

Master Plan for Coimbatore Local planning Area

Name of Local Planning Authority : Coimbatore Local planning Authority

Reference No : LPA Roc. No.4947/2010/CLPA

Directorate of Town & Country

Planning Reference No : 13552/2017/MP2

Resolution for consent in No.

Dated of the Coimbatore Local

Planning Authority :

Assistant Director/Joint Director(i/c)/Member Secretary
Coimbatore Local Planning Authority

Assistant Director of Town and Country Planning,
Chennai

Joint Director of Town and Country Planning,
Chennai

Director of Town and Country Planning,
Chennai

Secretary to Government,
Housing and Urban Development Department,
Government of Tamil Nadu

Master Plan – 2041

for

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Secretary
Housing and Urban Development Department
Government of Tamil Nadu

**Master Plan – 2041
for
Coimbatore Local Planning Area**

CERTIFICATE

It is certified that,

- All the procedures prescribed in the Master Plan are prepared, published and sanctioned.
- The boundary of Coimbatore Local Planning Area is reframed.
- Reports with the master plan are annexed and authenticated.
- The categorization in zoning map and the categorization in zoning regulation are tallied and found correct.

**Assistant Director/
Joint Director(i/c)/
Member Secretary**

Coimbatore Local Planning Authority

FORWARD

A 20-30-year master plan must comply with the Town and Country Planning Act of 1971 to control urbanization's unregulated growth. Modern city planning aims to direct a city's growing industry to benefit all citizens. Zoning and construction rules are still crucial for this type of planning. Master plans also map an entire Local Planning area's transportation networks, economic activity, population, land use, and supporting activities. Thus, master plans need public entities to align sectoral programming and stimulate private investments.

The second-largest city in Tamil Nadu after Chennai, Coimbatore is the hub of a major industrial corridor that produces textiles, manufacturing facilities, and autos. The DTCP had drafted a Coimbatore master plan within its borders until now. Coimbatore is working on its second master plan, which will cover 2019–2021, 27 years after its first were released in 1994. To handle Coimbatore's growing population and urbanization, the DTCP started a new Master plan. Improvements in city congestion. Due to zoning and zonal restrictions, Coimbatore's Core is underdeveloped compared to its quickly expanding environs. Thus, urbanization spread throughout the LPA, including Coimbatore CCMC's fringes. The Local Planning Authority (LPA) of Coimbatore was created to guide expansion. The LPA was founded by the Tamil Nadu government, and the DTCP created the 1,531-square-kilometer Master Plan 2041.

After 1991, when India's economy was liberalized, Coimbatore saw new commercial ventures. Coimbatore grew due to its services and software sectors. Development factors drove significant infrastructure and urban growth in the decade that followed. The master plan conceptualizes the relationship between buildings, social situations, and their settings and provides analyses, recommendations, and proposals from all sectors to influence future growth and development.

PLANNING CONTEXT IN INDIA

A major population shift is taking place from rural to urban areas across India, which is the world's second most populous country. The majority of individuals are leaving rural areas for metropolitan areas. This pattern may be seen in a great number of the world's other developing nations as well. The United States is quickly becoming one of the most urbanized places on the planet, which is not surprising given that metropolitan areas are home to an estimated population of more than 300 million people. The trend of urbanization has led to the migration of the country's economic center to urban areas. This shift was primarily driven by the expansion of industrial operations, trade networks, commercial companies, and service sectors.

Urban areas now account for the majority of the country's GDP. In a very short amount of time, India's major metropolitan centers have surpassed other parts of the country both in terms of wealth and industrial production. Urban India faces a number of serious issues, the most significant of which is meeting the requirements of an increasing population while simultaneously establishing effective governance and administration at the urban level.

The present urban planning strategy being implemented in India places a primary emphasis on the integration of expenditures related to municipal infrastructure throughout metropolitan areas. The vast majority of laws pertaining to town planning have a tendency to view development merely as a representation of its physical form. The following is an outline of the fundamental aspects that make up a development plan, which is also referred to as a master plan.

As a result of the 74th Constitutional Amendment, state governments are now required to allow local governments the right to design applicable laws in order to address a variety of concerns mentioned in the Twelfth Schedule. These concerns include economic growth and social equity, amongst others. It is important to note that as of right now, there is still a relatively low number of created ideas that are related to this subject area. The planning for urban development does not adequately account for the essential concept of 'development,' which includes economic development, equitable growth, and environmental sustainability. As a result of this, it would be instructive to present a brief review of the influence that the development strategy has on the advancement and obstacles within the industry of urban planning.

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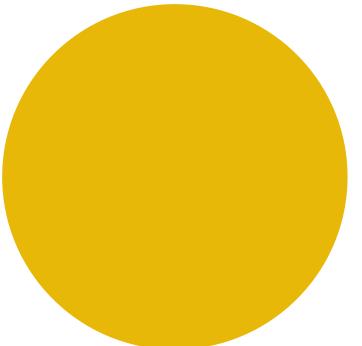
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01

INTRODUCTION



01 INTRODUCTION

1.1 COIMBATORE- OVERVIEW

Coimbatore, South India's Manchester, is situated on the banks of the Noyyal River. Coimbatore, the second largest city in the state of Tamil Nadu, is known for its pleasant climate throughout the year and is one of India's fastest-growing tier-II cities. In Tamil Nadu, it is a major center for textiles, small and large-scale industries, pump manufacturing, commerce, educational institutions, information technology sectors, and health care. The district has a higher GDP than Chennai and contributes to the state's economy. It should be noted that Tirupur, a major textile exporter, was once a part of the district. The district's industrial pockets provide job opportunities and attract migrants from various states.

Coimbatore is called "Manchester of South India" for its textile and manufacturing industry.

The rich black soil of Coimbatore facilitated rapid growth in agriculture, laying the groundwork for the establishment of renowned textile industries. In the 1930s, the development of hydroelectricity from the Pykara Falls fueled the growth of cotton cultivation. The emergence of trade associations representing small-scale industries, as well as the development of IT sectors, have made significant contributions to the city's economy. The urbanization along transportation corridors has improved the city's connectivity.

1.2 HISTORICAL BACKGROUND OF COIMBATORE

Coimbatore's history dates back to the Sangam period. The place was originally inhabited by the Kosars tribe, but it was later incorporated into Kongu country. Coimbatore district is notable for its rich cultural and heritage and for its diversity. Rashtrakutas, Cholas, Chalukyas, Pandyas, Hoysalas, Alauddin Khilji, Vijayanagar rulers, Madurai Nayakars, Hyder Ali and the East India Company ruled these places. It has been a major trade route since antiquity and has amassed a rich and diverse cultural heritage over the years. Following Tipu Sultan's defeat in the Anglo-Mysore War (1799), Coimbatore was annexed to the Madras Presidency. Figure 1 - 1 depicts the historical background of Coimbatore.

The city's historical fabric can be seen in its core city, rather than the old town. The Koniamman temple, Victoria Hall, Clock Tower at Town Hall, Perur Pattiswarar temple, Athar Jamaath Masjid, and St.Michael's Roman Catholic Cathedral are few historical region in Coimbatore. Rashtrakutas, Cholas, Chalukyas, Pandyas, Hoysalas, Alauddin Khilji, Vijayanagar rulers, Madurai Nayakars, Hyder Ali and the East India Company ruled these places. It has been a major trade route since antiquity and has amassed a rich and diverse cultural heritage over the years. Following Tipu Sultan's defeat in the Anglo-Mysore War (1799), Coimbatore was annexed to the Madras Presidency. Figure 1 - 1 depicts the historical background of Coimbatore.

Coimbatore is widespread throughout southern India, particularly in Tamil Nadu.

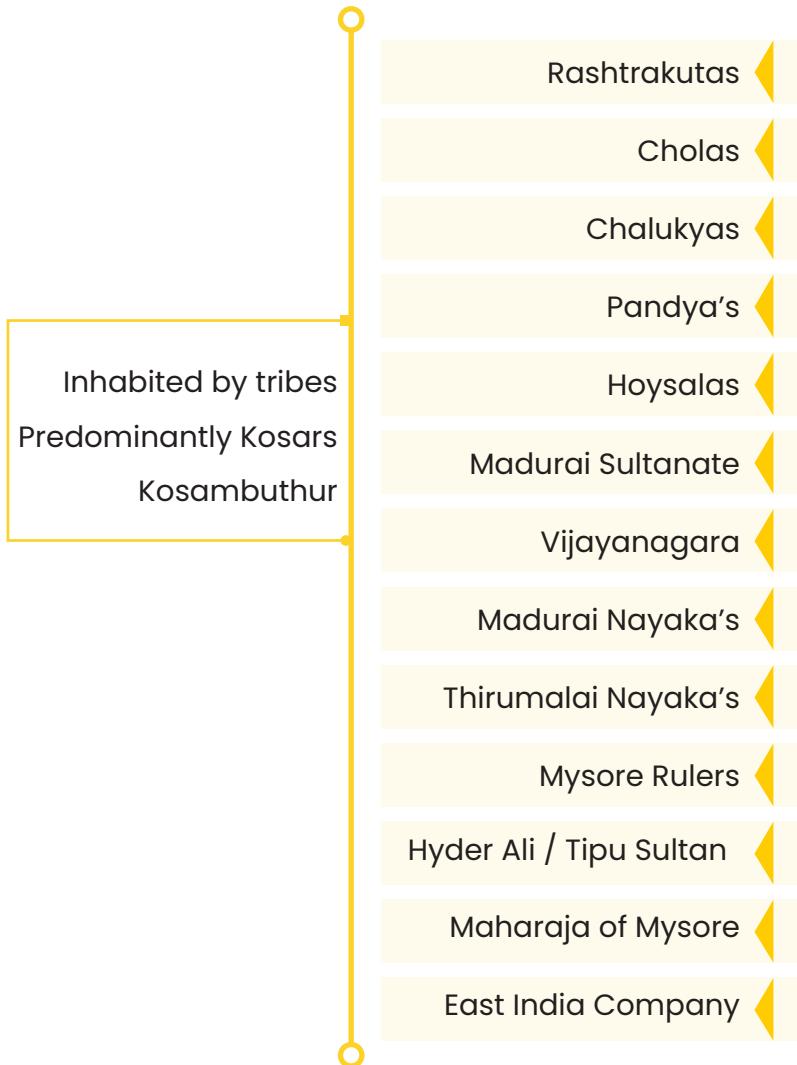


Figure 1- 1 Historical Background of Coimbatore

1.3 EVOLUTION OF COIMBATORE

A vibrant industrial city in the western part of Tamil Nadu, making it the second largest city in the state.

Coimbatore's original growth was centered along the Noyyal River and eventually extended to the city center. The region's improvement may be seen to the North and Northeast of Saravanampatti and Avinashi road. Coimbatore's urbanization is traceable around transit corridors that travel through Avinashi Road, Annur, Sathyamangalam, and Trichy Road, since the Western Ghats and reserve forests act as natural obstacles for growth

Figures 1–2 depict the evolution of settlements in Coimbatore over 10 years (1990–2020), highlighting urban expansion along arterial roads

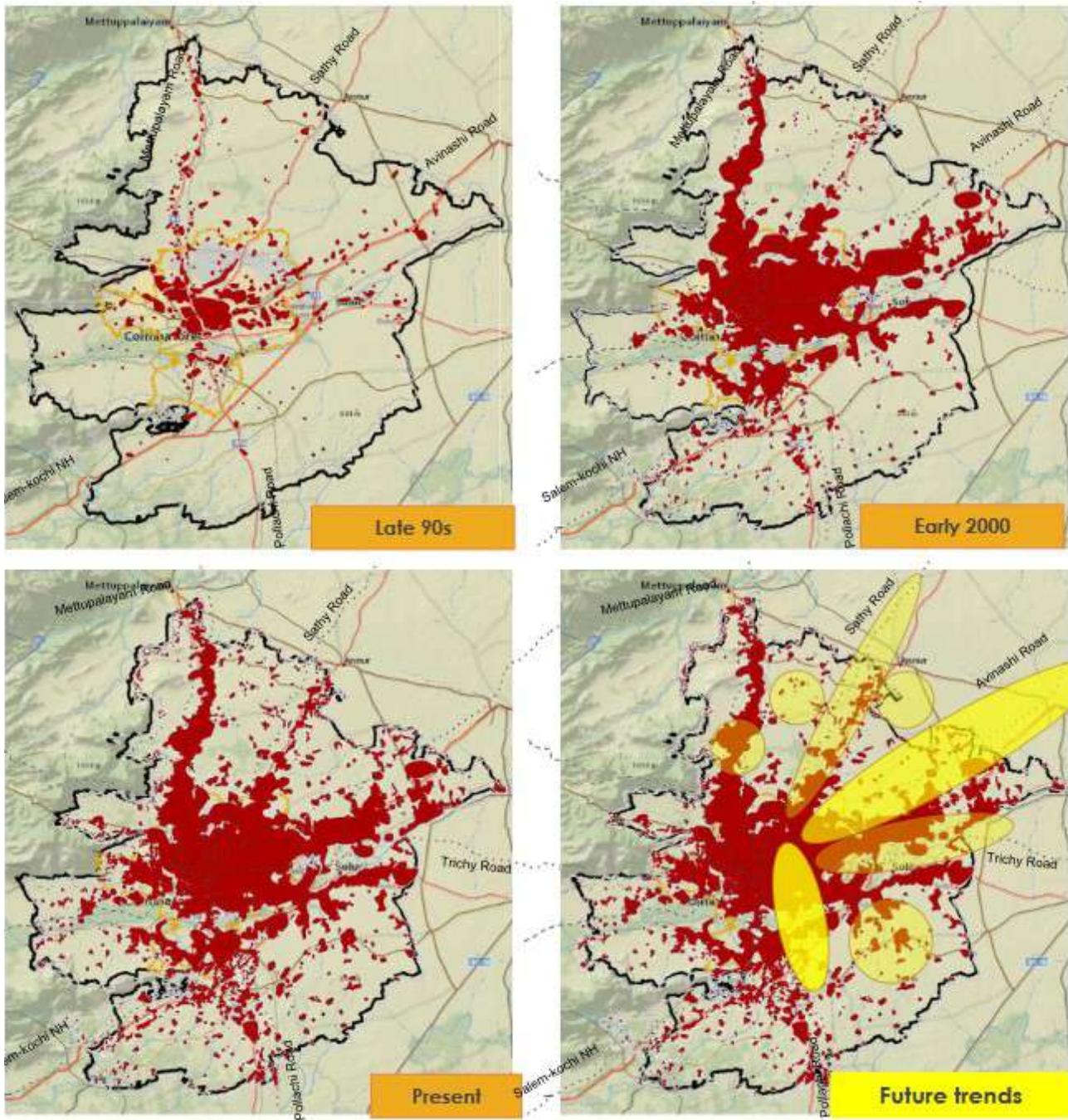


Figure 1- 2 Evolution of settlement in Coimbatore over the decades with growth nodes

leading to Sathyamangalam, Mettupalayam, Avinashi, Trichy, Cochin, and Palakkad. Singanallur, Ondipudur, Maruthamalai, Seeranayakanpalayam, Sarvanampatti, Kumarapalayam, and Vilankurichi have also seen development in recent years.

1.4 ADMINISTRATIVE BOUNDARY

In 1865, the present districts of Erode, Nilgiris, and Tirupur with an area of 18,235 sq. km were a part of Coimbatore. The district administration was subdivided as a result of rising urbanization. The Nilgiris district was established in 1869, followed by Erode in 1979 and Tirupur in 2009. The current area of the Coimbatore district is 4723 square kilometers. Figures 1–3 depict the evolution of Coimbatore's administrative division over time.

The present LPA (Local Planning Area) of Coimbatore spreads about 1287 sq. km with a population of 19.20 lakhs as per the census of 2011. It consists of one corporation, 7 town panchayats, and 87 village panchayats. Table 1 – 1 portrays the administrative area.

The Town and Country Planning Act, 1971 (T&CP Act, 1971) established the Local Planning Authority (LPA) in Coimbatore in 1974.

Addressing the rate of urbanization and its trend with urban sprawl on the margins, the second master plan extends the local body's limit to 1531.57 square kilometers. The administrative boundaries of the extended LPA are shown in Table 1 - 2, and map 1 - 2 shows the delineation of the New LPA.

Table 1- 1 Present LPA Administrative boundary

S.NO	ADMINISTRATIVE UNIT	NO. OF LOCAL BODIES	AREA
1	Corporation	1	106 sq. km
2	Town Panchayat	7	447 sq. km
3	Village Panchayat	87	734 sq. km
4	Total no. of local bodies	95	1287 sq. km

Source : DTCP

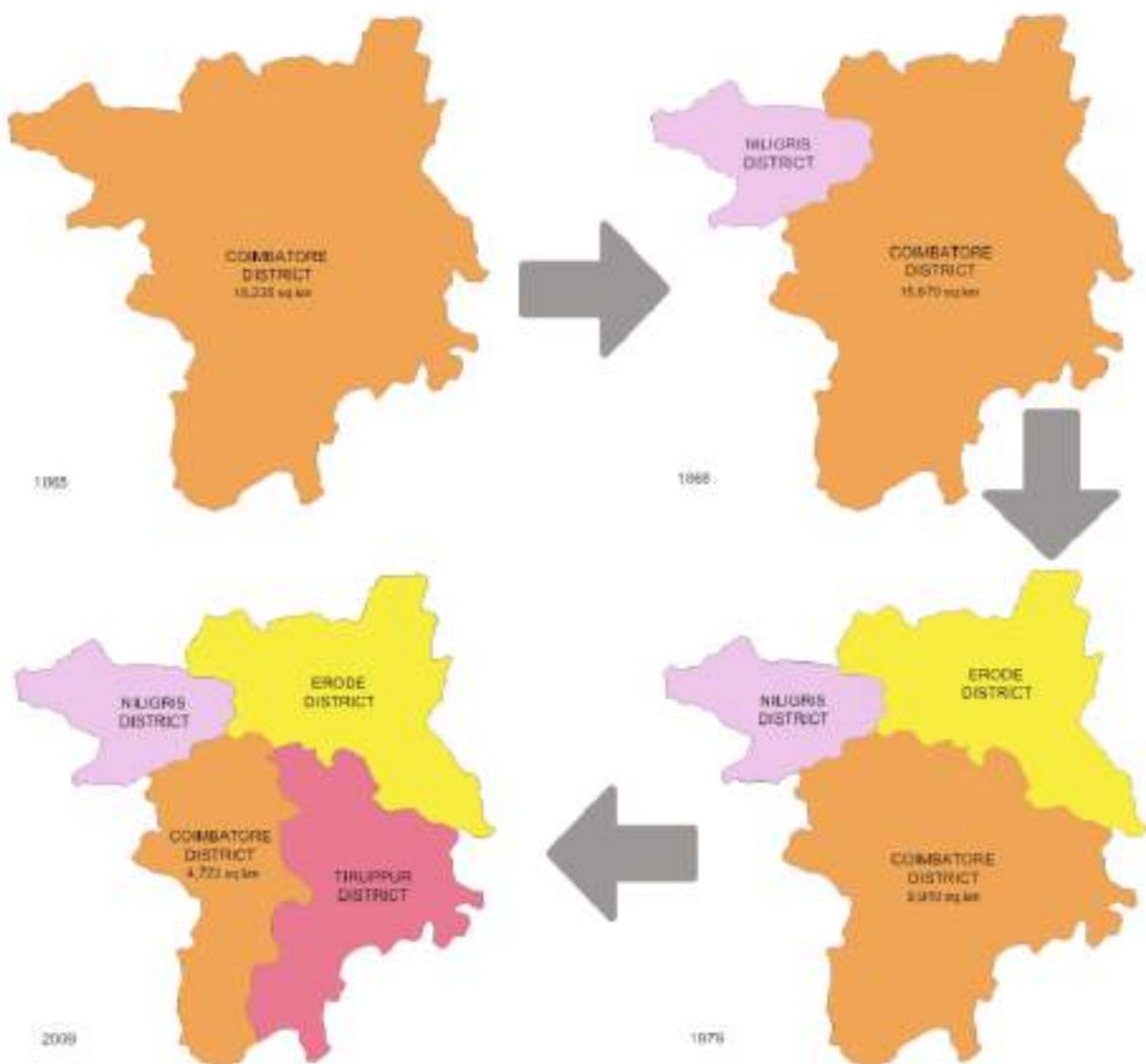
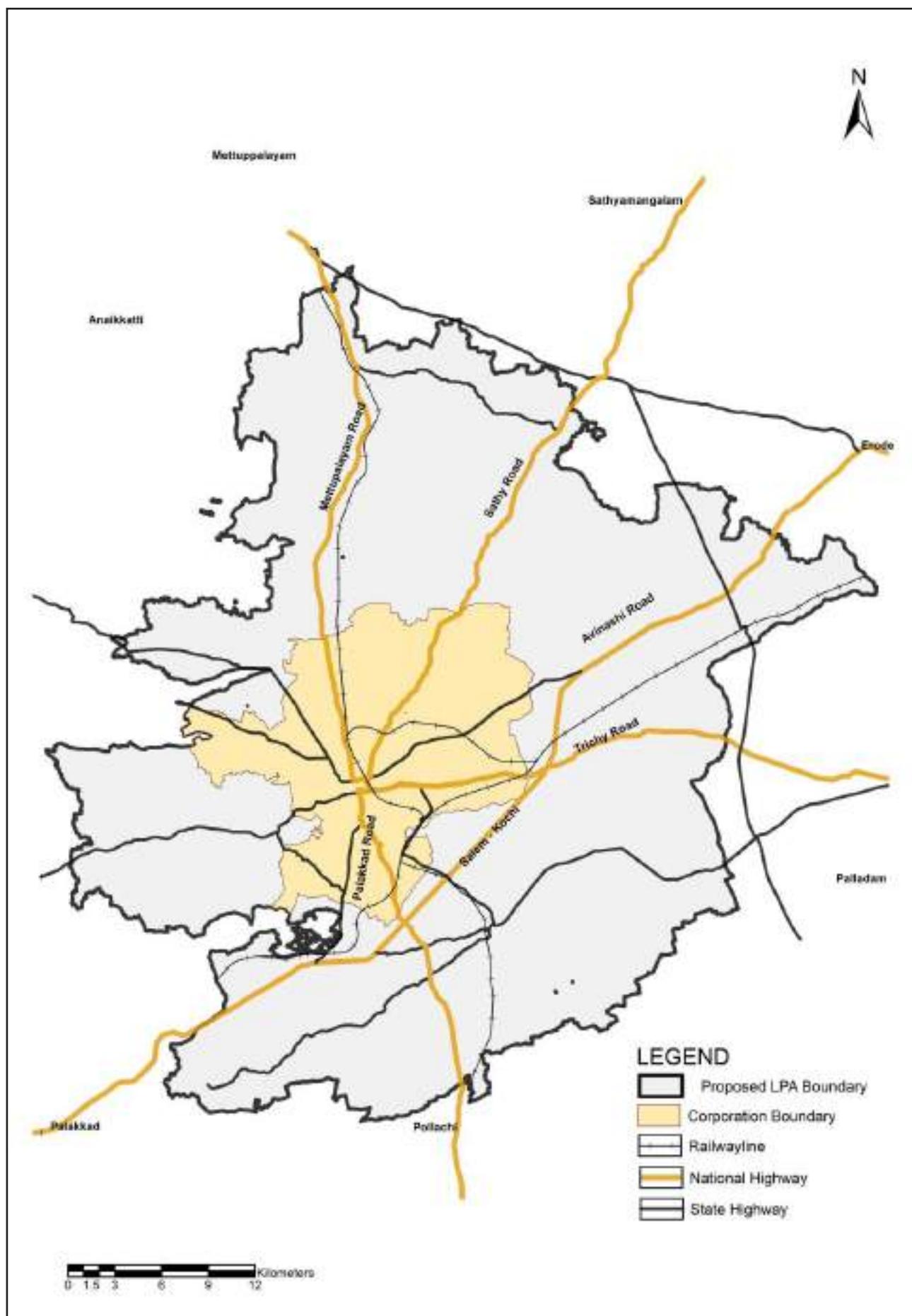


Figure 1- 3 Coimbatore District's Delineation

The city is an economic powerhouse in the state of Tamil Nadu and plays an important role in the economy of the state.

The figure 1.3 above explains the delineation of Coimbatore over the years due to urbanisation. It was initially 18.235 sq.km in 1865 and 4.723 sq.km at present due to the administrative delineations. The previous boundary consisted the present Nilgris, Erode, Tiruppur and Coimbatore districts.

Top universities, institutions, and research centers are in Coimbatore. The region's educational infrastructure draws students from abroad.



Map 1-1 Coimbatore LPA delineation

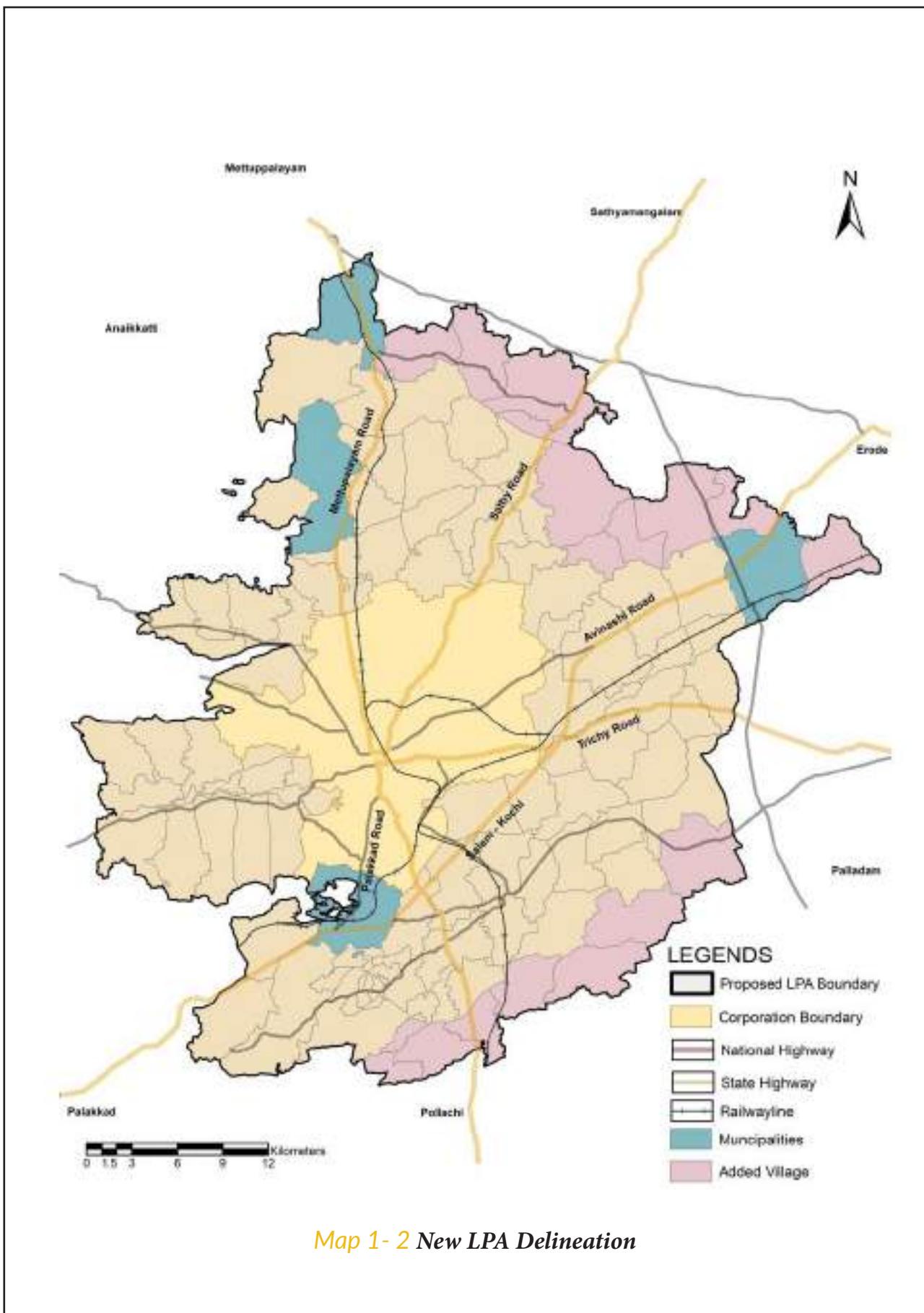


Table 1- 2 New LPA Administrative boundary

S. NO.	ADMINISTRATIVE UNIT	NO. OF LOCAL BODIES	NO OF VILLAGES	AREA (Sq.km)
1	Corporation	1	24	257.81
2	Municipality	4	4	97.56
3	Town Panchayat	21	24	314.93
4	Village Panchayat	66	66	861.27
		92	118	1531.57

Source : DTCP

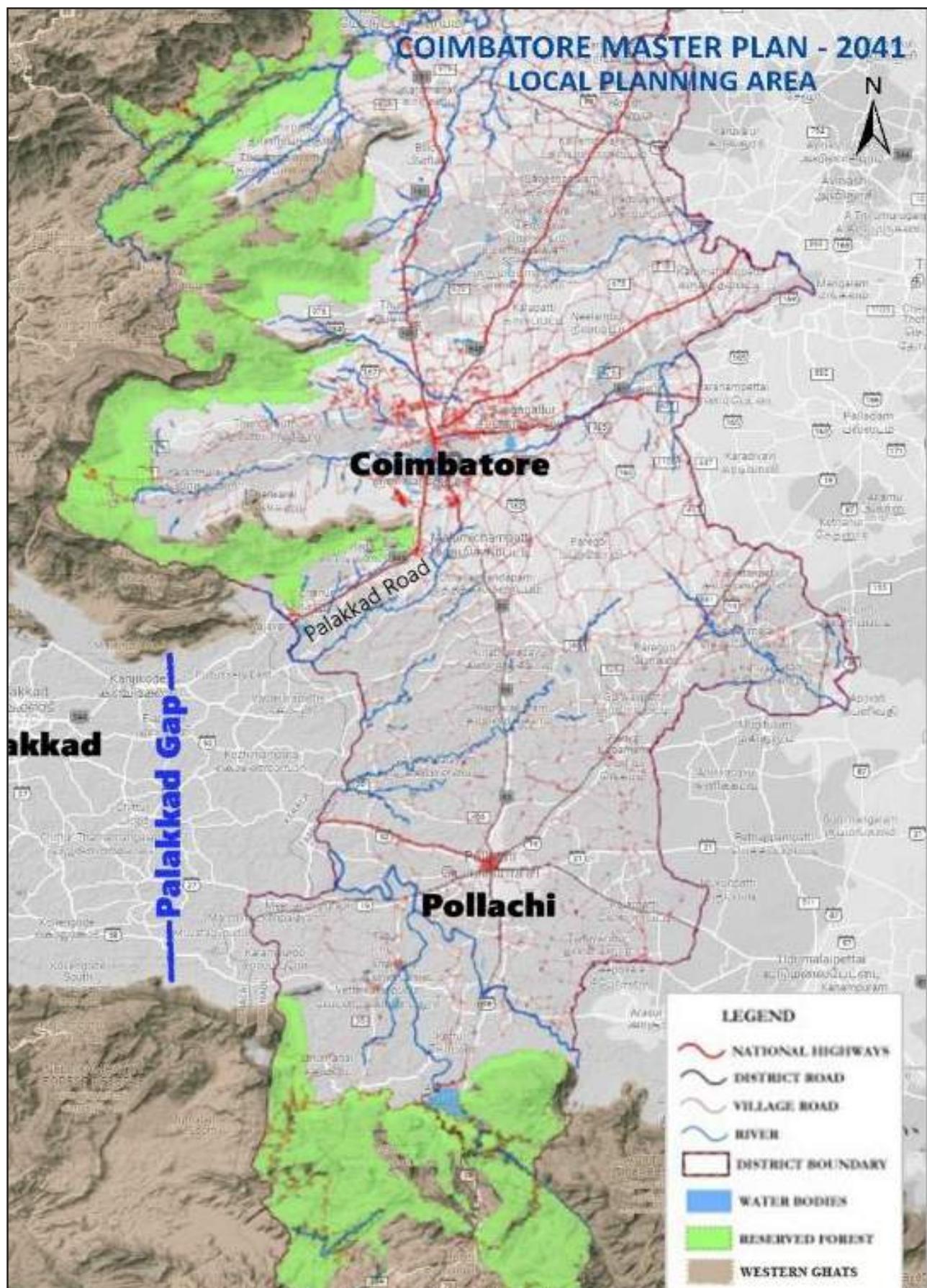
The Coimbatore administrative limit includes a geographical area with a combination of urban and rural regions, industry and agriculture, and a rich cultural fabric. This region has made a substantial contribution to the growth and prosperity of Tamil Nadu.

Coimbatore LPA has eight lakes inside the city limits, with the Noyyal and Bhavani rivers flowing across the district. The Indira Gandhi Wildlife Sanctuary in Valparai promotes biodiversity conservation by preserving the peculiarities of its natural features.

1.5 NATURAL SETTING

1.5.1 CLIMATE

As a result of the abundance of trees in the north and the cool wind coming through the Palghat gap in the Western Ghats, Coimbatore enjoys a pleasant tropical wet and dry climate, as illustrated in maps 1 - 1. The rainy season lasts from October to December as a result of the northeast monsoon. The city's maximum and minimum temperatures range from 35.9°C to 29.2°C and 24.5°C to 19.8°C, respectively.



Map 1- 3 Physical features of Coimbatore

Coimbatore has the second-most census towns and cities in the region, it is one of the four metropolitan cities.

1.5.2 FLORA AND FAUNA

The Indra Gandhi National Park in the district serves as a home for a wide variety of flora and fauna. Cotton cultivation is made easier by the region's black and red loamy soil. The region contains 2,000 plant species, 400 of which are thought to have high medicinal value.

It is also worth mentioning that the region is home to several endangered species of flora and fauna. Tigers, leopards, sloth bears, elephants, and Indian giant flying squirrels can be found in the National Park, as well as endangered species such as the Bengal tiger, Indian elephant, Asiatic wild dog, Nilgiri tahr, and Lion-tailed macaque.

The Western Ghats' native birds include the Nilgiri wood pigeon, Nilgiri pipit, Nilgiri flycatcher, Malabar grey hornbill, and spot-billed pelican. Aside from these indigenous species, the Western Ghats provide refuge for migrating birds such as the Barn Swallow, Blue-tailed Bee-eater, Small Pratincole, Common Sandpiper, Wood Sandpiper, and Whiskered Tern

1.6 LINKAGE AND CONNECTIVITY

Well connected to other parts of the state by road, railway and air .

The National Highways that connect Coimbatore to its surroundings are as follows:

- NH-544 (Salem - Kochin route)
- NH-81 (Trichy road)
- NH-181 (Mettupalayam road)
- NH-83 (Pollachi road)
- NH-948 (Sathyamangalam road)

Coimbatore's railway network is the second largest income-generating station in the Southern Railway Zone, following Chennai Central. Coimbatore International Airport has an important role in air network connectivity. Figure 1-4 depicts the regional connectivity of Coimbatore with other city .

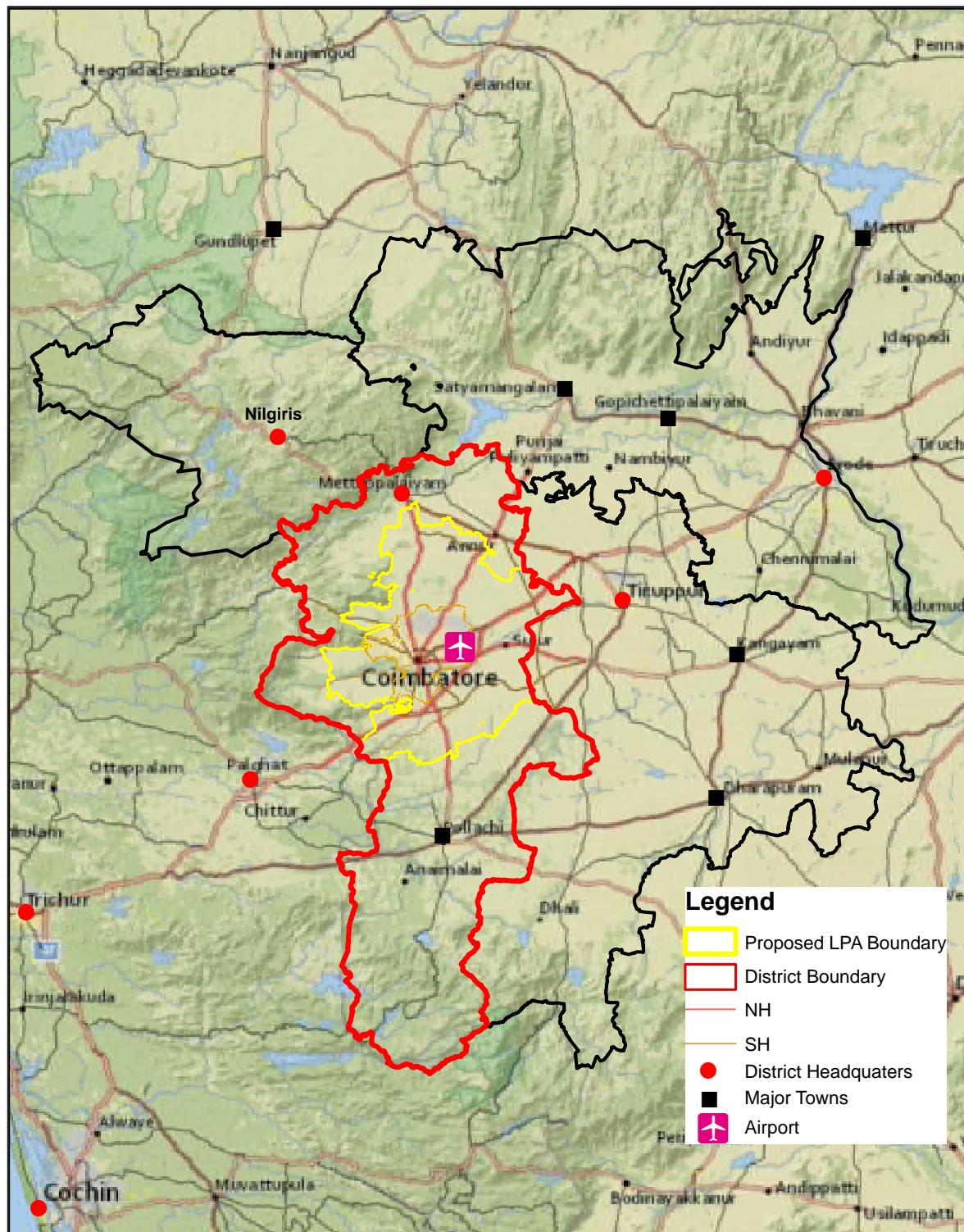


Figure 1- 4 Regional Connectivity

1.7 MASTER PLAN

Long term dynamic document prepared after 27 years for Coimbatore

1.7.1 OVERVIEW - COIMBATORE LPA MASTER PLAN

The master plan is a statutory vision document estimated for 20-30 years abiding by the Town and Country Planning Act of 1971, restricting and regulating the haphazard developments due to urbanization. The First Master Plan of Coimbatore was published in 1994, and the Second Master Plan is currently being prepared, 27 years after the draft.

This is a dynamic long-term planning document that includes analysis, recommendations, and proposals from all sectors and provides a conceptual layout to guide future growth and development by addressing the interaction between buildings, social settings, and their surrounding environments.

The framework was developed using public feedback, surveys, planning activities, existing development, physical attributes, and socioeconomic factors. The study begins with a profile of the city and a detailed demographic sector, then moves on to the economy, industry, and tourism, and concludes with a closer look at housing sectors, typologies, infrastructure, and services along the transportation unit, which serves as a backbone. All sectors are analyzed using SWOT and land suitability layers, which serve as the foundation for the study's final suggestions and ideas. For a better understanding, the preceding master plan is reviewed. Map 1-4 depicts the LPA boundary with National and State highway along with Rail line and Airport location ..

1.7.2 REVIEW OF FIRST MASTER PLAN - 1994

Considering the pressure for land and services within the city, uncontrolled haphazard development of industries and human settlements are found outside the city limits. The master plan was issued as an urban development guide. The Local Planning Authority produced Coimbatore's first master plan in 1994 for an area of 1287 square kilometers and a population of 8.06 lakh according to the 1991 census.

1.7.2.1 Traffic and Transportation:

Due to the increased activities of Coimbatore LPA, the streets did not cater to the traffic flow. The increased frequency of cargo truck terminals at Ukkadam was handled by proposing to build bus terminals for future demands in various locations around the Local Planning Area. The Crosscut Road flyover in North Coimbatore was suggested in the first Coimbatore master plan and approved with World Bank support. This flyover has eased traffic congestion, which was one of the city's biggest bottlenecks.

1.7.2.2 Land use:

The entire local planning area of Coimbatore is classified into several zones according to its use. The pattern of residential development in Coimbatore follows the pattern that is common to most of the towns in Tamil Nadu with high densities in the older parts of the city and low densities in the newly planned residential developments. The newly developed residential areas comprised Ramnagar, R. S. Puram, Tatabad, Race Course, and Sai Baba colony.

They were characterized by a regular street plan with a well-shaped plot and had some reservations to a certain extent for public use. Development is mostly unplanned and haphazard outside these areas. Nearly 70.92% of the city's developed forms the residential use.

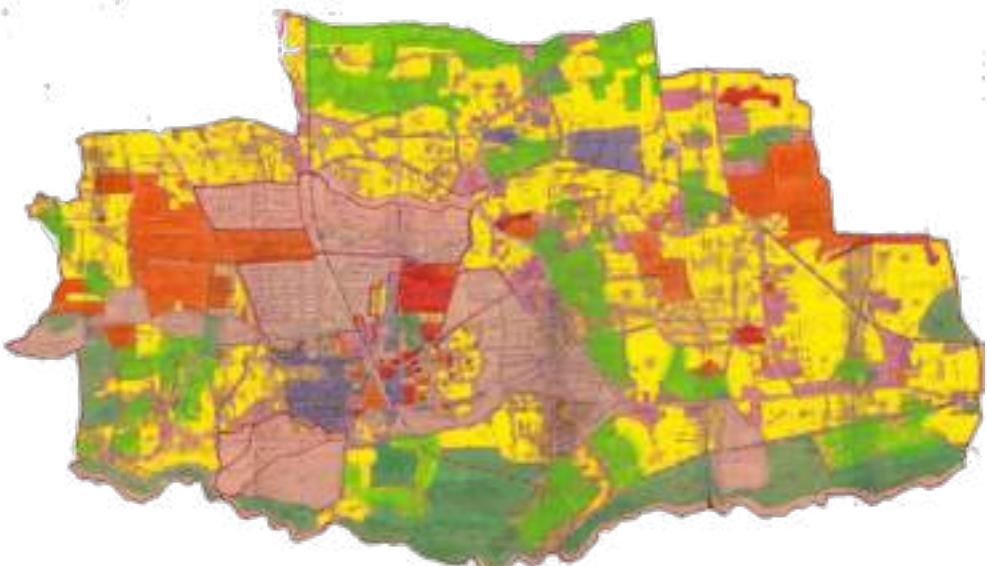
The Commercial use was concentrated in the heart of the oldest parts of the city where the wholesale and retail business and warehousing activities are carried out and accounted for 2.10 % of the development of the master plan.

Parks, Playgrounds, and recreation clubs were the major recreation components and accounted for 4.7% of the developed area within Coimbatore in the first master plan.

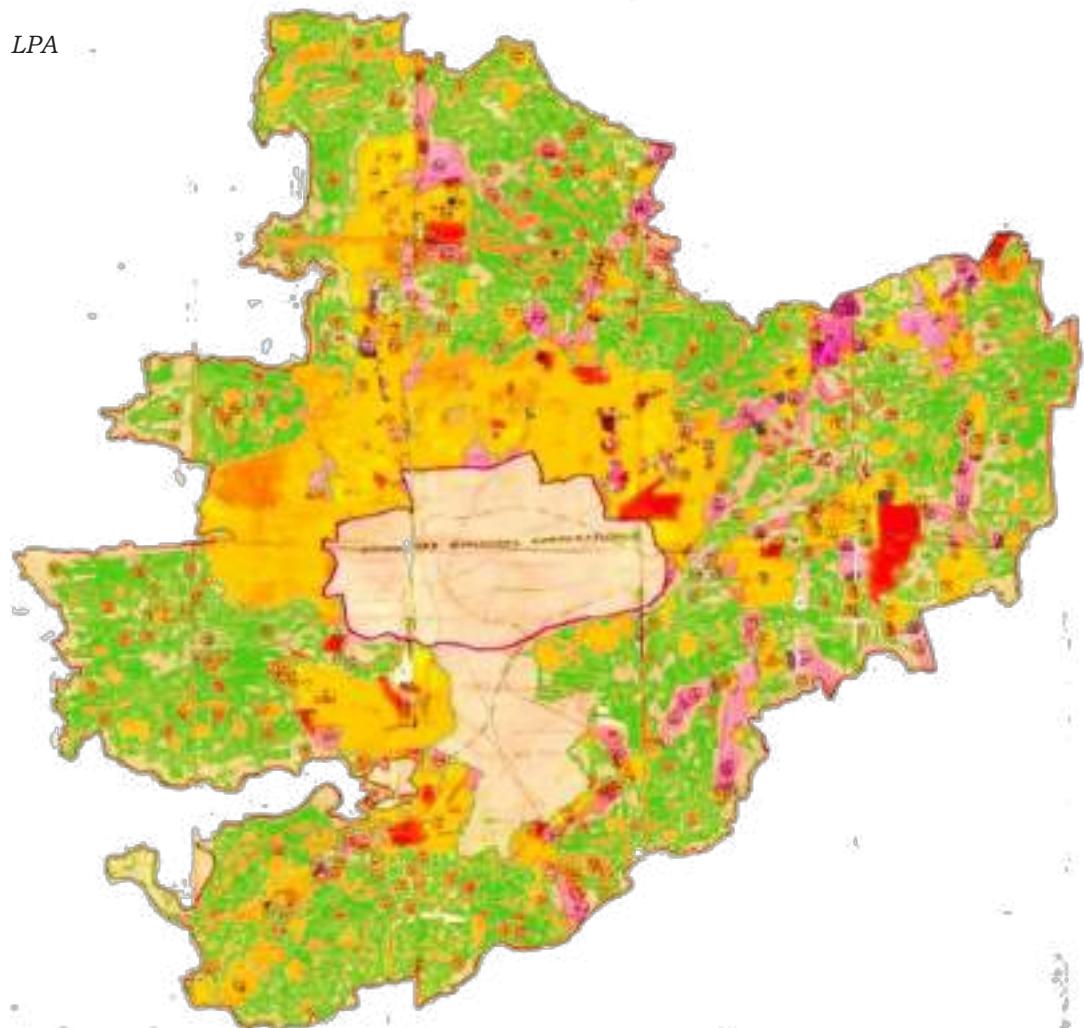
Table 1- 3 Land Use Distribution

Description	LAND USE-1994		PROPOSED LAND USE-2011 Kurichi NTD		EXISTING LAND USE 2023		Comparison of Existing & Proposed LU(sq.km) (2011 &2023)	
	CCMC (Sq.km)	LPA (Sq. km)	Kurichi NTD (Sq. km)	CCMC (Sq. km)	LPA (Sq.km)	CCMC (Sq.km)	LPA (Sq.km)	
Residential	60.71	380.72	20.75	106.56	306.96	45.85	-73.76	
Commercial	4.05	11.28	1.83	8.48	46.68	4.43	35.4	
Industrial	3.84	91.82	12.73	15.73	56.29	11.89	-35.53	
Institutional	3.60	25.23		23.83	68.74	20.23	43.51	
Public & semi public	2.62	25.71	2.78	18.12	53.35	15.5	27.64	
Total Developed area	89.82	536.76	38.09	172.72	532.02	82.9	-4.74	
Undeveloped area								
Agriculture	15.69	685.24	2.88		71.02	934.55	55.33	247.55
Water bodies	14.07	65	Roads and Transportation	5.97	14.07	65	-	-
Total Unde- veloped area	29.76	750.24	8.85		85.09	999.55	55.33	247.55
Total	119.58	1287	47.97		257.81	1531.57	138.23	244.57

CORPORATION



LPA



Map 1- 4 Proposed Land use for CCMC and LPA - 2011

ISSUES

- Detailed analysis and justification for proposals are missing.
- Gap Analysis for various infrastructure sectors are not addressed
- City level recreational space are neglected
- Growth Trend & urban sprawl control measures are not identified/provided
- Detailed maps for the supporting data are not provided

Table 1- 4 Status Of Major Proposals

STATUS OF MAJOR PROPOSALS

PROPOSALS	STATUS
Ring roads connecting all major arterial roads	Still in process..
Truck Terminals at 3 locations	Not Achieved. (Traffic congestion , lack of road width)
Flyover at level crossing in cross cut road	Achieved
Widening of Three underpass near Railway station, near Kikani high school, Mettupalayam bye pass	Not Achieved . (Traffic congestion)
Subways needs to be constructed in all arterial roads	Not Achieved .
Proposed Landuse	Not Achieved .

1.7.2.3 Drainage and sewage:

As a temporary measure, the sewage was discharged into the Noyyal River by gravitational flow. It was later discharged into the projected Chettipalayam sewage treatment plant. The sewage scheme served 6 out of 8 lakh people, and an area of 147.00 square kilometers was set aside for this purpose.

1.7.2.4 Affordable Housing:

Informal sectors employed nearly one-tenth of Coimbatore's population. The state Housing Board has undertaken a program to rehabilitate slum inhabitants through in situ development through the construction of inexpensive dwellings. The Tamil Nadu Slum Clearance Board has begun a scheme for slum improvement through the provision of infrastructure facilities.

1.7.2.5 Electricity:

The Tamil Nadu Electricity Board acquired a large amount of electricity, which was then dispersed to various consumers in the Coimbatore Corporation area. The Electricity Board maintained all of the communities outside the corporation that were proposed to be electrified with lights. In addition to street lights, 500 sodium vapor lamps were installed on major roads and intersections for regulated traffic control and safety.

1.7.2.6 Outline:

The first master plan addressed the issues in each sector. However, the current rate of urbanization is higher, and the delineation has been expanded. The infrastructure's needs have been outgrown, and the city borders have expanded geographically in the last decade, requiring the need for a revised master plan to guide development. The second master plan covers people and the environment holistically, analyses identified gaps and provides guidance on how to bridge the gap between the existing and future scenarios.

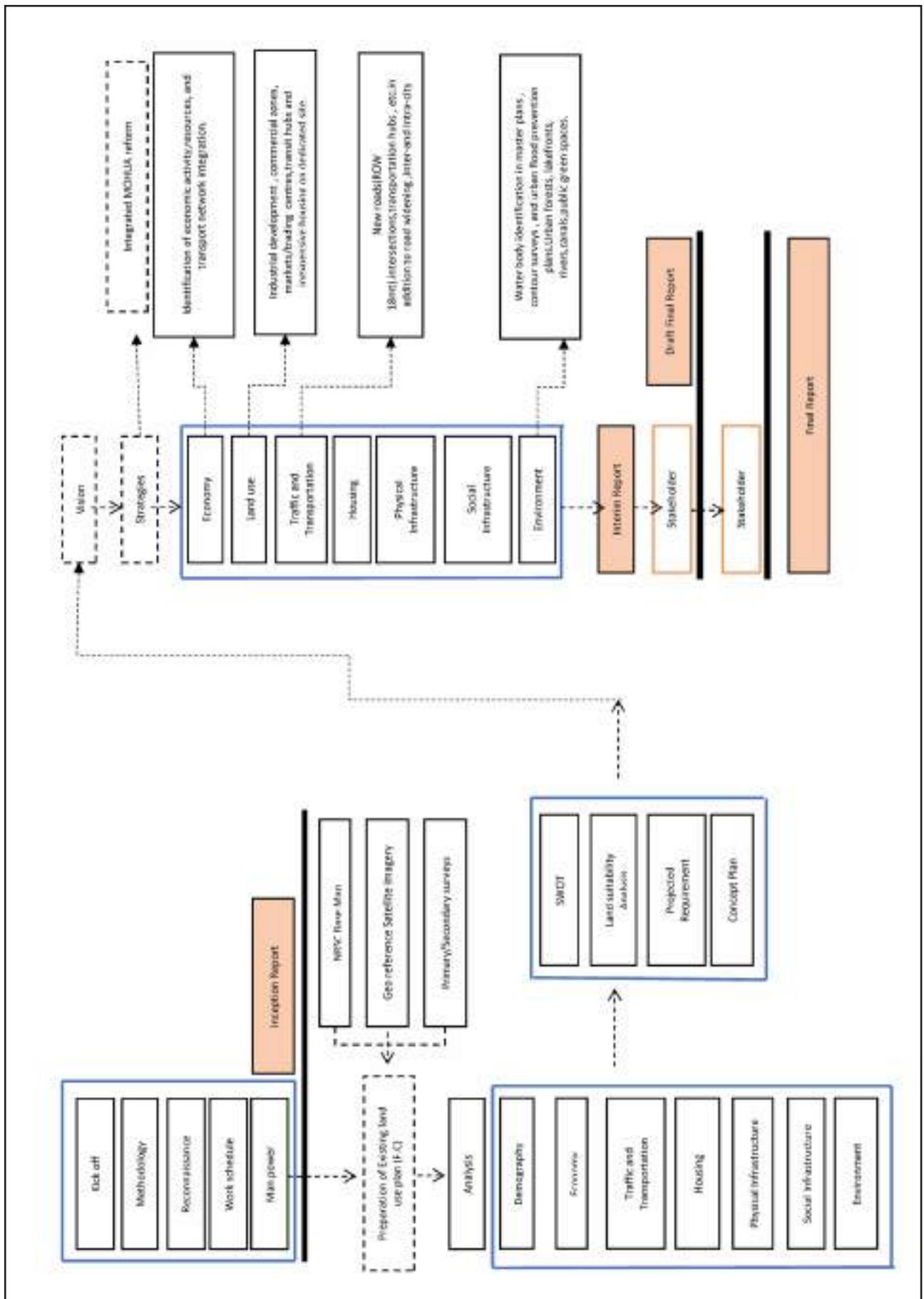


Figure 1- 5 Approach and Methodology flow chart

1.8 APPROACH AND METHODOLOGY

Coimbatore has greater connectivity to adjacent states, regions, and economic corridors.

The Master Plan's process is an iterative process of data collection, analysis, proposals, and stakeholder consultations, and with input at every stage, the final report is prepared. The methodology and development have been structured in a manner that is consistent with addressing the Mohua reform components of the master plan. The customized approach will also focus on strategy building for the various instruments, such as economic planning, land use integration, mobility planning, and blue-green integration of the city.

The detailed process is shown in Figure 1- 5

1.9 LEGAL FRAMEWORK

Legislative framework refers to the actions, laws, delegations, policies, and procedures that comprise the fundamental operating rules for all development rules. Act , rules and regulations are the three sections of the Framework. The master plan is based on the Town and Country Planning Act of 1971, and it will lead and direct the new town development authority, as well as the regional and municipal planning authorities. This statute was enacted in 1971 to replace the Madras Town Planning Act of 1920, which concentrated on urban areas. The master plan rules development framework is divided into three sections: preparation, publishing, and master plan sanction.

The Master Plan is split into five stages as per different sections of its legal framework.

- Stage 1: Declaration of LPA
- Stage 2: Confirmation of Local Planning Area
- Stage 3: Preparation of master plan
- Stage 4: Consent of Government
- Stage 5: Approval of Government

1.10 DEVELOPMENT FACTORS

The focus of this second master plan is to fabricate an equitable society. It addresses the shift towards sustainable measures for achieving a balanced coexistence with nature and ensures the benefit for diverse sections of people by upgrading the quality of life, nature, and development of Coimbatore in all spheres. The guiding principles of the master plan are:

1.10.1 Ecology and environment

Protect, conserve, and enhance the natural environment and regions of ecological importance within the LPA. This necessitates the mapping of ecologically sensitive parcels' positive limitations before the region's developmental demands and prospects are placed in an integrated manner holding the HACA zones.

Locating and incorporating existing bodies of water into master plans, as well as conducting clear contour surveys and creating an urban flood prevention strategy. A proposal for place-making, including green public spaces, urban woods, lake, river, and canal fronts is done as a measure to pave towards a walkable and self-sustained module.

1.10.2 Governance

Abiding the 74th CAAs by supporting an integrated spatial urban strategy that integrates environmentally sensitive and development-oriented efforts from the 2nd and 3rd tier planning and governance wings. The act necessitates jurisdictional, functional, and sectoral collaboration in the implementation of regional plans and management.

1.10.3 Mobility

Interconnectedness makes Coimbatore a South Indian commercial, cultural and economic powerhouse.

The growth and development of Coimbatore is along the transport corridor which is a major support for the industrial development. It has opened out opportunities for work and the integrated network has enhanced the inflow rate of people from the neighborhood. Strengthening mobility further enhances the inflow of people in the city. The proposed MRTS and BRTS would witness a densification alongside its corridor and the well-integrated network would pave towards a walkable self-sustained module.

1.10.4 Economy

Economic factors highlight the concept of liveable human settlements, addressing development as an increase in the quality of life in several human settlements throughout the LPA. This necessitates not just economic development and integration, but also social improvement in many settlements.

The ultimate goal is to achieve an equitable society by addressing the development factors of Coimbatore and establishing an integrated module enhancing the livelihood of all sectors of people. The transferable developmental rights could be made as a tool to achieve densification to pave toward balanced growth.

1.10.5 Landuse

Coimbatore's growth is significantly impacted by its industrial development, business areas, markets as well as trading centers, and transportation hub. A designated area for its economic operations and development is therefore proposed in the land use integrating the transportation network taking into account the ease of access and development tendency over the years. Considering the futuristic developments and identified growth patterns the land use is proposed for 2041.

1.10.6 VISION AND MISSION

The vision of the Coimbatore's second master plan is to develop Coimbatore Local Planning area as an economic region with locally competitive infrastructure and social amenities. In short it aims for a sustainable inclusive sponge city development to establish a better standard of life by integrating the natural areas with a controlled development and achieve a comfortable micro climate

Master Plan for Coimbatore LPA focuses on providing:

- Optimum utilization of land by channelizing the developments in the right directions and locations.
- To develop an optimum phasing, utilization and implementation schedule for identified priorities for action. To interrelate and study various layers of Coimbatore using GIS technologies and predict the future growth.

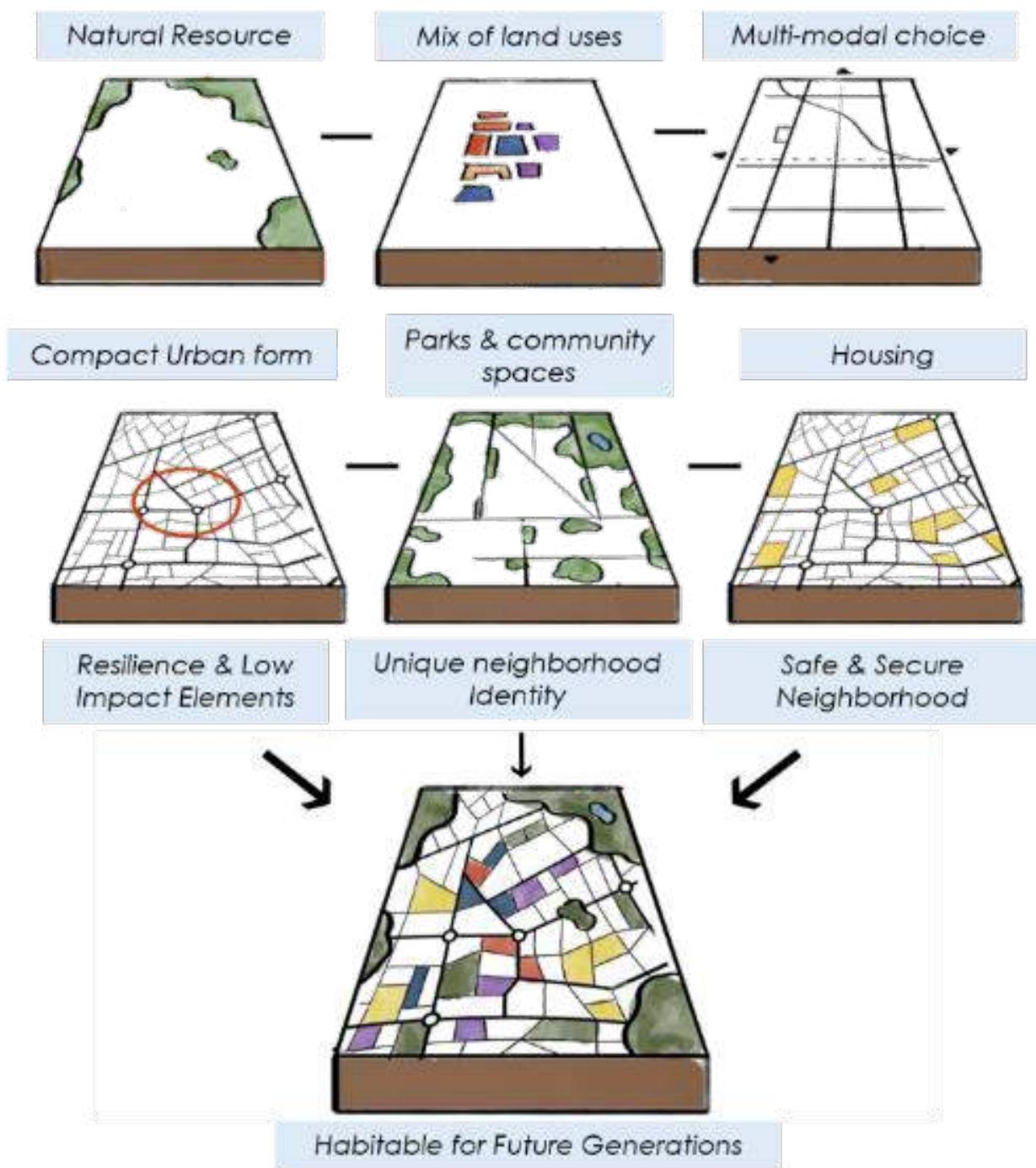


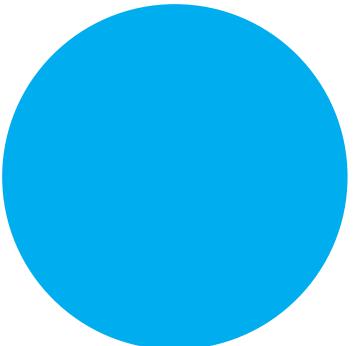
Figure 1- 6 Concept of Integrating development factors

- To identify, define and maintain various infrastructure, transportation network, amenities such as public, semiprivate, and private spaces and also open up job opportunities.
- To establish and implement a framework for regeneration, decentralized employment locations, economic development across LPA.
- To interrelate the economic activities, industrial development, business districts, markets and trading centers, transportation hubs and affordable housing as a measure of strengthening the LPA as a sustainable and an eco-friendly development.
- Preserve and conserve the green cover to develop Coimbatore a sponge city.
- To develop and integrate the existing water bodies as public space and establish urban forests across LPA as a part of place making and preservation creating a walkable and a self-sustained module.



02

DEMOGRAPHY



02 DEMOGRAPHY

2.1 URBANIZATION

Demography is the study of human populations, including their number, composition, and distribution throughout geography, as well as the processes by which populations evolve. The three primary parts of demography are birth, death, and migration. A demographic research allows us to analyze the people and their lifestyle, allowing us to predict the demand for utilities, infrastructure, and basic amenities in a particular area for a particular group of people. It is observed that population density in a study area is a big problem rather than high population. It is due to higher density in a respectively smaller area with limited facilities. Population density can grow and shrink a particular city, and can result in vertical or horizontal growth of that city. Hence density study makes planners aware of the future and identifies problems like “Urban sprawl” that can be controlled.

Demography examines population, growth distribution and traits.

2.1.1 GROWTH OF POPULATION IN TAMIL NADU

Tamil Nadu ranks first among major states in terms of urban population and third in terms of urban population. According to the 2011 census, urban areas account for 48.45 percent of the state's population, with an estimated population of 34.9 million.

The rise of urban areas in Tamil Nadu in recent years is due to an increase in migration population, accelerating economic development, and rapid

Sociology, economics, public health, urban planning, and policymaking reveal population dynamics.

development of the service sector. In comparison to the national and Tamil Nadu populations, urbanisation rates are 31% and 48.45%, respectively.

Figure 2 - 1 is a graphical representation of urbanization in Tamil Nadu as mentioned in Table 2 - 1

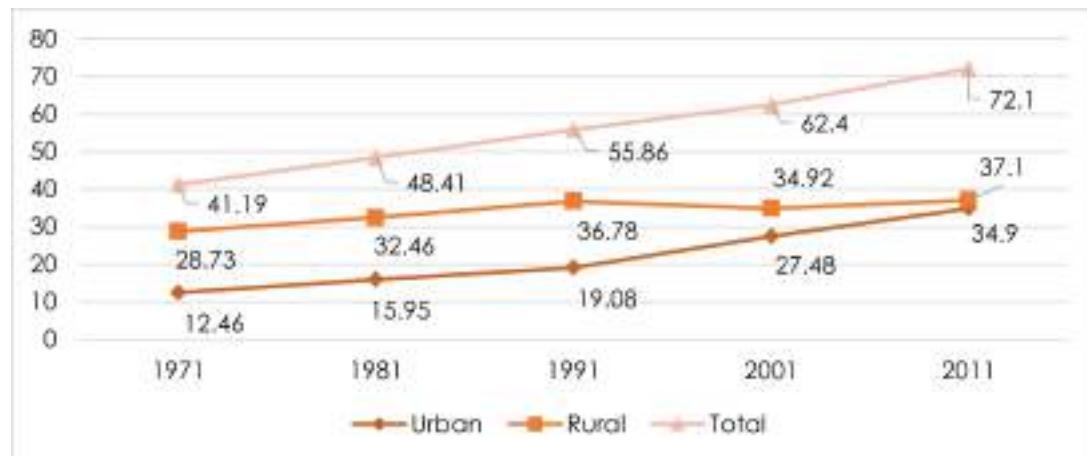


Figure 2-1 Growth of population in Tamil Nadu (population in million)

Source : Census of India (1971-2011)

Table 2-1 depicts the urban, rural, and annual growth rates in Tamil Nadu from 1971 to 2011

Table 2-1 Growth of population in Tamil Nadu

	1971	1981	1991	2001	2011
Urban					
Population (in million)	12.46	15.95	19.08	27.48	34.9
Annual Growth Rate (%)	3.32	2.5	1.91	3.72	2.7
Total %	30.26	32.95	34.15	44.04	48.45
Rural					
Population (in million)	28.73	32.46	36.78	34.92	37.1
Annual Growth Rate (%)	1.53	1.23	1.26	-0.52	0.62
Total %	69.74	67.05	65.85	55.94	51.55
Total					
Population (in million)	41.19	48.41	55.86	62.4	72.1
Annual Growth Rate (%)	2.03	1.63	1.44	1.11	1.55
Area in sq km	1,30,069	1,30,050	1,30,050	1,30,050	1,30,050

Source : Census of India (1971-2011)

2.2 GROWTH OF POPULATION 1961-2011

Demography investigates regions or groups' populations.

Population density is the number of people living in an area divided by its unit area (typically per sq.km or sq mile).

2.2.1 GROWTH OF POPULATION IN COIMBATORE DISTRICT

Coimbatore is a well-developed city in Tamil Nadu's southern region. The Town Improvement Act of 1865 established the Municipality of Coimbatore in 1866. After the industrial boom of the 1930s, the city became well known for its textile manufacturing.

The urban population of the district has increased to 75.13% from 70.70% in 2001. According to the UN World Urbanization Prospects, the rural population declined by 1.76% while the urban population increased by 27.69% over the last decade.

Table 2-2 depicts the Coimbatore District's decennial population growth rate and population density per hectare from 1961 to 2011.

Table 2-2 Decennial Population Growth Rate and Population Density

	1961	1971	1981*¹	1991	2001	2011*²
Population (in lakhs)	35.57	43.57	30.51	35.08	42.72	34.58
Decennial Rate of population growth (%)	12.78%	10.60%	18.44%	14.65%	21.80%	18.56%
Population density per Hectare(pph)	2.28	2.78	4.08	4.7	5.72	7.31

Source : Census of India (1961-2011)

* Partition of Erode district from Coimbatore district (1979)

*² Partition of Tiruppur district from Coimbatore district (2009)

Figure 2 - 2 shows the Population Growth in Coimbatore District over decades as mentioned in Table 2 - 2.

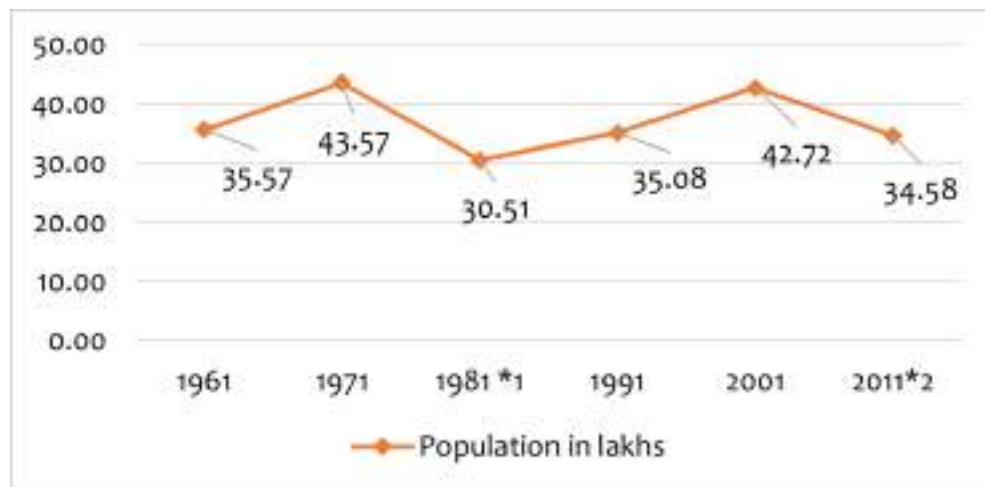


Figure 2-2 Growth of population in Coimbatore District 1961-2011

Source : Census of India (1971-2011)

2.2.2 GROWTH OF POPULATION IN COIMBATORE- LPA

According to G.O. No. 1138 Rural Development and Local Administration (RDLA) dated 07.06.1975, the Coimbatore Local Planning Authority (LPA) was established in 1974 under Section 11 of the Town and Country Planning Act (1971). The growth of population in Coimbatore is majorly influenced by the increasing economic development, educational institutes, recreational facilities, migration of population and rapid growth of the tertiary service sectors – software industries. Coimbatore is a major attractor zone for the neighbouring regions such as Tiruppur, Nilgiris, Pollachi, Erode, Palakkad which contributes to migration population and floating population.

Demographers concern about positive or negative population increase. Births, deaths, and migration effect population increase.

According to the 2011 Census, Coimbatore's overall local planning area is 1287 square kilometres with a population of 16.95 lakhs, but population growth rate has decreased to 13.27% in 2011 compared to 15.73% in 1991. Tables 2 - 3 show the LPA population of Coimbatore from 1961 to 2011. The population for each ward and village is listed in Annexure - 2.1.

Table 2- 3 Coimbatore LPA population (in lakhs)

	1961	1971	1981	1991	2001	2011
Coimbatore Corporation	4.26	5.64	7.00	8.06	9.30	10.5
Other areas in Coimbatore LPA	3.67	4.48	5.37	6.29	7.65	8.7
Total	7.93	10.12	12.37	14.35	16.95	19.20

Figure 2 - 3 shows the Population Growth in Coimbatore LPA over decades as given in Table 2 – 3.

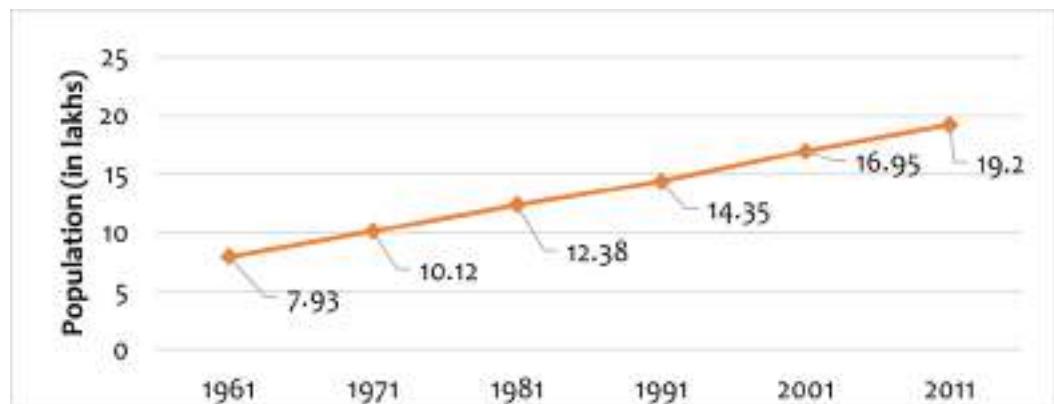


Figure 2-3 Growth of population LPA Coimbatore (in lakhs)

Source : Census of India (1961-2011), Comprehensive Mobility Plan (CMP) - 2015

Table 2- 4 Decimal growth of LPA population in Coimbatore

YEAR	POPULATION IN LAKHS	AREA (SQ.KM)	DECadal Growth (%)
1961	7.93	1287	---
1971	10.12	1287	27.62
1981*	12.38	1287	22.33
1991	14.35	1287	15.91
2001	16.95	1287	18.12
2011	19.20	1287	13.27
2001 ^{*2}	20.34	1531.57	---
2011 ^{*2}	24.66	1531.57	21.26

* Up gradation of Coimbatore Municipality to the status of Corporation
 *² Existing population of newly added areas in Coimbatore LPA

Source : Census of India (1961-2011), Comprehensive Mobility Plan (CMP) - 2015

2.2.3 GROWTH OF POPULATION IN COIMBATORE- CCMC

According to the 2011 Census of India, the population of Coimbatore City Municipal Corporation (CCMC) was 10.51 lakhs. The city's population density has also decreased over time, which could be attributed to the city's periodic expansion of the municipal limits. The integration of the 11 town panchayats with the previous corporation in 2011 increased the city's boundary from 105.60 sq km to 257.81 sq km, a 15.85 lakh increase.

Birth and Death Rates show the number of births and deaths. They influence natural population growth or decline.

Table 2- 5 gives the growth population of CCMC over decades from 1961 - 2011. The decadal growth rate of population for 1991, 2001 and 2011 is 13.03 % , 49.20 %, 14.09 % and 12.88 %, respectively.

Table 2- 5 Decimal growth of LPA population in Coimbatore

	1961*	1971*	1981**	1991	2001	2011
Population in lakhs	2.86	3.56	7.04	8.16	9.31	10.51
Decadal growth rate of population (%)			24.47%	97.75%	15.91%	14.09% 12.88%
** Up gradation of Coimbatore Municipality to the status of Corporation						
* Added corporation area population to the Coimbatore Municipal Population						

Figure 2- 4 is a graphical representation of Growth of Population in CCMC over decades as mentioned in Table 2 – 5.

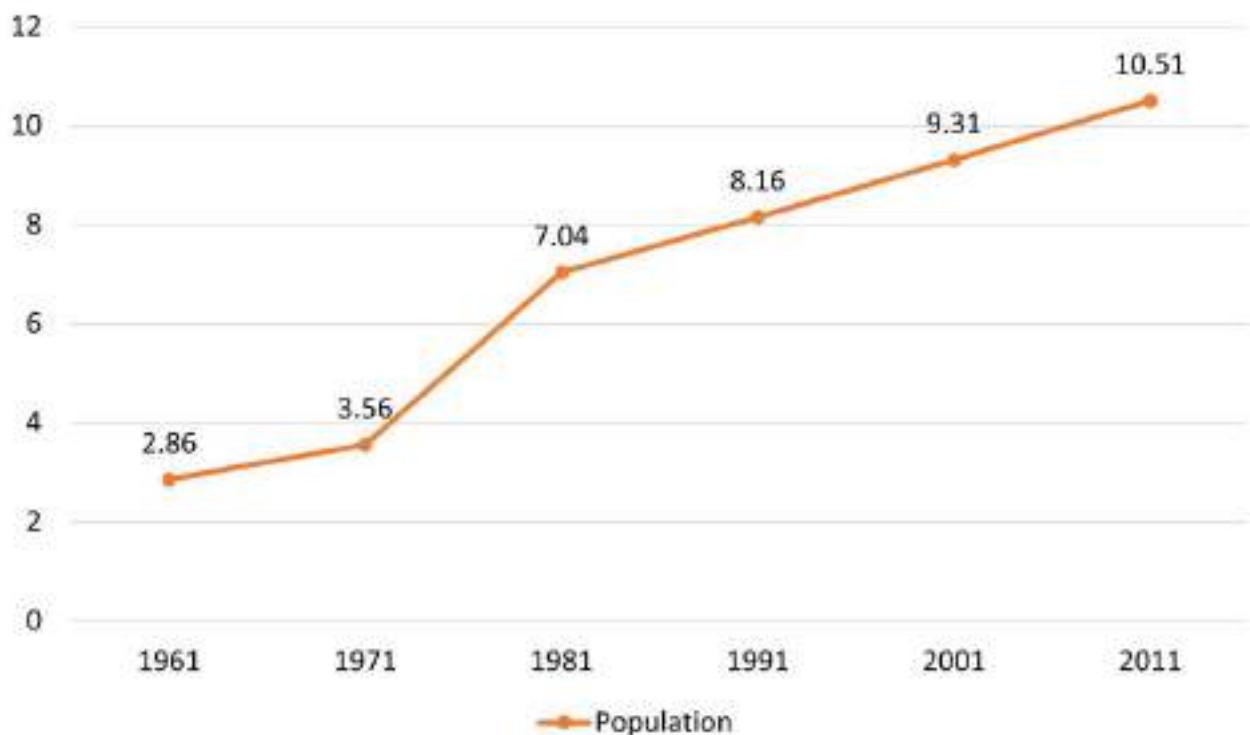


Figure 2-4 Growth of population in CCMC

Source : Census of India (1961-2011), Comprehensive Mobility Plan (CMP) - 2015

2.2.4 COMPARISON OF GROWTH OF POPULATION

Demographic and age-specific death rates reveal mortality risk.

Both the Coimbatore local planning area and the Coimbatore Corporation territory have expanded over the course of the past several decades. It is important to note that the decadal growth rate of the Coimbatore Local Planning Area (LPA) has grown from 21.26% in 2001 to 21.26% in 2011, making it a rate that is greater than the decadal growth rate of Coimbatore City, as indicated in the table.

Tables 2–6 compare population growth in Coimbatore District, Coimbatore LPA, and CCMC, respectively.

Table 2- 6 Growth of population (1961-2011)

		1961	1971	1981*	1991	2001	2011
Coimbatore District	Population (in lakhs)	35.57	43.57	30.51	35.08	42.71	34.58
	Decadal growth rate (%)	12.78%	22.49%	-29.97%	14.97%	21.75%	-19.03%
Coimbatore LPA	Population (in lakhs)	7.93	10.12	12.38	14.35	20.34*	24.66 *
	Decadal growth rate (%)	---	27.62%	22.33%	15.91%	---	21.26%
CCMC	Population (in lakhs)	2.86	3.56	7.05	8.16	9.31	10.51
	Decadal growth rate (%)		24.47%	97.75%	15.91%	14.09%	12.88%

Figure 2-5 is a graphical representation of comparison Growth of Population as mentioned in Table 2 – 6.

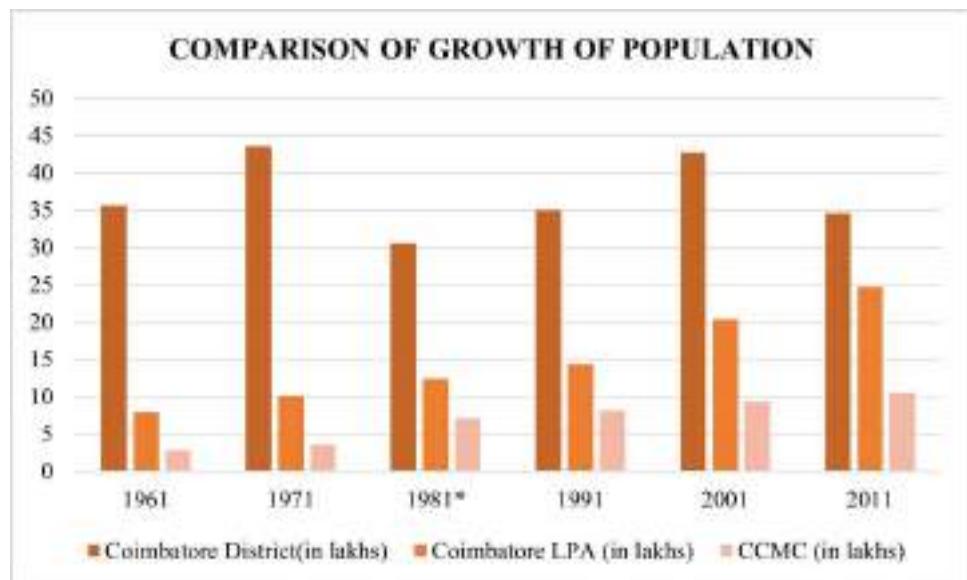


Figure 2-5 Growth of population (1961 - 2011)

2.3 MIGRATION POPULATION

According to the 2011 census, 18.81 lakh migrants born outside Tamil Nadu lived in the state. This represents approximately 2.65 percent of the total population of the state. These migrants from other states account for only 6.2% of all migrants in Tamil Nadu. Coimbatore district contributes 15% of the total migrant population in the state.

Figure 2 – 6 gives the graphical representation of Coimbatore Migrant population 2011 in accordance with Table 2 – 7. The main reason for male migration is in search of employment and for female it is marriage. According to the Census of India 2011, Table 2-7 shows the migrant population and reasons for migration in Coimbatore.

Demography examines internal and external migration.

Table 2- 7 Coimbatore Migrant Population 2011

REASONS FOR MIGRATION	PERSONS (LAKHS)	MALE (LAKHS)	FEMALE (LAKHS)
Work/Employment	3.51	2.81	0.69
Business	0.15	0.11	0.04
Education	0.23	0.12	0.11
Marriage	3.74	0.33	3.41
Moved after birth	1.69	0.95	0.75
Moved with household	5.02	2.18	2.85
Others	4.47	2.34	2.13
Total Migrants	18.81	8.84	9.98

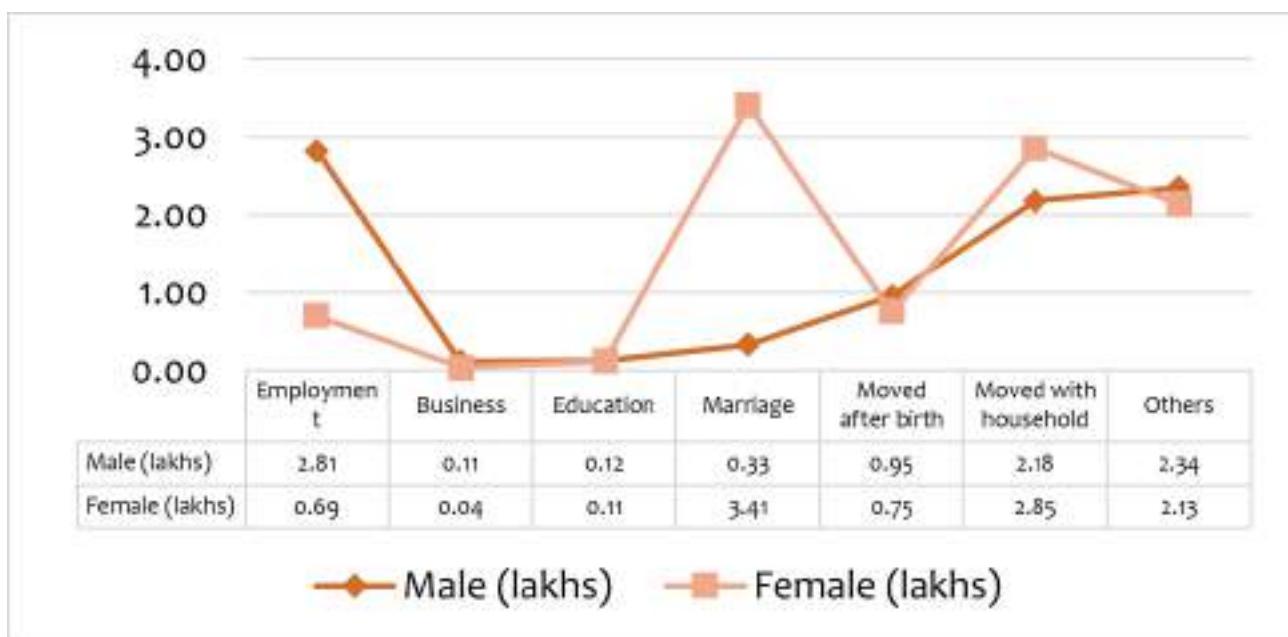


Figure 2-6 Coimbatore Migrant Population 2011

Source : Census of India 2011

2.4 DENSITY FOR LPA

Population density, or the number of people living in the certain area per square metre of land, is a crucial demographic and geographic indicator with numerous relevant consequences and application. Zoning, housing development, transit systems and the design of public areas are all impacted by population density. It offers useful information for making wise judgement in fields like infrastructure planning, public policy and urban development.

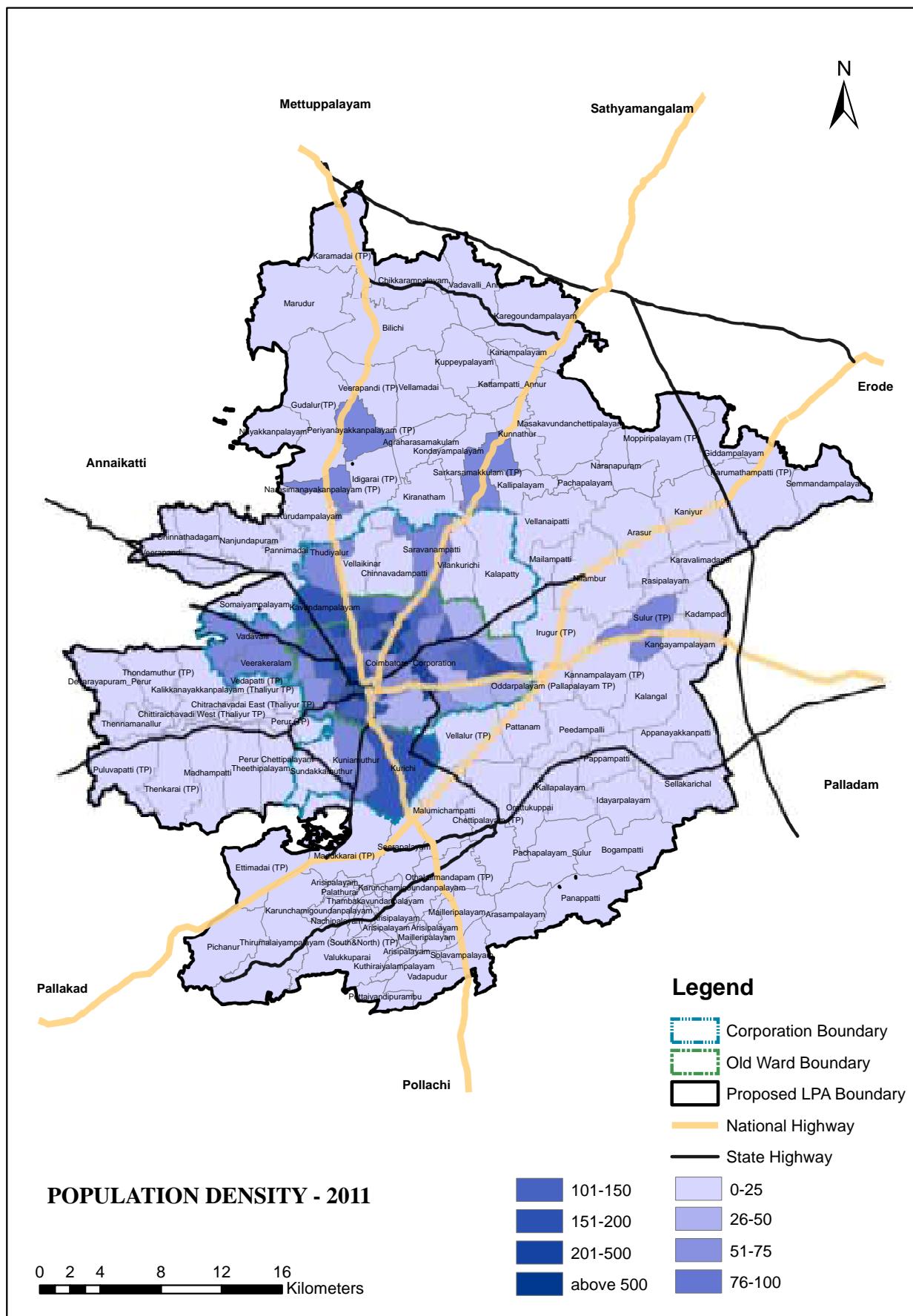
LPA density increased from 1317 people per square kilometre in 2001 to 1492 people per square kilometre in 2011. The proposed LPA covers an area of 1532 square kilometres, up from 1287 square kilometres. Tables 2-8 show the growth in population and density for LPA from 1961 to 2011.

Table 2- 8 Growth of population (1991-2011)

DENSITY FOR LPA			
YEAR	POPULATION (LAKHS)	AREA (SQ.KM)	DENSITY (PERSONS/ SQ KM)
1991	14.35	1287	1115
2001	16.95	1287	1317
2011	19.20	1287	1492
2001 * ¹	20.34	1531.57	1328
2011 *	24.67	1531.57	1610

*For Coimbatore LPA along with newly added areas

Source : Census of India (1991-2011)



Map 2- 1 Population density of the Coimbatore LPA in 2011.

2.5 BIRTH RATE AND DEATH RATE

A. Birth Rate

The human birth rate is defined as the number of people born each year per 1000 people in the population. According to the Statistical Handbook, Coimbatore's birth rate for the year 2016 -17 is 13.3% and birth rate from 2019-2020 is 11.4%, which means that rate of birth has decreased during this period.

B. Death Rate

The mortality rate, also known as the death rate, is a measure of the number of deaths (in general or due to a specific cause) in a given population. According to the Statistical Handbook, Coimbatore's death rate for the year 2016 -17 is 4.2% and death rate from 2019-2020 is 10%, which means that rate of death has increased during this period.

2.6 SEX RATIO

The sex ratio is the male-to-female ratio in a population. The sex ratio in Coimbatore is 1000 males for 1000 females in the year 2011, compared to 968 in the 2001 census. Sex ratio has gradually increased from the year 2001 to 2011.

Tables 2-9 show the gender ratio in India, Tamil Nadu, and Coimbatore from 1971 to 2011.

Table 2-9 Sex ratio in Coimbatore, Tamil Nadu and India

YEAR	COIMBATORE		TAMIL NADU		INDIA	
	Urban	Total	Urban	Total	Urban	Total
1971	956	951	951	978	N.A.	N.A.
1981	943	950	956	977	878	933
1991	930	952	951	972	893	929
2001	957	963	981	987	900	932
2011	1000	1000	1000	996	926	940

Source : Census of India (1971-2011)

2.7 LITERACY

Demographic transition theory outlines how high birth and mortality rates cause population reduction with economic and social growth.

Literacy is defined as a person aged seven and up who can read and write in any language with comprehension. Literacy is defined as the ability to read but not write. At the 1991 Census, it was decided that all children aged 0-6 would be considered illiterate by definition, while those aged seven and up would be classified as literates or illiterates. Furthermore, a person does not need to have a formal education to be considered literate.

The literacy rate is the proportion of a population that can read and write at a given age. Adult literacy rates apply to those aged 15 and up, adolescent literacy rates apply to those aged 15 to 24, and elderly literacy rates apply to those aged 65 and up.

Coimbatore LPA literacy rates in 2001 and 2011 were 78% and 80%, respectively. Literacy rates have increased by 2% over the last decade.

Figure 2 - 7 gives the graphical representation of literacy levels for Total CLPA as given in Table 2-10.

Table 2- 10 Trends in Literacy levels in Coimbatore LPA - (2001, 2011) in India

SL.NO		LITERATES (IN LAKHS)					
		PERSONS		MALE		FEMALE	
		2001	2011	2001	2011	2001	2011
1	CCMC	9.82	12.96	5.29	6.72	4.50	6.24
2	Municipalities	1.28	1.06	0.74	0.56	0.53	0.49
3	Town Panchayat	2.76	2.77	1.57	1.49	1.18	1.29
4	Village Panchayat	2.04	2.85	1.18	1.55	0.84	1.29
5	Total-LPA	15.9	19.64	8.78	10.32	7.05	9.31

Source : Census of India 2001, 2011

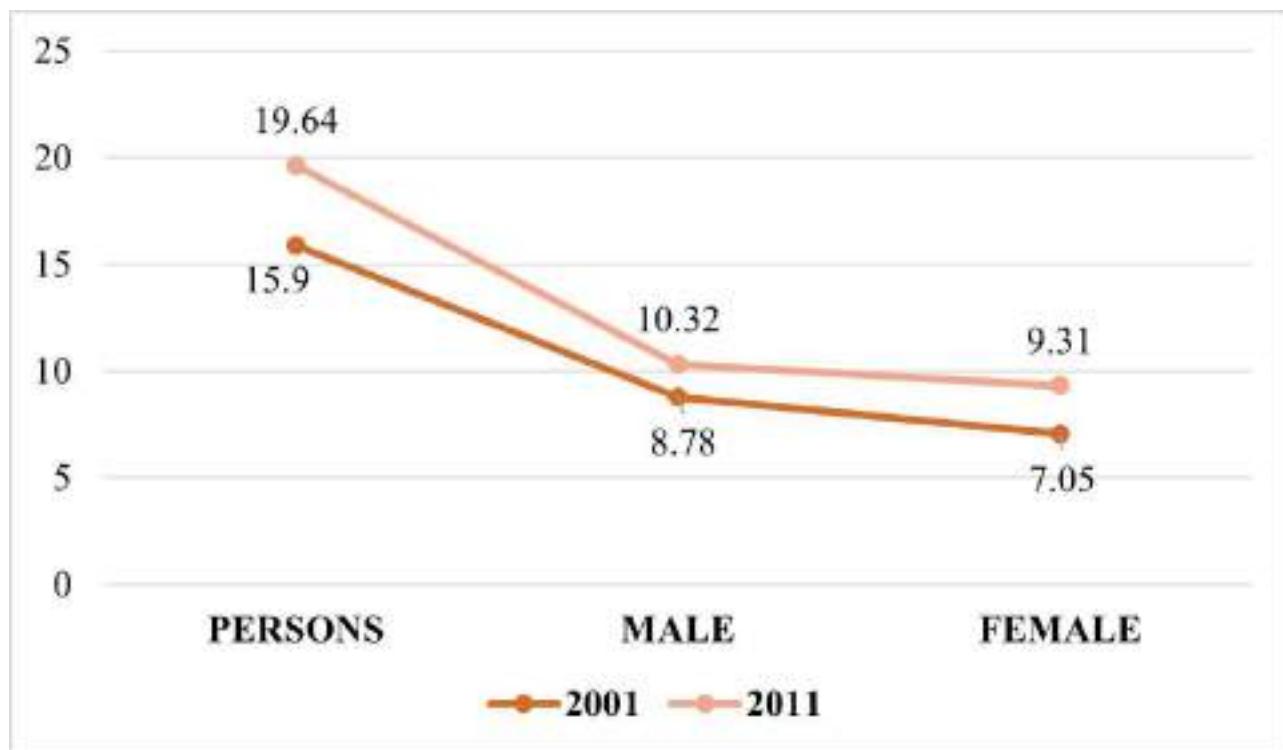


Figure 2-7 Literacy levels for Total CLPA

2.8 AGE STRUCTURE

"Population distribution" investigates how people are dispersed across a nation's and the world's urban and rural areas.

The age-sex structure is a critical component of population composition. Almost all population characteristics change dramatically as people age. A bar graph depicts the proportions of people of various ages in a population. Age statistics are critical because population projection factors are based on the population's age-sex structure. The male and female populations are divided into five-year age groups. Figure 2 - 8 gives the graphical representation of Age structure of Coimbatore District in accordance with Census of India 1991, 2001, 2011.

Table 2-11 depicts the age structure for Coimbatore from 1991 to 2011.

Table 2- 11 Age structure of Coimbatore - 1991, 2001, 2011

AGE GROUP	1991	2001	2011
	TOTAL	TOTAL	TOTAL
All ages	35.08	42.72	34.58
0-4	2.64	3.11	2.28
5-9	3.14	3.33	2.31
10-14	3.24	3.38	2.61
15-19	3.41	3.81	2.60
20-24	3.59	4.07	2.83
25-29	3.60	4.30	3.16
30-34	2.77	3.61	2.95
35-39	2.70	3.64	3.02
40-44	2.14	2.80	2.71
45-49	2.02	2.64	2.49
50-54	1.58	2.04	2.00
55-59	1.27	1.62	1.67
60-64	1.09	1.40	1.41
65-69	0.70	0.96	0.96
70-74	0.51	0.72	0.72
75-79	0.25	0.39	0.40
80+	0.27	0.45	0.43
Age not stated	0.14	0.47	0.04

Source : Census of India 1991, 2001, 2011

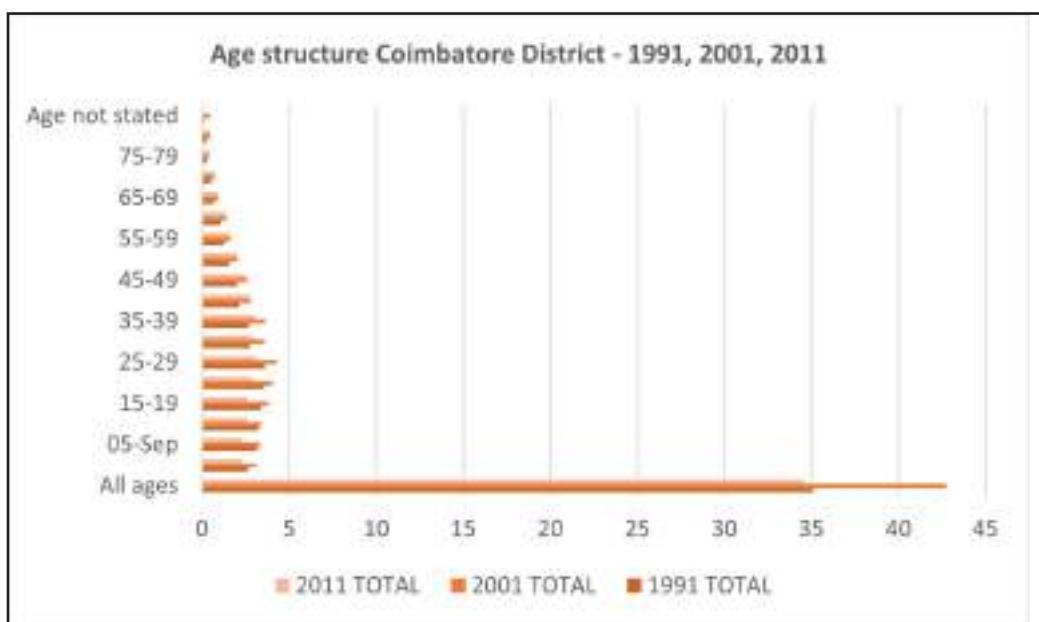


Figure 2-8 Age structure Coimbatore District - 1991, 2001, 2011

2.9 COMPARISON OF POPULATION PROJECTION USING VARIOUS METHODS

Population is projected using various methods such as arithmetic method, geometric method, exponential method, UURGD method.

The estimates calculated using these methods are given in tables 2.-12 below.

Table 2- 12 Comparison of various methods of population projection

METHOD OF PROJECTION	POPULATION 2001	POPULATION 2011	POPULATION 2021	POPULATION 2031	POPULATION 2041
Arithmetic	20.34	24.67	28.99	33.32	37.64
Geometric	20.34	24.67	25.32	26.01	26.75
Exponential	20.34	24.67	28.01	32.28	37.82
UURGD	20.34	24.67	30.16	37.16	45.73

2.10 PROJECTIONS

Government healthcare, education, social services, and urban development policies are based on demographic data.

2.10.1 POPULATION PROJECTIONS IN UURGD METHOD

Population projections are based on historical trends and future assumptions that include existing population density, transportation connectivity, future transportation proposals, clustering of new urban settlements, upcoming industrial sectors, its supporting residential and mixed-use development, fertility, death, and migration.

The projected population of 2021 is compared with the voters' population of 2021, and it is evident that the projected population is in line with the voters' population.

The UURGD method is the best suited method for population projection for the Coimbatore Local Planning Area because it takes into account both urban and rural growth the justification for using UURGD method detailed in annexure.

Annexure 2.2 contains information on population estimates based on other methods and also village wise population distribution.

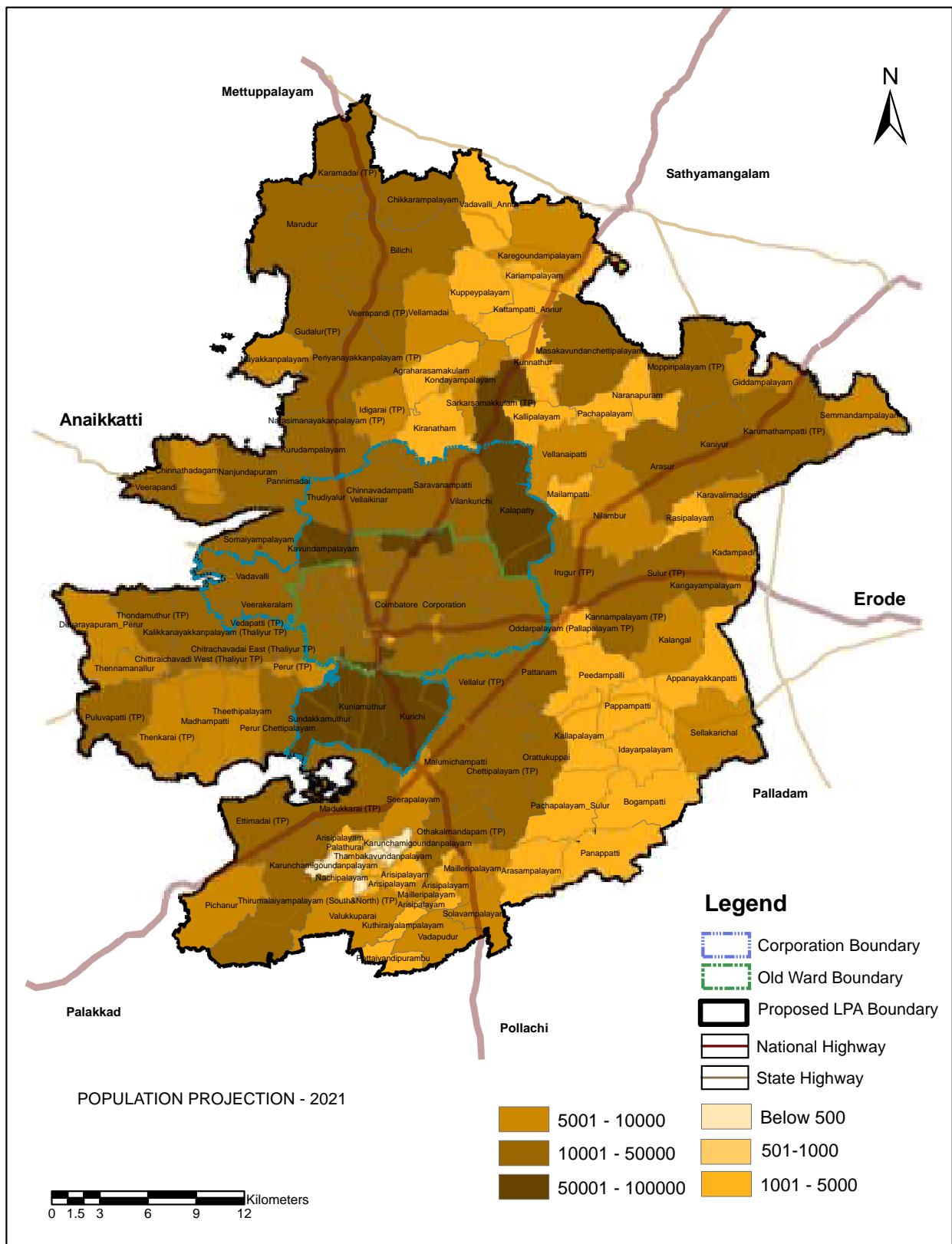
The current and projected population figures for the newly added areas in Coimbatore LPA are shown below. Table 2-13 shows the current and projected population for LPA until 2041.

Table 2- 13 LPA Population Projection

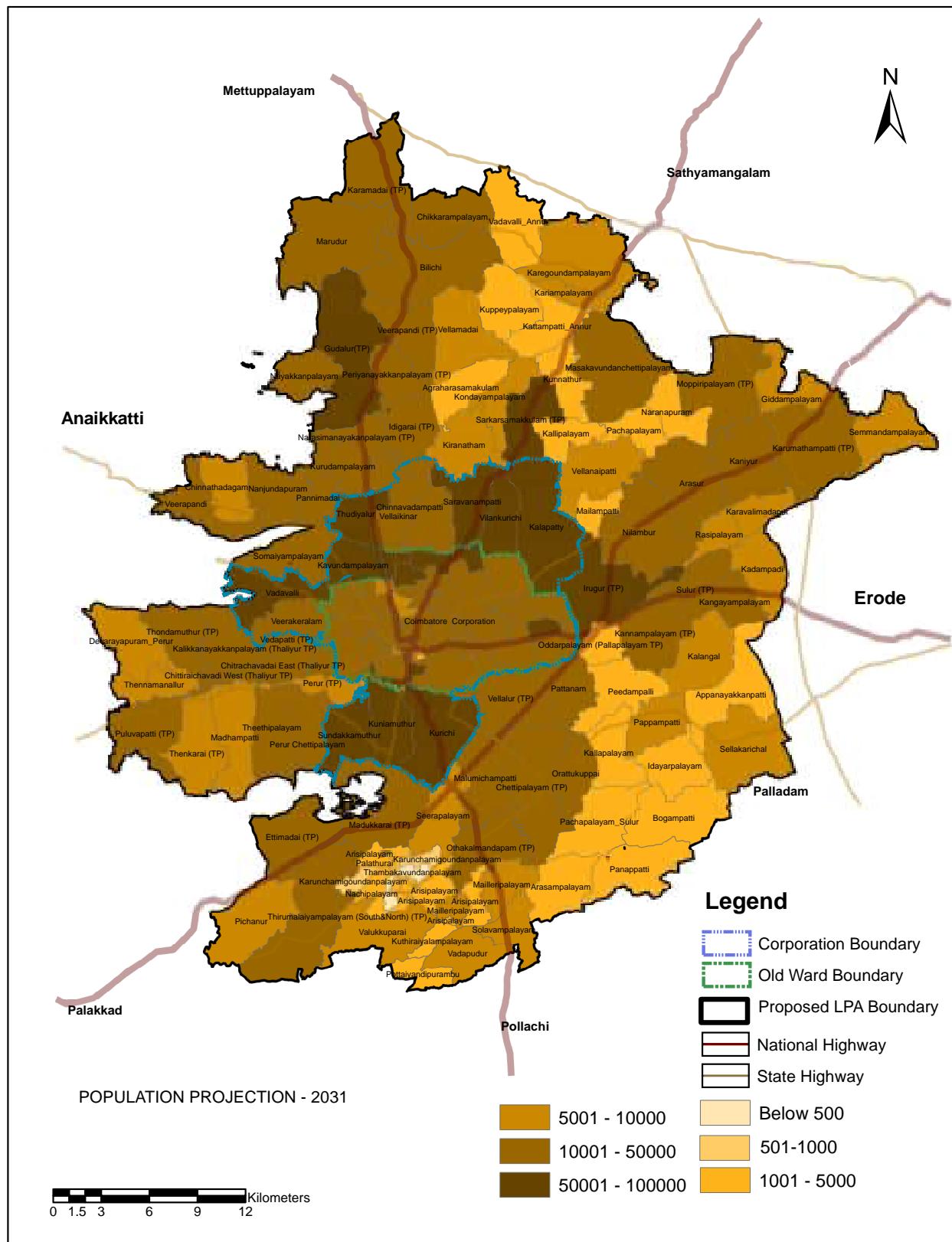
YEAR	POPULATION PROJECTION (LAKHS)	DECadal Growth
Existing		
2001	20.34	
2011	24.67	21.16%
Projected		
2021	30.16	22.25%
2031	37.16	23.21%
2041	45.73	23.08%

Assuming a fair growth rate for Coimbatore LPA, the population is expected to be 30.16 lakhs, 37.16 lakhs, and 45.73 lakhs in 2021, 2031, and 2041.

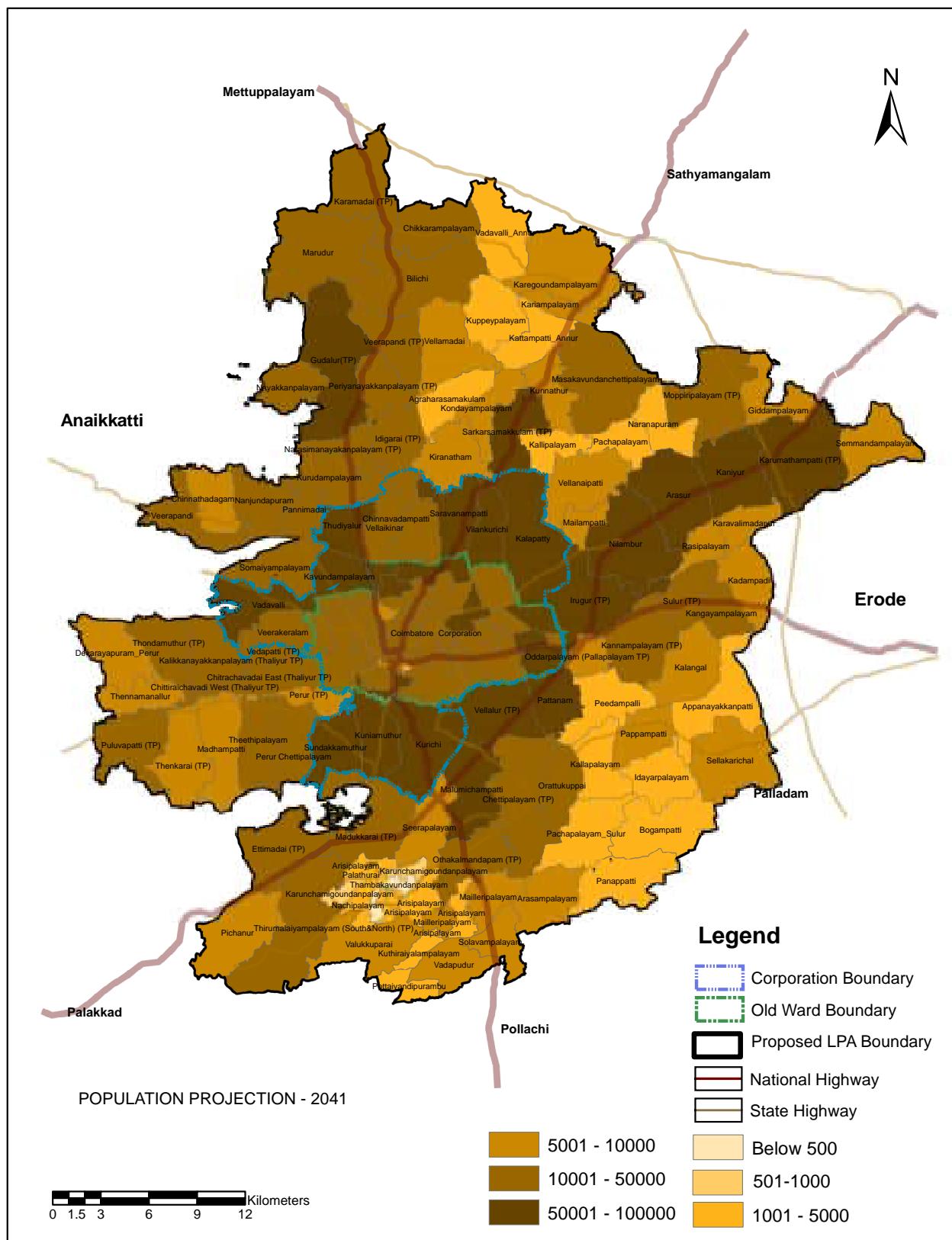
The maps 2-2, 2-3, and 2-4 depict Coimbatore's population projections for 2021, 2031, and 2041, respectively:



Map 2- 2 Population Projection 2021



Map 2- 3 Population Projection 2031



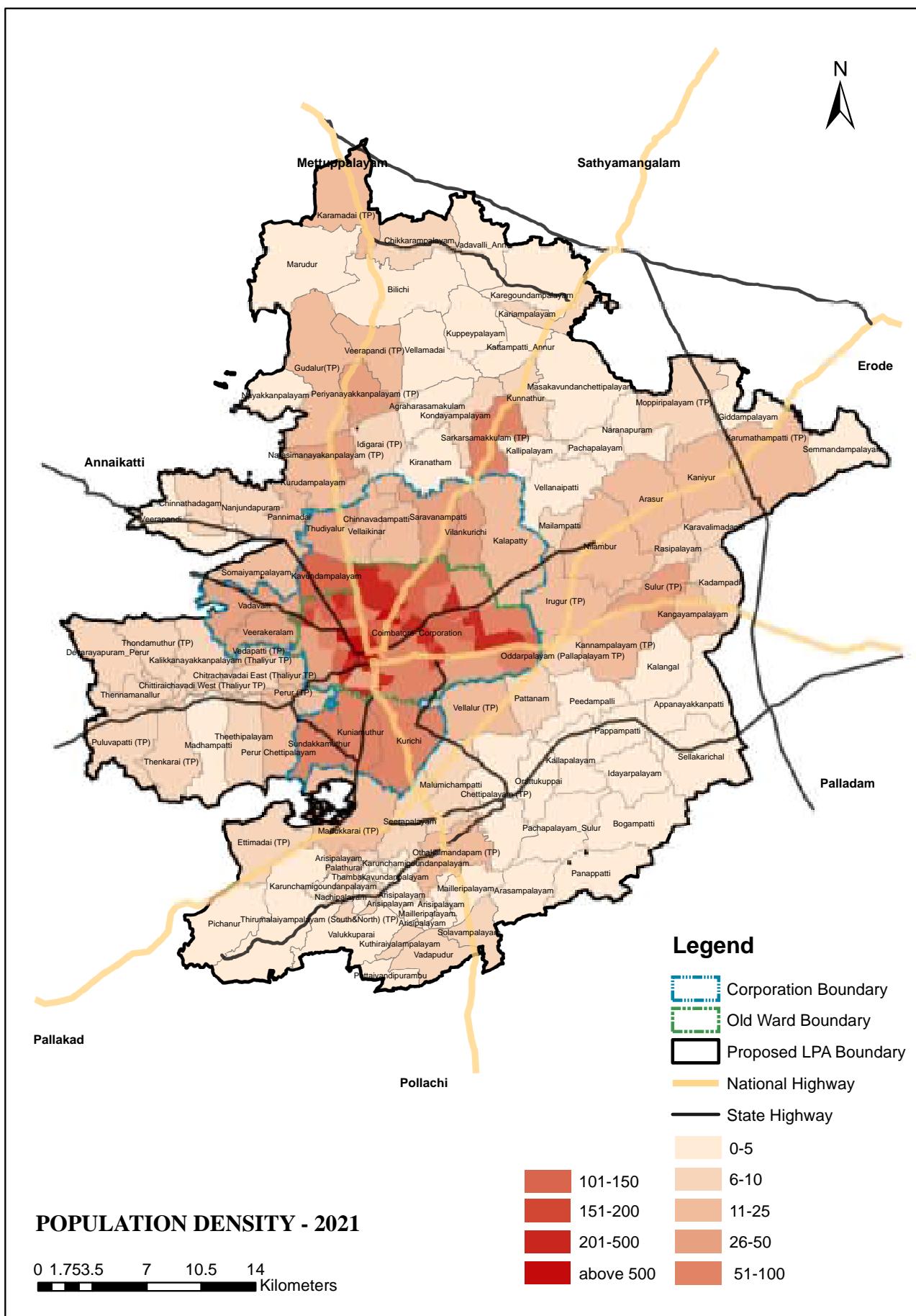
Map 2-4 Population Projection 2041

2.10.2 POPULATION DENSITY

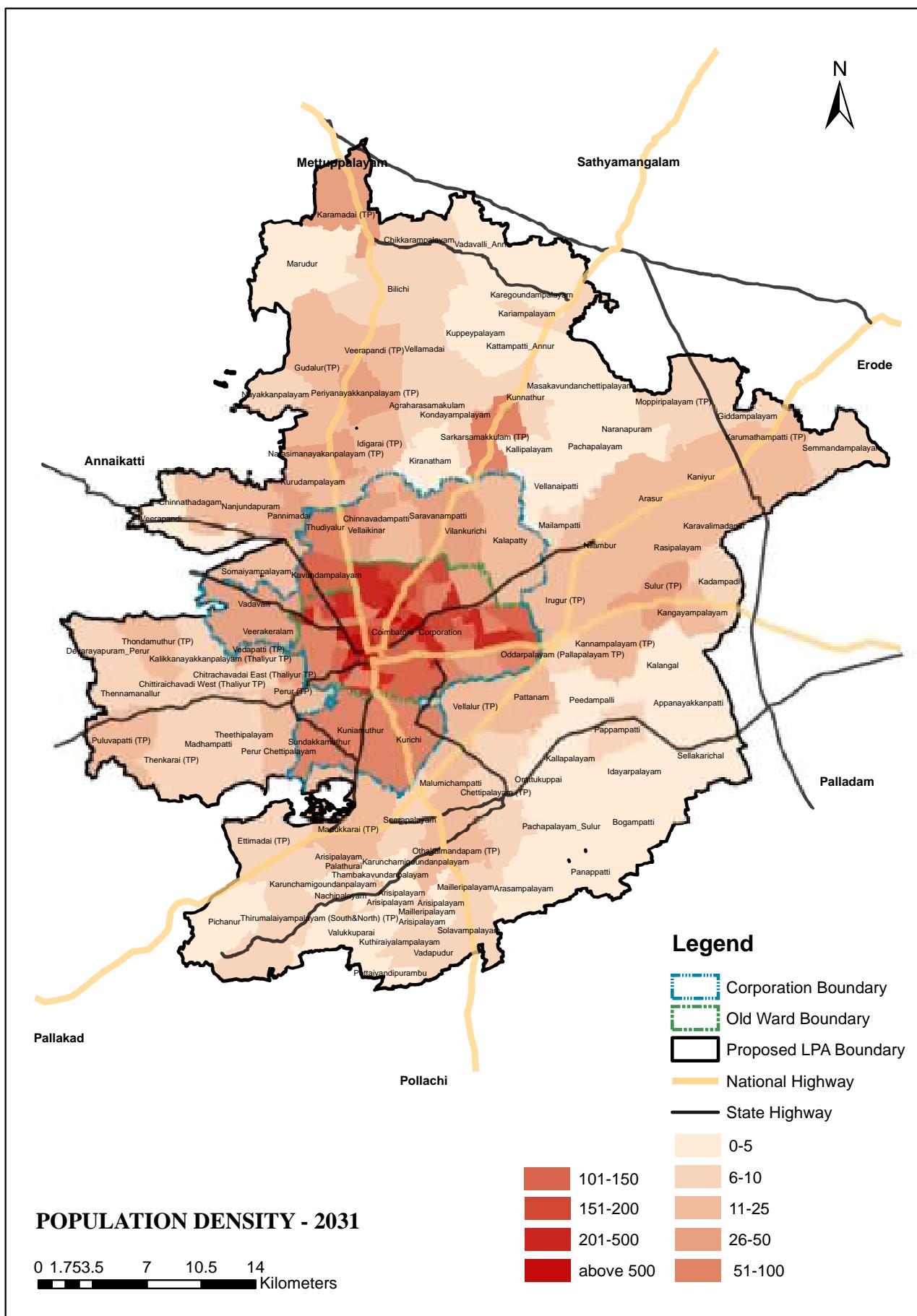
Population density is a quantitative representation of the distribution of individuals living in a specific region. Population density can change over time due to factors such as migration, urbanization, natural population growth, and government policies. LPA density for 2011 is 1610 people per square kilometer. Projected density for 2021,2031,2041 is 1969,2426,2985 respectively. Along with corporation Irugur, Neelambur, Arasur, etc expected to have high density. Keeratham, vellanaipattai, Sarkarsamakkulam, etc are estimated to have moderate density. Tables 2-14 show the density for LPA from 2001 to 2041.

Table 2- 14 Density Projections for LPA

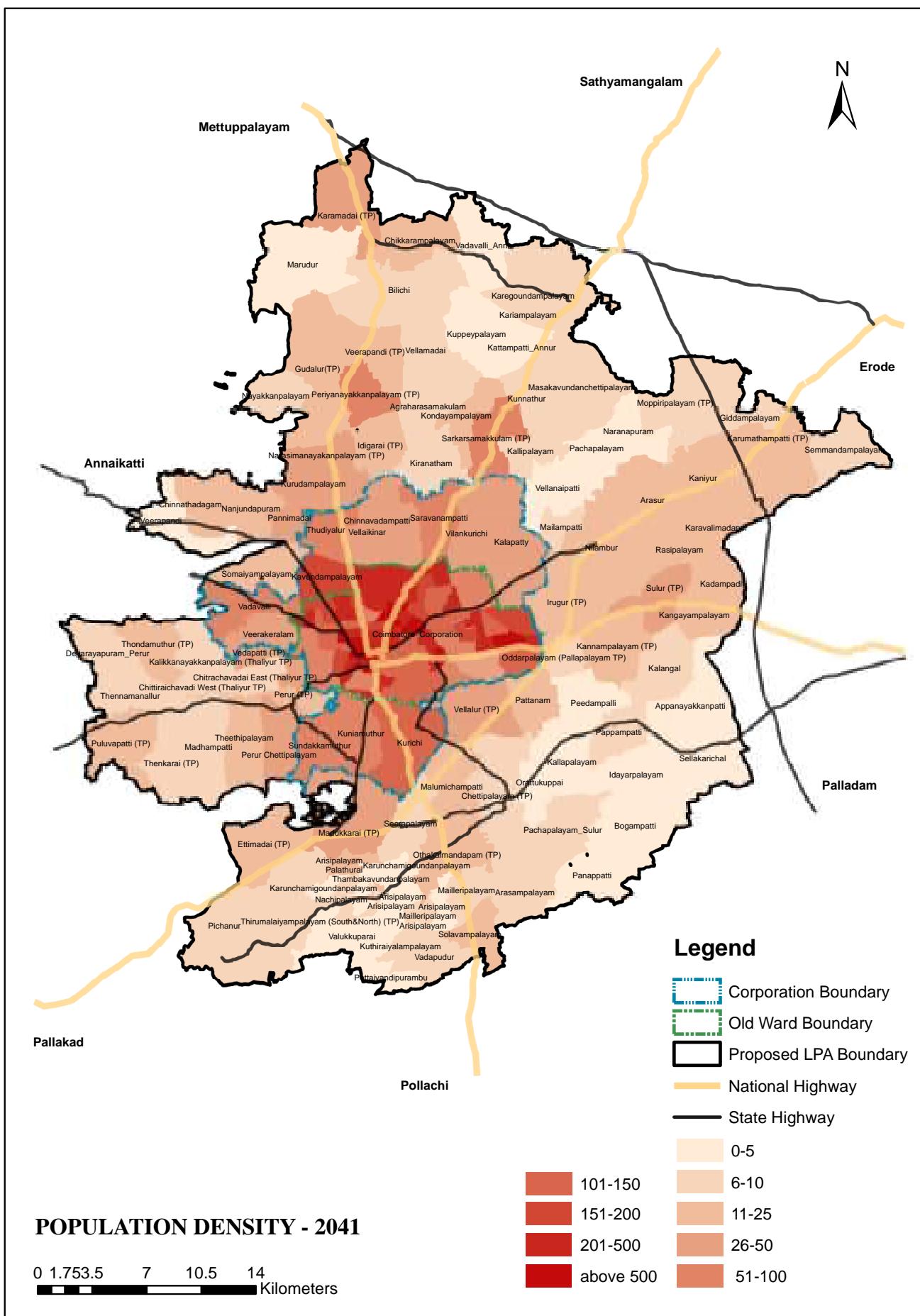
YEAR	AREA	POPULATION PROJECTION (LAKHS)	DENSITY (persons/sq.km)
	Existing		
2001	1531.57	20.34	1328
2011	1531.57	24.67	1610
	Projected		
2021	1531.57	30.16	1969
2031	1531.57	37.16	2426
2041	1531.57	45.73	2985



Map 2- 5 Population density 2021



Map 2-6 Population projection 2031

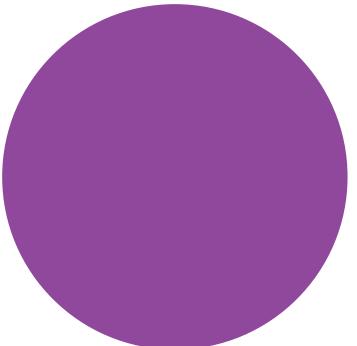


Map 2- 7 Population projection 2041



03

ECONOMY



3.1 ECONOMIC HISTORY

During 1st and 4th centuries, the region surrounding Coimbatore functioned as the eastern gateway to the Palakkad Gap, which was the main commercial route between the Western coast and Tamil Nadu. While the region's rich black soil aided the escalating agriculture business, successful development of cotton laid foundations for the city's textile industries. Due to the advancements of hydroelectricity from Pykara falls Coimbatore's cotton cultivation flourished in 1930s. On the other hand, Mumbai Cotton market witnessed a decline in the 1920s. The emergence of trade associations representing small scale industries and the development of the IT sectors are also considered as major contributors to the city's economy.

3.2 ECONOMIC GROWTH

The term "economy" refers to the aggregate of all economic activity that take place within a certain geographical region or throughout the whole world.

Urbanization and economic growth are intricately connected. As regional economies move from agrarian-based to urban economy centred on industrial services, rural lands are frequently converted for urban uses (residential, commercial, and industrial). The city of Coimbatore finds its major economic contributors in the primary, secondary and tertiary sectors. Cultivation of crops like banana and cotton contributes to the primary sector. The manufacture of machinery equipment, jewelleries and textiles contributes to the secondary sector, and the development of IT, ITES, BPO industries contributes to the tertiary sector. Coimbatore traditionally had a notable number of large scale industries but in the current scenario the numerous MSMEs have developed at a rapid rate.

The Micro, Small and Medium Enterprises (MSME) sector accounts for the major share in number of industrial units, output in manufacturing sector and exports besides being a major employment provider next to agriculture .

Coimbatore is one of the fastest growing tier-II cities in India. It is home to approximately 25,000 small, medium, and large businesses, the most important of which are the engineering and textile industries. The rapid development of commercial, industrial, and business activities in and around Coimbatore city is generating substantial revenue.

3.3 URBANIZATION

Urbanization, as a concept, occurs for many reasons. Industrialization led to more employment opportunities which, in turn, attracted a large migrant population of workers. Other factors such as better standard of living, better education and infrastructure also plays a vital role in the urbanization of the entire economy. The urbanization pattern is mostly along the major arterial roads in the city such as the Trichy Road (NH-81) towards Karur and Trichy, Avinashi Road , Salem Kochi Highway (NH-544), Pollachi Road (NH 83), Sathy Road (NH 948), Mettupalayam Road (NH 181).

3.4 GLOBALIZATION

Migration of people, especially for working, has resulted in the increase of economic globalization of international movements of products and services, capital, and labour. Changes in technology and transportation aided this phase of globalization in particular. It is based on a growing dependence on markets, trade and investment policy liberalization and increased openness amongst the economies.

The major changes in the economy led to globalization which can be largely contributed to the factors like expansion of financial capital between countries, Foreign Direct Investment

3.5 OCCUPATIONAL STRUCTURE

(FDI), specialization of labour, and increasing levels of connectivity between people and businesses driven by technology.

As per Census 2011, the total no. of workers in Tamil Nadu was 329 lakhs and the rate of increase in the employment in the last decade is 18.34% against the population growth (1.8% per annum). The comprehensive profile of employment in the Coimbatore has been made based on secondary sources including Census Data.

Table 3.1 shows the structural changes in the economy of Tamil Nadu from 1995 - 2015 in the primary, secondary and tertiary sectors.

Table 3-1 State Economy - Structural changes (in percentage)

YEAR	PRIMARY SECTOR	SECONDARY SECTOR	TERTIARY SECTOR	TOTAL
1995-2001	15.8	32.1	52. 1	100
2001-2015	9.9	30.6	59.5	100

Source : State of India Database, Centre for Monitoring the Indian Economy (2020)

According to the table, the share of the primary sector in the occupational structure has decreased from 15.8% (1995-2001) to 9.9 in 2001-2015. This is likely due to the migration of primary workers to the tertiary sector because of poor climatic conditions and the increased income opportunities in the tertiary sector. The tertiary sector's 9.31% increase in 2013-14 aided Tamil Nadu's moderate economic rebound after 6.05 percent in 2012 (as per the Department of Evaluation and Applied Research , Tamil Nadu).In 2011, Coimbatore had 85% tertiary employees, mostly from the IT and ITES businesses (District Census Handbook of Coimbatore 2011).

3.6

GROSS DOMESTIC PRODUCT

Gross domestic product (GDP) is the standard of the value added through the production of goods and services in a country during certain period. It also measures the income earned from that production, or the total amount spent on final goods and services (less imports) Table 3.2 shows the Gross Domestic Product (GDP) value of the Primary sector, Secondary sector ,Tertiary sector

Table 3-2 Distribution of gross domestic product -Sector

Sector	Sector-wise	GDP (in lakhs)	Total GDP (in lakhs)
Primary (9.47 %)	Agriculture and Allied activities	343099	374423
	Forestry and Logging	27988	
	Fishing	761	
	Mining and Quarrying	2575	
Secondary (37.30 %)	Manufacturing (Registered/ Unregistered)	1193951	1474647
	Electricity, Gas and Water Supply	13512	
	Construction	267185	
Tertiary/ Services (53.23 %)	Trade, Hotels and Restaurants	670694	2104499
	Railways	4807	
	Transport by other means	180090	
	Storage	1239	
	Communication	34336	
	Banking and Insurance	186772	
	Real Estate Ownership of dwelling and Business Services	492744	
	Public Administration	114203	
	Other Service	419613	
TOTAL GDP (100%)			3953569

3.7 TAX REVENUE

The Revenue / Income of ULBs includes Tax revenue, Non tax revenue, Assigned (shared)revenue , Grants - in - aids , Loans. The Expenditure of ULBs includes the following category : Establishment expenditure , Administrative expenditure, operations & maintenance , Capital expenditure and others. Expenditure of Coimbatore LPA is more than the revenue generated by the ULBs. Therefore revenue generation should be enhanced & new strategies can be incorporated such as value capture financing tools .The income and expenditure of the villages and towns will help in identifying the economic status and also the revenue generated.

Table 3-3 Tax Collected by Panchayat / Corporation / Municipality / TP / Panchayat Union in Coimbatore in the year 2019-2020

S. No.	Name Of The Corporation / Municipalities / Panchayat Unions	Total	
		Income	Expenditure
		(Rs. In Lakhs)	(Rs. In Lakhs)
1	Corporation - Coimbatore	705500.47	94328.27
2	Municipality	10695.30	15 186.50
3	Town Panchayats	2 2350.81	20667.07
4	Panchayat Union	3356.64	4079.71

3.8 EXPORT/ IMPORT

Petroleum , oil, lubricants, fertilizers, food, cereals, and fibers are the most common imports via Chennai's port. Iron ores, granite stones, quartz, textiles and garments, software products, motors and pumps, granite, jewellery, wet grinders and electric products are the items exported primarily. The pace of increase in imports, on the other hand, has been witnessing a decrease. The decline in imports is itself a measure of the region 's economic health. Tables 3.4 and 3.5 shows the various commodities imported and exported from Coimbatore.

Table 3-4 Export Commodities in Coimbatore

Export Commodities
Hosiery Items and Readymade Garments
Pumps and Motors
Yarn
Castings
Textile Spares
Jasmine
Arecanut
Jewels
Software
Tea

Table 3-5 Import Commodities in Coimbatore

Import Commodities
Fabric
Engineering Spares
Surgical Items
Medicines
Chemicals
Garment Accessories

3.9 WORK FORCE PARTICIPATION

The workforce participation creates the economic growth of the region. It determines the growth in various fields like agriculture, tourism, industries, etc. Therefore, the workforce participation plays a vigorous role in the economic growth of any region.

Coimbatore is a district of industrially and commercially developed sectors. It has a higher concentration of small and medium scale industries. On its own merit, the city has textile industry, automotive industry, engineering products, manufacturing industry and technical institutes. Due to the higher concentration of small scale industries, there tends to be a higher work force participation in the secondary and tertiary sectors.



Figure 3-1 Composition of work force Participation

Figure 3.1 depicts the composition of main , marginal and non - workers in terms of work force participation in 2011.

As per the Census in 2011, a total of 40.8% served as main workers and 2.5% as marginal workers in Tamil Nadu. A total of 56.7% were non-working individuals. In Coimbatore, 54.9% of the populations were non-workers, 44.2% are Main workers and a minimum 0.9% served as marginal workers . There is a meagre decrease in the non-working population in comparison to 1991 (54.9%) and 2001 (54.6%).

Table 3-6 Classification Of Workforce Participation, Sector Wise, LPA

S. No.	Particulars	Workers (In Lakhs)					
		Main		Marginal		Non-Workers	
		2001	2011	2001	2011	2001	2011
1	CCMC	4.53	6.04	0.27	0.40	7.69	9.40
2	Municipality	0.97	0.55	0.09	0.05	1.05	0.79
3	Town Panchayat	1.81	1.59	0.22	0.17	2.24	2.00
4	Village Panchayat	1.49	1.79	0.15	0.23	1.65	2.04
	LPA	8.81	9.98	0.72	0.85	12.61	14.23

The figure 3.2 illustrates the composition of the main, marginal and non-Workers over the years 2001 and 2011 as given in the table 3.6.

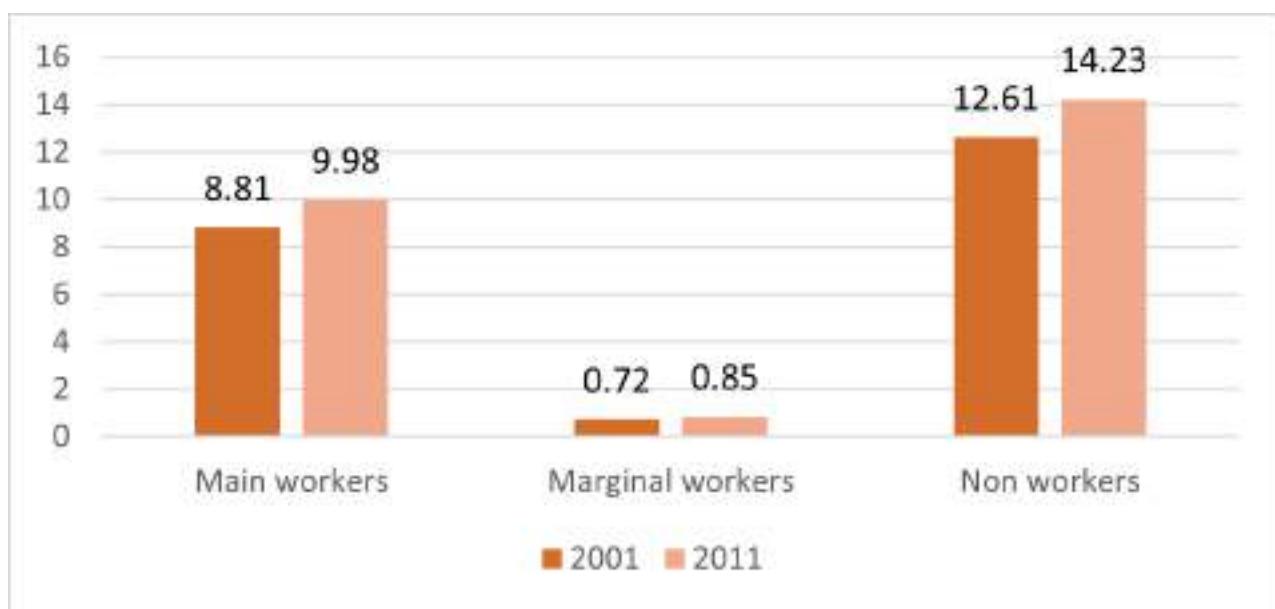


Figure 3.2 The composition of the Main/ Marginal/ Non-workers - Population in Coimbatore LPA in the Year 2001-2011

3.10 PARTICIPATION RATE

For a population of 24.67 lakhs, there were 10.83 lakhs of total workers overall in 2011 .

According to this section, the Coimbatore Local Planning Area has 10.83 lakhs workers in 2011. A total of 24.67 lakh people called the region home in the same year as these professionals. In 2011, Coimbatore Local Planning Area had a workforce participation rate of 44%. The workforce participation rate is a metric that indicates what percentage of the population is actively employed.

In this case, the workforce participation percentage in the Coimbatore Local Planning Area in 2011 was stated to be 44%. This means that 44%, or around 10.83 lakh persons , of the total population of 24.67 lakhs were in the labor force, either employed or actively seeking employment.

3.11 TOURISM

Coimbatore is one of the main centres for basketry in Tamil Nadu . The weaving of saris, as well as textile industries, has also been an important attraction of tourists to Coimbatore. The city is well connected to all the other major cities of India and the tourist attractions of Tamil Nadu , which makes it a hotspot for domestic and foreign visitors.

The data given in table 3.7 depicts the number of domestic and foreign

Table 3-7 Numbers of Annual Visitors to Coimbatore (in lakhs)

YEARS	DOMESTIC VISITORS	FOREIGN VISITORS	TOTAL
2014	22.81	0.12	22.93
2015	24.63	0.12	24.75
2016	26.60	0.14	26.74
2017	28.73	0.15	28.88
2018	31.03	0.17	31.20
2019	33.51	0.18	33.69

3.12 MECHANICAL AND MANUFACTURING INDUSTRY

A. Auto Components and Wet Grinders

Coimbatore has established itself as one of the most dependable locations for auto component outsourcing. Several factors have contributed to this expansion, including the ready availability of resources and qualified technical personnel. Many vehicle component manufacturers work for international brands as original equipment manufacturers (OEM). Car component manufacturers in Coimbatore include Robert Bosch GmbH, PRICOL , Craftsman Automation , and Roots Industries.

B. Pumps and motors

Coimbatore is known as “the Pump City” since it meets approximately half of India’s motor and pump requirements.

CRI Pumps, Coimbatore’s largest pump producer, contributes significantly to the city’s “pump city” designation. Aquasub engineers, Mahendra Pumps, Suguna Pumps, Sharp Industries , Deccan Pumps, CRI Pumps, Texmo Industries, PVG Industries, Flowserve, Kirloskar Brothers, and KSB Pumps are among the major pump manufacturers with production facilities in the city.

Pump manufacturers from America and Europe have setup shops in Coimbatore that is progressively known as Asia’s Pump City in the recent years .

C.Textile industry

Coimbatore is known as the “Manchester of South India” because of its extensive textile industries, which are supported by the surrounding cotton fields. Because the soil in and around Coimbatore is better suited to cotton cultivation than to food production , it has proven to be an important indicator of the success in textile industry.

The district is a textile manufacturing center, both large and small. There are also textile research institutes such as the Central Institute for Cotton Research (CICR) - Southern Regional Station, the South Indian Textiles Research Association (SITRA), and the Sardar Vallabhai Patel International School of Textile and Management. Coimbatore is well-known for its fine cotton and coloured fabrics.

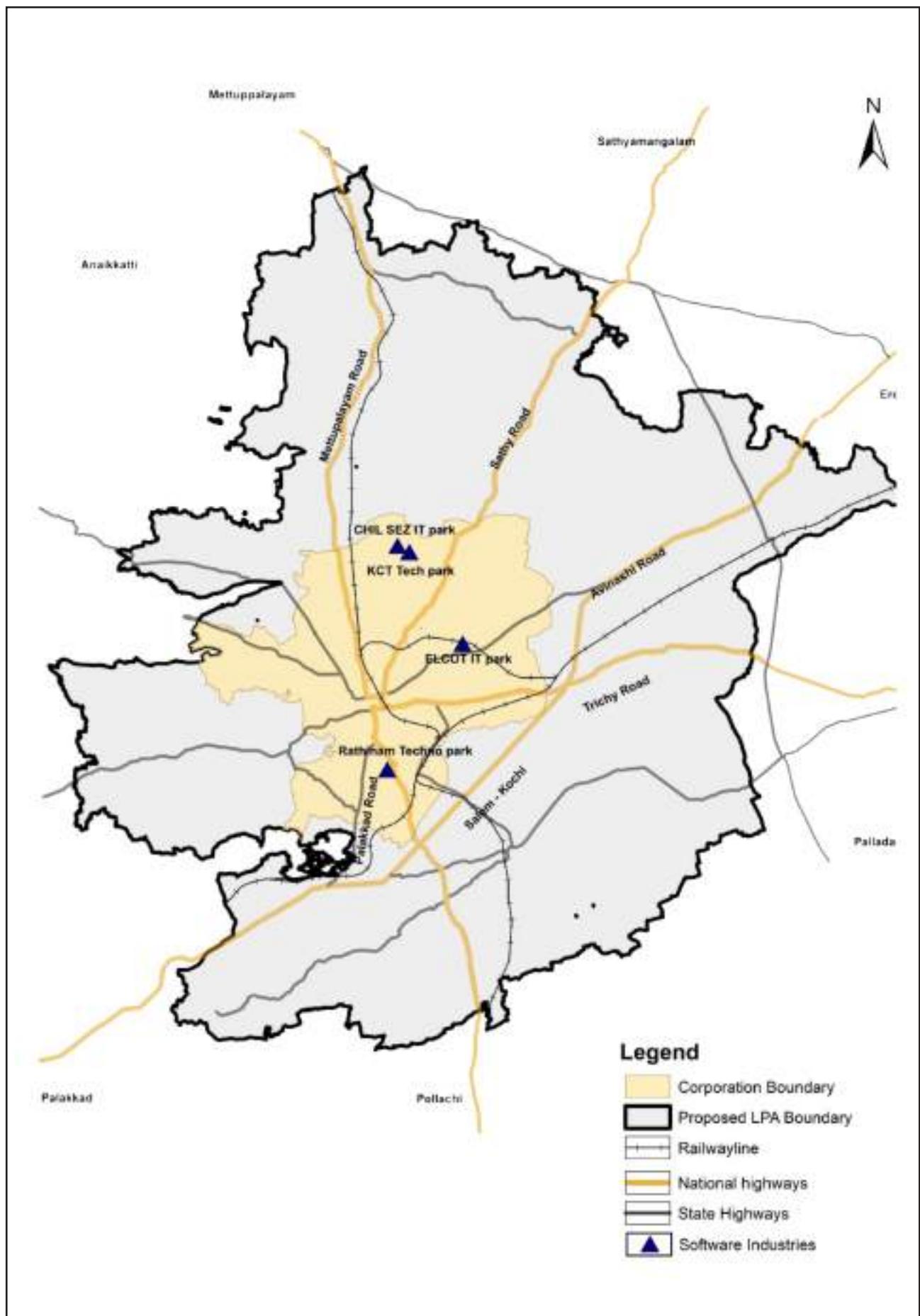
3.13 SOFTWARE INDUSTRY

Coimbatore is Tamil Nadu's second-largest software manufacturer, after Chennai. The city's IT and BPO industries have exploded since the opening of TIDEL Park and other proposed IT parks in and around the city. According to Tholons, it is ranked 17th among the top global outsourcing cities. Due to high demand for space in Coimbatore from IT companies, TIDEL Park Coimbatore-Phase-II is proposed to be built within ELCOT SEZ on an additional 9 acres of land (5 lakh sq. feet area) at an estimated cost of 250 crores. On 10 acres of land in Somayampalayam, Coimbatore, a Bio- Technology Park called TICEL Bio-Park III is being built.

3.14 AGRICULTURE AND AGRO BASED INDUSTRY

Coconut is the major plantation crop cultivated. The other Agricultural crops cultivated are Millets, Pulses, Oilseeds, Cotton and Sugarcane. With vivid breezing Agro climatic conditions, Coimbatore favours almost all Horticulture Crop Production. The production of fruits and vegetables have been increasing steadily and Coimbatore has the potential to increase its contribution towards the economy by way of exports. The Horticulture is climate resilient, therefore assures higher income to farmers.

Due to changing Socio economic profile and increasing middle class coupled with higher per capita income this sector has more potential as food habits are changing and people are becoming more health conscious. The major contribution of



Map 3-1 Existing Software Centres in LPA

Coimbatore to Tamil Nadu is Banana, Grapes and Arecanut. Coimbatore is strongly positioned for Coconut, Arecanut, Banana, Mango, Tomato, Small Onion, Curry Leaves, Gourds, Brinjal, Bhendi.

Coimbatore has earned a reputation as one of the most trusted locations for since it supplies nearly all of India's motor and pump needs. This plays a vital role in delivering a variety of employment opportunities and considerable investments on a variety of scales in many areas.

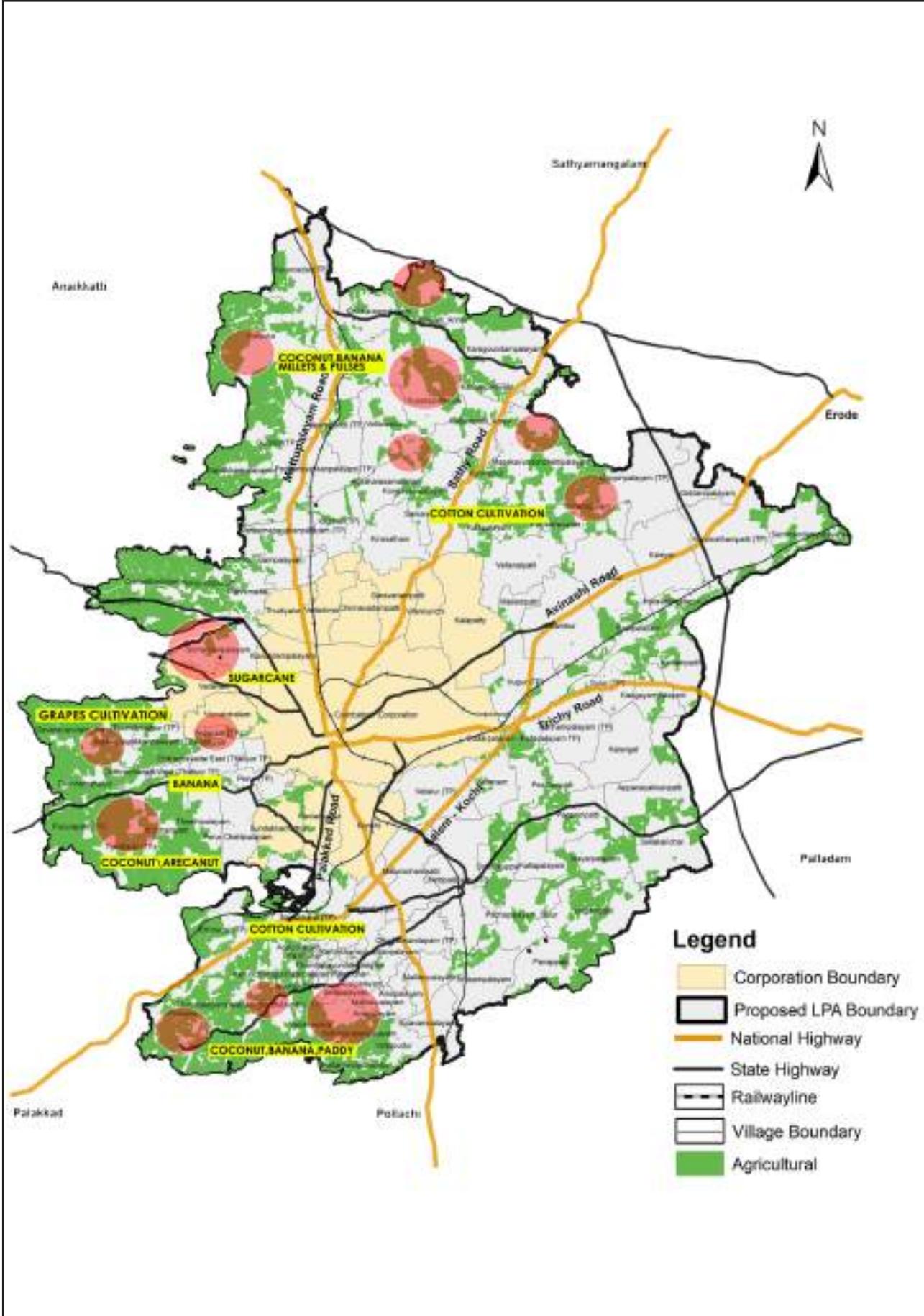
This results in increased worldwide competitiveness and product quality, attracting more global investors to participate in the secondary industry.

In this scenario, the growth of agro-based manufacturing enterprises promotes the creation of economic clusters and MSME. As a result, this sector contributes to the expansion of the state's GDP, particularly in the agricultural and economic sectors. These manufacturing enterprises not only promote secondary sectors but also primary sectors.

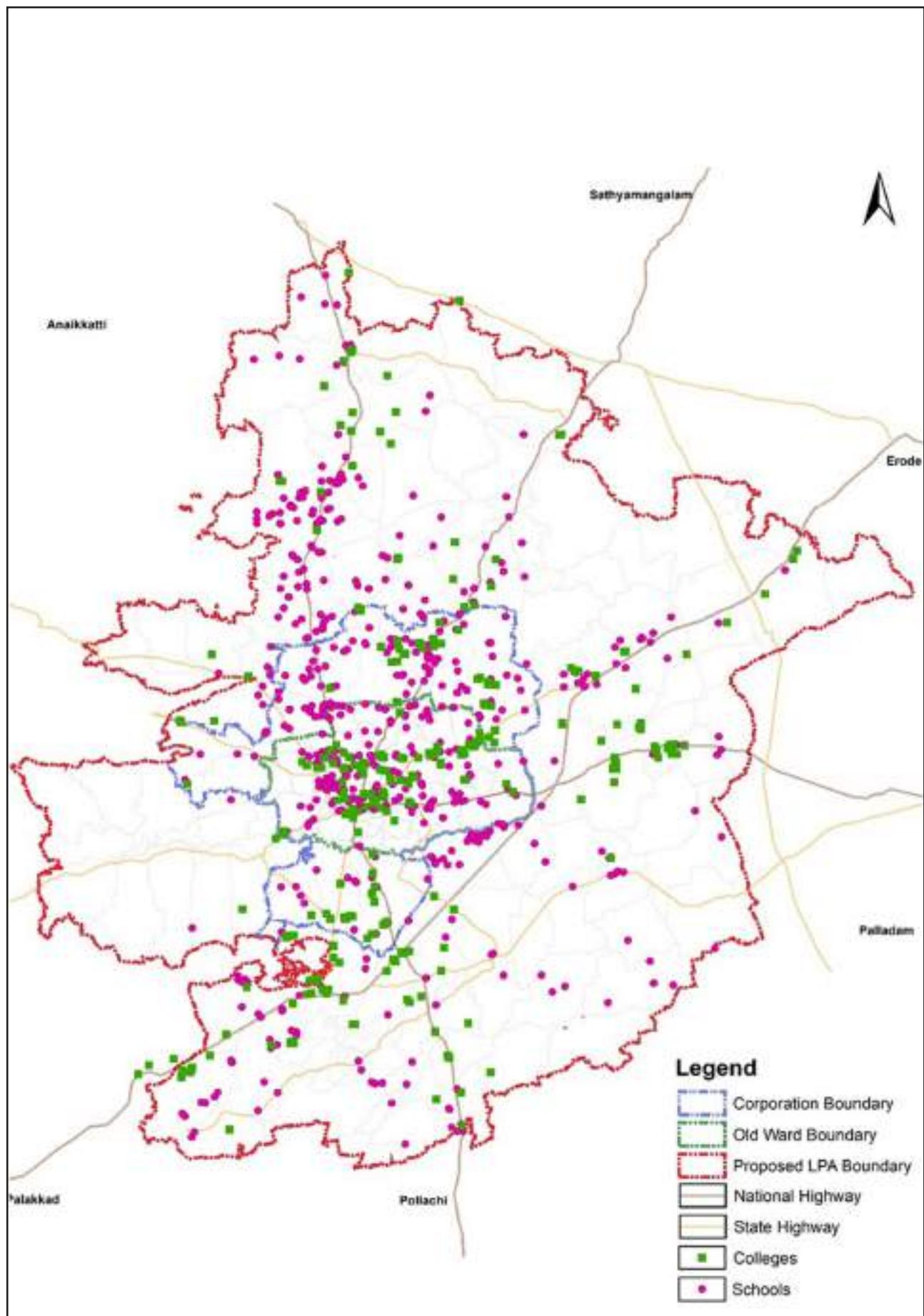
3.15 IMPACTS OF EDUCATIONAL INSTITUTIONS ON ECONOMY

Coimbatore has major corridors for educational institutions comprising of Engineering Colleges, Medical Colleges, Arts colleges, technical training institutes, nursing school, centres of excellence, distance learning centres. The following are the major educational corridors in Coimbatore Avinashi Road (NH - 381), Pollachi Road (NH-83), Mettupalayam Road (NH - 181).

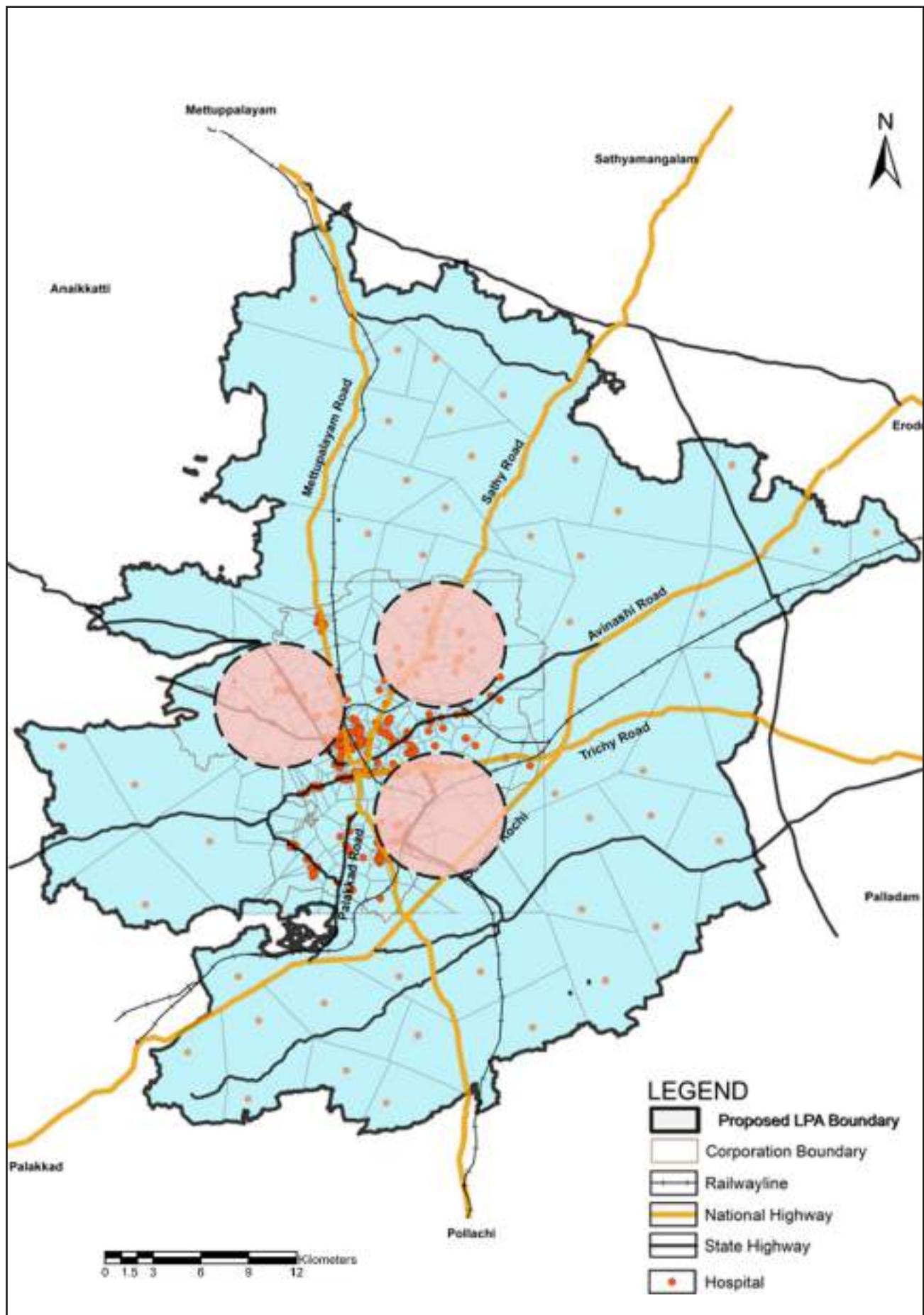
These educational institutes play a significant part in the building of human capital. The economic prospects in the vicinity of educational institutions lead to a quicker rate of urbanization growth. As a result, there is floating population and migration population into the city from neighbouring regions such as Pollachi, Tiruppur, Nilgiris, Erode, Salem,



Map 3-2 Existing Agricultural Centres in LPA



Map 3-3 Existing Educational institutions in LR4



Map 3-4 Existing Health care institutions on economy

Palakkad , etc. The demand for both residential and commercial developments along these corridors is developed and is developing. These educational establishments also contribute to the local economy in and around the city. These corridors will serve as a node for commercial activity concentration along the connected routes. As a result, educational corridors have a significant impact on economic development along these corridors

3.16 IMPACTS OF HEALTH CARE INSTITUTIONS ON ECONOMY

Coimbatore, renowned for its highly specialized hospitals, has become a preferred destination for healthcare compared to metropolitan areas due to its favorable climate, patient-friendly culture, and cost-efficiency. Coimbatore has the potential to maximise medical tourism .

The Map 3.4 shows existing health care institution on economy .

3.17 INDUSTRIES BASED ON SCALE

Industries can be classified on various bases. On capital investment and labour basis, they can be classified into three categories:

A. Small scale industries

Small Scale Industries (SSI) is those that have a significant capital investment in their plant and machinery. These industries make a one-time investment in machinery, plant, and equipment of less than Rs.10 crores and have an annual turnover of less than Rs.50 crores.

B. Medium scale industries

Medium Scale Industries (MSI) is those in which capital investment is significant and exceeds the government's limit. Around the territory of Coimbatore, there are approximately 112 medium scale industries. The total investment is greater than Rs. 5 crores but less than Rs. 10 crores.

C. Large scale industries

Large Scale Industries (LSI) is those industries whose investment in plant and machinery exceeds the government's limit. The total investment exceeds Rs. 10 crore. The data in table 3.8 show the different types of small, medium, and large-scale industries in Coimbatore.

Table 3.8 Major Industries in Coimbatore

S. No	Industries		
	Small Scale	Medium Scale	Large Scale
1.	Handloom Textiles	Mineral Based	Textile
2.	Wood / Wood Based Furniture	Chemical / Chemical Based	Machinery Equipment
3.	Paper/ Paper Production	Rubber, Plastic and Petrol Based	Pump Making
4.	Handicraft	Electrical and Electronic	Tea
5.	Soda Water	Real Estate	Sugar
6.	Jute and Jute Based	Mining	Wet-Grinders
7.	Transport	Automobile	Electrical Industries
8.	Printing Unit	Distilleries	Poultry Farming
9.	Food and Agro-Based	Fertilizers	Software
10.		Metal / Metal Based	Cotton

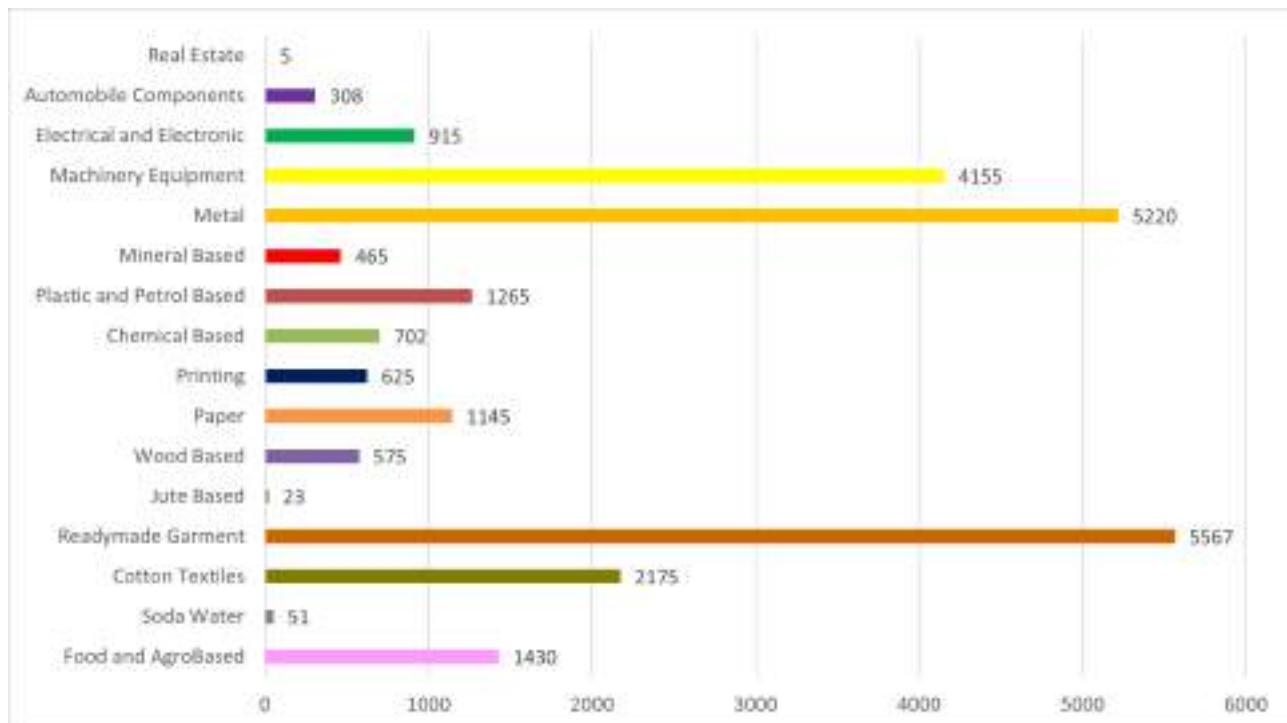


Figure 3.3 Number of Units in Major Industries of Coimbatore

Figure 3.3 is the representation of number of units in major industries of Coimbatore, a source in the Brief Industrial Profile of Coimbatore District.

3.18 BLOCK WISE DISTRIBUTION OF INDUSTRIES

Most industries are concentrated in the Coimbatore Corporation Block, followed by Sulur, Madukkarai, Periyanaickanpalayam, and Sarkarsamkulam, which have over 150 micro, small, and medium-sized businesses.

Blocks such as Kinathukadavu and Sulthanpet have a limited number of available industries. The distribution of industries in Coimbatore according to their respective blocks as of March 2020 is presented in table 3.9.

Table 3.9 Block wise Distribution of Industries in Coimbatore

Sl. No	Block Name	No. Of Industries
1	Coimbatore Corporation	643
2	Karamadai	146
3	Kinathukadavu	14
4	Madukkarai	154
5	Periyanaickanpalayam	186
6	Sarkarsamalulam	196
7	Sulthanpet	15
8	Sulur	408
9	Thondamuthur	149
10	Other	35

3.19 AGENCIES THAT PROMOTE INDUSTRIES

With the growth of software industries in Coimbatore, various agencies such as SIDCO, ELCOT, and many other SEZs have emerged to promote the software sector throughout the city.

Coimbatore's IT and BPO sectors are rapidly expanding, making it a desirable location for technology start-ups. Many SEZs and government agencies, such as TIDCO, are being proposed in the city.

3.19.1 SIDCO

The Tamil Nadu Small Industries Development Corporation Limited (SIDCO) was established in 1970 as a state-wide initiative to promote micro, small, and medium-sized businesses . SIDCO's main branches in Coimbatore are in Kuruchi, Malumichampatti, and Kalapatti.

3.19.2 ELCOT

Kuruchi's SIDCO industrial estate spans 88.5 acres. Malumichampatti's industrial estate is 36.14 acres in size. The SIDCO Industrial Estate in Kuruchi, with houses approximately 600 units and employs approximately 10,000 people.

The Electronics Corporation of Tamil Nadu Limited (ELCOT) is a public sector organisation founded on March 21, 1977, with the mission of promoting, establishing, and operating State Public Sector Enterprises for Electronic Items. Vilankurichi is home to the 62-acre ELCOT IT Park.

3.19.3 TIDCO

TIDCO (Tamil Nadu Industrial Development Corporation) is a Tamil Nadu government organization. TIDCO has established a Tidel Park for Information Technology in Coimbatore.

TIDCO and TIDEL Park Limited collaborated to build TICEL Bio Park on a 10-acre plot of land in Anna University Campus, Somayampalayam Village, and Coimbatore District

A.Ticel Bio Park - Phase - I

TICEL Phase I consists of 1,42,000 square feet of building space built at a cost of Rs.54.00 crore and is operational since November 2004.

B.Ticel Bio Park - Phase II

Following that, TICEL built Phase II with a total building area of 6,49,000 square feet at a cost of Rs.168.00 crore, which became operational in September 2015.

C.Biotechnology Core Instrumentation Facility (BTCIF) at Ticel - II

BTCIF was established jointly by TICEL and the Government of India's Department of Biotechnology to provide scientific support at a cost of Rs.19.3 crores.

D.Ticel Bio Park - Phase III

Phase III is expected to be built on the Anna University Campus, in Somayampalayam Village, and in the Coimbatore District.

E.Tidco - Aerospace and Defence Park

The Tamilnadu Industrial Development Corporation is all set to acquire 80.62 hectares (199.13 acres) of land spread across at Sulur taluk in Coimbatore district and Palladam taluk, In Tirupur district for the aerospace and defence industrial park.

TIDCO would bear the land acquisition expenses of Rs.140.19 crore and administrative expenses of Rs 16.63 crores.

3.19.4 CODISSIA

The Coimbatore District Small Industries Association (CODISSIA), for example, has made the city proud by constructing the CODISSIA Trade Fair Complex, the city's largest modern exhibition site and the hall-mark building of a private association.

Despite the construction of a trade fair complex, the industry association has proposed the creation of two industrial parks on the city's outskirts to assist engineering units in relocating to a common area.CODISSIA Industrial Park Ltd (CIPL) can house up to 350 industrial units.

3.20 INDUSTRIAL CORRIDOR

The Government of India has announced the extension of the Chennai Bengaluru Industrial Corridor to Kochi via Coimbatore, which will include the Tamil Nadu districts of Krishnagiri , Dharmapuri, Salem, Namakkal , Erode, Karur, Tiruppur, Coimbatore, and Nilgiris . The priority node has been identified as Dharmapuri-Salem, which will be developed as an Integrated Manufacturing Cluster. TIDCO and the Delhi Mumbai Industrial Corridor Development Corporation Limited (DMICDC) is in the process of selecting a consultant to prepare the master plan for this node.

3.21 TWIN CITY DEVELOPMENT

The figure 3.4 illustrates the potential growth of economic development between the twin cities - Coimbatore and Tiruppur. These twin cities have similar characteristics, and the urbanization pattern of these cities is towards each other.

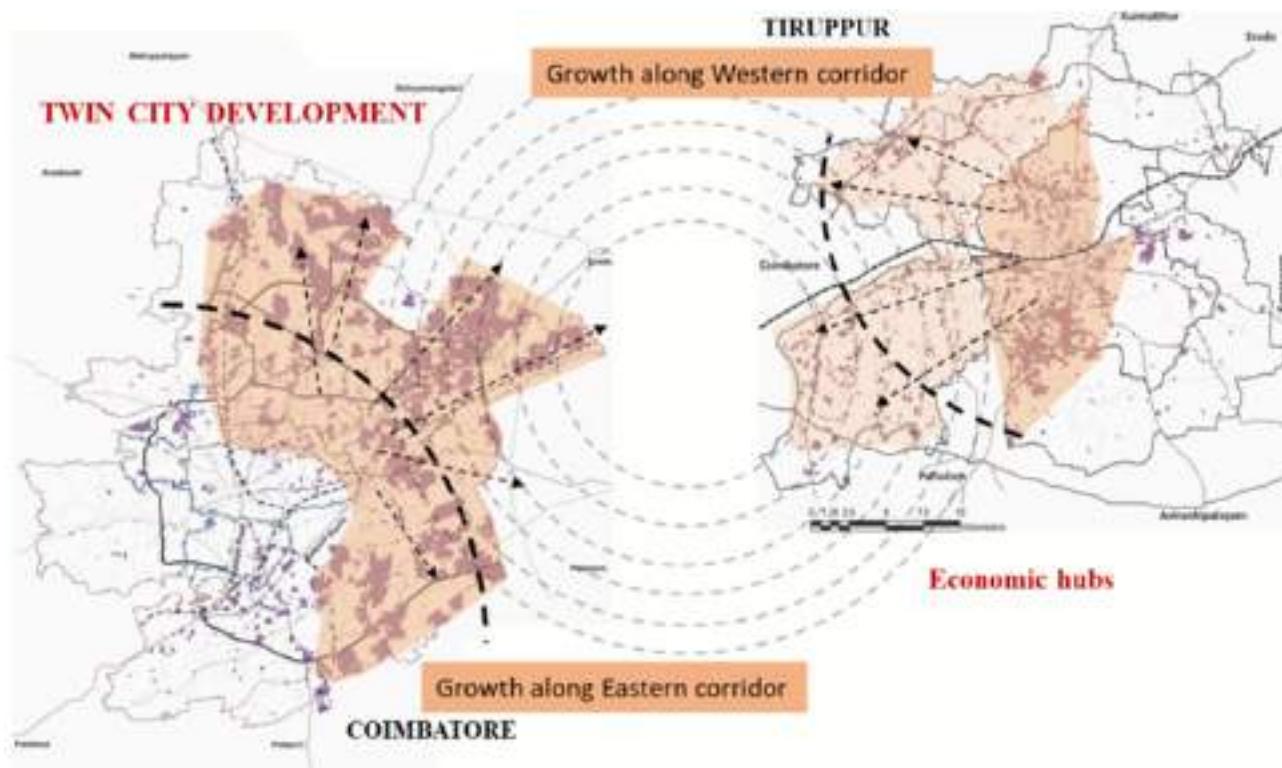
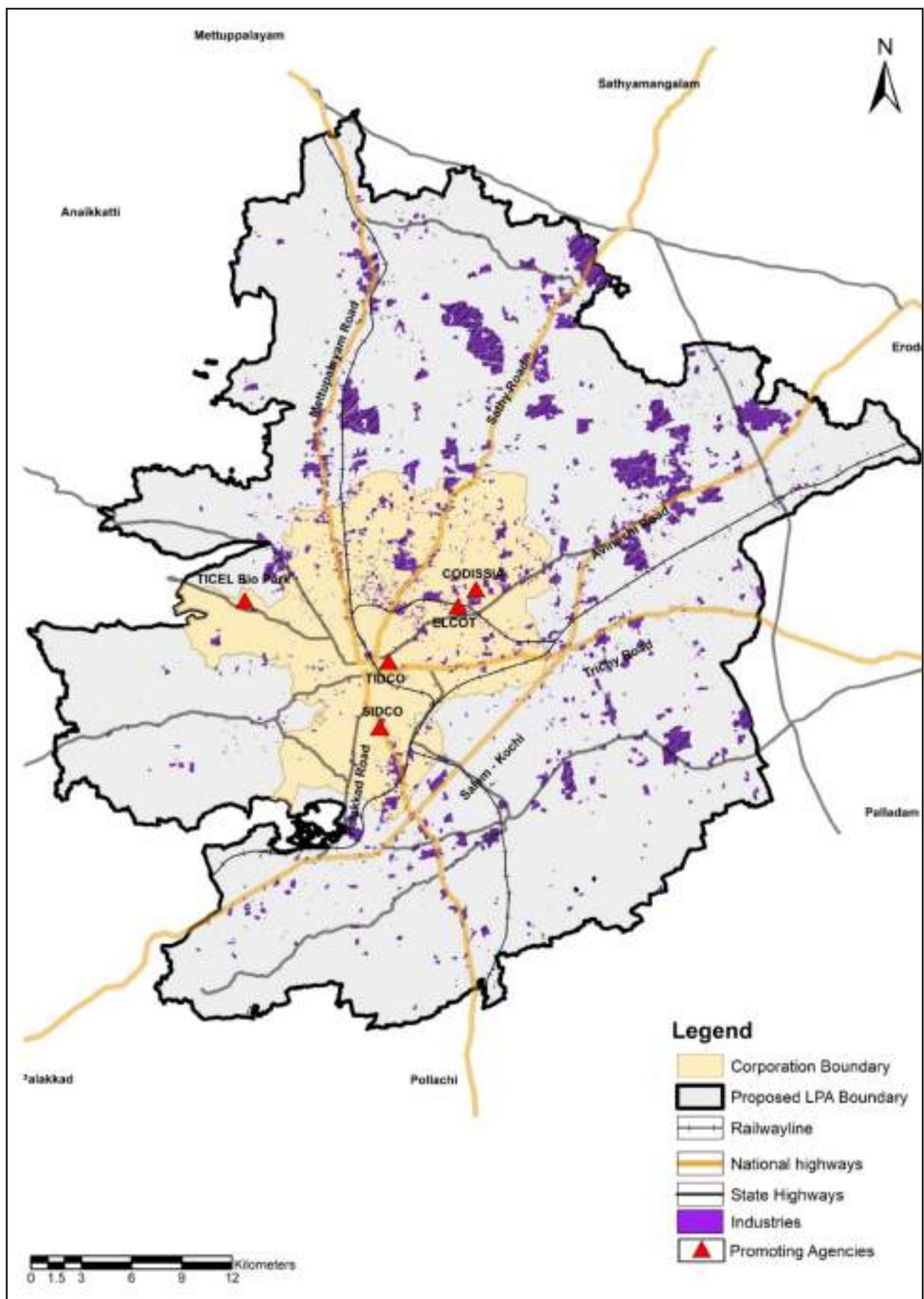


Figure 3.4 Twin City development

The growth of Coimbatore appears to be following the same trend of development as that of Tiruppur. The portion of Coimbatore that is expected to experience the most expansion is the eastern half of the city, specifically along the Avinashi Road and the Trichy road. Because of the natural barrier that is the Western Ghats, there are limitations placed on the area of Coimbatore that is designated for development. The undevelopable zone may be found in the western portion of the Coimbatore Local Planning Area (LPA). Tiruppur, on the other hand, is expanding toward the western section of the city, which is in the direction of Coimbatore. These two cities are projected to expand in a direction that is toward one another. As a result, Coimbatore and Tiruppur are considered to be



Map 3-5 Existing Industrial Centers

3.22 TRADE ASSOCIATIONS

twin cities due to the similar patterns of economic development that they exhibit. It has been determined that the rise of these two cities will serve as the economic centre that will be necessary for twin city development.

The maps 3-5 show the Existing Industrial growth centers Coimbatore LPA.

The Coimbatore District Small Industries Association (CODISSIA) has been formed to bring the small industries under one umbrella and to address various issues faced by them. CODISSIA, COINDIA, SITRA and COSIMA are trade groups that represent the industry in Coimbatore. Coimbatore also has a trade fair area of 160,000 square feet (15,000 m²) which was completed in 1999. Due to its hosting of INTEC, it was given the moniker COINTEC (Small Industries Exhibition).

CODISSIA is working in the direction of providing relief to MSMEs

(Micro, Small and Medium Enterprises) in terms of power shortage, repayment of loans to banks by MSMEs , procurement of raw materials in bulk and at competitive rates, introduction of new technology and addressing manpower issues. Recently, fairs like 'Electrotec 2013' and 'Renergy Coimbatore 2013' were successfully hosted by CODISSIA.

3.23 SWOT ANALYSIS

A. Strength

- Growing population with increasing literacy rate projects a progressive growth in the local planning area.
- The industrial industry in Coimbatore, particularly in the textile industries, pump manufacturing industries, and automobile industries, are contributing factors to the city's growth and development.

- With higher concentration of private hospitals, medical tourism acts as strength to the city's economy.

B. Weakness

- The impact of the migrant workers in Coimbatore's manufacturing industries creates a poor social-economic condition for the migrant working class.

C. Opportunity

- The expanding information technology industry in Coimbatore presents a potential for financial investment and revenue generation.
- The growth of the population and the improvement of economic generators will both contribute to the development of the LPA.
- The development of SEZs in the city and the availability of skilled labor to support them is an economic opportunity.
- Sustainable building technologies and green building measures should be promoted.

D. Threat

- Since migration cannot be stopped, it is important to study and analyze the extent of urban sprawl to prevent the future consequences and reduce the arising problems.

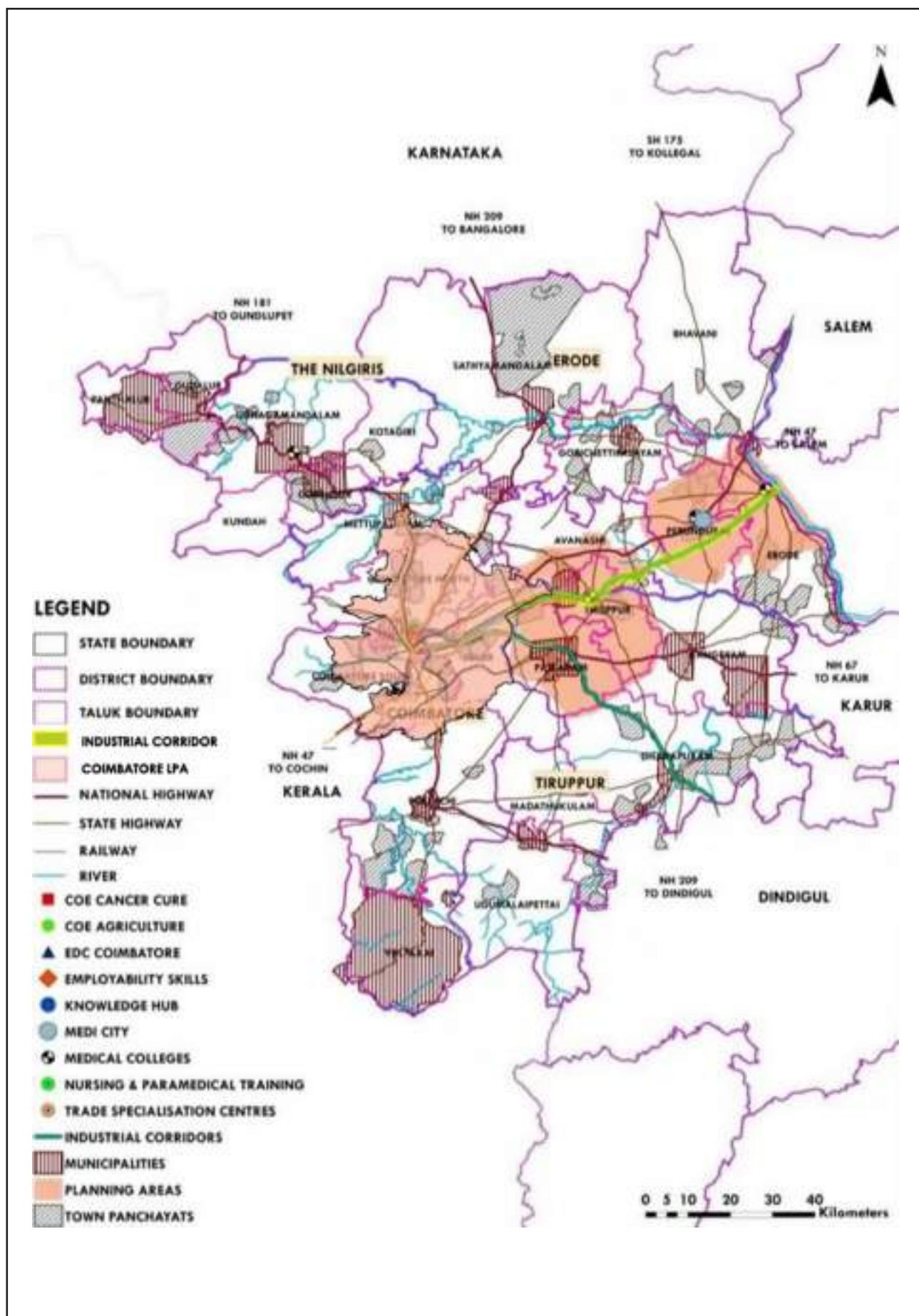
3.24 PLANNING STRATEGIES- PROPOSED INVESTMENT

In accordance with the Tamil Nadu Vision 2023 , the investment regions that have been planned for the Coimbatore Region would also initiate the region's rapid growth over the next few decades. The projected investments are broken out into further depth below in table 3.10

Table 3.10 Proposed Investment Regions

STRATEGY	SCHEME/ POLICY / PROGRAMME	INVESTMENT (RS. IN CRORES)	IMPLEMENTATION AGENCY
Highway , Bridges and bypass sector	Six/Eight lane Triangular Corridor : Thoothukudi - Coimbatore Alignment	5000	Tamil Nadu Road Development Corporation
	Six/Eight lane Triangular Corridor: Coimbatore- Chengalpattu Alignment	9000	Tamil Nadu Road Development Corporation
Railways	Madurai Coimbatore high speed rail link	23,000	Indian Railways
	Coimbatore-Chennai high soeed rail link	45,000	Indian Railways
Airport	Expansion of Coimbatore Airport	3000	Airport Authority of India and Transport Department , Government of Tamil Nadu
Industry	Coimbatore-Salem Industrial Corridor- Manufacturing and Business InvestmentRegion: Manufacturing and Business Investment Region -I & II	7,200	State Industries Promotion Corporation of TamilNadu(SIPCOT)
	Coimbatore-Salem Industrial Corridor- Agri Business Investment Region (ABIR)	4,800	State Industries Promotion Corporation of TamilNadu(SIPCOT)
	Coimbatore- Madurailndustria l K:orridor	10,000	State Industries Promotion Corporation of Tamil Nadu(SIPCOT)
	Industrial Parks for SME's	62.5	SIDCO, Government of Tamil Nadu
	Mass Public Transit Systems for Madurai and Coimbatore	50,000	Transport Department/ CU MTA/CMRL
	Infrastructure Support for Agro food processing industry	208	TNAU, AgricultureDepartment - Department of AM&AB

	Infrastructure for Dairy Processing	583	Animal Husbandry , Dairy and Fisheries Department
	Infrastructure for poultry processing	153	Animal Husbandry, Dairy and Fisheries Department
	Centers of Excellence for Cancer Cure	100	Health and Family Welfare Department , Government of Tamil Nadu
	Establishment of five Global Quality Nursing and Para medical Training Institutes	50	Private Education Institutions
	Knowledge hub in Coimbatore	325	Tamil Nadu Industrial Development Corporation
	Enhancing Employability skills of Engineering students- Coimbatore	1200	Anna University ,Chennai
	Entrepreneurship Development K:center for SME - Coimbatore	15 Cr per center	Department of Higher Education , Department of Industry, Tamil Nadu Skill Development Mission , Tamil Nadu Corporation for Development of Women , ILO
	Center of Excellence for Agricultural Practices	500	TNAU under Agricultural Department
	Entrepreneurship Development K:center for SME - Coimbatore	15 Cr per center	Department of Higher Education , Department of Industry, Tamil Nadu Skill Development Mission , Tamil Nadu Corporation for Development of Women , ILO
	Center of Excellence for Agricultural Practices	500	TNAU under Agricultural Department



Map 3-6 Investment Regions in Coimbatore

3.25 PROPOSALS

3.25.1 Employment projection

From the age structure data given in table 3.9, the age group between 18-60 years is taken as the eligible age group for employment. According to the numbers from 2001 and 2011, it is assumed that 59.5% of the entire population of the LPA is comprised of workers who are eligible for benefits there are 51% males and 49% females among these total participants. Considering the existing worker population and the individuals seeking employment, the ratio of male and female aspirants is found to be 30% and 15% respectively. It is estimated that by the year 2011, priority of eligible workers is given for male enrolled as 32.50% of the population and 17.50% of the female eligible working population. The respective percentages for the following years are 35% (male) and 20% (female) for 2021 , 37.50% (male) and 22.50% (female) for 2031, and 40% (male) and 25% (female) for 2041. Additional jobs are to be created for 20% of the eligible working population for which the population seeking employment has been taken into account.

Table 3.11 Employment Projection for Coimbatore Local Planning Area (LPA)

	2001	2011	2021	2031	2041
LPA Population (in lakhs)	20.34	24.67	30.16	37.16	45.73
Eligible workers(in lakhs)	11.76	14.86	17.94	22.10	27.21
Eligible Male workers (51%)(in lakhs)	6.00	7.58	9.15	11.27	13.88
Eligible Female workers (49%) (in lakhs)	5.76	7.28	8.79	10.83	13.33
Male willing to work (in lakhs)	1.80	2.46	3.20	4.23	5.55
Female willing to work (in lakhs)	0.86	1.27	1.76	2.44	3.33
[Total (in lakhs)]	2.66	3.73	4.96	6.67	8.88

Based on an analysis of the data from the various censuses that have been conducted in the past, Table 3.11 presents the employment projections for the Coimbatore Local Planning Area (LPA) for the years 2001, 2011, 2021, 2031, and 2041. These statistics are presented in table format

The need for employment is predicted to expand from 2001 to 2041 on the basis of improvements in aptitude and education level, expansion in the working population, and an increase in the desire of people to work. The estimated employment will be concentrated in the next economic growth nodes where the new industries and industrial capitals are identified. These nodes are expected to see rapid economic expansion.

3.25.2 Economic growth capital identification:

Manufacturing industries, factories, software industries, warehouses, defense estates, textile industries, and other major economic generators create employment opportunities in Coimbatore LPA. These industries are the most important growth nodes. By utilizing the backing of regional and state authorities, the city can take advantage of government programs, grants and subsidies. Entrepreneurs and startups have chances to secure money from private equity and venture capital firms for innovation and growth. In the local planning area, these nodes have an impact on the investment region. The Table 3.12 and map 3.8 depicts the identified economic growth capitals in Coimbatore LPA. These nodes include existing and proposed Industrial establishments.

Table 3.12 Economic Growth Capital : 8 nodes

Economic Capitals	Areas	Type of industry
Node 1	Irugur, Pallapalayam, Nilambur, And Arasur	Automobile industries, motor and pump manufacture industries
Node 2	Chettipalayam, Othakalmandapam, Pappampatti , Kallapalyam	Electrical automation manufacture industries (L&T, Schneider), CODISSIA Industrial Park, Logistic-warehouse
Node 3	Sarkarsamakulam , Kannampalayam	Food processing and machineries industries
Node 4	Saravanampatti , Keeranatham	Software industries
Node 5	Coimbatore City Municipal Corporation(CCMC)	SIDCO, TIDCO, and Small scale industries
Node 6	Periyanaickenpalayam, Idikarai	Pumps & Electrical Engineering Industries
Node 7	Madukarai	Cement factories and mining industries
Node 8	Somayampalayam	Machinery, Steel and Chemical industries

Economic growth capital 1 : Irugur,Pallapalayam,Neelambur and Arasur

- Area: 6385 Hectares
- Major Highways Connected: Trichy Road (NH-81) & Avinashi Road (NH-381)

Major Industries: Automobile industries, motor, and pump manufacture industries.

- The primary highways in these regions are the NH-381 Avinashi road towards Erode and the NH-81 Tiruchirapalli road towards Palladam (Irugur, Pallapalayam, Neelambur, and Arasur).
- The key advantage of having a railway station at Irugur will ensure the development , movement or transportation intakes (for obtaining parts from other cities) and outtakes (exporting products after manufacture) can be done

quickly. These regions additionally include motor and pump manufacturing and exporting businesses, such as Norton Industries, etc. The factors that identified these areas as growth hubs are that if industrial development strategies occur in the future, the residents will have number of work opportunities .

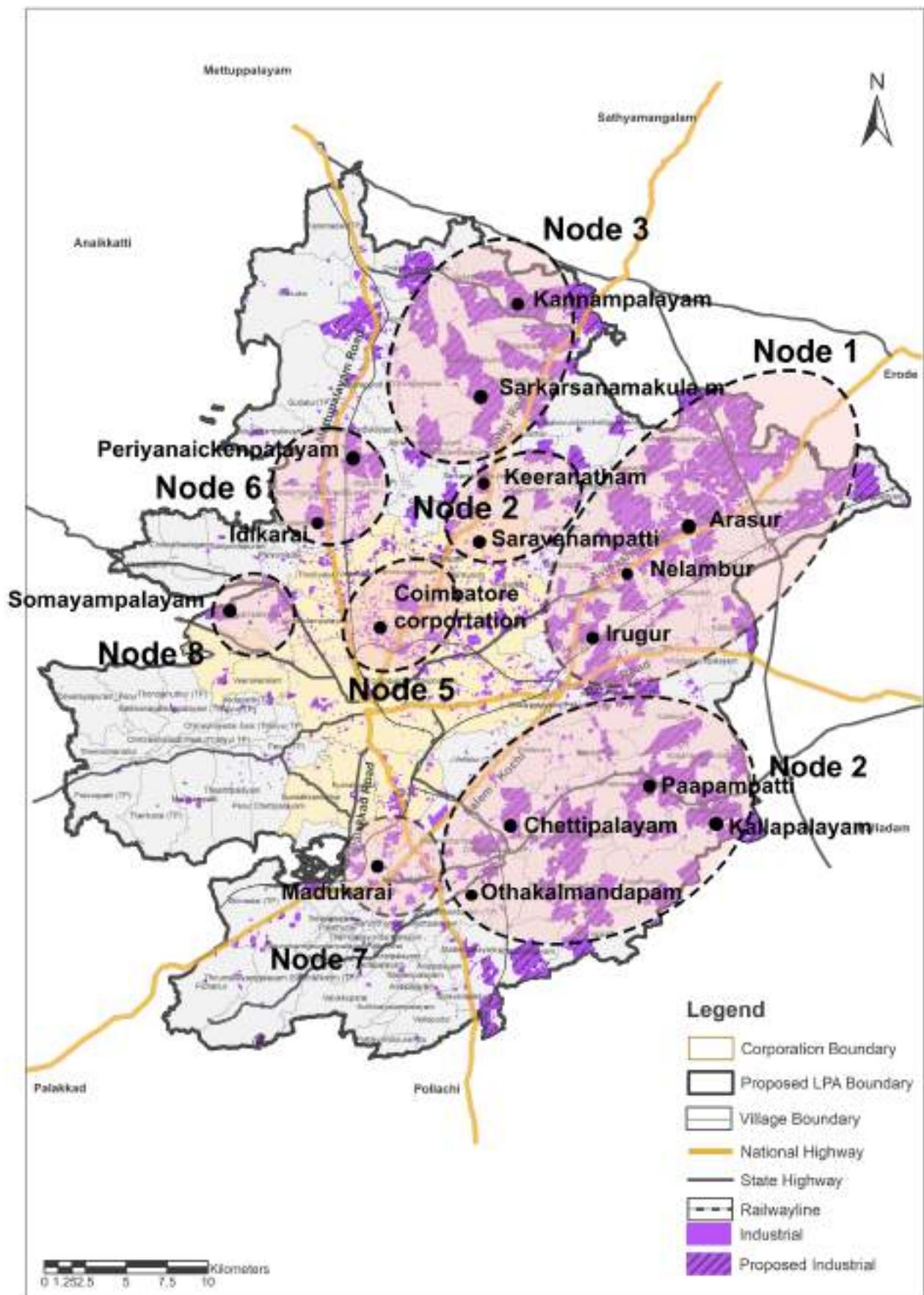
Economic growth capital 2:

Chettipalayam, Othakalmandapam, Pappampatti, Kallapalyam.

Area: 6256.86 Hectares

Major Highways Connected: Dharapuram Road (SH-163), Dindigul Road (NH-83).

Major Industries: Warehouses, L&T foundry, Codissia industrial park, etc. From their mainly rural origin, their development as industrial centers of activity, Chettipalayam and Othakalmandapam have seen substantial industrial growth. The NH-83 headed towards Pollachi is the main highway in these regions. Major warehouses like Amazon, Flipkart, etc. are proposed in these areas. A web of development that connects Kerala, through roads and railroads, triggers the economic growth of these nodes toward Pollachi and Paladam. An active industrial cluster that supports technology and economic development is the Codissia Industrial Park in Kallapalyam. Up to 350 industrial units may be found in CODISSIA Industrial Park Ltd. (CIPL). These businesses not only promote growth in the economy but also improve Coimbatore's reputation as a successful commercial/industrial center. The L & T bypass connects to a lot of industries manufacturing electrical automation systems.



Map 3-7 Economic Growth Capital : 8 nodes

**Economic growth capital 3:
Sarkarsamakulam, Kannampalayam.**

Area: 2860.96 Hectares

Major Highways Connected: Mysuru Road (NH-948)

Major Industries: Food processing and machineries industries.

Over the past few years, Sarkarsamakulam's industrial growth has been remarkable, changing it from a mainly agricultural economy into a growing industrial area. The Mysuru Road (NH-948) is the important road in this node towards Sathyamagal. The Periyannayackenpalayam train station is the closest, so if economic development occurs, the area will become more developed in the areas of machinery and food processing. Additionally, the main bus stop in this area

Economic growth capital 4:

Area: 2506.85 Hectares

Major Highways Connected: Mysuru Road (NH-948) **Major Industries: Software industries.**

Saravanampatti has seen significant growth in industry, especially in the IT and software industries, developing it into a growing technology centre. It has attracted many IT businesses and software organisations through the construction of technological centres and tech parks. The development of IT parks like Chill SEZ shows Saravanampatti and Keeranatham's position as major participants in the business process outsourcing and technology industries. The Mysuru Road (NH-948) is the important road in this node towards Sathyamagal.

Economic growth capital 5: Coimbatore City Municipal Corporation

Area: 10506 Hectares

Major Highways Connected: Connects Kamataka via Ooty (NH-181), Mysuru Road (NH-948), Salem Kochi Highway (NH-544), Trichy Road (NH-81) & Avinashi Road (NH-381)

Major Industries: SIDCO, TIDCO and Small-Scale Industries

The Coimbatore city corporation has main city outlets of the companies that have their factories outside the corporation limit and the city corporation connects the areas easily by means of air, railways and by road. The basic source of economy in Coimbatore is textiles and manufacturing industries that creates the economic growth of the sector. The major roads are Kamataka via ooty (NH -181) it connects towards mettupalayam. The major industries in these areas are SIDCO, TIDCO and small-scale industries. SIDCO's main branches in Coimbatore are in Kuruchi, Malumichampatti, and Kalapatti. Kuruchi's SIDCO industrial estate spans 88.5 acres. Malumichampatti's industrial estate is 1.6 acres in size. The SIDCO Industrial Estate in Kuruchi, which houses approximately 600 units and employs approximately 10,000 people.

Economic growth capital 6: Periyanaickenpalayam, Idikarai.

Area: 2077.52 Hectares

Major Highways Connected: Connects Kamataka Via Ooty (NH-181) **Major Industries:** Pumps & Electrical Engineering Industries.

From mainly an agricultural region to a growing industrial hub, Periyanaickenpalayam has seen

huge industrial growth. In addition to the Nilgiris tourism industry's role on these corridors, Periyanaickenplayam Railway Station's place as the fastest way of transporting goods and raw materials by rail and by road in Karnataka via Ooty Road (NH-181). The role of industries like Salzer which is a German-collaborative company, this area has huge potential to develop economically.

Economic growth capital 7: Madukarai

Area: 2147 Hectares

Major Highways Connected: Salem Kochi Highway (NH-544) Major Industries: Cements Factories and Mining Industries.

ACC is the most significant employer in this region, and the economic contribution of their mines to individual communities cannot be overstated. A future economic corridor, Madukarai is now under construction. Some mining firms, such as ACC Cements and Dalmia Cements, together with other sectors, have emerged as key drivers of economic growth in Madukarai. Other industries have also contributed to the region's expansion. These businesses not only contribute significantly to the success of the regional economy, but they also have tight ties to the complex system of transportation that has been established. In addition, mining companies in the region are actively supporting efforts being made to collect minerals from the area's resources.

Economic growth capital 8: Somayampalayam

Area: 1310.14 Hectares

Major Highways Connected: Marudamalai Road (SH-167)

Major Industries: Machinery, Steel and Chemical Manufacture Industries. The major road in these regions is SH-167 Marudamalai road and towards Mettupalayam road. These regions include machinery, steel and chemical manufacture industries. Somayamplayam has all potential for economic corridor which will generate employment opportunities in the coming years.

3.25.3 Economic development along the educational corridor

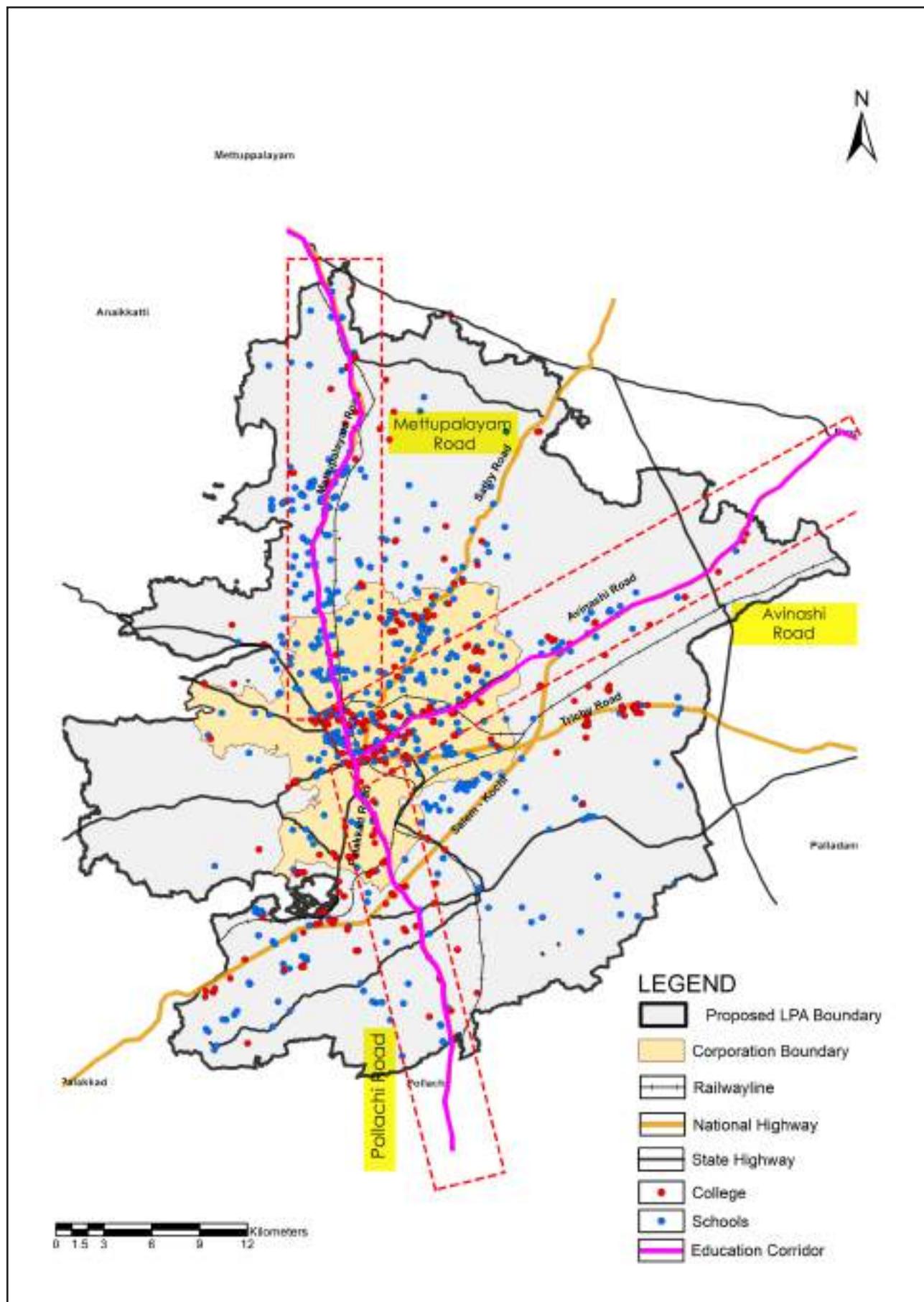
Mettupalayam

Corridor 1: AVINASHI ROAD (NH - 381),

Corridor 2: POLLACHI ROAD (NH-83),

Corridor 3: METTUPALAYAM ROAD (NH - 181)

These are the major corridors for educational institutions comprising of Engineering Colleges, Medical Colleges, and Arts colleges, and schools. The main education corridor road in Coimbatore is The Avinashi road (NH-381) and the Pollachi main road (NH-83) followed by the mettupalayam road. Coimbatore serves as an educational hub for neighboring regions such as Tiruppur, Erode, Nilgiris , Palakkad , Pollachi, etc. Therefore the migration population for educational facilities will create demand for the residential and commercial developments along these corridors. These educational institutes attract floating population into the city. Hence the educational corridors have huge impact on the economic development along these corridors.



Map 3-8 Economic Development along Educational Corridor

3.25.4 Integrating economic growth nodes with the transportation corridor

Integrating economic planning with the proposed transport network plan is a strategic approach to promote sustainable development , efficient resource allocation, and improved connectivity within a region or country. This integration involves coordinating economic goals, infrastructure development, and transportation systems to achieve better outcomes. The identified potential economic growth centres are shown in the Figure 3.5.

The proposed 200 feet link roads on the eastern part are connecting the proposed economic growth nodes. The proposed 100 feet and 80 feet roads are connecting the 200 feet link roads. These roads can provide direct access to industrial areas, freight terminals, multimodal logistic park and other economic generating centres, thereby facilitating the movement of goods to and from manufacturing and distribution centres. By aligning the two critical aspects of development - economic growth nodes and the transportation corridor, regions and countries can create synergies that promote economic prosperity, improved quality of life, and environmental sustainability.

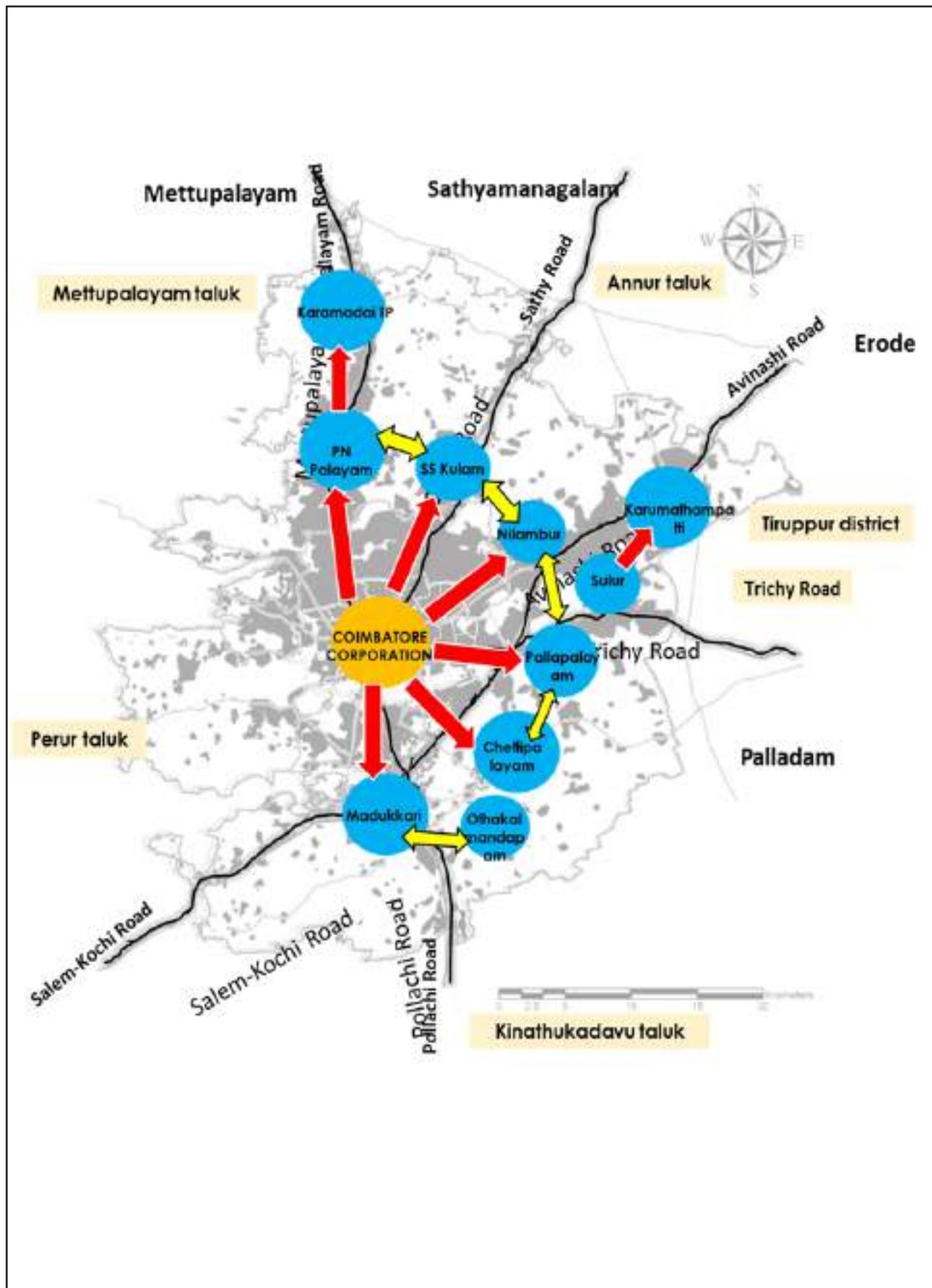
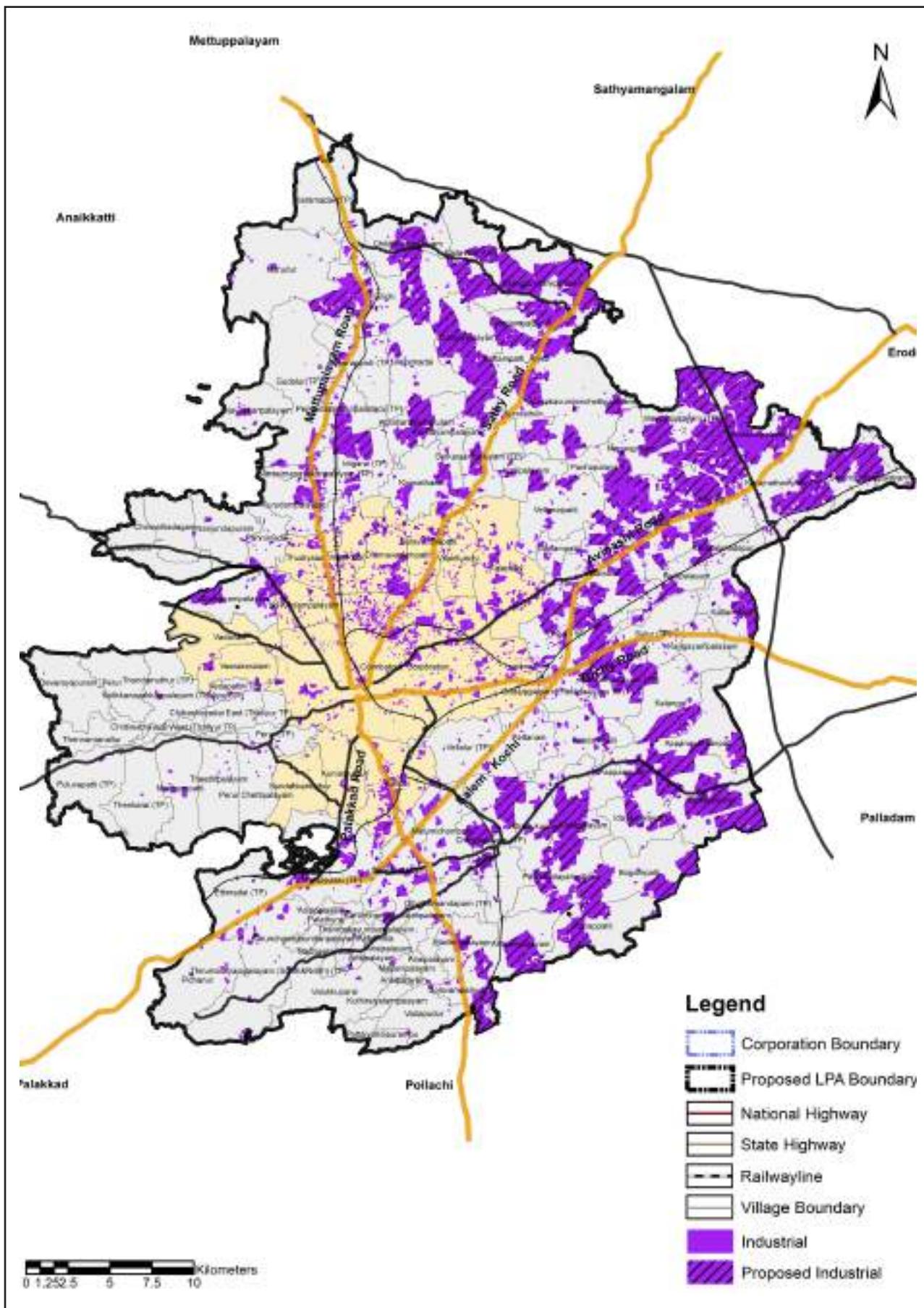


Figure 3.5 Identified upcoming economic growth centres



Map 3-9 Proposed industry map

3.25.5 Recommendations and Strategies:

- Industry promotion is an essential requirement for Coimbatore's strong economic base. As a result, the following initiatives can be launched to stimulate industrial development.
- A study can be conducted to determine the expansion potential of existing and new industries.
- Concerned government bodies can provide essential infrastructure that meets criteria for projected potential industries in defined areas to support industrial expansion .
- value capture finance tools can be incorporated to enhance revenue generation for ULBs, strengthen the local bodies and can provide financial stability.
- Small-scale manufacturing is an effective strategy for increasing industrial employment. As a result, industrial estate infrastructure may be improved , and relief measures to rehabilitate viable sick units may be implemented .
- To improve industry competitiveness , steps must be taken to upgrade infrastructure facilities in existing industrial clusters and estates.
- Sulur has identified major industrial growth corridors. Sulur is a growth node that is well-connected and has sufficient infrastructure to support industrial growth.
- Industrial estates for computer hardware and software can be established early at Somayampalayam Village.

- To meet the increasing demand, the existing Trade Association, CODISSIA, must be upgraded and expanded.
- Land banks in and around the Coimbatore LPA must be developed for industrial parks with quality infrastructure, including housing, business centres, and skill development centres, among other things, to ensure an adequate supply of developed land for manufacturing and quality space for high-tech industries and start-ups.

3.25.6 Strategies / Policy Intervention

The Ministry of Urban Development , Government of India introduced the Value Capture Finance Policy Framework in February 2019. Value capture financing is based on the principle that private land and buildings benefit from public investments in infrastructure and policy decisions of Governments. Appropriate VCF tools can be deployed to capture a part of the increment in value of land and buildings. In turn, these can be used to fund projects being set up for the public by the Central/State Governments and ULBs.

To strengthen revenue generation of urban local bodies value capture finance tools such as Land value tax, Fees for changing landuse (Agricultural to non - agricultural) , Betterment levy, Development charges (impact fees), Transfer of development rights (TDR), Premium on relaxation of rules or additional FSI, Vacant land tax (VLT), Tax Increment financing (TIF), Land acquisition and development, Land Pooling System (LPS).

Mandatory implementation of Value Capture Financing (VCF) tools to tap the impact of infrastructure development on land value increase. This will enhance and strengthen the revenue

generation of the Urban Local Bodies (ULBs). Projects such as Road widening, Lake Development project, proposed bus terminals, freight terminals, etc. will impact on the land value increase. Hence the increased land value due to the infrastructure development can be tapped using VFC tools



Figure 3.6 Road Development



Figure 3.7 Lake Development

Town Planning Schemes (TPS)/ Land Pooling System

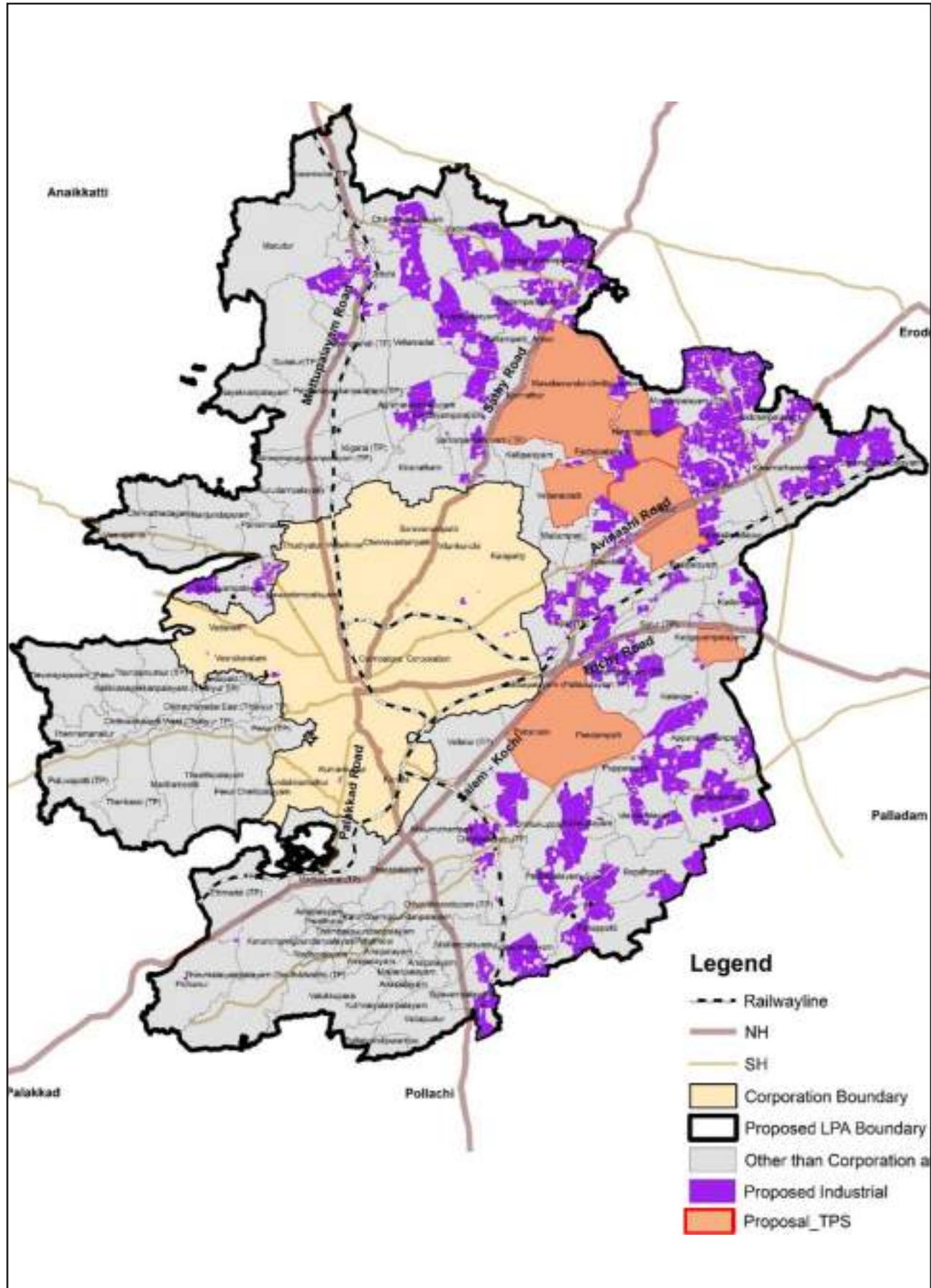
All land parcels in a region are pooled, laid out, infrastructure built, and a fraction of the land is returned as reconstituted pieces. Gujarat and Haryana have used land assembly to trade unproductive land for infrastructure-served plots.

- TP scheme to be deployed in the upcommg industrial cluster to maintain an orderly development.
- The TP Scheme will regulate the haphazard development around the economic capitals.

The map 3-10 shows proposed Town planning schemes (TPS)

Table 3.13 Phasing of proposal

SHORT TERM PROPOSAL		MID TERM PROPOSAL		LONG TERM PROPOSAL	
Village Name	Area identified (sq.km.)	Village Name	Area identified (sq.km.)	Village Name	Area identified (sq.km.)
Arasur (part 1)	11	Peedampalli	5	Peedampalli	5
Arasur (part 2)	8	Vellanaipatti	5	Vellanaipatti	5
Pattanam	12	Masakavundan-chettipalayam	5	Masakavundan-chettipalayam	5
Kangeyampalayam	5	Pachapalayam	5	Pachapalayam	5
				Naranapuram	10

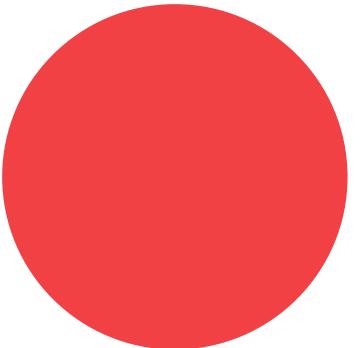


Map 3-10 Proposed locations for TPS



04

HOUSING



4.1 OVERVIEW

House is one of the fundamental necessities. When a person's basic requirement for a place to sleep is not provided, it is extremely difficult for that person to even begin to consider meeting their intellectual requirements or their familial aspirations. The provision of quality and livable housing for its residents should be at the top of the list of responsibilities for every city.

A typical housing unit includes more than simply land, a structure, and essential amenities such as water, sewage, and access roads. Typical housing units also include other components. The term "housing need" refers to a method through which the requirements for housing can be determined by ,Housing stock available in the base year.

- The total number of households in the base year.
- Housing scarcity and vacancy rate
- Demand forecasting
- Recommendation/proposal

Housing comes with a host of intangible benefits, both emotionally and culturally. As is the case in the more industrialized parts of the world, housing-related activities in developing countries also generate economic benefits that are unrelated to the housing industry.

In the developed nations, housing-related activities provide economic advantages that extend beyond the housing sector, just as they do in the developed world.

Among the housing-related difficulties are homelessness, deficient housing conditions, housing affordability crises, and urban overcrowding. Frequently, government intervention, public-private partnerships, and community engagement are required to address these challenges.

4.2 HOUSING CONDITIONS

Households are classified as permanent (81.8%), semi-permanent (14.7%), temporary (2.1%), serviceable (0.7%), non-serviceable (1.3%), or unclassifiable (1.4%). Table 4-1 shows the different types of structures, as well as the number of households and their percentage.

Table 4-1 Houses used as Residence and Residence cum other uses

Type Of Structure	Number Of Households	%
Permanent	557128	80.8
Semi-permanent	94463	13.7
Temporary	14479	2.1
Serviceable	4826	0.7
Non-serviceable	8964	1.3
Unclassifiable	9655	1.4
Total	689515	100

Source : Census of India 2011

4.3 HOUSEHOLD CHARACTERISTICS

The housing stocks can be categorized and Household details are listed in Table 4-2 ,

Table 4-2 provides information on the population as well as the number of households in the Coimbatore LPA. From 1961 to 1971, the yearly rate of population growth grows steadily. From 1981 to 1991, the rate of population growth declines. From 1991 to 2001, the rate of population growth increases. From 2001 to 2011, the rate of population growth takes a considerable leap.

The overtime rate of growth in the number of households always decelerates until it reaches the rate of growth that occurred during 1971-

1981, and then it decelerates even further in the years that follow, before beginning to accelerate once more during the years 2001–2011. The Households and Population of the Coimbatore Local Population Area are shown in Figure 4-1.

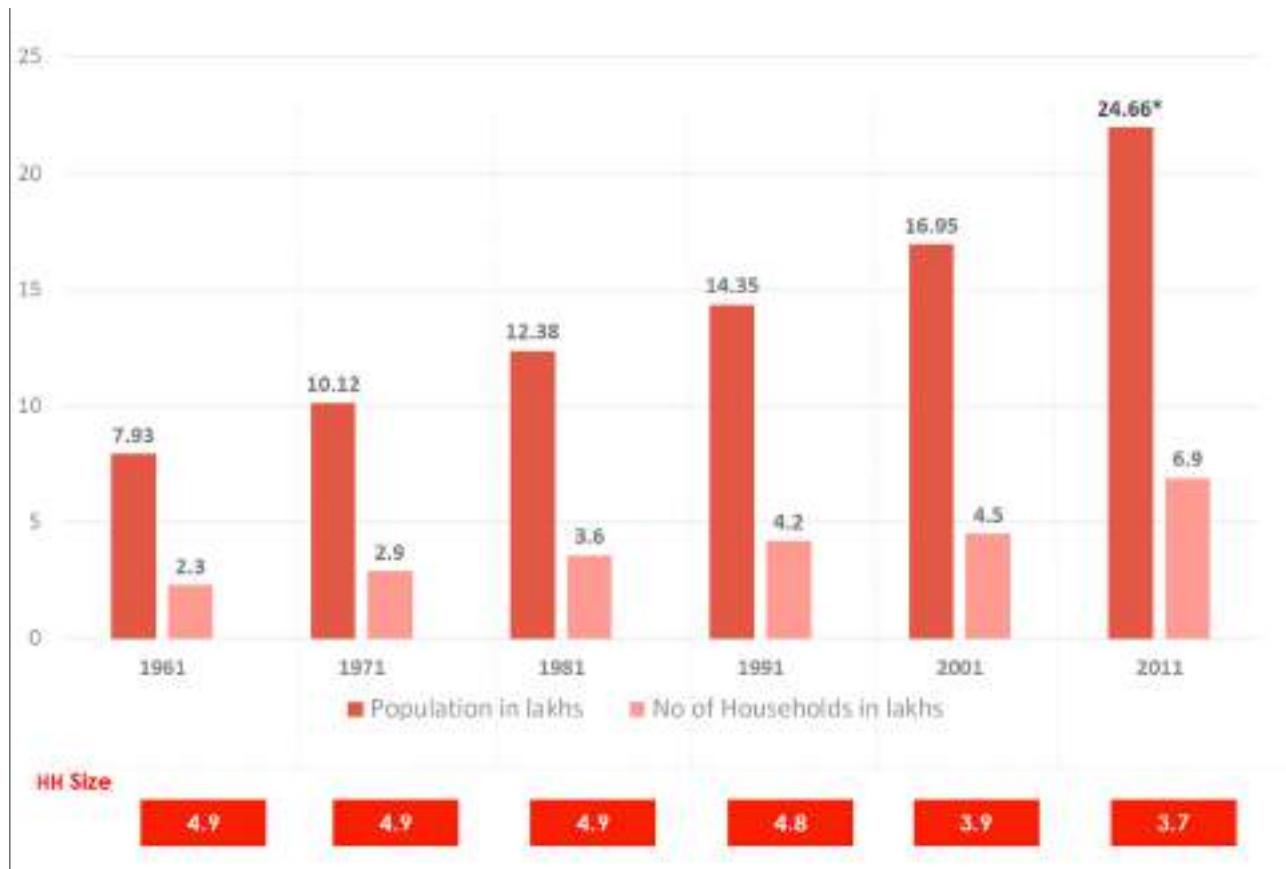
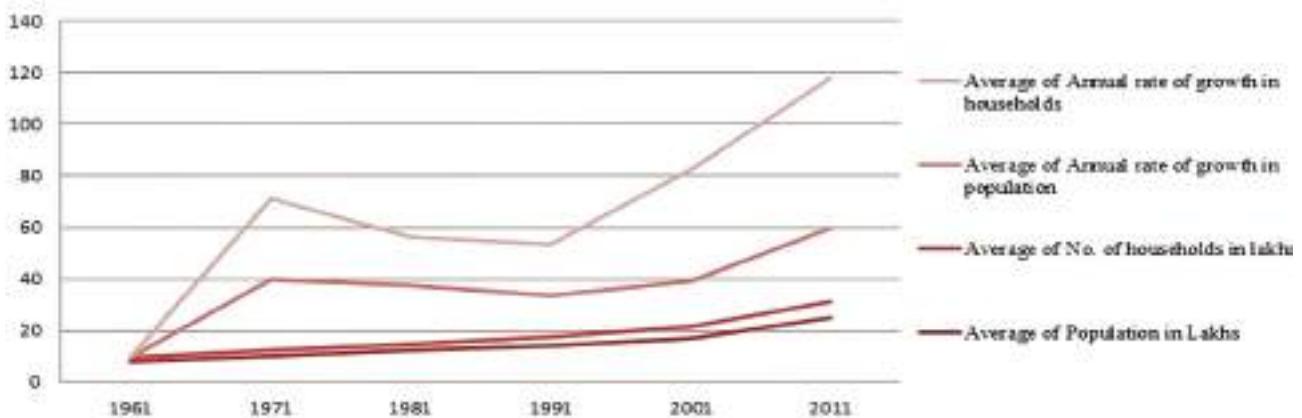


Figure 4-1 Households and Population of the Coimbatore LPA.

Table 4-2 LPA Population and Households Details

LPA Population And Households In Coimbatore LPA					
	Population In Lakhs	No. Of House Holds In Lakhs	Annual Rate Of Growth In Population (%)	Annual Rate Of Growth In Households (%)	Household Size
1961	7.93	1.6	-	-	4.9
1971	10.12	2.1	27.62	31.25	4.9
1981	12.38	2.5	22.33	19.04	4.9
1991	14.35	3.0	15.91	20	4.8
2001	16.95	4.3	18.12	43.33	3.9
2011	24.66*	6.8	28.43	58.13	3.7

Source : Census of India 2011



Source : Census of India 2011

Figure 4-2 LPA Population and Households Details

4.4 HOUSING CONGESTION RATE

The number of houses in which cohabitants do not have a private space for themselves due to overcrowding is used to calculate the congestion rate. The number of living rooms in a household should be proportional to the size of the household. Congestion occurs when the number of people increases but there are no or few available living rooms. Congestion tolls which increases an individual's cost of commuting will reduce the number of commuters and therefore will reduce the demand for housing. Table 4-3 depicts the distribution of households based on the number of dwelling rooms and household size.

According to Table 4-3, approximately 26% of households are overcrowded, which is considered for the congestion factor.

Figure 4-2 depicts the percentage of congestion factors in LPA households.

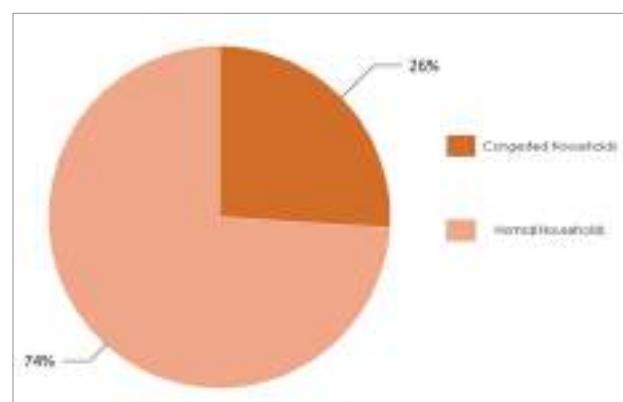


Figure 4-3 Congestion factor in households

Table 4-3 Distribution of Households by No. of Dwelling Rooms and Household

House Hold Having Number Of Dwelling Rooms	Household Size								
	1	2	3	4	5	6-8	9+	Total	%
No exclusive room	1307	2586	2778	3566	1270	603	80	12,190	1.76
One room	16,619	42178	49306	64072	21547	9205	733	2,03,660	29.41
Two rooms	7551	33413	53486	72322	27624	14661	944	2,10,001	30.33
Three rooms	2589	13272	26449	36542	15892	9651	810	1,05,205	15.19
Four rooms	1046	5768	11643	17766	8436	6089	647	51,395	7.42
Five rooms	1675	10143	20696	31058	16766	12950	1808	95,096	13.73
Six rooms & above	316	1626	2846	4374	2575	2550	534	14,821	2.14
Six rooms & above	316	1626	2846	4374	2575	2550	534	14,821	2.14
Total								6,92,368	100%

The contents marked in red are the overcrowding households considered for the congestion factor.

Source : Census of India 2011

4.5 **HOUSING STOCKS**

The number of houses used as residence and residence plus other use as reported in the census for Coimbatore District is counted and the percentage is averaged. The average of percentages is used to calculate the number of good, livable, and dilapidated households given the total number of households in LPA of 6.8 lakh.

Table 4-4 displays the houses used as Residence and Residence cum other use in LPA by conditions.

Table 4-4 Houses used as Residence and Residence cum other use by condition-LPA

Houses Used As Residence And Residence Cum Other Use By Condition In Lpa							
Division	Total	Good	%	Liveable	%	Dilapidated	%
Total-Coimbatore	9,46,979	7,01,744	74	2,36,103	24	9,132	0.96
Rural-Coimbatore District	2,37,276	1,68,404	70	65,086	27	3,786	1.59
Urban-Coimbatore District	7,09,703	5,33,340	75	1,71,017	24	5,346	0.75
Coimbatore- Lpa	6,89,515	503,345	73	1,72,378	25	7,584	1.1

Based on Table 4-4 it is inferred that 74% of the houses are in good condition. Figure 4-3 shows the condition of the houses in Coimbatore LPA.

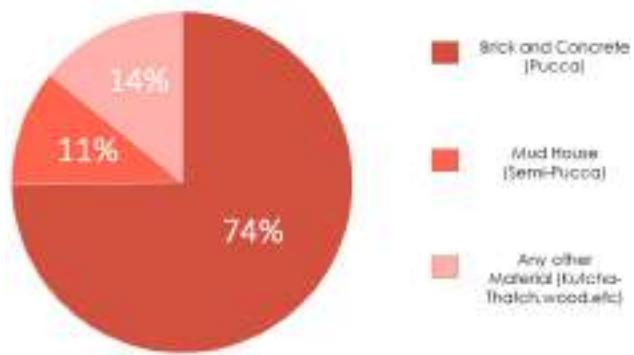


Figure 4-4 shows the housing materials for houses in Coimbatore LPA.

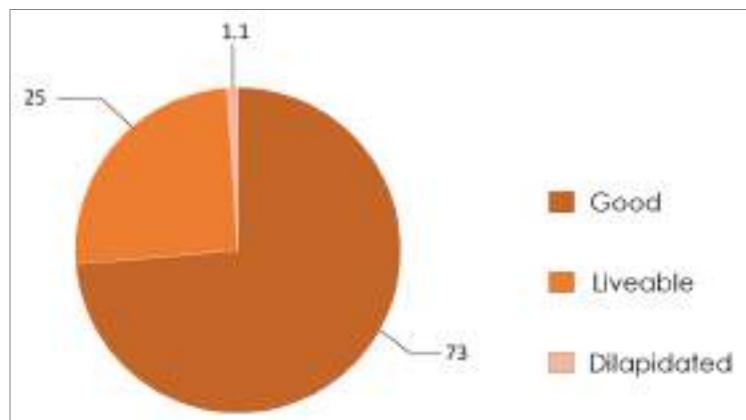


Figure 4-5 shows the condition of the houses in Coimbatore LPA.

4.6 SLUMS AND INFORMAL SETTLEMENTS

The Corporation of Coimbatore is divided into five zones. According to TNUHDB, the city has 319 pockets of slums with 46650 households, while the Tamil Nadu Poverty Portal has identified 56059 households below the poverty line, implying that 9409 households could be rehabilitated.

Out of 319 slums, 44 have already been developed under various schemes by the TNSCB and local authorities, and 60 have been excluded from the survey due to slum dwellers' unwillingness to cooperate.

As a result, the investment is limited to the surveyed slums. The tenability analysis in Table 4-5 for the Coimbatore corporation slums was performed by the standard procedure.

Tenability analysis clearly shows that the majority of land falls into the category of being fit for human habitation. A total of 99 slums have been designated as untenable.

Table 4-5 Tenable and Untenable Slums

	Tenable		Untenable		Total	
	No. Of Slums	No. Of House Holds	No. Of Slums	No. Of House-holds	No. Of Slums	No. Of Households
North Zone	15	1498	11	1101	26	2599
East Zone	13	1400	4	228	17	1628
West Zone	13	1589	22	2176	35	3765
South Zone	16	13767	44	4059	113	17826
Central Zone	6	1097	18	3022	24	4119
Total	116	19351	99	10586	215	29937

Source : Census of India 2011

Tenable slums are located in the hazardous zone that are unsuitable for human habitation and so the land is not earmarked for any major public facility.

Untenable slums are located near the major storm drains, railway lines, major transport alignments, rivers and water bodies.

Figure 4-4 depicts the distribution of the tenable and untenable slums in Coimbatore Corporation.

4.6.1 LAND AVAILABILITY FOR HOUSING IN COIMBATORE

TNSCB identified approximately 32.02 acres in Coimbatore for the construction of housing units for people living in untenable and infrastructural environments. It is estimated that 6186 household units will be needed to meet demand in the phasing out of the unsustainable slums.

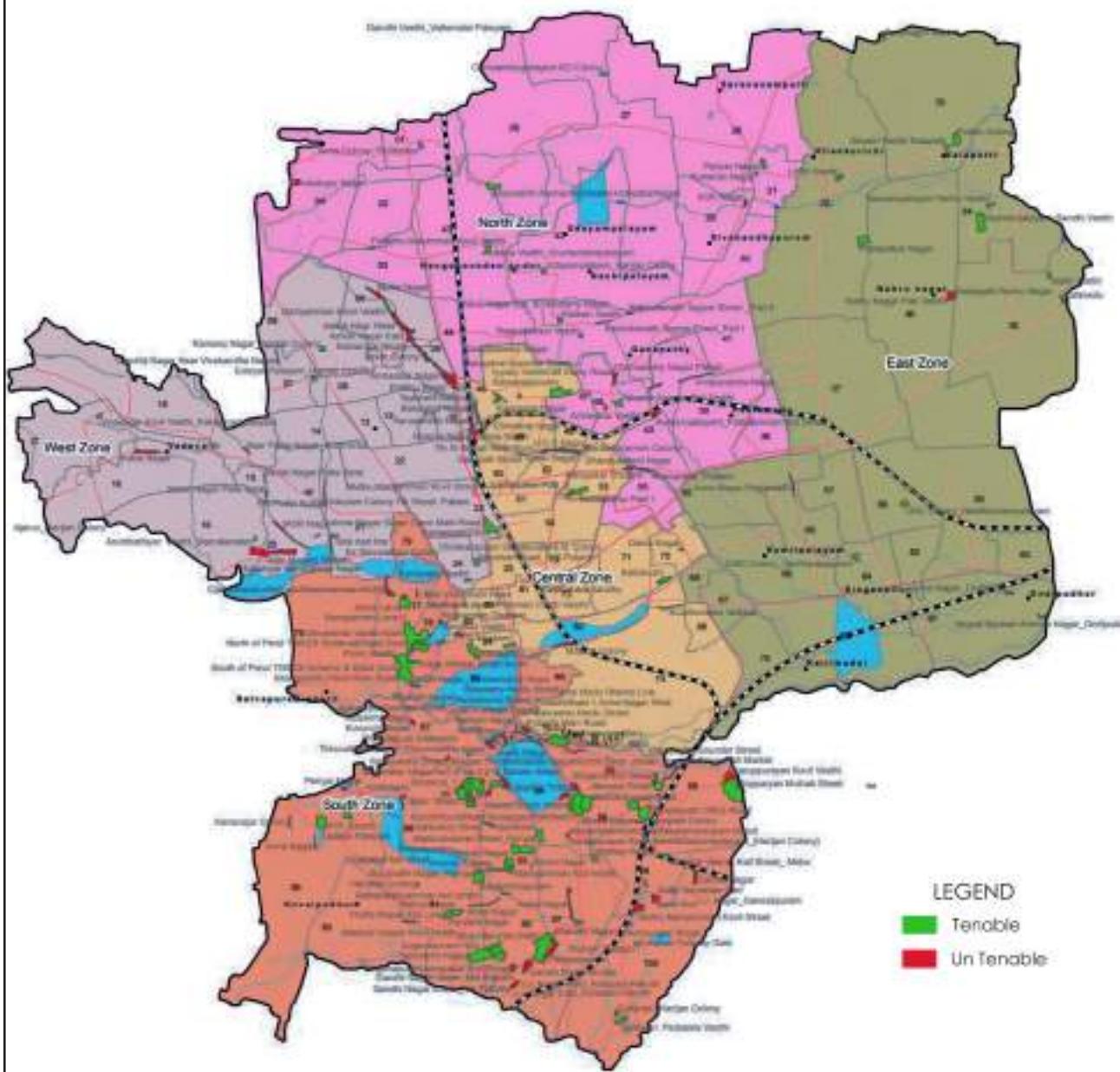


Figure 4-6 Tenability of slums in Coimbatore

4.6.2 SLUM REHABILITATION AND RESETTLEMENT DATA

In exchange for creating residential structures for slum inhabitants, developers receive a share of former slum land for their own use.

Table 4-6 shows the total number of households in different classifications of slums.

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Table 4-6 Household in Slums

S.no	Name Of The Slum	No. Of Slums	Households
1	Developed Slums by TNSCB	44	5964
2	Slums not surveyed under RAY due to non-cooperation from Slum Dwellers	60	10749
3	Surveyed Slums under RAY	215	29937
Total	319	46650	

Table 4-7 shows the total number of slums in Objectionable and Non-Objectionable locations.

Table 4-6 Slums in Objectionable and Non-Objectionable locations.

S.no	Physical Location Of Slums	Number Of Slums
I. OBJECTIONABLE LOCATIONS		
1	Along Nallah	-
2	Along other drains	36
3	Along Railway lines / Railway land	07
4	Along Major / Minor Transport Alignment	07
5	Along River/ Water body	05
6	On River Bed/ Water body bed	15
7	Others (Hazardous or Objectionable)	24
	Total	94
II. NON OBJECTIONABLE		
8	Others (Non Hazardous or Non Objectionable)	116
	Grand Total	210

4.6.3 TNUHDB rehabilitation initiative

Slum Redevelopment/Rehabilitation Plans will be a significant component of the city development, which will be largely derived from a survey of all notified and unnotified colonies. ghetto mapping utilizing cutting-edge technology; integration of socioeconomic and geospatial data; and identification of the proposed development model for each ghetto.

The proposed models are based on different concepts of resettlement like, Green field, In-situ redevelopment, and reconstruction

Based on this the TNUHDB has schemes to rehabilitate slums, and the following table 4-8 shows the on-going and completed housing schemes

Sl. No	Name of the Project	Type of Construction	Pattern	No of units
Completed Schemes				
1	Kovaipudur	Green Field	(G+3) - 21 Blocks	672
2	Thiru.Vi.Ka Nagar	Green Field	(G+3) 8 Blocks	256
3	Kallamedu	Insitu	(G+5) - 1 Block, (G+4) - 1 Block	100
4	Mecricar Road	Insitu	(G+4) - 4 Blocks	85
5	South of Perur	Insitu	(G+4) - 3 Blocks	120
6	Pillaiyarpuram	Green Field	(G+3) - 3 Blocks	112
7	Dobikana	Green Field	(G+1) - 3 Blocks	96
8	Prakashapuram	Green Field	(G+1)- 44 Blocks	172
9	Kadasinakolli	Insitu	(Twin Type House)	204
10	IUDP Colony	Reconstruction	(G+5) - 6 Blocks	528
11	Sulur Ph III	Green Field	(G+3) - 11 Blocks	528
12	Panneermadai East	Green Field	(G+3) - 1 Blocks	64
13	Moongil Madai Kuttai	Insitu	(Twin Houses - 32 Block)	64
14	Pachinampathy	Insitu	(Row Houses)	80
15	Ukkadam Ph IV	Green Field	(G+3) - 4 Blocks	224
16	North of Perur Phase I	Reconstruction	(G+6) - 1 Block	112
On Going Schemes				
17	Chikkadasampalayam	Green Field	(G+3) - 1 1 Block	352
18	Siddhapudhur	Reconstruction	(G+6) - 2 Blocks	224
19	Valparai	Green Field	(G+1) - 4 Blocks	80
20	CMC Colony Ph - II	Green Field	(G+5) - 6 Blocks	520
21	Variety Hall Road	Reconstruction	(G+5) -5 Blocks	444
22	Nethajipuram	Green Field	(G+3) - 11 Blocks	720
23	South of Perur Ph II	Reconstruction	(G+8) - 2 Blocks	144
24	Ezhil Nagar	Reconstruction	(G+8) - 2 Blocks	288
25	Sundaramveethi	Insitu	(G+8) - 1 Block	99
26	Siddhapudhur Ph - II	Green Field	(G+6) - 1 Block	112
27	MGR Nagar	Green Field	(G+3) - 12 Blocks	512
28	Mullai Nagar	Green Field	(G+2) - 8 Blocks	348
29	Allanchi	Green Field	(G+1) - 45 Blocks	180
30	Cherangode	Green Field	(G+1) - 7 Blocks	152
31	Naduhatty	Green Field	(G+1) - 41 Blocks	164
	Total			7756

The above table shows that under the completed schemes the ones that comes under the green field type of construction has G+3 pattern is vast in numbers and G+1 pattern in

minority but these patterns varies with the number of blocks. The ones under the Insitu type of construction contributes to G+4 and G+5 structures with varying number of blocks. Under the on going schemes most of the Green field type of construction contributes to G+3, G+2 and G+1 respectively whereas the Reconstruction and Insitu type of construction contributes to G+8,G+6 and G+5 respectively. Under Completed schemes, 2124 units has been constructed under Green field, 653 units under Insitu, 640 units under reconstruction. Under on going schemes, 3140 units under Green field, 99 units under Insitu and 1100 units under reconstruction.

This make a total of 7756 units on both the categories of schemes.

4.6.4 SLUM REHABILITATION POLICIES AND STRATEGIES :

- Implement infrastructure development initiatives, encompassing water provision, sanitation facilities, electricity distribution, and road connectivity, with the aim of enhancing living standards.
- Manage land tenure challenges to ensure the stability of residents in slums, possibly by implementing land titling or tenure regularization initiatives.

- Implement housing enhancement initiatives, such as retrofitting or reconstruction, to ensure the provision of secure and suitable housing for residents living in slums.
- Implement cost-effective housing initiatives to offer viable housing alternatives for residents of impoverished urban areas.
- Establish collaborations with private firms to leverage resources and expertise for the implementation of slum restoration initiatives.
- Develop and execute resettlement strategies in situations requiring relocation, guaranteeing that people receive appropriate remuneration and alternative accommodations.
- Implement a comprehensive monitoring and evaluation framework to gauge the efficacy of rehabilitation initiatives and modify them as needed in response to input and results.
- Incorporate slum dwellers into decision-making processes and planning to guarantee the inclusion of their needs and concerns
- Formulate community development committees to enhance communication and cooperation.
- Enhance the living conditions of individuals residing in slums by providing them with comprehensive training in the operation of earth moving equipment, motor mechanics, carpentry, masonry, office automation, and tailoring.

- Encourage the establishment of a Community construction Training Institute, the creation of affordable housing, and the construction of an employment portal.
- Implement a comprehensive strategy to improve slums by providing enough infrastructure such as local transportation, water and power, and ensuring their proximity to schools and primary health centres.
- Engage various private agencies and non-governmental organizations (NGOs) at the national and international level to provide accommodation for individuals living in slums.

4.7 EMERGING ISSUES AND OPPORTUNITIES IN HOUSING

4.7.1 HOUSELESS POPULATION SHARE TO THE TOTAL POPULATION

Out of 6.89 lakh households in Coimbatore, approximately 79% are in formal housing, 20% are in informal housing, and 1% are houseless or pavement dwellers (Non serviceable kutchha Houses, Temporary houses). Figure 4-5 depicts the classification of households in Coimbatore LPA based on the types of settlements.

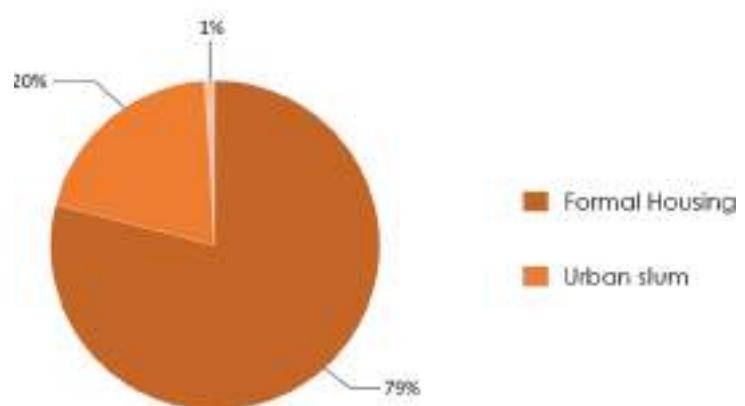


Figure 4-5 Classification of household based on type of settlement

4.7.2 EXISTING AND PROPOSED HOUSING SHORTAGE

The housing shortage is calculated using a variety of parameters classified as qualitative and quantitative. Qualitative factors include non-serviceable kutcha houses, congestion factors, and obsolescence factors, whereas quantitative factors include housing stocks, which represent the formal housing sectors.

In general the housing shortage follows the economic principles of supply and demand. It's the difference between the estimated housing units of different affordability levels and housing types needed to accommodate the existing population and the existing housing stocks measured in units. The following are the parameters for housing shortage in LPA for the consecutive years of 2011, 2021, 2031 and 2041.

Table 4.8.1 and 4.8.2 shows the Quantitative and Qualitative Housing analysis respectively.

Table 4-7 Quantitative Housing Analysis in LPA

Quantitative Housing Analysis In Lpa					
S.no	Parameter	2011	2021	2031	2041
1	Total Population	24,66,727	30,15,663	37,15,536	45,73,188
2	Average Household Size	3.7	3.6	3.5	3.4
3	Total Households	6,89,515	8,37,684	10,61,582	13,45,055
4	Housing Stock (98.85% of Total Households) (Residential + Residential cum other use)	6,81,516	8,28,051	10,49,374	13,29,587
5	Discrepancy	7,929	9,633	12,208	15,468
6	Additional Houses (decadal growth)(3-4)	0	1,46,465	2,21,323	2,80,214
7	Total housing demand (5+6)	7,929	1,56,098	2,33,531	2,95,682
		693240 (2011+2021+2031+2041)			
8	Total land required	179 sq.km			

Table 4-8 Quantitative Housing Shortage in LPA

Qualitative Housing Shortage In LPA					
S.no	Parameter	2011	2021	2031	2041
1	Non-Serviceable Kutcha Houses (2.8%)	19,306	22,544	28,567	36,193
2	Congestion Factor (26.64%)	1,81,575	2,20,593	2,79,553	3,54,202
3	Obsolescence Factor (1%)	6,816	8,281	10,494	13,296
4	Qualitative Housing Shortage (1+2+3)	2,07,475	2,52,059	3,19,429	4,04,726

According to Table 4-8, the housing shortage is approximately 41.48% out of 6.89 lakh households, with the TNUHDB prioritising the qualitative shortage and the general market addressing the quantitative shortage. The qualitative parameter primarily refers to the level of housing, whereas the quantitative parameter refers to the housing that is required in the overall housing market.

- The quantitative shortage in Coimbatore is much lower than the qualitative shortage.
- The majority of the housing shortage is due to the congestion factor.
- Vacant housing stock increased by 6.5% in 2011.
- Non-serviceable kutcha houses are based on roof and wall materials that are not suitable for living.
- The congestion factor is -26.64% and the obsolete factor has increased to 1% of the total number of households in LPA.

4.8 INSTITUTIONAL FRAMEWORK OF TNHB

The Tamil Nadu Housing Board Act of 1961 established TNHB. Its mandate includes developing planned plot layouts and constructing housing units and flats in neighbourhood developments with amenities for all income levels (EWS, LIG, MIG, and HIG) on a for-profit basis. Tamil Nadu Housing Board is one of India's largest institutions, serving the housing needs of people from all socioeconomic backgrounds. It was a pioneer in developing large – scale neighbourhood plans.

4.9 SWOT ANALYSIS

A. Strength

- Housing can be developed around the growth centre.
- 80% of the housing is permanent in Coimbatore .
- 73% of the total houses are in good liveable condition.

B. Weakness

- It is recommended that the TP and DDP schemes be modified so that they can be implemented in residential areas that are located on the peripheral.
- 26% of households are overcrowded, which is considered for the congestion factor.

C. Opportunity

- Land pooling schemes should be adopted.
- Housing options that do not involve families, such as employee accommodations, women's and men's hostels, and so on, should be encouraged.
- Blue Collar Township should be established around growth centre
- 32.02 acres of land has been identified in Coimbatore for the construction of housing units for people living in untenable and

infrastructural environments.

D. Threat

- Housing shortage is approximately 41.48%
- Lack of housing for industrial workers.

Housing is inadequate for migrant workers in the informal sectors .

4.10 PLANNING STRATEGIES

4.10.1 PROPOSAL - BLUE COLLAR TOWNSHIP - AFFORDABLE RENTAL HOUSING COMPLEXES FOR MIGRANT WORKERS

A blue-collar worker is a member of the working class who does manual labour. Blue-collar work can include both skilled and unskilled labour. However, workers in these industrial parks are forced to live in substandard housing, and there is a need to provide permanent settlement and employment contracts for the aforementioned group. To improve worker housing conditions, special incentives in the form of F.S.I. and additional incentives should be provided for private developers who provide 15% of their development for blue collar housing on their site or within 2 kilometres of their site or within 2 kilometres of the mentioned/proposed growth centres, thereby promoting industrial development/growth. Construct, operate, and maintain ARHCs on their own available vacant land by private entities (industries, industrial estates, institutions, and associations)/public agencies. ARHCs built under this model will be a mix of Dwelling Unit (DU) (up to 30 /60 sqm carpet area each) and Dormitory of 4/6 beds (up to 10 sqm carpet area per bed) with all common facilities. The minimum size of dwelling units (single/double bedroom) and dormitories must meet National Building Code (NBC) and State/Local Authority norms. A single ARHC project must have at least 40 DU. Prospective Agencies/Entities may propose

the following DUs/ Dormitories:

Table 4-9 Dwelling units Under ARHC

Type Of Dwelling Units	Carpet Area(Sq.m)	Unit Structure	Ratio Under Arhcs
Single Bedroom	Up to 30	1 bedroom, living room, kitchen, bathroom, toilet etc.	Ratio of DUs and dormitory beds may vary as per project requirement.
Dormitory	Up to 10	Separate bed, side table, shelves, lockers, common facilities of kitchen, toilets etc.	
Double Bedroom	Up to 60	2 bed room, living room, kitchen, bathroom, toilet etc.	A maximum of (33%) of total DUs in the project is permissible as ARHCs

4.10.2 RECOMMENDATIONS

- The LPA recommendations are based on the 2005 National Urban Housing and Habitat Policy.
- In relation to Map 4 -2, the calculated housing demand can be proposed adjacent to the growth center. P.N Palayam, Karamadai, Karumathampatti, Sulur, SS Kulam, Madukkarai, Othakkalmandapam, and Vellore have been identified as growthcenters.
- Promoting affordable housing for the poor through credit-linked subsidies and rehabilitation of existing slum dwellers with private sector participation using land as a resource could help to improve India's housing situation.
- New housing for the Economically Weaker Section (EWS) and Lower Income Group (LIG), as well as rehabilitation of slum households, will be built in composite and special neighbourhoods developed collaboratively by the public, private,

and cooperative sectors. These could be built dwelling units or affordable serviced sites.

- When the private sector develops housing neighbourhoods and apartment blocks on lands larger than one hectare, 10% of the land must be set aside for LIG/EWS housing with dwelling units no larger than 45 square metres, either on the site proposed for development or within a two-kilometer radius of the site under reference.
- Pavement dwellers will be offered affordable housing options in selected areas, preferably near their current pavement residence.
- All housing programmes will include infrastructure, tenure security, health and education, livelihood opportunities, skill training, and microfinance. Microfinance institutions can be promoted at the state level to facilitate the flow of funds to the urban poor.
- Green building technologies and sustainable measures can be used in public housing.
- The capacity of the building sector to produce housing for the EWS and LIG via prefab and other new technology channels might be improved by facilitating public-private partnerships. This could be done in order to enable the facilitation of public-private partnerships.
- Housing will be built in close proximity to employment and growth centres. If housing is built away from existing employment centres, new employment opportunities will be created/ encouraged nearby.
- In the new areas, appropriate authorities should prepare detailed development plans that can be

incorporated and added to the existing urban network.

- Land pooling can be used to improve redevelopment and create more housing to accommodate the growing urban population.
- The Transfer of Development Rights concept will be extended to all types of social housing.

4.9.2 STRATEGIES

- Land assembly through novel methods such as land readjustment, land pooling, guided development, and neighbourhood.
- Housing for the urban poor and shelter improvement should be addressed by improving the physical surroundings so that it has adequate basic services such as water supply, drainage, sanitation, street lighting, and other physical conditions leading to a better hygienic environment; secondly, by improving the actual structures that the slum dwellers live in, preferably by themselves (extending assistance).
- TNHB and TNUHDB will determine eligible site for urban renewal such redevelopment and rehabilitation based on building age and structural stability, land use, and infrastructure.
- The vulnerability of the urban poor is exacerbated by insufficient provision of basic public services, as well as by policy and regulatory frameworks that govern both land and housing supply, as well as property rights. Tenure security, property rights and land development regulations, housing finance, and service provision must be the primary policy areas for slum upgrading.

- Enhancing Transit Oriented Development creates viable lifestyles with everything close by or easily accessible without a car, eliminating the large cost of automobile ownership.
- Encourage and promote high-rise development along economic growth nodes to house blue-collar workers along wider roads and large plots for multi-story buildings within the LPA boundary.
- Increasing FSI along arterial highways in economic growth nodes to accommodate smaller residential developments for the expanding population. Encourage Mettupalayam's growth as a satellite town, as envisioned in the FMP, by providing enough infrastructure, such as housing and other improvements, and better housing facilities at a reasonable cost.
- Non-family housing, such as working women's hostels, student hostels, employer-provided employee housing, single-person dwellings, and night shelters, will be included in housing action plans.

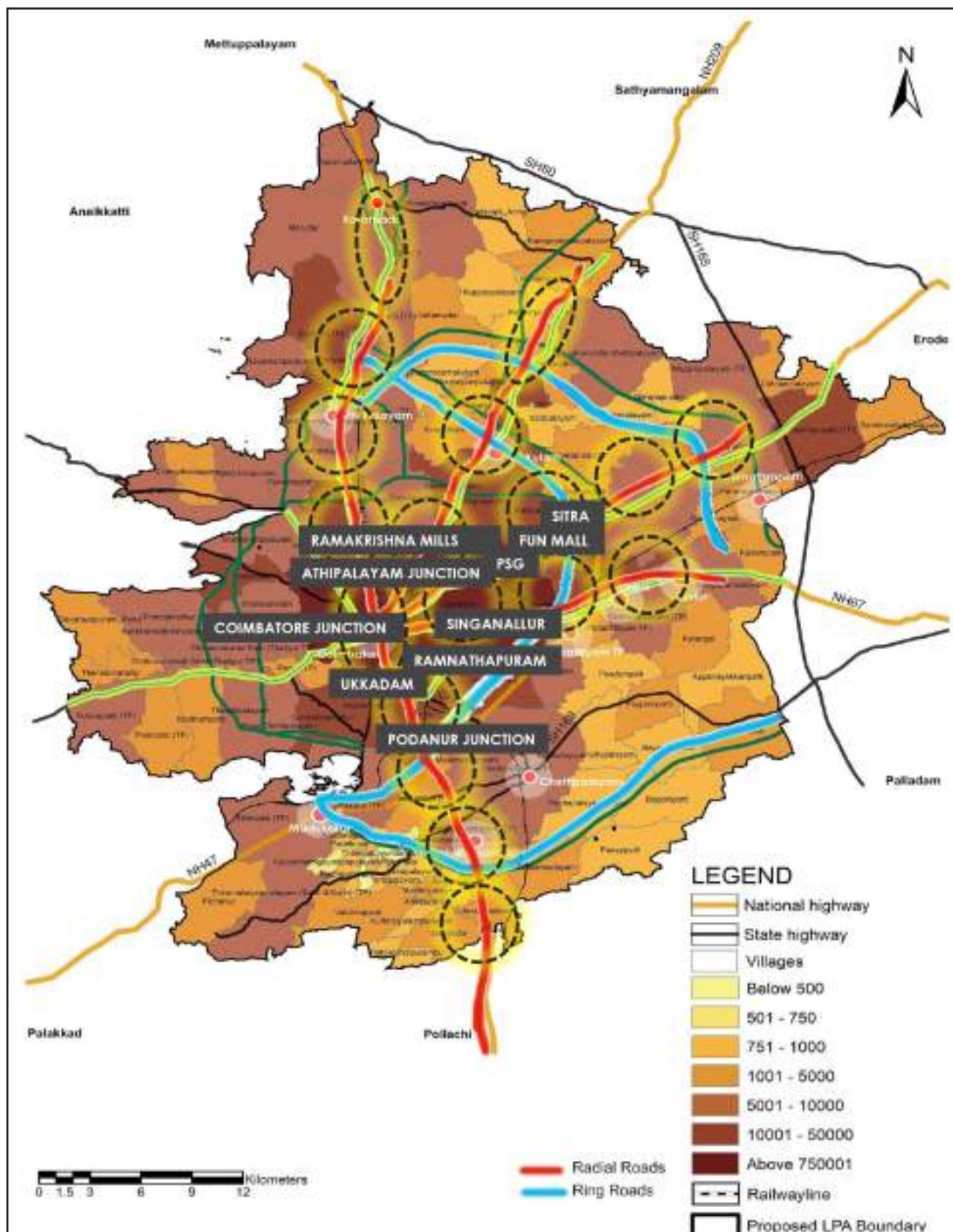
COMPACT CITY DEVELOPMENT

Coimbatore, a rapidly growing city in Tamil Nadu, can benefit from adopting a compact city model to address the challenges associated with urbanization. To achieve this, the city could implement several key strategies. Firstly, there should be a focus on transit-oriented development (TOD) to enhance public transportation infrastructure, making it a convenient and viable option for daily commuting. This involves strategically locating high-density housing, commercial spaces, and public amenities around transit hubs. Additionally, the city can prioritize the development of mixed-use neighborhoods, allowing residents to live, work, and access services within close proximity, reducing the need for extensive travel.

In addition, promoting vertical growth and enhancing building density in specified regions can maximize land utilization, mitigate urban sprawl, and accommodate the expanding population. Coimbatore has the potential to enforce zoning restrictions that promote the construction of tall structures and mixed-use developments, leading to a more optimal utilization of space. The incorporation of green spaces and recreational areas into the urban environment is essential for augmenting the general standard of living. Furthermore, it is imperative to prioritize the conservation of heritage monuments and cultural landmarks in order to uphold the city's historical identity in the face of swift urbanization. By implementing participatory planning methods and incorporating local stakeholders, the compact city development in Coimbatore may be tailored to meet the specific needs and ambitions of its citizens.

Transforming Coimbatore into a compact city involves strategic urban planning, transit-oriented development, mixed-use zoning, and community engagement. By prioritizing public transportation, encouraging vertical development, and preserving green spaces, the city can create a sustainable and livable environment for its residents. The implementation of these measures requires collaboration between government bodies, urban planners, and the community to ensure that the compact city vision aligns with the city's unique characteristics and fosters a resilient and vibrant urban landscape.

To Promote dense urban growth along the metro corridors and key arterial roads within a 500-meter radius from the road networks and stations. The map below, labeled as Map 4-3, displays identified locations.

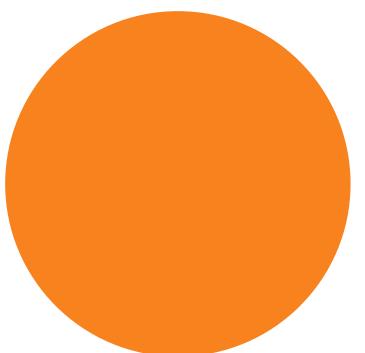


Map 4-1 Proposed Growth centres for housing in 2041 in LPA



05

**PHYSICAL
INFRASTRUCTURE**



05 PHYSICAL INFRASTRUCTURE

5.1 OVERVIEW

The provision of portable water, sewage, and storm water systems, and the construction of appropriate waste management systems are all essential components of any functional community or society. Physical infrastructure is they attempt to meet surging demand.

Physical infrastructure refers to the essential physical systems, facilities, and structures necessary for a society, economy, or organization to function effectively.

Fast urbanisation in Coimbatore has put straining the city's infrastructure, which has expanded in both size and population. This section examines the current state of the five corner stones of physical infrastructure: water and sewage systems, storm water networks, Electricity and waste management. These services' need reevaluated, and the gaps in provision are identified.

5.2 WATER SUPPLY

5.2.1 INTRODUCTION

The integrity of Coimbatore's economy, population, and ecosystem all depend on the city's access to a steady supply of clean water. The Master Plan considers future water requirements and the potential for significant change in water supplies over the next two decades.

The city's population is expected to rise, meaning that the City's outdated water infrastructure must be maintained or replaced. The way we utilize water might change as a result of new laws and the transformation of land. Climate change is just as much a part of this as anything else.

5.2.2 CURRENT SOURCES OF WATER SUPPLY FOR COIMBATORE LPA

The source of water is broadly classified as surface

water and sub surface (ground water). The flow chart represents the two types of water supply provided by Coimbatore LPA in general. Based on this classification , the main source of water in Coimbatore has been tabulated below along with its percentage of availability.

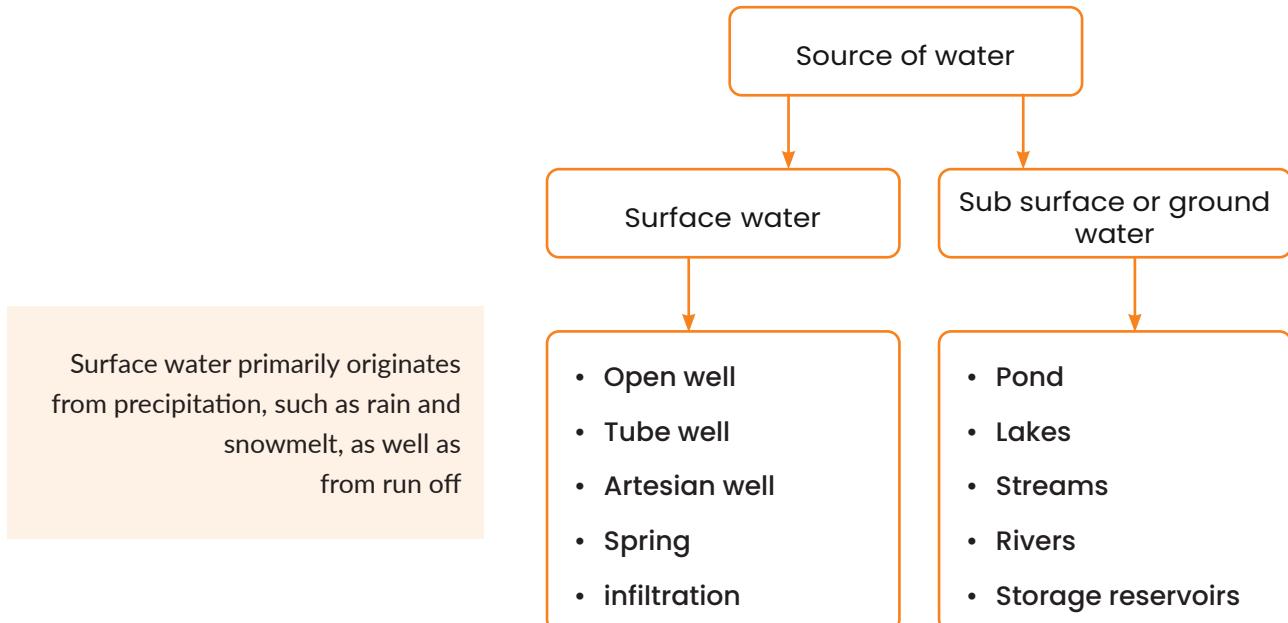


Figure 5-1 Sources of water

Table 5-1 Main Sources of water

SOURCE OF WATER	PERCENTAGE (%)
Tap water from treated source	82.2
Tap water from un-treated source	9.5
Covered well	0.3
n-covered well	0.5
Hand pump	1.2
Tube well/ Borehole	4.9
Spring	0.05
River/ Canal	0.05
Tank/ Pond/ Lake	0.01
Other sources	0.9

There are nine major lakes in Coimbatore that contributes to water supply systems.

5.2.3 WATER SUPPLY SCHEMES AND INFRASTRUCTURE

The Bhavani River originates from the Nilgiri Hills of the Western Ghats in the state of Tamil Nadu, specifically from the

Bhavani river is the main source of water in Coimbatore. The water from the Bhavani river is distributed to the cities under two major schemes namely Siruvani drinking water scheme and Pillur drinking water scheme. These two reservoirs in the Western Ghats mountains that supply majority of Coimbatore's drinking water. The Siruvani system can supply roughly

101.40 mld per day (also used for settlements beyond Coimbatore), and the dam is located around 36 km upstream from the city. The Pillur reservoir and its much more capacious plans Pillur-1 and Pillur-2 are located in the Bhavani basin about 95 kilometres north of the city. In total, there are two reservoirs.

The Aliyar reservoir in the south of Coimbatore and the Bhavani River together supply an additional 27.73 mld each day.

The reservoirs' storage capacity is directly proportional to the annual rainfall total, which is unevenly distributed due to the region's monsoon environment. Water supply shortages can occur when annual rainfall is highly variable, thus in these cases, water tankers deliver water to the places.

The Bhavani River originates from the Nilgiri Hills of the Western Ghats in the state of Tamil Nadu, specifically from the upper Bhavani reservoir.

The majority of Coimbatore residents have access to piped water. Tanks (either underground or on rooftops) are filled when new water is given, and the families store the water until it is needed again.

The Pillur-3 scheme, which will supply an additional 270,000 m³ per day from the Pillur reservoir, is a major project that will be carried out over the course of the next few years.

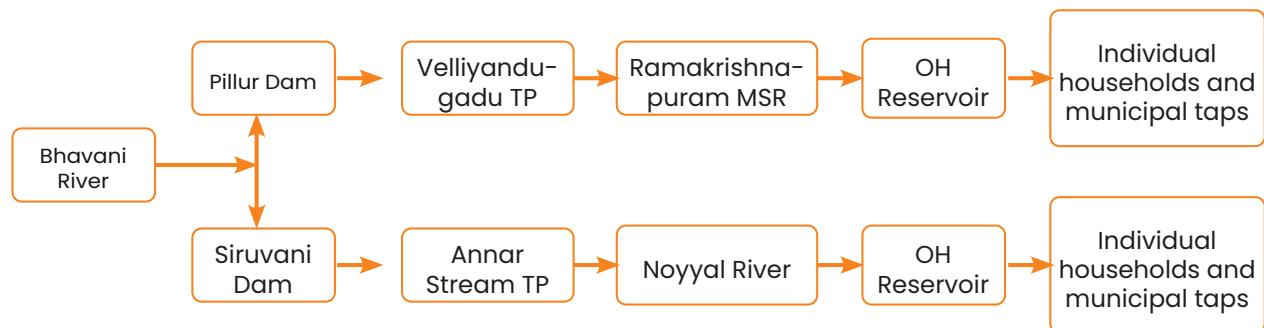


Figure 5-2 Water supply

Many residences have their own wells in addition to connecting to the municipal water system. There is a significant salt content in the groundwater (conductivity between 597 and 4,810 S/cm), making it unfit for human consumption. However, it serves many other functions in the households.

The following table represents the present water supply level in terms of lpcd in Coimbatore. The Table 5-2 shows the water supply level for Coimbatore corporation and Town panchayat & Village town panchayat.

Table 5-2 Water supply level for CCMC, Town panchayat & village panchayat

SNO	NAME OF TOWNS	PRESENT WATER SUPPLY
		LEVEL (LPCD)
Coimbatore Corporation		
1	Coimbatore corporation	135
Town Panchayat & village Town Panchayat		
1	Sarkar Samakulam	102
2	Idigarai	127

3	Narasimanayakanpalayam	62
4	Gudalur	160
5	Periyanayakkanpalayam	143
6	Veerapandi	143
7	Vedapatti	185
8	Thondamuthur	152
9	Pooluvampatti	100
10	Thenkarai	127
11	Thalaiyur (TP)	187
	(kalikanayakanpalayam,	
	chitrachavadi east & west)	
12	Perur	108
13	Madukarai	162
14	Ettimadai	32
15	Vellore	76
16	Chettipalayam	179
17	Tirumalaiyampalayam	152
18	Ottakalmandapam	39
19	Irugur	87
20	Sulur	37
21	Oddarpalayam	45
22	Karumathampatti	161
23	Kannampalayam	144
24	Moppiripalayam	93

5.2.3.1 Jal Jeevan Mission (JJM)

On August 15 , 2019 Jal Jeevan Mission (JJM) was established with the goal of giving all rural households access to functional household tap connections (FHTCs).As per JJM the quantity of water received by households per person per day should meet the service level of 55 LPCD. In Coimbatore almost all the villages have either OHT or sumps as their water storage elements and the Coimbatore Local Planning Authority supplies 40 to 70 MLD of water to Village Panchayat and 70 to 90 MLD of water to Town Panchayat . As a result to JJM 79.22 % of households attained their access for functional households tap connections.

The Table 5-4 shows the water supply level for Coimbatore corporation and Town Panchayat & Village Panchayat.

Table 5-3 Watersupply level for coimbatore

S.No	ADMINISTRATIVE UNIT	NO OF UNITS	CURRENT SUPPLY OF WATER (lpcd)
1	Corporation	1	135
2	Municipality	4	90
3	Town Panchayat	21	70 to 90
4	Village panchayat	66	40 to 70

Table 5-4 Watersupply level for coimbatore administrative units

S.NO	ADMINISTRATIVE UNITS (WITH REVENUE VILLAGES LIST)	CURRENT WATER SUPPLY (LPCD)
COIMBATORE CORPORATION		
1	Singanallur	120
2	Ganapathy	120
3	Kumarapalayam	116

4	Telungupalayam	112
5	Ramanathapuram	128
6	Puliyakulam	103
7	Anupparpalayam	109
8	Vilankurichi (part)	128
9	Uppilipalayam	115
10	Coimbatore Rural	70
11	Sowripalayam	89
12	Krishnarayapuram	75
13	Sanganoor	80
Added Area		
14	Kalapatti	72
15	Kurichi	68
16	Vadavalli	81
17	Chinnavedam patti	100
18	Sundakamuthur	95
19	Saravanampatti	80
20	Kuniyamuthur	78
8(a)	Vilankurichi (Part)	70
21	Vellakinar	75
22	Veerakeralam	72
23	Thudiyalur	70
24	Kavundampalayam	82

S.NO	ADMINISTRATIVE UNITS (WITH REVENUE VILLAGES LIST)	CURRENT WATER SUPPLY (LPCD)
II	Municipalities	
1	Gudalur	88
2	Karumathampatti	90
3	Madukarai	86
4	Karamadai	90
III	TOWN PANCHAYATS	
1	Tirumalaiyampalayam	70
2	Chettipalavam (TP)	
	i. Chettipalayam Village	54
	ii. Oorattukuppai Village	68
3	Moppiripalayam	62
4	Thalaivur (TP)	
	i. kalikanayakkanpalayam Village	65
	ii. East Chitrachavadi Village	75
	iii. West Chitrachavadi west Village	
5	Irugur	68
6	Ettimadai	65
7	Pooluvampatti	60
8	Vellalur	58
9	Kannampalavam	65
10	Othakalmandapam	50

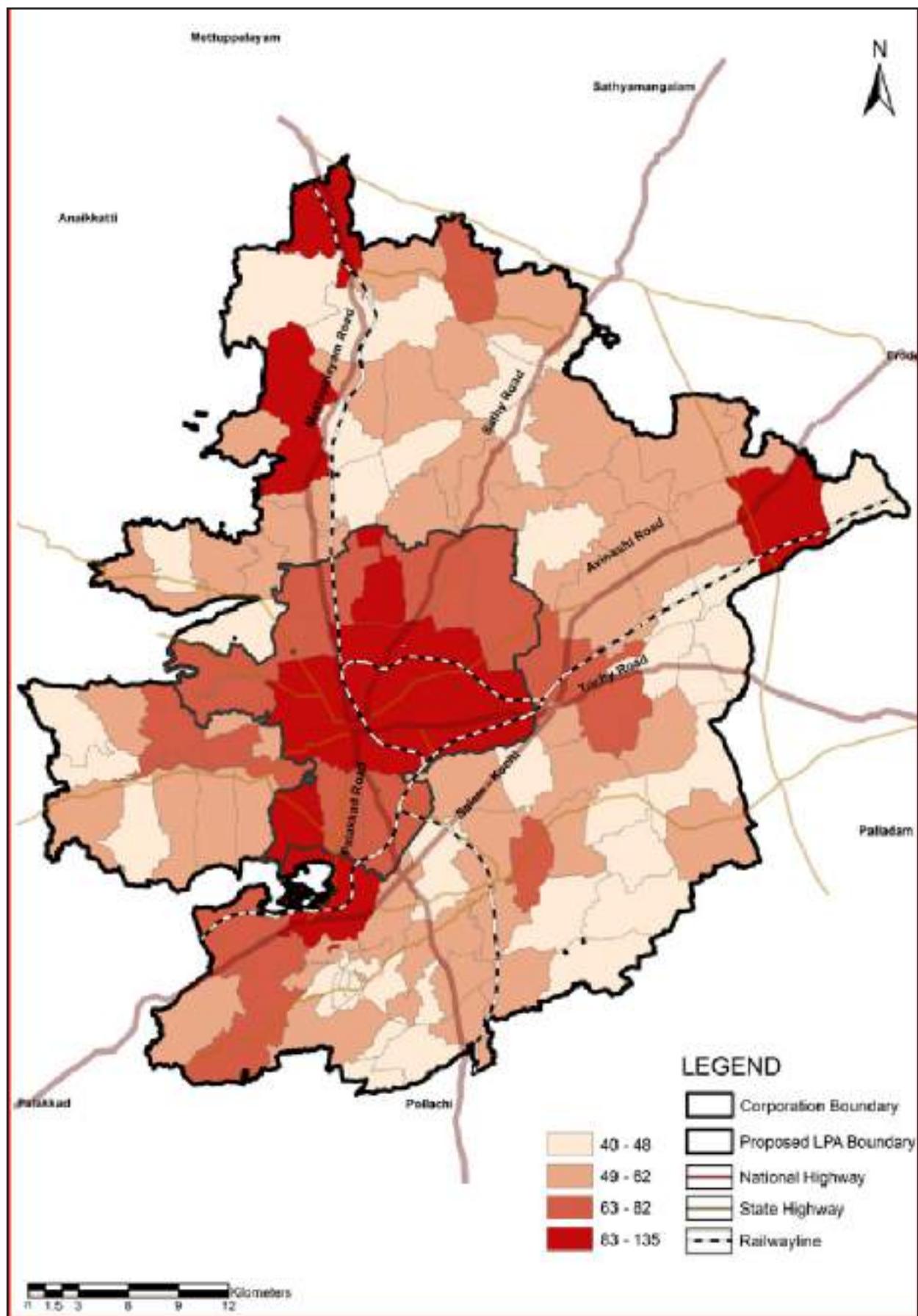
11	Thondamuthur	52
12	Thenkarai	48
13	Sarkar Samakulam	50
14	Veerapandi No:4	52
15	Idigarai	47
16	Sulur	40
17	Periyanayakkanpalayam	45
18	Narasimanayakanpalayam	52
19	Vedapatti	60
20	Perur	65
21	Pallapalayam (Otterpalayam Vil-lage)	50
IV	VILLAGE PANCHAYATS	
1.	Veerapandi No:24 (part)	51
2.	Marudur	40
3.	Bilichi	42
4.	Masagoundenchettipalavam	56
5.	Neelambur	60
6.	Karegoundenpalavam	60
7.	Selakkarichel	58
8.	Arasur	55

9.	Bogampatti	40
10.	Aooanayakkanpatti	45
11.	Pichanur	50
12.	Kaniyur	55
13.	Vellamadai	58
14.	Valukkuparai	50
15.	Vellanaipatti	45
16.	Malumichampatti	40
17.	Pachapalavam	42
18.	Vadavalli	40
19.	Madampatti	55
20.	Kalangal	58
21.	Nayakkanpalayam	50
22	Sikkarampalayam	60
23	Kallapalayam	60
24	Semmandampalayam	48
25.	Devarayapuram	40
26.	Peedampalli	52
27.	Theethipalayam	50
28.	Keeranatham	51
29.	Kuppepalayam	50
30.	Somayampalayam	40
31.	Kurudampalayam	56

32.	Arasampalayam	49
33.	Panapatti	42
34.	Kadampadi	47
35.	Nanjundapuram	58
36.	Idayarpalayam	40
37.	Seerapalayam	56
38.	PerurChettipalayam	54
39.	Myleripalayam	50
40.	Arisipalayam	42
41.	Kattampatti	46
42.	Vadaputhur	43
43.	Pattanam	47
44.	Kittampalayam	56
45.	Agraharasamakulam	40
46.	Pappampatty	48
47.	Chinna Thadagam	42
48.	Naranapuram	50
49.	Kondayampalayam	60
50.	Kunnathur	47
51.	Solavampalayam	58
52.	Thennamanallur	46
53.	Kariampalayam	40

54.	Kangayampalayam	45
55.	Kallipalayam	50
56.	Pannimadai	60
57.	Pachapalayam	51
58.	Karavellimadapur	40
59.	Rasipalayam	45
60.	Nachioalavam	40
61.	Pottayandipurambu	46
62.	Mvlampatti	52
63.	Karunsamikaundampalayam	48
64	Palathurai	50
65	Kuthiraiyalampalayam	42
66	Thamakavundampalayam	40

The following table represents the present water supply level in terms of lpcd in Coimbatore. The Table 5-4 shows the water supply level for Coimbatore corporation and Town panchayat & Village town panchayat. The mentioned water supply in terms of lpcd in administrative bodies of Coimbatore LPA is represented in the following Map 5.1 in which darker areas need more concentration in supplying water thereby compating water demand. These are the areas where the supply of water is below 40 lpcd whereas in corporation area is about 135 lpcd.



Map 5-1 Water supply distribution map of LPA

5.2.4 Treatment Capacities Of Channel Reservoirs

Primary level treatment of water is carried out at both Siruvani and Pillur the plants designed exclusively to treat 101.40 MLD and 125 MLD of water respectively. The treatment capacities at Siruvani and Pillur is represented in the table 5-5.

Table 5-5 Treatment Capacities

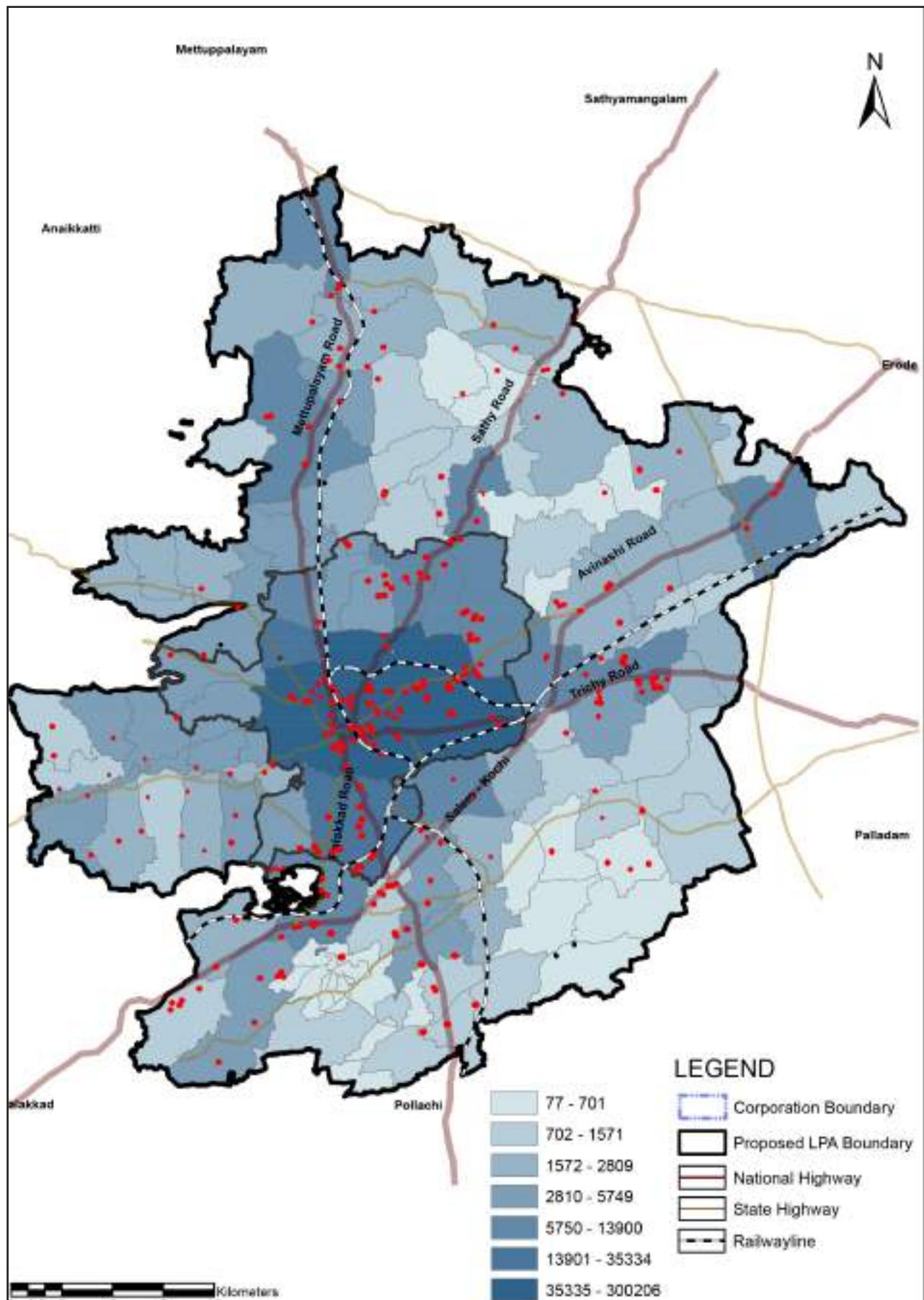
SL. NO	LOCATION	CAPACITY-MLD
1.	Siruvani	101
2.	Pillur	125

Source: Coimbatore Corporation

Water Supply Details Of Town Panchayat & Village

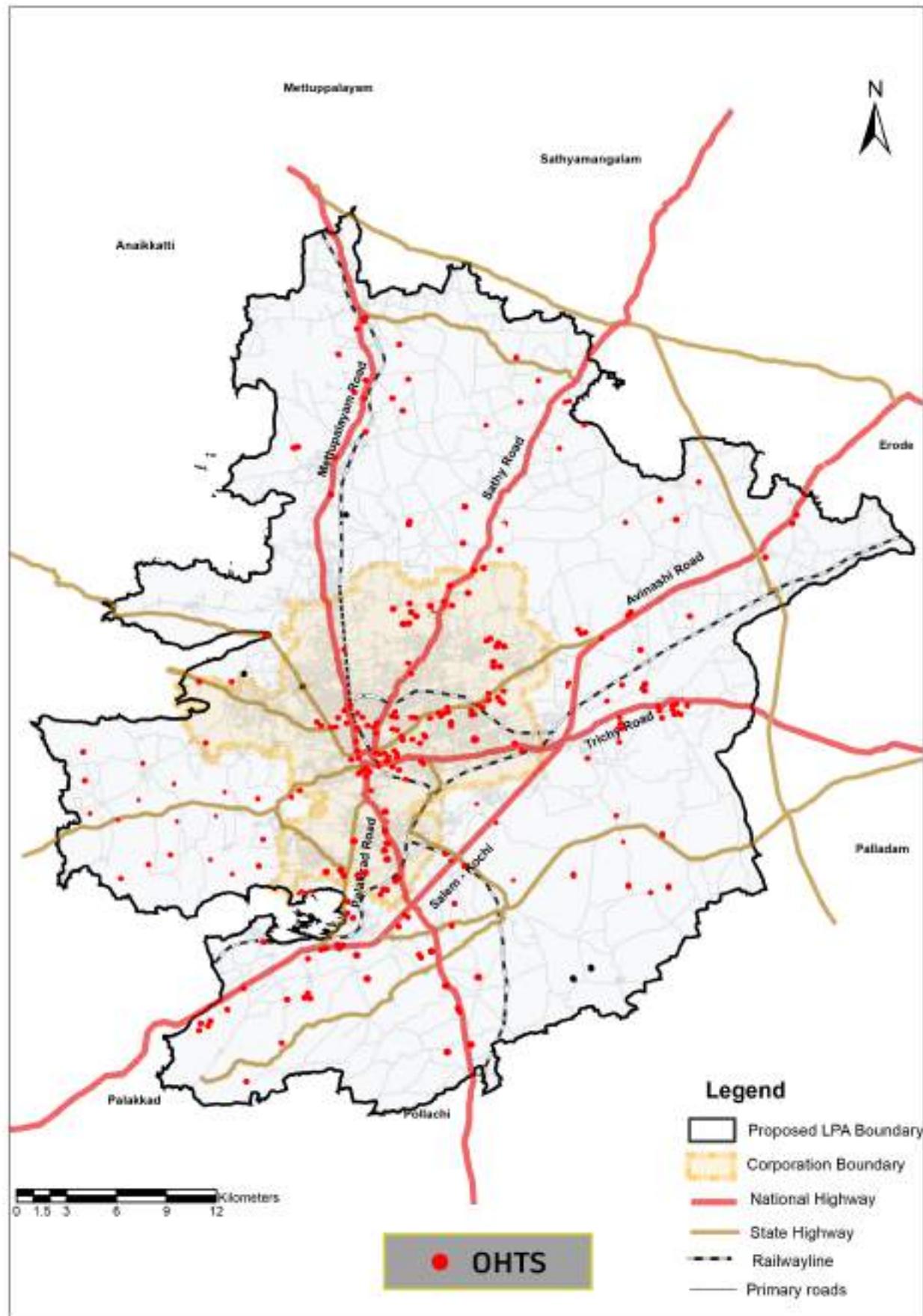
Table 5-6 Water Supply Details for Town Panchayat

SL. NO	NAME OF THE TOWN & VILLAGE PANCHAYAT	POPULATION ON AS ON 2021	NO OF OHT	SOURCE DETAILS	PRESENT WATER SUPPLY IN MLD
1	Cheupalayam	12969	7	Athikadavu - Pillur CWSS I & II	1.206
2	Dhali yur	13477	7	Siruvani CWSS and Thondamuthur CWSS	1.377
3	Ettimadai	11325	12	Athikadavu - Pillur CWSS I & II	0.793
4	Gu dalur	65753	12	Athikadavu - Pillur CWSS I & II	6.24
5	Idigarai	11594	10	Athikadavu - Pillur CWSS I & II	1.2
6	Irugur	34447	5	Athikadavu - Pillur CWSS I & II	3.28
7	Kannampa-layam	15868	9	Athikadavu - Pillur CWSS I & II	2.83



Map 5-2 HSC Density map

8	Karamadai	43521	17	SAS	4.99
9	Karumatham paui	45286	26	Athikadavu - Pillur CWSS I & II	3.55
10	Madukkarai	34401	9	Athikadavu - Pillur CWSS I & II	4.03
II	Mopperipalay am	13391	22	Annur - Avinashi& Wayside Habitation CWSS	1.05
12	Narasirnmana ickenpalayam	27244	8	Athikadavu - Pillur CWSS I & II	2.5
13	Othakkalman dapam	14217	6	Athikadavu - Pillur CWSS I & II	1.5
14	Periyanaicken palayam	29870	4	Athikadavu - Pillur CWSS I & II	3.78
15	Perur	8040	9	Siruvani CWSS and Thondamuthur CWSS	0.727
16	Pooluvapatti	13706	19	Siruvani CWSS and Thondamuth ur CWSS	1.34
17	Sarkarsam ak ul am	15250	8	Athikadavu - Pillur CWSS I & II	1.09
18	Sulur	31827	7	Athikadavu - Pillur CWSS I & II	3.48
19	Thcnk arai	7659	13	Siruvani CWSS and Thondamuthur CWSS	1.021
20	Thirumalaya mpalayam	13500	9	Athikadavu - Pillur CWSS I & II	0.858
21	Thondamuthur	15400	15	Siruvani CWSS and Thondamuthur CWSS	0.971
22	Veeraoan di	21912	10	Athikadavu - Pil-lurCWSS I &	2.8
23	Vellore	24872	7	Athikadavu - Pillur CWSS I & II	4.32
				TOTAL MLD	56.143



Map 5-3 Location of OHT

5.2.6 Quality of Water

A. Ground Water Quality

The spring water in this area is often colourless, odourless, and less soluble than that of other regions. The pH of the groundwater in Coimbatore is ranged from 7.1 to 8.0 and was suitable for drinking. CaCO₃ (with numerous acceptable cut-off values) and Nitrate (with concentrations above 45 mg/l observed in around 80% of tests) account for 39% of all occurrences of absolute hardness. High frequency of increased hardness is related to the development of litho units encompassing the springs in the area, while nitrate pollution is unquestionably the result of manure usages in farming and other improper rubbish disposal.

The chemical quality of the ground water in the district is negatively impacted by drought due to the soil composition and irrigation methods used.

Coimbatore Corporation is doing water quality monitoring at bore wells to investigate the composition of ground water and determine whether or not it is fit for human consumption (Selvapuram and Ondipudur observation wells of TWAD Board). There was a significant increase in TDS levels compared to the safe range.

In many areas, high total dissolved solids (TDS) make the water unfit for human consumption.

During a severe drought, the Corporation supplied water to the residents in unapproved layouts and new residential zones with 13 tankers, while private tankers supplied another 350 locations once every three days.

B. Surface water quality

Coimbatore's primary bodies of surface water are still the network of channels and tanks commonly referred to as lakes. Due to a lack of upkeep, these tanks have severely degraded, and during the dry season, their water contains mostly sewage.

Weeds can overtake lakes if maintenance isn't performed routinely this affects the quality of surface water adversely. All bodies of surface water have significant amounts of trash put unlawfully in them.

5.2.7 Water Demand And Projection

5.2.7.1 Cpheeo Per Capita Supply Of Domestic And Non- Domestic Demand

Supply at consumer end for cities/ towns with population less than 10 lakhs should be 135 LPCD and for larger cities having population of 10 lakh or more should be designed for 150 LPCD.

5.2.7.2Projection Design

Future water demand in the LPA has been estimated for the Corporation, Municipality, Town and Village Panchayats based on supply standards: 135 lpcd for the city, Municipality, Town &Village Panchayats. Table

5-6 and table 5-7 represents the source of water supplyandgapanalysisinCorporation,Municipality, Town and Village Panchayat respectively.

The method of projecting water demand

involves determining how much water will be needed in the future for a certain region, community, industry, or sector depending on a variety of variables, such as population increase, economic development, climatic conditions, and water-use habits.

In Coimbatore, the major water supply is drawn from Siruvani, Pillur and Aliyar dam. The below table shows the designed capacity and withdrawal capacity of the corresponding dams of Siruvani, Pillur and Aliyar.

Table 5-7 Source of Water Supply in Coimbatore

SOURCE	DESIGNED WITHDRAWAL CAPACITY (MLD)	DAILY WITHDRAWAL (MLD)
Siruvani Dam	101	87
Pillur Dam	125	115
PI P2	125	91
P3	175	
Aliyar Dam	109.42	28
Total	635.42	321

Source: Coimbatore corporation

Water Supply Gap Analysis

Currently 135 lpcd is supplied to Coimbatore LPA with industrial bulk of 5 MLD, 8 MLD and 3 MLD for Corporation, Municipality, Town and Village Panchayat. The Existing storage capacity of Corporation and rest of Corporation is 172.12 MLD and 56.14 MLD respectively. Table 5.9 represents water supply gap analysis for 2031 and 2041.

Table 5-8 Existing Water Supply in Coimbatore

Description	Existing Water Supply 2023		
	Corporation	Municipality and Town Panchavat	Village Panchavat
Population (in lakhs)	19.54	5.77	4.82
Water Supply Demand at 135 LPCD	264	78	65
Industrial bulk demand	5	8	3
Total Demand (MLD)	269	86	68
Existing Water Supply (MLD)	227	63	31
Gap (MLD)	42	23	37
Storage Capacity Existing – 172.12 MLD (Corporation) Storage Capacity Existing – 56.14 MLD (Rest of Corporation)	96	30	12

Table 5-9 Water Supply Gap Analysis

Description	Corporation			Municipality and Town Panchavat			Villaeae Panchayat		
	2023	2031	2041	2023	2031	2041	2023	2031	2041
Population (in lakhs)	19.54	24.21	29.91	5.77	7.1	8.74	4.82	5.83	7.06
Water Supply Demand at 135 LPCD	264	327	404	78	96	118	65	79	95
Industrial bulk demand	5	6.5	8	8	9.5	10	3	4.5	5
Total Demand (MLD)	269	333	412	86	105	128	68	83	100
Existing Water Supply (MLD)	227	227	227	63	63	63	31	31	31

Gap (MLD)	42	106	185	23	42	65	37	52	69
Storage Capacity Existing - 172.12 MLD (Corporation)	96	161	240	30	49	72	12	27	44
Storage Capacity Existing - 56.14 MLD (Rest of Corporation)									

Source: Analysis

5.3 SEWAGE

5.3.1 Introduction

The process of sewage disposal includes a number of distinct phases, including the generation of waste, its transport through the sewerage network, its collection at treatment plants, and its treatment there. Detailed descriptions of the sewage system and its current state are provided below.

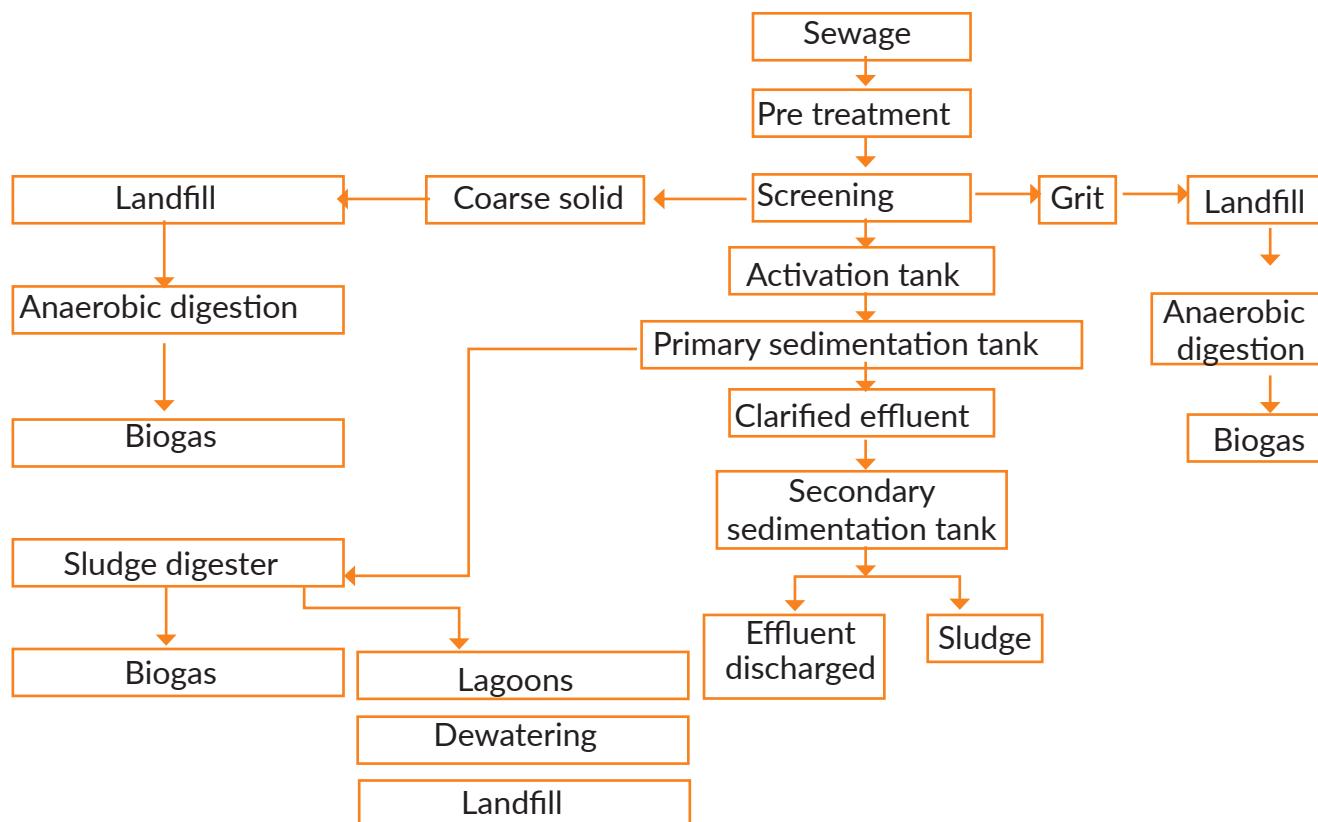


Figure 5-3 Sewage Distribution Flowchart

5.3.2 Current Scenario

Coimbatore Municipal Corporation area of 105.6 Sq.km is divided into three zones. Some areas added to the sewage scheme are Vadavalli , Veerakeralam, Koundampalayam and Thudiyalur. At present there are three sewerage treatment plants in CCMC located at Ukkadam, Nanjundapuram and Ondipudur with a capacity of 70 MLD, 40 MLD and 60 MLD respectively. About 20% of sewerage is recycled and reused. 90% of general households are covered and 60% of slum areas are covered of which 90% is taken for treatment and are disposed.

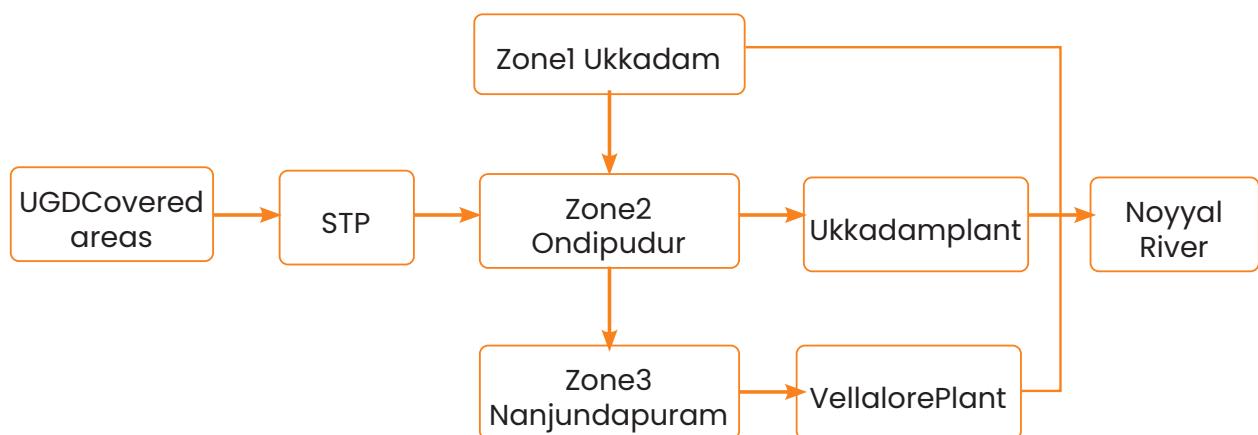


Figure 5-4 UGDCoveredAreas

Zone 1:

Sewage from zone 1 is collected by five main sewers that pass through Valankulam tand and discharged at the Ukkadam treatment plant. The wards that are covered in this zone area 24,25,54, 72,73,78,79,80,81,82,83,84,85,86 as well.

This plant covers a population of 249,349. The sewerage is finally disposed in Noyyal river.

The sewer's length is about 15 kms designed for a capacity of 20.14 MLD and to serve around 6,832 households.

Zone 2:

The sewage of this zone is collected from Ondipudur and pre-treated at the Ukkadam treatment facility before being pumped to Vellore for final treatment and disposal. The area west of Thadagam road is currently out of service and is intended to collect the sewage from this area and discharge them into the zones' existing trunk sewers. The wards that are covered in Zone II are 21,22,23,51 and 79. This plan covers a population of 77,259. The sewerage is sent to Vellore plant and then to Noyyal River. The sewer length is about 38 kms designed for a capacity of 16.620 MLD and serves around 5,394 households.

Sewage from Zone III's is collected and pre-treated at Nanjundapuram pumping station. Wards that come under Zone III 45,48,49,50,52,53,55,67,68,69,70 and 71. This plant covers population of 236,518. The sewerage is sent to Vellore plant and then to Noyyal River. The sewer length is about 70 kms designed for a capacity of 23.625 MLD and serves around 16,791

households.

Table 5-10 Sewage Coverage

ZONE	WARDS	POPULATION (2021)	POPULATION 2041I
Zone 1	24, 25, 54, 72, 73, 78, 79, 80, 81, 82, 83, 84, 85 86	124 941	136 229
Zone 2	21, 22, 23, 51, 79	45786	48882
Zone 3	45, 48, 49, 50, 52, 53, 55, 67, 68, 69, 70, 71	168878	173288
Total		3,39,606	3,58469

5.3.4 Treatment Facility

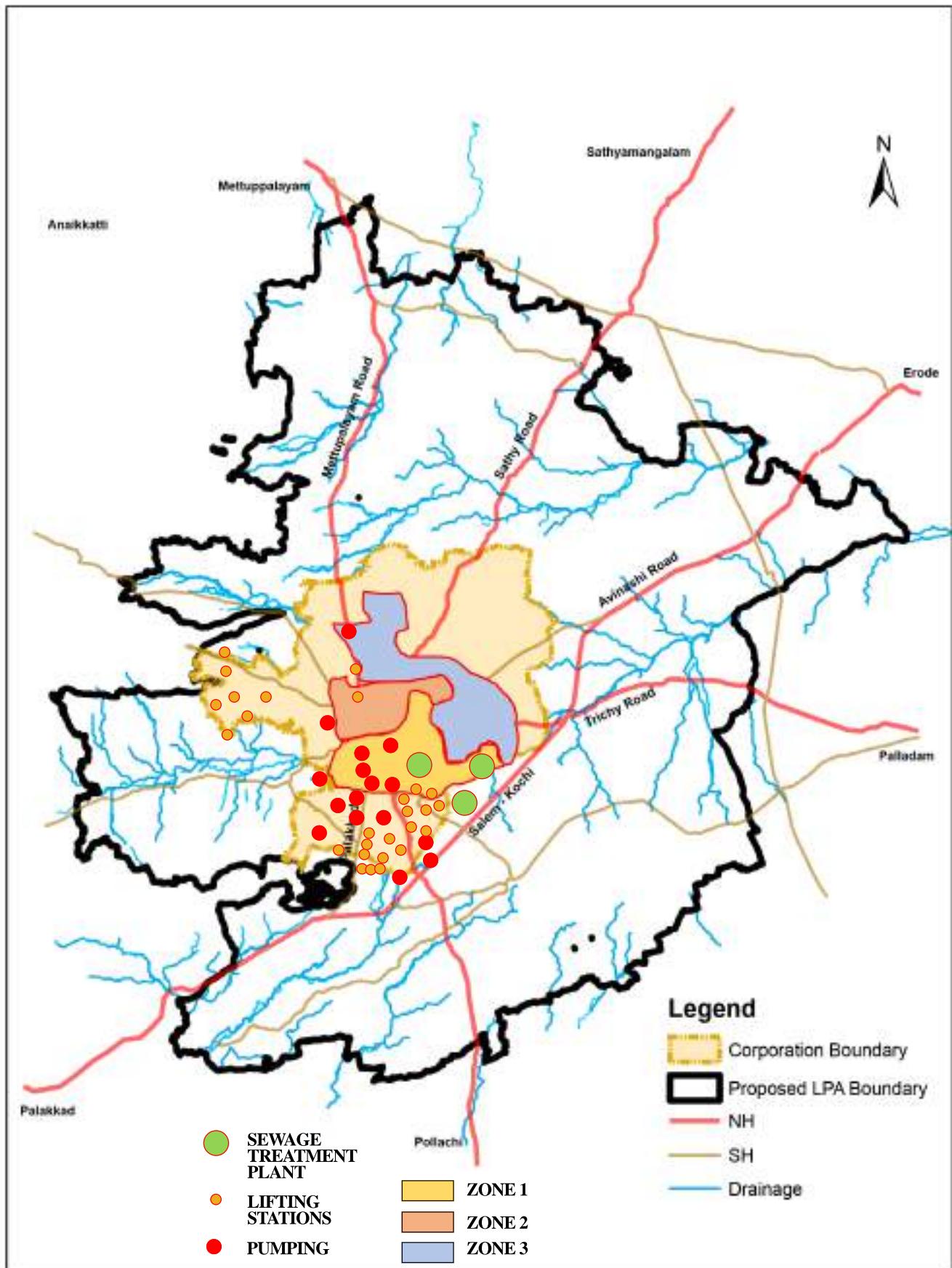
Coimbatore has three sewage treatment plants currently (STPs) placed throughout the city: Ukkadam, Ondiputhur, and Nanjundapuram. At Ukkadam, the treatment facility includes a screen chamber, grit chamber, settling tank, sludge digestion tank, and sludge drying bed. The amount of land required to treat 70 MLD of sewage is 178 acres (at a rate of 25,000 gallons per acre per day).

The corporation has purchased 114 acres of land at Ukkadam in anticipation of future needs. The Ondipudur treatment plant, with capacity of 60 MLD, was just inaugurated.

Sewage from Zones I and II is collected at Ukkadam equalization tank, which is used to equalize the daily differences in flow from time to time in order to maintain a consistency. There are two 50m x 40m equalization tanks, each with an 8-hour detention time.

Sewage is pumped from Ukkadam to Vellore for treatment through 700-, 600-, and 500-mm pipes and three 75 HP sets.

The treatment operation at Vellore comprises



Map 5-4 STP locations

The Ukkadam STP has an important treatment capacity OF 70MLD and is capable of processing an important quantity of sewage and wastewater. The facility's capacity will be sufficient to accommodate the growing

of a 5- to 6-daanaerobic lagoon. Similarly, sewage from Zone III, which is not entirely serviced by a sewer system, is collected in an equalisation pond with an 8-hour retention time in Nanjundapuram (size 40m x 88m).

5.3.5 Demand & Projections

Through a 600 mm force main to a total length of 4570 metres from Nanjundapuram to Vellore.

Table 5-11 Existing sewage data

Description	Existing Water Supply (2023) in MLD	Existing Sewage Generated (2023) in MLD	Present Treatment Capacity of STP in MLD	Present GAP IN MLD
Coimbatore Corporation	269	215	170	45
Municipality and	86	69	0	69
Town Panchayat	68	54	0	54
Village Panchayat	423	338	170	168
Total				

Source: Analysis

Table 5-12 represents Sewage Gap analysis for Corporation, Municipality, Town and Village Panchayat for the projected year

Table 5-12 Sewage Gap Analysis

Description	Projected Water Supply in MLD			Projected Sewage Generated in MLD (80% of Water Supply)			Existing capacity of TP in MLD 2023	Additional treatment capacity to be provided in MLD (in Progress)	GAP in MLD
	2023	2031	2041	2023	2031	2041			
Coimbatore Corporation	269	333	412	215	266	330	170	35	125
Municipality and Town Panchayat	86	105	128	69	84	102	0	0	102
Village Panchayat	68	83	100	54	66	80	0	0	80
Total	423	521	640	338	417	512	170	35	307

Source: Analysis

5.4 SOLID WASTE MANAGEMENT

5.4.1 Current Scenario

There are many components to the solid waste management system, including the first phases of waste generation, collection, storage, transportation, treatment, and finally disposal. Both the history of the solid waste management system and its current state will be discussed below.

Table 5-13 Existing Situation of Solid Waste management

COLLECTION	UNITS
Garbage Collected Per day (Tones)	815
Garbage Collected by Corporation (Primary collections)	100%
Generation per person (gm/ day)	600
Collection Efficiency	95

The amount of municipal solid waste generated in Coimbatore city has increased drastically in the recent years. On an average, the city generates 815 MT per day of municipal solid waste from households, industries and manufacturing processes.

Coimbatore Municipal Corporation, which is responsible for the collection and disposal of solid waste, is now facing problems associated with solid waste management system. As a result, 90 % of the total wastes generated from

The above sources are dumped open in the city's disposal site near Vellore threatening human health and environment. The existing situation of solid waste management is represented in the further.

If the treated water, sometimes referred to as effluent, covers environmental criteria, it may be released into a receiving water body (such as a river or ocean). For non-potable uses like irrigation, industrial processes, or cooling water, it can also be recycled.

5.4.2 Waste collection and processing methods

5.4.2.1 Solid waste generation

Table 5-14 shows that about 82% of the waste is Biodegradable, originates primarily from the residential solid waste and from various markets such as Food waste, Human waste, Paper waste, Manure, Sewage, Hospital waste, Sewage sludge, etc.

Table 5-14 Solid Waste Generation

Waste Generated	MT	% of total waste
Domestic	349.54	58.16
Industries	18.39	3.06
Commercial and Others	39.25	6.53
Segregated waste from Market	193.88	32.26
Total	601	100

Source: Coimbatore Corporation

The industries and the commercial establishments also contribute around

10 percentage of the total waste. The amount of waste generated in Coimbatore is given in the table 5-17

5.4.3 Disposal Yard

There are 4 disposal yards out of which only one is operational at Vellore sewage farm.

The landfill site at Vellore is being operated for the last two years, subsequent to the closure of the city's earlier dumpsites.

The corporation has obtained permission from the Tamil Nadu Pollution Control Board (TNPCB) to use this land for municipal solid waste disposal.

The Vellore compost yard has an extent of 604 acres of dry land acquired from farmers with one Weigh Bridge and 30 acres of greenery around it. The Coimbatore Corporation initially acquired this property for the sewage disposal.

There are 14 landfills located in Coimbatore. The below table represents the location of landfills along with its capacity in respective Taluk areas.

The map 5.2 shows the location of landfill and dump yard in LPA.

Map 5-3 Location of Landfill & Dumpyards in LPA

Solid wastes which are not able to decompose (Non-bio degradable) or that are unable to recycle are disposed at land fills

Table 5-15 Landfill Location and Area in acres

Sl No.	Taluk Name	Village Name	MT/day	Extent (Acres)
1	Annur	Annur	9.2	2.02
2	Sulur	Irugur	5.73	2.75
3	Sulur	Sulur	7.5	2.77
4	North	Periyanaickenpalayam	8.5	3
5	North	Veerapandi	4.7	2
6	Mettupalayam	Karamadai	5.82	3.5
8	Madukkarai	Tirumalaiyatnpalayatn	1.5	3.2
9	Perur	Perur	2.99	0.95
10	Madukkarai	Ottakkalmatldapatn	3.2	6.35
11	Annur	Sarkarsamakulatn	1	1.74
12	Perur	Dhaliyur	3	2.4
13	Madukkarai	Chettipalayatn	2.32	1.25
14	Madukkarai	Vellore	900	654

5.4.4 Analysis

5.4.4.1 Service indicator

Based on the available data, discussions with the officials and field survey, the following key issues and performance indicators are derived. It is observed that a total of 126 MT of solid waste is generated including plastic, cardboard, metals, glass, paper, rubber and leather.

Table 5-16 highlights the service indicators for solid waste management

Table 5-16 Solid waste Management and Service Indicators

Indicator	Unit	Existin2 Situation	Bench-mark
Source segregation	%	10	100
Dail sweeping and mopping	%	70	100
Per Capita Generation	Gms/ Day	600	NA
Collection Performance (% Collected to Generated)	%	91	100
Total Vehicle Capacity / Waste Generated (with Corporation Vehicles)	%	28	NA
Total Vehicle Capacity / Waste Generated (with Total Fleet)	%	120	100

Source: Coimbatore Corporation and local bodies

Source segregation is done poorly thus it is difficult to separate the wet and dry waste by the municipal workers. People should be encouraged to separate at household level which will bring the service closer to the benchmark. The vehicle capacity of the LPA is sufficient for the existing population but will require more for 2041.

5.4.4.2 Gap analysis

The Municipal Solid Waste gap is calculated based

on the prevailing Status of generation, collection and processing capacity for the projected population to meet the additional needs.

The projection Study for solid waste by the year 2041 for corporations is shown in the upcoming tables.

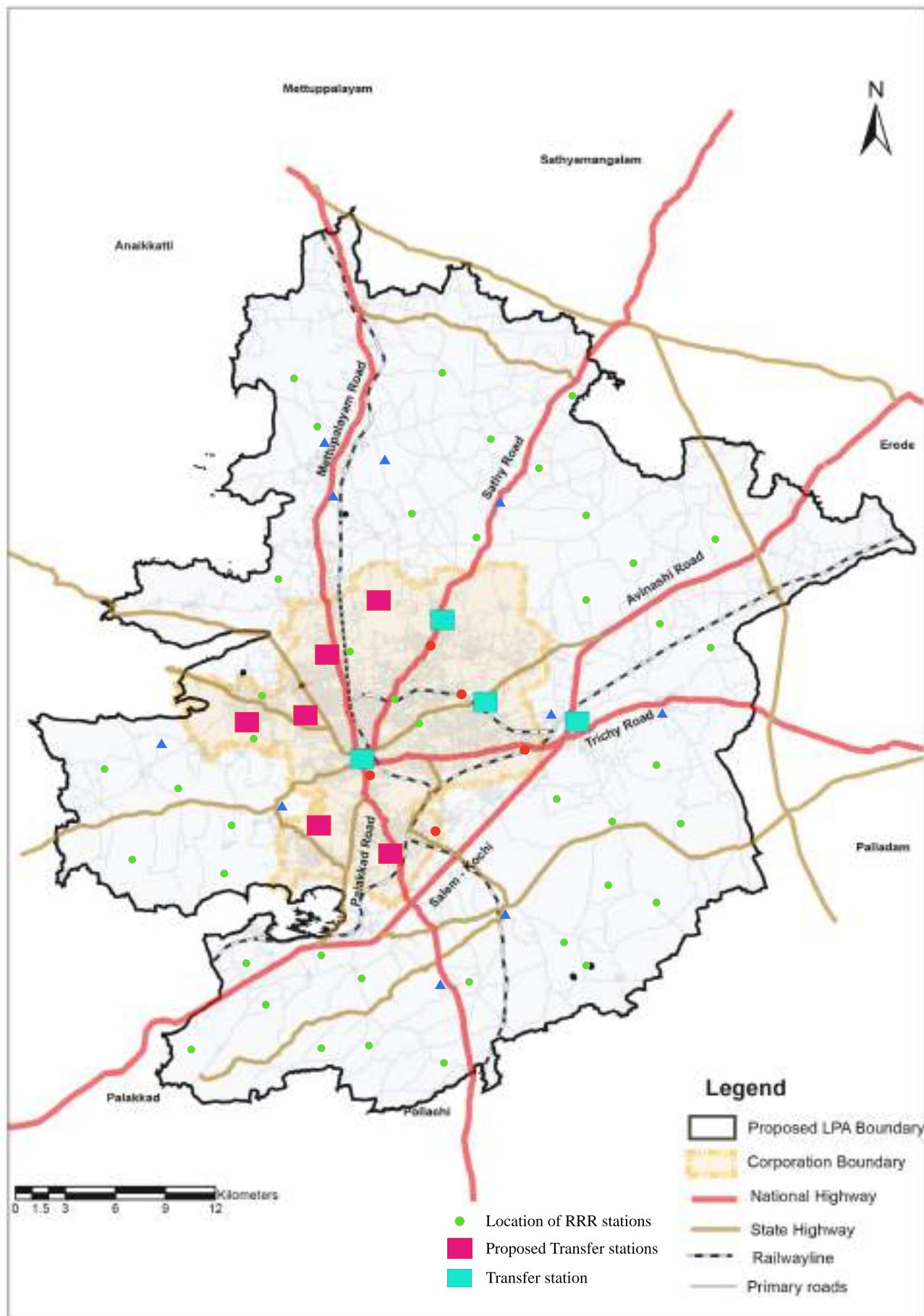
Table 5.17 depicts the existing condition of solid waste management in Coimbatore. Currently 1809 TPD of MSW is generated, in which 1028 TPD of MSW is processed.

Table 5-17 Existing condition of Solid Waste Management in Coimbatore

Description	Existing Population (2023)	Norms (kg/capita/day) NEERI	Existing Quantity of waste generated TPDI 2023	Existing Treatment Capacity in TPD	Existing Processing done in TPD	Gap in TPD
Coimbatore Corporation	19.54	0.6	1172	818	682	354
Municipality and Town Panchayat	5.77	0.6	346	210	210	136
Village Panchayat	4.82	0.6	289	0	0	289
Total	30.15	0.6	1808	1028	892	780

Source: Analysis

The analysis table shows that in 2041, out of 2745 TPD of MSW generated 1028 TPD of MSW will be processed and 628 TPD load on landfills shall be reduced. Therefore, the gap for 2041 is 2345 TPD which is needed to be resolved.



Map 5-5 Solid waste management



Figure 5-5 Vellore Landfill



Figure 5-6 Mettupalayam Landfill



Figure 5-7 Sulur Landfill



Figure 5-8 Collection of waste



Figure 5-9 Transfer station

Table 5-18 MSW Gap Analysis:

Description	Projected Population (2041)	Norms (kg/capita/day)	Projected Quantity of waste generated (TPD) 2041	Existing Treatment Capacity inTPD	Existing Landfill dispose inTPD	Gap in TPD
Coimbatore Corporation	28.85	0.6	1731	818	318	1231
Municipality and Town Panchayat	10.5	0.6	630	210	310	730
Village Panchayat	6.4	0.6	384	0	0	384
Total	45.75	0.6	2745	1028	628	2345

Source: Analysis

5.5 STORM WATER

5.5.1 Introduction

Storm water drains were designed to collect the run-off water, rainwater and drain them into the primary source. Coimbatore has a natural topography of sloping terrain from North towards the South and from West towards the East respectively. The natural contour channels the storm water to Noyyal River. Unfortunately, the storm water in Coimbatore is mixed with sewage and drains into Noyyal polluting the water body. The present master plan is proposed for the next 20 years which interrogates this existing problem.

5.5.2 Storm water drains

Drains can be of natural drains and man-made drains. There are seven natural drains in Coimbatore.

In general, Storm water drains can be classified as primary, secondary and tertiary drains which are further classified into sub categories as follows,The Corporation maintains 585.22 kms of storm water drains in the city.

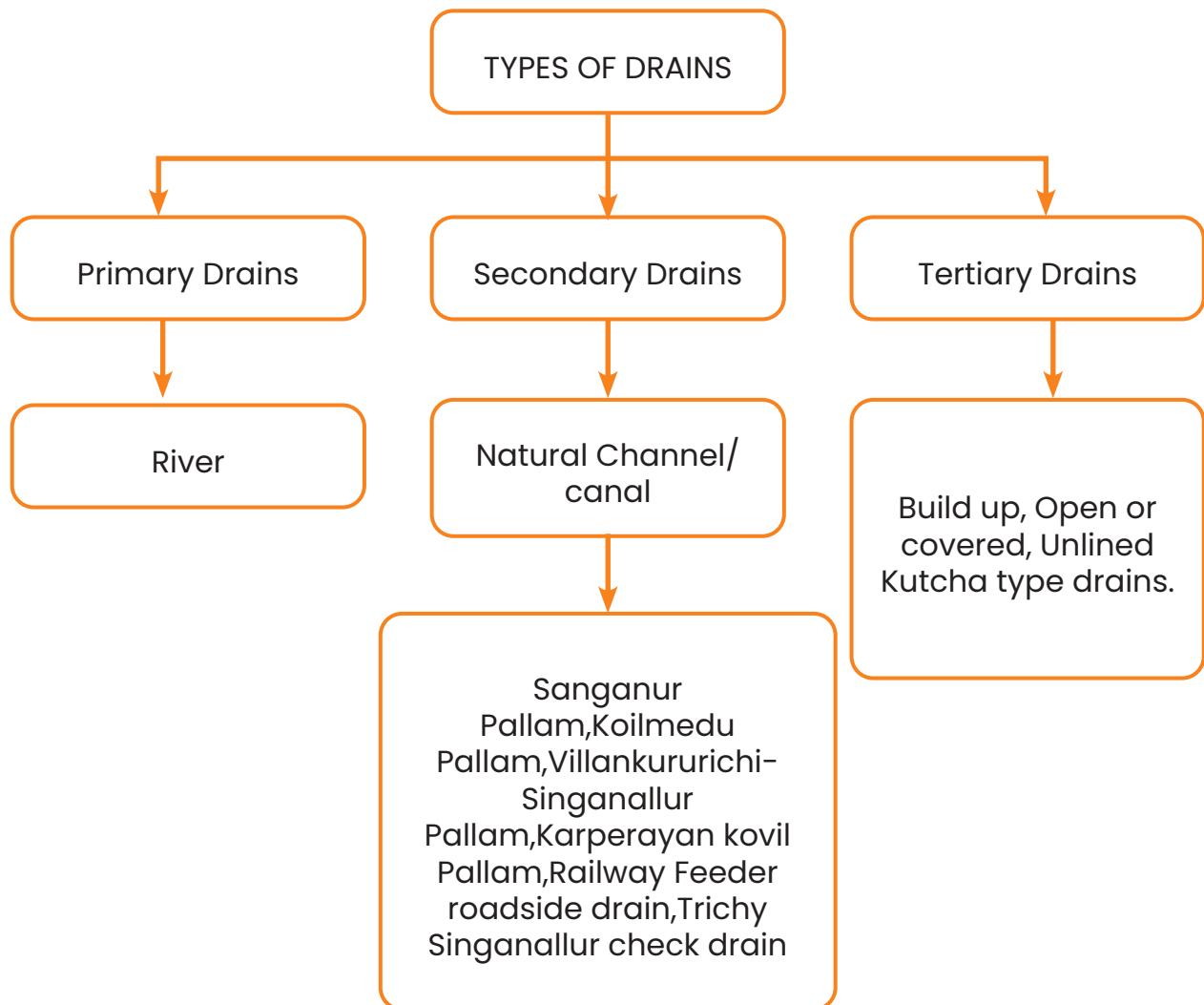


Figure 5-10 Types of Drain

50 Kms of storm water drain has been constructed after 1999 of which 45 km covers the flood prone areas. The drains are primarily open with concrete surfacing running along the major roads. Every year a length of 40 km of storm water drains are being constructed.

Coimbatore 's drainage system comprises a hierarchy of natural and man-made drains and

water bodies that ultimately discharge surface run-off into Noyyal River.

5.5.2.1 Primary drains

Water flows from the secondary drains to the primary drain Noyyal which has about 23 anicuts, 23 canals of 100 km length and 31 tanks at different locations with a regulated irrigation facility used to irrigate around 20000 acres of land. Through ground water recharging , an additional 30,000 acres of land was benefited for farming activities.

5.5.2.2 Secondary drains

The secondary drains comprises of natural drains and water tanks. They carry storm water and serve as irrigation-cum-drainage channels as well. Total length of these drains is about 64.42 Km. the afore-mentioned drain culminates in 9 major water bodies which serves as a huge irrigation network. The main drainage artery named Sanganur pallam traverses from north to south with its outfall in Noyyal River.

5.5.2.2.1 Natural drains in Coimbatore

In addition to the roadside drains, the city is well served with a network of natural drainage channels as well. The following table represents the natural drains in Coimbatore CCMC.

Table 5-19 Natural Drains in Coimbatore CCMC

DRAINS	LENGTH KMS
Sanganur pallam	9.7
Velankurichi-Singanallur Drain	10.8
Ganapathy – Singanallur Drain	13.9
Karperayankoil Drain	3.3

Railway Feeder Roadside drain	3.3
Tiruchy-Singanallur Check Drain	1.9
Total	44.82

A. Lakes

There are 8 major water bodies within the corporation limits with the total area of about 423 Ha and a storage capacity around 16.07 mm³. Most of the tanks are used for irrigation and could also be used as potential recharge centers.

Noyyal River Originates from Vellingiri and Bholuvampatti hill with a length of 180 km (110 mi) Noyyal is a tributary of Cauvery with a cluster of trivial rivers and streams such as Chinnar, Periyar, Neelivaikal, Kanchimanathi etc

It runs through undulating plains sloping gradually from west to east about 160 km across Coimbatore, Tiruppur, Erode and Karur Districts.

The area is known for scanty rainfall and the development of Noyyal River Tank System to hold over flows of the downpour and the water of the Northeast and Southwest monsoon is ecologically vital. 32 interconnecting tanks hold the flowing water from Noyyal.

Surplus water from the river fill the canals and are channelled to the tanks to prevent uninvited flooding.

With growing urbanization , the system was neglected , and the number of functional tanks drastically dwindled to eleven.

Today the system no longer works, and water is scarce. Decades ago, it irrigated 3,550 sq.km (1,370 sq. mi).

According to Siruthuli, revival of Noyyal over 40 km (25 mi) would enable irrigation of 165 km² (64 sq mi).

The below table highlights the storage capacity of lakes on Coimbatore City.

Table 5-20 Lakes in Coimbatore City

LAKES	CURRENT USAGE	AREA HA	STORAGE CAPACITY M CU.M
Krishnampathi	Irrigation	71.2	2.39
Selvampathi	Irrigation	28.2	0.94
Kumarasamy Tank	Irrigation	38	1.22
Narasampathi Tank	Nil	50.2	1.68
SelvachinthamaniKulam	Irrigation	14.9	0.27
ValanKulam	Irrigation	64.8	2.91
Singanallur	Irrigation	115.3	4.9
MuthannanKulam	Nil	41.3	1.76
Total		423.9	16.07

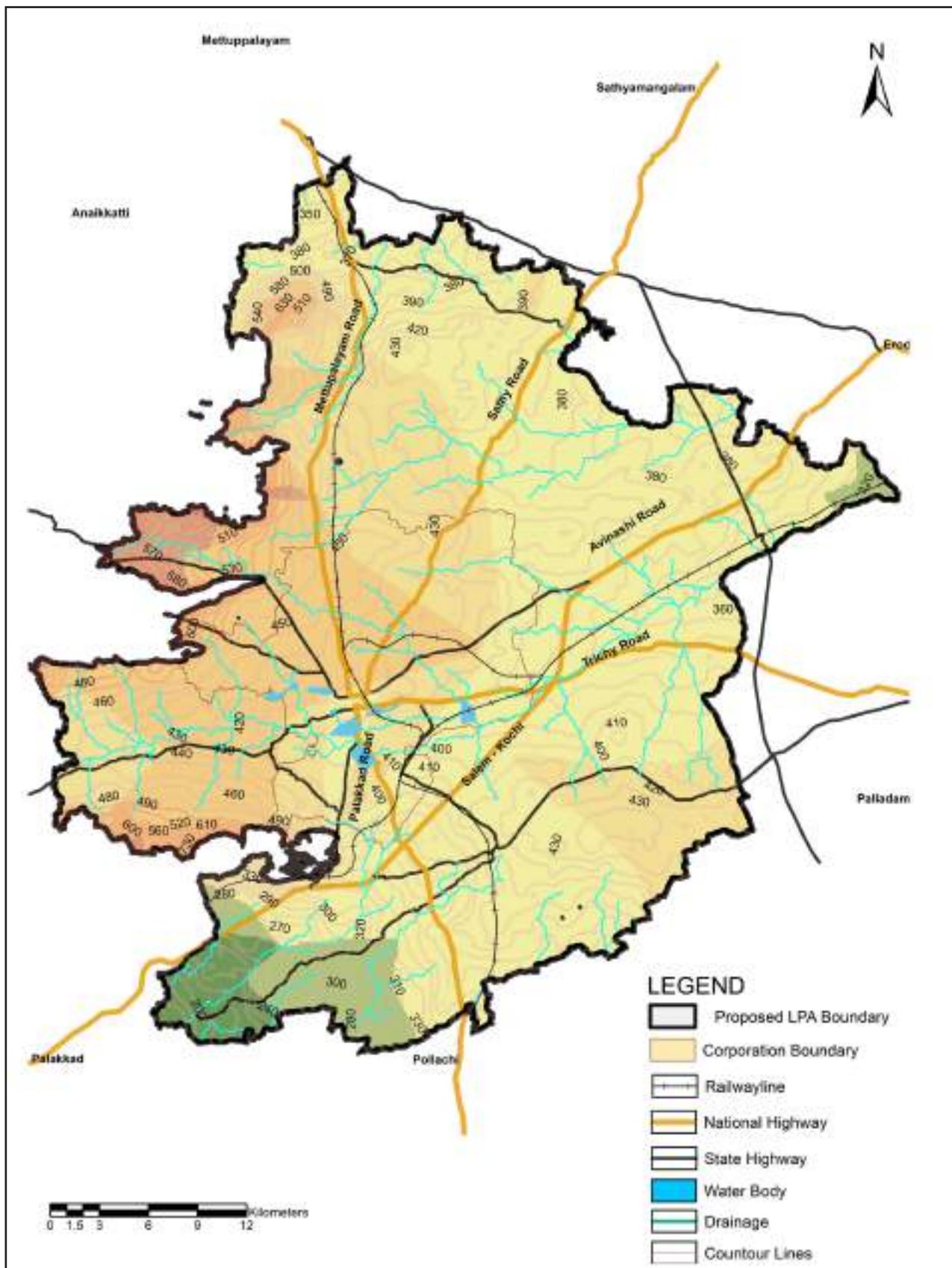
Source: Siruthuli NGO report

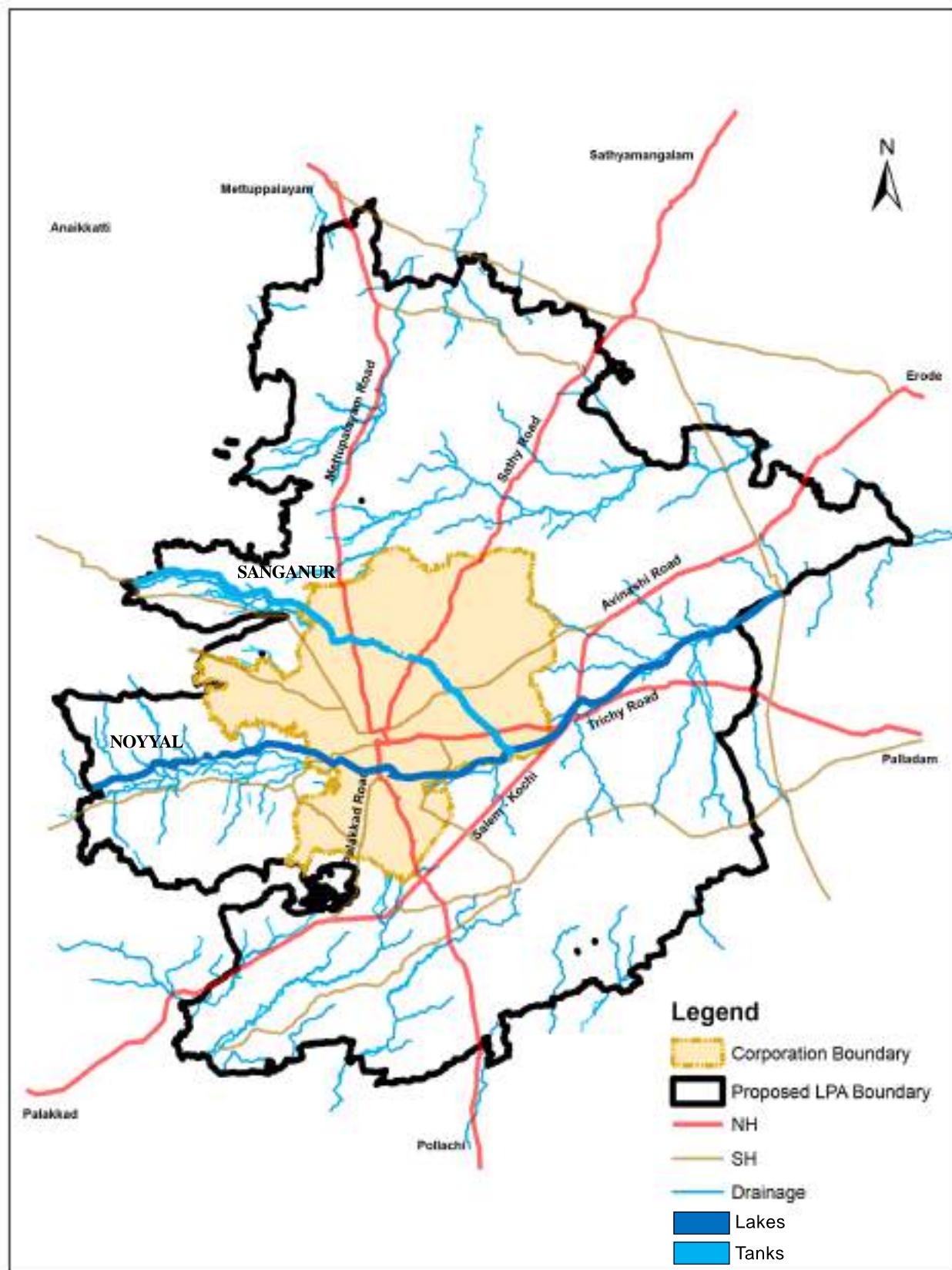
5.5.3 Gap Analysis :

Table 5.21 depicts the existing condition of Storm water drainage at CCMC level , Town Panchayat and Village Panchayat . The analysis shows that the Town panchayat and Village panchayat does not have closed drain and CCMC has the highest percentage of Storm water Drain covered area.

Table 5-21 Storm Water Drainage – Gap Analysis

Categories	Length of Roads in Km	Length of SWD in Km			% SWD Covered
		Open Drain	Closed Drain	Total drains	
CCMC	3236.920	1791.82	603.50	2395.32	74.57
Town Panchayats	1086.89	760.82	-	760.28	70.13
Village Panchayats	515.55	327.67	-	327.67	63.62





Map 5-7 location of natural drains

5.6 ELECTRICITY

5.6.1 Introduction

The demand for energy is at an all-time high in Coimbatore, this is because rapidly growing industries, urbanization, and a change in people's lifestyles.

Coimbatore is gradually transitioning from traditional electrical generation to non-conventional, renewable, and less polluting sources of energy.

The production of power has increased significantly, and Coimbatore generates higher electricity which is more sufficient for utilisation in recent times. The gap between demand and supply of electricity has been narrowed .

5.6.2 Current scenario

There are almost four lakh home power connections in the city. Domestic power usage has increased by 10% in Coimbatore.

According to estimates, Coimbatore's overall power consumption is around 4000 million units per year, with industries consuming the most power (around 40%), followed by home sectors (around 30%), and other sectors (agriculture, commercial, public lighting, etc.).

The city of Coimbatore has a daily requirement of 615 MW, of which solar energy contributes just 10 MW. Solar energy currently contributes roughly 2% of total demand, but this can be increased to at least 10% by adding solar panels throughout the organization.

Electricity in Coimbatore is generated using these modes - using Wind power (Wind Mills), solar energy, Bio-mass energy, Hydro energy, and Thermal energy.

A. Wind Energy

Kuppepalayam Solar Power plants, located in the north of Coimbatore city.

Wind power generation takes places through wind mills strategically placed in locations where wind speed is high and continuous like sea shores. It is taken care by TANGEDCO (Tamil Nadu Generation and Distribution Corporation Limited) which is a public sector company owned by government of Tamil Nadu. Wind energy meets almost 30 percentage of requirement of electricity and its peak season is from May to October

B. Solar Energy

In Coimbatore the first solar plant was set up near Annur and another one near Kuppepalayam which is 25 km from Coimbatore city. It generates about 4,000 units of electricity every day.

Initiative is taken by companies like Select Energy Systems, KGDS Renewable Energy Private Limited, TVZSTEC etc.

C. Hydro Energy

Hydro energy means generating electricity through running water, stored in dams or natural falls or tides etc. Coimbatore is all set to get two small hydro power projects across the Bhavani.

Coimbatore already has three small hydro plants functioning near Udumalpet, harnessing water released from the Amaravathy, Aliyar, and Thirumurthy dams. The two plants coming up near Mettupalayam will be grid-connected systems. The capacity of each plant will be 10 MW (2×5 MW).

D. Bio-Mass Energy

Bio mass energy uses material derived from living or recently living plants or animals to generate energy. Bio mass power plant has been set up in Pollachi with a capacity of 10MW, it utilizes the coconut fronds that are available in abundance in Coimbatore.

Some of the companies in this field are Orient Green Power Company Limited (OGPL), Arrya Hi-tech energy, Tamil Nadu Energy Development Agency, Arasi Hi-tech Bio Power Pvt Ltd, Krone Carbon, Synthite Industrial Chemicals Ltd etc.

E. Thermal Energy

Thermal power plant uses heat to generate electricity. Fuels to create the heat are coal, natural gas, wood waste, and geo-thermal. Though coal is the most widely used fuel to create heat but certainly is not the preferred one.

Slowly and steadily, it will give way to other green and renewable sources of energy and Coimbatore is not far behind.

The sector wise power consumption in coimbatore is tabulated below

Table 5-22 Sector wise power consumption

Sl. No.	Sectors	Consumption (M.U)	% of the Consumption
1	Industries	2010.448	54.86
2	Agriculture & Huts	23.432	0.6
3	Domestic	965.032	26.33
4	Commercial	419.367	11.44
5	Public lighting & Public Works	113.391	3.09
6	Sales to licenses	0	0
7	Sales to other states	0	0
8	Miscellaneous	132.807	3.62
	Total	3664.477	100

Source: TANGEDCO Chief Engineer Distribution, Coimbatore region, Tatabad, CBE. YEAR: 2013-2014

5.6.3 Electricity distribution

The total number of consumers being served in the State as on 31.03.2020 is 307.54 Lakhs. An efficient distribution network is needed for effectively utilizing the energy that is generated. TANGEDCO has an efficient distribution network that has grown over the years.

There are three types of power stations in Coimbatore. They are 11 OkV,

230 kV and 40kV. The below table represents the distribution of sub-stations in Coimbatore.

Table 5-23 Distribution Sub-station in Coimbatore

S.No	TNEB CIRCLE	NO.OF SUBSTATION	TOTAL CAPACITY MVA
1	COIMBATORE MRTRO	13	528.00
2	COIMBATORE SOUTH	25	824.75
3	COIMBATORE NORTH	20	796.00

Source: Districtsource:district census handbook 2017-2018

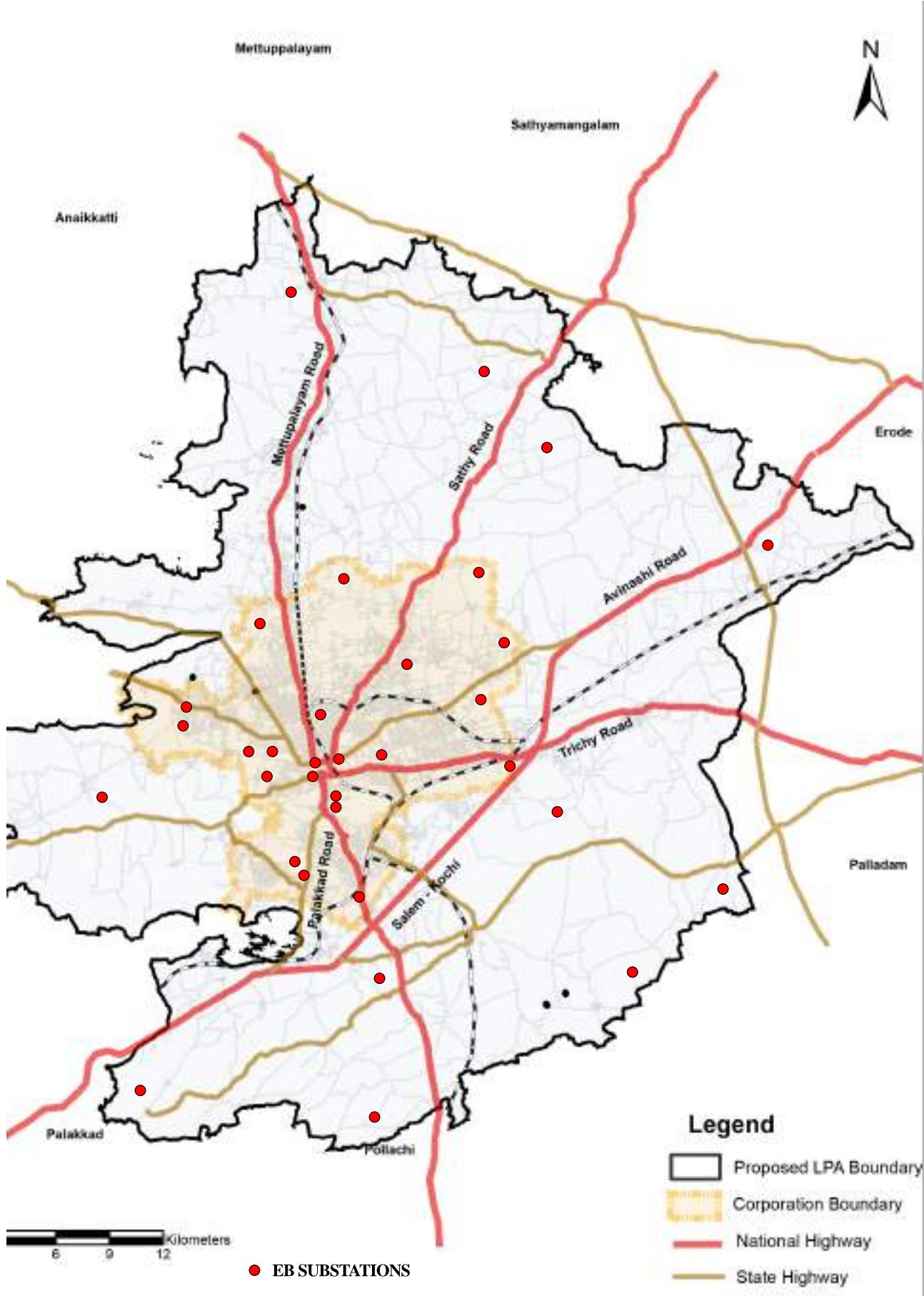
5.6.4 Electricity Gap Analysis

Electricity Gap Analysis is done based on the current scenario. Currently there are 33 substations present in LPA serving 24.66 lakhs population as on 2011. Table 5.24 represents the electricity gap analysis of Coimbatore LPA.

Table 5-24 Electricity Gap Analysis

S.NO	DESCRIPTION	CURRENT SCENARIO
1	Poupulation 2011	24.66 Lakhs
2	No.of substations existing within LPA/ Serving Population	33
3	Capacity of existing substation	110KV (27 nos) 33-11 KV (6 nos)
4	Projected population 2031	37.15 Lakhs
5	Projected population 2041	45.73 Lakhs
6	Additional population	21.07 Lakhs
7	As per URDPFI guideline 11 KV substance serves for every 15,000 population	
8	No.of substation of capacity (110/33-11KV) Required for Projected Population 2041	32
9	Land area required for power infrastructure For future	128 hectares

Source: Analysis



Map 5.8 Shows the Electricity distribution of Coimbatore LPA

In 2022, the total energy consumption scenario of Coimbatore is 4,09,52,507.86 GJ with per capita energy usage of 20.63 GJ. As per URDPFI Guidelines, for every 15,000 population IIKV substation is needed. Based on this guidelines, electricity gap analysis is done for Coimbatore LPA for the future projected population of 37.15 Lakhs and 45.73 Lakhs in 2031 and 2041 respectively.

5.7 SWOT ANALYSIS

A. Strength

Coimbatore City Corporation is dotted with a number of lakes that are being developed as recreational places.

B. Weakness

Insufficient collection of daily produced solid waste. Power charges due to a deficient treatment unit.

Stagnation of water during downpour is very common in the low-lying area.

C. Opportunity

Future proposal for expansion of water networks can be provided. Schemes can be proposed to increase the duration of water supply. Carbonizing with or without energy is also used for processing waste in specific scenario.

Proper maintaining of storm water drains can result in pure water bodies.

D. Threat

Contamination of water due to the fact of the close

proximity of sewage lines, contamination happens frequently.

Encroachment along the major canals has ended in weakening of bonds resulting in flood.

Due to a lack of maintenance and adequacy of storm water drains, water stagnates on roads, limiting their efficient use.

Unregulated growth without adequate infrastructure provision and planning could lead to haphazard development.

5.8 PROPOSALS

The planning strategies for physical infrastructure includes implementing measures and actions for ensuring quality and efficiency of water supply and sewer systems and proper management of storm water drains and solid waste. Providing framework of legal policies for enforcing vigilance against uncontrolled usage of resources and disposal activities is achieved through various proposals and strategies and are explained for each discipline of infrastructure in detail.

5.8.1 Water Supply

A. Adequate measures to augment supply from surface water source

Measures should be taken to meet the additional water supply requirement by tapping additional) so that the LPA can supply 135 lpcd (252 MLD) of fresh water by 2041. Water in each river basin, including rainfall , groundwater, and surface water, should be grouped and managed in an integrated manner to ensure adequate supply availability.

B. Ensure quality supply in the region

Recognizing the importance and pressures on fresh water resources, it is critical to eliminate pollution of surface and ground water resource through innovative technologies in order to ensure good quality water supply. For equitable distribution and inclusive growth, an effective and serviceable water supply network should be provided.

C. Improve efficiency of utilisation

Water should be recognised as a scarce resource, and conservation should be promoted through education and regulation. To conserve and manage water supply in the domestic sector, various measures such as the installation of domestic water saving devices, water metres on all consumers, and a progressive water tariff structure could be implemented. There is a need to build advanced and appropriate community water treatment facilities while also developing low-cost household purification technologies. It is advised that treated water be used for non-portable applications such as irrigation, vehicle washing, recreation, gardening, and industrial processes.

D. Advocate better water management and conservation measures

Water conservation should be viewed as a form of water loss prevention. Because a significant amount of water is lost due to leakage or wastage, a leak detection system and corrective measures of reducing unaccounted for water should be implemented on a regular basis. Before beginning any process of fresh augmentation to

the region, adequate measures should be taken to reduce the share of unaccounted for water to a minimum. It is recommended that a laboratory be established to test pipes, fittings, and fixtures used in plumbing systems for performance, leak proofing , and service.Conservation measures, such as rainwater harvesting and ground water recharge schemes, should be made mandatory and prioritised. Rooftop rainwater should also be collected separately and stored.

5.8.2 Sewage

A. Maximize the utility and efficiency of the existing sewerage systems

The region's sewerage system is not properly maintained. For proper utilities, the existing sewerage system should be checked, cleaned, and cleared of blockages. For maximum efficiency, the network should be repaired or replaced with an appropriate size and maintained.

Cleaning and distilling of sewers and manholes.
Cleaning and distilling of sewers and manholes.

Replacement of existing sewers with appropriate sized ones for discharge and slope requirements.

Rehabilitation of sewage pumps and replacement with higher efficient

pumps for the optimum discharge requirements.

Introduction of pumping station and provision of pumping main based on detailed engineering analysis of the site situation on a case-by-case basis.

B. Measures to be taken for Argumentation of sewer network

Following a detailed engineering assessment of the requirement, the uncovered urban area in the LPA should be provided with an adequate sewerage system. This would involve:

Providing a sewerage network and manholes.

Installing a pumping station with pumping machinery, backup power systems, and pumping mains to ensure efficient conveyance to treatment units.

Consideration should be given to ensuring that raw sewage does not enter storm water drains or nearby water bodies.

C. Encourage waste water treatment using appropriate technology to protect environment and promote the reuse of treated water for Non-potable uses

Sewage treatment plants in LPA should be planned in accordance with the terrain's drainage pattern. Waste water must be acknowledged as a material resource. The existing treatment plant will generate effluent, which is treated water that can be used for non-potable reuses, and the sludge after treatment can be composted with municipal solid waste and used as a substitute for chemical fertilisers. It is critical to set up a laboratory with equipment and trained personnel to control the process and monitor the operation of treatment units. It is necessary to investigate new emerging technologies in waste water treatment mechanisms.

D. Enforce vigilance against uncontrolled discharge into sewer network

Toxic industrial and non-domestic waste water should be kept out of domestic sewer networks, nallas, water courses, and bodies of water. Industries should be encouraged to treat wastes (especially toxic wastes) on-site and to discharge only wastes that meet discharge standards for collective treatment. Opportunities for liquid and (nontoxic) industrial solid waste recycling and reuse must be maximized. The state pollution control board, as well as the water and sewerage boards, should collaborate to monitor non-domestic waste generating agencies/bodies' misuse of the domestic sewerage network.

5.8.3 Storm water

A. Implement measures to protect water body and tanks

The region's water tanks and lakes should be safeguarded against encroachment, pollution, and development. Legislation should be enacted to protect existing water bodies by preventing encroachment and deterioration of water quality.

For the protection of water bodies, measures such as lake desilting, fencing, and the establishment of buffer zones should be implemented.

B. Providing infiltration tanks to increase the ground water recharge

In the current scenario, surplus rain water exceeds the capacity of existing natural tanks; this capacity could be increased by providing infiltration pits

at 20m intervals. It would increase ground water table recharge while reducing demand.

5.8.4 Solid Waste Management

A. Proper management of solid waste

Improper solid waste management and indiscriminate disposal in open spaces, road margins, and lake beds pose numerous environmental and human health risks. Direct health hazards primarily affect those who work in the field without proper gloves and uniforms. A large number of municipal workers and residents living near disposal sites are infected. The following stages are involved in the proposed solid waste management:

Training

All employees will receive extensive SWM training,

connection between a deteriorating environment, waste, and human health, waste treatment and management, composting and recycling principles, occupational hazards, health and hygiene, collection and transportation procedures, and so on.

Segregation of Waste at Source

The waste will be separated at the source into biodegradable (wet) waste and non-biodegradable (dry) waste. After that, the non-biodegradable (dry) waste will be separated into recyclables , non-recyclables, and domestic hazardous waste.

Collection

Daily door-to-door collection and secondary waste collection will take place on pushcarts or rickshaws. After the waste has been collected from households and the common areas have been swept, trucks transport the waste to the site.

Composting of Biodegradable Waste

Composting is a highly efficient method of converting wet waste into usable manure using a natural catalyst. This reduces the amount of food waste that ends up in landfills. Making compost is essential not only for providing food for soil and plants, but also for working organically and reducing waste.

Recycling of Non-Biodegradable Waste

At the site, non-biodegradable waste will be separated by category. The recyclable waste will then be sold to companies that have the necessary machinery and expertise to properly recycle the material.

Integrated solid waste management practices to be promoted in the region. The TNPCB-authorized landfill sites in the LPA should be developed into an integrated solid waste management facility. By notifying the prohibition of development in the buffer zone, a 500m buffer zone should be created around the site as a no development zone. To ensure buffer zone restrictions, a well-defined methodology must be developed and implemented. Advanced technologies and practices are to

be developed to treat the waste before final disposal .Treatment and disposal facilities should be designed and implemented using advanced technologies to allow for the recycling and reuse of biodegradable waste. There should be a system in place to ensure that MSW does not touch the ground until it is treated and disposed of. Because land is a limited resource, the amount of land required for waste disposal must be kept to a bare minimum. Encourage decentralized small waste treatment and disposal facilities to reduce pressure on the centralized facilities and to extend the life of the centralized facilities. To reduce waste entering the municipal stream for treatment and disposal, it is proposed to build small waste treatment facilities such as vermin-compost plants, biogas plants, small aerobic compost units, and so on in public places, wherever space is available to treat waste locally. Such facilities could be built at major public institutions throughout the region.

5.8.5 Proposals and Strategies

The Proposals and strategies for planning physical infrastructure within Coimbatore LPA is categorised as short term, mid term and long term proposals . Table 5.23 depicts the proposals and strategies for developing physical infrastructure in Coimbatore LPA.

Table 5-25 Proposals and Strategies

	SHORT TERM PROPOSAL	MID TERM PROPOSAL	LONG TERM PROPOSAL	IMPLEMENTATION STRATEGIES
WATER SUPPLY	<ul style="list-style-type: none"> More Overhead tanks will be built to fulfill the present requirement. (strengthening storage capacities) 100% water supply for CCMC 	<ul style="list-style-type: none"> Installation of water meters 100 % To bring Aliyar and Pillur 3 water for the demand 	<ul style="list-style-type: none"> To achieve 100 % HSC supply for LPA area 	Smart Metering of water can be done at service level.
SEWAGE	<ul style="list-style-type: none"> Complete UGSS system for the rest of corporation area Localized treatment plant- 2 no's(35 Mld capacity) 	<ul style="list-style-type: none"> UGSS system in the municipalities STPs for town panchayats Treatment plants to encourage water recycling. 	<ul style="list-style-type: none"> STPs for Town panchayats DEWATS for Village panchayats Reuse water treatment plants for non-domestic purposes 	Privatisation of water supply to be recommended and Smart Metering of water can be done at service level.
SOLID-WASTE MANAGEMENT	<ul style="list-style-type: none"> More Transfer station and segregation points for corporatation, Municipality,Town & village panchayats 	<ul style="list-style-type: none"> Reuse treatment plant for Construction & demolition waste Waste wagon using government vehicles and improves better solid waste mobility More MCC plants in town and village panchayats 	<ul style="list-style-type: none"> Achieve 100 percent treatment plants, segregation plants, like MCC,RRR in the LPA. <p>No Landfill policy to be attained</p>	Enhancing STP capacity and network coverage throughout the LPA, Decentralisation of STP plants for larger developments.

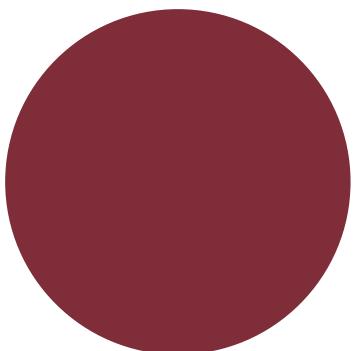
STORM-WATER MANAGEMENT	<ul style="list-style-type: none"> Rainwater harvesting system along with grit chamber in CCMC To lay drain system for missing links for ccmc Removal of debris from the sanganoor and Noyyal basin 	<ul style="list-style-type: none"> Remove encroachment along sanganur stream and Rejuvenation of sanganur stream <p>Stream and water front development Ensure 100% Under ground drain for ccmc</p>	<ul style="list-style-type: none"> Storm water drain network along roads in Villages and town panchayats Noyyal and koushika river Rejuvenation to maintain slopes 	Enhancing STP capacity and network coverage throughout the LPA, Decentralisation of STP plants for larger developments.
ELECTRICITY	<ul style="list-style-type: none"> Sufficient substations must be constructed to accommodate future demand. Installation of solar panels in government structures is mandated. Electric Smart meters to be installed 	<ul style="list-style-type: none"> Renewable electric energy to be installed for all public lighting purposes More energy supply for electric charging stations as per Demand 	<ul style="list-style-type: none"> Achieve 100% connection Renewable electric energy to be installed for all public lighting purposes 	Pay-As-You-Throw (PAYT) can be followed for better solid waste management and revenue generation by enhancing public responsibility Water Percolation pits and chambers on the grey infrastructure at every 100 metre

Source : Analysis



06

SOCIAL
INFRASTRUCTURE



06 SOCIAL INFRASTRUCTURE

6.1 OVERVIEW

Social infrastructure supports and enhances society's well-being, connectivity, and overall quality of life.

The social infrastructure of a country, region, city, or neighborhood is a foundational service that promotes quality of life. This category includes any infrastructure that goes beyond basic economic operations to make a community a desirable place to live.

There are four sections - education, health, organized greens, and miscellaneous. The miscellaneous infrastructure includes police, civil defense, and home guards, as well as Distribution Services and Safety Management. Figure 6.1 depicts the broad categories of social infrastructure.

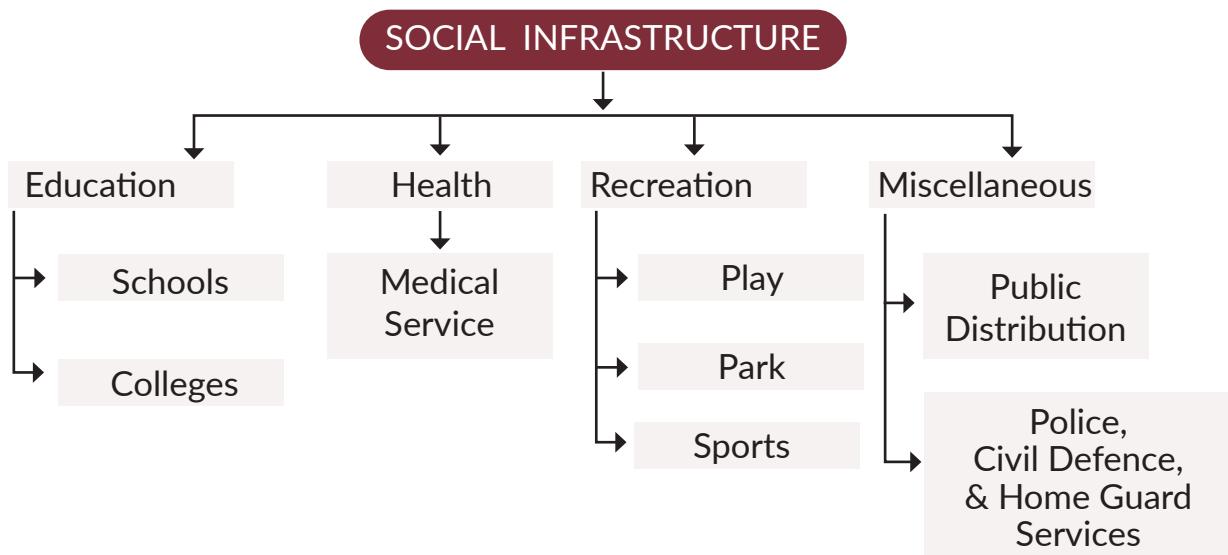


Figure 6-1 Classification of infrastructure

6.2 EDUCATION

PSG College of Technology is highly esteemed for engineering & technology education in Coimbatore.

Coimbatore is a prominent educational city in South India. Coimbatore is home to many state-owned universities, including Tamil Nadu Agricultural University (founded in 1971), Bharathiyar University (1982), and Anna University Coimbatore (2007), as well as private universities, including Karunya Institute of Technology and Sciences (1986), Avinashilingam University for Women (1987), Amrita Vishwa Vidhyapeetham (2003), and Karpagam Academy of Higher Education (2003).

Coimbatore is home to government and corporation schools, schools sponsored by the government but run by private trusts (Aided schools), and schools funded and governed by private trusts.

Table 6-1 shows the number of primary, middle, high, and higher secondary schools that will be built or improved to accommodate the increased number of school-aged children.

Table 6-1 Number of Schools in Coimbatore LPA

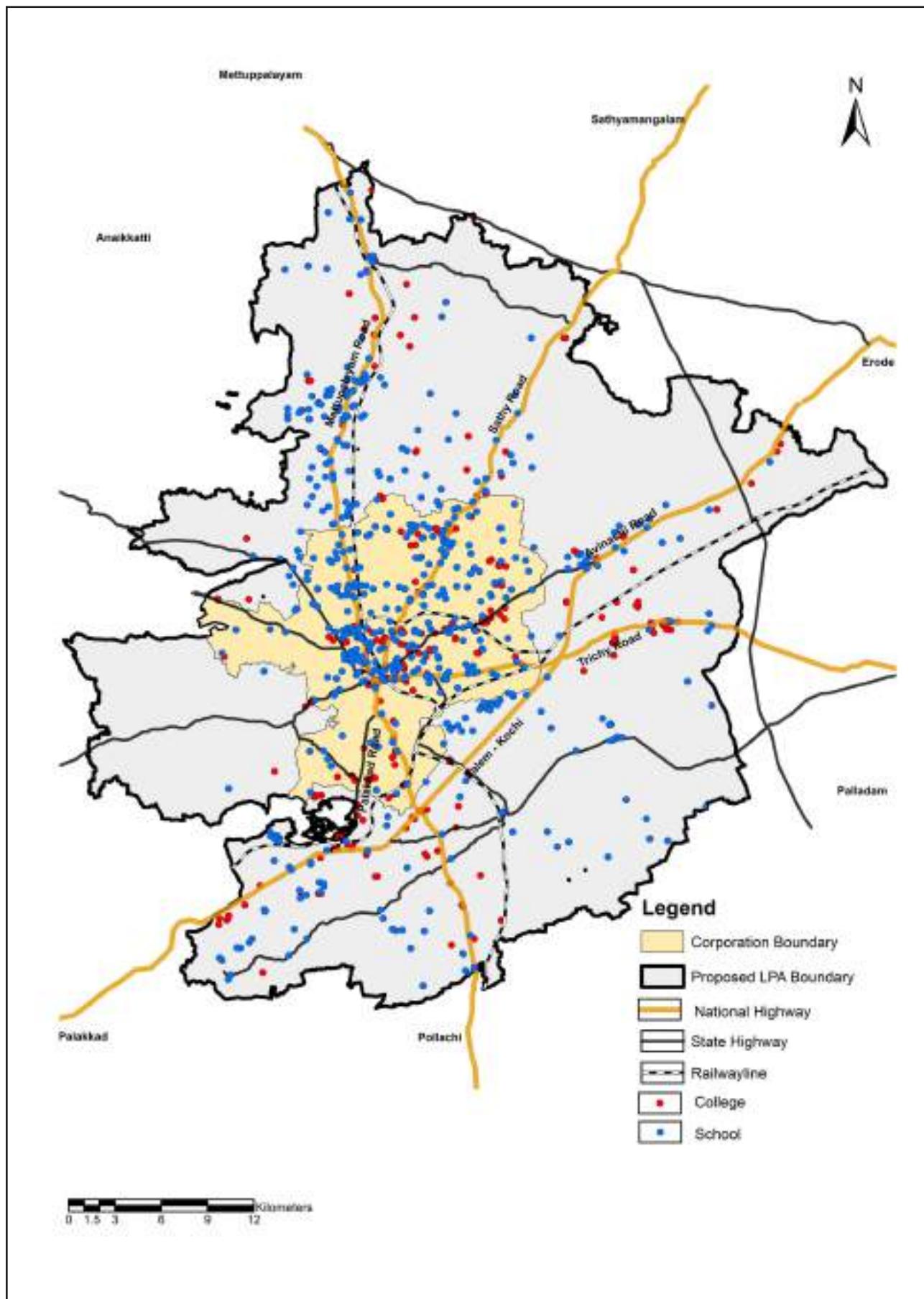
S.NO	CATEGORY	AIDED	GOVERNMENT	UNAIDED	TOTAL NO. OF SCHOOL
1	Primary school	92	694	211	997
2	Middle school	23	482	47	552
3	High school	22	52	97	245
4	Higher Secondary Schools	41	42	309	392

6.2. 1 EDUCATION IN LPA

Even though the female sex ratio increased to 1000 from 968 in 2011, the female literacy rate remains 9% lower than the male literacy rate. The educational infrastructure has three components. Aided, government, and unaided schools are the three types of schools.

Coimbatore's higher educational institutions are classified into 16 categories based on the type of education provided. The Map 6.1 below depicts the current educational institutions in LPA.

The colleges in and around Coimbatore are adequate for the current student body. Coimbatore has a higher concentration of engineering, arts, and science colleges. Students from surrounding areas are also being targeted for the college's establishment.



Map 6-1 Educational Institutions

Table 6-2 Higher Educational Institutions in Coimbatore (2020-2021)

S.NO.	CATEGORY OF INSTITUTIONS	TOTAL
1	COLLEGES	56
	Arts & Science	48
	Teachers Training College	7
	Physical Education	1
	Others including Research Institution	
2	TECHNICAL EDUCATION	28
	LT.I's	2
	Polytechnics	26
3	ENGINEERING COLLEGE	53
4	MEDICAL EDUCATION	36
	Medical Education	3
	Dental colleges	2
	Siddha	1
	Romeo	2
	Ayurveda	1
	Pharmacy	10
	Nursing	17
5	VETERINARY COLLEGE	-
6	LAW COLLEGE	1

6.2.2 ANALYSIS

The Right to Education Act requires state and local government authorities to provide primary schools within one kilometer of children. Middle schools should be no more than three kilometers apart. The maps provided show that the corporation boundary meets RTE standards, but the area outside the corporation should be improved.

Table 6-3 Number of Schools- Projection 2041

GAP ANALYSIS FOR SCHOOL	POPULATION ESTIMATED		PRIMARY SCHOOL	MIDDLE SCHOOL	HIGHER SCHOOL	HIGHER SECONDARY SCHOOL
YEAR	URDPCI GUIDELINE		PER 5000 POPULATION	PER 7500 POPULATION	PER 1LAKH POPULATION	
	AREA REQUIREMENT		1.4 Ha	1.8 Ha	3.9 Ha	
2023	COIMBATORE LPA	30,15,000	694	482	52	42
2023 as per guideline	COIMBATORE LPA	30,15,000	603	402	30	30
GAP 2023	COIMBATORE LPA	30,15,000	Surplus - 91	Surplus - 80	Surplus - 22	Surplus - 12
2031	COIMBATORE LPA	37,15,000	743	497	37	37
GAP 2031	COIMBATORE LPA	37,15,000	Deficit - 49	Deficit - 15	Surplus - 15	Surplus - 5
2041	COIMBATORE LPA	45,73,000	914	609	46	46
GAP 2041	COIMBATORE LPA	45,73,000	Deficit - 220	Deficit - 127	Surplus - 6	Deficit - 4
GAP 2041	COIMBATORE LPA	45,73,000	Deficit - 220	Deficit - 127	Surplus - 6	Deficit - 4

Table 6.3 compares the current number of schools to the URDPCI guidelines based on population data and highlights the number of schools required for the projected population in 2041.

The number of departing primary schools in Coimbatore is 53% of the current requirement. The number of high schools now in operation is 8% greater than the required number. On the other hand, the current number of middle and higher secondary schools is only 32% and 7% of the current requirement , respectively. The demand gap analysis is depicted graphically in Figure 6.2.

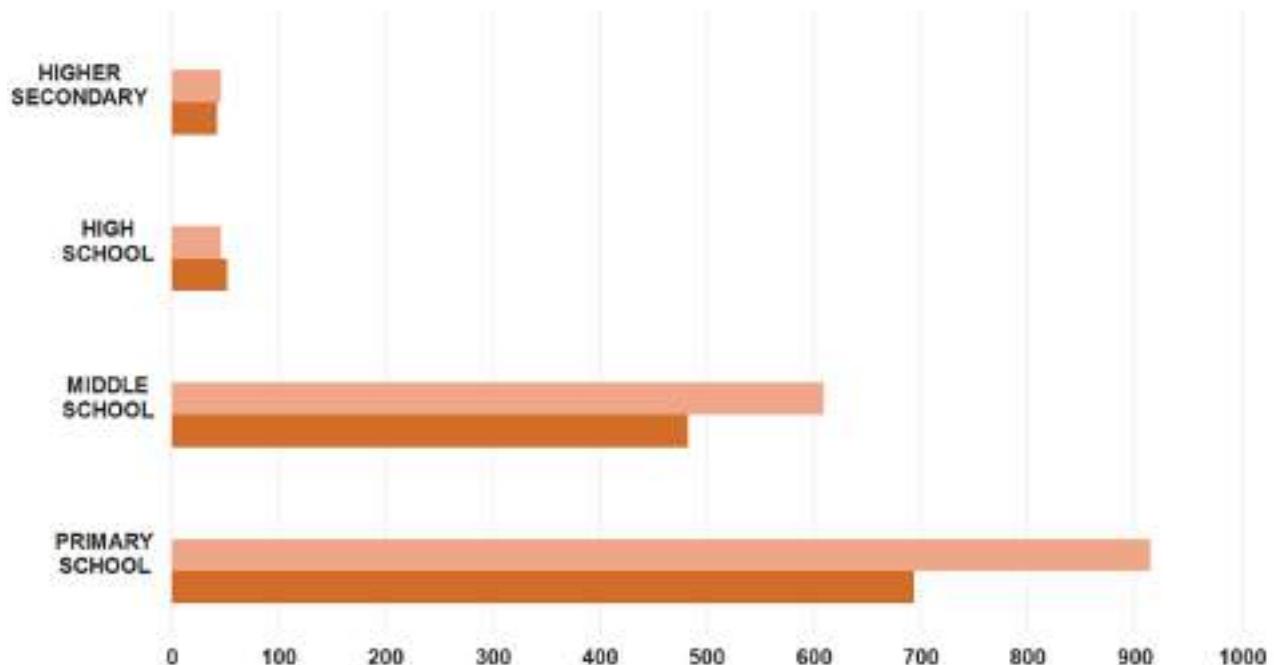
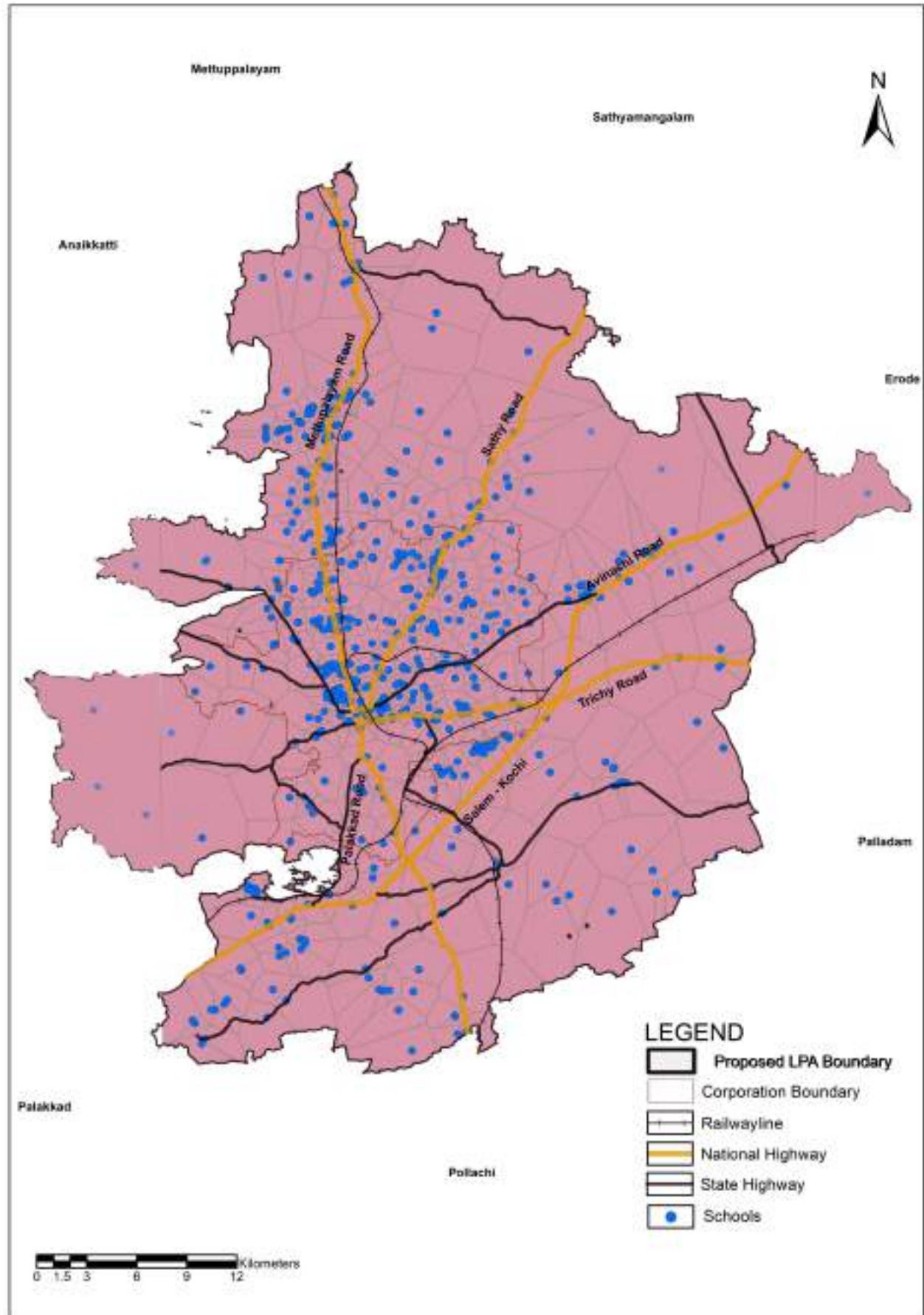


Figure 6-2 Comparison of Existing and required School Infrastructure

It is imperative that something in the neighborhood of fifty percent additional middle and high schools be constructed. It has been suggested that the overall number of elementary schools should be increased by 4% in order to meet the demand that is now there.

It is proposed that construction begin on 429 elementary schools, 454 middle schools, 302 high schools, and 38 higher secondary schools to meet the educational needs of the people in the year 2041. These numbers correspond to the levels of education that are required.



Map 6-2 Thiessen polygon analysis-schools

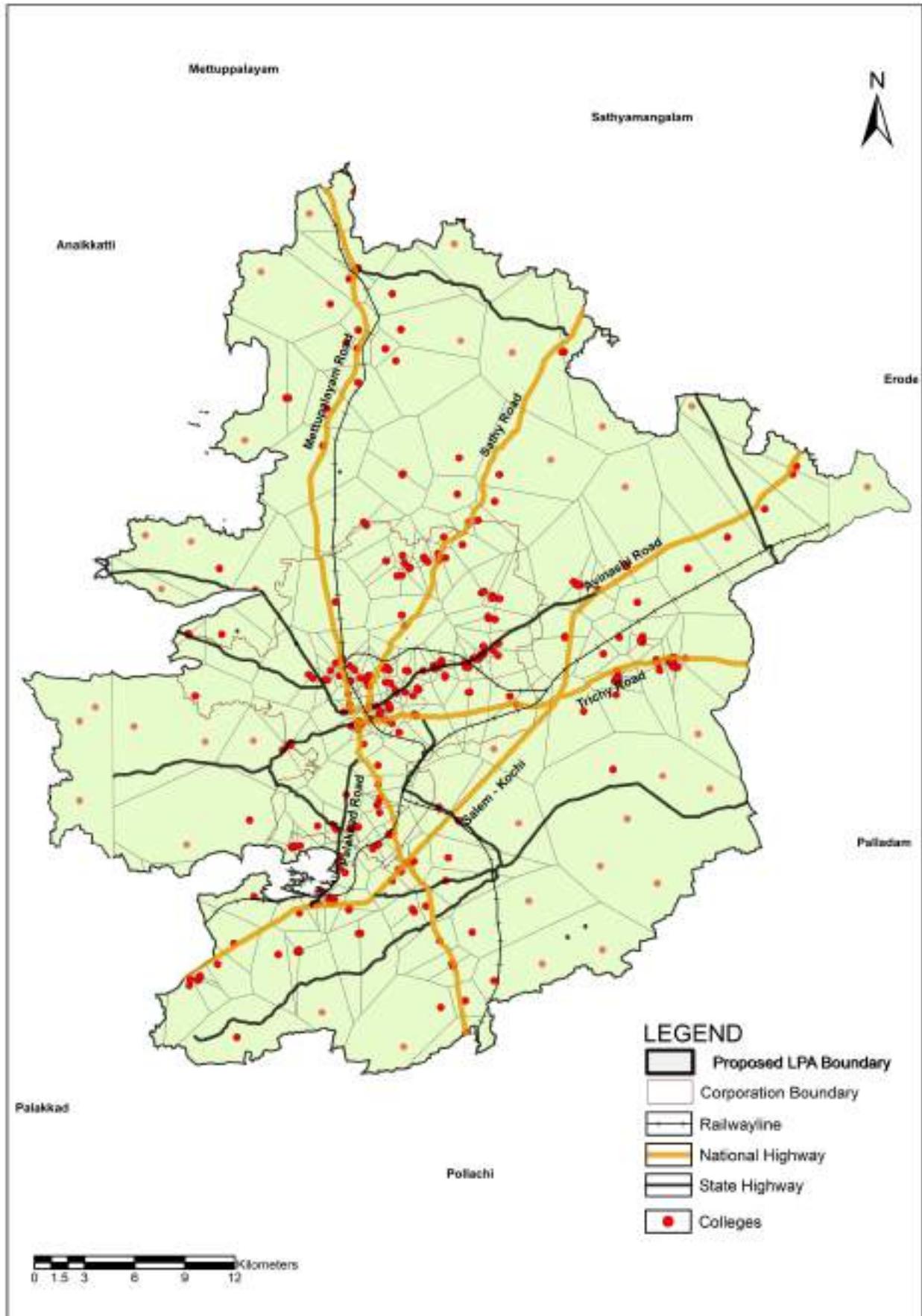
Thiessen polygons Analysis used here to define and delineate proximal regions around the existing social infrastructure, larger the polygon, longer the distance , the infrastructure deficiency is more. The Map 6.2 depicts the current Thiessen and polygon analysis for schools in LPA.

Table 6-4 Number of Colleges- Projection 2041

GAP ANALYSIS FOR COLLEGES		COLLEGE	ENGINEERING	TECHNICAL EDUCATION	MEDICAL
URDPFI GUIDELINE	POPULATION ESTIMATED	1.25 lakh	10 lakh	10 lakh	10 lakh
YEAR					
2023	30,15,000	56	53	28	36
2023 as per guideline	30,15,000	24	3	3	3
GAP 2023	30,15,000	SURPLUS - 32	SURPLUS - 50	SURPLUS - 25	SURPLUS - 33
2031	37,15,000	30	4	4	4
GAP 2031	37,15,000	SURPLUS - 26	SURPLUS - 49	SURPLUS - 24	SURPLUS - 32
2041	45,73,000	37	5	5	5
GAP 2041	45,73,000	SURPLUS - 19	SURPLUS - 48	SURPLUS - 23	SURPLUS - 31

Table 6.4 compares the current number of colleges to the URDPFI guidelines based on population data and highlights the number of colleges required for the projected population in 2041.

The Map 6.3 below depicts the current thiessen and polygon analysis for colleges in LPA.



Map 6-3 Thiessen polygon analysis-Colleges

6.3 HEALTH

Coimbatore offers top-notch healthcare, catering to residents and tourists with a full range of medical services.

Both urban planning and the assessment of the overall health of a community now recognize the importance of including health care planning into their respective processes. This number is pretty important to keep an eye on when it comes to keeping track of the expansion of human resources.

The amount of money that is put into the healthcare industry has a direct bearing on how much longer people live, how much better their physical and mental health is, and how much longer their life expectancy is. The health indicators for the Indian state of Tamil Nadu place it near the top of the rankings for the country's states. The government of Tamil Nadu has set as one of its primary priorities the task of ensuring that the state's residents lead lives that are disease-free and may be enjoyed to the best extent possible. Coimbatore is the location of 15 of the most prominent hospitals in the state of Tamil Nadu.

6.3. 1 HEALTH FACILITIES IN LPA

Table 6-5 Number of Beds in Major Hospitals (2021 -22)

S.NO	NAME OF THE INSTITUTION	NO. OF BEDS	AREA (ACRES)
1	Govt. General & Multi-Speciality Hospital, Trichy Road , Coimbatore	1650	4
2	G. Kuppuswamy Naidu Memorial Hospital Pappanaickanpalayam	850	9
3	Sri Ramakrishna Hospital, Sidhapudur	1230	18
4	PSG Hospitals , Peelamedu	1400	94
5	Ganga Hospital , Mettupalayam Road , Coimbatore	450	4.5
6	ESI Hospital, Varadharajapuram	740	6.5
7	KG Hospital	500	8.8
8	KMCH Hospital	830	20

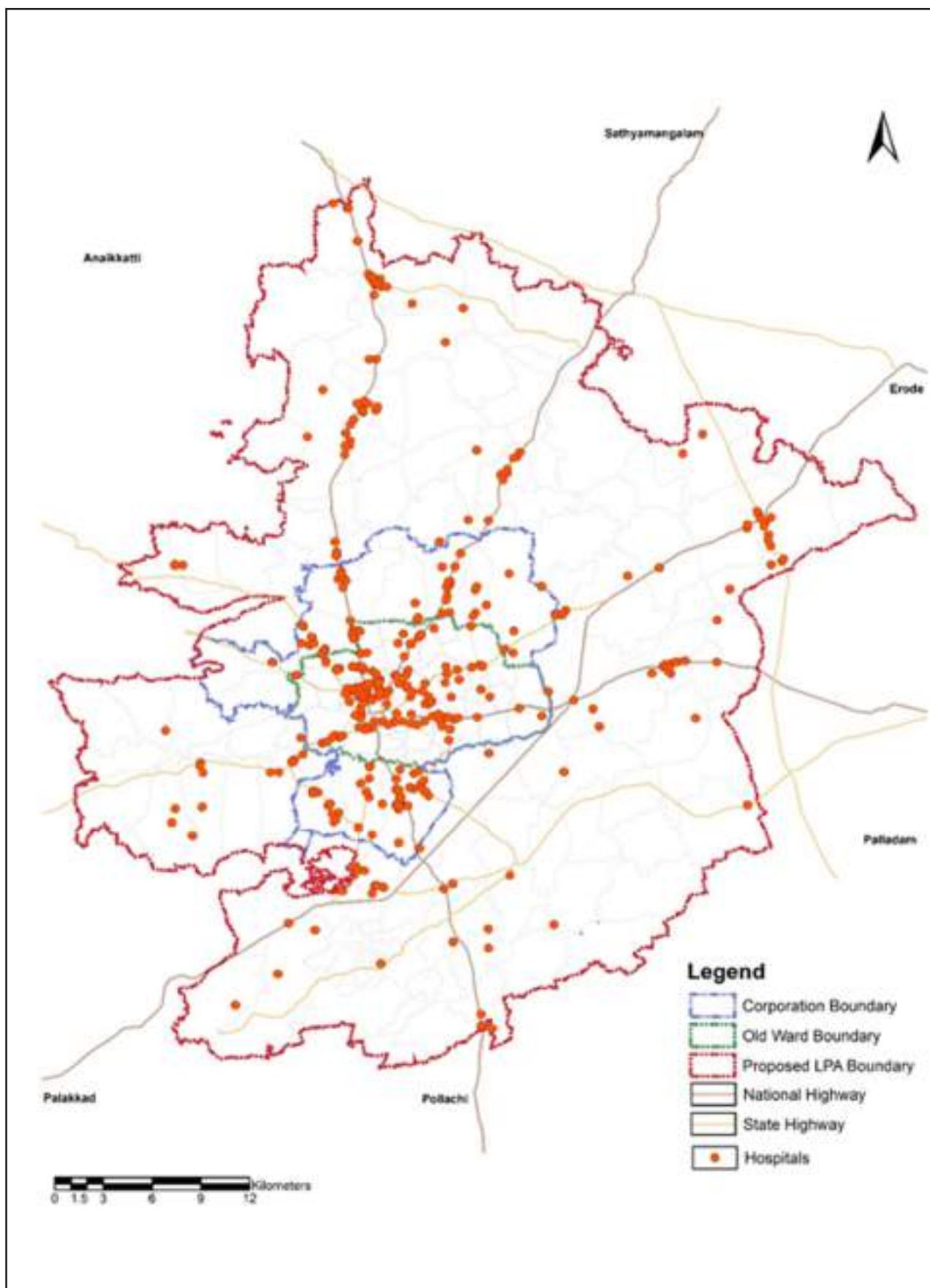
The above Table 6.5 provides information regarding the bed capacities of some of the major hospitals in the city of Coimbatore for the year 2020-21. People from the surrounding community as well as residents of the company have access to the principal hospitals that are a component of this organization for the purpose of receiving medical treatment. The map 6.4 shows the location of hospitals in LPA.

Coimbatore LPA has 386 allopathy-based clinical establishments and 408 ayurvedic-based establishments. In comparison to previous years, the number of Ayurvedic establishments has increased.

Within the LPA boundary, 290 clinical services have been identified. Madukkarai has the most clinical establishments, with 53 out of 290. Annur will have the fewest services, with 13. The number of clinical establishments in allopathy and ayurveda in LPA is shown in Table 6-6.

Table 6-6 Details of Clinical Establishments (2021)- Coimbatore LPA

S.NO	TYPE OF CLINICAL ESTABLISHMENT	NO.OF UNITS
1	Allopathy	
	Centre	28
	Hospital	358
	Clinic	-
	Total	386
2	Ayurveda	
	Centre	1
	Clinic	1
	Hospital	14
	Total	16
	Grand Total	402



Map 6-4 Hospitals in LPA

6.3.2 ANALYSIS

To meet the current demand, observations from Tables 6.7 suggest that a major focus should be placed on developing more medical facilities, with a particular emphasis on urban primary health centers and dispensaries.

Increases in health sub-center, primary health care, dispensaries, nursing homes, government hospitals, diagnostic centres and veterinary should be 15%, 16%, 27%, 17%, 3%, 17% and 5% respectively. Given the projected population growth in 2041, 17 new multicare hospitals should be built.

Table 6-7 Public Health & Medical Services by organization & individual - Coimbatore district

S.NO	HEALTH FACILITIES	EXISTING NO OF UITS	REQUIRED FOR 2031 POPULATION (37.15 lakh)	GAP	REQUIRED FOR 2041 POPULATION (45.73 lakh)	GAP
1	Health Sub Centre	108	83	Surplus - 25	102	Surplus - 6
2	Primary Health Care	114	83	Surplus - 31	102	Surplus - 12
3	Dispensaries	308	248	Surplus - 60	305	Surplus - 3
4	Nursing homes	118	83	Surplus -35	102	Surplus - 16
5	MultiCare	29	37	Deficit - 8	46	Deficit - 17
6	Government Hospitals	22	15	Surplus - 7	18	Surplus - 4
7	Diagnostic Centres	117	74	Surplus - 43	91	Surplus - 26
8	Veterinary	50	7	Surplus - 43	9	Surplus - 41

Table 6.7 shows the demand gap analysis for health sub-center, primary health care, dispensaries, nursing homes, multicare, government hospitals,

diagnostic centres and veterinary within LPA. The demand is calculated for the year 2041.

Based on Thiessen polygons Analysis more number of Health care facilities are present in the CCMC, so there is need for distribution of health care in village and Town panchayats. The Map 6.5 depicts the current thiessen and polygon analysis for healthcare in LPA.

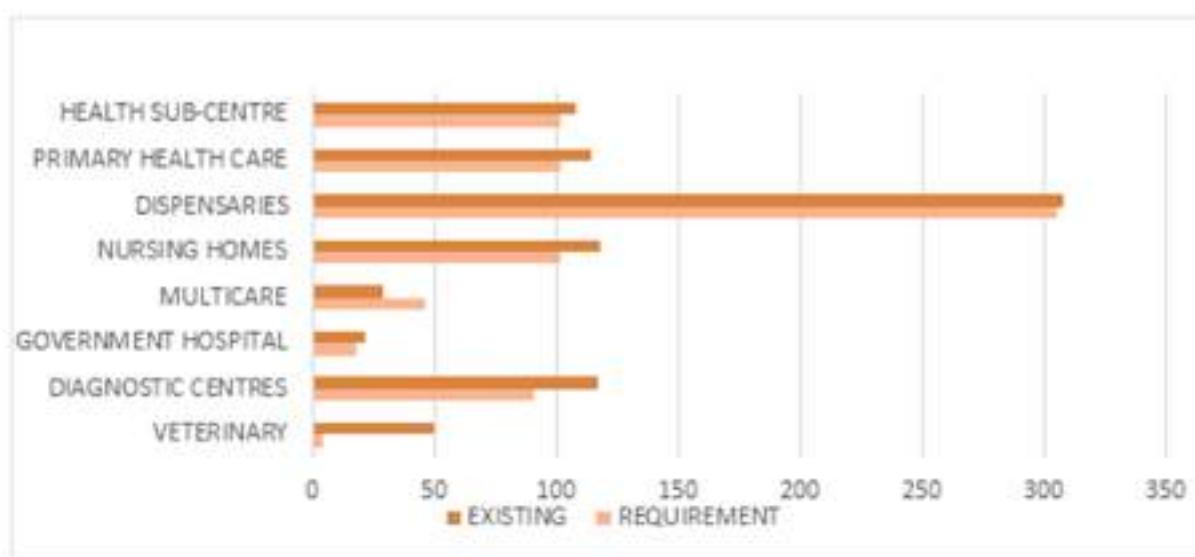
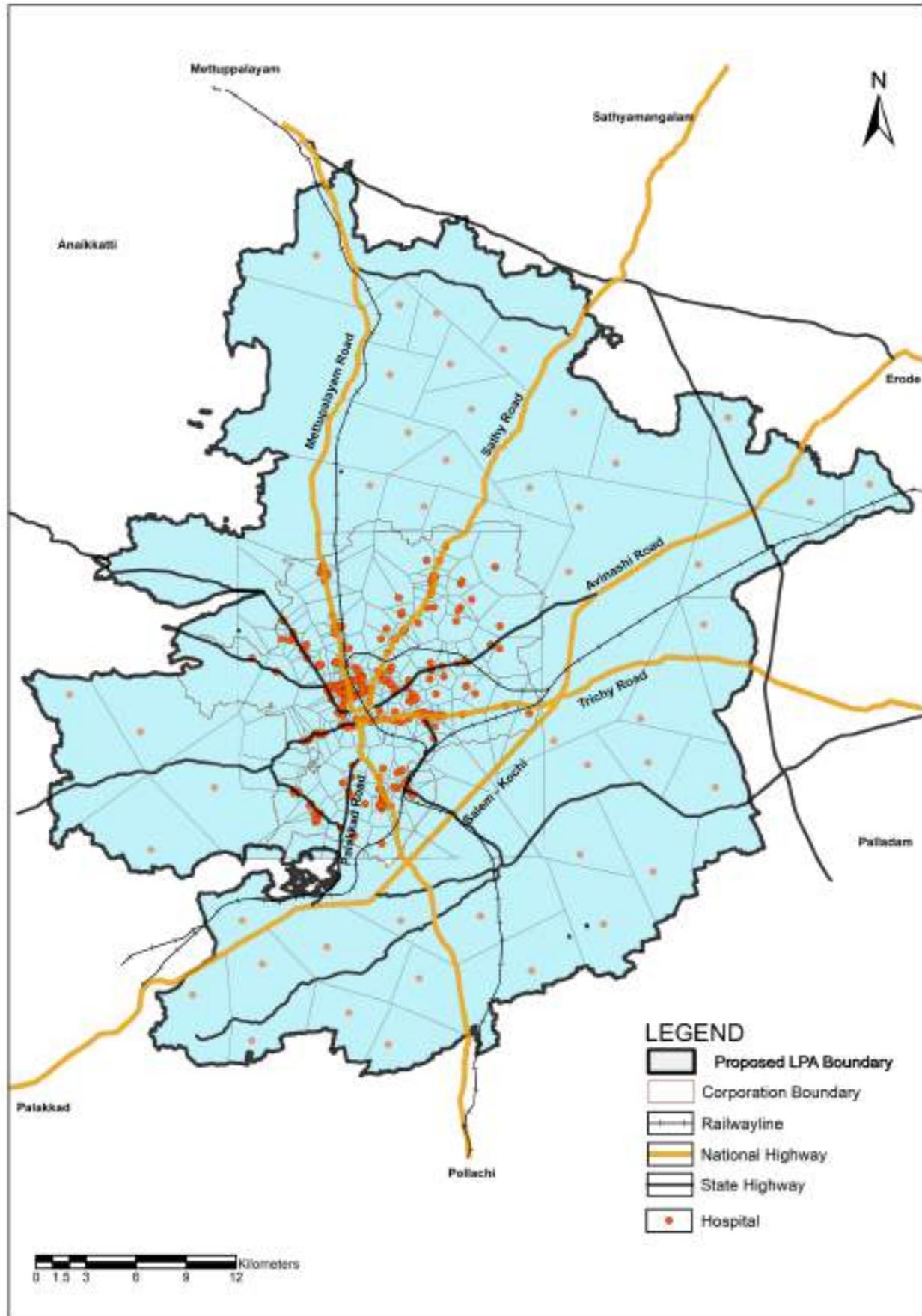


Figure 6-3 Comparison of existing & and required medical facilities.

Figure 6.3 above depicts a comparison of currently available medical services in Coimbatore and existing URDPFI requirements. It has been discovered that the current healthcare infrastructure is woefully inadequate for the current population.

All health care, including Health sub-centre, primary health centre, dispensaries, nursing homes, multicare, government hospital, diagnostic centres, veterinary hospital are surplus in numbers for the projected population 2041 .

With Coimbatore serving as a hub for the surrounding area, the projected population has a higher demand for hospitals, which can be offset by establishing more hospitals in the respective regions.



Map 6-5 Thiessen polygon analysis Hospitals

6.4 RECREATION

"Coimbatore's VOC Park is a popular urban oasis with a zoo and lush

Recreation is a broad term that includes both planned and unplanned and distant activities. The following three types of open spaces are possible:

- Recreational space
- Well-kept greens
- Additional common open spaces
- Sports Complex

Coimbatore City Corporation is dotted with several lakes (with minimal water spread during non-monsoon seasons) that are being developed as recreational areas in a planned manner while also considering environmental issues. It will not only help to conserve these bodies of water, but it will also help to prevent pollution and encroachment.

6.8 provide information on the upcoming parks in Coimbatore.

Table 6-8 Upcoming Parks (AMRUT Scheme & Smart City Parks)

S. NO	ZONE	COUNT
1	AMRUT parks	
	North (Ward No. 2, 41, 42)	3
	South (Ward No. 76, 89, 92, 94, 100)	6
	East (Ward No. 32, 34, 35', 36, 37)	6
	West (Ward No. 6, 16, 18, 19)	5
	Central (Ward No. 74)	1
2	Smart city parks	
	North	nil
	South (Ward No. 85)	1
	East	nil
	West	nil
	Central (Ward No. 74)	3

The data presented in the following table pertains to the upcoming parks that will be built as a component of the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) project as well as the National Smart Cities Mission.

The Sports Development Authority of India built sports training centers at both the Jawaharlal Nehru Stadium and the Nehru Park Sports Complex. These facilities are dedicated to the respective sports of football and hockey for both boys and girls.

Both the Kari Motor Speedway and the Chettipalayam bike racetrack are designed specifically for competitive racing . The Kari Motor Speedway is a purpose-built Formula 3 auto racing circuit.

Multi use Sports complex is proposed in RS Puram, Sastri Maidan along with the Hockey ground which is shown in the figure 6-4.

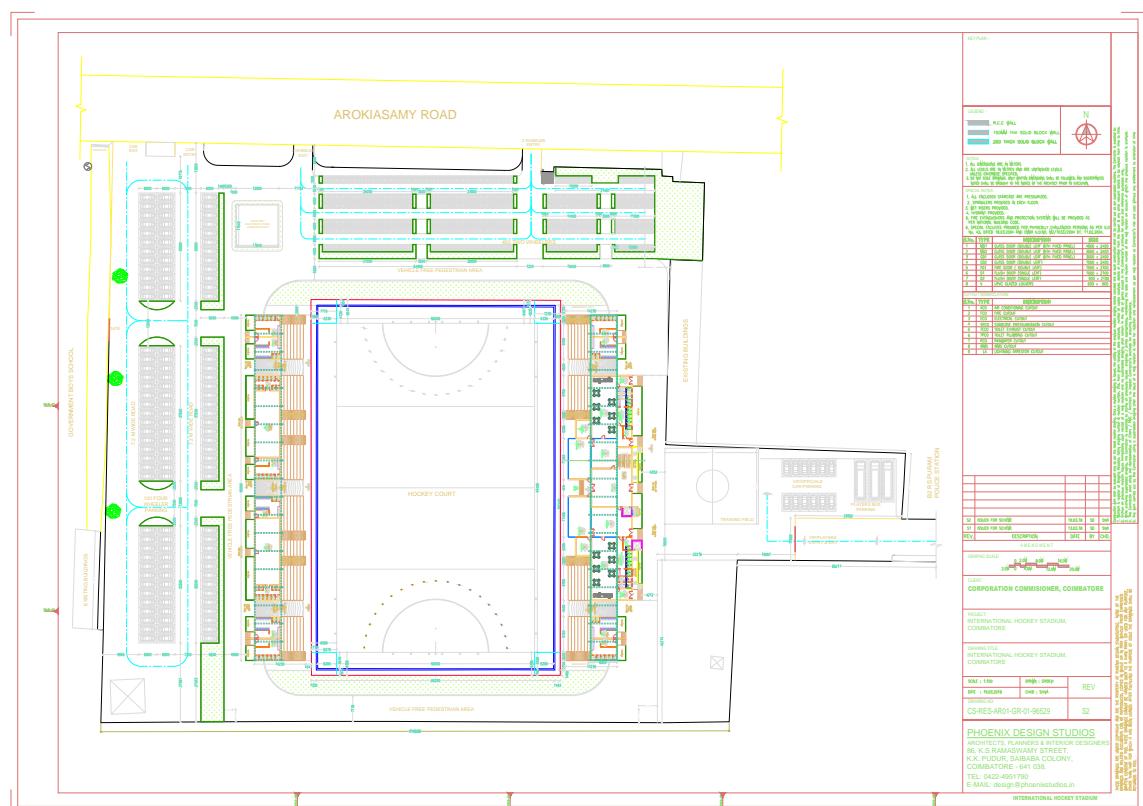


Figure 6-4 Proposed Hockey ground



6.4. 1 ANALYSIS

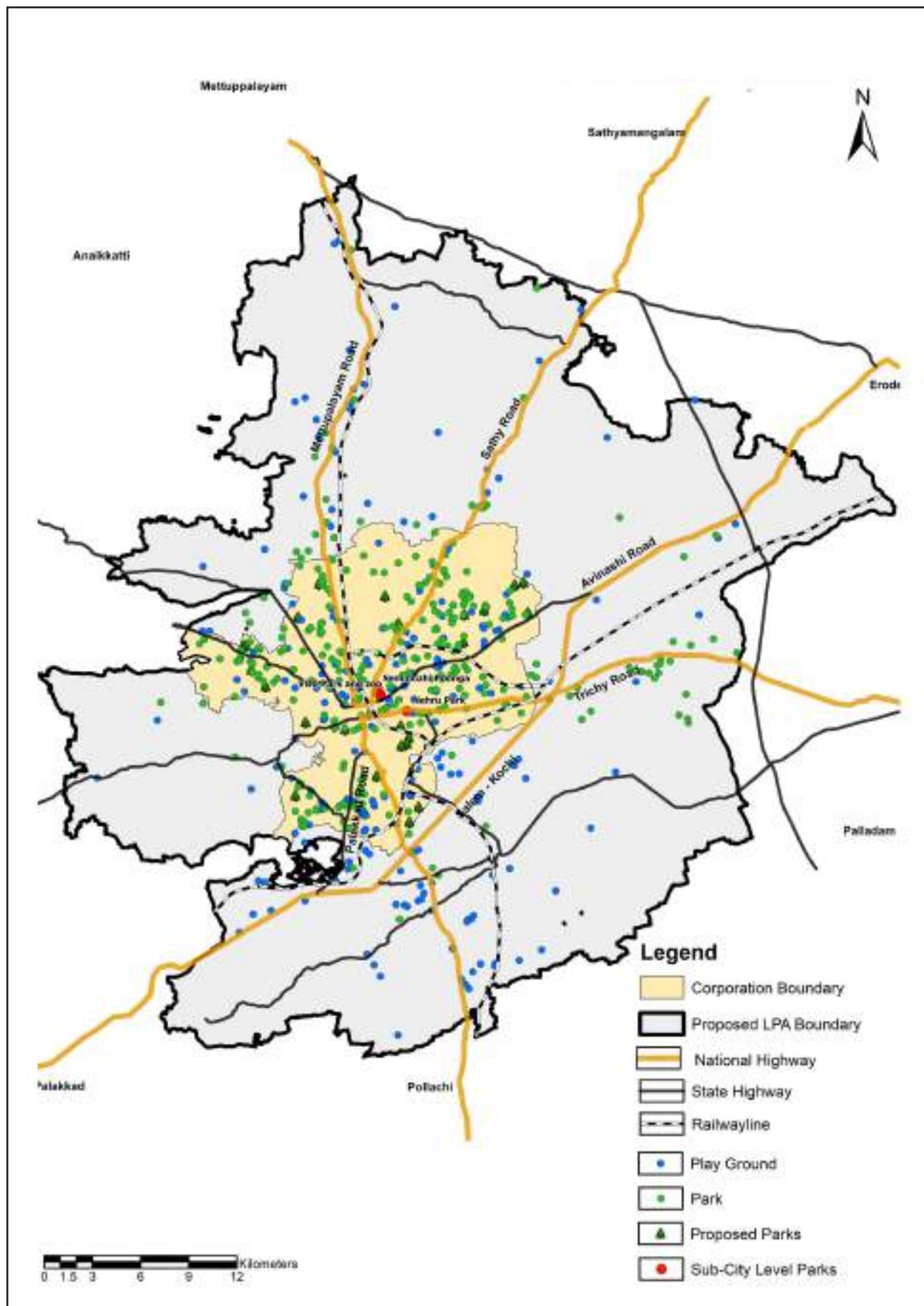
Tables 6.9 depict the current state of organized green spaces Coimbatore City, as well as projections of future demand.

Table 6-9 Open space projection

S.no	Category	Area In Sq.km	Open Space Per Person	Demand Area In Sq.km		Gap/Addl. N Eed	
				Existing	2041	Projected	
						Existing	2041
1	Open space	4.73	8 sq.m	18.72	30.8	13.99	26.07

The city lacks community and district parks and thus does not meet the standard requirements of the current population.

The existing open space within the LPA is 4.73 square kilometers, accounting for 0.004% of total land use. Because the ratio is so low in comparison



Map 6-6 Location of Parks in coimbatore

to the basic standards, more space for open space and recreation must be provided.

The URDPFI guidelines for OSR are 10-12 sq.m per person; jump from 0.03 sq.m per person to 10 sq.m per person will make a significant difference.

Oxyzone adventure park near PSG Medical back gate in Peelamedu offers activities for all ages.

As a result, the open space per person is calculated to be 8 square meters. As a result, a total of 26.07 square kilometers of open space within LPA will be required to meet the OSR.

The city has 3 sub-city level parks and 467 neighborhood parks, which is a good number, but when it comes to interns, the city needs more open spaces.

6.5 MISCELLANEOUS

Miscellaneous services are categorised into two types- (I) Public Distribution Services (PDS), (II) Police, and Civil Defence and Home Guard services. Public distribution services comprise of the various distribution services handling the distribution of essential commodities such as Petrol and Diesel filling centres, Compressed Natural Gas (CNG) filling centres, LPG godowns, Milk Distribution Centres, Anganwadis , Ration Shops etc. Police, Civil defence and Home Guard services comprise of the various security services needed in a city. Safety Management comprises of the different Safety services such as firefighting services.

6.5.1 PUBLIC DISTRIBUTION SERVICES

Public distribution shops, locally Known as Ration Shops, the Fair Price Shops (FPS) are public distribution shops that are a part of India's public system established by the Government of India

that distribute rations at a subsidized price to the ration card holders. Information gathered in the year 2020-2021 shows that, Coimbatore district has a Total of 1027 Fair Price Shops out of which 862 are Full time and 165 are part time

6.5.2 POLICE, CIVIL DEFENCE AND HOME GUARD SERVICES

Police, Civil Defence and Home Guard services comprise of Police posts, Police Station, Traffic and Police Control Room, District Office and Battalion , Police Line, District Jail, Civil Defence and Home guards, Police Training Institutes, Police Firing Range, Police Camps and Police Booths. Coimbatore district comprises of 43 police stations. 15 police stations are located in the Coimbatore corporation boundary and 28 are located in the Local Planning Authority (LPA) boundary. The miscellaneous categories and their units at present have been mentioned in table 6-10.

Table 6-10 Units of Police, Civil Defence and Home Guard Services

S.No	Category	No.of.units
1	Police Station	23
2	Fire Station	12
3	District Jail	1
4	Civil Defence & Home Guard	1

Coimbatore Corporation has 26 special units located within its boundary. Coimbatore city also houses all three national defense services- Indian Air Force, Indian Army, Indian Navy. The Indian Air Force's Sulur Air Force Station is located near Coimbatore, Tamil Nadu is the country's second largest air facility after Hindon AFS. It is the base in charge of safeguarding India's maritime territory, and India's only base that can handle both freight and cargo planes at the same time. It was once used by both the Royal Navy and the Indian Navy.

The Indian Army and Indian Navy base camps are located in the Heart of the City. Table 6- 11 shows the number of units in different categories including police stations, district and battalion , district jail, civil defence and home guards.

Table 6-11 Police, Civil Defence and Home Guard Services

Gap Analysis For Other Amenities		Population Estimated	Police Station	Fire Station	District Jail	Civil Defence & Home Guard
Year	Urdpf Guideline		Per 90000 Population	Per 2 Lakh Population	Per 20 Lakh Population	Per 10 Lakh Population
2023	Coimbatore Lpa	30,15,000	23	12	1	1
2023 As Per Guide-line	Coimbatore Lpa	30,15,000	33	15	1	1
Gap 2023	Coimbatore Lpa	30,15,000	Deficit - 10	Deficit - 3	No Gap	No Gap
2031	Coimbatore Lpa	37, 15,000	41	19	2	4
Gap 2031	Coimbatore Lpa	37,15,000	Deficit - 18	Deficit - 7	Deficit - 1	Deficit - 3
2041	Coimbatore Lpa	45,73,000	51	23	2	5
Gap 2041	Coimbatore Lpa	45,73,000	Deficit - 28	Deficit - 11	Deficit - 1	Deficit - 4

Observations made from the table 6-11 state that the existing available police stations are 15% less than the existing requirement of the services. On the other hand , the District Office and Battalion are 50% more than the existing demand . The civil defence and home guard services are 50% short of the existing requirement. District has fare number of police stations, district office and battalion, jails and defence homes. Projection for 2041 requires a greater number of police stations and defence guards which are to be proposed in the future.

6.6 SWOT ANALYSIS

A. Strength

- Infrastructure facilities of sports stadiums, roads are being carried out in the Coimbatore Corporation area and land acquisition work is underway to expand the Coimbatore Airport.
- Educational sector is well established.
- Coimbatore is one of the leading cities in the country in terms of medical services with a doctor patient ratio of 1:800 which is much more than the WHO recommended ratio of 1:1000.

B. Weakness

- The number of availability of multicare is inadequate uate for the existing population as it covers only about 30% of the existing population demand .

C. Opportunity

- Financial assistance can be given for promoting rural education facilities.
- Advance technologies can be adopted in the field of medicine and healthcare
- Provide E-Health services by ICT technologies
- More public parks and playground facilities

D.Threat

- The inadequacy and concentration of education facilities in a certain neighbourhood would lead to population concentration in certain regions hence leading to problems such as insufficient housing.

6.7 PLANNING STRATEGIES

6.7.1 EDUCATION

A. MANDATE MINIMUM STANDARD FOR ALL THE SCHOOLS

A minimum standard for all schools must be established. The Right to Education Act of 2005 establishes a comprehensive set of norms and standards for schools. The State can make appropriate changes to the stipulated norms and standards for a school, and these changes should be made applicable to all government, private, and non-governmental organisations (NGOs) in the State.

B. FINANCIAL ASSISTANCE TO BE PROVIDED FOR RURAL SCHOOLS

Enhance capacity of vocational education courses so as to match the employment potentials of the region. Institute-provided skill courses should be designed to align with local employment opportunities. All institutes should have an adequate number of qualified trainers as well as adequate infrastructure.

C. RECOMMENDATIONS

- Five-year and annual plans should take into account the Master Plan projections; a decision should be made on the share of government and public sector in the opening of new schools.
- The spatial distribution of schools should be ensured by standards and with regular recruitment of trained teachers.

6.7.2 HEALTH

A. USE OF TECHNOLOGY TO IMPROVE ACCESSIBILITY AND AVAILABILITY OF HEALTH SERVICES

LPA could collaborate with top IT businesses to expand remote health care. Mobile medical clinics can provide health services in places without technology

B. RECOMMENDATIONS

- A detailed study of the health infrastructure in the Coimbatore district, including delivery to the poor,

spatial accessibility, future requirements , private sector contribution, government modernization requirements, and so on, must be conducted , which may serve as the foundation for the development of a Master Plan for health infrastructure in the LPA.

- The position may be reviewed every 10 years, and appropriate measures regarding health infrastructure investments may be taken.

6.7.3 RECREATION

A. PROPOSING OPEN SPACES TO INCREASE OSR BY ENCOURAGING PUBLIC PRIVATE PARTNERSHIP

Identifying government unoccupied sites and suggesting recreation helps increase LPA open space. Recreational spaces include parks, playgrounds , and lakes. Land suitability study is needed to choose neighborhood recreation . Public-private collaborations help park and playground proposals and upkeep.

- According to the local body act and the Tamil Nadu combined building rules 2019, the gap has to be filled from the approved layouts.
- The rest of the LPA prioritizes park and playground maintenance and creation. LPA can construct a database of parks and playgrounds for planning and development.

6.7.4 MISCELLANEOUS

A. RECOMMENDATION

- Plots have to be identified for the establishments.
- The number of police stations covered for a unit area of land/population should be analysed properly based on guidelines.

Following, Table 6- 12 is an outline of the many proposals and methods that can be utilized to enhance the social infrastructure of the city. These are taken down into three distinct phases: short-term, medium-term, and long-term.

Table 6-12 Phasing of Social Infrastructure

	SHORT TERM PROPOSAL	MID TERM PROPOSAL	LONG TERM PROPOSAL
EDUCATION	<ul style="list-style-type: none"> The literacy rate of the villages in the LPA to be increased by proposing primary and middle schools in the neglected areas. 	<ul style="list-style-type: none"> Professional colleges to be established for the studies of industrial sector and its skill development along the economic corridors 	<ul style="list-style-type: none"> Declaring Coimbatore a Knowledge City and meeting all educational needs
HEALTH	<ul style="list-style-type: none"> Public health centres in underserved areas and village panchayats 	<ul style="list-style-type: none"> supplementary need for future multi-specialty hospitals 	<ul style="list-style-type: none"> Ensure that healthcare facilities can keep up with projected demand
PUBLIC AMENITIES	<ul style="list-style-type: none"> Implement the establishment of compact parks and recreational areas, as well as establish measures to manage the continuous depletion and optimize the utilization of open spaces, parks, and playfields. 	<ul style="list-style-type: none"> Develop sponge parks Riverfront development as public spaces 	<ul style="list-style-type: none"> Waterfront improvements will expand the recreational area while preserving the water bodies.

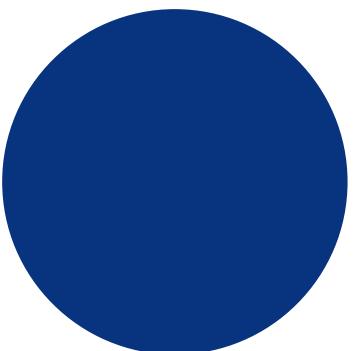


Figure 6-5 Conceptual views of proposed parks and recreation areas.



07

TRAFFIC AND
TRANSPORTATION



07 TRAFFIC AND TRANSPORTATION

7.1 OVERVIEW

Coimbatore is a city where most of the transportation is through its road network. The city is well connected by roadway, railway and airway with neighboring parts of the country. Road networks are a key element for the economic growth of every city. The Coimbatore city and metropolitan area is divided into five administrative zone (North,South,East,West and Central) which are served by major arterial roads that run in an east-west or north-south direction. Avinashi Road is one of the city's most important arterial roads, traversing most of Central and East Coimbatore.

Traffic and transportation are critical aspects of today's contemporary civilization because they make it possible for people and things to move freely within and across geographic areas.

Traffic and transportation are critical aspects of today's contemporary civilization because they make it possible for people and things to move freely within and across geographic areas.

A radial road network that consists of five national roads provide service to the city as well as the areas around it. The important National Highway corridors are NH544, also known as the Salem-Kochi route NH181 , also known as the Mettupalayam route; NH948 and NH83 , both of which are known as the Sathy Road and the Pollachi Road respectively. When it comes to the rail network, the most important junction in the city is called Coimbatore Junction, and it is responsible for 45% of the revenues in the zone. The use of air travel makes it easier to integrate into the world economy and provides crucial connections on a local, national, and international scale.

Coimbatore International Airport is the primary airport that provide service to the city of Coimbatore. This airport is the second largest in th state after Chennai International Airport in terms of terminal space runway length, aircraft movement , passenger traffic, and cargo. Chennai International Airport is the largest airport in the state. It is India's 1st busiest airport in terms of the number of passengers it serves, while it the country's 15th busiest airport in terms of the number of cargo shipments.

Cycling is being actively promoted as an environmentally friendly means of transportation in the city of Coimbatore. It has implement bike-sharing services as well as cycling lanes specifically for cyclists. Additionally, the master plan incorporates a Comprehensive Mobility Plan, which entails incorporating mobility and transportation factors into the master plan's overarching structure.

Including roads, public transportation, facilities for pedestrians and cyclists, a CMP serves the demands of transportation and mobility. The specific process for adding a CMP to a master plan may vary depending on local regulations , the size and complexity of the project, and the unique needs of the community.

7.2.1 Road Network

The total length of road network in Coimbatore Corporation is 21 06.11 km . Coimbatore has radial road network comprising five National Highways as follows,

7.2 EXISTING TRANSPORT CONDITIONS

There are many different modes of transportation, including road, rail, air, water, and public transit System

1. NH 544 (Salem-Kochi Road)
2. NH 81 (new NH code for Trichy Road) towards Karur, Trichy, Jayamkondam and Chidambaram .
3. NH 181 (Mettupalayam Road) towards Ooty and Gudalur leading to Karnataka and Kerala.
4. NH 948 (Sathy Road) towards Sathyamangalam, Chamrajnagar, Mysore and Bangalore.
5. NH 83 (Pollachi Road) towards Palani, Oddanchatram , Dindigul , Trichy, Tanjore and Nagapattinam

Other major arterial roads radiating from the city centre include Perur Road, Maruthamalai Road, Thadagam Road , and Sarvanampatti Road. The road density is 7.06 km/sq.km , and the average driving speed during peak hour is about 20 km/h on a 10-kilometer motorised trip.

Because of the imports and exports of goods and services to various towns and cities in terms of motor parts production , textile industrialization, and so on, these national highways have high passenger and freight traffic. These roads provide good connectivity to the surrounding areas of Tamilnadu as an industrial and defense corridor, increasing production and balancing regional connectivity throughout the state.

These arterial roads play a critical role in connecting the city center to the surrounding areas, facilitating both passenger and freight traffic, and supporting the industrial and defense sectors in the region. They are vital for economic development and

regional connectivity in Tamil Nadu.

The city has several flyovers and bypasses to alleviate traffic congestion at key junctions and intersections. The road network in Coimbatore is continually evolving to keep pace with the city's growth and the increasing traffic demands .

7.3.2 Rail Network

Coimbatore is well connected via broad gauge rail. Direct rail connections are available to Bangalore, Trichy, Chennai, Mumbai, and other cities. Coimbatore Junction is a major railway station in South India. It is one of the Southern Railway's A1 graded stations.

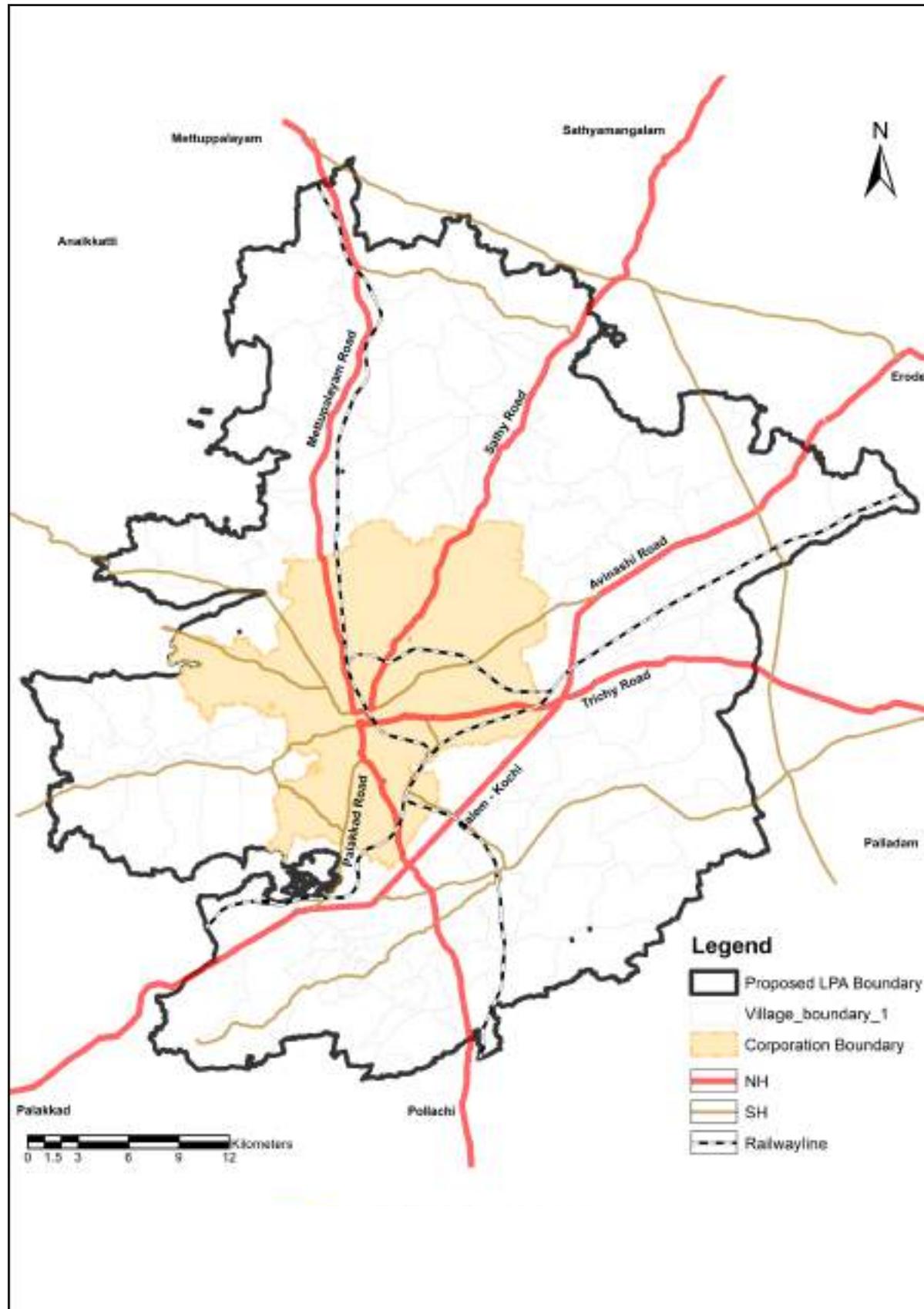
This station is managed by the Southern Railways' Salem division and accounts for 45 percentage of the zone's revenue . According to Indian Railways, is one of the top booking stations in the country. Southern Railways' most profitable stations - Chennai Egmore, Madurai Junction, Coimbatore Junction , and Chennai Central. The map 7-1 represents existing road and rail network in the LPA.

7.2.3 Air Network

Coimbatore international airport is located in neighborhood of Peelamedu , about 10 km from center of the city. The airport is served by five Indian and three foreign carriers providing connectivity domestically and international destinations .

The rapid industrialisation and development of educational facilities increases the number of passengers from various nations to Coimbatore

Coimbatore International Airport is located in Peelamedu, 10km from the centre of Coimbatore



Map 7- 1 Existing Road Network and Railway lines

every year emphasizing the improvement in terms of international connectivity. On the eastern side of the campus, the Airports Authority of India (AAI) has suggested erecting a new domestic departure terminal building with swankier interiors.

The terminal would be built on a 10,000-square-foot (930-square-meter) site at a cost of roughly Rs 125 crore. The environmental clearance process for the construction of a new terminal building and accompanying works, as well as the construction of a new ATC tower, technical block, and administrative block, has begun.



Figure 7-1 Coimbatore International Airport, Peelamedu.

The airport's proposed expansion includes extending the runway to 12,500 feet (3,800 metres) to accommodate larger aircraft like the Boeing 787 and building a parallel taxiway to the runway to reduce runway occupation time and aircraft turnaround time. Sustainability and environmental considerations were factored into the expansion plans, with efforts to minimize the airport's environmental impact.

7.3 PUBLIC TRANSPORT

7.3.1 Road Characteristics

The city and metropolitan area are served by major arterial roads that run either in an East-West or North-South direction. Avinashi Road is one of the city's most important arterial roads. It traverses most of central and East Coimbatore (National Highway 47) connecting Bangalore and Chennai. The road runs in an East-West direction. Marudamalai Road starts at the intersection of Lawley Road Junction and connects Vadavalli and extends up to Maruthamalai foothills.

The road network of the city faces problems such as lack of proper traffic management creating high probability of traffic congestion in nodes of remote areas, no proper linkage between rural and urban areas.

7.3.2 Rail Characteristics

The Coimbatore junction falls under the Salem division of the southern railway zone of Indian railways. It is one of the A 1 graded station in the southern railways. The Coimbatore junction acts as the main station in Coimbatore around 50,000 people choose to travel in train everyday.

7.3.3 Airway Characteristics

The airport has one runway, which has been expanded from 8,500 feet (2,600 m) to 9,760 ft (2,970 m) to accommodate larger aircraft. A parking management system with a capacity of almost 300 cars is available at the airport. The airport has two hangars: one for the Coimbatore Flying Club's planes and the other for private planes. Because it expands ten percent every year in terms of passenger and cargo flow, Coimbatore airport requires development in terms of international connectivity and infrastructures.

7.3.4 Non-Motorized Transport

Non-motorized transportation (also known as active transportation and human powered transportation) includes walking and bicycling and variants such as small-wheeled transport.

Transportation that does not rely on powered vehicles, such as automobiles, motorbikes, or trucks, is referred to as non-motorized transportation

The CCMC has been putting out several initiatives to enhance the city's NMT infrastructure. Footpaths were built on the city's main thoroughfares as part of the World Classical Tamil Conference (2010) thanks to funding provided by several local businesses through corporate social responsibility programmes. The Model Roads plan also includes upgrades to the NMT facilities by the city. Under the Smart Cities Mission, the money allotted for new NMT projects surged from 5 crore in 2014-15 to around 100 crore in 2018-19. To promote cycling and walking journeys, an integrated citywide NMT network is required; a fragmented approach will not be viable.

The NMT Network Plan's main goal is to lay out a comprehensive set of actions that would lead the city to a sustainable, low-carbon transportation system by the year 2035. In addition to offering the public facilities for walking and bicycling that are secure and practical, this would also improve accessibility to public transportation, encouraging both current and potential users to select non-motorized modes of transportation.

The Plan outlines the most secure pathways connecting the public transportation hubs, retail establishments, places of worship, recreational areas, institutions, and other neighbourhood amenities.

To complement and link the planned Eco mobility corridor in the “8 Lakes Rejuvenation and Restoration Plan” under the Smart Cities Project, it should be highlighted that the proposed NMT network and pedestrian hotspots are being created. An implementation and phasing plan, land-use integration, and an operations and maintenance programme are all included in the Plan.

Well-designed NMT facilities and related traffic-calming measures will reduce the number and severity of traffic collisions involving pedestrians and (e-)cyclists.

For first/last mile access or egress 70% of the time the number of journeys to and from PT terminals. This can be accomplished by walking or cycling. Sixty-five percent Last-mile journeys are less than a kilometer long, and 72 percent of last-mile trips take more than an hour to traverse is less than 15 minutes. In Coimbatore, around 14% of all trips are performed on foot. This amounts to 3 lakhs daily walking excursions starting and ending in Coimbatore.



Figure 7-2 Illustration of NMT Zone

The plan will particularly benefit women, the elderly, the differently abled, and the urban poor, with the latter often relying only on NMT and public transport. A survey conducted as a part of the project revealed that 45% of the walking trips

made by women are work-related, which means that the majority of them are daily trips. The survey also revealed that women walk more than the men. Coimbatore's average travel length is 6 km, which may easily be covered by bicycle or bus, with brief walks.

High-quality pedestrian infrastructure is required throughout the city, with special facilities at crossings, to maintain existing demand, stimulate future demand, and entice new users. Cyclists confront similar challenges, as crossing arterials and crossings with fast-moving automobiles offers a significant risk of injury. Coimbatore has a road network of around 3000 km, 13% with a ROW ranging from 4 to 32 metres. The majority of major highways in Coimbatore lack walkways; in fact, only 5% of the city's roads have any.

The NMT Network Plan will directly impact 1 million people residing within 300m of the NMT network. This count may increase in the future with population growth. Because the NMT network is intimately linked to bus stops, it benefits all public transportation users indirectly.

The installation of safe NMT facilities near public transportation stations would not only help riders, but will also increase foot traffic to surrounding businesses. With roughly 9 lakh bus riders, 340 bus routes, and 11,000 daily trips, Coimbatore should prioritise the provision safe first- and last-mile connections.

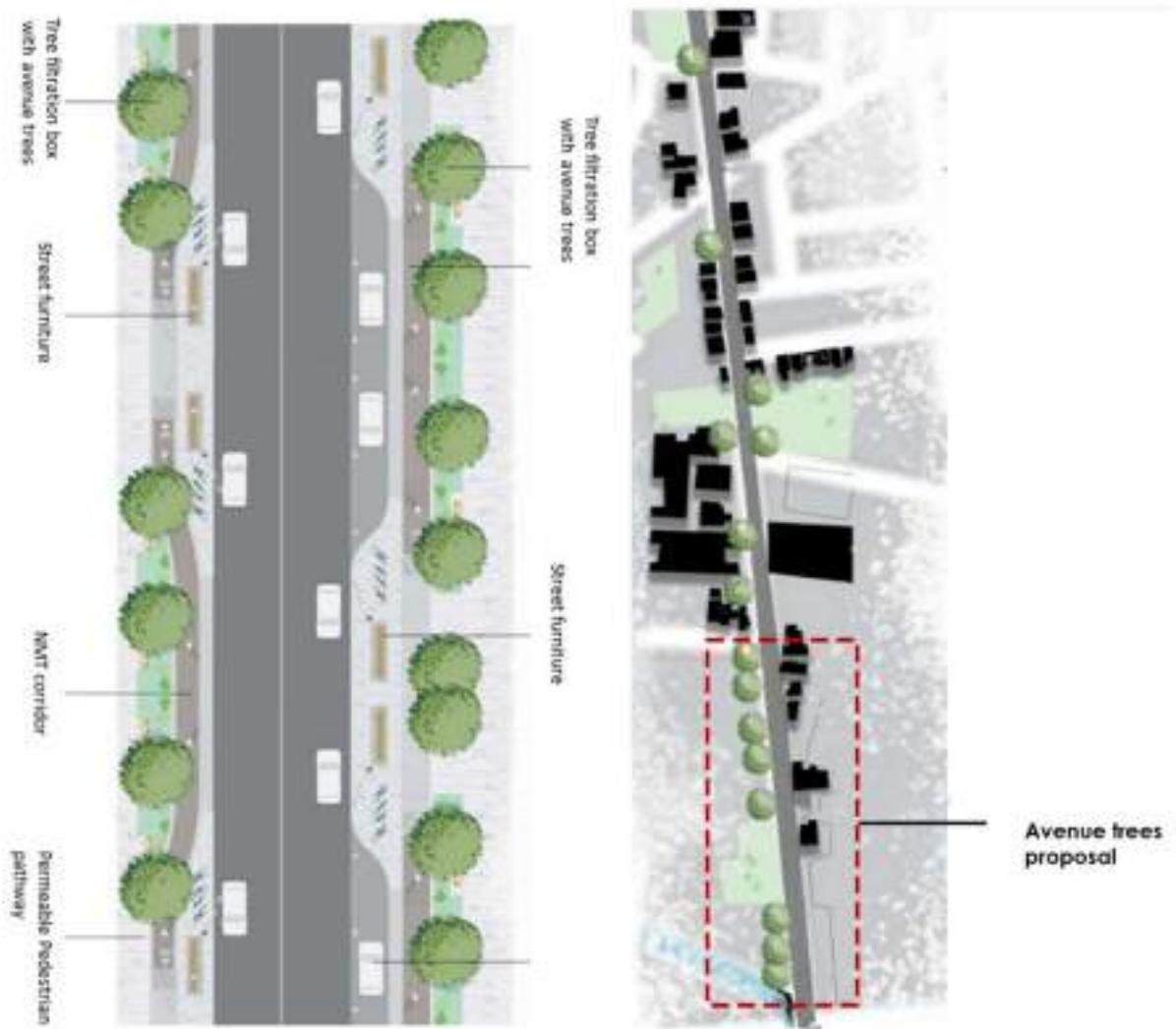


Figure 7-3 illustration of Non-motorized transport system

As per CMP We should promote the adoption of cycling and walking by establishing a secure and appealing network for non-motorized transportation (NMT), including sidewalks, bike lanes, scenic paths, and related amenities. The planning of urban streets should adhere to the highest standards of pedestrian-friendly and multi-modal street design.

- Prioritizing social inclusion in the design of non-motorized transportation (NMT) facilities based on universal design principles ensures accessibility for everyone, regardless of age, ability, or social status.

- Enhanced access and mobility would benefit all residents. Improved affordable mobility contributes to societal and economic empowerment.
- The city's transportation system can mitigate local and global environmental impacts by increasing the adoption of pollution-free alternatives. Cultivating a cultural shift that recognizes cycling and walking as viable and attractive modes of transportation within the city. Engaging local residents, businesses, and various stakeholders in the development of designs and standards to promote active utilization and community ownership of these spaces

As per the NMT network plan report for Coimbatore (2020), A total of 293km of cycle routes were identified. These routes have a high degree of overlap with the pedestrian roads.

In past five years, in line with introduction of smart cities mission, there has been renewed interest in Smart growth, mixed land use and new urbanization techniques, Coimbatore being one of the 100 smart cities in India, has proposed to transform some of its existing streets and develop an Eco mobility corridor with nearly 30km of walking and cycling tracks along 8 lakes. The budget framed for the network is around 300 crores.



Figure 7-4 Street view of NMT system

The CCMC had proposed the NMT corridor as part of efforts to prevent accidents caused by motor vehicles and to make roads pedestrian-friendly . It roped in a German agency in 2019 to implement the project under the Smart City Projects mission.

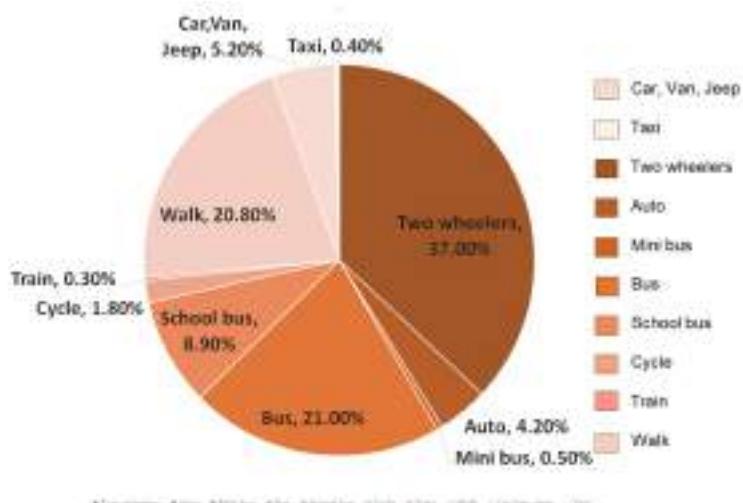
The Model Road in DB road has been designed pedestrian friendly by widening footpaths and streamlining parking arrangements. The pathways are filled with aesthetic structures and display boards. The road intersections are designed interestingly by giving seating arena and Times Square.

7.4 TRAVEL CHARACTERISTICS

Coimbatore, a dynamic and culturally rich city in the southern part of India, possesses a distinctive set of travel characteristics that beckon visitors from near and far. Nestled in the state of Tamil Nadu, this city seamlessly blends tradition and modernity, offering an enticing array of experiences for travelers of all interests and backgrounds.

From its bustling commercial and industrial

landscape to its position as an educational hub and gateway to scenic hill stations, Coimbatore's travel profile is as diverse as it is captivating. This city exudes cultural diversity, a reflection of its cosmopolitan population, and its vibrant festivals and mouthwatering cuisine showcase a tapestry of traditions.



Source: Comprehensive Mobility Plan for Coimbatore Local Planning Area

Figure 7-5 Mode of Transport 2015

7.4.1 Mode Of Transport

Modes of transportation refer to the various ways in which people and goods can be moved from one place to another. These modes differ in terms of infrastructure, vehicles used, energy sources, speed, capacity, and suitability for different purposes.

The number of times that persons or commodities move between two places within a given amount of time is referred to as the frequency of trips in the transportation industry.

The primary survey and analysis of modal split shows that bus transport is preferred by people at first place followed by two wheeler and walk. The following picture illustrates the percentage of mode of transport utilised in 2015. In 2015, about 38% of buses were utilised by the people that is higher than two wheelers (21%). Table 7.7 depicts the mode of Transport in 2015

7.4.2 Frequency of Trips

Figure 7.6 depicts the daily travel percentage is (49%) followed by weekly (21%) and the monthly and occasional passengers (16% & 14%)

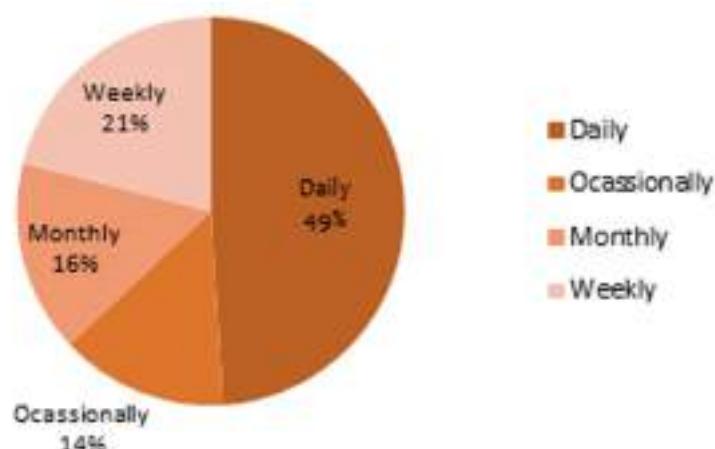


Figure 7-6 Frequency of Trips 2015

Source: Comprehensive Mobility Plan for Coimbatore Local Planning Area

7.4.3 Purpose of Trips

Journeys may be broken down into several categories, including commuting, shopping, leisure, and business.

Figure 7.7 depicts 38% of the daily passengers travel to work, 10% the trip purpose is for education (to go to school or university, etc.), 15% have a business purpose, 11% of the trips are for social reasons, 10% education and recreational 5%.

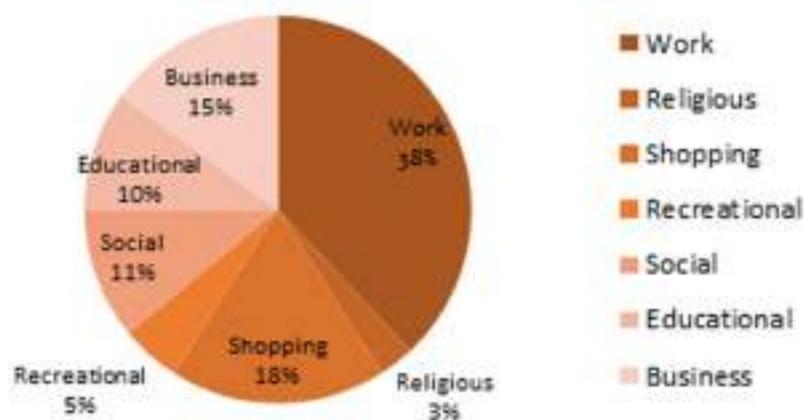


Figure 7-7 Purpose of Trip

Source: Comprehensive Mobility Plan for Coimbatore Local Planning Area

The use of public transportation, is an economical and environmentally responsible alternative to the purchase of a private automobile, particularly in metropolitan areas with a high population density.

7.4.4 Traffic Characteristics

The main factor of traffic congestion in Coimbatore is due to the rapid urban sprawl in core areas of Coimbatore as they are the main commercial hubs which do not have adequate road width and parking facilities. The roads experiencing high traffic density are Avinashi Road, Mettupalayam Road, Thadagam Road, DB Road, NSR Road , 1OOft Road , Ganapathy junction, Singanallur junction, Trichy Road, Town hall & Sundharapuram junction.

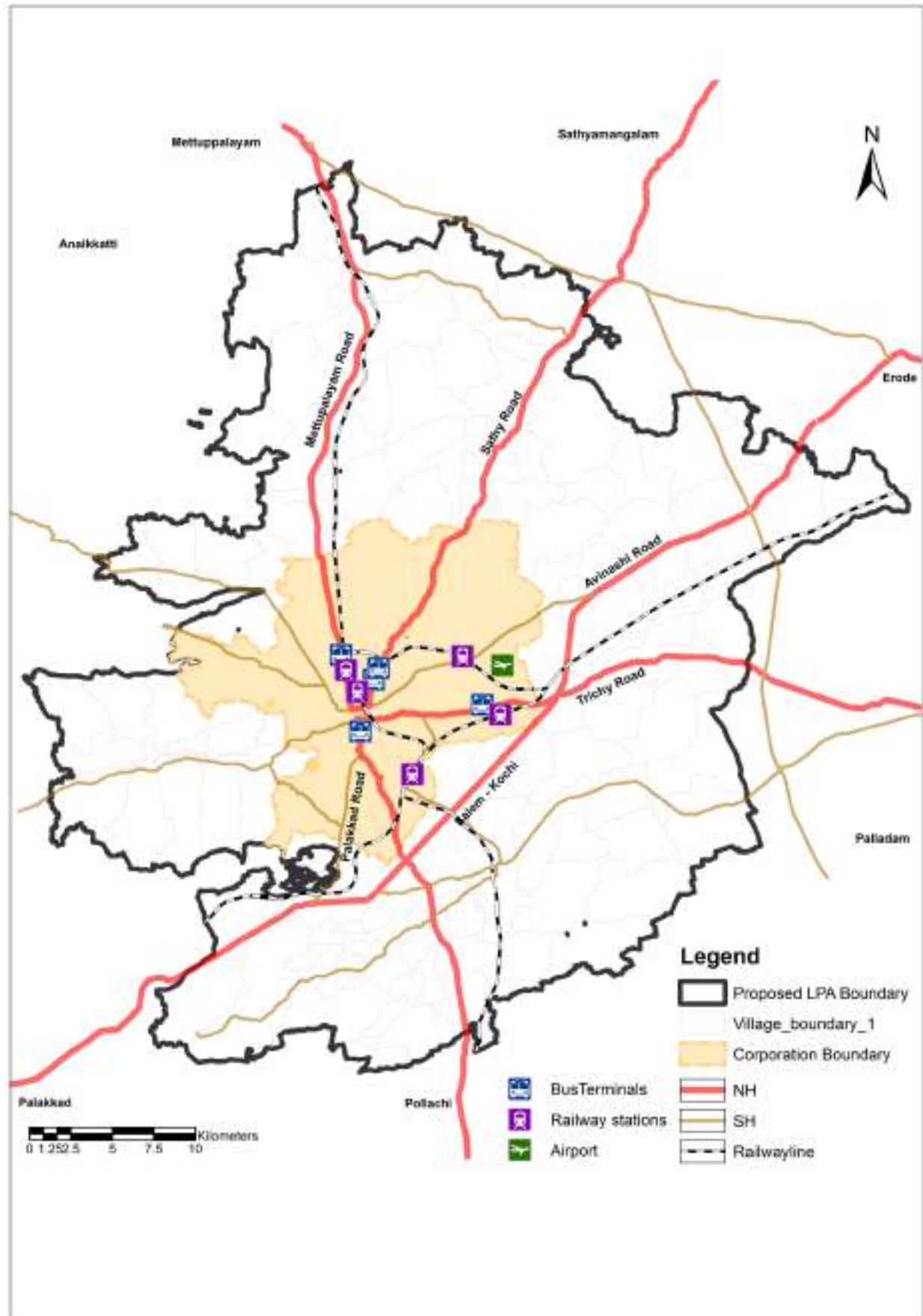
7.4.5 Bus Transport

The city has 5 bus terminals and the Local Planning Area has 7 more (LPA). CCMC operates five bus terminals , including Ukkadam bus stand, Singanallur bus stand, and the Central bus terminus / Mofussil bus terminus at Gandhipuram, as well as a bus stand near Sai Baba Colony that serves buses to and from Mettupalayam, Nilgiris, Ooty, Sathyamangalam , Mysore, and Bengaluru. The fifth is operated by "The State Express Transport Corporation" (SETC), which is also controlled by (CCMC). This terminal has its own bus stop m Gandhipuram. From the Gandhipuram terminal, it operates long-distance buses.

1. Central bus terminus/Gandhipuram moffusial terminal takes care of 30-40% of the district bus traffic, and covered destinations are more in the North like Avinashi , Andhiyur, Anaikkatti, Tiruppur, Sathyamangalam , Erode, Salem, Mettupalayam, Dharapuram , Bhavani and Palladam.
2. Singanallur bus terminal is in the east but covers into the south,such as Palladam to Kangeyam,

with stops in Karur, Kulithalai, Trichy, Thanjavur, Kumbakonam, Nagapattinam, Karaikkal, Pudukkottai, Dharapuram, Ottenchatram, Madurai, Tirunelveli, Tuticorin, Tiruchendur, Nagercoil, and Rameswaram.

3. Ukkadam bus stand connects southern parts and Kerala, with routes running through Pollachi, Udumalaipet, Palani, Dindigul, Palakkad, Aanamalai, Valparai, Trivandrum, Ernakulam, and Kozhikode, accounting for 25.14 percent of traffic.
4. Mettupalayam bus stand serves the northwestern parts of Coimbatore, including Mettupalayam, Kothagiri, Nilgiris, Ooty, Gudalur, Mangalore, and Mysore, accounting for 11.92 percent of traffic.
5. Karamadai bus stand showcases the constant movement of passengers, contributing to the dynamic energy of the local transportation network. The stand likely features ticketing counters, waiting areas, and other amenities to cater to the needs of travelers passing through this central transit point.
6. Sulur Bus Stand, a vital transport hub in Sulur, facilitates seamless connectivity through a network of buses. Serving both locals and travelers, it plays a crucial role in enabling efficient and accessible transportation within the region.
7. Omni bus terminal is one of the significant bus terminal in Coimbatore. This terminal is a major hub for both intra-city and inter-city buses, providing connectivity to various destinations.



Map 7- 2 Major terminals in LPA

8. Periyannayakkanpalayam , located between CCMC and Mettupalayam stands as an important hub which connect Mettupalayam, Karamadai, CCMC and other internal villages.

The majority of public transportation in Coimbatore is provided by the Tamil Nadu State Road Transportation Corporation (TNSTC) and privately owned bus operators . The remaining trips are made in shared auto-rickshaws that are privately owned and operated .



Figure 7-8 Ukkadam Bus Stand



Figure 7-9 Gandhipuram Bus Stand

In Coimbatore, there are nearly 40 private companies that are licenced to run specific routes. (Department of Mobility, 2018) The bus services are generally efficient, but due to their infrequency, they can become extremely crowded at times.

7.4.6 Goods

Coimbatore experiences large volume of goods traffic as it is a major textile, industrial, commercial, educational, information technology, health care & manufacturing hub of Tamil Nadu. Heavy traffic flow is observed on Palakkad road , Avinashi road & Ukkadam bus terminal in the city centre. As eastern bypass from Neelambur to Madukarai on NH544 is the only bypass the goods from outside is added to city traffic. Almost 23% of traffic on Avinashi Road is caused by goods movement. On an average day, about 12,000 trucks enter and exit the city core area. Some of the goods imported to Coimbatore city are Cotton, Agricultural goods from neighbouring districts, Fabrics from Salem, etc. through roadways and steel is imported through railways. Goods exported from Coimbatore are Automobile products, electronic items, clothes, etc.

7.4.7 Traffic Management & enforcement

The maintenance of traffic control devices, road markings & traffic signs are not properly executed to retain their legibility and visibility. The city faces severe problem of congestion due to factors such as poor driving habits, lack of road sense, increasing growth of personal

vehicles lack of parking facilities, poor traffic management, substandard junctions / round about design and lack of efficient public mass transport system.

7.4.8 Parking

The majority of parking is unplanned, haphazard, and unregulated. Cars are often blocking footpaths and roads. Even if there are parking spaces accessible in various parts of the city it is not sufficient.

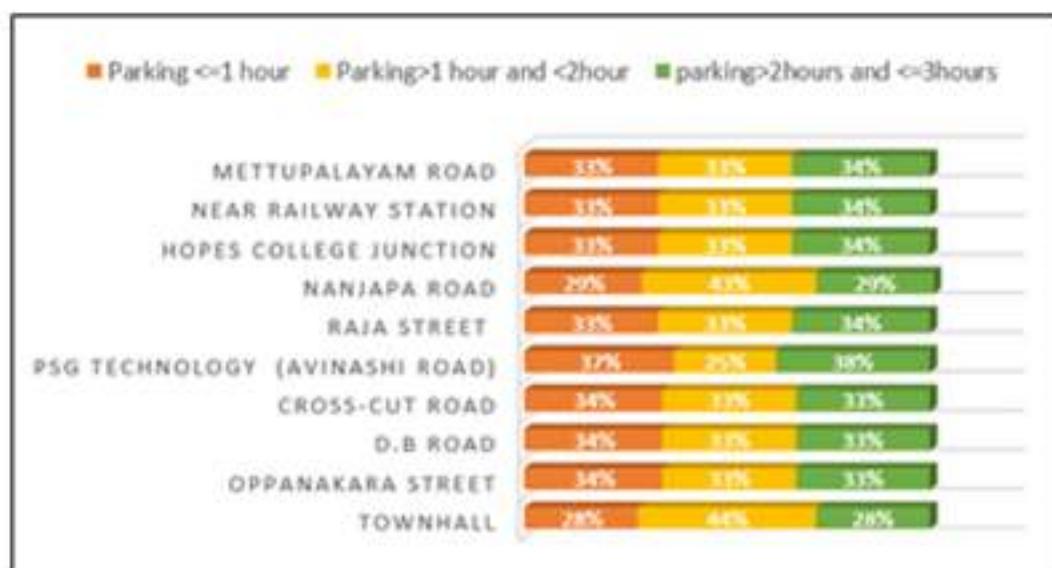


Figure 7-10 Parking Duration in Coimbatore

Traffic management includes the planning, organizing, and control of the movement of vehicles and pedestrians on highways.

The demand for parking places is increasing, and roads like as Avinashi Road, Mettupalayam Road, and the railway station all require additional parking spaces. In business locations, it is estimated that 30% of automobiles are parked for one hour. Illegal parking and on-street parking are two factors that contribute to traffic congestion. Figure 7-10 depicts the parking duration in Coimbatore.

7.4.9 Road accidents

Accidents on the road, often known as traffic accidents or crashes, are unanticipated events or occurrences that include automobiles, pedestrians, bicycles, or any other users of the road. They have the potential to cause damage to property, injuries, and even, in the most extreme circumstances, fatalities.

The increase in number of private vehicles and inter mixing of slow- and fast-moving vehicles on road has led high road accidents in Coimbatore, which is a cause of concern. Considering the urban expanse, population growth and increased trends of vehicles on city roads; the safety of commuters is equally vital. Major accident-prone locations in study area are Town Hall, Pollachi road Ukkadam & Karumbukadai, Singanallur Vasantha Mills, Ganapathy Moor Market, Kallimadai perks School Junction, etc. The number of accidents from 2017 to 2021 , along-with number of fatalities occurred is listed in the Figure below. Figure 7-11 show the Trends of road accidents in Coimbatore.

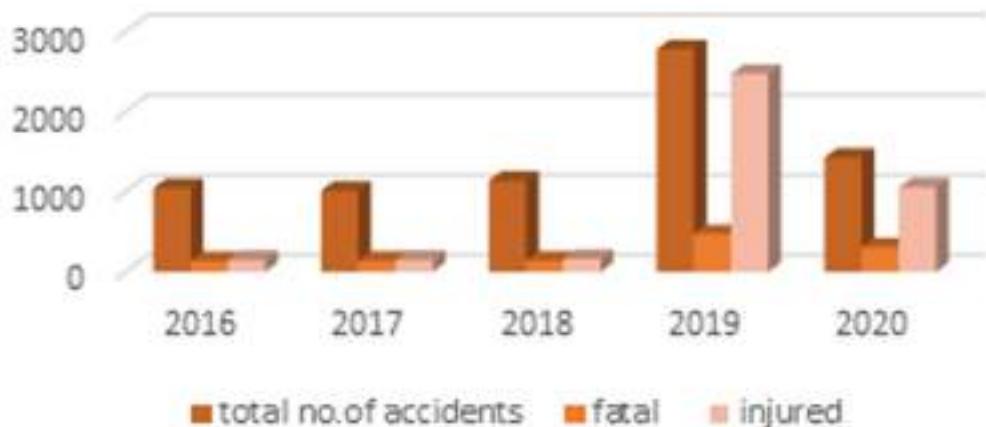


Figure 7-11 Trend of Road Accidents in Coimbatore

Source: Government of Tamil Nadu home (Transport department)

Coimbatore, like many growing cities, experiences traffic congestion during peak hours. Congested roads can lead to accidents, especially when drivers become impatient or engage in risky behaviour to navigate through traffic. Over-speeding on city roads and highways is a common cause of accidents. Some drivers do not adhere to speed limits, which can lead to collisions and accidents, especially on highways connecting Coimbatore to

7.5 MRTS

other cities. The use of mobile phones and other distractions while driving is a major contributor to accidents. Drivers who are not fully focused on the road are more likely to make errors and cause accidents. Driving under the influence of alcohol or drugs remains a serious issue. Despite strict laws against drunk driving, some individuals still engage in this risky behavior, putting themselves and others at risk.

Mass Rapid Transit (MRT) systems move groups quicker over the same metropolitan corridor, lowering transportation expenses. Based on expanding demands and captive demand over the future, Coimbatore LPA may need MRTS and other transportation initiatives.

The Coimbatore Metro Rail project is a significant urban transportation initiative aimed at improving connectivity, reducing traffic congestion, and boosting economic and social development in the city of Coimbatore, Tamil Nadu , India.

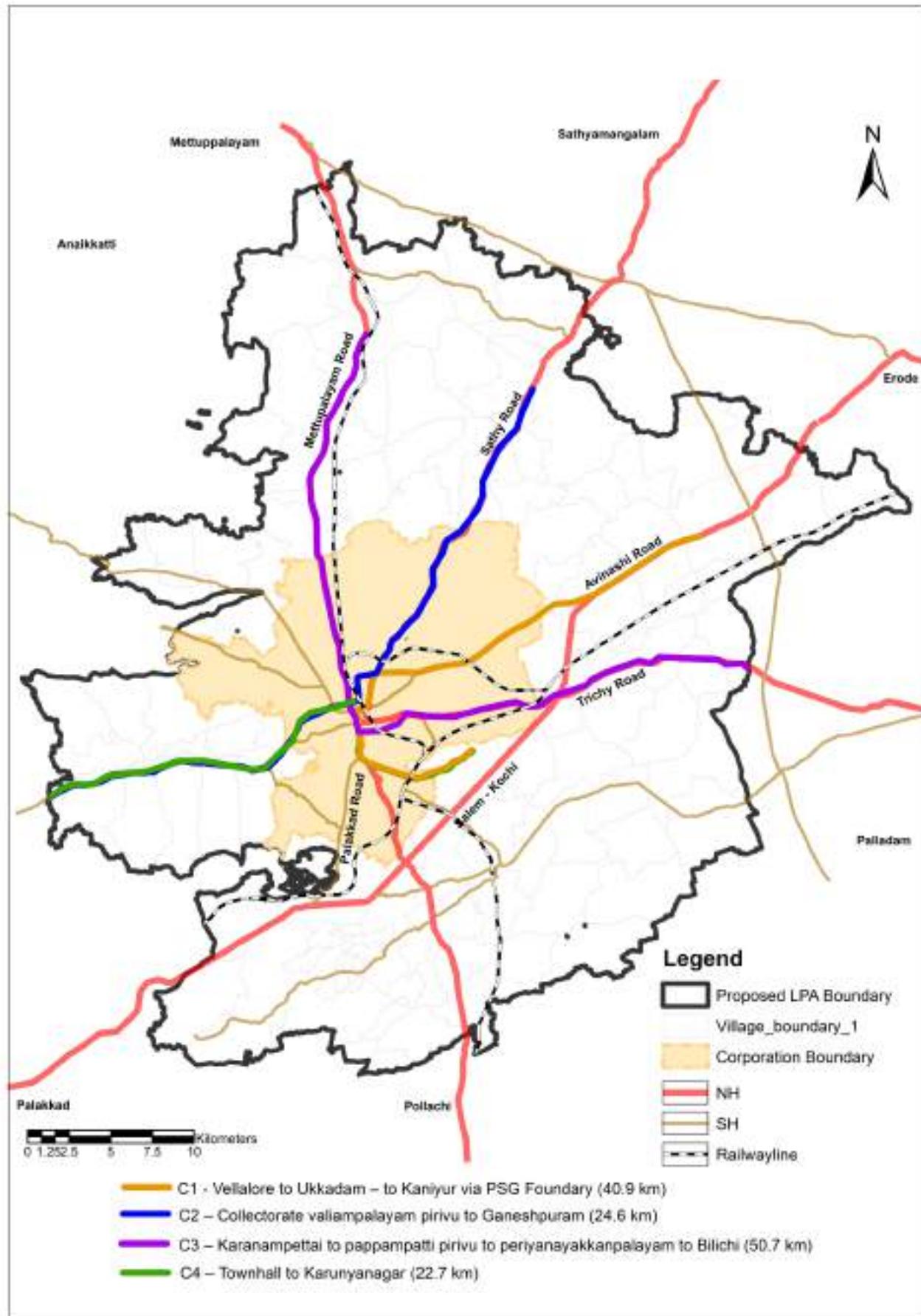
The project is planned to be implemented in multiple phases, with a total distance of approximately 144 kilometres covering various corridors.

A. Phases and Corridors

Phase 1

The first phase of the Coimbatore Metro Rail project includes three corridors covering a total distance of 45.8 kilometers:

- Collectorate to Valiyampalayam (14.1 km)
- Vellore-Avanashi Road-Coimbatore Airport-PSG Foundry (31.7 km)



Map 7- 3 Metro Alignments Phase - I

Phase 2

The second phase involves the extension of Corridor 3, covering a distance of 31.1 kilometers. It includes two segments:

- Coimbatore Railway Junction to Pappampatty (13 km)
- Coimbatore Railway Junction to Periyanaickenpalayam (18.1 km)

Phase 3

The third phase focuses on further extensions of the metro network:

- PSG Foundry to Kaniyur (9.2 km)
- Valiyampalayam to Ganesapuram (10.5 km)
- Pappampatti to Carltonpet (11.8 km)
- Periyanaickenpalayam to Bilichi (7.8 km)
- Town Hall to Karunya Nagar (27.7 km)

B. Feasibility Studies

The Coimbatore Metro Rail project includes plans for future expansion and extensions of various corridors. Feasibility studies are being conducted to assess the viability of extending Corridors 3, 4, and 5: Corridor 4 and 5 extensions: These studies will explore options to cover additional parts of the city, potentially expanding the metro network further.

C. Funding and Government support

The state government has allocated a large fund for the Coimbatore Metro Rail project. The government would fund the project with Rs 9000 crores. The government's financial contribution shows its commitment to enhancing public transportation infrastructure to satisfy the city's expanding urbanization and mobility demands.

D. Benefits

- The development of the Coimbatore Metro Rail project is expected to bring about several benefits to the city and its residents:
- Improved Connectivity: The metro will provide efficient and reliable transportation , connecting key areas of the city and making daily commutes easier for residents.
- Traffic Reduction: By offering an attractive alternative to private vehicles, the metro will help alleviate traffic congestion on the city's roads.
- Economic Boost: The metro system can drive economic growth by promoting transit-oriented development , attracting investments, and generating job opportunities.

Environmental Impact: A well-planned metro system can contribute to reducing pollution and greenhouse gas emissions by encouraging people to use public transportation instead of personal vehicles.

Safety: Compared to other forms of public transportation, MRTS systems are generally considered safer, as they are less prone to accidents and incidents on the road.

Reduced Parking Demand: With more people using public transit, there may be reduced demand for parking facilities in the city, freeing up land for other purposes and reducing the need for road widening projects.

Integration with Other Modes: An MRTS system can be integrated with other modes of transportation , such as buses and cycling lanes,

7.6 SWOT ANALYSIS

providing a seamless and efficient multi-modal transportation network. Overall Coimbatore Metro Rail modernizes transportation , enhances urban life, and supports sustainable development

A. Strength

The city is well integrated through road network comprising of 5 national highways and major arterial roads .

The five major bus terminals connect various parts of the city making it the most preferable mode of transport in the city.

The Coimbatore railway junction is the top graded station in the southern railways.

B. Weakness

On-street parking is persistent on the major roads thus reduce the stipulated carrying capacity.

Lack of proper traffic management creates high probability of traffic congestion in nodes of remote areas.

The city witness congestion during the peak hours especially in the main arterial roads.

C. Opportunity

TOD could be promoted.

The average travel length of Coimbatore is 6 km paving way to efficient use of sustainable mobility.

The Construction of flyovers in arterial and sub-arterial roads decreases traffic congestion and paves way for efficient segregation of mobility.

Prioritizing bus transport through reservation of lanes on major arterial roads and traffic signals make the transit system affordable to all segments

7.7 PLANNING STRATEGIES

of the commuting population . Off lane on major arterial roads and traffic signals make the transit system affordable to all segments of the commuting population .

D. Threat

The upkeep of traffic control devices, road markings, and traffic signs is insufficient to ensure their legibility and visibility.

Encroachment of sub arterial roads decreases the proper width of road.

The city's transportation network is determined by its land use. The development of a transportation network strategy and land use must go hand in hand . Connectivity aids in the realisation of the planned land use. The developed land-use transportation strategy focuses on accessibility, connectivity, and mixed-use developments to reduce private vehicle trips and encourage transit-oriented development.

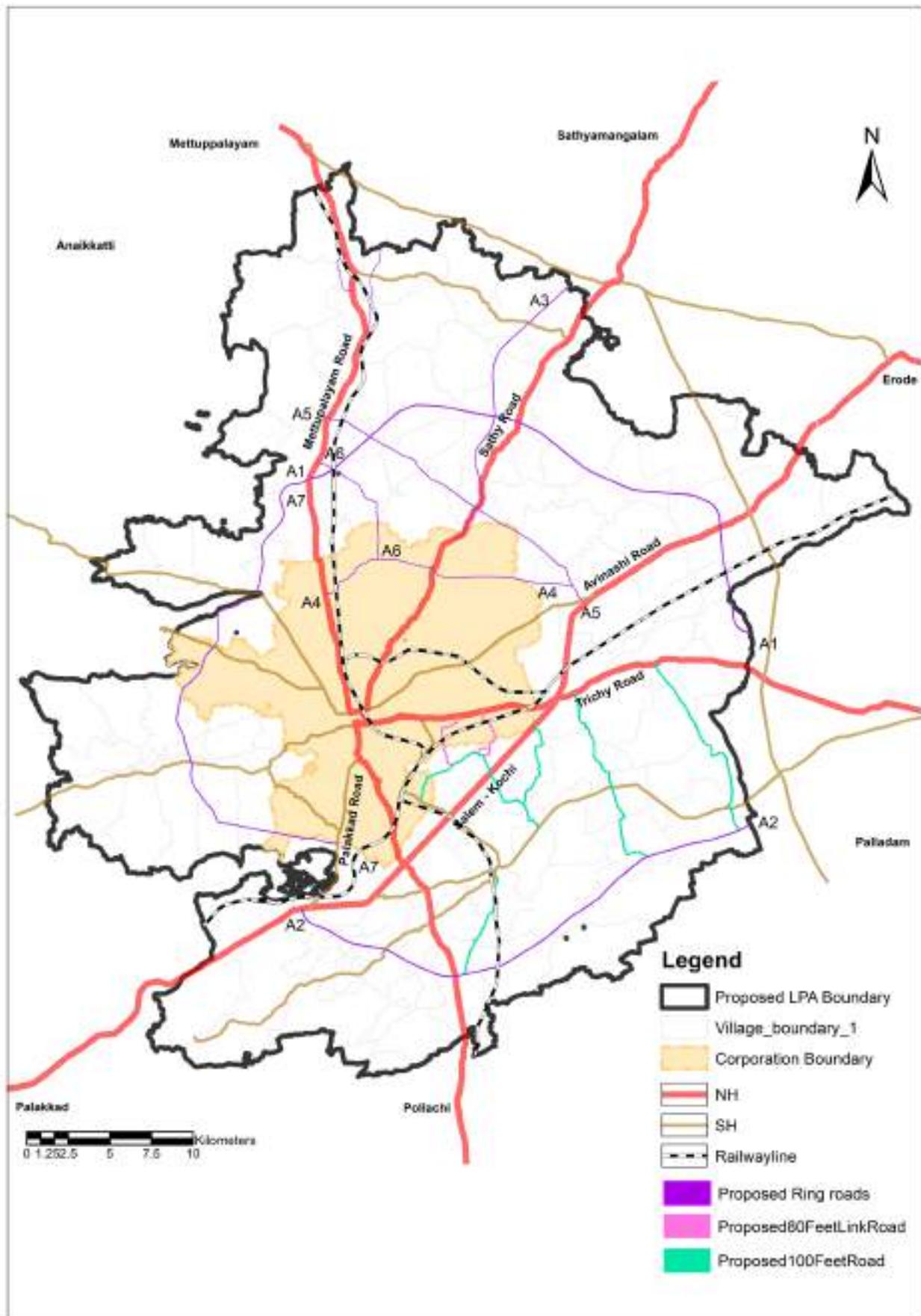
Long term , the transportation strategy should be based on the city's anticipated urban growth. As a result, a transportation network strategy allows the city to adopt an urban form that best suits the geographical constraints of its location while also supporting the key social and economic activities of its residents . In accordance with regional development strategies, integrated land use and transportation development promotes balanced regional growth .

7.7.1 Proposals

7.7.1.1 Proposed road network

Table 7-1 List of Proposed Road Network

	Proposed Road Network	Km
A1	200 feet - Proposed (NH) Eastern Ring Road (Narasimanayakanpalayam to Karanampettai)	81.62
A2	200 feet - Proposed (NH) Sourthern Ring Road (Madukaraito elakkarichel)	
A3	100feet - Proposed Road (Vilankurichito Puliampatti)	48.6
A4	80feet - Proposed Road (Vellakinir o Mylampatti	38.6
AS	100feet - Proposed Road (Neelambur to Periyanyakkanpalayam)	32.4
A6	80feet - Proposed Link Road (Periyanyakkanpalayam to Chinnavedampatti)	15.8
A7	150feet - Proposed (NH) Western RingRoad(Madukkaraito Gudalur)	32.36
	Proposed Strengthening of Roads- 100feet	km
1	Irugurto Idayarpalayam	95.4
2	Pattanamto Orattukuppai	
3	ulurto Sellakaraichal	
4	Chettipalayam to Mailleripalayam	
5	ellalur to Chettipalayam	
	Proposed Strengthening of Roads- SOfeet	Km
1	ellalur to Singanallur	16.4
2	ellalur to Ramanathapuram	



Map 7- 4 Proposed Road Network

The scenario envisions the establishment of two ring roads: an inner ring road and a satellite ring road that interconnects the urban regions designated by the Local Planning Authority (LPA). These ring roads are set to be interconnected with the Western and Eastern Bypasses, along with a projected ring road and a link road connecting to Pollachi Road. The map 7-4 shows the alignment of the proposed road networks and Table 7-1 shows the proposed road network.

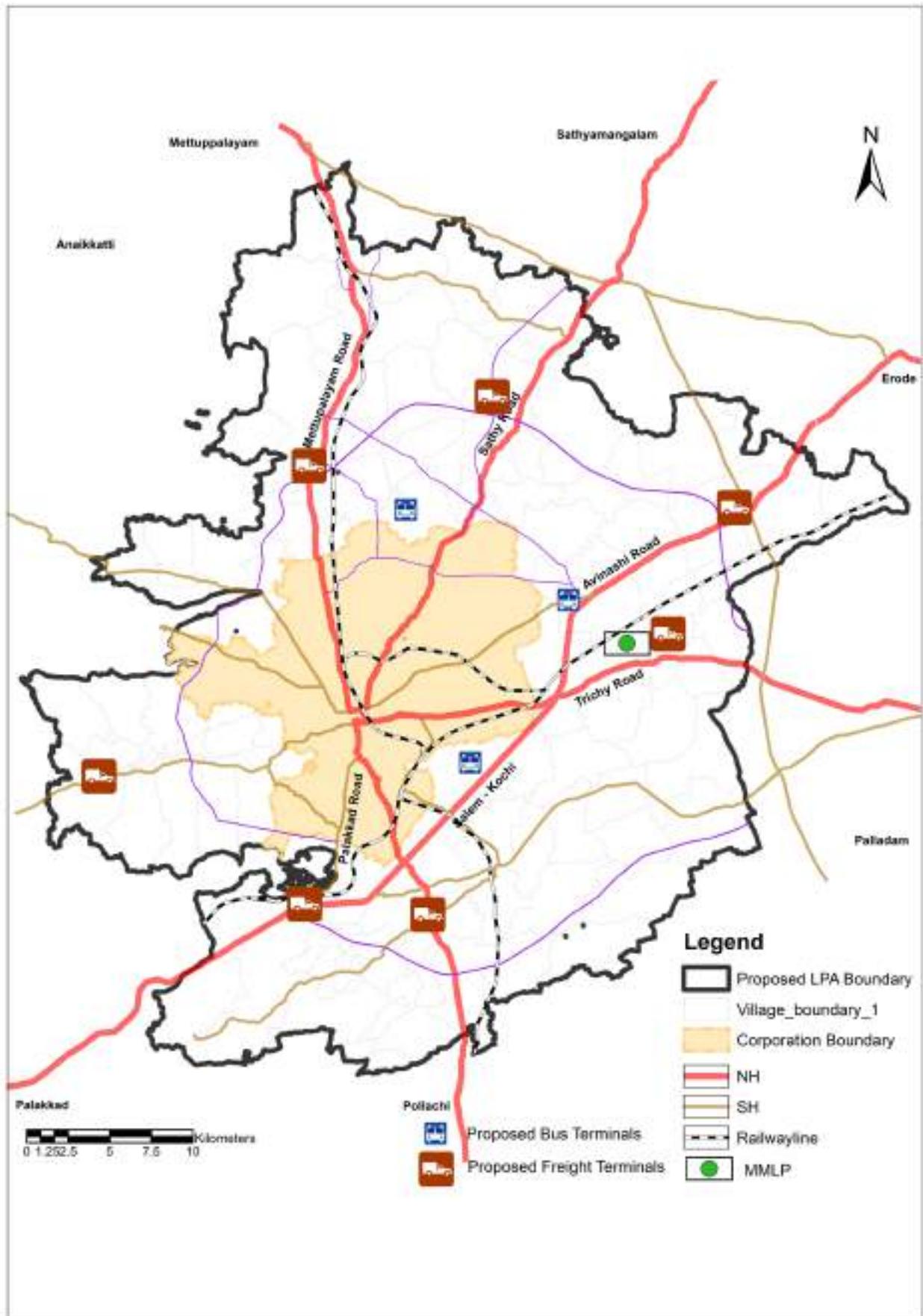
7.7.1.2 Proposed bus terminals

At the moment, all inter-city, inter-state, and intra-city buses originate and terminate at Gandhi Puram Bus Stand . Because this bus terminal is located in the city centre, all buses that terminate here cause significant congestion within the city. As a result, this bus terminal must be relocated. Furthermore, bus terminals are proposed to meet future demand:

7.7.1.3 Freight terminals & Multi model logistic park

Freight transport management encompasses a variety of strategies for increasing the efficiency of commercial and freight transportation. Measures such as restricted delivery times in the central business district and important freight corridors To address the large influx of goods and regional traffic, it is proposed to build truck terminal facilities along the proposed ring road. The locations of the truck terminals were chosen based on the following criteria:

Inter-city goods movement to and from the city of Coimbatore, as well as through goods traffic movement on the radial corridors.



Map 7- 5 Proposed Bus and freight Terminals

Avoiding unwanted goods movement within the city by using outer bypass roads such as outer ring roads to avoid goods traffic.

A large amount of vacant land is available for the development of terminal facilities.

As a result, truck terminals are proposed along inter-city radial growth corridors outside their junction points with the outer ring roads and bypass roads at the study area's periphery, depending on the availability of sufficient land parcels. The truck terminals will also help to create jobs and stimulate the local economy. Other expected benefits of the terminal include reduced truck traffic on city roads, roads near the CBD, and market yards.

The identified locations for freight terminal are as follows:

- Karumathampatti on Avinashi Road
- Pooluvampatti on Perur Road
- Madukkarai on Palakkad Road
- Near Sulur on Trichy Road
- Malumichampatty on Pollachi Road
- Narasimhanaickenpalayam on Mettupalayam Road
- Kovilpalayam on Sathy Road

In addition to the proposed freight terminals, a limited freight terminal close to the CCMC area is required to meet the requirements of truck parking and freight management within the CCMC area. As a result, given the availability of government land along the L&T Bypass Road in Vellore, a limited freight terminal, in addition to the proposed bus

terminal, is proposed. Given the proximity of this proposed freight terminal to the proposed bus terminal at Vellore, it is preferable to have a limited freight terminal for truck parking rather than a fully functional one.

Furthermore, it is proposed that this proposed limited freight terminal at Vellore be accessible via the existing L&T Bypass Road. It will be beneficial to have a separate truck queue on the access road without interfering with the proposed bus terminal's access.

A multi-modal logistic park is a freight-handling facility with multiple modes of transportation access, mechanised warehouses, specialised storage solutions, and mechanised material handling facilities. It will prevent large trucks from bringing cargo into the city. Instead, the railway and airport can be used for convenient cargo transportation. Coimbatore has emerged as one of the most rapidly growing industrial cities in India. Coimbatore has a number of world-class achievements in industries, textiles, commodities, and infrastructure.

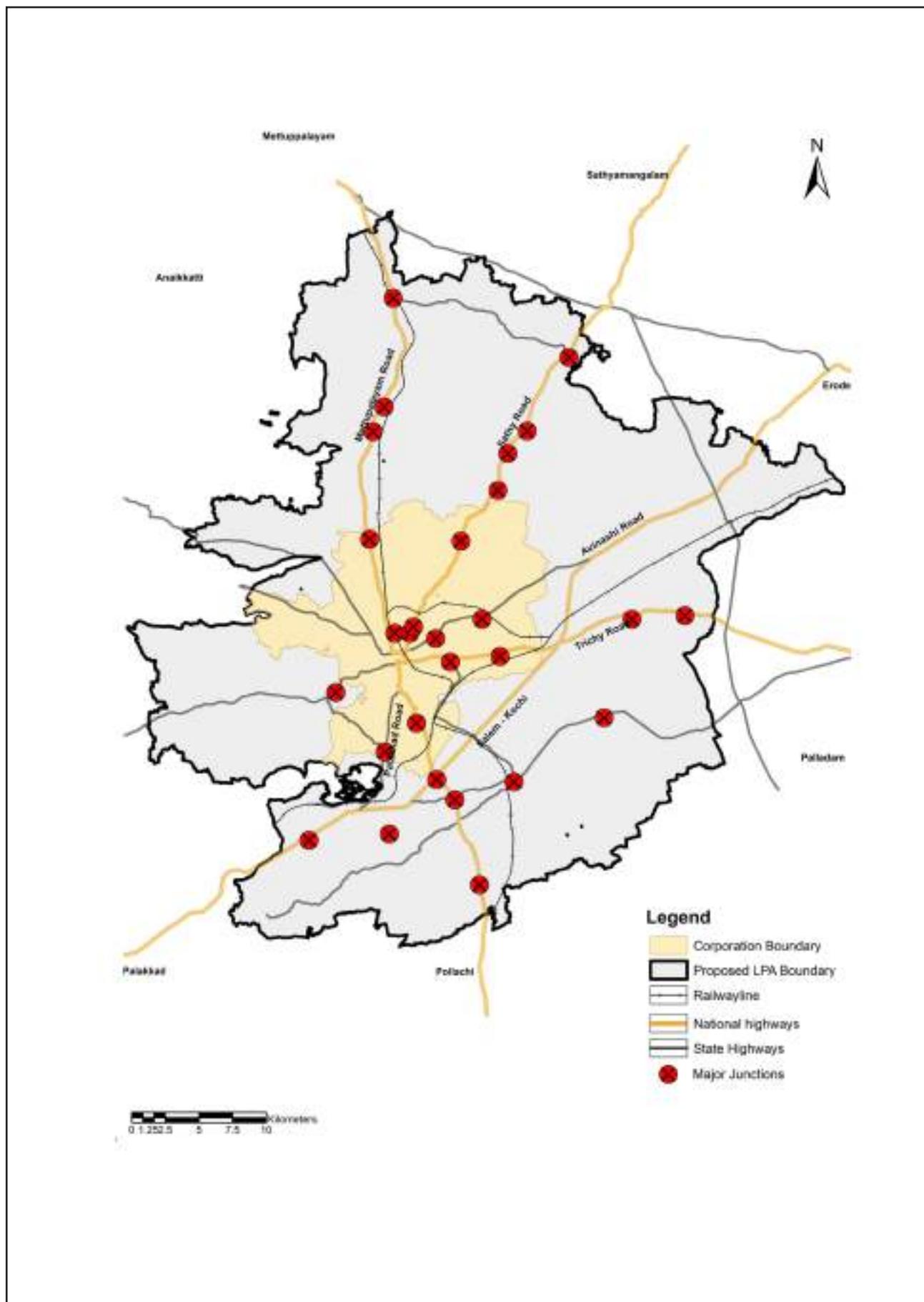
To improve the country's freight logistics sector by lowering overall freight costs and time, cutting warehousing costs, reducing vehicular pollution and congestion, and improving consignment tracking and traceability through infrastructural, procedural, and information technology interventions, a multi-modal logistic park will be proposed at Rasipalayam (105.95 ha). If MMLP appears at any of these locations, trucks can use the bypass to reach the facility, and the cargo can then be distributed to various parts of the city. A feasibility study will be conducted.

7.7.1.4 Junction Improvement Plan

The proposal involves enhancing junctions by incorporating pedestrian infrastructure, not only within the junction area but also by enhancing the alignment of the roads leading to the junction. This comprehensive approach provides a holistic solution for effective traffic management in the studied region.

The method employed by RITES for devising junction improvement plans is tailored to each specific junction. It considers factors such as traffic characteristics, the number of road arms, and other relevant aspects. The primary issues at each junction are carefully assessed, followed by a thorough analysis of their underlying causes. Solutions, adhering to the principles of the National Urban Transport Policy (NUTP) 2006, prioritize pedestrian-friendly non-motorized transport (NMT) and public transportation.

These solutions are aimed at minimizing costs while addressing the identified challenges and enhancing traffic conditions in the area. Junction improvements plan are recommended at the following Junctions based on traffic volume and traffic problems. The proposed locations for junctions' improvement plan are presented in Table 7.2 and Map 7.6.



Map 7- 6 Proposed Locations for Junction Improvement

Table 7-2 Proposed Locations for junction improvement

S.NO	NAME OF LOCATION	Number of Arm
1	Lakshmi Mills junction	4
2	Hopes College junction	4
3	Gandhipuram junction	4
4	Singanallur junction	4
5	100 ft. road junction	4
6	Ramanathapuram junction	4
7	Sulur police station junction	4
8	Saravanampatti junction	3
9	Kovai Pudur Pirivu	3
10	Thudiyalur junction	4
11	Malumichampatti Junction	4
12	Sundara puram Juction	4
13	Eachanari → Pollachi Junction	4
14	Cross-cut road junction (Power house)	3
15	Eloor Jnction	4
16	Airforce school Junction	3
17	Karia mpalaya m Jnction	4
18	Kovilpalayam - kunnathur Junction	4
19	Veera pandi Privu	3
20	SS Kulam Junction	4
21	Kurumbampalayam Junction	3
22	Karamadai Jnction	3
23	Perianayakkanpalayam Junction	4
24	Chettipalayam Junction	3
25	Pappam patti Junction	4
26	KG Chavadi Junction	4
27	Perur Temple Junction	3
28	Palathurai Junction	3
29	Vadavalli	3
30	Selvapuram	3



Figure 7-12 Eeachanari - Pollachi Junction

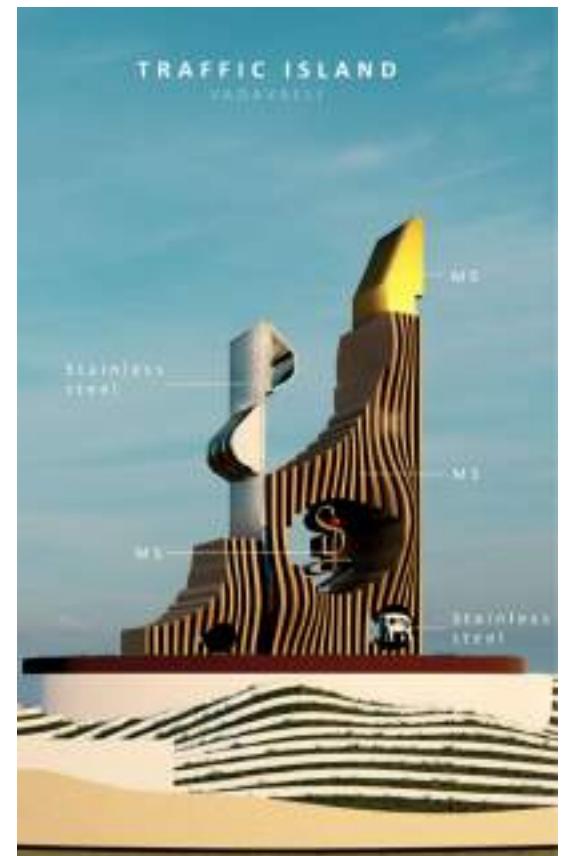


Figure 7-13 Proposed Locations for Junction Improvement (Vadavalli)



Figure 7-14 Proposed Locations for Junction Improvement (Selvapuram)



Figure 7-15 Proposed Locations for Junction Improvement (Selvapuram)

The Coimbatore Junction serves as the primary hub for passenger transportation in the designated region, acting as the key link connecting Coimbatore to the rest of India. Additionally, for intra-city passenger travel, there are other significant railway stations like Coimbatore North Station, Podanur Station, and Irugur Station. Furthermore, within the Local Planning Authority (LPA) area, the city boasts stations at Thudiyalur, Periyanaickenpalayam, Narasimhanaickenpalayam, Karamadai, Peelamedu, Singanallur, and Madhukarai. To alleviate congestion at the Coimbatore Railway Station in the city center, a phased approach to enhance the Podanur and Irugur railway stations within the LPA area is being proposed.

Podanur Railway Station

Strategic Location

Following the Coimbatore Junction, both Podanur and Irugur play significant roles as predominant railway stations in the Coimbatore area. Here's an elaboration on their importance:

Connectivity

Podanur Railway Station is strategically located in the southern part of Coimbatore, making it a vital transportation hub for both intra-city and inter-city travel.

Goods Transportation

It serves as a key connecting point for various train routes passing through Coimbatore. Trains from different directions converge at Podanur, allowing passengers to transfer easily.

Local Commuters

Podanur also handles a substantial volume of freight and cargo traffic due to its strategic location, facilitating the movement of goods and raw materials in and out of the region.

For the local population, Podanur Railway Station is a convenient choice for commuting within Coimbatore and its suburbs. It eases the burden on the main Coimbatore Junction, reducing congestion in the city core.

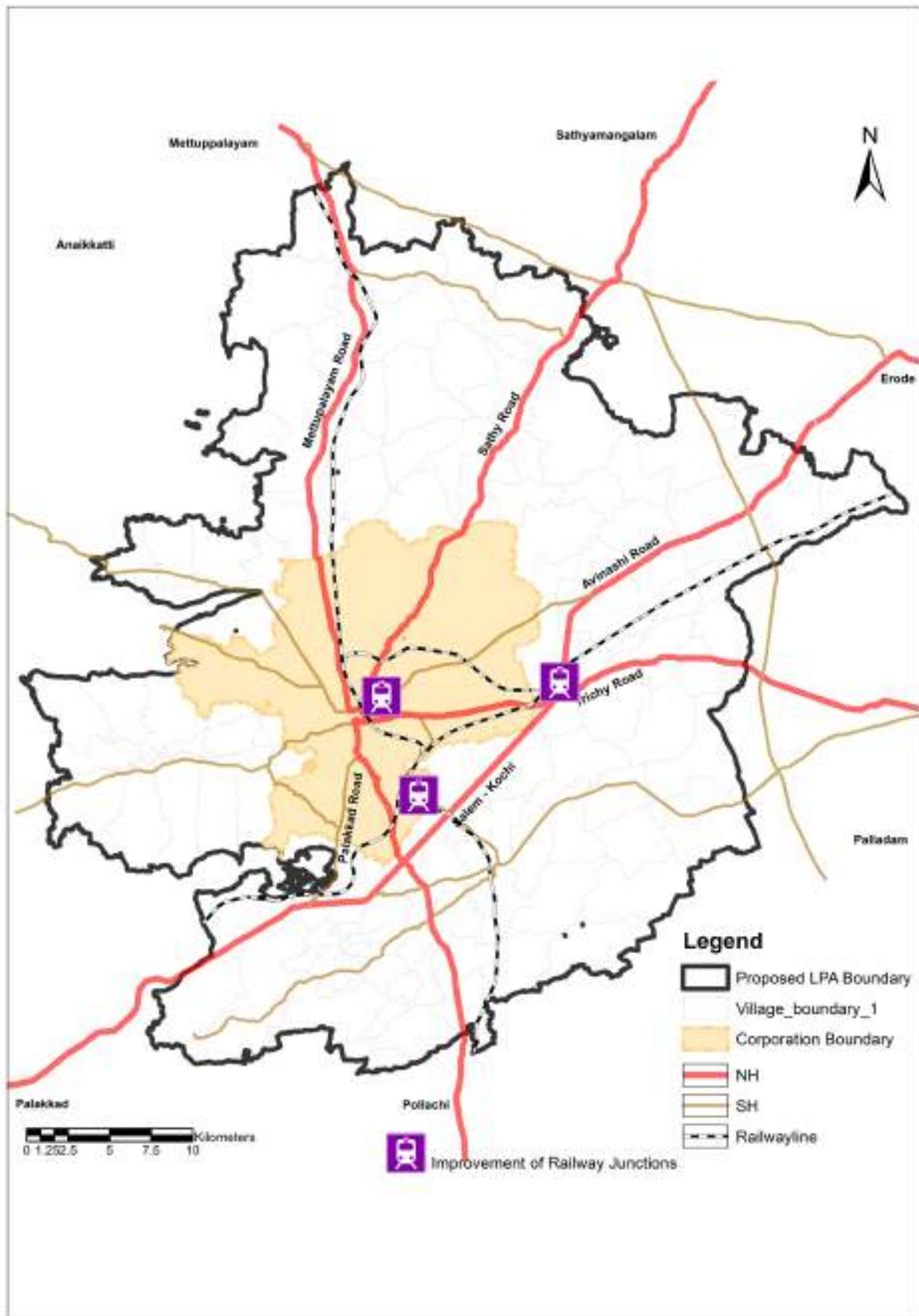
Irugur Railway Station

Industrial Hub

Irugur Railway Station is located in an industrialized area of Coimbatore. Its proximity to industrial zones and manufacturing units makes it crucial for the transportation of industrial goods.

Suburban Connectivity

Irugur serves as a significant station for suburban and nearby rural areas, making it an essential transport hub for daily commuters living in the vicinity.



Map 7- 7 Improvement existing Railway Stations

Reducing Congestion

By serving as an alternative station for passengers traveling to and from Coimbatore, Irugur contributes to reducing the congestion at the primary Coimbatore Junction.

Interchange Station

Irugur often acts as an interchange station for passengers traveling between different railway lines, facilitating smooth transfers between trains.

Multimodal Hub

High probability for transforming into Multimodal transportation hub.

In summary, both Podanur and Irugur Railway Stations in Coimbatore are crucial nodes in the city's railway network. They serve multiple purposes, including providing convenient transportation options for local residents, handling industrial and cargo traffic, and relieving congestion at the primary Coimbatore Junction. These stations collectively contribute to the efficient functioning of Coimbatore's railway infrastructure.

7.7.1 .5 Grid Of Roads

Overview

A grid of roads, often referred to as a grid street network or gridiron pattern, is a type of urban street layout characterized by its systematic arrangement of roads into a grid-like pattern of perpendicular streets. Grid designs effectively use urban area, simplifying the development of infrastructure, structures, and public services. A high population density may be accommodated by the standard layout. This layout forms a series of

square or rectangular city blocks, which are easily navigable and have several advantages in urban planning. Here is an overview of the key features, benefits, and drawbacks of a grid road system.

Grid Of Roads For Coimbatore LPA

The master plan does not inherently include provisions for introducing a grid of roads; however, it can be suggested as a recommendation. Implementing a grid of roads would require a separate effort within a Town Planning Scheme to achieve urban improvement and development.

Selection Of Region

Comprehensive planning, feasibility studies, and cooperation between urban planners, engineers, environmental specialists, and local stakeholders should go into choosing a location for a grid of roadways. While not all village panchayats or town panchayats are considered for proposing a grid of roads. Instead, a specific region in the south-east of Coimbatore LPA (Local Planning Authority) is chosen which is identified as having significant potential for future development. The reason for this selection is that this region is perceived to have more opportunities for future development. The direction of growth in the area is towards the eastern part of Coimbatore LPA. The decision to focus on these specific villages is likely based on factors such as their current infrastructure, growth potential, population density, and the potential benefits that a grid road system could bring to these areas. The list of villages that can be proposed for grid of roads are shown in table 7.3.

Scope For Development

The selected region is believed to have potential for future development. This could be due to factors such as available land, infrastructure, economic prospects, or urban expansion trend

Conceptual Plan For Grid Roads

A conceptual plan is developed for a grid of roads in the selected region. This grid is designed to connect a total of 25 places, including 21 village panchayats and 4 town panchayats. Some of these places are only partially covered, suggesting that the road network might extend to them in part.

Table 7-3 List of Villaged proposed for grid of roads

S.NO	VILLAGES LIST
1.	Appanayakkanpatti
2.	Bogampatti
3.	Idayaipalayam
4.	Kalangal
5.	Kallapalayam
6.	Kannampalayam (TP)
7.	Pachapalaym(Sulur)
8.	Pappampatti
9.	Pattanam
10.	Peedampalli
11.	Sellakarichal
12.	Arasampalayam

13.	Arisipalayam
14.	Chettipalayam (TP)
15.	Karunchamigoundanpalayam
16.	Kuthiraiyalampalayam
17.	Mailleripalayam
18.	Malumichampatti
19.	Orattulmppai
20.	Othakalmandapam (TP)
21.	Panappatti
22.	Seerapalayam
23.	Solvampalayam
24.	Vadapudur
25.	Vellalur (TP)

Grid Layout

The layout is designed as 2km x 2 km grid. This means that the roads are laid out in the square pattern (majorly) with side of the square being 2 kilometers long. Few roads are not laid within the grid but covering partially to form a grid like pattern due to limitations such as land use and existing building footprints, which are to be preserved . Depending on the intended land use, the suggested road widths are 100 feet. These roads will interconnect with the existing roads, proposed 200-feet ring road and proposed link roads (if passed through), forming a comprehensive network to facilitate improved connectivity and accessibility within the village.

Preservation Of Agricultural Land and Existing Buildings

One critical aspect of the road planning is to ensure that it does not disturb wet agricultural land use or any existing buildings , at least not significantly. This highlights a consideration for environmental preservation and the need to minimize disruption to existing infrastructure.

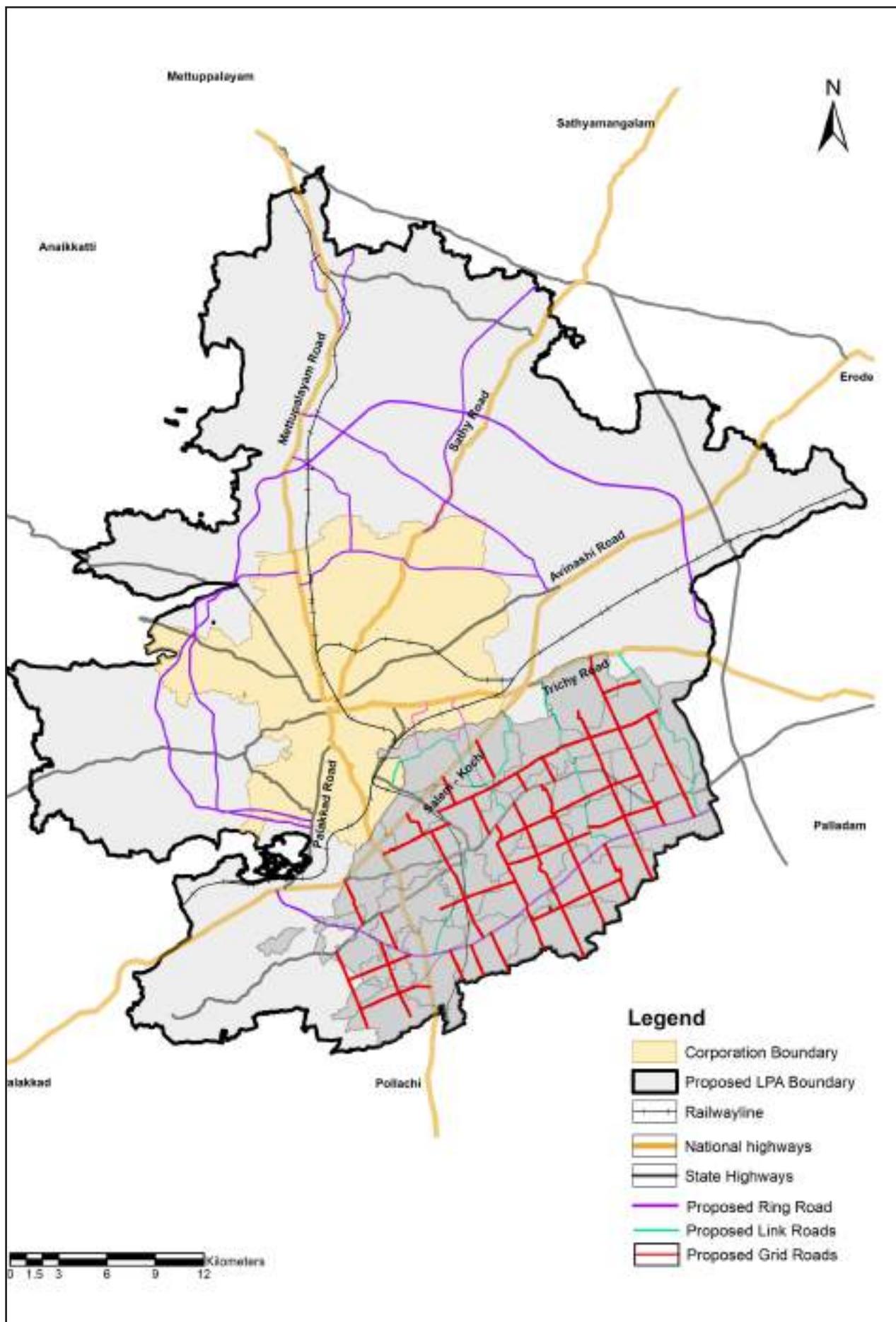
Methodology and Mapping

The planning and design of these grid roads are based on a specific methodology. Additionally, maps are generated using ArcGIS, a Geographic Information System (GIS) software commonly used for mapping and spatial analysis.

Summary

The carefull planning and selection on process for developing a grid of roads in a specific region in the south-east of Coimbatore. This planning considers the region's potential for future development, the need for organized road infrastructure, environmental considerations, and the use of GIS technology for mapping and visualization.

It reflects a systematic approach to urban and regional planning, with a focus on sustainable development and accessibility. This plan is a starting point for further discussions, adjustments, and potential implementation of the grid road network to benefit these specific villages. The proposed road grid for the villages is illustrated in the Map.



Map 7-8 Delineated zone for Grid of Roads

7.8 POLICIES AND STRATEGIES

- Expanding the coverage and capacity of rail and bus transit systems, resulting in greater accessibility and mobility for commuters; eliminating bottlenecks in rail and bus transit networks, such as replacing road / rail level crossings with underpasses / overpasses and installing flyovers at critical road intersections.
- Prioritization of bus transit via the reservation of lanes on major arterial roads and priority at traffic signals, making the transit system affordable to all segments of the commuting population through differential pricing equivalent with the level of service, while also narrowing the gap between the cost of operation and revenue, and nearby public service is served by minibuses.
- Recognizing the energy, economic, and environmental benefits of densifying development near transit hubs, and reshaping land use distribution and disposition accordingly. Conducting a comprehensive transportation study and analysis to determine the adequacy or otherwise of the road and transportation supply in relation to the plan period land use planning.
- In residential streets, footpaths must be at least 1.5 metres long and must be at least 3.0 metres long on main commercial thoroughfares.
- Removing encroachments such as flag-posts, hoardings, hawkers, shops, places of worship, eat-outs, construction materials, vehicle parking, PCOs, telephone boxes, electrical transformers / junction boxes, traffic umbrellas,

waste bins, milk booths, and so on form existing footpaths.

- Defining lengths of road or regions that are entirely for pedestrians and bicycles.
- Providing walkers and cyclists with safe transit across subways.
- Widening essential road linkages and intersections to increase the capacity of the existing road network.
- Fixing the overall throughput of a corridor by phasing in suitable intersection treatment rather than intermittently improving intersections across the road network.
- Upgrade the corridor(s) in accordance with the density of growth along the corridor(s) as multi-modal transport corridors.
- Pedestrian amenities throughout the network, particularly in the key districts.
- Provision of pedestrian subways, pathways, and road furniture along the roads as needed.
- Providing grade separation in the form of flyovers and underpasses on principal, arterial, and other key highways (especially radial and ring roads).
- Putting in place an environmental development management framework and deploying various travel demand management (TDM) methods.
- Creating a uniform institutional framework that encompasses all channels of communication and enforcement as a possible development tool.