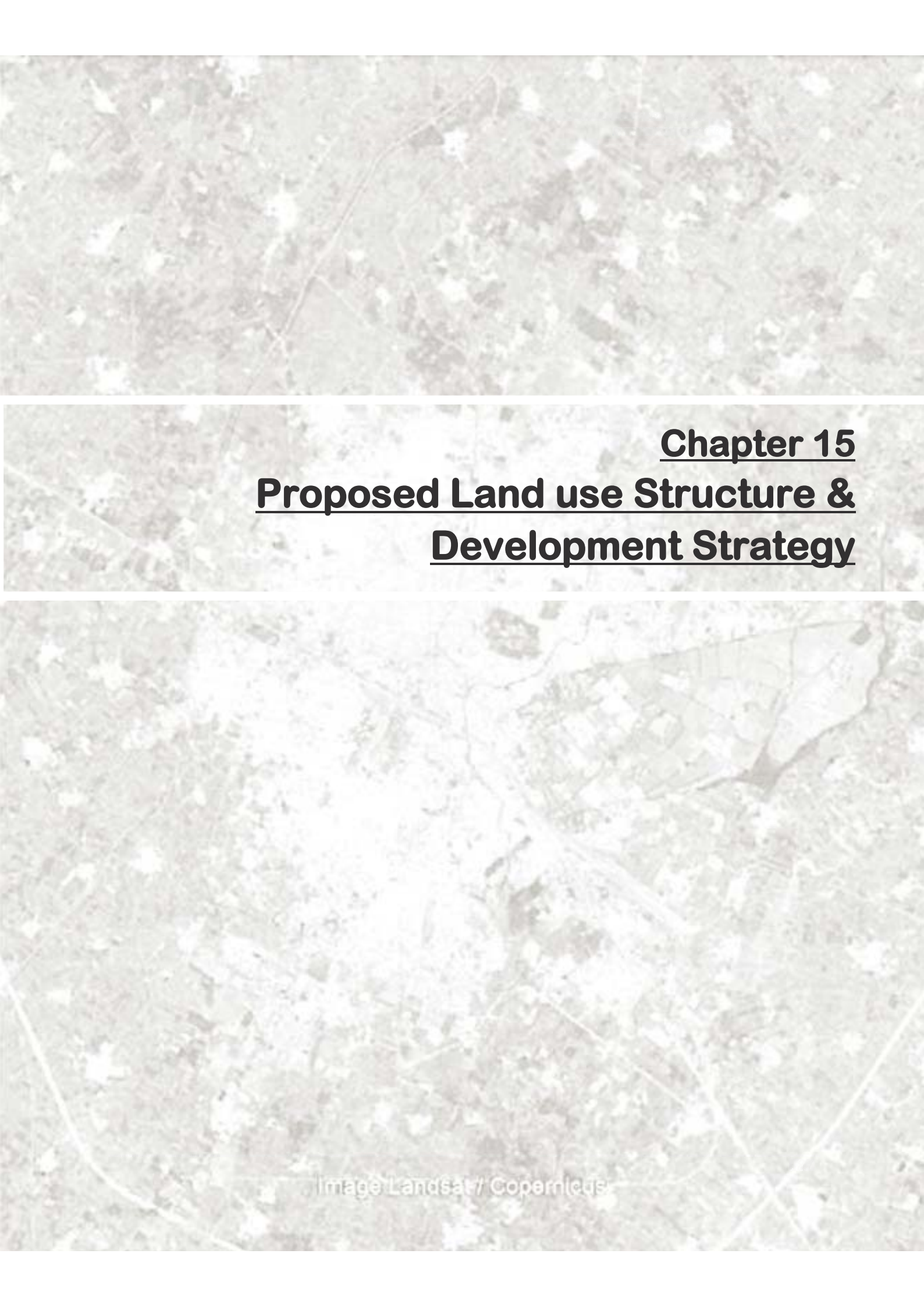
Opportunity:

- Potential 'Satellite City' to Delhi, with the rapid coming up of High Speed Metro and Road Expressway
- Has potential to develop as a major trading and educational center of the Western Uttar Pradesh.
- Airport Modernization can put the town on a path of strategic growth in the domestic and global market
- Sports Industry gets further fillip with global trade partners by establishing a Western UP Chamber of Commerce in Meerut
- Efforts to establish the 'Nation's First Hindi Centre

Threats:

- Lack of planned development, Housing and Infrastructure, both physical & social, Facilities/ amenities/ utilities can lead to retarding an effective development and encourage slum formation, causing impediments to planned growth' and the likely emergence of polarized communal factions with their resulting conflicts

Chapter 15
Proposed Land use Structure & Development Strategy



Chapter 15. Proposed Landuse Structure and Development Strategy

15.1 Land Demand Estimations

For preparation of the Master Plan, the future land demand calculations are crucial, to accommodate the projected population and housing densities, basic infrastructural, social and cultural facilities, in addition for the land allocated to fill the gaps in infrastructure. For Meerut and its development area, the population and workforce are predicted based on economic and physical assumptions. These are discussed in brief as follows:

15.1.1 Population projection, Density and Land demand

Population projection: Population projection is a significant step and is conducted via different methods, to estimate the requirements of a city in coming years and to purpose such needs accordingly in the master plan. Population projections for Meerut Master planning area is done previously in this report. The forecast includes projections of the past trends as well as influx induced from the neighboring villages, a trend which has been observed in the previous years in the city.

The economic, physical, social and cultural aspects and their requirements in the city have impetus in the type of growth the city would foresee by year 2031. The projected population would assist in estimating the demand for various physical infrastructure services like drinking water supply, sewerage system, solid waste management, etc. and social infrastructure like schools, health centers, parks etc. for the design years.

The planning area considered for population projection are, The Meerut Municipal Corporation, Urban Agglomerations and nearby villages. **It has been estimated that the population of the proposed planning area of Meerut would reach around 30.46 lacs by year 2031.**

Projected Population	Year 2021	Year 2031
Meerut Municipal Corporation	*16,68,540*	*21,17,941*
Other Urban Centres within MDA	*391,398*	*4,70,990*
Neighboring villages	*3,02,580*	*4,57,292*
Total Population of the planning area	**23,62,519**	**30,46,223**

15.2 Thematic concept planning and planning approach

15.2.1 Planning Approach & considerations

15.2.1.1 Regional and Economic Linkages: future growth of the city

- In last two decades the city grew spatially around the railway station, visually appearing to be the epicenter of the city. The city is very well connected, with National Highways from all the directions in radial way.
- Within the district, the city Meerut is the major urban center and serves the entire hinterland, providing employment opportunities, resources and markets for the locals from the villages nearby. In addition, it is the second largest city in NCR in terms of population.
- The city has witnessed a tremendous growth in last decade, with an increase of population growth, many new institutions, medical facilities have come up. These not only cater to the local population but also the neighboring urban centres.
- The city has strong regional linkages, Meerut city finds itself strategically placed central to the core cities in the region. Proximity to the major urban centres such as Delhi, Noida, Faridabad, Ghaziabad, Haridwar, Roorkee, Khurja, Bulandshahar, Hapur etc.
- Proximity to NCR. The connectivity is further going to strengthen due to newly developed Delhi Meerut expressway. This will enable direct and fast connectivity to the capital. Also, proposed Ganga expressway will further boost connectivity with many areas and economic development in the region.
- Increased opportunities due to proximity towards NCR and part of NCR sub region, and as per the economic profiling of NCR, the Meerut region has tremendous scope for development of agro based industries and logistics centers.
- Upcoming new regional connectivity projects like DME and its extension, Ganga Expressway, Orbital rail and road corridors etc. will change the urban scenario of Meerut city and its Development Area.

15.2.1.2 Industrial Development potential

- The strong regional and local linkages are fundamental for inducing economic development in the region. This provides opportunities to harness the industrial possibilities in the city and the hinterland of Meerut.
- There has been increase in the number of small enterprises in the city. However, these are segregated. It is envisaged that with the onset of ODOP policy and wood work as the product for the city, the investments and employment opportunities will boost.
- The increased regional connectivity will not only help in upward and down ward linkages for the industries and promote ex-im, but also drive skilled and technical manpower to the city.
- The immense potential in industrial development seems to be underutilised in the last plan period, this needs to be harnessed and proper initiative to be taken in this direction.

- Direct connectivity, investor friendly environment, plug and play infrastructure and institutional support, are the key parameters to boost investments in any city. With above discussed linkages, there are opportunities in the city which can be explored.
- Better infrastructure and utilities will increase the expected number of job openings.
- Large residential developments can be proposed in the newly notified areas like Mawana, Sardhana and Hastinapur etc. and peri urban areas / fringe areas of the master plan, locations which foresees a future development, this can be a secondary centre to the city.

15.2.1.3 Spatial Consideration for Plan formulation

- The city presently faces issues such as high concentration development towards the core areas and along the major connecting highways towards Delhi, Hapur, Roorkee and Baghpat. Development initiatives towards the fringe shall be promoted to have a balanced development. Housing societies, townships, industrial areas etc. such projects can be proposed in the fringe areas as per the land availability. These will have an induced effect in the region as a whole.
- The commercial development in the region is in form of sparse pockets as well as majorly concentrated on the road sides in strip like patterns. Such pattern being the modus operandi can be taken up and infrastructure shall be planned accordingly such as roads, layouts etc.
- Redevelopment, relocation and decongestion of core interior city shall be implemented. Such are discussed further in this chapter.
- The industrial pockets are located at the fringe, such areas can be developed as industrial centres, in direct access to the major road and connectivity to the regional and local linkages.
- Promoting sustainable development through focusing on Greenfield development, integrated townships, growth centres etc. Strengthening urban rural linkages and promoting catalytic development of the backward areas / underdeveloped areas so as to foster growth in rural areas.

The above development parameters and strategies will be translated in the sector wise strategies for the Master Plan, discussed further in the report.

15.2.2 Planning concept

15.2.2.1 Planning considerations- IZ and SDA

Meerut has the advantage for Transit Oriented Development due to the development of RRTS. The different TOD zones proposed includes Influence Zones (IZ) and Special Development Areas (SDA). Mixed use will be proposed in the TOD zones as per the TOD policies.

Influence Zone

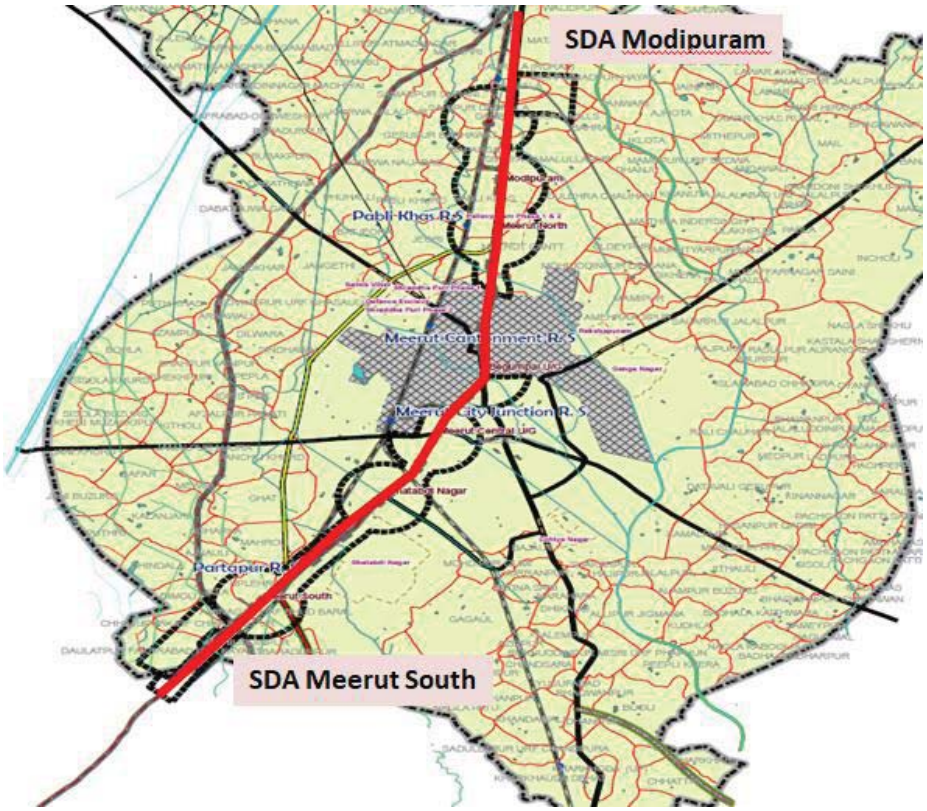
- The influence zone is proposed along the RRTS corridor. It covers an area inside 1.5 km radius at RRTS stations and 500m on both sides along the track.

- The total area of proposed IZ in Meerut is 4890 Ha.

Special Development Area

- Two SDAs are proposed in Meerut: one in Meerut South and other towards north in Modipuram.
- Proposed SDA for Modipuram is 342 Ha.
- Proposed SDA for Meerut South is 409 Ha.

Map 29 Proposed SDA and IZ



15.2.2.2 Considerations to counter Identified planning Issues

Below given are the planning considerations to counter the identified planning issues explained in the previous sections of the report:

- Maximum utilization of existing physical and social infrastructure.
- Integration of upcoming developments and proposed regional projects in Master Plan 2031.
- Connection between spatial planning and infrastructure proposals.
- Flexible proposals to fit as per the need and city growth.
- Integration of upcoming and ongoing planning projects such as CDP, Action Plans etc. in Master Plan 2031.

- Efficient development control and zoning regulations to fit in the city demand and growth options.
- Creation of policies to develop traffic and transportation land use area as per the proposed master plan.
- Master Plan implementation and monitoring through coordination among key agencies.
- Creation of sustainable and Inclusive development with realistic planning standards and regulations.

15.2.2.3 Factors Considered for future planning

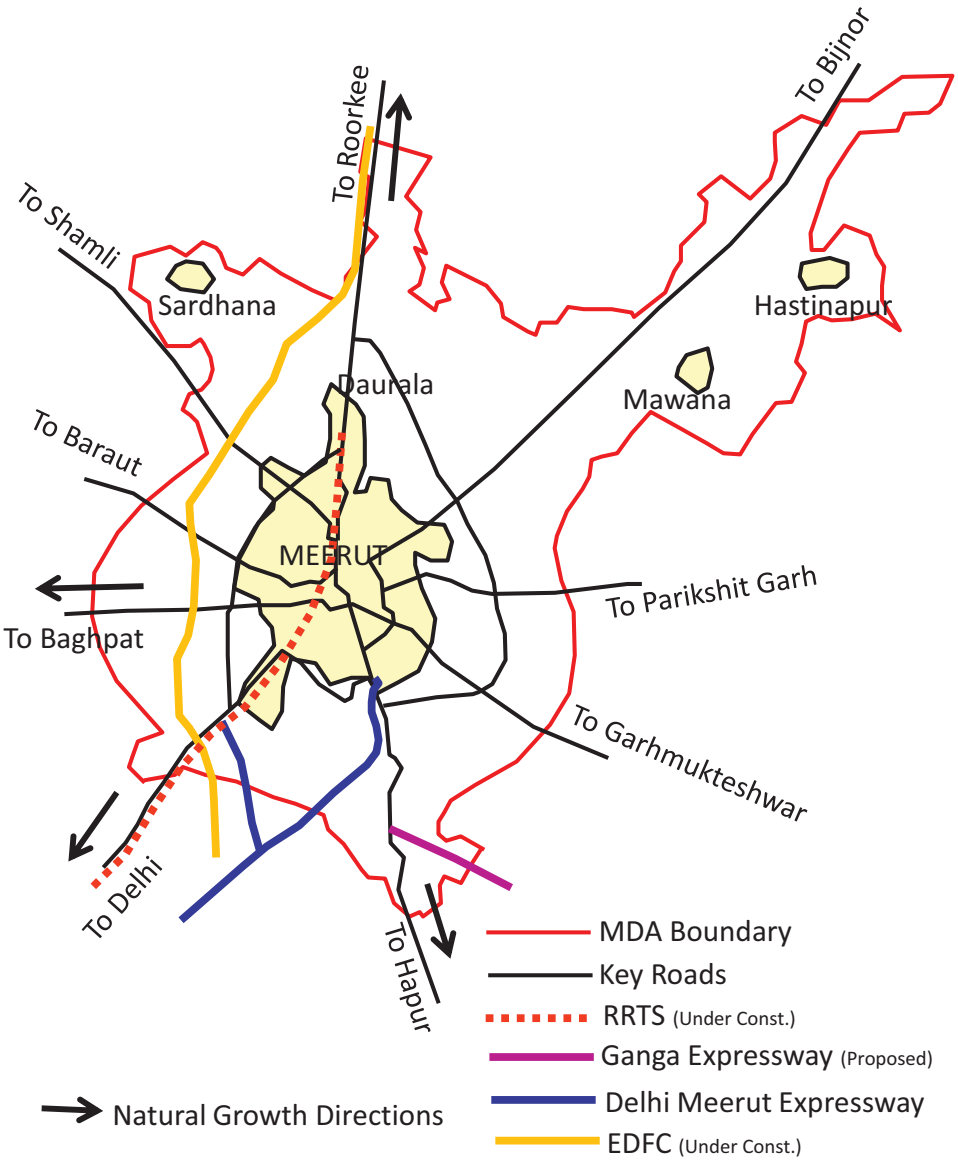
Below given are the key factors considered for future planning of the city and proposed Master Plan 2031.

- Development of Delhi Meerut Expressway (DME), its extension and its connectivity towards south of the city.
- Connectivity of proposed Ganga Expressway on NH 334 (Hapur Meerut Road) in the south of the city.
- Regional Rail Transit System (RRTS) along Delhi Meerut road, passing through the city and cantonment area up to Modipuram.
- The different TOD zones proposed along RRTS corridor including Influence Zones (IZs) and Special Development Areas (SDAs).
- Eastern Dedicated Freight Corridor (EDFC) passing through Meerut Urbanizable Limit of Meerut Development Area towards west of the city.
- Proposed regional orbital rail and road corridors passing through the Meerut Development Area.
- Existing natural growth towards Meerut-Delhi road, Meerut-Hapur Road, Meerut-Roorkee road and Meerut-Bagpath Road.
- Development of new notified areas i.e. Mawana NPP, Sardhana NPP, Hastinapur NP, Lawar NP, Bahsuma NP, and Kharkhuda NP.
- Regional road connecting new notified urban areas.

15.2.3 Conceptual Plan

Conceptual plans have been developed for the future growth of city considering the existing situation and possible growth parameters. Below given are the conceptual ideas for the proposed master plan 2031 of Meerut.

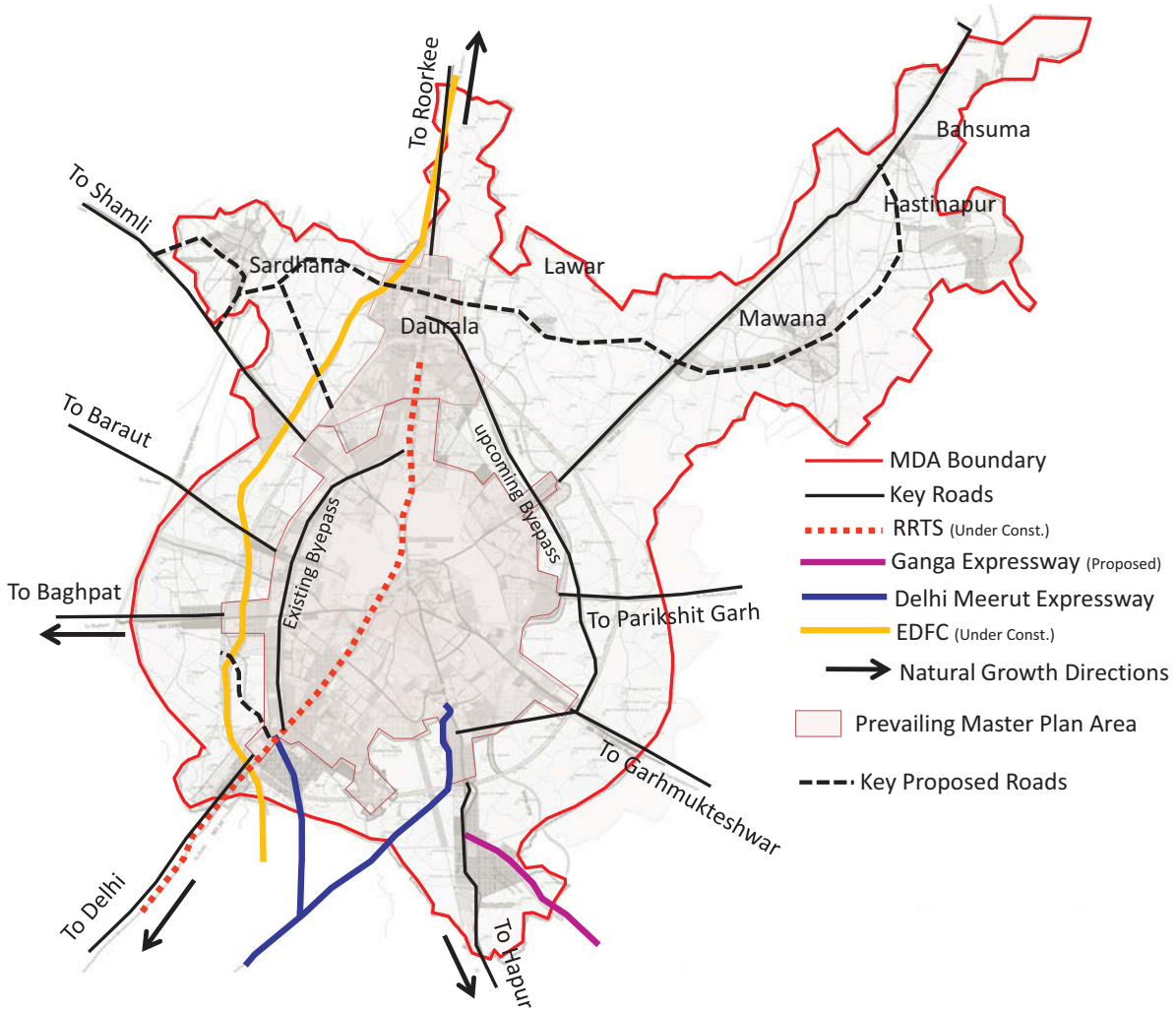
Map 30 Conceptual Plan



15.2.3.1 Connectivity

Proposed regional connectivity road to connect all notified urban areas from Sardhana to Bahsuma. Proposed other internal and external roads in the extended urbanizable area.

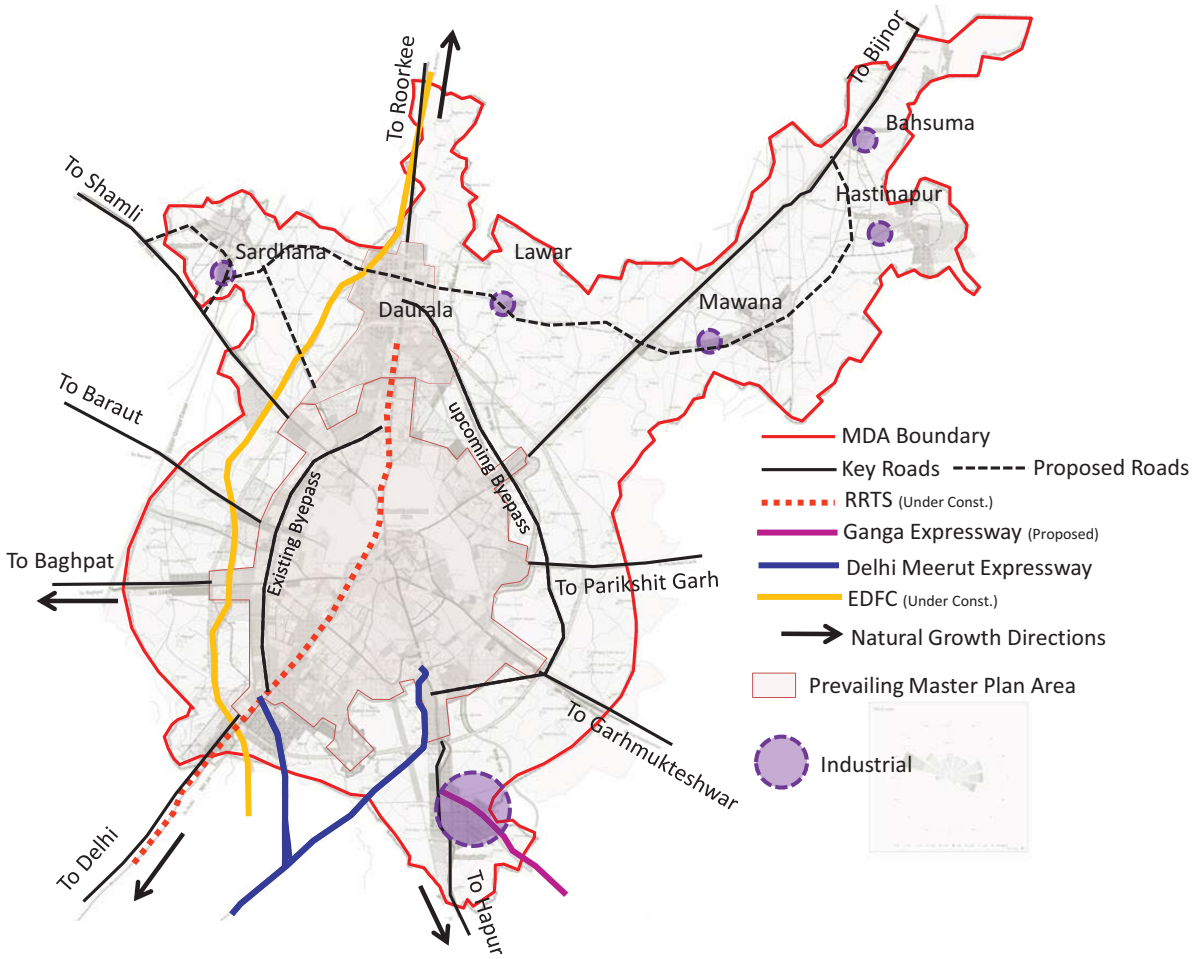
Map 31 Conceptual plan- connectivity



15.2.3.2 Industrial Area

The current industrial trend is towards Delhi, Hapur and Bagpath roads. Considering the proximity to newly constructed Delhi Meerut Expressway and the Proposed Ganga Expressway, the industrial areas are proposed near Hapur road along proposed Ganga Expressway.

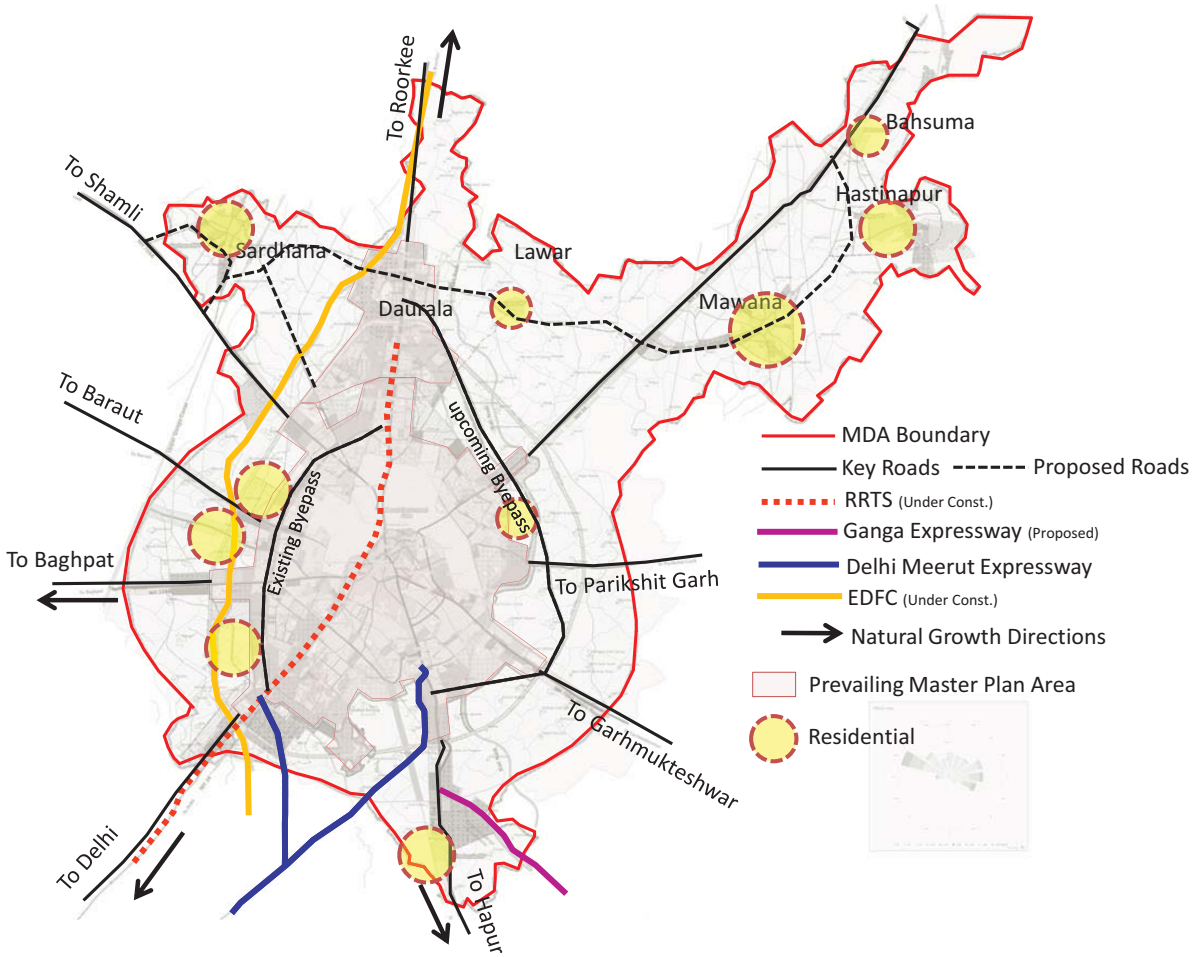
Map 32Conceptual Plan- Industrial Area



15.2.3.3 Residential Area

Key proposed residential areas along Delhi, Hapur, Baraut, Shamli and Bagpath roads. Proposed residential areas in newly notified areas i.e. Sardhana NPP, Mawana NPP, Hastinapur NP, Lawar NP, Bahsuma NP and Kharkauda NP.

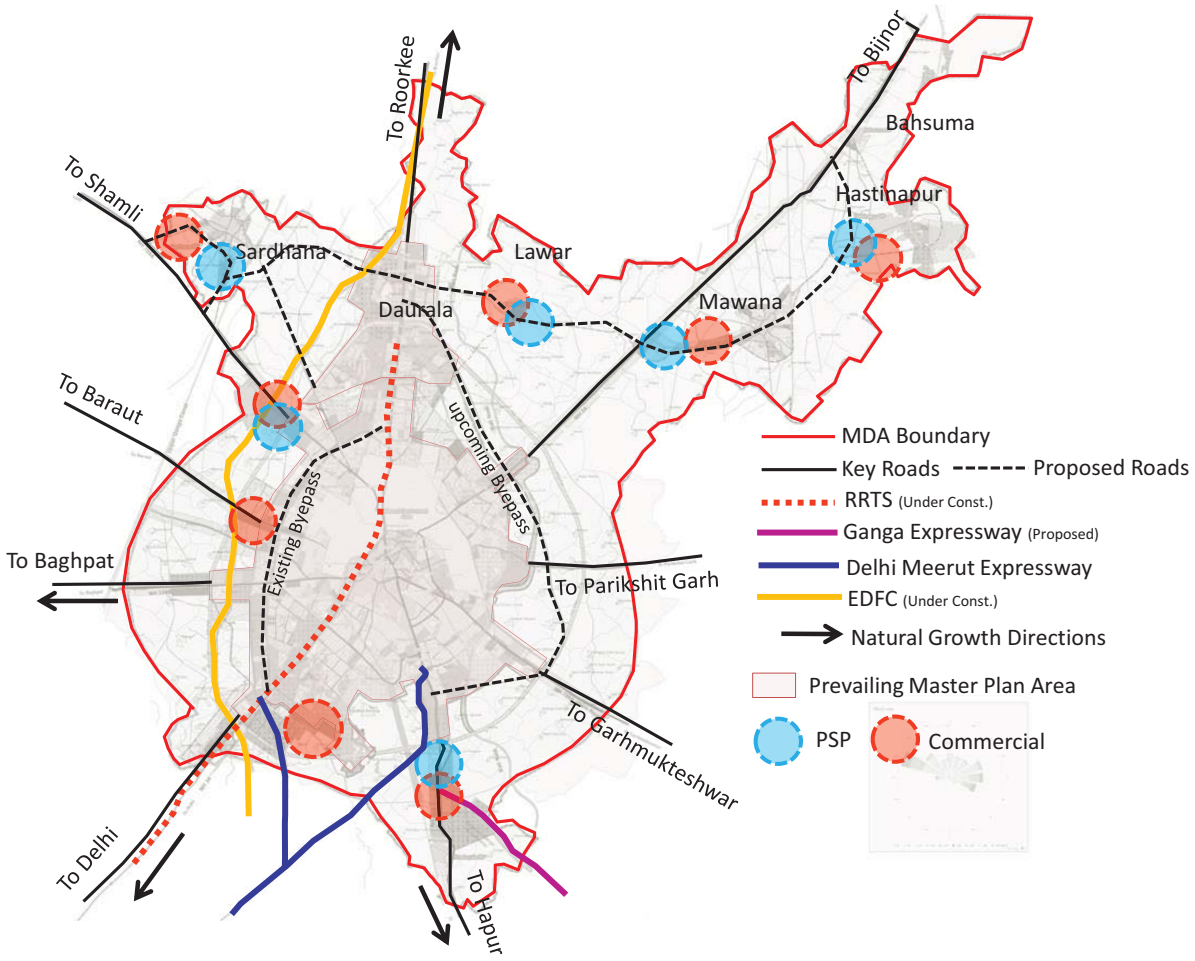
Map 33 Conceptual Plan- Residential Area



15.2.3.4 Commercial and PSP

New Commercial and PSP areas are proposed near the extended Residential areas. Key commercial areas are proposed near Dr. Bheem Rao Ambedkar Airstip and along Delhi and Hapur roads.

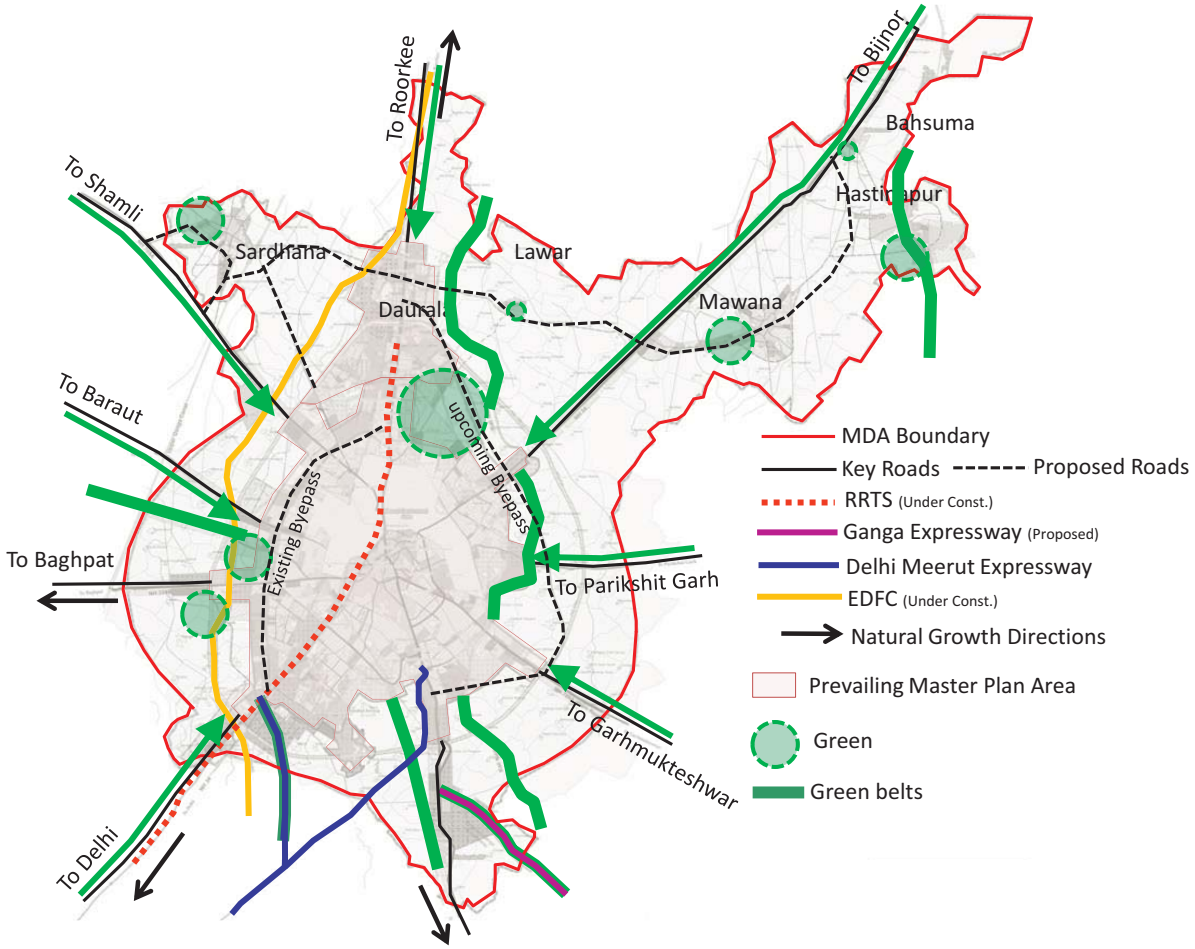
Map 34 Conceptual plan – Commercial and PSP



15.2.3.5 Green Areas

Proposed green areas and mandatory green belts along all major roads, canals and waterbodies as per NCR norms.

Map 35 Conceptual Plan – Green Area



15.3 Population Projection (in detail)

15.3.1 Population projection (MDA)

Population projection is a significant step and is conducted via different methods, to estimate the requirements of a city in coming years and to purpose such needs accordingly in the master plan. The forecast includes projections of the past trends as well as influx induced from the neighboring villages, a trend which has been observed in the previous years in the city. The economic, physical, social and cultural aspects and their requirements in the city have impetus in the type of growth the city would foresee by year 2031.

Natural growth and migration of population are the main basis in the projection of future population of Meerut metropolis. The migration of population depends on the economic social activities in the city, availability of infrastructure facilities, security, healthy environment, etc. While preparing the long-term master plans of various cities, the population is generally

projected while estimating the rates and conditions of population growth in the last decades and on the basis of this, the master plan proposals are tiered, estimating other activities. Keeping in view the population growth in the past decades and future economic and social activities in Meerut metropolitan area, the population has been projected for the year 2031 on the basis of various mathematical parameters. The forecasting methods adopted include the arithmetic projection, geometric projection and incremental increase.

Table 15.1 Projected population of Meerut Development Area (MDA) - 2031

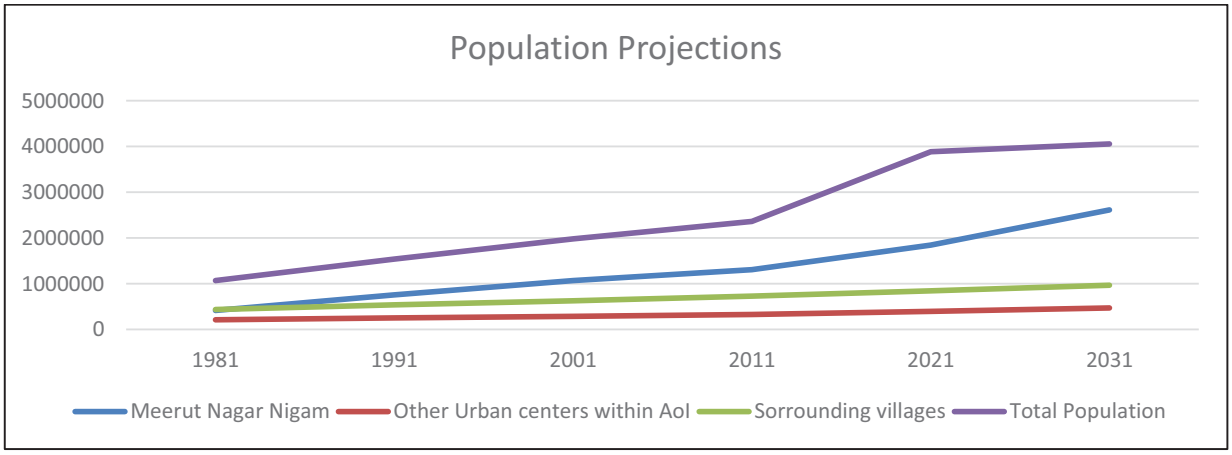
		Previous years population				Projected Population	
Year		1981	1991	2001	2011	2021	2031
Meerut Nagar Nigam		417395	753778	1068772	13,05,429		
Projection Methods	Arithmetic					16,01,440	18,97,452
	Geometric					18,54,902	26,35,656
	Incremental Increase method					15.51,577	17,47,863
	Exponential Growth rate					18,46,781	26,12,628
	Ratio Estimator					14,88,001	16,96,106
Average Population						**16,68,540**	**21,17,941**
Other Urban centers within MDA		210900	249889	283572	327376		
Projection Methods	Arithmetic					3,66,867	4,04,652
	Geometric					3,85,223	4,57,515
	Incremental Increase method					3,68,608	4,12,250
	Exponential Growth rate					4,63,137	6,55,196
	Ratio Estimator					3,73,156	4,25,338
Average Population						**3,91,398**	**4,70,990**
Sorrounding villages		156929	191916	224699	261884		
Projection Methods	Arithmetic					8,27,880	9,25,444
	Geometric					8,65,219	10,25,039
	Incremental Increase method					8,30,946	9,34,640
	Ratio Estimator					8,51,179	9,92,042
Average Population						**8,43,806**	**9,69,291**
Considered Population						**3,02,580**	**4,57,292**
Total Population		7,85,224	11,95.583	15,77,043	18,94,689	**23,62,519**	**30,46,223**

Source: Consultant's Estimates

Meerut has witnessed significant growth in last years. The total population in the city which was 4.17 lacs in year 1981 reached to 7.54 lacs in year 1991 and 10.69 lacs in year 2001 and 13.05 lacs in year 2011. For estimating future population, various techniques were applied. The forecasting methods adopted included arithmetic projection, geometric projection and incremental increase

The planning area considered for population projection is, for Meerut Nagar Nigam, other urban centers within the AoI and for the villages within the AoI. The average population calculated from arithmetic, geometric and parabolic methods is considered for planning. 30,46,223 population is proposed for the horizon year 2031 by using all the methods. The population projections are done as per NCRPB.

Figure 15-1 Population projections for the horizon year – 2031(MDA)



15.3.2 Population Projections (Urban Centre wise segregated)

As various towns under Meerut Development Area are located far from the Meerut city and forming a separate own identity as hamlet towns to Meerut. Hence, the Master Plans for various towns like Sardhana, Mawana, Hastinapur, Lawar and Bahsuma are prepared separately and their population projections are also worked out separately. Meerut CB, Kharkhuada and Daurala are contiguous with Meerut city so for the Master Planning purposes the population projections will be considered togeather for these towns. The details are as given below:

Table 15.2 Segregated projected population of Meerut City and Urban Centres within MDA

S. N.	Population Projection	2021			2031		
		Urban Area	Nearby Villages	Total	Urban Area	Nearby Villages	Total
1	Meerut + Meerut CB + Daurala+ Kharkauda	18,14,353	2,07,070	**20,21,423**	22,87,881	2,37,864	**25,25,745**
2	Mawana	1,00,729	39,418	**1,40,147**	1,24,247	90,561	**2,14,808**
3	Sardhana	70,752	27,210	**97,962**	85,766	62,512	**1,48,278**
4	Hastinapur	33,174	13,087	**46,261**	41,250	30,066	**71,316**
5	Lawar	27,029	10,545	**37,573**	33,237	24,225	**57,462**
6	Bahsuma	13,902	5,251	**19,153**	16,551	12,063	**28,614**
	Total	**20,59,939**	**3,02,580**	**23,62,519**	**25,88,931**	**4,57,292**	**30,46,223**

Source: Consultant's Estimates

15.4 Future density and its distribution

Based on the present population, Meerut city can be classified as metro city. The density of metro cities should be kept between 200-250 PPH according to the URDPFI guidelines. The proposed developed area average density is 240 PPH. After projecting the population and after identifying the area the density has been calculated for Meerut Area.

Table 15.3 Considered density for 2031 (Meerut Area)

Projected Population (2031)	Area (Ha)	Considered Density (PPH)
25,25,745	23,387	108

As shown in the table the projected population of the Meerut City is 25,25,745 and the area calculated is 23,387 Ha. So the considered density of the city is 108 PPH based on the following considerations given below:

- Existing density as per master plan 2021 is only around 90 PPH.
- The density proposed in Master Plan 2021 was not achieved till date.
- Unlike other metro cities like Ghaziabad, Delhi etc. here in Meerut the high rise flat culture is not popular. Majority of people reside in plotted development and wants to continue the same. So it is advisable to reach the density standard of 200 PPH gradually in the coming decades and currently for MP 2031 the density considered is 100 PPH, which is achievable by 2031.

15.4.1 Proposed Density for other urban centres

Based on the population, the urban centres located within MDA can be classified as Small and Medium Towns. The density of these towns should be kept between 200-250 PPH according to URDPFI guidelines. The proposed developed area average density is 223 PPH. After projecting the population and after identifying the area and the density has been calculated for all the towns located within MDA.

Table 15.4 Considered density for 2031 (Other Urban Centres)

Urban Centre	Projected Population (2031)	Area (Ha)	Considered Density (PPH)
Mawana	2,14,808	2,141	100
Sardhana	1,48,278	1,478	100
Hastinapur	71,316	711	100
Lawar	57,462	573	100
Bahsuma	28,614	285	100

15.5 Workers Population Projections and Industrial Land requirement

The table below shows the workers population projections and industrial land requirement for the horizon year. For the calculation the percentage of Industrial Workers for Meerut will be

taken ad 25% as per Metro City Norms and percentage of Industrial Workers for Other Urban areas will be taken as 20% as per Small and Medium Towns Norms. Further industrial area requirement has also been worked out as shown in the below table.

Table 15.5Workers Population Projections and Industrial Land requirements

Sr. No.	Urban Area	Projected Population (2031)	Work Force Participation (33% of Population)	%age of Industrial Workers	Numbers of Indusrial Workers	Industrial Workers Considered Density	Industrial Area Required (ha)
1	Meerut	25,25,745	8,33,496	25	2,08,374	125	1,667
2	Mawana	2,14,808	70,887	20	14,177	100	142
3	Sardhana	1,48,278	48,932	20	9,786	100	98
4	Hastinapur	71,316	23,534	20	4,707	100	47
5	Lawar	57,462	18,962	20	3,792	100	38
6	Bahsuma	28,614	9,443	20	1,889	100	19

Source: Consultant's Estimates

15.6 Proposed Landuse Structures

The most important part of a master plan is to assess the future action in the city and accordingly determine the area and its status for different land use in such a way so that mutual coordination in different uses can be done as per the requirement. The status of various uses depends on the current and proposed route structure, wind direction and availability of water along with various physical constraints. In Meerut development area there are physical barriers of railway route and cantonment area which disturbed the continuity of development of the city. But due to the implementation of major schemes outside the railway route and cantonment area by the Meerut Development Authority, the problem of these physical barriers has been eradicated. Flat land and sweet geological water are available all around the city of Meerut. Therefore, the status of various land uses and the proposed road structure are derived from each other.

Vision: "Master Plan 2031 envisions Meerut city as a strong regional centre of growth and a prosperous and livable city in the National Capital Region".

The proposed land use plan for Meerut city and other urban centres is depicted in below given map. The below given table indicates the total area requirements for Meerut urbanizable area for 2031. A total of 23,387 Ha land area is required for the year 2031. The Land use structure for Meerut city is as follows:

Table 15.6 Proposed Landuse 2031 for Meerut City

Sr. No	Land use category	% as per norms*	% considered	Total Area requirements (Ha)-2031	Proposed Area as per MP 2021 (ha)	%age	Existing Land use 2020 NRSC (within MP Boundary)	Vacant Area Available within MP 2021 (ha)	Additional Area Required (ha)-2031
1	Residential	30-35	45.00	10,523.94	9,040.74	45.95	5,324.46	3,716.28	1,483.20
2	Commercial	4-6	2.50	584.66	399.74	2.03	181.34	218.41	184.92
3	Industrial	8-10	10.00	2,338.65	1,802.46	9.16	773.22	1,029.24	536.19
4	Public and semi public	10-12	10.00	2,338.65	2,582.59	13.13	1,275.36	1,307.23	-243.94**
5	Parks and open spaces	15-20	19.00	4,443.44	3,320.72	16.88	144.46	3,176.25	1,122.72
6	Traffic and transportation	18-20	10.00	2,338.65	2,144.23	10.90	87.93	2,056.29	194.43
7	Recreational and Others	Balance	3.50	818.53	383.87	1.95	-	383.87	434.66
Total urbanizable area		**100**	**100.00**	**23,386.53**	**19,674.35**	**100.00**	**7,786.77**	**11,887.57**	**3,712.18**

Source: Consultant's Estimates

*Note- *Proposed Land use structure for Metro cities as per RFP.*

*** Landuse area for PSP facilities is already provided in excess in MP 2021. However an additional area of 35 ha is provided for additional proposed areas in MP 2031.*

The residential area percentage is considered on higher side due to external growth factors and increasing residential trend in the city due to enhanced regional connectivity and upcoming regional projects like DME, RRTS, Ganga Expressway etc.

If any area in the Draft Master Plan 2031 is shown as forest area/ cantonment area/ reservoirs/ ponds or any other government property/land area etc. then the verification of that land has to be done after obtaining the no objection certificate (NOC) from the concerned department. Further the land use of such land will be considered as adjacent land use in the proposed Master Plan 2031.

The Draft Master Plan 2031 was presented in CERC meeting held in Lucknow on 25th Nov 2021 in which few suggestions was received from the committee (refer Annexure 5 for MoM). All the suggestions and comments are incorporated in the revised Draft Master Plan 2031. Further the revised Draft Master Plan 2031 was presented in MDA Board Meeting held on 20th April 2022, in which few suggestions was received from the board (refer Annexure 7 for MoM). The Draft Master Plan 2031 was further revised and presented in the MDA Board Meeting again held on 09th May 2022 (refer Annexure 8 for MoM), where the Draft Master Plan 2031 was approved for publication to receive public objections and suggestions.

15.7 Proposed Land use structure for other urban centres within MDA

15.7.1 Urbanizable Area of Urban Centres within MDA

The following table shows propsed Urbanizable area for the following notified urban centres which fall under the Meerut Development Area:

Table 15.7 Urbanizable area of Urban centres

Sr. No	Location	Area (Ha)
1	**Sardhana**	**1,478**
2	**Mawana**	**2,141**
3	**Hastinapur**	**711**
4	**Bahsuma**	**285**
5	**Lawar**	**573**

15.7.2 Proposed Landuse 2031 for Sardhana

The area proposed for residential area in sardhana is 664.92 Ha. Here the growth pattern of already existing residential area is followed. The residential area is provided where there is sufficient access. The commercial area proposed in sardhana is 51.72 Ha it is as per the demand of the existing and proposed residential area. Industrial area proposed in sardhana is 118.21 Ha the location of industries is selected by the wind direction analysis. The public and semi public are proposed in sardhana is 118.21 Ha and the green area proposed is 221.64 Ha (15% of the total urbanizable area).

Table 15.8 Proposed Landuse 2031 for Sardhana

Sr. No	Land use category	% as per norms*	% considered	Total Area requirements (Ha)-2031
1	Residential	40-45	45.00	664.92
2	Commercial	3-4	3.50	51.72
3	Industrial	6-8	8.00	118.21
4	Public and semi public	8-10	8.00	118.21
5	Parks and open spaces	15-18	15.00	221.64
6	Traffic and transportation	12-15	17.00	251.19
7	Recreational and Others	Balance	3.50	51.72
Total urbanizable area		**100**	**100.00**	**1,477.61**

Source: Consultant's Estimates

*Note- *Proposed Land use structure for Small and Medium Towns as per RFP.*

15.7.3 Proposed Landuse 2031 for Mawana

The residential area proposed in Mawana is 963.26 Ha. The commercial area proposed in mawana is 85.62 Ha. The industrial area proposed in Mawana is 128.44 ha. The public and semi

public unit provided in mawana is 192.65 Ha. The green area provided in mawana is 385.31 Ha (18% of the total urbanizable area).

Table 15.9 Proposed Landuse 2031 for Mawana

Sr. No	Land use category	% as per norms*	% considered	Total Area requirements (Ha)-2031
1	Residential	40-45	45.00	963.26
2	Commercial	3-4	4.00	85.62
3	Industrial	6-8	6.00	128.44
4	Public and semi public	8-10	9.00	192.65
5	Parks and open spaces	15-18	18.00	385.31
6	Traffic and transportation	12-15	12.00	256.87
7	Recreational and Others	Balance	6.00	128.44
Total urbanizable area		**100**	**100.00**	**2,140.59**

Source: Consultant's Estimates

*Note- *Proposed Land use structure for Small and Medium Towns as per RFP.*

15.7.4 Proposed Landuse 2031 for Hastinapur

The residential area proposed in hastinapur is 319.80 Ha. Hastinapur is already planned city. It is also very famous for its Jain temples. There is great scope for religious tourism. The commercial area proposed in Hastinapur is 28.43 ha. The industrial units proposed in 56.85 Ha. As there is potential for the tourism sector so in support of that cottage industry is proposed in the area. The public and semi public unit provided in hastinapur is 56.85 Ha. The green area provided in the hastinapur is 127.92 Ha (18% of the total urbanizable area).

Table 15.10 Proposed Landuse 2031 for Hastinapur

Sr. No	Land use category	% as per norms*	% considered	Total Area requirements (Ha)-2031
1	Residential	40-45	45.00	319.80
2	Commercial	3-4	4.00	28.43
3	Industrial	6-8	8.00	56.85
4	Public and semi public	8-10	8.00	56.85
5	Parks and open spaces	15-18	18.00	127.92
6	Traffic and transportation	12-15	12.00	85.28
7	Recreational and Others	Balance	5.00	35.53
Total urbanizable area		**100**	**100.00**	**710.67**

Source: Consultant's Estimates

*Note- *Proposed Land use structure for Small and Medium Towns as per RFP.*

15.7.5 Proposed Landuse 2031 for Lawar

The residential area proposed in Lawar is 257.68 Ha. The commercial area proposed in Lawar is 22.90 Ha. The industrial area proposed in Lawar is 34.36 ha. The public and semi public unit provided in Lawar is 45.81 Ha. The green area provided in Lawar is 85.89 Ha (15% of the total urbanizable area).

Table 15.11 Proposed Landuse 2031 for Lawar

Sr. No	Land use category	% as per norms*	% considered	Total Area requirements (Ha)-2031
1	Residential	40-45	45.00	257.68
2	Commercial	3-4	4.00	22.90
3	Industrial	6-8	6.00	34.36
4	Public and semi public	8-10	8.00	45.81
5	Parks and open spaces	15-18	15.00	85.89
6	Traffic and transportation	12-15	15.00	85.89
7	Recreational and Others	Balance	7.00	40.08
Total urbanizable area		**100**	**100.00**	**572.62**

Source: Consultant's Estimates

*Note- *Proposed Land use structure for Small and Medium Towns as per RFP.*

15.7.6 Proposed Landuse 2031 for Bahsuma

The residential area proposed in Bahsuma is 128.31 Ha. The commercial area proposed in Bahsuma is 11.41 Ha. The industrial area proposed in Bahsuma is 22.81 ha. The public and semi public unit provided in Bahsuma is 22.81 Ha. The green area provided in Bahsuma is 42.77 Ha (15% of the total urbanizable area).

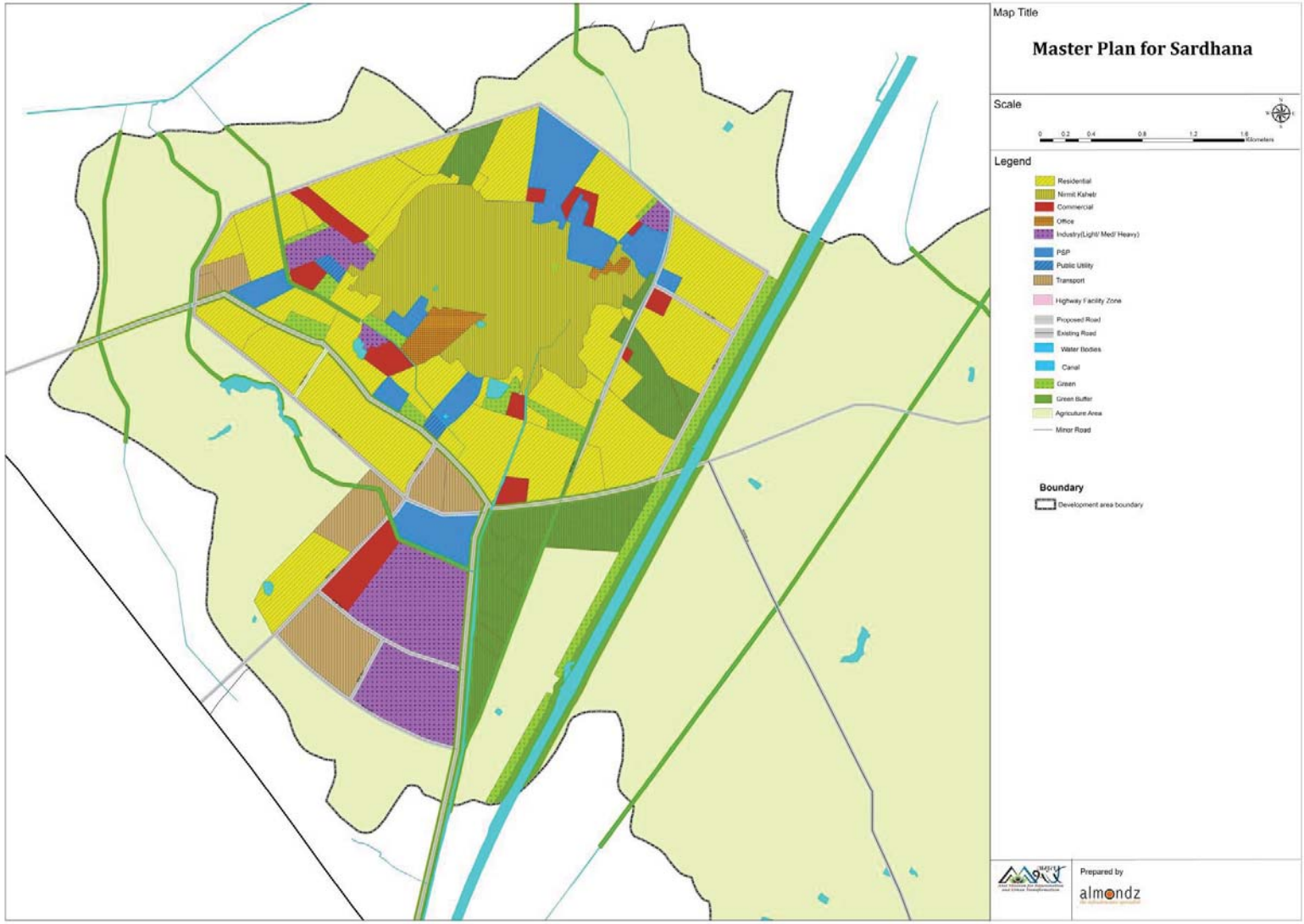
Table 15.12 Proposed Landuse 2031 for Bahsuma

Sr. No	Land use category	% as per norms*	% considered	Total Area requirements (Ha)-2031
1	Residential	40-45	45.00	128.31
2	Commercial	3-4	4.00	11.41
3	Industrial	6-8	8.00	22.81
4	Public and semi public	8-10	8.00	22.81
5	Parks and open spaces	15-18	15.00	42.77
6	Traffic and transportation	12-15	12.00	34.22
7	Recreational and Others	Balance	8.00	22.81
Total urbanizable area		**100**	**100.00**	**285.14**

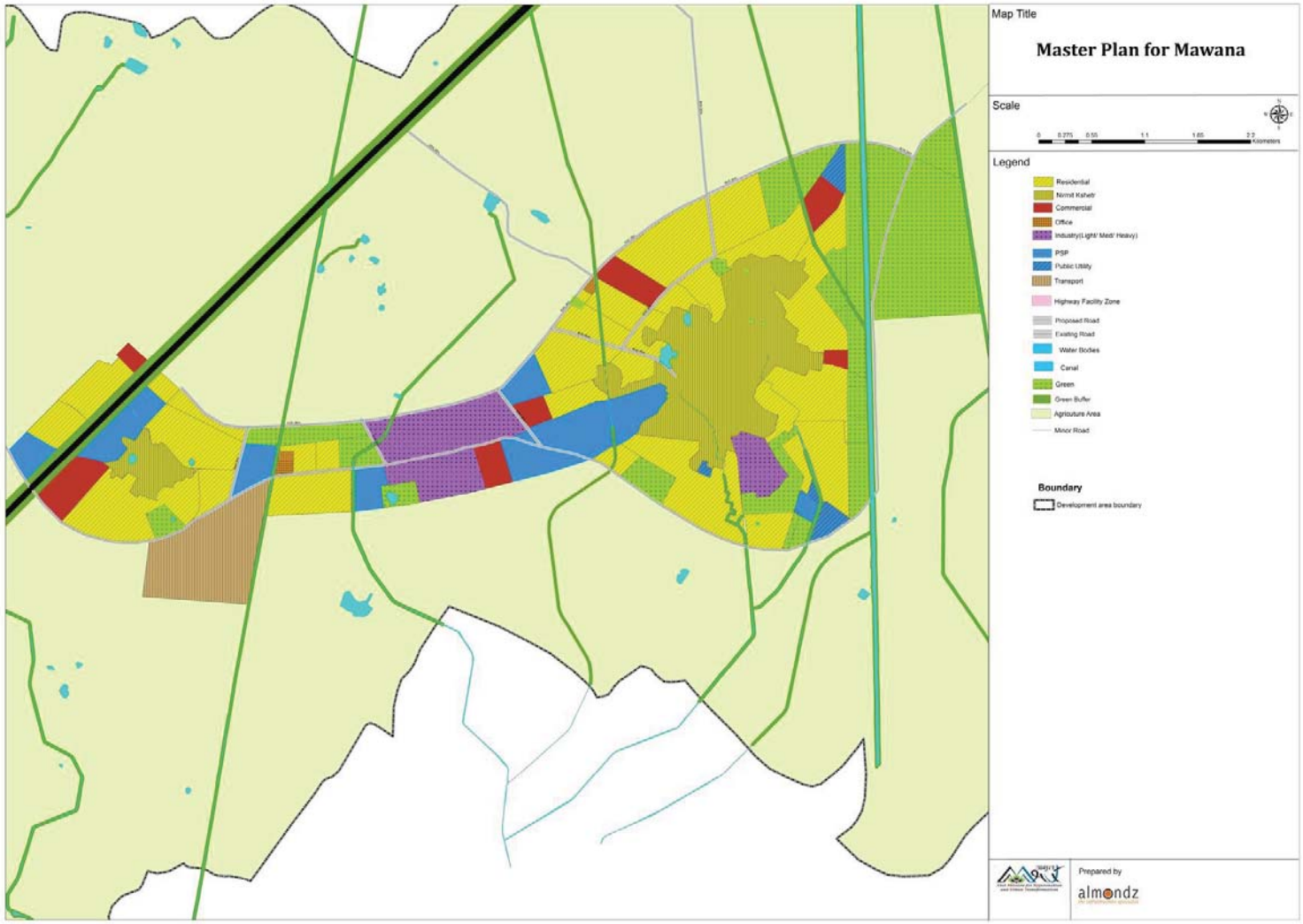
Source: Consultant's Estimates

*Note- *Proposed Land use structure for Small and Medium Towns as per RFP.*

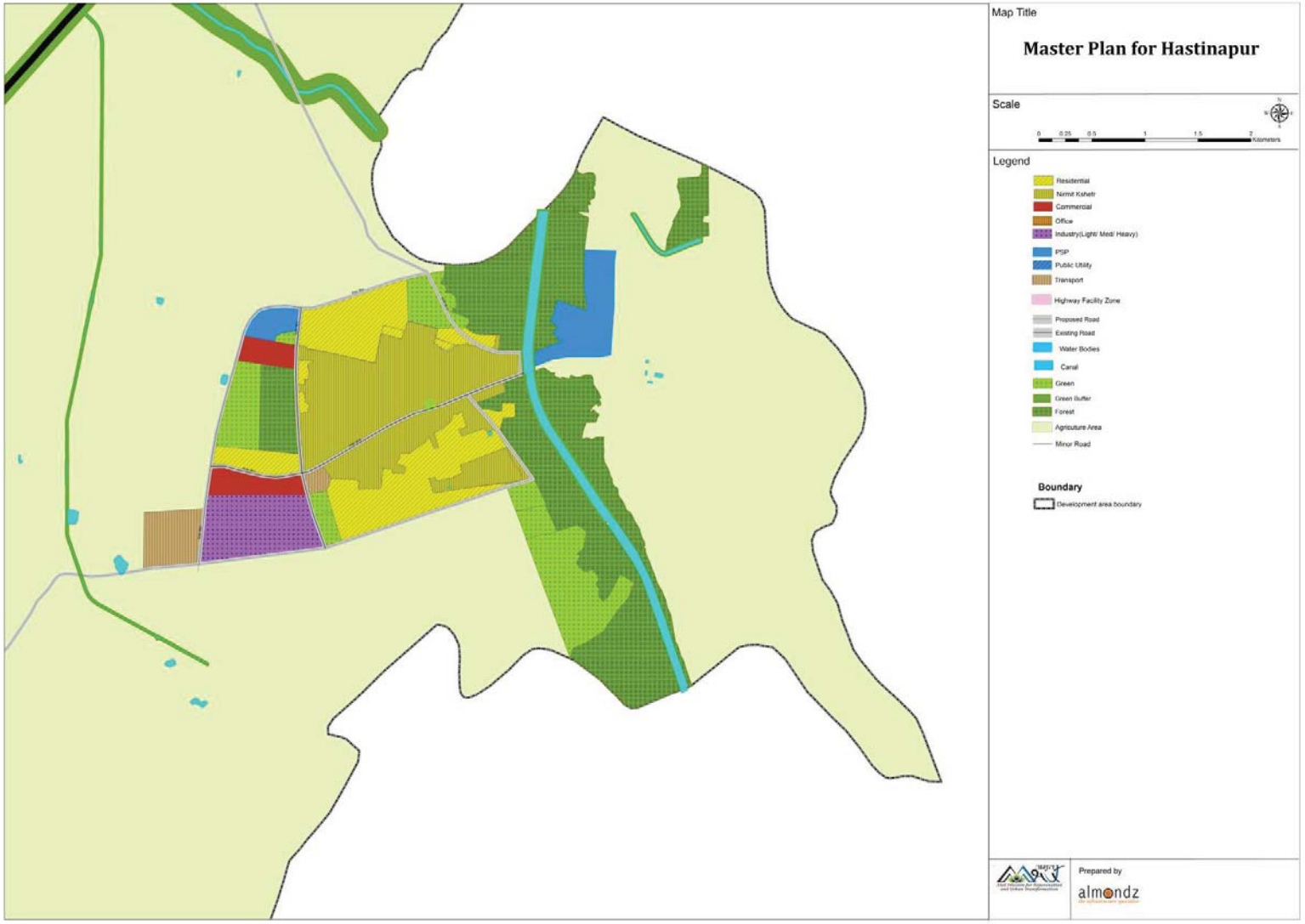
Map 37 Proposed Master Plan for Sardhana



Map 38 Proposed Master Plan for Mawana



Map 39 Proposed Master Plan for Hastinapur



Map 40 Proposed Master Plan for Lawar

Map 41 Proposed Master Plan for Bahsuma

15.7.7 Hosuing Demand

Residential schemes implemented and implemented by Meerut Development Authority and Housing and Development Board have also been kept as residential, keeping the unauthorized residential construction in place and studying the trend of current residential development to meet the requirement of the population.

Table 15.13 Housing demand estimations for Meerut

Year	Base Population (2011)	Projected population	Decadal Increase	Assumed household size	Additional Housing Demand due to natural growth
2021	14,32,881	20,21,423	5,88,542	5	1,17,708
2031		25,25,745	5,04,322	5	1,00,864

Source: Consultant's Estimates

Table 15.14 Housing demand estimations for Mawana

Year	Base Population (2011)	Projected population	Decadal Increase	Assumed household size	Additional Housing Demand due to natural growth
2021	81,443	1,40,147	58,704	5	11,741
2031		2,14,808	74,661	5	14,932

Source: Consultant's Estimates

Table 15.15 Housing demand estimations for Sardhana

Year	Base Population (2011)	Projected population	Decadal Increase	Assumed household size	Additional Housing Demand due to natural growth
2021	58,252	97,962	39,710	5	7,942
2031		1,48,278	50,316	5	10,063

Source: Consultant's Estimates

Table 15.16 Housing demand estimations for Hastinapur

Year	Base Population (2011)	Projected population	Decadal Increase	Assumed household size	Additional Housing Demand due to natural growth
2021	26,452	46,261	19,809	5	3,962
2031		71,316	25,055	5	5,011

Source: Consultant's Estimates

Table 15.17 Housing demand estimations for Lawar

Year	Base Population (2011)	Projected population	Decadal Increase	Assumed household size	Additional Housing Demand due to natural growth
2021	22,024	37,573	15,549	5	3,110
2031		57,462	19,889	5	3,978

Source: Consultant's Estimates

Table 15.18 Housing demand estimations for Bahsuma

Year	Base Population (2011)	Projected population	Decadal Increase	Assumed household size	Additional Housing Demand due to natural growth
2021	11,753	19,153	7,400	5	1,480
2031		28,614	9,461	5	1,892

Source: Consultant's Estimates

15.7.8 Bazar Streets

Following norms has been proposed for the Bazaar Streets the details of which are given in the zoning regulations chapter:

- The proposed market street in the built up area of the present master plan and the route for the market street to be proposed in the built up area under the draft master plan 2031. According to the proposed / existing width, it was suggested to fix a maximum of 15 meters from the edge of the local requirements.
- In other areas (except built-up area) proposed / existing roads of 24.00 meters and above, it was suggested with the condition that 30 meters and more service lanes should be made compulsorily. Along with the proposed market street at the time of construction / widening of wide roads
- In the draft master plan, activities on the plot related to the proposed market street have been suggested to be allowed with the condition. According to the zoning regulations of the owned plot, the entire depth of the master plan which is directly related to the market road, may be allowed on the market street land use.
- In the case of proposal of Market Street under the Master Plan proposals in the plans/approved layout of the Authority, the proposal of Market Street will be effective only after the completion of the process of change in layout as per rules.
- The draft zoning regulations for Market Street is being attached which will have to be finalized after receiving the objections/suggestions.

15.7.9 Highway Facility Zone (HFZ)

In the draft Master Plan-2031, after leaving 30-30 meters of green belt on both sides of the National Highway, Provincial Highway and the constructed / under construction / proposed bypass, located outside the proposed urbanization area, after assessing the potential development potential of the city, maximum 300 meters. The uses allowed and details related to HFZ are provided in the zoning regulations chapter. The vote to propose a Highway Facility Zone was settled with the following suggestions

- The category of Highway Facility Zone would be considered as part of agricultural land use only.
- If any plot / land in the Highway Facility Zone is connected to National Highway, Provincial Highway and Bypass, as well as if it is also related to Check Road, then a minimum of 12.00 meters of right of way from the middle of the said Check road will have to be ensured, In which no construction of any kind will be allowed.
- Draft Zoning Regulations for Highway Facility Zone is being attached which will have to be finalized after receiving the objections/suggestions.
- According to the above zoning regulation, the provisions of maximum land cover, floor area ratio (FAR) etc. permissible under agricultural land use in the effective building construction and development bye-law for the works to be proposed on the plots located under the proposed highway facility zone.

15.7.10 Development Rights Zone

In the Daurala Area, development rights zones have been proposed between the proposed 100 meter ring road and the inner ring road on the Meerut-Roorkee road, under which a provision of 389.59 hectares of land has been provided for the development of various activities. Mixed activities such as residential, commercial, office, institutional and public facilities will be planned in an integrated manner in the Development Rights Zone. Under the said zone, vehicular routes have been planned in the master plan map, other areas will be mainly pedestrian, buildings will be made of multi-storeyed and high density development will be done. In relation to the license for development in this area, Separate rules regarding the license for development in this area will be prepared by the authority in view of the funding of the RTS project after taking into consideration the concerned parties.

15.7.11 Influence Zone (IZ) and Special Development Area (SDA)

SDA has been earmarked at two different places. The permissible uses and other details will be as per the prevailing TOD policy of Govt. of UP.

Meerut has the advantage for Transit Oriented Development due to the development of RRTS. The different TOD zones proposed includes Influence Zones (IZ) and Special Development Areas

(SDA). Land use will be proposed in both the TOD zones as per the detailed planning and the zoning regulations of the same will be provided as per the TOD policies.

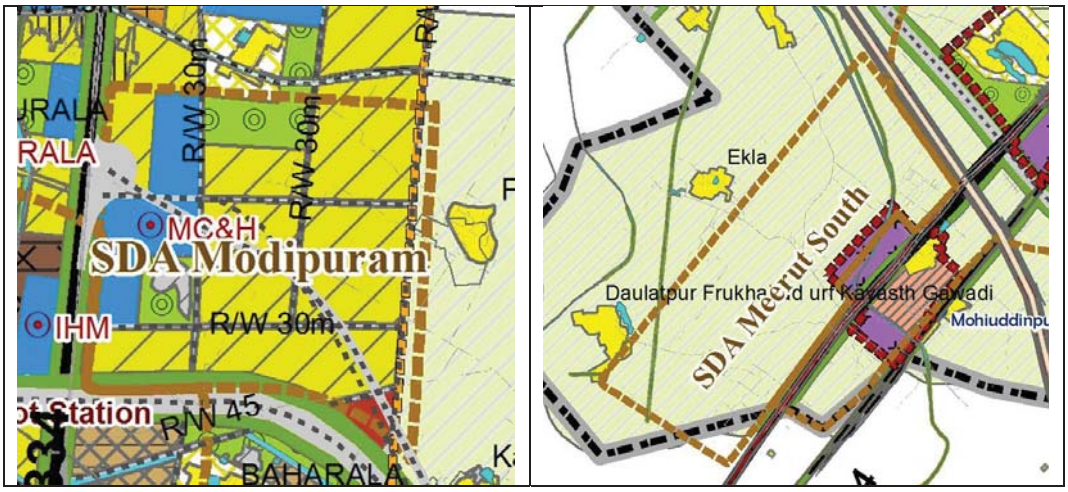
Influence Zone

- The influence zone is proposed along the RRTS corridor. It covers an area inside 1.5 km radius at RRTS stations and 500m on both sides along the track.
- The total area of proposed IZ in Meerut is 4890 Ha.

Special Development Area

- Two SDAs are proposed in Meerut: one in Meerut South and other towards north in Modipuram.
- Proposed SDA for Modipuram is 342 Ha.
- Proposed SDA for Meerut South is 409 Ha.

The Special Development Area (SDA) will be further detailed out in the zoning plan and the zoning regulations will be provided as per the TOD policies.



15.8 Proposed Zones in Meerut

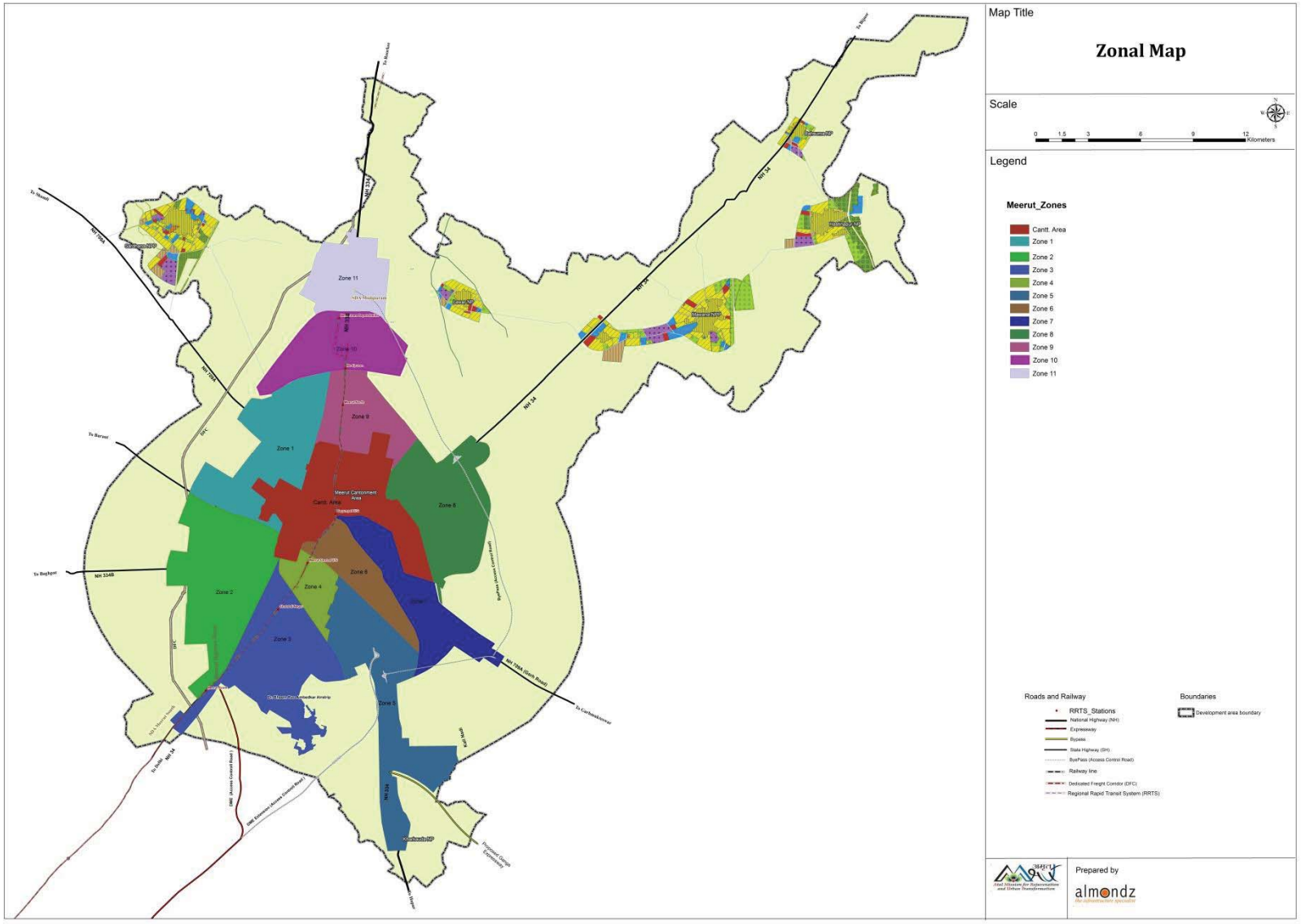
The proposed urbanizable area of Meerut is divided into 11 zones. The areas of these zones are mentioned in the table below. Including Mawana, Sardhana and Hastinapur a total of 14 zones has been proposed for the infrastructure development and other purposes:

Table 15.19 Proposed 14 zones in Meerut Development Area

Sr. No.	Zone	Area (ha)
1	Zone 1	3084.2
2	Zone 2	3983.7
3	Zone 3	3596.8

Sr. No.	Zone	Area (ha)
4	Zone 4	888.2
5	Zone 5	3662.3
6	Zone 6	1400.6
7	Zone 7	2178.8
8	Zone 8	3227.2
9	Zone 9	1762.2
10	Zone 10	2320.0
11	Zone 11	1734.1
12	Mawana	1999.2
13	Sardhana	1280.0
14	Hastinapur	1085.6

Map 42 zones in Meerut Development Area



15.9 Landuse development strategies

15.9.1 Recommendations/ strategies for improvement and redevelopment

The Uttar Pradesh State Urban Housing & Habitat Policy 2014 provides strategies for the improvement and redevelopment of the internal cities. Based on the strategies proposed on the policy and the analysis conducted in the present report following strategies are proposed for the same.

- For the areas falling under such category as vacant, non-conforming land-use, and underutilized land and having an area of 1 Ha and above, in built up areas of cities, for the improvement of the built-up floor area, and provision of parks and open areas, parking and other public facilities in the said land, incentives (in form of high / mixed land use, high density and FAR, land amalgamation etc.) shall be provided to the developers.
- In urban areas less than 1.0Ha of land on which dilapidated industries, bus terminals/depots, etc. exist, according to the master plan land use keeping in view the condition and market potential of such lands reconstruction will be allowed for optimum utilization.
- As per above, it will be allowed to revise the layout plans of public, private and cooperative sector plans / townships, for the 'under-utilized' land to ensure proper utilization through redevelopment. As a result of redevelopment there will be an increase in the supply of Buildable land green areas, parking and other public facilities.
- Redevelopment may include areas of such nature, for example:
  - Land acquired from Sick / closed industrial units and such industrial units, which are decided to be rehabilitated by the Government or B.F.I.R
  - Vacant/unused lands of UPSIDA, Irrigation Department and other departments.
  - Industrial units which are "non-conforming" due to pollution or environmental reasons or are willing to relocate elsewhere/outside areas due to high requirement of land for expansion., facing "sub-optimal" use of land, are congested and deprived of adequate infrastructure facilities and services.
  - Other 'non-conforming' uses such as prisons, bus terminals/depots, etc. located in densely populated/congested areas of cities.
- The norms and other conditions and restrictions for redevelopment shall be as follows:
  - The minimum area of land for redevelopment plan shall be 1.0 hectare.
  - Redevelopment plans can be made by government agencies, private developers, land owners and co-operative housing societies on the land owned by them.
  - Demolition of old / dilapidated buildings will be allowed from the competent level for the implementation of the redevelopment plan.
  - Leasehold land, leasehold Nazul land, leased land of 'Improvement Trust', land of revenue, industrial land, land allotted on lease by government agencies and also on leased land of other departments development plan will be permissible, but

redevelopment will not be permissible on any type of land affected by illegal occupation/ unregistered land etc.

- No redevelopment shall be allowed on sub-division of lands of different nature
- Efforts will be made to move such polluting / hazardous industrial units located inside the city, which are harmful to human health and safety from the point of view of pollution, outside the cities in public interest. For which the share of the land owner under the redevelopment plan will be 5 percent more than the share prescribed in the above table and the share of the government agency will be 5 percent less accordingly.
- The share of the Government agency under the layout plan shall be calculated in telescopic manner keeping in view the area of the land.
- The share and layout plan of roads, parks and open areas and government agency shall be determined by the Authority, so that the said land is in a suitable location from the point of view of access and use.

➢ The incentives and other conditions to the developers , under redevelopment schemes will be as follows:

- Free land use conversion will be done to allow high use/mixed use of the land.
- 25% additional FAR to base FAR shall be free of cost, in case of construction of green building additional 5% FAR shall be provided to the developer.
- Land amalgamation allowed
- Land use conversion fee and the land falling under the park and open areas and the share of government agency in lieu of the additional FAR will be transferred free and undisputed.
- An alternative accommodation of minimum 25 sq. m. shall be provided to the legal owners of the land chosen for redevelopment.
- At the time of approval of the redevelopment plan by the developer / land owner, the development fee and other fees will be payable to the government agency as per the prevailing rules in relation to the share of the land of the land owner.

➢ Mixed use development permissible in the redevelopment areas, provided that the zonal regulations and activities as allowed, are followed.

15.9.2 Strategy for decongestion and decentralization

The present report discusses in detail issues pertaining to high density development in the residential areas (the core city or the built land use area) of the city. These dense and congested developments are characterized by row type small housing units, narrow streets, traffic congestion, on street parking, mixed use including non-confirming uses at one place. IN addition to this, such areas suffer from pollution from incompatible industries, noise and disturbances due to extensive commercial development in residential area as well as improper sanitation, drainage issues etc. The encroachments have resulted in limited open spaces in the city. Thus decongestion is imperative.

- As discussed in above recommendations for redevelopment, such propositions as relocation of defunct or polluting industries, development of parks and open spaces on the land parcels or old dilapidate structures (with incentivization schemes as mentioned before) shall be considered.
- As discussed previously in the report (Section 2 : Urban sprawl, Settlement Pattern and built-up area); it is discussed that the railway station seems to be the epicenter of the city and the city has acquired a nucleated pattern , and appears to be a transit based development concentrated highly in the core city. The land use zone provided in the erstwhile master plan were not utilized most of the commercial activities have come up adjacent to the main routes. For further development in the city, balanced planning is imperative. This is one of the key planning approaches (as discussed in the thematic concept of the Master Plan) for Meerut. The decentralization is proposed by proposing development towards the fringe areas, dedicated industrial zone, residential integrated township, administrative or institutional areas, CBD, parks, river front development etc. will move businesses to fringe.

15.9.3 Recommendation for Environmentally sustainable development

15.9.3.1 Conservation of Green Areas

Recommendation for developing, and maintaining green areas in the city are as follows:

- Identifying the non-confirming uses in the green zones and strategizing the relocation/ etc. for such activities.
- Allow Mixed used development to encourage high density along the major transit corridors, in order to minimize travel demand and reduce private vehicle ownership while promoting green growth based economic activities.
- Identify strategic and important areas: revitalization and development of such natural features, as discussed in the report previously shall be prioritized. In addition new such areas need to be identified and conserved for historical, environmental relevance and redeveloped, to promote green industries and employment opportunities in the city.
- The present report identifies the Dhamola and Paondhoi River, parks and open spaces etc. which are encroached upon to be taken up as priority for redevelopment. Followed by identifying such structures which can be taken up for relocation and redeveloped as open spaces in the core city area.
- It is recommended that the progress made in conservation of the green areas, afforestation drives and revitalization of the rivers and water bodies shall be reviewed in every three years by the authority.
- Involving schools, citizens and private parties in this exercise and carry out awareness activities.
- Urban agriculture, green public spaces, urban forestry, river and lake conservation, plantation drives, green roofs in the city by involving private partners and providing incentives to citizens are recommended as a part of the master plan.

- Declare a local policy and include in the Master Planning process a mandatory three year review of the status of environment and biodiversity.

15.9.3.2 Conservation of Energy

- As per the Smart City proposal document for Meerut, any smart city has at least 10% of its electricity generated by renewable energy sources. Presently, city does not have any renewable sources of energy and there is no commitment to promote this for the foreseeable future. Following recommendations are based on Govt. Urban Housing and Habitat Policy.
- In order to promote solar energy in the housing sector, the establishment of solar power plants/plants to be encouraged to meet the partial electrical load in housing and commercial complexes, government and non-government offices and buildings of 5000 square meters and above area. Necessary provisions in the bye laws to be made.
- Use of solar water heating systems and solar lighting to be encouraged
- Special efforts will be made for efficient use and conservation of energy as per the provisions of the Energy Conservation Act, 2001.
- 5% additional free FAR is suggested to be awarded to encourage construction of 'Green Buildings' will be permitted. "Green building" means a building which has less water use than conventional building, proper energy efficiency, conservation of natural resources, and minimum generation of waste and healthy environment available to the occupants.
- Use of materials and renewable materials to be promoted in construction.
- All new developments in the planning area shall be encouraged to be energy efficient. Existing institutions in the city, which are shall be directed to install Solar Rooftops.
- Installation of Solar LED Street lights all over the city shall be promoted.

15.9.3.3 Conservation of Water

- The city faces crucial issues in water management Such as there is no accounting for water produced, water supplied or wasted. No metering for water connection, absence of separate waste water treatment plant and storm drainage network. Rain water harvesting is not a prevalent concept in the city. Treated water from existing STP of 38 MLD is discharged in Dhamola River. Hence to avoid water pollution and save water, following recommendations are done.
- Installation of Rain Water Harvesting system for recharging of ground water- and promoting effective implementation of RWH to be to conserve water and water sources in buildings.
- SCADA based monitoring to keep a tap on unaccounted for Water to be promoted.
- As per the Smart city proposal, reuse of treated water by existing ITC Cigarette Factory and Star Paper Mill can be done.
- Waste water recycling to be implemented, reduction of water supply demand by providing recycled water for informal usage.
- Smart water management initiatives shall be implemented in the city with zone based industrial development, such as treated water can be used in industries.

- Policy of Zero Liquid Discharge to be implemented in industrial areas. Zero liquid discharge (ZLD) is a strategic wastewater management system that ensures that there will be no discharge of industrial wastewater into the environment. It is achieved by treating wastewater through recycling and then recovery and reuse for industrial purpose.
- Measures to be taken to conserve the existing ponds/reservoirs in the colonies to be developed in urban areas to prevent degradation of ground water level as a result of continuous water exploitation in urban areas
- n the layout plans of various schemes for conservation and proper water management of ground water sources, it should be mandatory to make new reservoirs under parks and open areas and roof-topping in buildings of all uses of area of 300 square meters and above
- Promotion of afforestation along the banks of the water bodies and roads and proper maintenance of parks in open areas and green belts. Citizen participation should be enhanced.
- Revitalization, redevelopment and conservation of water bodies, especially rivers shall be prioritized

15.9.3.4 Solid Waste Management

Following recommendations for SWM are given.

- Developing a generation to disposal effective solid waste management system for the city.
- Promotion of waste segregation at source.
- 100% waste collection, transportation and recycling at Pan City Level to be promoted.
- Using smart solutions of GPS and RFID BINS
- Waste to Compost & Plastic processing plant and Bio Gas Plants as per the smart city proposal for the city to be prioritized.
- Provision of Public Toilets in the city, especially along Paondhoi river, Dhamoli river
- Establishing 100% coverage of Sewerage Network at Pan City Level.

Zero Waste policy is recommended in the URDPFI guidelines. The 'Zero waste'/'Zero Land-fill' concept is gaining ground as being practicably achievable in Indian cities too, and has been implemented in cities such as Ahmedabad, Bhopal and Trivandrum completely.

Zero land-fill can be achieved by adopting systematic approach of segregation at source by planning, by collection facilitation and most importantly by public awareness. The green waste can be converted into fuel cakes, kitchen waste into manure, construction & demolition waste into bricks, plastic waste into oil, paper, glass and steel back into the same and all residuary inert materials can also be converted into bricks. Achieving zero land-fill is more conveniently possible, if (a) the collection is made from house to house

and some segregation is done at household level and (b) the recycling is done at decentralized, say, ward or even lower levels.

15.9.4 Integration of land use plan with Traffic and Transportation Plan and Infrastructure Plans

National Urban Transport Policy (NUTP), 2006 has highlighted the need for integrating land use and transport planning. Land transport integration benefits in making investment decisions in transport infrastructure and services, which in turn are linked to economic, social and environmental outcomes. It also helps in determining the optimal use of land in the influence zones of the transit corridors. Land transport integration would involve two mutually supportive processes:

(a) Organizing the physical form and land use pattern of a city such that the travel demands, trip lengths and travel times are minimized, while accessibility, comfort and efficiency are maximized.
(b) Organizing all systems of transportation from pedestrian pathways to mass transit systems such that they integrate well with each other and enable the harmonious establishment of land use around them, in the process generating a city form that is sustainable

It is recommended that a comprehensive mobility plan shall be prepared for the city in conjunction to the land use plan and basing the transportation and traffic studies and relevant proposal made under the master plan.

The design and planning integration of land use with transport systems can be called as “Transit Oriented Development”, which is essentially “any development, macro or micro that is focused around a transit node, and facilitates complete ease of access to the transit facility thereby inducing people to prefer to walk and use public transportation over personal modes of transport”. The Master Plan proposes development of industrial and residential areas along the connectivity. In addition as per the Mixed Use and ToD policy of the state, this would incur and support the compact city idea for the development of the city. It is recommended that at the time of preparation of zonal development plans, as per the planning area, regulations shall be made so as to be in accordance with the ToD and mixed use policy.

Following aspects can be considered: addition of dedicated pedestrian tracks, to provide space for vulnerable road users and promote walkability; Development of Internal roads with trees for shade along river Paondhoi and East West Drain passing through city area; Marked Pedestrian Crossings, Pelican crossings; Promoting Walkability through pedestrinazation of Market areas such as Cloth and ready-made garments etc.

15.9.5 Urban Form

Urban form is the physical characteristics that make up built-up areas, including the shape, size, density and configuration of settlements. It can be considered at different scales: from regional, to urban, neighborhood, 'block' and street. Meerut in last many years has acquired a typical form with largely concentric densities (high-density inner area; medium density outer-central areas/ colonies; low-density suburbs). In the present Master plan, the city edge green lungs and green belt are proposed. The city's morphology will be affected by the new developments that are proposed along the connectivity and transport corridors, future residential and industrial areas in the city around the present highly dense city area. The Transit Oriented development entails planning for compact cities and reducing haphazard urban sprawl and dependency on the large scale developments in the periphery which induce shift from non-motorized to motorized modes of travel. Approach to TOD highly depends on establishing mixed land use zone as part of strategic densification.

Chapter 16
Analysis & Compliance of Govt. Policies

Chapter 16. Compliance of Government Policies

16.1 Uttar Pradesh State Urban Housing & Habitat Policy, 2014

Published In	March 2014
Department	Housing and Urban Planning Department, Uttar Pradesh
Vision / Mission	– Pleasant Habitat for all – Provision of quality life and equitable housing for all sections of the society especially economically backward and urban poor.
Aims	– Promoting steady and planned urban growth – equitable housing for all sections of the society especially economically backward and urban poor – Providing measures for land assembly and acquisitions to facilitate proper housing and infrastructure development – Promoting PPP in housing and infrastructure development – Utilizing land as a resource in resource mobilization for infrastructure development – Promoting inclusive development in provisioning of basic amenities – Emphasizing on energy and water conservation – Promoting private investments in land development – Capacity development and information system management in government agencies
Key Characteristics	*The policy gives a menu of actionable points which inter-alia includes Public-Private-Partnerships, conservation of natural resources and formulation of regulations & bye-laws that are environment friendly, investment-friendly and revenue-generating. This Policy seeks to emphasize appropriate fiscal concessions for housing and infrastructure.* <u>Key Characteristics, Strategies and focus areas of the policy</u> **1.** Organized and Planned City development • Promoting sustainable development through focusing on Greenfield development, integrated townships, growth centres etc. Strengthening urban rural linkages and promoting catalytic development of the backward areas / underdeveloped areas so as to foster growth in rural areas • Allowing mixed use in new developments. High density, high Far to be allowed in horizontal as well as vertical mixed-use development, with two or more uses shall be permitted; • Mixed use can be permissible in following situations ○ MRTS corridors/ transit-oriented development zones and Urban redevelopment schemes (total area can be under mixed use) ○ New townships/ integrated townships schemes; Potential locations demarcated in Master plan/ zonal development

	plans, Expressway, major highways proposed in development nodes (maximum 20% land area can be dedicated to mixed use) ○ Maximum permissible FAR In new developments 4.0 and in redevelopment 3.0 for mixed use ○ For mixed use permissible, Minimum width of road should be 30m Minimum land area 10 acres (4 hectare) ○ Maximum permissible FAR in mixed use in TOD zone to be 4 (developed areas) and 5.0 (in new or undeveloped areas) • Promoting ToD, implemented with road hierarchies and zoning regulations • Promoting redevelopment and densification in urban areas by incentivizing provision on public utilities / open areas in non-confirming land uses with area min 1 Ha; allowing redevelopment in areas (>1 Ha) with old industries / terminals etc in accordance with new master plans ○ Redevelopment of underutilized areas and non-conforming land uses ○ Redevelopment conditions such as min area to be 1 Ha, and to be allowed by land owned by private developers, govt. agencies, housing societies etc. The policy provides percentage land under developer, utilities and govt. on redevelopment. ○ Incentives offered under redevelopment are focused such as free of charge land conversion to higher/ mixed land use; additional 25% of base FAR and additional 5% for green building; etc. are suggested under the policy to promote redevelopment • Master Planning cities would lay emphasis on GIS based planning, superimposition on revenue maps, planning in accordance to Indian standards, sustainability-based planning strategies such as preparation of city mobility plan, infrastructure plan, schemes for development of peri- urban areas etc.; exhaustive stakeholders discussions are focused in the policy • Introduction of transferable development rights for lands in green area, amenities etc.; incentivizing schemes for land use changes etc. • As part of master plan zoning regulations; following are permissible in agricultural areas without land use conversion charges and payment of 'impact fees' such as SEZ; high tech educational and health facilities, agricultural processing and storage units, rice mills flour mills are units, amusement parks, warehousing; cold storage etc. • Zonal development plans for detailed planning of the proposed road, financing plans for implementation by the authorities etc. are further proposed.

	2. Land Assembly and management • The policy promotes sustainable methods for land acquisition such as land pooling scheme; direct purchase of land by the government/ semi govt. etc. agencies; transferable development rights, • Minimum area for land pooling 10 acres • Reservation of 10% for open areas and public utilities for 35% of the pooled land • Land given back to land owners shall not be less than 25% of the scheme • No development charges to be paid by the owners for the allotted land • Public areas under roads etc. with minimum 2000 sq. mt. can allow for TDR • TDR is allowed in areas with premium FSI • No compensatory FAR permitted while applying TDR • Authorities to follow land record system and more land assembly methods to be explored • Promotion of high rise, group housing, by allowing 3 FAR with 30 m road and min area 4 Ha **3.** Affordable Housing The policy promotes affordable housing by encouraging the implantation and convergence of central policies, emphasizes on slum free city policies, financial incentivization, self-help housing by government agencies, 20% reservation for EWS and LIG govt., private housing **4.** Legal and regulatory framework • Promote systematic planning by establishing single window system for master plan / building plan approval; land conversions, regulations for TDR and land pooling; etc. The policy focuses on legal penalties and administrative aspects to be follows in systematic city planning • Creating adequate housing stock both on rental and ownership basis with special emphasis on improving the affordability of the vulnerable and economically weaker sections of society through appropriate capital or interest subsidies. • Zoning regulations to be formulated for industrial development schemes (to include 10% land for staff housing); promoting mass transit and mixed uses and provisioning multi-level and terrace parking ; regulations for conservation of heritage sites; regulations for street vendors; slum redevelopment etc. ; rental accommodation; hostel accommodation and rental housing (land area min 150 sq. m and road 9 m for rental housing); stilt parking; paying guest accommodation etc. in zooming regulations **5.** Infrastructure development and management

	infrastructure development through governmental agencies new proposals, promoting PPP mode and etc. are included in the policy **6.** Urban transport • Preparation of city mobility plans, comprehensive mobility plans, infrastructure plans are promoted • Emphasis on non-motorized vehicle transport, development of highways, expressways and by passes; • High density transit corridors developed on PPP and such schemes • Pedestrianisation, parking management, traffic management, multi-level car parking at specific location (with cross subsidy and additional FAR etc. such incentives), etc. • IT based monitoring etc. for traffic managements **7.** Resource management for housing and infrastructure Introduction of Self sustainable revenue methods; applicability of Premium FSIs in potential areas such as transit corridors etc.; implementation of impact fees; regulation for development charges etc., land use change charges; stamp duties for TDR; betterment levy; non-conforming land use charge; parking charges etc. NRI housing schemes; private investments; **8.** Technological support Low-cost housing techniques; disaster planning regulations, industrial building codes, low-cost construction materials, etc. for affordable housing and industrial sectors; urban planning with aerial mapping, GIS mapping etc. GIS enables plans, use of plastics in road construction etc. technological innovations **9.** Forging strong partnerships in private and cooperative sector • Forging strong partnerships between public, private and cooperative sectors for accelerated growth in the Housing Sector and sustainable development of habitat • Incentivizing PPP based development and redevelopment schemes with high Densification, high FSI etc. and land use change • Private investments promoted by license model based Integrated township policy • Private and cooperative housing land assembly by PPP/ joint venture schemes • FDI in redevelopment promoted **10.** Environment Conservations and upliftment • Green lungs in master plans: green corridors open spaces parks etc. buffer areas; 15% city area to be for green areas such as multipurpose open areas parks playgrounds (except water bodies); • Revitalization and conservation of water bodies • Rain water harvesting, recycling, ground water recharging

	promoted • EIA encouraged as per integrated township policy etc. • Mass transit and CNG; Compatible land use planning; Forestation in green strips, adjacent to roads etc., water bodies, transit corridors In addition to above the policy also focusses on the Conserving flood lands of rivers by implementation regulation in the master plans and identifying such water bodies and projects for redevelopment and revitalization of water bodies **11.** Promoting Renewable energy source; Rural and urban integrated development and Capacity building and management information systems are also focused in the policy document. The policy includes roles of state government, governmental agencies, and private and cooperative societies in implementation of the policy.
	Areas / FSI regulations given in policy: (discussed above) Minimum areas required for TDR; ToD, Mixed Use development and respective permissible FSI; percentage areas for EWS and LIG housing; land pooling schemes; redevelopment FSI incentives etc.
Takeaways for Meerut Master Plan	• Land use planning: Mixed Use development and FSI incentivization • High Density and compact development • Use of non-conforming land uses and incentivizing schemes • Areas proposed for redevelopment • Zoning regulations for mixed uses, mass transit, TOD areas in respect with FSI, densification, land assembly, TDR etc. • Environmental and ecological focus • Permissible land uses in agricultural lands and densification strategies • Land management strategies and revenue generation for authorities • Planning green lungs of city: buffers, playgrounds, open areas etc.
Link Online	*http://awas.up.nic.in/policy.html*

16.2 Integrated Township Policy (License Based System)

Published In	March 2014
Department	**Housing and Urban Planning Department, Uttar Pradesh**
Background	An updated version of the ITP Policy published in year 2005 was published in year 2014, to streamline the practical issues faced in the earlier version including licensing, investment etc. such aspects. The updated policy includes regulatory frameworks, consortiums MoU formats, licensing formats etc.

Key Requirements	• An Integrated Township means, self-contained planned and developed township which have all the physical and cultural development facilities including areas for live, work learn and play. • The minimum area for Integrated Township is 25 Acres and maximum can be 500 Acres. • Direct Access to main road, proper provision of apt water and power supply • Locations such as fast-growing areas near urban mass transit corridors; growth centers, urbanizing areas in master plans etc. <u>Developers' qualifications for applying for license</u> • Private builders. Land owners registered or non-registered developers with land to develop either by whole or assembled, or willing to join land • Consortium to be formed of all the parties, with lead member to have more than 26% of the shareholding and should be a company; all the parties to disclose their net worth and turn over (irrespective of sectors) etc. • The turnover of last year should be 20% of the average of last three years; for each 50lac INR, one acre license for 1 acre shall be awarded • The financial capacity f the lead has to be more than the cumulative financial capacity of the other members
Key Characteristics	**<u>Key Features</u>** • The policy provides own detail the necessary documentation and agreement, format etc. required by the developing consortium for applying for license of the Integrated township; the license application and approval/ issuance process etc., license fees, approval authority • The consortium prerequisite to apply is such that 60% of the area applied for license is assembled, the land should be continuous parcel, and well connected • **Land Assembly Process** ○ The land assembly should be done by developers; in case land acquisition policy and state rules shall be applicable ○ The consortium shall pay for direct purchase of land ○ The consortium land assembly shall follow the applicable SC ST land related rules, rural policies for land under public utilities, etc.; resettlement for affected people as per relevant R&R policy of UP; ○ Incentives to Developers ○ Only consortium owns the development rights in the proposed area ○ Land pooling agreement / developer agreements are allowable by consortium with villagers/ land owners ○ High standards for Flexible land use and FARs are set for such

	a development ○ For Master Plan based land use conversion rates, 50% discount shall be given for an urban population less than 5 lac and 25% for 5 to 10 lacs population ○ Developer can be a part of more than one consortium and hence such developments • **Farmers and Land owners' rights** ○ The farmers may not directly sale the land and instead get into land pooling/ developer agreements ○ The village habitation in the township area shall be provided with link roads, health and educational facilities, water supply, sewerage etc. by the developers ○ The villages not included in the township areas will be developed by the authorities, for which the developer has to pay charges to the authority • **Land planning, FAR and density** ○ City level facilities and utilities shall be provided in the township, for provisions such as open areas, parks, bus terminals, fire station, STP, public facilities 10% of the licensed area shall be reserved ○ The development of the public facilities, open areas etc. shall be done by the developers ○ Land uses such as residential (max. 50%); mixed (max. 20%); commercial (max. 10%); non-polluting industries, institutional public, semi-public, utilities and recreational areas (min. 10%); parks, open areas, water bodies (min 10%) and roads, parking etc. (min 15%) shall be planned in the township ○ In case any zonal plan is applicable in the license area, then the net plot area is used for calculation (deducting the roads); however, the license fees is applicable for complete area. • **Density** ○ 150 units residential /Ha for plotted development ○ 200 units residential /Ha for group housing (on 12 to 18m roads) ○ 250 units residential /Ha for group housing (on 18 to 24m roads) ○ 330 units residential /Ha for group housing (on 24m roads and above) • **FAR** ○ Plotted Development: 65% max. land cover; 2 max. FAR ○ Group Housing: 35% max. land cover; 2.5 max. FAR ○ Commercial 2500 sq. m area and below: 50% max. land cover; 1.5 max. FAR ○ Commercial 2500 sq. m area and above: 50% max. land cover; 2.5 max. FAR ○ Mixed: 40% max. land cover; 3.0 max. FAR (with minimum req.

	road width 30m) ○ Institutional / Administrative: 35% max. land cover; 2.5 max. FAR ○ Non-Polluting Industries: 50% max. land cover; 2.0 max. FAR ○ Public Semi Public: 35% max. land cover; 2.0 max. FAR ○ Recreational: 20% max. land cover; 0.25 max. FAR ○ (50% is saleable FAR, with maximum permissible 4 FAR; except for plotted dev.) • The developer shall prepare DPR for the township area and provide provision for all the trunk infrastructure, public facilities and utilities in time and well phased manner • The time period allowed for 50-acre scheme (including completion of EWS and LIG housing etc.; public facilities and amenities, village provisioning etc.) is 8 years; for 51 to 100 acres is 9 years; for 100 to 200 acres is 10 years and above 200 acres is 12 years • The policy details out the features such as performance guarantee by the developers, proper disposal/ allotment of the properties etc. • **LIG and EWS provisions** ○ BUA for EWS In plotted development: 30 to 35 sq. m In Group Housing: 25-35 sq. m ○ BUA for LIG In plotted development: 40 to 50 sq. m In Group Housing: 35-48 sq. m – The LIG and EWS housing shall be constructed by the developers – As part of the Master Plan of the scheme the EWS LIG shall constitute 20% of the total scheme area (10% each) – The policy provides details on the expectations, roles and responsibilities of the developer towards sustainable development, inclusive planning and provision to the villagers as a part of the scheme
	Areas 1. Minimum land areas required for Integrated township 2. FAR, Land use maximum permissible cover, FAR maximum permissible, density etc. 3. Planning mix and provisioning for common areas; land use conversion in case of Master planning area etc.
Takeaways for MeerutMaster Plan	Possible provisions of Integrated township (license based) scheme which reflects on the land pooling scheme can be made in the proposed master plan area where proper direct access and future growth centre can be envisaged; can be proposed as decongesting character to the city and can be a possible location for developer consortium to take up.
Link Online	***http://upavp.in/post/en/pol-planning***

16.3 Draft Policy for Promotion of Private Investment in Development of High-Tech Townships in Uttar Pradesh

Published In	Year 2003, and amended in 2006, 2007
Department	**Housing and Urban Planning Department**
Background	With the current policy of economic liberalization and stress on privatization, the government has to resume the role of a catalyst and "facilitator" in housing sector rather discharging the traditional role of being a "provider". Therefore, there is urgent need to make vigorous efforts to create an enabling environment for the same.
Key Requirements	• **Prerequisite for developers** ○ Minimum investment of Rs.1000 crores (during the five-year time frame) ○ **Minimum land area of about 1500 acres, and no upper limit as prescribed in amended policy of 2007 (as per year 2006 policy the maximum areas was maximum 5000 acres and extendable)** ○ The above larger area would facilitate creation of housing stock in well planned manner **Financial aspects** ○ Minimum annual turnover of Rs. 100 crore for the last three years with positive net profit; the company should be listed in SEBI within five years of the selection ○ Any individual developer can take part no need of consortium, MoU required in case of consortium ○ The share capital of the consortium members untied shall be 51% of the total; all members shall be **Selection** ○ Selection of companies would be by tender based and selected by high level committee of govt. officials; the selection process would be scoring based for example, 25 marks for financials; 10 and 15 marks for conceptual plans and pre-feasibility reports; past experience scoring etc.

Key Characteristics	**Developer -Land acquisition** ○ Each developer can partake in two such township developments ○ Land shall be acquired by the development authority/ Housing Board or any other state agency, under the provisions of Land Acquisition Act, 1894 or U.P. Housing and Development Board Act 1965 ○ Total cost of land to be borne by developer company, in case of LA stamp duties, 10% to be waived off; 12% lease premium to be paid by developer in case of for freehold conversion/ sale (for first 500 acres no fees) ○ Direct purchase of land required for 60% of first 500 acres, remaining as per LA process of Development authority **Location** ○ The township can be proposed in any city/ region of the state except greater Noida and Greater Noida notified areas ○ The land proposed for such township would be primarily in agricultural zone in city scale master plan, once the township is approved, the land conversion would be done by the developers with respective fees paid and the respective changed will be made in the city master plan ○ Each city can have maximum two such townships and for outside development authority area, within 10 kms range another township can be proposed ○ Townships proposed in NCR shall be as per the regulations as prescribed by NCRPB for the said area **Timelines** ○ The authorities inform the developer for selection within 90 days ○ Present MoU within 30 days of the offer acceptance ○ Present conceptual DPR within 180 days of forming the MoU ○ Approval process in 30 days by authorities ○ The launching, booing pre-launch etc shall be allowed only after the approval of the DPR **DPR Requirements** ○ A financing plan has to be presented by the developer including venture capital, loans, debt service ratio, cash flow- outflow, break even, year on year balance sheets, IRR etc. such aspects ○ The township shall follow URDPFI guidelines, BIS, IS codes ○ The DPR would be conceptual plan including layout plans, infrastructure loans, O&M plans, standards and case studies etc., phasing plans, this would help the developer in procuring financial instruments, etc. **Other** ○ The developer shall follow the resettlement rehabilitation policies and relevant policies for the village, backward classes

	communities for the said areas ○ The developer shall acquire minimum of 60% of the land at first, with minimum area of 300 acre and prepare detailed layout plan (foreseeing a pollution of 25000 in such area) and further on, and present it to the governmental agencies, a development agreement shall be awarded by the govt agency ○ The development of the township shall follow all the planning norms such as provision of public utilities, services, provisions for the village communities, resettlement aspects, proving green buffers, open area, LIG and EWS accommodation up to 20% minimum etc. ○ As per the amendment in the 2007 policy, the developer if purchases land from the scheduled tribes and schedules caste, shall provide/ purchase for similar land area near the proposed township ○ Those townships which were approved as per the 2003 policy shall follow the latest amendment under 2007-year policy
	Areas ○ FAR and density have not been mentioned in the policy ○ Minimum land area required is 1500 acres, for which a detailed layout plan shall be made for every 300 acres ○ No maximum limit is prescribed for the township
Takeaways	Such type of developments can be proposed in the peri urban areas / fringe areas of the master plan, location which foresees a future development, can be a secondary magnet where the connectivity can be strengthened and the city can provide linkages to major urban centres nearby, industrial centres, proposed industrial zones etc. live work learn play kind of development
Link Online	***http://awas.up.nic.in/policy.html***

16.4 Policy for Sustainable Ground Water Management in Uttar Pradesh

Published In	Year 2013
Department	**Ground Water Department, Uttar Pradesh**
Background	• In view of the importance of integrated management of ground-water resource and continuously increasing dependency on ground-water in different schemes, the State Government has come out with a comprehensive ground-water management policy in the state. • The policy aims to implement the rain water and recharge programs in integrated manner and to effectively minimize the existing level of ground-water withdrawals through efficient water use and techniques • The policy paper describes its strategy and main action points in nine different subheadings, starting with the aquifer mapping to monitoring and review

Vision	Setting of goals based on the principle of sustainable ground water management in the state, according to different hydrogeological conditions and implement these goals.
Strategies/ Actions required as per Policy/ Key Features	**1. Aquifer Mapping and Aquifer-based Ground-water Management** • The National Program of Aquifer Mapping and Aquifer based Management is proposed to be taken-up on a big scale for overall management of ground water resources; as a result of this program , management of ground water will be done as single aquifer unit. • Emphasis will be given to aquifer-wise ground water management by adopting the participatory approach **2. Optimum Use of Ground-water and Planned Management of its Exploitation** • Concrete interventions are required for the judicious, optimum and efficient use of water including planned development / abstraction; as such water waste occurs due to field losses while taking the water from tube-wells to fields, excess irrigation than the water really required to crop, etc. • **Management Interventions for Urban Areas** ○ Emphasis on checking about 40% losses due to leakage in water supplies ○ Proposes to work out the need-based drinking water requirement and the arrangements like rostering for controlling exploitation of ground-water. ○ While the existing tube-wells in major cities need be closed in phased manner, the new tube-wells be constructed in second aquifer group, marked as alternate aquifer. ○ For the cities situated on the bank of river Ganga, the policy suggests the construction of tube-wells in the first aquifer group located up to 150 meters. • **Management Interventions for Rural Areas** ○ policy suggests a number of interventions like 'pipe irrigation' to check leakages, promoting sprinkler system, conjunctive use of canal water and ground-water, promote low-water consuming crops and encourage use of canal water for ○ irrigation in over-exploited areas. In this regard, a proper collaboration between the Department of Agriculture and Irrigation Department is necessary **3. Rain Water Harvesting and Ground-water Conservation/Recharge** • Ground water conservation in urban areas ○ Emphasizes on roof-top rainwater harvesting systems on buildings along with combined recharge systems to be implemented by the Housing and Urban Planning Department. ○ The possibility of conserving surplus run-off through, ''the pavement storm water harvesting'' need to be assessed and

	promoted by the Urban Development and Housing and Urban Planning Department. O It also gives the details of the recharge techniques for urban areas and the guidelines for implementation of roof-top rain water harvesting • Ground water conservation in rural areas ○ The emphasis is more on rehabilitation of village ponds and reservoirs for water storage and conservation. 'Recharge Activity Core Team' constituted in the stressed-districts will be made more effective and to speed up the rain-water harvesting program, "the Ground Water Recharge Task Force" constituted at state level, will provide the required technical cooperation • Ground water conservation in industrial areas ○ The polluted effluent of industries be treated for its maximum reuse and recycle. Due to risk of ground-water pollution, 'recharge well method' should not be encouraged • Adoption of micro-water-shed and micro-basin approach for comprehensive planning of rain-water harvesting and ground-water recharge. The aim is to saturate each micro-water-shed by suitable recharge structures **4. Setting of Ground Water Regulation Processes** • As of today, no legal system exists in the state for 'Ground-water Management and Regulation'. However, there do exist certain guidelines in this regard, such as, ○ No government scheme of tube-well construction should be implemented in the over-exploited / critical blocks ○ The installation of roof-top rainwater harvesting system has been made compulsory with certain provisions in the building by-laws ○ The policy envisages the formulation of practical and acceptable regulation process separately for both urban and rural areas ○ The policy suggests that the pollution control board/ environment department should consider development of an initiative for monitoring and control system for ground-water pollution under environment protection act **Other provisions detailed out in the policy document** • Continuous monitoring of ground-water quality and environment protection • Water quality review committee • Ground-water data bank and information system • Water management plan • Formulation, inter-departmental cooperation and implementation of schemes • Comprehensive ground water policy monitoring and review committee
Takeaways	The policy emphasizes upon the urgent need for the enactment of appropriate rules and regulations for ground water development in the nearest future
Link Online	***http://upgwdonline.in/groundwater_policy.html***

16.5 Planning norms, zoning regulations and building bye-laws for Mixed Use and TOD – 2015

<table>
<tr><td>Published In</td><td>March 2015</td></tr>
<tr><td>Department</td><td>Housing and Urban Planning Department</td></tr>
<tr><td>Background</td><td>UP TOD Policy consists of the guidelines, norms and standards for the following special activities along the transit corridors in Uttar Pradesh.
a. Transit Oriented Development
b. Mixed Land Use
c. Provisions for land assembly</td></tr>
<tr><td>Key Features / bye laws of ToD Zones</td><td>The UP-TOD Policy underlines the following criteria for implementing Transit Oriented Development (TOD) in Uttar Pradesh along the transit corridors:
• The influence areas of MRTS/Transit/Metro Corridors to be earmarked as TOD Zones in the Master Plan/Zonal Development Plan
• TOD Boundary can extend up to 500 m on either side of the MRTS/transit/metro corridor whereas near metro stations, based on local conditions and development potential, the delineation could be more than 500 m
• TOD Zone shall be earmarked based on physical features such as roads, railway line, river/drain/canal etc.
• The zoning regulations and planning norms for all developments in the earmarked TOD Zones shall be as per norms prescribed in Mixed Use development
• According to the policy, a maximum purchasable FAR of 4 is permitted in developed and built-up areas on a minimum plot size of 0.5 ha while a maximum purchasable FAR of 5 is permitted on a minimum plot size of 4 ha in the TOD zones. The document also lists the bye laws for TOD Zones.

<table>
<tr><td colspan="3"><u>Bye laws for mixed use in ToD</u></td></tr>
<tr><td>Development Type</td><td>Built/ Developed Area</td><td>New /Non-Built Area</td></tr>
<tr><td>Minimum land area</td><td>0.5 Ha</td><td>4 Ha</td></tr>
<tr><td>Access Road Min Width</td><td>18m</td><td>30m</td></tr>
<tr><td>Basic FAR</td><td>2.0</td><td>2.5</td></tr>
<tr><td>Max. FAR (with premium)</td><td>4</td><td>5</td></tr>
<tr><td>Ground Coverage</td><td>50%</td><td>40%</td></tr>
<tr><td>Set backs</td><td colspan="2">As per prevalent building bye</td></tr>
</table>
</td></tr>
</table>

		laws
	Parking	*1.5 ECU for each 150 sq. m* *For vertical mixed use, additional 2 sqm for 01 cycle parking for each residential unit*

<u>Bye Laws for other than mixed use in ToD</u>

Max permissible FSI in built/ developed areas for institutional, industrial (non-polluting), group housing would be 4 and in non-built / new development would be 5 (including premium FSI)

Whereas,

1. *The land uses in TOD shall follow the base FAR as per prevalent bye laws, additional FAR would be purchasable*
2. *The premium coefficient would be 0.5 for calculation of premium far in mixed use in TOD*
3. *For group housing in ToD, the additional FAR would be used in terms of additional residential units, which would be other than the planned density in master plan// relevant zonal development plan*

- The planning norms and bye-laws for above mentioned special cases on mixed land use developments are given in the policy.
- The policy annexure details out the permissible and non-permissible activities in the ToD zones in vertical and horizontally mixed-use developments.

Other Requirement

- Separate access to residential apartments shall be provided in the mixed-use development, the planning of mixed use shall be such that the residential areas be separated from odour prone industrial units and likewise. Similarly, separate parking provisions shall be planned.
- In built areas, Additional FAR shall be permissible only in case of adequate provisioning of infrastructural facilities and common utilities, and bye laws such as setbacks etc are followed
- In new non built areas, such additional Far shall be permissible only in case such that all infrastructural provisions are planned as per density foreseen under additional FSI.

Key features for Mixed Use development

<u>Mixed uses shall be permissible in following:</u>

- Development nodes around Expressways/Major Highways
- Transit Oriented Development (TOD) Zones along MRTS Corridors
- New Township/Integrated Township schemes
- Urban Re-development Schemes
- Potential Locations earmarked in Development Plan/Zonal Development Plan

<u>Mixed Use Zoning Regulations</u>

Vertical or Horizontal mix use shall be allowed as per the land use affiliation, economic dependency, environmental point of view etc.; whereas non compatible such as dangerous, inflammable etc such polluting uses shall not be permitted in mixed use

Planning norms

For New Township/Integrated Township schemes, Development nodes around Expressways/Major Highways, schemes in ZDP etc, 20% of the total land is allowed for mixed use; for potential identified schemes under mixed uses can be completely developed as mixed land use.

Planning norms: -

LU Category	*Percent*
Residential	*40 to 60%*
Institutional	*15 to 30%*
Commercial	*5 to 10%*
Industrial (non-polluting)	*5 to 10%*
Community facilities, recreation	*10-15%*

Proposed Building Regulations in TOD

Development Type	Built/ Developed Area	New /Non-Built Area
Minimum land area	4Ha	4Ha
Access Road Min Width	30m	30m
Basic FAR	1.5	2.0
Max. FAR (with premium)	3.0	4.0
Ground Coverage	50%	40%
Set backs	As per prevalent building bye laws	
Parking	1.5 ECU for each 150 sq. m For vertical mixed use, additional 2 sqm for 01 cycle parking for each residential unit	

- *For group housing in mixed use, the additional FAR would be used in terms of additional residential units, which would be other than the planned density in master plan// relevant zonal development plan*
- *The premium coefficient would be 0.5 for calculation of premium far in mixed use in TOD*

Key features for Land Assembly	**For built/ developed areas, amalgamation of plots is allowed in the ToD policy. Key features:** • The land parcels to be assembled shall be in same LU in Master Plan/ ZDP; in case of separate LU, conversion shall be done. • Land title and ownerships shall be under one entity for both parcels to be assembled • Assemble Land parcel shall be having direct access to minimum 18 m road. • Appropriate changes in the city master plan shall be made by the authority once the layout for the assembled parcel is done. • The prevalent bye laws shall be followed in developing the new land parcel and 10% of the land cost (circle rate) payable to the authority for the assemble land parcel.
Takeaways	ToD along strong linkages, location identified for integrated townships, highways and mixed-use developments in core city areas, can be proposed Future linkage to proposed industrial area in south Pilkhani can be proposed as ToD, envisaged in phased manner etc.
Link Online	

16.6 Industrial Investment and Employment Promotion Policy of Uttar Pradesh 2017

Published In	July 2017
Department	**Industrial Development Board, Uttar Pradesh**
Aims/ Objective	Aims to create a framework to stabilize and make existing industries more competitive as well as attract and realize new international and national investments in the industrial sector. It aims to • Create a framework for industrial growth that empowers people and create jobs, thus leading to a ripple effect in the economy • Create a roadmap in the State for improving its ability to attract and facilitate business • Provide a reference point for intra-governmental and public-private coordination of policies, laws and principles of economic development • Stimulate institutional learning that comprises state-industry interactions
Objective	Establish Uttar Pradesh as a nationally and internationally competitive investment destination thereby generating employment and igniting sustainable, inclusive and balanced economic growth of the state

Highlights of the Policy	**Fiscal Incentives** Stamp Duty: 100% in Bundelkhand & Poorvanchal, 75% in Madhyanchal & Paschimanchal (except Gautambuddh nagar & Ghaziabad districts) and 50% in Gautambuddh Nagar & Ghaziabad districts. **EPF reimbursement:** Facility to the extent of 50% of employer's contribution to the units providing direct employment to 100 or more unskilled workers **SGST Reimbursement:** Net SGST reimbursement as following conditions and criteria- • 90% for Small Industries for 5 years • 60% for Medium Industries for 5 years • 60% for large Industries other than Mega Industries for 5 years • 70% for Mega category Industries for 10 years. • Capital Interest Subsidy - 5% per annum for 5 years • Infrastructure Interest Subsidy - 5% per annum for 5 years • Industrial Quality Development - 5% per annum for 5 years • Electricity Duty – 100% exemption to all new industrial units set up in the state for 10 years. • Electricity Duty -100%, exemption to all new industrial units producing electricity from captive power plants for self-use for 10 years • Mandi fee- 100% exemption to all new food processing units on purchase of raw material for 5 years. • Incentivizing employment generation - Units generating minimum employment of 200 direct workers including skilled and unskilled will be provided 10% additional EPF reimbursement facility on employer's contribution. **Incentives for private sector industrial parks/ estate** The Government will provide following incentives to industrial parks/ estates of more than 100 acres in Bundelkhand & Poorvanchal; 150 acres in Madhyanchal; and more than 50 acres in case of Agro Parks in Bundelkhand, Poorvanchal and Madhyanchal developed by private sector Interest Subsidy reimbursement for industrial parks/ estates and Agro Parks developed by private sector • 50% of annual interest on the loan taken to buy land for 7 years • 60% of annual interest on the loan taken for building infrastructure for 7 years • 60% of annual interest on the loan taken for building Hostel/Dormitory Housing for workers for 7 years 100% exemption/ reimbursement to developer and 50% exemption to individual buyers (first) on stamp duty

100% exemption/ reimbursement to developer and 50% exemption to individual buyers (first) on stamp duty

Promoting Mega Investments Projects in the mega categories (mega, mega plus and super mega) will be processed on a case-to-case basis for finalising the incentive structure.

Category	Minimum eligibility requirements		
	Paschimanchal	Madhyanchal	Bundelkhand, & Poorvanchal
Mega	Capital investment of more than Rs.200 crore but less than Rs.500 crore or Providing employment to more than 1000 workers	Capital investment of more than Rs.150 crore but less than Rs.300 crore or Providing employment to more than 750 workers	Capital investment of more than Rs.100 crores but less than Rs.250 crores or Providing employment to more than 500 workers
Mega Plus	Capital investment of more than Rs.500 Crores but less than Rs.1,000 crore or Providing employment to more than 2000 workers	Capital investment of more than Rs.300 Crores but less than Rs.750 crore or Providing employment to more than 1500 workers	Capital investment of more than Rs.250 crore but less than Rs.500 crore or Providing employment to more than 1000 workers

Source: http://www.niveshmitra.up.nic.in/

MSME related aspects in the policy **(Focus on analysing the MSME part of the policy for present use)**

Improving flow of capital and credit for MSMEs: fiscal initiatives such as

A corpus fund will be created to implement

- 'Vishwakarma Shram Samman Yojana' corpus fund to provide assistance in terms of margin money subsidy and interest subsidy to artisans and entrepreneurs of local traditional industries through bankable projects.
- Mukhya Mantri Yuva Swarojgar Yojana to encourage the educated unemployed youth of the state to set up enterprises
- SME Venture Capital Fund for promoting Start-ups and emerging SMEs
- The annual service fees payable to Banks and financial institutions for availing collateral free loan up to Rs.2 crore under Credit Guarantee Fund Trust for Micro & Small Enterprises (CGTMSE) will be reimbursed by GoUP

Industrial Infrastructure and Common Facility Centres

- Private sector investment in Greenfield mini-industrial parks of 20-100 acres for MSMEs. The government will provide fiscal incentives to the developer in the form of interest subsidy along with reimbursement of stamp duty towards purchase of land.
- The State will also share the cost of construction of electrical sub-stations in the park for which land will be provided free of cost by the

	developer. Uttar Pradesh Small Industries Corporation (UPSIC) will be the nodal agency for the purpose • The policy intends to promote **cluster-based development** in the state by encouraging formation of Special Purpose Vehicles (SPVs) and dedicated agencies like societies of entrepreneurs or artisans and providing them with common infrastructure facilities including Common Facility Centres and Raw Material Depots, etc. • The policy also details out the capacity building initiatives and quality standard improvement aspects for the MSME sector, marketing and good governance aspects.
Link Online Source	***http://www.niveshmitra.up.nic.in/*** ***http://diupmsme.upsdc.gov.in/home/Policies*** ***U.P. State Industrial Development Authority (onlineupsidc.com)*** ***https://gis.onlineupsidc.com/***

16.7 Uttar Pradesh Micro, Small and Medium Enterprises Promotion Policy-2017

Published In	December 2017
Department	MSME & Export Promotion Section-2
Definition of MSME	*As per MSME Act 2006 (amendment in Year 2020 for change in criteria of MSME)* ***Manufacturing Enterprises and Enterprises rendering Services***

Type	***Annual Turn Ove INR (not more than)***	***Investment in Plant & Machinery INR (not more than)***
Micro	*5cr.*	*1 cr.*
Small	*50cr.*	*10 cr.*
Medium	*250 cr.*	*50 cr.*

Key Features	• **Land Incentives:** ○ In rural areas, gram sabha land measuring more than 10 acres shall be identified and passed on in favour of industries department free of cost. ○ Land parcels measuring 5 acre or more and belonging to a gram sabha situated within a radius of five kilometers of Agra-Lucknow expressway, Poorvanchal Expressway and other such corridors being developed and 50% of plots shall be reserved for micro and small sector. ○ Minimum of 30% area would be reserved for micro and small sector in the industrial areas developed by UPSIDC and other organisations. ○ In Bundelkhand, Poorvanchal, Madhyanchal and Paschimanchal

	(except Gautam Buddha Nagar and Ghaziabad districts), private parties setting up industrial estates of area of more than 20 acres shall be provided incentives as per Uttar Pradesh Industrial Investment and Employment Promotion Policy, 2017 ○ Waiver of land use conversion charges for converting agricultural land to Industrial land. • **SPV Formation:** Setting up of SPVs with the participation of allottees and State Government to grant equal proportion of contribution by the allottees. • **Consultation Assistance**: Consultation facility from experts shall be provided in the district industry and enterprise promotion centres to micro and small enterprises • **Stamp Duty Exemption:** Exemption from stamp duty in accordance with the CLAUSE 5.1 of UPIIEPP 2017 • **EPF Reimbursement:** 100% reimbursement of the employer's EPF by the State Government for 5 years from the date of commencement of the unit for MSMEs. • **Other Incentives:** The incentives given in para 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10 and 5.12 of UPIIEPP 2017 will also be applicable to MSMEs. • **Land Conversion Waiver:** Waiver of land use conversion charges from agricultural to industrial being established on agriculture land development authorities for MSMEs. • **Electricity Charges Reimbursement:** Reimbursement of the fixed electricity charges at the rate of one rupee per unit for 5 years from the date of production for MSMEs. • **CGTMSE:** Payment of service fee to Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) charged by banks for collateral free loans upto Rs 2.00 crore to be borne by the State Government for MSMEs. • **Special Schemes:** Special schemes like Vishwakarma Shram Samman Yojna and Mukhyamantri Yuva Swarozgar Yojna (Chief Minister Youth Self Employment Scheme) will be applicable • **Interest Subsidy Reimbursement:** Reimbursement of interest subsidy at 5% annually for 5 years from the date of production on the expenditure on plant, machinery and equipment procured for research and development, quality improvement and product development. • **SMEVCF:** A Small, Medium Enterprise Venture Capital Fund (SMEVCF) shall be created by the State Government, with the help of other financial institutions to encourage development of start-up and upward mobile MSMEs.
Takeaways	Industrial boost to the city by backing up with the immense policy initiatives is imperative for Meerut, Industrial linkages, existing industries and upcoming industrial developments, future connectivity and infrastructure and support

	scenario of the state provide strong impetus in creating a holistic environment for industrial development, new areas to be proposed for nurturing the potential of the region, employing the skilled of the locals as well as locals from nearby areas…
Link Online Source	***http://diupmsme.upsdc.gov.in/home/Policies***

16.8 Uttar Pradesh Warehousing & Logistics Policy

Published In	Year 2018
Department	
Background	• UP is home to second highest number of MSMEs in India. The exports from the state recorded 13.26% CAGR from year 2012 to year 17. With largest consumer base of over 200mn population, the logistics industry has set its foot to grow in the state • The long-term strategy of the GoUP is to create a connectivity web of air, water, road and rail network t support state's industries and manufacturing units switch seamlessly between different modes of transport as they export goods. • A vibrant warehousing and logistics sector would increase the competitiveness of goods produced in the state, both in the domestic as well as export market. The sector has high potential to boost manufacturing and job creation.
Key Features	**1. Logistics Park** A logistics park that includes Container Freight Station (CFS) and/or Inland Container Depot (ICD) and/or Air freight stations and/or Warehouses and/or Cold Chains and related infrastructure, developed on at least **25 acres** of land area is eligible for incentives under this policy. Such parks will include • **Logistics services**: cargo aggregation/segregation, distribution, intermodal transfer of material and container, open and closed storage, material handling equipment, and business & commercial facilities and common facilities. • **Supporting infrastructure**: including internal roads, communication facilities, open and green spaces, water pipelines, sewage and drainage etc. **2. Logistics Units** Minimum facilities to attain investments as per this policy: • **Container Freight Station (CFS) or Inland Container Depot (ICD)** with minimum investment of INR 50cr. and minimum area of 10acres. • **Warehousing facility** with minimum investment of INR 25cr. and minimum area of 1lakh sq. Ft • **Cold chain facility** with minimum investment of INR 15cr. and

	minimum area of 20,000sq. ft 3. **Fiscal Incentives for Logistics Park** • **Capital Interest Subsidy:** reimbursement to the extent of 5% per annum for 5 years (min. 2 cr. to max 10cr.) • **Infrastructure Interest Subsidy: reimbursement** to the extent of 5% per annum for 5 years (min. 2 cr. to max 10cr.) • **100% Stamp Duty exemption** • **100% Electricity duty exemption** • **Incentives on purchase of Transport Vehicles** • **EPF reimbursement facility:** to the extent of 50% of employer's contribution • **Land use conversion charges:** 50% concession on land use conversion charges • **Development Charges:** In case the unit is in master plan area of the developing authority only 25% of the development charge to be paid, such facility is not available in case the trunk infrastructure is available beyond 50mtr • **Skill Development incentives:** Fiscal incentive per person trained in warehousing and logistics management etc. • **Incentives for Intelligent Logistics:** Interest subsidy to the extent of 5% per annum subsidy in form of reimbursement on loan taken for setting up automated supply chain technology in material handling, cargo transportation and de-congesting cargo traffic at Multimodal Transport Hubs or Logistics Parks or CFS/ICDs, subject to maximum ceiling of INR 1 cr. per park 4. Logistics Units shall also receive such similar kind of incentives, detailed out in the aid policy, these including reimbursements of 50% of cost for quality certification of the units 5. Additional incentives are provided for logistics units and logistics parks to be set up in the Bundelkhand, Purvanchal regions and notified logistics zones
Link Online Source	***http://diupmsme.upsdc.gov.in/home/Policies***

16.9 Scheme for promoting establishment of Private Industrial Parks

Published In	July 2018
Department	Infrastructure and Industrial Development Department, UP
Background	– Industrial Parks provide integrated facilities to industries and robustness of available infrastructure facilities in these parks contribute towards the increase in industrial efficiency and capacity building. – In view of the requirement of industries to set up world class industrial parks in the state, as provisioned in the Industrial Investment and Employment Promotion Policy of Uttar Pradesh of 2017

Key Features	**Eligibility for Private Industrial Park** 1. **Land requirements** Private Industrial Park means an industrial estate/ park of: - • **more than 20 acres** in Bundelkhand & Poorvanchal; • **30 acres** in Madhyanchal and Pashchimanchal; and • **more than 50 acres** in case of Agro Parks in Bundelkhand, Poorvanchal & Madhyanchal, 2. **Units**: The industrial park/ estate shall have a minimum of 10 units, with minimum total area of40%, out of which, no single unit should be occupying more than 40% of the total allocable area for industrial use. 3. **Net Worth**: Minimum net worth of the applicant should be 25% of the estimated project cost in Detailed Project Report (DPR) and minimum annual average turnover should be equivalent to estimated project cost. 4. **Layout Plan** • A Global FAR of 2 will be permitted in the industrial park; out of which Hostel/ Dormitories for workers of the industrial should not occupy more than 30% of the permissible FAR; Commercial spaces, if any, set up within the Industrial Park should not occupy more than 2.5% of the permissible FAR • In case, the private developer forms a Special Purpose Vehicle (SPV) with farmers/Bhumidhars contributing more than 50% land for the park, an additional 1% area can be utilized for commercial purposes. Residential facility for workers of industrial park will be provided • A minimum of 30% of total land area should be dedicated to all open and green spaces and area for circulation, common utilities, waste management and other minimum infrastructure facilities mentioned in the scheme • The Private Industrial Park/Estates are required to have minimum infrastructure facilities 5. The Layout Plan of the Private Industrial Park and the building plan of the individual units within the park will be approved by UPSIDA. 6. The Private Developer may form a consortium with no upper limit of members (including farmers) and set up a Special Purpose Vehicle in case of developing eligible private industrial park. The minimum equity share of the Lead Member of the Consortium shall be 26%. Fiscal assistance in terms of interest subsidy, stamp duty exemption, are provided under this policy. The policy document provides details on the subsidies as well as procedure for application for such an industrial park, proposal and process to apply for the said incentives
Link	***http://diupmsme.upsdc.gov.in/home/Policies***

16.10 Film Policy 2015

Published In	Year 2015
Department/ Background	**Setting up of Film Bandhu** • For ensuring availability of all the film production related facilities under a single roof, the "Film Bandhu, Uttar Pradesh" has been constituted as a nodal agency under the chairpersonship of Principal Secretary, Information.
Key Features	1. The **Film Bandhu** will work in the direction of developing Uttar Pradesh as a hub of film production by generating a friendly climate and promoting film related activities in a big way in the state 1. A **Film Development Fund** will be operated by the Film Bandhu, for financing the films. The fund will be utilising for sanctioning subsidy to the regional and Hindi films produced in the state, scholarship to the students making film their career, ensuring development of cinematic talents, arrangement of film equipment, setting up of film training institutes, organisation of film festivals, financial assistance on film processing in the state itself and financing for film awards etc. 2. A state level **Film Development Council/Board** will also be constituted to ensure long term and meaningful development of the film sector in the state 3. **Fiscal Benefits for the investors** • 50% subsidy of the total cost for Awadhi, Braj, Bundeli and Bhojpuri films and maximum of 25% of the total cost for Hindi films. • Subsidy of INR 1 Cr for films which have been shot for at least a half of its total shooting days in Uttar Pradesh • The films for which two-third of its total shooting days are in Uttar Pradesh is entitled for a subsidy up to a maximum limit of INR 2 Cr • Once, a film producer avails the amount of subsidy on the basis of making a film in the state under the Film Policy, following subsidies will be available for the film maker's subsequent films: such as a grant of 1.25 cr for shooting half fim, 2.5 cr for shooting two thirds of the film (further more subsidies are prescribed in the policy for making second/ third movies and for international and nationally acclaimed creators) • Additional subsidy of up to a maximum of INR 50,00,000 will be provided in case all the artists hail from UP. • If any film producer, shoots and processes the film in the state, 50% of the processing cost or INR 50, 00, 000, whichever is less, will be sanctioned as additional subsidy for the film. • If any Investor establishes a film training institute in any major city (excluding Noida/ Greater Noida), 50% of its cost or a maximum of INR 50 lakh, whichever is less, will be provided • If any film producer shoots or produces a film on the tourism sites, cultural theme/ heritage of the state, an amount of INR 50 lakh will be provided.

	4. The state govt shall provide land in industrial areas for establishing film cities and support in the infrastructure development
Link Online Source	Business in UP | Film Bandhu | Official Website of NRI Department, Government of Uttar Pradesh, India | UPNRI

16.11 Freehold and Redevelopment policy

Policy announced in Dec 2014 to enable freehold and redevelopment of lands occupied by sick/defunct/polluting industries and other vacant/underutilized lands within city core. Policy aims at augmenting buildable land for residential/commercial/institutional/mixed use, green area, parking and public amenities in the old built-up areas of cities. Simplified procedure for conversion to freehold and developers offered incentives in the form of free conversion to higher land use, high density, free additional FAR and permission for amalgamation of properties.

16.12 Norms for Affordable housing scheme

- Area of scheme minimum 5 Acres, maximum-100 Acres.
- Minimum 60% area shall be used for affordable housing and carpet area of dwelling unit shall not exceed 75 sqm.
- 40% area may be utilized for HIG, commercial, Institutional, recreational and community facilities.
- Minimum 20% houses shall be provided for EWS and LIG against HIG units but not compulsory in an exclusive affordable housing scheme
- Ceiling cost of affordable house in NCR-Rs 3000, Metro cities Rs. 2800 and other towns Rs. 2500 per sq. ft. on super built-up area (to be revised annually based on cost index.)
- Ground coverage: Grouphousing-50%, Row Housing-70%
- Affordable Housing Segment FAR-2.5
- Density-450 Dwelling units per Hectare.
- Parking-01 ECS for every 100 sqm. Of floor area.
- Roads, parks/open spaces and community facilities and services shall be provided as per applicable Bye-law
- Foot-paths and cycle tracks shall be provided as per norms.

16.13 Environment Policy 2006

For the purpose of better understanding NEP, 2006 defines the term environment to comprise all entities, natural or manmade, external to oneself, and their interrelationship, which provide value, now or perhaps in the future to humankind. The main aim of the NEP, 2006 is to provide better and livable conditions to the human being. It focuses on the conservation of critical environmental resources to protect and conserve critical ecological system and resources, and

invaluable natural and manmade heritage, which are essential for life-support, livelihood, economic growth, and a broad conception of human well-being.

Intra generational equity: livelihood security for poor to ensure equitable access to environmental resources and quality for all sections of society, and in particular, to ensure that poor community, which are most dependent on environmental resources for their livelihood, are assured secure access to their resources. By implementing the environment policy we can ensure the safe stay of poor people in the city. As Meerut is a rapidly growing toward the industrial growth so it becomes very important to save the environment conditions and this policy will going to help in this.

16.14 Tourism policy

The vision of the state tourism policy is to establish Uttar Pradesh as a preferred tourism destination in India, and archives country's highest tourist arrival and tourism reception and ensuring best visitor experiences. The mission of this policy is to drive a sense of inclusive tourism development in the local community of Uttar Pradesh, and make optimum use of tourism experiences across vibrant cities, attractions, nature, wildlife, adventure, food, heritage, religion and culture of Uttar Pradesh. There are many tourist places in Meerut (Like augharnath temple, Hastinapur wildlife sanctuary, bhole ki jhaal etc.) Development of roads for activities related to tourism industry, development of parks, beautification and development of tourism industry, detailed action plan proposals related to reservation of land for development will be included in the master plan. Tourism activities promote the growth of the area but these should be regulated properly and this can be done by implementing the tourism policy in the master plan. Because this policy provides proper guidelines to promote the tourism in the area according to the conditions of the area.

16.15 Rain Water Harvesting Policy

Water is an essential natural resource for the existence of life and environment, but due to over-exploitation of ground water resources in an arbitrary manner, the ground water level is falling rapidly and it is impossible to provide proper drinking water to the growing population of cities. In such a situation, if balance is not established by proper water management in the use of pageal and conservation of ground water sources, economy, water use and recharge, then there is a possibility of a huge crisis of drinking water in the near future, hence the need for water resources. Simple efficient and low-cost method of rainwater harvesting needs to be adopted for safety and security.

Apart from this, under the provisions contained for the conservation and recharge of ground water, such as the construction of pond reservoir for groundwater recharge on minimum 5% land in the trial map of various schemes of area of 20 acres and above and all forms of 300

square meters or more area. Action will be ensured to collect rain water received from students and open places in the plots and group housing. To manage the upcoming situation of water resource reduction can be maintained by implementing this policy in the master plan.

COMPLIANCE

16.16 Compliance to Government Policies

In previous section, a detailed analysis on the relevant polices is done. The specific aspects which are related to the planning proposal for the city are highlighted below.

Uttar Pradesh State Urban Housing & Habitat Policy, 2014	• Mixed use developments are made permissible in the Mixed-use Land use zone as per the Policy, vertically as well as horizontally, with permissible high density and high FSI where two or more uses can be allowed. • The redevelopment of the specific areas in city and buildings which are dilapidated, sick or old and defunct industries relocation and redevelopment, incentivization are as per compliance to the policy and shall be in accordance with the provisions made for redevelopment under the policy • The policy promotes ToD based development with regulations such like mixed use is to be followed for new developments. The master plan strategies focus on the promotion of industrial and residential areas with direct approach to the regional connectivity, hence promoting ToD in the city. • Relocation of the industries and incentivizing for the same • Recommendations for sustainable compact city development, are based on the policy proposal for city such as Meerut • The policy is relevant and provides strategic recommendations for the urban issues such as solid waste management, water management, energy conservation. Etc. Specific and relevant recommendations have been made for Meerut • The development of green areas in accordance to National Green Tribunal decisions as well as the habitat policies are taken as reference. Environmental conservation, development of green spaces, parks and playgrounds, etc. • The policy is referred for above aspects and necessary recommendations as discussed above are enumerated in Land use chapter of this report. • Following are permissible in agricultural areas without land use conversion charges and payment of 'impact fees' such as SEZ; high tech educational and health facilities, agricultural processing and storage units, rice mills flour mills

	are units, amusement parks, warehousing; cold storage etc. • In addition to above the policy also focusses on the Conserving flood lands of rivers by implementation regulation in the master plans and identifying such water bodies and projects for redevelopment and revitalization of water bodies • Public areas under roads etc. with minimum 2000 sq mt can be allowed for TDR, TDR suggested for areas in green belt
Integrated Township Policy (license-based system)	• The erstwhile master plan proposed an integrated township on the north east side of the city, with approach from the National Highway. • The policy provides relevance in terms of the land pooling mechanism and involvement of the private parties directly for acquisition of land. This not only supports the idea of a holistic and win win situation for private players and rural population, but also is a speedy process as compared to conventional schemes of land pooling. • The policy details are relevant in planning for the required basic area of 25 to 500 acres. Such townships are further proposed as a part of decongestion strategy in the city and promoting mixed use development • Possible provisions of Integrated township (license based) scheme which reflects on the land pooling scheme can be made in the proposed master plan area where proper direct access and future growth center can be envisaged; can be proposed as decongesting character to the city and can be a possible location for developer consortium to take up. • The minimum area for Integrated Township is 25 Acres and maximum can be 500 Acres; minimum requirements are, such as direct access to main road, proper provision of apt water and power supply. locations such as fast-growing areas near urban mass transit corridors; growth centers, urbanizing areas in master plans etc. • This policy confers a quick process within land pooling mechanism, such as implementation by direct sale, intervention of govt. in the sale process. Incentivization on land conversion is given for inviting developers. Flexible land uses are permitted.
Draft Policy for Promotion of Private Investment in Development of High-Tech Townships in Uttar Pradesh	• Such High-Tech township is a large-scale developer-based development of an integrated township. The allowable planning area is anything above 1500 acres, as per the latest amendment no upper limit to area has been set • The policy provides details such as percentage land use of the amenities and areas to be provided, also includes the component of housing for economically weaker and

	backward classes • Such townships are [promoted in the master plan for the purpose of creating the housing stock as per the gap • Such type of developments can be proposed in the peri urban areas / fringe areas of the master plan, location which foresees a future development, can be a secondary magnet where the connectivity can be strengthened and the city can provide linkages to major urban centers nearby, industrial centers, proposed industrial zones etc. live work learn play kind of development can be promoted • The above larger area would facilitate creation of housing stock in well planned manner Involves resettlement and rehabilitation of the backward
Policy for Sustainable Ground Water Management **And** **Rain Water Harvesting Policy**	• The policy emphasizes upon the urgent need for the enactment of appropriate rules and regulations for ground water development in the nearest future • Detailed assessment of the water supply is done in the Master Plan report, it is found that that the major source of water supply is ground water from last two decades the tube wells or hand pumps have been the sole source • Ground water management is critical and the policy analysis supports the proposition of effective water management for the city for future, which would be critical in coming years. This will be more significant viewing the increasing population of the city.
Planning norms, zoning regulations and building bye-laws for Mixed Use and TOD – 2015	• TOD along strong linkages, location identified for integrated townships, highways and mixed-use developments in core city areas, can be proposed • Future linkage to proposed industrial area in south Pilkhani can be proposed as ToD, envisaged in phased manner etc. • ToD is the basis of compact city planning. The policy provides background to the same and similar aspects have been discussed in regards to ToD, mixed use and land assembly for the city
Industrial Investment and Employment Promotion Policy of Uttar Pradesh 2017 **And** **Scheme for promoting establishment of**	• As a part of the Industrial Investment and Employment Promotion Policy of Uttar Pradesh 2017, Private sector investment in Greenfield mini-industrial parks of 20-100 acres for MSMEs encouraged. The government will provide fiscal incentives to the developer in the form of interest subsidy along with reimbursement of stamp duty towards purchase of land. • The State will also share the cost of construction of electrical sub-stations in the park for which land will be provided free of cost by the developer. Uttar Pradesh Small Industries Corporation (UPSIC) will be the nodal agency for the purpose

Private Industrial Parks	• The policy intends to promote cluster-based development in the state by encouraging formation of Special Purpose Vehicles (SPVs) and dedicated agencies like societies of entrepreneurs or artisans and providing them with common infrastructure facilities including Common Facility Centers and Raw Material Depots, etc. • Based on the discussed background factors, industrial development and promotion is envisaged for the city for formation of wood work based industrial hub • The policy is relevant in terms of benefits which can be incurred in MSME sector as offered by the government under this policy provisions • The industrial areas proposed in master plan can be developed under either policy • Scheme for promoting establishment of Private Industrial Parks, requires a minimum of Private Industrial Park means an industrial estate/ park of: - more than 20 acres in Bundelkhand & Poorvanchal; 30 acres in Madhyanchal and Pashchimanchal; and more than 50 acres in case of Agro Parks in Bundelkhand, Poorvanchal & Madhyanchal, A Special Purpose Vehicle can be formed with farmers.
Uttar Pradesh Micro, Small and Medium Enterprises Promotion Policy-2017	• Uttar Pradesh Micro, Small and Medium Enterprises Promotion Policy-2017 provides Waiver of land use conversion charges for converting agricultural land to Industrial land; In rural areas, gram sabha land measuring more than 10 acres shall be identified and passed on in favor of industries department free of cost. • Industrial boost to the city by backing up with the immense policy initiatives is imperative for Meerut • Industrial linkages, existing industries and upcoming industrial developments, future connectivity and infrastructure and support scenario of the state provide strong impetus in creating a holistic environment for industrial development, new areas to be proposed for nurturing the potential of the region, employing the skilled of the locals as well as locals from nearby areas…
Uttar Pradesh Warehousing & Logistics Policy	• Uttar Pradesh Warehousing & Logistics Policy, defines logistics park and logistics units. • Logistics Park, at least 25 acres of land area is eligible for incentives under this policy. • The policy is analyzed to understand the relevance for developing warehousing and logistics facilities. However, it is envisaged that at the onset of such industrial development, large scale warehousing a logistics are not feasible. • However, logistics units can be feasible as per the industrial demands in future. Logistics Units, Minimum facilities to

	attain investments as per this policy are, such, Container Freight Station (CFS) or Inland Container Depot (ICD) with minimum investment of INR 50cr. and minimum area of 10acres; Warehousing facility with minimum investment of INR 25cr. and minimum area of 1lakh sq. Ft; Cold chain facility with minimum investment of INR 15cr. and minimum area of 20,000sq. ft.
Film Policy 2015	• The city is strategically located between Delhi and Dehradun which is the first step to many famous beautiful cities. The policy provides a future indication for the city, however is not directly relevant in the present scenario. It is understood that the government is providing huge initiatives incentives under this policy. Hence in future Meerut can be an intermediary station for development of ancillary facilities for Film City due to its connectivity
Freehold and Redevelopment policy	• Policy announced in Dec 2014 to enable freehold and redevelopment of lands occupied by sick/defunct/polluting industries and other vacant/underutilized lands within city core. Policy aims at augmenting buildable land for residential/commercial/institutional/mixed use, green area, parking and public amenities in the old built-up areas of cities. Simplified procedure for conversion to freehold and developers offered incentives in the form of free conversion to higher land use, high density, free additional FAR and permission for amalgamation of properties.

Chapter 17
Zoning Regulations

Chapter 17. Zoning Regulations

17.1 Purpose of Zoning

Generally, major land uses and residential, commercial, industrial, office, public and semi-public facilities, parks and open spaces, agriculture etc. are shown in the master plan. Permissible ancillary activities under major land uses which are not possible to be shown separately on the master plan map are permitted on the basis of zoning regulations. The provision of special ancillary activities in new schemes by the competent authority is required to be done as per the zoning regulation and effective building construction and development bye-laws so that life, health, welfare and safety can be ensured.

17.2 Objectives of zoning

Generally Residential, commercial, industrial, institutional, public and semipublic facilities, transportation, parks and open spaces and agricultural land uses are marked in the master plan. The ancillary activities that are not displayed separately in the landuse map are to be permitted according to the zoning regulations. The provisions of ancillary activities is required to be made by competent authority according to the zoning regulations and the specific requirement of a particular scheme so that public health, welfare and security may be ensured in the proposed planned areas.

17.3 Main features of Zoning Regulations

The development of various activities/uses in the changing physical, social and economic environment of cities is a continuous process. In the presented zoning regulations, appropriate provisions have been made to make the permissibility of various activities/uses responsive in the context of time and to simplify the process of permission under the major land use zones. The main features of zoning regulation are as follows:

- It is simplified by eliminating the complexities prevalent in traditional zoning regulations. For this, the permissibility of various activities in major land uses has been made user-friendly through graphic presentation.
- In place of the traditional land use method, flexible and mixed land use concept has been adopted which will encourage the dynamic development of cities.
- Permissibility of mixed land use is based on their relevance and work fulfillment parameters, so that the operational and economic efficiency of interdependent land use is increased and the basic form of any major land use zone should not be distorted.

- On the basis of zoning regulation, arrangements have been made to charge impact fee for the permissible actions, as a result of which the authority will get additional resources for infrastructure development works.
- The floating land use concept has been adopted in the zoning regulations. According to this, such actions, which are not envisaged in the master plan, zonal plan can be allowed in future in the respective land use zones on the basis of merits and demerits.
- A transparent process has been prescribed for granting permission for various activities/uses in major land-use zones, and arrangements have been made for the formation of a committee to recommend to the Board of Development and Testing of the permitted uses with special permission.

17.4 Definitions of land use complexes/Activities

17.4.1 Residential

Residential Area

Such residential areas marked in the master plan / zonal plan / sector plan / layout plan where no other use or change of land use is permissible with special permission in addition to the generally permissible and conditionally permissible land uses.

Single dwelling

Premises consisting of independent residential units

Group Housing

Premises consisting of a building of two or more storeys and independent residential units on each floor and in which the share and ownership of land and services, open spaces and roads shall be given.

Ancillary staff accommodation

Premises in which accommodation has been made for employees working in a major use in the same use.

17.4.2 Commercial

Retail Shops

Premises where essential goods are sold directly to the consumer

Showroom

Premises where goods are sold and stored with arrangements for display to consumers

Flour Mill

Premises where wheat, spices, etc. dry food items are ground and prepared for daily use.

Wholesale market

The premises where goods and articles are sold and delivered to wholesalers. The complex also includes storage and godowns and loading and unloading facilities.

Hotels

Premises used for lodging with or without food

Motel

A premises which is situated on the side of the main road outside the urban limits and where there is provision of food pan for the convenience of the passengers and parking for the vehicles

Petrol/Diesel Filling Station
Premises for selling petroleum products to consumers, which may also include servicing automobiles

17.4.3 Industrial

Mining related industry

The premises in which the work of excavation and processing of stone and other underground materials is done.

Software / information Technology Park

The premises where computer software used in information technology, other software of the latest technology in this field, etc. is manufactured

Oil depot

Premises where petroleum products are stored with all related facilities.

17.4.4 Office

State office

Premises used for central/state government offices

Local body office

Premises used for offices of local bodies

Private office

Premises in which consultancy / service is provided by one or a small group for professional work such as Chartered Accountants, Advocates, Doctors, Computer Programmers, Tour and Travel Agents etc.

Bank

Premises in which arrangements are made for carrying out the business and operations of banks

Meteorological research center

Premises where facilities are provided for the study/research and development of weather and related data

17.4.5 Public and semi-public

Guest house

Premises where government/semi-government undertakings, company employees and other persons are kept for a short period

Dharamshala

Premises that provide temporary accommodation for short term on a not-for-profit basis

Handicapped Children's House

The premises where there is a provision for the improvement and medical facilities of the handicapped and mentally challenged children.

University

The campus where there is provision for teaching and sports and other related facilities for the graduate under a university

Management institute

The premises where there is provision for education / training facilities in the management area

17.4.6 Traffic and Transportation

Parking Lot

The premises used for the parking of vehicles

Bus stand

The premises that are used by a public transport agency or any organization to link buses for a short period of time for public convenience and service

Transport Nagar

A premises used for short or long term parking of trucks. It may also have offices of truck agencies, repair and servicing of vehicles, dhabas, spare part shops and godowns etc.

Bus depot

The premises used for the parking, maintenance and repair of buses by a public transport agency or a similar income agency may also contain workshops.

17.4.7 Park, open spaces, green verge

Park

The premises in which there are synonymous arrangements for recreational activities like lawn, open space, greenery etc.

Club

A premises with all related facilities used by a group of people for social and recreational purposes

Amusement park

Premises having parks or grounds for recreational purposes, and other facilities connected with recreation

Shooting range

Compound that is used to train different types of pistols / guns

17.4.8 Floating Use

The use for which no separate area is reserved in the master plan / zonal plan / sector plan / layer plan but which will be determined on the application of permission by the developer / builder

17.5 Permit Categories of different Activities/uses

The major land use zones proposed in the master plan will have the following permission categories for various activities/uses:

a. **Permissible use:**

Activities/uses that would be incidental to the major land-uses concerned would be generally permissible.

b. **Conditionally permissible use:**

Conditionally permissible uses are those actions/uses which will be permitted with mandatory conditions and restrictions in the respective major land-uses on the basis of completion of work. The essential conditions and restrictions are given in Part16.3.1.

c. **Permissible and conditional use with special permission of the competent authority:**

Those activities/uses, which, on application, shall be permitted with the permission of the competent authority keeping in view the type of construction, the structure of the infrastructures and environmental impact on the surrounding area, etc., i.e., keeping in view the merits and demerits. Requirements for actions permitted with special permission are given in Part 16.3.1. The essential conditions and restrictions will be as per Part 16.3.2.

d. Prohibited use:

Those activities/uses, which will not be permitted in the major land-use concerned, all such activities other than the activities listed under the prohibited taxes and development/construction works which are not ancillary to the major use or the above mentioned (a,b,c) category list of permissible activities, are not included, will not be allowed.

17.5.1 Mandatory Conditions and Restrictions for Conditionally Permissible Activities/Uses in Major Land Use Zones

1	Chowkidar / Sentry House on Ground Floor
2	Accommodation of residence and group housing on upper floors except ground floor
3	Up to 5% of the total area of the scheme
4	10 percent of the area of the next floor excluding the ground floor only for the employees concerned.
5	Minimum 12 meters wide road
6	Minimum 18 meters wide road
7	Minimum 24 meters wide road
8	Up to 20 beds on a minimum 12 meter wide road
9	Up to 50 beds on a minimum 18 meter wide road
10	Minimum 30 meters wide road
11	Only for the demarcated commercial centre/sites identified in the Master Plan
12	Only in the schemes of weak / low income group
13	Storage of articles other than inflammable, perishable and emergency items
14	only outside the developed population of the city
15	up to 5 horsepower
16	Outside ROW
17	Up to 5 horsepower on a minimum 12m wide road
18	within the rural population
19	Allowed 25% of permissible F.A.R or 100 square meters, whichever is less.
20	Ancillary use only
21	only as open area and temporary only
22	related to infectious diseases only
23	Up to three stars only, on a minimum 12 meter wide road
24	up to 10 horsepower
25	As per master plan policies
26	Only on ground and first floor
27	Second floor and above

17.5.2 Requirements for permitted actions of special permission:

Permissible activities with special permission in major land-use zones will be permitted by the competent authority under the following conditions and restrictions.

1. In any of the major land use zones under the development area / special development zone, the following committee will be examined in each such case before allowing other activities in special circumstances by the competent authority.
    - Vice-Chairman of the Development Authority or an officer constituted by him.
    - Chief Town and Country Planner, Uttar Pradesh or his representative.
    - Chairperson a non-official member of the Board of Authority nominated by the Development Authority.

In each case, on the basis of merits and demerits, the following will be ensured by the above committee for permitted activities with special permission.

- The basic infrastructure of major land use zones and water supply, drainage, power supply, open space and traffic, parking etc. should not be adversely affected.
- Due to the proposed action, there should be no lighting and operation and privacy cannabis in the private premises of adjacent plots/buildings.
- Due to the proposed action, there should not be any possibility of pollution of any kind of noise / smoke / foul smell etc. in the major land use zone.
- The proposed action should be located as far as possible on the main road or isolated on the outskirts of the main land uses.
- Approval of the proposed action will be given with the condition that the maximum FAR and height of the building is within the provisions of the major land use or the proposed action, whichever is the work.

2. In the event of any action being allowed with special permission in any land use zone, the land shown in parking / set back etc. will have to be transferred free of cost to the authority through the application if there is a need for road extension / public parking etc. in future.
3. Other activities incidental to the internal major land use of the activities shown in the zoning regulations, which are not mentioned, may also be allowed on merits and demerits by the competent authority with special permission.

17.6 Allowded and Prohibited Landuse

As per the zoning regulation the Allowded and prohibited land uses in other land uses are mentioned in table below:

Zoning Regulations

Allowed Landuse

Landuse	Allowed Landuse	Permitted Criteria's
Residential	Commercial	• Conditional permitted use Mini 18 m wide road

Landuse	Allowed Landuse	Permitted Criteria's
	Mixed land use	• Special permission conditionally permitted for the watchman at the ground floor
	Industrial	• Conditional permitted use for up to 5% of the total area of the scheme only for the employees concerned.
	Offices	• Conditional permitted use for up to 5% of the total area of the scheme only for the employees concerned.
	Public Facilities	• Conditional permitted use for up to 5% of the total area of the scheme only for the employees concerned.
	Park and open spaces	• Special permission conditionally permitted for the watchman at the ground floor
	Green verge	• Special permission conditionally permitted for the watchman at the ground floor
	Rural Population	• Permissible use
Commercial	Residential	• In Built residential area conditional permitted use of retail shops acc. to the master plan. • In residential area conditional permitted use on mini of 12m wide road for retail shops. • Conditional permitted use in residential area on upto 12m wide road for a bakery • Conditional permitted use for hotel only up to three stores on 12 m wide road. • In built residential areas conditional permitted use on mini 18 m wide road for petrol pump. • In residential areas conditional permitted use on mini 24m wide roadfor petrol pump..
	Market area	• In market area conditional permitted use as per the prescribed sub statutes for the market area in the master plan. • Permissible use with special permission of Cold stores in mixed land use. • Conditional permitted use for hotel only up to three stores on 12 m wide road. • In built residential areas conditional permitted use on mini 18 m wide road
	Industrial area	• In industrial area conditional permitted use as part of new town ship plan. • Permissible use with special permission for whole sale in industrial area.

Landuse	Allowed Landuse	Permitted Criteria's
		• Special permission conditionally permitted only up to three stores on 12 m wide road for hotels.
	Offices	• Special permission conditionally permitted according to new township plan
	Public Facilities	• conditional permitted use according to new township plan
	Transport	• conditional permitted use according to new township plan
	Mixed Land use	• Permissible use with special permission for whole sale in mixed land use
	Urban Agricultural area	• Special permission conditionally permitted acc to the master plan • Conditionally permitted use only in open area for weekly market • Special permission conditionally permitted for petrol pumps acc to township plan •
	Agricultural area	• Special permission conditionally permitted acc to the master plan • Conditionally permitted use only in open area for weekly market
Industrial	Residential	• In built residential area conditional permitted use of cottage industry is allowed upto 5 horsepower. • In built residential area conditional permitted use of information technology upto maxi 5 horsepower on a mini of 12 meter wide road.
	Commercial	• In commercial area conditional permitted use of cottage industry is allowed upto 5 horsepower • In commercial are area conditional permitted use of information technology upto maxi 5 horsepower on a mini of 12 meter wide road.
	Mixed land use	• In mixed land use cottage industry can be used with permissible use with special permission • In mixed land use information technology can be used with conditional permitted use. • Small industries can be develop in the mixed land use with Special permission conditionally permitted only acc to the policies for commercial area in master plan.

Landuse	Allowed Landuse	Permitted Criteria's
	Urban agricultural area	• Sugar mills can be developed with Special permission conditionally permitted acc to the town ship scheme • Pollution generation industries is permitted with special Special permission conditionally permitted •
	Agricultural area	• Pollution generation industries is permitted with special Special permission conditionally permitted • Sugar mills can be developed with Special permission conditionally permitted acc to the town ship scheme
offices	Residential	• In built residential area Conditional permitted use only on mini 12m wide road • In residential area Conditional permitted use only on mini 18m wide road • In built residential area Conditional permitted use only on mini 12m wide road for banks.
	Commercial	• Conditional permitted use only on mini 12m wide road • In commercial area Conditional permitted use only on mini 12m wide road and acc to master plan for banks.
	Mixed landuse	• Permissible use
	Industry	• Permissible use • Banks acc to new town ship scheme.
	Public facilities	• Conditional permitted use only for incidental use
	Transport	• Conditional permitted use only for incidental use
Public Facility	Residential	• Tube well are Permissible use
	commercial	• Tube wells are Permissible use
	Industrial	• STP are Conditional permitted use only outside the developed population of the city
	Transport	• STP are Conditional permitted use only outside the developed population of the city
Public and semi public	Residential	• Guest house in built residential area special permission conditional permitted on mini of 12m wide road • Guest house in residential area special

Landuse	Allowed Landuse	Permitted Criteria's
		permission conditional permitted on mini of 18m wide road • Dharamshala in built residential area special permission conditional permitted on mini of 12m wide road • Post office in residential area special permission conditional permitted on mini of 18m wide road
	Commercial	• Guest house in commercial area special permission conditional permitted on mini of 12m wide road • Dharamshala in commercial area special permission conditional permitted on mini of 12m wide road • Post office in commercial area special permission conditional permitted on mini of 12m wide road
	Agriculture area	• Guest house in agricultural area special permission conditional permitted on mini of 12m wide road • For Post office special permission conditionally permitted.
	Industrial	• special permission conditionally permitted for hospital and nursing homes up to mini 50 beds on a mini 18 m wide road. • Research and development centre for incidental use only under conditional permitted use.
Traffic and Transportation	Residential	• Parking lots are permissible use
	Commercial	• Parking lots are permissible use
	Industrial	• Transport nagar is conditional permitted use on mini 18m wide road • Parking lots are permissible use • Bus terminals are special permission conditionally permitted. • Religion thorn upto 50 beds on mini 18m wide road
	Mixed	• Bus stand is conditional permitted on mini 18m wide road • Transport nagar and bus terminals are prohibited
	Agricultural area	• Special permission conditionally permitted in

Landuse	Allowed Landuse	Permitted Criteria's
		transport nagar , bus terminal and vechile licence checking centre.
Park and open space		• Multipurpose open space is provided in built residential area and commercial area upto mini 18m wide road
Agricultural		• Horticultural lab, garden, forest and botanical gardens all are in permissible use. In residential, commercial, industrial, mixed land use , pubic facilities, transport etc.

Zoning Regulations

Prohibited Landuse

Landuse	Prohibited Landuse	Prohibited Criteria
Residential	Agricultural and Urban agricultural area	• Single Housing is prohibited in Urban agricultural area and Agricultural area. • Group housing is prohibited in transportation area, Parks and open spaces, Green verge, Urban agricultural area and Agricultural area.
Commercial	Pure Residential	• In pure residential area Retail shops, Showrooms, Weekly market , Wholesale market, auction market, Cold house, resort, hotel, Sale center for agricultural yield, petrol pumps, Gas warehouse, Cellular mobile centers all these commercial uses are prohibited.
	Industrial	• In industrial area Hotels, Dhaba's, Cinema halls all these commercial uses are prohibited
	Offices	• In office area Showrooms, Weekly market, Wholesale market, auction market, Resort, Hotels all these commercial uses are prohibited.
	Park and open spaces and Green verge	• In parks and open spaces and also in Green Verge Retail shops, Showrooms, Weekly markets, Wholesale market, Auction market, Cold storage, Resort, Hotels, Dhaba's all these commercial uses are prohibited
Industrial	Residential	• In Residential area Small Industries, Sugar Mills, Hazardous pollution Factories, Mining

Landuse	Prohibited Landuse	Prohibited Criteria
		and lime kiln industries, Large scale industries and Power generation plant centers all these are prohibited industries • In Pure Residential Cottage Industry, Small Industries, Sugar Mills, Hazardous pollution Factories, Mining and lime kiln industries, Large scale industries and Power generation plant centers all these are prohibited industries
	Commercial	• In commercial area Sugar Mills, Hazardous pollution Factories, Mining and lime kiln industries, Large scale industries and Power generation plant centers all these are prohibited industries
	Offices	• In office area Cottage Industry, Sugar Mills, Hazardous pollution Factories, Mining and lime kiln industries, Large scale industries and Power generation plant centers all these are prohibited industries
	Transportation	• In transportation Cottage Industry, Sugar Mills, Hazardous pollution Factories, Mining and lime kiln industries, Large scale industries and Power generation plant centers all these are prohibited industries
	Park and open Spaces and Green verge	• In parks and open spaces Cottage Industry, small industry, Sugar Mills, Hazardous pollution Factories, Mining and lime kiln industries, Large scale industries and Power generation plant centers all these are prohibited industries
	Agricultural area	• In agricultural area cottage industry, small industry, Software Technology Park and large scale industries are prohibited industries.
Offices	Residential	• In pure residential area state, semi state and local offices, Private offices, agent offices, banks, commercial offices, labor welfare centers, Meteorological research centers etc are prohibited
	Transportation	• In transportation commercial offices, Labor welfare centres and Metrological research centres are prohibited
	Park and open spaces	• In parks/ open spaces and green verge area

Landuse	Prohibited Landuse	Prohibited Criteria
	and Green verge	state, semi state and local offices, Private offices, agent offices, banks, commercial offices, labor welfare centers, Meteorological research centers etc are prohibited
	Agricultural	• In agricultural area Private industries, banks, commercial offices, , labor welfare centers, Meteorological research centers etc are prohibited
Public Facilities	Residential	In pure residential area Guest houses, Dharamshala, Hostels, orphanage, jail, handicapped children house, old age home , Primary schools, police station, health centers are prohibited
	Commercial	In commercial area hostels, orphanage, jails, child care center, primary schools etc are prohibited
	transportation	In transportation Guest houses, Dharamshala, Hostels, orphanage, jail, handicapped children house, old age home , Primary schools, police station, health centers are prohibited
	Park and open spaces and Green verge	In Park and open spaces and Green verge Guest houses, Dharamshala, Hostels, orphanage, jail, handicapped children house, old age home , Primary schools, police station, health centers are prohibited
Public and Semi Public	Parks and open spaces	Guest houses, Dharamshala, hostels, orphanage, jail, handicapped children house, old age homes, primary schools, university, medical college, Polytechnique, police station, post offices, library, telephone exchange, hospital, Nursing home, Health center, crimination all are prohibited.

17.7 Impact Fee

Applications may/will be received for permission of certain other activities/uses in future plans approved by the Development Authority / Housing and Development Department or Competent Authority / in planned developed areas where provision has been made for ancillary activities according to the standards. Such applications will be considered subject to the provisions contained in the Zoning Regulations. If permission for high use is given in the low land use zone, it will result in impact on the traffic-transportation infrastructure and environment in the area concerned. Therefore, the effect fee will be payable by the applicant at the time of such permission. In the undeveloped area shown in the master plan in which the plan approved by the Development Authority / Housing and Development Department or the

competent authority has not been implemented, if any action is approved separately in place of the ancillary action of the major land use in the major proposed land use. If an application is received and this action is permissible as per the provisions contained in the zoning regulation and if this action is of higher level than the major land use, the impact fee will be payable. For example, if the map of any commercial activity in residential land use is not part of the residential landuse and is received separately for approval, then the impact fee will be payable. If the map of the business activity is sent for approval as part of the residential landuse, then the impact fee will not be payable. 90 percent of the impact fee will be deposited in the Infrastructure Development Fund of the Development Authority / Housing and Development Department. It is clarified that in cases where land-use change is involved under the Uttar Pradesh Town Planning and Development Act, 1973, land-use change fee will be payable. Whereas on the basis of zoning regulations, only impact fee will be payable for permissible actions/uses.

In the master plan, the conversion fee from low land uses to high use will be recovered on the basis of the government order no. 3717/9-8-2000-26LCU/91 dated 21-08-2001 and the arrangements contained in other effective government orders related thereto. The amount of impact fee will be 25 percent of the fee prescribed in the said mandate for generally permissible and conditionally permissible actions and 50 percent for activities permitted with special permission. The impact fee will be assessed on the basis of the current sector (residential) rate of the Development Authority / Housing and Development Board, in the absence of the rate of the Authority / Board, on the basis of the current circle rate by the District Magistrate for the existing land use of the land. The order of different land-use zones from low to high and the methodology for determining impact charges are shown in Section 7 of the Zoning Regulations.

Impact fee will not be payable in the following circumstances:

- Impact fee is generally and conditionally permissible for activities/uses permitted with special permission in the built-up area.
- For public and semi-public facilities / activities to be developed by government and semi-government agencies and charitable institutions in same / mixed residential land use zones.
- Temporarily permitted activities/uses in various important land use zones.
- Under the various policies announced by the state government like tourism policy, IT Policy, Film Policy etc. the impact fee will not be payable for these activities and land use, which have been estimated in the land use zone according o the government order, no impact fee will be payable such as multiplex, 3 Star Hotels etc. in residential and upto 5 KVA Capacity in IT units/IT parks.

17.8 Permission Process

Objections/suggestions will be invited from the public through proper means by providing a time period of one month to allow action other than the original use in the pre-developed schemes/areas under the major land-use zones and only after the disposal of these objections/suggestions. On the acceptance/rejection the appropriate action will be taken. The disposal of the application related to the permission will be ensured within a maximum of 60 days from the date of receipt.

In any of the major land use zones under the Development Area/Special Development Zone, a committee will examine the situayion in each such case before special permission is given for other activities by the Competent Authority.

Various Activities in Major Land Use Zones										
Legends										
1	B.S.	Bazaar Street	6	PSP	Public & Semi-Public	11	R.E.	Rural Extension		Permissible use
2	Resi.	Residential	7	T&T	Traffic & Transportation	12	AGR.	Agriculture		Prohibited use
3	Comm.	Commercial	8	P&O	Park and open space	13	H.F.Z	Highway Facility Zone	Code	Conditional Permissible use
4	Ind.	Industries	9	G.B	Green Belt					Special use
5	Off.	Office	10	R.B	Rural Built-up				Code	special permission with condition

S. No.	Activities	1	2	3	4	5	6	7	8	9	10	11	12
		B.S.	Resi.	Comm.	Ind.	Off.	PSP	T&T	P&O	G.B.	R.B/R.E	AGR.	H.F.Z
1	**Residential**												
1.1	Single House				3								
1.2	Group House	27		2	3	4							
1.3	Employee/Guard/ Chowkidar Residence			1	1	3		1				1	
2	**Commercial**												
2.1	Retail/Convenient shops		5										
2.2	Showrooms(Except Automobile showrooms)		26									5	
2.3	Automobile showroom/Automobile spare part shop	7			19			19				5	
2.4	Wholesale Business/Mandi			7									
2.5	Auction Market			6	6							6	
2.6	Bakery/Confectionary/Atta Chakki (Up to 10 HP)		5		5								
2.7	Coal/Wood Stack		6	6	5								
2.8	Agricultural Produce sale centre			10									
2.9	Cold storage			10									

S. No.	Activities	1 B.S.	2 Resi.	3 Comm.	4 Ind.	5 Off.	6 PSP	7 T&T	8 P&O	9 G.B.	10 R.B/R.E	11 AGR.	12 H.F.Z
2.10	Resort												
2.11	Hotel	7	23		6								
2.12	Motel/Way side restaurants (Dhaba)			6				7					
2.13	Restaurant/Canteen/Food Court		5	5	5	5	5	5					
2.14	Cinema/Multiplex	7	7	7	7		7						
2.15	P.C.O/Cellular Mobile Service												
2.16	Petrol/Diesel Filling station/CNG/Electric Charging		5			5	5	5			5		
2.17	Gas Go down/Gas Installation				6								
2.18	Gas booking office				6								
2.19	Storage, Go down, Warehouse, Storage centre, Junkyad/Kabadkhana			13	7			13					
2.20	Service Apartment				3	4	3						
3	**Industry**												
3.1	Service/Cottage Industry		5										
3.2	Information technology/Software technology park/Data centre		7	7		7							
3.3	Small Industry			17									
3.4	large Industry, sugar Mill, Rice Sheller, Floor Mill/Agriculture Produce												
3.5	Critical/Hazardous/Polluting Industry												
3.6	Mining, Brick/Lime Kiln, crusher												
3.7	Oil depot/LPG Refilling Plant												
3.8	Milk Depot/Milk Collection centre/Dairy												
3.9	Power Generation Plant/Centre												
3.10	Logistic Park and logistic units described in Uttar Pradesh Warehousing and logistic												

S. No.	Activities	1 B.S.	2 Resi.	3 Comm.	4 Ind.	5 Off.	6 PSP	7 T&T	8 P&O	9 G.B.	10 R.B/R.E	11 AGR.	12 H.F.Z
	policy(revised)												
4	**Offices**												
4.1	Govt., semi Govt., Local bodies		6		6		19	19					
4.2	Private office, Agent office, etc.		6				19	19					
4.3	Bank												
4.4	Trade & Commerce office												
4.5	Labour Welfare centre												
4.6	P.A.C/Police Line												
4.7	Meteorological research centre/Wireless centre/Observatory												
4.8	Cyber cafe		5										
4.9	Biotech park												
4.10	BPO												
4.11	Call centre												
4.12	Data processing centre												
4.13	Business park												
5	**Public & Semi Public Facilities**												
5.1	Guest house, Inspection House				6	5					5		
5.2	Dharamshala, Night Shelter, Lodging, Boarding House		5								5		
5.3	Hostel		5								5		
5.4	Orphanage, Remand home												
5.5	Specially Abled children house		5								5		
5.6	Children's home & Day care centre					18							
5.7	Old age care centre												
5.8	Primary school		5										
5.9	Secondary/ Higher secondary	7	6								6	6	

S. No.	Activities	1 B.S.	2 Resi.	3 Comm.	4 Ind.	5 Off.	6 PSP	7 T&T	8 P&O	9 G.B.	10 R.B/R.E	11 AGR.	12 H.F.Z
	school/Inter college												
5.10	College		6								6	6	
5.11	University											7	
5.12	Polytechnic/ITI Engineering, Medical/Dental College											7	
5.13	Management Institute/Specialized Educational Institute												
5.14	Post office, Telephone exchange		5										
5.15	Police station/Chowki, Fire station		6										
5.16	Library/Reading room		5										
5.17	Health care, Family Welfare centre, Dispensary												
5.18	Hospital				9	9					9		
5.19	Nursing home		8		9	9					8	8	
5.20	clinical lab											21	
5.21	Health club/gymnasium												
5.22	Cremation ground, Burial ground, electric crematorium house												
5.23	Music/Dance & Drama Training Centre, Art centre	7	5								5		
5.24	Tailoring, embroidery, weaving, painting, computer Training etc.	7	19										
5.25	Auditorium, theatre/Open Air theatre	7	6		6				21			21	21
5.26	Yoga, contemplation, spiritual & sermon centre/Satsang Bhawan	7	6									21	21
5.27	Religious Building												
5.28	community centre, cultural centre		6	6				6			6		
5.29	Baraat ghar, Banquet hall												
5.30	Conference/ Meeting hall												

S. No.	Activities	1 B.S.	2 Resi.	3 Comm.	4 Ind.	5 Off.	6 PSP	7 T&T	8 P&O	9 G.B.	10 R.B/R.E	11 AGR.	12 H.F.Z
5.31	Museum												
5.32	Art Gallery, Exhibition centre		6		19				21			19	
5.33	Telephone, Radio, Television office/centre												
5.34	R&D centre, Research centre				19								
5.35	social welfare centre												
5.36	Tourism facility centre												
5.37	Film city												
5.38	Tourism facility centre		5		6			6					
5.39	Knowledge park												
5.40	ATM												
5.41	Jail												
5.42	Sewerage treatment plant, waste Disposal ground etc.				14		14						
5.43	Tube well, Overhead reservoir, power station/Sub station												
5.44	water work												
5.45	Appliance Repair Service												
5.46	Compost plant												
5.47	Slaughter house												
5.48	cellular/ Mobile tower												
6	**Traffic and Transportation**												
6.1	Parking Places							16					
6.2	Taxi, Tempo, rickshaw etc., stand/Bus stop							16					
6.3	Transport Nagar/Bus Depot												
6.4	Bus stand		7	7	6		6	10			6		
6.5	Bus terminal			7									

S. No.	Activities	1 B.S.	2 Resi.	3 Comm.	4 Ind.	5 Off.	6 PSP	7 T&T	8 P&O	9 G.B.	10 R.B/R.E	11 AGR.	12 H.F.Z
6.6	Motor Garage, Service Garage and workshop										5		
6.7	Motor driving training centre												
6.8	loading-unloading related activities			6	6			6			6		
6.9	Railway Go down, railway yard/ Siding/ Terminal												
6.10	weighing Machine			10	7						6		
6.11	Airport												
7	**Park, sports/open spaces**												
7.1	Parks, sports venue/Playground												
7.2	Multipurpose open spaces		7								7		
7.3	Golf/Race course												
7.4	Stadium/sports training centre												
7.5	Caravan park, picnic place, camping site								21				
7.6	Traffic park												
7.7	Recreational park/ Amusement park								21				
7.8	Club, swimming pool		6								6		
7.9	Zoo, Aquarium, wildlife/Bird shelter												
7.10	Flying club, Helipad						21					21	
7.11	Shooting range												
8	**Agriculture**												
8.1	Gardening, Nursery, Garden, Forest, Botanical Garden												
8.2	Farm House												
8.3	Pasture, Dairy farm/ Charagah												
8.4	Dhobi Ghaat												
8.5	Pig/fish/chicken/honeybee farming, Animal Husbandry & Breeding centre												

S. No.	Activities	1 B.S.	2 Resi.	3 Comm.	4 Ind.	5 Off.	6 PSP	7 T&T	8 P&O	9 G.B.	10 R.B/R.E	11 AGR.	12 H.F.Z
8.6	Agricultural equipment repair/ servicing workshop												
9	**Floating use**												
9.1	Public facilities & Utilities												
9.2	Commercial			11									
9.3	Traffic & Transportation												
9.4	Service/Cottage industry		12										
9.5	Special industries(critical/Hazardous/polluting)												
10	**Temporary Activities**												
10.1	Vending Zone												
10.2	Weekly Market		6										
10.3	Drive-in cinema, circus, Exhibition, Fair Ground		7	7			7		21		5		

IMPACT FEES								
Discounted Impact fee		Impact fees not applicable						
Non-Commercial and charitable	1	No Impact Fees						
Service/cottage industry and minor industries	2	Impact Fees applicable						
Group housing schemes	3							
		1	**2**	**3**	**4**	**5**	**6**	**7**
S. No	**Activities**	**Agriculture, Urban agriculture, Green belt, Park, Play ground**	**public and semi public**	**Traffic and Transportation**	**Industries**	**Residential**	**Offices**	**Commercial**
1	**Agriculture, Urban agriculture, Green belt, Park, Play ground**							
2	**public and semi public**	0.25 (1)				0.25 (1)		
3	**Traffic and Transportation**	0.30	0.10			0.25		
4	**Industries**	0.40 (2)	0.25 (1)	0.25 (2)		0.50		
5	**Residential**	0.50	0.40	0.40	0.25 (3)			
6	**Offices**	1.00	0.75	0.75	0.75	0.50		
7	**Commercial**	1.50	1.25	1.25	1.00	1.00	0.50	

Note:

1. Prescribed impact fees factor for permitted activities in different land uses has been mentioned in the table where an impact fee is applicable.
2. Generally, Impact fees for permissible activities and conditional permissible activities will be 25% and for special permissible activities will be 50% and calculation of impact fees for permissible activities in the related land use zones will be done on the basis of impact fees factor as per below calculation:

a) Permissible activities and conditional permissible activities-land area * circle rate*impact fees factor*0.25
b) Special permissible activities-land area*circle rate*impact fees factor*0.50
c) Impact fees will not be applicable for hotel in all land uses

Impact fees will be calculated on the basis pre-defined residential rate decided by the development authority or in the absence of that it will calculate on the basis of circle rate of existing land use decided by the district magistrate.

Chapter 18
Phasing of Master Plan

Chapter 18. Phasing of Master Plan

18.1 Introduction

To ensure the balanced and organized development as per the Master Plan, it is necessary to divide the long-term period into different phases, to determine the priorities of development activities and accordingly the regional, so that the development of infrastructure facilities can be done in a phase-wise manner. According to the proposals of the long-term development plan prepared for the development of the urban area, the planning and implementation of development works is very important. In this, to use the land in the prescribed form, according to the accepted policy, the commitment and respect for the master plans in the implementing institutions is the ultimate.

Phasing is done to ensure the planned development. The Meerut Master Plan is being prepared for the interval of 10 years so the phasing is done for the period of 5-5 years. The first phase has to be completed in maximum 5 years interval. As in master plan phasing is done according to the need, in first phase the deviation will be estimated as it will take less time and in second phase the development work started. The Immediate Phase is 2021- 2026.

18.2 Immediate Phase 1: Key Tasks

1. **Zonal Plans**

- Preparation of zonal plans in the light of proposed land use in the master plan, in which detailed description of development works, implementation, priorities and programmes. The financial aspect necessary for implementing the zonal plans should also be made a part of the plan.
- To prevent unnecessary expansion of the urban area and to keep the fertile agricultural land away from urbanization for a long period of time, prepare zonal plans for the identified areas to be developed in the next five years.
- In the context of master plan and zonal plans, detailed traffic and transportation plan, water supply plan, water and sewage disposal plan and detailed plan for collection, treatment and use of urban waste are prepared on a five-year basis with the help of necessary experts.

2. **Infrastructure Development and Upgradation**

- To develop the infrastructure facilities by the Housing and Development Board, Meerut Development Authority and the Municipal Corporation, Public Works Department, Jal

Nigam, Horticulture Departmennt etc. need to prepare a detailed action plan for the identification of the projects by a task force.
- To priorities the provisioning of basic amenities and public facilities in the city.

3. Clean and Green Action Plan
- To make a Clean & Green Action Plan: this shall involve identification of land parcels which can be taken up as parks in city; redevelopment of existing parks and upgradation and developing the river front & conservation of natural features.
- To prepare environmental plans and programs in the context of future requirements by making detailed study of environment and pollution.
- Prepare feasibility reports, initiating the process of river rejuvenation

4. Private Sector Participation
- Studying the possibilities of private sector participation in all development works, identifying the responsible private players and determining the implementation programs and policies.

5. Built Area Action Plan/ Core City Action Plan
- Preparation of detailed plan for the development of built area of the city and action plan for identifying the structures that are in state of redevelopment
- Prepare action plan and feasibility including Urban Design proposals to tackle the traffic and transportation issues in the city

6. Monitoring of the implementation
- Appoint a dedicated committee for monitoring and implementation
- Apply GIS methods to conduct monitoring and provide required capacity building to the staff to achieve the same
- Regularly mark the development and construction works being done in line with the master plan or against the master plan, and to mark the size and nature of these works on the map

Presently it is observed that, the action plans and programs are not prepared in required time duration for the implementation of the master plan proposal. It has also been observed that local policies are followed by executive agencies for development activities, which create obstacles in the overall development of the city; this increases the time to implement infrastructure facilities and creates problems of environmental pollution in other areas. It is suggested that a monitoring committee be formed to check the implementation process.

18.3 Monitoring of Master plan Implementation

At present, in accordance with the master plan proposals or against the master plan, to regularly mark the development and construction works, to map the shape and form of their work and to determine and solve the possible problems arising out of it, a definite and regular effective monitoring is very important. Generally, the development authority does not have an assessment of the geographical and financial nature and size of the positive actions and negative problems resulting from the implementation of the master plan. Due to its absence, the need for improvement is also not properly assessed.

There are several methods of monitoring are currently available. It has latest and modern GIS technology. Using this technique, a map of development activities should be prepared and unauthorized and unplanned development and construction work should be identified and a monitoring cell should be established on the authority start for regular monitoring of the action, which is different from the enforcement section currently working. Under this the following works should be done.

- To mark all type of development and construction works in the urban area on the master plan and regional plan map.
- Preparation of detailed description of unauthorized development and construction works.
- According to the master plan, to identify the problems arising as a result of private sector participation in development and construction works and propose alternative arrangements. In most of the sectors of development the phasing is done in two phases the interval of phase depends upon the time taken to solve the problem of the area/ to resolve the deviation and the second phase is used for the development.

18.3.1.1 Role of Government Agencies

To ensure implementation of various schemes related to housing and infrastructure development of Central and State Sectors.

Effective implementation of the provisions of the Acts and regulatory measures (rules, mandates, guidelines, etc.) for the planned development of cities.

To control the spread of illegal / 'non-conforming' activities in unauthorized colonies, slums, illegal constructions and residential areas.

Preparation and regular updating of Zonal Development Plans in a time bound manner under the master plan and to make appropriate provision for the informal sector (slum dwellers and homeless) under them.

Preparation of Housing and Habitat Action Plan and ensuring its timely implementation by assessing the shortage and future requirement of housing for a particular city.

To implement the approved projects under the Hi-tech townships and integrated townships announced by the state government for participation of the private sector and to ensure timely compliance of social obligations of private developers.

18.3.1.2 Suggestion for Monitoring committee

	Recommended Post in the Committee
Vice Chairman, MDA	Chairman
Municipal Commissioner, Municipal Corporation, Meerut	Member
Associate Town Planner, Divisional Office, Town and Country Planning Department	Member
Nominated person by Chairman MDA	Member
President, Meerut Architect Association	Member
Chief Town Planner, MDA	Member

Chapter 19
Resource Mobilisation

Chapter 19. Resource Mobilization for Implementation

For the implementation of the Master Plan proposals, it is necessary to have proper arrangement of land and financial resources. The present method of developing infrastructure facilities by getting budgetary support by the government and long-term loans from financial institutions by the development agencies is not sufficient in relation to the needs of future development. The development of the urban area is a continuous process in which the urban administration and development agencies will have to make extensive changes in the arrangement and management of their internal resources. Free facilities and service in the open market age will also have to be abandoned from the present mentality. The cost of expenditure for each facility and service will have to be borne directly or indirectly by the consumer himself. The participation of the private sector in the development works will have to be increased and the developers will have to be encouraged and motivated, so that the expected development can take place.

19.1 Key resource mobilization sources

1. **Establishment of land property bank:** On the basis of latest satellite image and G.I.S technology, mapping and detailed description of all the land in the development area and Municipal Corporation. By taking the actual measurement of all the land on the basis of satellite image and also-marking the additional land by matching with the revenue records. There is a lot of surplus land in each revenue village. This land can be used for future development
2. **On the basis of actual use Determination of compounding fee:** There are many such buildings in the urban area, which are being used for commercial purposes more than approved or completely unauthorized and it is not possible to remove these properties. All these assets should be identified and mapped. Two times compounding fee should be fixed on non-compoundable property.
3. In urban areas, many hawker vehicles are permanently parked on public land, especially at night. Monthly rent to be collected from all these vehicles additionally on unauthorized construction.
4. Normally the maximum limit of FAR permissible in urban area should be fixed at 1.5 and additional F.A.R to be sold at identified locations. F.A.R can be made salable by authority from 1.5 onwards depending upon the infrastructure availability.
5. External development charges and betterment charges should be regularly updated on the basis of actual infrastructure expenditure.

6. Change of user fee and impact fee should be charged on the basis of actual use of land and built-up property.
7. Major Infrastrucre projects should be taken up on Public Private Partnesrship (PPP) bases.
8. It is not possible to acquire land for development of housing and other kind of projects. Therefore, Town Planinng (TP) schemes should be widely adopted for planned urban development. This scheme has been extensively used in Gujarat and Maharastra.
9. The area left for future road widening and green belt should immediately be utilised and extra FAR should be provided for the land left for the above purposes.
10. Section 35 for imposing betterment charges have not been utilised inspite of providing a particular service by authority. This provision should be judiously utilised for enhancement of urban infrastructure.

In this way, the agencies can strengthen their financial system through various means through continuous efforts and can make an active contribution for the development of Meerut.

19.2 Land Mobilization and Management

Special emphasis will be given to use land as a resource for 'resource mobilization' for development of infrastructure facilities, so as to ensure "self-sustaining development.

19.2.1 Recommendation for Land Mobilization

A progressive land acquisition policy should be made to ensure the participation of farmers / land owners in urban development by simplifying the process of land acquisition for land acquisition / mobilization.

Under the new policy, public participation in the process of social impact assessment has been increased as much as possible and suitable provisions have been made for compensation system and rehabilitation and resettlement of displaced persons

19.2.1.1 Land Pooling Scheme

It is becoming difficult to acquire land in general through Land Acquisition Act. Legal disputes also happen and there is a delay in getting the land. Therefore, under the welfare policy of the state government, farmers have been given many options for settling their land. Land Pooling is one such option. At present, the Integrated Township Policy and High Tech Township Policies are loosely based on the land pooling method, where the direct involvement of the authority or govt. agency is less. The Land Pooling has been successfully implemented in many states and is a more sustainable way of achieving development for a win-win situation for the authority as well as farmers. This also helps in speedy development and infrastructure provisioning.

Under land pooling, the layout plan is prepared by the Development Authority by pooling the lands of the selected land owners for development / redevelopment and infrastructure development is done without acquiring the land. Under this scheme, land is reserved for roads,

infrastructure facilities, parks and open areas, community facilities, etc. and some part of the land is used by the authority to meet the infrastructure development expenses, while the reconstructed plot, Whose value will increase as a result of infrastructure development. The respective land owners are redistributed in proportion to the land owned by them and the reserved land is transferred free of cost to the authority as public facilities. Under this method, well-planned urban development will be ensured with the cooperation of land owners and no funding will be required for land acquisition. The State Urban Housing and Habitat Policy recommend the land pooling scheme norms, which can be adopted.

19.2.1.2 Direct Land Purchase from farmers:

For mobilization of land, this option will also be permissible that Development Authority, Housing and Development Board and other Government / Semi-Government agencies can buy land directly for their schemes by mutual consent.

19.2.1.3 Transferable Development Rights

In lieu of land reserved for public facilities and master plan roads under the master plan, such owners are paid compensation in the form of 'Transfer of Development Rights' (TDR) who surrender land free of cost to the local agency for the development of public facilities. According to the TDR policy, the 'Development Rights Certificate' (DRC) granted to the land owner, the Permissible Floor Area Ratio (FAR) for that land can be used elsewhere or the land owner on the said floor, which can also be transferred wholly or partly to any other person. The person who buys it can build on his land according to the additional floor area. The TDR concept is prevalent in many states in India and has been a successful process for implementing reservation areas in any planned area, where the public facilities land come sunder private property. TDR is one of the key recommendations in the present Master Plan for ensuring decongestion, redevelopment process for the core areas in the city, specifically to assimilate open space and parks.

Annexure 1:

List of other service industries in the residential sector (Upto 10 horse power):

- Laundry, dry cleaning
- Servicing and repair of radio, T.V etc.
- Milk production
- Servicing and repair of motor car, motor cycle, scooter, cycle etc.
- Printing press and book binding
- Jewelry shop
- Embroidery & Weaving
- Shoelace making
- Boutique
- Blacksmith work
- Repair of watches and specks
- Making of signboards
- Photo framing
- Shoe repair
- Repair of electrical appliance's
- Bakery
- Aata chakki
- Furniture shop
- Homogeneous service industry

Annexure 2:

Pollution free small scale industries allowed with special permission in commercial area (Upto 10 horse power) :

- Aata Chakki
- Chilling
- Stitching
- Tailoring industry
- Science and math instruments
- Production of paper and cardboard
- Manufacturing household electrical appliances
- Assembling of cycles and other engineless vehicles
- Making toys
- Homogeneous non-polluting industries.

Annexure-3

List of Unauthorized Colonies in Meerut Development Authority Area

List of Unauthorized Colonies in Meerut Development Authority Area			
Sr. No.	Name of Unauthorized colonies	Area of colonies (Sq.m.)	Number of Buildings
1	Jawala Puri, Delhi road, Meerut	6000	40
2	R.K puram, Delhi road, Meerut	50000	250
3	Aggarwal Colony, Delhi road, Meerut	10000	40
4	Ambedkar nagar, Delhi road, Meerut	15000	100
5	Prem Vihar , Delhi road, Meerut	18000	100
6	Pratap vihar , Delhi road, Meerut	30000	200
7	Lavkush Colony , Delhi road, Meerut	6000	40
8	City garden, Nur nagar, Meerut	50000	135
9	Friends colony, Nur nagar road, Meerut	10000	55
10	Eidgah colony, Nur nagarroad, Meerut	15000	100
11	Janta colony, Nur nagar, eerut	30000	60
12	Samar D, lisaadi road, Meerut	25000	180
13	Khushhaal Nagar	20000	70
14	Sai puram, Nur nagar road, Meerut	40000	105
15	Indra nagar, Khatta road, Meerut	40000	330
16	Rasidnagar, Khatta road, Meerut	40000	330
17	Shukar nagar, lisaadi road, Meerut	40000	330
18	Zakir colony, main Hapur, Meerut	50000	180
19	Chaman Colony, Lisaadi road, Meerut	7000	90
20	Shashtri colony	40000	450

List of Unauthorized Colonies in Meerut Development Authority Area			
Sr. No.	Name of Unauthorized colonies	Area of colonies (Sq.m.)	Number of Buildings
21	Indra puram, Gagol road, Meerut	40000	250
22	Shokat ali colony	3000	35
23	Park avenue	9000	130
24	Paras colony	20000	130
25	Raghunath Vihar	8000	100
26	Mittal Colony	5000	75
27	Ramesh Enclave	20000	180
28	Shivdham Colony	70000	700
29	Jawahar nagar	153400	850
30	Mangal puri	119600	780
31	Narayankunj	6100	12
32	Ram Vihar Mawana Road	24000	90
33	Tej Vihar rohta road	54900	280
34	Vikas puri	17900	115
35	Bharat Vihar	21700	275
36	Natesh puram	88200	1000
37	Ashokpuri	67500	700
38	Anup nagar	180600	1425
39	Sant Vihar	46900	325
40	Sanik Vihar colony	30000	435
41	Vikas enclave	14000	92
42	New Minakshipuram Mawana Road	121000	600
43	Prem Nagar	1700	45
44	Sant vihar sardhana road	46900	425
45	Laxmi nagar	79000	305
46	New sanik colony	142500	
47	Krishna Colony	7600	15
48	Isha Puram-1 Mawana road	311200	305
49	Isha Puram-2 Mawana road	87000	17
50	Devnagar	20600	154
51	Shashtri colony, Kankarkhera	10070	34
52	Laxmi Vihar bypass road	25200	58
53	Sanjey Colony	50000	540
54	Nandani Kunj	13000	125
55	Shivkunj Colony	10000	25
56	New Shalimar garden	3000	4
57	Shalimar Garden	3500	10

List of Unauthorized Colonies in Meerut Development Authority Area			
Sr. No.	Name of Unauthorized colonies	Area of colonies (Sq.m.)	Number of Buildings
58	Gokal Vihar	10000	36
59	Gagan Vihar	4000	5
60	Sagam Vihar	5000	13
61	Krishna Vihar, Rohta road	5000	13
62	Narayan Garden, Rohta Road	8000	15
63	Kavinagar Rohta road	10000	26
64	Rohini Kunj Rohta road	5000	3
65	Golden Vihar	8000	33
66	Chandarshekhar Colony	2000	25
67	Kashiram colony, Bhola road, Meerut	3500	3
68	Triveni enclave	15000	12
69	Krishnanagar Bhola road	5000	7
70	Chaudhary colony Bhola road	2000	2
71	Pushp vihar	2000	3
72	Mokshpuri	2000	3
73	Ratannagar, Bhola road	40000	750
74	Yadav Colony, Bhola road	30000	190
75	Gayatripuram Rohta road	10000	18
76	Radha kunj, Bhola road	10000	5
77	Ramesh vihar, Bagpat road	8000	8
79	Indra colony, Bagpat road	5000	10
80	New Multan nagar, Bhola road	10000	80
81	Anaam, Ghat road	10000	6
82	Sai enclave, Ghat road	7000	11
83	Uday enclave, ghat road	3300	3
84	Anaam colony, mohiuddinpur	5500	4
85	R.K puram gardvin colony	10000	15
86	Ganga colony maliyana bagpat road, Meerut	12000	70
87	Sanjay colony maliyan bagpat road.Meerut	50000	550
88	Nandanikunj Maliyana bagpat road, Meerut	13000	90
89	Yamuna vihar maliyana bagpat road meerut	20000	35
90	vanchari vatika	18000	105

List of Unauthorized Colonies in Meerut Development Authority Area			
Sr. No.	Name of Unauthorized colonies	Area of colonies (Sq.m.)	Number of Buildings
91	gunta colony	30000	155
92	sant vihar	12000	67
93	uttam nagar	25000	75
94	chandrlok	20000	135
95	jawala nagar	13000	40
96	bhagirathi palace	13000	45
97	sports complex	40000	140
98	Harpal singh- kala vihar	4000	25
99	Pratap vihar , Delhi road, Meerut	30000	500
100	Sanjay vihar	35000	1000
101	jay bhim nagar	4000	3000
102	Bhopal Vihar	10000	1000

Annexure 4

Notification number 41/VIII-10-17-04D.A-72

Dated Lucknow, March16,2017

In exercise of the powers under section 3 of the Uttar Pradesh urban planning ND DEVELOPMENT Act, 1973 (president Act No. 11 of 1973)as re-enacted and amended by the uttar Pradesh presidents act.1974(U.P Act no. 30 of 2974 read with section 21 of the Uttar pradsh general clauses Act 1904(UP Act no. 1 of 1904 the governor is pleased to make the following amendments in government notification is 1705/37-2-4D.A-72, Dated June 10,1976 as amended from to time, with effect from the date of publication of this notification in the Gazette:-

AMENDMENT

In the aforesaid notification the following areas shall be inserted namely:-

A- Urban area of-
1. Nagar panchayat, kharkauda
2. Nagar Panchayat, Mawana
3. Nagar panchayat, Hastinapur
4. Nagar panchayat, Bahasuma
5. Nagar panchayat, Lawar
6. Nagar palika parishad, saridhana

B- Rural area

In the rural area 16 villages, which have been inserted in the meerut development area by government notification no.2223/9Aa-6-03-4D.A/72, Dated June 26,2003 shall be numbered as 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16, and after the villages as so numbered the following villages shall be inserted mainly:-

S. No.	Name of Village	Tahsil and District
1	2	3
17	Muzaffarnagar saini (Part)	Tahsil-Meerut and district-Meerut
18	Pabla	-DO-
19	Khardauni Shekhupur	-DO-
20	Masoori	-DO-
21	Incholi (Part)	-DO-
22	Shaulana (Part)	-DO-

Map Title

EXISTING LANDUSE 2021

Meerut

Scale

0 1.5 3 6 9 12 Kilometers

Legend

Landuse

Residential Area
- Village Abadi
- Residential

Commercial Area
- Commercial
- Whole Sale Market/ Mandi

Office Area
- Office

Industrial Area
- Industrial

Public & Semi Public
- Community Facilities
- Educational institute/ University
- Health/ Hospital
- Public Utilities

Transportation
- Airstrip
- Bus Station/ Workshop
- Transport Nagar
- Existing Roads

Parks/ Open areas/ Recreational
- Park/ Open Area/ Stadium
- Forest
- Green

Agriculture
- Agriculture Area

Others
- Undefined Area
- Kabristan
- Vacant Land
- Historical Place

Water bodies
- River/ Canal
- Water

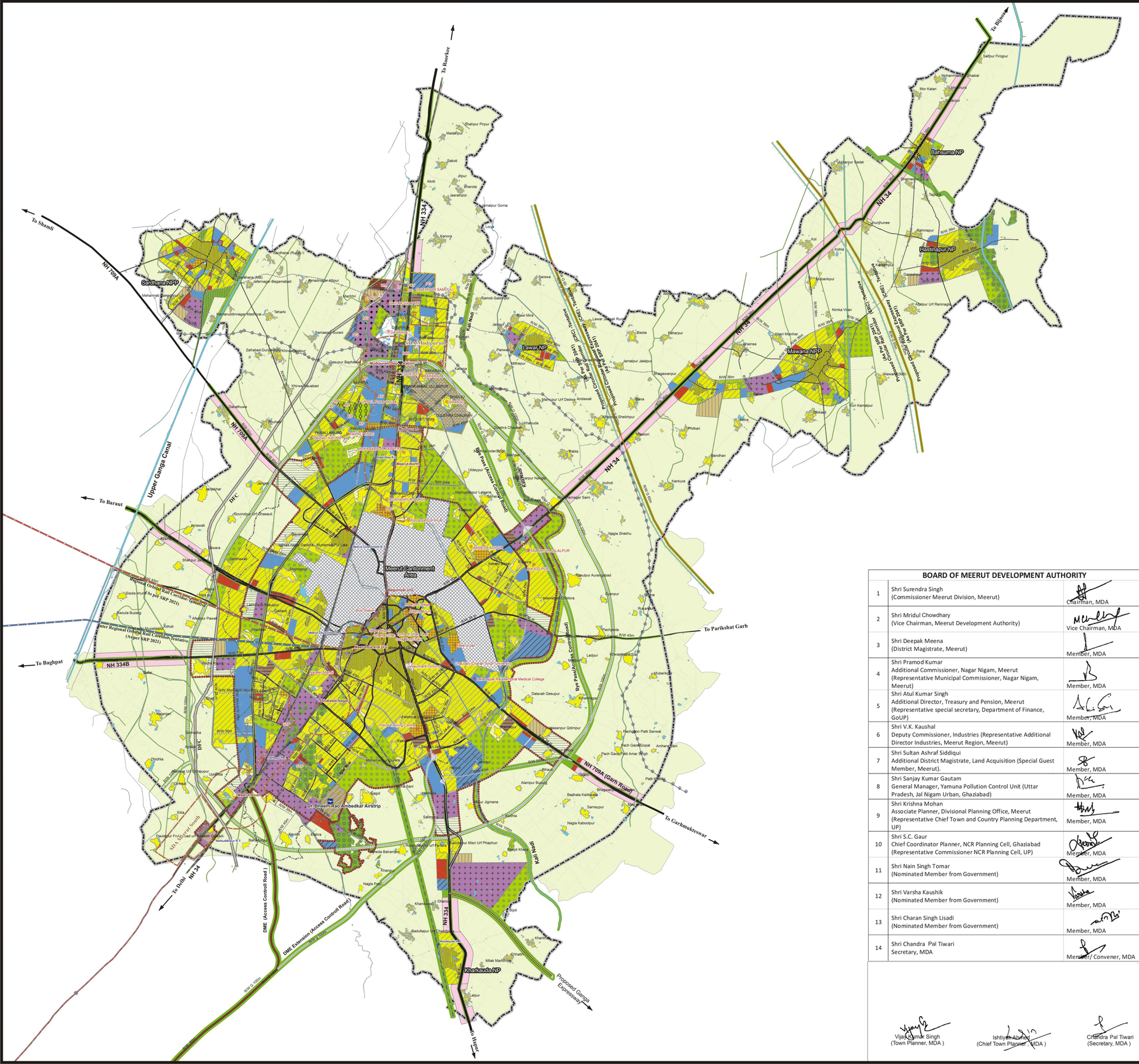
Road and Railway
- National Highway
- Expressway
- Bypass
- State Highway
- Other Major Roads
- Minor Roads
- Railway line
- Dedicated Freight Corridor
- RRTS

Boundaries
- Development area boundary
- Village Boundary
- Nagar Nigam Boundary
- Scheme Layout
- Municipal Boundary

High Tension Line
- HT Line

Atal Mission for Rejuvenation and Urban Transformation

Prepared by almondz the infrastructure specialist



BOARD OF MEERUT DEVELOPMENT AUTHORITY

1	Shri Surendra Singh (Commissioner Meerut Division, Meerut)	Chairman, MDA
2	Shri Mridul Chowdhary (Vice Chairman, Meerut Development Authority)	Vice Chairman, MDA
3	Shri Deepak Meena (District Magistrate, Meerut)	Member, MDA
4	Shri Pramod Kumar Additional Commissioner, Nagar Nigam, Meerut (Representative Municipal Commissioner, Nagar Nigam, Meerut)	Member, MDA
5	Shri Atul Kumar Singh Additional Director, Treasury and Pension, Meerut (Representative special secretary, Department of Finance, GoUP)	Member, MDA
6	Shri V.K. Kaushal Deputy Commissioner, Industries (Representative Additional Director Industries, Meerut Region, Meerut)	Member, MDA
7	Shri Sultan Ashraf Siddiqui Additional District Magistrate, Land Acquisition (Special Guest Member, Meerut).	Member, MDA
8	Shri Sanjay Kumar Gautam General Manager, Yamuna Pollution Control Unit (Uttar Pradesh, Jal Nigam Urban, Ghaziabad)	Member, MDA
9	Shri Krishna Mohan Associate Planner, Divisional Planning Office, Meerut (Representative Chief Town and Country Planning Department, UP)	Member, MDA
10	Shri S.C. Gaur Chief Coordinator Planner, NCR Planning Cell, Ghaziabad (Representative Commissioner NCR Planning Cell, UP)	Member, MDA
11	Shri Nain Singh Tomar (Nominated Member from Government)	Member, MDA
12	Shri Varsha Kaushik (Nominated Member from Government)	Member, MDA
13	Shri Charan Singh Lisadi (Nominated Member from Government)	Member, MDA
14	Shri Chandra Pal Tiwari Secretary, MDA	Member/ Convener, MDA

Vijay Kumar Singh
(Town Planner, MDA)

Ishtiyak Ahmad
(Chief Town Planner , MDA)

Chandra Pal Tiwari
(Secretary, MDA)

Map Title

MEERUT MASTER PLAN 2031 (DRAFT)

Scale

0 1.5 3 6 9 12 Kilometers

Legend

Landuse

Residential Area
- Rural Builtup
- Village Extn
- Nirmit Kshetra
- Residential

Commercial Area
- Commercial
- Whole Sale Market/ Mandi
- Warehousing

Office Area
- Office
- CPRI

Industrial Area
- Industry(Light/ Med/ Heavy)
- Light Industry
- Heavy Industry
- Logistic Park

Public & Semi Public
- Public Facility
- Public Utility

Transportation
- Airstrip/Airport
- Bus Terminal
- Cargo Centre
- Transport Nagar
- RRTS Depot
- Railway Station
- Existing Roads
- Proposed Roads

Parks/ Open areas/ Recreational
- Park/ Open Area/ Stadium
- Forest
- Regional Park
- Amuzement Park
- Green Belt

Agriculture
- Agriculture Area
- Highway Facility Zone (HFZ)
- Urban Agriculture

Others
- Undefined Area
- Samshan, Kabristan
- Historical Place

Water bodies
- River/ Canal
- Water Bodies

HT Lines (15 Mt. GREEN BELT BOTH SIDE OF HT LINES)
HT Pole

Roads and Railway
- National Highway (NH)
- Expressway
- Bypass
- State Highway (SH)
- Other Major Roads
- Minor Roads
- Railway line
- Dedicated Freight Corridor (DFC)
- Regional Rapid Transit System (RRTS)
- Inter Regional Orbital Rail corridor - Tentative
- Regional oribital Rail Coriridor - Tentatvie
- Proposed Circular Regional Expressway (CRE)- Tentative
- Proposed Circular Rail Corridor (CRC) - Tentative

Boundaries
- Urbanisable Area Boundary (Meerut MP 2021)
- Urbanisable Area Boundary (Daurala MP 2021)
- Development area boundary
- Nagar Nigam Boundary
- Influence Zone/ SDA

Atal Mission for Rejuvenation and Urban Transformation

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