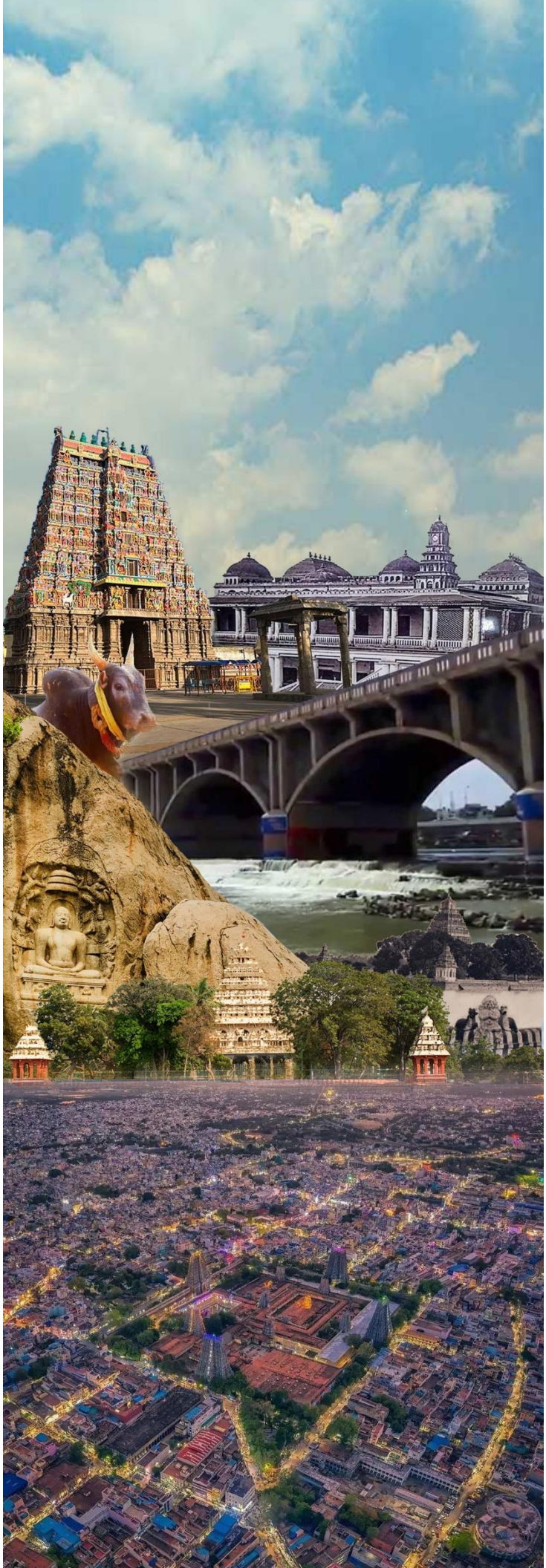
MASTER PLAN
MADURAI LOCAL PLANNING AREA

Year 2041



PREPARED BY:

DTCP, Madurai

MASTER PLAN FOR MADURAI LPA

LPA Reference No. Madurai District Office	:	Roc No: 1251/2015Mathi2
DTCP Reference No	:	Roc No: 14979/2017/TCP1
Master Plan for	:	Madurai Local Planning Area
Madurai Local Planning Area	:	Consented in G.O. (Ms). No. Housing & Urban Development Department Dt:

Member Secretary (I/C)
/Assistant Director
Madurai Local Planning
Authority Madurai District

Assistant Director
Directorate of Town and Country Planning
Chennai

Deputy Director
Directorate of Town and Country Planning
Chennai

Director
Directorate of Town and Country Planning
Chennai

PRINCIPAL SECRETARY TO THE GOVERNMENT
Housing and Urban Development Department
Government of Tamil Nadu

PROFORMA

Name of the Office	:	District Town and Country Planning Office, Madurai District
Name of the LPA	:	Madurai Local Planning Authority

I. PROPOSAL

1. Letter No. and date of DTCP in which proposals submitted to Government:

II. NOTIFICATION

2. The G.O details of Notification Under Section 10(1)	:	G.O. (Ms) No. 832 RD&LA Dt. 29.03.1974
3. The G.O. details which confirmation was ordered under section 10(4)	:	G.O. (Ms) No.1972 RD & LA Dt.03.08.1974
4. The G.O. details of Notification Under section 10(1)(b)	:	G.O. (Ms) 89 H&UD Dt. 29.05.2014
5. The G.O. details which declaration was ordered under MUDA section 2(48)	:	G.O. (Ms) 206 H&UD Dt.23.11.2022
6. The G.O. details which confirmation was ordered under section 10(4)	:	Govt Letter No 12344/UD4(2)/2022-2 Dt.19.05.2023.

III. CONSTITUTION

7. The G.O details in which Madurai appointment of members	:	

IV. CONSENT

8. The G.O details in which the Government Accorded consent Under Section 24(2)	:	

V. PUBLICATION

9. Notification in form No.1 in the Tamil Nadu Government Gazette Under Section 26 :

10. Notification in form No.1 in District Gazette under Section 26(1) :

11. Letter no. and date in which Director of Town and Country Planning has given advice on O&S under Section 26(2) :

12. Resolution no. and date in which the Madurai approved the Draft Master Plan :

VI. APPROVAL

13. Submission of Master Plan to Government for final approval Under Section 28 :

14. The G.O. details in which Government accorded its Approval under Section 28 :

VII. PER PUBLICATION DETAILS OF APPROVAL IN

15. The Tamil Nadu Government Gazette Under Section 30 :

16. The notice board of the Local Body :

17. One or more leading daily Newspaper Circulation in the Madurai Local Planning :

Member Secretary(I/C)
/Assistant Director
Madurai Local Planning Authority
Madurai District

Madurai Local Planning Area Master Plan 2041

CERTIFICATE

It is certified that,

- All the procedures prescribed in the Master Plan are prepared, published and sanctioned.
- The boundary of Madurai 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.
- The numbers found missing are duly acknowledged and verified by the concerned department.

Member Secretary (I/C)
/Assistant Director
Madurai Local Planning Authority
Madurai District

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ABBREVIATIONS

LPA	Local Planning Area
MC	Municipal Corporation
GO	Government Order
DTCP	Directorate of Town and Country Planning
GoTN	Government of Tamil Nadu
RDLA	Department of Rural Development and Land Affairs
CERC	Critical Evaluation Review Committee
URDPFI	Urban and Regional Development Plans Formulation and Implementation Guidelines
AAI	Airport Authority of India
UA	Urban Agglomeration
TNGIS	Tamil Nadu Geographical Information System
NH	National Highway
TDS	Total Dissolved Solids
BHS	Biodiversity Heritage Site
DIC	District Industries Centre
SC	Schedule Caste
ST	Schedule Tribe
GDDP	Gross District Domestic Product
GSDP	Gross State Domestic Product
MT	Metric Tons
GI	Geographical Indication
SIDCO	Small Industries Development Corporations
ELCOT	Electronics Corporation of Tamil Nadu Limited
SEZ	Special Economic Zone
MSME	Micro, Small & Medium Enterprises
MNC	Multinational Corporation
CBD	Central Business District
SH	State Highway
MIBT	Mattuthavani Integrated Bus Terminus
CMP	Comprehensive Mobility Plan
MRT	Mass Rapid Transit
BRTS	Bus Rapid Transit System
MRTS	Mass Rapid Transit System
DPR	Detailed Project Report
ITS	Intelligent Transport System
PCU	Passenger Car Unit
CPHEEO	Central Public Health and Environmental Engineering Organisation
TWAD	The Tamil Nadu Water Supply and Drainage Board

LPCD	liters per capita per day
UGSS	Under Ground Sewerage Schemes
MPS	Main Pumping Stations
SCADA	Supervisory Control and Data Acquisition
MLD	Million Liters per day
STP	Sewage Treatment Plant
C & D Waste	Construction and Demolition Waste
MCC	Material Recovery Facility
PHC	primary health centers
UPHCs	urban primary health centers
NBC	National Building Code
HH	Households
TNHB	Tamil Nadu Housing Board
UN	United Nations
UNSD	United Nations Statistics Division
SDG	Sustainable Development Goal
RSPM	Respirable Suspended Particulate Matter
NAMP	National Air quality Monitoring Programme

1

PREFACE

1.1. Background

The location of human settlements plays a major role in planning. Urbanization refers to the concentration of human populations into discrete areas. A master plan is a dynamic long-term planning document that provides a conceptual layout to guide future growth and development. Master planning is about making the connection between buildings, social settings, and their surrounding environments. This concentration leads to the transformation of land for residential, commercial, industrial and transportation purposes.

The concept of a "master plan" generally refers to a comprehensive and strategic document outlining the long-term vision, goals, and development strategy for a particular project, organization, or area. It serves as a blueprint or roadmap to guide decision-making and actions over an extended period. Master plans are commonly used in various fields, including urban planning, business, education, and government.

A master plan articulates a clear and overarching vision for the future. It outlines what the entity hopes to achieve over an extended period, often spanning several years or even decades. Within the master plan, specific strategic goals and objectives are identified. These goals are designed to align with the overall vision and provide a roadmap for achieving success. Master plans are usually comprehensive, considering various aspects and factors relevant to the entity or project. For example, in urban planning, a master plan may cover land use, transportation, infrastructure, and environmental considerations. A master plan not only sets out goals but also includes strategies for implementation. This may involve specific projects, policies, or initiatives that contribute to achieving the outlined objectives.

1.1.1. Purpose of Master Plan

The Tamil Nadu Town and Country Planning Act of 1971 serves as a pivotal legal framework governing the development and utilization of both rural and urban land within the state. This legislative mandate articulates the comprehensive scope of the Master Plan, empowering it to address a multitude of critical facets concerning land use and development strategies in planning areas. The Master Plan, as per the Act, plays a crucial role in delineating the manner in which land within the planning area should be utilized. It involves the strategic allocation or reservation of land for diverse purposes such as residential, commercial, industrial, and agricultural activities, along with provisions for parks, play-fields, and open spaces.

Furthermore, the Master Plan encompasses the earmarking of land for public buildings, institutions, and civic amenities, and it intricately lays out the framework for national highways, arterial roads, transportation patterns, and other key infrastructural elements. It doesn't merely address the immediate spatial requirements but extends its purview to incorporate futuristic considerations. This includes provisions for future development, the enhancement of poorly laid-out or outdated areas, and the redevelopment of slum areas.

In alignment with the URDPFI 2015 guideline, the Master Plan is not merely a static document, but a dynamic blueprint designed to evolve over a period of 20-30 years, structured in phased intervals of 5 years to facilitate regular reviews. The development plan, in essence, serves as a detailed response, offering strategies and tangible proposals that align with policies outlined in both the perspective and regional plans. Additionally, it undertakes the crucial task of identifying and safeguarding areas of ecological significance, preserving natural landscapes, and protecting features, structures, or sites with historical, architectural, scientific, and environmental value. The multifaceted nature of the Master Plan thus underscores its pivotal role in shaping sustainable and balanced urban and rural landscapes within the state.

1.2. Need for the Master Plan

Urban areas in Tamil Nadu, like elsewhere, have undergone substantial growth in size and complexity over recent decades, rendering them challenging to manage. Consequently, there is an increasing need for a strategic mechanism to inclusively plan, regulate, and control the expansion and development of these urban spaces. The environmental impact of such development demands meticulous examination. The Town and Country Planning Act of 1971 addresses these challenges, emphasizing the formulation and execution of Master Plans to foster safe, healthy, and sustainable development in urban areas.

Madurai, with its profound history and cultural significance, stands as a major hub for the secondary and tertiary sectors. This unique combination of secondary and tertiary sector defines a responsible approach for the evolving urban landscape. It is crucial to ensure that Madurai's growth aligns with sustainable practices and coexists harmoniously with the surrounding districts.

1.3. Master Plan for Madurai LPA

The Directorate of Town & Country Planning (DTCP), operating under the aegis of the Government of Tamil Nadu (GoTN), has embarked on the ambitious initiative of formulating a Master Plan for Madurai Local Planning Area (LPA), along with several other towns across the state.

The genesis of Madurai's corporation area being designated as an LPA under section 10(1) of the Tamil Nadu Town and Country Planning Act, 1971, transpired through a directive issued by the Department of Rural Development and Land Affairs (RDLA), Government of Tamil Nadu. This proclamation, articulated in G.O. Ms. 832 RDLA on 29th March 1974, was subsequently confirmed under section 10(4) of the aforementioned Act via G.O. Ms. No. 1782 RDLA dated 3rd August 1974. The formal constitution of Madurai LPA followed under section 11(1) of the Town and Country Planning Act in G.O. Ms. No.1138 RDLA on 7th June 1976.

1.3.1. Master Plan area 1991 and 2021

The strategic decision to expand the Madurai Local Planning Area includes 357 villages, with the objective of regulating and directing development in Madurai and its surrounding villages, materialized through G.O.(Ms). No. 89 dated 29th May 2014. This governmental directive, issued under section 10(1) of the Tamil Nadu Town and Country Planning Act, 1971, emanated from the Housing and Urban Development Department, Government of Tamil Nadu. The inclusion of these additional areas into the Madurai LPA was formally affirmed under section 2(48) of the Town and Country Planning Act by G.O. (Ms). No. 206 on 23rd November 2022, issued by the Housing and Urban Development Department.

Figure 1-1 **Present Local Planning Area, Madurai**

1.4. Process of Master Plan preparation 2041

The Directorate of Town & Country Planning (DTCP) under the Government of Tamil Nadu (Go TN) has initiated the development of a Master Plan for Madurai Local Planning Area (LPA), in conjunction with several other towns across the state. The following was the process followed in preparation of the Draft Master Plan.

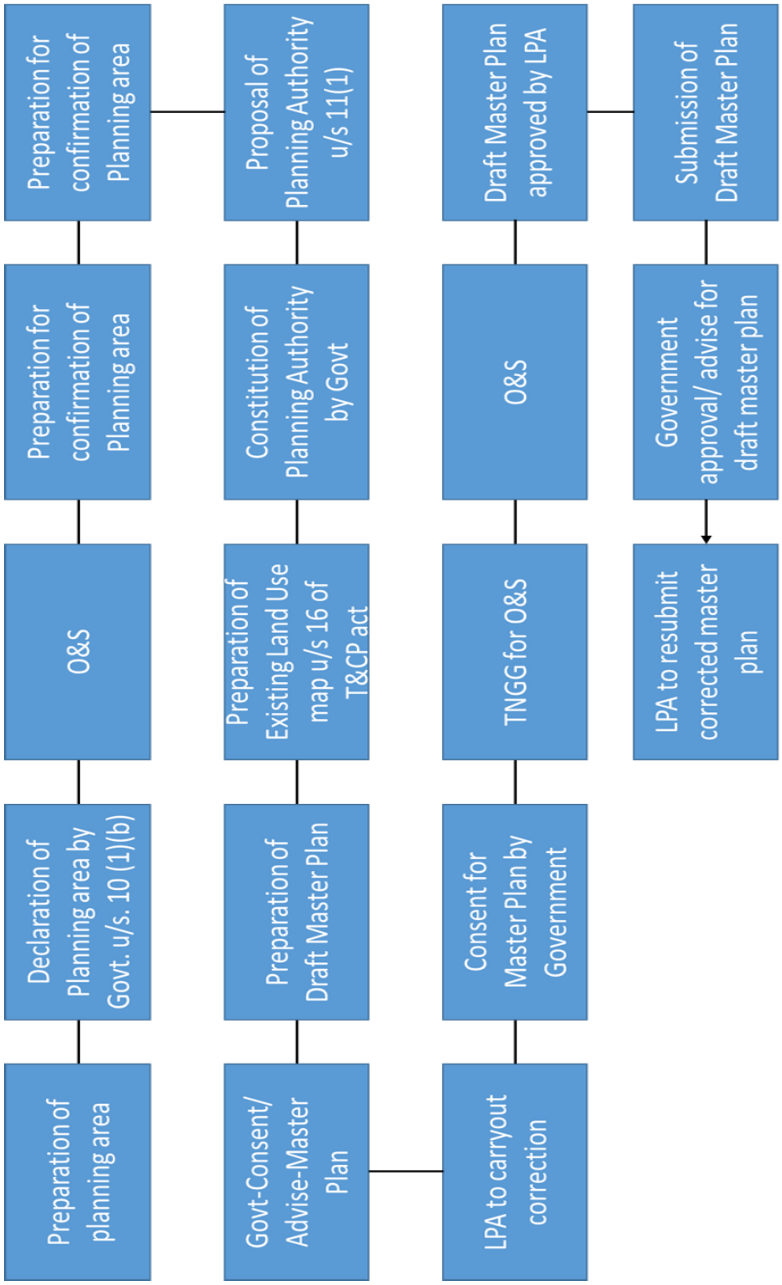


Figure 1-2 Methodology for preparing a Master Plan

1.5. Report Structure

Chapter Name	Description
CHAPTER 1: PREFACE	The Preface sets the stage for the Master Plan, providing an introduction to the planning process, its objectives, and the historical context of the area's development.
CHAPTER 2: PROFILE & INTRODUCTION	This chapter offers an overview of the Master Plan, outlining its scope, objectives, and delving into the historical evolution of the planning area.
CHAPTER 3: PHYSICAL FEATURES AND NATURAL RESOURCE	Here, the physical characteristics, topography, and natural resources of the region are explored, along with an inventory of the area's flora and fauna.
CHAPTER 4: LAND PROFILE	An exploration of land use patterns, classifications, ownership, and tenure systems is undertaken in this chapter.
CHAPTER 5: DEMOGRAPHY	The Demographic Profile chapter focuses on population trends, distribution, and migration patterns, providing insights into the social fabric of the planning area.
CHAPTER 6: ECONOMY	This chapter delves into the economic landscape, analysing key sectors, employment patterns, and contributors to the local economy.
CHAPTER 7: TRAFFIC & TRANSPORTATION	This chapter addresses transportation networks, connectivity, and traffic patterns, crucial for understanding the mobility dynamics in the planning area.

Chapter Name	Description
CHAPTER 8: PHYSICAL INFRASTRUCTURE	An analysis of existing infrastructure and utilities is provided, along with an examination of gaps and areas for improvement.
CHAPTER 9: SOCIAL INFRASTRUCTURE	Educational institutions, healthcare facilities, and community centres are highlighted in this chapter, along with an overview of social amenities and public services
CHAPTER 10: HOUSING	This chapter focuses on housing stock, distribution, affordability, and quality, providing a comprehensive understanding of housing in the planning area.
CHAPTER 11: HERITAGE & TOURISM	The historical landmarks and cultural heritage of the planning area are showcased in this chapter, along with initiatives for preservation and promotion.
CHAPTER 12: ENVIRONMENT	Environmental concerns and conservation efforts are explored in this chapter, emphasizing climate change resilience and sustainable practices
CHAPTER 13: PROJECTED REQUIREMENTS	Anticipated future needs and demands, as well as projections for infrastructure and services, are explored in this chapter.
CHAPTER 14: PROPOSALS	Additional recommendations and innovative ideas, along with collaborative initiatives with stakeholders, are presented in this chapter.

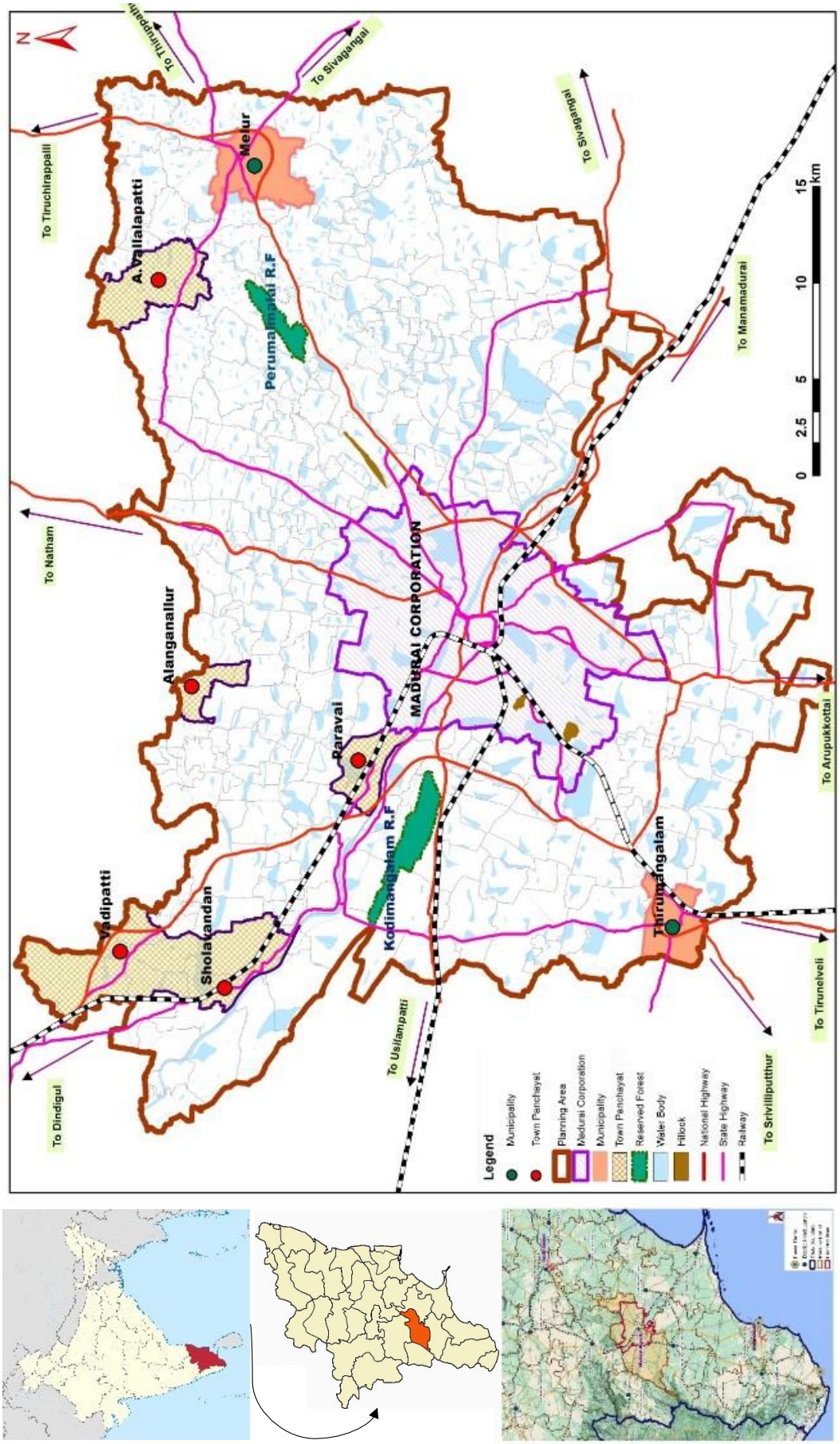
2

Profile & Introduction

2.1. Location and Regional Setting

Madurai is a historic city located in the southern part of India. It is situated in the state of Tamil Nadu. Madurai is the third largest city in Tamil Nadu located on the banks of river Vaigai. The geographical co-ordinate of Madurai is Latitude: 9.9252° N Longitude: 78.1198° E. It is the cultural capital of Tamil Nadu and the administrative headquarters of Madurai District.

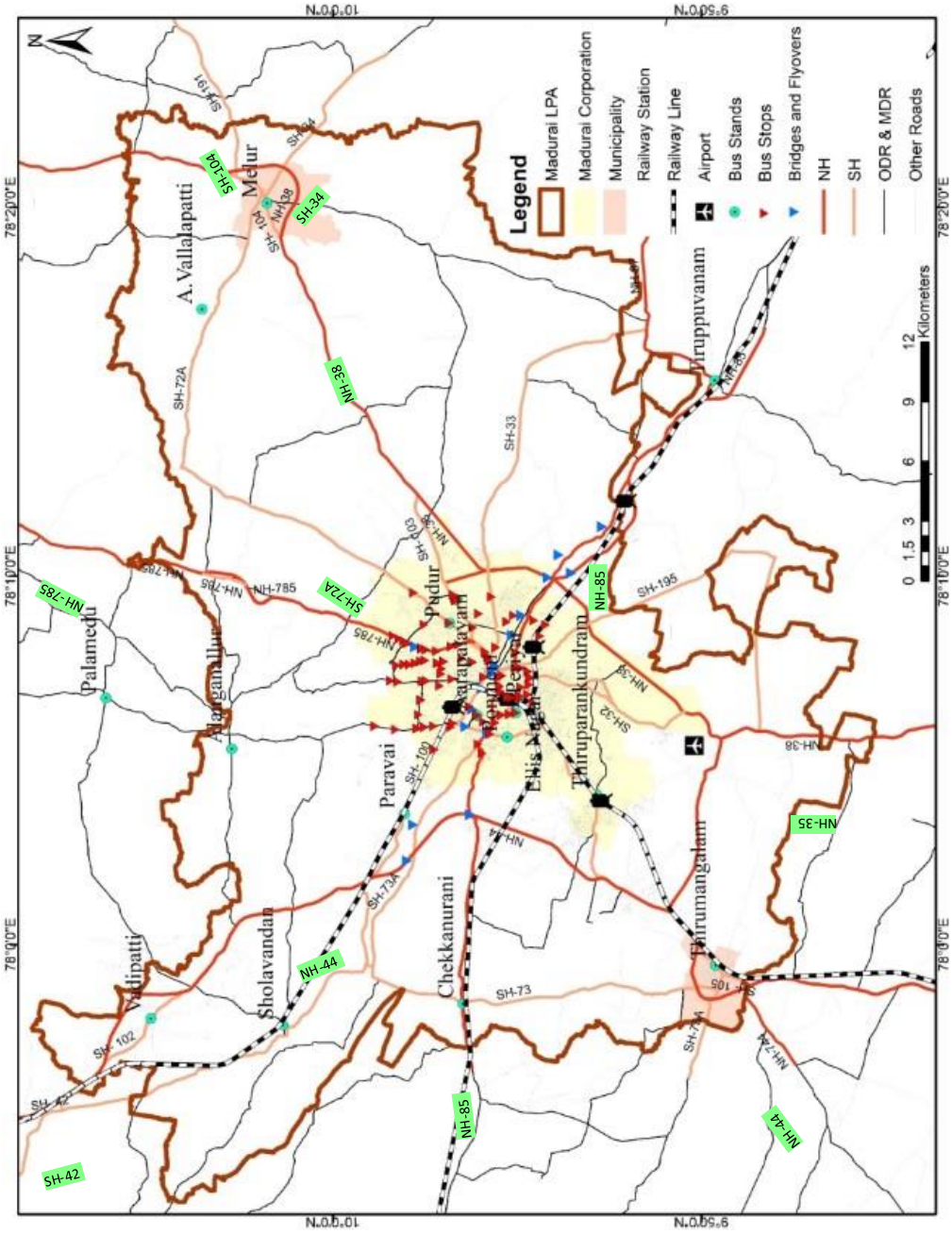
It has been a major settlement for two millennia and one of the oldest continuously inhabited cities in the world and has a documented history of more than 2500 years. Madurai is also often referred to as "Thoonga Nagaram", meaning "the city that never sleeps". The city has a number of historical monuments, with the Koodal Azhagar temple, Meenakshi Temple and the Thirumalai Nayakkar Mahal being the most prominent and the city has been a center of learning and trade and has played a significant role in the cultural and historical development of the Tamil region. Madurai is linked by rail, road, and air to all major cities of the State and Country.



Map 2-1 Madurai LPA Base Map

2.2.Transport Network & Connectivity

Madurai, often referred to as the "Athens of the East," stands out not only for its rich cultural heritage but also for its well-connected transportation network that facilitates easy access to and from the city.



Map 2-2 Madurai transport network

2.2.1. Roadways

The city's strategic location is augmented by a network of national and state highways, making it a crucial hub for transportation in the southern part of India.

The prominent national highways passing through Madurai include NH 7, NH 45B, NH 208, and NH 49. These highways serve as vital arteries, linking Madurai to major cities across the country. NH 7, in particular, is a significant route that connects Madurai to Varanasi in the north and Kanyakumari in the south, ensuring seamless connectivity for both trade and tourism. The presence of multiple national highways not only enhances Madurai's accessibility but also contributes to its economic significance as a trade and commerce center.

Within the city, the state highway network plays a crucial role in connecting different parts of the Madurai district. State highways such as SH-32, SH-33, and SH-72 weave through the city, providing essential links to the surrounding areas. Madurai, functioning as one of the seven circles in the Tamil Nadu State Highway network, underscores its importance in the state's overall transportation infrastructure.

The city serves as the headquarters of the Tamil Nadu State Transport Corporation (Madurai), a key player in the realm of local and inter-city bus transport. The corporation oversees transportation across four districts: Madurai, Dindigul, Theni, and Virudhunagar. This extensive reach highlights Madurai's pivotal role in connecting not just within the city but also to the neighboring regions.

Madurai boasts four major bus stands, each playing a crucial role in facilitating convenient public transportation. The Mattuthavani Integrated Bus Terminus (MIBT) stands as a flagship facility, offering a centralized point for various bus services. Arappalayam, Palanganatham, and Periyar Bus Stand further contribute to the efficiency of the city's public transportation system. These bus stands ensure that residents and visitors alike can easily navigate the city and its outskirts, promoting a well-integrated and accessible transport system.

2.2.2. Airways

Madurai has an international airport (IXM) that connects the city to various domestic and international destinations. The airport has regular flights to major cities in India as well as to select international destinations. The airport is located about 12 kilometers (7.5 miles) southwest of Madurai city center. Madurai Airport has both domestic and international terminals. The international terminal handles flights to destinations outside of India. The airport provides basic facilities such as lounges, duty-free shops, currency exchange, and other passenger services. Several airlines operate from Madurai International Airport, connecting the city to domestic and international destinations. Madurai Airport is well-connected by road to the city center, and various transportation options, including taxis and rental cars, are available for travelers. The airport serves as a gateway for tourists visiting the historic and cultural attractions in and around Madurai.

Figure 2-1 Madurai Airport

Source: AAI, 2023

2.2.3. Railways:

It is well-connected to major cities across the country through an extensive railway network. Trains connect Madurai to cities like Chennai, Mumbai, Delhi, Kolkata, and many others. Madurai Junction serves as a crucial railway junction in southern Tamil Nadu, constituting a separate division within the Southern Railway zone.

The station plays a pivotal role in connecting Madurai with various important cities in the region and across India. There are direct train services from Madurai to key cities in Tamil Nadu, including Chennai, Coimbatore, Kanyakumari, Tiruchirappalli, Tirunelveli, Karaikudi, Mayiladuthurai, Rameswaram, Thanjavur, Tiruttani, Tirupathi, and Virudhachalam. Madurai enjoys extensive rail connectivity, linking it with major cities and towns across the country. The railway network facilitates efficient transportation to and from Madurai, contributing to its importance as a transportation hub in the southern part of India. In 2011, the state government announced plans for the Madurai Monorail. However, as of 2020, the monorail project remains in the planning stages, and further developments are awaited. The existing railway infrastructure continues to play a crucial role in meeting the transportation needs of the city and enhancing its connectivity with the broader rail network in India.

Figure 2-2 **Madurai Railway Station**

Madurai Junction is an important railway junction in southern Tamil Nadu and constitutes a separate Division of the Southern Railway. It is the second largest

revenue division in Southern railway next to the Chennai division. There are direct trains from Madurai connecting important cities in India like Chennai, Mumbai, New Delhi, Bangalore, Jaipur, Hyderabad, Visakhapatnam, Trivandrum, Coimbatore, Kollam, Kanyakumari, Trichy, Tirunelveli, Rameswaram, Thanjavur, Vijayawada, Kolkata, Nagpur and Bhopal. Madurai has rail connectivity with important cities and towns across India. The Broad & Meter gauge lines that connect Madurai as follows.

- Madurai – Thirunelveli; Madurai – Dindigul
- Madurai – Rameswaram and Madurai – Bodinayakkanur
- Karur – Madurai and Madurai Tuticorin Broad gauge lines

The Railway Stations that is available in the planning area as follows

1. Madurai – Madras (Broad Gauge) line with stations at Palam, Paravai, Samayanallur and Sholavanthan.
2. Madurai – Tirunelveli (Broad Gauge) line with stations at Pasumalai, Thiruparankundram, Kappalaur and Thirumangalam.
3. Madurai – Rameswaram (Meter Gauge) line with stations at East Madurai and Silaiman.
4. Madurai – Bodinayakkanur line with stations at Vadivelikarai.

2.3.History of Madurai

Madurai, an ancient city with a rich and diverse history, unfolds a narrative that spans centuries, blending cultural, religious, and political dynamics. This historical journey begins in the mists of antiquity, resonating through the Sangam Age, medieval periods, colonial influences, and post-independence growth.

Ancient Period:

Madurai's historical roots delve deep into the annals of time, reaching back to the 3rd century BCE. According to legend, the city was built by Kulasekara Pandya, a ruler of the Pandyan dynasty, in the 6th century BCE. The city's association with the Pandya dynasty is evident in ancient Tamil literature, including Kautilya's Arthashastra, which mentions Madurai's prominence. Sangam literature, such as Maturaikkanci, further records Madurai's importance as a capital city during this ancient period.

Sangam Age (3rd Century BCE to 4th Century CE):

Madurai reached its cultural zenith during the Sangam Age, spanning from the 3rd century BCE to the 4th century CE. The Koodal Azhagar temple, centrally located, finds mention in Sangam literature such as Madurai Kanchi, Paripāṭal, Kaliththokai, and Silappatikaram. Madurai served as a vibrant center for Tamil literature during this era, hosting the Sangam, an assembly of Tamil scholars. The Thiruvonam festival celebrated at the Koodal Azhagar temple is detailed in Madurai Kanchi, offering insights into the religious and cultural practices of the time. The temple's reverence continued through the Nalayira Divya Prabhandam, the Vaishnava canon from the 5th to the 9th century, showcasing its enduring spiritual significance.

Post-Sangam Age (12th to 13th Century):

The city witnessed geopolitical shifts during the 12th century as it became a battleground between the Cholas and Pandyas, changing hands multiple times. The struggle for control persisted until the early 13th century when the second Pandiyan empire was established, with Madurai as its capital. This marked a transition into the medieval period, during which Madurai became the capital of the Pandya dynasty.

Medieval Period:

Madurai flourished as the capital of the Pandya dynasty during the medieval period. The Nayak dynasty, especially under Viswanatha Nayak (1529–64 CE), played a pivotal role in shaping the city's cultural and architectural landscape. The city reached its zenith during the 16th and 17th centuries under Nayak rule. Viswanatha Nayak, in particular, contributed to the city's aesthetic development, evidenced by the redesign and urban planning adhering to the principles outlined in the Shilpa Shastras.

Colonial Period (Late 18th Century):

Madurai's historical narrative takes a significant turn with the onset of the colonial period. European powers, including the Portuguese and Dutch, left their mark on the city. However, the most influential force was the British East India Company, which established control over Madurai in the late 18th century. By 1801, the city came under the direct governance of the British East India Company and was annexed to the Madras Presidency. British involvement extended beyond governance, as they participated in Hindu festivals and made donations to the Meenakshi temple, showcasing a unique fusion of colonial influence with traditional cultural practices.

Urban Planning and Transformation (16th Century Onwards):

The reign of Viswanatha Nayak witnessed a redesign of the city, aligning with the principles of the Shilpa Shastras. This urban transformation resulted in a cityscape organized around the central temples, reflecting aesthetic and religious considerations. The city's streets, organized in quadrangular patterns, retained traditional names corresponding to Tamil month names. The concentric layout of streets and the Meenakshi temple precincts, known as prakarams, became central to a vibrant festival calendar, emphasizing the intertwining of urban layout and cultural heritage.

Thirumalai Nayak (1623–1659) and 19th Century Urbanization:

Thirumalai Nayak, a significant figure during Nayak rule, contributed immensely to the city's development. He constructed the Nayak Palace in 1636 with the assistance of an Italian architect, leaving behind architectural marvels such as the Raja Gopuram of the Meenakshi Amman Temple and the Thirumalai Nayakar's Palace.

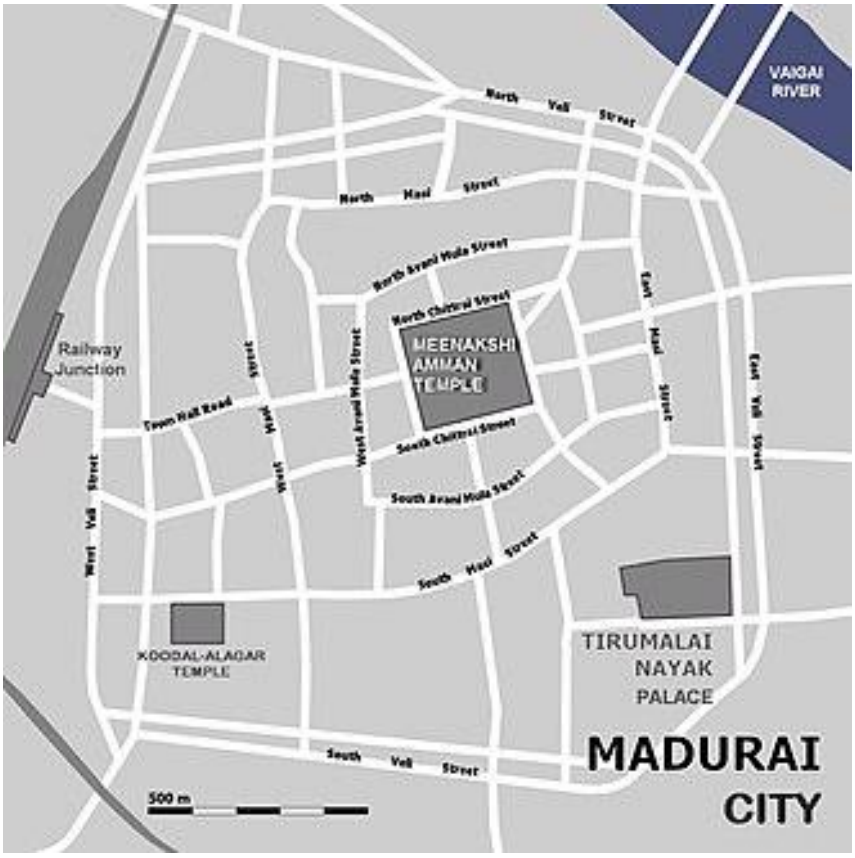


Figure 2-3 **Concentric Development around Meenakshi Amman Temple**

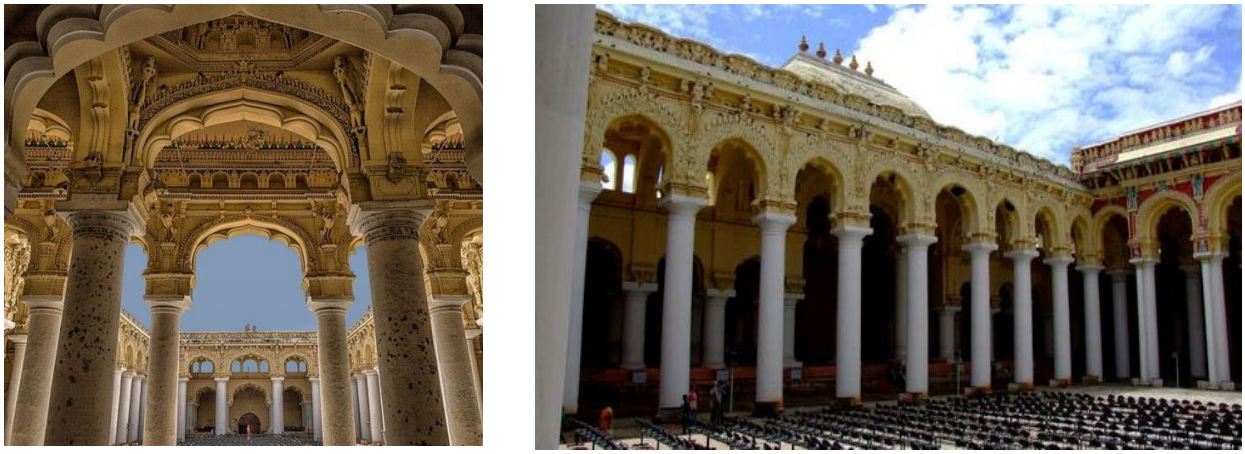


Figure 2-4 **Thirumalai Nayak Mahal**

During the 19th century, Madurai evolved into the headquarters of a colonial political complex and an industrial town. This era witnessed increased urbanization and a shift in social hierarchies.

Figure 2-5 **Madurai, Pre-independence**

Source: oldindianphotos

Post-Independence and Contemporary Period:

After India gained independence in 1947, Madurai became part of the newly formed state of Tamil Nadu in 1950. The city continued to grow and modernize, becoming a hub for trade, commerce, and education. Madurai's history remains deeply intertwined with cultural, religious, and political developments in South India. The Meenakshi Temple, along with other historical monuments, stands as a testament to the city's rich and enduring heritage.

Madurai district was later bifurcated into Madurai and Dindigul in 1985 and further Madurai and Theni districts in 1996 and retained Madurai as its headquarters. The district lies between 770 00" and 780 30" of the eastern longitude and between 90 30" and 100 30" of the northern latitude. It has an area of 3741.73 Sq. Km and is bounded on the west by Theni district, on the north by Dindigul district, on the east by Sivagangai district and on the south by Virudhunagar district. The district has got 2 revenue divisions, 6 municipalities, 11 blocks and 7 taluks respectively.

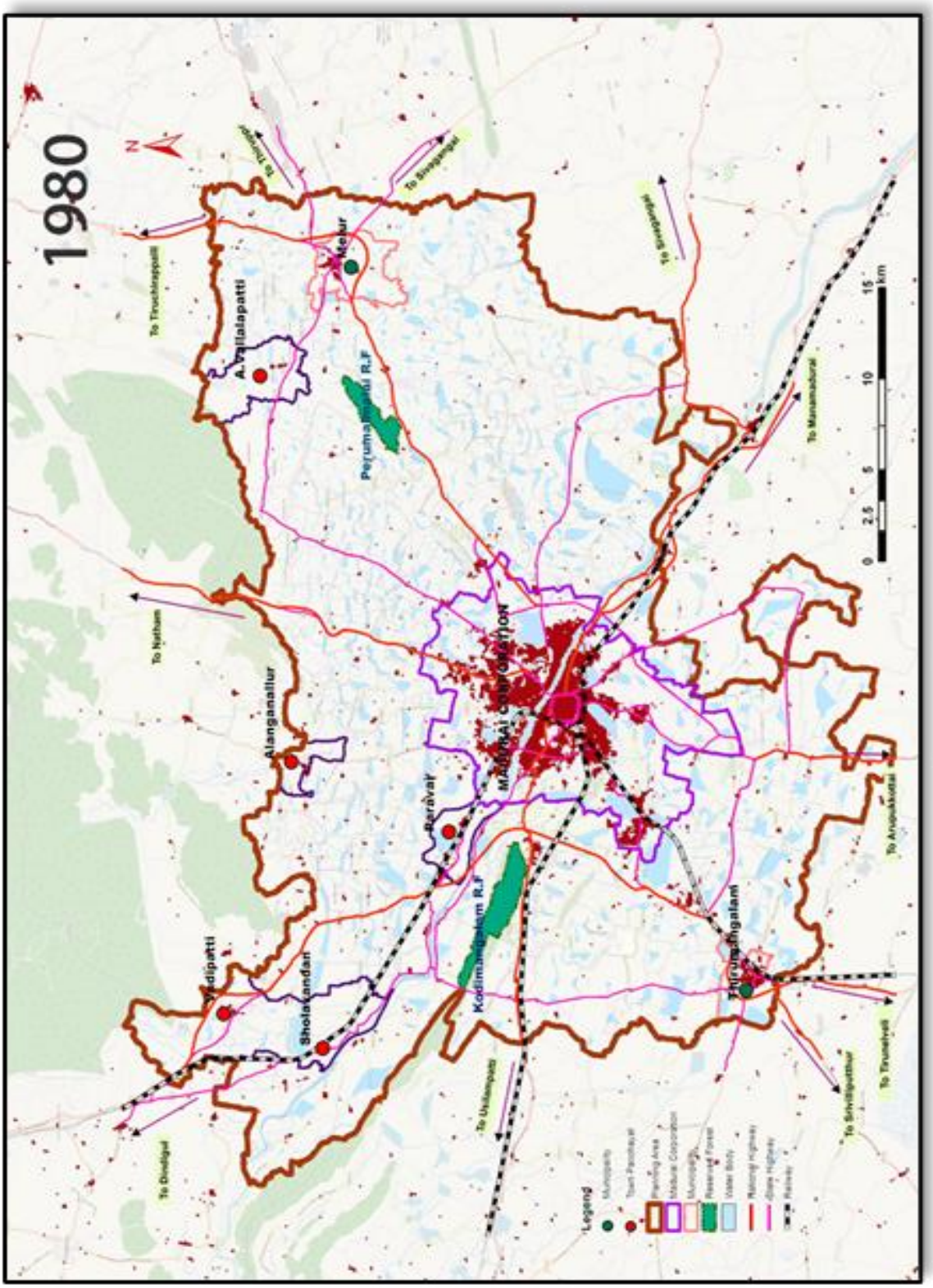
Academic Significance and Growth:

Madurai has been an academic center for Tamil culture, literature, art, music, and dance for centuries. The American College, established in 1881 by American Christian Missionaries, stands as the oldest college in Madurai. The city's growth pattern, influenced by major temples, reflects its cultural and religious significance.

2.3.1. History and Development

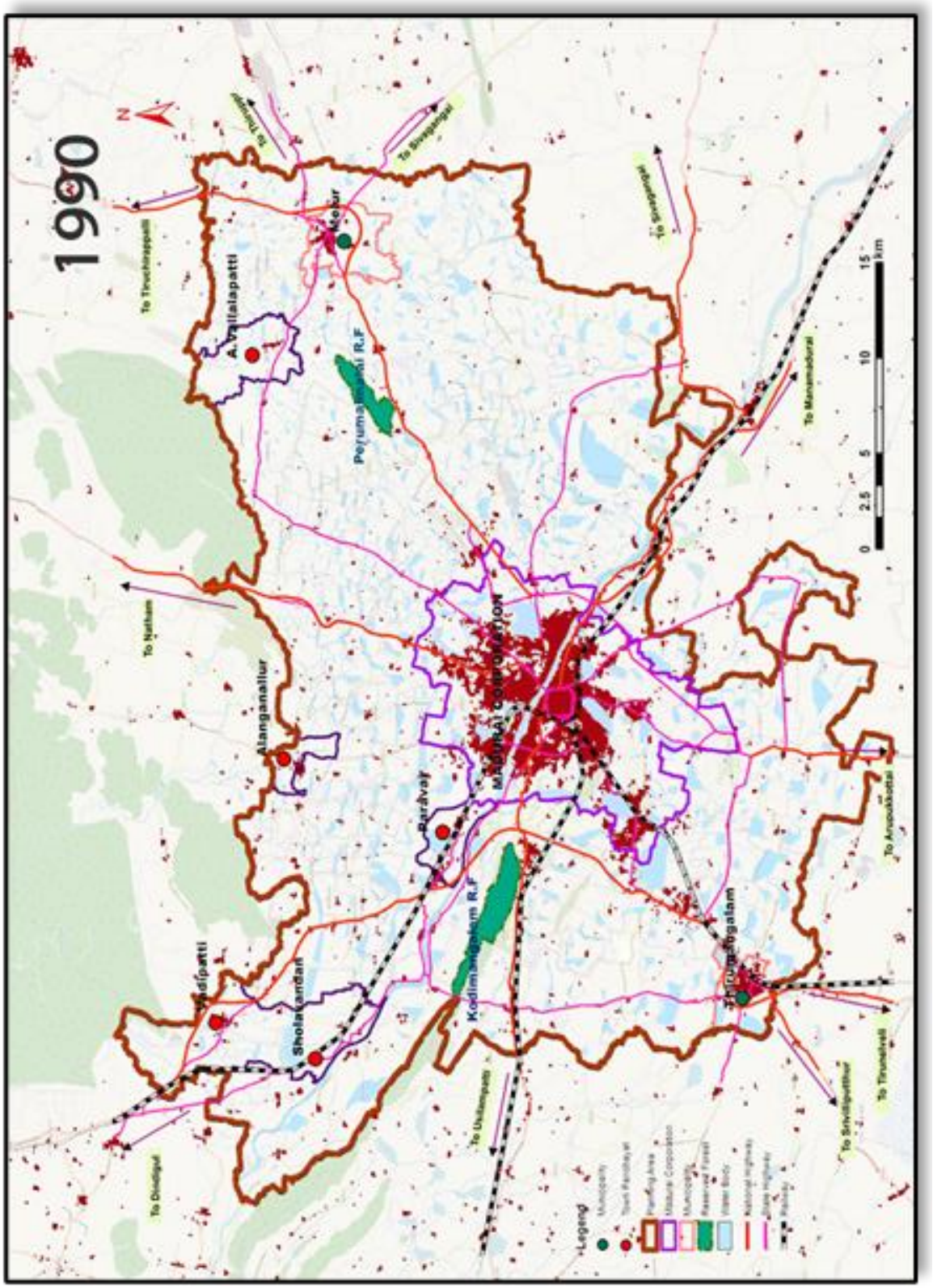
The city developed around the Meenakshi temple on the southern banks of the Vaigai river, but later with the establishment of government offices and other institutional buildings, areas adjacent to the northern side of the river gained prominence. However, the core of the city is still the commercial hub and has high residential density (more than 1,000 persons per ha) which further increases during religious festivals due to floating population. The spatial expansion of Madurai has taken place along the major transportation corridors (railway line, two national highways, and seven major district roads) in a radial pattern.

At present, the growth pattern of Madurai is radial along the historical temple, and it is taking place mainly along the transport corridors. The driving force for growth is primarily the location of important temples. The Major Growth Towards Melur and South- west, Corporation developed towards Natham and Alagar kovil.



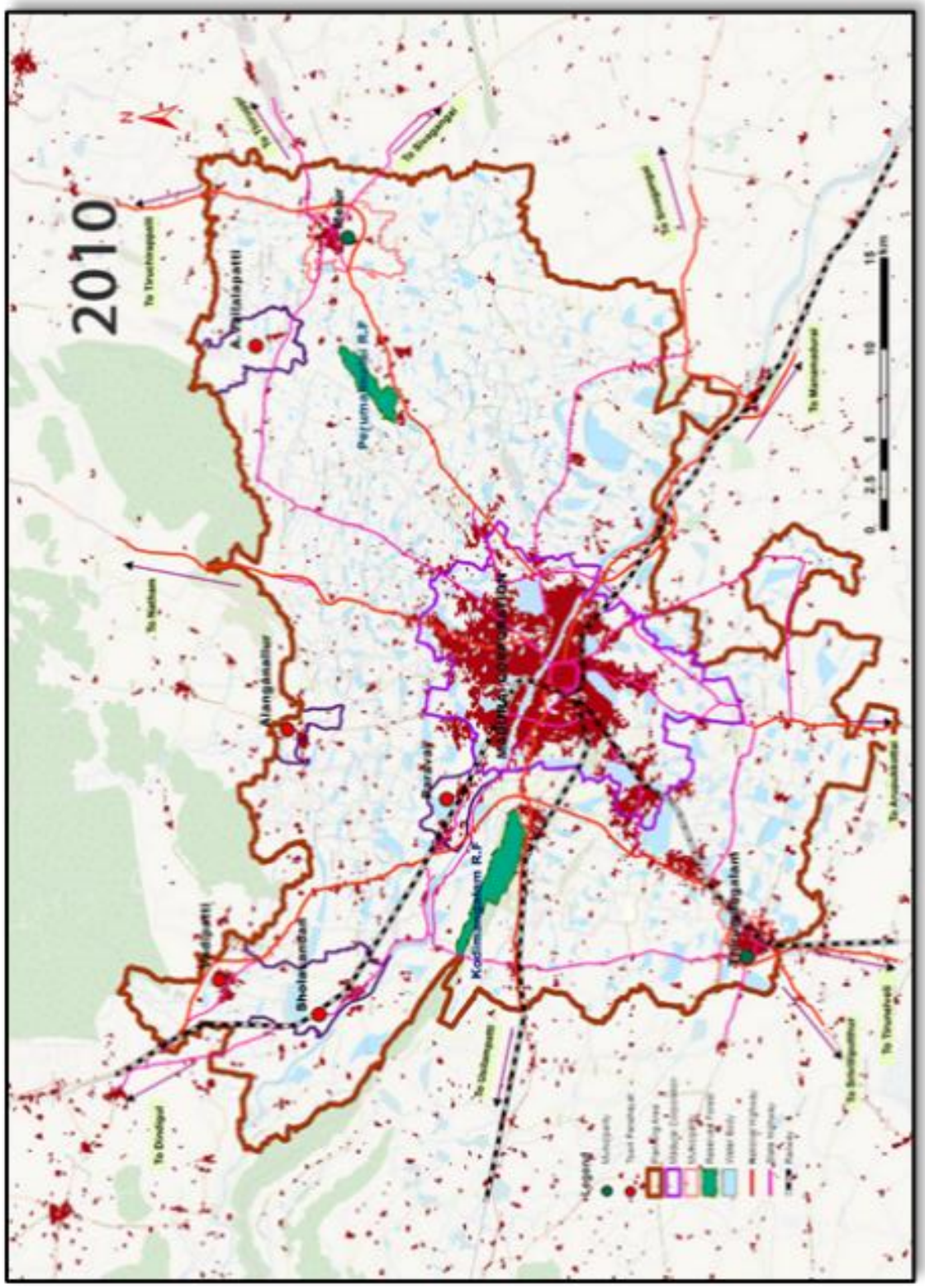
Source: UGSS

Figure 2-6 Build-up area, 1980



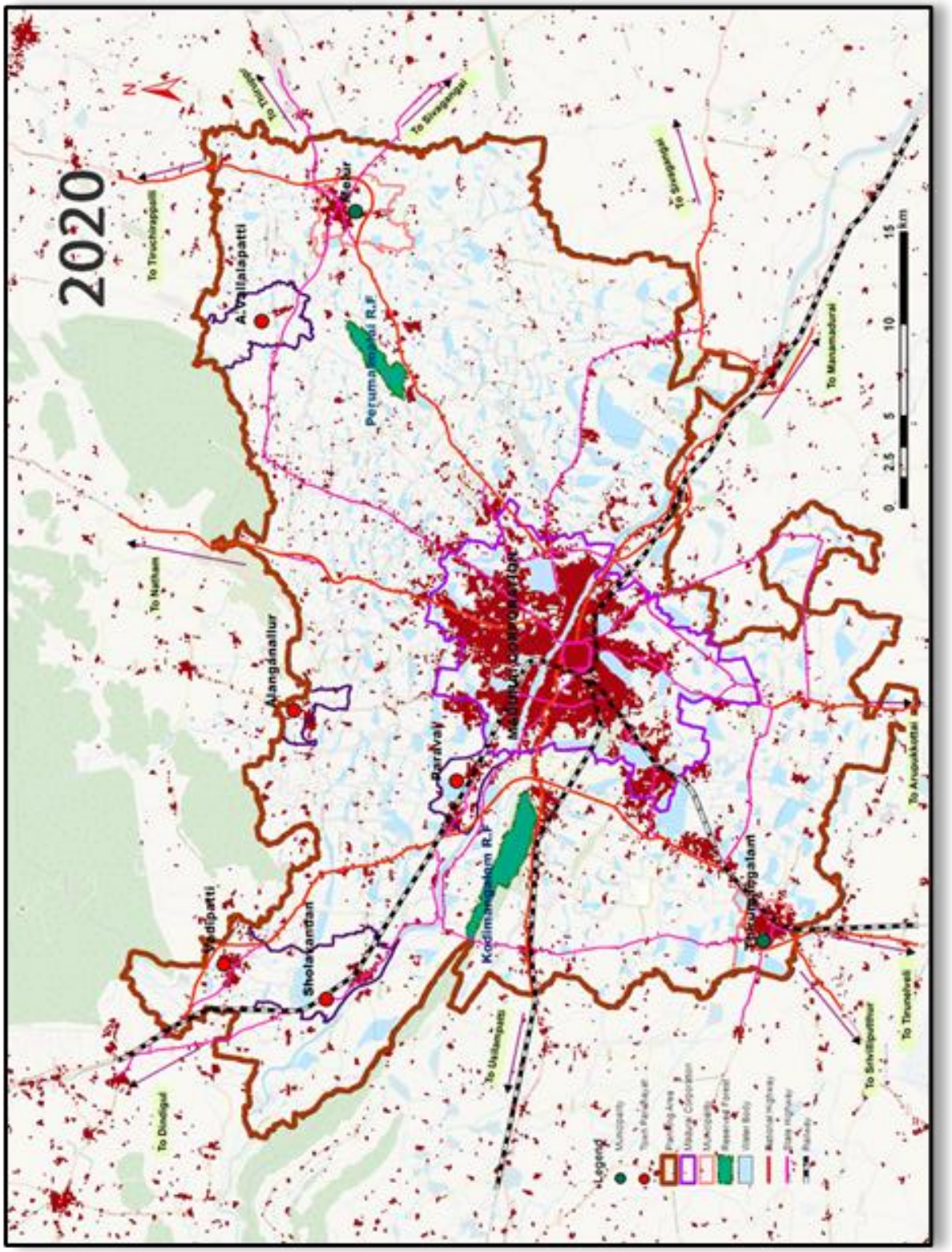
Source: UGSS

Figure 2-7 Build-up area, 1990



Source: UGSS

Figure 2-8 Build-up area, 2010



Source: UGSS

Figure 2-9 Build-up area, 2020

Madurai City is the dominant City and is connected to the nearby towns by roadsradiating from it. The roads radiating from Madurai city are Natham Road, Alagarkoil Road,Melur Road, Sivaganga Road, Thirupuvanam Road, Nedungulam Road, Arupukkottai Road, Thirumangalam Road, Theni Road and Dindigul Road. The nearby small towns in LPA thatare developing and likely to become satellite towns are Thiruparangundram, Avaniyapuram,Anaiyoor Thirumangalam, Thirupuvanam and Melur.

Major development activities are noticed towards the Northern side within Corporation limits, along Algarkovil road and Pudur/Melur road, In the southern side, low intensity development is noticed along Theni Road, and areas beyond the Bypass Road, and also along Thiyagaraya Engineering College Road.

Major development activities are noticed towards the Northern side within Corporation limits, along Algarkovil road and Pudur/Mellur road, attributed to the development of High Court and Mattuthavani Bus Stand new market and residential development is noticed along Mellur road and along Natham Road. In the southern side, low intensity development is noticed along Theni Road, and areas beyond the Bypass Road, and the road to Thiyagaraya Engineering College. A newly developing commercial area is noticed, in the north central areas, along the Algarkovil Road.

2.3.2. Administrative Setup

The Madurai Local Planning Area features four revenue divisions—Madurai, Thirumangalam, Melur, and Usilampatti (Table 2-1). Within this framework, the LPA incorporates nine Panchayat Unions, namely Madurai East, Madurai West, Thiruparankundram, Thirumangalam, Melur, Vadipatti, Alanganallur, Chellampatti, and Kottampatti. These Panchayat Unions are further subdivided into 172 village panchayats. Additionally, the LPA encompasses nine taluks: Madurai East, Madurai West, Madurai North, Madurai South, Thiruparankundram, Thirumangalam, Melur, Vadipatti, and Usilampatti, comprising 357 revenue villages. The urban fabric of the LPA includes Madurai Corporation, two municipalities—Thirumangalam and Melur, and five town panchayats—Paravai, A. Vellalapatti, Alanganallur, Sholavandan, and Vadipatti.gives a detailed distribution of corporation, municipality, town panchayats, and village panchayats in panchayat unions.

Table 2-1 Administrative Units in Madurai LPA

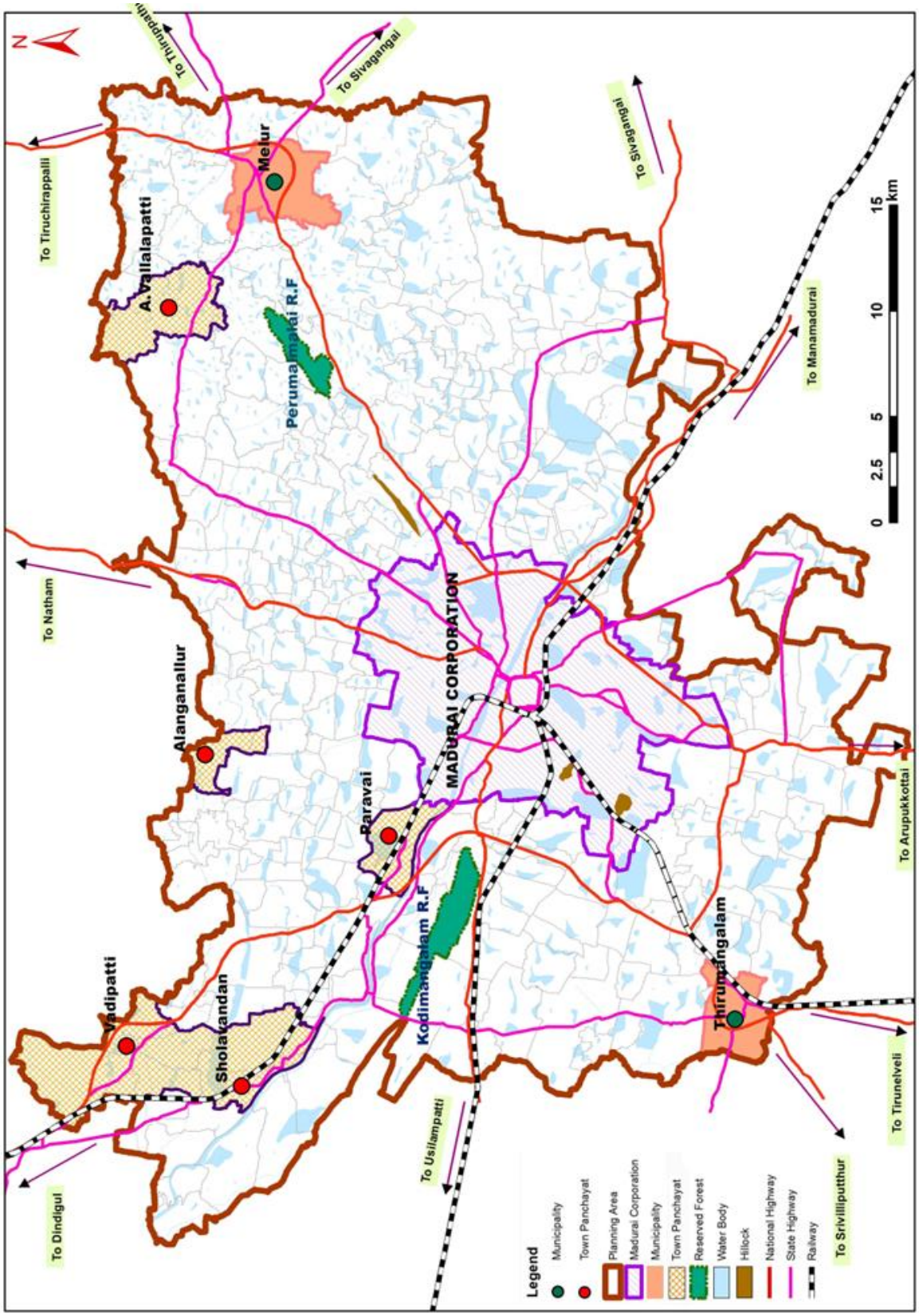
Unit	Madurai LPA
Revenue Division	4
Taluk	9
Revenue Village	357
Panchayat Union/ Blocks	9
Town Panchayats	5
Village Panchayats	172
Municipal Corporation	1
Municipalities	2

Source: Census 2011

Table 2-2 Distribution of Panchayat Union in Madurai LPA

Panchayat Union Block	Corporation	Municipality	Town Panchayat	Village Panchayat
Alanganallur			1	15
Chellampatti				1
Kottampatti				3
Madurai East				36
Madurai West			1	29
Melur		1	1	22
Tirumangalam		1		12
Tirupparangundram				38
Vadipatti			2	16
Madurai Corporation	1			
Total	1	2	5	172

Source: Census 2011



Map 2-3 Administrative Setup, Madurai LPA

2.3.3. Evolution of Corporation

The Madurai municipality was established on November 1, 1866, in accordance with the Town Improvement Act of 1865. In the early years of independent India, the municipality was significantly influenced by reformists affiliated with the Indian National Congress.

On May 1, 1971, Madurai was elevated to the status of a municipal corporation under the Madurai City Municipal Corporation Act, 1971. Remarkably, it is the second oldest municipal corporation in Tamil Nadu, preceded only by Chennai. The Madurai Corporation initially comprised 72 wards and has been subsequently extended to include 100 wards within the city. The municipal administration is organized into departments covering various aspects of governance, with the Municipal Commissioner serving as the supreme executive head. Madurai Local Planning area herein referred as Planning Area. The existing master plan area comprises of corporation, Municipalities, Town panchayats and revenue village panchayats.

The legislative body is headed by an elected Mayor, assisted by a Deputy Mayor. Before 2010, Madurai city was part of Madurai Urban Agglomeration (UA) that comprised one municipal corporation, three municipalities, six census towns and four town panchayats. The jurisdiction of MMC expanded in 2010 to include all constituents of Madurai UA except Paravai town panchayat and Nilaiyur census town. The MMC area increased in 2010 from 51.82 sq. km to 147.99 sq. km, with a corresponding increase in the number of wards from 72 to 100, divided into five regions: zones I, II, III, IV and V.

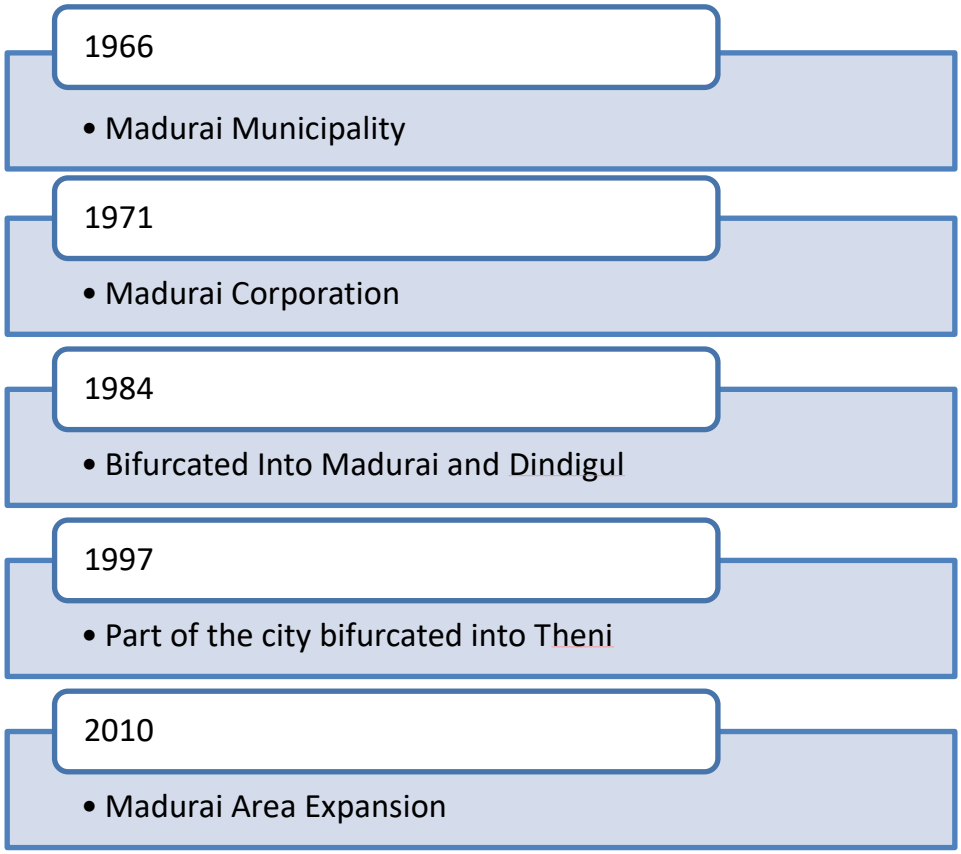
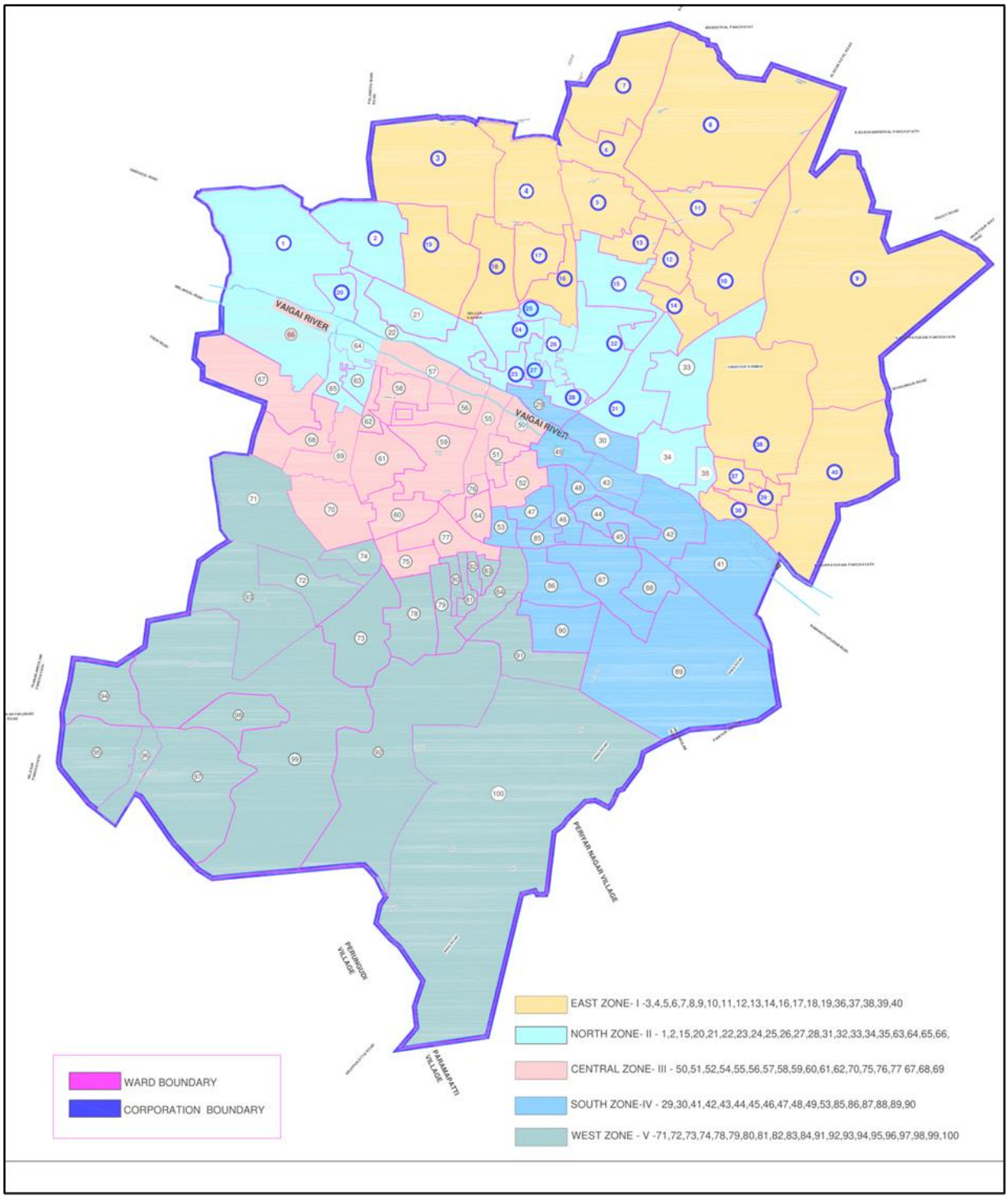


Figure 2-10 **Evolution of Madurai Administration**

Table 2-3 Existing Zone/Ward, Madurai LPA

S.No	Name	Ward Number
1	Zone - I	3,4,5,6,7,8,9,10,11,12,013,14,16,17,18,19,36,37,38,39,40
2	Zone - II	1,2,15,20,21,22,23,24,25,26,27,28,31,32,33,34,35,63,64,65,66
3	Zone - III	50,51,52,54,55,56,57,58,59,60,61,62,67,68,69,70,75,76,77.
4	Zone - IV	29,30,41,42,43,44,45,46,47,48,49,53,85,86,87,88,89,90.
5	Zone - V	71,72,73,74,78,79,80,81,82,83,84,91,92,93,94,95,96,97,98,99,100

Source: Madurai corporation



Map 2-4 Madurai corporation zonal map

Source: Madurai Corporation

2.3.4. Development of Corporation Area

Over the past five years, the landscape of the Corporation area has undergone a transformative evolution, clearly depicted in the maps of 2017 and 2022. Notably, the epicenter of this dynamic growth lies along the Thirumangalam and Melur road, where a burgeoning wave of development has unfolded. The thoroughfare has emerged as the catalyst for substantial progress, radiating prosperity throughout the Corporation area.

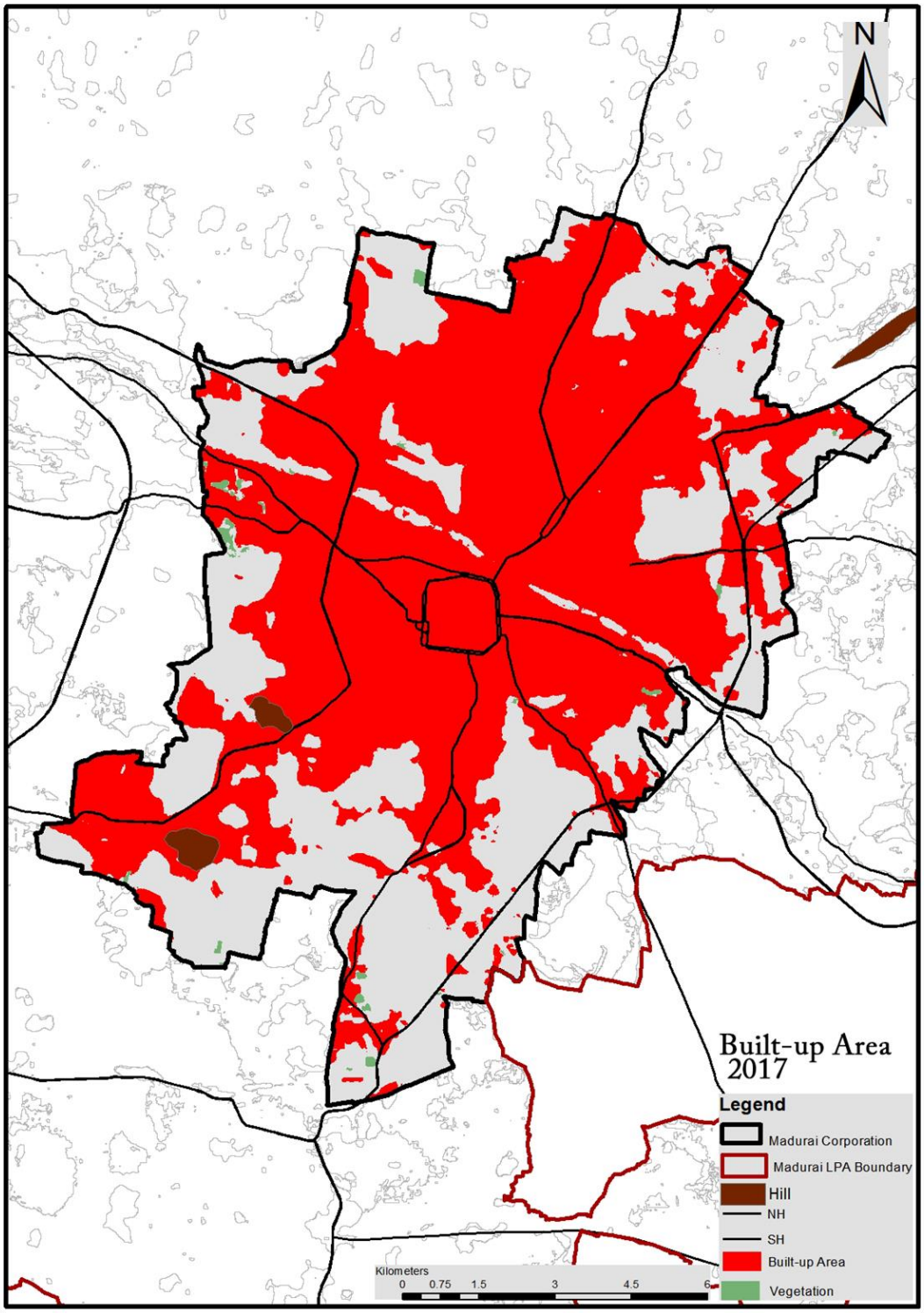
A significant outcome of this developmental surge has been the unprecedented rise in settlements within the Thirumangalam and Melur municipalities. These once-sleepy locales have been awakened by the tide of progress, experiencing a remarkable influx of residents and businesses. The influx of people and enterprises into these municipalities speaks to the palpable economic and infrastructural advancements that have taken root.

The Thirumangalam and Melur road, now a vital artery of growth, has not only facilitated improved connectivity but has also spurred the establishment of new commercial and residential hubs. The symbiotic relationship between the road's development and the surge in settlement underscores the region's newfound appeal and potential. As the landscape continues to evolve, these municipalities stand as living testaments to the transformative power of strategic infrastructure development within a corporation area.

1.4.3. Development of Non-Corporation Area

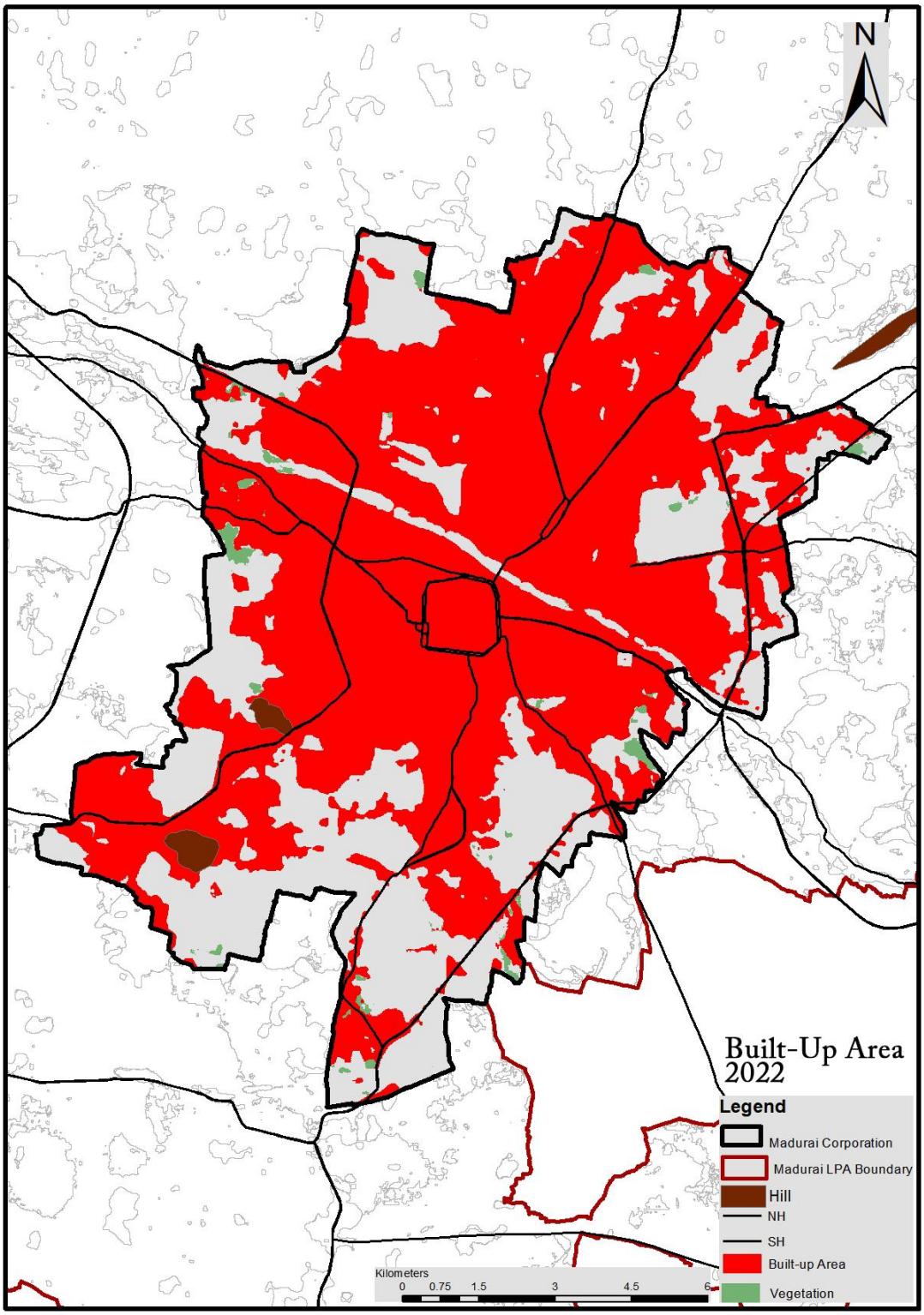
As depicted in the figure, the growth pattern in the non-corporation area of Madurai is distinctly observed along the radial roads, indicating a well-defined expansion trend. The limiting influence of the ring road on one side thirumangalam municipaliy has spurred development in the adjacent area, propelling rapid growth over the past five years.

Particularly remarkable is the accelerated development along K. Pudhur Road in the northern part of Madurai LPA. The strategic location of Thirunagalam, coupled with the influence of key infrastructure like radial roads and the ring road, has led to a dynamic spatial transformation. The city's expansion is not confined by administrative boundaries, showcasing the fluidity of growth patterns and the adaptability of urban development in response to geographical constraints.



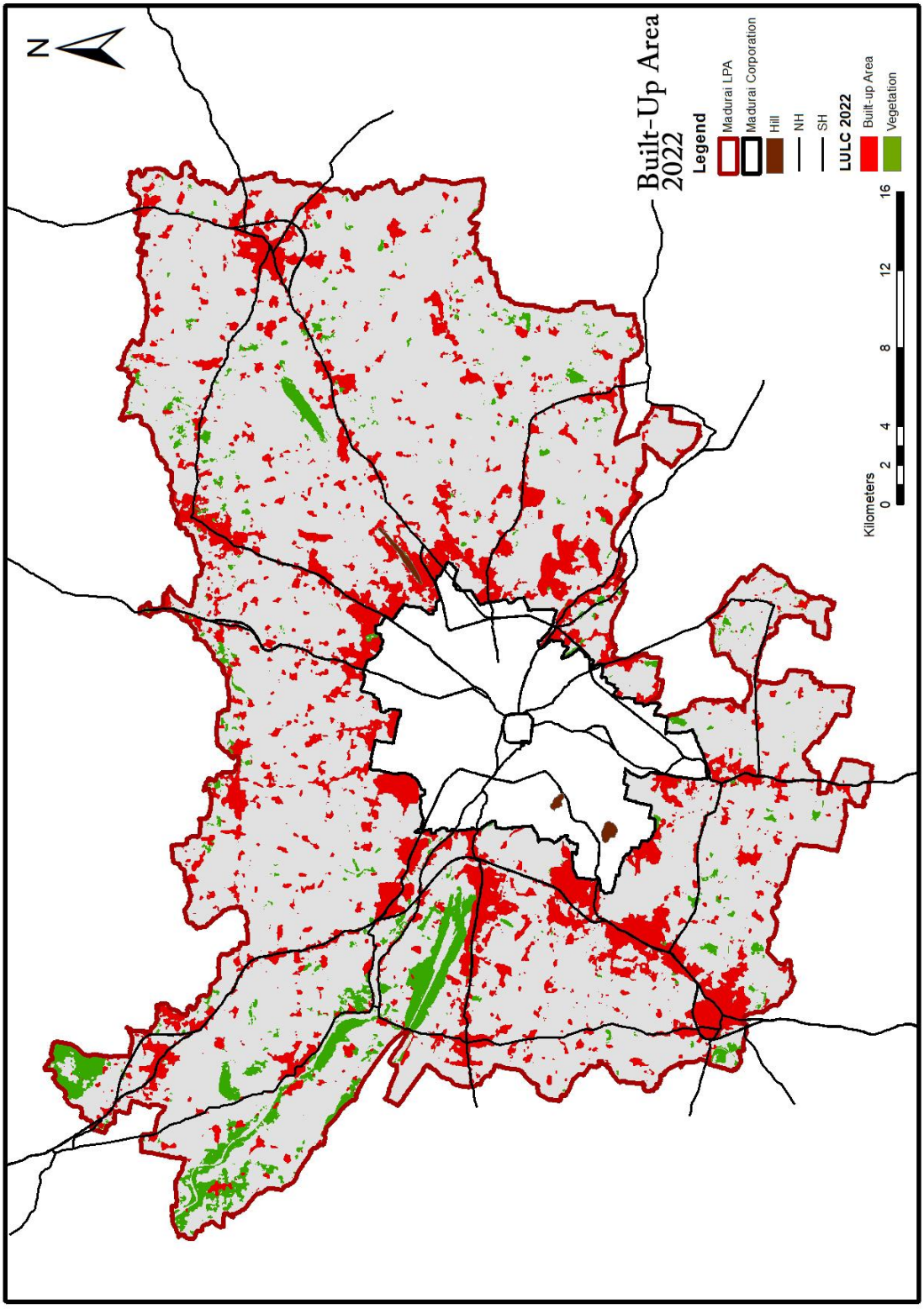
Map 2-5 Corporation build-up area, 2017

Source: USGS



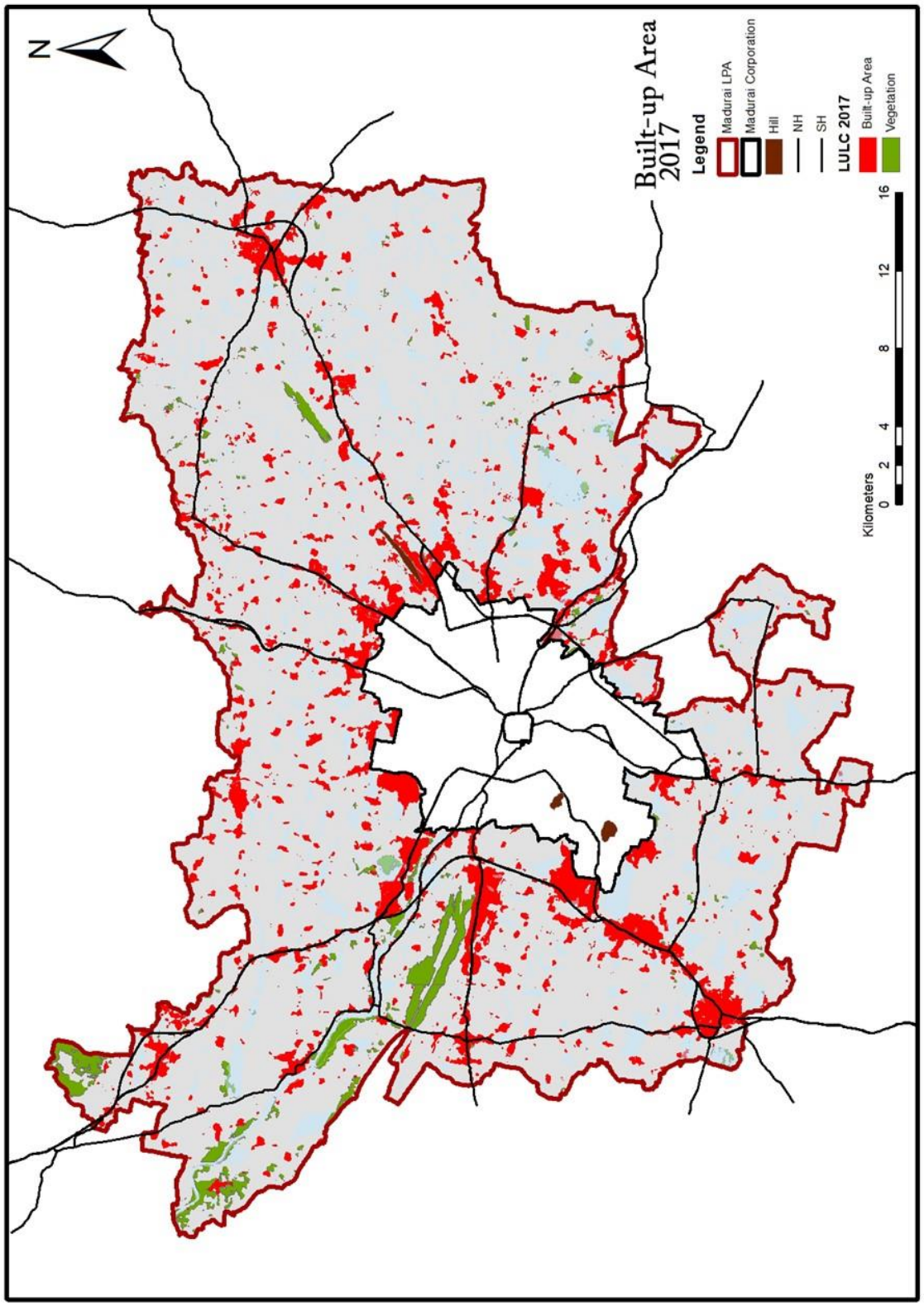
Map 2-6 **Corporation build-up area, 2022**

Source: USGS



Source: USGS

Map 2-7 Rest of build-up area, 2017



Source: USGS

Map 2-8 Rest of build-up area, 2022.

2.4.Governance

2.4.1. Introduction

The governance framework within the Madurai Municipal Corporation exemplifies a commitment to effective administration and civic development. This chapter delves into the intricacies of how governance is structured and implemented within the municipal jurisdiction of Madurai. As a critical unit responsible for the well-being of its residents, the Madurai Municipal Corporation plays a pivotal role in orchestrating various services and initiatives that contribute to the city's growth and the quality of life for its inhabitants. Examining the organizational structure, decision-making processes, and key policies employed by the municipal authorities provides valuable insights into the dynamics of governance within this vibrant and culturally rich city. This chapter seeks to unravel the layers of governance in Madurai Municipal Corporation, shedding light on its principles, practices, and endeavors to foster a thriving urban community.

2.4.2. Citizen Charter

The Citizens' Charter of the City Municipal Corporation of Madurai embodies a commitment to a STAR system: Simple, Transparent, Accountable, and Responsive.

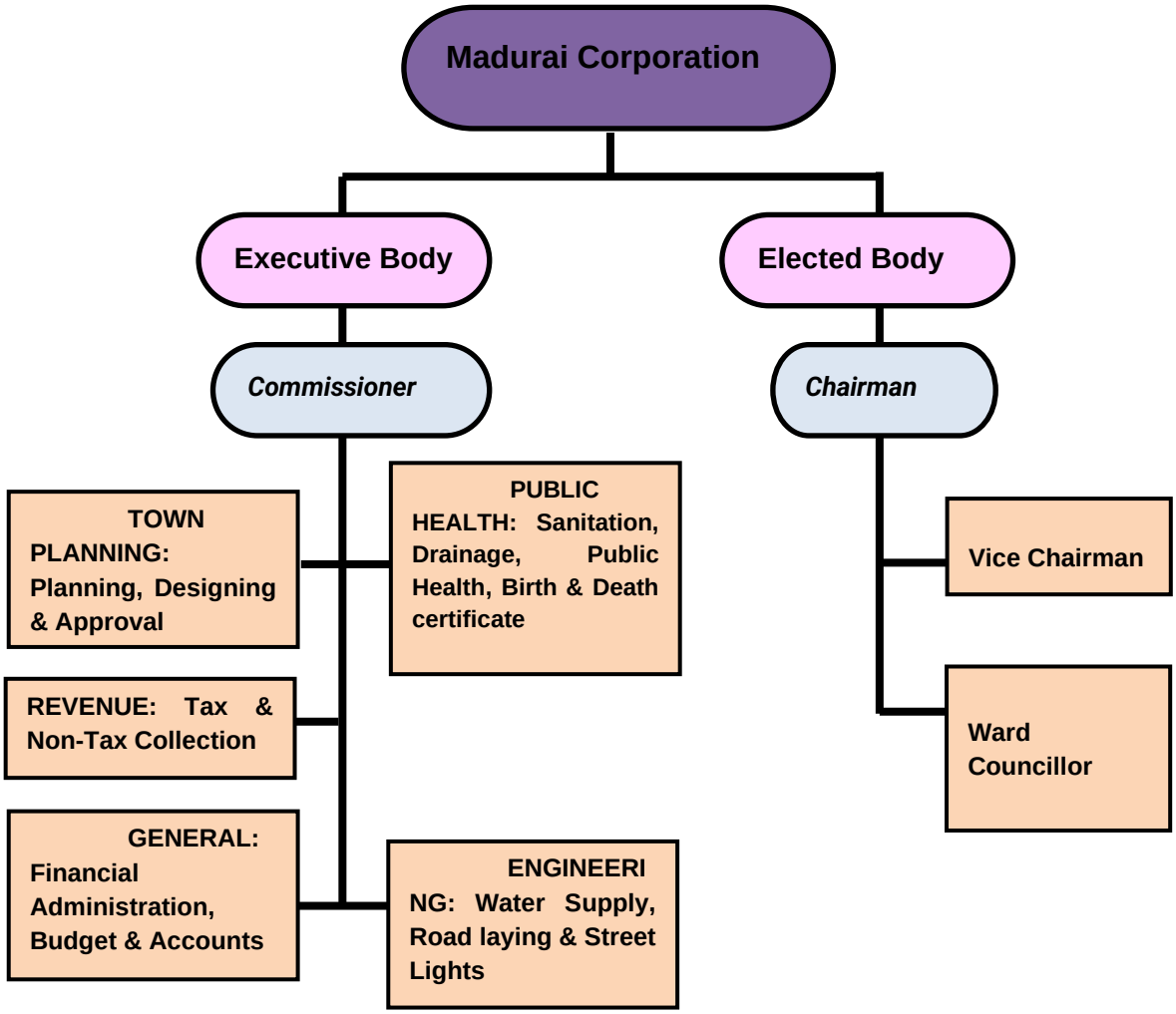
- The primary goal is to fulfill the diverse needs of the city's residents through efficient and citizen-centric administration.
- Transparency is emphasized, with a focus on providing vital information about municipal services to the public.
- Simplicity is a key principle, aiming to make every citizen's interaction with the Municipal Corporation easy, hassle-free, and efficient.
- Accountability is prioritized, ensuring fair, efficient, and outcome-focused operations within the Municipal Corporation.
- The Charter establishes a system for receiving public grievances and pledges to address them qualitatively and within a specified timeframe.
- The administration actively seeks citizen cooperation, fostering mutual trust, confidence, and awareness of civic duties.
- E-governance and automation are introduced across all functions and services to enhance efficiency and transparency.
- The resulting gains from these measures are directed towards benefiting the citizens.

The Charter envisions a citizen-friendly and responsive administration, actively engaging with the community to understand and fulfill their aspirations. Through these

principles, the Municipal Corporation aims to establish good governance, making the administration participatory and mutually beneficial for the city's residents.

2.4.3. Organisational Structure

The Madurai Corporation's organizational structure includes a Mayor and Councilors at the political apex, followed by the Municipal Commissioner, typically an IAS Officer, overseeing various departments. Each department, responsible for specific functions, is headed by a Class I Officer, assisted by Class-II Officers. Class-III and Class-IV employees support routine tasks. Specialized committees may focus on areas like finance and public works. The structure aims for efficient governance and service delivery. For precise and current details, referencing official sources or the Madurai Corporation's administrative office is recommended.



2.4.4. Institutional Framework

The local body holds the responsibility for ensuring good governance and effective management. While it oversees the city's comprehensive development and manages services, other agencies play crucial roles in planning, development, and delivering specific services. Various entities and organizations are essential stakeholders in this process.

Table 2-4 Institutional Framework

Functions	Planning and designed by	Operation and Maintenance	Source of fund
Urban planning including town planning	TCPO/DTCP/MLPA	District Collector, MLPA, Madurai Corporation	Central and State Government/ULBs
Regulation of land use and construction of building	DTCP/MLPA	District Collector, MLPA, Madurai Corporation	Central and State Government/ULBs
Planning for Economic and Social development	DTCP/ MLPA	District Collector, MLPA, Madurai Corporation	Central and State Government/ULBs
Roads and bridges	PWD/NHAI TCPO/DTCP/MLPA	District Collector, MLPA, Madurai Corporation, PWD, NHAI	Central and State Government/ULBs
Water supply for domestic and commercial	TWAD/PHED TCPO/DTCP/MLPA	District Collector, MLPA, Madurai Corporation TWAD/PHED	Central and State Government/ULBs
Public health and sanitation conservancy and solid management	PHED/ TCPO/MLPA	District Collector, MLPA, Madurai Corporation PHED	Central and State Government/ULBs
Slum improvement and Up gradation	TNSCB TCPO/DTCP/MLPA	District Collector, MLPA, Madurai Corporation TNSCB	Central and State Government/ULBs
Urban poverty and alleviation	TCPO/MLPA	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs
Provision of Urban amenities and facilities such as park playground gardens	TCPO/DTCP/MLPA	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs
Promotion of cultural educational and aesthetic aspects	Madurai Corporation TCPO/DTCP/MLPA	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs
Burial grounds, Cremation, and graveyard	Madurai Corporation TCPO/DTCP/MLPA	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs
Vital Statistics including death and birth	Statistical office TCPO/DTCP/MLPA	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs
Public amenities including street light, Parking lots, bus stop, and Public Conveniences	Madurai Corporation TCPO/DTCP/MLPA	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs

Functions	Planning and designed by	Operation and Maintenance	Source of fund
Regulations of Slaughter houses and tanneries	Madurai Corporation TCPO/DTCP/MLPA	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs
Fire services	Fire service TCPO/DTCP/MLPA	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs
Safety interest of the weaker section of the society including handicapped	TCPO/DTCP/Madurai Corporation	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs
Urban forestry for protection of the environment and promotion ecological aspects	TCPO/DTCP/T.N Forest department	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs
Cattle pounds prevention of cutlery to animals	TCPO/DTCP/Madurai Corporation	District Collector, MLPA. Madurai Corporation TCPO/MLPA	Central and State Government/ULBs

2.5.Natural Setting

Madurai, nestled in the Indian state of Tamil Nadu, is not merely a city but a captivating blend of urban development and a diverse natural landscape. The city's planning area encompasses a range of geographical features, including water bodies, hills, and heritage sites, contributing to its rich natural setting.

2.5.1. Geological and Geomorphological Landscape

Madurai district is characterized by a diverse geological and geomorphological landscape. The predominant rock formations include granulite facies high-grade metamorphic rocks and younger intrusive rocks, presenting a fascinating geological tapestry. The district's average elevation stands at 134 meters, offering a varied topography that influences the local climate and land use.

2.5.1.1. Rivers

Madurai LPA falls under these two river basins:

1. Vaigai River Basin
2. Gundar River Basin

Vaigai river basin covers an area of about 7009.13 sq.km and hilly area extends to 2,101.68 sq.km and located in the Theni, Dindugal, Madurai, Sivaganga,

and Ramanathapuram Districts of Tamil Nadu. Vaigai, the main river originating from Varushanadu valley with its tributaries forms a well-defined, compact drainage basin. It has a varied climatic condition resulting often in unreliable rainfall, drought prone, sudden floods, etc. This gives rise to unpredictable water resources condition but for the Periyar reservoir water flowing through this basin due to the construction of the Periyar trans-basin scheme which made it possible to divert water from the Periyar basin in the State of Kerala to Tamil Nadu.The index map of Vaigai River Basin is shown in figure 1.

Gundar river basin is one of the major river basins of Tamil Nadu with a drainage area of 5690 sq.km. It is located between the geographic co-ordinates N Latitude 9°05' - 10° 03' and E Longitude 77° 35'E - 78° 35'. It is sand witched between Vaigai river basin in the north and Vaippar river basin in the south. The length of the Gundar river is 150 kms. This is a fairly elongated basin and elongated in the northwest to southeast direction. The basin covers part of Madurai, Sivagangai, Virudhunagar, Ramanathapuram and Thoothukudi districts. These two-river basin has 19 sub basins together as shown in figure.

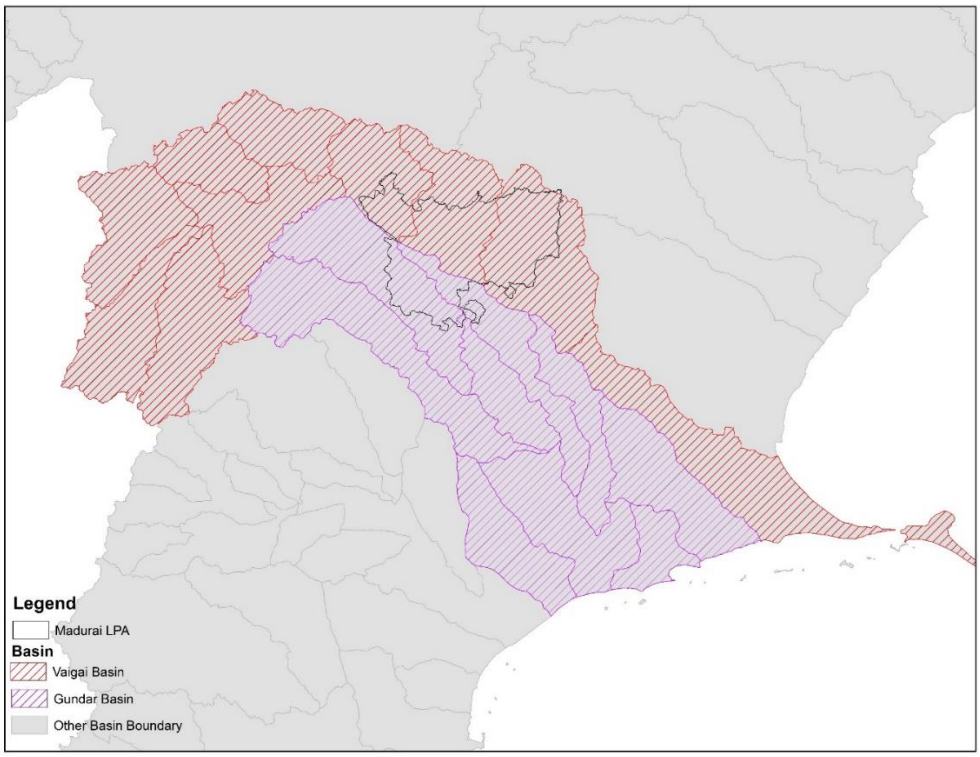


Figure 2-11 River Basin (Vaigai, Gundar)

Source: TNGIS

Out of 19 sub basins, 6 sub basins covers maduai LPA.

Those six are.

1. Gridhammal Nadhi, Kanal Odai, Therkar from Gundar basin.

2. Surumalaiyar, Sathiyar and Uppar from Vaigai basin.

The six sub-basins, comprising Gridhammal Nadhi, Kanal Odai, Therkar from the Gundar basin, and Surumalaiyar, Sathiyar, and Uppar from the Vaigai basin, collectively form integral components of the regional hydrological landscape. A detailed exploration of each sub-basin provides insights into their unique characteristics, hydrological significance, and the environmental role they play in the larger watershed.

I. Gundar Basin:

1. Gridhammal Nadhi:

- Location and Origin: Gridhammal Nadhi is situated in the Gundar basin, originating from the Western Ghats.
- Hydrological Characteristics: It exhibits a diverse hydrological profile, meandering through the landscape and contributing to the overall flow dynamics of the Gundar River.
- Environmental Significance: Gridhammal Nadhi plays a crucial role in supporting biodiversity and ecosystems within the Gundar basin. The riparian areas associated with the river provide habitat for various flora and fauna.

2. Kanal Odai:

- Origin and Flow: Kanal Odai is a prominent tributary of the Gundar River, originating from the surrounding hills.
- Hydrological Dynamics: It significantly influences the hydrological balance within the Gundar basin, contributing to the overall discharge and flow patterns.
- Human Interactions: Kanal Odai is likely to have played a historical role in supporting agricultural activities along its banks, contributing to the socio-economic aspects of the region.

3. Therkar:

- Geographical Context: Therkar is another tributary in the Gundar basin, interweaving through the topography and converging into the Gundar River.
- Hydrological Importance: Its flow dynamics contribute to the overall drainage system of the Gundar basin, influencing water availability downstream.
- Ecosystem Services: Therkar, like other tributaries, provides essential ecosystem services, including water filtration and habitat support for aquatic life.

II. Vaigai Basin:

4. Surumalaiyar:

- Origin and Terrain: Surumalaiyar is a significant river in the Vaigai basin, originating from the Western Ghats and traversing diverse landscapes.
- Hydrological Role: It plays a vital role in the overall hydrological balance of the Vaigai basin, contributing to the perennial flow of the Vaigai River.
- Cultural and Agricultural Significance: Surumalaiyar may have historical and cultural significance, potentially influencing human settlements and agricultural practices along its course.

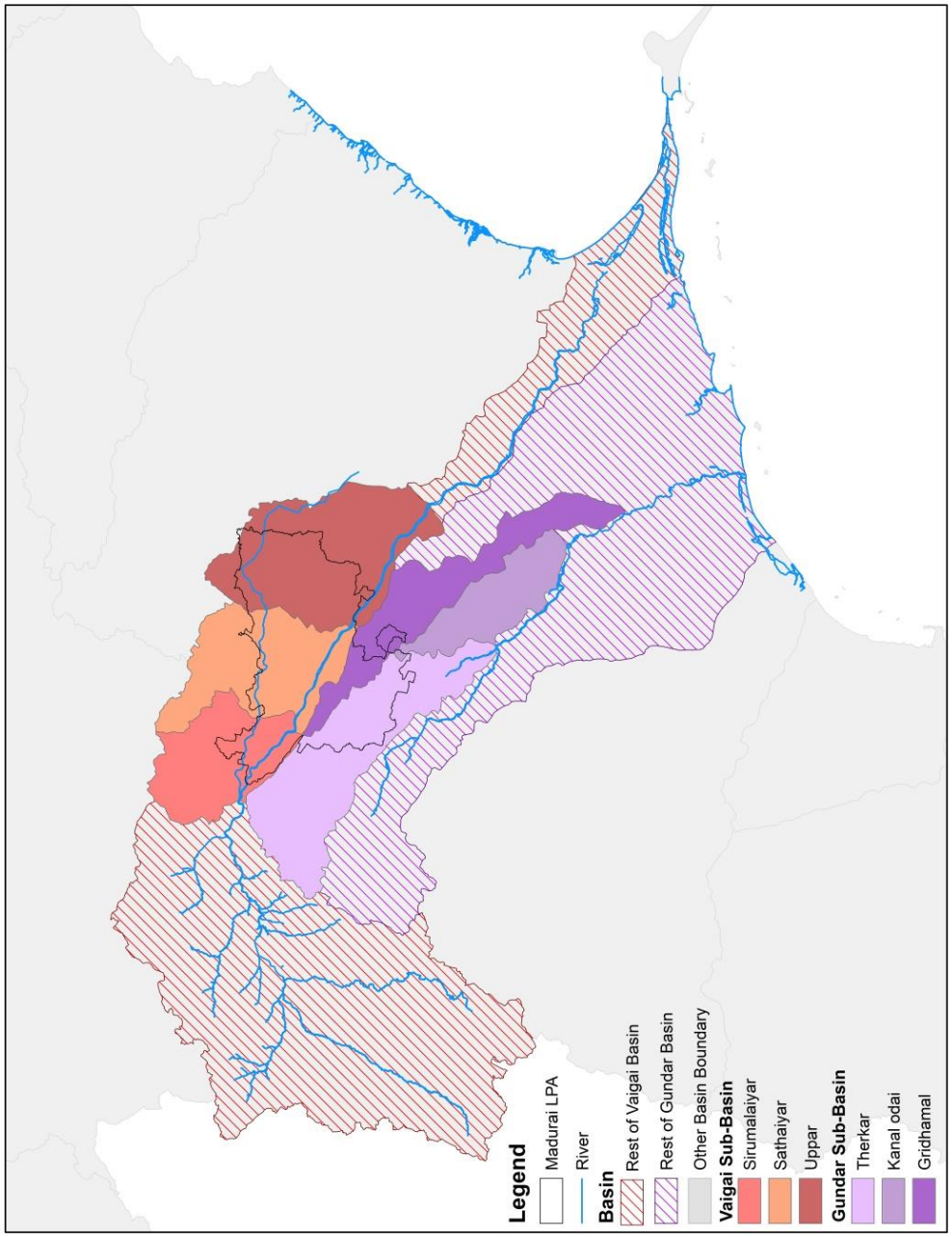
5. Sathiyar:

- Topographical Influence: Sathiyar is a tributary with origins in the hills, contributing to the varied topography of the Vaigai basin.
- Water Flow Dynamics: It adds to the flow dynamics of the Vaigai River, ensuring a sustained water supply downstream.
- Land Use and Management: Sathiyar may have influenced land use patterns historically, shaping agricultural practices and settlement patterns.

6. Uppar:

- Geographical Features: Uppar is a key sub-basin within the Vaigai basin, with its origins in the elevated terrains of the Western Ghats.

- Contribution to Vaigai River: As a significant tributary, Uppar contributes to the perennial flow of the Vaigai River, influencing water availability for downstream regions.
- Environmental Considerations: Uppar, like other tributaries, plays a role in maintaining ecological balance, influencing vegetation patterns and supporting aquatic ecosystems.



Source: USGS

Map 2-9 Rest of build-up area, 2022

2.5.1.2. Hills and Valleys:

Madurai is surrounded by prominent hills, each with its unique cultural and historical significance. The Sirumalai and Nagamalai hills to the north and west of Madurai provide a scenic backdrop to the city. Yanaimalai, Nagamalai, Pasumalai, and Sikandarmalai form the city boundary, each named after elephants, snakes, and cows. These hills not only enhance the natural beauty of the region but also contribute to the local ecology and serve as boundaries that shape the city's layout.

Figure 2-12 **Yanaimalai, Madurai**
Source: vsnu

Figure 2-13 **Nagamalai, Madurai**
Source: Shutterstock

Samanar Hills – A Cultural and Historical Treasure:

Samanar Hills, located west of Madurai, near the junction of NH44 and NH85, stand as a testament to the cultural and historical diversity of the region. Home to numerous Jain and Hindu monuments dating from the 2nd century BCE to the 12th century CE, these rocky hillocks showcase the rich tapestry of religious and architectural influences over the centuries. The presence of rock-cut structures, temples, and inscriptions offers a glimpse into the dynamic cultural history of Madurai.

Figure 2-14 **Samanar Hills, Madurai**

Source: Shutterstock

Climate and Seasons:

Madurai experiences a predominantly hot and dry climate for most of the year. The Vaigai River bisects the city into North and South zones, with each zone sloping gradually towards the river. The region witnesses distinct seasons, from the scorching heat of summer to the moderate climate during the monsoon season. The annual rainfall, averaging around 85.76 cm, contributes to the ecological balance of the region and supports the lush landscapes.

Environmental Challenges and Mitigation:

While Madurai's natural setting is a source of beauty and cultural wealth, it faces challenges from industrialization and urbanization. The groundwater table, with depths ranging from 61 to 91 meters, underscores the need for sustainable water management. Pollution of natural resources and heritage sites is a potential

threat. The chapter discusses strategies to mitigate the impact of development on land, water, air, and biological resources.

Madurai's natural setting is not just a backdrop; it is an integral part of the city's identity. The hills, rivers, and diverse landscapes contribute to the cultural heritage and environmental richness of Madurai, making it a unique blend of tradition and modernity. The conservation and sustainable utilization of these natural resources are essential for ensuring the continued vibrancy and resilience of the city.

3

PROFILE & INTRODUCTION

3.1. Physical Features

3.1.1. Water Bodies

3.1.1.1. River (Vaigai River)

The Vaigai River, spanning 4.4 kilometres within Madurai's Local Planning Area, is the district's primary physical feature. Fertile riverbanks enable robust crop cultivation, ensuring a reliable water source for farmers. Beyond agriculture, the Vaigai influences local ecosystems, fostering biodiversity. The river is a dynamic force, supporting fishing, trade, and water-dependent occupations. Its waters serve domestic needs, reflecting its integral role in the cultural, economic, and ecological identity of Madurai. The Vaigai River, with its meandering course, epitomizes the pulse of life in this vibrant district.

3.1.1.2. Other Water Bodies:

In Madurai's Local Planning Area (LPA), 3,300 tanks cover 160 square kilometres of the 178.49 square kilometres of water bodies. However, a significant challenge exists as many of these tanks are disconnected. This fragmentation poses a potential obstacle to effective water resource management within the region.

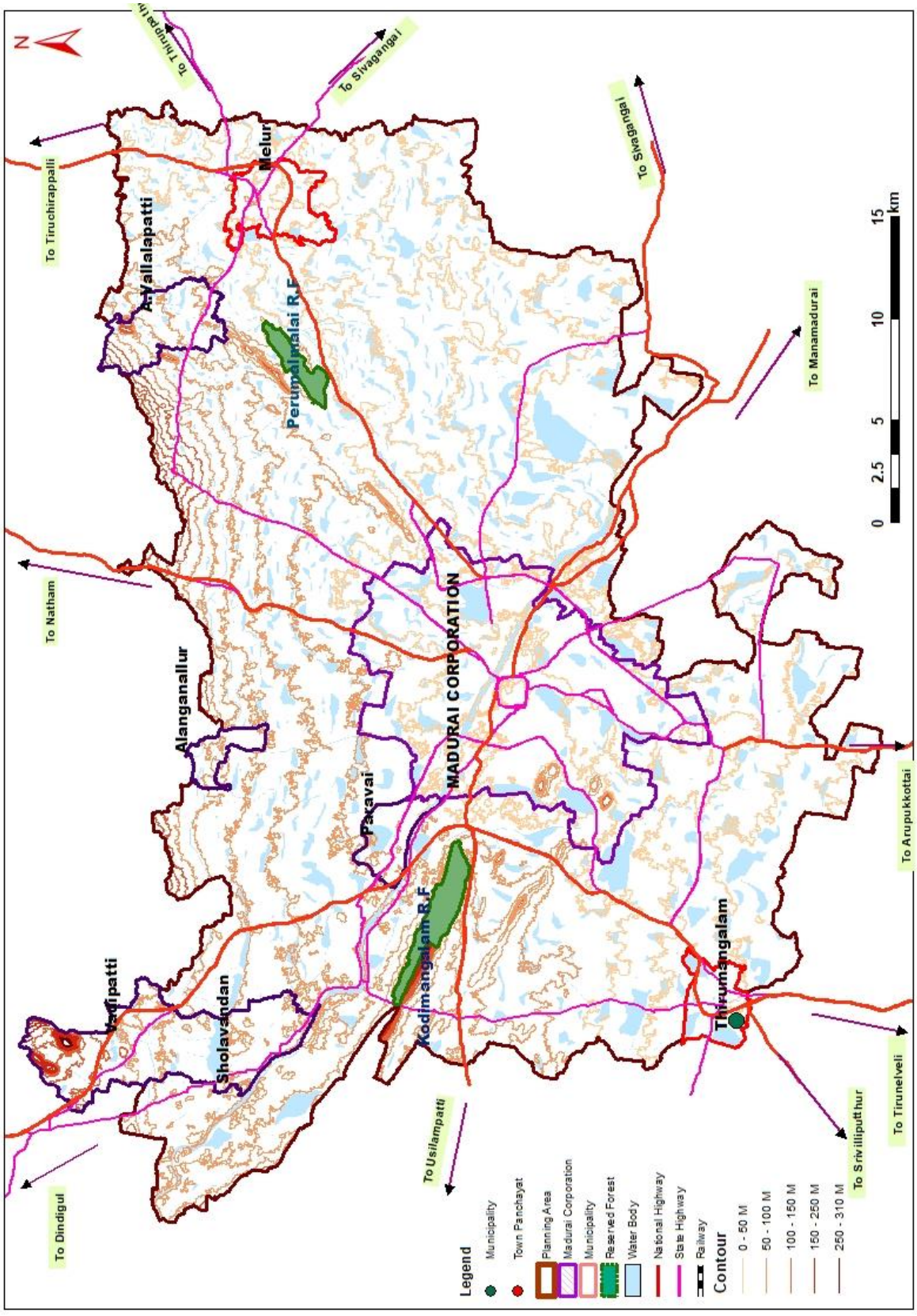
3.1.2. Hills

Alagar Hills: Home to the revered Alagar Kovil temple, Alagar Hills are culturally and ecologically significant. They provide habitats for diverse plant and animal species, contributing to the biodiversity of Madurai.

Thiruparankundram Hills: Dominated by the Thiruparankundram Murugan Temple, these hills hold religious and historical importance. They add spiritual and cultural dimensions to Madurai's topography.

Samanar Hills: Renowned for ancient Jain rock-cut sculptures, Samanar Hills showcase the historical and cultural richness embedded in Madurai's landscape. They stand as a testament to the region's heritage.

Arittapatti Hillocks: This chain of barren granite hillocks, steeped in history and biology, stands as a unique feature supporting diverse ecosystems in Madurai. The hillocks bear significance in both cultural and ecological contexts.



Map 3-1 Major physical features, Madurai LPA

3.2.Geology

Madurai is predominantly covered by four major geological complexes, namely the Migmatite Gneissic complex, Charnockite Gneissic complex, Khondalite Gneissic complex, and Aeolian Sediments. Each complex contributes to the diverse geological landscape of the region, collectively shaping Madurai's unique geological identity. Each complex has its own opportunities for development.

Migmatite-Gneissic Complexes:

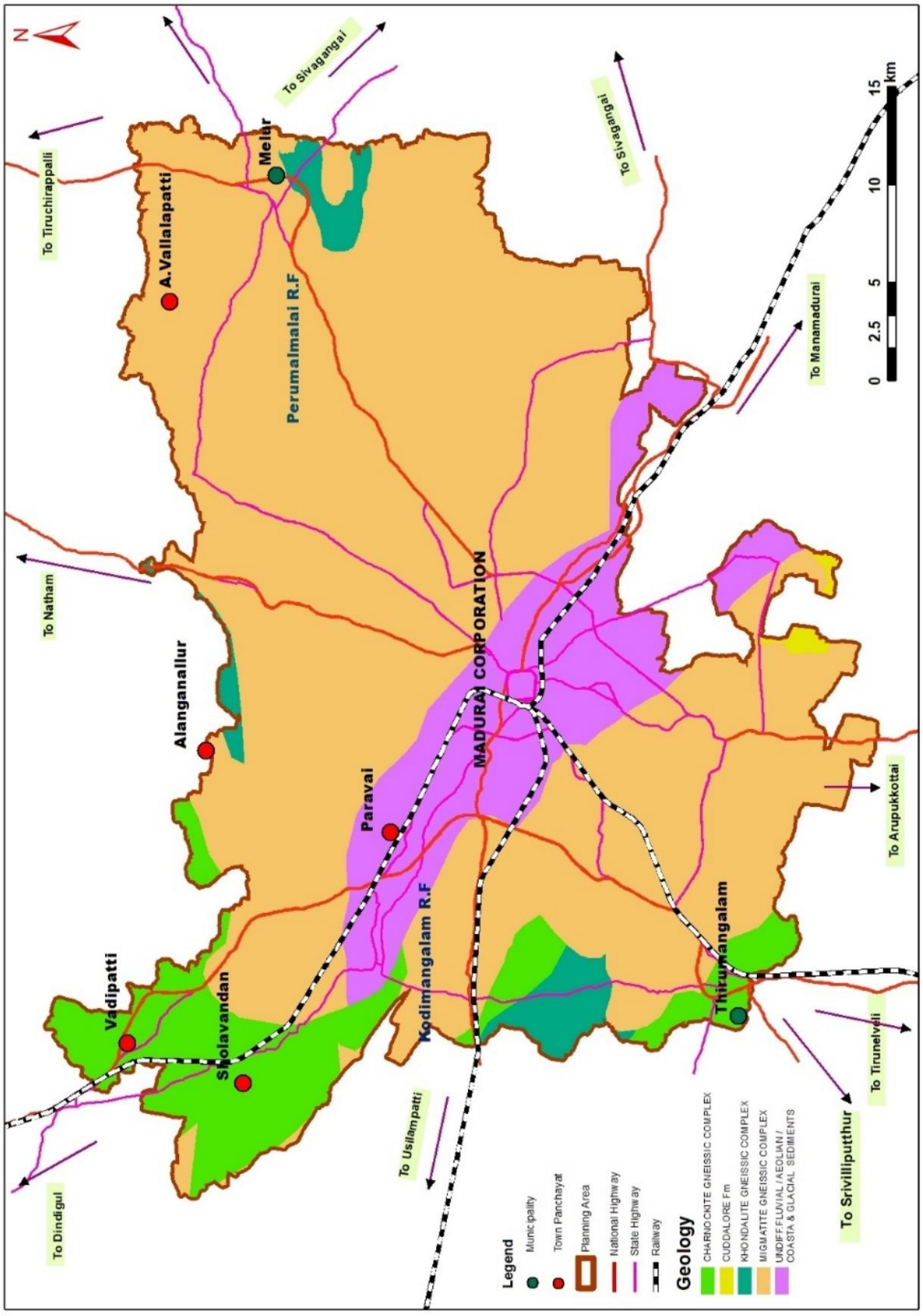
- Aesthetic Architecture: Unique patterns of migmatite-gneissic rocks offer opportunities for aesthetically pleasing urban design.
- Geo-tourism: Geological formations can attract geo-tourism, with trails, parks, or information centres showcasing the city's geological richness.

Khondalite and Charnockite Gneissic Complexes:

- Cultural Significance: Integrating khondalite and charnockite formations into urban design celebrates local heritage, fostering community identity.
- Eco-Friendly Practices: Utilizing indigenous materials like khondalite aligns with eco-friendly practices, promoting sustainable urban development.

Aeolian Sediments:

- Tourism and Recreation: Thoughtful urban planning can enhance coastal landscapes shaped by aeolian processes, turning them into attractive tourist destinations, boosting tourism, and supporting the local economy.
- Eco-Friendly Infrastructure: Designing infrastructure aligned with aeolian dynamics, such as wind-resistant buildings and green spaces, mitigates the impact of urbanization, enhancing aesthetics.
- Renewable Energy: Harnessing wind energy from aeolian processes contributes to sustainable practices, reducing reliance on non-renewable sources.



Source: Bhukosh

Map 3-2 Geology, Madurai LPA

3.3.Geomorphology

Madurai, a city steeped in history and cultural significance, boasts a captivating geomorphological landscape that reflects the dynamic forces that have shaped its terrain over centuries. Nestled in the heart of Tamil Nadu, India, Madurai's geomorphology unveils a tale of diverse landforms, from expansive Alluvial Plains sustaining its agricultural legacy to the gently sloping surfaces of the Pediment Pediplain Complex, contributing to the city's visual charm.

Alluvial Plains:

- The city's landscape features extensive Alluvial Plains, vast areas characterized by the deposition of fertile soils carried by rivers.
- This alluvial plain serves as a crucial foundation for agricultural activities, offering a flat and cultivable terrain that has historically supported the region's agrarian economy.

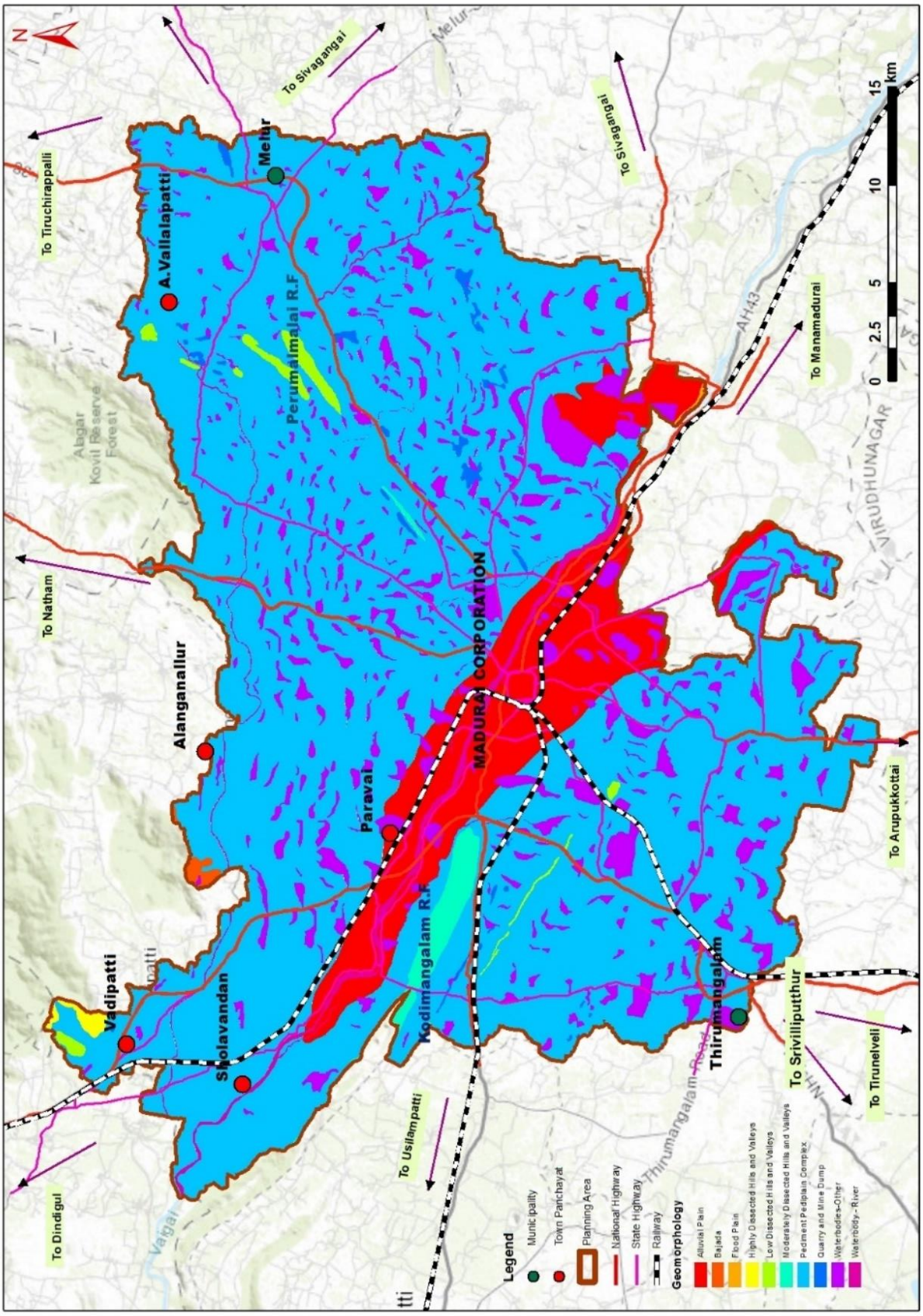
Pediment Pediplain Complex:

- Complementing the alluvial plains is the Pediment Pediplain Complex, adding a layer of topographical complexity to Madurai's geography.
- This complex is marked by gently sloping surfaces formed through the erosion and weathering of underlying rocks.

Moderately Dissected Hills and Valleys:

- The geomorphology of Madurai extends beyond flat plains and gentle slopes, introducing moderately dissected hills and valleys into the terrain.
- These hills and valleys, sculpted over time by the forces of erosion, present a more rugged aspect to the landscape.
- The gradual shaping of these features signifies the resilience of geological processes in defining the city's natural contours.

Understanding the intricacies of Madurai's geomorphology is essential for urban planning and environmental conservation. The fertile plains offer opportunities for sustainable agriculture, while the Pediment Pediplain Complex influences the city's topography and visual aesthetics. The presence of hills and valleys introduces challenges and opportunities for infrastructure development, biodiversity conservation, and water resource management.



Source: Bhukosh

Map 3-3 Geomorphology, Madurai LPA

3.4.Soil Type

As Madurai charts its course for sustainable development, the master plan recognizes the pivotal role of soil composition within the Local Planning Area (LPA), extending beyond the precincts of the city corporation. The planning stage, a crucial phase in shaping the region's future, unveils three major soil types surrounding the LPA: Fine Loamy, Loamy Skeletal, and Coarse Loamy. In addition to these primary classifications, the LPA hosts other soil variations, including Fine, Clayey Skeletal, Very Fine, and sporadic instances of Loamy and Clayey soils. This diverse soil landscape significantly influences the planning decisions aimed at fostering sustainable development.

Major Soil Types in LPA:

Fine Loamy Soil:

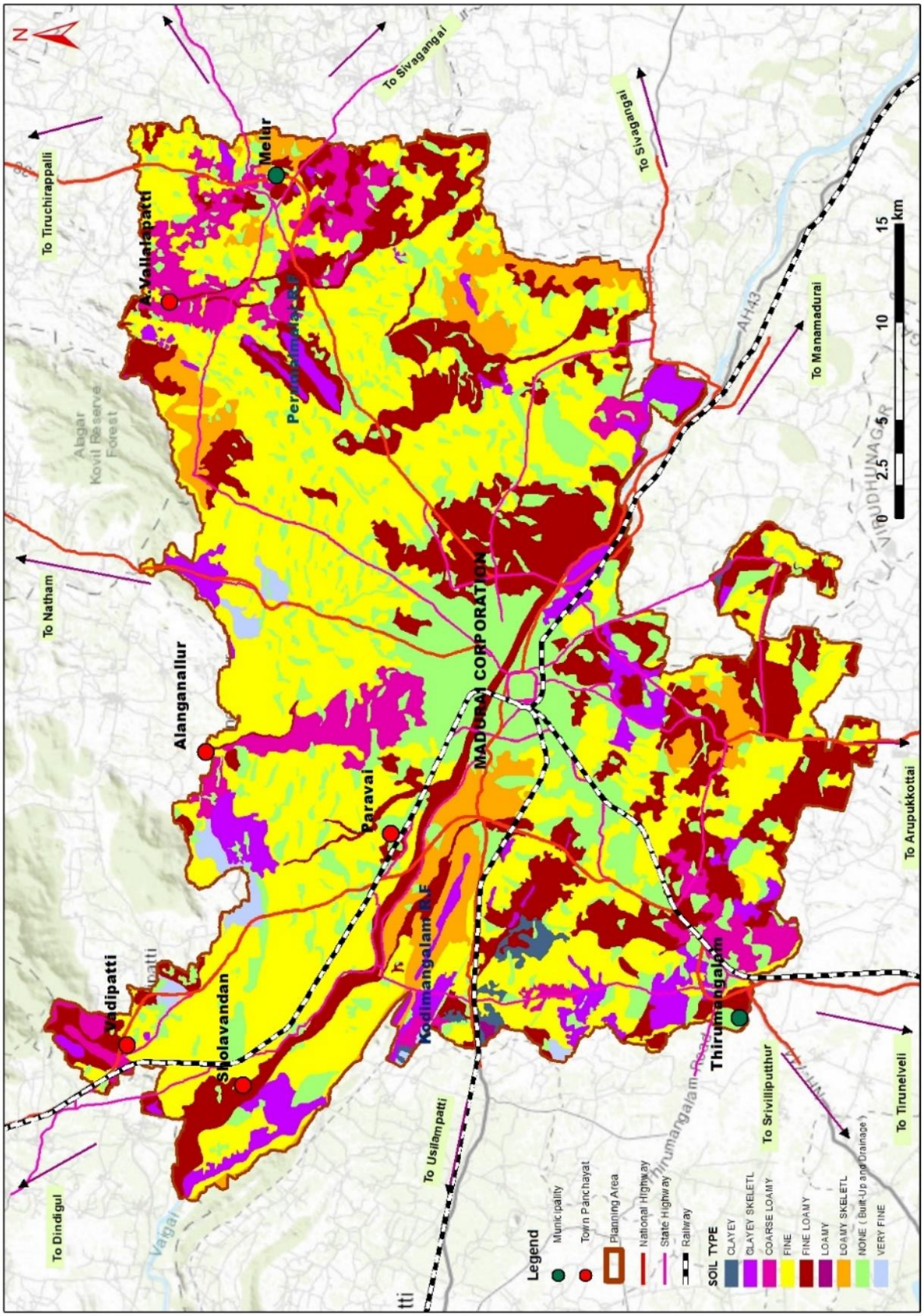
- During the planning stage, Fine Loamy soil emerges as a strategic asset, characterized by fertility and moisture retention.
- Recognizing this soil type's potential is essential for incorporating green spaces and urban farming initiatives into the blueprint of the LPA.

Loamy Skeletal Soil:

- The planning stage demands a meticulous consideration of Loamy Skeletal soil, distinguished by a higher skeletal particle composition.
- Addressing drainage and erosion challenges becomes integral to ensuring sustainable infrastructure development within areas marked by this soil type.

Coarse Loamy Soil:

- The presence of Coarse Loamy soil, with its enhanced drainage but potential nutrient deficiencies, necessitates careful planning during the early stages.
- Integrating soil improvement strategies becomes imperative to optimize the usability of Coarse Loamy soil in public spaces envisioned within the LPA.



Source: Bhukosh

Map 3-4 Soil Type, Madurai LPA

3.5.Climateology

The climateology section delves into Madurai's weather dynamics, covering temperature variations, annual rainfall patterns, and the duration of sunlight hours. Understanding these elements provides valuable insights into the city's climate, influencing various aspects of daily life and environmental conditions.

3.5.1. Temperature

The temperature data for Madurai Planning Area over the last 12 years (2010-2022) reveals distinct patterns influencing urban planning. April and May consistently experience elevated temperatures, reaching a maximum of 37 degrees Celsius. This information is pivotal for urban planning, necessitating strategic measures to mitigate the impact of high temperatures, such as incorporating green spaces, climate-responsive architecture, and efficient cooling systems. Conversely, January records the minimum temperature, dropping to 21 degrees Celsius.

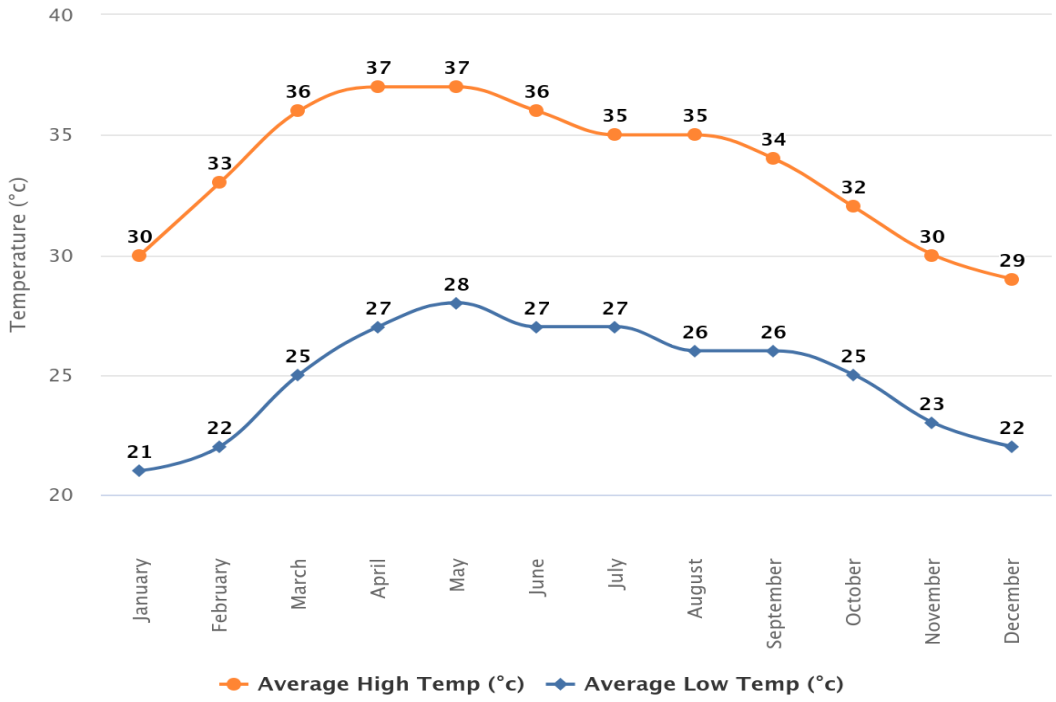


Figure 3-1 Average Temperature (0c) graph for Madurai

Source: world weatheronline

3.5.2. Rainfall

The rainfall patterns in Madurai District unveil significant variations, with the highest recorded rainfall of 220mm transpiring in November 2014, while February witnesses the lowest at a mere 10mm. The divergence is particularly pronounced between January and March, presenting potential challenges for rain-dependent sectors. Despite an average of 15 rainy days during this period, only 3 days in February receive rainfall, indicating a limited availability of water resources.

This climatic scenario in Madurai District necessitates strategic considerations in urban planning, especially for sectors reliant on consistent precipitation. The low rainfall in February underscores the vulnerability of water-dependent activities during this timeframe. Urban planners may need to implement robust water conservation and storage strategies, emphasizing the need for sustainable water management practices. Exploring alternative water sources and promoting community-level water harvesting initiatives becomes crucial to mitigate the impact of the relatively dry months.

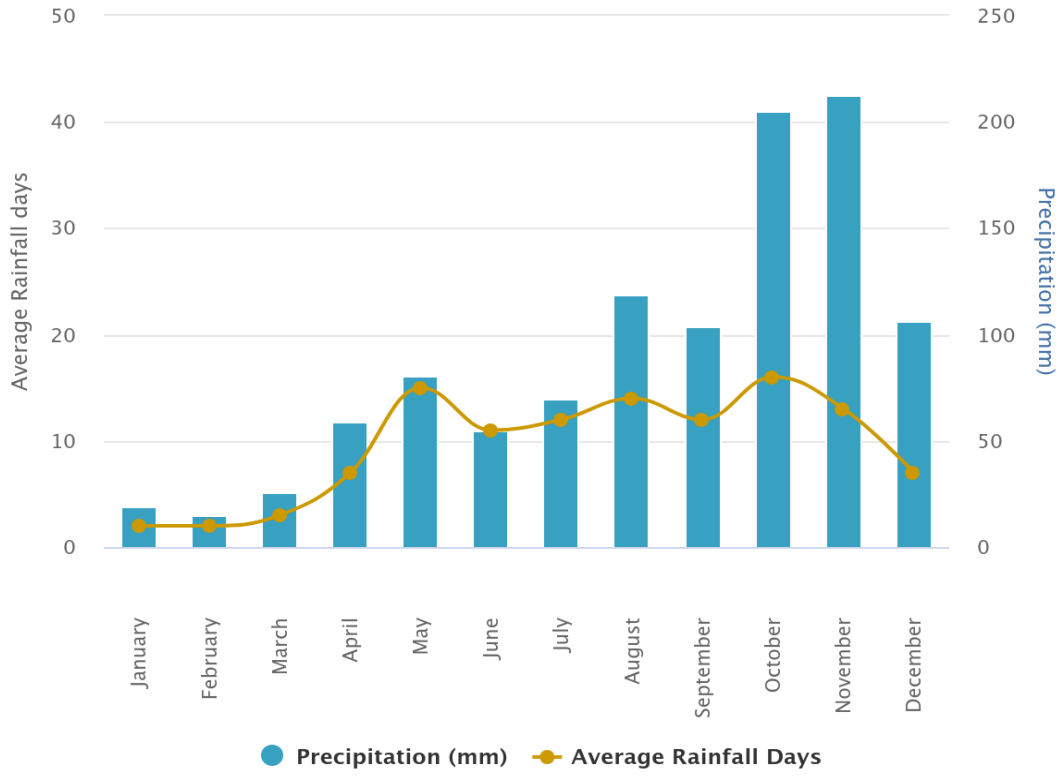


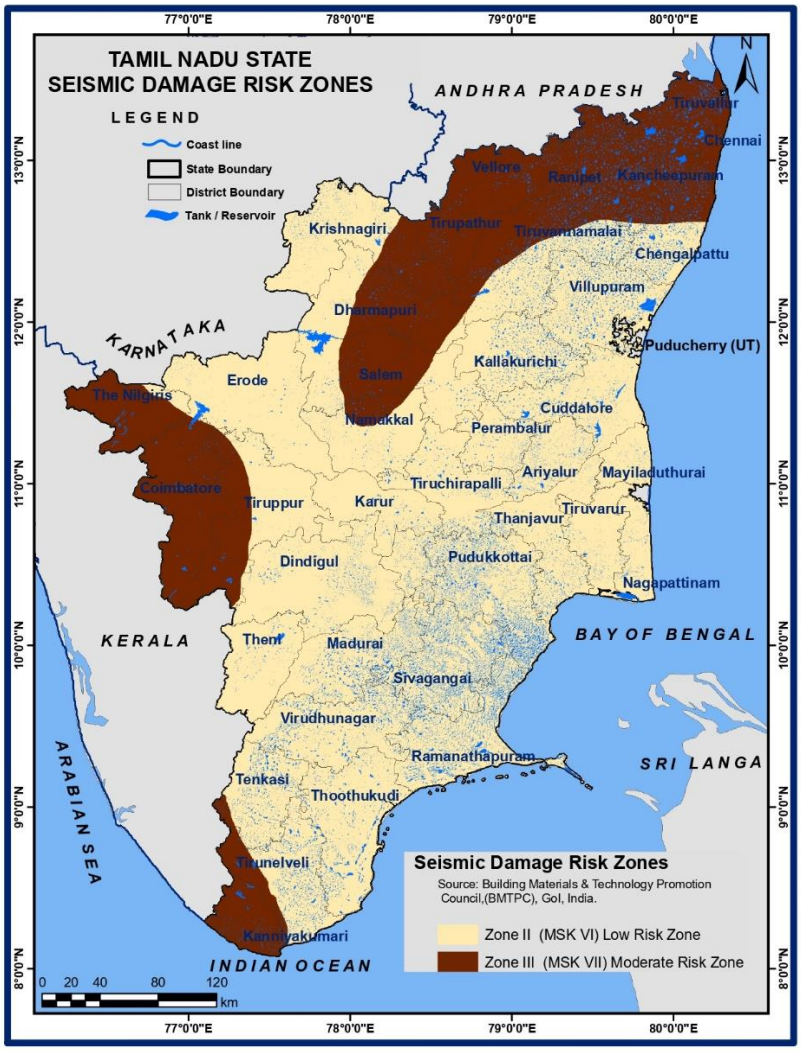
Figure 3-2 **Average rainfall (mm Graph for Madurai)**

Source: world weatheronline

3.6.Seismic Zones

Tamil Nadu as a state fall under Zone 2 (low risk) and Zone 3 (medium risk). The seismic zoning map classifies Madurai district under Zone 2 (up to magnitude 4.9), signaling a low-risk area.

The low-risk classification in Zone 2 presents an opportunity for strategic urban planning. Madurai's development can be guided by a focus on robust infrastructure and public spaces that are designed to withstand seismic forces, contributing to the city's overall disaster resilience.

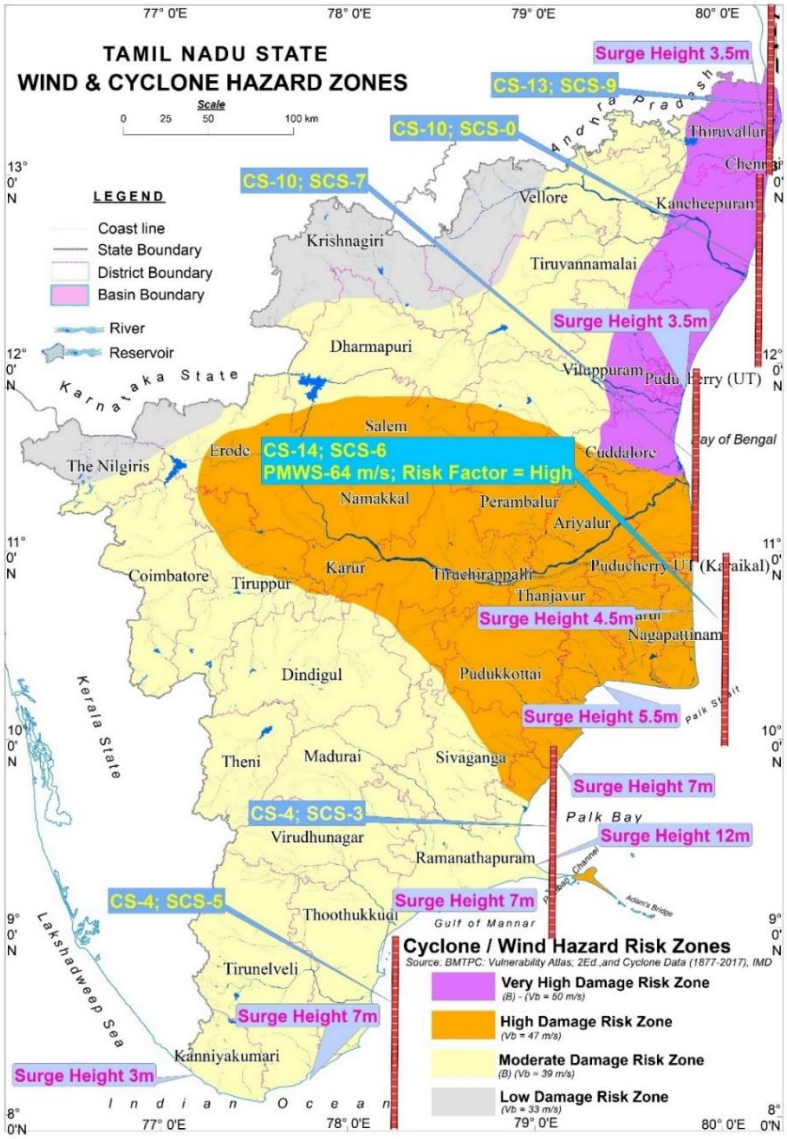


Map 3-5 **Seismic Zones, Tamil Nadu**

Source: TNSDMA

3.7.Cyclone

Madurai, positioned in the moderate damage risk zone, navigates cyclone vulnerabilities with caution. Among the four categories ranging from very high to low damage risk, Madurai stands resilient, implementing measures to mitigate potential impacts.



Map 3-6 Wind & cyclone hazard zones, Tamil Nadu

Source: TNSDMA

3.8.Water Resources

The water resources section is bifurcated into surface water and groundwater. This division enables a comprehensive analysis of both surface water bodies and subsurface aquifers, vital for effective water management strategies.

3.8.1. Surface Water Bodies

Madurai relies on the Vaigai River, 3302 tanks, and channels for surface water. Vaigai river, and few major tanks are discussed in detail.

3.8.1.1. Vaigai River:

The lifeline of Madurai, the Vaigai River, plays a pivotal role in the region's water dynamics. Originating in the Varusanadu Hills of the Western Ghats, the river meanders through the landscape, providing crucial water resources for agriculture and domestic use. The Vaigai River is essential for sustaining the ecosystem and supporting the livelihoods of the local population.

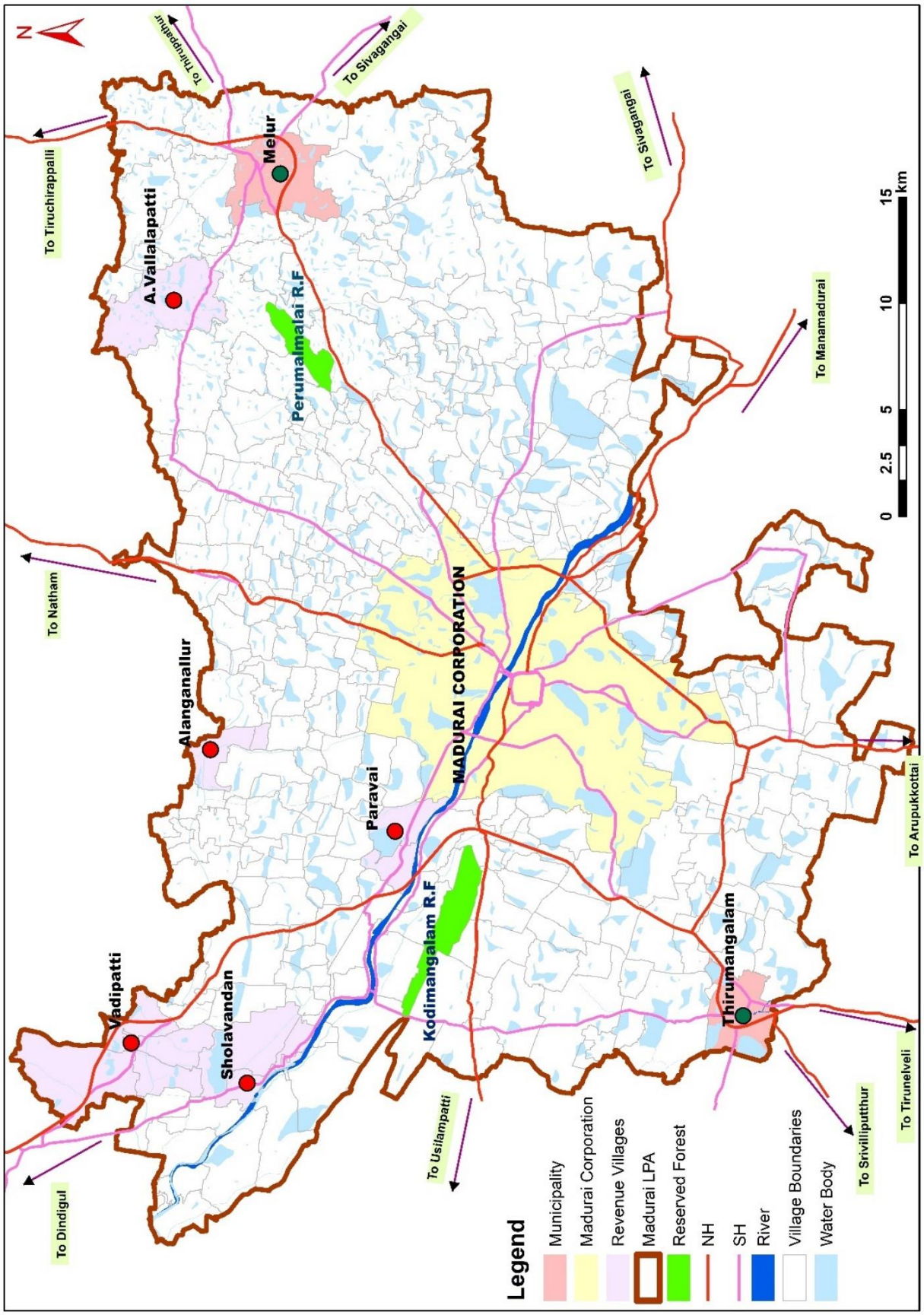
3.8.1.2. Major Tanks:

Sellur Kanmoi:

- Capacity: Sellur Kanmoi has a total capacity of 16.6 million cubic feet (mcft).
- Supply Sources: Water is supplied to Sellur Tank from Thandalai Distributory.
- Present Capacity: The current water storage in Sellur Kanmoi stands at 15.77 mcft.
- Details: This significant water body plays a crucial role in Madurai's water management, supporting agriculture and serving as a vital source for domestic needs. The slight variation in present capacity reflects the dynamic nature of water levels influenced by usage and climatic conditions.

Thenkarai Tank:

- Maximum Capacity: Thenkarai Tank has a maximum storage capacity of 139.95 mcft.
- Supply Sources: Water is supplied to Thenkarai Tank from Thenkarai Supply Channel.
- Present Capacity: The present water level in Thenkarai Tank is 138.55 mcft.
- Details: As one of the essential water reservoirs in Madurai, Thenkarai Tank contributes significantly to the region's water security. With a vast area covered, it serves as a crucial resource for agriculture and sustains local water needs.



Source: Bhukosh

Map 3-7 Major surface waterbodies, Madurai LPA

Paravai Tank:

- Capacity: Paravai Tank has a total storage capacity of 75.57 mcft.
- Supply Sources: Water is supplied to Paravai Tank from Thodanerai, Vagankulam, and Arasankulam.
- Present Capacity: The present water storage in Paravai Tank is 75.57 mcft.
- Details: Supported by multiple supply sources, Paravai Tank is a key reservoir ensuring water availability for agriculture and local communities. Its strategic location and interconnectivity with various water sources enhance its role in water management.

Madakulam Tank:

- Capacity: Madakulam Tank has a maximum storage capacity of 166.9 mcft.
- Supply Sources: Water is supplied to Madakulam Tank from Vaigai River.
- Present Capacity: The current water level in Madakulam Tank is 58.42 mcft.
- Details: Madakulam Tank, with its substantial capacity, is vital for irrigation and water supply in the region. The difference in present capacity reflects the seasonal and operational variations in water levels, demonstrating the need for sustainable water usage practices.

3.8.2. Ground Water

The primary source of water availability in Madurai, encompassing both surface and subsurface reservoirs, is predominantly reliant on rainfall patterns, subject to the variability of the monsoon. Despite this, the escalating extraction of surface and subsurface water over successive years has triggered environmental repercussions, manifesting as a decline in water levels and degradation of water quality. This pressing scenario necessitates a comprehensive assessment of the available water quantity and its quality, crucial for diverse applications such as agriculture, industrial processes, and domestic consumption.

In the current evaluation, the Total Dissolved Solids (TDS) value serves as a pivotal parameter for distinguishing areas with good or poor water quality. A TDS value equal to or below 2000 mg/l is deemed indicative of good water quality, whereas values exceeding 2000 mg/l signify areas with compromised water quality. Furthermore, the presence of fluoride, with concentrations below 1.0 mg/l promoting dental health but levels exceeding 1.50 mg/l posing health risks, underscores the nuanced impact of water quality on public well-being.

Groundwater quality in Madurai District generally ranges from moderate to good in both shallow dug wells and bore wells. Additionally, the presence of nitrates from agricultural fertilizer uses and local pollution, as well as arsenic, a hazardous heavy metal in groundwater, necessitate ongoing monitoring to ensure water quality adheres to permissible drinking standards, set at 0.05 mg/l for arsenic.

3.9.Biodiversity

3.9.1. Current Status

Madurai district in Tamil Nadu stands as a hub of biodiversity, housing various ecosystems with diverse wild and domesticated species. The results of a recent medicinal plant survey conducted during 2013-2014 shed light on the presence of nine narrow endemic threatened plant species, underlining the need for targeted conservation efforts.

3.9.2. Arittapatti's Ecological Wealth

Arittapatti village, characterized by its hillocks, emerges as a focal point for biodiversity. These hillocks are home to approximately 250 bird species, including flagship raptors such as Laggar Falcon, Shaheen Falcon, and Bonelli's Eagle. Notable wildlife, including the Indian Pangolin, Python, and Slender Loris, further contribute to the region's ecological significance. The rocky hill scape functions as a watershed, supporting 72 lakes, 200 natural spring pools, and 3 check dams.

Historical and Cultural Significance:

- Beyond its ecological importance, Arittapatti boasts historical treasures, including megalithic structures, Tamil Brahmi inscriptions, Jain Beds, and rock-cut temples dating back 2200 years. This historical and cultural blend enhances the area's overall value and underscores its unique status.

Government's Conservation Initiative:

- Acknowledging the need for conservation, the State Government, acting on the recommendation of the Tamil Nadu Biodiversity Board, has proposed the declaration of Arittapatti as a Biodiversity Heritage Site (BHS) under Section 37 of the Biological Diversity Act, 2002. The proposed Arittapatti BHS encompasses a total area of 193.215 hectares, covering Arittapatti and Meenakshipuram Bit-1 villages.

- Madurai district, through Arittapatti, epitomizes the harmonious coexistence of rich biodiversity and historical significance. The ongoing efforts to designate Arittapatti as a BHS reflect a proactive approach to preserving the unique ecological and cultural fabric of this region.

Figure 3-3 Arittapatti, Madurai

Source: Currentaffairs, 2022

4

LAND PROFILE

Land use refers to the way in which land is utilized or managed by humans for various purposes, encompassing residential, commercial, industrial, agricultural, recreational, and conservation activities. Understanding land use is critical in planning, as it directly influences the socio-economic development, environmental sustainability, and overall quality of life within a given region. Land use patterns vary significantly based on factors such as geographic location, climate, cultural practices, technological advancements, and governmental policies. The analysis of existing master plans is a crucial exercise in understanding the historical trajectory, efficacy, and shortcomings of urban development strategies within a specific region or city.

4.1. Analysis of Previous Master Plans, Madurai LPA

The strategic decision to expand the Madurai Local Planning Area includes 357 villages, with the objective of regulating and directing development in Madurai and its surrounding villages, materialized through G.O.(Ms). No. 89 dated 29th May 2014. This governmental directive, issued under section 10(1) of the Tamil Nadu Town and Country Planning Act, 1971, emanated from the Housing and Urban Development Department, Government of Tamil Nadu. The inclusion of these additional areas into the Madurai LPA was formally affirmed under section 2(48) of the Town and Country Planning Act by G.O. (Ms). No. 206 on 23rd November 2022, issued by the Housing and Urban Development Department

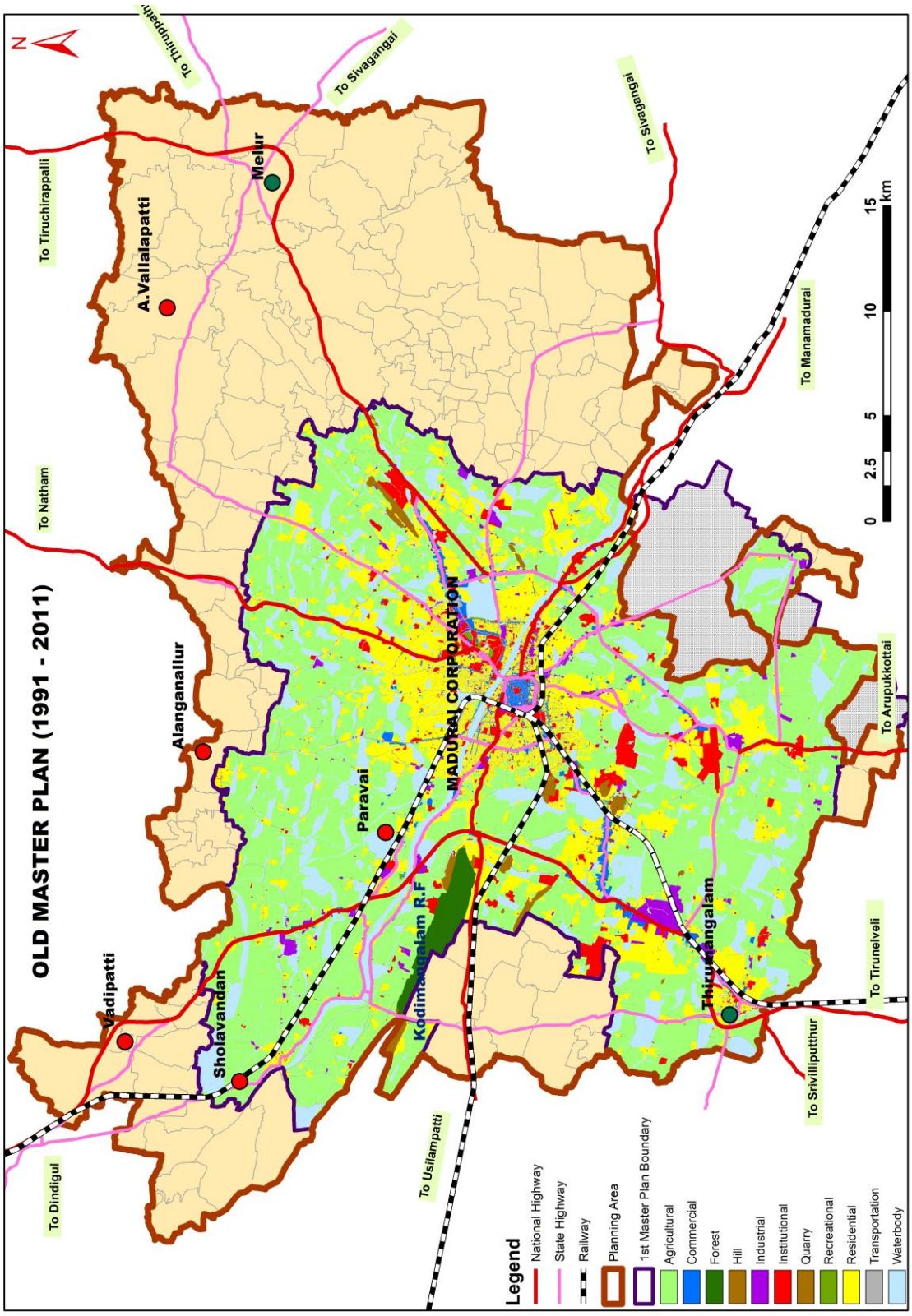
Land use	Proposed – 2011 (1991-2011) in sq.km		Existing Landuse in 2021 in sq.km		Comparison Existing Master Plan – Proposed Master Plan in sq.km		Land use area excluded in proposed master plan in sq.km
Land Use	**Corporation**	**Total LPA**	**Corporation**	**Total LPA**	**Corporation**	**Total LPA**	
Residential	30.37	197.91	19.05	126.34	-11.32	71.57	5.95
Commercial	2.03	20.31	4.93	12.57	2.9	7.74	0.43
Industrial	2.10	59.38	1.32	11.21	-0.78	48.17	0.23
Institutional	5.86	27.65	6.34	24.57	0.48	3.08	0.86
Transport	7.40	24.4	8.65	22.11	1.25	2.29	0.44
Total Developed Area	**47.76**	**329.55**	**40.29**	**196.79**			**7.91**
Agricultural	1.26	270.74	4.77	356.54	3.24	-73.4	36.99
Waterbody	3.07	120.38	6.14	111.61	0.64	8.77	10.50
Hills	0.64	5.4	0.64	5.4			
Total	**51.82**	**726.36**	**51.82**	**670.87**			**55.49 - (10 Villages)**

Figure 4-1: Review of Master Plan

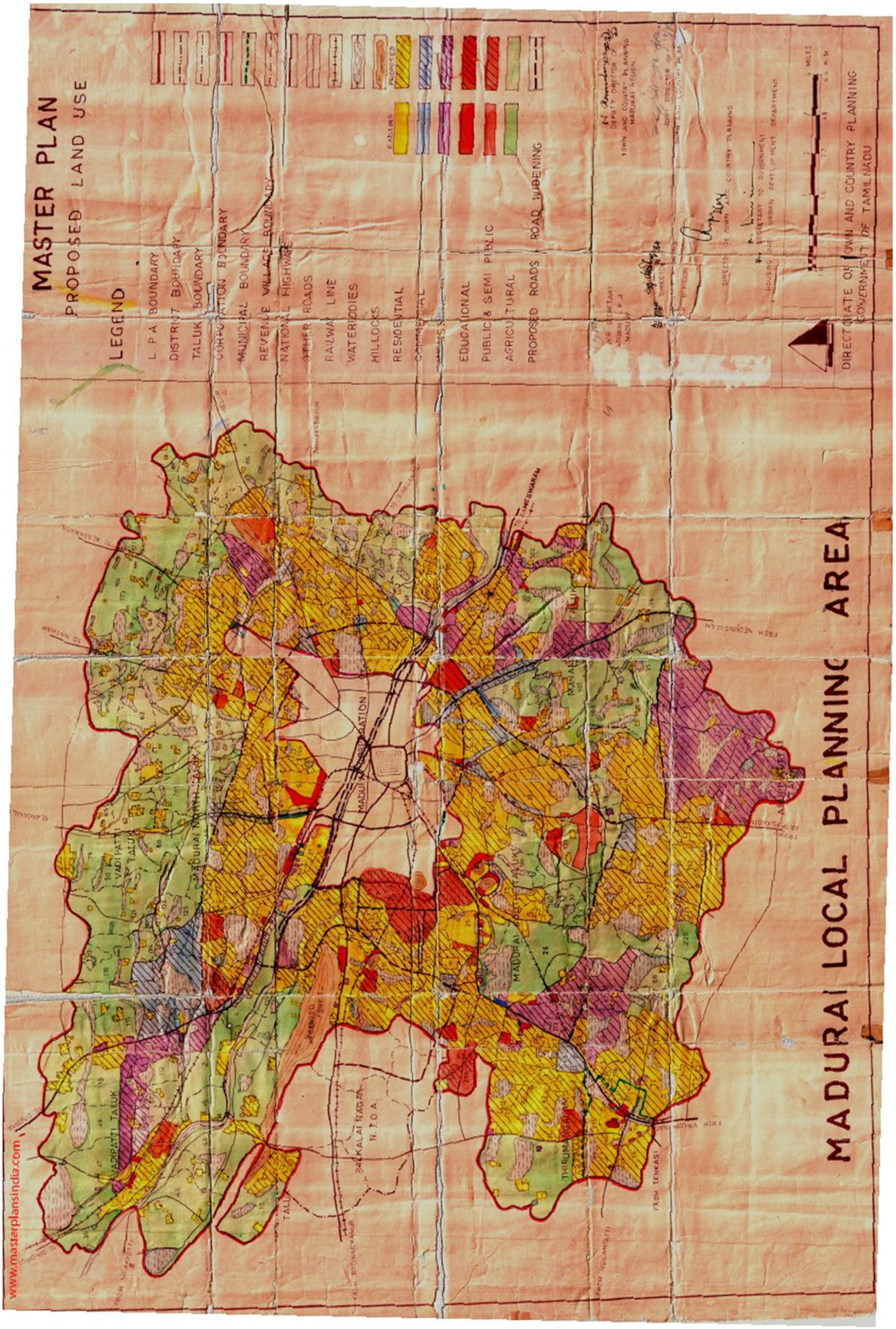
Table 4-1 Status of Work in Previous Master Plan

Major Intersection improvement	
Kattabomman statue junction	Achieved
Anna statue junction	Achieved

Major Intersection improvement	
Thevar statue junction	Achieved
Junction of north veli street (Tamil Sangam Road and workshop road)	Achieved
ROB's	
Sellur road	Achieved
Tamil sangam road at Madurai coats	Achieved
River bridge	
Construction of a high-level bridge across river Vaigai connection Anna Aagar to Kamaraj road	Achieved
Construction of a causeway across river Vaigai near Palam railway station completed	Achieved
railway over bridges	
Re-construction of a new bridges near Madurai railway junction on Dindigul road	
High level bridge over existing causeway	
Pedestrian subway at	
Simmakkal	No
Yanaikkal	No
Kattabomman statue junction	No
Thevar statue junction in front of GH	Done/Not working
foot path improvement along important roads in central area for 10 km distance	Partially
Improvment of Bicycle movement	
Provision of cycle track along corridors	No
cycle subway	No
Yanaikkal junction	
off street parking	
2 tier parking lot/structure at Perumal koil teppakulam	No
2 tier parking lot/structure at the park site on the east side of the temple (7 well area)	No
Railways	
Vilangudi and Thirupparankundram railway station improvement	Under Construction
Madurai – Tuticorin line meter gauge to broad gauge conversion	Done
Provision of signalised pedestrian crossing with necessary physical improvement	
near St.Marys church	Done
municipal road at Ramanathapuram road	Done



Map 4-1 Master Plan (1991-2011)



Map 4-2 Existing Master Plan

4.1.1. Key Issues in Existing Master Plan

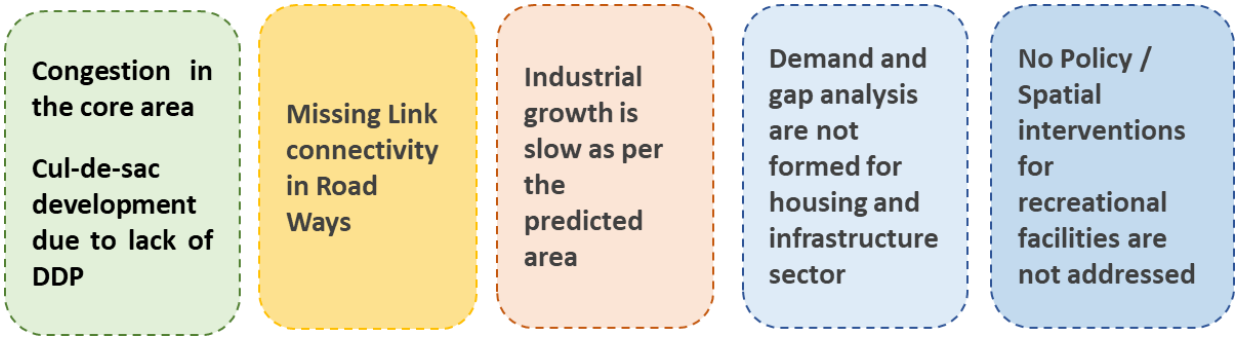


Figure 4-2 Key Issues in Existing Master Plan

4.2. Existing Land Use

The methodology for preparing a land use map typically involves a structured approach that integrates various steps and inputs. Here's a breakdown of the methodology aligning with the steps you've outlined:

Step 1: Creation of Database - GIS Based Master Plan:

Initiate the process by creating a comprehensive Geographic Information System (GIS) database. Gather spatial data including land parcels, infrastructure, utilities, environmental features, zoning regulations, and demographic information.

Organize and manage the collected data into a structured GIS-based system, ensuring accuracy and compatibility for subsequent analyses.

Step 2: Field Verification for Land Use:

Conduct field surveys and verifications to validate the accuracy of existing land use data collected in the GIS database.

Verify land use patterns, identify changes or discrepancies between the GIS data and the actual land use on-site, and update the database accordingly.

Step 3: Integration of Various Factors and Stakeholder Inputs:

Analyze various factors such as population trends, economic activities, infrastructure development, environmental concerns, and social needs.

Integrate inputs and feedback obtained from stakeholder meetings, including local communities, governmental agencies, urban planners, and experts, to ensure the master plan reflects the aspirations and needs of the community.

Step 4: Comprehensive Mobility Plan (CMP) - 2019:

Refer to the existing Comprehensive Mobility Plan or any transportation-related plans and studies to understand mobility patterns, transportation infrastructure, and future mobility needs.

Integrate transportation-related data and considerations into the land use planning process to ensure a cohesive approach between land use and transportation planning.

Step 5: Stakeholders Consultation - October 2021:

Conduct stakeholder consultations to gather updated information, new insights, and recent developments since the previous consultation.

Incorporate feedback received during the October 2021 stakeholder meetings into the land use planning process to address evolving needs and emerging challenges.

The culmination of these steps involves synthesizing the collected data, analyses, and stakeholder inputs to generate a comprehensive land use map.

The land use structure for Madurai Corporation, the rest of LPA and LPA are explained in details in the following sections.

Figure 4-3 Stakeholder Consultation for Land Use Map Preparation, October 2021

4.2.1. Madurai Municipal Corporation

In Madurai Corporation, residential land use often dominates the landscape. In the land area of Madurai Corporation, different types of land use serve various purposes to support the city's functions and its people. About 35.27% of the land is set aside for residential areas, where people live in homes ranging from houses to apartments. This is where most of the city's population resides. There are also spaces designated for business and shopping, which make up 5.76% of the area. These areas, known as commercial zones, host shops, offices, and places where people conduct business, contributing to the city's economy. Industrial areas, covering 2.16% of the land, are where factories and warehouses are located, playing a role in producing goods and providing employment opportunities. Institutional spaces, making up 8.58% of the area, include schools, hospitals, and government buildings that serve the community's educational, healthcare, and administrative needs. Transportation, covering 7.51%, includes roads and transport-related infrastructure essential for getting around the city.

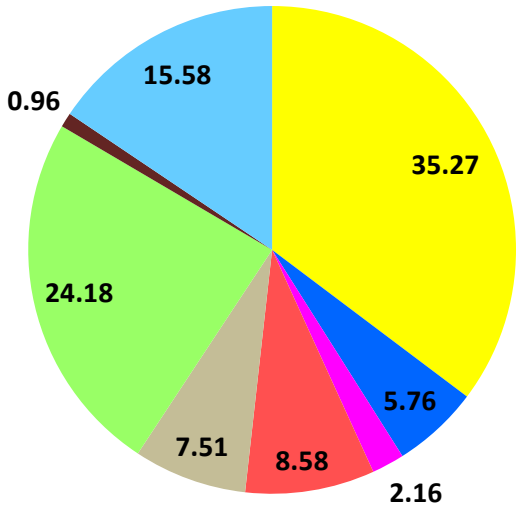
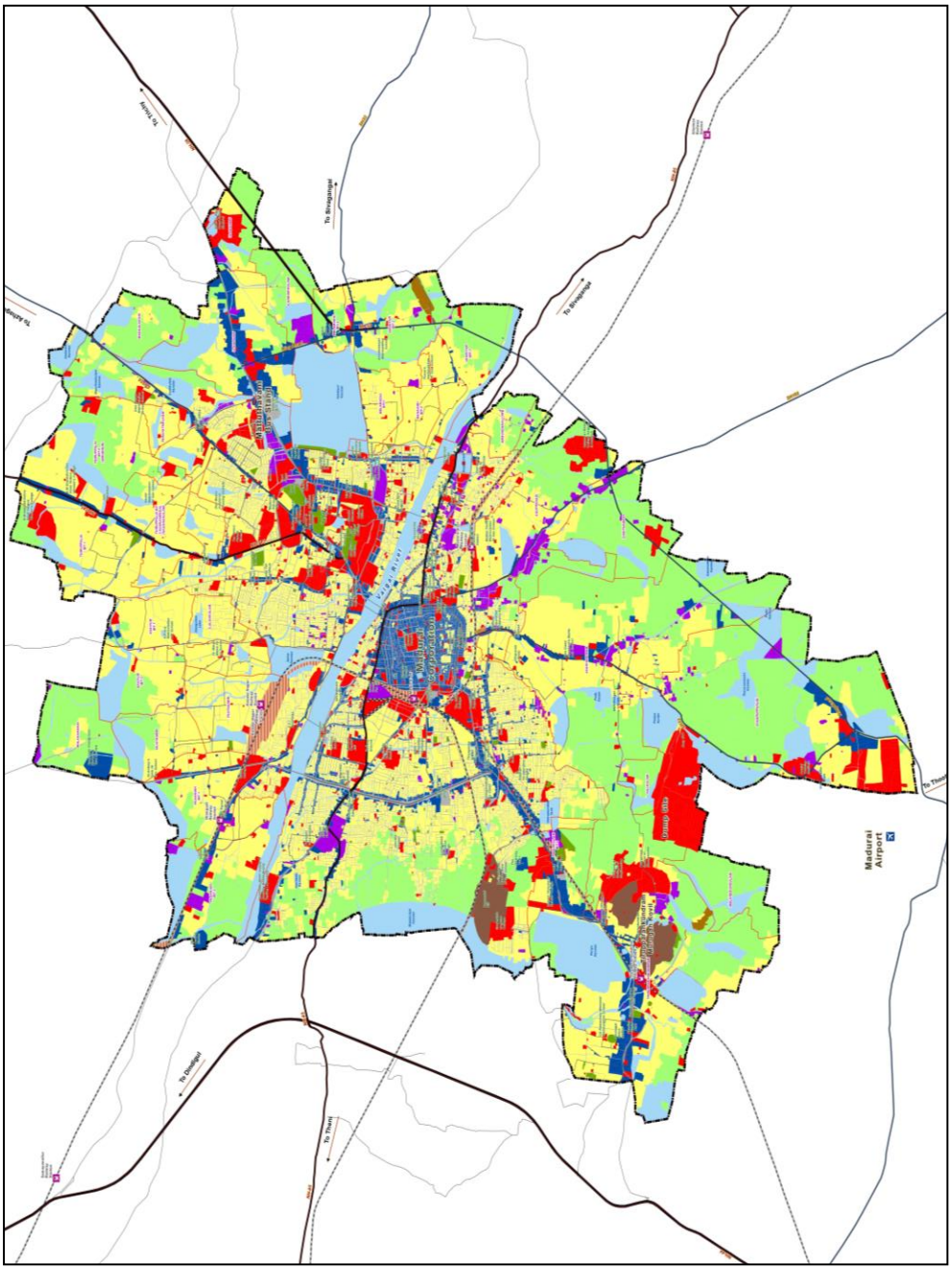


Figure 4-4 Existing Land use, Madurai Municipal Corporation, 2021

Preserving agriculture is also important, with 24.18% of the land dedicated to farming and agricultural activities. This supports local food production and maintains green spaces within the city. There are also hills (0.96%) and water bodies (15.58%) in the area, which contribute to the city's natural beauty and environmental diversity.

The Urban and Regional Development Plan Formulation and Implementation (URDPFI) guidelines, formulated by the Ministry of Housing and Urban Affairs, serve as a framework for urban development planning in India. These guidelines provide principles and standards for land use planning, aiming to achieve sustainable and inclusive urban development. Comparing the existing land use structure with the URDPFI guidelines

involves assessing how the current land use pattern aligns with the principles outlined in the URDPFI.



Map 4-3 Existing Land use of Madurai Corporation

4.2.2. Local Planning Area (Rest of LPA)

In the Madurai Local Planning Area, land serves various purposes crucial for the city's functions and its people. Residential areas cover about 10.45% of the land, providing spaces for people to live in different types of homes.

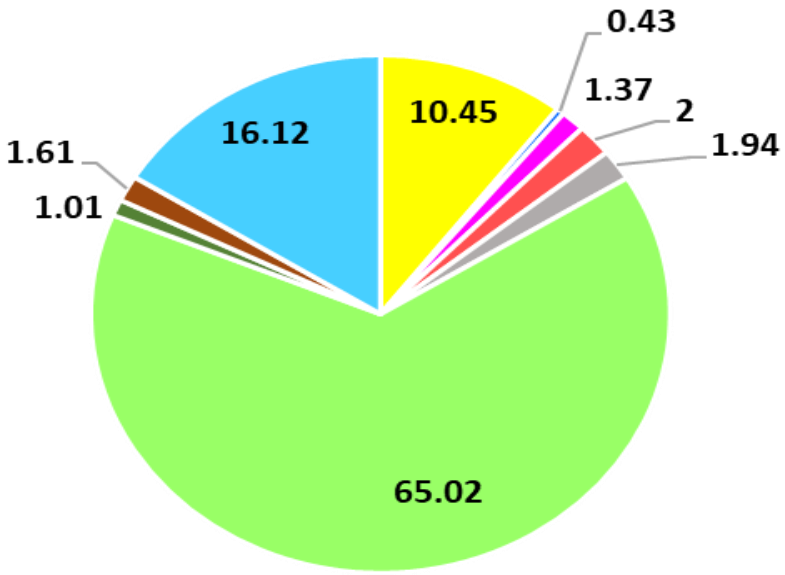
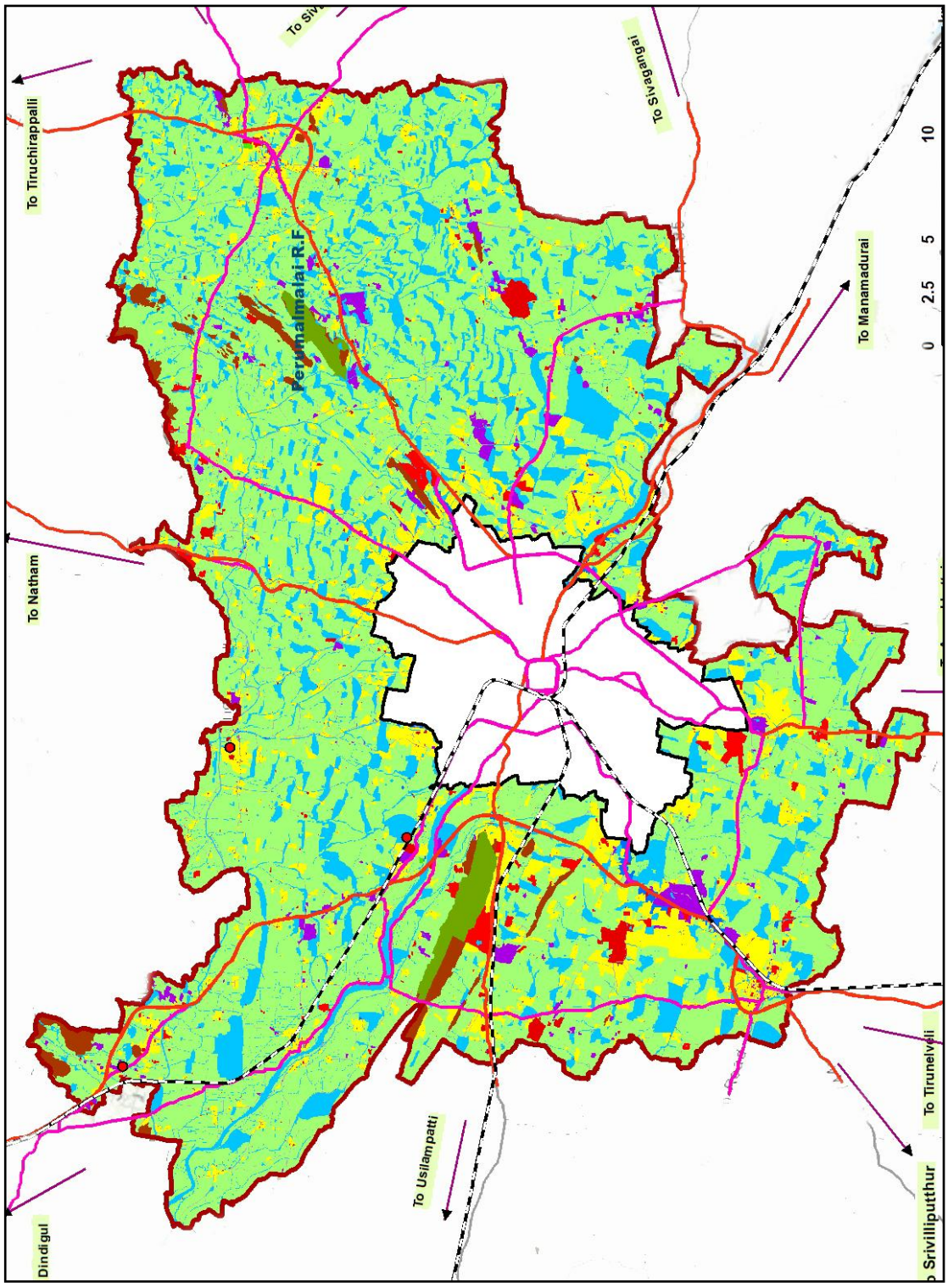


Figure 4-5 Land Use Classification of Rest of LPA

Table 4-2 Land Use, Rest of LPA

Rest of the LPA Land use	Existing Land Use 2021 (Sq.km)	Land Use Breakup in %
Residential	115.78	10.45
Commercial	4.76	0.43
Industrial	15.21	1.37
Institutional	22.21	2.00
Transport	21.57	1.94
Agricultural	719.76	65.02
Reserve Forest	11.28	1.01
Hills	17.91	1.61
Waterbody	178.49	16.12
Total Area	1106.95	100



Map 4-4: Existing Land use of Rest of LPA

Commercial zones make up 0.43% of the area and are dedicated to businesses and shops, contributing to the city's economic activities.

Industrial spaces, covering 1.37% of the land, host factories and warehouses, playing a vital role in manufacturing and production activities.

Institutional areas, comprising 2.0% of the area, include schools, hospitals, and government buildings, providing essential services to the community.

Transportation areas occupy 1.94%, consisting of roads and infrastructure important for commuting and connectivity.

A significant portion, approximately 65.02%, is allocated for agriculture, supporting farming activities and local food production.

Additionally, there are areas designated as Reserve Forest (1.01%), hills (1.61%), and waterbodies (16.12%).

4.2.3. Madurai Local Planning Area

In Madurai Local Planning Area, different types of land serve various purposes to support the city and its surrounding regions. Residential areas make up 13.38% of the land. Commercial zones cover 1.06% of the area. Industrial spaces occupy 1.47% of the land. Institutional areas, comprising 2.78% of the land. Transportation areas account for 2.60%, consisting of roads and infrastructure vital for commuting and connectivity across the region.

A significant part, about 60.21%, is allocated for agriculture, supporting farming activities crucial for local food production and sustaining the agricultural sector.

Preserving nature is also prioritized, with forests covering 0.90%, hills making up 1.54%, and water bodies accounting for 16.06%.

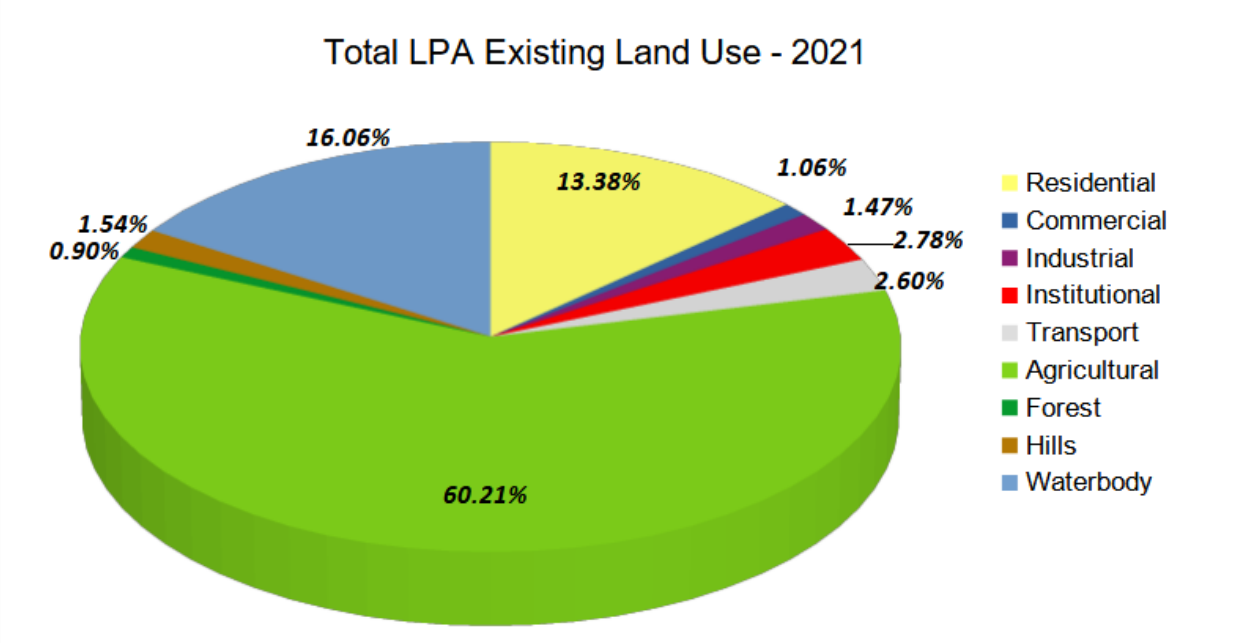
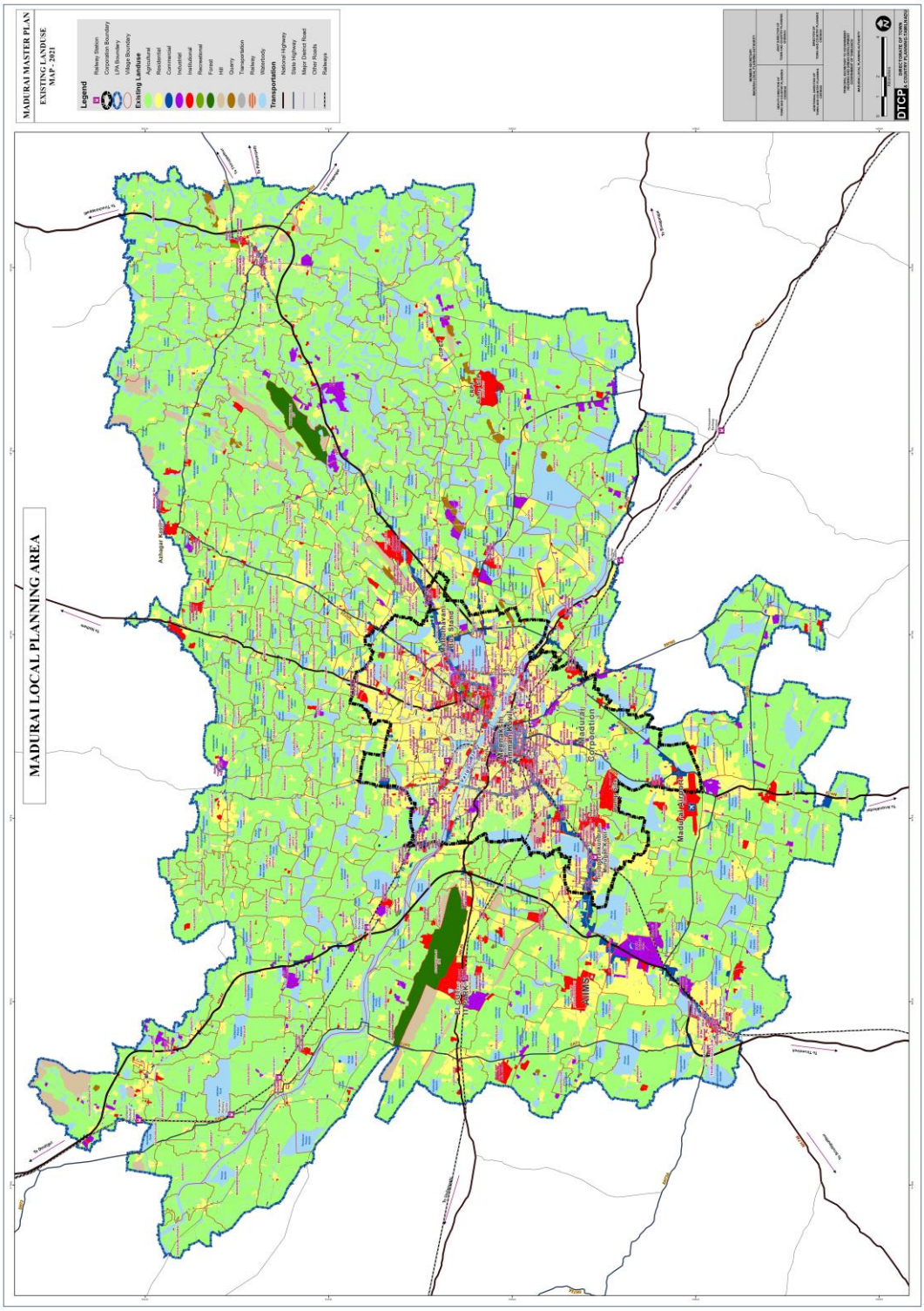


Figure 4-6 Existing Land use, Madurai Municipal LPA, 2021

The predominant land use within the planning area is predominantly characterized by agricultural activities, showcasing a landscape primarily devoted to farming and cultivation.

Moreover, the presence of industrial areas is notably concentrated along the National Highway NH-44 and NH-38 corridors. These highways serve as pivotal transportation arteries, connecting the region to major cities and facilitating the movement of goods and services.



Map 4-5: Existing Land use of Madurai LPA

4.2.3.1. Comparison of Existing Land Use with URDPFI Guidelines, Madurai Corporation

Table 4-3 Comparison of Existing Land Use with URDPFI Guidelines

Corporation Land Use	Existing Land Use 2021 (Sq.km)	Land Use Breakup in %	URDPFI (%)
Residential	52.19	35.27	36-39
Commercial	8.53	5.76	5-6
Industrial	3.20	2.16	7-8
Institutional	12.69	8.58	10-12
Transport	11.11	7.51	12-14
Agricultural	35.78	24.18	Balance
Hills	1.42	0.96	
Water body	23.06	15.58	
Total	147.97	100.00	

5

DEMOGRAPHY

5.1. Introduction

Demography provides crucial insights into population growth, examining factors such as gender, literacy, and the workforce. It plays a pivotal role in shaping the future by projecting the growth trends observed in previous decades and influencing the core. Infrastructure planning.

The demographic information forms the basis for understanding the city's needs, planning for the future, and ensuring that essential services and infrastructure align with the evolving population trends. As we delve into the demographic intricacies of Madurai, we gain valuable insights into the city's past, present, and future, facilitating informed decision-making for sustainable growth and development.

5.2. Population Characteristics

5.2.1. Share of population

Madurai, situated in the southern Indian state of Tamil Nadu, holds a significant position as the third-largest metropolitan area within the state and ranks 31st in the entire country, as per the 2011 Census. The demographic composition of Madurai district further adds to its importance, constituting 4% of the total population of Tamil Nadu (Figure 5-1).

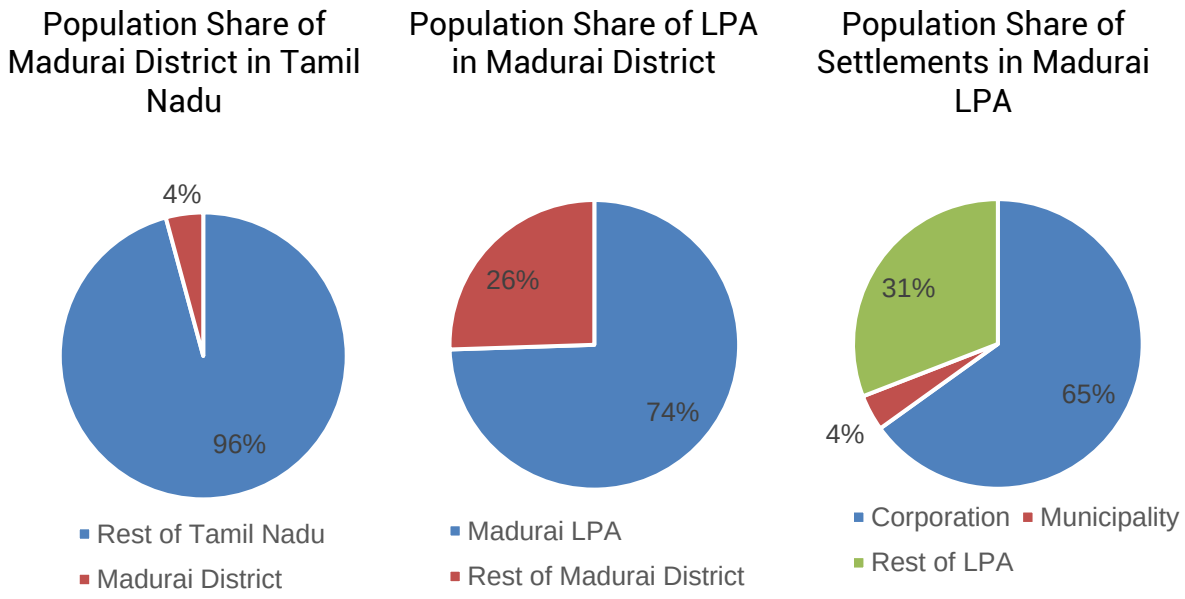


Figure 5-1 Population Share of Madurai LPA

Zooming in on the LPA within the Madurai district provides a more detailed understanding of the population distribution. The LPA encompasses 74% of the total population of Madurai District. Within the LPA, the Madurai Corporation emerges as the most populous, contributing to 65% of the LPA's total population. Municipalities follow with a share of 4%, and the remaining portion of the LPA, incorporating towns and village Panchayats, constitutes 31% of the overall population.

5.2.2. Spatial Distribution of Population in MLPA

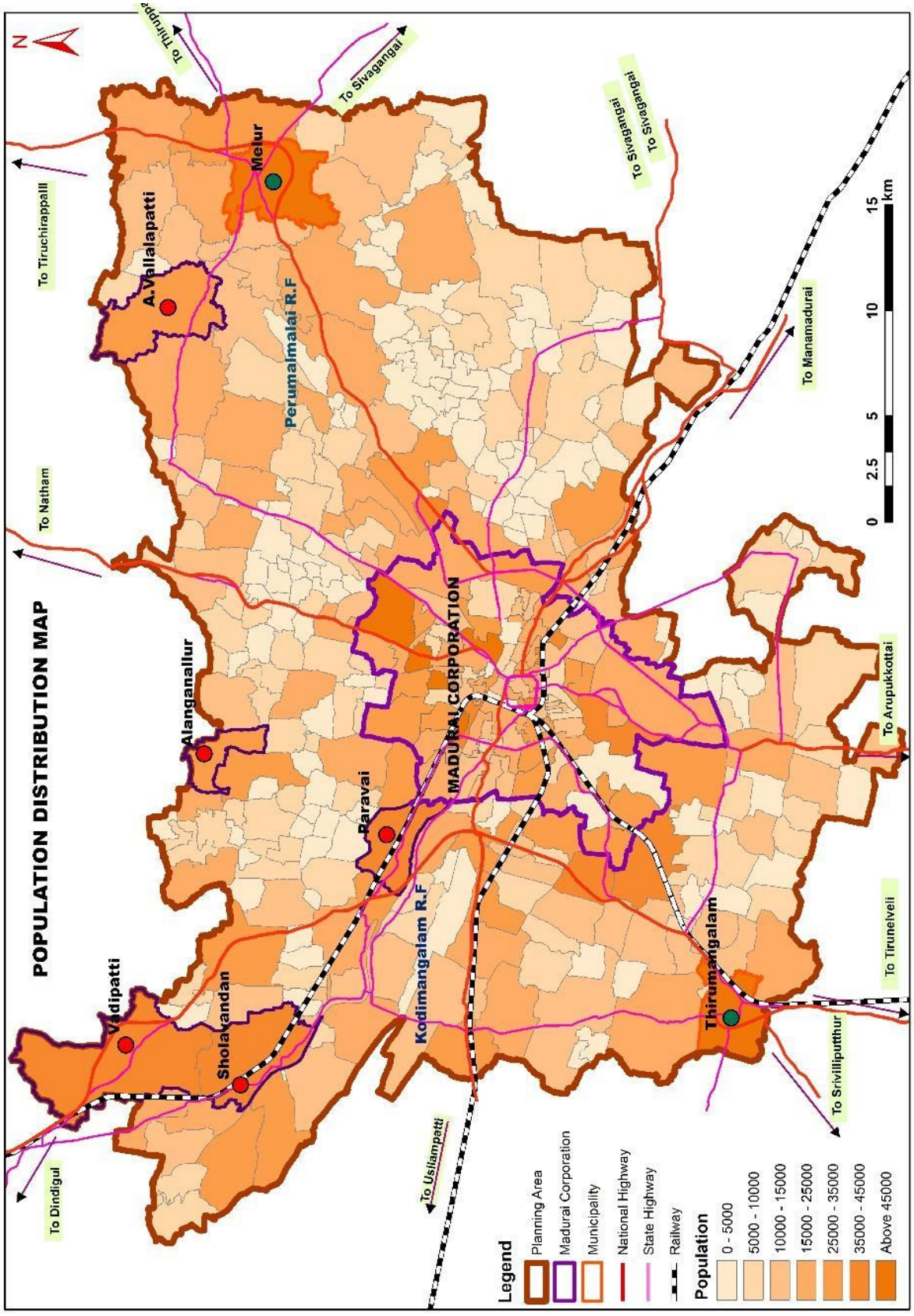
The demographic landscape of Madurai LPA has undergone significant changes over the years, reflecting a substantial increase in population from 1971 to 2011. In 1971, the total population of Madurai LPA stood at 10.83 lakhs and this figure has more than doubled in 2011, reaching 22.63 lakhs (Table 5-1). Breaking down the components within the LPA, the population of Madurai Corporation, the urban hub, surged from 7.02 lakhs in 1971 to 14.73 lakhs in 2011.

Similarly, the municipalities experienced growth, with the population escalating from 54,000 in 1971 to 91 thousand in 2011. The rest of the LPA, comprising towns and village Panchayats, witnessed a rise in population from 3.28 lakhs in 1971 to 6.99 lakhs in 2011. The Madurai core city boundary was increased by 51.82 sq. km to 147.99 sq. km in 2011, and the population increased from 10.18 lakhs to 14.73 lakhs. Table 5-1 shows the distribution of the population in LPA.

Table 5-1 Population distribution of Madurai LPA, 1971-2011 (In lakhs)

Administration Unit	1971	1981	1991	2001	2011
Corporation	7.02	9.24	11.17	12.28	14.73
Municipality	0.54	0.57	0.67	0.78	0.91
Rest of LPA	3.28	4.26	5.28	5.85	6.99
Total LPA	10.83	14.07	17.12	18.91	22.63
Madurai District	17.30	20.43	24.00	25.78	30.38
Tamil Nadu	411.99	484.08	558.59	624.06	721.47

Source: Census of India



Map 5-1 Population Distribution of Madurai LPA, 2011

5.2.1. Population Growth in MLPA

5.2.1.1. Madurai LPA

In the decade from 1981 to 1991, the growth rate of the peripheral areas, encompassing towns and village Panchayats, surpassed that of the corporation. The peripheral areas exhibited a growth rate of 23.90%, indicating a significant demographic shift towards these non-urban.

In contrast, the corporation experienced a growth rate of 20.86% during the same period (Figure 5-2). However, between 2001 and 2011, the corporation's growth rate slightly outpaced that of the peripheral areas with 19.91% and 19.48% respectively. Map 5-1 shows the growth rate in Madurai LPA.

Table 5-2 Population Growth Trend of Madurai LPA, 1981-2011

Administration Unit	1981-1991	1991-2001	2001-2011
Corporation	20.86%	10.02%	19.91%
Municipality	17.82%	14.87%	17.67%
Rest of LPA	23.90%	10.78%	19.48%
Total LPA	21.66%	10.45%	19.68%
Madurai District	17.51%	7.41%	17.84%
Tamil Nadu	15.39%	11.72%	15.61%

Source: Census of India

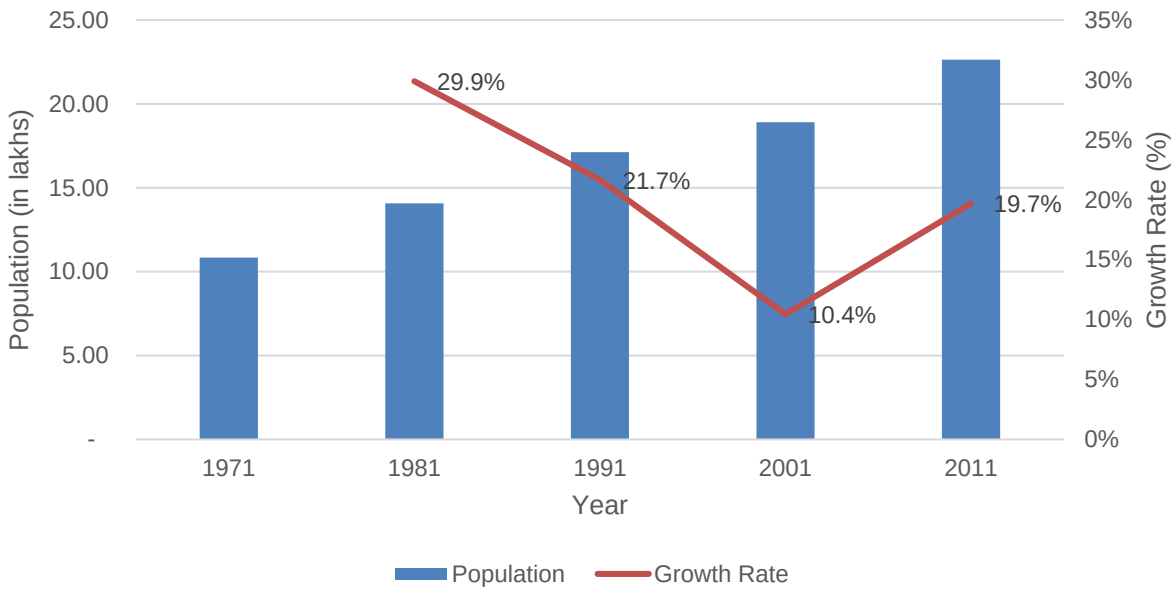
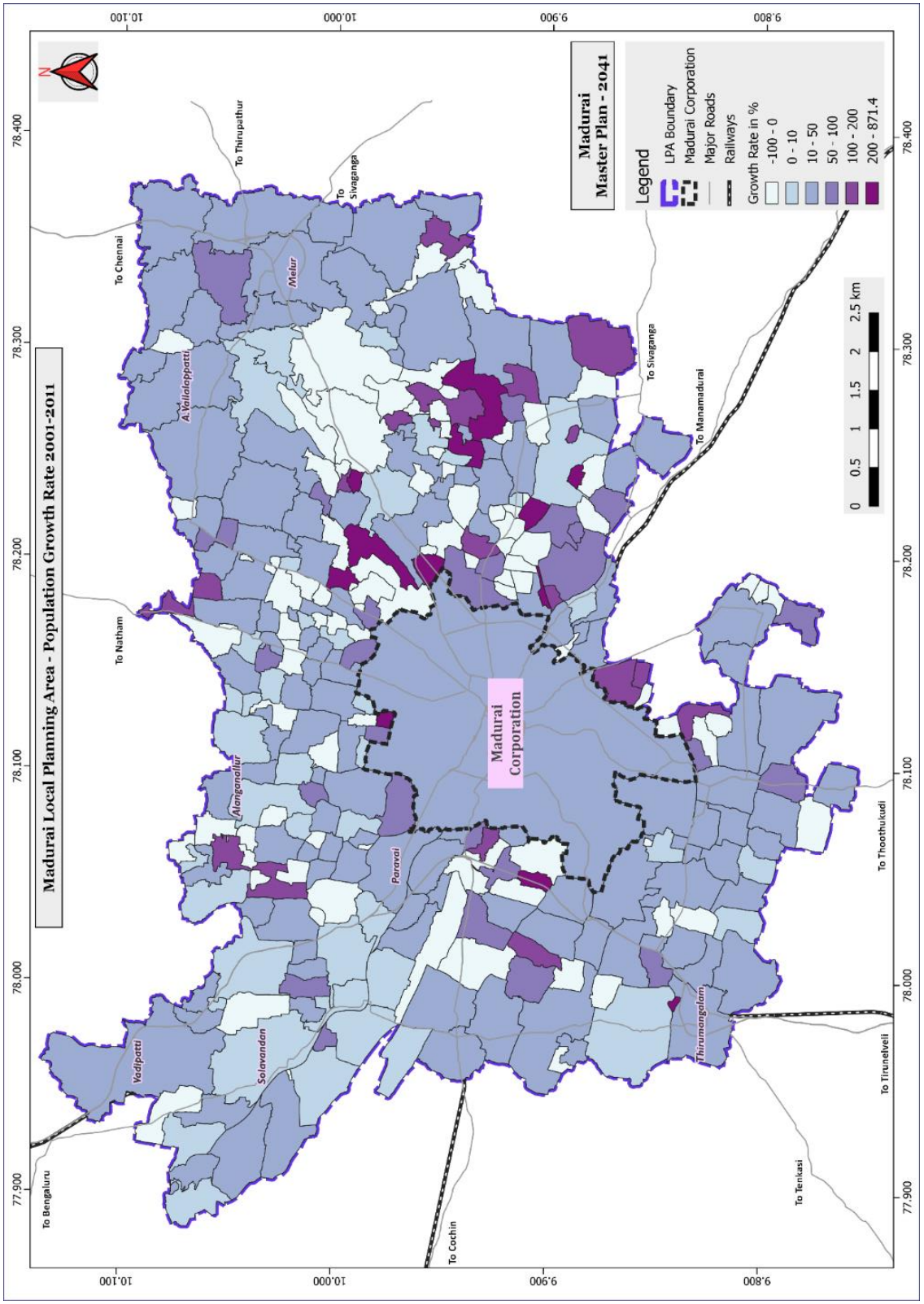


Figure 5-2 Population and Growth Rate of LPA, 1971-2011



Map 5-2 Population Growth Rate in LPA, 2001-11

5.2.1.2. Madurai Corporation

The growth rate of the Madurai Corporation shows a gradual decrease between 1971 and 2001 from 31.6% in 1971-1981 to 10% in 1991-2001. However, it increases to 19.9% in 2001-2011. This is similar to the Madurai LPA growth rate.

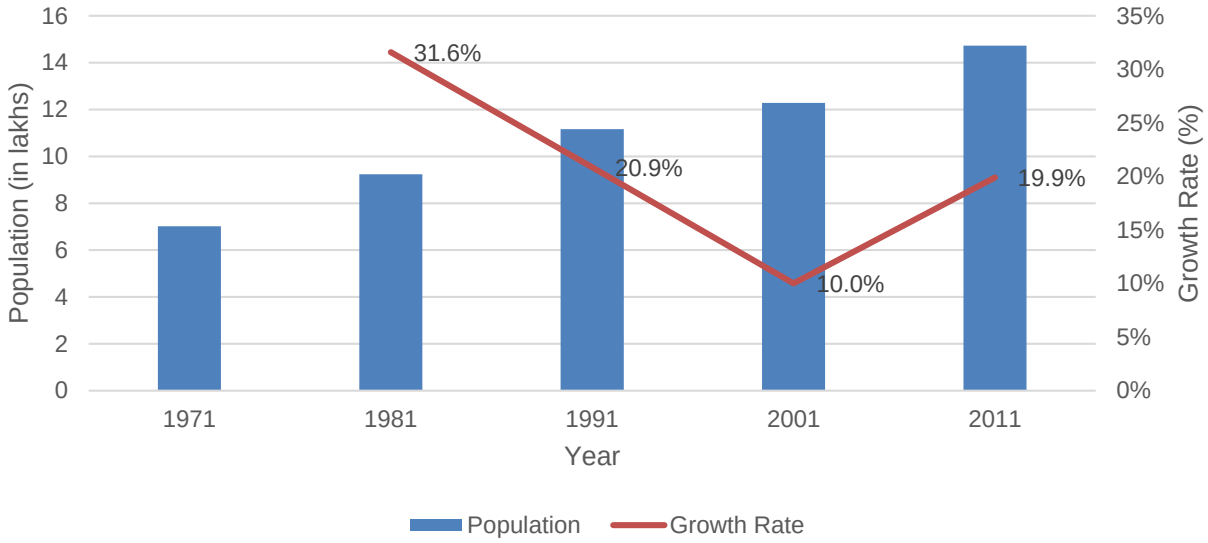


Figure 5-3 Population & Growth Rate of Madurai Corporation, 1971-2011

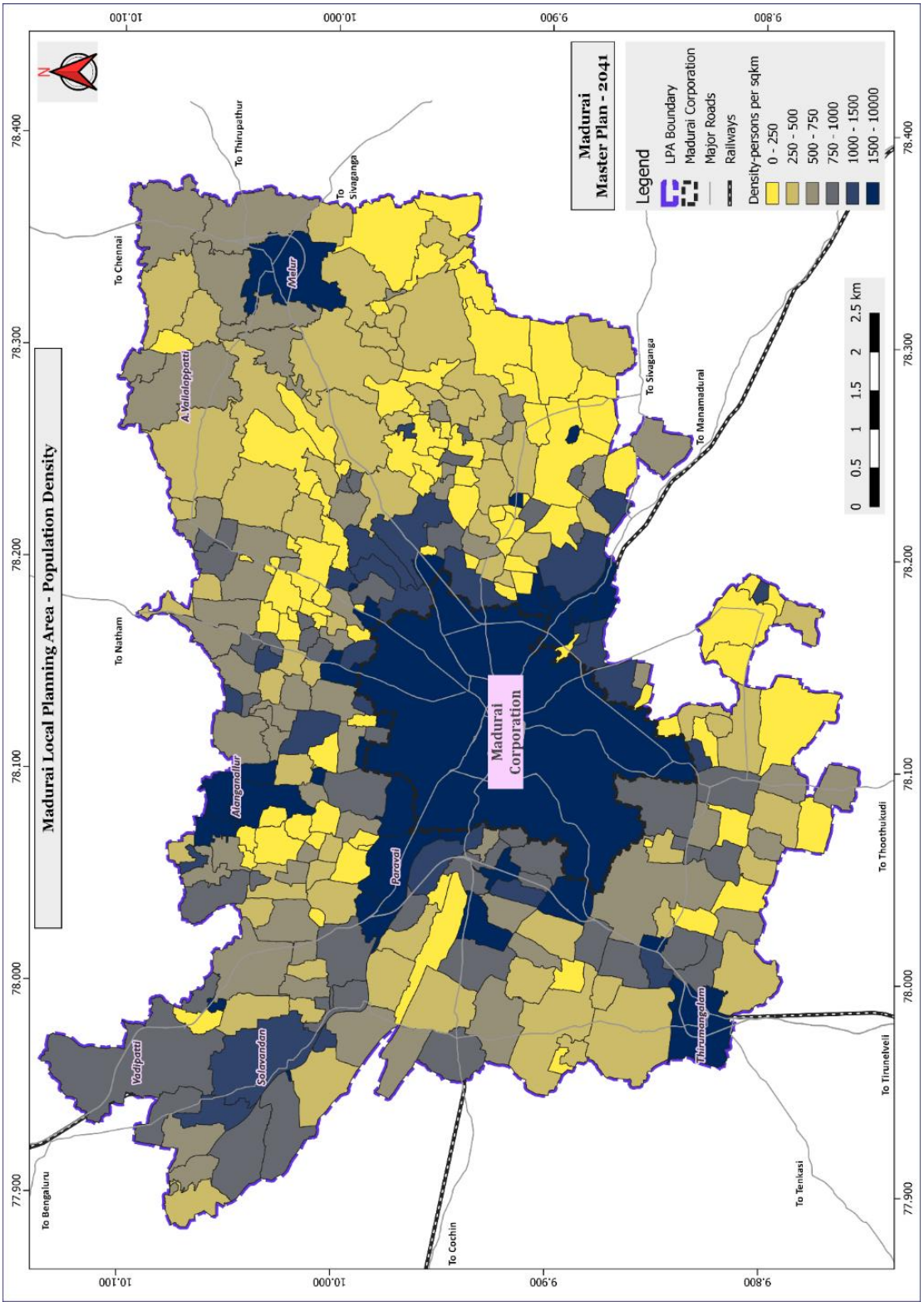
5.2.1. Population Density

Population density is defined as the number of persons residing in an area. The density of Madurai's local planning area is 1,803 persons per sq. km (Figure 5-4). This density surpasses that of Madurai District, which stands at 818 persons per sq. km, and the state of Tamil Nadu with a density of 555 persons per sq. km. In the case of Madurai Corporation, the population density is calculated at 9,797 persons per sq. km. This indicates a relatively high density, highlighting the compact nature of urban living within the corporation area.

Comparing Madurai with other major cities in Tamil Nadu, it is positioned as the third-largest after Chennai and Coimbatore. Madurai's population density, although slightly lower than Coimbatore (9,950 persons per sq. km), is significantly less than Chennai's high density of 26,553 persons per sq. km.

Delving into the other administrative units within Madurai LPA, the municipality exhibits a population density of 3,515 persons per sq. km. In contrast, the remaining planning area, comprising towns and village Panchayats, has a much

lower density of 647 persons per sq. km. Map 5-3 shows the population density in Madurai LPA.



Map 5-3 Population Density in LPA, 2011

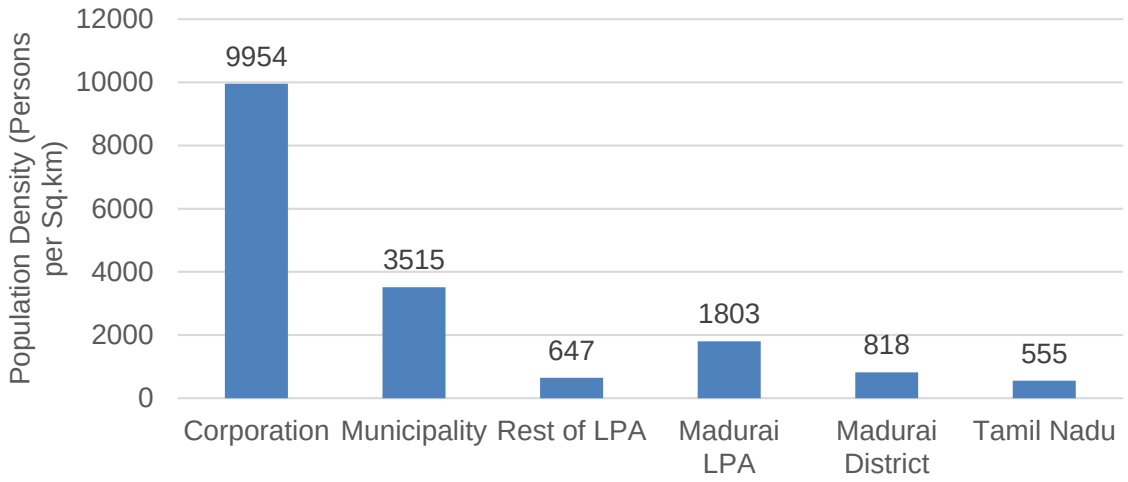


Figure 5-4 Population Density in LPA, 2011

5.2.2. Age Sex Pyramid

As shown in the age-sex composition pyramid, the age group of 40 to 49 has the highest share of population in Madurai district.

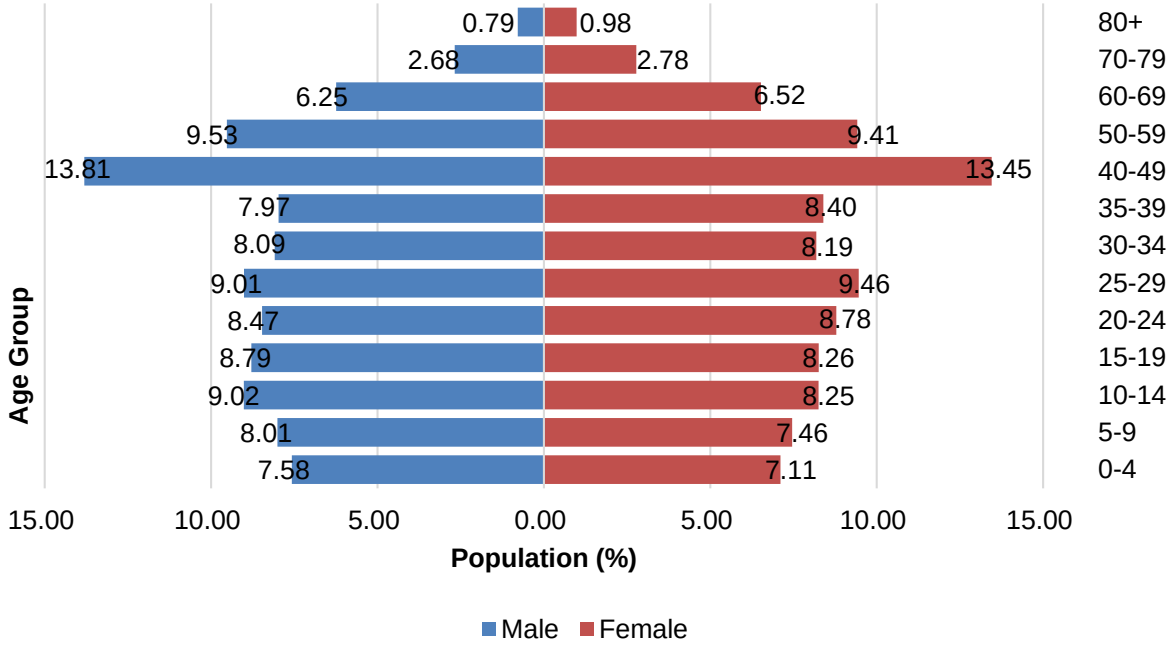


Figure 5-5 Age-Sex Composition in Madurai, 2011

Source: Census of India

5.2.3. Birth Rate and Death Rate

This birth rate represents the number of live births per 1,000 people in the population during that year. The death rate indicates the number of deaths per 1,000 people in the population during a specified period. In 2020, Tamil Nadu experienced a birth rate of 12.3% and a death rate of 9%. Focusing on Madurai District, the birth rate was slightly higher at 13.6% and the death rate at 10.7%.

5.2.4. Households

According to the 2011 Census, Madurai LPA encompasses 5.87 lakh households, distributed as 3.83 lakhs in the Corporation, 23 thousand in the Municipality, and 1.8 lakhs in the remaining LPA (Table 5-3). Average household sizes are 3.8 in the Corporation, 3.9 in municipalities, and 3.9 in the rest of LPA. These figures align with Madurai District's 3.8 household size and Tamil Nadu's 3.9.

Table 5-3 Household Distribution and Household Size, 2011

Administrative Unit	Population	Household	Household Size
Corporation	14,72,946	3,82,909	3.8
Municipality	91,211	23,436	3.9
Rest of LPA	6,98,958	1,80,675	3.9
Total LPA	22,63,115	5,87,020	3.9
Madurai District	30,38,252	7,93,089	3.8
Tamil Nadu	7,21,47,030	1,84,62,231	3.9

Source: Census of India

5.2.1. Literacy Rate

Madurai LPA stands out with a literacy rate of 87.01%, surpassing the district average of 83.45% and the state average of 80.09% (Figure 5-6). Examining literacy rates within the LPA, the corporation exhibits a literacy rate of 90.65% and the municipalities with an average of 90.17%, indicating a strong emphasis on education in these urban settings. However, the rest of the planning area, comprising towns and village Panchayats, lags with a literacy rate of 78.82%. Breaking down the literacy rates by gender in LPA, male literacy stands at 92.06%, outpacing the female literacy rate of 81.95% which is significantly higher compared to that of the district and state.

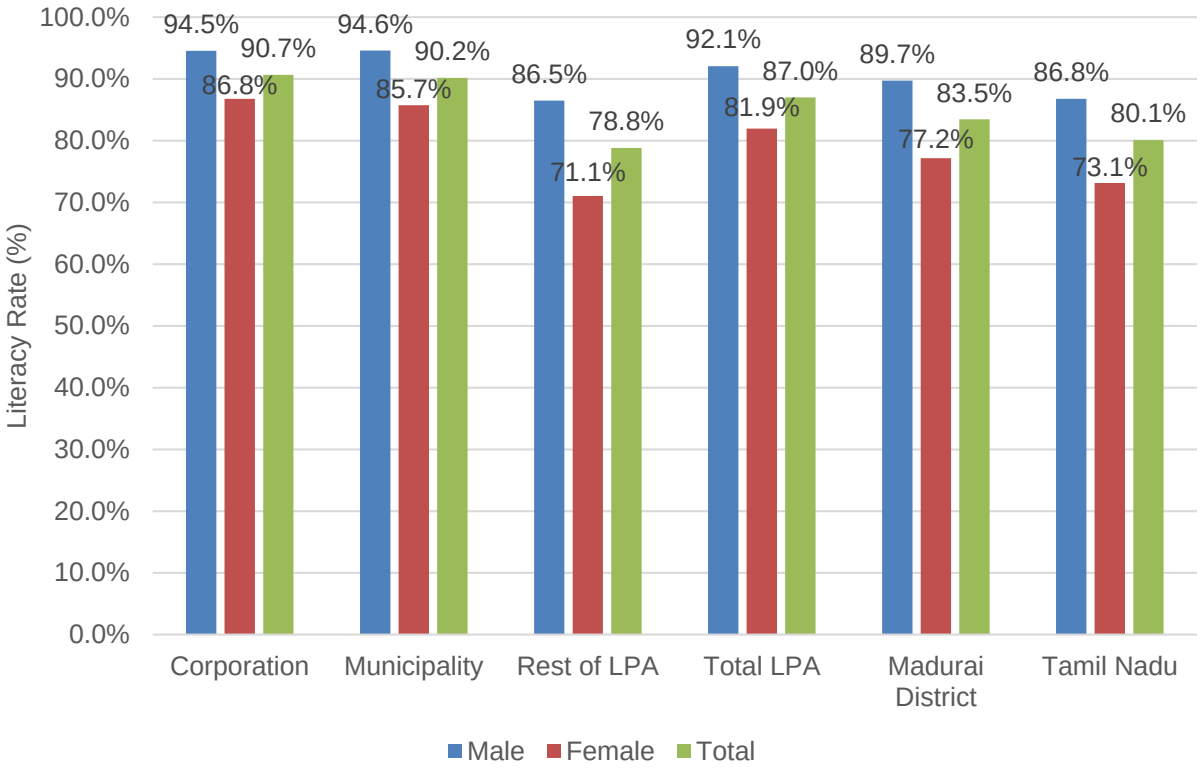


Figure 5-6: Literacy rate in LPA, 2011

5.2.2. Gender Ratio

The sex ratio, denoting the number of females per thousand males, provides insights into the gender distribution within a population. In Madurai LPA, this ratio stands at 992 females for every 1,000 males, a figure closely aligning with the Madurai district of 990 and comparatively less than the state average of 996 (Figure 5-7). The sex ratio in Madurai Corporation is 997 which is similar to the state. Further exploration into the municipalities within the LPA indicates a sex ratio of 990, mirroring the district average. However, village Panchayats show a slightly lower sex ratio, standing at 981. Over 100 villages within the planning area exhibit a sex ratio higher than 1000, indicating a prevalence of more females compared to males in these specific locales.

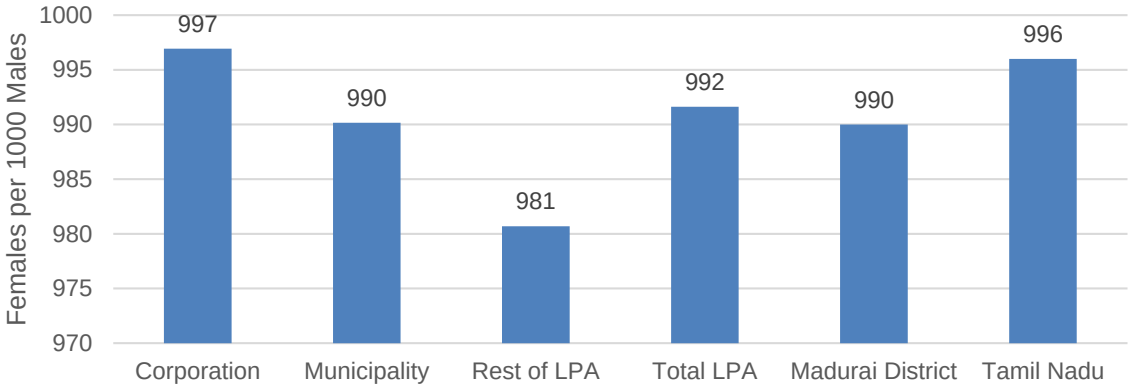


Figure 5-7 Gender ratio in LPA, 2011

5.2.3. SC and ST Population

The SC and ST population in the Madurai LPA is distributed across various administrative units. In the Madurai LPA, the SC population is reported to be 2.6 lakhs, constituting 11.44% of the total population, while the ST population is 10.5 thousand, accounting for 0.47% of the total population. This distribution is lower than the corresponding district-level percentages, where the SC population is 13.46%, and the ST population is 0.37%.

Breaking down the SC and ST population within different administrative divisions: The Corporation, a significant part of the Madurai LPA, has 7.12% of SC and 0.3% of ST individuals in its total population. The municipality, another administrative division, exhibits a higher percentage, with 9.46% of SC and 0.19% of ST individuals in its population. The rest of the LPA, beyond the corporation and municipality, has a substantial share, with 20.81% of SC and 0.86% of ST individuals in its population.

Table 5-4 SC & ST Population Distribution, 2011

Administrative Unit	Population		Share to Total Population of Administrative Unit (in %)	
	SC	ST	SC	ST
Corporation	1,04,924	4,380	7.12%	0.30%
Municipality	8,627	172	9.46%	0.19%
Rest of LPA	1,45,428	6,021	20.81%	0.86%
Madurai LPA	2,58,979	10,573	11.44%	0.47%
Madurai District	4,08,976	11,096	13.46%	0.37%
Tamil Nadu	1,44,38,445	7,94,697	20.01%	1.10%

Source: Census of India

5.2.4. Population Distribution of Persons with Disabilities (PwDs)

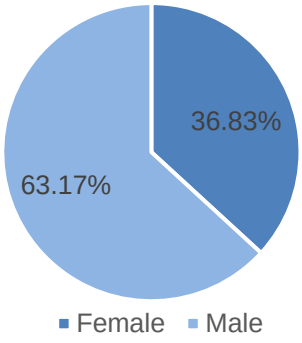


Figure 5-8 Gender Wise Distribution of PwDs

Source: Department of Welfare of Differently Abled Persons, 2023

In the journey toward inclusivity, society continues to evolve, recognizing the importance of creating an environment that fosters equality, accessibility, and empowerment for all.

In the distribution of differently abled individuals, males account for approximately 63.17%, while females represent around 36.83%.

As shown in Figure 5-9 the persons with Locomotors Disability is higher in number.

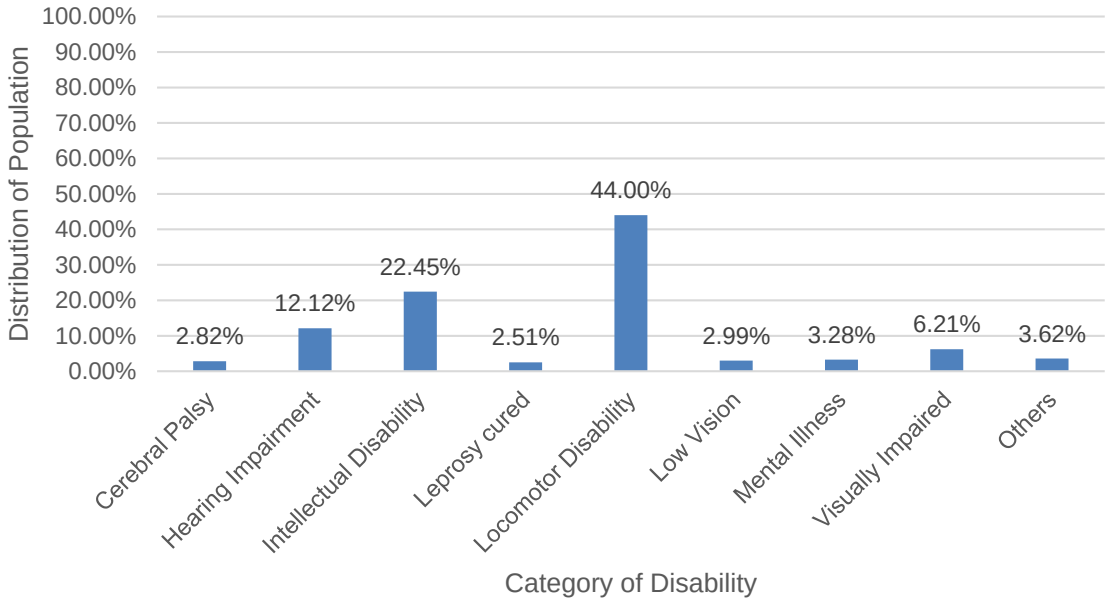


Figure 5-9 Category of Disability, Madurai District, 2023

5.2.5. Population Migration, 2011

Madurai district has a migrant population of 12.07 lakhs (39.7%) as per census 2011.

68% of the total migration is intra-district followed by 29% inter-district.

Table 5-5 Population Migration in Madurai District

District	Total	Intra-District	Inter-District	Inter-State	International
Madurai District	12,07,266	8,23,025	3,54,613	20,454	9,174
% Share	39.74	68.17	29.37	1.69	0.76

Source: Census 2011

5.2.6. Workforce Participation

In 2011, the LPA of Madurai comprised a total workforce of 9.36 lakhs. However, the workforce participation rate in the LPA stood at 41.4%, falling below both the district and state averages, which were 44.6% and 45.6%, respectively.

Notably, town and village Panchayats exhibited the highest workforce participation rate within the LPA, reaching 47.4%.

In contrast, the Corporation and municipalities reported rates of 38.8% and 36.6%, respectively. Of the total workers, 88.8% were classified as main workers.

The gender distribution revealed a predominance of male workers at 71.4%, while female workers constituted 28.6%.

Table 5-6 Workforce distribution in Madurai LPA, 2011

Parameters	Corporation	Municipality	Rest of LPA	Madurai LPA
Total workers	5,71,883	33,338	3,31,628	9,36,849
Participation Rate	38.8%	36.6%	47.4%	41.4%
% of Male workers to Total Workers	75.8%	76.4%	63.4%	71.4%
% of Female workers to Total Workers	24.2%	23.6%	36.6%	28.6%

Parameters	Corporation	Municipality	Rest of LPA	Madurai LPA
% of Main workers to Total Workers	92.5%	92.7%	82.0%	88.8%
% of Marginal Workers to Total Workers	7.5%	7.3%	18.0%	11.2%

Source: Census 2011

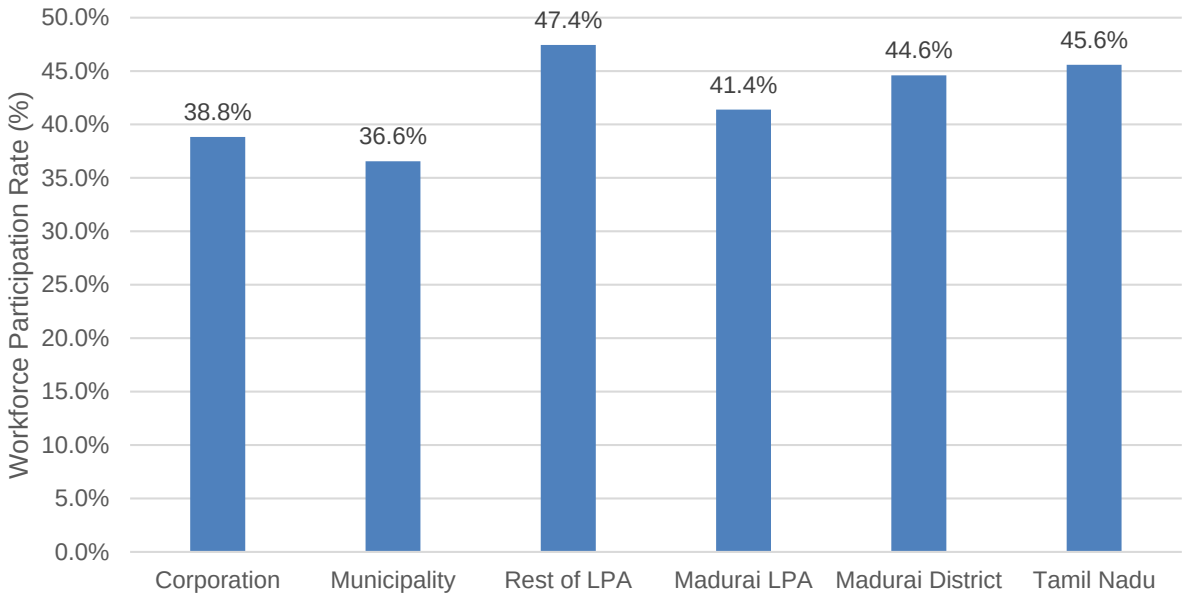


Figure 5-10 Workforce Participation Rate, 2011

5.3. Key Findings

Madurai, the third-largest metropolitan area in Tamil Nadu, holds significance as it constitutes 4% of the state's total population. The LPA within the Madurai district, encompassing 74% of the district's population, portrays a detailed distribution.

The Madurai Corporation, contributing 65% to the LPA's population, is the most populous, followed by municipalities with a 4% share. The demographic landscape of Madurai LPA has evolved, with the total population doubling from 1971 to 2011, reaching 22.63 lakhs. Notably, Madurai Corporation experienced significant growth, reaching 14.73 lakhs in 2011. The growth rate of peripheral areas surpassed the corporation between 1981 and 1991 but reversed in the following decade.

Population density in Madurai LPA is 1,803 persons per sq. km, with the corporation exhibiting a high density of 9,797 persons per sq. km.

The birth rate in Madurai District was 13.6%, and the death rate was 10.7% in 2020.

The gender ratio in Madurai LPA is 992 females per 1,000 males, with a literacy rate of 87.01%, surpassing the district and state averages.

The corporation boasts a high literacy rate of 90.65%, emphasizing education in urban settings, while the rest of the planning area lags with a literacy rate of 78.82%.

Overall, these demographic insights provide a comprehensive understanding of informed decision-making in Madurai's growth and development.

6

ECONOMY

Madurai's economic landscape is a mosaic that encompasses a wide array of sectors. Its traditional industries, such as textiles, agriculture, and handicrafts, form the foundation of its economy, rooted in centuries-old practices and craftsmanship. These sectors have historically contributed to Madurai's prosperity and cultural identity.

It has evolved and diversified its economic portfolio by embracing modern enterprises. The integration of information technology, healthcare, and education sectors reflects the city's adaptability and willingness to embrace contemporary advancements. The infusion of these modern industries not only adds dynamism to Madurai's economic fabric but also signifies its readiness to navigate the currents of the evolving global economy.

This chapter aims to provide an overview of the present economic condition within the region, offering insights into the evolving trends and growth trajectories across various sectors.

It begins by delving into an analysis of the macroeconomic landscape, primarily focusing on the Gross District Domestic Product (GDDP). This examination involves a comprehensive breakdown of the GDDP based on distinct economic activities prevalent within the region.

6.1. Sector Wise Share in Gross District Domestic Product (GDDP)

The Gross District Domestic Product (GDDP) acts as a crucial indicator, offering insights into the economic activities across various sectors within Madurai's districts. It gauges the overall economic performance and growth of the region, typically by considering three main sectors: the primary sector[1], the secondary sector[2], and the tertiary sector[3].

Table 6-1 Sector Wise Trend in GDDP

[1] The primary sector is concerned and majorly dependent on the natural resources and its availability for the purpose of goods manufactured and the execution of different processes. The secondary sector is largely driven by consumer demand.

[2] The secondary sector primarily focuses on products and services consumed by the wider population, such as transport and infrastructure.

[3] The tertiary sector is interchangeably called the service industry as it provides services to all the existing businesses and the final consumers, services can vary from distribution, transport, and good's sale from the producers to consumers, as well as retailing, wholesaling, and even services like information technology, insurance, banking, transport, entertainment, etc.

S. No.	Name of the Sector	2011 - 2012 (in lakhs)	2015- 2016 (in lakhs)	2019 - 2020 (in lakhs)
1	Primary	2,07,024	2,02,293	2,14,155
2	Secondary	7,08,804	9,33,448	12,91,260
3	Services	16,03,009	20,86,453	27,00,118
4	Gross District Value Added	25,18,836	32,22,193	42,05,534
5	Gross District Domestic Product	27,31,326	35,46,553	47,04,766
6	Per Capita Income (In Rupees)	89,456	1,12,796	1,46,807

Source: Directorate of Economics & Statistics, Go TN

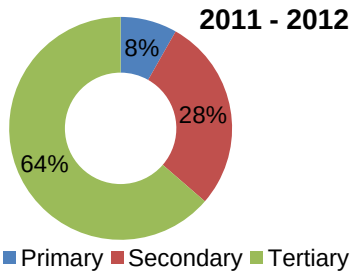


Figure 6-1 Sector Wise Share in GDDP, 2011-12

Source: Department of Economics & Statistics

There is a consistent decline observed in the primary sector's contribution to the GDDP over the years, with figures dropping from 8% in 2011-12 to 6% in 2015-16, and further reducing to 5% by 2019-20. This decreasing trend indicates a diminishing share of agriculture and allied activities in the region's economic output.

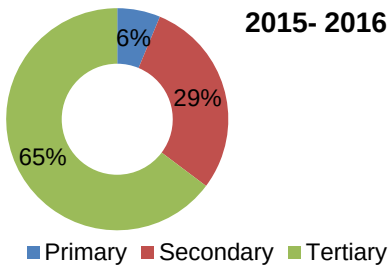


Figure 6-2 Sector Wise Share in GDDP, 2011-12

Source: Department of Economics & Statistics

The secondary sector witnessed a modest increase in its contribution to the GDDP, rising from 28% in 2011-12 to 29% in 2015-16, and further advancing to 31% by 2019-20. This upward trend suggests an amplified presence of manufacturing and industrial activities within the region, signifying potential growth in these sectors.

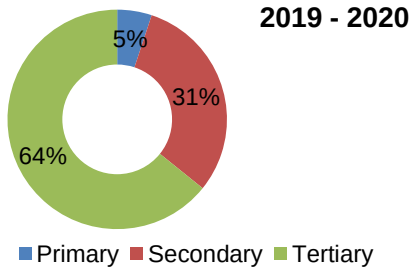


Figure 6-3 Sector Wise Share in GDDP, 2011-12

Source: Department of Economics & Statistics

The tertiary sector demonstrated stability, with a dominant contribution to the GDDP remaining relatively unchanged. Starting at 64% in 2011-12, it increased to 65% in 2015-16, and then reverted to 64% by 2019-20. This sector, involving services like healthcare, education, finance, and information technology, sustained its significant role in the regional economy.

6.1.1.1. Inference

1. The declining trend in the primary sector indicates a reduced emphasis on agriculture and related activities, possibly suggesting shifts in employment patterns or a diversification of the economy away from agricultural reliance.

2. The secondary sector's consistent growth implies a strengthening of industrial and manufacturing capabilities within the region, potentially contributing to economic expansion and job creation

3. Despite minor fluctuations, the tertiary sector retained its prominence, reflecting a stable reliance on service-oriented industries as a significant pillar of the region's economic output

6.1.2. Per Capita Income for Madurai

Per capita income is a crucial economic indicator that helps to understand the standard of living and economic well-being of the residents within a particular area. It provides insights into the average income available per person, allowing for comparisons between different regions or countries.

A higher per capita income generally indicates a higher standard of living, better access to goods and services, improved healthcare, education, and overall quality of life for the residents.

Per capita income is almost higher than the State average of 9.52. In 2007-2008, there was a decline in growth rate because there was a negative growth rate (-4.70%) and recorded a negative growth rate of (-29.97%) in secondary sector which further influence the per capita income of the district too. The main reason attributing to this negative growth was the reduction in primary and secondary sector growth.

In primary sector, agriculture and allied activities production in 2006-07 has reduced to 6% in 2007-08 (constant price). Similarly in the secondary sector, the reduction in production of manufacturing goods from registered sectors in 2006-07 has reduced to 45% in 2007-08 in terms of constant price. The Per capita income of Madurai district was Rs.67258 at constant prices in 2011-12 which is higher than the State per capita income of Rs.63996 at constant price. As per 2011-2012 data, Madurai ranks 13th rank in per capita income.

Table 6-2 per Capital Income for Tamil Nadu (GDDP at Constant Price)

S. No.	Year	Per Capita Income	Growth Rate
1	2011-2012	89,456	
2	2012-2013	93,003	3.97%
3	2013-2014	101,747	9.40%
4	2014-2015	106,274	4.45%
5	2015-2016	112,796	6.14%
6	2016-2017	118,733	5.26%
7	2017-2018	128,246	8.01%
8	2018-2019	136,443	6.39%
9	2019-2020	146,807	7.60%
Average Growth Rate			6.40%

Source: Department of Economics & Statistics, GoTN

6.2. Economy in Primary Sector

The comparative analysis of the Gross District Domestic Product (GDDP) distribution across specific sub-sectors—agriculture, livestock, forestry and logging, mining and quarrying, and fishing—for the years 2011-12, 2015-16, and 2019-20 are as shown in Figure 6-4, Figure 6-5 & Figure 6-6.

Table 6-3Sector Wise Trend in GDDP

S. No.	Name of the Sector	2011 - 2012	2015- 2016	2019 - 2020
1	Agriculture	131,911	137,332	129,424
2	Livestock	60,103	52,660	72,290
3	Forestry & Logging	11,775	10,205	11,303
4	Fishing	1,202	1,694	751
5	Mining & Quarrying	2,032	403	387
Primary		207,024	202,293	214,155

Source: Department of Economics & Statistics

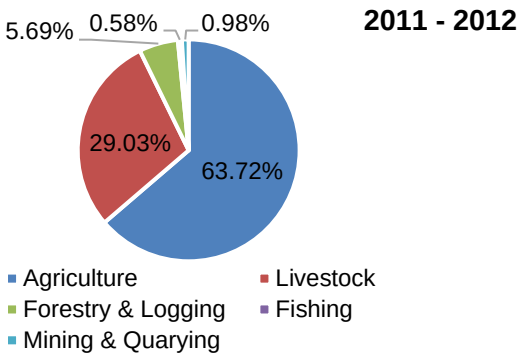


Figure 6-4 Sub Sectorial Share in GDDP, 2011-12

Source: Department of Economics & Statistics

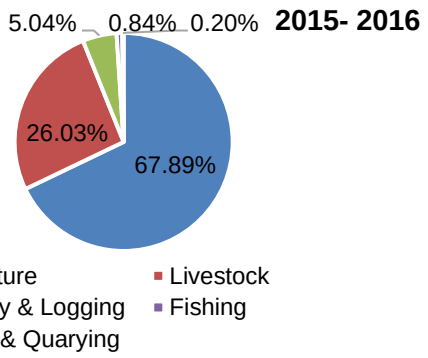


Figure 6-5 Sub Sectorial Share in GDDP, 2011-12

Source: Department of Economics & Statistics

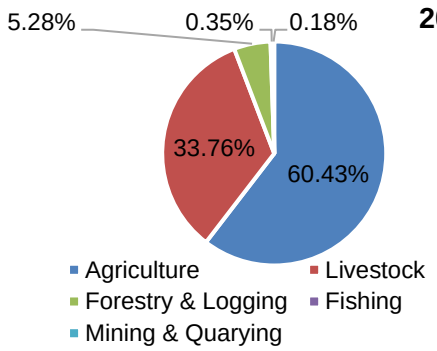


Figure 6-6 Sub Sectorial Share in GDDP, 2011-12

Source: Department of Economics & Statistics

The agricultural sector, while maintaining its primary position, experienced a gradual decline in its contribution to the GDDP, indicating potential shifts or changes in agricultural output or economic diversification.

Livestock showcased an increasing trend, suggesting a growing role and economic importance of livestock-related activities within the region.

Forestry and logging remained steady, indicating a consistent but moderate impact on the region's economy.

Mining, quarrying, and fishing sectors displayed minimal contributions, indicating relatively limited significance in the district's overall economic output.

6.2.1.1. Inference

Emphasizing the agricultural sector is crucial. Introducing cold storage facilities and new agricultural technology can significantly enhance the sector's productivity and efficiency, fostering its growth and development.

A rise in livestock numbers could signify economic growth, potentially leading to higher production of meat, dairy, or other livestock-related products. This can contribute to the local economy through trade and employment opportunities within the livestock industry.

6.2.2. Major Contribution in Primary Sector

6.2.2.1. Agriculture

Agriculture maintained its dominant position in the GDDP across all three years, although there was a slight decline from 64% in 2011-12 to 61% in 2019-20. This decrease suggests a relative reduction in the contribution of agricultural activities to the district's overall economic output.

Table 6-4 Area Registered Under National Programme on Organic Production-2023-24

Madurai District	2018-19	2019-20	2020-21	2021-22	2022-23
Area in acres	750.54	384.52	4193.55	3841.5	1954.72
Rate of change of area		-48.77%	990.59%	-8.40%	-49.12%

Traditionally, Madurai is an agrarian society with paddy as the major crop. River Vaigai is one of the main sources of irrigation for cultivation. The fertile delta region has a soil composition of black soil, clayey soil. The rich nature of soil supports other crops such as cotton, jasmine, vegetables etc. The paddy fields cultivated across this region are known as "double-crop paddy belts". Farmers in the district supplement their income with subsidiary occupations like dairy farming, poultry farming, pottery, brick making, mat weaving and carpentry. The agricultural produce varies from pulse, vegetables, and flowers.

Madurai has historically been an agricultural district; it has been dependent on river water and monsoon rain. Southwest of the Madurai purely depends on rain fed agriculture and north depends on river water for agricultural activities. The major food crops are rice, maize, millets, cholam, oilseeds and pulses are Bengal gram, green gram, horse gram, and black gram. Cashcrops include sugarcane, coconut, chilies, and cotton. Major horticulture crops cultivated in this district are fruits crops like mango, banana and vegetables like okra, gourds, tomato, Brinjal, onion and

chilies, plantation crops like cashew and betel vine, and flower crops like jasmine and tuberose.

Table 6-5 **Major Crops**

Type of crop	Crop details
Food crop	Paddy, maize, millets, cholam, oilseeds and pulses are bengal gram, green gram, horse gram, and black gram.
Cash crop	sugarcane, coconut, chillies and cotton
Horticulture crops	mango, banana and vegetables like okra, gourds, tomato, brinjal, onion and chilles, plantation crops like cashew and betel vine, and flower crops like jasmine and tuberos

Agriculture Budget 2022-23 of Tamil Nadu provides greater instincts and long-term vision for strengthening Agriculture and allied activities in the State. Madurai has been identified for promotion of Millets production & productivity and Moringa export promotion.

Further under various developmental thrusts like dry land farming, promotion of youth for practicing agriculture and entrepreneurial activities etc. the district has a greater potential for development.

The major sources of irrigation are by way of canals and wells. The types of soil available in the district are red loam, black cotton and clay loamy soils.

The district has a total population of about 30.38 lakh as per 2011 census. The literacy rate in the district is 74.8 %. The district is basically agrarian in nature growing major food, floriculture and horticulture crops and having good scope for MSME sector.

Strengthening the rural infrastructure for village level primary processing and value addition is the major challenge. Leveraging schemes like Agricultural Marketing Infrastructure and Agriculture Infrastructure Fund, creation of assets to minimize post-harvest losses and agro processing need to be facilitated.

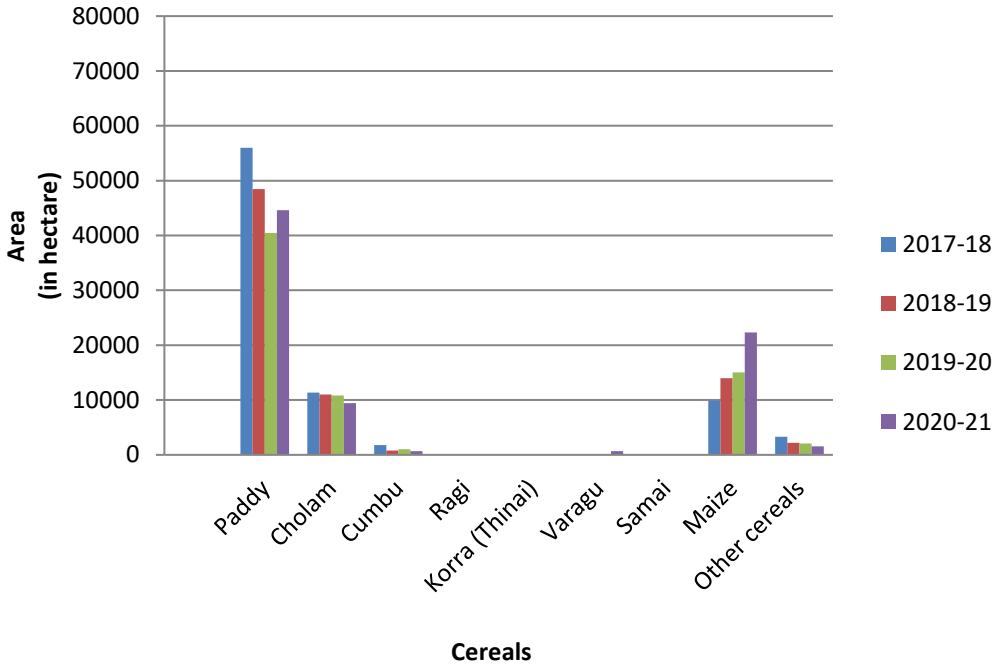


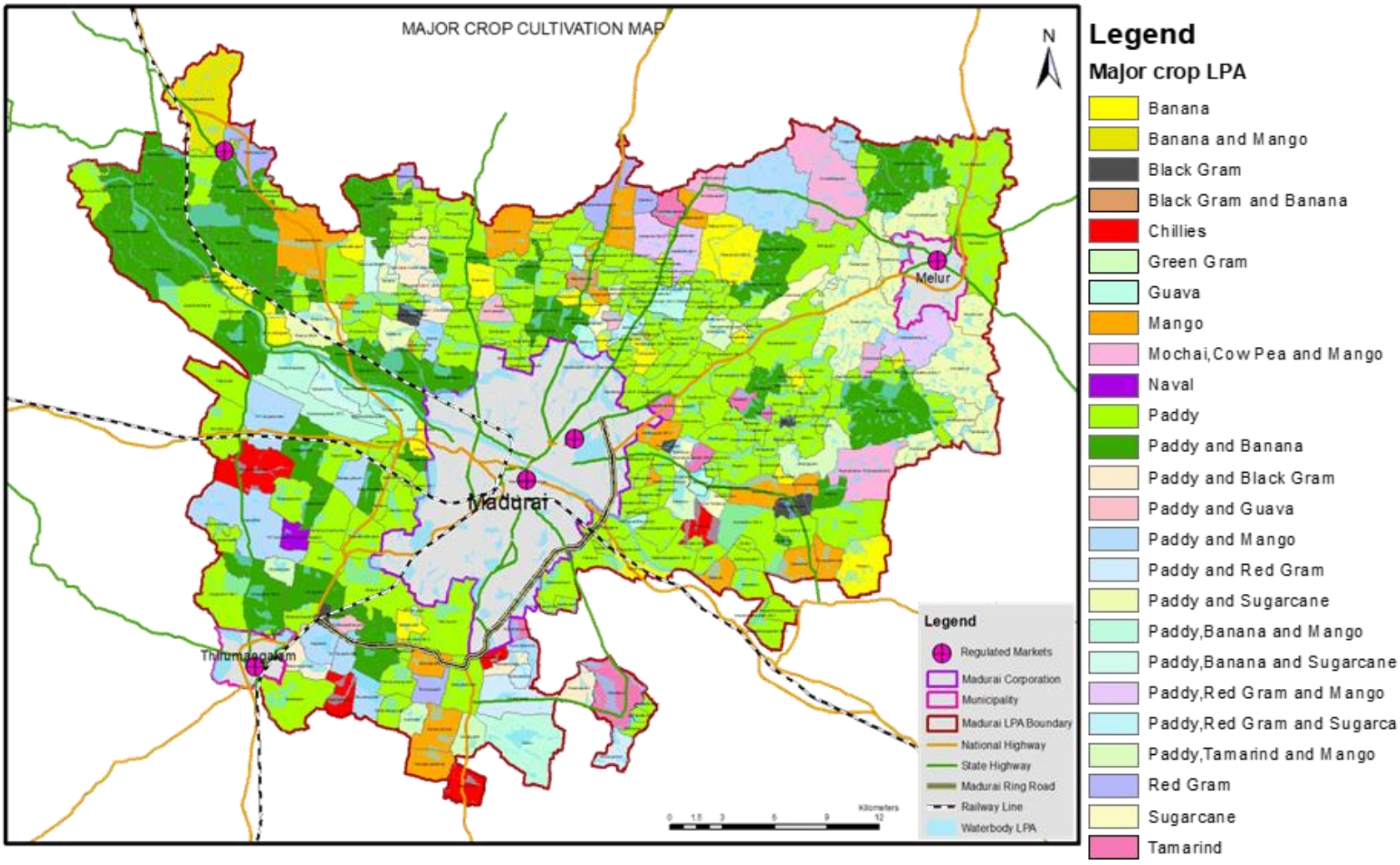
Figure 6-7 **Details of Crop Production**

Table 6-6 **Details of Major Crops Produced and their Area**

S. No.	Type	Crop	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20	2020-21	2020-21
			Area (in Hectare)	Production (in Tonnes)	Area (in Hectare)	Production (in Tonnes)	Area (in Hectare)	Production (in Tonnes)	Area (in Hectare)	Production (in Tonnes)
1	Cereals	Paddy	55983	203670	48461	200892	40468	165916	44602	179050
2		Cholam	11362	21008	11023	17983	10825	22405	9440	16662
3		Cumbu	1787	4824	763	2150	1046	3548	672	2157
4		Ragi	30	91	18	58	20	69	34	115
5		Korra (Thinai)	3	1	10	5	10	5	12	6
6		Varagu	172	284	72	106	105	258	681	807
7		Samai	1	1	0	0	5	8	0	0
8		Maize	9895	60672	14000	76893	15031	97735	22299	107125
9		Other cereals	3289	1291	2187	2970	2099	2807	1531	2036
10	Pulses	Redgram	2520	3520	2267	1972	2121	1759	1738	1620
11		Bengalgram	29	18	12	11112	18	17	14	13

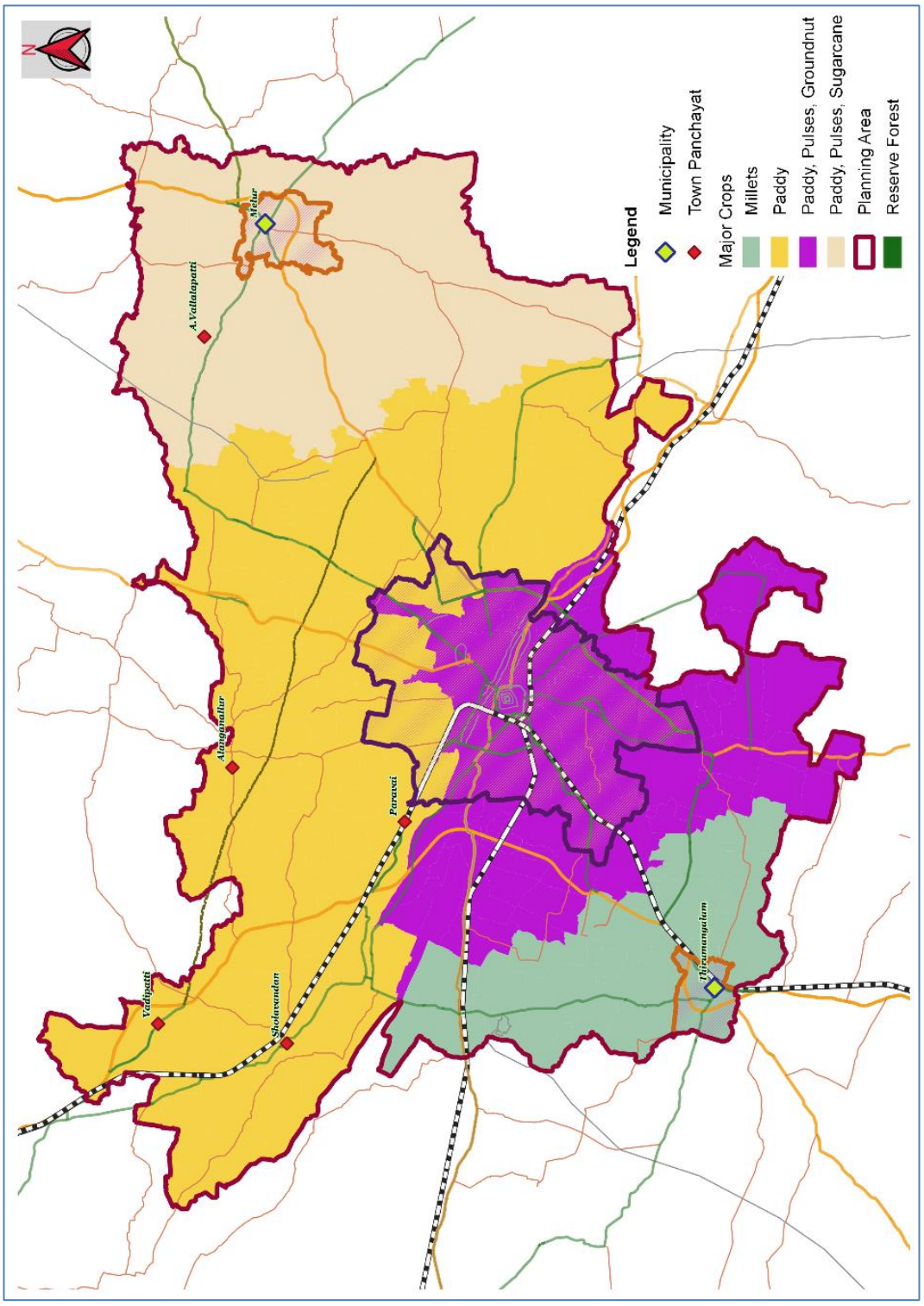
S. No.	Type	Crop	2017-18	2017-18	2018-19	2018-19	2019-20	2019-20	2020-21	2020-21
			Area (in Hectare)	Production (in Tonnes)	Area (in Hectare)	Production (in Tonnes)	Area (in Hectare)	Production (in Tonnes)	Area (in Hectare)	Production (in Tonnes)
12		Greengram	3734	2533	3510	1615	2718	1216	2458	1406
13		Blackgram	1519	1056	1262	920	1240	1009	1126	898
14		Horsegram	22	13	31	22	44	35	11	8
15		Other pulses	3261	1907	3370	819	3152	2042	2642	1571
16	Oil Seeds	Groundnut	2561	4398	1765	4223	1807	5446	2547	7793
17		Gingelly	716	448	115	58	222	156	292	186
18		Sunflower	74	70	16	19	27	25	8	14
19	Commercial Crops	Cotton	7980	15565	9273	17131	10905	24134	2323	14103
20		Sugarcane	2936	258368	1586	127072	1347	123270	1191	105974
21		Banana	2512	126326	3017	118166	3003	153332	3080	163101
22		Coriander	126	75	10	4	35	17	53	9
23		Chillies	321	251	342	341	524	678	529	1269
24		Onion	467	2572	335	2510	413	3172	624	5505

Source: District Profile, Madurai District, Office of the Deputy Director of Statistics, Madurai, 2021-22



Map 6-1 Major Crops Produced in Madurai LPA, (Village Wise)

Source: Census 2011



Map 6-2 Zonal Distribution of Crops in Madurai LPA

Source: Department of Mining & Geology, 2023

The limited availability of cold storage facilities in Madurai district, represented by only two facilities with a total capacity of 27 metric tons (MT), indicates a substantial gap in meeting the storage needs, particularly for perishable goods such as agricultural produce, dairy products, and other temperature-sensitive items. Conducting a comprehensive analysis involving secondary data and stakeholder consultations can provide valuable insights into the necessity and potential for establishing additional cold storage facilities in the region.

Table 6-7 Infrastructure for Agriculture, 2023-24

Primary Processing Centre	God owns	Total Capacity of God owns (MT)	Cold Storage	Total Capacity of Cold Storage (MT)	Transaction Shed	Traders Shop	Dying Yard	Specialized Market Complex	Integrated Agriculture Market Complex	No. of FPQOs
0	13	15900	2	27	4	0	9	1	1	13

Source: Policy Note, Agriculture-Farmers Welfare Department, 2023-24

6.2.2.2. Horticulture

In Tamil Nadu state, Madurai is famous for production of jasmine. There are different types of flowers like Rose, Chrysanthemum, crossandra, nerium, Tube Rose and jasmine. Jasmine occupies the first place among six types of flowers produced and marketed in Madurai district4. Jasmine cultivation is also be carried out by the farmers in Madurai East and Thirupparankundram blocks.

Table 6-8 Horticulture

S No.	Particular	Total Area in HA	Production in Tons	Rank	Contribution to State (in %)
1	Rose	69	638	5	15%
2	Jasmine	1503	15150	1	25%
3	Tube Rose	218	3662	5	18%

Source: District Diagnostic Study, Madurai, Department of Rural Development & Panchayat Raj

4 Pr3oduction and Marketing of Jasmine in Madurai District, Dr. S Rosita, K Manivannan, April 2015, ISSN: 2320-4168, Vol 3

Flowers are exported from Madurai to Tanjore, nagapattinum, mayurum, kumbakonam in Tanjore district. Madras, Tenkasi, thiruchendar, Rameshwaram Appeal and Cochin in Kerala state. It has created “time utility” even in the international market. Jasmine flowers are mainly lifted to madras and Bangalore. Some time it is sent to Delhi, Singapore and Trivandrum[4].

The cultivation of Jasmine flowers holds significant importance in Tamil Nadu's floral agriculture, representing approximately 28.3% of the total area dedicated to flower cultivation in the state. Out of this substantial percentage, about 12.5% of the Jasmine flower cultivation area is specifically allocated in Madurai, emphasizing the city's notable contribution to the production of Jasmine flowers within Tamil Nadu.

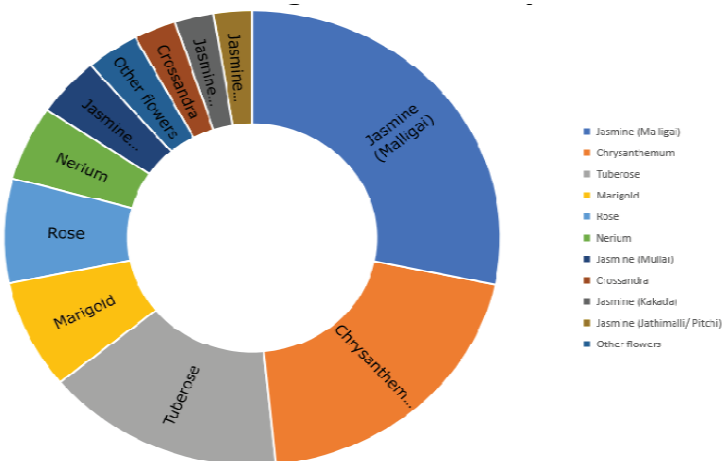


Figure 6-8 **Area Coverage of Flowers in Tamil Nadu, 2021-22**

Out of this substantial percentage, about 12.5% of the Jasmine flower cultivation area is specifically allocated in Madurai, emphasizing the city's notable contribution to the production of Jasmine flowers within Tamil Nadu.

Madurai's emphasis on Jasmine cultivation solidifies its position as one of the leading contributors to the overall Jasmine flower production in the state. The city's favorable agro-climatic conditions, coupled with expertise in horticulture, have contributed to its success in cultivating this fragrant and popular flower.

Jasmine flowers have significant cultural and economic value in Tamil Nadu, being widely used in religious ceremonies, traditional rituals, and the production of perfumes, oils, and garlands. Madurai's prominence as a major producer of Jasmine flowers not only

caters to local demands but also contributes significantly to the state's economy through trade and commercialization of these blooms.

Table 6-9 Jasmine Production

Jasmine Production	2011-12	2012 - 13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Area in Ha	1393	1428	1381	1460	1503	1480	1482	1537
Production Quantity in MT	6965	9039.3	9556.5	10555.8	11062.1	10966.8	11144.64	12065.45
Productivity MT/Ha	5	6.33	6.92	7.23	7.36	7.41	7.52	7.85

Source: District Diagnostic Study, Madurai, Department of Rural Development & Panchayat Raj

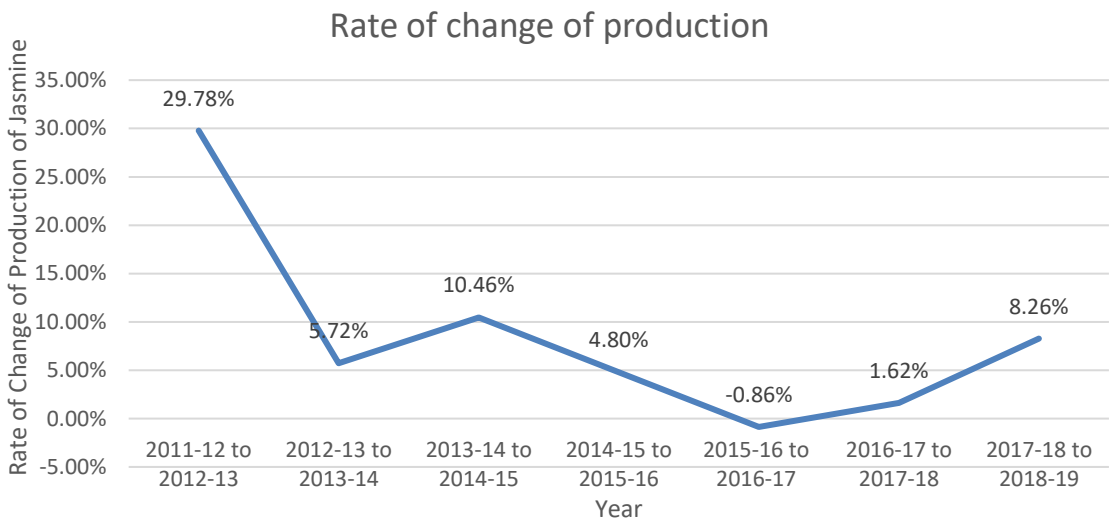


Figure 6-9 Rate of change of Jasmine Production from 2011-12 to 2018-19, Madurai District

Every day, more than three metric tonnes of jasmine flowers are sent to the international market. Currently, exporters have to transport these shipments to Chennai before sending them overseas as air cargo. Efforts should be made to enable the direct export of these goods from Madurai airport itself.

To enhance the jasmine industry, the state mission should focus on various aspects, such as distributing jasmine saplings free of charge, establishing cold storage facilities for

export-ready stock, and providing machinery for creating garlands. These measures can significantly contribute to the growth and efficiency of the industry.

Madurai holds the distinction of having the largest area of jasmine cultivation in Tamil Nadu, spanning 1735 hectares and producing 16,077 tonnes. Other significant jasmine-producing districts include Virudhunagar, Theni, Dindigul, and Thenkasi, which collectively cover 4300 hectares and yielded 15,658 tonnes in 2017-18. Notably, Madurai Malli became the first flower crop in Tamil Nadu to receive Geographical Indication (GI) recognition. Key areas contributing to jasmine production are Thiruparakundram, Usilampatti, and Chellapatti.

The formation of integrated clusters for production and manufacturing, along with initiatives like the Integrated Cold Chain and Value Addition Infrastructure Scheme, aim to support exports and assist farmers in directly connecting to domestic and global value chains. These efforts seek to elevate farmers' incomes and enhance their livelihoods by providing better market access and opportunities for growth within the industry[5].

Madurai Malli Jasmine is one of the oldest fragrant flowers cultivated by man. The flower is used for various purposes viz., making garlands, bouquet, decorating hair of women, religious offering etc. It is also used for production of Jasmine concrete that is used in cosmetic and perfumery industries. Farmers from the Madurai, Theni, Dindigul, Sivagangai and Virudhunagar districts are cultivating “Madurai Malli”.

As an iconic project of Madurai “Mission for Madurai Malli” has been initiated for promotion Madurai Malli. Among all the districts of Tamil Nadu, Madurai accounts for the largest area of jasmine cultivation with 1735 hectares and, Virudhunagar, Theni, Dindigul, and Thenkasi (4300 hectares) with an annual production 16077 tonnes in 2017-18.

Madurai Malli is the first flower crop to gain Geographical indication (GI) in Tamil Nadu. Major block producing jasmine Thiruparakundram, Usulampatti, Chellapatti. The

5 Malli export needs push from government, says Madurai flower exporters, The New Indian Express, 1st July 2023

Geographical Indication (GI) tag was given to Madurai Malli Farmers Association promoted by DHAN Foundation with the technical support of Tamil Nadu Agriculture University on January 16, 2013.

The Geographical Indication (GI) tag was given to Madurai Malli Farmers Association promoted by DHAN Foundation with the technical support of Tamil Nadu Agriculture University on January 16, 2013. The GI tag will reinforce Madurai Malli's identity in the global market. The tag will help preserve the biodiversity of the area which consists of old undivided Madurai District comprising of Madurai, Theni, Dindigul, Sivagangai, Ramanathapuram and parts of Pudukottai district and protect the legitimate rights of jasmine farmers.

The tag will help preserve the biodiversity of the area which consists of old undivided Madurai District comprising of Madurai, Theni, Dindigul, Sivagangai, Ramanathapuram and parts of Pudukottai district and protect the legitimate rights of jasmine farmers. Integrated cluster will be formed for production and manufacturing, Distribution of jasmine saplings free of cost, cold storage facilities for export-ready stock, and machinery for churning out garlands.

Integrated cold chain and value addition infrastructure scheme and export, helping farmers to directly link with the domestic and global value chain thus providing higher income to farmers and improving their livelihood.

In Madurai district Jasmine is grown in about 900 acres of land area bounded by Aruppukkottai in South, Natham in North, Melur in East and Tirumangalam in West. This area is marked based on the soil type which helps ordinary Jasmine as special 'Madurai Malli' with the best qualities.

Total annual average Jasmine production from Madurai district is 489 tonnes. In Madurai, flower garlanding is the major livelihood for thousands of slum dwelling ladies. Women are involved in flower garlanding as a part time livelihood after completion of their house works.

All the vendors depend on the women for flower garlanding. During the peak season a lady will earn minimum of Rs.30 and maximum Rs.100 per day from flower garlanding. Jasmine yield Flowering instigates after 6 months of planting. Fully developed unopened flower buds should be picked in the early morning i.e. before sunrise. Flowering commences in March-April. Commercial yields are obtained after six months of planting. The yield depends upon the cultural practices pursued by the cultivator. During the first year, 750 kg of flowers could be obtained, and it increases to 2000 kg in second year, 2500 kg in third year and 3500 kg per acre from the fourth year onwards. Gross income. The flowers have the good demand in the local market as well as it is being exported to some of the South East / Middle East Asian countries.

The sale price of the flower fluctuates from Rs.50 to Rs.1000 per kg depending on demand and the season, and an average price of Rs.70 per kg is assumed for working out the economics. Accordingly, the gross income would be Rs.52500 per acre in the first year, Rs.140000 in the second year, Rs.175000 in third year and Rs.245000 from the fourth year onwards. Geographical Indication Tag: With its heady fragrance, exclusive size and shape, the 'Madurai Malli's uniqueness has a distinct reputation universally.

Table 6-10 Horticulture in Madurai

Crop	Area in Ha	Production Quantity in MT (per year)
Banana	2,898	99,256.5
Mango	6,253	53,275.56
Guava	1,346	18,547.88

Source: District Diagnostic Study, Madurai, Department of Rural Development & Panchayat Raj

6.2.2.3. Livestock/ Animal Husbandry

Livestock, though fluctuating, showcased a general increasing trend from 29% in 2011-12 to 34% in 2019-20 (GDDP). This upsurge indicates a growing significance of livestock-related activities within the region's economy.

Table 6-11 **Livestock in Madurai**

	Town Name	Cattle	Buffalo	Sheep	Goat	Pig
Madurai Corporation		30526	1427	4743	14873	36
Municipality	Melur	987	1	810	1972	1
	Thirumangalam	741	6	189	818	2
	Total	**1728**	**7**	**999**	**2790**	**3**
Town Panchayat	A.Vellalapatti	1394	24	652	1375	0
	Alanganallur	1036	1	4	623	20
	Paravai	1114	68	16	217	0
	Sholavandan	884	0	383	134	0
	Vadipatti	2313	39	150	439	4
	Total	**6741**	**132**	**1205**	**2788**	**24**

Source: Department of Animal Husbandry and Dairying

Table 6-12 **Milk Production in Madurai, 2018-21**

Year	2018-19 (`000' Tons)	2019-20 (provisional) (`000' Tons)	2020-21 (`000' Tons) (provisional)
Milk Production	187.985	240.8	274.8
Rate of Change of Milk Production		28.10%	14.12%

Source: Tamil Nadu, an Economical Appraisal, 2020-21

2018-19 to 2019-20 (Decrease of 9.52%):

This period saw a notable decrease in egg production, indicating a significant decline in the quantity of eggs produced. Such a decline could be influenced by various factors, including disease outbreaks within poultry farms, changes in poultry feed or management practices, adverse weather conditions affecting production, or market forces impacting supply decisions. A decrease of 9.52% implies a substantial impact on the egg supply chain and the poultry industry during this period.

2019-20 to 2020-21 (Increase of 2.72%):

In contrast to the previous year's decline, the subsequent period witnessed a positive rate of change, indicating a rise in egg production. This increase of 2.72% suggests a recovery or improvement in egg production levels. Factors contributing to this uptick could include interventions to address issues causing the previous

decline, improved disease management, enhanced farming practices, increased demand, or better market conditions.

Table 6-13 Egg Production in Madurai

Times	2018-19 (`000' Tonnes)	2019-20 (provisional) (`000' Tonnes)	2020-21 (`000' Tonnes) (provisional)
Egg Production	345.218	312.355	320.844
Rate of Change of Production		-9.52%	2.72%

Source: Tamil Nadu, an Economical Appraisal, 2020-21

6.2.2.4. Forest/ Logging

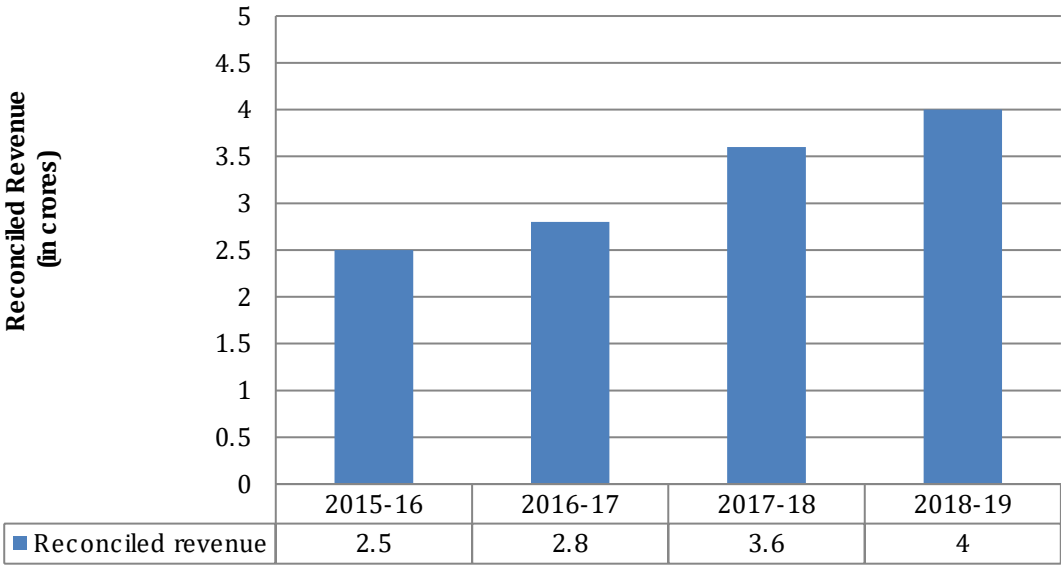
The contribution of forestry and logging remained relatively stable at 5% across 2011-12, 2015-16, and 2019-20, signifying a consistent but relatively modest share in the GDDP.

6.2.2.5. Mining/ Quarrying

Madurai district has 85 rough stone quarrying sites[6].

Mining and quarrying activities showed a decline from 1% in 2011-12 to 0% in 2015-16 and continued at the same level in 2019-20 in the GDDP, indicating a minimal or negligible impact on the district's overall economic output during these periods.

6 District Survey Report for Rough Stone Madurai, Department of Geology & Mining



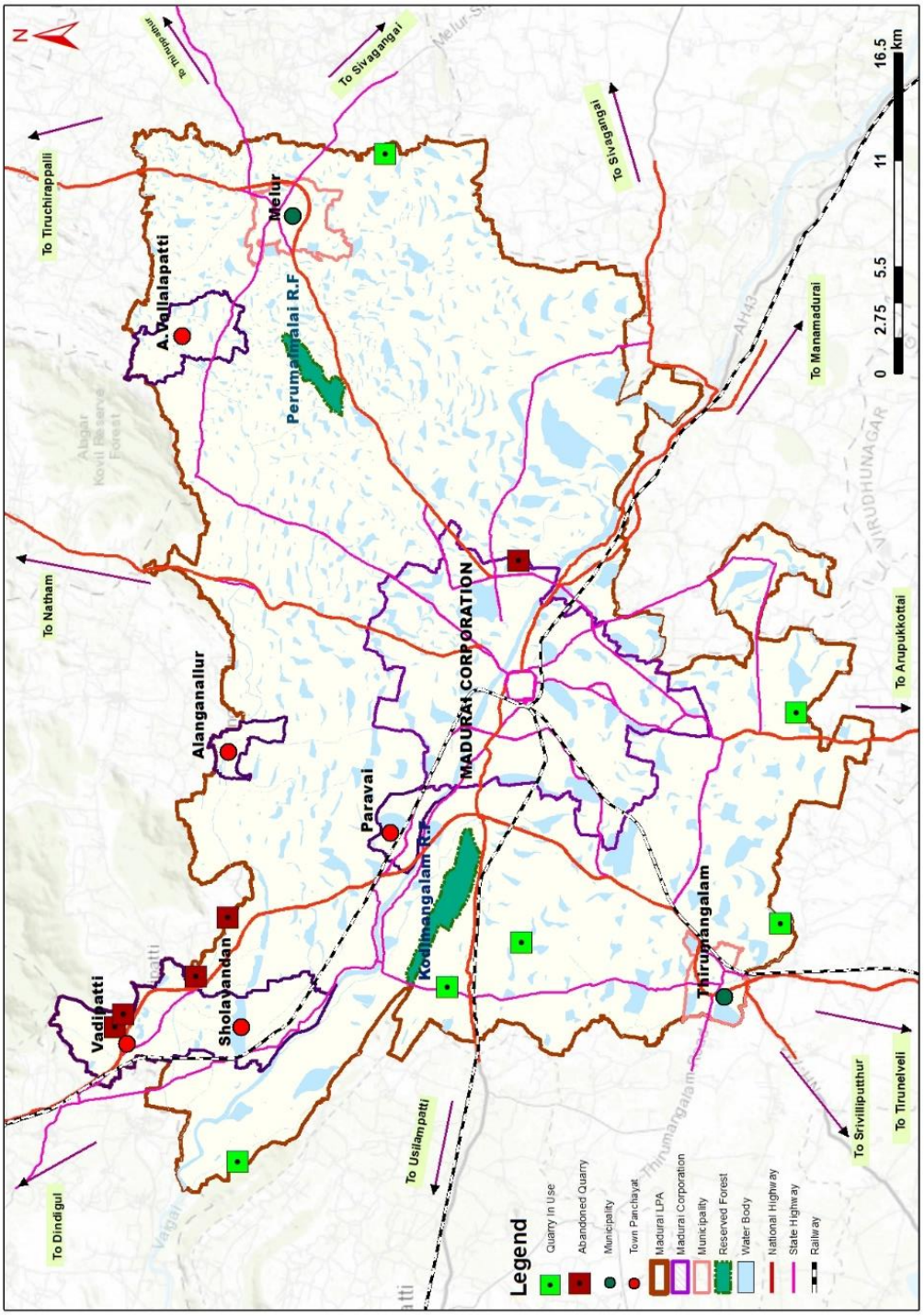
Source: District Survey Report for Rough Stone Madurai, Department of Geology & Mining

There was a significant surge in the rate of change from 2016-17 to 2017-18, depicting a sharp increase from 8.72% to 33.44% of rough stone.

This considerable rise signifies a substantial acceleration in revenue growth within this period, suggesting an impressive expansion in revenue generation.

The rate of change experienced a notable decline in 2018-19, dropping from 33.44% to 10.05%.

This reduction implies a slowdown in the growth rate of reconciled revenue compared to the previous year, indicating a deceleration in the revenue's expansion. The production decreased from 2017-18 to 2018-19.



Map 6-3 Zonal Distribution of Quarry in Madurai LPA

Source: Generated with reference to data from Department of Mining & Geology, 2023

6.2.2.6. Fishing

Fishing saw a slight increase from 0% in 2011-12 to 1% in 2015-16, but it returned to 0% by 2019-20, suggesting a fluctuating but relatively marginal contribution to the GDDP.

6.3. Economy in Secondary Sector

Certainly, here's an analysis of the Gross District Domestic Product (GDDP) distribution across manufacturing, utility, and construction sectors for the years 2011-12, 2015-16, and 2019-20;

Table 6-14 Sector Wise Trend in GDDP

S. No.	Name of the Sector	2011 - 2012	2015- 2016	2019 - 2020
1	Manufacturing	270,517	434,872	678,539
2	Utility	42,822	43,469	59,913
3	Construction	395,465	455,107	552,809
Secondary		708,804	933,448	1,291,260

Source: Department of Economics & Statistics

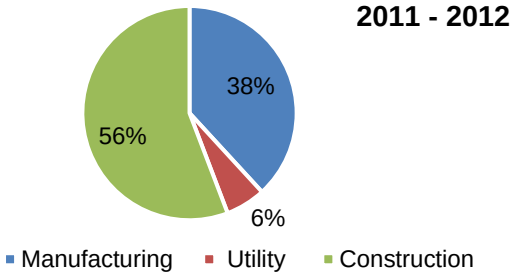


Figure 6-10 Sub Sectorial Share in GDDP, 2011-12

Source: Department of Economics & Statistics

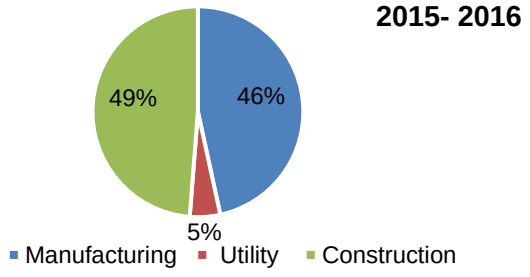


Figure 6-11 Sub Sectorial Share in GDDP, 2011-12

Source: Department of Economics & Statistics

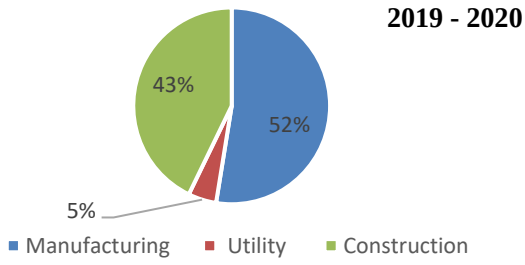


Figure 6-12 Sub Sectorial Share in GDDP, 2011-12

Source: Department of Economics & Statistics

6.3.1.1. Inference

The construction sector displayed a declining trend in its contribution to the GDDP, suggesting a potential slowdown or reduced emphasis on construction-related activities within the region's economy.

6.3.2. Major Contribution in Secondary Sector

6.3.2.1. Manufacturing

Manufacturing showed consistent growth, expanding from 38% in 2011-12 to 46% in 2015-16 and further increasing to 52% by 2019-20. This substantial rise signifies a notable enhancement and a significant contribution to the district's GDDP, reflecting advancements and expansions within the manufacturing sector.

6.3.2.2. Utility

The utility sector remained relatively stable, maintaining a consistent 5-6% contribution to the GDDP across the years. This sector, involving services like electricity, water, and gas supply, sustained a modest yet steady presence within the district's economic output.

6.3.2.3. Construction

The construction sector displayed fluctuations, witnessing a decline from 56% in 2011-12 to 49% in 2015-16, and further dropping to 43% by 2019-20 in GDDP. This decreasing trend suggests a relative reduction in the contribution of construction activities to the district's overall economic output over the years.

6.3.2.4. Industry

The local natural resources aid in the small and medium scale industries in the LPA. The textile, matches, rubber, rice mills and other small industries.

Madurai has ample potential for industrial development in Automobile, Chemical, Agro-based, Textile, Logistics, Information Technology, Energy etc. offers ample scope for the field of textiles, readymade garments, bakery units, and floriculture, dairy and cold storage units, Agro-based and Herbal products, Granite stones, blue metal (jelly stone), Chamber bricks, Rubber, and plastic based industries.

Thiagarajar Mills is known for production of three distinct count groups - Fine Count Combed Cotton Yarn, Hosiery Yarn & Coarse Count Combed Cotton Yarn is in Madurai.

Madurai is one of the few rubbers growing areas in South India and there are rubber-based industries. Gloves, sports goods, mats, other utility products and

automobile rubber components are the most numerous items produced by these industries. TVS Srichakra (tyre manufacturing), Sundaram Industries (Rubber Division, Coach Division), Fenner India, Hi-Tech Arai Ltd and Lanxess India are some of the rubber-based industries in the city.

The city is home to one of the top motorcycle manufacturers in India, the TVS Group. There are numerous textile, granite and chemical industries operating in Madurai.

The industrial sector in the district is driven by manufacturing to mining and quarrying, electricity, gas and water supply contributing in small quantities. Automotive and textile are the most important type of industry under manufacturing.

Table 6-15 Secondary Economic Activities in Madurai

Type	No. of units	No. of units Percentage	Employment	Employment Percentage
Real estate	111	1.29	528	1.14
Mineral based	136	1.58	765	1.65
Infrastructural services	204	2.38	1360	2.94
Entertainment media	207	2.41	796	1.72
Tourism	217	2.53	760	1.64
Rubber and Plastic	235	2.74	1446	3.13
Finance	235	2.74	831	1.8
Transport	241	2.81	1401	3.03
Electrical	220	2.57	1502	3.25
Wood based	375	4.38	1529	3.31
Institutional	447	5.92	2058	4.46
Food based services	653	7.63	3602	7.8
Social services	762	8.9	4246	9.2
Textile	1067	12.46	6191	13.42
Food based	1241	14.5	6019	13.04
Engineering	2192	25.61	12198	26.44
Others	65	0.75	894	1.93
TOTAL	**8606**	**100**	**46126**	**100**

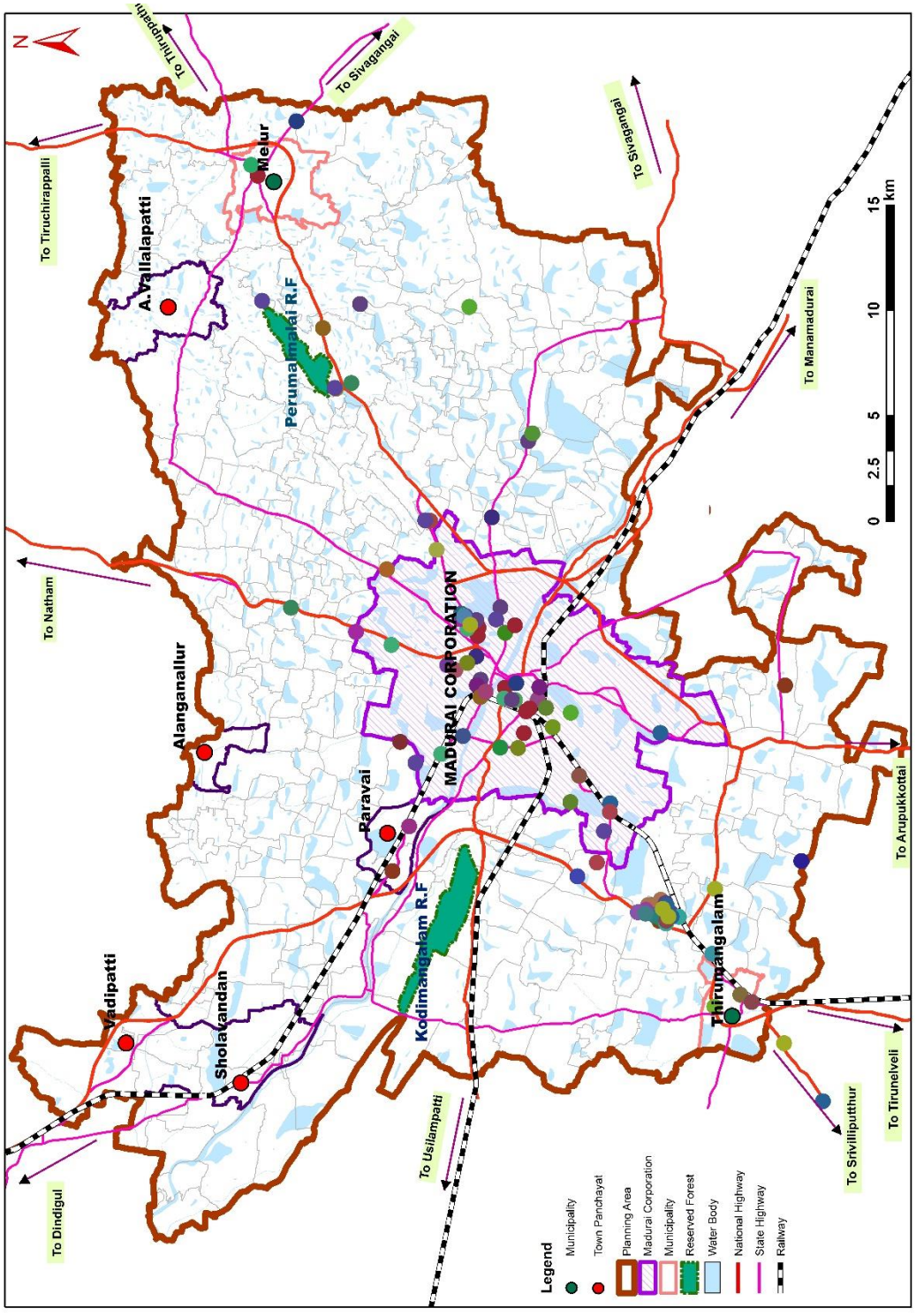
Source: Central Statistical Organization, Tamil Nadu an Economical Appraisal, 2020-21

The system of transport plays a pivotal role in overall economic development of any area. Madurai District has well laid out roads and railways lines connecting all major towns within and outside the State.

The district possesses a very good communication network. Water that is essential for industrial use and human consumption are also available plenty in most areas of the district 37 banking groups along with their branches are operating in this District. Banks and other financial institutions play a crucial role in promoting rapid industrial growth.

Table 6-16 List of Industrial Parks in Madurai

S. No	Type of Industries	Details
1	SIDCO Industrial Estate	Located at Kappalur, K.Pudur
2	Small scale Industries	Textile, Matches and Rubber. Also, Rice Mills
3	ELCOT IT Park	IT Sector and Technology
4	Vadipatti Textile Park	Integrated Park to support weaving garmenting and home textiles

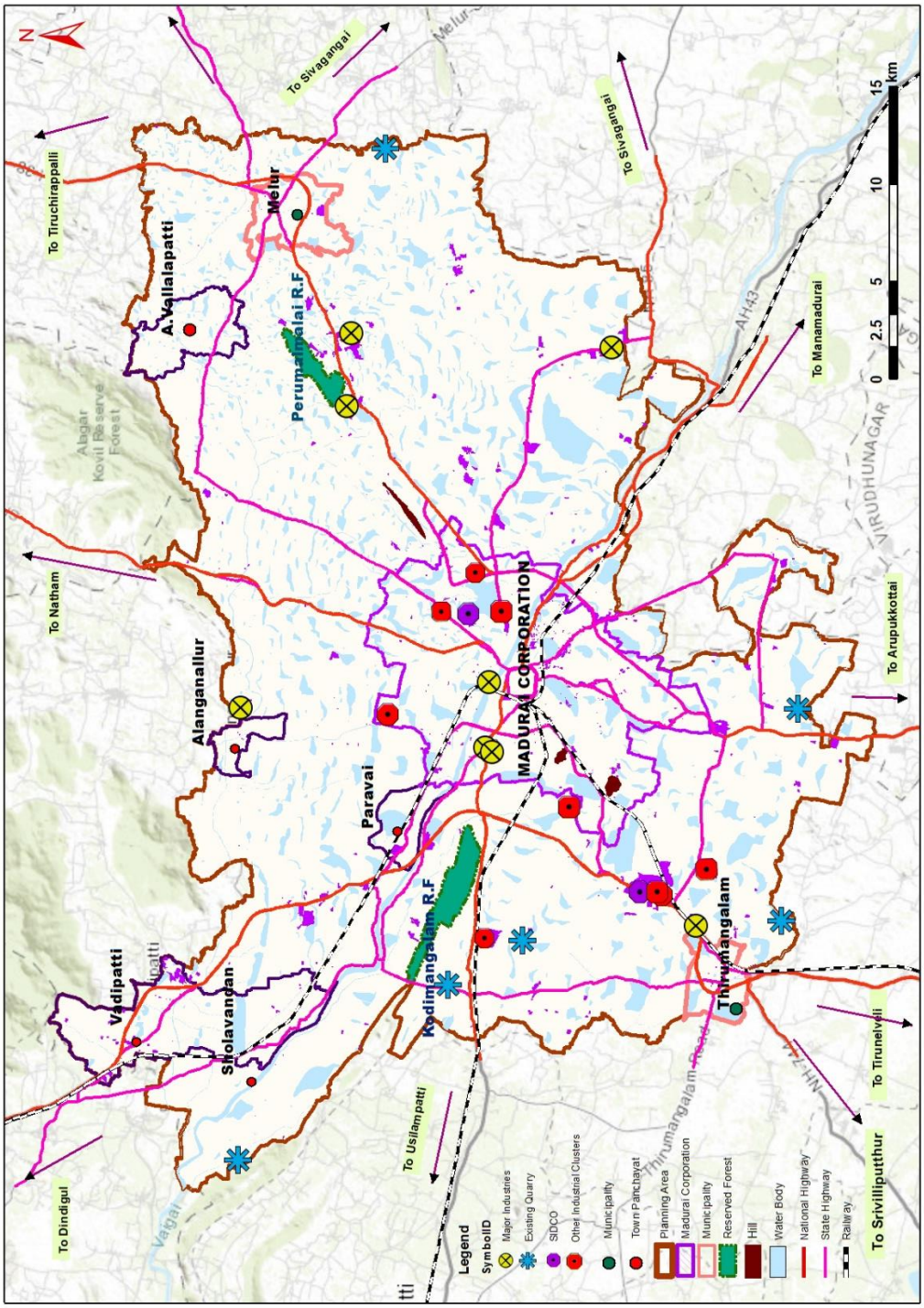


Map 6-4 Distribution of Industries in LPA

Source: Generated with reference to data from District Industries Centre, 2023

There are around a dozen textile mills in and around Madurai functioning for a long time, like M/s.Madura Coats, Thiyagaraja Mills. TVS Sundaram Iyengar sons & Ltd., has a Bodybuilding and automobile service units. Industries like TVS Sundaram groups, PRP groups and Fenner industries exist in Madurai. Apart from this, IT companies also contribute to the economy of the district with 190 companies with income generation of about $200 million in Madurai providing employment opportunities to 20,000 population which may escalate to 30,000 in next five year of period. New companies has been proposed to come up in Vadapalanji (ELCOSEZ). (Source:SIDA,Madurai)

Totally 245.17 Acres of land has been allocated for International Eco-System at Vadapalanji & villages. Out of which 213 acres are SEZ and 32.17 acres are Non-SEZ. In this ELCOSEZ, ELCOT has made allotment of 100.03 acres of land in SEZ area on lease basis to the following companies with the share of 60 acres for HCL, 20 acres for Chainsyss, 20 acres of land for Pinnacle. Civic body has finalised the 5.6 acres of land near Mattuthavani bus stand for upcoming tidel park.



Map 6-5 Distribution of Industries in LPA

Source: Generated with reference to data from District Industries Centre, 2023

Employment in Industries

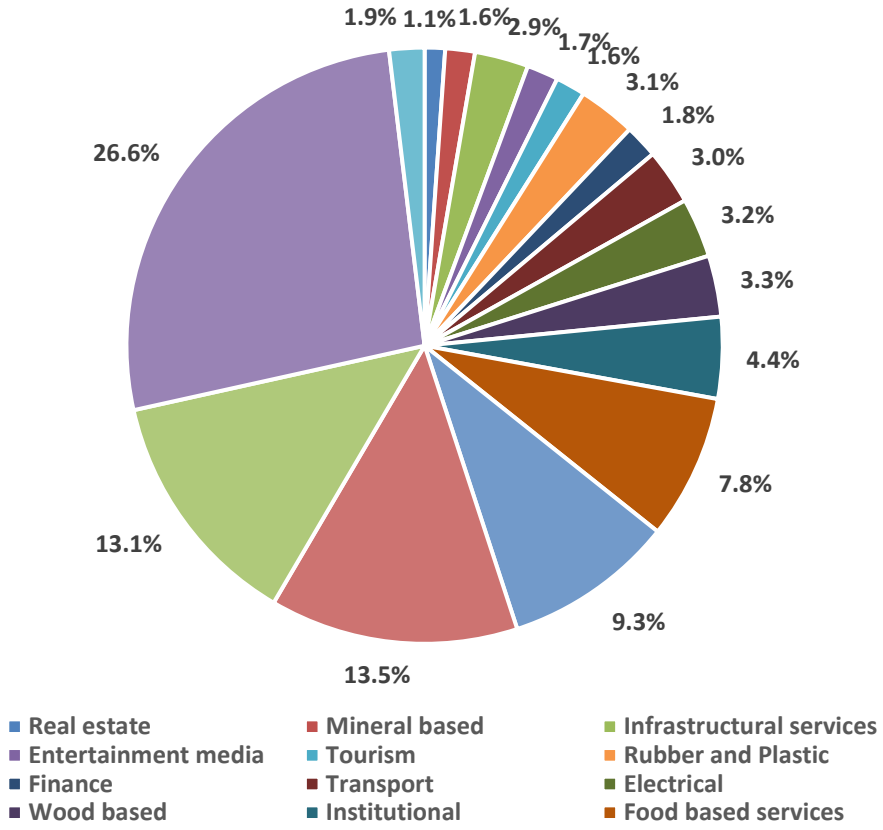


Figure 6-13 **Employment Details in Industrial Units**

Micro Small and Medium Enterprises

MSME plays a vital role in fostering innovation, promoting inclusive growth, and enhancing development. Madurai district has 33,926 registered MSME units under Udyam Scheme till 2023 with a total employment of 1, 91,262.

Table 6-17 **List of MSME, Madurai**

Year	Micro		Small		Medium	
	No. of Units	Employment	No. of Units	Employment	No. of Units	Employment
1911	2	13				
1921	2	8				
1931	0	0				
1941	1	3	1	26	1	170
1951	4	38				
1961	7	54	2	107		
1971	25	203	4	33		
1981	70	435	4	219		

Year	Micro		Small		Medium	
	No. of Units	Employment	No. of Units	Employment	No. of Units	Employment
1991	236	1399	13	286	1	155
2001	982	4945	22	313		
2011	3330	27104	64	1033	3	22
2021	12557	69356	107	1316	5	83
2023	8583	87704	13	110	1	75
others	8127	233361	39	1421	1	100
Total	33926	424623	269	4864	12	605

Source: Micro, Small and Medium Enterprises Department, 2023

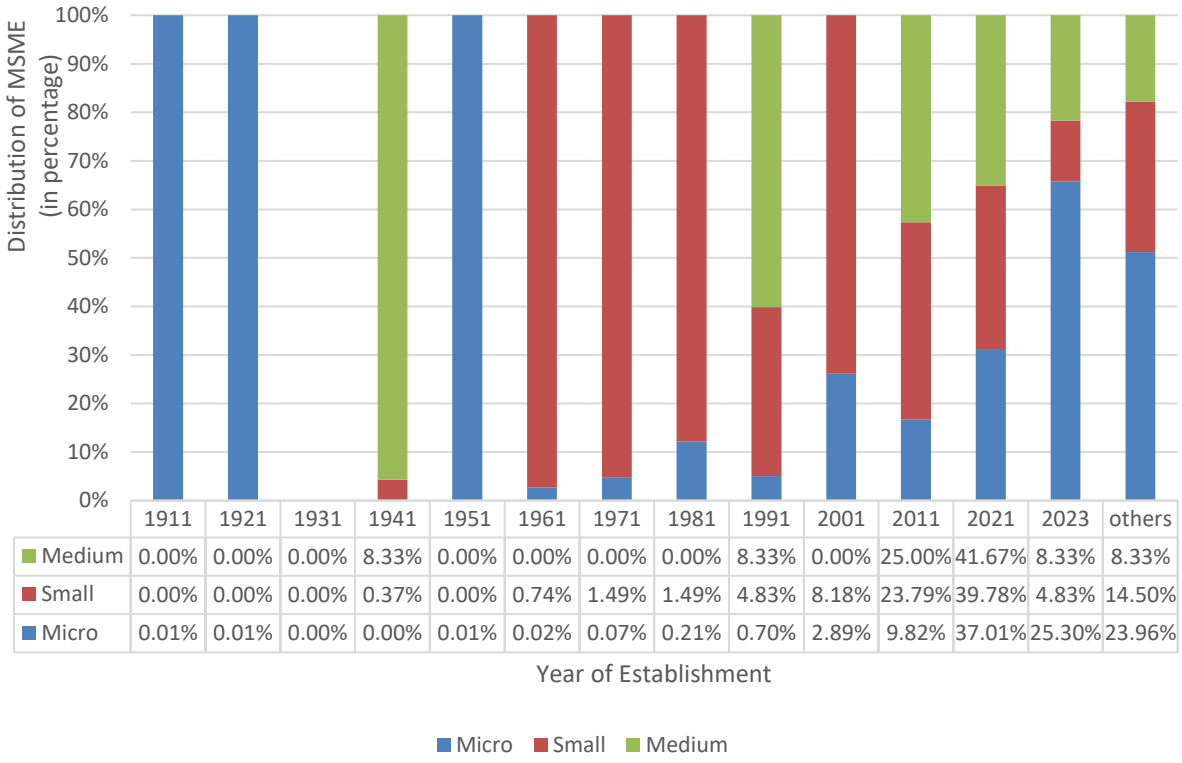
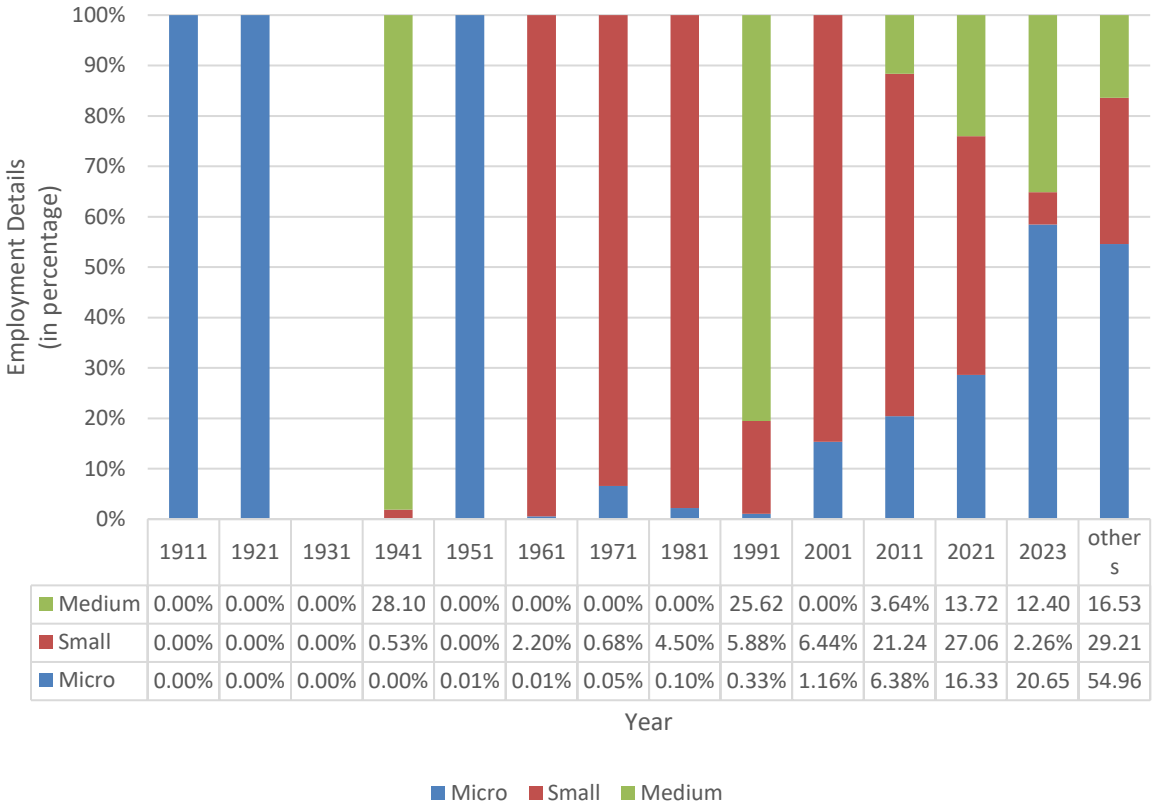


Figure 6-14 Trend of MSME, Madurai, 1991 to 2023

Registration of small industries are fluctuating from 2011 to 2023, with a sudden dip from 2001 to 2011.



	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001	2011	2021	2023	others
Medium	0.00%	0.00%	0.00%	28.10	0.00%	0.00%	0.00%	0.00%	25.62	0.00%	3.64%	13.72	12.40	16.53
Small	0.00%	0.00%	0.00%	0.53%	0.00%	2.20%	0.68%	4.50%	5.88%	6.44%	21.24	27.06	2.26%	29.21
Micro	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.05%	0.10%	0.33%	1.16%	6.38%	16.33	20.65	54.96

Figure 6-15 Trend of Employment

Source: DIC, 2023

6.4. Economy in Tertiary Sector

Certainly, here's an analysis of the Gross District Domestic Product (GDDP) distribution across sub sectors of tertiary sector for the years 2011-12, 2015-16, and 2019-20;

Table 6-18 Sector Wise Trend in GDDP

S. No.	Name of the Sector	2011 - 2012	2015- 2016	2019 - 2020
1	Trade, Repair Service, Hotels	494,036	643,810	873,768
2	Railways	10,393	11,977	10,818
3	Transport by Other means	149,270	161,792	154,786
4	Storage	820	758	1,035
5	Communication & Broadcasting	70,683	116,035	124,508
6	Financial Services	123,989	180,443	217,520
7	Real Estate, Dwelling and Business	382,916	490,929	550,842
8	Public Administration	134,983	174,234	309,292
9	Other Services	235,919	306,473	457,549
Services		**1,603,009**	**2,086,453**	**2,700,118**

Source: Department of Economics & Statistics

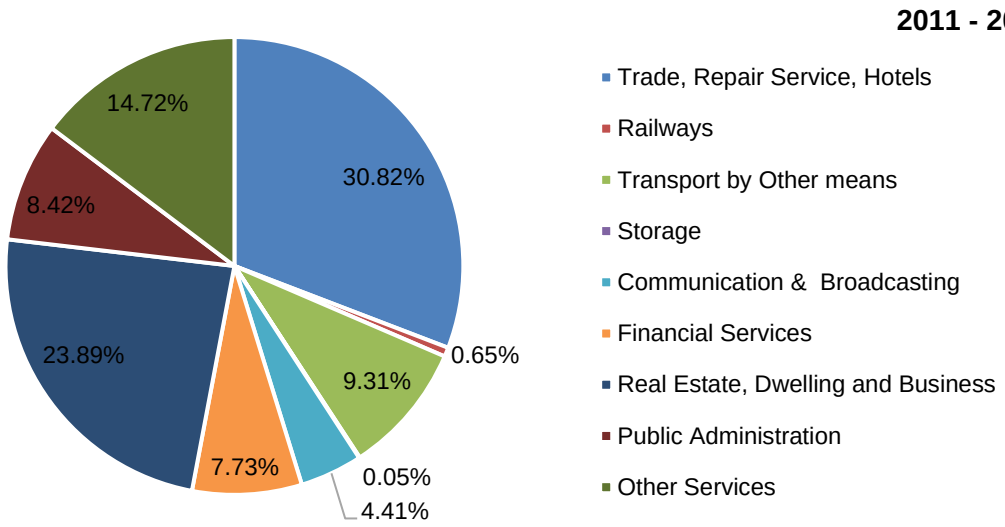


Figure 6-16 Sub Sectorial Share in GDDP, 2011-12

Source: Department of Economics & Statistics

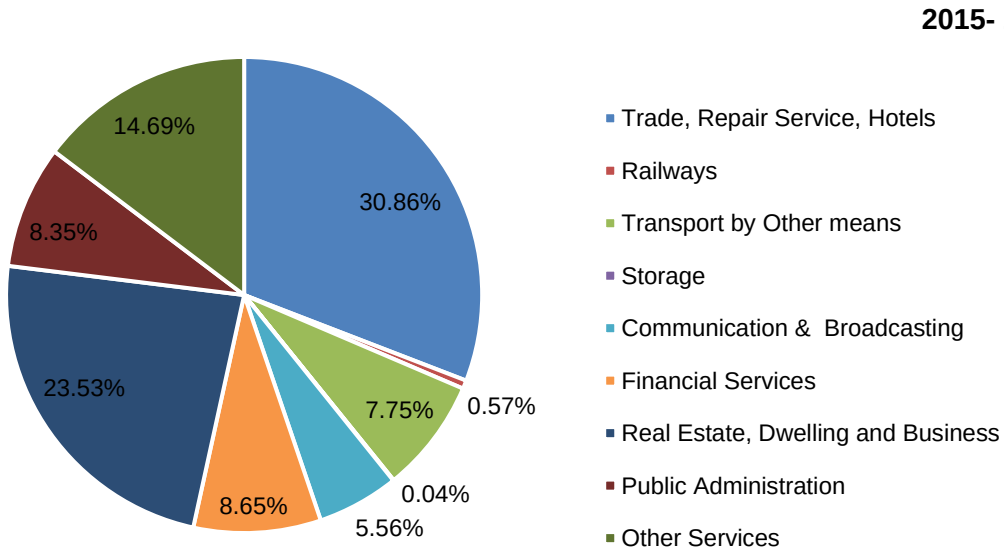


Figure 6-17 Sub Sectorial Share in GDDP, 2011-12

Source: Department of Economics & Statistics

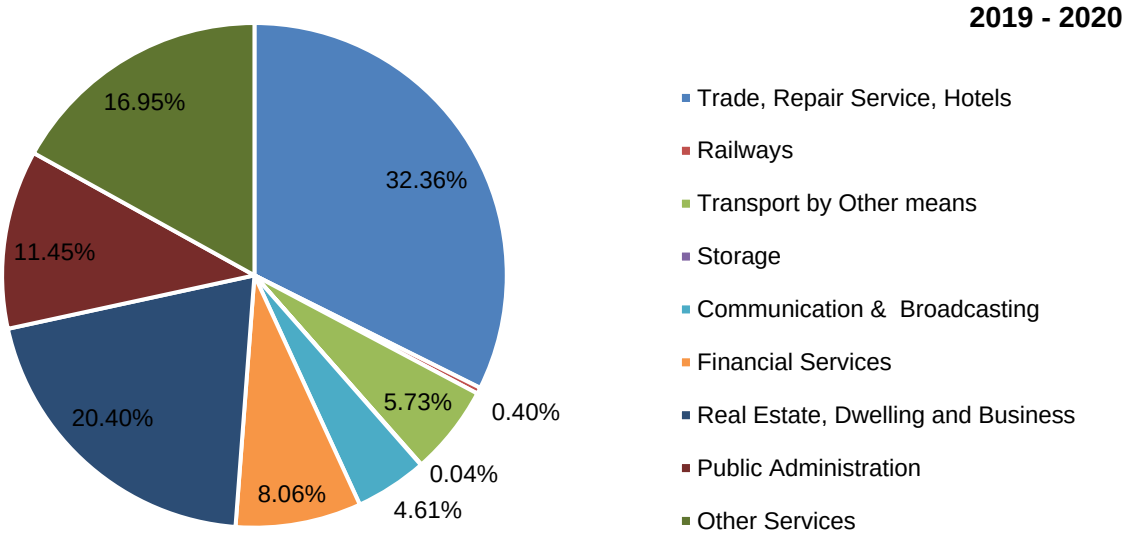


Figure 6-18 **Sub Sectorial Share in GDDP, 2011-12**

Source: Department of Economics & Statistics

6.4.1. Major Contribution in Tertiary Sector

6.4.1.1. Real Estate

Real estate displayed a declining trend in its contribution to the GDDP, reducing from 23.89% in 2011-12 to 23.53% in 2015-16 and further dropping to 20.40% by 2019-20. This decreasing trend suggests a relative reduction in the significance of the real estate sector in the district's overall economic output over the years.

6.4.1.2. Information and Technology

Madurai is promoted as a second-tier city for IT and some software companies like Honeywell Technology Solutions have opened their centers. Software Technology Parks of India, an agency of the Government of India, has authorized several such companies to receive benefits under its national information technology development program. The state government proposed two IT based Special Economic Zones (SEZ) in Madurai, and these have been fully occupied by various IT companies.

Table 6-19 **Existing IT Companies in Madurai**

IT companies in Madurai	189	Madurai has secured the 20th position among India's top start-up destinations, showing progress by climbing two spots from the previous year. While the technology industry continues to expand, Madurai primarily hosts a handful of tech Multinational Corporations (MNCs), predominantly Business Process Management (BPM) firms catering to the US market.
Employees in IT	18000	
Approximate income generated	$200 million	
Zoho, Honeywell, HCL		
New companies in vadapalanji(ELCOSEZ)	Chainsys, pinnacle	

Source: SIDA, Madurai

6.4.1.3. Tourist Inflow to Madurai

The years 2019-20 and 2020-21 experienced significant declines in tourist numbers, mainly due to the global COVID-19 pandemic's disruptive effects on travel and tourism worldwide.

The rebound seen in 2021-22, with a remarkable 59.62% increase, indicates a strong recovery in tourism, showcasing the industry's resilience and potential to bounce back after downturns.

The tourism industry exhibited fluctuations and extreme variations in growth rates over these years, with a significant decline during the pandemic period followed by a robust rebound as travel restrictions eased, vaccination rates increased, and confidence in travel returned. Understanding these trends helps in predicting and preparing for future scenarios and devising strategies to sustain and support the tourism sector during challenging times.

Table 6-20 Tourist Inflow to Madurai

Year	Domestic	International	Total	Yearly Increase Rate of Tourist
2016	2,11,44,953	3,28,947	2,14,73,900	
2017	2,26,59,360	3,03,543	2,29,62,903	6.93
2018	2,45,16,815	2,82,167	2,47,98,982	8.00
2019	2,68,55,264	1,96,587	2,70,51,851	9.08
2020	1,39,81,975	74,290	1,40,56,265	-48.04
2021	99,33,666	195	99,33,861	-29.33

Year	Domestic	International	Total	Yearly Increase Rate of Tourist
2022	1,58,39,414	16,637	1,58,56,051	59.62

Source: District Tourism Office, Madurai, 2016 to 2022

6.4.1.4. Logistics

Logistics is a crucial component of supply chain management that involves the planning, implementation, and control of the efficient movement and storage of goods, services, and related information from the point of origin to the point of consumption. It encompasses a wide range of activities, including transportation, warehousing, inventory management, packaging, and handling, as well as the integration of information systems to coordinate and optimize these operations.

The breakdown of the average trip purpose of goods vehicles into loading, unloading, and other activities provides valuable insights into the operational dynamics and time allocation within the logistics and transportation sector:

Loading (38%):

The 38% allocated time for loading goods onto vehicles before the journey begins suggests the significance of proper preparation and organization of goods. Efficient loading processes involve packaging, sorting, and securely placing goods onto the vehicle. Optimizing loading procedures can minimize delays, ensure goods' safety during transit, and contribute to on-time departures.

Unloading (50%):

The majority of the trip duration, accounting for 50%, is attributed to unloading goods at the destination. This substantial allocation of time emphasizes the importance of smooth and efficient unloading operations. Efficient unloading involves careful handling of goods, timely removal from the vehicle, and proper placement at the destination site. Enhancing unloading processes is crucial to ensuring timely deliveries and customer satisfaction.

Table 6-21 Vehicular Registration Details, 2007-2017

	Buses				Private Vehicles & IPT						Goods Vehicles			
Office Name	City Bus	Long Distance Bus	Institutional Bus/ Company Bus	Mini Bus	Van/ Maxi Cab	Car	Taxi	Two Wheeler	Shared Auto Rickshaw	Auto Rickshaw	LCV	Trucks / 2Axes	Mav	Tractor
NORTH	475	126	362	41	2448	33606	154	181502	125	6535	7267	2982	2924	1069
CENTRL	211	69	292	49	833	14756	1454	133728	44	6169	4541	752	484	325
SOUTH	2193	18	277	49	1160	21164	2889	184777	228	8390	5196	1381	737	1528
Total	4162				599962						29186			

Source: Preparation of Comprehensive Mobility Plan for Madurai Local Planning Area, DTCP, 2019

Table 6-22 Trip Purpose of Goods Vehicles

Sl. No	Location	Purpose		
		Loading	Unloading	Others
1	Palamedu Main Road	70	27	2
2	Dindugal	88	13	0
3	Dindugal NH7	32	42	26
4	Melur Ring Road	44	49	6
5	Melamadai Road	36	50	14
6	Arupukottai Road	62	34	3
7	Rameswaram Road	18	79	3
8	Nilakottai Road	26	62	13
9	Madurai	29	62	9
10	Thiruppathur	42	47	11
11	Kappalur	38	48	14
12	Natham Road	83	14	3

Sl. No	Location	Purpose		
		Loading	Unloading	Others
13	Trichy NH-45	23	61	16
Average		38	50	13

Source: Preparation of Comprehensive Mobility Plan for Madurai Local Planning Area, DTCP, 2019

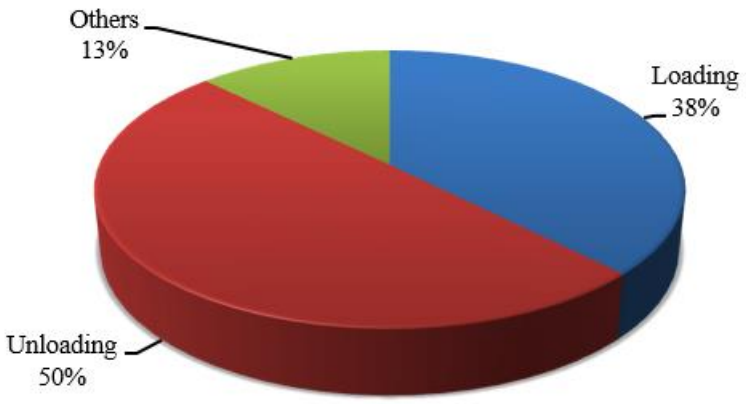


Figure 6-19 Trip Purpose of Goods Vehicles

Source: Preparation of Comprehensive Mobility Plan for Madurai Local Planning Area, DTCP, 2019

More than 3000 trucks ply through the Port road connectivity every day to transit the EXIM cargo, that are seamlessly connected to Tirunelveli and beyond in the South, and Madurai to cater to the northern hinterland, through NH138 and NH38. The 595 Km. long East Coast Road also connects Chennai. The Port is well connected to the Indian Railway network through the Meelavittan – Madurai broad-gauge line. This enables faster and effective cargo transfer to Dindigul, Karur, Bengaluru, Coimbatore and Chennai regions[7].

6.4.1.5. Trade, Repair Service, Hotels

The contribution of the trade, repair services, and hotel sectors witnessed a gradual increase over the years, growing from 30.82% in 2011-12 to 32.36% by 2019-20. This indicates a consistent and slightly expanding role of these services in the

district's economic output, potentially driven by increased commercial activities or tourism-related services[8].

Table 6-23 List of Commodities Arrival in Paravai Market, Madurai

S. No.	Name of State	Commodity	Quantity (in tons)	
1	Maharashtra Karnataka	Onion	500	650
2	Dharapuram Theni Dindigul Virudhnagar	Onion	150	
3	Agra	Potato	500	1075
4	Kdaikanal Ooty	Potato	200	
5	Karnataka	Potato	375	
6	Karnataka	Vegetables	100	100
7	Theni Cumbum Gudalur	Chilly, Brinjal, Ladysfinger, Bottle Guard, Snake Guard	10	10
8	Trichy	Pumpkin	5	5
9	Thiruvinnamalai	Yam	5	5
10	Kodaikanal Ooty Karnataka	Carrot	150	150
11	Andra Pradesh Karnataka Tamil Nadu	Tomato	100	100
12	Karnataka	Ginger	70	70
13	Thenkashi Karnataka Thevaram Theni	Corriander	30	30
Total			2,195.00	

Source: Paravai Market

The transportation and sale of 2190 tons of commodities, particularly vegetables, to the Paravai market on a daily basis is a significant operation that involves various stages and considerations.

8 V.O. Chidambaranar Port sets sight to establish Multimodal Logistics Park, Posted On: 11 OCT 2021 5:51PM by PIB Delhi

6.4.1.6. Warehouse

A warehouse serves as the backbone of logistical operations, meticulously orchestrating the flow of goods and materials within a structured environment. Within its expansive walls, a symphony of organization, storage, and distribution unfolds, enabling businesses to efficiently manage inventory and meet the demands of a dynamic market.

There are 58 food storage warehouses in Madurai LPA.

6.5. Workforce Participation in Madurai LPA

The statistics provide insights into the working population distribution, gender ratio, and workforce participation rates in the corporation and the rest of the planning area. Let's break down and elaborate on the information provided:

Table 6-24 Total Workers of Madurai LPA, 2011

Area	No. of Workers		
	Total	Male	Female
Madurai Corporation	5,63,077	4,26,895	1,36,182
Rest of LPA	3,64,966	2,35,769	1,29,197
Planning Area	9,28,043	6,62,664	2,65,379

Source: Census of India (2011)

Table 6-25 Occupational Structure of Madurai LPA, 2011

Demographic Profile	Madurai UA	Municipalities	Rest of the Planning Area	LPA
Population	1,472,946	91,211	698,958	2,263,115
Total workers	571,883	33,338	331,628	936,849
Participation Rate	38.83	36.55	47.45	41.40
% of Male workers to Total Workers	75.80	76.44	63.41	71.44
% of Female workers to Total Workers	24.20	23.56	36.59	28.56
% of Main workers to Total Workers	92.45	92.71	82.01	88.76
% of Marginal Workers to Total Workers	7.55	7.29	17.99	11.24
Cultivators & Agri. Labors	10,671	2,834	156,550	170,055

Demographic Profile	Madurai UA	Municipalities	Rest of the Planning Area	LPA
% of cultivators & Agri. Labors to Total Workers (Primary Sector)	1.87	8.50	47.21	18.15
Household Workers	23,461	741	12,222	36,424
% of HH Workers to Total Workers	4.10	2.22	3.69	3.89
Other Trade Workers	537,751	29,763	162,856	730,370
% Other Trade Workers to Total Workers	94.03	89.28	49.11	77.96

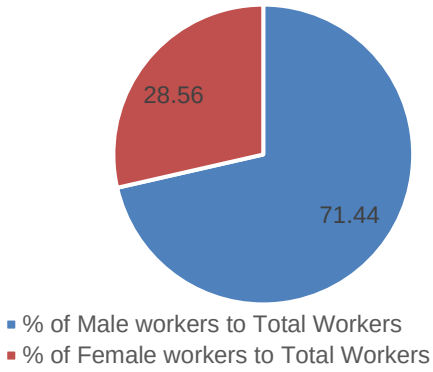


Figure 6-20 **Distribution of Male and Female Workers in LPA, 2011**

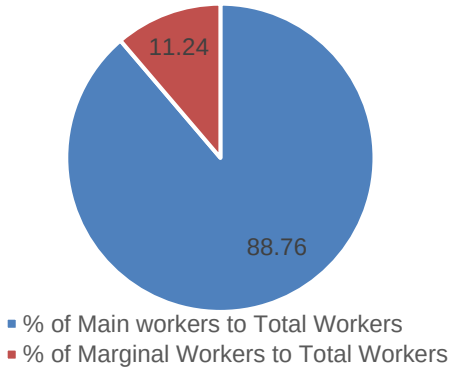


Figure 6-21 **Type of Workers out of Total Workers in LPA, 2011**

Total Working Population:

The Corporation has a total working population of 563,077 individuals.

Gender Distribution:

Male Workers: 74.81% of the total working population.

Female Workers: 24.19% of the total working population.

This indicates a significant gender imbalance in the workforce, with a higher representation of male workers compared to female workers.

Workforce Participation Rates:

Corporation: The workforce participation rate within the corporation is 38.84%. This rate represents the proportion of the working-age population (eligible individuals who are either employed or actively seeking employment) within the corporation who are actually part of the workforce.

Rest of the Planning Area: The workforce participation rate in the rest of the planning area is higher at 46.19%. This suggests a comparatively higher engagement or labor force participation within the surrounding areas outside the corporation.

Municipalities, with a slightly lower Workforce Participation Rate of 36.55% compared to the Madurai Corporation, suggest a relatively similar trend in terms of workforce engagement in these semi-urban or smaller urban areas.

Panchayats, encompassing rural areas, exhibit a notably higher Workforce Participation Rate of 47.45%, indicating a larger portion of the rural population actively participating in the workforce.

Factors such as agriculture-based livelihoods, lesser availability of alternative opportunities, and different cultural or economic settings might contribute to this higher rate.

Rural areas like panchayats and other villages show higher participation rates compared to urban centers and municipalities.

Table 6-26 Workforce Participation in Madurai LPA, 2011

Town/ Village	T/M/ F	Total Workers	WPR	Main	Main workers %	Marginal	Marginal Workers %
Madurai Corporation	Total	5,71,883	38.83	5,28,708	92.45	43,175	7.55
	Male	4,33,497	75.80	4,10,007	77.55	23,490	54.41
	Female	1,38,386	24.20	1,18,701	22.45	19,685	45.59
Municipality	Total	33,338	36.55	30,907	92.77	2,431	7.29
	Male	25,485	76.44	24,052	77.82	1,433	58.95
	Female	7,853	23.56	6,855	22.18	998	41.05
Panchayat	Total	39,641	47.45	31,851	82.01	7,790	17.99
	Male	26,675	67.29	22,372	70.24	4,303	55.24
	Female	12,966	32.71	9,479	29.76	3,487	44.76
Other Villages	Total	3,31,628	41.40	2,71,954	88.76	59,674	11.24
	Male	2,10,284	63.41	1,81,515	66.74	28,769	48.21

Town/ Village	T/M/ F	Total Workers	WPR	Main	Main workers %	Marginal	Marginal Workers %
	Female	1,21,344	36.59	90,439	33.26	30,905	51.79

Source: Census 2011

6.6. Key Challenges

6.6.1. Primary Sector

1. No common facility center for Rural Artisans for production and manufacturing their products.
2. Lack of facilities for cold storage.
3. Strengthening the rural infrastructure for village level primary processing and value addition is the major challenge.

6.6.2.Secondary Sector

1. Growth of Industries in slow pace and area proposed under the Industries are not achieved as targeted in first Master Plan (1991-2011).

6.6.3.Tertiary Sector

Lack of facilities for trucks entering the planning area, especially truck bays.

6.7. Potentials for Economic Development

Madurai's geographical location, classified as Seismic Zone 2, implies a relatively lower risk of earthquakes compared to regions in higher seismic zones. Seismic Zone 2 areas generally experience lower seismic activity and are considered to have a low susceptibility to significant earthquakes. This lower risk of earthquakes provides a relatively stable foundation for development and construction activities.

6.7.1. Primary Sector

1. Literature studies & stakeholder consultations says a potential for agribusiness of products such as paddy, flower, groundnut, vegetables, cotton etc.
2. Encouraging the establishment of agro-processing units or food processing industries that add value to agricultural produce can boost farmers' income and create employment opportunities.
3. Integrated cold chain and value addition infrastructure scheme and export, helping farmers to directly link with the domestic and global value chain thus providing higher income to farmers and improving their livelihood especially in case of Jasmine production. Potential for cold storage facility at A. Kokulam.
4. TIDCO/ Agriculture and Farmers Welfare Department to evaluate potential routes for kisan rail services respectively and encourage the initial pilot runs from a market development perspective. The potential routes that will be considered for kisan rail services inter alia include routes to major consumption markets such as Delhi, Mumbai and Kolkata from Madurai and other districts[10]

6.7.2.Secondary Sector

1. Tamil Nadu is one amongst the top performers in the Index prepared by Ministry of Commerce and Industry in Ease of Doing Business (6th position in India)[12].
2. Industries are boosting near Thirumangalam municipality.
3. Scope for industrial development at Sakkiyamangalam.
4. The roads connecting Rajapalayam to Thirumangalam and Natham to Madurai indeed possess high potential for industrial development due to several key factors[9]:

   Strategic Location: These roadways link important industrial areas to major cities or hubs like Madurai. Such connectivity makes them attractive for industrial growth as it allows easy transportation of goods and raw materials.

   Accessibility: Improved road connectivity ensures better access for transportation, facilitating the movement of goods and services to and from

9 Expert Opinion, 2013

industrial areas. This accessibility is crucial for industries relying on logistics and supply chains.

Proximity to Urban Centers: Being close to urban centers like Madurai often translates to access to a larger market, skilled labor, infrastructure, and resources necessary for industrial operations.

Potential for Infrastructure Development: High potential roads often attract government and private investments in infrastructure development. This could lead to the establishment of industrial zones, logistics parks, and supportive facilities along these routes.

Economic Opportunities: These roads passing through or near towns and industrial clusters could lead to increased economic activities, job creation, and local development. It might encourage the setting up of manufacturing units, warehouses, and other industrial facilities.

5. According to the Craft Council of India, there are 11 recognized clusters in Madurai. Textile –sungudi, theater craft – Muthangi, Wood carving, metalware - pancha loham, stone carving, metalware – Kavasam, Toy making, etc. As a case study Common Facility Centre proposed for Toy cluster in Vilachery was visited, nearly 550 families and 250 Manufacturers in Melamathur, Keelamathur, Melakuyikudi, Keelakuyilkudi, Sambakudi,Karadipatti, Tattanur, Vadivelkarai, Thuvariman villages involved in Pottery making and eco-Friendly Toy making since 1965 under the association of Kulala Handicrafts Artisan Welfare Association and they making annual turnover of 20 crores through exporting their products to USA,UK, Malaysia and few Asian countries .Families involved in the craft making are working at their individual houses and no common places for production and marketing of products for the rural artisans.

6. There is a potential for establishment of a SIPCOT (State Industries Promotion Corporation of Tamil Nadu) Industrial Estate with a blend of industrial and commercial use holds significant potential for economic growth and development in the Melur Taluk, Bothamangalam, Vaniyanagaram in an area of 250 acres, which comes out of the planning area. Selecting an area that is well-connected via road networks and in close proximity to the airport is crucial.

7. It is recommended to propose SIDCO at Sakkiyamangalam and there is a potential for the new unit at Madurai-Natham route

8. The Neo-Tidel park was proposed at Mattuthavani through Special Purpose Vehicle (SPV) at a cost of 500-600 crores rupees. This is part of establishing Neo Tidel Parks in the second-tier cities in Tamil Nadu. This proposal has a potential to generate 10,000 or more jobs in the planning area.

9. The Paravai market area may be rejuvenated into a trade hub which is characterized by significant daily activity involving a large number of Lorries transporting goods, a substantial influx of people engaging in trade, and a massive supply of vegetables and fruits from multiple districts.

   Each day, the Paravai market witnesses the arrival of 50 Lorries holding national permits, attracting 20,000 individuals participating in trade activities, while benefiting from a collective daily supply of 2195 tons of vegetables and fruits sourced from 10 distinct districts.

   Establishment of truck bays in or around the Paravai market would serve as a strategic infrastructure development to facilitate the smooth and organized movement of goods, especially considering the substantial daily influx of commodities like vegetables and fruits.

   50 National permit lorry enters the Paravai market area on a daily basis. 20000 people come there for trade activities, 10 districts supply around 2195 tons of vegetables and fruits on a daily basis.

10. It is suggested to earmark government land/ parcels, minimum 50 acres, for development of logistics facilities including logistics parks, warehousing clusters and truck terminals among others at strategic locations i.e. near existing industrial clusters and across the alignment of CKIC and CBIC Phase 2 in the State[10].

11. TIDCO has proposed Multimodal Cargo terminals in Madurai 10.

12. Truck lay byes including basic amenities will be developed by the Highways and Minor Ports Department and National Highway Authority of India (NHAI) at designated locations on the major highways/ road corridors. Coimbatore to Tuticorin via Madurai10.

13. Green field development of truck terminals in Madurai10.

10 Tamil Nadu Logistics Policy and Integrated Logistics Plan, 2023

14. TIDCO to evaluate potential new routes for container rail services considering the inputs and proposals from Container Train Operators and encourage the initial pilot runs for a pre-defined period from a market development perspective. The potential routes that will be considered for container rail services inter alia include Madurai to Vapi-Surat and extension to Tuticorin10.

15. Madurai - Tuticorin Industrial Corridor: Manufacturing and Business Investment Regions (MBIRs), Manufacturing hub catering to industries like textiles & garments, plastic, electrical, leather, ceramics, electronics, cement chemical, paper, etc. Light and heavy engineering industries as well as auto components and auto ancillaries are also proposed.

16. Madurai - Tuticorin Industrial Corridor: Manufacturing and Business Investment Area (MBIA) I & II, SME industries covering Food and Agro Based Industries, Chemical Industries, Engineering Industries, Ceramics and Mineral Based Industries, IT and ITES, Hosiery and Leather.

17. Small Industries Development Corporation (SIDCO) proposes to develop industrial parks at Sedapatti in Madurai District in an area of 51 acres.

18. The Government intends to bring in at least a Rs. 2000 Crore investment in food processing industry by promoting primary, secondary and tertiary industries in Theni, Madurai, Dindigul and other districts of the State for processing of tomato, potato, tapioca, guava, coconut, oil seeds, mango, banana and other horticultural crops.

19. The CKIC project is proposed with an investment of Rs. 2, 81,000 Crore will focus on increasing the share of manufacturing, promoting balanced regional growth and development of the southern districts.

20. Considering the huge cargo potential, VOC Port has proposed development of a Multimodal Logistics Parks (MMLPs) to facilitate seamless multimodal freight transfer and specialized storage solutions such as cold storage, warehouses equipped with mechanized material handling and intermodal transfer terminals for containers, bulk and break-bulk cargo. Further, the MMLP would offer value added services such as customs clearance, bonded storage yards, quarantine zones, testing facilities, warehousing management services, post manufacturing activities such as kitting and final assembly, grading, sorting, labelling, packaging etc. In this context VOC Port has tentatively identified

Coimbatore, Madurai and Tuticorin as the three potential locations for establishing the MMLPs each in an area of about 100 acres.

21. One of the initiatives proposed is the creation of testing labs and certification agencies for exporters in proximity to upcoming food parks and production centres including Madurai. Madurai has been recognized as one of the 10 Towns of Export Excellence by the Government of India. The list of products identified by DEPC for the districts covered in the Madurai Region are as follows:
Madurai:Readymadegarments[11].

6.7.3.Tertiary Sector

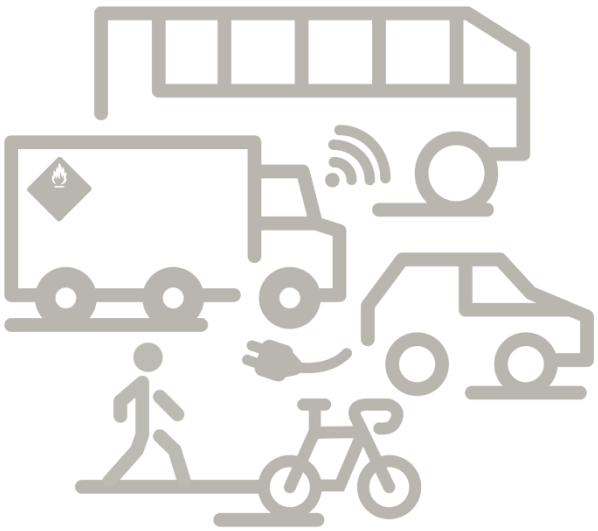
Madurai stands as a burgeoning hub for startups, offering a pool of 20,000 experienced talents poised to contribute to its growing entrepreneurial landscape. Ranked 20th among India's startup locations, Madurai showcases its potential with the presence of 325 tech-related businesses. The city's tech sector thrives with the existence of 1.25 square kilometers of Special Economic Zone (SEZ) area, providing a conducive environment for business growth and innovation. This combination of a substantial talent pool, a commendable position in the national startup ecosystem, a multitude of tech-related businesses, and dedicated SEZ zones underscores Madurai's promising prospects as an emerging destination for technological innovation and entrepreneurial endeavors.

1. Madurai, renowned for its rich history and cultural heritage, holds promising potential to evolve into a prominent technology center, surpassing its reliance on established hubs like Chennai and Bengaluru. Boasting technologically advanced facilities such as STPI and ELCOT, Madurai stands strategically poised to emerge as the next technology hub. Further bolstering this potential is the city's abundance of engineering institutions, which serve as valuable sources for a skilled talent pool. These educational establishments not only provide skilled professionals but also encourage innovation through their internal incubation centers, crucial in cultivating a thriving and sustainable startup ecosystem[12].

11 Tamil Nadu Export Promotion Strategy

2. Madurai is witnessing talent skilled in emerging technologies of block chain and cyber security driven by state government policies and its focus on developing infrastructure to support these skills[12].
3. There's considerable potential for Madurai to evolve into a subsidiary hub connected to the major IT centers in Bengaluru and Chennai. Notably, a few start-ups originating from Chennai have established their offices in Madurai[12].The city boasts a thriving start-up ecosystem, driven by passionate enthusiasts and active communities, contributing significantly to its entrepreneurial landscape.
4. To retrieve the economy of Madurai district, several initiatives such as establishment of Special Economic Zones (SEZs), IT park, Tidel park, Industrial and Information and Technology parks, etc., have been taken by the government (State Planning Commission, 2017)

12 Emerging Technology Hubs in India, August 2023, Deloitte



7

TRAFFIC & TRANSPORTATION

7.1. Introduction

A well-coordinated and renowned transportation system is pivotal for the sustained economic development of a nation. The existing transportation system in India encompasses various modes such as road, rail, coastal shipping, and air transport. Over the years, the transportation sector in India has witnessed substantial growth, both in network expansion and overall output.

The objective of examining the transport sector is to analyze and comprehend its role in the current context of the city and its surroundings. This study aims to grasp the existing potentials, strengths, weaknesses, and constraints of the transport sector, leading to the identification of integral strategies and projects crucial for the city's development.

7.1.1. Access and connectivity

Located in the southwestern part of Tamil Nadu, Madurai serves as the district headquarters. The city functions with its focal point being the revered Meenakshi Amman temple, around which a bustling CBD has developed. Renowned as a significant tourist destination, Madurai attracts a substantial daily floating population, estimated at approximately 300,000 individuals.

The city corporation diligently maintains an extensive road network spanning 1272.61 km, which includes 20.35 km of stone-cut and tile-paved roads, resulting in a road density of 10.52 km/sq.km. However, the CBD, featuring wholesale and grocery markets and private transport offices, experiences heightened traffic from heavy goods vehicles. This influx contributes to congestion on major arterial roads within the CBD, causing notable delays and presenting challenges for pedestrians at intersections.

Furthermore, the concentration of commercial establishments along the CBD's main roads results in a significant demand for parking. On-street parking exacerbates traffic flow issues along major corridors. Madurai is home to an impressive vehicle count, including 500,000 two-wheelers, 21,000 three-wheelers, 4,165 buses, 4,500 taxis, and 70,000 cars and jeeps[1].

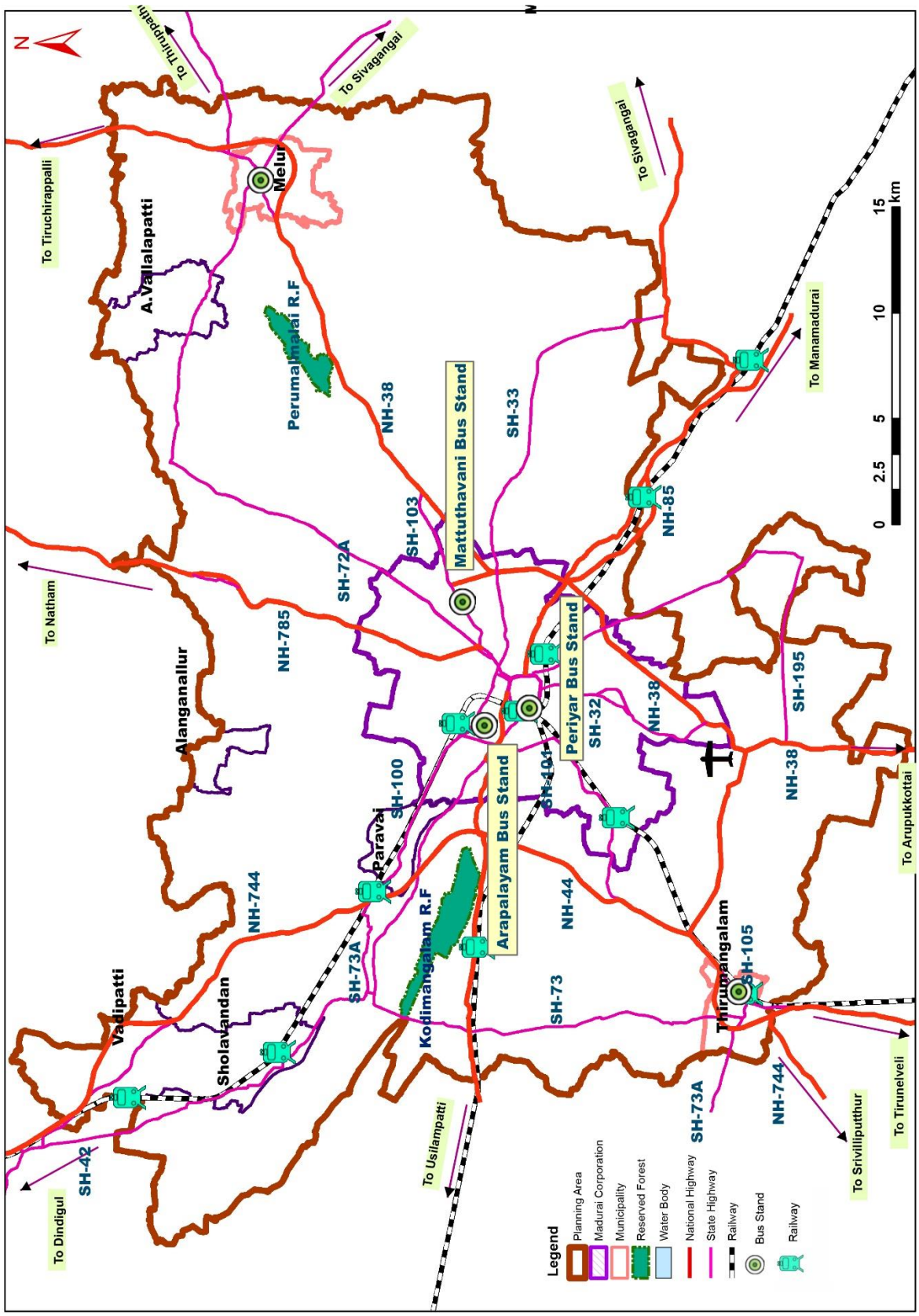
An in-depth analysis of baseline information, acquired through comprehensive field studies and secondary data, has revealed several critical issues

[1] *City Mobility Plan Madurai 2019*

in Madurai's urban transport scenario. Challenges encompass the absence of a functional road hierarchy, congestion due to a narrow road network, and intense development along major corridors without commensurate transport provisions. Identified issues also include the lack of access control measures, inconsistent carriageway width along arterial roads affecting speeds, and poor road geometrics rendering certain areas accident-prone. Urgent improvement strategies and actions are imperative to rectify these concerns and enhance the overall urban transport landscape in Madurai.

7.1.2. Regional Linkages – Roads, Railway and Airway

The establishment of regional linkages is crucial for integrating Madurai with its neighboring regions, fostering economic, social, and cultural interactions through diverse modes of transportation, communication, and collaboration. The city's well-developed connectivity by rail, road, and air to significant cities within the state and the nation not only facilitates accessibility but also plays a vital role in supporting overall development. Recognizing and fortifying these regional linkages are imperative for the comprehensive and balanced advancement of both Madurai and its surrounding areas. Map 7-1 shows the regional connectivity of the Madurai LPA with the surrounding areas.



Map 7-1 Regional Connectivity

7.1.2.1. Regional Road Network

Madurai city features a combination of diverse street patterns, including concentric square patterns around the temple and radial patterns on other main roads that connect the city with urban centres across the state.

Road Connectivity

The predominant mode of transportation is by road, followed by rail. The Madurai Transport Corporation serves the inner and fringe areas of the city, encompassing 381 routes with 668 buses covering a total route length of 8959.20 km^2. The average daily singles of the buses amount to 6347, accommodating 3,14,885 passengers per day[3].

The city experiences a significant increase in its floating population during the daytime, with many people from southern districts visiting for various purposes such as medical appointments, education, shopping, tourism, or official matters. Consequently, Madurai faces escalating traffic issues on a daily basis, making it one of the crucial traffic circles in Tamil Nadu. This report intends to address and alleviate the city's traffic congestion and related problems in the suburbs.

Highway and Location

The city is intersected by several National Highways, including NH-44, NH-85, NH-87, NH-785, and NH-38 (formerly NH-45B), in addition to State Highways and Major District Roads. The Ring Road serves as a vital orbital link, connecting NH-38 to NH-44 in the southern direction. National highways lay the groundwork for the entire road network within the city. State Highways such as SH-33, SH-72, SH-72A, SH-73, and SH-73A traverse through Madurai, connecting it to key towns and cities in the state. Despite lacking a continuous ring road, Madurai's strategic location attracts significant tourist traffic, contributing to congestion. The city is a pivotal circle in the Tamil Nadu State Highway Department, featuring three major bus

2 City Mobility Plan Madurai 2019

3 TNSTC

terminals—Mattuthavani Integrated Bus Terminus (MIBT), Arappalayam Intercity Bus Terminus, and Periyar Bus Stand—serving intra-city buses. Private bus services, taxi cabs, and autos complement state-owned buses in Madurai's well-connected road network, establishing the city as a central hub for southern districts and fostering economic growth.

Table 7-1 Classification of Roads in Local Planning Area

Sl. No	Road Type	Length in Kms
1	National Highway	285.10
2	State Highway	219.87
3	Major District Roads	215.15
	Total	720.12

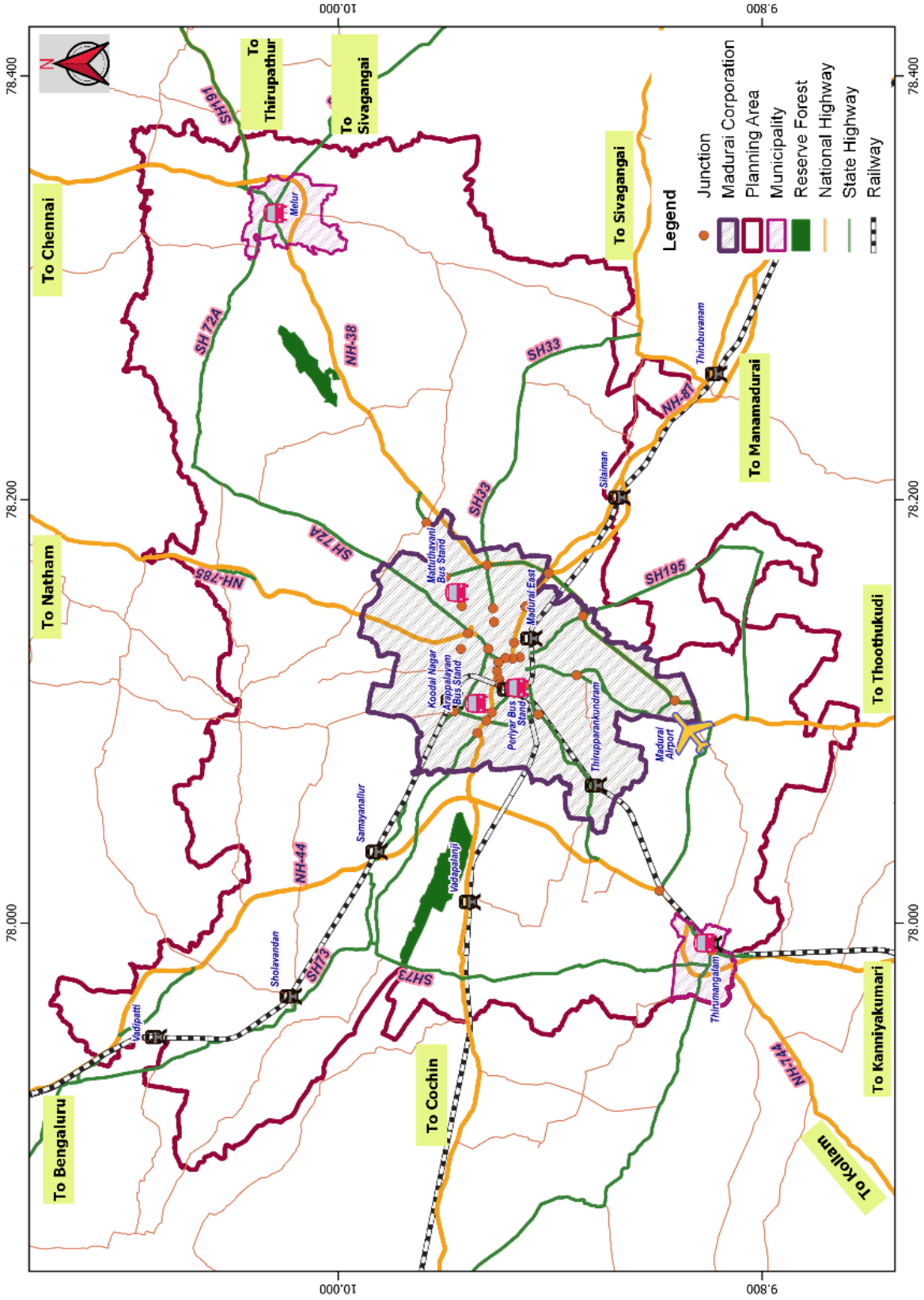
Source: Madurai City Municipal Corporation

Table 7-2 Classification of Road by Surface – Corporation Region

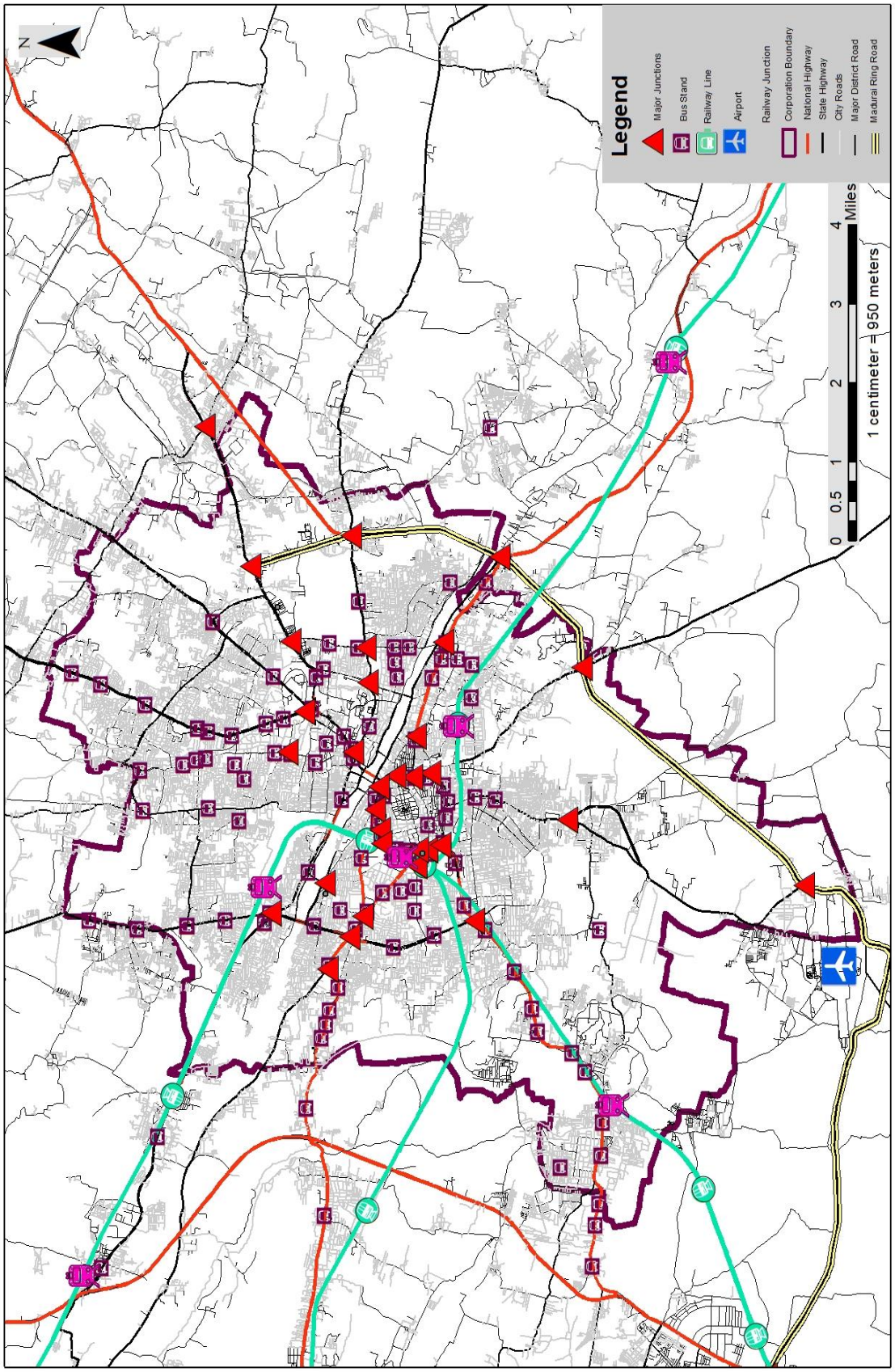
Sl. No	Road Type	Length in Kms
1	Bitumen Roads	1252.26
2	Cement Concrete	9.391
3	Paver Block and Other	10.957
	Total	1272.61

Source: Madurai City Municipal Corporation

The Madurai core city around the Meenakshi Amman Temple is designed in a rectangular pattern. Historically, it reveals that the city was planned with the temple at the centre, and the streets were named after Tamil months, namely Aadi, Chithirai, Avani, and Masi. Subsequently, the city expanded on both sides of the Vaigai River exhibiting a radial pattern.



Map 7-2 Existing Transportation Network in Madurai LPA



Map 7-3 Existing Road Network in Madurai Corporation

7.1.2.2. Railway Connectivity

Madurai Railway Junction holds significance as a crucial railway junction in southern Tamil Nadu and operates as a distinct division within the Southern Railway. Serving as the headquarters of the Madurai Railway division, it stands as the second-largest revenue division in Southern Railway, following the Chennai division. Direct trains from Madurai connect to key cities across India, such as Chennai, Mumbai, New Delhi, Bangalore, Jaipur, Hyderabad, Visakhapatnam, Trivandrum, Coimbatore, Kollam, Kanyakumari, Trichy, Tirunelveli, Rameswaram, Thanjavur, Vijayawada, Calcutta, Nagpur, and Bhopal.

There are 10 railway stations in the planning area. This includes Madurai Junction, Samayanallur, Tirumangalam, Silaiman, Vadapalanji, Sholavandan, Vadipatti, Tirupparankundram, Koodal Nagar, and Madurai East. Madurai junction has the highest number of passengers travelling in the LPA with an average of 86 lakhs. Sholavanthan, Tirupparankundram, and Thirumangalam have relatively lower passenger count.

Indian Railways has introduced the semi high-speed rail service "Tejas Express," operating between Chennai Egmore and Madurai Junction, making a round trip within the same day. This route is one of the four Tejas Express routes in the country. Additionally, Madurai Railway Junction is a major hub on rail lines connecting Chennai to Kanyakumari, Chennai to Rameshwaram, Madurai to Palani, Madurai to Bodi, and Chennai to Sengottai. Its role in the region's development is significant.

Table 7-3 Major Railway Lines in Madurai

Line No.	Towards	Stations
1	Dindigul Junction (north)	Koodal Nagar, Sholavandan, Vadipatti, Samayanallur
2	Virudhunagar Junction (South)	Tirumangalam, Tirupparankundram

Line No.	Towards	Stations
3	Bodinayakkanur (West)	Vadapalanji
4	Manamadurai Junction (South-east)	Silaiman, Madurai East

Source: Southern Railways

Table 7-4 Number of Passengers traveling at Major stations

Railway station	2015-16 (Apr-Mar)	2016-17 (Apr-Mar)	2017-18 (Apr-Mar)	2018-19 (Apr-Feb)
Madurai Jn	79,30,278	78,51,295	85,02,585	86,29,362
Sholavanthan	3,91,171	3,91,002	3,92,021	4,12,835
Tirupparankundram	3,43,514	3,07,052	3,64,237	3,71,975
Thirumangalam	3,34,040	2,67,041	2,69,388	3,02,694

Source: City Mobility Plan Madurai 2019

7.1.2.3. Airway Connectivity

Madurai Airport was established in 1957 and has since become one of the busiest airports in the state, following Chennai and Coimbatore, particularly for domestic passenger movement. In 2012, the airport commenced handling cargo operations. Conveniently located, the airport is easily accessible from the city, with a travel time of 30-45 minutes from the northern part of the city. The airport is well connected through a ring road that runs from north to south, providing easy access from the corporation.

Situated 12 km from the city core, Madurai Airport is positioned on Aruppukkottai Road in Perungudi Village, falling outside the Corporation Limit but within the Local Planning Area. The airport offers domestic flight services to major

cities in India and international services to Colombo, Sri Lanka, and Dubai, UAE. As major freight commodities, Auto parts, Flowers and PO mail are transported domestically and internationally flowers, vegetables and snacks are transported.

The Madurai airport had a total passenger count of 10.15 lakhs in 2022, of which 1.73 lakhs is international passengers and 8.41 lakhs are domestic passengers (Table 7-5). The passesnger count has increased from 6.39 lakhs to 10.15 lakhs between 2013 and 2022 with fluctuations over the years.

Table 7-5 Passenger Count at Madurai Airport, 2013-20

Year	International	Domestic	Total
2013	1,02,334	5,37,572	6,39,906
2014	1,94,087	5,21,929	7,16,016
2015	2,44,118	5,15,217	7,59,335
2016	2,72,530	6,96,930	9,69,460
2017	2,88,402	9,93,912	12,82,314
2018	3,32,689	12,51,987	15,84,676
2019	3,62,888	10,83,889	14,46,777
2020	1,04,644	5,51,141	6,55,785
2021	55,633	6,69,172	7,24,805
2022	1,73,713	8,41,495	10,15,208

Source: Airport Authority of India

7.2. Existing Situation

7.2.1. Modal Share

The modal share in Madurai refers to the distribution of transportation usage among different modes of travel within the city. This distribution is typically expressed as a percentage breakdown, indicating the proportion of trips made by various transportation modes.

In accordance to the 2019 Comprehensive Mobility Plan (CMP) for Madurai, the city heavily relies on personalized vehicles for transportation. The primary mode of transportation is two-wheelers, followed by buses, walking, cars, auto-rickshaws, and bicycles. Two-wheeler journeys dominate both within Madurai city and its Local Planning Area (LPA). Regarding registered private vehicles between 2007 and 2017, two-wheelers account for 79%, followed by cars at 12% of the total vehicular population. Commercial vehicles constitute approximately 3% of the overall vehicle population, while auto-rickshaws make up about 3%, and trucks represent around 2%. The modal share of the Madurai City shows the highest share of 43% for Auto, followed by 28% of bus users (Figure 7-1). Pedestrians and bicyclists have a share of 11% and 8% respectively. Cars have a share of 6%.

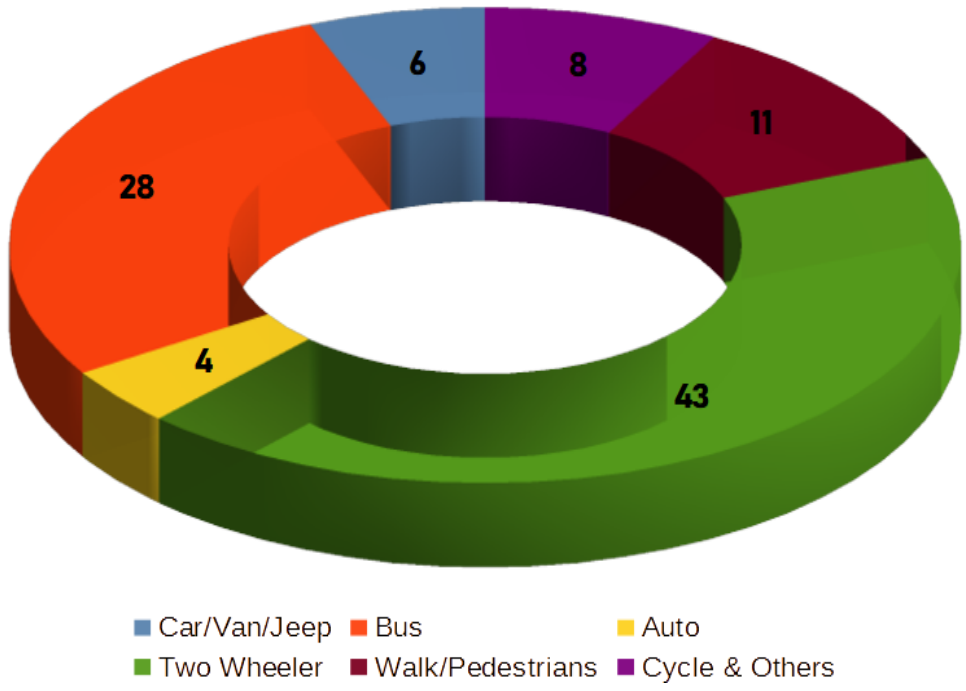


Figure 7-1 *Modal Share in Madurai City*

Source: City Mobility Plan Madurai 2019

7.2.2. Public Transport

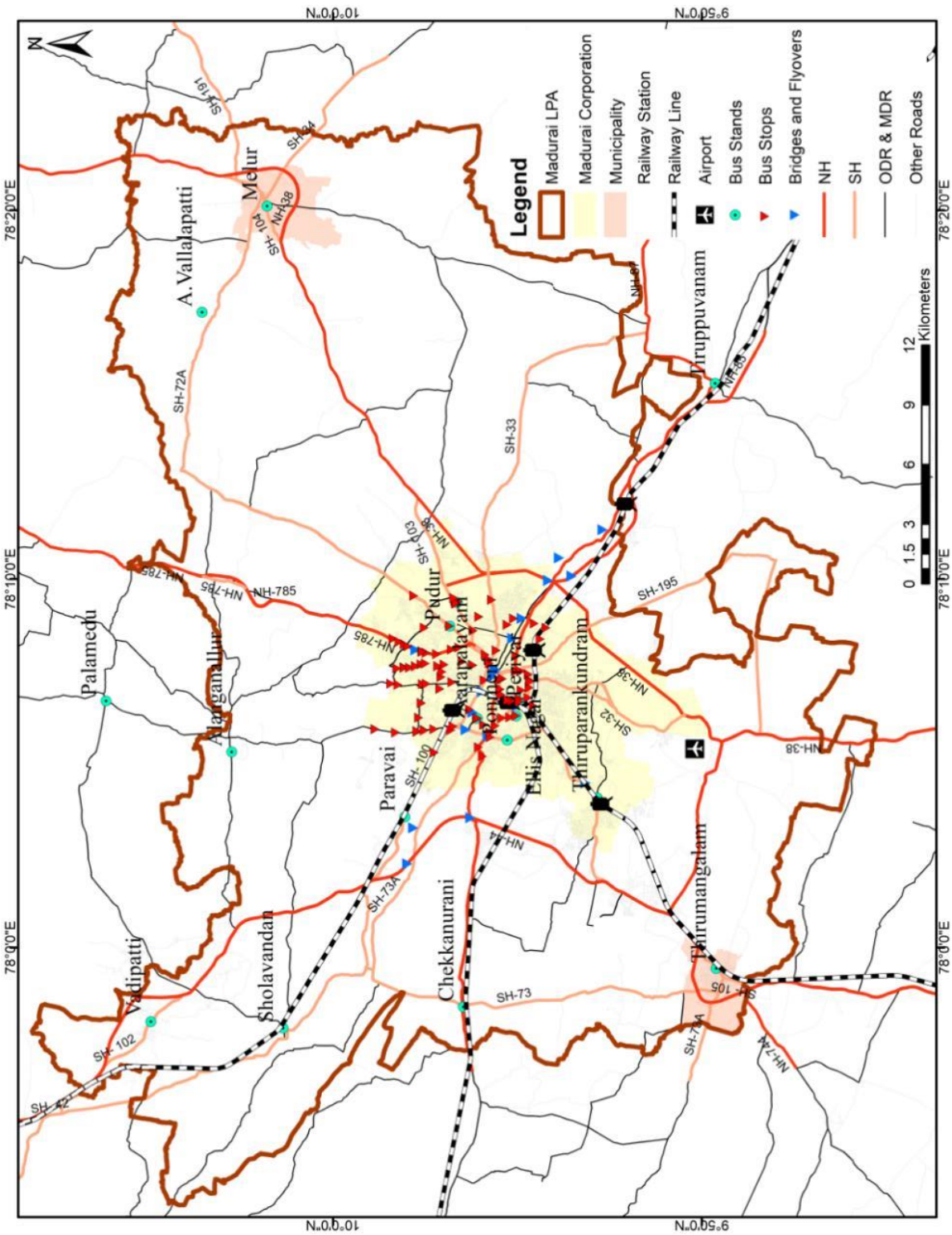
7.2.2.1. Bus Routes in Madurai

Madurai has two intercity bus terminals, namely the Periyar Bus Terminal and the Mattuthavani Bus Terminal. Mattuthavani, functioning as an integrated bus terminal, serves the transportation needs of north-east, east, and south-bound buses, with 1008 buses operating from this facility [4]. The primary mode of local transportation within Madurai is the city bus, which experiences significant crowding during morning and evening peak hours. Passenger counts tend to rise notably during festive seasons, particularly in April.

Additional transportation options include Town buses and suburban buses connecting nearby areas. Madurai boasts four bus stands to accommodate the diverse needs of its residents, which are Periyar Bus Stand, Anna Nagar Bus Stand, M.G.R. Bus Stand, and Pudur Bus Stand (Map 7-4).

As per TNSTC, an average of 1900 buses arrive and 1840 buses depart daily from the Mattuthavani Bus Terminal, with a total terminal capacity of 102 buses. This reflects the robust and extensive bus network catering to the transportation demands of the city's populace.

[4] TNSTC



Map 7-4 Existing Bus stands and stops

7.2.2.2. Rapid Transit system

Public transport stands out as one of the most environmentally sustainable transportation modes. Ensuring an effective and efficient public transport service requires a deep understanding of its complexity. This entails improving services for buses and para-transit, considering suitable Mass Rapid Transit (MRT) options, and devising plans for infrastructure development and inter-modal integration. The Comprehensive Mobility Plan (CMP) for Madurai recommends the implementation of Bus Rapid Transit System (BRTS), while local authorities and stakeholders suggest Mass Rapid Transit (Metro) for enhanced connectivity. A technical analysis comparing different transit systems is underway to facilitate informed decision-making. In terms of energy efficiency, mass transit significantly outperforms personalized modes of travel.

Feasibility Study

The evaluation of Mass Rapid Transit (MRT) system options in Madurai involved an analysis based on eight criteria and 24 sub-criteria, ultimately favoring Metrolite as the preferred system. Metrolite demonstrated cost-effectiveness in both capital and operational expenses compared to traditional metro systems. Monorail was considered impractical due to operational and safety concerns, while an elevated Bus Rapid Transit (BRT) system faced challenges related to high operational and maintenance costs, making it less viable. The elevated BRT system also raised concerns about its long-term sustainability, potential for degradation, and limitations in terms of speed and capacity.

The study emphasized the advantages of Metrolite, citing its defined, scalable, centralized, and standardized characteristics, making it a reliable and eco-friendly system. Despite the higher initial capital cost of a Light Metro, it was recommended due to its greater passenger capacity, suitability for longer distances, higher speeds, established technology, flexibility, and potentially lower operating costs.

The proposed MRT project in Madurai is divided into three phases, with each phase focusing on specific corridors, lengths, and the number of stations. The study acknowledged the potential for substantial value engineering in the case of Metrolite, especially if adopted on a broader scale for Tier-2 and Tier-3 cities across India.

In summary, the detailed analysis supported the recommendation for a Light Metro system for Madurai, considering its long-term benefits and compatibility with the city's future growth. The report called for further detailed studies at the Detailed Project Report (DPR) stage to finalize the system and address specific operational and financial aspects. The projected cost for the Light Metro system was provided, emphasizing the need for a comprehensive examination at the DPR stage before finalizing the implementation.

Criterion	Metro Neo	BRT	Monorail	Metrolite	Metro/Light Metro	Weightage	Metro Neo	BRT	Monorail	Metrolite	Metro/Light Metro
Mobility	62%	93%	93%	93%	93%	20	12.4	18.6	18.6	18.6	18.6
Engineering aspects	93%	93%	93%	93%	79%	10	9.3	9.3	9.3	9.3	7.9
System aspects	75%	81%	81%	88%	94%	5	3.8	4	4	4.4	4.7
Environmental aspects	93%	97%	97%	97%	92%	10	9.3	9.7	9.7	9.7	9.2
Social aspects	100%	100%	100%	100%	80%	10	10	10	10	10	8
Cost	84%	75%	88%	91%	81%	15	12.7	11.3	13.1	13.6	12.1
Economical aspects	88%	88%	88%	88%	78%	15	13.1	13.1	13.1	13.1	11.6
Implementation	83%	83%	83%	83%	83%	15	12.4	12.4	12.4	12.4	12.4
Total score		-	-	-	-	100	82.9	88.4	90.2	91.1	84.5

Figure 7-2 Comparison of Mass Rapid Transportation

Metro

Initially, three Corridor options covering the corners of Madurai have been considered and listed below.

- Corridor 1: Thirumangalam to Othakadai (CMP corridor) - 29 km
- Corridor 2: Madurai Airport to Kattapulinagar – 24 km
- Corridor 3: Nagamalaipudukottai to Manalur – 22km

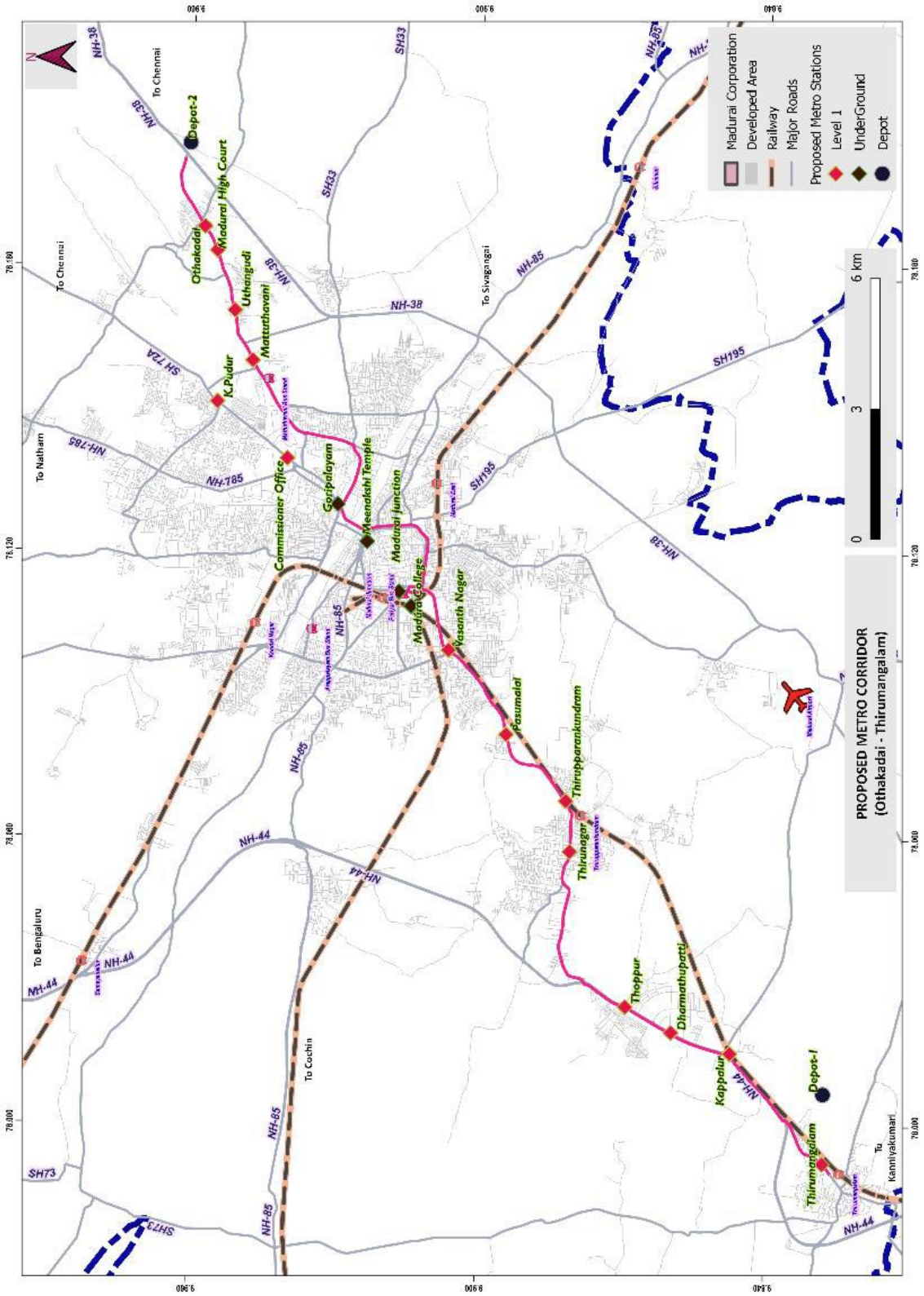
Corridors	Length in KM	PHPDT-2022	Daily Ridership	PHPDT-2032	Daily Ridership	PHPDT-2042	Daily Ridership	PHPDT-2052	Daily Ridership
Corridor - 1	29	6,000	2,80,100	8,700	3,69,500	13,100	5,34,700	16,500	7,17,700
Corridor - 2	24	4,700	1,47,100	7,700	2,35,800	8,900	2,58,300	11,100	3,10,600
Corridor - 3	22	3,100	1,24,800	4,400	1,59,400	6,100	2,11,600	9,300	3,38,900

Figure 7-3 Ridership Forecast for various corridors

The review of a Comprehensive Mobility Plan (CMP) report, coupled with a fresh forecast through a recalibrated transportation model for Madurai, identified a potential for establishing Mass Rapid Transit along the Thirumangalam to Othakadai axis. After considering various alternative alignments, the study proposed a favorable alignment for the Mass Rapid Transit System (MRTS) running from Thirumangalam to Othakadai via K Pudur, with an underground stretch between Vasanth Nagar and Goripalayam. The plan envisions 18 stations, a depot at Thirumangalam, and a stabling yard near Othakadai (Map 7-5).

A detailed analysis of alternative transit systems concluded that Metrolite/Light Metro would be the most suitable option. The estimated total cost for the system is 8059 crores for Metrolite and 9644 crores for Metro/Light Metro. The recommendation is based on factors such as higher passenger capacity, suitability for longer distances, higher speeds, and greater flexibility. However, a detailed study is advised at the Detailed Project Report (DPR) stage for both systems.

The initial assessment included the development of a Commuter Line (MEMU) between Thirumangalam and Vadipatti, with a recommendation to commence MEMU services promptly. The study also emphasized the importance of considering additional corridors beyond Thirumangalam – Othakadai, aiming to provide better transit opportunities for the Madurai population. The envisioned MRTS network, even with lower-order mass transit systems on other corridors, could enhance overall connectivity and benefits for the traveling public.



Map 7-5 Proposed Metro Line

Bus Rapid Transit System

The Madurai Bus Rapid Transit System (BRTS) was a planned transportation initiative for Madurai, Tamil Nadu, designed to enhance public transit efficiency. Two proposed corridors to improve connectivity across the city were:

- Corridor 1: Fatima College — Palanganatham Junction
- Corridor 2: Kamarajar Bridge — Ring Road at Viraghanoor

7.2.3. Private Transport

According to the Comprehensive Mobility Plan of Madurai in 2017, the number of registered vehicles in the city from 2007 to 2017 was 6,33,310 as of March 2017. The city heavily relies on private vehicles for transportation, with two-wheelers accounting for 79%, followed by cars at 12% of the total vehicular population. Commercial vehicles make up about 3%, auto-rickshaws about 3%, and trucks about 2%.

There are 21,491 registered auto-rickshaws available for intra-city travel as of March 2017. Additionally, there are 139 registered private mini-buses that support local transportation, supplementing the government-operated city buses used for public transport.

7.2.4. Parking

Madurai city and its Local Planning Area (LPA), with a vehicle count exceeding 12 lakhs, grapple with a severe parking dilemma. Given its heritage status, the city contends with narrow roads where road margins serve as de facto on-street parking lots. The prevalent sight is on-street parallel parking along major roads, exacerbating the significant parking issue in the study area due to the inherent constraints of the narrow network. The entirety of parking in the region is designated as 'On-Street' parking for all types of vehicles.

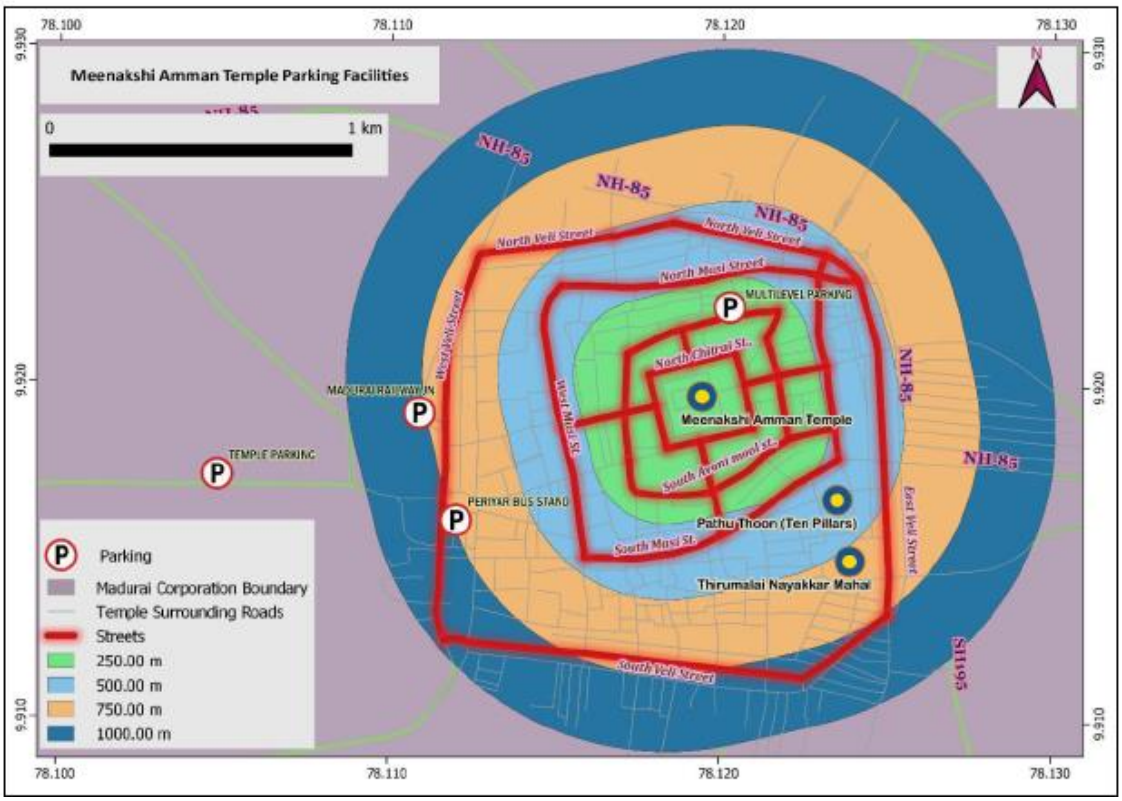
Madurai, a city drawing tourists, faces challenges with numerous tourist vehicles parking along the roadside. Even in bustling commercial areas around the

Meenakshi Amman Temple, available off-street parking facilities are insufficient, leading to disorderly roadside parking. In a majority of instances, the parking duration is short, often less than 30 minutes, constituting nearly 50 to 60% of the total parking instances. As of now, no parking fees are collected at any location. Urgent action is required to establish off-street parking, especially at a few strategic locations, to alleviate interference on the narrow road network. Additional emphasis should be placed on enhancing infrastructure to accommodate the unique needs of Madurai's tourism-driven vehicular influx.

On-Street Locations: On-street parking was noted along Chithrai, Masi, Maret, and Veli Streets, as well as Kamaraj Salai. The roads are inherently narrow due to the city's heritage status, and consequently, road margins are routinely utilized as on-street parking lots. A ubiquitous occurrence is the prevalence of on-street parking along all major roads.

Off-street parking facilities are available at only two locations, specifically in proximity to the Meenakshi Amman Temple. To evaluate the parking scenario, calculations were conducted for parking accumulation, duration, and turnover along all major stretches. The findings indicate that over 50% of the parking instances are of short duration for less than 30 minutes.

Off-Street Locations: There are two off-street parking facilities situated near the temple, one at the northeast corner and another opposite the YMCA Guest House (Map 7-6).



Map 7-6 Map of Parking Facilities Near Meenakshi Amman Temple

7.2.5. Non-Motorized Transport

7.2.5.1. Bicycle

In Madurai corporation, 6% of the road users choose bicycles as their mode of travel. Establishing an integrated network of cycle tracks across the city not only enhances safety but also promotes a culture of sustainable and healthy transportation. By reducing traffic congestion, minimizing environmental impact, and connecting different parts of the city, these cycle tracks contribute to a more accessible, eco-friendly, and cyclist-friendly urban environment. This initiative aligns with the growing importance of promoting alternative modes of transportation for a greener and more liveable cityscape.

7.2.5.2. Pedestrian

Walking establishes a link between an individual and their physical surroundings, heightening awareness of places, people, and objects in the environment. In the city of Madurai, particularly in the core area around the Meenakshi Amman Temple, pedestrian activity thrives (Table 7-6). According to the Madurai Comprehensive Mobility Plan survey, prominent areas like Meenakshi Amman Temple, the railway station, and Mattuthavani bus stand exhibit the highest pedestrian activity (Figure 7-4). Looking closer into the pedestrian activity around the Meenakshi Amman Temple, the East entrance observes the highest pedestrian activity compared to the other entrances of the temple. Presently, Chitirai street, the inner road of the Meenakshi temple, stands as the sole dedicated Non-Motorized Transport (NMT) corridor.

Table 7-6 Pedestrian flow at Meenakshi Amman Temple

Location	Entry	Exit
North Entrance	3,350	3,892
South Entrance	7,833	7,411
East Entrance	12,891	11,530
West Entrance	2,516	2,508

Source: City Mobility Plan Madurai 2019

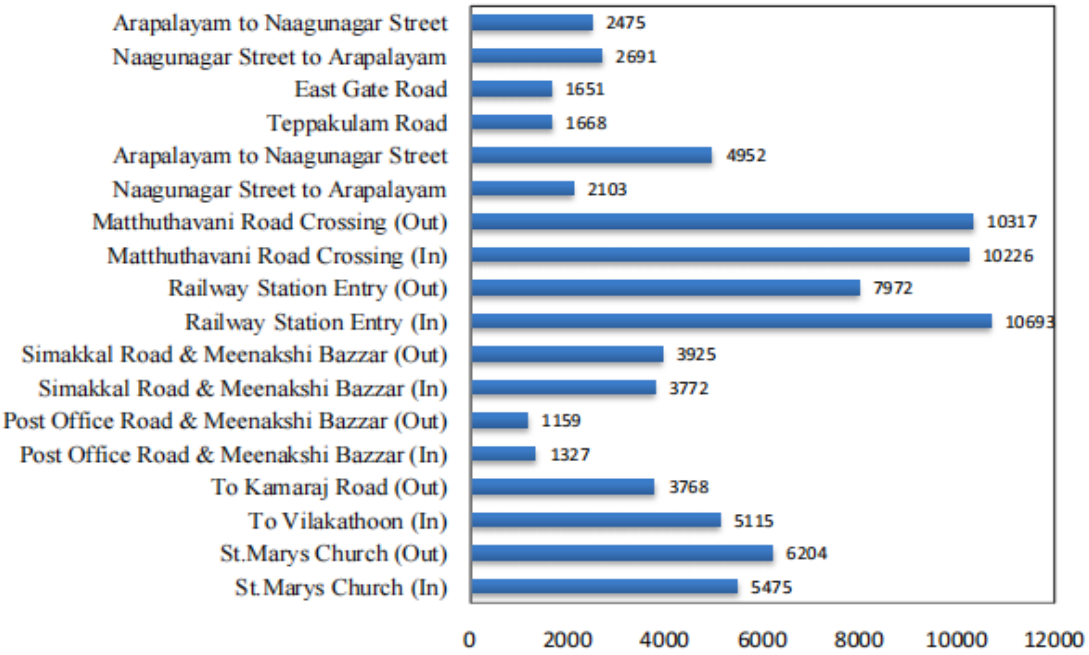


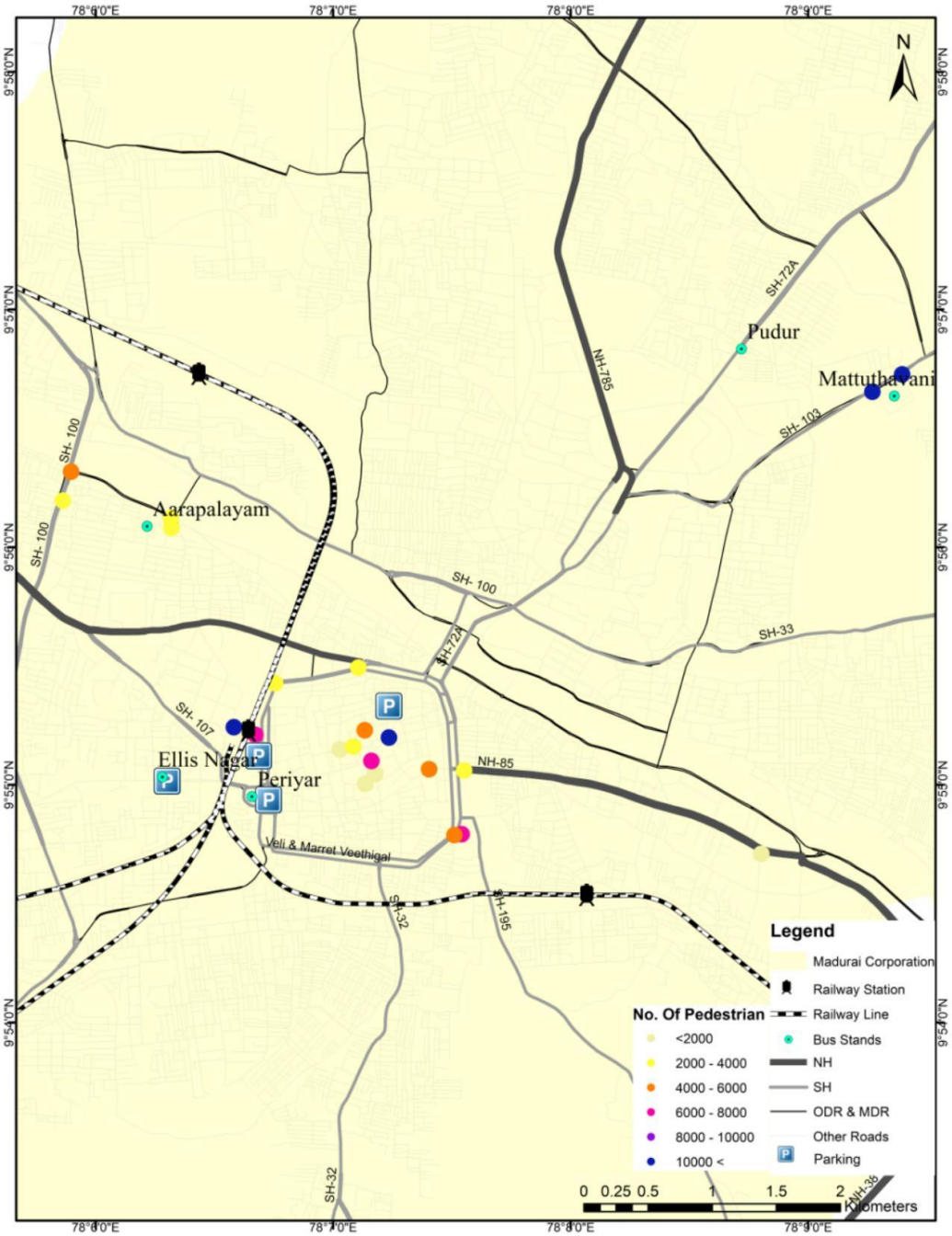
Figure 7-4 Pedestrian Flow in Major Streets

Source: City Mobility Plan Madurai 2019

The pedestrian infrastructure in city faces multiple challenges, hindering safe and convenient walking experiences. These issues include:

1. Obstructions on Footpaths/Sidewalks: Presence of utility devices, illegal parking, encroachment by hawkers, and construction materials obstructing pedestrian paths. Motorists infringing on pedestrian spaces, compromising safety.
2. Non-existent Footpaths and Discontinuous Routes: Lack of seamless connectivity, leading to disjointed walking routes. Absence of designated walking paths in some communities, forcing pedestrians onto roadways.
3. Lack of Maintenance: Uneven surfaces, broken pavements, and poorly maintained footpaths pose hazards to pedestrians.
4. Difficulty in Crossing Streets: Inadequate infrastructure for safe street crossings, leading to challenges for pedestrians. Subways and foot over-bridges may be unsafe or inconvenient, discouraging their use.
5. Inadequate Infrastructure for universal accessibility: Lack of facilities catering to the needs of all users.

Addressing these issues requires a holistic approach involving urban planning, regulatory enforcement, community engagement, and infrastructure development to create safer and more pedestrian-friendly environments.



Map 7-7 Number of pedestrians in Madurai Core City

7.3. Traffic Analysis

The evolution of the settlement in Madurai commenced with the Meenakshi Temple as the central point and the Vaigai River as a primary water source. Initial development occurred on the southern side of the river. As the city expanded, bridges were constructed across the Vaigai River. Currently, there are nine bridges facilitating movement across the river within the corporation, and an additional bridge is currently under construction. With increasing mobility, the development of the northern part of Madurai has become prominent.

A road is currently under construction along both sides of the Vaigai River embankment to facilitate smoother vehicle movement. To tackle traffic challenges, a Comprehensive Mobility Plan (CMP) was formulated in 2019, and data from the CMP is being utilized for traffic analysis.

The daily intercity traffic originates from Trichy, Sivagangai, Thoothukudi, Tirunelveli, Rajapalayam, Theni, Salem, and Natham. Inter and intra-city buses are managed by the Mattuthavani Integrated Bus Stand, Periyar Bus Stand, and Arapalayam Bus Stand. Yaanaikkal, Goripalayam, and Kaalavaasal junctions experience higher traffic volumes for Goripalayam junction. The Meenakshi Amman Temple is surrounded by old developments, markets, and significant commercial establishments. Major commercial entities are distributed along the primary corridors within the corporation, underscoring the need for a rapid transit corridor in the city.

7.3.1. Congestion Analysis in the Core Area

The examination of congestion status in Madurai reveals a complex scenario with several contributing factors. High traffic volume, particularly during peak hours, combined with bottlenecks at critical points, significantly impacts the city's flow of movement.

The absence of a functional road hierarchy exacerbates the congestion issue. Narrow road networks, especially in the Central Business District (CBD), further

intensify the challenges. The rapid development along major arterial corridors lack adequate provisions for efficient transportation, contributing to the overall congestion problem.

Additionally, the lack of access control measures and inconsistent carriageway widths along arterial roads negatively affect travel speeds, adding to the overall congestion woes. Poor road geometrics on many roads increase the likelihood of accidents, highlighting the urgent need for improvements in this aspect.

To address these issues effectively, comprehensive measures such as enhancing road infrastructure, implementing traffic management strategies, and promoting sustainable urban planning are crucial.

Table 7-7 Mode of Transport and the Ranking

Mode of Transport	Ranking
Public Transport facilities	1- Good
Pedestrian Infrastructure facilities	2- Need Improvement
NMT	4-Lack of Services
Travel Speed along major corridors	3- Average level
Availability of Parking spaces	4- Lack of Services
Road Safety	3-Average level
Intelligent Transport System (ITS)	4- Lack of Services

Source: City Mobility Plan Madurai 2019

Inference from the Provided Table on Modes of Transport Ranking

1. The public transport facilities are evaluated positively, indicating a commendable level of service in this category.
2. The pedestrian infrastructure facilities are identified as an area requiring enhancement, suggesting potential shortcomings in the existing infrastructure for pedestrians.

3. Non-Motorized Transport services are notably lacking, highlighting a need for improved or expanded services in this category.
4. The travel speed along major corridors is considered average, suggesting a moderate level of efficiency in terms of transportation speed.
5. The availability of parking spaces is assessed as lacking, indicating a need for better parking services or infrastructure.
6. Road safety is deemed to be at an average level, suggesting a moderate degree of safety measures in place
7. The Intelligent Transport System (ITS) is identified as lacking, pointing towards a need for the implementation or improvement of smart transportation technologies.

The analysis reveals strengths in public transport facilities and average performance in travel speed and road safety. However, areas requiring improvement include pedestrian infrastructure, non-motorized transport services, parking availability, and the implementation of intelligent transport systems. Addressing these aspects could contribute to an overall improvement in the city's transportation infrastructure.

7.3.2. Traffic Volume Count analysis

The assessment of traffic volume in Madurai provides valuable insights into the city's transportation dynamic.

Table 7-8 Major city junction with in LPA with traffic volumes

Name of the Location	PCU Value	V/C	LOS
Karupayurani	5150	2.15	F
Viraganoor	4023	2.68	F
Mandela Nagar	1468	0.98	E
Mannar College	2135	1.42	F
Doak Nagar	8396	3.50	F
Vishalakshi Nagar	7223	3.01	F

Source: City Mobility Plan Madurai 2019

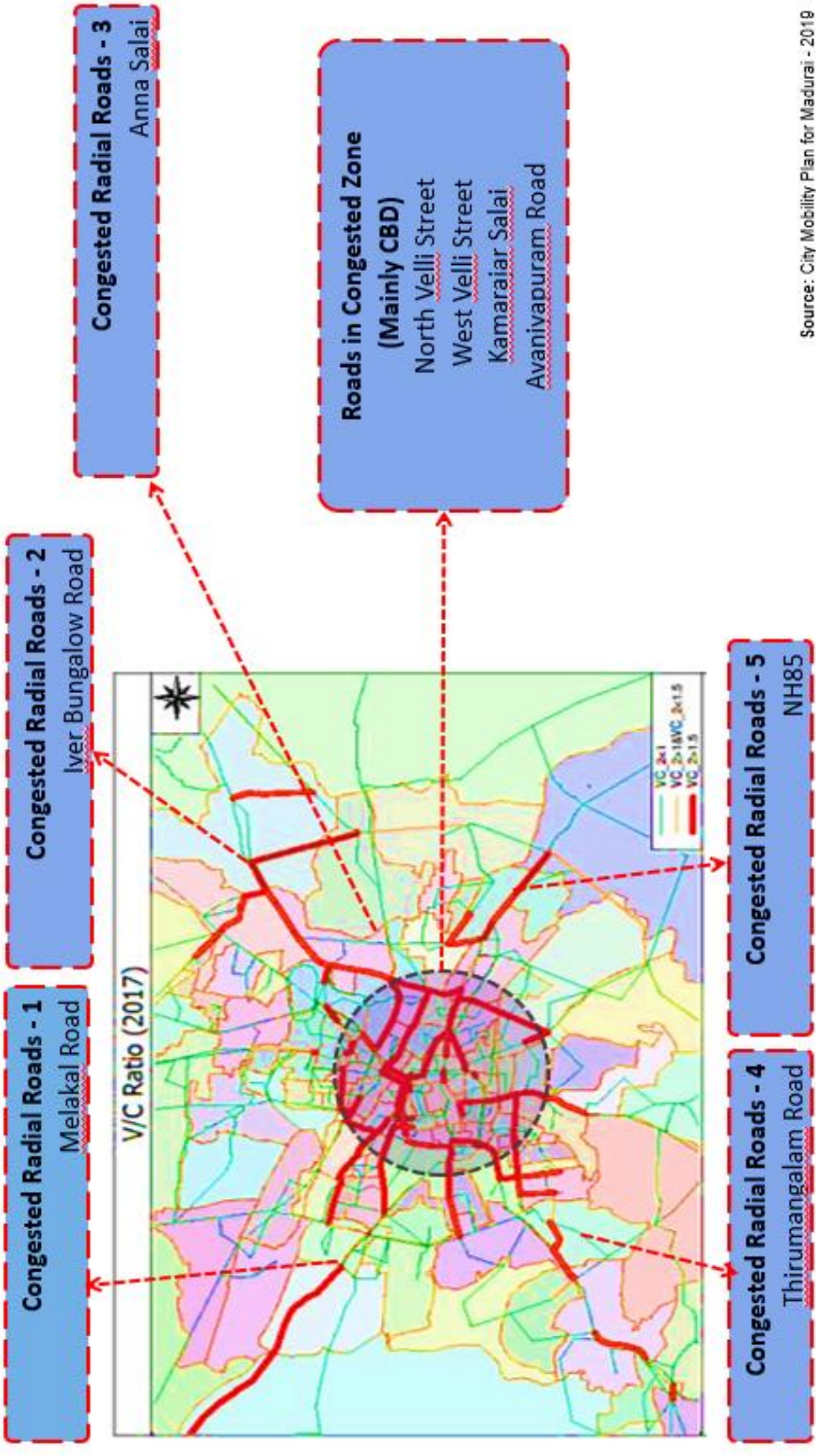


Figure 7-5 V/C Ratio in Madurai City

Table 7-9 Major city junction in Madurai - traffic volumes Analysis Table

Name of the Road	PCU Value	V/C	LOS
Dindugal Road (NH-7)	1872	1.25	F
Palamedu Road	964	0.80	C
Natham Road	526	0.58	B
Trichy Road (NH-45)	2208	1.47	F
Thirupattur Road	1894	1.26	F
Sivaganga Road	612	0.51	B
Sivaganga Road	592	0.33	A
Manamadurai	646	0.36	A
Nedungulam Road	1844	1.23	F
Aruppukottai Road	2220	1.48	F
Virudhunagar Road (NH-7)	1614	1.35	F
Tenkasi Road	1608	0.89	C
Usilampatti Road	1394	0.77	C
Usilampatti Road	1440	1.20	F
Nilakottai Road	480	0.40	A
Dindigul Road (SH)	296	0.16	A

Source: City Mobility Plan Madurai 2019

Inference:

From the above analysis, the critical v/c ratio greater than 1.0 indicates that the overall road is inadequate to withstand the traffic volume. Hence, measures such as one way street and intersections can be provided. Facilitating one way traffic flow or design in these streets will provide better traffic flow in densely built-up areas where road widening may not be feasible and potentially decreases the congestion. Also, simplify pedestrian crossing of the street due to walkers only needing to look for oncoming traffic in one direction.

7.3.3. Road Accidents

As per the Madurai District handbook, the Madurai city witnessed 582 accidents between 2021 and 2022 (Table 7-10). Of the total individuals involved, 500 persons sustained injuries, comprising 80% of the accident victims. 130 individuals lost their lives in these incidents. Notably, when compared to the previous year, there is a discernible decrease in the overall number of accidents, indicating potential advancements in road safety measures.

Table 7-10 Road Accidents in Madurai District

Year	Total Number of Accidents		Number of Persons Injured		Number of Persons Died	
	Madurai City	Rural	Madurai City	Rural	Madurai City	Rural
2015-2016	1039	2071	1043	2375	226	465
2017-2018	914	1993	868	2085	220	512
2021-2022	582	1612	500	1712	130	565

Source: District Handbook 2015-16, 2017-18, 2021-22.

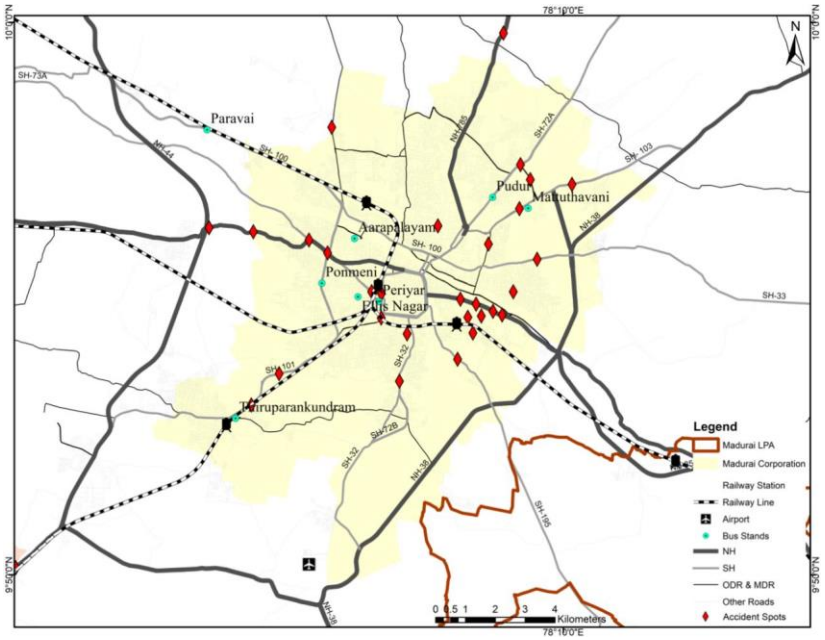


Figure 7-6 Major Accident Locations in Madurai City

7.3.4. Road Density

Road density refers to the concentration or number of roadways within a specific geographic area. It is often measured as the length of roads per unit of area, commonly expressed in kilometers per square kilometer (km/km²) or miles per square mile (mi/mi²). High road density indicates a more extensive road network in a given area. It implies better connectivity, accessibility, and mobility for people and goods.

Figure 7-7 illustrates the current road density in Madurai LPA, revealing a concentration of high-density roads in the core city. However, Figure 7-8, identifies areas with potential for road density improvement, specifically in Thirumangalam, Melur, and the Paravai to Vadipatti stretch. This insight prompts considerations for strategic enhancements to connectivity and transportation infrastructure.

In Thirumangalam, a focused approach involves identifying traffic-prone intersections and planning for road expansion or new constructions to alleviate congestion and enhance accessibility. Similarly, Melur can benefit from an assessment of existing road networks, pinpointing areas with limited connectivity for targeted road widening or new developments. The Paravai to Vadipatti stretch analysis should identify gaps in road density, prompting plans for expansion or construction to ensure smoother transportation.

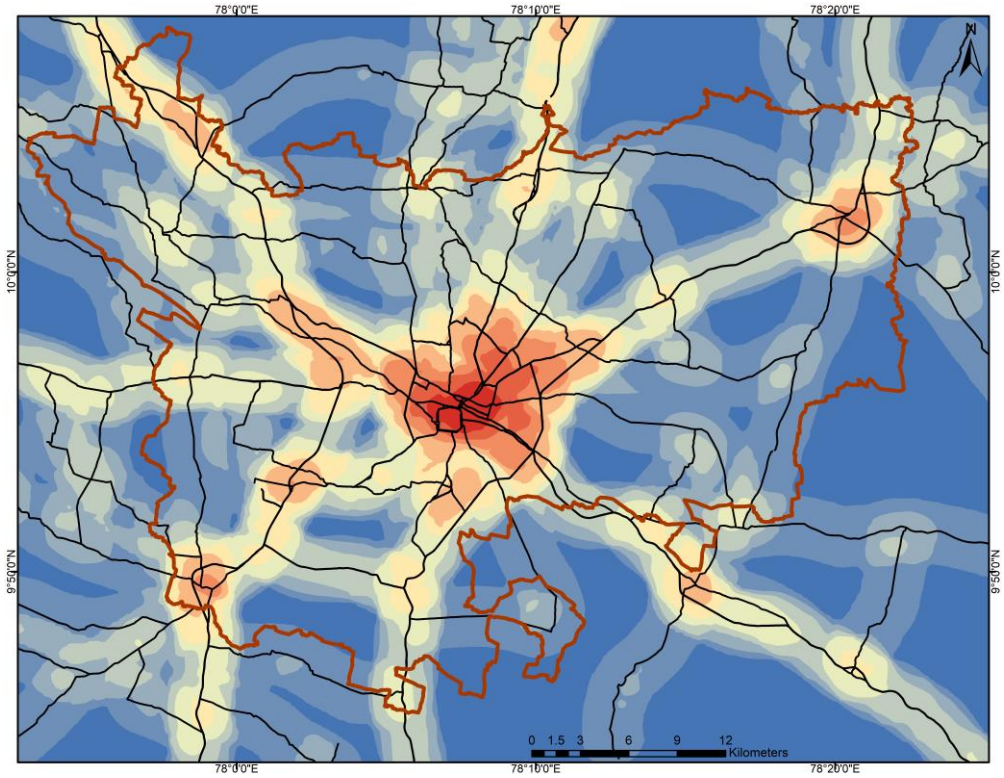


Figure 7-7 Existing Road Density

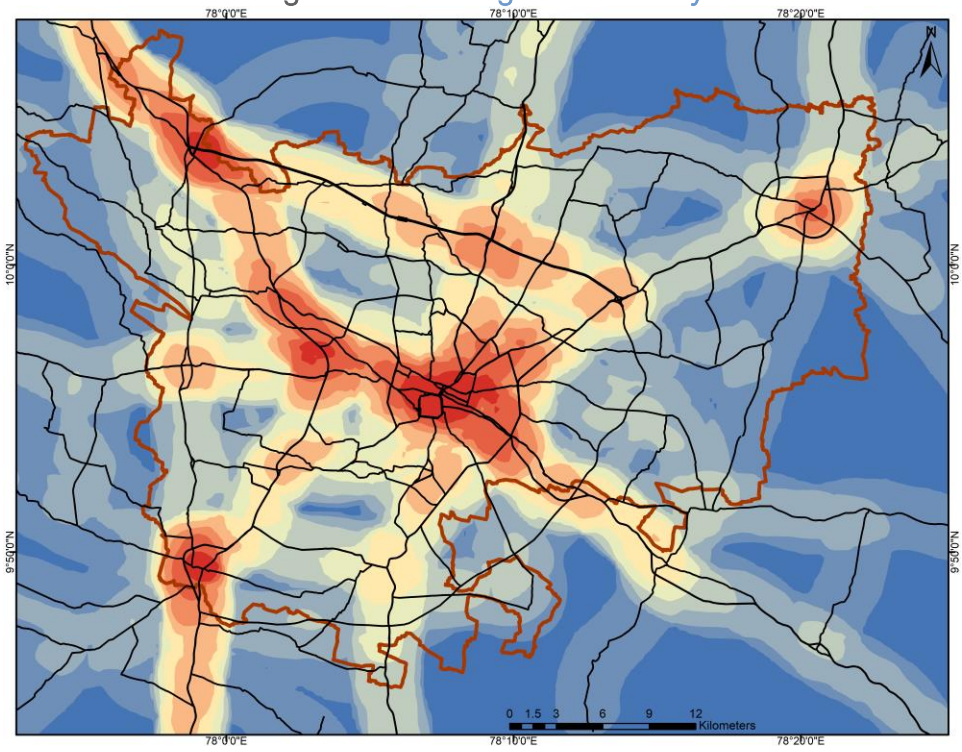
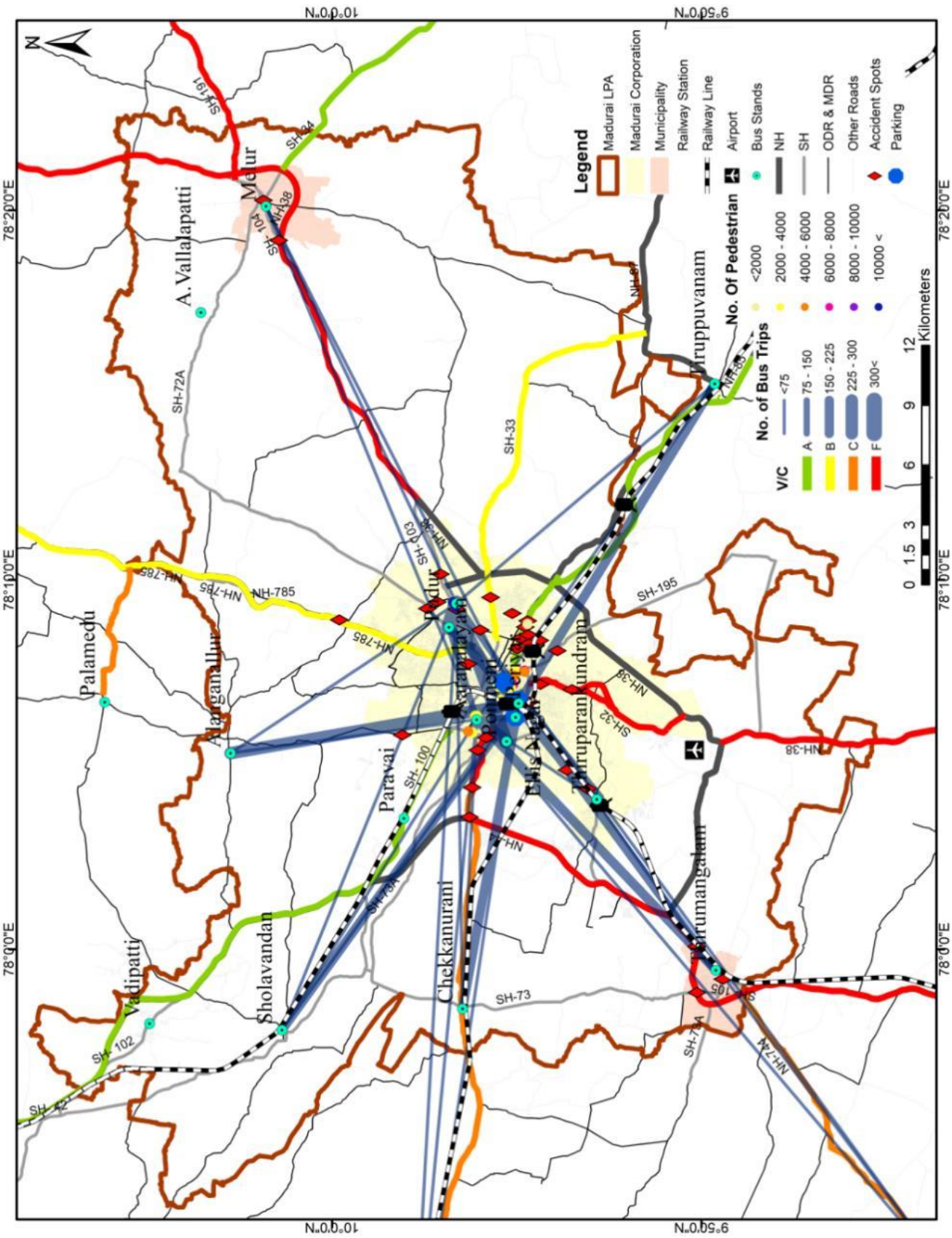


Figure 7-8 Proposed Road Density

7.3.5. Bus Trips

A desire line for bus trips in the Madurai LPA signifies the optimal and commonly chosen route between various bus stands. The map reveals significant bus trip volumes, with notable concentrations exceeding 300 trips recorded between specific bus stand pairs. Key routes demonstrating high demand include Periyar-Alanganallur, MGR-Pudur, Periyar-Elis Nagar, and Periyar-Ponmeni4 (Map 7-8).

Additionally, there is substantial travel activity in the range of 225-300 trips, particularly observed between MGR-Ponmeni and Aarapalayam-Ponmeni. These patterns indicate the preferred commuting paths within the Madurai LPA, emphasizing the importance of optimizing public transportation services along these heavily traversed routes to enhance overall transit efficiency and meet the commuting needs of the local population.



Map 7-8 Bus Trips in Madurai LPA

7.3.6. Trip Generation

Trip generation analysis for buses aims to understand the patterns of travel demand and the factors influencing the generation of bus trips within a specific area. This analysis is essential for designing efficient bus routes, optimizing services, and addressing the diverse needs of passengers.

Calculating the trips generated involves careful consideration of several key factors. The total route distance signifies the geographic expanse covered by a transportation route. Headway, the time between successive vehicles, directly impacts service frequency. Speed and delay affect the efficiency of the transportation system, influencing travel time and overall user experience. Frequency, denoting the number of trips within a given time frame, is crucial for understanding demand.

Understanding the length of a route is fundamental to assessing its demand. Longer routes may have different travel patterns and requirements compared to shorter ones. Information on delays, whether caused by traffic congestion or other factors, is vital. Routes with frequent delays may experience decreased demand due to reliability issues. Frequency and headway in public transport are crucial factors influenced by various aspects to ensure efficient and timely services. The number of passengers, bus capacity, and minimum allowable frequency play pivotal roles in determining the headway, which is the time gap between consecutive buses.

Headway, the time interval between successive vehicles on the same route, influences passenger convenience. Shorter headways often lead to increased demand as passengers experience reduced waiting times. In urban areas, particularly during peak hours, a headway of 5-10 minutes is typical to manage the heightened demand efficiently. During non-peak hours, when demand is lower, the headway extends to 10-20 minutes. Here, the headway for the routes within the city limits is taken as 10-15 minutes and the routes outside the city have 20 minutes.

Headway, the reciprocal of frequency, indicates the time between buses and is a critical metric for public transport reliability.

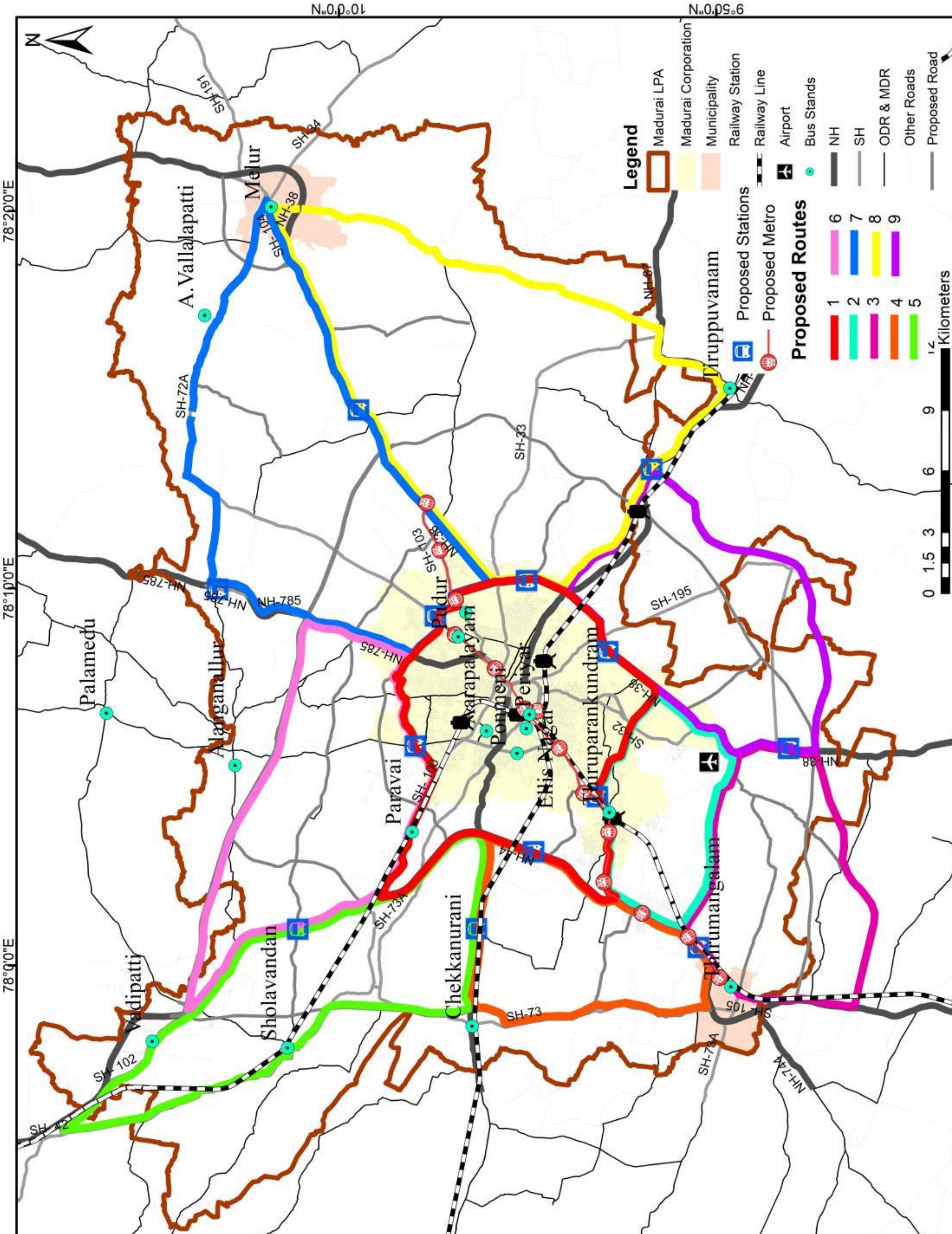
The speed of vehicles on a route impacts overall travel time. Analyzing speed helps identify routes where faster or slower services might be needed based on passenger preferences. The average speed of the vehicles is considered as 30 km/hr for routes within the city and 40 km/hr for the routes outside the city.

These ranges aim to strike a balance between meeting passenger needs, optimizing bus utilization, and ensuring a reliable and convenient public transportation system for urban commuters. Efforts to maintain appropriate headways contribute to a smoother and more effective public transit experience, enhancing accessibility and reducing waiting times for passengers.

Nine shuttle routes are identified in the Madurai LPA covering major public transportation loops. These include Mattuthavanai- Thiruparankundram- Mattuthavani, Thiruparangundram- Thirumangalam- Thiruparangundram, Thirumangalam- Chekanurani- Thirumangalam, South East Loop, Paravai- Vadipatti- Alanganallur- Paravai, Chekanurani- Sholavandhan-Vadipatti- Chekanurani, Mattuthavani- Pudur- A.Vallalapatti- Melur- Mattuthavani, Mattuthavani- melur- thirupuvanam- Mattuthavani, Thirumangalam- Airport- Thirumangalam. These are identified based on characteristics such as markets, historical sites, commercial spaces, and so on.

Table 7-11 Trip Generation for Bus Shuttle

Major Locations	Distance in km	Headway (in mins)	Frequency (bus /hr)	Average Speed (km/hr)	Trips foreach bus	Trips Generated
Mattuthavanai- Thiruparankundram-Mattuthavani	56	10	6	30	7	91
Thiruparangundram-Thirumangalam-Thiruparangundram	30	15	4	30	12	60
Thirumangalam-Chekanurani-Thirumangalam	37	20	3	40	13	52
South East Loop	42	20	3	40	12	48
Paravai- Vadipatti-Alanganallur-Paravai	52	20	3	40	10	50
Chekanurani-Sholavandhan-vadipatti-Chekanurani	58	20	3	40	9	45
Mattuthavani-pudur-A.Vallalapatti-melur-Mattuthavani	61	20	3	40	9	54
Mattuthavani-melur-thirupuvanam-Mattuthavani	65	20	3	40	8	48
Thirumangalam-Airport-Thirumangalam	58	20	3	40	9	45



Map 7-9 Bus Shuttle Loop

Table 7-12 Legend for Map

Link Colour	Major Locations
	Mattuthavanai- Thiruparankundram-Mattuthavani
	Thiruparangundram-Thirumangalam-Thiruparangundram
	Thirumangalam-Chekanurani-Thirumangalam
	Thirumangalam-Airport-Thirumangalam
	South East Loop
	Paravai- Vadipatti-Alanganallur-Paravai
	Chekanurani-Sholavandhan-vadipatti-Chekanurani
	Mattuthavani-pudur-A.Vallalapatti-melur-Mattuthavani
	Mattuthavani-melur-thirupuvanam-Mattuthavani

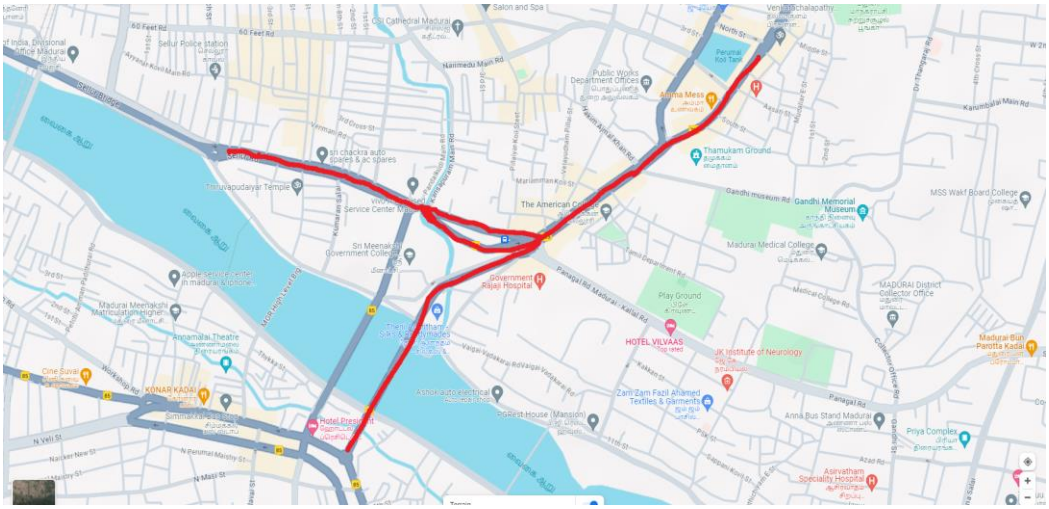
Table 7-13 Bus Shuttle Loop and Characteristics

Loop- 1	K.Pudhur, Arasu Nagar, Pirakkudi, Chinthamani Ring Road, Jains Beds Thirupurankundram, Keelakuyilkudi, Samyanallur, Pravai, Koodal Nagar
Tourist Location	Aayiram Kaal Mandapam, Koodal Azhagar Temple, Inmai nanmai tharuvar Temple, St. Mary's Cathedral, Thirumalai Nayakar Mahal, Paththu Thungal, Vilakkuthoon, Sri Meenakshi Amman Temple, Pudhu Mandapam, Arulmigu Athi Chokkanathar Temple, Goripalayam Dargah, World Tamil Sangam, Gandhi Memorial Museum
Loop-2	Airport, S.Puliyankulam, Kappalur, Dharmathupatti, Thoppur, Jain-Bed Thiruparankundrum, Mandela Nagar
Tourist Location	Koothiyaar Gundu, Thirupparankundram Eco Park, Thiruparangundram Temple, Rock-cut Cave & Inscriptions, Tirupparangundram
Loop-3	Thirumangalam, Kappalur, Soorakulam, Valayankulam, Eliyarpathi, Mallampatti, Melanesaneri, Andipatti
Loop-4	Keela Urappanur, Vanakulam, Thenakal Patti, Vadapalanchi, Nagamalaiputhukottai, Thoppur, Keelakuyilkudi

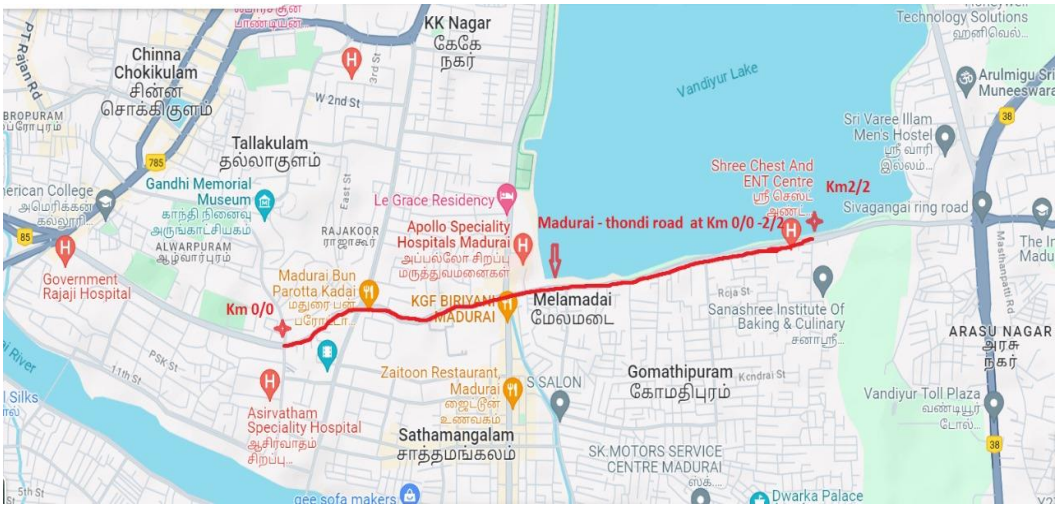
Tourist Location	Samanar Hills, Karadipatti, Kongar Puliyankulam Rock-cut bas relief and beds, Karadipatti, Karadipatti, Brahmi Kalvethu, Kongarapuliyankulam, Thiruvedagam
Loop-5	Vadipatti, T. Andipatti, AyyanKottai, Samayanallur, Karadipatti, Thenakalpatti, Shlovandhan, keelanatchikulam,
Tourist Location	Pulluthu @ Thuvariman, Sholavandhan, Cave in Sitharmalai, Melakuilkudy
Loop-6	Samayanallur, Ayyan kottai, T.Andipatti, Alanganallur, Chettikulam, Keelapanangadi, Koodal Nagar, Paravai.
Loop-7	Iyer Bungalow, Chettikulam, Kancharampettai, Naickanpatti, A.valayapatti, Melur, Therukutheru, Vellaripatti, Rajakampiram, Brahmi Kalvettugal,Yanaimalai, Theerthangarar Sculptures,Yanaimalai, Yoga Narasiga Perumal Temple, Narasingam
Tourist Location	Sivankoil,Arittapatti, Tamizhi Inscriptions and Theerthangara Sculptures,Arittapatti , Melur, Ovamalai Kalvettu,Meenakshipuram, Ladan koil,Yanaimalai
Loop-8	Viraganur, J.J Nagar, Rajakampiram, Vellaripatti, Melur, Thiruvathavur, Thuvarangulam, Poovanthi, Thirupuvanam, Silaiman
Tourist Location	Udayagiriswarar koil,Varichurmalai , Kunnathur, Kalvettup Padukkaigal, Murugan koil,Varichiyur, Sivankoil,Ayyapatti (Tharkakudi), Tiruvadavur Kalvettu, Manikavasagar Birth Place, Thiruvathavur, Thirumohoor Kalamegaperumal Temple, Idayapatti Kovilkaadu
Loop-9	Viraganur, Silaiman, Manalur, Viradhanur, Mangulam, Valangulam, Airport

7.4. Existing Proposals

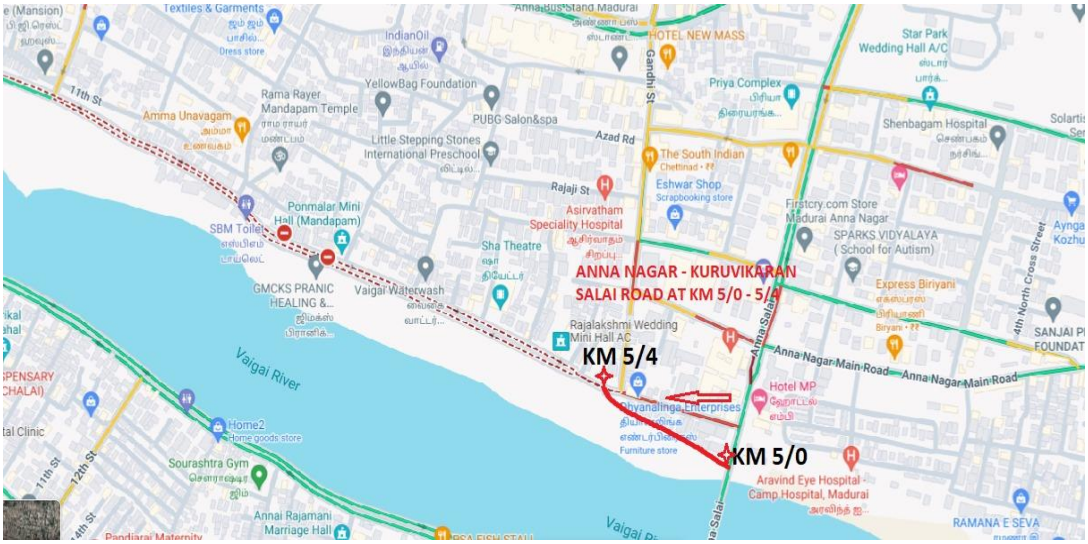
Construction of Flyover at Goripalayam Junction in Madurai City From Km 440/100-441/0 of Varanasi - Kanniyakumari Road (SHU 73) including additional arm towards palam station road and Km 0/0 - 0/6 of Madurai - Alagarkoil - Melur road (SH 72A) with at grade Improvements including junction improvements in 5 locations (Anna statue, Goripalayam, Yanaikkal, Bibikulam, Thallakulam) and Vehicular underpass (VUP) at Km 0/4 of SH 72A.



Construction of Grad Separator at km 1/2 of Madurai-Thondi Road (SH33) including junction improvements at km 0/0 & 0/4.

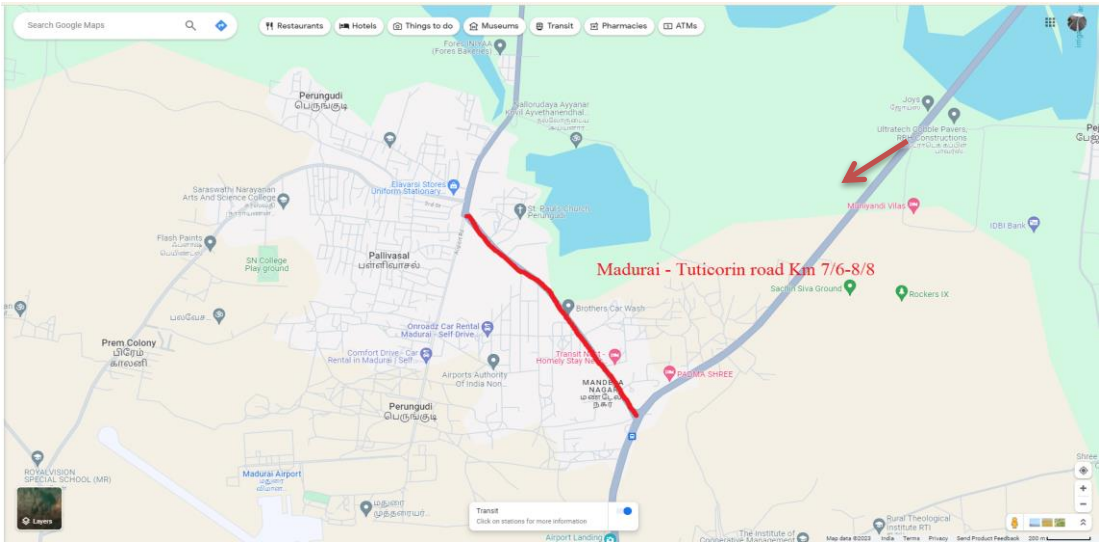


Formation of missing link of Vaigai North bank - Kuruvikaran salai Bridge at km 5/0 - 5/4 including construction of retaining wall at Km 5/2

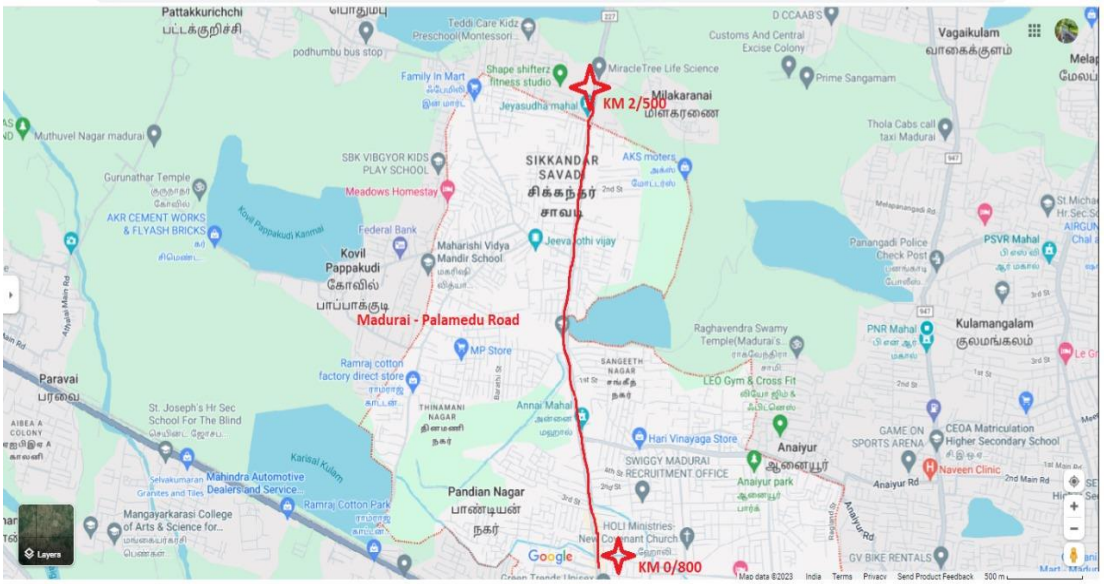


Widening from Two lane to Four Lane and Strengthening at km 11/4 - 12/4 of Madurai - Alagarkoil - Melur road including Widening of Slab Culvert at Km 11/8 and Construction of Centre Median at km 11/4 - 12/4.

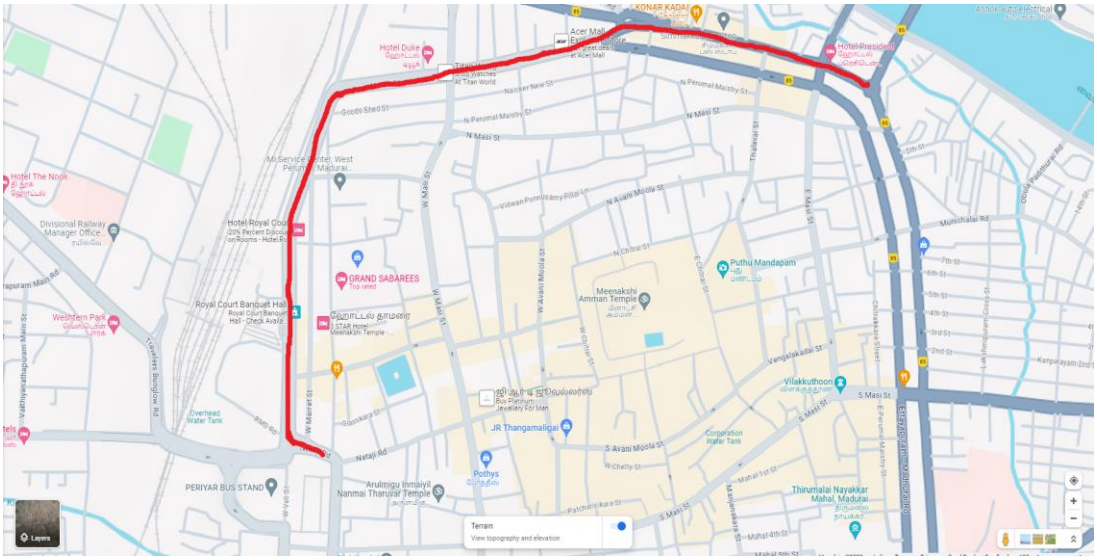
Widening from Multilane Lane to Four Lane with Paved Shoulder and strengthening in Km 7/6- 8/8 of Madurai - Tuticorin Road (SH 32) including construction of Footpath Cum Drain , Centre Median, CD works and Paver blocks.



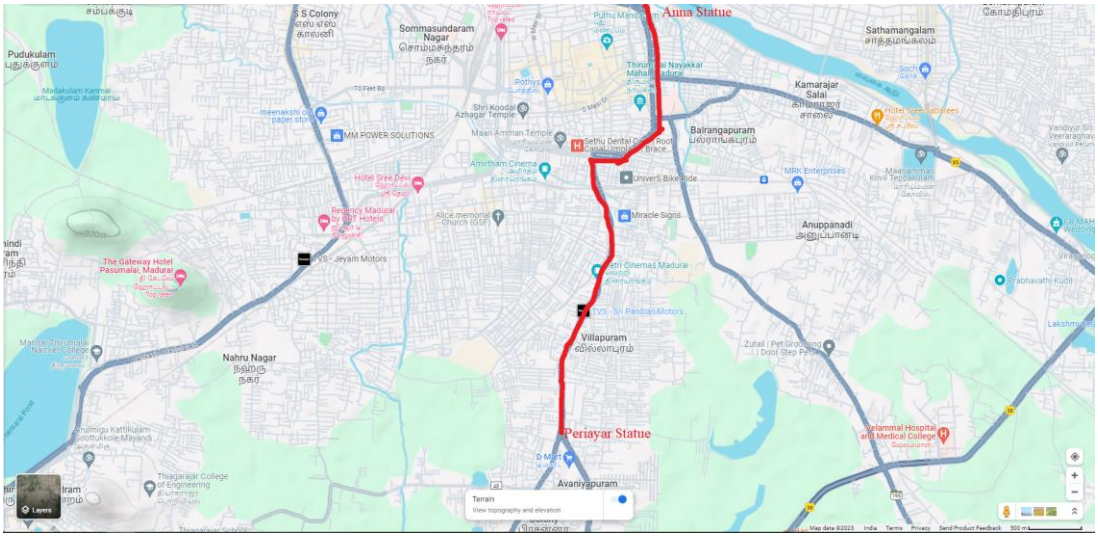
Widening from Two Lane with Paved Shoulders to Four lane at Km0/8-2/5 of Madurai Palamedu Road including Construction of CD works, Drain, Retaining wall, Centre median, Bus laybye, junction improvements and Paver Blocks



DPR - Consultancy Service for the preparation of Detail Project Report of Fly overs to be constructed in Madurai City to reduce traffic congestion (Elevated corridor, from Periyar Bus stand to Yanaikal Junction) in Madurai city as per D.F.R



DPR work - Preparation of Detailed Project Report (DPR) for Construction of Elevated Corridor from Nelpettai Junction (Near Anna Statue) to Avaniyapuram Junction (Near Periyar Statue) via South Gate from Km.0/0 to 4/8 in Madurai



Widening from Multilane to Four Lane with Paved Shoulder at Km 0/0-1/0 & widening from Four Lane to Four Lane with Paved shoulder at Km 1/0-1/8,2/8-3/2& 4/8-6/0 and strengthening at Km 0/0-1/8, 2/8-3/2 & 4/8 -6/0 of Varanasi -Kanyakumari Road (Abandoned NH7) (Madurai - Thirumanagalam Stretch) (SHU101) including construction

of Footpath cum drain at Km 0/0-1/8, 2/8-3/2, 4/8-7/0, centre median , CD works, Paver blocks.

The proposed roads work by the highways department is given in Table 7-14.

Table 7-14 Proposed Road Works

Highways Department - Proposed Work					
Circle: Madurai (H) C&M			Division : Madurai (H) C&M		
Sl.No	Name of work	Location	Length (in Km)	Cost (in Lakhs)	Remarks
1	[2846] Widening from Multilane to Four Lane with Paved Shoulder and Strengthening in Km 7/6 - 8/8 of Madurai - Tuticorin Road (SH32) including Construction of Footpath Cum Drain, Centre Median, CD works and Paver blocks.	Mandela nagar bus tsop to Postal training centre	1.20	941.00	Tender Called
2	DPR - Consultancy Service for the preparation of Detail Project Report of Fly overs to be constructed in Madurai City to reduce traffic congestion (Elevated corridor, from Periyar Bus stand to Yanaikal Junction) in Madurai city as per D.F.R	Periyar bus stand to Simmakkal anna statue	-	-	Under DPR stage

Highways Department - Proposed Work					
Circle: Madurai (H) C&M			Division : Madurai (H) C&M		
Sl.No	Name of work	Location	Length (in Km)	Cost (in Lakhs)	Remarks
3	DPR work - Preparation of Detailed Project Report (DPR) for Construction of Elevated Corridor from Nelpettai Junction (Near Anna Statue) to Avaniyapuram Junction (Near Periyar Statue) via South Gate from Km.0/0 to 4/8 in Madurai	Simmakkal anna statue to Avaniyapuram Periyar statue	-	-	Under DPR stage
4	Construction of Vaigai river North Bank road km 0/0-8/0 from Kamarajar Bridge to Varanasi Kanyakumari road (NH44) near Samayanallur	Theekathir palam to samayanallur backside	8.00	9594	Proposal submitted to government for RAS for Rs.176.00 Cr Lane width-10.5m
5	Preparation of Detailed project report for the work of construction of Vaigai River north bank road Km 0//0 - 8/400 from Viraganoor ring road to Sakkudi road	Viraganoor ring road to Sakkudi road	8.40		Proposal submitted to government for 21.10 Lakhs

Source: Highways Department

7.5. Key Challenges

Road Network

- The road system in Madurai faces challenges due to its narrow network, leading to congestion and traffic issues. Also, Absence of a Functional Hierarchy in the Road Network.
- A narrow road network with restricted capacity, particularly in the CBD, results in congestion.
- Intense development along major arterial corridors without adequate provision for transport is a significant issue.
- The absence of access control measures and inconsistent carriageway width along the arterial roads is affecting speeds.
- Poor road geometrics along the majority of the roads make them accident-prone.

Pedestrian and Vehicular movement

- Dominance of Two-Wheelers: The roads predominantly witness two-wheelers; addressing safety concerns and traffic management for this category is paramount.
- Pedestrian Hotspots: High pedestrian activities are concentrated around key areas like Periyar Bus Stand, Mattuthavani Bus Stand, Railway Station, and the vicinity of Meenakshi Amman Temple, necessitating improved pedestrian infrastructure.
- Accident Statistics: With approximately 700 reported accidents annually, a significant portion being fatal, there is an urgent need for measures to enhance road safety.
- Unorganized Traffic Movement: The current state of traffic movement lacks organization, emphasizing the need for systematic planning and regulation.
- Segregation Challenges: Pedestrian and vehicular movements are intermixed, leading to a heightened risk of conflicts. Implementing effective segregation strategies is crucial.
- Bus Terminal Planning: Bus transport is a popular mode, requiring clear segregation of passenger and vehicular paths at terminals. Regulation of private vehicular movements in these areas is essential.
- Infrastructure Upgrade: The existing infrastructure at terminals needs enhancement to cope with the growing demands of passenger and vehicular circulation.
- Floating Population Impact: The reported floating population of nearly 2.00 Lakhs in Madurai emphasizes the need to upgrade pedestrian facilities for safe walking to accommodate the rising demand.

Parking

- Narrow Network: The Study Area faces a significant challenge with parking due to the inherited narrow network.
- On-Street Parking: The entire parking infrastructure is limited to "On Street" parking for all types of vehicles. Madurai, being a tourist-attracting town, experiences a high volume of tourist vehicles parked on the roadside.
- Insufficient Off-Street Parking: The busy commercial area around the Meenakshi Amman Temple lacks sufficient off-street parking facilities, leading to chaotic roadside parking.
- Short Duration Parking: In the majority of cases, parking is of short duration, lasting less than 30 minutes. Nearly 50 to 60% of the parking instances fall within this short duration (<30 minutes).
- Absence of Parking Fees: As of today, parking fees are not collected at any location.
- Urgent Need for Off-Street Parking: There is an urgent need to develop off-street parking facilities at least at a few locations to alleviate congestion on the narrow road network.
- Roadside Incidence: Parking is practiced on both sides of the roads, causing delays and contributing to accidents. This presents a critical challenge that needs to be addressed

8

PHYSICAL INFRASTRUCTURE

This chapter details the analysis of Physical infrastructure services that play a major role in the development of an area. The major sectors deal with are water supply, sewerage, solid waste, stormwater drainage and energy.

The facilities are assessed based on the guidelines given by CPHEEO manuals and URDPFI guidelines.

Effective management of essential physical infrastructure services is the basis for the well-being and prosperity of any communities. This chapter focuses on critical infrastructure facilities like water supply, sewerage, solid waste management, stormwater drainage, and energy. These interconnected elements form the backbone of a city's functionality, shaping the quality of life for its residents and influencing environmental sustainability.

A reliable and efficient water supply system is the lifeblood of any urban area. Ensuring an uninterrupted provision of clean and safe drinking water is not only vital for public health but also pivotal for economic activities. The management of water resources, treatment plants, distribution networks, and the integration of smart technologies are central to meeting the growing demands of urban populations.

A robust sewerage system is mandatory for maintaining public hygiene and preventing the spread of diseases. The effective collection, treatment, and disposal of wastewater safeguards the environment and contributes to the overall well-being of residents. Sustainable practices, such as wastewater recycling and the use of advanced treatment technologies, play a crucial role in shaping modern urban sanitation systems.

The challenge of handling and disposing of solid waste becomes increasingly complex. Proper solid waste management involves not only waste collection but also recycling, composting, and the safe disposal of residual waste. The integration of smart waste management technologies and community engagement are pivotal in creating sustainable and eco-friendly urban environments.

Urban areas are susceptible to the adverse effects of stormwater runoff, which can lead to flooding, erosion, and water pollution. An effective stormwater drainage system is essential for managing rainwater and preventing these issues. Sustainable drainage solutions, green infrastructure, and innovative stormwater management techniques are integral components of resilient urban planning.

Energy forms the backbone of urban development, powering homes, businesses, and critical infrastructure. As cities strive for sustainability, the focus is shifting towards

renewable energy sources, energy efficiency, and smart grid technologies. The integration of clean and resilient energy solutions not only mitigates environmental impact but also enhances the overall resilience of urban infrastructure.

8.1. Water Supply & Distribution

Access to safe and clean drinking water is a fundamental cornerstone of human well-being and a crucial determinant of public health. It is a basic human right that underpins various aspects of life, from sustaining bodily functions to fostering thriving communities. Reliable drinking water infrastructure, encompassing purification and distribution systems, is essential to ensure that water reaching households is free from contaminants and safe for consumption. Equitable access to drinking water is a key component of social justice, emphasizing the importance of providing this vital resource to all members of society, irrespective of their socio-economic backgrounds. Moreover, promoting sustainable water management practices, including source protection and efficient distribution, is critical for ensuring the long-term availability and quality of drinking water. In a world facing increasing challenges related to climate change and population growth, collaborative efforts in water resource management, public awareness, and education become indispensable for creating resilient and sustainable drinking water systems that serve the needs of current and future generations.

The Main River that flows across the district is Vaigai. It passes through the towns of Theni, Andipatti and Madurai. It originates in Varusanadu Hills, the periyar plateau of the Western Ghats range, and flows northeast through the Kambam Valley, which lies between the Palani Hills to the north and the Varusanadu Hills to the south. The Vattaparai Falls are located on this river. As it rounds the eastern corner of the Varushanad Hills, the river turns southeast, running through the region of Madurai. The river empties into the palk Strait near Uchipuli, close to Pamban bridge in Ramanad District.

LPA relies on a dual-source strategy for water supply, drawing from both surface and sub-surface sources. Vaigai River is the primary surface water source for Madurai Corporation and the rest of LPA. Complementing this, LPA benefits from local schemes managed by the respective local bodies and the Tamil Nadu Water Supply and Drainage (TWAD) board.

8.1.1. Water Supply in Madurai Corporation

8.1.1.1. Existing source & Quantity – Water supply in Madurai Corporation

Madurai Corporation meets its water demand through surface and subsurface sources through water supply schemes on the Vaigai River. First protected water supply was provided to Madurai City in the year 1892 through head works at Arappalayam in the river Vaigai. The water abstracted from the Vaigai River through infiltration galleries was pumped directly into the distribution system. In 1924 another head works was installed at Kochadai in the river Vaigai. The above two head works were balanced as the sand bed over the infiltration galleries were found thoroughly washed off.

Considering the increasing population and additional demand, head works were installed early in the 1970's at Melakkal, Thatachampathu and Kochadai Collector well on the Vaigai river bed and they are utilized to convey water through pumping to the north zone (i.e., North of River Vaigai) during mansoon season and when there is sufficient flow in the river. Head works at Mannalur and Thiruppuvanam down stream of Madurai City were utilized to pump water to the South Zone (i.e., South of River Vaigai) and are partly functioned depending upon the availability at source. Pursuant to the design and implementation of the world bank Vaigai water supply scheme potable water is now being supplied to the South Zone of Madurai.

The present available source of water supply and their present supply for Madurai Corporation are listed below:

Madurai's water supply encompasses multiple schemes and sources, ensuring a consistent provision to various zones within the city. Scheme I involve the utilization of collector wells and infiltration galleries along the Vaigai River to supply the North Zone during specific months, contingent on rainfall and Vaigai Dam water release. Scheme II provides water to the South Zone during the monsoon season through headworks at Manaloor and Thirupuvanam on the Vaigai riverbed. The Vaigai Water Supply Scheme, with a substantial capacity, conveys water from the Vaigai Reservoir to the South Zone through a transmission main. Complementary to these schemes, the city relies on borewells, a mini power pump scheme, and public

fountains. The water distribution infrastructure includes overhead and ground-level reservoirs, a vast distribution system covering 1,029 Kms. The Madurai Corporation has provided numerous water supply connections for domestic, commercial, and industrial purposes. The water supply from the Vaigai Dam is managed through a network of collector wells, infiltration walls, and galleries, with the water reaching the Ground Level Service Reservoir at Arasaradi before distribution to the North Zone. The pumping stations and headworks, including Pannapatti Head Works, Melakkal, Collector Well Kochadai, Thirupuvanam, Manalur, and Arasaradi Booster Pumping Station, collectively ensure an efficient water supply system for the city.

Table 8-1 Existing water sources

Water Sources in use	Actual Supplying per day (MLD)	Full Capacity (MLD)
Vaigai River Bed I & II	113.46	118.6
Manaloor	3.97	4.52
Melakkal	13.93	20.5
Kochadai	2.92	2.25
Added Area (TPK, Avaniyapuram, Thirunagar)	13.17	10.2
Cauvery Water supply	7.2	12.52
Total	154.65	168.59

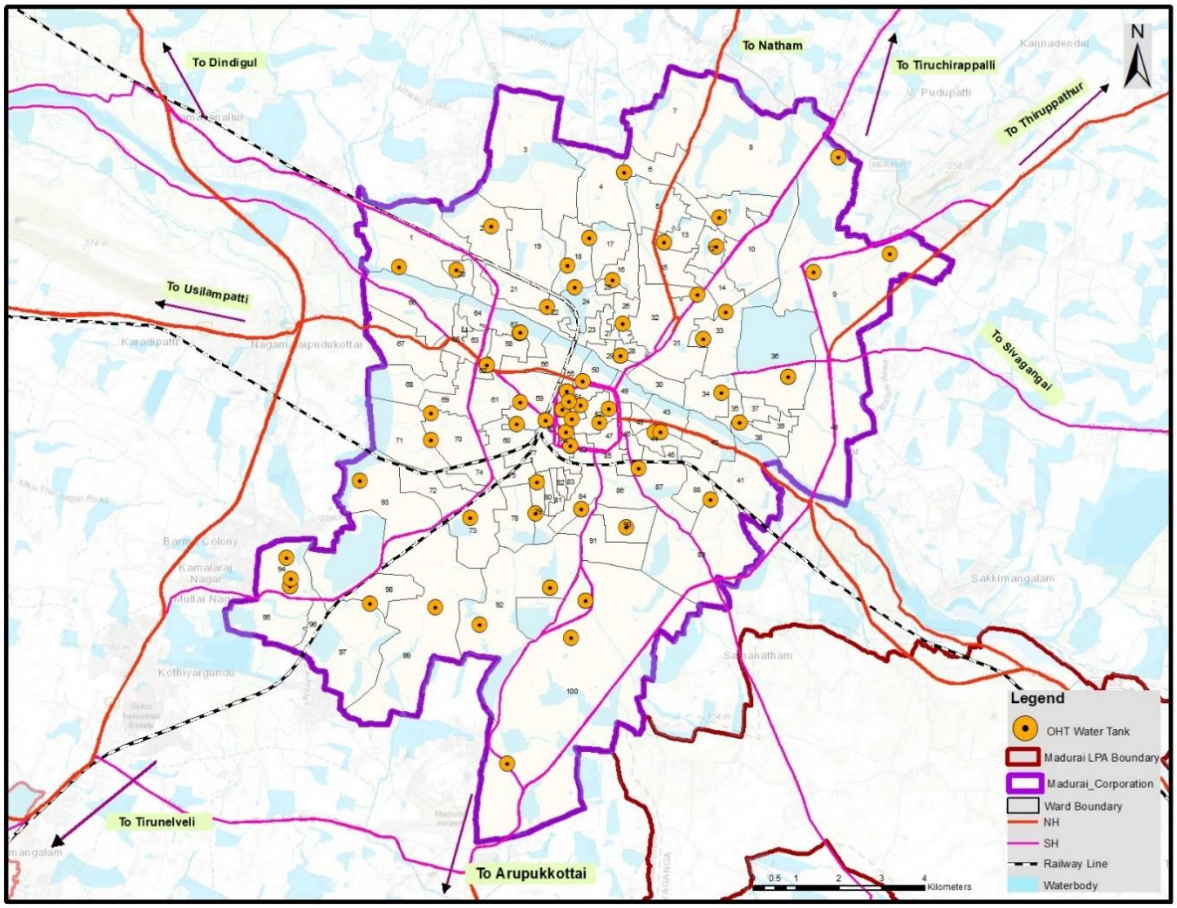
Source: Madurai Corporation

Currently, Madurai Corporation's water supply is 192 MLD, but its demand is 239 MLD. 47MLD is the total shortage as a result. The Water Treatment Plant is located at Pannaipatti with a capacity of 125MLD.

The introduction of the Mullai Periyar water supply scheme, projecting a total capacity of 317 MLD, holds the potential to meet both present and future water supply demands up to the year 2041. This contingent success is contingent on the reliability of existing water supply schemes. The present storage capacity available in the corporation is 40.55 ML. the proposed capacity of Over Head Tanks proposed under the new scheme is 59.1 ML.

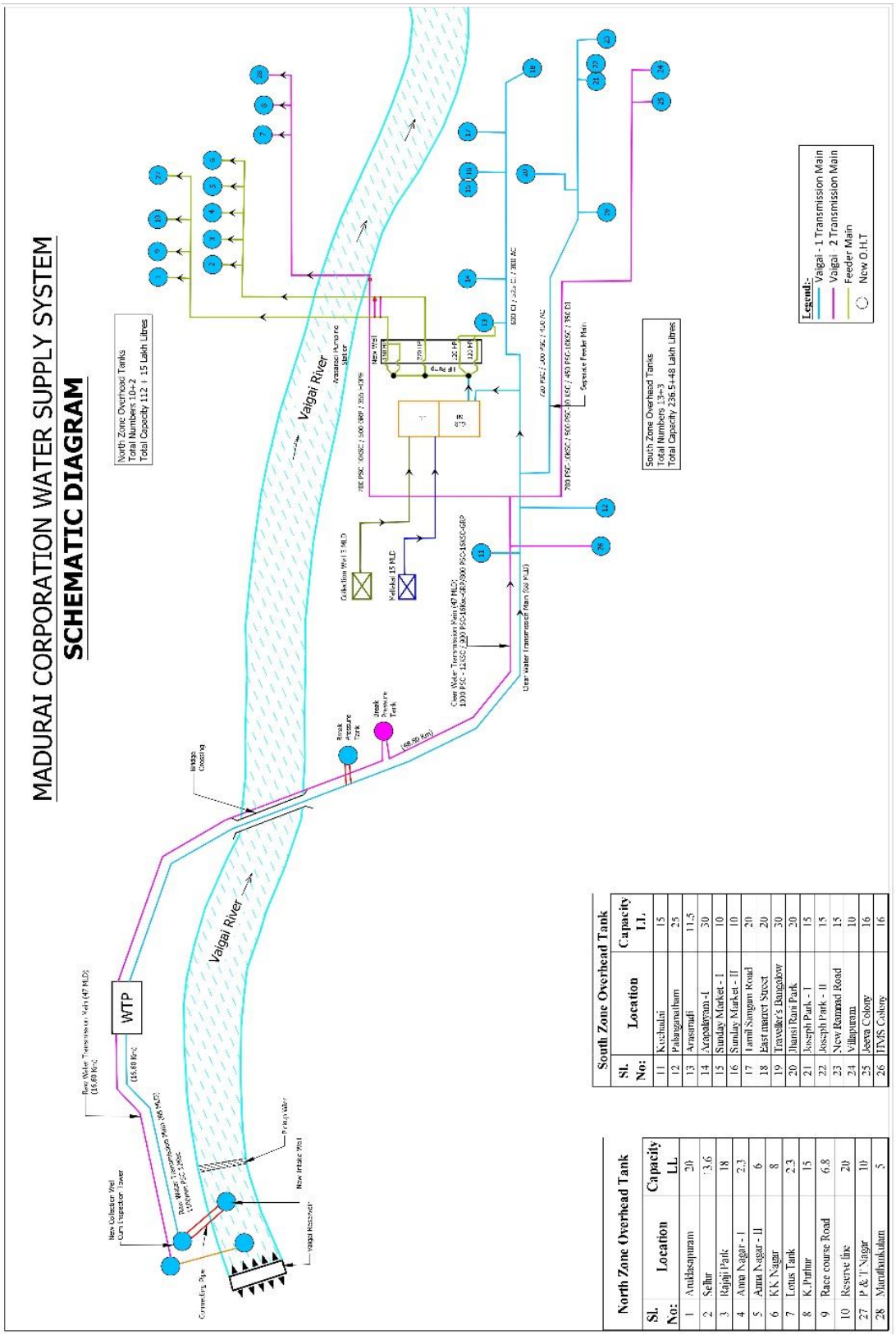
Table 8-2: Existing situation analysis

Description	Madurai Corporation
Water Supply Source	Dedicated WS, CWSS-Melur
Population	17,23,347
Existing Supply (MLD)	192
Per Capita Supply (LPCD)	111.41
Per Capita Norms (LPCD)	135
Quantity of Water required as per standard (MLD)	232.65
Additional quantity of water required in MLD	108.26
Total Capacity of OHTs (ML)	40.55
Storage Capacity Required in ML	232.65
Additional Storage Capacity in ML	192.1
Land Requirement in Ha	5.82



Map 8-1: Over Head Tanks in Madurai Corporation

Source: Madurai Corporation



North Zone Overhead Tank

Sl. No:	Location	Capacity LL
1	Aruldasapuram	20
2	Selur	3.6
3	Rajaji Park	18
4	Anna Nagar - I	2.3
5	Anna Nagar - II	6
6	KK Nagar	8
7	Lotus Tank	2.3
8	K.Puthur	15
9	Race course Road	6.8
10	Reserve tnk	20
27	P & T Nagar	10
28	Maruthankulam	5

South Zone Overhead Tank

Sl. No:	Location	Capacity LL
11	Kochadai	15
12	Palanganatham	25
13	Arasamadi	11.5
14	Arapalayam -I	30
15	Sunday Market - I	10
16	Sunday Market - II	10
17	Tamil Sangam Road	20
18	East master Street	20
19	Traveller's Bungalow	30
20	Jhansi Rani Park	20
21	Joseph Park - I	15
22	Joseph Park - II	15
23	New Rammad Road	15
24	Villapuram	10
25	Jeeva Colony	16
26	TVS Colony	16

Figure 8-1: Madurai Corporation Water Supply System – Schematic diagram

Source: Madurai Corporation

8.1.1.2. Water Supply Distribution System

The water distribution pipe network spans a considerable 1,029 kilometers, representing nearly 59% of the total road length. This highlights a substantial infrastructure investment in ensuring efficient water supply across the region, underscoring the commitment to essential services and urban development. The extensive pipe network contributes significantly to the overall connectivity and functionality of the region's infrastructure.

Table 8-3: Ward-wise Household Water Supply Connections in Municipal Area

Zone	Ward Number	Length of Streets	Length of water Distribution Pipe
2	1	25.23	10.26
2	2	32.297	30.29
1	3	40.95	5.8
1	4	40.2	2
1	5	35.78	
1	6	30.47	
1	7	50.82	
1	8	88.6	
1	9	59.36	
1	10	44.02	34.88
1	11	21.34	
1	12	18.67	18
1	13	16.19	
	14	11.62	10.62
2	15	16.86	16.8
	16	16.53	16.5
	17		
	18		
	19		
2	20	21.057	21
2	21	23.77	20.1
2	22	16.44	15.45
2	23	10.32	9.5
2	24	10.83	8.6
2	25	7.59	9.1
2	26	9.4	7.1
2	27	8.73	6.71
2	28	12.4	18.4
4	29	9.22	8.5
4	30	10.85	9.6

Zone	Ward Number	Length of Streets	Length of water Distribution Pipe
2	31	9	9.75
2	32	17.52	17.48
2	33	24.87	23.65
2	34	14.98	14.9
2	35	9.45	8.8
2	36	25.13	22.5
2	37	11.89	11.3
1	38	8.58	8.58
1	39	12.8	9.58
1	40	42.14	28.5
4	41	22.23	22.23
4	42	30.56	26.54
4	43	7.87	7.3
4	44	8.75	8.75
4	45	4.71	4.71
4	46	8.18	8.18
4	47	10.97	10.97
4	48	9.268	9.268
4	49	8.94	8.94
3	50	4.84	4.84
3	51	9.52	9.52
3	52	14.49	14.49
4	53	8.03	8.03
3	54	7.17	7.17
3	55		
3	56	14.71	14.71
3	57	10.947	10.947
3	58		
3	59		
3	60		
3	61	17.7	16.9
3	62	4.79	4.65
2	63	8.65	8.65
2	64	9.15	9.15
2	65	9.59	9.59
2	66	31.7	27.95
3	67	33.36	25.4
3	68	24.48	18.2
3	69	20.26	19.4
3	70	26.25	20.45

Zone	Ward Number	Length of Streets	Length of water Distribution Pipe
5	71	22.15	16.2
5	72	18.75	11
5	73	33.52	23.7
3	74	10.4	
3	75		
3	76	7.5	7.5
3	77		
5	78	22.16	18.45
5	79	10.16	11.52
5	80	7.3	7.3
5	81	6.01	6.01
5	82	5.24	5.24
5	83	5.28	5.28
5	84	24.19	25.8
4	85	7.87	7.87
4	86	14.07	13.5
4	87	21.6	
4	88	15.446	
4	89	30.07	
4	90	17.66	12.64
5	91	22.98	14.26
5	92	32.07	
5	93	21.831	10.5
5	94	30.19	25
5	95	22.234	11.15
5	96	9.243	9.1
5	97	16.42	11.5
5	98	8.892	2.04
5	99	40.068	2.56
5	100	39.17	
Total		**1,756**	**1,029**

Source: Madurai Corporation

8.1.1.3. Service Connections

As per the Urban and Regional Development Plans Formulation and Implementation Guidelines (URDPFI) and Central Public Health and Environmental Engineering Organization (CPHEEO) all households and establishments need to be provided by safe piped water connection at their households.

With a notable 1,54,757 residential connections, the corporation extends its services beyond households to include Commercial establishments and Industries. This reflects a comprehensive approach to meeting diverse water needs, catering not only to individuals but also supporting the business and industrial sectors. The provision of connections to various sectors underscores the utility's role in fostering overall economic and community development.

Table 8-4: Madurai Corporation service connections

Item	No. of Connections
Residential	1,54,757
Commercial	9,450
Industrial	73

Source: Madurai Corporation

8.1.1.4. User Charges

Domestic water users incur a monthly charge of Rs. 75, aligning with the cost of residential water consumption. Non-domestic users, including various establishments, face a lower monthly user charge of Rs. 20, promoting affordability for these purposes. The commercial and industrial sector, with higher water demands, is subject to a comparatively elevated monthly user charge of Rs. 150, reflecting the increased usage and associated costs.

Table 8-5: User charges

Types	Deposit (Rs.)	Monthly Charge (Rs.)	Yearly Charge
Non- Domestic	3,000	20	240
Domestic	3,000	75	900
Commercial and Industrial	10,000	150	1,800

Source: Madurai Corporation

8.1.2. Ongoing Projects

The Corporation's primary water supply initiative revolves around a dedicated scheme sourcing water from Mullai Periyar. This strategic proposal aims to ensure a reliable, sustainable, and scalable water supply system to meet the current and future demands of the Corporation.

8.1.2.1. Dedicated Water Supply scheme from Mullai Periyar Lower camp to Madurai Corporation undue AMRUT

Madurai City Municipal Corporation has prepared a DPR for 125 MLD Dedicated Water Supply Scheme for Madurai Corporation with Sources at Mullai Periyar River at Lower Camp for Rs.325 Crores under ADB funded Scheme.

The total quantity of 317 MLD for Intermediate stage shall be received from the existing source (192 MLD) and the source from Mullai Periyar River (125 MLD) for the Dedicated Water Supply Scheme proposed under AMRUT Programme. The Overall Project Cost is Rs.1295.76 Crore. The project is implementing in 5 packages,

Package 1 – Project Cost: Rs. 357.53 Crore

Construction of Check Dam at Head works by PWD – Rs. 14.78 and Laying 93.30 Km of Raw Water Pumping main from Lower Camp to WTP at Pannaipatti – 93.09 km completed out of 93.30 km. Balance work is in progress.

Package 2 – Project Cost: Rs. 134.78 Crore

Design and Construction of 125 MLD Water Treatment Plant, and SCADA arrangements for Head works, Raw Water Carrying Main, Clear Water Carrying Main, Feeder Main and Service Reservoirs – 97% of Civil works & 90% of electro mechanical work completed. Balance work is in progress.

Package 3 – Project Cost: Rs. 483.78 Crore

Laying of 53.90 Km length of Clear Water Transmission Main from WTP at Pannaipatti to Madurai, laying of 94.78 km length Feeder Mains and Construction of 37 numbers of Service Reservoirs & 1 No of Ground Level Sump – 53.19 km completed out of 53.90 km and 78.12 km completed out of 94.78 km and 87.00% of works completed in OHTs. Balance work is in progress. 3.

Package 4 – Project Cost: Rs. 257.60 Crore

In the 28 wards which were encompassed in Madurai Corporation during 2011, 855 Km length of Distribution Mains are to be replaced with new pipeline and 90,444 number of new house service connections are to be made – 702.55km completed out of 855 km and 56,606 Nos of HSCs completed out of 90,444 Nos. Balance work is in progress.

Package 5 – Project Cost: Rs. 357.45 Crore

In the 57 wards which were encompassed in Madurai Corporation during 2011, 813 Km length of Distribution Mains are to be replaced with new pipeline and 1,63,958 number of house service connections are to be rejuvenated – 340.30km completed out of 813 km and 23,399 Nos of HSCs completed out of 1,63,958 Nos. Balance work is in progress.

Other Department Works

Also, the works pertaining to Railway, TNPWD, State Highways and NHAI are to be carried out at an estimate cost of Rs. 62.08 Cr.

Additional Capacity of Over Head Tanks to be constructed as part of the scheme is 59.1 ML.

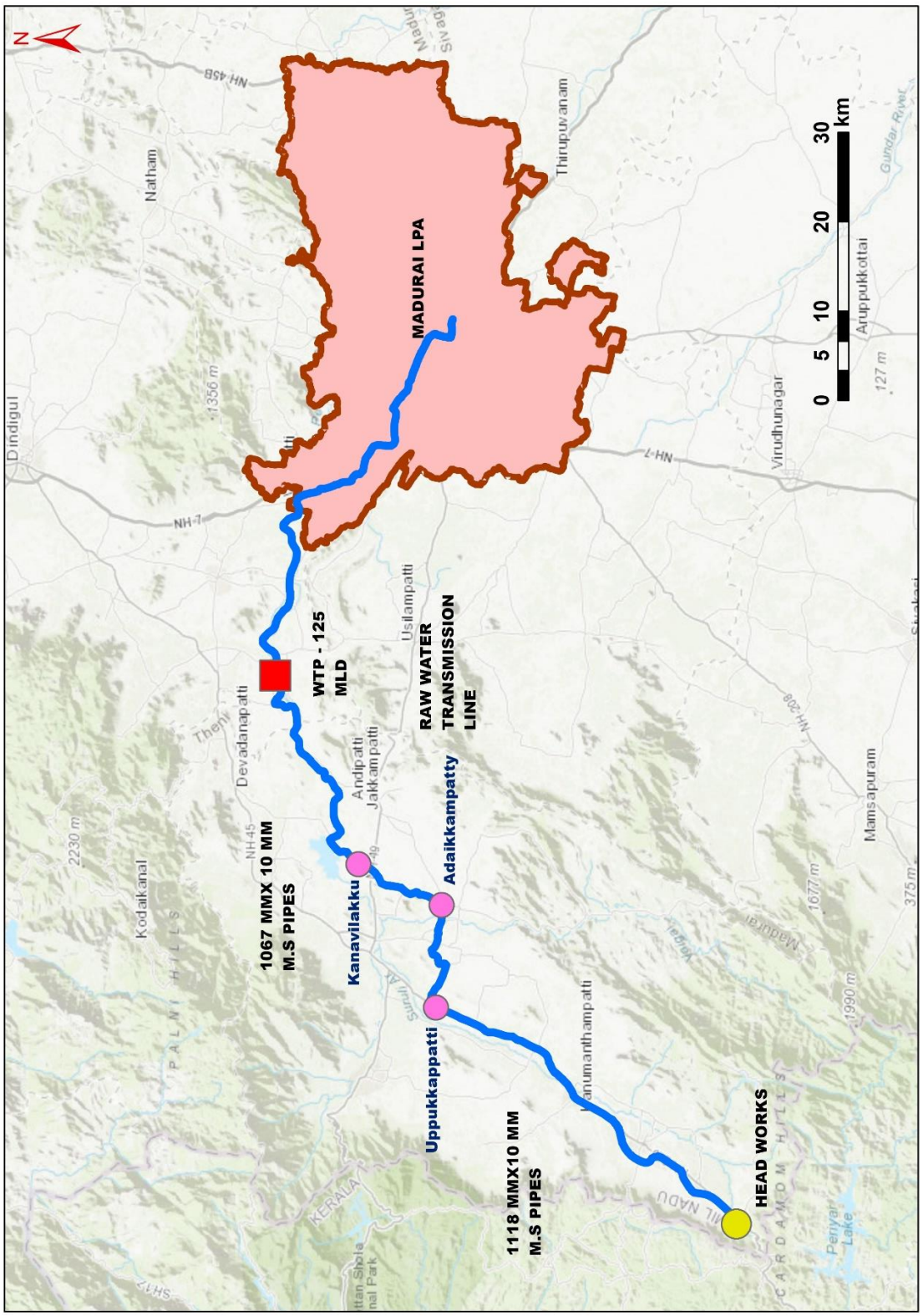
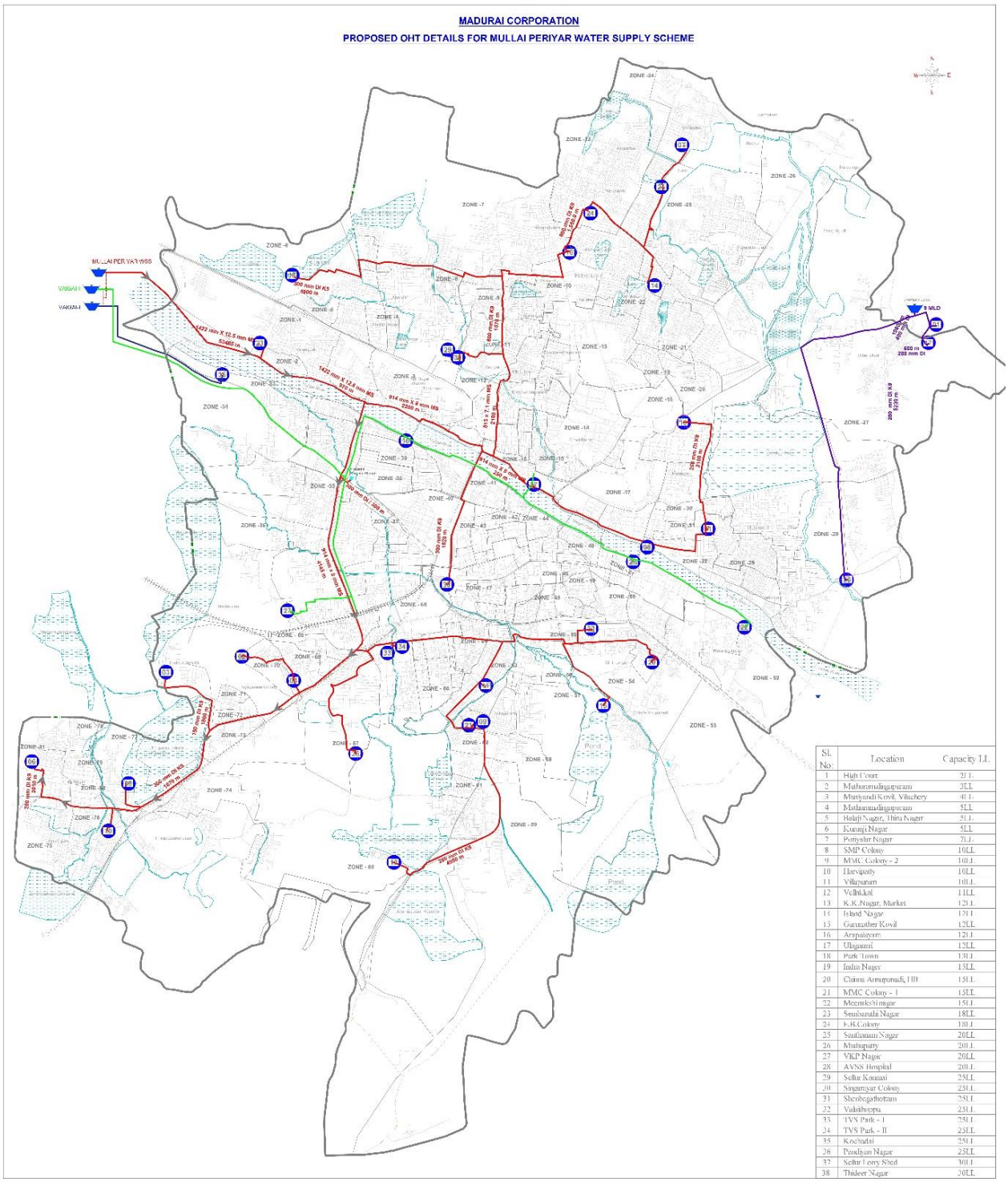


Figure 8-2: Dedicated Water supply scheme from Mullai Periyar River at lower camp plan showing pipeline alignment

Source: Madurai Corporation



Sl. No:	Location	Capacity LL
1	High Court	2LL
2	Mathurmullagaipuram	3LL
3	Muniyandi Kovil, Villachery	4LL
4	Mathurmullagaipuram	5LL
5	Balaji Nagar, Thiru Nagar	5LL
6	Kurunji Nagar	5LL
7	Ponyalur Nagar	7LL
8	SMP Colony	10LL
9	MMC Colony - 2	10LL
10	Harveipatty	10LL
11	Villapuram	10LL
12	Vellikkal	11LL
13	K.K.Nagar, Market	12LL
14	Island Nagar	12LL
15	Gurunather Kovil	12LL
16	Arapalayam	12LL
17	Ullagaram	12LL
18	Park Town	13LL
19	Indira Nagar	15LL
20	Chinna Anuppanadi, HB	15LL
21	MMC Colony - 1	15LL
22	Meenakshi nagar	15LL
23	Sembanathi Nagar	18LL
24	K.K.Colony	18LL
25	Santhanam Nagar	20LL
26	Muthupatty	20LL
27	VKP Nagar	20LL
28	AVSS Hospital	20LL
29	Selur Kaumati	25LL
30	Sangamiyar Colony	25LL
31	Shenbagathottam	25LL
32	Vaikkhoppu	25LL
33	TVS Park - I	25LL
34	TVS Park - II	25LL
35	Koothadai	25LL
36	Pandiyan Nagar	25LL
37	Selur Ferry Shed	30LL
38	Thideer Nagar	30LL

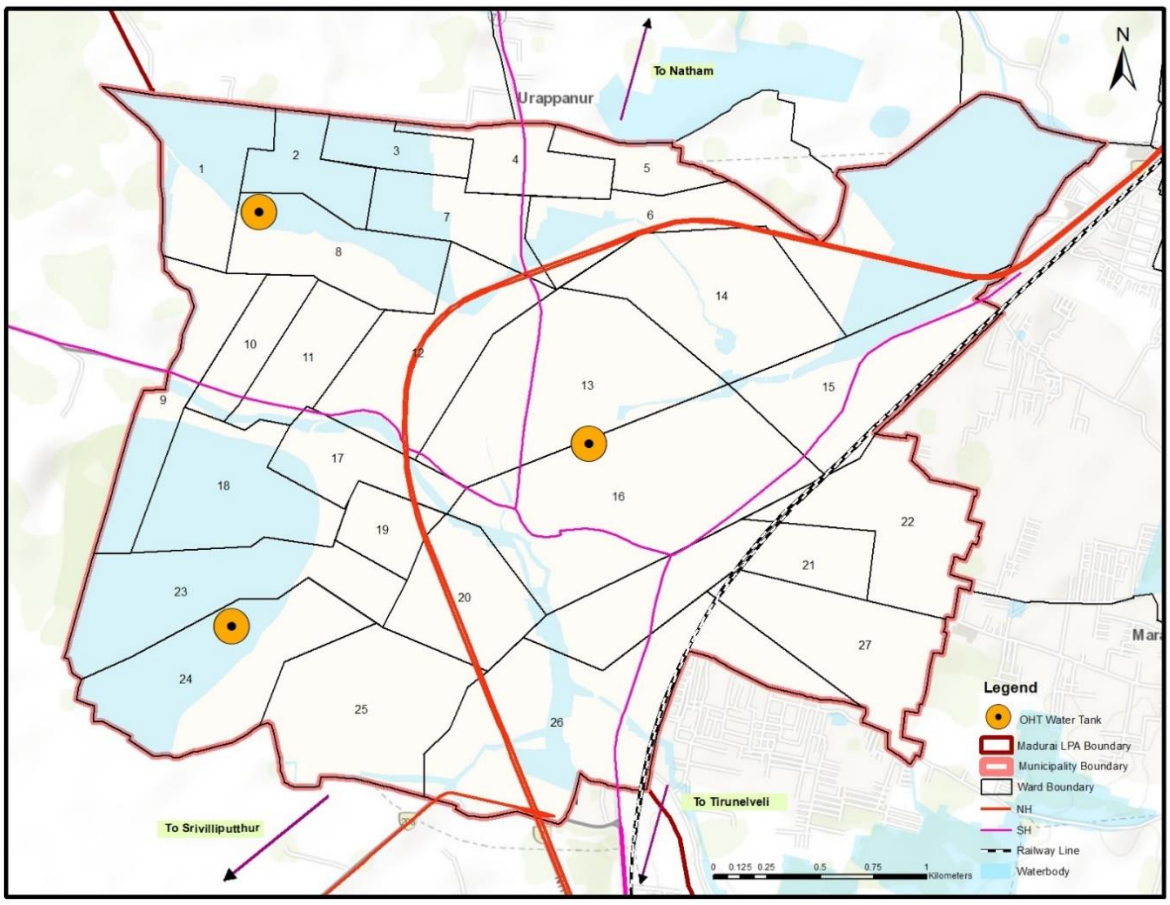
Figure 8-3: Proposed OHTs under the New scheme (Mullai Periyar)

Source: Madurai Corporation

8.1.3. Water Supply in Municipalities

8.1.3.1. Tirumangalam Municipality

The analysis reveals a concerning shortfall in per capita water supply, failing to meet established standards. A deficit of 3.14 million liters per day (MLD) underscores the pressing need for increased supply. Furthermore, addressing the shortfall requires an additional storage capacity of 4.64 ML, emphasizing the imperative for strategic infrastructure development to bridge the current gap and meet the growing demand for water resources.

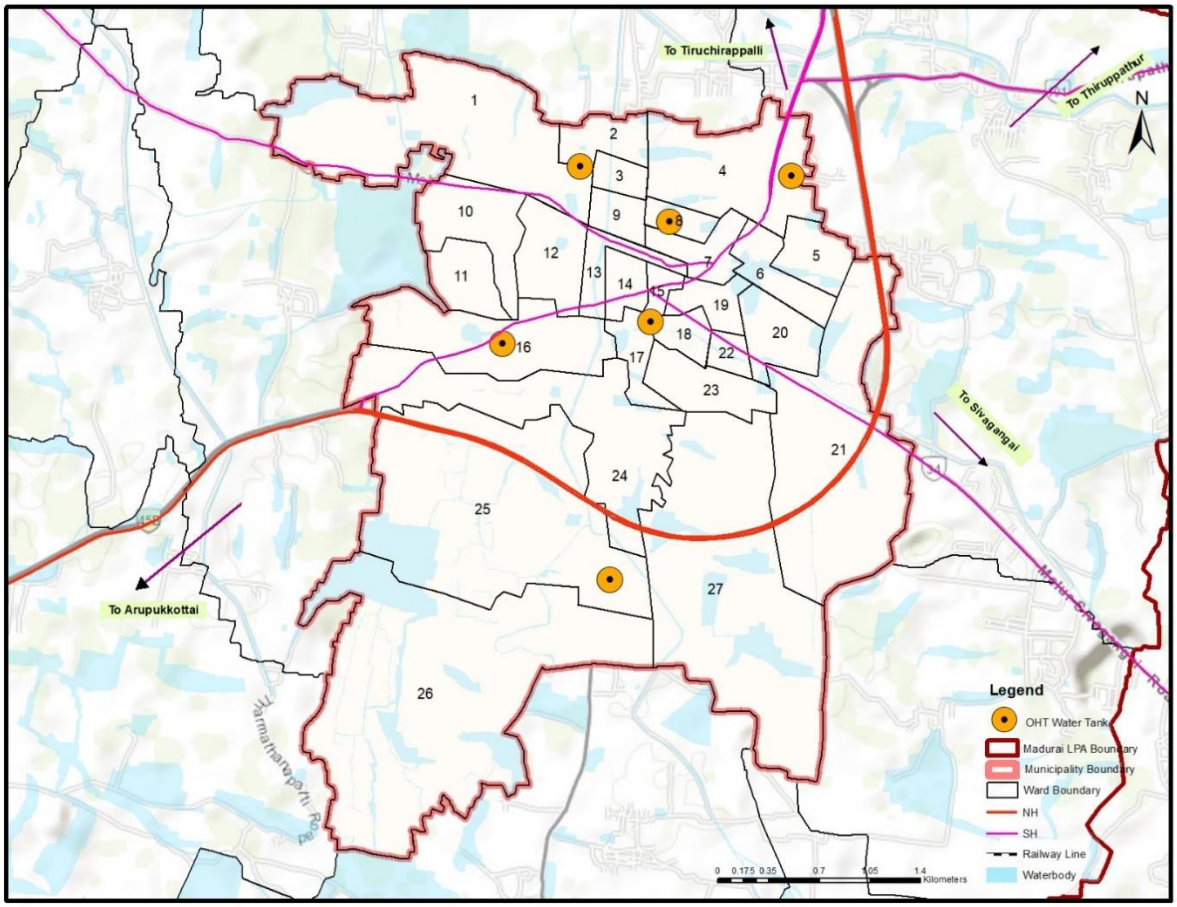


Map 8-2: OHTs Tirumangalam Municipality

Source: Tirumangalam Municipality

8.1.3.2. Melur Municipality

The analysis indicates a shortfall in per capita water supply, falling below established standards and creating a deficit of 2.48 million liters per day (MLD). This shortage underscores the urgency to address the growing demand for water resources. To mitigate the issue, an additional storage capacity of 3.51 ML is required, highlighting the necessity for strategic measures to enhance water supply infrastructure and meet the region's increasing demand.



Map 8-3: OHTs in Melur Municipality

Source: Melur Municipality

Table 8-6 depicts the existing situation analysis of the water supply of municipalities.

Table 8-6: Existing situation analysis

Description	Tirumangalam	Melur
Water Supply Source	CWSS – Cauvery/Vaigai	CWSS – Cauvery/Local
Population	56,247	45,050

Description	Tirumangalam	Melur
Existing Supply (MLD)	4.45	3.6
Per Capita Supply (LPCD)	79.12	79.91
Per Capita Norms (LPCD)	135	135
Quantity of Water required as per standard (MLD)	7.59	6.08
Additional quantity of water required in MLD	3.14	2.48
Total Capacity of OHTs (LL)	2.95	2.57
Storage Capacity Required in ML	7.59	6.08
Additional Storage Capacity in ML	4.64	3.51
Land Requirement in Ha	0.72	0.7

8.1.4. Water Supply in Town Panchayats

The primary water supply sources for the town are CWSS Melur and Vaigai, contributing to the existing supply of 7.29 million liters per day (MLD). However, the analysis reveals a collective water shortage of 2.54 MLD in the town panchayats served by these sources. This emphasizes the need for targeted interventions and infrastructure enhancements to bridge the deficit and ensure a sustainable and adequate water supply for the affected areas.

Table 8-7: Existing Situation analysis

Description	Town panchayats
Water Supply Source	CWSS Melur & Vaigai
Population	1,09,244
Existing Supply (MLD)	7.29
Per Capita Supply (LPCD)	66.76
Per Capita Norms (LPCD)	90
Quantity of Water required as per standard (MLD)	9.83
Additional quantity of water required in MLD	2.54
Total Capacity of OHTs (LL)	4.61
Storage Capacity Required in ML	9.83
Additional Storage Capacity in ML	5.22
Land Requirement in Ha	0.73

8.1.4.1. Ongoing Projects

The listed ongoing projects in the town panchayats signify a commitment to infrastructural development and community welfare, reflecting the municipality's strategic efforts for sustained growth and improved living conditions. These projects aim to address specific needs and enhance the overall quality of life in the respective areas.

Table 8-8: Ongoing projects in Town Panchayats

Name of Town panchayat	Sholavandhan	Vadipatti	Paravai
Name of the Work	Improvement of Water Supply Scheme to Sholavandhan Town Panchayat - Madurai District	Improvement of Water Supply Scheme to Vadipatti Town Panchayat - Madurai District	Improvement of existing Water Supply works in Paravai Town Panchayat, Madurai District
Estimate Cost	1336	2247	2138
KNMT Share	134	225	0
SUIDF	133	224	428
AMRUT Share	1069	1798	1710
Present Stage as on 29.12.23	Work order issued	Work order issued	Waiting for Approval Committee

Source: Directorate of Town Panchayat

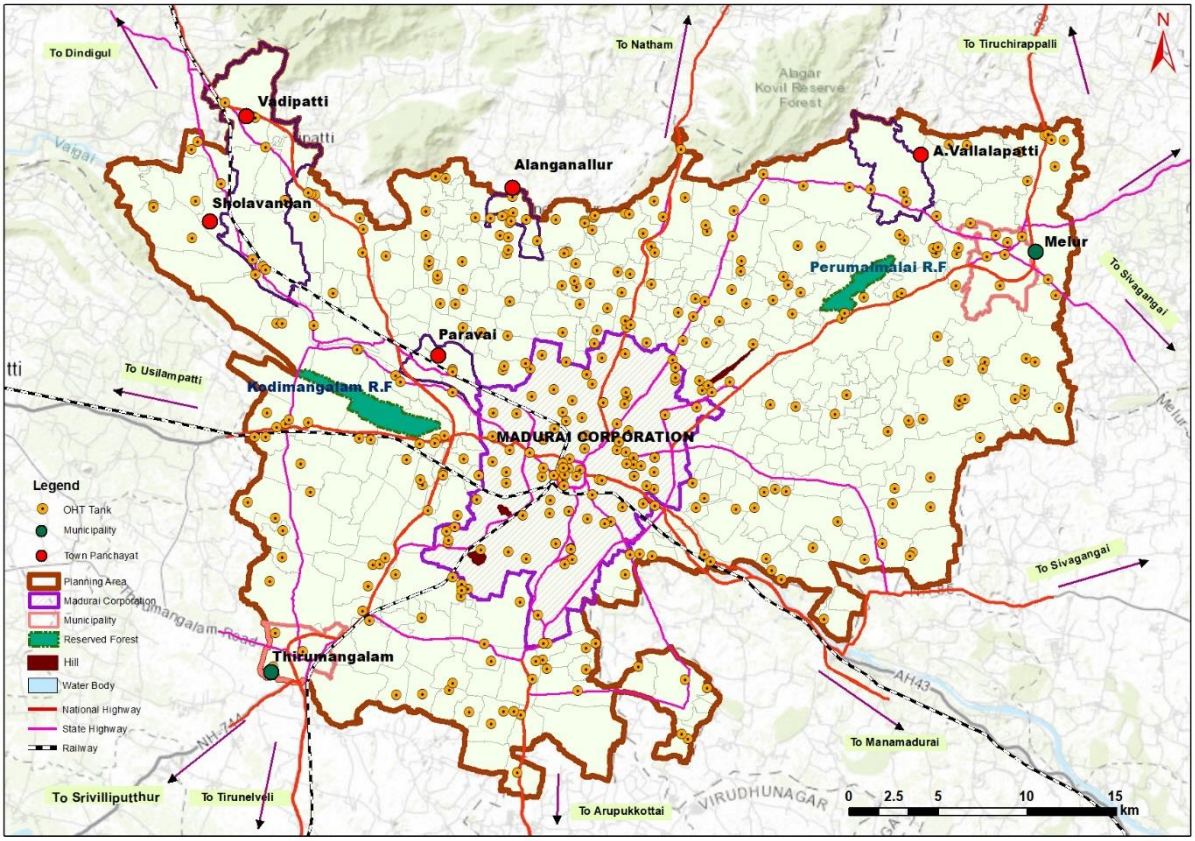
8.1.5. Water Supply in Village Panchayats

In the village panchayats, per capita water supply currently aligns with the demand, ensuring a satisfactory level of service. However, the existing storage capacity falls short of meeting the demand, revealing a need for an additional 24.44 million liters (ML) of storage capacity. This emphasizes the importance of targeted investments in storage infrastructure to guarantee a consistent and reliable water supply for the rural communities, aligning with sustainable development goals.

Table 8-9: Existing situation analysis

Description	Villages
Water Supply Source	Local/ Vaigai

Description	Villages
Population	6,98,054
Existing Supply (MLD)	48.83
Per Capita Supply (LPCD)	69.95
Per Capita Norms (LPCD)	70
Quantity of Water required as per standard (MLD)	48.86
Additional quantity of water required in MLD	0.03
Total Capacity of OHTs (LL)	24.42
Storage Capacity Required in ML	48.86
Additional Storage Capacity in ML	24.44
Land Requirement in Ha	1.12



Map 8-4: Over Head Tanks in LPA

8.2. Sewerage System & Sanitation

Sewerage, an integral component of urban infrastructure, plays a crucial role in maintaining public health and environmental sanitation. This system involves the collection, transportation, and treatment of wastewater from homes, businesses, and industries, preventing the contamination of water sources and mitigating the spread of waterborne diseases. Sewerage systems typically consist of an extensive network of pipes and treatment facilities designed to manage both domestic and industrial effluents. Properly functioning sewerage systems contribute to the overall hygiene and livability of urban areas by safely disposing of wastewater and safeguarding the quality of natural water bodies. As cities evolve and populations grow, the development and maintenance of efficient and environmentally sound sewerage systems become imperative for sustainable urban living. Implementing advanced technologies and sustainable practices in sewerage management further underscores the commitment to creating healthy, resilient, and ecologically responsible urban environments.

8.2.1. Sewerage & Sanitation in Madurai Corporation

8.2.1.1. Existing Sanitation Situation

Madurai City's sewerage system, especially in the core area, is one of the oldest systems built in India; it was built by Britishers and was commissioned in 1924. The system was initially developed on the south bank when the city was concentrated on the south side of river Vaigai The system is expanding since then according to the population demand. Wards in the core are fully covered; except some of the wards which are partially covered by the sewerage network. The peripheral wards which were added after 2011 lack in terms of sewerage network. The present sewerage network has been laid for an approximate length of 838 Kms including 80.34 Kms of pumping mains to gather and pass on the sewage to the main pumping stations. The present system receives a total of 61MLD sewage. After treatment at Avaniapuram (125MLD) and Sakkimangalam (45.7 MLD) STPs the sewage is pumped to the nearby sewage farms at both STPs. To work efficiently in terms of collection and disposal of sewage Madurai Corporation is divided into two drainage zones, North zone and South zone. North zone is divided in 5 drainage blocks and south zone is divided in 15 drainage blocks.

Madurai city has two STPs for sewage treatment. Avanipuram STP is the main STP which serves the South zone and the Sakkimangalam STP serves the North zone.

Avaniapuram Sewage Treatment plant: The plant has a capacity of 125MLD. It works on cyclic activator sludge technology with SBR (sequence batch reactor) operating mode. The plant deals with sewage generated 50 wards south of river Vaigai. Five main pumping stations pump the sewage to the Avaniapuram STP are Muttupatti, Jaihindpuram, Karaturai, Santhapatta and Vallakkal Pumping Station. Vallakkal pumping station also works as the sewage storage before finally pumping it to the main STP. The plant has 6 reactor basin tanks out of which only 2 tanks are in use now. About 42 MLD of sewage is generated in the south zone and only 20 MLD of sewage is treated at this plant rest of the sewage is pumped directly to the nasal because of the leakages in the sewerage network.

Sakkimangalam Sewage Treatment plant: This plant has a capacity of 45.7 MLD. Currently the plant is functioning up to 35MLD. North zone is divided into 5 drainage blocks including MPS at Munthirithoppu, Sellur and four SPS's. Sewage collected from Anna Nagar, KK Nagar, and Thathaneri and NRV areas is pumped to the Mundrithope MPS which is located along the North bank of river Vaigai. This zone comprises a collection and Main Pumping Station network that conveys 19 MLD of sewage to the MPS. This quantum along with 9 MLD sewage from Sellur pumping station is pumped through a 700-mm dia. pumping main to the Sakkimangalam STP with SBR technology to have a capacity of 45.70MLD is located at Sakkimangalam, Sivaganga Road about 10-km from Madurai. After treatment the wastewater is disposed of to the sewage farms located near both the pumping stations. The existing sewage treatment facilities are based on the Sequential Batch Reactor technology.

Table 8-10: UGSS data

Sl. No.	UGSS Data	
1	Length of UGSS Network	7, 22,920 Metre
2	Sewerage Treatment Plant	Current Treating Capacity
	1. Avaniapuram	125 MLD
	2. Sakkimangalam	45.70 MLD
3	Septic Tank or Sludge Disposal Facilities	Septic Tank – 166985 Nos.

Source: Madurai Corporation

Entire portion of the core area of the city is having underground drainage facility. There is about 724 km of existing sewer line in the core area of Corporation, whereas the road length for the core area is about 797 km. The existing sewerage

system in core city has outlived its life, efforts have been made to rejuvenate the same by using various modern technologies.

In some areas of the city, households are discharging their sewage via septic tank in open drains which ultimately find its way into the river Vaigai. Inhabitants living in area without sewer network have to rely on either decentralized collection system in form of in-house septic tanks or on unhygienic open defecation practice. At many places like Jevuvilas Bridge, Avanti Puram Main Road, Ramaiah Street etc., it is observed that sewage is entering to Storm Water Drains. The terrain of the Madurai Corporation is flat terrain in which sewage generated from the household is collected at nearest pumping station through the trunk sewers to lifting stations to Sub pumping stations and then to main pumping stations which will deliver the sewage to STP. Madurai existing sewerage system is having both Sub Pumping Stations (SPS) and Main Pumping Stations (MPS). Presently, the operation of entire pumping process is under manual mode by using pump operators at respective pumping area (SPSs & MPSs). Also, the online measuring devices are not available for continuous measurement of process variables (Level, Flow & Pressure data) either locally at field or remotely through SCADA system. The actuators are not available with the existing gates (Suction wells / Wet wells) or individual & common delivery valves. The Local Control Panels, Switch Gear Panels & Master Control Centres are to be compatible with SCADA system.

There are two existing STP in Madurai CMC area. One is located at Sakkimangalam with a capacity of 45.7 MLD and the other one is located at Vellakkal Avaniyapuram with a capacity of 125 MLD. It is observed that the incoming sewage in Sakkimangalam STP is only 10-15 MLD and in Vellaikal it is 45-50MLD.

The key issues are,

1. The existing sewerage system has outlived its life at many places and needs to be Rehabilitated or replaced.

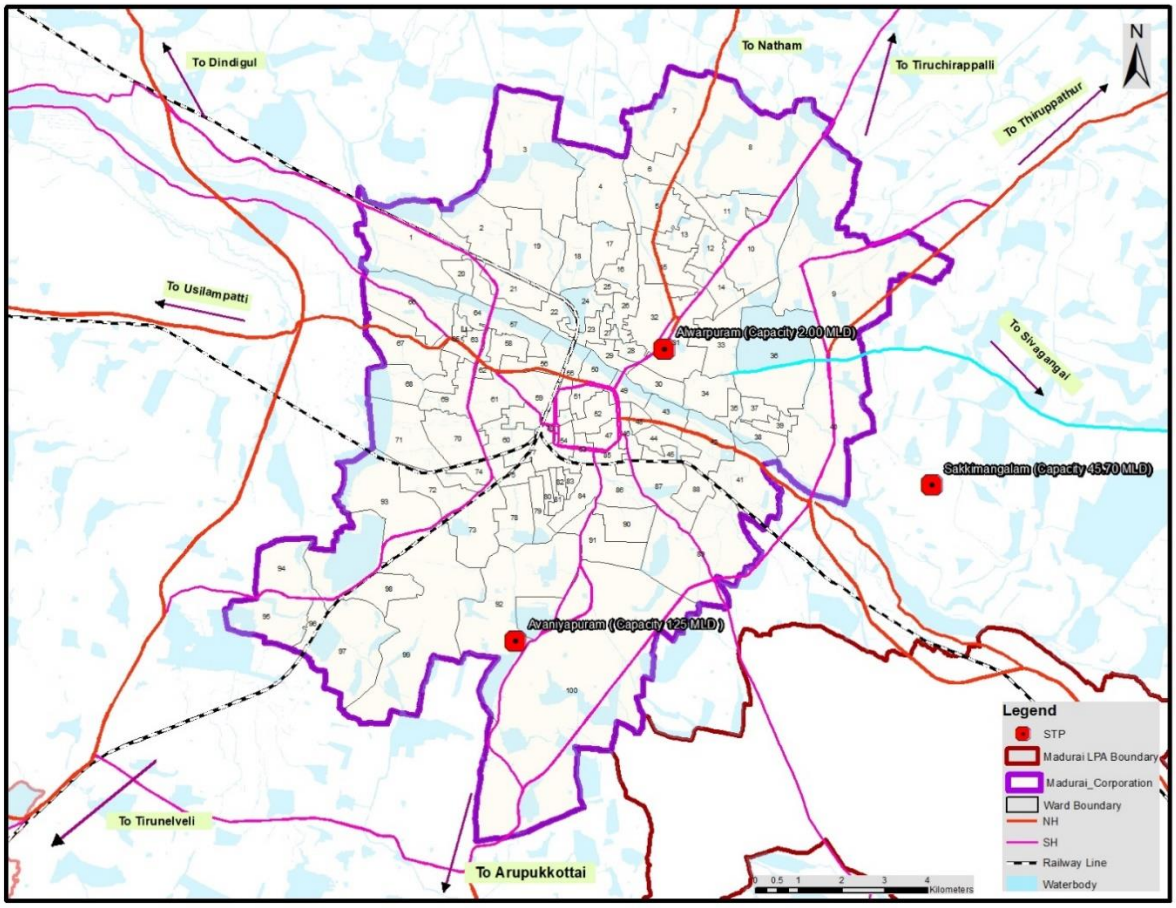
2. The Chambers/machine holes in streets especially surrounding the temple are Overflowing and needs to be immediately addressed, as it effects the aesthetics of Temple and impacts the locals.

3. Existing sewers suffer from insufficient hydraulic capacities, heavy silt deposition and severe chocking.

4. The Sewers at places are settled because of which there is seepage into the ground thus polluting the groundwater table in turn the sewage reaching the STP is reduced.

5. The overflowing sewage is stagnated on roads resulting in unhygienic condition

6. Some machine holes overflow during peak hours which implicate the insufficient carrying capacity of sewers/chocking.



Map 8-5: Locations of STPs

The major issue existing in the area is leaky sewage network system. In many of the wards, sewage water leakage from damaged pipes and machine holes, is getting mixed with drinking water causing potential health risks for residents.

In some of the areas, overflow of sewage through machine holes on to roads creating problems to residents and the commuters passing through the road, especially during peak hours like morning in South and Central Zones.

Many locations, the existing sewers suffer from insufficient hydraulic capacities, due to heavy silt deposition and severe chocking due to ingress of solid waste and poor structural conditions in the stretches. The blockages are mainly taking place due to low level of maintenance.

All these issues are indicating deteriorated condition of the present sewerage system.

Table 8-11showing the analysis of existing system, according to that additional capacity of STP required is 13.42 MLD.

Table 8-11: Existing Situation analysis

Description	Madurai Corporation
Population	17,23,347
Per Capita Norms (LPCD)	135
Quantity of Sewage Generated (MLD)	186.12
Existing STP Capacity in MLD	172.7
Additional STP Capacity required in MLD	13.42
Storage Capacity Required in ML	13.42
Gap in Storage Capacity in ML	13.42
Land Requirement in Ha	16.78

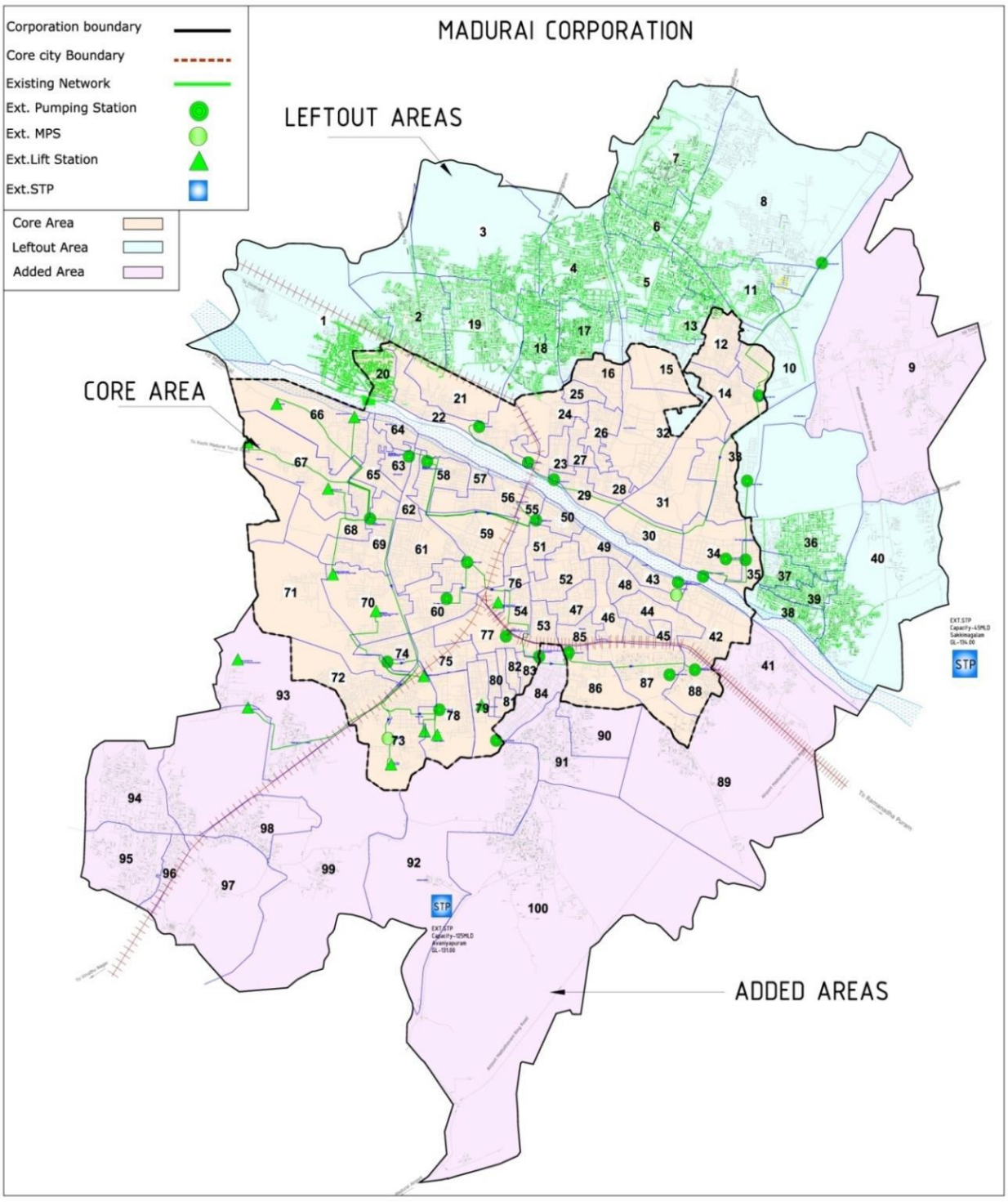


Figure 8-4: Madurai Corporation Existing sewerage map

Source: Madurai Corporation

Table 8-12: Madurai Corporation – Existing ward wise coverage of sewerage system

Description	Ward Nos	Total wards
Left out areas in work under progress (Phase II)	1 to 8, 10, 11, 13, 15, 16 to 19, 33, 36 to 40	22
Core Area - Existing UGSS areas	12, 14, 20 to 32, 34, 35, 42 to 83, 85, 86 to 88	63
Added areas	9,41, 84, 89 to 100	15
Total wards	100	100

Source: Madurai Corporation

8.2.2. Proposed Underground Sewerage System (UGSS)

The two ongoing projects signify a focused approach to local development, addressing specific needs within the community. These initiatives aim to enhance infrastructure and services, contributing to the overall well-being and progress of the region. The two projects are detailed below.

8.2.2.1. Providing UGSS in added/left out areas in Madurai Corporation

The project is being implemented independently for both the northern and southern regions of the Vaigai River.

Ongoing sewerage scheme in left out area in North Vaigai

In the proposed sewerage network for the northern side of the Vaigai River, the ongoing project includes the execution of the sewerage system in the leftout areas of the north. Three pumping stations located in Vandiyur, Anaiyur, and Vilangudi are currently under construction.

The project envisions a total of 2 proposed pumping stations, 19 lift stations, and 7 proposed Local Maintenance Holes (LMHs). The sewer components feature a range of diameters from 200mm to 600mm, covering a comprehensive length of 218 kilometers in both leftout and added areas in North Vaigai. With a total of 25,555 High Service Connections (HSCs), the project is estimated to cost 20,787.61 Lakhs.

The key project components include a network of sewer diameters, pumping and lift stations, and maintenance holes, collectively aimed at enhancing the sanitation infrastructure on the northern side of the Vaigai River. The incorporation of various sewer diameters and a substantial sewer length reflects the project's comprehensive approach to accommodating both existing and additional areas.

The execution of pumping stations and lift stations, along with a significant number of proposed HSCs, underscores the project's commitment to improving wastewater management and sanitation facilities in the region.

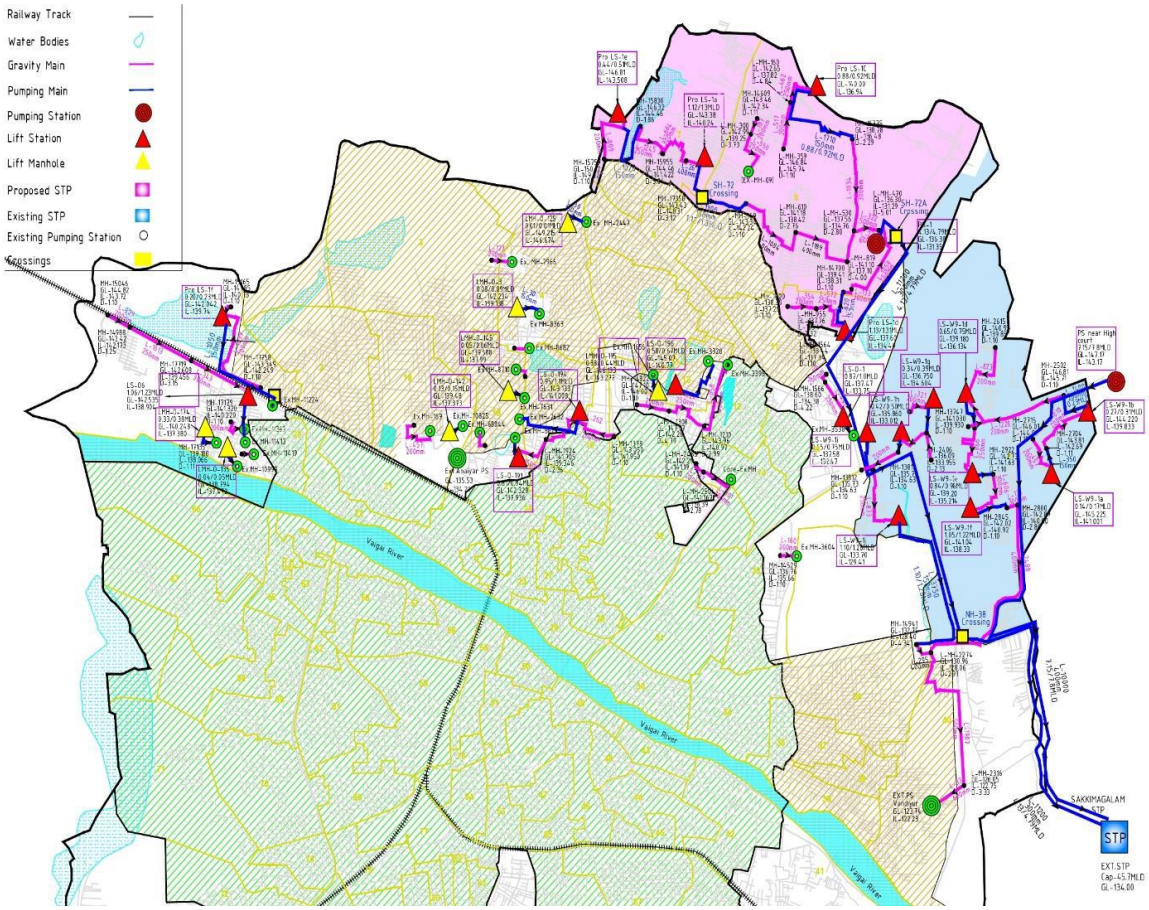


Figure 8-5: Proposed UGSS North of Vaigai

Source: Madurai Corporation

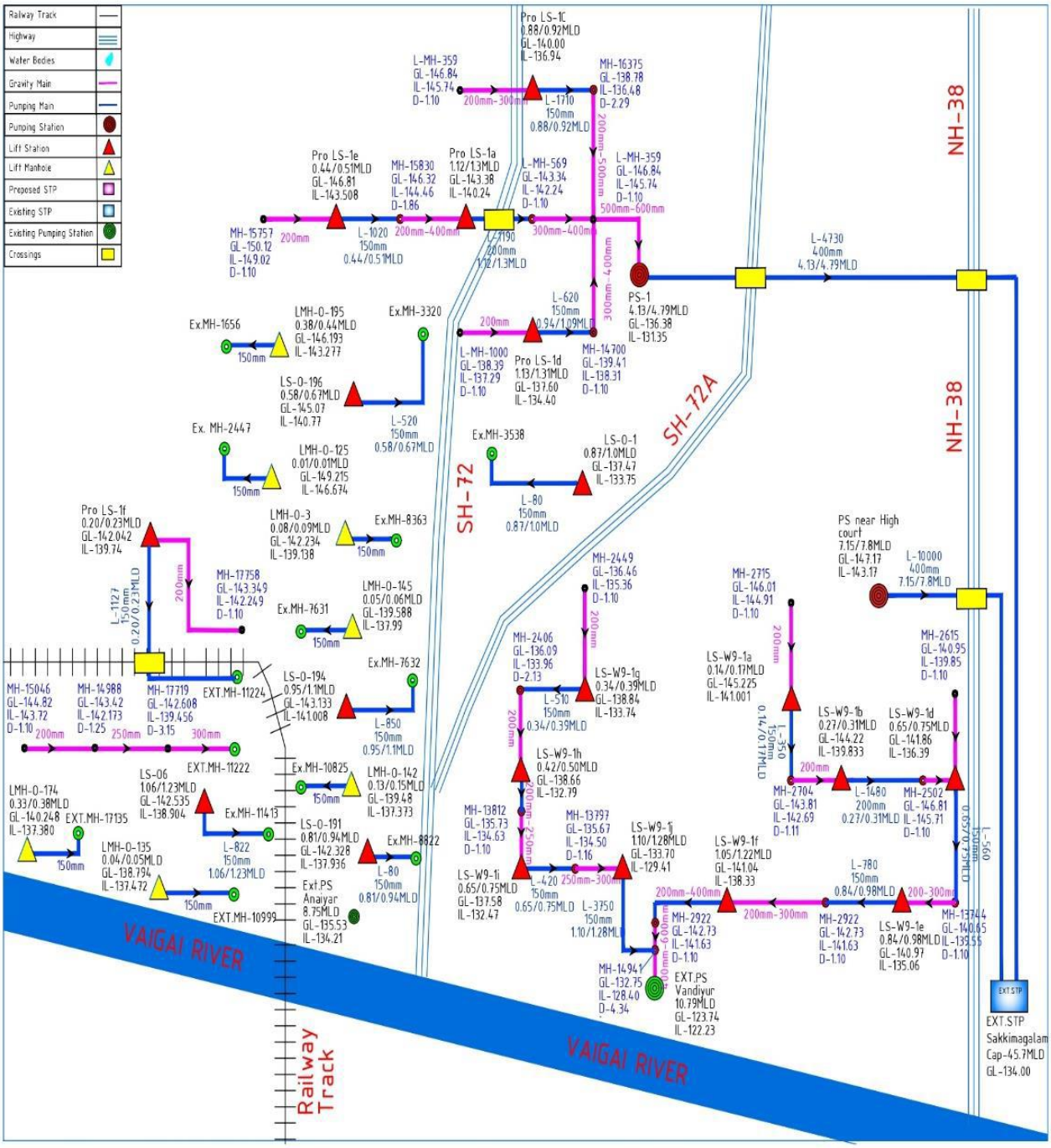


Figure 8-6: Proposed UGSS –Schematic Diagram-North Vaigai

Source: Madurai Corporation

Ongoing sewerage scheme in left out area in South Vaigai

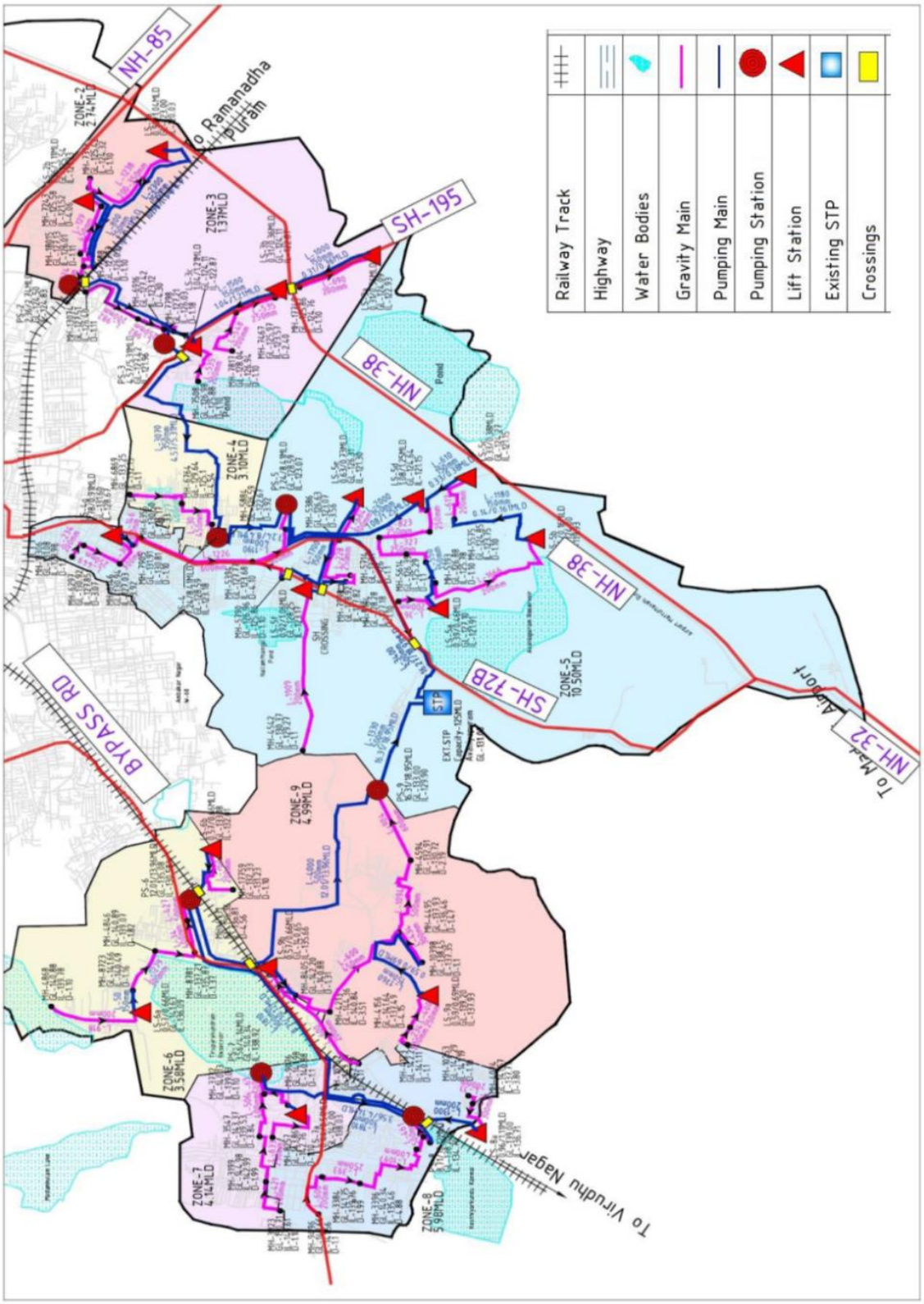
In the South Vaigai region, the additional areas have been strategically divided into eight sewerage zones, labelled Zone-2 to Zone-9, considering the topography and the existing sewerage system.

Each zone is equipped with a dedicated sewage pumping station, facilitating efficient wastewater management. The collected sewage from these zones is planned to be pumped to either another pumping station or the existing Sewage Treatment Plant (STP) with a capacity of 125 MLD located in Avanaipuram, Southern area. The project encompasses a total of 8 proposed pumping stations and 18 lift stations, with an overall estimated cost of 31,333.27 Lakhs.

The proposed components of this extensive sewerage network include a range of sewer diameters varying from 200mm to 900mm, covering a total sewer length of 288 kilometres.

A network of 9,915 manholes is strategically distributed, comprising 1,935 circular manholes and 7,980 rectangular manholes.

These components signify a comprehensive approach to address the sanitation needs of the added areas in South Vaigai, emphasizing both the diversity in sewer infrastructure and the meticulous planning to accommodate the specific requirements of each sewerage zone.



Source: Madurai Corporation

Figure 8-7: Proposed UGSS South of Vaigai

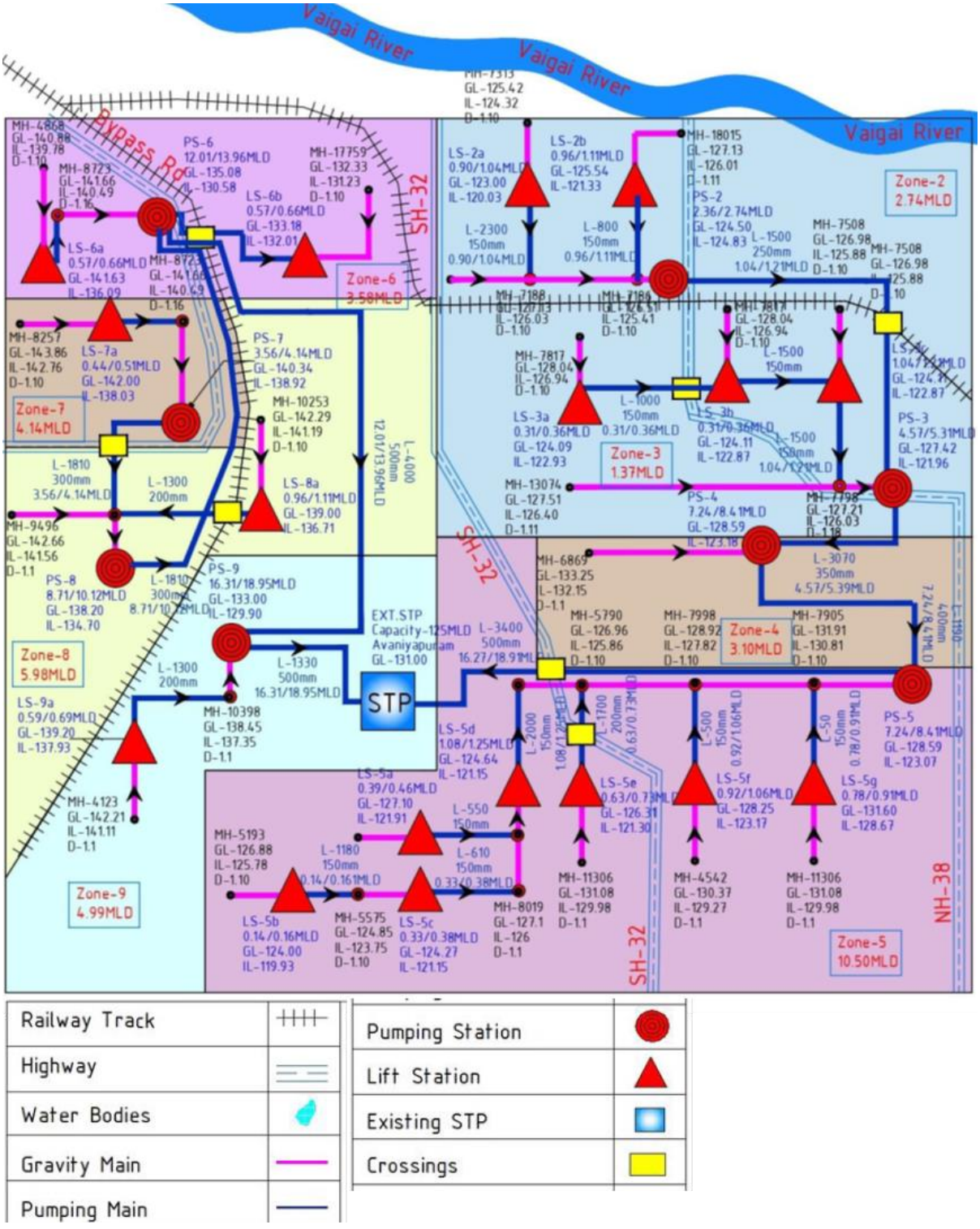


Figure 8-8: Proposed UGSS –Schematic Diagram-South Vaigai

Source: Madurai Corporation

8.2.2.2. Improvement to the existing Sewerage System in Core Area of 72 wards covering 51.82 Sq.km including SCADA system for entire Madurai City Municipal Corporation.

The primary objective of the project is to formulate a Detailed Project Report (DPR) aimed at enhancing the existing Sewerage System in the core city, encompassing 72 wards and covering an area of 51.82 sq.km. Additionally, the initiative seeks to implement a Supervisory Control and Data Acquisition (SCADA) system for the entirety of Madurai City Municipal Corporation (MCMC), covering an expansive area of 147.99 sq.km. The project scope involves a thorough assessment of the current sewage collection, conveyance, treatment, and disposal arrangements within the study area. The goal is to identify environmentally and socially acceptable, cost-effective, and efficient solutions. The ensuing steps include the preparation of detailed engineering designs, contract packages, bidding documents, and an implementation plan for the proposed solutions. Recommendations on institutional arrangements for effective implementation, monitoring, and sustained operation and maintenance in alignment with the National Urban Sanitation Policy will be sought. Moreover, the project aims to devise sequential implementation plans for individual components, minimizing disruption to existing systems and ensuring minimal disturbance to the public. The overarching vision includes the establishment of a Centralized Monitoring System equipped with SCADA for comprehensive monitoring of the sewerage system across the entire MCMC area, involving an estimated total cost of 1,359.23 crores.

8.2.2.3. Proposals under Swachh Bharat Mission

The Swachh Bharat Mission proposes the construction of 7 community toilets at a cost of 175 lakhs, focusing on providing sanitation facilities to local communities. Additionally, there are plans for 5 public toilets at a budget of 165 lakhs, contributing to improved public hygiene infrastructure. Furthermore, the proposal includes the establishment of 5 urinals with a budget of 8.5 lakhs, aiming to address the basic sanitation needs of the public.

The following table shows the progress in the work.

Table 8-13: List of ongoing projects and their status

Sl. No	Category	Sanctioned (Nos)	Est. Cost (Rs. In Lakh	Exp. (Rs. In Lakhs)	Completed (Nos)	Progress (Nos)	Remarks
1	Community Toilet	7	175.00	103.36	6	1	SMP Colony - Lintel level work will be complete by 30.12.23
2	Public Toilet	5	165.00	93	4	1	Jhansi Rani - Tiles work in progress complete by 15.12.23
3	Urinal	5	8.50	7.75	5		

Source: Madurai Corporation

8.2.3. Sanitation in Municipalities

8.2.3.1. Tirumangalam Municipality:

The municipality currently operates an Underground Sewerage System (UGSS) network with a total length of 16.2 kilometers. However, it lacks a Sewage Treatment Plant (STP) facility, relying on a 40 KLD (Kiloliters per day) Faecal Sludge Treatment Plant (FSTP). Through detailed analysis, it has been determined that the demand for sewage treatment capacity far exceeds the current capability, with a requirement of 6 MLD (Million Liters per day) for effective wastewater management.

Despite the absence of an STP, the municipality has taken a step towards sanitation with a 40 KLD FSTP. The analysis underscores the pressing need for substantial investment and expansion in sewage treatment infrastructure to meet the growing demands of the municipality. Additionally, the municipality boasts a total of 89 female toilet seats and 86 male toilet seats, indicating a focus on gender-inclusive sanitation facilities.

Table 8-14: Toilet details

S. No.	Location	Nos. of Seats		
		Female	Male	Total
1	Palniyapuram	5	0	5
2	Anna Nagar (SBM)	4	4	8
3	Jawahar Nagar	4	4	8
4	Bus stand	7	6	13
5	Bus stand (Free)	4	4	8
6	Railway feeder Road	4	4	8
7	Munsif court Road	7	7	14
8	Sweeper Colony	3	5	8
9	Rajaji Street	4	4	8
10	M.G.R Nagar	5	3	8
11	Senkulam (SBM)	6	4	10
12	Senkulam Arunthathiyar St	4	4	8
13	Venkadasamuthiram	2	1	3
14	Venkadasamuthiram (SBM)	5	4	9
15	Santhaipettai	4	4	8
16	Manmathankoil St	8	8	16
17	Valayakara St	3	3	6
18	Keelapallivasal St	0	7	7
19	P.T Rajan St	5	5	10
20	South St	5	5	10

Source: Tirumanagalam Municipality

8.2.3.2. Melur Municipality:

Melur Municipality currently lacks a Sewage Treatment Plant (STP) facility, and a comprehensive analysis indicates a critical need for sewage treatment infrastructure. With a determined sewage treatment capacity requirement of 4.85 Million Liters per day (MLD), there is an urgent call for strategic investment to bridge the existing gap and ensure effective wastewater management in the municipality. There are 3 public urinals and 10 public toilets. 9,227 houses in the municipality have toilet facility.

Table 8-15: Existing Situation Analysis

Description	Thirumangalam	Melur
Population	56247	45050
Per Capita Norms (LPCD)	135	135
Quantity of Sewage Generated (MLD)	6.07	4.87

Description	Thirumangalam	Melur
Existing STP Capacity in MLD	0.04	0.02
Additional STP Capacity required in MLD	6.03	4.85
Storage Capacity Required in ML	6.03	4.85
Gap in Storage Capacity in ML	6.03	4.85
Land Requirement in Ha	7.54	6.06

8.2.4. Sanitation in Town Panchayats

The collective quantity of sewage generated in the five town panchayats is measured at 7.87 Million Liters per day (MLD). However, none of these town panchayats currently possesses a sewage treatment facility. A thorough analysis has determined that the additional Sewage Treatment Plant (STP) capacity required to accommodate this sewage volume is equivalent to the total generated amount of 7.87 MLD. This underscores the critical necessity for immediate investments and infrastructure development to establish STPs in each town panchayat, aligning with environmental sustainability goals and addressing the pressing need for wastewater management in these areas.

Table 8-16: Existing Situation Analysis - Town Panchayats

Description	Population	Per Capita Norms (LPCD)	Quantity of Sewage Generated (MLD)	Existing STP Capacity in MLD	Additional STP Capacity required in MLD	Storage Capacity Required in ML	Gap in Storage Capacity in ML	Land Requirement in Ha
Town panchayats	1,09,244	90	7.87	0	7.87	7.87	7.87	9.83

The distribution of households with septic tanks in Alanganallur Town Panchayat, Sholavandan Town Panchayat, and Vadipatti Town Panchayat is presented in the following table.

Table 8-17: Town Panchayats - Houses with Septic Tanks

Name of the TP	House With Septic Tank Connection
Alanganallur Town Panchayat	3,445
Sholavandan Town Panchayat	7,681
Vadipatti Town Panchayat	3,416

Source: Directorate of Town Panchayats

8.2.4.1. Ongoing projects

With the exception of A. Vellalapatti, all other Town Panchayats have taken proactive measures by identifying land for sewage treatment (septic tank wastage). Currently, detailed project reports (DPRs) are in the preparation stage for these initiatives. Specifically, Alaganallur has earmarked 0.54 hectares, Paravai has allocated 50 hectares, and Vadipatti has identified 36 hectares of land for sewage treatment purposes. In the case of Sholavandan Town Panchayat, the required land is already available within its jurisdiction.

8.3. Solid Waste Management

Effective solid waste management is a cornerstone of sustainable urban development, playing a pivotal role in preserving environmental health and promoting community well-being. As urbanization accelerates, the management of solid waste becomes an increasingly complex challenge that demands innovative solutions.

A comprehensive solid waste management system involves not only the efficient collection and disposal of waste but also prioritizes recycling, composting, and waste-to-energy initiatives. By implementing sustainable practices, such as reducing, reusing, and recycling, communities can minimize the environmental impact of waste disposal and conserve valuable resources.

Furthermore, public awareness and participation are integral components of successful waste management, emphasizing the importance of community engagement in fostering responsible waste disposal habits. In navigating the intricate landscape of solid waste management, cities can contribute significantly to a cleaner, healthier environment while working towards a more sustainable and resilient future.

8.3.1. SWM in Madurai Corporation

8.3.1.1. Existing Situation

The Madurai Corporation recognizes the paramount importance of managing municipal solid waste and has designated it as an obligatory function. Municipal solid waste encompasses a broad spectrum, including waste generated from households, markets, commercial establishments, hotels, hospitals, and industries within the town. Oversight of this critical task lies within the purview of the Public Health Department of the corporation, led by the City Health Officer and Assistant Health Officer. These officials bear the responsibility for implementing effective solid waste management strategies. To ensure a systematic and streamlined approach, Madurai is geographically divided into five zones, each covering specific Municipal Wards, totaling 100 in number. This division aids in efficient administration and day-to-day operational management, allowing the corporation to address the diverse waste streams emanating from different sectors of the town. The commitment to waste management underscores Madurai's dedication to maintaining public health and environmental sustainability throughout the community.

8.3.1.2. Quantity of Waste Generation

In Madurai Corporation, the daily generation of Municipal Solid Waste (MSW) ranges from 750 to 800 metric tons, with a per capita waste generation of 450 grams per person per day. The waste landscape includes 548 bulk waste generators, 469 hotels, and two slaughterhouses, contributing to the city's diverse waste profile.

Efficient waste management is evident through the daily collection of 750 MT of waste, involving an impressive 12,860 trips during the month of November 2023. The city allocates 110 acres of land for Solid Waste Management (SWM), with 70 acres specifically designated for the dump yard, incorporating bio-mining processes for environmentally responsible waste disposal.

As part of its commitment to sustainability, Madurai Corporation recycles 11 different materials, emphasizing a circular economy approach to waste management. The city's comprehensive waste management system reflects a holistic strategy that addresses collection, transportation, and environmentally conscious disposal practices.

The table reveals that the current waste generation, aligned with the existing population, exceeds the treatment capacity of the Micro Composting Centre (MCC). The data indicates a deficit, highlighting that the MCC is insufficient to adequately process the generated wet waste. An additional MCC with a capacity of 141.75 MLD is urgently required to address the growing volume of wet waste and ensure effective waste management in accordance with the population's needs.

Table 8-18: Existing situation analysis - Madurai Corporation

Description	Madurai Corporation
Population	17,23,347
Quantity of Solid waste Generated (MT)	861.67
Quantity of Dry Waste Generated (MT)	473.92
Quantity of Wet Waste Generated (MT)	387.75
Existing MCC Capacity in MT	246
Additional MCC Capacity Required in MLD	141.75
Storage Capacity Required in ML	141.75
Gap in Storage Capacity in ML	141.75
Land Requirement in Ha	1.7

8.3.1.3. Collection & Transportation

The corporation employs a diverse fleet for waste collection, including tricycles, BOV (Battery Operated Vehicles), LCV (Light Commercial Vehicles), and specialized Compactor and Dumper bins. Additionally, Compactor vehicles, Dumpers, Tractors, and Tippers are integral to the efficient waste management operations. The details of the available vehicles are listed in the below tables.

Table 8-19: Primary Collection Vehicle & Bins details

Zone	Tricycle	BOV	LCV	Compactor Bins	Dumber Bins
1	119	43	48	273	105
2	111	48	37	195	180
3	118	40	20	202	157
4	80	33	19	56	174
5	119	38	35	0	203
Total	547	202	159	724	819

Source: Madurai Corporation

Table 8-20: Secondary Collection Vehicle details

Zone	Compactor vehicle	Dumper	Tractor	Tipper
1	3	5	5	0
2	1	14	8	2
3	4	13	5	1
4	1	9	5	0
5	0	9	9	1
Total	**9**	**50**	**32**	**4**

Source: Madurai Corporation

Figure 8-9: Collection and Transportation vehicles

Source: Madurai Corporation

The corporation's Key Performance Indicators (KPIs) indicate a shortfall in vehicle availability, necessitating an increase in the fleet. Specifically, there is a need for 81 BOVs, 184 LCVs, and 25 HCVs to meet the established standards and

operational requirements. Addressing this deficiency is crucial for optimizing the corporation's transportation capabilities.

Table 8-21: Solid Waste Management – Privatization Vehicles and Labors Details

Sl. No	Type of Vehicle	Total (As per KPI)	Madurai Corporation	Agency			Remarks
				To be Supplied	Supplied	Balance	
1.	BOV	381	300	81	0	81	Work Started on 17.11.2023 in Zone 1 - 5
2.	LCV	361	127	234	50	184	
3.	HCV	78	48	30	5	25	

Source: Madurai Corporation

The Key Performance Indicators (KPIs) for manpower highlight a shortage in crucial roles, specifically a deficit of 5 sanitary workers, 124 drivers, and 91 sanitary supervisors. Addressing these staffing gaps is essential to ensure efficient operations and meet organizational standards.

Table 8-22: Manpower Details

SL. No	Type of Labours	As per KPI	Supplied	Balance to be supplied
1.	Sanitary Workers	3057	3052	5
2.	Drivers	439	315	124
3.	Sanitary Supervisors	153	62	91
	TOTAL	3649	3429	220

Source: Madurai Corporation

8.3.1.4. Waste Disposal

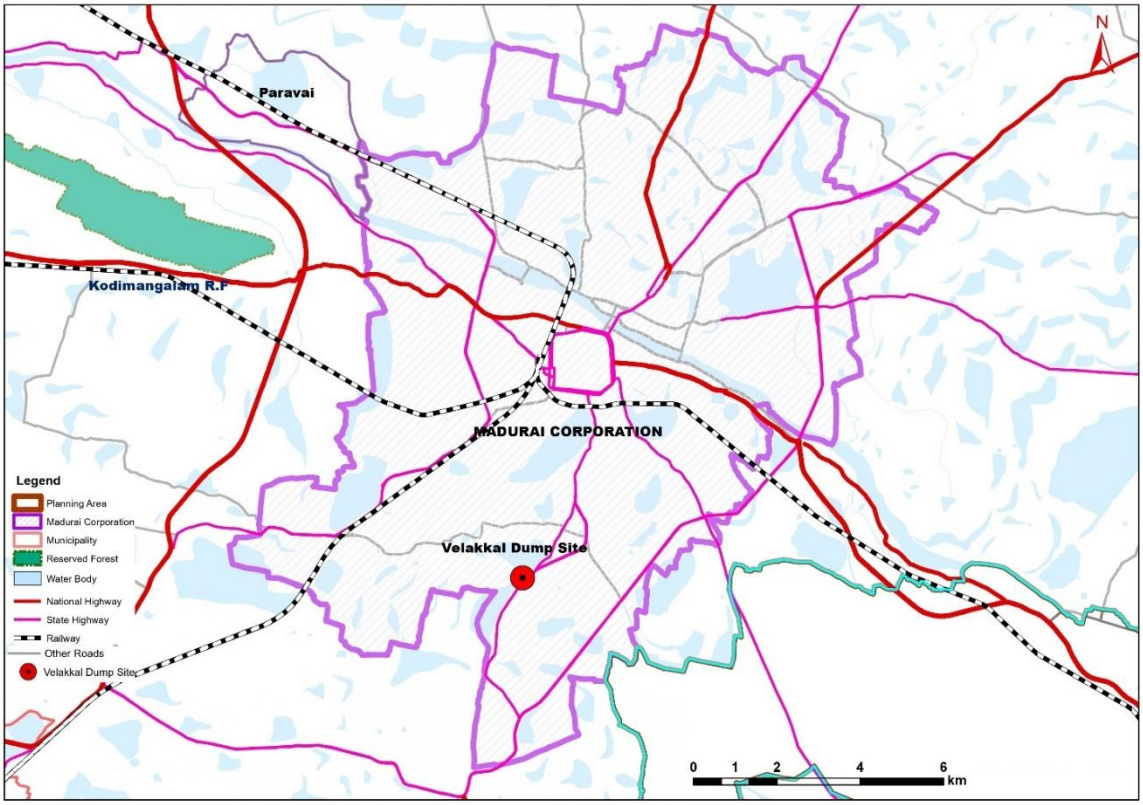
Total capacity of Micro Composting centres available in Madurai Corporation are 246 MT.

Figure 8-10: Waste disposal

Source: Madurai Corporation

8.3.1.5. Land Fill Site

The waste collected from various localities in the city is directly disposed of by open dumping at Velakkal site, located outside the city limit. Solid Waste generated from all sanitary wards is disposal off at this site. The site is located about 10 Km from the city and the total area of the site is 82 Acres.



Map 8-6: Existing solid waste management site in Corporation

Figure 8-11: Landfill site at Velakkal

Source: Madurai Corporation

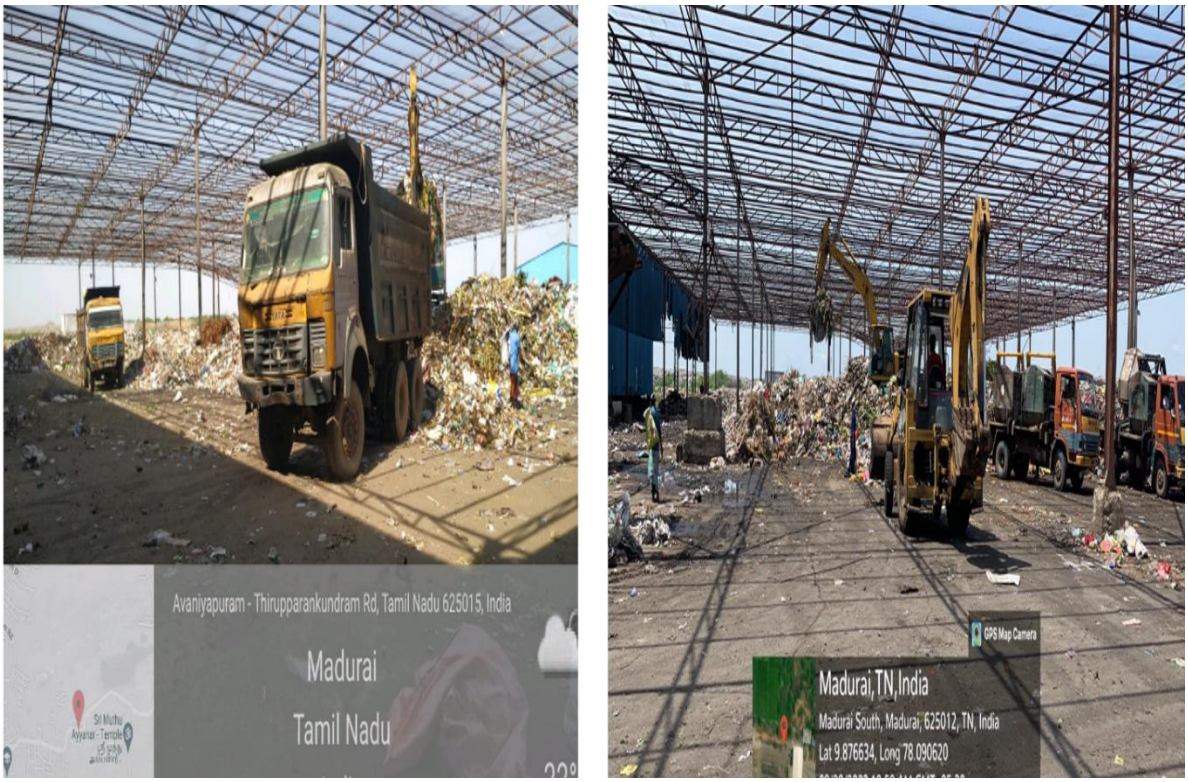


Figure 8-12: Source Segregation and processing

Source: Madurai Corporation

8.3.1.6. Ongoing Projects

The Swachh Bharat Mission proposals include allocating 600 lakhs for the establishment of a C & D Waste facility, aiming to manage construction and demolition waste effectively. Additionally, the implementation of Biomining phase-II at Velakkal, Madurai Corporation, with a budget of 34.95 crores, emphasizes advanced processes for the disposal of existing legacy waste.

The allocation of 3600 lakhs for a Bio-CNG Plant signifies a commitment to sustainable energy production from organic waste. Moreover, the investment of 1,275 lakhs in a Material Recovery Facility (MRF) underscores a systematic approach to recover and recycle valuable materials from the waste stream, contributing to environmental conservation.

8.3.2. SWM in Municipalities

8.3.2.1. Melur Municipality

Melur Municipality is currently collecting a total of 15 metric tonnes of solid waste, of which 8 metric tonnes consist of wet waste. To manage the organic component, the municipality operates one micro composting center with a capacity of 4 metric tonnes, facilitating the efficient processing of organic waste through composting.

In addition to general waste, the municipality is involved in the collection and management of specialized waste streams, including Electronic Waste (E-waste), Construction and Demolition Waste (C&D Waste), Hazardous Waste, and Inert Waste.

In Melur, Karuthapuliampatti village, a 7.45-acre land has been procured for the Solid Waste Management Project, funded through the Solid Waste Management Fund. The ongoing development of internal infrastructure at this site is geared towards facilitating composting operations once completed. At present, a Material Recovery Facility (MCC) with a 4-tonne capacity is operational at Santhaipetai, actively involved in composting activities. The city's sanitary works are efficiently managed through a fleet of 15 BOVs, 4 LCVs, 2 Tipper tractors, 1 Dumper Blazer, and 1 Tipper lorry, ensuring effective waste collection and disposal logistics.

Moreover, in Melur Municipality, 219 households are actively practicing home composting, contributing to decentralized waste management. Notably, the municipality has successfully sold 92 metric tonnes of manure free of cost from September 1 to September 15, 2023. Additionally, the municipality has demonstrated environmental responsibility by disposing of 840 metric tonnes of non-saleable plastics to Dalmiya Cement Factory in Ariyalur from January 1 to August 31, 2023.

8.3.2.2. Tirumangalam Municipality

The municipality is actively involved in waste management, currently collecting a total of 18.9 metric tonnes of waste, with a significant portion, 10.96 metric tonnes, attributed to wet waste. To address the organic component, the municipality operates three micro composting centers, each with a capacity of 12 metric tonnes. This infrastructure facilitates the efficient processing of organic waste through composting.

In addition to general waste, the municipality is also engaged in the collection and management of specialized waste streams. This includes Electronic Waste (E-

waste), Construction and Demolition Waste (C&D Waste), Hazardous Waste, and Inert Waste.

In Tirumangalam Municipality, 15 households actively practice home composting, promoting decentralized waste management. The municipality has distributed 216 metric tonnes of manure free of cost, showcasing a sustainable use of organic waste for agricultural purposes. Additionally, the municipality is dedicated to plastic waste management, having collected 461 metric tonnes. To ensure responsible disposal, non-saleable plastics are sent to Dalmiya Cement Factory in Ariyalur.

Table 8-23: Present status of solid waste management in Municipalities

Name of the Municipality		Tirumangalam	Melur
Total Waste generation (MT/day)		18.9	15
Total quantity of wet waste collected (MT/day)		10.96	8
No. and capacity of MCC		3 MCC- 12 MT	1 MCC -4 MT
Any gap in MCC for complete processing		-	2MT processed in OCC (1MCC -5 MT Under Construction)
Quantity of dry waste (MT/day)	Recycled	1.62	2
	Non-recyclable	4.16	3.5
Quantity of E-waste collected (MT/day)		0.28	0.43
Whether adequate arrangements made for the collection of C and D waste		Yes	Yes
Quantity of domestic hazardous waste collected (MT/day)		0.48	0.07
Inert Materials Collected (MT/day)		1.4	1

Source: Regional Directorate of Municipal Administration

The analysis indicates an insufficiency in the existing Material Recovery Facility (MCC) capacities to adequately treat the generated waste. Specifically, Tirumangalam Municipality requires an additional MCC capacity of 0.66 MLD, while Melur Municipality requires a more substantial increase of 6.14 MLD. This underscores the imperative need for infrastructure expansion to address the growing waste management demands in these areas.

Table 8-24: Existing situation analysis - Municipalities

Description	Tirumangalam	Melur
Population	56247	45050
Quantity of Solid waste Generated (MT)	28.12	22.53
Quantity of Dry Waste Generated (MT)	15.47	12.39
Quantity of Wet Waste Generated (MT)	12.66	10.14
Existing MCC Capacity in MT	12	4
Additional MCC Capacity Required in MLD	0.66	6.14
Storage Capacity Required in ML	0.66	6.14
Gap in Storage Capacity in ML	0.66	6.14
Land Requirement in Ha	0.01	0.07

8.3.3. SWM in Town Panchayats

In the Local Planning Area (LPA), all town panchayats, with the exception of A. Vellalapatti, have achieved a commendable 100% door-to-door waste collection and source segregation. A. Vellalapatti is slightly behind with a 96% rate, indicating a high level of community participation in waste management practices. Additionally, all town panchayats within the LPA possess available land for the processing of solid waste.

Table 8-25: Present status of solid waste management in Town Panchayats

ULB Name	A.Vellalapatti	Alanganallur	Paravai	Sholavandan	Vadipatti
Door to Door Collection %	96%	100%	100%	100%	100%
Source segregation %	96%	100%	100%	100%	100%
Total waste generated (TPD)	2.42	2.7	5.84	6.23	8.75
Wet waste (TPD)	1.33	1.49	3.39	3.24	4.82
Dry waste (TPD)	0.91	1.02	2.02	2.55	3.3
Hazardous waste (TPD)	0.07	0.07	0.17	0.16	0.24

ULB Name	A.Vellalapatti	Alanganallur	Paravai	Sholavandan	Vadipatti
E waste (TPD)	0.02	0.03	0.06	0.06	0.09
Silt (TPD)	0.08	0.09	0.2	0.22	0.31
Whether Land available to process Solid Waste	Yes	Yes	Yes	Yes	Yes

Source: Directorate of Town Panchayat

The detailed analysis reveals a substantial need for additional Material Recovery Facility (MCC) capacity in town panchayats, totalling 24.58 MLD. This underscores the imperative for infrastructure expansion to effectively manage and process the increasing volume of waste generated in these areas.

Table 8-26: Existing situation analysis - town panchayats

Description	Population	Quantity of Solid waste Generated (MT)	Quantity of Dry Waste Generated (MT)	Quantity of Wet Waste Generated (MT)	Existing MCC Capacity in MT	Additional MCC Capacity Required in MLD	Storage Capacity Required in ML	Gap in Storage Capacity in ML	Land Requirement in Ha
Town panchayats	1,09,244	54.62	30.04	24.58	0	24.58	24.58	24.58	0.29

8.3.3.1. Ongoing projects

Windrow composting facilities have been successfully implemented in Alanganallur, Paravai, and Sholavandan Town Panchayats. Accomplishments also include the completion of Resource Recovery Centers in Alanganallur and Paravai, with ongoing development in Vadipatti, A. Vallalapatti, and Sholavandan Town Panchayats, reflecting a dedicated effort towards advancing waste management

practices and resource utilization in these regions. The details are shown in the below table.

Table 8-27: Ongoing projects in Town Panchayats

Year	19-20	22-23	22-23	22-23
Name of the Town Panchayat	Alanganallur	Alanganallur	Sholavandan	Vadipatti
Quantity (Cu.m)	3186	1029	10393	2507
Quantity (MT)	2548.8	823.2	8314.4	2005.6
Amount (Rs in Crore)	0.21	0.05	0.46	0.11
Qty removed so far (Cu.m)	3186	0	0	0
% of completion	100	0	0	0
Current Status	Completed	Work Order Issued	Work Order Issued	Work Order Issued
Expenditure (In Crore)	0.21	0	0	0
Probable date of Completion	-	31.01.24	31.01.24	31.01.24

Source: Directorate of Town Panchayat

8.3.4. SWM in Village Panchayats

The current analysis indicates a total waste generation of 349 metric tonnes in the LPA. Notably, none of the village panchayats within the LPA are equipped with Material Recovery Facility (MCC) facilities.

Recognizing the substantial need, there is a requirement for an additional MCC capacity of 157 MLD to address the growing waste management demands in these village panchayats.

Table 8-28: Existing situation analysis - Village Panchayats

Description	Villages
Population	6,98,054
Quantity of Solid waste Generated (MT)	349.03
Quantity of Dry Waste Generated (MT)	191.96
Quantity of Wet Waste Generated (MT)	157.06
Existing MCC Capacity in MT	0
Additional MCC Capacity Required in MLD	157.06

Description	Villages
Storage Capacity Required in ML	157.06
Gap in Storage Capacity in ML	157.06
Land Requirement in Ha	1.88

8.4. Storm Water Drain

Stormwater drainage is a critical facet of urban infrastructure designed to manage the excess water generated during rainfall and prevent potential flooding or waterlogging. This system comprises a network of channels, drains, and basins strategically positioned to collect and redirect rainwater away from urban areas, minimizing the risk of damage to infrastructure and safeguarding public safety. Effective stormwater drainage helps control erosion, reduce the likelihood of surface water pollution, and ensures the resilience of urban landscapes in the face of extreme weather events. Integrating sustainable practices such as green infrastructure, permeable pavements, and retention basins into stormwater management systems enhances their capacity to absorb and naturally filtrate rainwater, contributing to the overall sustainability and environmental health of urban areas. As climate change intensifies the frequency and severity of storms, resilient stormwater drainage systems are increasingly vital for fostering safe and livable cities.

8.4.1. Existing Situation in Madurai Corporation

The overall stormwater drainage in Madurai study area is divided into two main zones (i.e Northern zone and Southern zone) as the river Vaigai passes through the center of the city. The flow from the total northern zone is sloped into the Vaigai river including the contribution from the outer periphery catchments. In the southern zone, the river Vaigai will be at the higher elevation sloped towards the southern periphery of the corporation area. The major detention water bodies for the disposal of the flow into river Vaigai are Sellur Konmai and Vandiyur Konmai in the Northern zone, after attaining the maximum water levels in the respective tanks, it is bypassed to Vaigai River. The east and north zones will have a major outfall into Vaigai river, southern part west, south, and central the slopes outside the Madurai in southern direction starting from Vaigai river and contributing to Avaniapuram Lake and Samanatham Peria Kanmai and few locations adjacent to the river Vaigai is directly connected. The total catchment area of the Northern zone is 61.28 Sq.km and Southern zone is 81.02 Sq.km.

The flood history of Madurai is marked by significant events, with December 1993 being particularly memorable. However, the city experienced its earliest

recorded flood in December 1677, leading to the sweeping away of many huts in the surrounding villages. The 1993 flood, triggered by severe cyclonic storms, saw the release of about one lakh cusecs of water into the Vaigai, causing breaches and inundating areas in the north, notably affecting Sellur Konmai. Subsequent floods in 1992 and 2002 prompted corrective measures by the Madurai Corporation, including de-silting stormwater canals and addressing encroachments. In October 2017, heavy rains once again impacted Madurai, causing flooding and stagnation of rainwater due to blockages in drainage canals.

The stormwater drainage system in Madurai Corporation spans a total length of 896.25 kilometres, with various types of drains as detailed in the accompanying table.

Table 8-29: Madurai Corporation drainage details

Type of drain	Length (Km)
Pucca-Open	514
Pucca-Closed	117
Kutcha	265.25

Source: Madurai Corporation

Water logging has been identified at four locations, including Sellur Kanmoi Surround, Thamirabarani Veethi, Aathikulam Kanmoi Surround, and Vandiyur Kanmoi Surround. Present challenges encompass the absence of connections between lateral drains and major drains, along with the accumulation of garbage in close proximity to drains and culverts, exacerbating the water drainage issues. Addressing these concerns is crucial for effective stormwater management in the identified areas.

The accompanying map illustrates the ward wise distribution of roads with stormwater drains, revealing a noticeable deficiency in drainage coverage within the central core area. Rectifying this gap is essential to enhance the overall effectiveness of stormwater management infrastructure in the region.

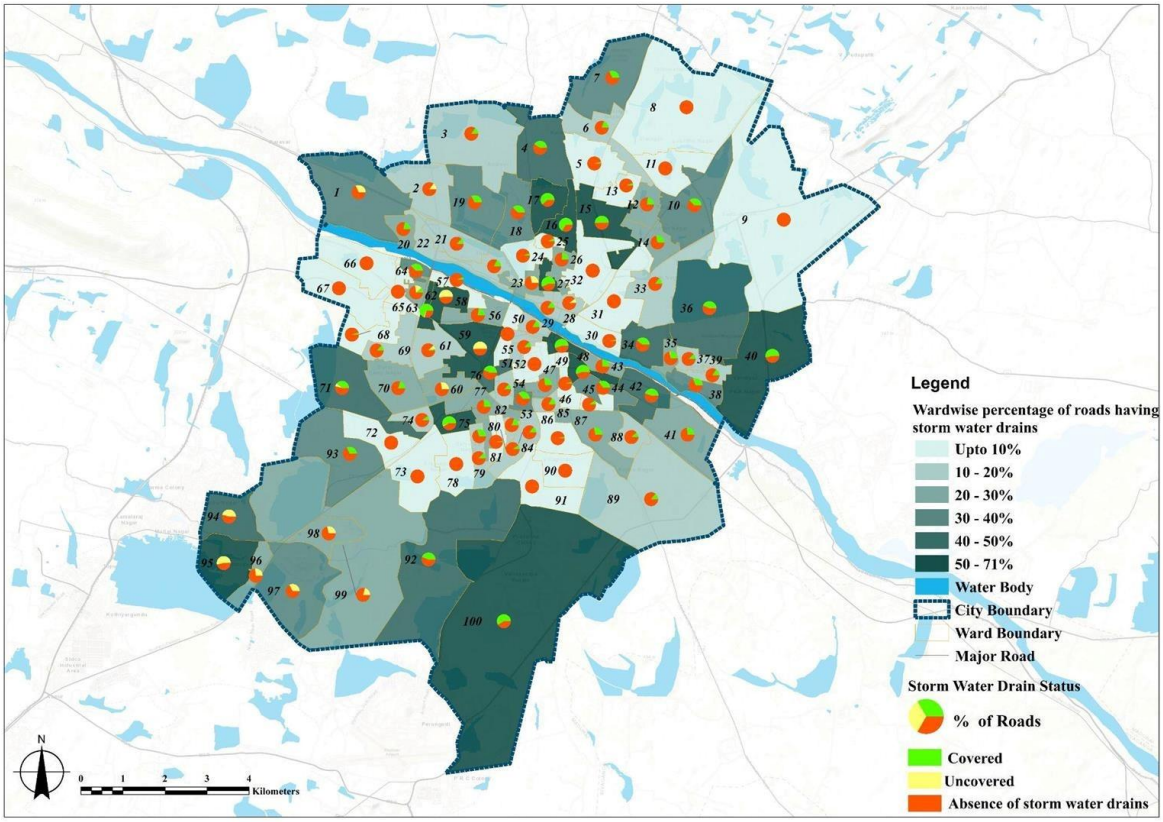


Figure 8-13: Ward wise distribution of roads with stormwater drains.

Source: Madurai Corporation

The provided figure displays the Drainage and Stream Order, revealing the presence of three significant fifth-order drains within the corporation limits. This analysis indicates a robust drainage network with multiple streams, emphasizing the importance of these major drains in efficiently managing stormwater runoff.

Understanding and optimizing the flow patterns in these fifth-order drains is essential for comprehensive and effective stormwater management within the corporation limits.

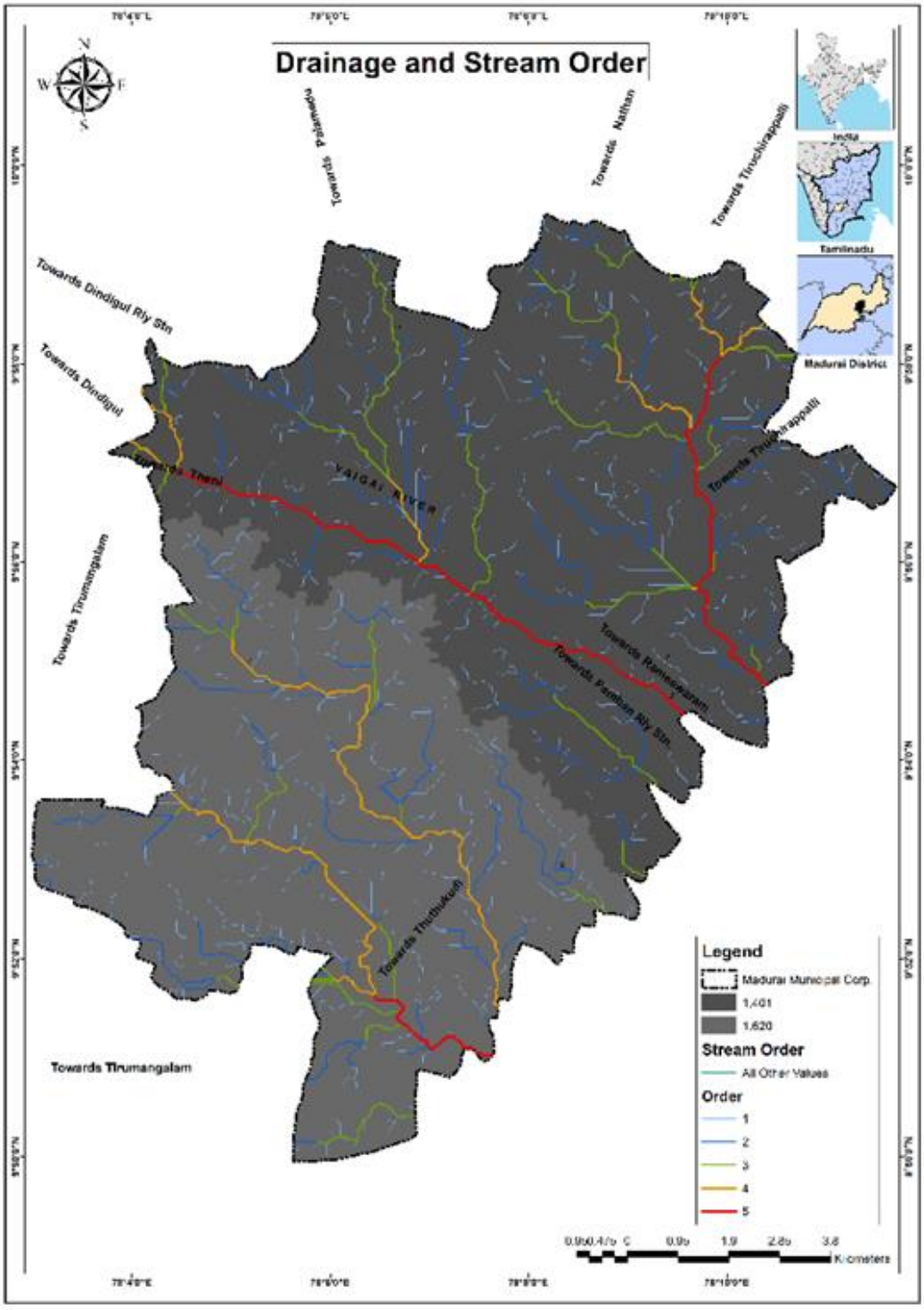


Figure 8-14: Drainage and Stream Order

Source: Madurai Corporation

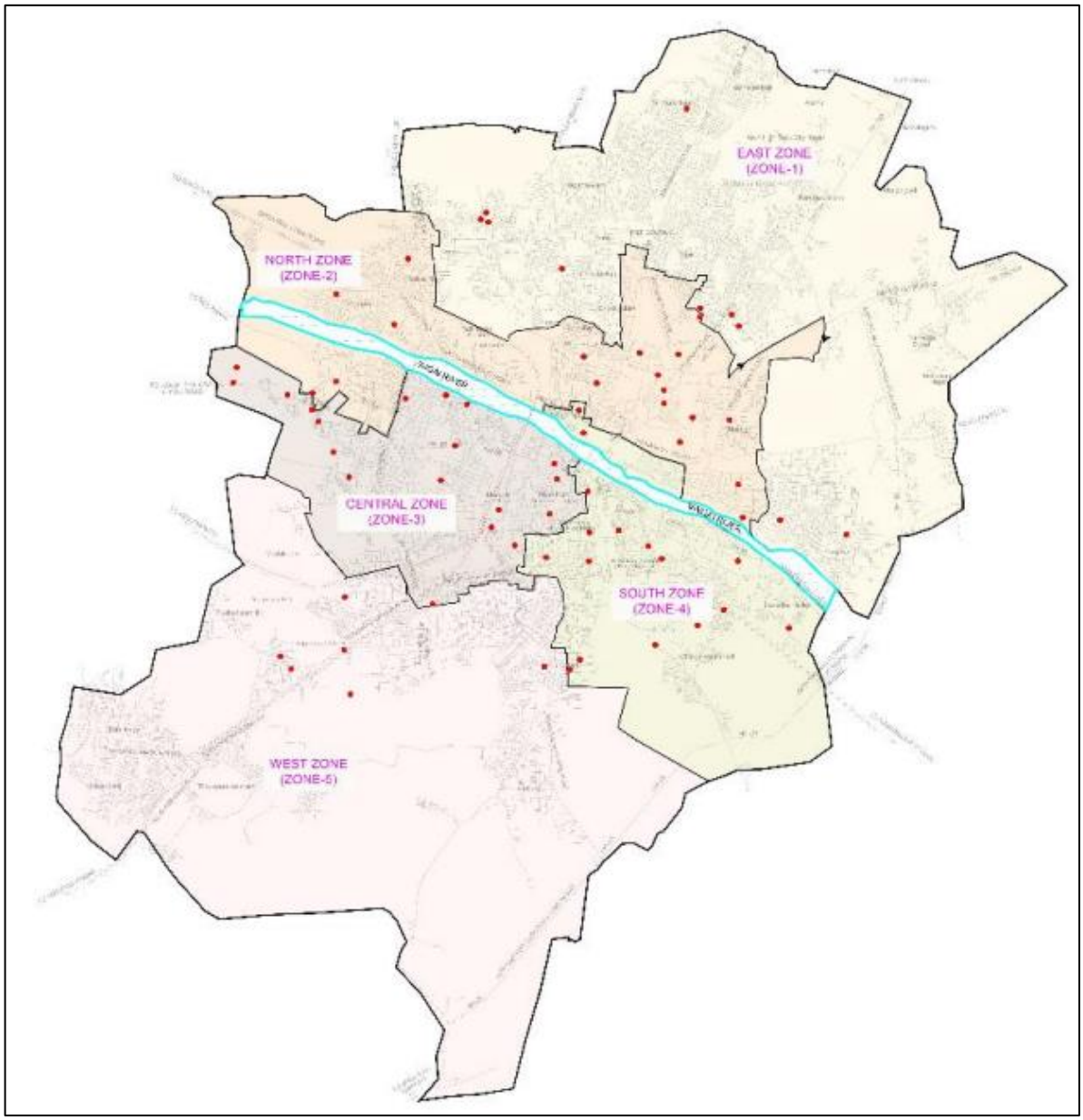


Figure 8-15: Flood Hot spots in Madurai Corporation

Source: Directorate of Town Panchayat

The presented map highlights flood hotspots within Madurai Corporation, with a notable concentration in the core area, primarily influenced by the proximity of the Vaigai River. The core region, in close vicinity to the river, experiences a higher number of flood-prone areas due to the river's potential impact on local drainage dynamics.

8.4.1.1. Major issues

The current drainage system faces significant challenges, including insufficient coverage of the secondary and tertiary drain network, impacting the overall stormwater management. The hydraulic capacity of State Highway (SH) and Roads and Buildings (R&B) drain sections within sub-catchments is often inadequate, leading to potential drainage inefficiencies. Blockages in drain inlets contribute to system disruptions and increased flood risks. Encroachments within the core areas of the city, particularly by commercial establishments, compromise the integrity of the drain sections. Furthermore, the independent development of corporation roads without proper integration with drain slopes disrupts water flow and exacerbates drainage issues. Irregular maintenance, both before and after monsoon seasons, poses a risk to the drainage system's functionality. Newly developed areas lack sufficient coverage in the drainage network, intensifying vulnerabilities in managing stormwater runoff. Addressing these issues is crucial for enhancing the resilience and effectiveness of the city's drainage infrastructure.

8.4.1.2. Ongoing projects

Preparation of Detailed Project Report (DPR) for Providing Integrated Storm Water Drains (ISWD) in Madurai City Municipal Corporation

The scope of work for the Storm Water Drainage project involves a comprehensive review and integration of existing, ongoing, or proposed projects related to stormwater drainage. This includes conducting detailed topographical and leveling surveys for the project area, followed by hydraulic analysis utilizing standard computer modeling software for water bodies and waterways. The consultant is tasked with providing realistic and effective technical solutions, aligning with social, economic, environmental, and institutional acceptance. The examination of feasibility includes innovative approaches suggested in the CPHEEO Manual on Storm Water Drainage Systems. The design of micro drains (collector & feeder) considers 1 in 2-year to 1 in 5-year return period design storms. Investment planning alternatives and phasing, adhering to timeframes and available funds, are critical aspects. The consultant is also responsible for risk assessment, classification, and adherence to the World Bank Environmental and Social Framework. Additionally, the preparation of Standard Operating Procedures for stormwater drains aligns with MoUD guidelines, CPHEEO O&M manual on SWD, and NDMA Guidelines on Management of Urban Flooding. Finally, the consultant will develop Bill of Quantities (BoQ), Estimate Provisions, and Bid Documents for the project.

8.4.2. Existing Situation in Municipalities

In Tirumangalam municipality, the stormwater drainage system is delineated into Pucca-Open, Pucca-Closed, and Kutcha drains, with lengths measuring 44.24, 2.63, and 4.7 units, respectively. This comprehensive network, totaling 51.57 units, underscores the municipality's efforts to manage stormwater efficiently through various types of drainage structures, addressing both open and closed drainage needs. The total length of drainage in Melur municipality is 24.47 KM.

Table 8-30: Drainage details of Municipalities

Sl. No.	Name of the Municipality	Type of drain	Length (KM)
1	Tirumangalam	Pucca-Open	44.24
		Pucca-Closed	2.63
		Kutcha	4.7
		Total Length of drain	51.57
2	Melur	Total Length of drain	23.47

Source: Tirumangalam and Melur Municipality

8.4.3. Existing Situation in Town Panchayats

The stormwater drainage details for town panchayats in Alanganallur, Paravai, Sholavandan, and Vadipatti illustrate diverse approaches to managing water runoff. Alanganallur features a balanced combination of Pucca and Kutcha drains, with respective lengths of 11.448 and 19.452 units, contributing to a total drain length of 30.9 units. Paravai displays a comprehensive stormwater drainage system, emphasizing both Pucca (20.942 units) and Kutcha (22.749 units) drains, resulting in a total drain length of 43.691 units. In Sholavandan, Pucca drains dominate the infrastructure, covering 29.456 units, complemented by Kutcha drains measuring 5.294 units, contributing to a total length of 34.75 units. Vadipatti town heavily relies on Pucca drains, spanning 38.66 units, along with Kutcha drains measuring 4.04 units, resulting in a combined drain length of 42.7 units. These variations highlight the tailored stormwater management strategies implemented in each town panchayat, catering to local topography and infrastructure needs.

Table 8-31: Drainage details of Town Panchayats

Sl. No.	Name of Town Panchayat	Type of drain	Length (KM)
1	Alanganallur	Pucca	11.448
		Kutcha	19.452
		Total Length of drain	30.9
2	Paravai	Pucca	20.942
		Kutcha	22.749
		Total Length of drain	43.691
3	Sholavandan	Pucca	29.456
		Kutcha	5.294
		Total Length of drain	34.75
4	Vadipatti	Pucca	38.66
		Kutcha	4.04
		Total Length of drain	42.7

Source: Directorate of Town Panchayat

8.5. Electricity

Energy is the lifeblood of modern civilization, powering homes, industries, and the myriad technologies that shape our daily lives. As societies continue to evolve, the demand for energy grows, prompting a crucial shift towards sustainable and renewable sources. Harnessing energy from sunlight, wind, water, and other environmentally friendly avenues is becoming increasingly vital in mitigating the impact of climate change. The transition to cleaner energy sources not only addresses environmental concerns but also fosters energy security and resilience.

Technological advancements, such as solar panels, wind turbines, and smart grid systems, are revolutionizing the energy landscape, offering efficient and eco-friendly alternatives to traditional fossil fuels.

In the pursuit of a more sustainable future, the responsible generation and consumption of energy stand as paramount considerations, driving a global commitment to reduce carbon footprints and ensure a cleaner, more resilient planet for future generations.

Tamil Nadu Electricity Board (TNEB) has a total installed capacity of 10,214 MW. This includes shares from the State government, Central government and Independent power generators also. The Tamil Nadu Generation and Distribution Corporation Limited

(TANGEDCO) is the operating body of electric generation to distribution in the state. It operates multiple Hydel power projects, nuclear plants and thermal power plants for power generation. It is also one of the leading renewable energy producers from solar plants and wind farms.

8.5.1. Source of Supply

In Madurai district, the domestic sector stands as the predominant electricity consumer, accounting for 53% of the total consumption. Following closely are the commercial and industrial sectors, contributing significantly to the overall electricity usage. Interestingly, the agricultural sector consumes comparatively less electricity in the district. Following table shows the sector wise consumption of electricity.

Table 8-32: Sector wise consumption of electricity, 2021-22

Sl. No.	Sector	High / Low Tension	Consumption (in lakh of unit) METRO	% of the Consumption	Consumption (in lakh of unit) MEDC	% of the Consumption
1	Industries	High Tension	118.43	28.02	138.99	83.12
		Low Tension	112.49	8.75	127.26	14.85
2	Agriculture	High Tension	0	0	0	0
		Low Tension	0.37	0.03	8.9	1.04
3	Domestic	High Tension	0	0	0	0
		Low Tension	900.19	70	543.67	63.44
4	Commercial	High Tension	199.79	47.28	9.67	5.78
		Low Tension	240.18	18.68	97.36	11.36
5	Public Lighting	High Tension	96.36	22.8	0	0
		Low Tension	17.95	1.4	63.39	7.4
6	Sales to License		0	0	0	0
7	Sales to Other State		0		0	0

Sl. No.	Sector	High / Low Tension	Consumption (in lakh of unit) METRO	% of the Consumption	Consumption (in lakh of unit) MEDC	% of the Consumption
8	Miscellaneous (Educational Institutions)	High Tension	8.01	1.9	18.56	11.1
		Low Tension	15.35	1.19	16.41	1.91
TOTAL		High Tension	422.59	100	167.22	100
		Low Tension	1286.53	100	856.99	100

Source: District Hand Book 2021-22

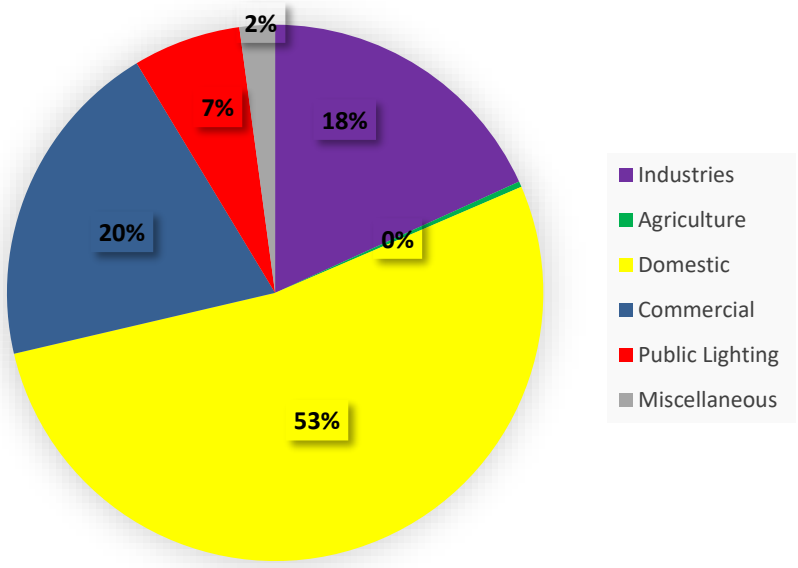


Figure 8-16: Percentage of consumption of electricity, 2021-22

Source: District Hand Book 2021-22

Madurai district experiences a total instantaneous peak demand of 588.15 MW, reflecting the maximum power requirement at any given moment. In contrast, the sustained peak demand, which represents a more prolonged high-demand scenario, is slightly lower at 453.78 MW.

Table 8-33: Peak Demand 2021-22

Sl. No.	Power Demand	Metro (in MW)	MEDC (in MW)	Total (MW)
1	Instantaneous peak demand	280	308.15	588.15
2	Sustained peak demand	187	266.78	453.78

Source: District Hand Book 2021-22

Following two tables showing the existing capacity of transformers in Madurai district

Table 8-34: Capacity of Transformers 2021-22 - Metro

Sl. No	Name of the Stations/ Sub Stations	Capacity	Capacity in MVA
1	110/33-11KV ARASARADI	110/11	16 MVA X 3 NOS
		110/33	16 MVA X 1 NOS
		110/33	25 MVA X 1 NOS
2	110/33-11KV ANUPPANADI	110/11	16 MVA X 2 NOS
		110/33	16 MVA X 2 NOS
3	110/33-11KV VILLAPURAM	110/11	16 MVA X 2 NOS
		110/33	16 MVA X 1 NOS
			25 MVA X 1 NOS
4	110/33-11KV INDUSTRIAL ESTATE	110/11	16 MVA X 2 NOS
		110/33	16 MVA X 2 NOS
5	110/33-11KV THIRUPPALAI	110/11	16 MVA X 2 NOS
		110/33	16 MVA X 3 NOS
6	110/33-11KV ANAIYUR	110/11	10 MVA X 2 NOS
7	110/33-11KV AVANIYAPURAM	110/11	10 MVA X 2 NOS
8	110/33-11KV ELLISNAGAR	110/11	10 MVA X 2 NOS
9	110/33-11KV VANDIYUR	110/11	10 MVA X 2 NOS
10	33-11KV ARAPPALAYAM	33/11	8 MVA X 2 NOS

Sl. No	Name of the Stations/ Sub Stations	Cap acity	Capacity in MVA
11	33-11KV KOIL	33/11	8 MVA X 2 NOS
12	33-11KV MAHALIPATTI	33/11	8 MVA X 3 NOS
13	33-11KV SUBRAMANIYAPURAM	33/11	8 MVA X 2 NOS
14	33-11KV TEPPAM	33/11	8 MVA X 3 NOS
15	33-11KV ANNA BUS STAND	33/11	16 MVA X 2 NOS
16	33-11KV K.PUDUR	33/11	16 MVA X 2 NOS
17	33-11KV MG NAGAR	33/11	8 MVA X 2 NOS
18	110/33-11KV PASUMALAI	110/11	16 MVA X 2 NOS
19	110/33-11KV ILANTHAIKULAM	110/11	16 MVA X 2 NOS

Source: District Hand Book 2021-22

Table 8-35: Capacity of Transformers 2021-22 - MEDC

Sl. No.	Name of the Stations / Sub Stations	Cap acity	MVA
1	110/33-11 KV T.Kallupatti	110/11	10 MVA X 2Nos
		110/ 33	16 MVA X 1 Nos
2	110/33-11 KV Manickampatti	110/11	10 MVA X 2 Nos
		110/ 33	16 MVA X 1 Nos
3	110/33-11 KV Chinnakattalai	110/11	10 MVA X 1 Nos
		110/ 33	25 MVA X 1 Nos
4	110/33-11 KV Elumalai	110/11	10 MVA X 2 Nos
		110/ 33	16 MVA X 1 Nos
5	110/33-11 KV Vadipatti	110/11	10 MVA X 2 Nos
		110/ 33	16 MVA X 1 Nos
6	110/33-11 KV Usilampatti	110/33	16 MVA X 2Nos
		110/ 11	25 MVA X 1 Nos
7	110/33-11 KV Kinnimangalam	110/33	25 MVA X 1 Nos
		110/ 11	10 MVA X 2 Nos

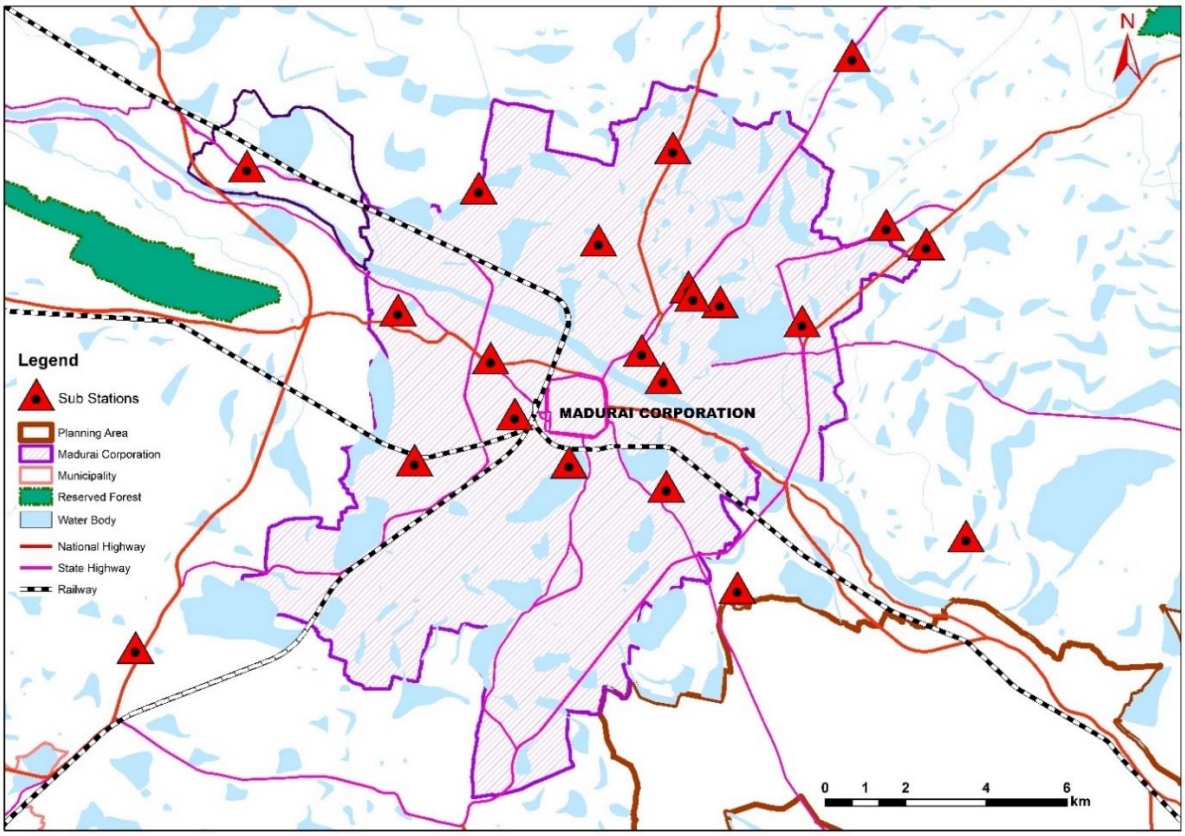
Sl. No.	Name of the Stations / Sub Stations	Capacity	MVA
		110/33	16 MVA X 1 Nos
8	110/33-11 KV Nattamangalam	110/33	16 MVA X 1 Nos
		33/11	8 MVA X 2 Nos
9	110/33/11 KV Valandur	110/33	16 MVA X 1 Nos
		33/11	8 MVA X 2 Nos
10	110/11 KV Thirumangalam	110/11	10 MVA X 1 Nos, 16 MVA X 1 Nos
11	110/11 KV Kappalur	110/11	16 MVA X 3 Nos
12	110/11 KV Narasingampatti	110/11	16 MVA X 2 Nos
13	110/33 KV Narasingampatti	110/33	25 MVA X 2 Nos
14	110/11 KV Mellur	110/11	10 MVA X 2 Nos
15	110/11 KV Kottampatty	110/11	16 MVA X 1 Nos
16	110/11 KV Thaniyamangalam	110/11	10 MVA X 2 Nos
17	110/11 KV Othakadai	110/11	10 MVA X 1 Nos
18	110/11 KV Samayanallur	110/11	16 MVA X 1 Nos
		110/11	10 MVA X 1 Nos
19	110/11 KV Sholavanthan	110/11	16 MVA X 1 Nos
		110/11	10 MVA X 1 Nos
20	110/11 KV Mundikundu	110/11	10 MVA X 2 Nos
21	110/11 KV Achampathu	110/11	10 MVA X 2 Nos
22	110/11 KV Alagarkovil	110/11	10 MVA X 1 Nos
23	110/11 KV Uranganpatty	110/11	10 MVA X 2 Nos
24	33/11 KV Kalligudi	33/11	8 MVA X 1 Nos

Sl. No.	Name of the Stations / Sub Stations	Capacity	MVA
25	33/11 KV Saptur	33/11	8 MVA X 2 Nos
26	33/11 KV T.Kunnathur	33/11	8 MVA X 1 Nos
27	33/11 KV Peraiyur	33/11	8 MVA X 1 Nos
28	33/11 KV A. Vallalapatti	33/11	8 MVA X 2 Nos
29	33/11 KV Melavalavu	33/11	8 MVA X 1 Nos
30	33/11 KV Thiruvathavur	33/11	8 MVA X 1 Nos
31	33/11 KV Valayankulam	33/11	8 MVA X 1 Nos
32	33/11 KV Panaiyur	33/11	8 MVA X 2 Nos
33	33/11 KV Vickramangalam	33/11	8 MVA X 2 Nos
34	33/11 KV Alanganallur	33/11	8 MVA X 2 Nos
35	33/11 KV Ayyankottai	33/11	8 MVA X 2 Nos
36	33/11 KV Thummakundu	33/11	5 MVA X 2 Nos
37	33/11 KV T.Krishnapuram	33/11	8 MVA X 2 Nos
38	33/11 KV Edayapatti	33/11	8 MVA X 2 Nos
39	33/11 KV A.Kokulam	33/11	8 MVA X 1 Nos
40	33/11 KV Mangalarevu	33/11	8 MVA X 1 Nos
41	33/11 KV Ramanathapuram	33/11	8 MVA X 1 Nos
42	33/11 KV Kondayampatty	33/11	8 MVA X 2 Nos

Source: District Hand Book 2021-22

8.5.2. Madurai Local Planning Area

Madurai is divided into four Electrical zonal divisions namely- North, South, East and West. There are a total of 13 substations located within the Madurai Metro Area (MMC) with 5 newly proposed smaller substations. The capacity of these sub-stations ranges from 230kV to 110 kV (6 no) and others with 33 kV. From these substations the electricity supply to the whole Madurai Municipal area is being supplied. Madurai metro Region receives its energy from the Vaigai Micro Hydel, Periyar Dam, Tuticorin Thermal Power Station and the Parval Diesel Engine Power Plan. The following map shows the substations in Madurai Corporation.

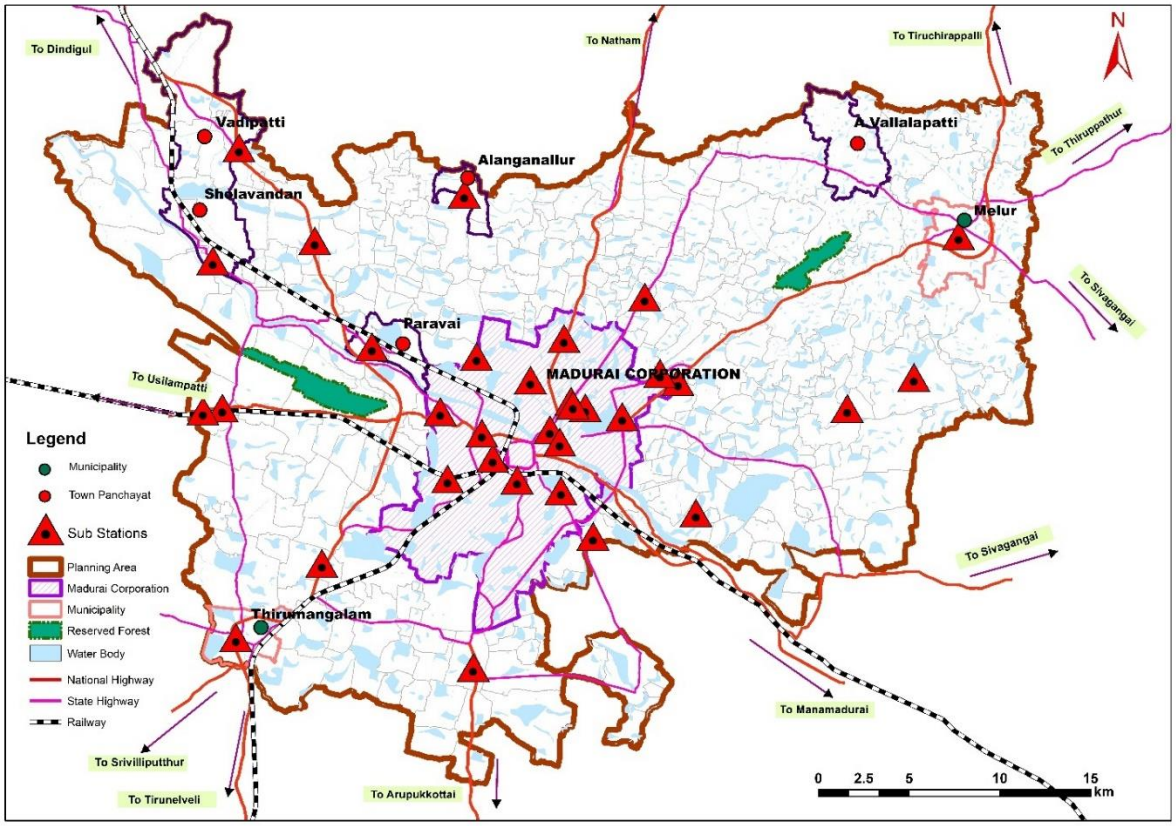


Map 8-7: Sub stations in Madurai Corporation

The analysis indicates a substantial need for electrical infrastructure in Madurai, with 115 Sub-Stations required within the Madurai Corporation, emphasizing the urban demand.

Additionally, the planning area outside the corporation necessitates 61 Sub-Stations, showcasing the broader distribution of power requirements. This data

underscores the importance of strategic expansion in Sub-Station capacity to meet the growing electricity needs of both urban and suburban areas in Madurai.



Map 8-8: Sub stations in LPA

9

SOCIAL INFRASTRUCTURE

9.1. Introduction

In the intricate tapestry of development, the concept of social infrastructure emerges as a linchpin for creating resilient, sustainable, and vibrant communities. Social infrastructure, the foundation of a flourishing society, encompasses crucial pillars like school and higher education, police and fire services, recreational spaces, and miscellaneous amenities. These elements collectively shape the well-being of communities, fostering education, safety, and a vibrant social life.

9.2. School Education

9.3. Higher Education

In accordance with the Urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines, higher education within Madurai Local Planning Area (LPA) is systematically categorized into four distinct segments: universities, technical colleges, professional colleges, and other general/special colleges. This classification is not only aligned with broader regional planning but also corresponds to the framework established by the Department of Higher Education in Tamil Nadu.

9.3.1. Universities

The four universities that comes under Madurai LPA are:

9.3.1.1. Madurai Kamaraj University (MKU):

A prominent public university in Madurai, MKU offers a diverse range of undergraduate and postgraduate programs. Known for its academic excellence and research contributions, MKU plays a crucial role in shaping educational outcomes and fostering intellectual growth.

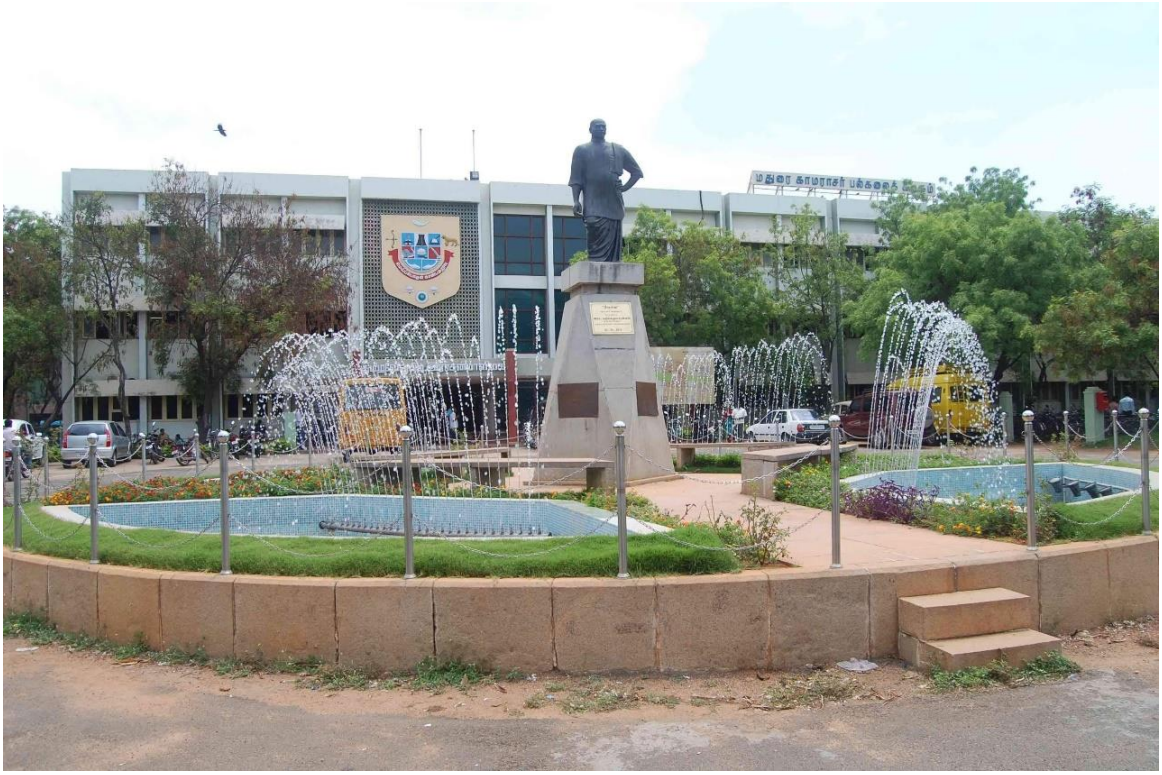


Figure 9-2 **Madurai kamaraj univesity, Madurai**
Source: https://mkuniversity.ac.in/new/

9.3.1.2. Madurai Kamraj University Directorate of Distance Education (MKU DDE):

An integral part of MKU, the Directorate of Distance Education provides accessible and flexible education, offering various distance learning programs. It caters to a wide range of students, providing opportunities for continuing education and skill enhancement.

9.3.1.3. Agricultural University Research Institute, Madurai:

Affiliated with Tamil Nadu Agricultural University, this institute in Madurai focuses on agricultural research and development. It plays a pivotal role in advancing agricultural practices, conducting research, and disseminating knowledge to benefit the farming community and the region.

Figure 9-3 **Tamil Nadu agricultural university research institute, Madurai**
Source: https://tnau.ac.in/

9.3.1.4. Home Science College & Research, Madurai:

A center for excellence in home science education, this college in Madurai is dedicated to empowering students in the field of home science. It provides quality education, research opportunities, and practical skills to prepare students for diverse careers in home science and related disciplines.

9.3.2. Colleges

Technical colleges encompass a range of institutions such as ITI and Polytechnic colleges, while professional colleges include engineering colleges, medical colleges, and diverse professional courses like architecture and hotel management. The category of other general/special colleges is extensive, embracing arts and science colleges, B.Ed. colleges, and specialized units such as research centers and those affiliated with the theosophical society.

Remarkably, higher education exhibits a widespread presence across Madurai LPA, as substantiated by a comprehensive table. The equal distribution of institutes in both urban and rural areas reflects a commitment to providing accessible educational opportunities to residents across diverse geographical settings. This strategic dispersion not only promotes educational equity but also contributes to the overall socio-economic development of the entire region, fostering a balanced and inclusive educational landscape.

Beyond these four universities there are 65 other higher education institutions as listed in **Table 9-3**.

Table 9-3 Number of higher education institutions by location

Types of Higher Education Institutes	Number of Institutes – Corporation Area	Number of Institutes – Non-Corporation Area
Universities	2	2
Technical College	2	8
Professional Colleges	4	10
General Colleges	25	16
Total	**33**	**36**

Source: District Handbook, 2021-2022

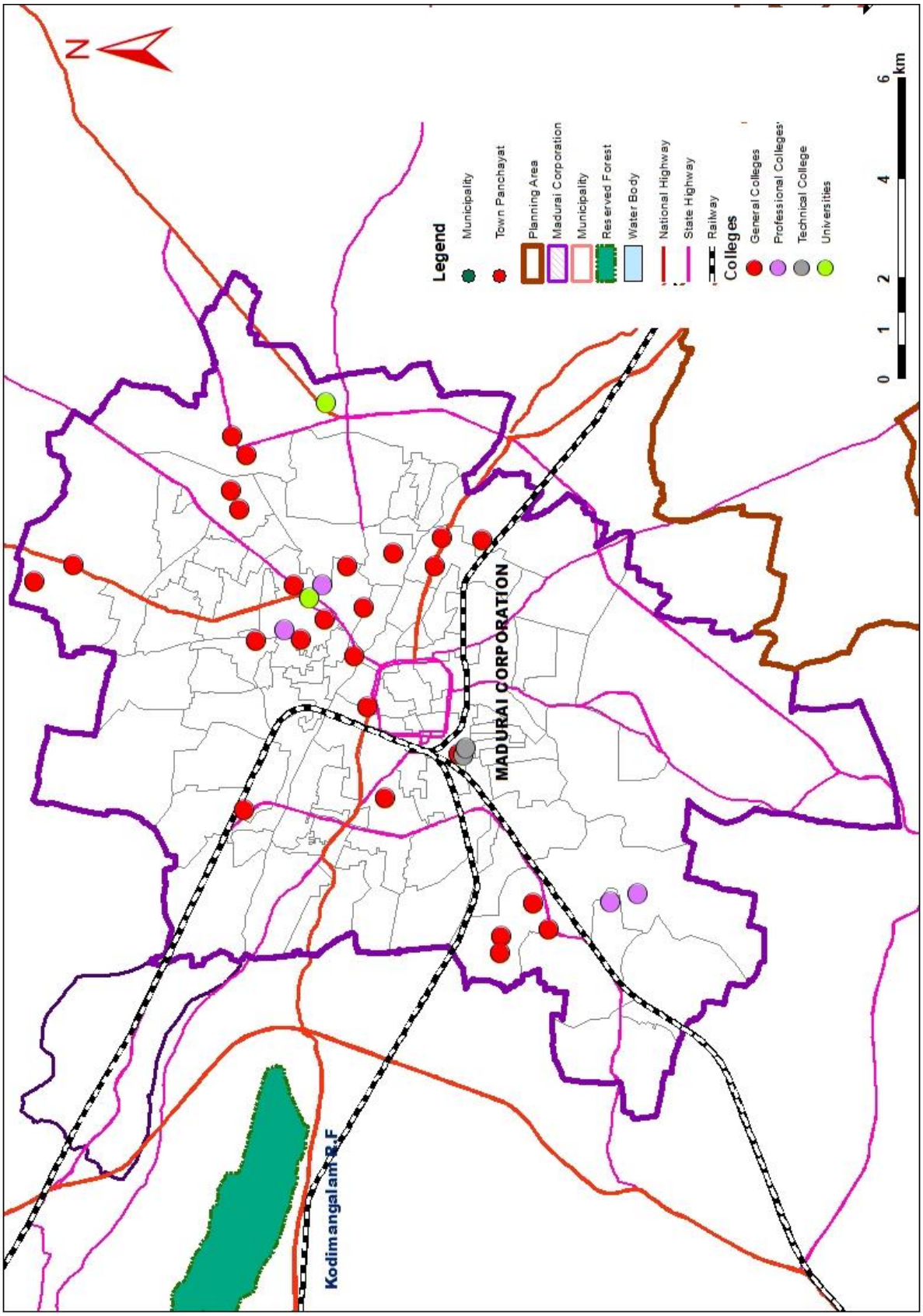
In Madurai LPA, the distribution of students is intricately linked to the location of institutes. Notably, in the realm of technical education, two urban institutes can attract an equivalent number of students as eight rural institutes. This pattern holds true for technical colleges as well, emphasizing the gravitational pull of urban areas in drawing students. This nuanced relationship underscores the need for strategic planning to ensure equitable access to educational opportunities, acknowledging the influence of location on student enrollment. Balancing educational resources across urban and rural settings becomes pivotal for fostering inclusivity and addressing regional disparities in student distribution (**Table 9-4**).

Table 9-4 Number of higher education institutions by location

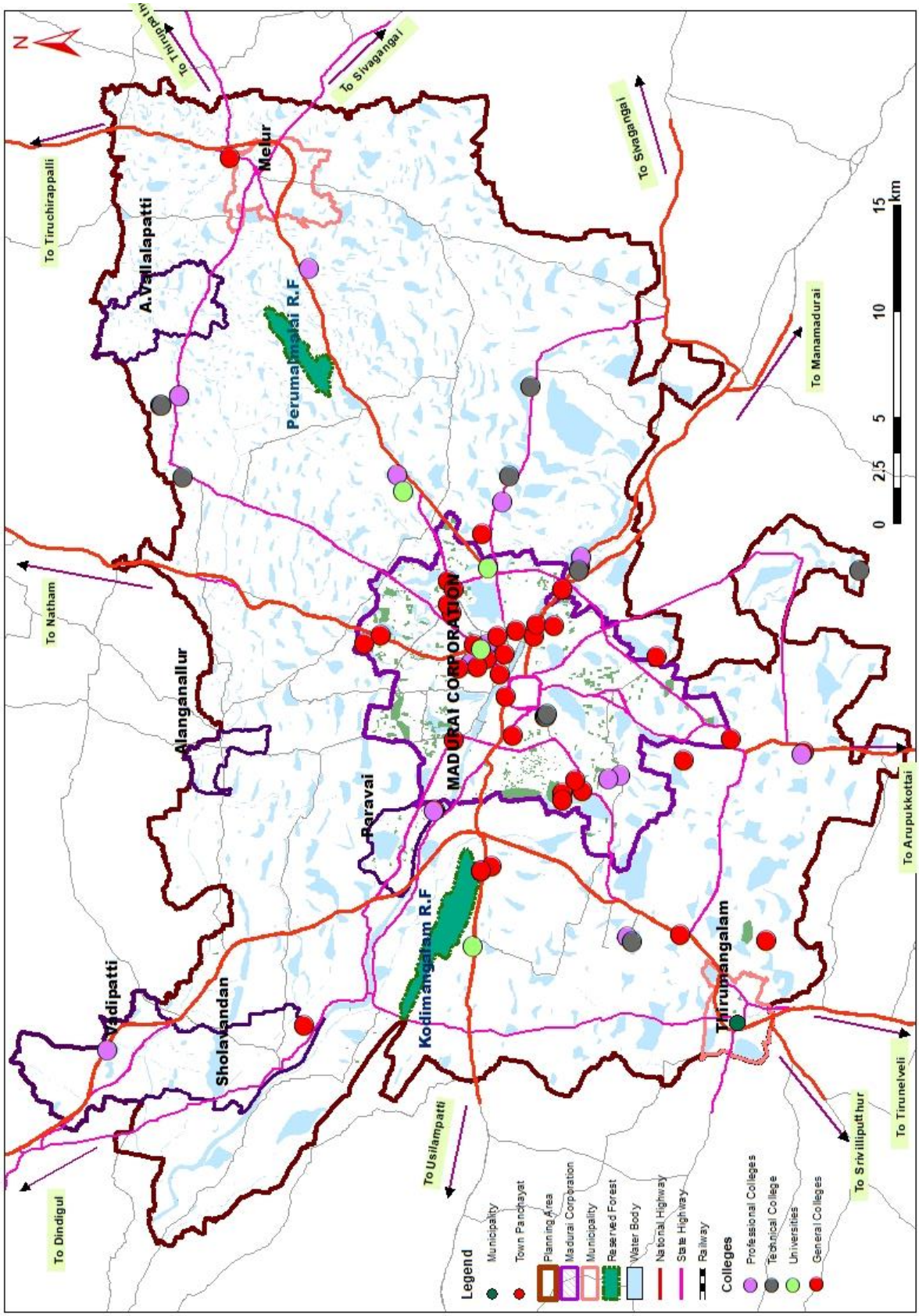
Types of Higher Education Institutes	Number of Students – Corporation Area	Number of Students – Non-Corporation Area
General Colleges	29924	16141
Professional Colleges	6001	5589
Technical College	2033	3071

Universities	4193	2192
Total	**42151**	**26993**

Source: District Handbook, 2021-2022



Map 9-6 **Colleges, Madurai corporation**



Map 9-7 Colleges, Madurai LPA

9.4. Healthcare

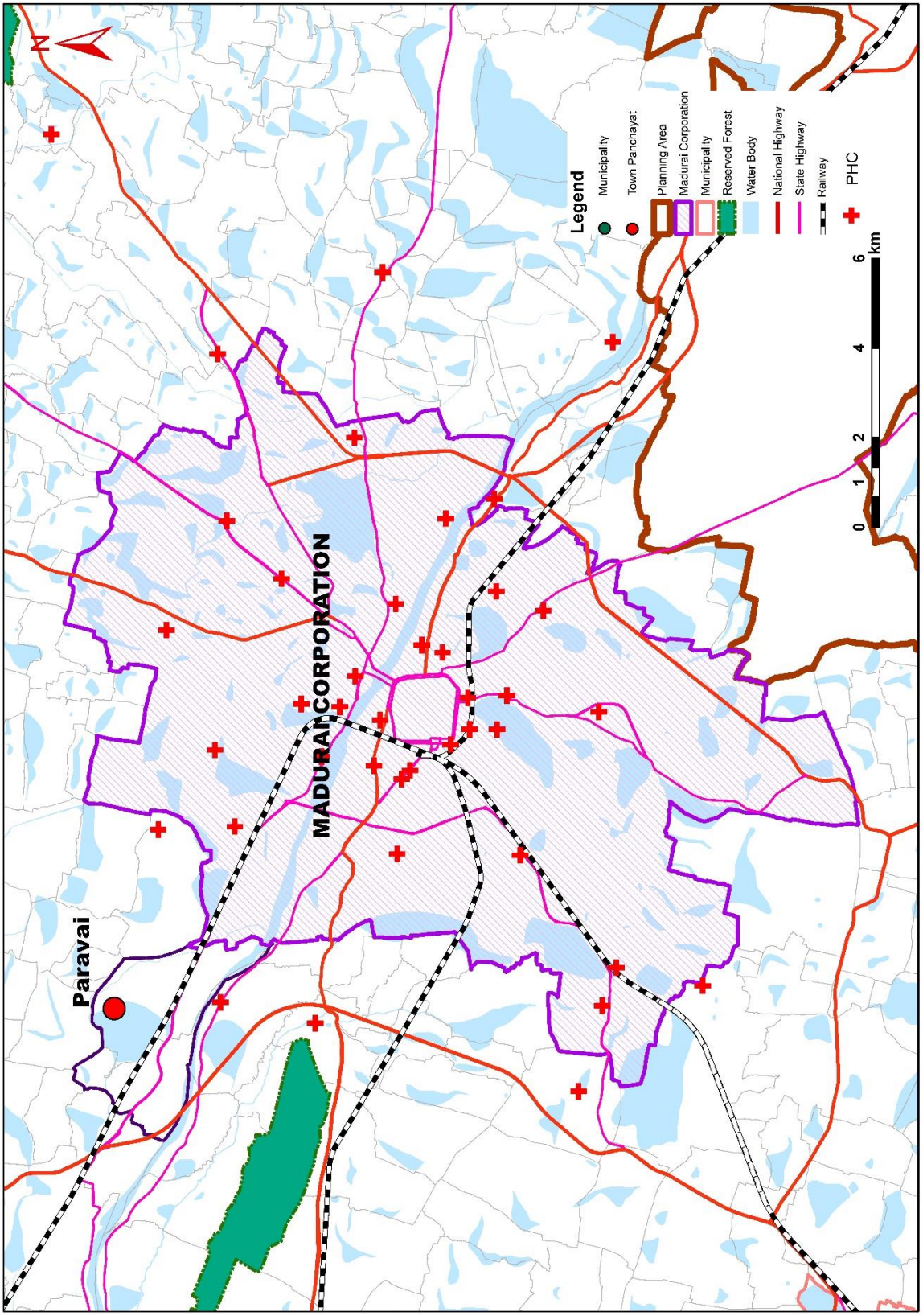
In the context of the Local Planning Area (LPA), Madurai, a comprehensive analysis was undertaken, focusing on primary health centers (PHCs), urban primary health centers (UPHCs), and hospitals, each classified under their respective administrative boundaries.

The health infrastructure within the corporation area is notably robust, with 31 urban primary health centers (**Map 9-8**) strategically positioned to address the healthcare needs of the urban population. These UPHCs play a crucial role in providing primary healthcare services, acting as the first point of contact for residents seeking medical assistance.

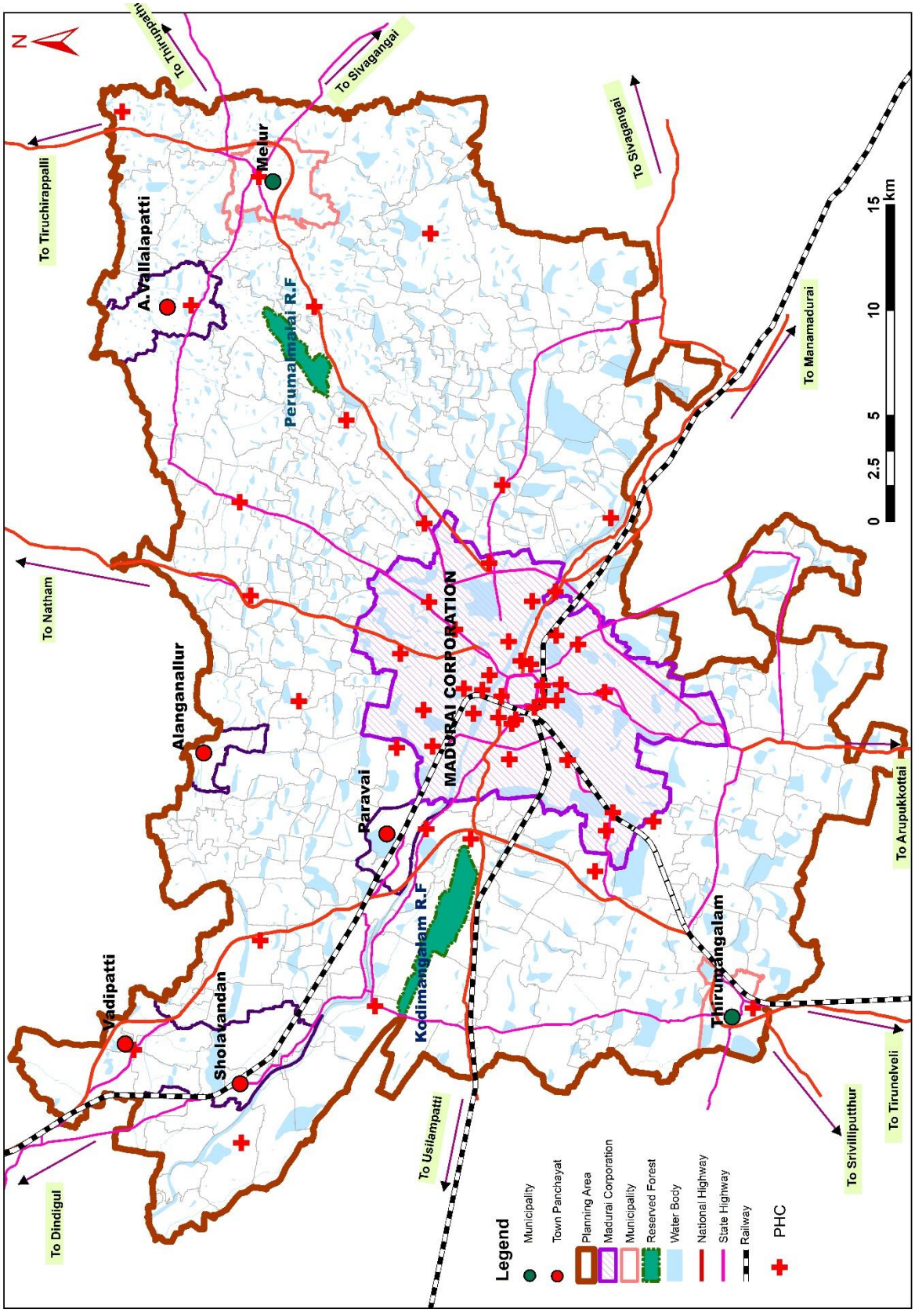
In contrast, the rest of the Local Planning Area hosts 23 primary health centers, contributing to the broader healthcare network (**Map 9-9**). While their numbers are fewer than those within the corporation area, these centers play a vital role in extending healthcare services to the more rural or suburban sections of the LPA.

When examining the capacity of these primary health centers in terms of beds as shown in (**Table 9-5**), on average, each primary health center is equipped with 2.5 beds. This statistic reflects the emphasis on providing essential inpatient care at the primary level, catering to cases that require short-term hospitalization or observation. Moreover, the urban primary health centers, being more specialized in their services, boast an even higher bed-to-center ratio. With an average of 4.8 beds per UPHC, these centers exhibit a greater capacity for inpatient care. This reflects the recognition of the urban setting's unique healthcare demands, where a higher density of population often translates to a greater need for both outpatient and inpatient services.

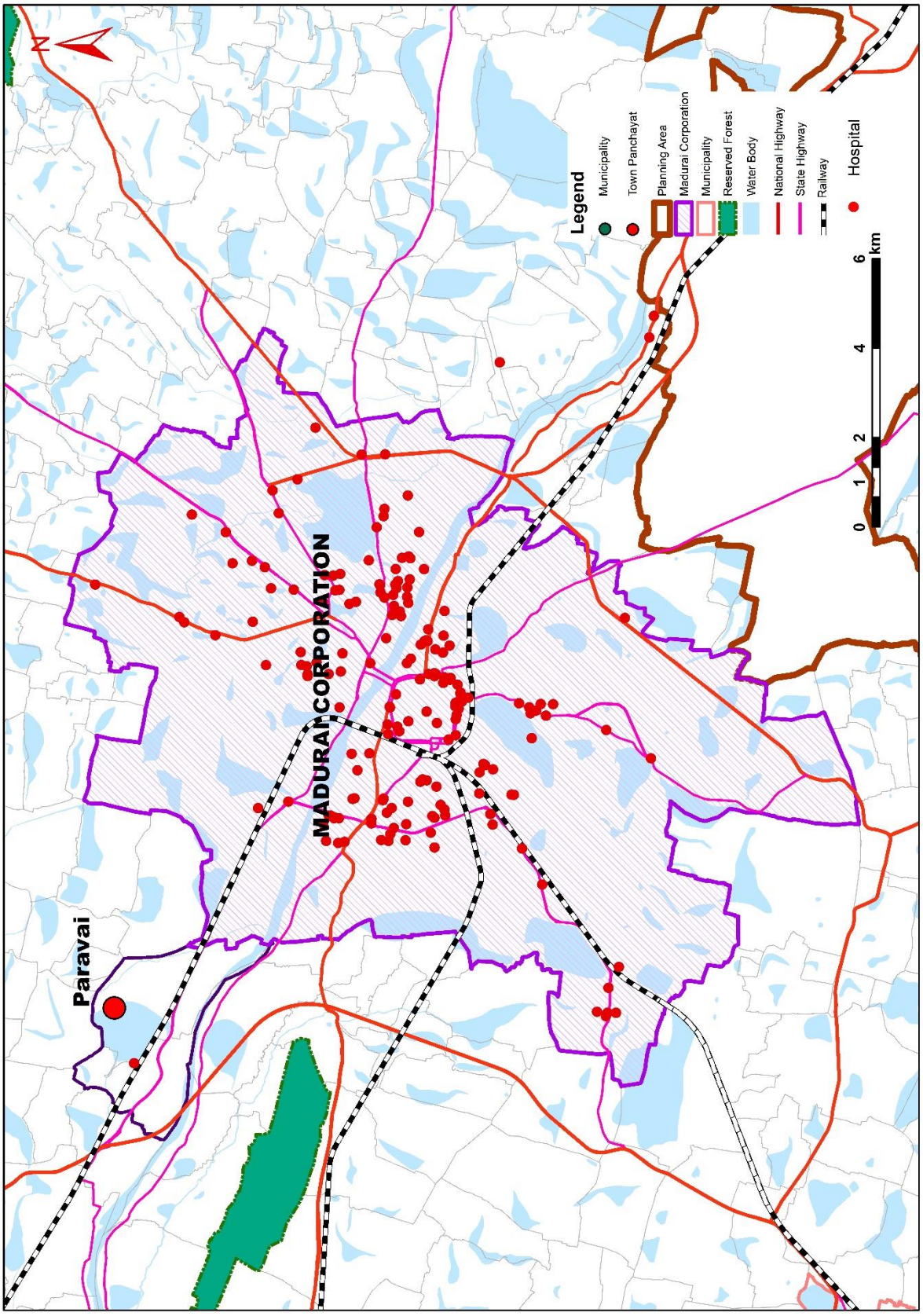
In Madurai LPA (**Map 9-11**), it's notable that nearly 90 percent of the existing hospitals are concentrated within the corporation area. This encompasses a mix of government and private hospitals, forming a comprehensive healthcare ecosystem. The prominence of hospitals within the corporation area signifies the concentration of specialized and tertiary healthcare services in the urban center.



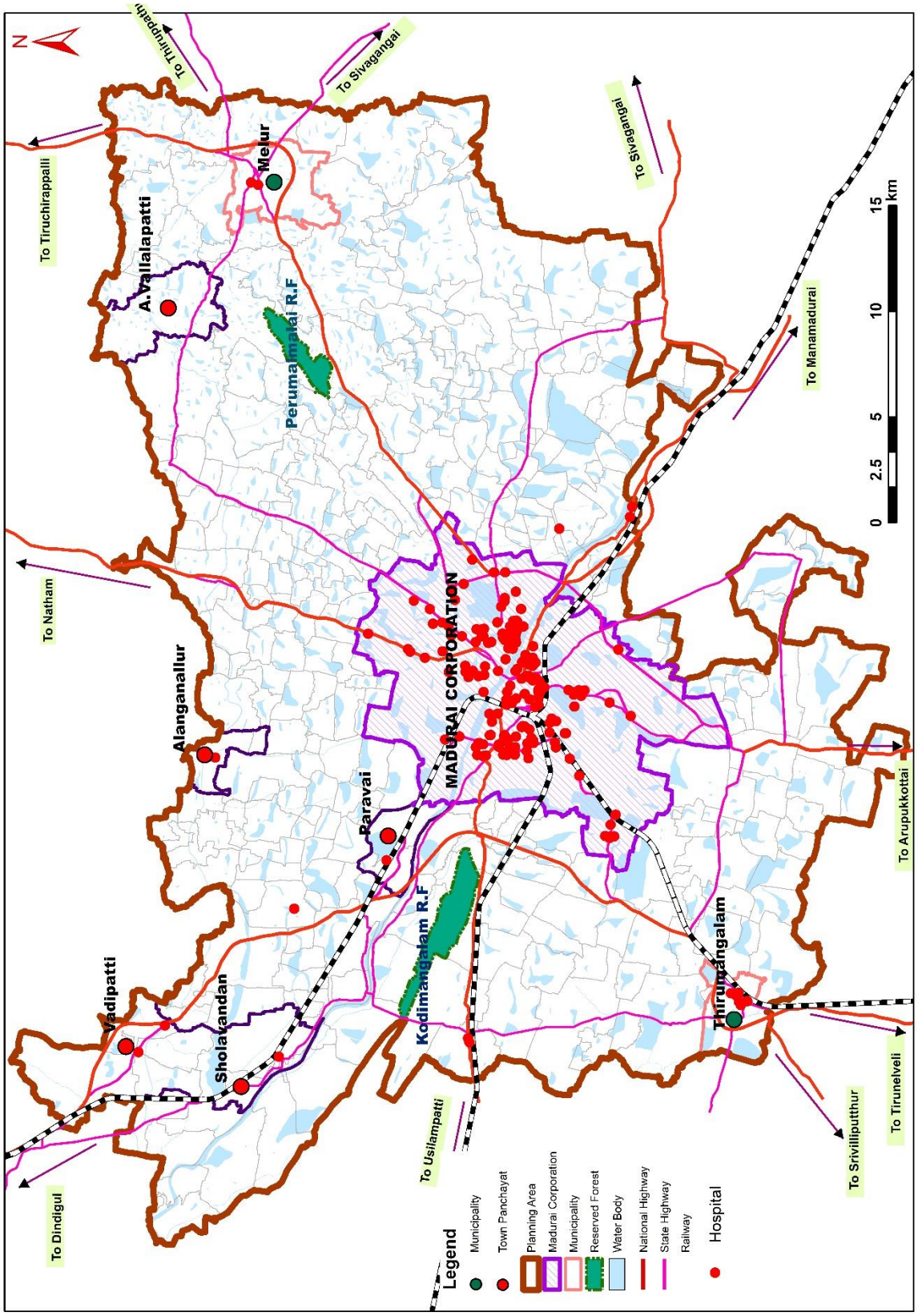
Map 9-8 Primary Health Center, Madurai Corporation



Map 9-9 Primary Health Center, Madurai LPA



Map 9-10 **Hospitals, Madurai Corporation**



Map 9-11 Hospitals, Madurai LPA

Table 9-5 Healthcare units, Madurai LPA (by numbers and beds)

Administrative Boundary	PHC/UPHC		Hospitals	
	Numbers	Beds	Numbers	Beds
Corporation	31	149	180	7234
Melur Municipality	1	8	2	138
Thirumangalam Municipality	1	5	7	220
Town Panchayats	2	8	5	54
Villages	19	41	5	240
Grand Total	**54**	**211**	**199**	**7886**

To the existing health care facilities, Madurai district is getting additional 50 bedded critical care blocks in Government Headquarters hospital. A 50 bedded Hospital attached with Government Homoeopathy Medical College, Thirumangalam, Madurai. Upgradation of government Rajaji hospital for 313.25 crores. Considering old age population, Madurai Government Medical College planned to establish geriatric units.

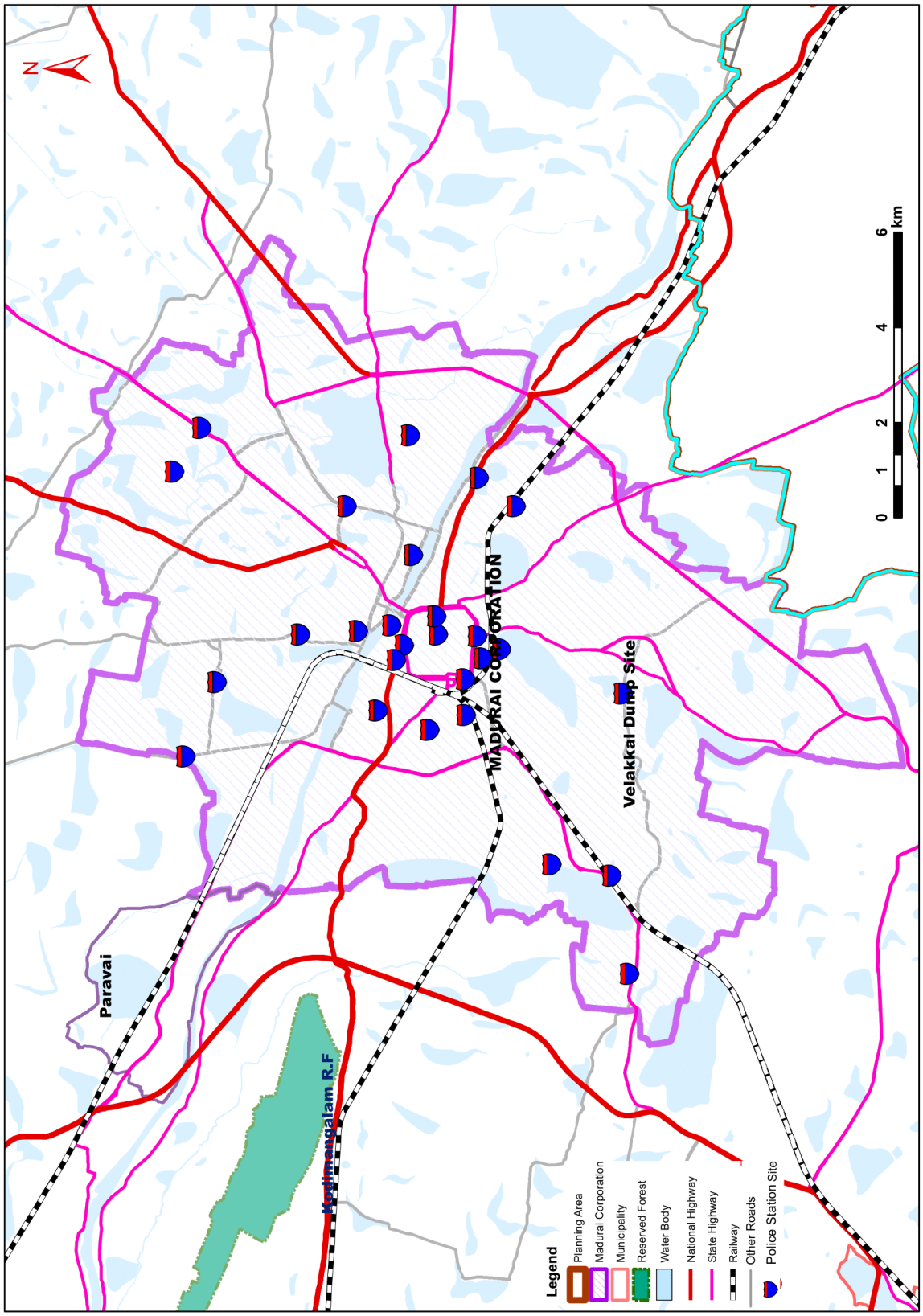
9.5. Police and Fire

Within the Madurai Local Planning Area (LPA), the critical infrastructure of public safety is robustly established, comprising 11 fire stations and 49 police stations. These institutions collectively form the backbone of emergency response and law enforcement services, ensuring the safety and well-being of the residents within the jurisdiction.

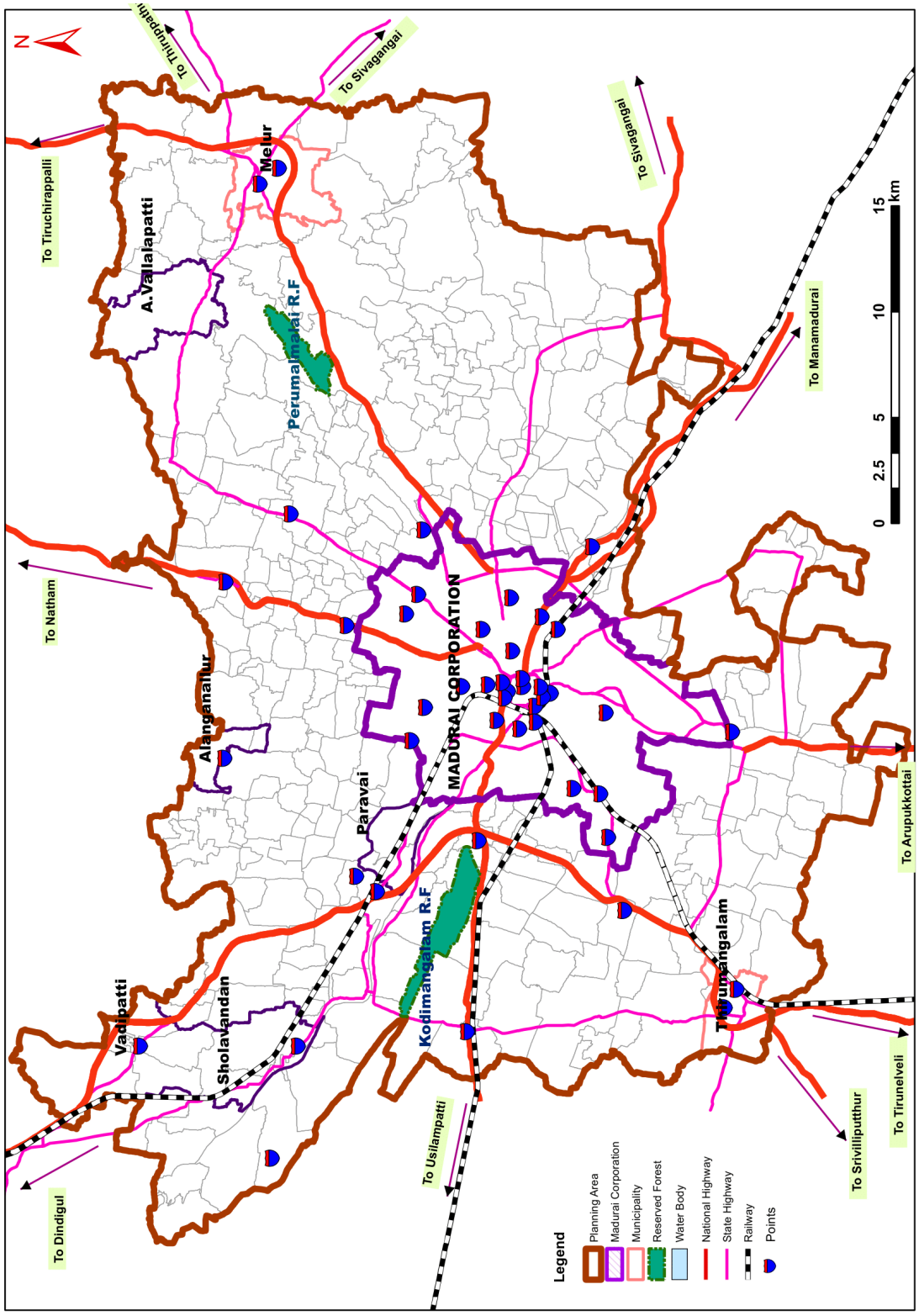
The 11 fire stations strategically positioned across the LPA play a pivotal role in addressing and mitigating fire emergencies. The distribution of fire stations is likely determined by factors such as population density, industrial zones, and the overall geography of the area, ensuring efficient coverage and prompt response times.

In parallel, the presence of 49 police stations underscores the commitment to maintaining law and order. This comprehensive network includes general police stations, women's police stations, and the district police quarters. General police stations serve as the frontline for addressing a wide range of criminal activities, ensuring the security of the public. The inclusion of women's police stations reflects a specialized approach to handling issues specific to women, providing a supportive and understanding environment for reporting and addressing crimes against them. Additionally, the district police quarters serve as a central hub for administrative and operational activities, fostering coordination and efficiency within the law enforcement apparatus.

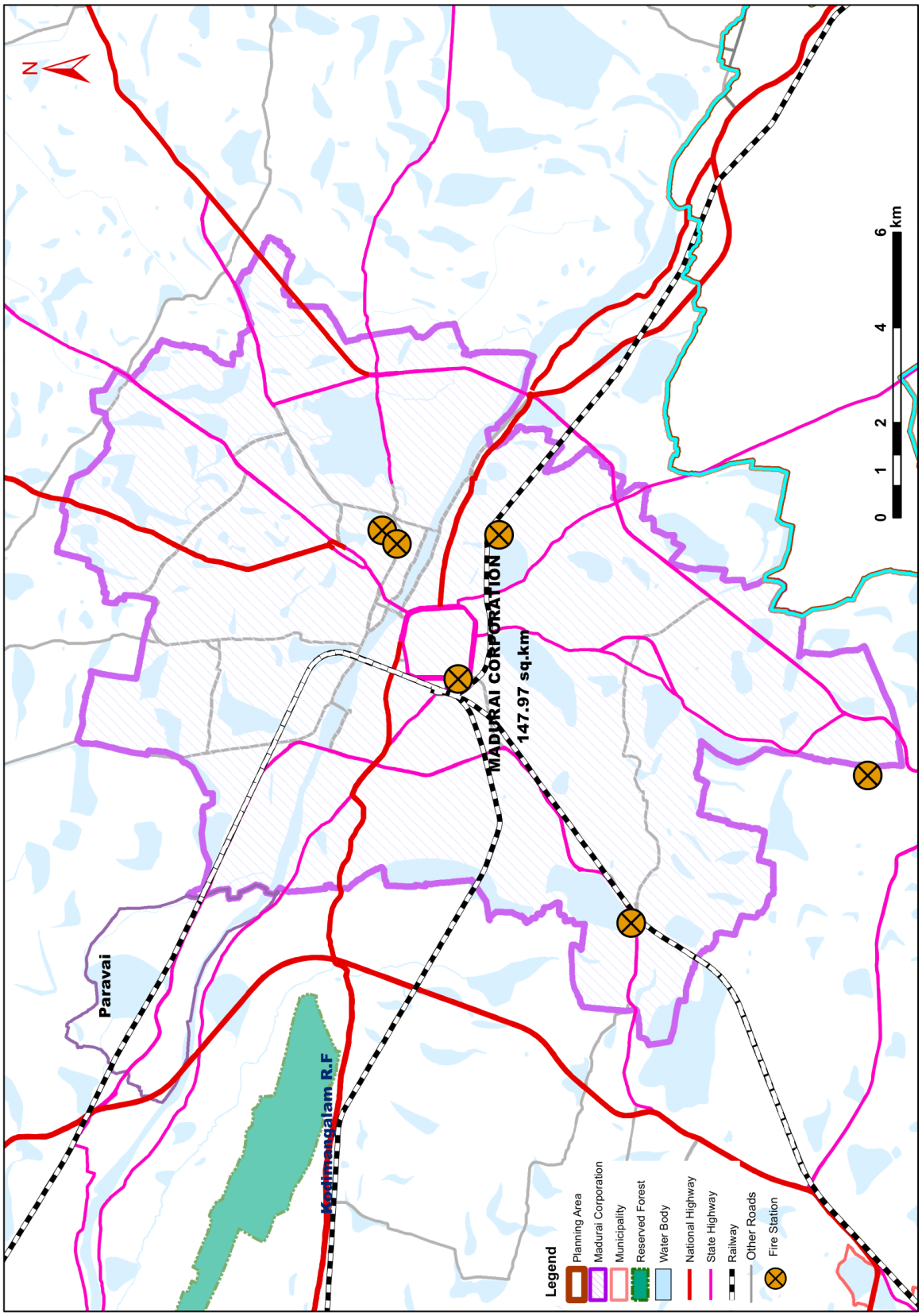
This well-distributed network of fire and police stations within the Madurai LPA not only signifies a commitment to public safety but also showcases a holistic approach to emergency response and crime prevention.



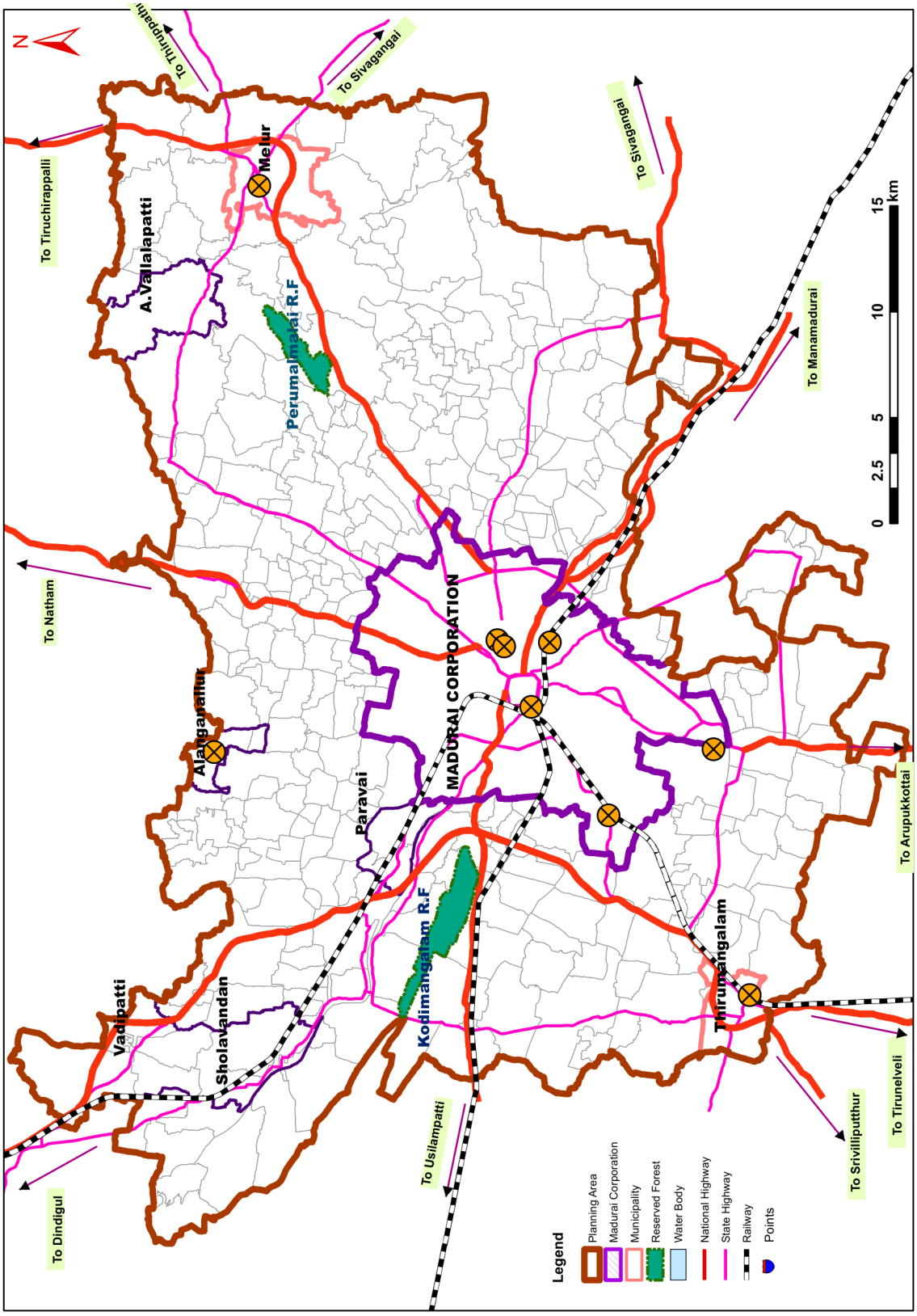
Map 9-12 Police Station, Madurai Corporation



Map 9-13 Police Station, Madurai LPA



Map 9-14 Fire Station, Madurai Corporation



Map 9-15 Fire Station, Madurai LPA

9.6. Recreational Facilities – Parks, Open Spaces & Sports Facilities

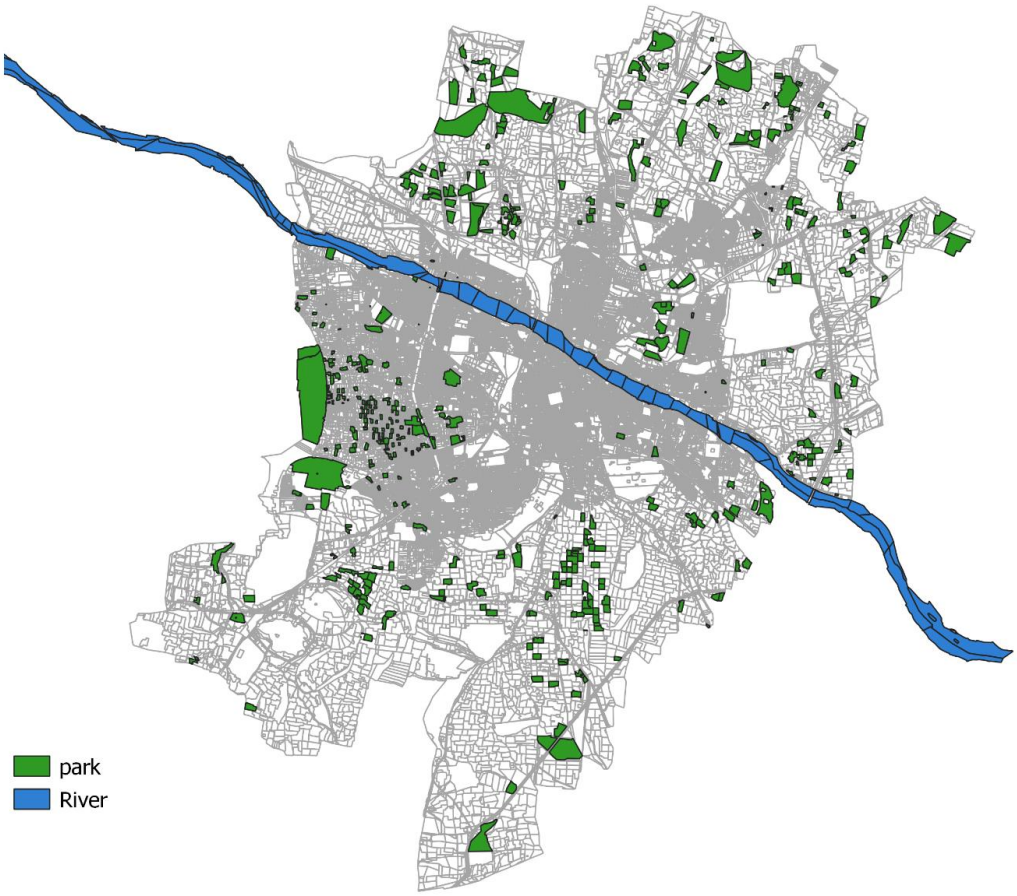
9.6.1. Parks and Open Spaces

A total of 484 parks that significantly contribute to the Madurai Corporation's landscape. These parks serve as vital components, enhancing environmental health and enriching the quality of life for residents. Offering recreational spaces for community engagement, physical well-being, and leisure activities, the Corporation's parks play a pivotal role in fostering a sense of community and promoting a sustainable and vibrant urban environment.

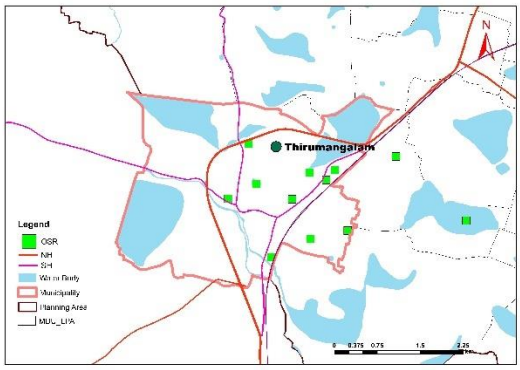
Melur Municipality contributes to this green initiative with seven well-maintained parks, providing additional spaces for recreation and relaxation. Similarly, Thirumangalam Municipality takes pride in its commitment to green spaces, featuring a total of 30 parks that cater to the recreational needs of its residents. The collective efforts of the town panchayats within the Madurai Local Planning Area further enhance the green infrastructure with five parks, demonstrating a shared commitment to creating open spaces that contribute to the overall well-being of the community.

Table 9-6 Number of parks & area of parks by administrative boundary

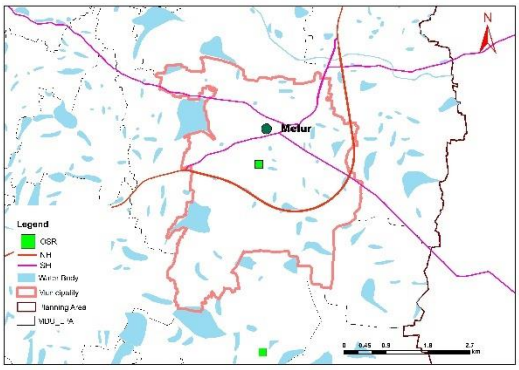
Administration	Population (2041)	Parks (Nos)	Area of Parks (Sq. m)
Corporation	2224148	484	500034.59
Thirumangalam Municipality	55117	30	64515
Melur Municipalities	66353	7	5711.36
Town Panchayats	147519	5	1737.3798



Map 9-16 **Parks, Madurai corporation**



Map 9-17 **Parks, Thirumangalam Municipality**



Map 9-18 **Parks, Melur Municipality**

9.6.2. Sports Facilities

9.6.2.1. M.G.R Stadium

Madurai is home to the MGR Race Course Stadium, a prominent sports facility named after M.G. Ramachandran, a legendary figure in Tamil Nadu politics and cinema. This stadium likely serves as a venue for various sports and events, contributing to the vibrant sports culture in Madurai.

MGR Race Course Stadium, also recognized as MGR Stadium, stands as a versatile sports arena. This stadium is a hub for various sporting spectacles, encompassing both national and international kabaddi championships. With a seating capacity accommodating up to 10,000 spectators, the stadium boasts a state-of-the-art 400m synthetic athletic track. Erected in 1970 across a sprawling 26-acre expanse, the MGR Stadium stands as the principal sports facility in Madurai, equipped to host a diverse array of sporting disciplines, making it a pivotal venue for athletic events and competitions.

Figure 9-4 **MGR race course stadium**

Authority of Tamil Nadu (SDAT) has spearheaded the construction of several other sporting infrastructures.

1. 400m Synthetic Athletic Track (with Floodlight Facility): Ideal for track and field events, providing athletes with a high-quality synthetic surface.
2. Football Field (Natural Turf): A dedicated football field with a seating capacity of 2250 across three galleries.
3. Multipurpose Indoor Stadium (Wooden Floor): Equipped with a wooden floor, this stadium is suitable for various indoor sports and activities.
4. Practice Football Field (Mud): A dedicated practice field with natural turf.
5. Synthetic Hockey Field (with Floodlight): A specialized field for hockey, featuring floodlights for night games.
6. Training Synthetic Hockey Field: Another synthetic field for hockey training purposes.
7. Synthetic Warm-up Track (100m): An additional synthetic track designed for warm-up sessions.
8. Volleyball Courts (Mud): Three volleyball courts, one of which is equipped with floodlights.
9. Beach Volleyball Court (Mud): A specialized court for beach volleyball.
10. Kabaddi Courts (Mud): Two courts, one with floodlights and mats available for one court.
11. Kho-Kho Court (Mud): A dedicated court for Kho-Kho.
12. Synthetic Basketball Courts: Two basketball courts, with one featuring floodlights.
13. Synthetic Tennis Courts: Two synthetic tennis courts.
14. Tennis Court (Mud): A tennis court with natural mud surface.
15. Cricket Practice Pitches (Mud): Three dedicated pitches for cricket practice.
16. Boxing Ring (Mud): A ring for boxing enthusiasts.

17. Handball Court (Mud): A specialized court for handball.
18. Tennikoit Courts (Concrete and Mud): A total of seven courts, including four concrete and three mud courts.
19. Gymnasium Hall: Equipped for fencing, yoga, gymnastics, and taekwondo.
20. Fitness Centre: A dedicated facility for fitness enthusiasts.
21. Indoor Badminton Halls: Five courts in total, with four wooden courts and two floodlit courts.
22. Swimming Pool (25m x 13m): A standard-sized swimming pool for aquatic sports and recreation.
23. Table Tennis Hall (Wooden): A hall specifically designed for table tennis.
24. SDAT Sports Hostel for Boys: Providing accommodation for sports enthusiasts.

9.6.2.2. Special Children Park

Figure 9-5 Special children park

Source: mglf.in

In a significant initiative, Madurai Corporation, in collaboration with the Madurai Group Living Foundation, launched Tamil Nadu's first-ever park for special and disabled children on Alagar Kovil Road. Inaugurated on 15.07.2017, this 'Disabled Friendly Park' is a part of the Atal Mission for Rejuvenation and Urban Transformation (AMRUT). The park aims to provide a safe and inclusive space for children with special needs, fostering positive interactions and overcoming anxiety. Planned additions include wheelchair-friendly toilets and a captivating fish tank. With the support of 10-20 volunteers, safety and upkeep will be prioritized.

Additionally, Madurai is in the process of establishing an Integrated Sports Science Centre (ISSC) under the Tamil Nadu Innovation Initiatives Scheme. This center aims to offer rehabilitation services for sports-related injuries and provide professional training to athletes through consistent and scientific approaches.

9.6.3. Major Cultural Sport

Jallikattu, deeply rooted in Tamil tradition, has evolved into a major sport with cultural and symbolic significance. The debates surrounding its ban have ignited discussions on diverse aspects, reflecting the intricate interplay of history, politics, ethics, and cultural identity. As the sport continues to be a source of pride and contention, understanding its socio-politico-cultural genealogy becomes imperative for a nuanced perspective on contemporary debates.

Figure 9-6 **Jallikattu, Alanganallur**
Source: https://www.outlookindia.com/

In January 2017, Tamil Nadu witnessed widespread protests challenging the 2014 Supreme Court ban on Jallikattu, a traditional rural sport. This sparked a robust debate in both English and Tamil media, involving various stakeholders such as academics, political figures, and cultural icons. The Jallikattu debate became a focal point for discussions on culture, folk traditions, modernity, regional identity, caste, gender, law, the environment, and animal rights.

Figure 9-7 **Proposed Jallikattu stadium, Alanganallur**
Source: https://tamil.oneindia.com/

Following the concern of people, the Tamil Nadu government proposed a groundbreaking Jallikattu stadium in Madurai, designed to host the traditional bull festival. With 95% of construction finished, the three-tiered arena spanning 66 acres promises a modern, secure venue for the age-old cultural event. Accommodating nearly 5,000 spectators, the stadium signifies a commitment to preserving heritage in a contemporary context. The facility is poised to redefine the Jallikattu experience, offering a safe and organized space, elevating the cultural significance of the event as anticipation grows for its inaugural celebration.

9.7. Miscellaneous Amenities

In the realm of modern living, the significance of miscellaneous amenities cannot be overstated, as they serve as pivotal elements contributing to the overall well-being and convenience of individuals in various settings. Whether within residential communities, commercial spaces, or public environments, these diverse amenities encompass a wide spectrum of offerings designed to enhance comfort, functionality, and recreational experiences. This report delves into the realm of miscellaneous amenities, exploring their diverse nature, evolving trends, and the crucial role they play in shaping the quality of life for individuals across different spheres of existence. From innovative technological solutions to traditional recreational spaces, the following sections shed light on the multifaceted landscape of amenities that contribute to the enrichment of our daily lives.

Table 9-7 Miscellaneous amenities by numbers

Miscellaneous Amenities	Numbers
Post offices	393
Cinema Theatres	26
Banks	559
Veterinary Hospitals	1
Libraries	163

Source: District Handbook, 2021-2022

Post offices are government-operated facilities that provide postal services such as sending and receiving mail, selling postage stamps, and offering other related services. In Madurai, there are 393 post offices, indicating widespread coverage for postal needs.

Cinema theaters are entertainment venues where people can watch movies on a big screen. Madurai has 26 cinema theaters, providing residents with options for leisure and entertainment.

Banks are financial institutions that offer a range of financial services, including savings and checking accounts, loans, and investment opportunities. In Madurai, there are 559 banks, reflecting a robust financial infrastructure to support the economic activities of the region.

Veterinary hospitals are healthcare facilities for animals. The presence of one veterinary hospital in Madurai suggests that there is at least one dedicated facility to provide medical care and treatment for animals in the area.

In Madurai, there are 163 libraries, serving as valuable resources for education, research, and leisure reading for the community. At present a modern library of international standards in memory of the Hon'ble Former Chief Minister Muthamizh Arignar Kalaignar came at a cost of Rs.114 crore in Madurai. This Library acts as an intellectual and literary beacon for all sections of society like students, academics, researchers, writers, literary aspirants, young people preparing for competitive exams and school children. The work on procurement of books, e-books, research journals and e-research journals are underway.

Figure 9-8 Kalaignar Memorial Library, Madurai

Source: https://www.dtnext.in/

9.8. Key Issues

9.8.1. Lack of Primary Health Center

In anticipation of future healthcare needs, projections suggest a demand for 82 Primary Health Centers (PHCs) by 2041 within the Madurai Local Planning Area. While the current healthcare infrastructure surpasses the anticipated bed requirements, there is a recognized community demand for additional primary health centers, particularly in village areas, to address immediate healthcare needs at the primary level.

9.8.2. Lack of Recreational Open Spaces

Presently, the Madurai Local Planning Area falls significantly short of both the URDPFI and National Building Code (NBC) standards regarding recreational space. The available recreational area stands at a mere 0.37 sq. m per person. To align with NBC norms, an additional 690 hectares of recreational area is required. However, to meet the more ambitious URDPFI requirement of 12 sq. m per person, a staggering 2934 hectares of additional recreational space is needed. This underscores the pressing need for substantial improvements in recreational space availability to enhance the well-being and quality of life for residents.

10

HOUSING

Housing is a fundamental aspect of human civilization, providing shelter, security, and a sense of belonging to individuals and families. It refers to the provision of dwellings or accommodations that serve as places of residence for people. Beyond merely offering protection from the elements, housing fulfills various essential needs, including privacy, safety, and a space for social interaction and family life.

The concept of housing extends beyond the physical structure of a building; it encompasses the surrounding community, infrastructure, and access to amenities like water, electricity, and sanitation facilities. Adequate housing is recognized as a basic human right by international organizations due to its critical role in promoting human dignity and well-being.

Housing policies and initiatives worldwide aim to address issues of affordability, accessibility, quality, and sustainability to ensure that everyone has access to suitable and decent living conditions.

The housing supply is provided by both public and private sectors in India. Most of the housing supply comes from private sector in India. However, in this LPA, the public sector plays an active role in planning and implementing the housing projects. Tamil Nadu Housing Board has various projects within LPA at various locations.

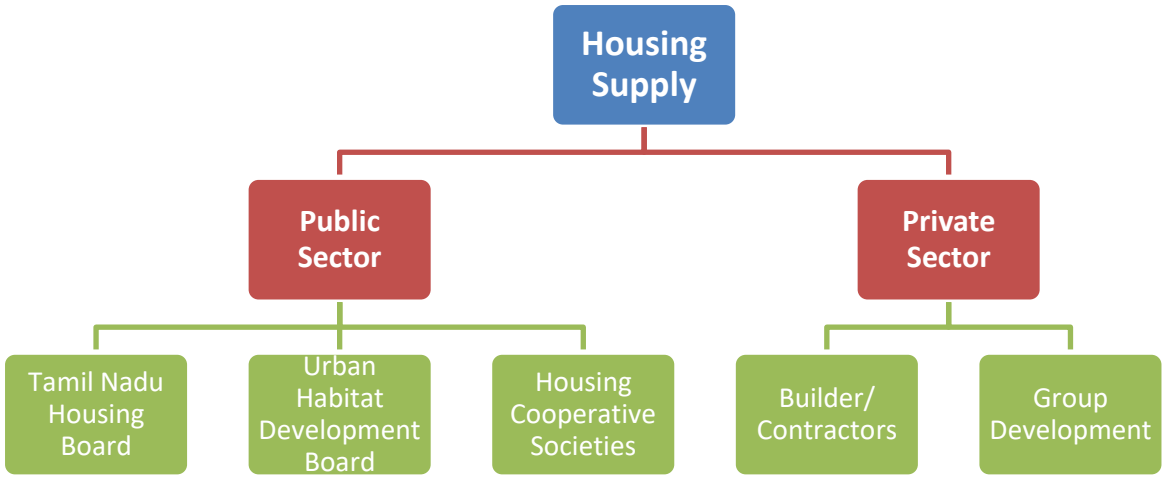


Figure 10-1 Housing Supply

10.1. Housing Profile of Madurai LPA

10.1.1. Households

Analyzing these household sizes provides insights into the socio-demographic composition of different areas within Madurai district. Smaller household sizes in urban

areas like the Municipal Corporation may suggest a trend toward nuclear families or smaller living units. Conversely, larger household sizes in the broader LPA and other panchayat areas indicate a higher prevalence of extended families or households with multiple members living together, a more common scenario in semi-urban and rural settings. These variations highlight the diverse socio-economic and cultural fabric within the Madurai district.

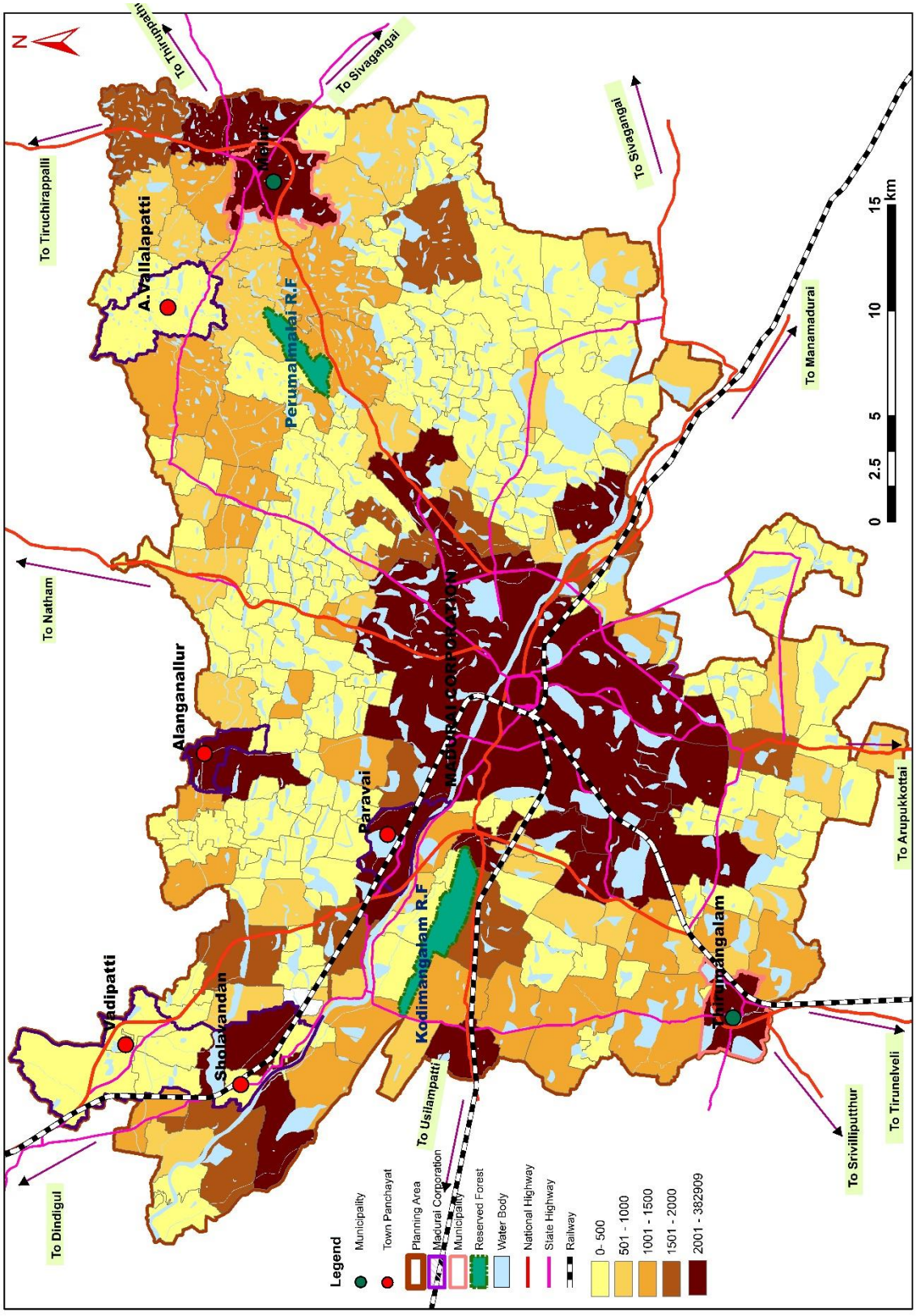
Table 10-1 Households in Madurai LPA, 2011

Area	Population	Households	Household Size
Tamil Nadu	7,21,47,030	18524982	3.9
Madurai District	30,38,252	794887	3.8
Madurai Municipal Corporation	**1472946**	**382909**	**3.8**
Melur Municipality	40,017	9872	4.1
Thirumangalam Municipality	51,194	13564	3.8
Municipalities	**91211**	**23436**	**3.9**
Alanganallur	12,331	3171	3.9
A. Vellalapatti	8,325	1981	4.2
Paravai Bit 1&2	20,042	5213	3.8
Sholavandan	22,578	5936	3.8
Vadipatti	26,830	6788	4.0
Town Panchayats	**90,106**	**23089**	**3.9**
Rest of LPA	**608852**	**157586**	**3.9**
Madurai LPA	**22,63,115**	**587020**	**3.9**

Source: Census 2011

As per the 2011 census, Madurai LPA[1] has 22, 63,115 people living in 5, 87,020 households (Refer: Table 10-1), which is an estimated average household size of 3.9.

1 Local Planning Area



Map 10-1: Distribution of Households in Madurai LPA

10.2. Existing Housing Situation

The existing housing situation intends to give an insight into the current state of housing stock, its availability, quality, affordability, and the diverse uses of residential spaces within a given area or community.

10.2.1. Distribution of Census Houses by their Type of Use, 2011

Census, 2011 depicts that Madurai district has around 8.9 lakhs of census houses. 32% of census houses amongst them are in Madurai Municipal Corporation area.

Table 10-2 Distribution of Dwelling Units, 2011

Area Name	Total/ Rural/ Urban	Total number of vacant census houses	Occupied Census Houses			No. of occupied locked census houses	Total No. of Census Houses
			Residence	Residence -cum- other use	Other Use		
1	2	3	4	5	6	7	8=3+4+7
Tamil Nadu	Total	1,641,049	18,086,992	380,709	2,930,421	127,550	**20,236,300**
	Rural	946,810	9,357,027	193,052	1,379,952	60,423	**10,557,312**
	Urban	694,239	8,729,965	187,657	1,550,469	67,127	**9,678,988**
Madurai	Total	82,261	782,110	14,804	123,751	7,515	**886,690**
	Rural	47,607	312,641	6,115	48,198	3,157	**369,520**
	Urban	34,654	469,469	8,689	75,553	4,358	**517,170**
Madurai (M Corp.)	Urban	16,776	262,163	3,398	44,835	2,603	**284,940**

Source: Census 2011

The data on vacant census houses in Tamil Nadu, Madurai, and Madurai Corporation unveils intriguing variations in housing dynamics across these geographical scales. Tamil Nadu registers an 8.11% vacancy rate, indicating a substantial proportion of unoccupied houses within the state. This figure may signify a multitude of factors such as seasonal migrations, properties awaiting sale or rental, or even ongoing construction projects.

Meanwhile, Madurai, a city within Tamil Nadu, displays a slightly higher vacancy rate of 9.28%, suggesting localized housing scenarios distinct from the

broader state trends. Potential reasons for higher vacancies in Madurai could include city-specific economic activities, evolving urbanization patterns, or unique housing market dynamics.

Conversely, Madurai Corporation, a local administrative body within the city, presents a lower vacancy rate of 5.89%, hinting at a comparatively better housing utilization and demand within this specific administrative boundary. This discrepancy in vacancy rates among the state, city, and Local Corporation emphasizes the significance of localized factors shaping housing dynamics and underscores the need for targeted policies to address these diverse housing scenarios effectively.

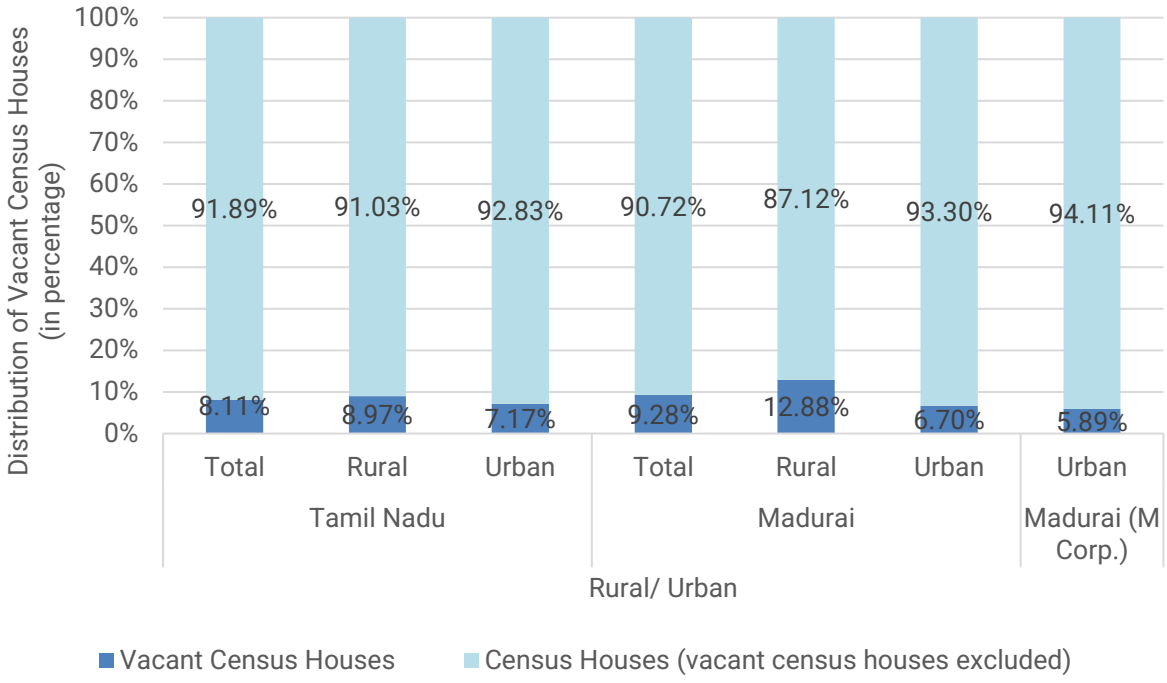
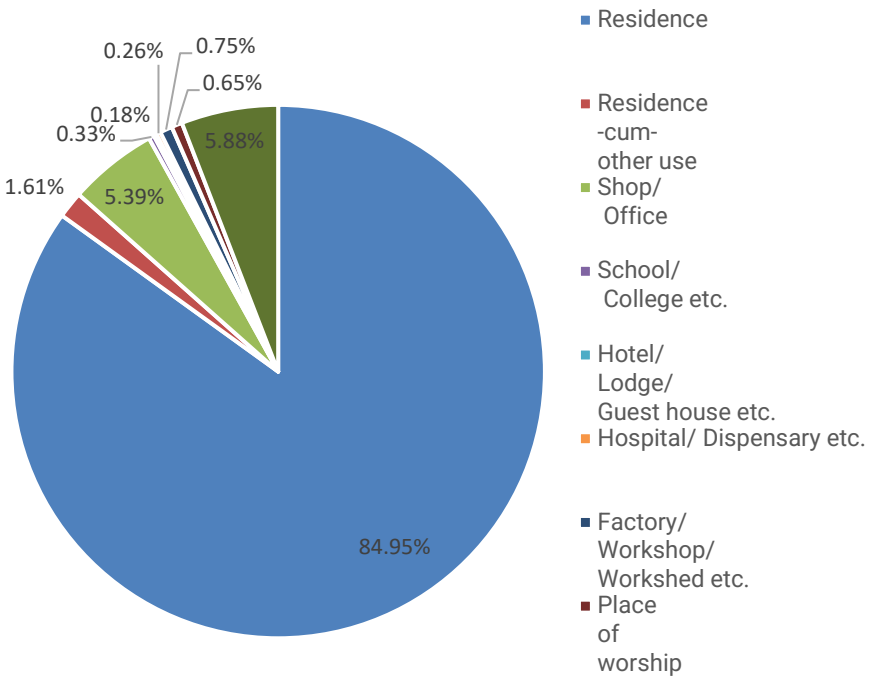


Figure 10-2Distribution of Vacant Census Houses, 2011
Source: Census 2011

The distribution of occupied census houses by use provides insights into how different properties are utilized. Here's an analysis of the given distribution:



The data indicates (Refer: Figure 10-3) a predominant use of census houses as residences, suggesting that the primary function of these properties is for residential purposes.

Figure 10-3 Distribution of Occupied Census Houses by Type of Use, 2011

Source: Census 2011

However, a noteworthy proportion of houses cater to commercial and specialized purposes like shops/offices, educational institutions, and non-residential uses.

The diverse use of these census houses highlights a multifaceted utilization of properties, contributing to a mixed-use environment encompassing both residential and non-residential activities within the surveyed area.

10.2.2. Distribution of Households by Ownership Status

The distribution of households by ownership status is a critical indicator that sheds light on the housing landscape within a given region or population. This analysis examines the different categories of household ownership—whether households own the dwelling they reside in or rent it from a landlord or institution. Understanding this distribution provides insights into various socio-economic aspects, housing policies, and the overall stability of the housing market.

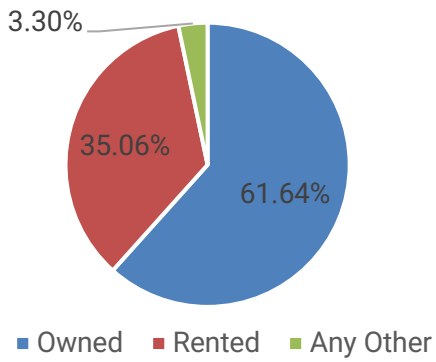


Figure 10-4 Households by Ownership Status, Madurai

Source: District Census Handbook, Madurai, 2011

The distribution of households by ownership status reveals intriguing insights into the housing landscape, reflecting varied preferences, socio-economic factors, and housing market dynamics within a specific area. The data indicates that a majority of households, comprising 61.64%, are homeowners, signifying a substantial inclination towards property ownership within this region. Homeownership often denotes stability, long-term investment, and a sense of belonging, potentially highlighting a financially secure or aspirational segment of the population.

Meanwhile, 35.06% of households fall into the rented category, indicating a significant portion of residents living in properties owned by landlords or institutions. This suggests a sizable demand for rental housing, potentially driven by factors such as housing affordability, transient lifestyles, or preference for flexibility.

The remaining 3.30% categorized as "any other" might encompass diverse housing arrangements like cooperative housing, living with relatives without formal rental agreements, or other unique living situations not fitting into the conventional owned or rented categories. Analyzing this distribution underscores the importance of understanding the nuances in housing preferences, economic factors, and societal dynamics that shape homeownership and rental choices, influencing policy decisions aimed at providing accessible, sustainable, and diverse housing options for the community.

Table 10-3 Distribution of Households by Ownership Status, 2011

Area Name	Ownership status		Total number of households	Households having number of dwelling rooms				
				No exclusive room	One room	Two rooms	Three rooms	3+ rooms
Madurai	Total	Total	797,939	41,018	348,476	246,884	107,832	53,729
		Rural	319,126	22,568	150,198	99,255	32,249	14,856
		Urban	478,813	18,450	198,278	147,629	75,583	38,873
	Owned	Total	491,822	27,227	200,997	152,538	69,339	41,721
		Rural	279,008	19,849	129,129	87,571	28,754	13,705
		Urban	212,814	7,378	71,868	64,967	40,585	28,016
	Rented	Total	279,755	12,411	135,527	86,238	34,821	10,758
		Rural	31,169	2,063	16,400	9,107	2,746	853
		Urban	248,586	10,348	119,127	77,131	32,075	9,905
	Any Other	Total	26,362	1,380	11,952	8,108	3,672	1,250
		Rural	8,949	656	4,669	2,577	749	298
		Urban	17,413	724	7,283	5,531	2,923	952

Source: District Census Handbook, Madurai, 2011

10.2.3. Condition of Census Houses

The census data comparing the condition of houses in Madurai district and Tamil Nadu as a whole provides insights into the housing conditions within these areas. In Madurai district, 75.47% of census houses are reported as being in good condition, 23.22% are considered livable, and only 1.31% are categorized as dilapidated. Meanwhile, across Tamil Nadu, 70.20% of houses are in good condition, 27.96% are livable, and 1.85% are dilapidated.

Table 10-4 Condition of Census Houses

Area Name	Total/ Rural/ Urban	Condition of Census House (Excluding Locked/ Vacant Houses)			
		Total	Good[2]	Livable[3]	Dilapidated[4]
Madurai	Total	796,914	601,414	185,036	10,464
	Rural	318,756	209,556	102,361	6,839
	Urban	478,158	391,858	82,675	3,625
Madurai (M Corp.)	Urban	265,561	223,042	40,904	1,615
Tamil Nadu	Total	18,467,701	12,963,855	5,162,831	341,015
	Rural	9,550,079	6,150,815	3,163,510	235,754
	Urban	8,917,622	6,813,040	1,999,321	105,261

Source: Census, 2011

The comparative analysis between Madurai district and the broader statistics for Tamil Nadu reveals several key observations. Firstly, Madurai district showcases a higher percentage of houses in good condition compared to the statewide average. This indicates a relatively better standard of housing maintenance or construction practices within Madurai district, suggesting a higher percentage of well-maintained and structurally sound houses compared to the overall state average.

However, despite the district's relatively higher percentage of houses in good condition, there's a slightly lower proportion of houses deemed as livable compared to the state average. This could imply a more stringent classification in Madurai regarding what constitutes a livable condition, or it might suggest that a fraction of houses that are categorized as livable in other parts of Tamil Nadu might be considered as good in Madurai district.

Moreover, the percentage of dilapidated houses in Madurai district is lower than the state average, indicating a relatively better state of housing infrastructure in terms of severely deteriorated or uninhabitable dwellings. This might suggest better maintenance practices or a lower occurrence of severely dilapidated housing structures in the district compared to the broader trends in Tamil Nadu.

Overall, the comparative analysis underscores the generally favorable condition of housing in Madurai district compared to the state average. However, it

2 Those houses which do not require any repairs and in good condition may be considered as 'Good.'
3 Those houses which require minor repairs may be considered as 'Livable.'
4 Those houses which are showing signs of decay or those breaking down and require major repairs or those houses decayed or ruined and are far from being in conditions that can be restored or repaired may be considered as 'Dilapidated.

also signals potential nuances in classification criteria or regional disparities in housing standards, which could impact how housing conditions are assessed and categorized between different regions within Tamil Nadu.

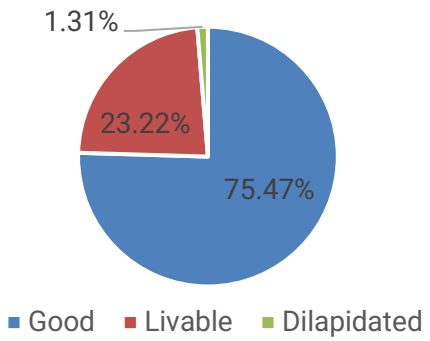


Figure 10-5 Census Houses by Condition, Madurai

Source: Census, 2011

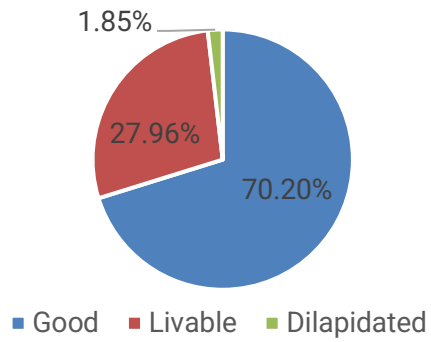


Figure 10-6 Census Houses by Condition, Tamil Nadu

Source: Census, 2011

10.2.4. Census Houses by Type of Structure

Understanding this distribution of housing structures is crucial for urban planning and housing policies, emphasizing the need to ensure adequate and durable housing for communities while addressing the challenges associated with temporary and semi-permanent structures. Efforts focused on improving housing quality and promoting sustainable housing options could significantly impact the overall living standards within the region.

The census data on housing structures in Madurai showcases a predominant reliance on permanent structures[5], constituting approximately 79.05% of the total.

Meanwhile, semi-permanent structures[6] account for 15.34% of the total census houses, representing constructions that might incorporate a mix of

5 Houses with wall and roof made of permanent materials. Wall can be made of G.I., Stone packed with Mortar, Stone not packed with Mortar, Metal, Asbestos sheets, Burnt bricks, Stone or Concrete. Roof can be made of Hand-made tiles, Machine made tiles, Slate, G.I., Metal, Asbestos sheets, Brick, Stone or Concrete.

6 Either wall or roof is made of permanent material and other is made of temporary material.

permanent and less durable materials, possibly offering moderate durability and stability.

Temporary housing structures[7], comprising 4.71% of the census count, denote dwellings made from less durable materials such as mud, thatch, or other temporary resources, likely posing challenges in terms of longevity and structural integrity. Additionally, the presence of unclassifiable structures at 0.89% suggests a category requiring further investigation or clarification due to ambiguity in their construction classification.

Table 10-5 Census Houses by Type of Structure

District	Total/ Rural/ Urban	Total number of census houses	Type of Census Houses					
			Permanent	Semi-permanent	Temporary			Unclassifiable
					Total	Serviceable	Non-serviceable	
Madurai	Total	920,665	727,786	141,248	43,401	29,501	13,900	8,230
Madurai	Rural	366,954	229,987	98,351	33,969	23,760	10,209	4,647
Madurai	Urban	553,711	497,799	42,897	9,432	5,741	3,691	3,583
Tamil Nadu	Total	21,398,122	15,296,025	3,212,188	2,659,273	1,866,782	792,491	230,636
Tamil Nadu	Rural	10,930,031	6,619,742	2,011,261	2,176,039	1,574,954	601,085	122,989
Tamil Nadu	Urban	10,468,091	8,676,283	1,200,927	483,234	291,828	191,406	107,647

Source: Census 2011

7 Houses with wall and roof made of temporary material. Wall can be made of Grass, Thatch, Bamboo etc., Plastic, Polythene, Mud, Unburnt brick or Wood. Roof can be made of Grass, Thatch, Bamboo, Wood, Mud, Plastic or Polythene.

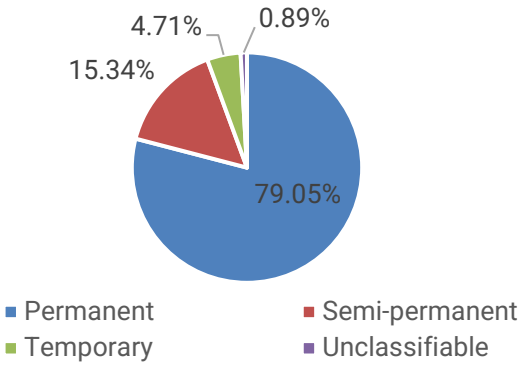


Figure 10-7 Census Houses by Type of Structure, Madurai district
Source: Census 2011

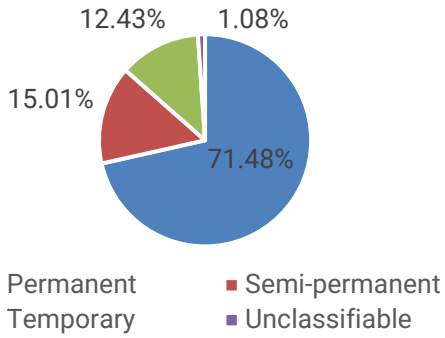


Figure 10-8 Census Houses by Type of Structure, Tamil Nadu
Source: Census 2011

10.3. Government Housing Profile

Government agencies involved in housing supply are as;

1. Tamil Nadu Housing Board (TNHB)
2. Tamil Nadu Urban Habitat Development Board (TNUHDB)
3. Rural Development and Panchayat Raj Department

10.3.1. Tamil Nadu Housing Board (TNHB)

The primary objectives of the TNHB include developing residential layouts, constructing houses, and providing housing units at reasonable prices. It focuses on catering to different income groups by offering various housing schemes, such as economic weaker section (EWS), low-income group (LIG), middle-income group (MIG), and higher-income group (HIG).

Table 10-6: Tamil Nadu Housing Board - Madurai Housing Unit Project

S. No	Name of the Scheme	Status
Area Development Scheme		
1	ADS for 73 plots at Anuppanadi scheme, Madurai.	Completed
2	Area Development Scheme 57 plots with construction of 40 houses at vilangudi (near Indian bank), Madurai.	Completed

S. No	Name of the Scheme	Status
3	Construction of 40 houses (14 HIG & 26 MIG) in the Area Development Scheme at Silayneri village (near Ullavar Sandhai), Madurai.	Completed
4	Construction of Amma Thirumana Mandapam at Anna nagar, Madurai.	Completed
5	Area Development Scheme for 38 plots in Koodalpudur, (2.09 Acres) Thathaneri (v), Madurai North Taluk, Madurai.	Completed
6	ADS of 22 plots at Kudalputhur, Madurai.	Completed
7	Area Development Scheme for 33 plots in Thathaneri (v), Madurai North Taluk, Madurai.	Completed
8	ADS of 18 plots (HIG-9 & MIG-9) at Thathaneri (v), Madurai.	Completed
9	Area development scheme of 79 plots at sector-III in Thathaneri, Madurai	Completed
10	Area development scheme of 46 plots at Ellis Nagar, (S.No.218/3, Madurai.	Completed
Self-Finance Scheme		
1	Construction of 30 flats at Ellis Nagar, Madurai	Work under progress
TNGRHS		
1	Construction of 224 TNGRHS flats at DRO Colony, Madurai	Work under progress
Ancillary		
1	Construction of DTCP Office at Madurai.	Completed

Source: Tamil Nadu Housing Board, Madurai

10.3.1.1. Tamil Nadu Government Rental Housing Scheme

8.6% of total dwelling units under Tamil Nadu Rental Housing Scheme (TNGRHS) is in Madurai District.

Table 10-7 Housing Supply under Tamil Nadu Government Rental Housing Scheme, 2023-24

S. No.	Location	No. of Units
1	Madurai	224
2	Tamil Nadu	2609

Tamil Nadu Housing Board is planning to provide 224 dwelling units under Tamil Nadu Rental Housing Scheme for the year 2023-24[8].

10.3.2. Tamil Nadu Urban Habitat Development Board[9]

Table 10-8: Rehabilitation Projects

No.	Urban Habitat Projects	No of Units
1	Karadikkal	840
2	Uchapatti	672
3	Athikulam	320
4	Manjalmedu	320

Tamil Nadu Urban Habitat Development Board is entrusted with the task of implementing various Housing, Slum Development and Rehabilitation and Resettlement programmes to ameliorate the

8 Policy Note, Housing and Urban Development Department, 2023-24
9 Erstwhile know as Tamil Nadu Slum Clearance Board

5	Avaniyapuram	64
6	Karuthapuliyampatti	400
7	Therkkutheru	512
8	Rajakoor	512
Total		**3640**

living conditions of the slum families in Tamil Nadu[10].

Figure 10-9: Rehabilitation Projects

10.3.3. Rural Development and Panchayat Raj Department

The Rural Development and Panchayat Raj Department is responsible for the implementation of various Centrally-sponsored, State-funded and Externally-aided schemes for poverty alleviation, employment generation, sanitation, capacity building, women's social and economic empowerment, apart from provision of basic amenities and services. The Department is also entrusted with the

10 Tamil Nadu Urban Habitat Development Board, https://tnuhdb.tn.gov.in/

responsibility of enabling the various Panchayat Raj Institutions (PRIs) to function as effective units of Local Self-Government[11].

10.3.3.1. Chief Minister Solar Powered Green House Scheme (CMSPGHS)

Around 9, 502 housing units are supplied under the CMSPGHS[12] from 2011 to 2016.

Table 10-9 Housing Supply under CMSPGHS, 2011 to 2016, Madurai district

S. No	District	2011-2012		2012-2013		2013-2014		2014-2015		2015-2016	
		Physical (In Numbers)	Financial (Rs. In Lakhs.)	Physical (In Numbers)	Financial (Rs. In Lakhs.)	Physical (In Numbers)	Financial (Rs. In Lakhs.)	Physical (In Numbers)	Financial (Rs. In Lakhs.)	Physical (In Numbers)	Financial (Rs. In Lakhs.)
1	MADURAI	1897	2845.5	1887	2830.5	1887	3396.6	1887	3396.6	1944	3499.2
Tamil Nadu		60,000	90,000	60,000	90,000	60,000	1,08,000	60,000	1,08,000	60,000	1,08,000

Source: Rural Development and Panchayat Raj Department, Government of Tamil Nadu, data accessed in Dec 2023.

10.4. Continuous Building Area

The continuous building area refers to a specific zone category. This aids in facilitating plots with a smaller area and frontage in earlier settlements and population density within a master plan. CBA area is delineated based on parameters such as old settlements area, narrow roads, and less green cover.

In accordance with the TNCDBR, these places have been classified as areas for the construction with a special regulation such as lower set back, lesser FAR/ FSI. The purpose of setting apart an area is to control and direct development considering diverse economic, environmental, and social factors.

Table 10-10 CBA Blocks in Urban Local Body (ULB)

ULB Name	Ward	Block
Madurai	1	32, 33, 34, 35, 44, 45
Madurai	2	8,9,10,11,12,13,16,17,18,19,20,21
Madurai	3	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,20
Madurai	4	2,3,4,5,6,7,8,9,10,17,18,19

11 Rural Developmen6t and Panchayat Raj Department, https://www.tnrd.tn.gov.in/aboutus.html
12 'Solar Powered Gre7en House Scheme' is for the benefit of the poor in the rural areas by constructing houses measuring about 300 square feet at a unit c8ost of Rs.1.80 lakh by meeting the entire cost by the State Government."

ULB Name	Ward	Block
Madurai	5	5,3,4,5,6,7,8,9,10,11,87
Madurai	6	1,2,3,4,5,6,7,8,9,10
Madurai	7	2,3,4,5,6,7,8,9
Madurai	8	5,6,7,8,9,10,11,12
Madurai	9	1,2,3,4,5,9,10
Madurai	00A	18,20,22,23,24
Madurai	00C	1,2,8,9,10,11,17,18,19,20,21,22,27
Tirumangalam	00A	20,22,23,24
Tirumangalam	00C	1,2,8,9,10,11,17,27
Melur	00A	18
Melur	00C	17,18,19,20,21,22

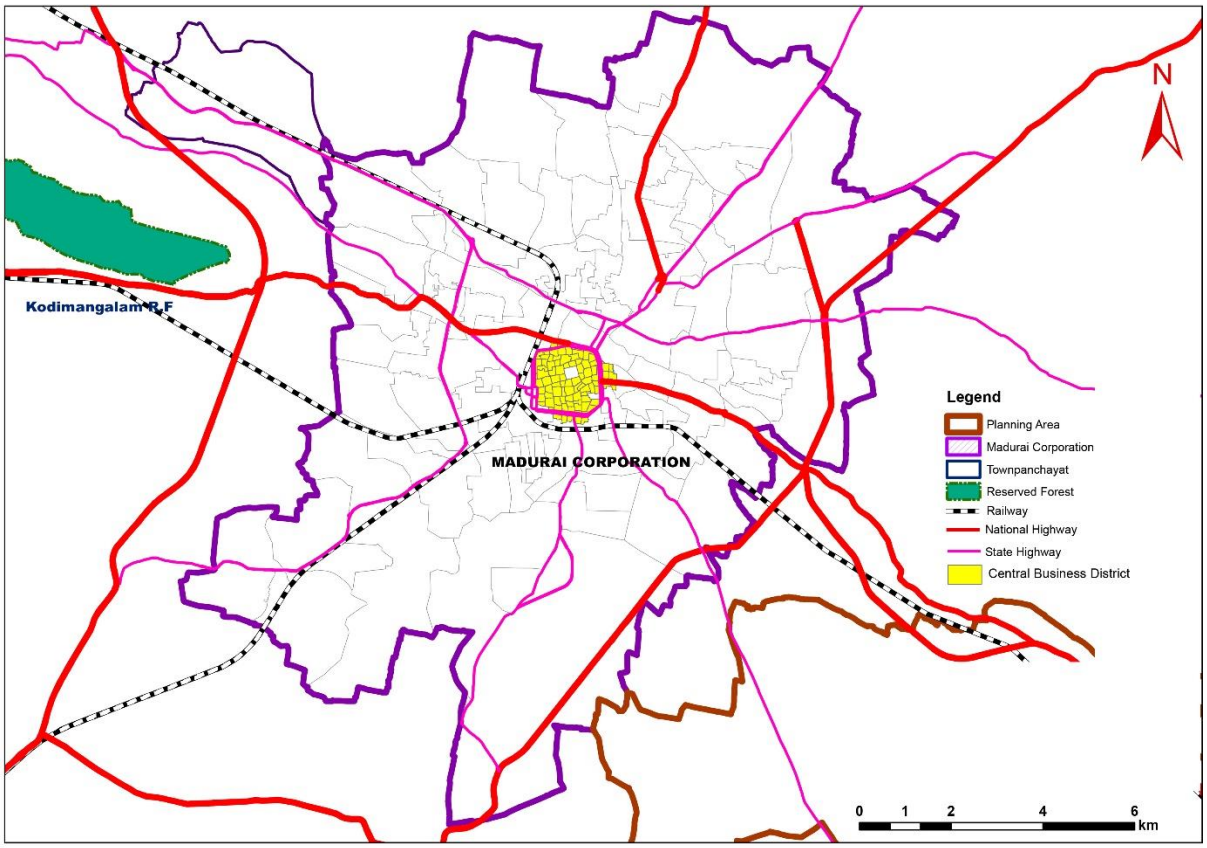


Figure 10-10 Continuous Building Area, Madurai Corporation

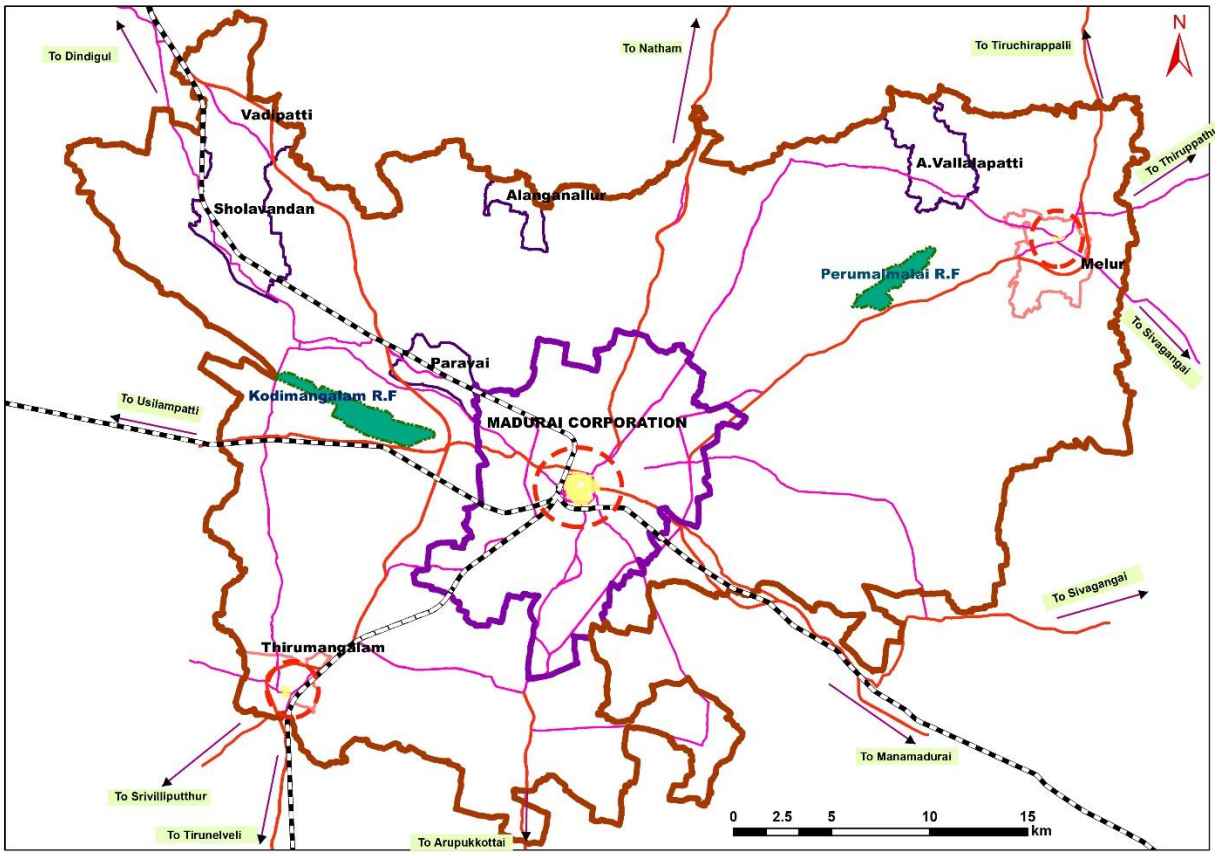


Figure 10-11 Continuous Building Area, Madurai LPA

10.5. Slum Profile of Madurai

Urban habitats or Slums is defined as “a contiguous settlement where the inhabitants are characterized as having inadequate housing and basic services” by UN-Habitat.

As the urbanization increasing rapidly, most of Indian cities becomes overcrowded with increased migration. The unutilized space in cities is populated in unhygienic space that are socially fragmented space. Even near to the big developments in the cities, these fragmented spaces have inadequate services.

An expert group meeting was convened in 2002 by UN Habitat, the United Nations Statistics Division (UNSD) and the Cities Alliance to agree on the operational definition for slums to be used for measuring the indicator of MDG 7 Target 7.D.

The agreed definition classified a 'slum household' as one in which the inhabitants suffer one or more of the following 'household deprivations':

1. Lack of access to improved water services,
2. Lack of access to improved sanitation facilities,
3. Lack of sufficient living area,
4. Lack of housing durability and,
5. Lack of security of tenure

By extension, the term 'slum dweller' refers to a person living in a household that lacks any of the above attributes[13].

The rate of change of slum from 2013 to 2023 is 2.17 and that of slum household is 1.63. There is an increase of 131 slums from 2013 to 2023 (Refer Table 10-11).

Table 10-11 Slum Profile of Madurai Corporation

Madurai Corporation	No. of Slums		Slum Population		Slum Households		Slum Houses	Population	Households	Census Houses
	2013[14]	2023[15]	2013[14]	2023	2013[14]	2023	2013[14]	2011	2011	2011
Notified Slums	46	189	65249	234730	17560	52162	17353	1472946	382909	284940
Non-Notifies Slums	154	142	81880	231590	21963	51464	21713			
Total	200	331	147129	466320	39523	103626	39066			

In Madurai Corporation, 10% of the total population resides in slum areas, reflecting a significant proportion facing inadequate living conditions. Moreover, out of the total households within the corporation, 10.32% are situated in these slum settlements.

These statistics signify the prevalence and persistence of housing challenges within the city, highlighting issues of overcrowding, insufficient housing facilities, and inadequate living standards. Tackling these challenges necessitates holistic approaches encompassing urban development strategies, housing reforms, and targeted interventions to uplift slum settlements, improve living conditions, and ensure the provision of essential services for the residents living in these areas.

13 Metadata on SDGs Indicator 11.1.1, Indicator Category: Tier I, UN Habitat
14 Slum Free City Plan of Action, Madurai Corporation, 2013
15 Madurai Municipal Corporation, 2023

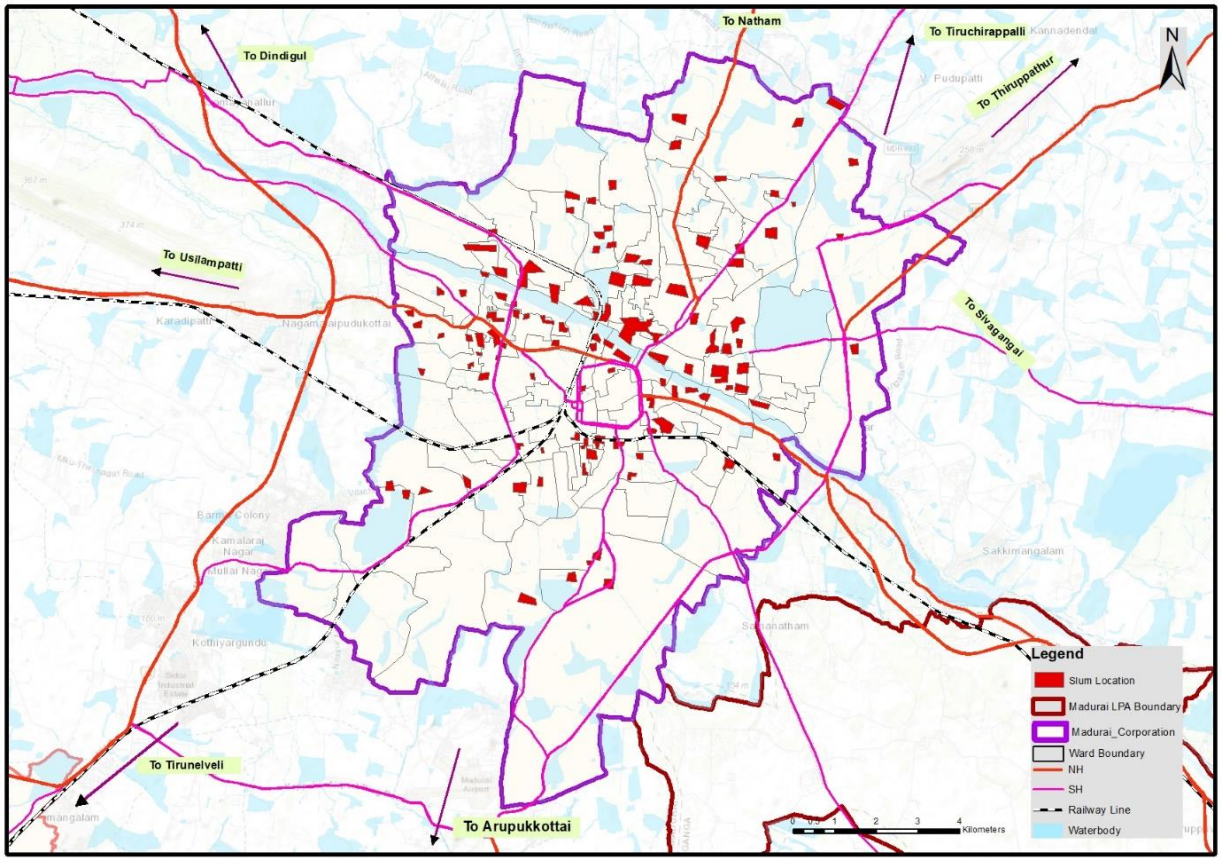


Figure 10-12 Existing Slums in Madurai Corporation

Source: Generated with reference to Slum Free City Plan of Action, Madurai, April 2013

10.5.1. Type of Structure

In Madurai Corporation's slum areas, the housing landscape is characterized by a diverse mix of dwelling conditions. Approximately 45.39% of houses stand as Pucca[16] structures, constructed with enduring materials such as bricks, concrete, or cement. These Pucca houses offer more robust and long-lasting accommodation, providing residents with a certain degree of stability and durability.

Conversely, a smaller proportion, around 7.43%, comprises Kutcha houses. These dwellings are built with temporary materials like mud, thatch, or bamboo, rendering them more susceptible to environmental elements and structural

16 Pucca building may be treated as one which has its walls and roof made of the following materials: Wall material: Stones (duly packed with lime or cement mortar), G.I/metal/asbestos sheets, burnt bricks, Cement bricks, Concrete. Roof material: Machine-made tiles, Cement tiles, burnt bricks, Cement bricks, Stones, Slate, G.I./Metal/Asbestos sheets, Concrete.

vulnerability. Kutcha[17] houses often lack the resilience and permanence of Pucca structures, posing challenges for the inhabitants in terms of shelter and protection.

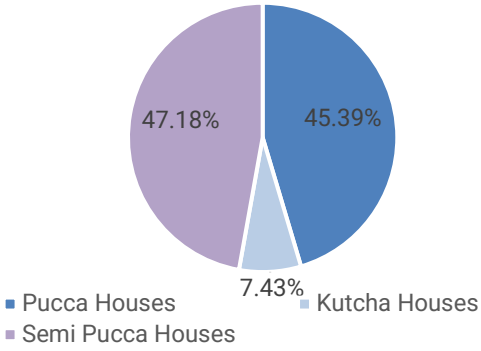


Figure 10-13 Housing Condition, Madurai Corporation

Source: Slum Free City Plan of Action, Madurai Corporation, April 2013

The majority, accounting for approximately 47.18%, fall under the category of semi Pucca houses. These dwellings represent a blend of characteristics from both Pucca and Kutcha housing types. They may exhibit features of durability alongside elements of vulnerability, depending on the materials and construction techniques employed.

This diverse range of housing conditions within the slum areas of Madurai Corporation underlines the varied challenges faced by residents, including issues of inadequate infrastructure, overcrowding, and limited access to essential services. Efforts to improve living conditions may involve upgrading Kutcha houses to more durable structures, enhancing overall infrastructure, and ensuring better access to vital amenities for the residents of these areas.

10.5.2. Condition of Slums

Slums are categorized into objectionable and non-objectionable based on their conditions[18].

As of 2023, the condition of slums within Madurai Corporation reveals a diverse distribution among different categories. The data indicates that 46.81% of the slum areas are classified as unobjectionable, depicting comparatively better living conditions for the residents. These areas likely have improved access to basic

17 Buildings, the walls and/or roof of which are predominantly made of materials other than those mentioned above such as unburnt bricks, bamboos, mud, grass, reeds, thatch, plastic/ polythene, loosely packed stone, etc., may be treated as Kutcha buildings.
18 Tenable vs. Untenable: The TNSCB uses this classification to determine whether a slum settlement is fit for improvement or needs to be relocated. The criteria used for assessing tenability are based on whether the land occupied by the slum is habitable.
Objectionable vs. Unobjectionable: Objectionable slums include those considered untenable as well as slums those that are on land required for public purpose.

amenities, relatively adequate housing, and more developed infrastructure compared to objectionable slums.

However, a notable 6.21% fall into the category of objectionable slums, signaling severe deficiencies in housing quality, infrastructure, and essential services. These areas are characterized by significant challenges, including inadequate sanitation, substandard housing, and potential health hazards.

Additionally, a smaller proportion, approximately 0.27%, represents semi-tenable slums, marking a category that lies between objectionable and unobjectionable conditions. Top of Form

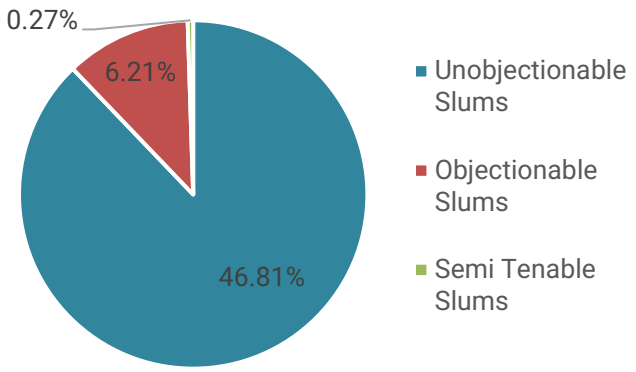


Figure 10-14 Condition of Slums in Madurai Corporation, 2013

Source: Slum Free City Plan of Action, Madurai Corporation, April 2013

Addressing the issues in objectionable slums and improving conditions in semi-tenable areas are crucial steps in enhancing overall living standards and uplifting the quality of life for residents in Madurai Corporation's slum settlements.

Within Madurai Corporation, the unobjectionable slums exhibit a spectrum of conditions, yet a staggering 96.59% of these areas grapple with dual challenges—lacking both adequate housing and essential infrastructure. This substantial majority faces significant deficits in both housing quality and basic amenities, suggesting a dire need for comprehensive interventions. The absence of proper housing denotes dwellings that might be structurally unsound, lacking durability, and possibly unable to provide adequate shelter to residents. Simultaneously, the absence of essential infrastructure underscores deficiencies in access to clean water, sanitation facilities, healthcare, and other vital services.

A smaller portion, around 1.70%, primarily suffers from a lack of infrastructure. These areas might have relatively better housing conditions but struggle with inadequate basic services and infrastructure, hindering residents' access to essential facilities. Similarly, another 1.14% of unobjectionable slums primarily face challenges related to insufficient housing. These areas might have

some level of infrastructure but struggle with housing inadequacies, potentially leading to overcrowding or substandard living conditions.

Remarkably, a mere 0.57% of the unobjectionable slums are categorized as fairly improved and requiring only minor improvements, possibly indicating areas that have seen some positive changes and might need smaller-scale interventions like desilting or minor infrastructure upgrades.

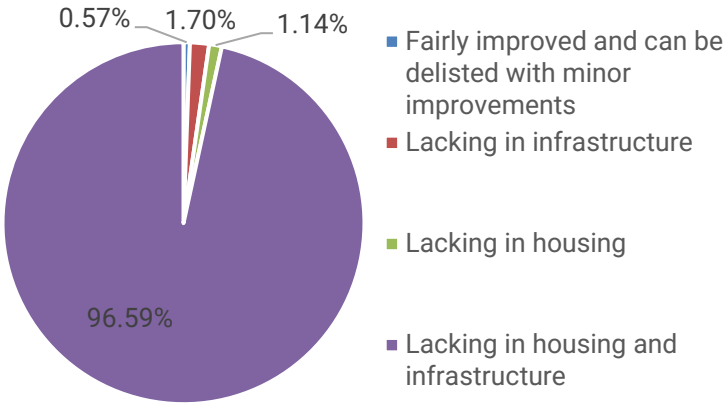


Figure 10-15 Condition of Unobjectionable Slums, Madurai Corporation, 2013

Source: Slum Free City Plan of Action, Madurai Corporation, April 2013

Addressing the predominant issue of lacking both housing and infrastructure in over 96% of unobjectionable slums stands as a crucial priority. Implementing comprehensive strategies to improve housing quality, infrastructure, and access to basic services is imperative to uplift living standards and ensure dignified living conditions for the residents of these areas within Madurai Corporation.

10.5.3. Size of Slum Houses

In the slum areas of various cities, including those within Madurai Corporation, the sizes of houses exhibit a striking diversity with significant implications for living conditions. Nearly half of the dwellings, comprising approximately 49% of the total, occupy an area of less than 20 square meters. These compact living spaces often present challenges in accommodating families, resulting in crowded and congested environments that may lack adequate room for basic amenities or personal privacy.

A substantial portion, around 36%, falls within the range of 21 to 40 square meters. While slightly larger than the smaller-sized houses, these dwellings still tend to be relatively cramped, requiring careful spatial management to meet the needs of the inhabitants.

Moreover, a smaller but noteworthy 7% of houses measure between 41 and 60 square meters, providing comparatively more space for residents. These dwellings might offer a slightly improved living environment, affording a bit more comfort and room for essential amenities.

Finally, a modest 8% of houses in slum areas exceed 61 square meters. These relatively larger dwellings, although in the minority, likely offer a more comfortable living experience compared to their smaller counterparts, providing more space for families and a potential for improved living standards.

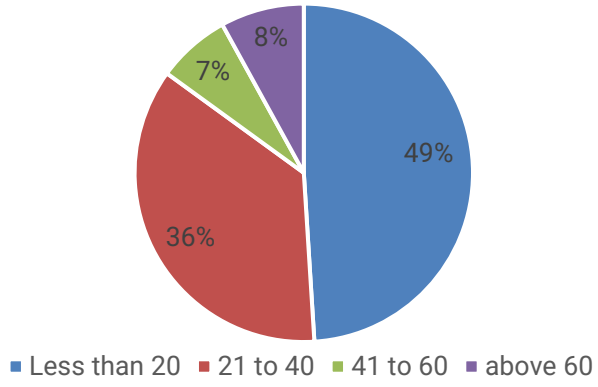


Figure 10-16 Size of Slum Houses (area in sq. m)

Source: Slum Free City Plan of Action, Madurai Corporation, April 2013

The prevalence of houses smaller than 20 square meters highlights the significant challenge of housing scarcity and overcrowding within these urban areas. Efforts to improve living conditions in slums should include initiatives focused on enhancing housing quality, providing better infrastructure, and addressing the spatial constraints to ensure dignified and adequate housing for the residents.

10.5.4. Poverty

The Multidimensional Poverty Index (MPI) is a measure of poverty considering three dimensions of deprivation. It was developed by the Oxford Poverty and Human Development Initiative (OPHI) in collaboration with the United Nations Development Programme (UNDP) and is designed to provide a more comprehensive view of poverty than traditional income-based measures.

The MPI identifies people who experience poverty based on a set of deprivations that go beyond income poverty. It measures the percentage of people who are deprived in each of the following three dimensions:

1. Health: measured by nutrition and child mortality
2. Education: measured by years of schooling and school attendance

3. Standard of living: measured by access to electricity, clean water, sanitation, and basic assets such as a cooking stove or a floor that is not made of dirt.

The headcount ratio for this index is calculated by dividing the number of people living below the poverty line by the total population. The MPI assesses poverty at the individual or household level, using data from household surveys. It is calculated by multiplying the percentage of people who are deprived in each of the three dimensions, and then multiplying the result by the intensity of poverty in each dimension. The intensity of poverty measures the average percentage of deprivation experienced by poor people. It can be used in conjunction with the headcount ratio to provide a more comprehensive picture of poverty.

Table 10-12: Parameters of MPI

District	Headcount Ratio	Intensity	MPI
India	25.01%	47.13%	0.118
Tamil Nadu	4.89 %	39.97 %	0.02
Madurai District	6.15%	39.28%	0.024

Source: National Multidimensional Poverty Index (2021)

The headcount ratio of Madurai district is much lower than that of the national level. However, the district has a marginally higher ratio than the state. The intensity of poverty is lower than the national percentage. The intensity can be further reduced with the provision of basic infrastructure, access to health and education facilities, empowering marginalized groups and increasing employment generation in the planning area. Overall, reducing multidimensional poverty requires a comprehensive and sustained effort from governments, civil society, and other stakeholders, as well as a commitment to addressing the underlying structural causes of poverty.

10.6. Key Findings

1. This dual representation of both population and households (10% out of total population/ households) emphasizes the substantial impact of slums on the local community, indicating that a notable segment of the population lives in substandard housing with limited access to basic amenities and infrastructure (Madurai Corporation).
2. An increase of 3.19 lakhs of slum population is observed from 2013 to 2023.
3. Around 10% of total census houses remains vacant in Madurai district.
4. The intensity of poverty in Madurai district, 0.024 (MPI) is lower than the national percentage (0.118).

11

HERITAGE AND TOURISM

11.1. Architectural and Built Heritage: A Chronicle of Madurai's Cultural Identity

Madurai, an ancient city steeped in history, unveils its cultural identity through an intricate tapestry of architectural and built heritage. Over two millennia, the city's landscape has been shaped by a confluence of historical, religious, and artistic influences, with each epoch leaving an indelible mark on its unique character.

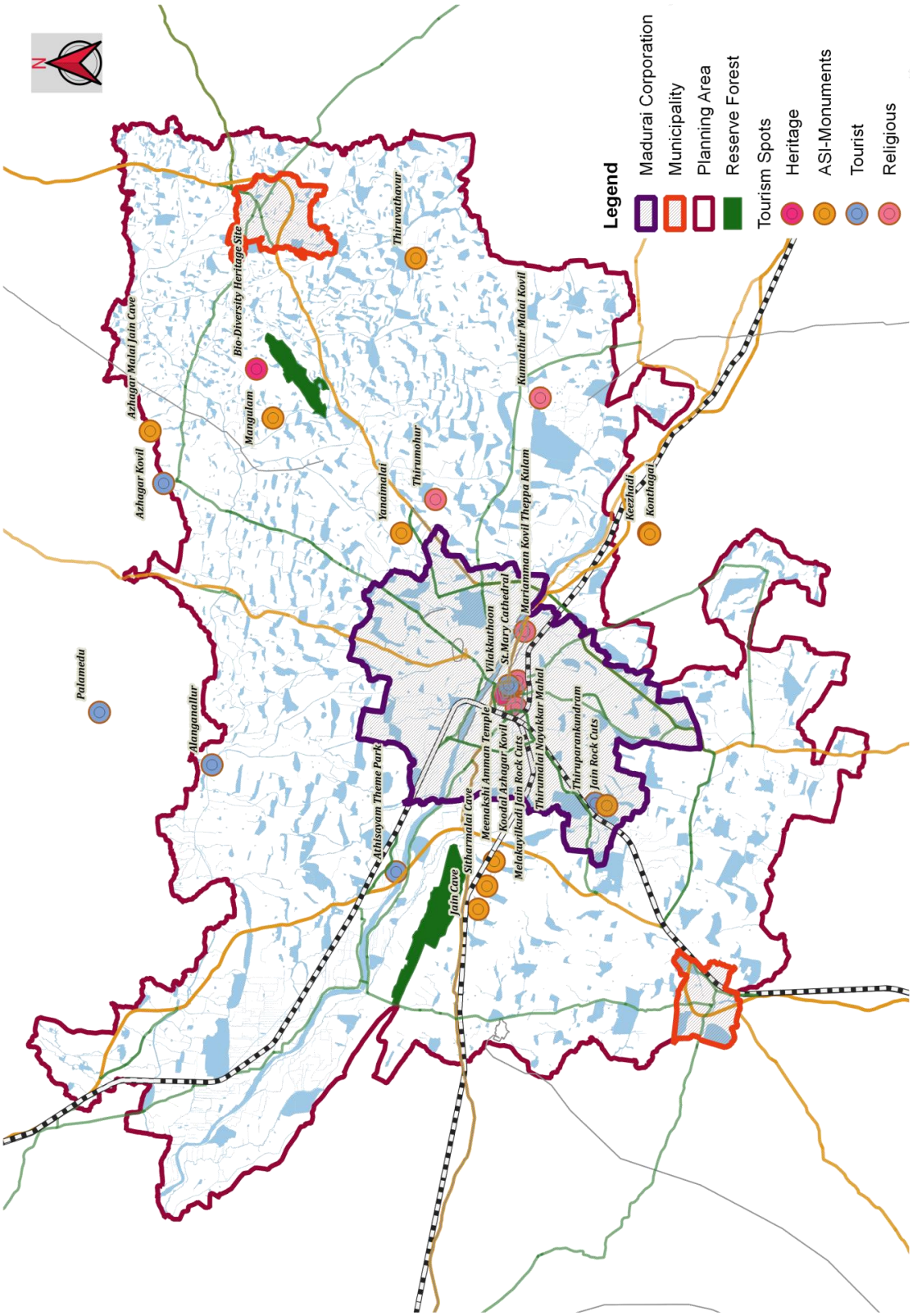
The Nayak dynasty, particularly under the visionary rule of King Thirumalai Nayak, played a pivotal role in crafting Madurai's architectural narrative. Grand palaces and opulent structures stand as enduring testaments to their regal vision, reflecting the city's historical evolution through intricate designs and structural magnificence.

Revered as the "Temple City," Madurai thrives on religious traditions that have given rise to monumental structures serving as sacred abodes. The Meenakshi Amman Temple, dedicated to goddess Meenakshi and Lord Sundareswarar, epitomizes the seamless integration of religious fervor with architectural brilliance. Beyond mere worship spaces, the temple stands as a living embodiment of the community's faith and devotion, resilient through centuries.

Madurai's architectural and built heritage serves as a vibrant expression of its cultural ethos. Intricate carvings, vibrant frescoes, and majestic courtyards showcase the artistic prowess of the region. The Meenakshi Amman Temple's sculptures and the regal grandeur of Thirumalai Nayakkar Palace transcend their physical forms, embodying the cultural aspirations and aesthetic sensibilities of Madurai's inhabitants.

In conclusion, Madurai's architectural heritage is a harmonious amalgamation of history, spirituality, and artistic brilliance. The interplay of historical epochs, religious traditions, and artistic expressions becomes imperative for the comprehensive documentation and preservation of Madurai's legacy. These heritage sites are not merely structures, but narratives etched in stone, embodying the soul of Madurai and calling for preservation to resonate for generations to come.

Beyond being structures of stone and mortar, Madurai's heritage sites narrate a timeless story. Understanding and documenting this narrative becomes imperative for preserving the essence of Madurai, ensuring that its cultural legacy continues to inspire and endure through the ages.



Map 11-1 Major Tourism spots and Heritage spots

11.2. Places Of Significance

11.2.1. Archaeological and Historical Sites

11.2.1.1. Meenakshi Amman Temple

The Meenakshi Amman Temple, located in the heart of Madurai, is a celebrated Hindu temple dedicated to Goddess Meenakshi (an incarnation of Parvati) and her consort, Lord Sundareswarar (an incarnation of Shiva). Renowned for its architectural grandeur, religious significance, and cultural importance, the temple is a vibrant symbol of Madurai's rich heritage.

Architectural Splendor

The temple's architecture is a stunning representation of Dravidian style, characterized by towering gopurams (gateway towers), intricately carved pillars, and vibrant sculptures depicting mythological narratives. The temple complex covers an extensive area and includes several mandapams (halls), each adorned with unique carvings and sculptures.

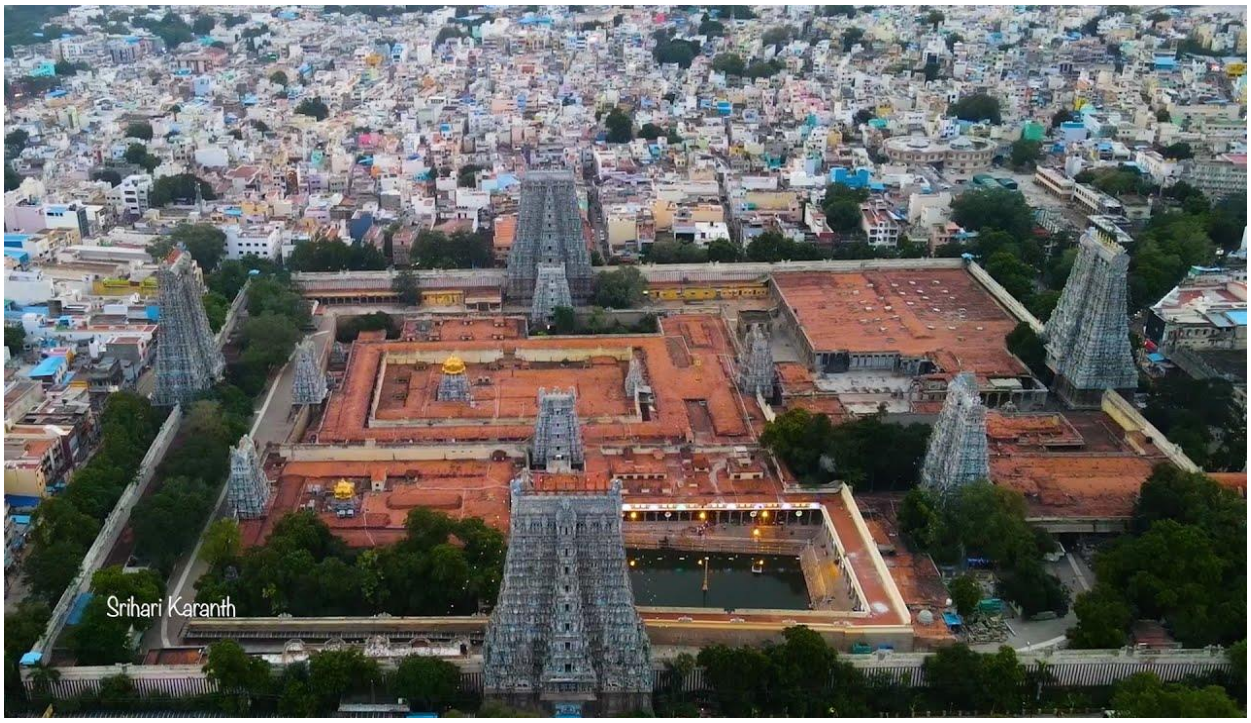


Figure 11-1 Meenakshi Amman Temple

Connectivity

Situated in the heart of Madurai, The Meenakshi temple is in the heart of historic Madurai city, about a kilometer south of the Vaigai River. It is about 460 kilometers (290 mi) southwest of Chennai, the state capital.

The temple complex is well connected with a road network (four lane National Highway 38), near a major railway junction and an airport with daily services. The city roads radiate from the temple complex and major ring roads form a concentric pattern for the city, a structure that follows the Silpa Sastra guidelines for a city design.

Madurai is one of the many temple towns in the state which is named after the groves, clusters or forests dominated by a particular variety of a tree or shrub and the same variety of tree or shrub sheltering the presiding deity. The region is believed to have been covered with Kadamba Forest and hence called Kadambavanam.

Intricate cultural details about the Temple

Historical Roots: The Meenakshi Amman Temple has ancient origins dating back to the 7th century, with successive rulers contributing to its architectural evolution.

Golden Lotus Tank: The temple complex includes the sacred Golden Lotus Tank, known for its spiritual significance and vibrant festivals.

Thousand Pillar Hall: A marvel within the temple complex, this hall is adorned with intricately carved pillars, each telling a story through its detailed sculptures.

Musical Pillars: The temple is renowned for its musical pillars, each producing a unique musical note when struck.

Temple Artistry: The temple's walls are adorned with exquisite sculptures depicting various scenes from Hindu mythology, showcasing the artistic brilliance of the craftsmen of yore.

Figure 11-2 Golden Lotus Tank

Figure 11-3 1000 Pillar Hall, Madurai

The Meenakshi Amman Temple stands not only as a place of worship but also as a living testament to the rich cultural and religious heritage of Madurai. Its grandeur, festivals, and historical significance continue to captivate the hearts of devotees and tourists alike.

Tourist movement in Meenakshi Amman Temple

Several tourists visit daily. This temple is an active house of worship. Many festivals and events are conducted during each month in Tamil calendar. It is observed that the number of pedestrians is highest on the east gate and maximum number prevailed during Fridays and Saturdays.

The Figure 11-5 shows the number of pedestrians entering and exiting during each day of the week. This shows the maximum movement in the east gate with highest number of people during Fridays. The roads surrounding the temple has large number of commercial establishments leading to on street parking.

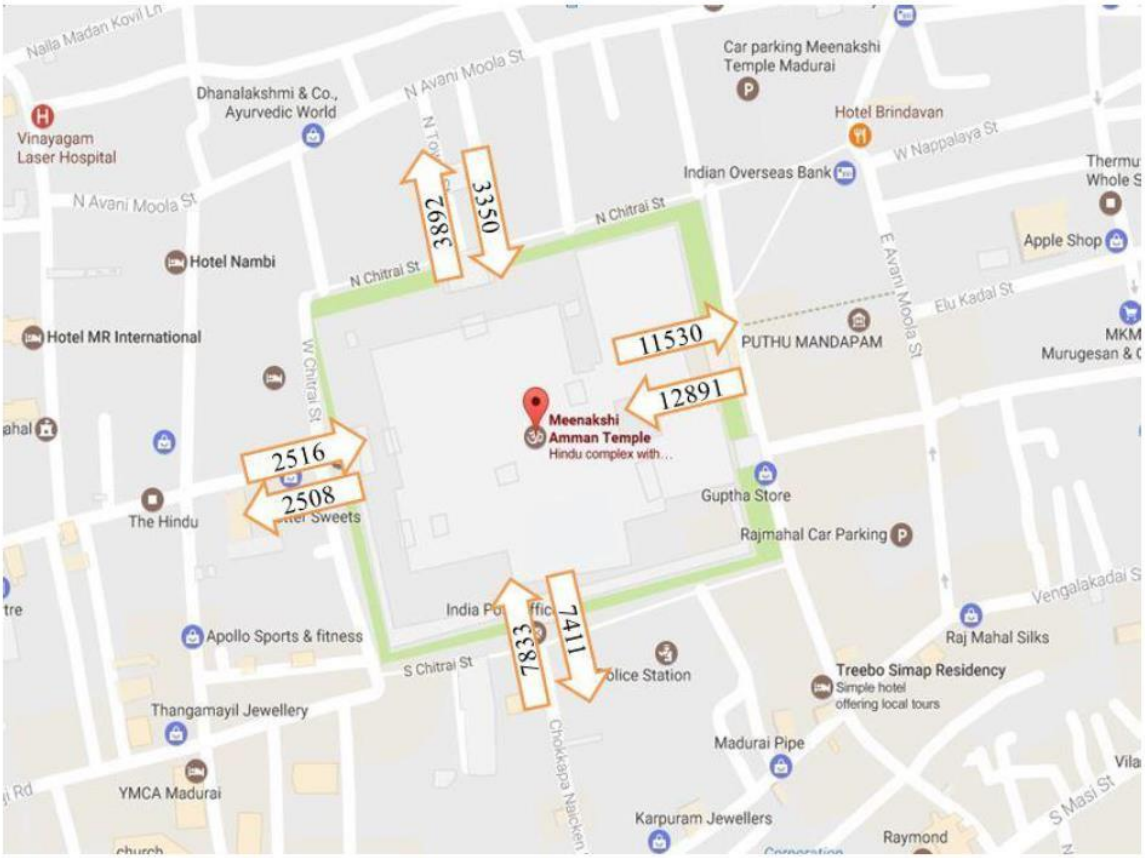


Figure 11-4 Movement of people in and out of Meenakshi Amman Temple

Source: Madurai CMP, Report

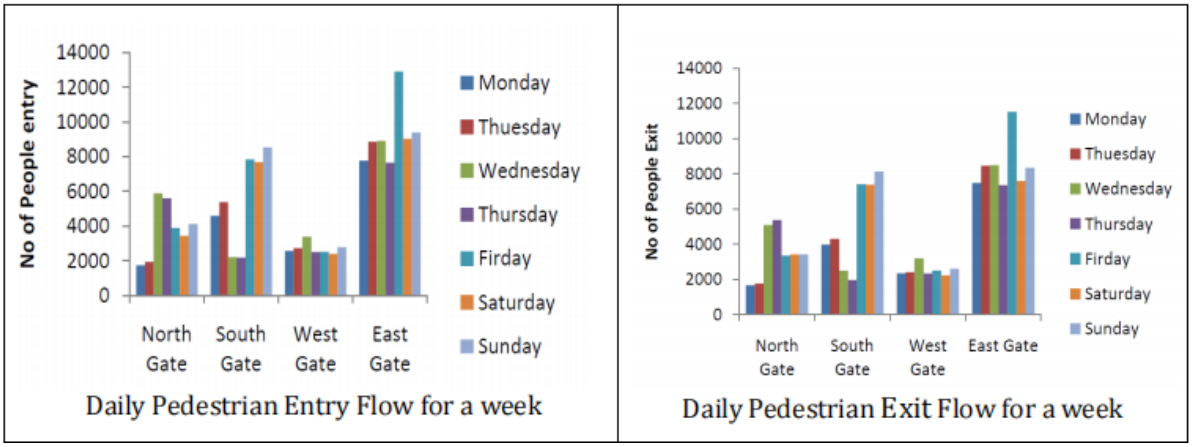
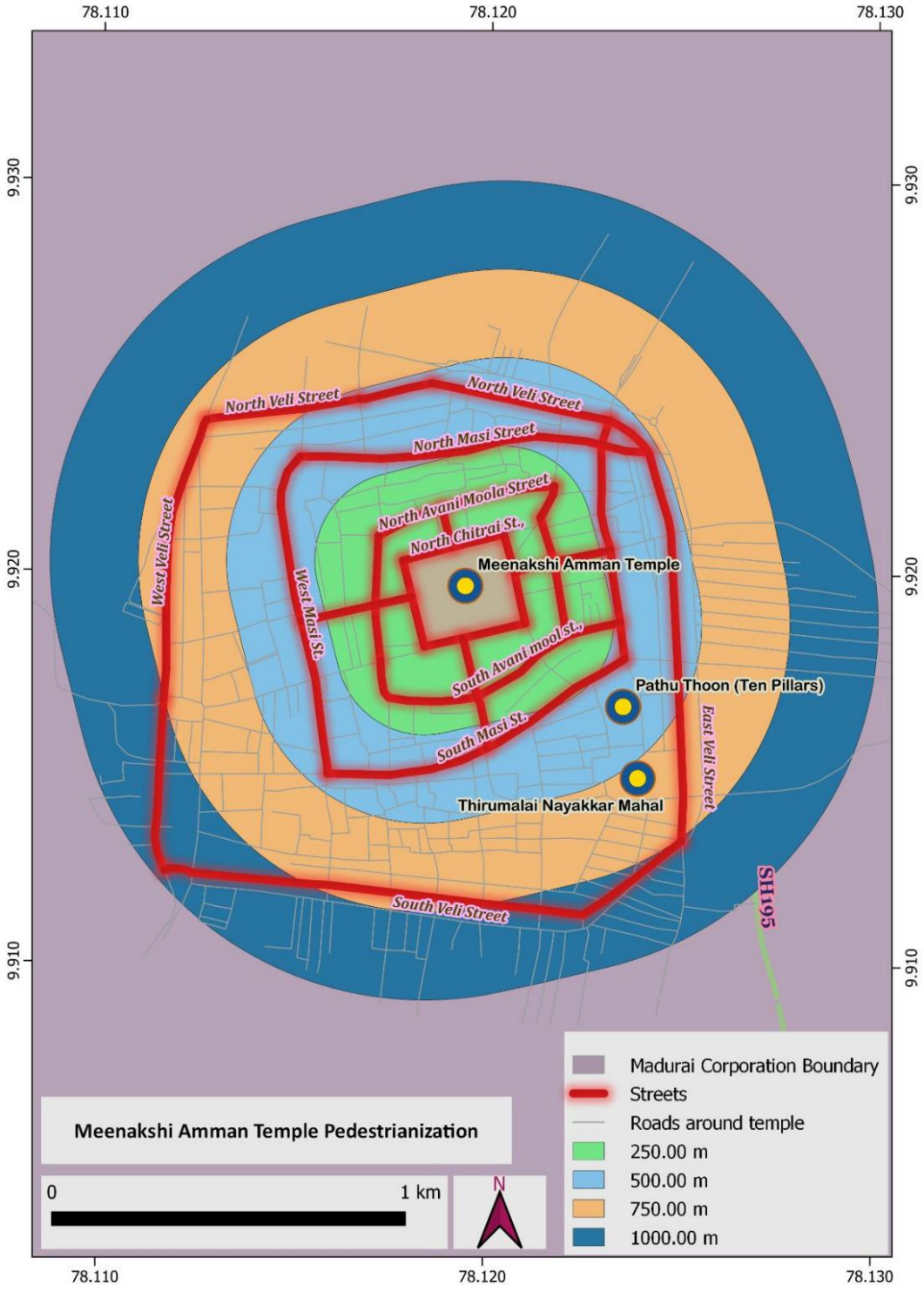


Figure 11-5 Daily Pedestrian Flow in Meenakshi Amman Temple

Source: Madurai CMP, Report



Map 11-2 Meenakshi Amman Temple Pedestrianization

Source: Madurai CMP Report

11.2.1.2. Thirumalai Nayakkar Palace

Thirumalai Nayakkar Palace, located in Madurai, stands as a testament to the cultural richness of the Nayak dynasty. Built in the 17th century under the rule of King Thirumalai Nayak, the palace served as the seat of power and a center for cultural patronage. The Nayak rulers were known for their vibrant contributions to arts and culture, and the palace became a hub for artistic expression, fostering dance, music, and other cultural endeavors.

Architecture of the grand palace:

Thirumalai Nayak Palace, which was built with the intention of creating a masterpiece for the then King to stay is undoubtedly one of the best architectures of ancient times. Designed by an Italian architect, this palace is a blend of Dravidian and Islamic architectural styles.

Thirumalai Nayakkar Palace epitomizes the grandeur of Dravidian architecture, featuring towering gopurams, intricate carvings, and the Swarga Vilasam pavilion with ornate columns and vibrant frescoes. Distinctively, the palace blends Islamic elements seamlessly, seen in arcades and domes harmoniously coalescing with Dravidian motifs. The audience hall, with massive pillars and horseshoe-arched openings, showcases a unique fusion of architectural styles, a testament to the cultural diversity that influenced the Nayak era.

Currently only a few parts of the palace remain. This palace was built with foliated brickwork, while the polished texture of the palace came from the use of chunnam which is a combination of shell lime with egg white. This palace is known for its majestic pillars, with a height of about 82 feet and width of almost 19 feet. As you enter the palace through its grand gates, you will reach a central hall with many massive pillars. This central courtyard is about 41,979 sq ft and has a circular shaped garden which is one of the major attractions here. Along with the courtyard, the dance hall of the palace is also worth exploring.

In conclusion, Thirumalai Nayakkar Palace stands as a testament to the architectural brilliance of the Nayak dynasty. The seamless fusion of Dravidian and Islamic styles, the grandeur of its courtyards, and the intricate detailing of its audience hall collectively make it a cultural and architectural marvel, inviting visitors to step back in time and appreciate the splendor of Madurai's historical legacy.

Figure 11-6 Thirumalai Nayakkar Mahal, Madurai

11.2.1.3. Gandhi Memorial Museum

Gandhi Memorial Museum, Madurai is the historic Tamukkam Palace belonging to Rani Mangammal of Nayak Dynasty built about 1670 A.D. Later, this was under the occupation of the Nawab of Carnatic, East India Company and a few others. Finally, the Palace had remained for many years as the official residence of the British District Collector of Madurai. In 1955, the palace of area 13 acres of land was gifted by Tamil Nadu State Government to the All India Gandhi Smarak Nidhi for the purpose of housing Gandhi Memorial Museum.

The Gandhi Memorial Museum in Madurai, inaugurated on 15th April 1959 by Jawaharlal Nehru. It stands as a hallowed testament to Mahatma Gandhi's indelible legacy. Constructed to honor the leader's ideals and commemorate his visit to the city in 1921-22, the museum was initially a palace donated by the Nayak rulers. The structure underwent significant modifications to accommodate the museum, with subsequent expansions to house an extensive collection of artifacts related to Gandhi's life and the Indian independence movement.

The museum's architecture mirrors simplicity, reflecting Gandhi's own philosophy. The austere design, adorned with traditional Indian elements, offers a serene backdrop to the exhibits. The central hall, reminiscent of a prayer hall, features a life-size bronze statue of Mahatma Gandhi, serving as the focal point. The

architectural simplicity amplifies the profound message the museum conveys, aligning with the ideals of simplicity and truth that Gandhi espoused.

The museum houses a poignant collection of personal belongings belonging to Gandhi, including his iconic glasses, the bloodstained dhoti worn during his assassination, and the spinning wheel (charkha) symbolizing self-reliance. These artifacts provide an intimate insight into the life of the man who played a pivotal role in India's quest for independence.

Figure 11-7 Gandhi Memorial Museum, Madurai

11.2.1.4. Koodal Azhagar Temple

Koodal Azhagar Temple, a revered Hindu shrine in Madurai, dates back to ancient times, with origins deeply rooted in the region's cultural and religious history. The temple's construction showcases a blend of Dravidian architectural styles across different periods, offering a visual narrative of the city's evolution.

The temple's architectural grandeur is evident in its intricate sculptures, towering gopurams, and sprawling courtyards. The main deity, Lord Vishnu as Koodal Azhagar, is enshrined in a sanctum adorned with exquisite carvings. The structural elements, including the vimana and mandapams, exemplify Dravidian

aesthetics, reflecting the artistic prowess of the craftsmen who contributed to the temple's construction over the centuries.

Intricate Carvings: The temple's walls are adorned with intricate carvings depicting scenes from Hindu mythology. Each carving narrates a story, contributing to the spiritual and artistic ambiance of the temple.

Vimana and Gopurams: The vimana, or the temple tower, stands as a testament to the architectural finesse of the Dravidian style. The gopurams, adorned with vibrant sculptures and ornate decorations, welcome devotees into the sacred precincts.

Sacred Ponds: The temple complex features sacred ponds, adding to the spiritual sanctity. Devotees often partake in ritualistic baths in these ponds as a form of purification before entering the main sanctum.

Figure 11-8 Koodal Azhagar Temple, Madurai

11.2.1.5. Vandiyur Mariamman Teppakulam

Vandiyur Mariamman Teppakulam, an ancient temple tank in Madurai, holds a tranquil allure with its origins tracing back to the 17th century. Built during the reign of King Thirumalai Nayak, the tank's construction was a testament to his grand vision and architectural prowess. The teppakulam, meaning a tank with a floating pavilion, serves both spiritual and utilitarian purposes.

The teppakulam is an architectural marvel, spanning an area of about 16 acres. The tank is encircled by a massive stone wall, and its design reflects the meticulous planning of the Nayak dynasty. The central island within the tank hosts the Mariamman Temple, dedicated to the goddess Mariamman. The structure of the tank is both utilitarian and aesthetically pleasing, showcasing the architectural brilliance of the Nayak period.

Floating Pavilion (Mandapam): At the center of the tank, a mandapam dedicated to Lord Vigneshwara stands on a platform. During festivals, idols are ceremoniously placed on the mandapam, creating a picturesque scene.

Long Causeway: A long causeway connects the tank to the Mariamman Temple, providing a pathway for devotees during religious processions. The causeway adds to the architectural and functional significance of the teppakulam. The tank becomes a focal point of celebration during various festivals.

Figure 11-9 Vandiyur Mariamman Teppakulam, Madurai

11.2.1.6. Periyar Memorial House

Periyar Memorial House, located in Erode, Tamil Nadu, was the birthplace and residence of E. V. Ramasamy, fondly known as Periyar. Constructed in the late 19th century, the house holds historical significance as the birthplace of a prominent social reformer, politician, and the founder of the Dravidar Kazhagam.

The house, while modest in its architectural design, symbolizes the simplicity and pragmatism championed by Periyar. The construction features traditional South Indian architectural elements, with a focus on functionality. The structure

includes a main residential building and a surrounding compound that encompasses the birth memorial.

Exhibition Hall: The memorial includes an exhibition hall displaying items associated with Periyar's life, including his personal belongings, writings, and photographs. This provides visitors with a comprehensive understanding of his ideology and the social reform movement he led.

Figure 11-10 Periyar Memorial House, Madurai

11.2.1.7. Tirupparamkunram Murugan Temple

Tirupparamkunram Murugan Temple, situated near Madurai, has a rich history dating back to the Sangam period. Carved out of a massive rock hill, the temple is dedicated to Lord Murugan, also known as Subramanya or Kartikeya. The construction of the temple represents a remarkable feat of ancient Dravidian architecture.

The temple's architectural magnificence lies in its unique rock-cut structure. Carved out of a single rock, the temple seamlessly integrates with the natural rock formation, exhibiting the artistic prowess of the ancient builders. The temple's architecture is a testament to the Dravidian style, characterized by intricate carvings, towering gopurams, and spacious courtyards.

An Aasthaana Mandapa with artistically carved pillars leads visitors to the main temple area. This mandapa is a part of the temple complex. The entrance to the temple is marked by a towering 150 feet (46 m) high seven-tiered raja gopuram, showcasing the grandeur of Dravidian architecture. The temple is situated at the foothills of a granite hill that rises to a height of 1,050 ft (320 m). At the top of the hill, there is a shrine dedicated to Kasi Viswanatha, a form of Lord Shiva.

Rock-Cut Chambers: The sanctum sanctorum and other chambers are intricately carved within the rock hill, showcasing detailed sculptures of deities and mythological figures. The rock-cut architecture provides a sense of awe and reverence for visitors.

Pancha Loha Idols: The temple houses Pancha Loha (five metals) idols of Lord Murugan and his consorts, Valli and Deivanai. These ancient idols, along with other sculptural elements, contribute to the temple's artistic and spiritual ambiance.

Figure 11-11 Tirupparamkunram Murugan Temple, Madurai

11.2.1.8. Kazimar Big Mosque

Kazimar Big Mosque, also known as Kazimar Periya Pallivasal, is situated in the heart of Madurai, Tamil Nadu, India. Nestled amidst the bustling streets of the city, the mosque holds a central position in the cultural and historical landscape of Madurai.

The mosque has a storied history, with its origins dating back to the 13th century. It was constructed by Hazrat Kazi Syed Tajuddin, a revered Islamic scholar and descendant of the Prophet Muhammad. The architectural style reflects a harmonious blend of Islamic and Dravidian influences, showcasing the cultural diversity prevalent in Madurai.

Kazimar Big Mosque stands as an architectural marvel, displaying a unique fusion of Islamic and local design elements. The mosque's main prayer hall features domes, minarets, and intricate arches, characteristic of Islamic architecture. The

use of ornate tiles, calligraphy, and geometric patterns adds to the aesthetic appeal, while the overall layout exemplifies the Dravidian influence in the region.

Figure 11-12 Kazimar Big Mosque

11.2.1.9. Keeladi Archaeological site

Keeladi, situated on the banks of the Vaigai River near Madurai in Tamil Nadu, India, has emerged as an archaeological treasure trove that sheds light on the vibrant history of the region. Keeladi gained archaeological prominence when excavations revealed an extensive urban settlement dating back to the Sangam era, around 600 BCE to 100 CE. The meticulous planning of the town, with well-laid streets, advanced drainage systems, and residential complexes, attests to the advanced urban planning of its inhabitants. The construction techniques employed, including burnt brick structures, showcase the engineering prowess of the ancient Tamil people.

Figure 11-13 Keeladi Site

11.2.1.10. Madurai Rajaji Park

Madurai Rajaji Park in Madurai is famous for Amusement Park, Picnic, Garden, Scenic sports. Another maximum-appreciated enjoyment park is located within the Gandhi Museum. Rajaji park is a park for youngsters situated just 2 km from the Central Bus stand close to the Corporation Office. It is an ideal region to spend amusement time with the circle of relatives. The park is owned and maintained with the aid of the Corporation of Madurai.

The park is embedded with many wonderful rides and swings and children experience right here plenty with their own family participants. The area is also excellent for spending a few hours of amusement and relaxation pretty far away from the hustle and bustle of the city.

Figure 11-14 Madurai Rajaji Park

11.2.2. Natural Heritage Sites

11.2.2.1. Arittapatti

With the Arittapatti Biodiversity Heritage Site, one more gem got added to the world of conservation. A total of 193.215 hectares of land spread across the villages of Arittapatti and Meenakshipuram in the district of Madurai in Tamil Nadu was notified as Arittapatti Biodiversity Heritage Site under the Biological Diversity Act of 2002.

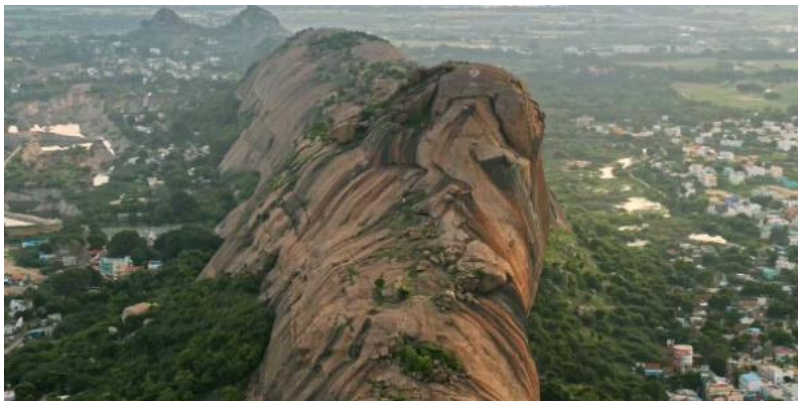


Figure 11-15 Arittapatti Heritage village, Madurai

11.2.2.2. Yanaimalai

Yanaimalai (Elephant Hill) is a protected monument and tourist attraction in Tamil Nadu, India. Yanaimalai is located in Madurai District, Tamil Nadu, India. It is situated from 10 km from Madurai Mattuthavani bus stand. The hill stretches over 3 kilometres (1.9 mi) and is 90 metres (300 ft) high. It has Jain sculptures, a Shaivite temple, and a Vaishnavite temple, namely the Narasingam Yoga Narasimha Perumal Temple.

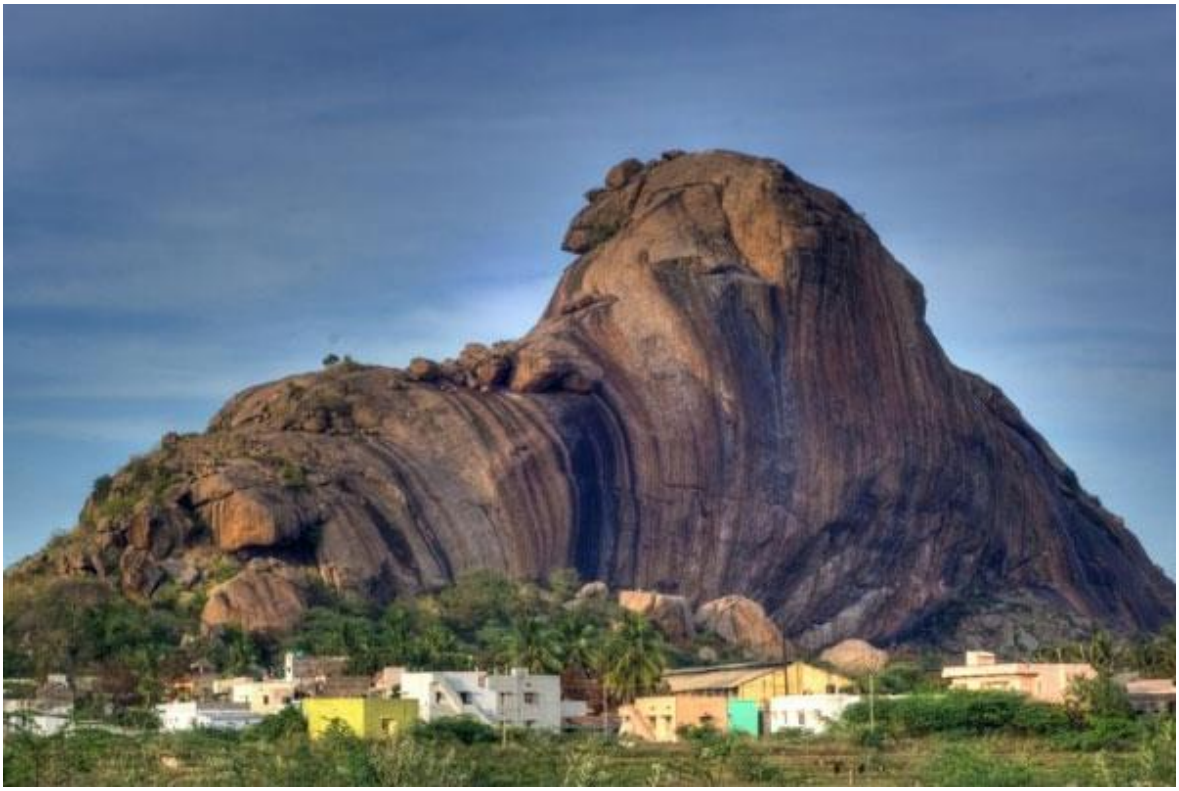


Figure 11-16 Yaanaimalai, Madurai

Yanaimalai is considered a sacred place by the Tamil Jain.Jain monks lived here during the Pandyan Dynasty. At the top of the hill can be found caves containing Jain bas relief sculptures of Mahavira, Gomateshwara, and other tirthankaras fashioned by Jain monks. There are also stone beds used by the monks for resting. Tamil-Brahmi and Vattelettu inscriptions can be found on the hill.

11.2.2.3. Kunnathurmalai

The history dates back to 2nd century BC .There are caves like garbha grahas carved by extraordinary men with excellent art. They have carved a shivlingam inside it. Udayagiriswarar and Asthagiriswarar cave temples in kunnathur, It has two caves one is udayagiri (rising sun) and other is ashtagiri (sunset).The sun rays fall on the shivlingam everyday morning and evening on the udayagiri and ashtagiri respectively.Jain beds with Brahmi inscriptions at top of the cave temple.

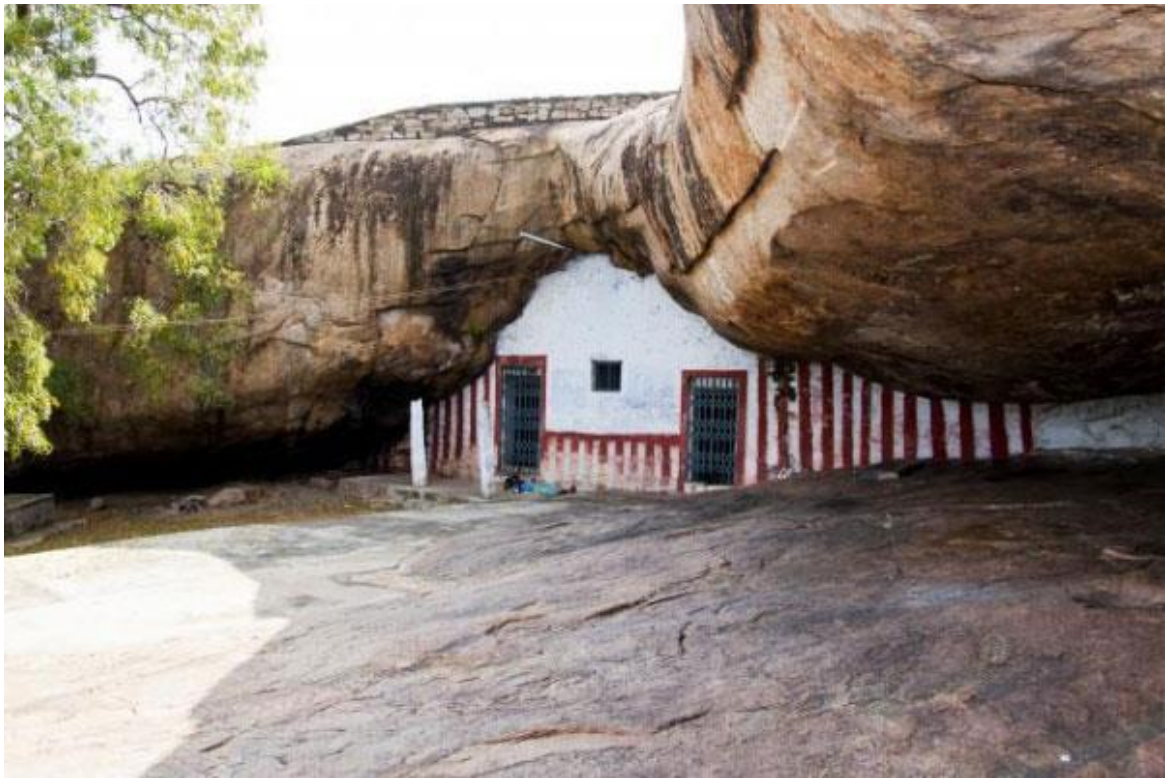


Figure 11-17 Kunnathurmalai, Madurai

This list provides a glimpse into the diverse heritage and significance of various places in Madurai, from ancient temples and palaces to museums and natural sanctuaries. Each site contributes to the city's multifaceted identity, weaving together history, culture, and natural beauty.

11.2.3. Important Festivals

Meenakshi Thirukalyanam: This grand annual festival marks the divine marriage of Goddess Meenakshi and Lord Sundareswarar. Elaborate processions, adorned chariots, and cultural events characterize the city during this celebration, attracting devotees from far and wide.

Chithirai Thiruvizha: The Chithirai Festival, a revered Tamil Hindu celebration held in Madurai during the Chithirai month, re-enacts the celestial union of Meenakshi and Sundareswarar at the Meenakshi Temple. Lasting a month, the initial 15 days honor Meenakshi's coronation and divine rule, followed by the

ceremonial union with Sundareshwar. The subsequent 15 days focus on the procession of Kallalagar from his Vishnu temple to the Meenakshi Amman Temple.

Historically, Meenakshi and Alagar festivals were distinct, but under King Tirumala Nayaka's rule, Meenakshi's celebration shifted to Chithirai, merging both events. This cultural amalgamation promotes unity and boosts Madurai's economic prosperity. A poignant festival moment reenacts Meenakshi's brother, Alagar, returning disappointed to Alagarkoil upon hearing of her completed wedding. The Chithirai Festival symbolizes cultural richness, religious harmony, and economic vitality, attracting devotees and tourists to Madurai's spiritual grandeur.

Figure 11-18 Chitthirai thiruvizha, Madurai

Jallikattu (Yeru Thazhuvuthal) : Jallikattu, a traditional event deeply rooted in Tamil Nadu's cultural fabric, unfolds during the Pongal festival days, typically in January. Alanganallur, Palamedu, and Avaniyapuram stand out as prominent venues for this spectacle, drawing considerable tourism to Madurai. Facilitating the event's logistics, the Madurai Corporation and the Government of Tamil Nadu coordinate traffic and transport arrangements. Oversight of the proceedings is under the purview of the Jallikattu Federation.

During Jallikattu, a bull, often of the Pulikulam or Kangayam breeds, is released into a crowd, and participants endeavor to seize the bull's hump, showcasing physical prowess and bravery. This traditional practice, integral to Pongal celebrations, has historical roots tracing back to the Tamil classical period, with evidence in Indus Valley seals and ancient cave paintings.

Figure 11-19 Jallikattu

Despite periodic bans due to safety concerns for both participants and animals, public sentiment has rallied to preserve this cultural heritage. In response, a 2017 ordinance was instituted, allowing the continuation of Jallikattu. This enduring tradition, with its roots stretching back over 1,500 years, serves as a testament to Tamil Nadu's rich cultural history and the resilient spirit of its people.

Float Festival (Teppam Festival): The Vandiyur Mariamman Teppakulam, a large temple tank, hosts this festival. Idols of deities are placed on illuminated rafts, creating a visually spectacular scene. Pilgrims and tourists gather to witness this unique cultural event.

Navratri Festival: The nine-day Navratri festival is celebrated with fervor, involving special poojas, devotional music, and dance performances. The temple's sanctity intensifies during this auspicious period.

Panguni Uthiram: This festival, celebrated in the Tamil month of Panguni, marks the celestial wedding of various deities, including Meenakshi and Sundareswarar. Pilgrims participate in religious rituals and seek divine blessings.

Some of these include 'Vasantham festival,' 'Unjal festival,' 'Mulai-Kottu festival,' 'Arudhra Dharsan festival,' 'Thai utsavam,' 'Kolattam festival,' etc.

Light and Sound Shows: Thirumalai Nayakkar Palace hosts light and sound shows that narrate the history of Madurai and the Nayak dynasty. These events add an immersive dimension to the visitor's experience, bringing history to life within the palace's majestic setting.

Gandhi Jayanti: The museum actively participates in national celebrations and events, commemorating Gandhi Jayanti (2nd October), the birth anniversary of Mahatma Gandhi, with special programs, lectures, and exhibitions.

Throughout the year, the museum organizes educational programs, workshops, and seminars aimed at promoting Gandhian principles, non-violence, and communal harmony. These initiatives engage students, scholars, and the general public, perpetuating Gandhi's teachings as a source of inspiration for contemporary challenges.

Vaikunta Ekadashi: Devotees flock to the Koodal Azhagar temple on Vaikunta Ekadashi, a day considered auspicious for seeking the blessings of Lord Vishnu. Special rituals and processions mark this occasion.

Masi Magam: Celebrated during the Tamil month of Masi, Masi Magam witnesses a significant gathering of devotees who take a holy dip in the tank, believing it to cleanse them spiritually. The festival is marked by religious rituals and cultural events.

Skanda Sashti: Skanda Sashti, a six-day festival, is celebrated with great fervor. Devotees participate in processions, pujas, and cultural events. The festival commemorates the victory of Lord Murugan over the demon Surapadman.

Panguni Uthiram: This festival, celebrated during the Tamil month of Panguni, marks the celestial wedding of Lord Murugan and Devayani. Elaborate processions and special pujas characterize the festivities.

Thai Poosam: Thai Poosam is another significant festival, celebrated in the Tamil month of Thai. Devotees undertake a pilgrimage to the temple, carrying Kavadis (ornate structures) as offerings to Lord Murugan.

11.2.4. Places of Significance

One of the oldest living cities, Madurai, holds the soul of Tamil Nadu in its magnificent and grand temples that are among the finest and most awe-inspiring specimens of architecture in the country. The most spectacular of these is the Meenakshi-Sundareswarar Temple, which is the heartbeat of the city and is visited by thousands of devotees. Madurai once traded with ancient Rome and it preserves its distinct character in various arts and textiles that have been bestowed by the Pandian kings (4th century-16th century). From exquisite sarees to wooden toys and sculptures, Madurai is a hub of shopping, where visitors can find a fine selection of unique and handmade products. After a busy and vibrant sample of the city's bustling streets, tourists can take a respite in the serene and scenic hill stations flanking the city. From the picturesque hill station of Kodaikanal to splendid waterfalls, Madurai is surrounded by natural beauty that leaves you breathless.

Referred to as the 'Athens of the East' due to the lofty towers of Meenakshi Sundareswarar Temple just like the Greek Pantheon, the city finds reference in many literary works of Arabs, Romans and Greek travellers like Megasthenes. Situated on the banks of river Vaigai, Madurai district is primarily famous for Sri Meenakshi Sundareshwarar Temple. Melur, Vadipatti, Thirumangalam, Thirupparankundram, Peraiyur and Usilampatti are some of the main towns in the district which is a hub for film shootings. Alanganallur, Palamedu and Avaniyapuram in the district are popular for Jallikattu.

Madurai is Tamil Nadu's culturally active and vibrant district. Its cultural heritage extends to more than 2,500 years from the great Tamil era. The district was an important cultural and commercial center even as early as 550 AD. The capital city for the great Pandya kings was Madurai. Witnessing hot and humid weather throughout the year, Madurai is considered as the hottest district and city of Tamil Nadu. Madurai attracts a large number of tourists from within the country and abroad. About 1,40,56,265 tourists visited Madurai in 2020, which includes foreigners.

Table 11-1 List of Places of Significance

S. No	Place of Significance	Location	Remarks
1	Meenakshi Amman Temple	Madurai Corporation	Temple of Goddess Parvati Thirukalyanam Festival
2	Kallazhagar Temple	Alaghar Koil	Temples of Sundararaja Perumal
3	Thirumalai Nayak Mahal	Madurai Corporation	National monument
4	Mariamman Kovil	Vandiyur	Dedicated to Hindu Goddess of Rain
5	Gandhi Memorial Museum	Tamukkam	Renovated Palace belonging to Rani Mangammal of Nayak Dynasty
6	Subramaniya Swamy Temple	Thiruparankundram	One of the Six Abodes of Murugan (Surasamharam)
7	Archaeological Sites	Various	
8	Murugan Temple	Pazhamudhir choolai	One of the Six Abodes of Murugan

Source: Tamil Nadu Tourism Department

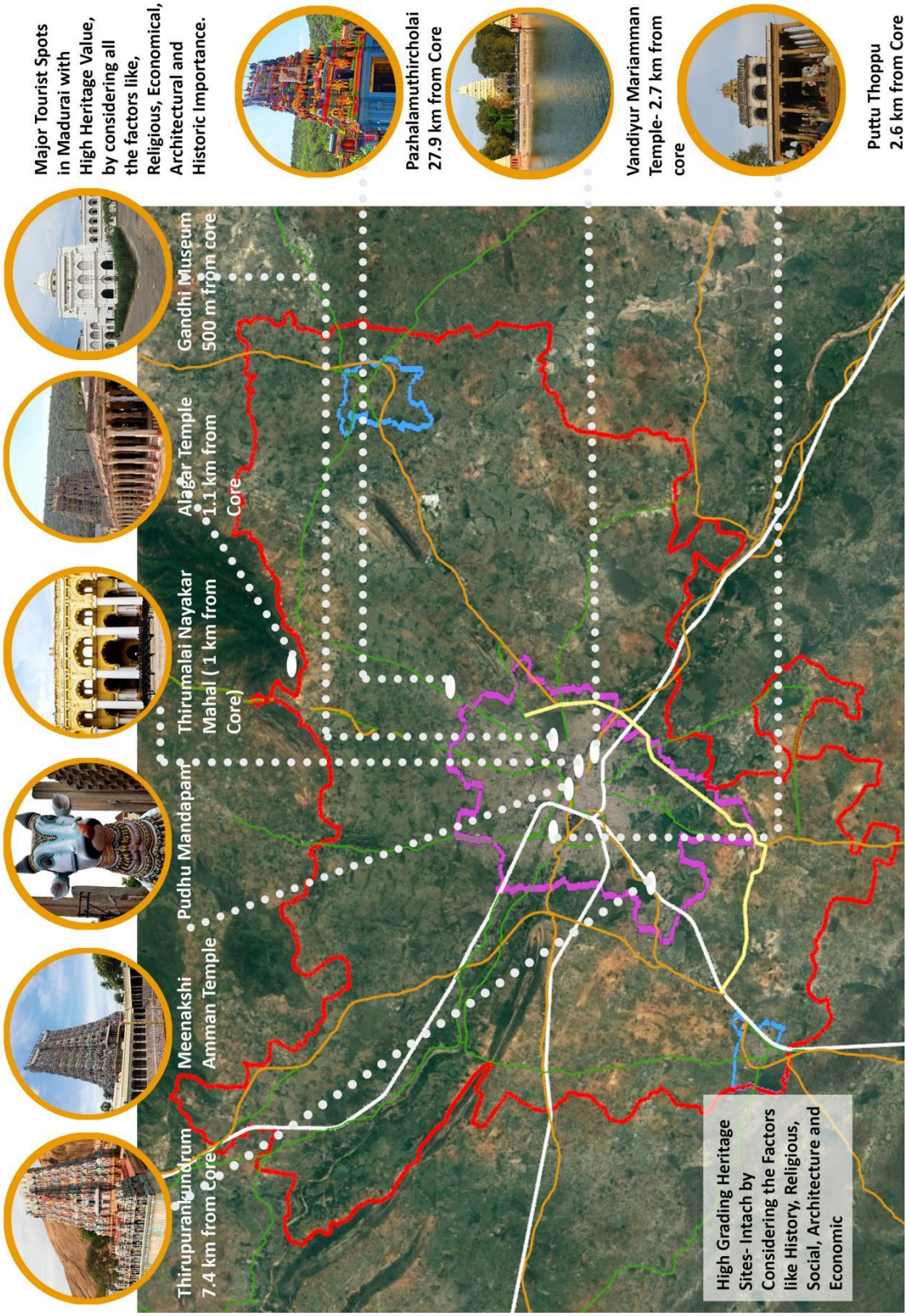


Figure 11-20 Tourism sites as per INTACH Grading in Madurai LPA

Madurai's site grading, based on INTACH standards, considers Religious, Social, Historical, Architectural, Economic, and Associational values. Thiruparankundram, Meenakshi Amman Temple, Pudhu Mandapam, Thirumalai Nayakar Mahal, Alagar Temple, Gandhi Museum, Pazhamudircholai, Vandiyur Mariamman Temple, and Puttu Thoppu are recognized for their profound religious significance, cultural and historical importance, architectural marvels, economic contributions, and their roles as hubs for social and associational activities. These sites collectively showcase the rich tapestry of Madurai's heritage and contribute to its cultural identity.

11.2.5. Existing Tourism Circuits

Tourism circuits refer to well-defined routes or itineraries that connect multiple tourist attractions within a specific geographic area, theme, or cultural context. These circuits are designed to offer a comprehensive and structured travel experience, allowing tourists to explore a variety of sites with common characteristics or themes during a single trip. Tourism circuits aim to promote efficient travel planning, enhance the visitor experience, and contribute to the overall economic development of the regions they encompass. The existing tourism circuit in Madurai, consisting of Kalluthu, Karadipatti, Keelauikudi, Jain beds at Thiruparankundram, and Keelavavu, encompasses a rich tapestry of cultural, historical, and religious sites, offering visitors a diverse and immersive experience.

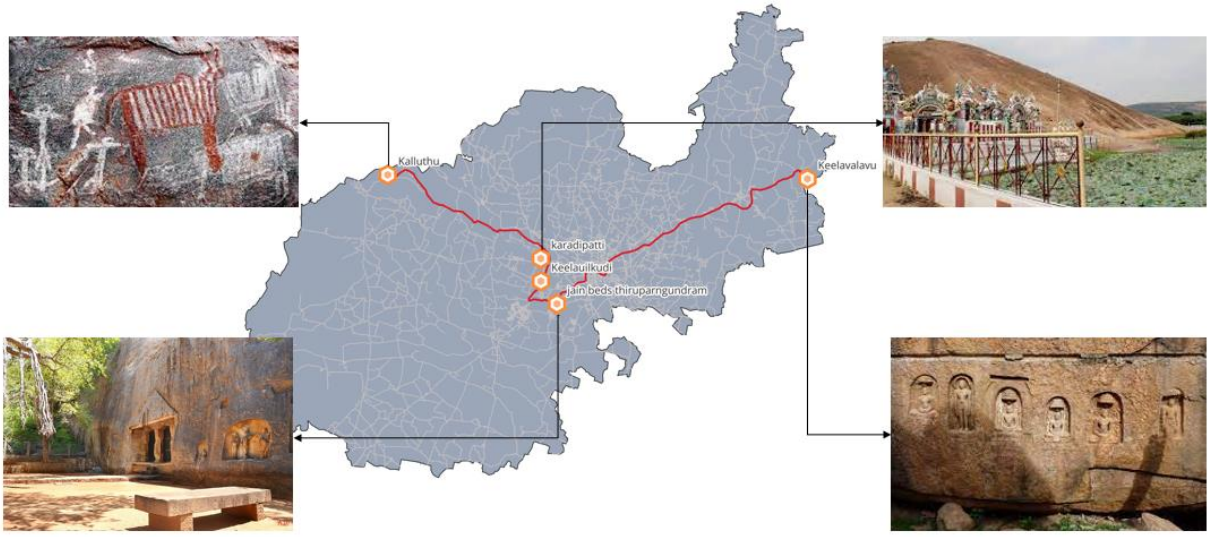


Figure 11-21 Existing Tourism circuit in Madurai

11.3. Madurai City Core Area

Madurai's urban planning revolves around the iconic Meenakshi Temple, extending from the temple to the city's periphery. As a major tourist attraction, the temple draws a significant number of visitors and vehicles into the city center, particularly the Central Business District (CBD). The core of Madurai, developed during the Nayaka period, remains the heart of the modern urban agglomeration.

Madurai's economy heavily relies on tourism-related activities, with the city attracting a large number of tourists throughout the year. The tourism sector is a key economic driver alongside other industries. Tourism is expected to continue playing a pivotal role in the city's economy, though Madurai has reached a saturation point in land development. Any alteration in travel patterns would require extensive land acquisition and pose resettlement challenges. Despite these considerations, the city anticipates sustained tourist interest and economic dependence on the tourism sector, emphasizing the need for strategic planning to balance tourism growth with urban development challenges.

Figure 11-22 Elements of planning of older core city

Source: Urban Form of Madurai

The CBD encompassing the temple and wholesale market, faces challenges due to the substantial influx of tourists and vehicular traffic. While efforts have been made to pedestrianize the streets connecting Chithirai and Aavani Moola, the lack of basic facilities like drinking water and public toilets hinders the overall pedestrian experience. Traffic congestion at intersections causes significant delays and poses challenges for tourists. Waste management is a pressing issue throughout the core area, exacerbated by the presence of wholesale and grocery markets, as well as private transport offices in the CBD.

Roadside vendors further contribute to the disruption of pedestrian flow, occupying both roads and sidewalks. On-street parking compounds the problem, leading to congestion and diminishing the pedestrian-friendly environment. The CBD's road, often used for parking, creates chaos for both motorized and non-motorized users, impacting the overall appeal of the area. Specifically, Veli, Masi, and Avani Moola streets experience

high levels of traffic congestion. Addressing these challenges requires a comprehensive urban planning approach that prioritizes pedestrian needs, waste management, and efficient traffic flow to enhance the overall experience of visitors in Madurai's CBD.

Tourists are prominently present in the core area, particularly during significant periods such as temple hours, business hours, and visits to heritage spots. The peak times for tourist activity are generally observed between 9:00 am to 12:00 pm and 4:00 pm to 8:00 pm, with a notable surge on Fridays, Saturdays, and Sundays.

11.4. Tourist Flow and Trend

11.4.1. Economy

The economic landscape of Madurai reveals a notable dominance of the tertiary sector, contributing the highest share of 64% to the GDDP in 2019-20. Following closely, the secondary sector constitutes 31%, while the primary sector lags behind with a 5% share. The key driver in the tertiary sector is the Trade, Hotels, and Restaurants segment, significantly contributing to economic activities in 2019–2020. Despite fluctuations, there is an overall growing trend in the GDDP, rising from 30.8% in 2011-12 to 32.5% in 2019-20. The city's economy draws strength from tourism, particularly due to Madurai's religious significance as a 'temple city,' with associated sectors such as hotels and restaurants playing pivotal roles in sustaining and fostering economic growth.

11.4.2. Regional Connectivity

By positioning Madurai as a central hub for South Tamil Nadu tourism, the city not only attracts visitors with its own cultural and historical significance but also facilitates seamless connectivity to the enchanting destinations of Rameshwaram, Kodaikanal, Karaikudi, and Kanyakumari, contributing to the overall tourism appeal of the region.

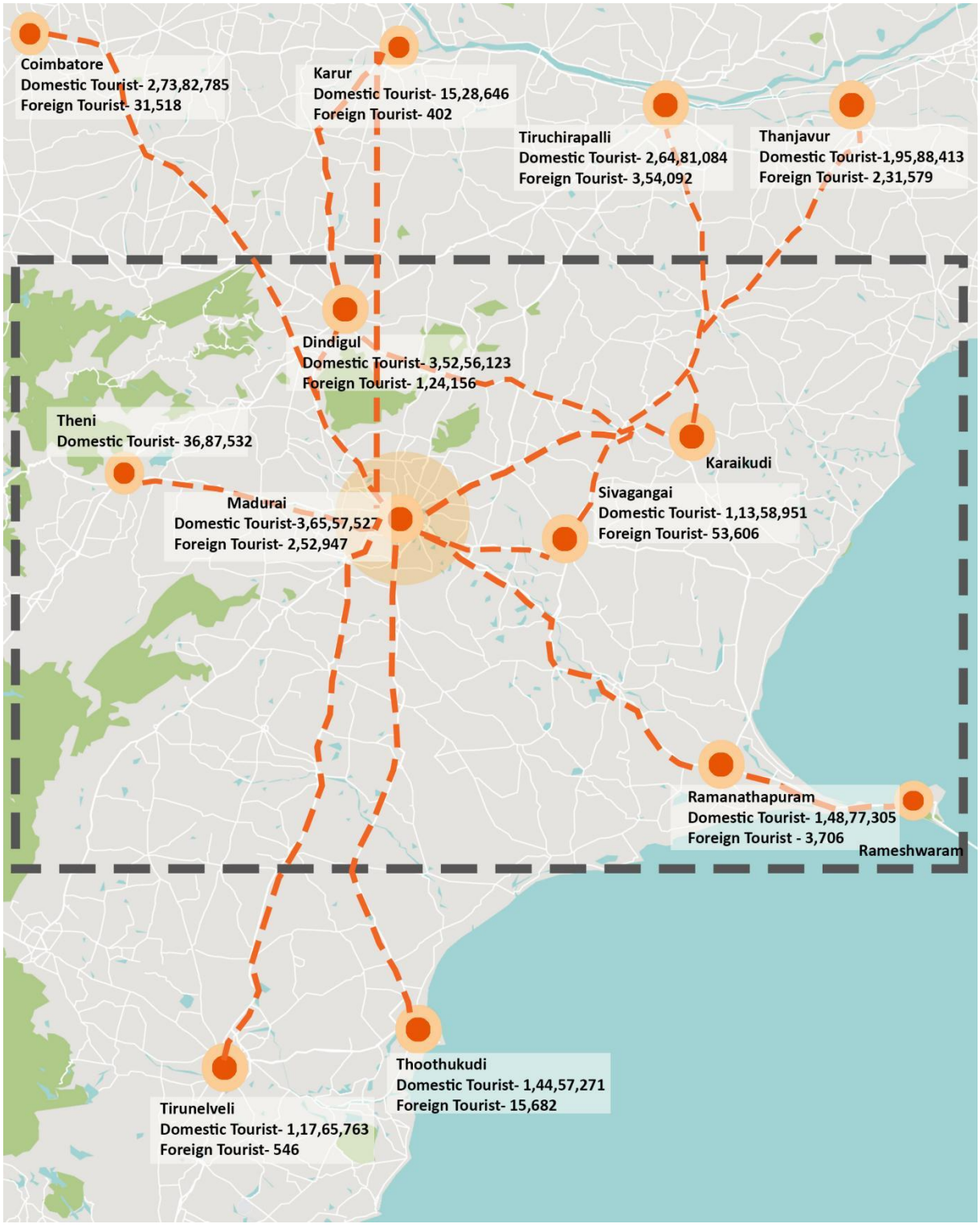


Figure 11-23 Regional Connectivity and Tourist Flow

11.4.3. Flow and Trend in Madurai LPA

The annual Temple events, city culture is very much evident that the Thoonga Nagaram is still has its essence of rich in history and Culture. Chithirai thiruviza and Jallikattu is the most tourist visitor's annual event.

With the infrastructure improvement, the tourist shows reset back to the increasing trend after the post pandemic period (2022) gradually. The same trend but of a different magnitude is observed in international tourists as well. The stakeholders pointed out the reason for the decline to be standard of the facilities and the religious restriction on the tourists.

Table 11-2 Tourist Population to Madurai District

Year	Domestic	International	Total	Yearly Increase Rate of Tourist
2016	2,11,44,953	3,28,947	2,14,73,900	
2017	2,26,59,360	3,03,543	2,29,62,903	6.93
2018	2,45,16,815	2,82,167	2,47,98,982	8.00
2019	2,68,55,264	1,96,587	2,70,51,851	9.08
2020	1,39,81,975	74,290	1,40,56,265	-48.04
2021	99,33,666	195	99,33,861	-29.33
2022	1,58,39,414	16,637	1,58,56,051	59.62

Source: Madurai Tourism Department

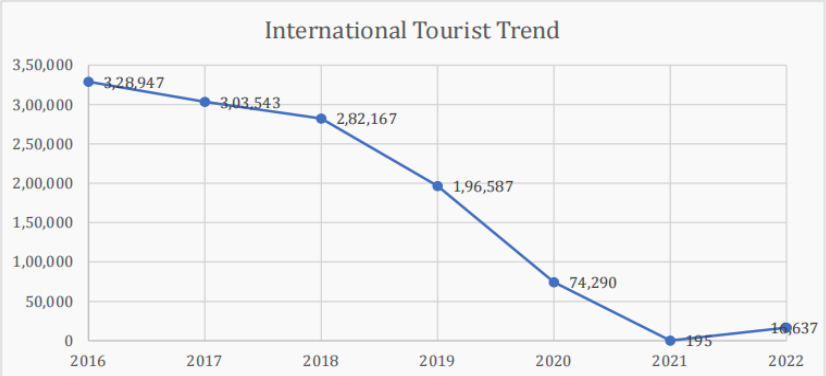


Figure 11-24 International Tourist Trend

Source: Madurai Tourism Department

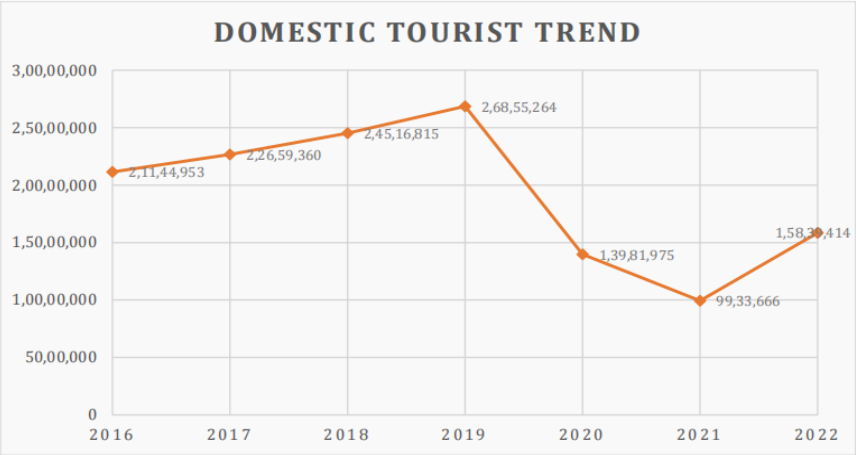


Figure 11-25 Domestic Tourist Trend

Source: Tourism Department, Madurai

Table 11-3 Month-wise Tourist in 2022

Particulars	Domestic	International	Total
Jan-22	8,58,003	40	8,58,043
Feb-22	44,593	24	44,617
Mar-22	10,48,151	189	10,48,340
Apr-22	12,92,012	294	12,92,306
May-22	14,59,819	212	14,60,031
Jun-22	11,12,809	266	11,13,075
Jul-22	13,96,611	473	13,97,084
Aug-22	13,06,621	1,726	13,08,347
Sep-22	11,51,358	1,159	11,52,517
Oct-22	13,37,588	1,811	13,39,399
Nov-22	15,78,295	6,942	15,85,237
Dec-22	21,58,176	3,501	21,61,677

Source: Madurai Tourism Department

The above table shows the month-wise tourist visiting the planned area. The highest number of tourists visited during the last quarter of the year, which is the sabarimalai season. During this season, the devotees of Lord Ayyappan visit most of the temples on route to Sabarimalai. Apart from this, many devotees congregate for the Chitthirai festival in the month of April.

Yearly special events inside and outside Madurai Corporation which attracts lot of tourists to Madurai. The tourist includes domestic and foreigners as well. Some of the special events are as follows.

11.5. Key Challenges

Madurai, with its rich cultural heritage and historical significance, is a popular tourist destination. However, the tourism industry in Madurai faces several challenges that impact its growth and sustainability:

Infrastructure Development:

- Inadequate tourism infrastructure, including transportation, accommodation, and amenities, can hinder the overall tourist experience.
- Insufficient facilities for pedestrians, such as drinking water stations and public toilets, pose challenges to the comfort and well-being of tourists and locals.

Traffic Congestion:

- Increased tourist inflow can lead to traffic congestion, especially around popular attractions and the city centre.
- The lack of efficient traffic management can affect both tourists and local residents, creating a negative impact on the overall tourism experience.
- While certain streets connecting Chithirai street and Aavani moola street have been pedestrianized, there is a need for a more comprehensive approach to pedestrianization in the CBD area.

Environmental Impact:

- High footfall in tourist destinations may contribute to environmental degradation, such as littering, pollution, and damage to historical sites.

Preservation of Heritage Sites:

- The preservation of historical monuments and cultural sites is a challenge, as increased foot traffic can lead to wear and tear.
- Balancing tourism promotion with the need to protect and preserve heritage sites is crucial for the long-term sustainability of tourism in Madurai.

Marketing and Promotion:

- Limited marketing and promotional efforts may hinder Madurai's visibility on the global tourism map.
- Overemphasis on a few well-known attractions may lead to a lack of diversification in the tourism offerings.

12

ENVIRONMENT

12.1. Introduction

The convergence of urbanization and climate change poses a formidable threat to the environmental, economic, and social fabric of cities, necessitating a comprehensive strategy for natural resource conservation. This chapter is driven by the goal of enhancing environmental conditions in Madurai, a city situated on the banks of the Vaigai River in Tamil Nadu, to mitigate the adverse impacts on its socio-economic aspects. To shield the environment from the adverse impacts of economic and other activities, maintain a secure and satisfactory standard of living for the population, and ensure the conservation and prudent utilization of natural resources for present and future generations, spatial planning must incorporate environmental considerations. In the realm of spatial planning, it is imperative to account for and safeguard elements such as air and water quality, green cover, agricultural lands, water bodies, surface temperature, environmentally sensitive zones, and potential natural hazards.

12.2. Climatology

Madurai is hot and dry for eight months of the year. Temperatures during summer generally reach a maximum of 40°C and a minimum of 26.3°C (Table 12-1). Winter temperatures range between 29.6°C and 18°C. The rising trend in atmospheric temperature over Madurai city can be attributed to urbanization, growth of vehicles and industrial activity.

The average wind speed is 7mph with windiest months during May to August. The windiest month is July with monthly average hourly average speed at 8.7mph. Madurai experiences monsoon from both Northeast and Southwest monsoon. Northeast monsoon provides comparatively more rain. The city experiences a moderate climate from August to October along with heavy rain and thunder showers, and a slightly cooler climate from November to February. The average annual rainfall for the Madurai district is about 85.76 cm. for the decades 2001 – 2010.

Madurai district experiences a diverse climate characterized by varying wind patterns, temperature fluctuations, and distinct monsoon seasons. The average wind speed in the region is measured at 2.9m/s, with occasional peaks reaching around 9m/s. The temperature remains relatively warm, with an average of 28ºC and a range between 19.4ºC and 38.6ºC. Relative humidity in the district averages around 69.7%, varying from 24.2% to 98.5%. The Windrose analysis reveals a predominant westerly wind direction, constituting about 18.72% of all wind directions. The district's geographical positioning,

equidistant from mountains and the sea, contributes to a climate influenced by both the North East and South West monsoons.

Table 12-1 Climatological Data Madurai (A) (1991 – 2020)

Month	Timing	Air Temperature		Relative Humidity (%)	Monthly Total Rainfall (mm)	Mean Wind Speed (kmph)	(%) No. of days wind from								
		Highest (ºC)	Lowest (ºC)				N	NE	E	SE	S	SW	W	NW	Calm
January	8:30am 5:30pm	33.4	18.1	76 51	9.8	6.2	46 2	33 57	2 34	0 4	0 0	0 0	0 0	3 0	16 3
February	8:30am 5:30pm	36.1	18.8	74 41	4.4	5.9	36 1	32 36	5 48	1 11	0 2	0 0	0 0	2 0	24 2
March	8:30am 5:30pm	38.8	20.5	69 36	15.0	5.5	25 1	31 20	8 43	2 26	2 6	0 1	0 0	2 0	30 3
April	8:30am 5:30pm	40.0	22.7	68 44	66.9	5.0	20 2	19 7	10 22	6 39	2 19	3 3	1 1	7 2	32 5
May	8:30am 5:30pm	40.6	22.9	63 47	80.7	4.5	25 5	9 5	3 8	1 21	3 25	4 6	7 13	26 9	22 8
June	8:30am 5:30pm	40.1	23.9	59 45	40.7	5.1	13 3	2 1	1 2	1 5	5 9	13 7	22 53	27 18	16 2
July	8:30am 5:30pm	39.9	23.3	58 45	46.1	5.4	14 3	1 2	1 2	0 5	3 7	8 7	27 55	33 16	13 3
August	8:30am 5:30pm	39.2	22.7	62 48	92.9	4.7	19 3	2 2	1 4	1 9	2 11	4 7	17 48	32 12	22 4
September	8:30am 5:30pm	38.4	22.8	66 54	107.0	4.2	23 2	5 5	2 8	1 17	3 17	5 6	7 26	27 11	27 8
October	8:30am 5:30pm	36.9	22.0	75 63	181.1	3.5	27 5	10 14	3 18	1 15	2 13	3 5	4 8	17 6	33 16
November	8:30am 5:30pm	34.0	20.6	80 68	146.3	4.3	36 8	27 38	3 25	1 7	0 4	1 2	0 0	6 1	26 15
December	8:30am 5:30pm	32.4	18.8	77 62	52.4	5.7	45 6	32 59	2 26	0 2	0 1	0 0	0 0	4 0	17 6
Annual Total or Mean	8:30am 5:30pm	41.1	17.6	69 50	843.3	5.0	28 4	17 20	3 20	1 13	2 10	3 4	7 17	16 6	23 6

Source: Climatological Data (1991 – 2020), IMD

Madurai experiences a typical monsoon pattern, with the North East monsoon, prevalent during October to December, bringing more significant rainfall. The South West monsoon also contributes to the overall precipitation, resulting in an average annual rainfall of approximately 85cm. Rainfall patterns exhibit irregularity and intermittence, varying across the district. The northern part, as observed in Sholavandan, receives an annual average of 806 mm, while the eastern part around Melur records a slightly higher average of 964mm.

Winds predominantly blow from the east during the first quarter of the year, with a peak in March. Subsequently, westerly winds prevail for five months, peaking in July, followed by northerly winds during the last two months of the year, peaking in January.

The district of Madurai experiences an annual maximum and minimum temperature normal (1970-2000) of 34.2°C and 23.7°C, respectively. Future climate projections for maximum temperatures over Madurai indicate a gradual increase compared to the baseline (1970-2000). The projected increases are 1.1°C for the period 2010-2040 (2020's), 2.2°C for 2040-2070 (2050's), and 3.2°C for 2070-2100 (2080's) (Table 12-2). Similarly, projections for minimum temperatures also demonstrate a rising trend over the same periods. The expected increases are 1.2°C for 2010-2040 (2020's), 2.4°C for 2040-2070 (2050's), and 3.5°C for 2070-2100 (2080's). The average change of maximum and minimum temperature for Madurai district is expected to increase by 3.3°C and 3.5°C respectively by the end of the century.

Table 12-2 Projected change in minimum and maximum temperature

Parameter	2010-2040	2040-2070	2070-210
Change in Minimum Temperature (in deg. C)	1.2	2.4	3.5
Change in Maximum Temperature (in deg. C)	1.1	2.2	3.2

Source: Tamil Nadu State Action Plan for Climate Change

Madurai district is projected to experience a gradual increase in annual average rainfall over the coming decades. The estimated changes ind`icate a 2.9% rise from 2021-2050, a more significant 6.1% increase during 2051-2080, and a notable 8.6% rise in the period 2081-2100 (Table 12-3). In contrast to the baseline period, projections indicate a 7.5% increase in the number of extreme rainfall events (>25mm in one day). Additionally, the one-day extreme rainfall value is expected to surge by 34.6%.

Table 12-3: Change in Annual Average Rainfall, 2021-2100

Parameter	2021-2050	2051-2080	2081-2100
Change in Annual Average Rainfall (%)	2.9	6.1	8.6

Source: Tamil Nadu State Action Plan for Climate Change

These temperature projections highlight the potential impact of climate change on Madurai's climate, indicating a warming trend that could have implications for various sectors, including agriculture, water resources, and overall environmental conditions.

12.3. Water Resources

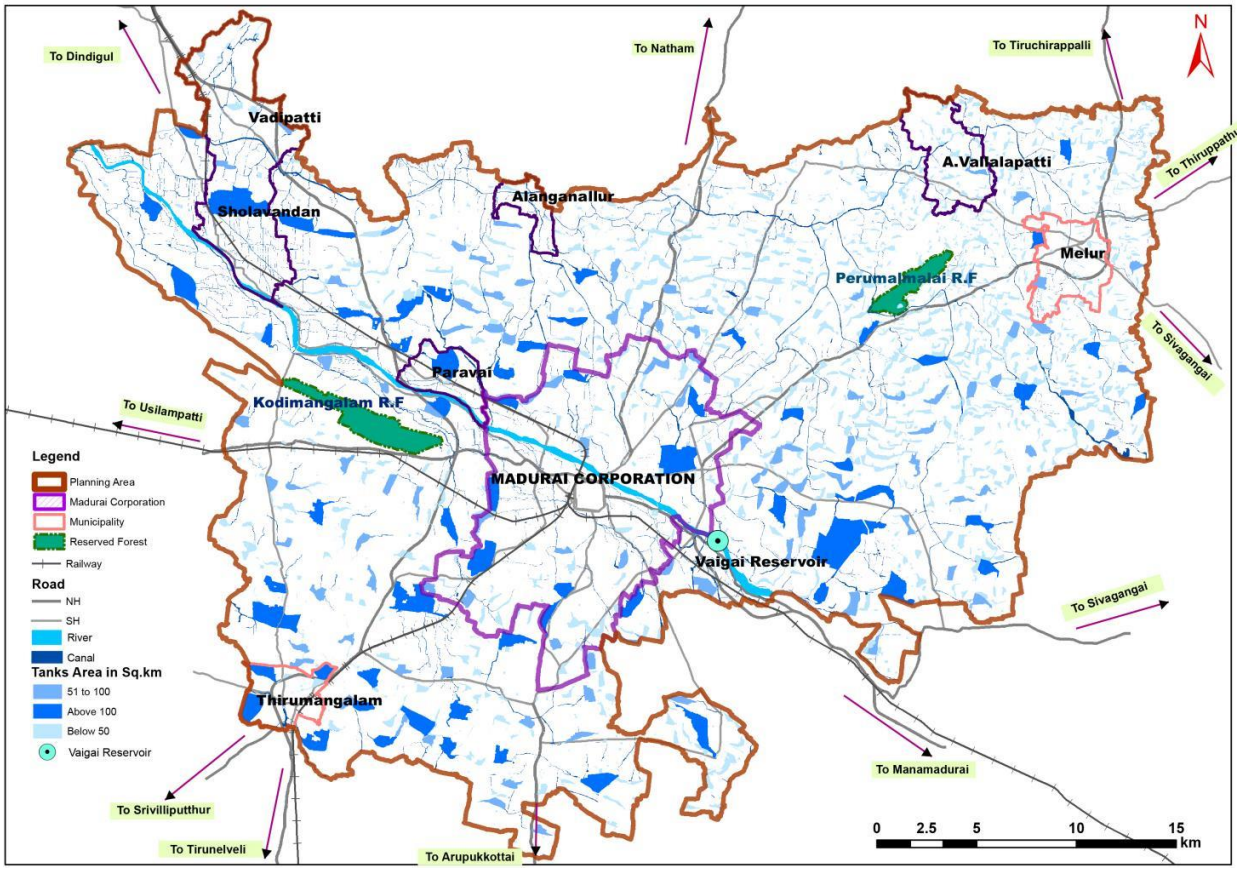
12.3.1. Surface Water

In Madurai, the surface water dynamics are primarily governed by the Vaigai River, a vital hydrological feature for the region. The Vaigai River serves as a fundamental source of surface water, contributing significantly to agricultural irrigation, industrial processes, and domestic consumption within the city. Central Part of Madurai LPA is drained by Vaigai River and Gundar River that forms parts of Vaigai.

Madurai's dependence on water resources is significant, with the Vaigai River, numerous tanks, and channels playing crucial roles in supplying surface water to the region. The Vaigai River holds particular importance as a primary source of water for the city. Originating in the Periyar Plateau of the Western Ghats, the river flows northeast through the Kambam Valley, situated between the Palani Hills to the north and the Varashanadu Hills to the south. Extending for 258 km, the Vaigai River drains a vast basin of 7,031 sq. km.

Apart from the river, Madurai relies on approximately 3,302 tanks distributed across the region to store and distribute surface water. Nilaiyur tank in Nilayur village has the highest storage capacity of 420 MCft (Table 12-4). Table 12-5 shows the list of water bodies in the LPA.

Additionally, reservoirs, and check dams has been strategically implemented along the Vaigai River to regulate and optimize surface water utilization. The Periyar Dam, situated upstream, further supplements the surface water availability, impacting the overall hydrological balance in the region. These tanks serve multiple purposes, including irrigation, stormwater detention, and water storage for the city. However, the functionality and effectiveness of these tanks can be affected by various factors such as climate change, encroachments, and changes in land use patterns. The river's flow pattern and discharge are crucial considerations for water resource management in Madurai.



Map 12-1 Water bodies in Madurai LPA

Table 12-4 List of major tanks in Madurai LPA

SI	Name of Tank	Taluk	Village	Average rainfall in the last season in mm	Source of supply	Total Storage Capacity in Mcft	Present Storage in Mcft
1	Nilaiyur	Thiruparankundram	Nilaiyur	874	Nilaiyur channel	412.0	185.4
2	Thamaripatti tank	Madurai East	Thamaraipatti	810	Periyar System	350.0	210
3	Madakulam	Thiruparankundram	Madakulam	874	Vaigai river	166.9	58.4
4	Kunnathur Tank	Madurai East	Kunnathur	810	Periyar System	154.3	100.1
5	Thenkarai Tank	Vadipatti	Thenkarai	440	Thenkarai Supply Channel	139.9	138.5

Sl	Name of Tank	Taluk	Village	Average rainfall in the last season in mm	Source of supply	Total Storage Capacity in Mcft	Present Storage in Mcft
6	Thengal	Thiruparankundram	Thiruparankundram	874	Nilaiyur channel	106.7	53.4
7	Vadakarai Tank	Vadipatti	Sholavandan	342	Reddy Tank	83.6	82.0
8	Urappanur Big	Thirumangalam	Urappanur	858	1.Joshiyar Alnagulam 2.uranda urappanur kamoi	77.7	7.77
9	Paravai	Madurai North	Paravai	342	Thodanerai, VagankulamArasankulam.	75.5	75.5
10	Thirali Periyakanmoi	Thirumangalam	Thirali	874	Goundanadhi and own catchment	70.6	35.3

Source: PWD

Table 12-5 List of water bodies in Madurai LPA

Village Name	Waterbody Name	LPA	Area Sqkm
Kunnathur Bit 2	Periya Kanmoi	Rural	3.88
Solavandan	Adakeri Tank	Rural	3.08
Nilaiyur Bit 1	Periya Kanmoi	Rural	2.22
Vandiyur Bit 2	Vandiyur Kanmoi	Corporation	2.18
Thirupparankundram		Corporation	1.43
Paravai Bit 1	Paravai Kanmoi	Rural	1.43
Urappanur Bit 1	Periya Kanmoi	Rural	1.40
Viradhanur	Viradhanur WB	Rural	1.30
Thirumangalam Municipality	Venkatasamudram Kanmoi	Municipality	1.17
Virusankulam	Virusangulam Periya Kanmoi	Rural	1.11
Nallur	Nallur Kulam	Rural	1.08
Varichiyur	Vidathakulam Kanmoi	Rural	1.07
Kattakulam	Kattakulam Periya Kanmoi	Rural	1.00
Thenkarai	Ayanthenkarai Periya Kulam	Rural	1.00
Vadagarai	Vadagarai Periya Kulam	Rural	0.99
Urappanur Bit 2	Punnaikulam Kanmoi	Rural	0.65
Mullipallam	Mullipallam Kanmoi	Rural	0.53

Source: PWD

Table 12-6 Details of Renovation of Tanks and water bodies setback

S.No	Water bodies setback	Setback in meters
1	Field Channel of width less than 1m width	1
2	Major Canal more than 1m width	3
3	Lake	3
4	River	15

Source: CCCDM

12.3.1.1. Surface Water Issues

Madurai is grappling with severe degradation of its lakes and surface water bodies, primarily due to urban development and climate change. Many natural and man-made water bodies within the city, crucial for storm water detention and water supply, have been encroached upon or built upon, diminishing their ability to cope with heavy rainfall events. Climate change further intensifies these challenges. The network of lakes, once instrumental in providing a buffer against droughts and climate variability, is under immense pressure.

Several factors contribute to the declining effectiveness of Madurai's water management system. Development pressures have led to the loss of some tanks, and sand mining in the Vaigai River channel has disrupted water flow, rendering numerous tanks unusable. Changes in agriculture practices, including the advent of well irrigation, have led to the abandonment and siltation of water bodies. Development pressures have also resulted in insufficient storm water storage or drainage infrastructure, causing flooding in certain areas during rainfall.

The scarcity of land and development pressures have led to the loss of some tanks to urbanization, exacerbating flooding issues. Additionally, the lack of sanitation infrastructure and solid waste management in many parts of the city results in the unauthorized discharge of sewage and waste into water bodies, contributing to water pollution. Contaminated water poses health risks, leading to waterborne and vector-borne diseases.

Wastewater disposal infrastructure is inadequate, with less than 50% of collected wastewater reaching treatment facilities. This problem is particularly acute in informal settlements, exacerbating health and environmental issues. The degradation of Madurai's wetland and aquatic ecosystem not only impacts water quality but also diminishes vital ecosystem services, including oxygen production, carbon storage, and natural filtration of toxins. Unsustainable water resource

management and pollution further compromise clean water supplies and food production, contributing to health challenges in the region.

12.3.2. Ground Water

The estimation of dynamic ground water resources has shown that out of 13 blocks in the district, 3 blocks have been categorised as over exploited and 2 blocks as critical[1]. Dug wells are the most common ground water abstraction structure with depth range of 10 – 20 m bgl. The yield of dug wells may vary between 45-135 lpm and can sustain 4-6 hrs of pumping. Annual Replenishable Ground Water Resources in Madurai is 760.8 lpm (Table 12-7).

Table 12-7 Groundwater Resources in Madurai District, 2007

S.No	Dynamic Groundwater Resources	Capacity (MCM)
1	Annual Replenishable Ground Water Resources	760.83
2	Total Annual Ground Water Draft for all purposes	425.83
3	Projected demand for Domestic and Industrial Uses up to 2025	32.13
4	Stage of Ground Water Development	62%

Source: District Groundwater Brochure, Madurai, 2007

The Ground Water levels from the 31 number of observation wells of TWAD have been analyzed for Post-Monsoon and Pre-Monsoon. 5 years average Ground water level in m Below Ground Level for pre and post monsoon is as follows:

Table 12-8 Ground Water Level

Jan 2017	May 2017	Jan 2018	May 2018	Jan 2019	May 2019	Jan 2020	May 2020	Jan 2021	May 2021	5 Years Pre-Monsoo	5Years Post Monsoo
9.7	14.1	7.1	10.0	7.2	11.0	7.6	10.3	4.7	5.4	9.3	6.5

Source: TWAD Board

[1] District Groundwater Brochure, Madurai, 2007

With a view to enhance the Sustainability of the drinking water sources, recharge structures are being implemented by TWAD Board under various State and Central Government assistances. The Recharge Structures implemented so far in district is given in Table 12-9.

Table 12-9 Recharge structures

Check Dam	Percolation Pond	Others	Ooranies	Defunct Bore Well Recharge	Recharge Shaft	Rooftop RWH	Hydro Fracturing	Total
444	3	7	9		42	50	45	600

Source: TWAD Board

Groundwater assessment is a dynamic and multifaceted process that considers various factors to evaluate the sustainability of water resources in a given area. The assessment involves the analysis of geological features, total irrigated area, the number of wells utilized for irrigation, water level trends over the past five years, average rainfall patterns, total recharge capacity, irrigation methods employed, cropping patterns, seepage factors, specific yield, prevailing geological conditions, and artificial recharge structures.

The assessing unit in these evaluations is the Firka, a unit of Taluk, with categorizations based on the groundwater status. These categories include Over-Exploited, Critical, Semi-Critical, Safe, and Saline Firkas, providing a comprehensive framework for understanding the groundwater dynamics in different regions. Over-Exploited areas indicate excessive groundwater extraction, while Critical and Semi-Critical areas denote heightened vulnerability. Safe Firkas have sustainable groundwater levels, and Saline Firkas highlight regions where salinity intrusion may affect water quality. This dynamic assessment approach aids in formulating targeted strategies for sustainable groundwater management, ensuring the prudent utilization of this vital resource across diverse environmental and socio-economic contexts.

In Madurai District, the net annual ground water availability is 63,797.96 ha.m (Table 12-10). In Madurai LPA, Madurai West is over exploited, Kokklam, Nagamalai pudukottai and Madurai East have critical vulnerability, and Thirumangalam, Othakadai, Sathamangalam, Koolapandi, Melavalavu, and Valayankulam are semi critical (Table 12-11).

Table 12-10 Dynamic Ground Water Resources of Madurai, 2013 (in ha.m)

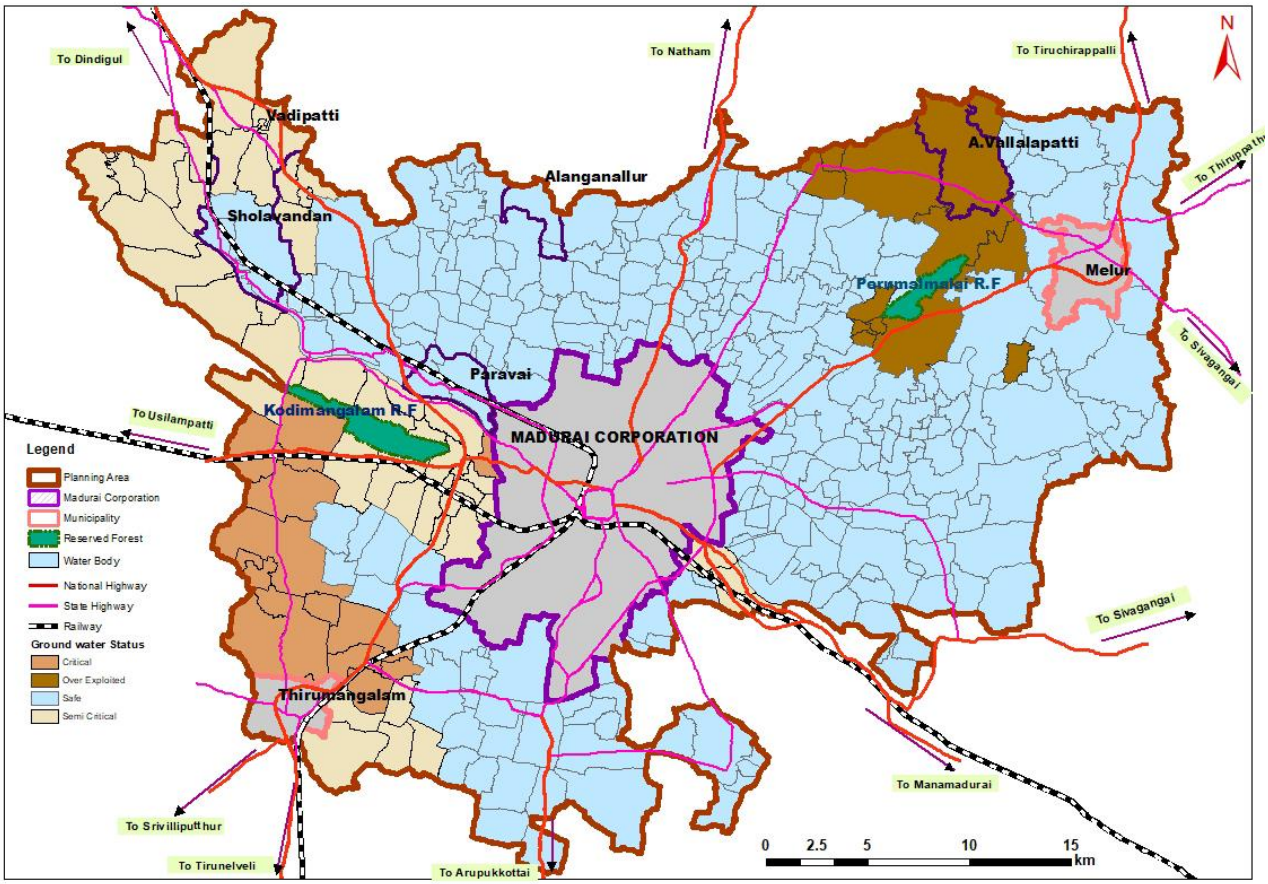
SS . No.	District	Net Annual Ground Water Availability	Existing Gross Ground Water Draft for Irrigation	Existing Gross Ground Water Draft for domestic and industrial water supply	Existing Gross Ground Water Draft for All uses (4+5)	Stage of Ground Water Development {(6/3)*100} %
1	Madurai	63,797.96	39,040.31	4,010.38	43,050.69	67

Source: National Water Mission

Table 12-11 The status of Categorization of firkas as of March 2022

Categorisation Based On Extraction (As On 2020)	No. Of Firkas	Firkas
Over Exploited (>100%)	1	Madurai West
Critical (90%-100%)	3	Kokkulam, Madurai East, Nagamalali Pudukottai
Semi Critical (70%-90%)	6	Thirumangalam, Othakadai, Sathamangalam, Koolapandi, Melavalavu, Valayankulam
Safe (<70%)	20	Alanganallur, Appanthirupathi, Arumabanur, Avaniyapuram, Chathrapatti, Kallandhiri, Kulamangalam, Kunnathur, Melur, Neerathan, Pannaikadu, Rajakkur, Sakkimangalam, Samayanallur, Solavandhan, Thanichiam, Thenkarai, Thirupparankundram, Thiruvathavur, Virathanur
Others (Poor & Saline)	0	
Total	30	

Source: Water Resources Deaprtment, GO(Ms) 15, dated 28.03.2023



Map 12-2 Ground water exploitation in Madurai LPA

12.3.2.1. Ground Water Quality

Madurai District faces significant groundwater quality challenges arising from the increasing extraction of both surface and subsurface water, driven by varying monsoon patterns. This heightened demand poses environmental concerns, leading to water level depletion and deteriorating water quality. The assessment primarily employs Total Dissolved Solids (TDS) as a crucial parameter, categorizing areas with TDS values below or equal to 2000 mg/l as good quality and those exceeding 2000 mg/l as areas of poor quality.

Fluoride presence in groundwater, when within permissible limits (<1.0 mg/l), offers dental health benefits; however, elevated levels (>1.50 mg/l) can lead to dental fluoridosis. Nitrate levels in groundwater are notably influenced by agricultural fertilizer use and local pollution sources, while arsenic, a poisonous heavy metal, is present in concentrations below the permissible limit of 0.05 mg/l for drinking water.

Overall, Madurai District's groundwater quality is generally moderate to good in shallow dug wells and bore wells. However, areas surrounding the Kazhuveli tank exhibit poor water quality due to seawater intrusion during high tide seasons, salt production, and aquaculture farming. Effective monitoring, sustainable water management practices, and mitigation measures are imperative to safeguard groundwater quality and ensure its suitability for various purposes, including agriculture, industries, and domestic use.

12.3.2.2. Ground Water Issues

Madurai's water supply heavily relies on monsoon rainfall, which is stored in reservoirs, water bodies, and replenishes groundwater resources. However, the Vaigai catchment, where Madurai is situated, experiences a water balance deficit in both surface water and groundwater sources, leading to water shortages during drought periods. The city's rainfall pattern, concentrated in late summer, is vulnerable to increased variability according to climate projections.

Piped water from upstream dams, integrated into the Corporation's network, serves only around half of households within the previous Corporation boundary. Feasible options to enhance water storage in the Vaigai catchment remain uncertain. The inadequacy of water supply storage infrastructure puts additional stress on groundwater resources, exacerbating water scarcity issues. The majority of the city relies on groundwater or tankered deliveries, both presenting challenges.

Groundwater abstraction rates are unsustainable, evidenced by a significant decline in the water table and the drying up of wells, despite deeper borehole drilling efforts. Poor sanitation infrastructure contributes to groundwater contamination, posing severe health risks with high rates of faecal contamination and nitrate content in many areas. As groundwater levels rapidly fall, carbon emissions related to water extraction increase. Energy-intensive groundwater extraction not only incurs expenses but also contributes to additional carbon emissions.

Madurai, being the largest urban area in the Vaigai River Catchment, faces a growing water deficit. Urgent action is required to address shortfalls in meeting water needs, including sustainable strategies for groundwater management, improved sanitation infrastructure, and innovative approaches to enhance water storage in the catchment. Failure to act could exacerbate water scarcity issues,

affecting the health and well-being of Madurai's residents and intensifying the strain on the already stressed water resources.

12.4. Land Cover

The vegetation index is a numerical measure that quantifies the density and health of vegetation in a particular area. High values indicate healthier vegetation, while lower values may suggest stress, drought, or other environmental factors affecting plant growth. The figure shows the vegetation index of Madurai local planning area. The corporation area has comparatively less vegetation. North west region of the LPA has higher vegetation cover.

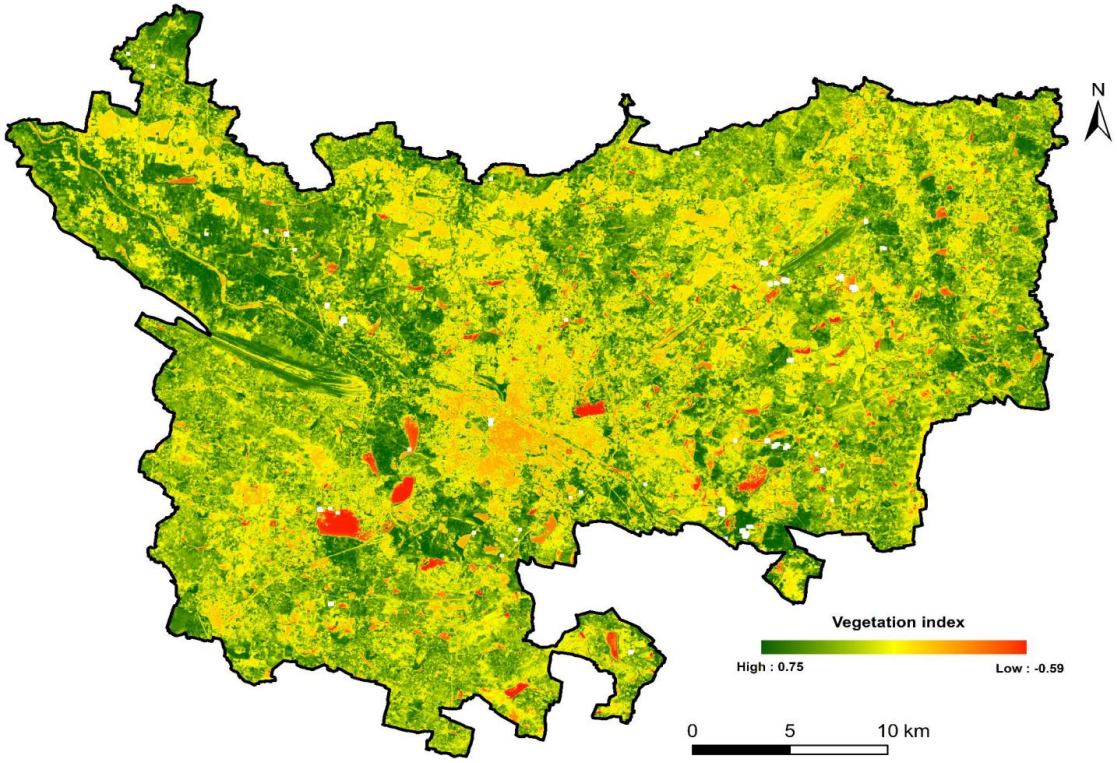


Figure 12-1 Vegetation Index in LPA

12.5. Environmentally Sensitive Areas

12.5.1. Forest

The Madurai LPA encompasses two reserve forest areas – Kodimangalam and Perumalmalai, situated to the West and North-East of Madurai Corporation,

respectively. Kodimangalam spans 7.62 square kilometers, while Perumalmalai covers 3.95 square kilometers, contributing significantly to the region's ecological balance. These reserve forests are crucial components of Madurai's environmental landscape, providing habitat for diverse flora and fauna, preserving biodiversity, and acting as green lungs for the city.

12.5.2. Biodiversity

Arittapatti, a village characterized by a series of barren granite hillocks, boasts a unique landscape that serves as a natural watershed, nurturing 72 lakes, 200 spring pools, and 3 check dams. Among these water bodies, Anaikondan Lake stands as a testament to the architectural prowess of the Pandiya dynasty during the sixteenth century. The hillocks in Arittapatti are not only geologically significant but also harbor rich biodiversity and historical treasures.

Anaikondan Lake, a historical water reservoir, is a testament to the engineering skills of the Pandiyas. This landscape plays a crucial role in supporting diverse flora and fauna, making it a haven for around 250 bird species. Among the avian residents are three flagship raptor species—the Laggar Falcon (Falco jugger), Shaheen Falcon (Falco peregrines), and Bonelli's Eagle (Aquila fasciata). The region is also home to various wildlife, including the elusive Indian Pangolin (Manis crassicaudata), the majestic Python (Python molurus), and the nocturnal Slender Loris (Loris spp). Numerous other bird and animal species find sanctuary in this ecological haven.

Beyond its natural wonders, Arittapatti holds immense historical significance. The landscape features megalithic structures, Tamil Brahmi inscriptions, Jain Beds, and rock-cut temples that date back 2200 years. These relics provide a glimpse into the cultural and historical tapestry of the region, enriching Arittapatti with a heritage that transcends time. In essence, Arittapatti stands as a harmonious blend of geological marvels, vibrant biodiversity, and a tapestry of historical treasures, making it a site of immense ecological and cultural value.

12.6. Environmental Pollution

12.6.1.Air Pollution

With the increased industrial and commercial activities in the vicinity of major cities, the quality of the ambient air is being affected by emissions from the

industries and from the ever-increasing vehicular population. All National Air quality Monitoring Programme (NAMP) stations are functioning on 24 hours basis, twice a week. The samples collected from NAMP stations are analysed for the Respirable Suspended Particulate Matter (RSPM) (RSPM is particulate matter less than 10 microns) and gaseous pollutants such as Sulphur di oxide (SO2) and Nitrogen di Oxides (NO2).

At Madurai, the ambient air quality stations have been functioning under National Air quality Monitoring Programme (NAMP) from 1996 in the following locations (Figure 12-2).

- Hotel Tamil Nadu Residential zone
- Pichai pillai chavadi Industrial zone
- Birla Guest House Mixed zone

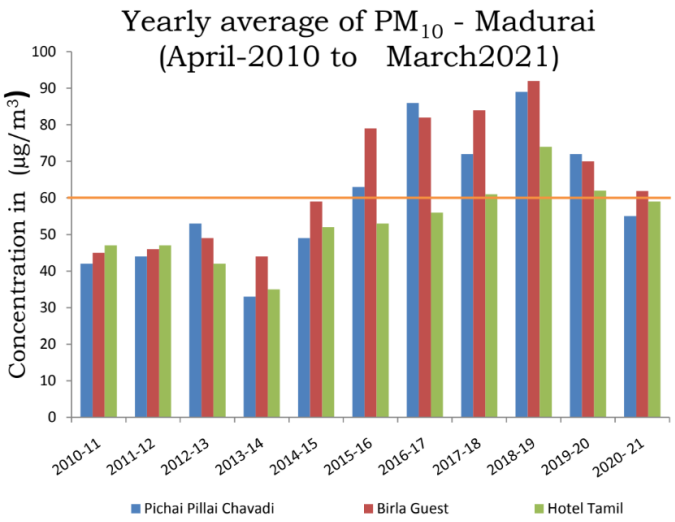


Figure 12-2 Yearly Average of PM10 Madurai

The air quality index (AQI) is an index for reporting air quality on a daily basis. It is a measure of how air pollution affects one's health within a short time period. The purpose of the AQI is to help people know how the local air quality impacts their health. According to the daily data collected in three NAMP-CPCB stations, the monthly

average air quality of the city varies from 32 to 63 AQI. The air quality index (AQI) is satisfactory.

There are only 2 Red Large industries within the city limit and another 2 Red large in 17 category industries located in nearly 17 to 19 km of the city.

12.6.2. Water Pollution

Pollution from domestic sewage, waste water discharge from industries and agricultural runoff etc., find their way into rivers, which can lead to large scale deterioration of water quality. Untreated sewage discharge not only damage for aquatic life but also hazardous to human health used for drinking purpose in the downstream areas. In the wake of increasing urbanization and industrialization, the potential pollution of Vaigai River is gaining momentum day by day. Enhancing Blue Assets.

Water planning and management forms the important aspect of water conservation for the future. Water conservation is an eminent task of local bodies. Water needs to be provided for current and future population. Planning for water conservation can help reduce per capita demand. The success of conservation measures depends on public support and behavior change. Public water conservation campaigns shall raise awareness in all levels of society about the importance of saving water to cope with its scarcity and ensure sustainability. The aim is to change citizen attitudes and behavior to improve water use efficiency.

12.6.3. Noise Pollution

The regulation and control of noise levels are crucial for preserving human health and psychological well-being. Recognizing the impact of noise on individuals, measures are implemented to manage sources that produce or generate excessive noise, aiming to maintain ambient noise standards. According to the Tamil Nadu Pollution Control Board, a noise level survey was conducted in Thirunagar and Birla Visram areas of Madurai.In the year 2021, the recorded noise levels in Thirunagar

varied from 36 decibels (dB) to 87 dB. In comparison, the noise levels in Birla Visram ranged between 43 dB and 93 dB (Figure 12-3).

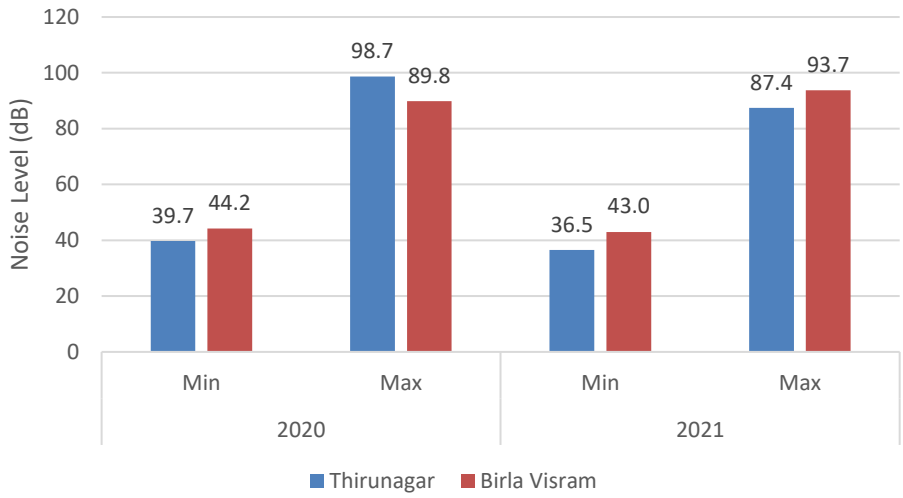


Figure 12-3 Noise levels, 2020-2021

Source: TNPCB

12.6.4. Pollution Hotspots

The identification of vulnerable locations along the Vaigai River (as illustrated in Map 12-3) underscores the importance of recognizing areas susceptible to environmental challenges, particularly in relation to the water quality and ecosystem health. These vulnerable zones may require special attention and targeted conservation efforts to mitigate potential risks and maintain the ecological balance of the river ecosystem in Madurai.

In terms of air pollution, the presence of hazardous industries within the city and in the vicinity (as outlined in Table 12-12) highlights a critical aspect of urban environmental management. The classification of two industries as "Red Large" within the city limits signifies their potential to release significant pollutants into the air. Similarly, the identification of two more Red Large industries in the 17 category, situated around 17 to 19 kilometers from the city center, extends the geographical scope of concern.

Red category industries typically involve activities with a high potential for environmental impact and air pollution. The proximity of such industries to urban areas emphasizes the need for stringent pollution control measures and regulatory

oversight to safeguard air quality. It also underscores the importance of comprehensive environmental impact assessments, regular monitoring, and enforcement of pollution control norms to ensure that industrial activities align with environmental sustainability goals.

Table 12-12 Air polluting Industries in Madurai

S No	Industries	Category
1	J K Fenner India Ltd	Red Large (Madurai City)
2	Sundaram Industries Ltd	Red Large (Madurai City)
3	Kothari Phyto Chemicals International	17 Category-Red (19 Km from the City) Closed
4	M/s. The National Co-op. Sugar Mills Limited	17 Category Red (Large 17 Km from the City)

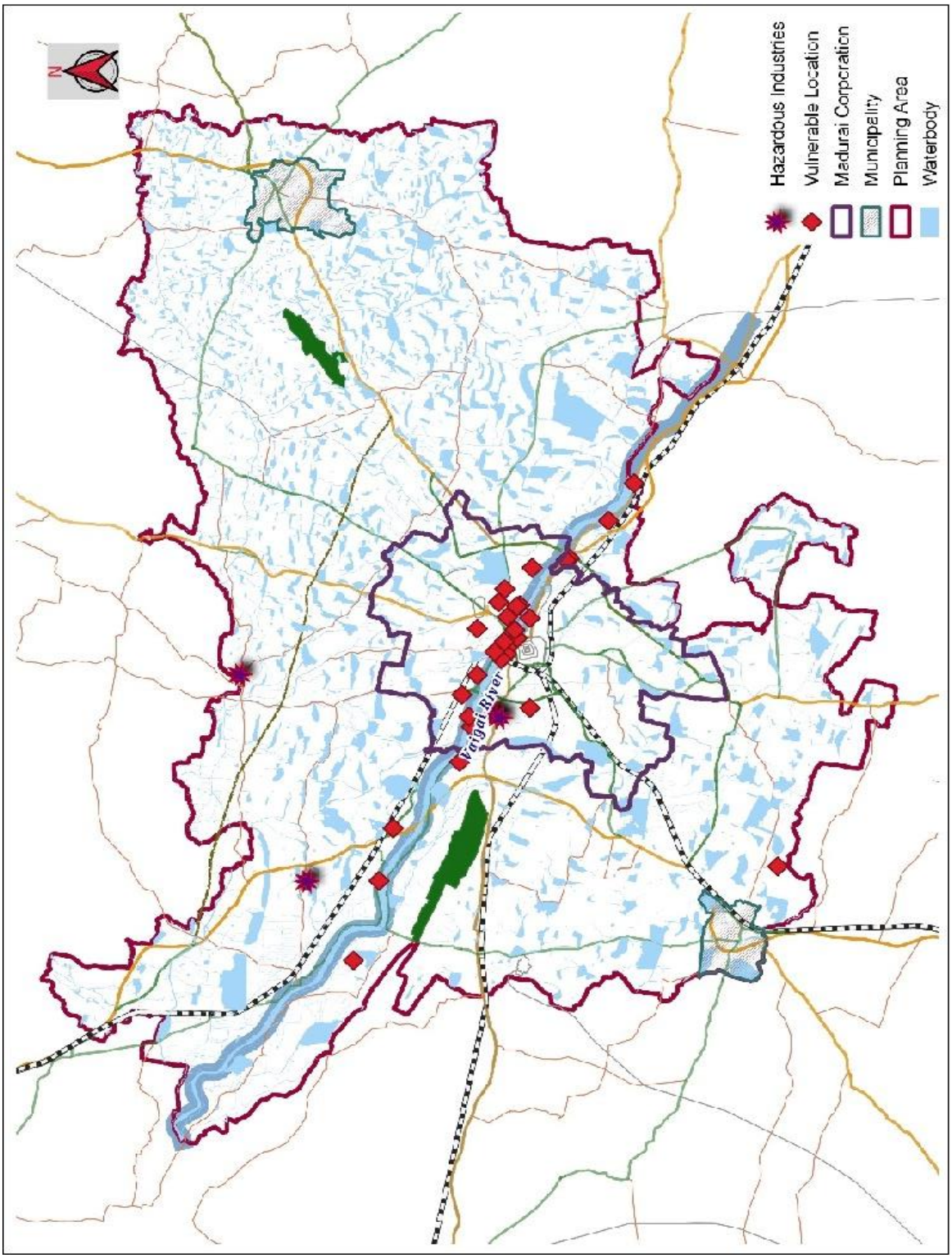
Source: TNPCB

12.7. Disaster Management

12.7.1. Seismic Activity

The seismic hazard map of India was updated in 2002 by the Bureau of Indian Standards (BIS). According to the new map, more areas of Tamil Nadu are susceptible to damage from earthquakes. Madurai city is under low damage risk.

Small to moderate earthquakes have occurred in the state. The frequency of earthquakes is low, i.e., the gap between moderate-sized events is fairly long. Several faults have been identified in this region out of which many show evidence of movement during the Holocene period. The east–west trending Cauvery Fault, Tirukkavilur-Puducherry Fault and Vaigai River Fault and the north–south trending Comorin-Point Calimere Fault and Rajapatnam–Devipatnam Fault are some of them and run close to major urban centres like Coimbatore, Madurai, Nagapattinam, Thanjavur and Puducherry. However, it must be stated that proximity to faults does not necessarily translate into a higher hazard as compared to areas located further away, as damage from earthquakes depends on numerous factors such as subsurface geology as well as adherence to the building codes.



Map 12-3 Vulnerable locations in Madurai LPA

zone [MSK VI]; however, moderate risk will be there in case a major and heavy magnitude earthquake strikes at the nearby districts.

12.7.2. Floods

Madurai city faces recurrent flood hazards, comprising both riverine and urban flooding. The Vaigai River, a vital water source and irrigation channel for the city, originates in the Western Ghats' Periyar Plateau. Its course through the Kambam Valley, nestled between the Palani Hills and Varashanadu Hills, culminates in the Palk Strait in Ramanathapuram District. The 258 km long Vaigai River encompasses a substantial drainage basin of 7,031 sq. km.

Flood events are typically triggered by heavy rainfall during the North-East monsoon, occurring between October and November. The last recorded flood in 1993 resulted from intense rainfall (241 mm) on September 11, causing water inflow to the Periyar and Vaigai to surpass manageable limits. The subsequent release of excess water from the Sathaiyar Dam led to flooding in Madurai. Breaches in tanks, including the Sellur tank, exacerbated the situation, impacting areas like Sellur, Koodal Nagar, and Gomathipuram. Despite efforts to mitigate encroachments along the Vaigai River, breaches in tanks contributed to flooding.

To understand risks, it is important to assess vulnerable areas. The ACS/CRA has given guidelines to identify a location as Very High Vulnerability, High Vulnerability, Moderate Vulnerability, Low Vulnerability, as per the following norms:-

Vulnerability Level	Criteria
Very High Vulnerability	Inundation of water and water level was more than 5 feet due to heavy rains or discharge from water bodies Rescue operations carried out with the help of Central Forces/SDRF Areas which are cut off and became inaccessible for undertaking rescue and relief operations Loss of lives or large scale evacuation carried out
High Vulnerability	Inundation of water and water level was 3-5 feet Rescue operations carried out only by Local police or Fire services and local community
Medium Vulnerability	Inundation of water and water level was 2-3 feet
Low Vulnerability	Stagnation of water was below 2 feet

In Madurai district, the taluks showing low vulnerability are Madurai North, Madurai East, Madurai South, Madurai West, Thirumangalam, Kallikudi, Vadipatti, Usilampatti, and Thiruparankundram (Table 12-13).

Table 12-13 Vulnerability Index of Madurai (Block Wise) (2021 – 2022)

Taluk	Very High Vulnerability	High Vulnerability	Medium Vulnerability	Low Vulnerability
Madurai North	0	0	0	11
Madurai East	0	0	0	1
Madurai South	0	0	0	3
Madurai West	0	0	0	4
Thirumangalam	0	0	0	2
Kallikudi	0	0	0	1
Vadipatti	0	0	0	2
Usilampatti	0	0	0	2
Thiruparankundram	0	0	0	1
Total	0	0	0	27

Source: District Disaster Management Plan – Madurai (2021 – 2022)

Madurai LPA is moderately prone to floods and flash floods. Based on the details of past floods and flash floods details collected and TNSDMA guidelines, the criteria for the classification of vulnerable areas have been applied to the already identified Vulnerable areas. Madurai LPA, Vulnerable areas have been grouped below. The details of Vulnerable Villages for Flood and Rain in Madurai LPA have been identified (Table 12-14).

Table 12-14 Source of flood by Village

S.No	Name of Place	Name of Revenue village for rural areas / Ward for urban areas	Source of flood
1	Madurai	D.M Nagar, Mattuthavani Bus Stand(Opp) Koodal Pudur, Panangadi	Low laying area. Periyar Main Melur, Periyar Vaigai Basin Division is located here.
2	Madurai	N.M.R. Puram,	Heavy rain
3	Madurai	Pullamuthur Tank H/o. Sathankudi Vellankulam Kanmoi H/o. Vellankulam	Pullamuthur tank, Vellankulam Kanmoi
4	Madurai	Ammapatti periyakulam H/o. Ammapatti Panchayat Naduvakottai Kanmoi H/o. Naduvakottai	Ammapatti Periyakulam, Naduvakottai Kanmor

Source: Review of EWS Madurai, TARU/UNDP

Madurai city falls within a moderate risk zone for cyclones, with depressions or cyclonic formations in the Bay of Bengal often resulting in heavy rainfall. The vulnerability to floods necessitates ongoing monitoring, infrastructure development, and disaster preparedness to mitigate the impact on the city and its residents.

Areas along the Vaigai River in Madurai are identified as high-risk zones for flooding, indicating vulnerability to inundation during heavy rainfall or flood events. Additionally, the northern region within the Corporation area is prone to high-risk conditions associated with waterlogging. This suggests that these specific areas are more susceptible to adverse impacts related to excessive water accumulation, posing challenges for residents, infrastructure, and overall urban resilience. Very high risk areas identified are Al Ameen Nagar, Vandiyur, Athikulam, Lake Avenue, Barathiyar Street,Vanitha Nagar, Anbu Nagar, Vel Nagar, Poriyalar Nagar, Meenakshi Amman Nagar, T M Nagar, Valar Nagar, Lourdhu Nagar, Masthanpatti, Sellur & area adjoining to river (Figure 12-4).

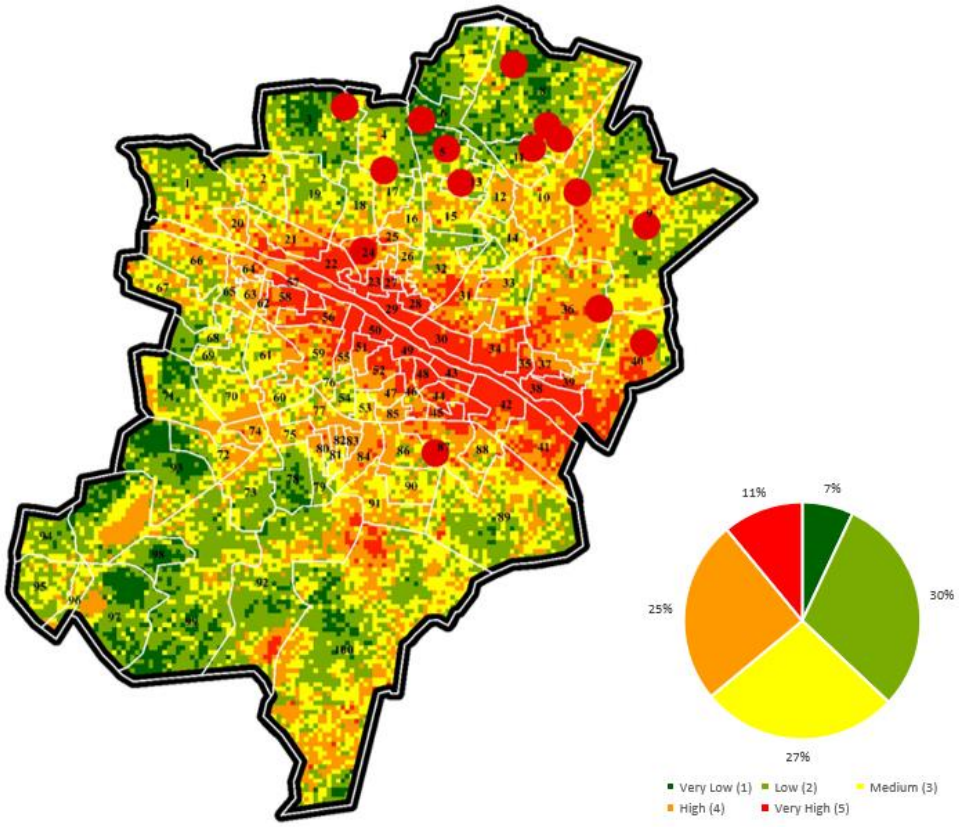


Figure 12-4 Flood vulnerability areas in Madurai Corporation

Source: DPR for Storm Water Drainage, Madurai Corporation

Under the SSP2 4.5 scenario, an area of 82 km² within Madurai city is forecasted to transition from low flood risk to moderate risk in the Near Century (2021-2050). These findings emphasize the heightened risk of extreme rainfall events and the evolving flood dynamics in Madurai, urging the implementation of robust urban planning and infrastructure measures for enhanced climate resilience.

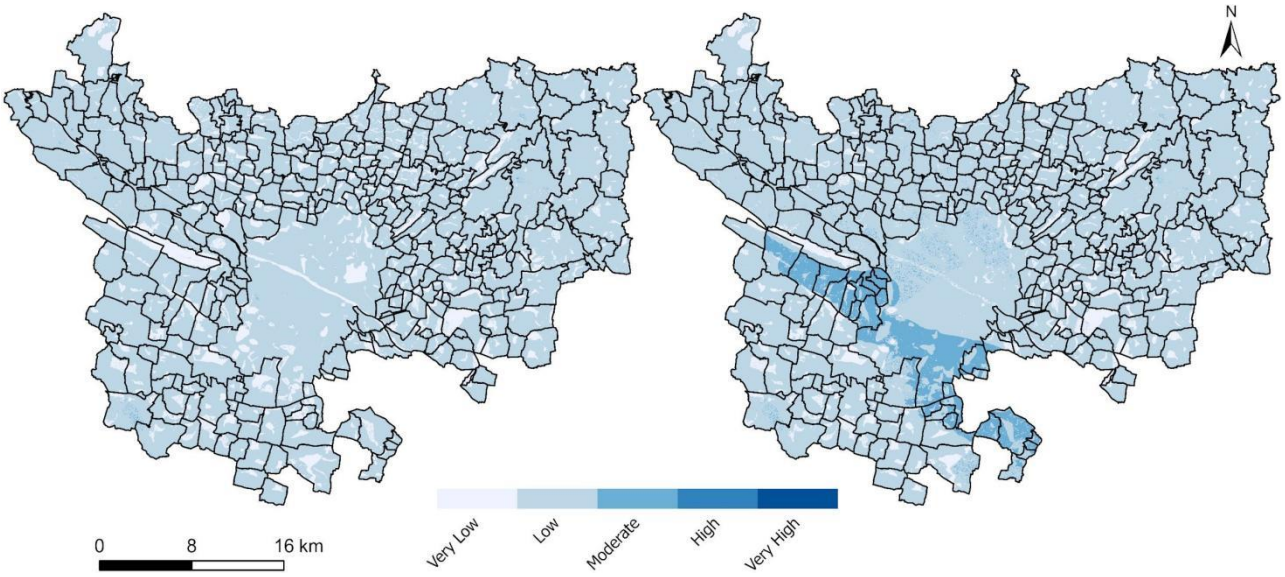


Figure 12-5 Flood vulnerability in Madurai LPA (2021-2050)

Source: CCCDM

12.7.3. Drought

Madurai district is particularly susceptible to drought, marked by a historical predisposition resulting from its geographical location and unpredictable rainfall patterns. Lacking perennial river sources, the majority of rivers, with the exception of the Vaigai River, are seasonal. The North East Monsoon season brings the potential for heavy rains, posing risks of inundation and floods. Depressions in the Bay of Bengal have the capacity to escalate into Cyclonic Storms, designating the three-month period from October to December as the 'Period of Alert.' The last two weeks of November and the first week of December are especially critical, constituting the 'Crucial Period of Alert.'

During this time frame, heavy rainfall may lead to significant water inflow in rivers, jungle streams, and odais. These watercourses, however, often become too narrow to accommodate the substantial water volume, resulting in overflow and potential breaches of embankments. The overflow, in turn, causes extensive damage to residences, huts, agricultural lands, roads, telephone lines, railway tracks, electricity lines, and various public properties.

Drought is the major disaster in Madurai district, as it is historically a drought prone district due to its location and erratic rainfall patterns. The District does not have any perennial river source. Most of the rivers except river Vaigai are seasonal.

Therefore, the district is prone to drought which is a Major Disaster and drinking water shortage is being addressed by a detailed district disaster management plan.

Drought Frequency:

- Base Period (1985-2014): 3 to 4 years
- Near Century (2021-2050) under SSP2 4.5: 6to 7 years

Drought Magnitude:

- Base Period (1985 to 2014): 4.25 to 6 DHI
- Near Century (2021-2050)

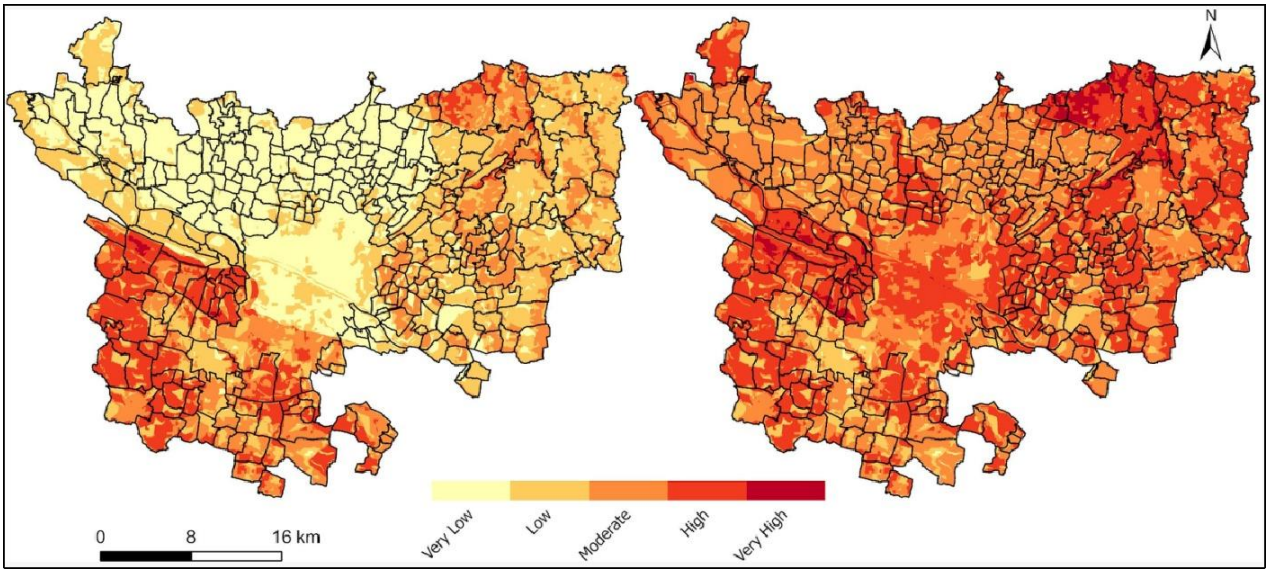


Figure 12-6 **Drought vulnerability in Madurai LPA (2021-2050)**

Source: CCCDM

12.7.4. Heat Wave

A Heat Wave is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the (Hot weather) summer season. Heat Waves typically occur between March and June. The extreme temperatures and resultant atmospheric conditions adversely affect people living in these regions as they cause physiological stress, sometimes resulting in death. Some of the districts in Tamil Nadu that have witnessed heat wave impacts are Vellore, Thiruvannamalai, Krishnagiri, Dharmapuri, Salem, Namakkal, Tiruppur,

Coimbatore, Erode, Karur, Tiruchirappalli, Ariyalur, Perambalur, Sivagangai, Virudhunagar, Theni, Dindigul and Madurai.

12.7.5. Fire Accidents

According to the State Disaster Management Plan, Tamil Nadu is vulnerable to fire risk disasters and some of the districts fall in the very high risk and high-risk categories. Districts have been analysed based on fire risk ranking by specialized groups and the analysis reveals that Madurai is under the 'very high risk' category.

12.7.6. Land Slides

Land Slides are very less possible in Madurai LPA, even though possibilities are very low in Madurai District; landslide preventive measures have been taken. Construction of retaining walls at appropriate places in major roads passing through Hill areas, and widening of juncture points, and curves have been taken to avoid landslides in hill areas.

12.8. Ongoing Projects

Department	Project	Description
Water Resources Department	Repair, Renovation and Restoration (RRR) of water bodies under Pradhan Mantri Krishi Sinchayee Yojana (PMKSY - HKKP)	Restoration of 1 tank in Madurai
Water Resources Department	Special Desilting Works	Special Desilting Works in Upper Vaigai, Lower Vaigai, and Gundar basins of the Madurai Region
Water Resources Department	State Fund and NABARD	Creation of New Irrigation Infrastructures - 2 check dams for ground water recharge
Water Resources Department	Rehabilitation of Irrigation Infrastructure and systems	Rehabilitation of 58 Village canal in Theni, Dindigul & Madurai Rehabilitation and Renovation of 3 canal / channel and its masonry structures

Department	Project	Description
Water Resources Department	Rehabilitation / Renovation of Tanks (other than RRR scheme and TNIAMP)	Rehabilitation of 3 tanks
Environment Climate Change and Forests Department	National Rivers Conservation Plan (NRCP)	Station to monitor River water quality and sewage outfalls
Environment Climate Change and Forests Department	National Clean Air Programme (NCAP)	Source Apportionment Studies, Training and development of public officials, afforestation –Miyawaki forests, end- to-end paving of roads, promoting battery operated vehicles, procurement of Mechanical Street Sweepers, water sprinklers to suppress dust etc for mitigating air pollution.
Smart city	Vaigai River improvement	The project aims to transform the riverfront into a cultural and recreational hub, featuring walkways, a park with a children's play area, tree seating, and lighting arrangements.

12.9. Key Challenges

Risk of Flooding

Madurai faces recurrent flood hazards, primarily triggered by heavy rainfall during the North-East monsoon, with the Vaigai River being a significant contributor. The last major flood occurred in 1993 due to intense rainfall, causing breaches in tanks and impacting areas like Sellur, Koodal Nagar, and Gomathipuram. Despite efforts to mitigate encroachments, Madurai remains moderately prone to floods. Vulnerable areas, especially along the Vaigai River and the southern part of the Corporation area, are identified. Future projections indicate an increased flood risk, emphasizing the need for resilient urban planning and infrastructure development.

Risk of drought

Madurai district is historically prone to drought due to its geographical location and erratic rainfall patterns. Lacking perennial river sources, most rivers are seasonal, with the Vaigai River being the exception. The district experiences a drought frequency of 3 to 4 years during the base period (1985-2014), and under the SSP2 4.5 scenario for the near century (2021-2050), the frequency increases to 6 to 7 years. The magnitude of drought, measured by the Drought Hazard Index (DHI), ranges from 4.25 to 6 during the base period and is expected to continue with a high magnitude in the coming years. This recurring risk of drought poses significant challenges, particularly in addressing drinking water shortages.

Ground water depletion

Madurai District faces groundwater depletion challenges, with 3 blocks categorized as over-exploited and 2 as critical. Dug wells, commonly used for abstraction, yield 45-135 liters per minute (lpm). Recharge structures aim to enhance sustainability, and groundwater levels from 31 observation wells show trends. The district confronts a water balance deficit, affecting both surface and groundwater sources. Piped water from upstream dams serves around half the city, but inadequate infrastructure stresses groundwater. Rising groundwater abstraction rates, coupled with poor sanitation and falling levels, contribute to contamination and health risks.

City of Tanks

While Madurai is said to be the city of tanks, only 46 traditional tanks are reported to be in good condition. The deteriorating state of these tanks poses concerns for water conservation, ecological balance, and cultural significance. Efforts to revive and maintain these tanks have become essential to ensure sustainable water management and preserve the historical and cultural identity of Madurai.

Lack of green space

Madurai faces challenges related to a lack of green spaces, impacting the city's environmental quality and residents' well-being. Insufficient green cover contributes to environmental challenges such as poor air quality, heat island effects, and reduced biodiversity.

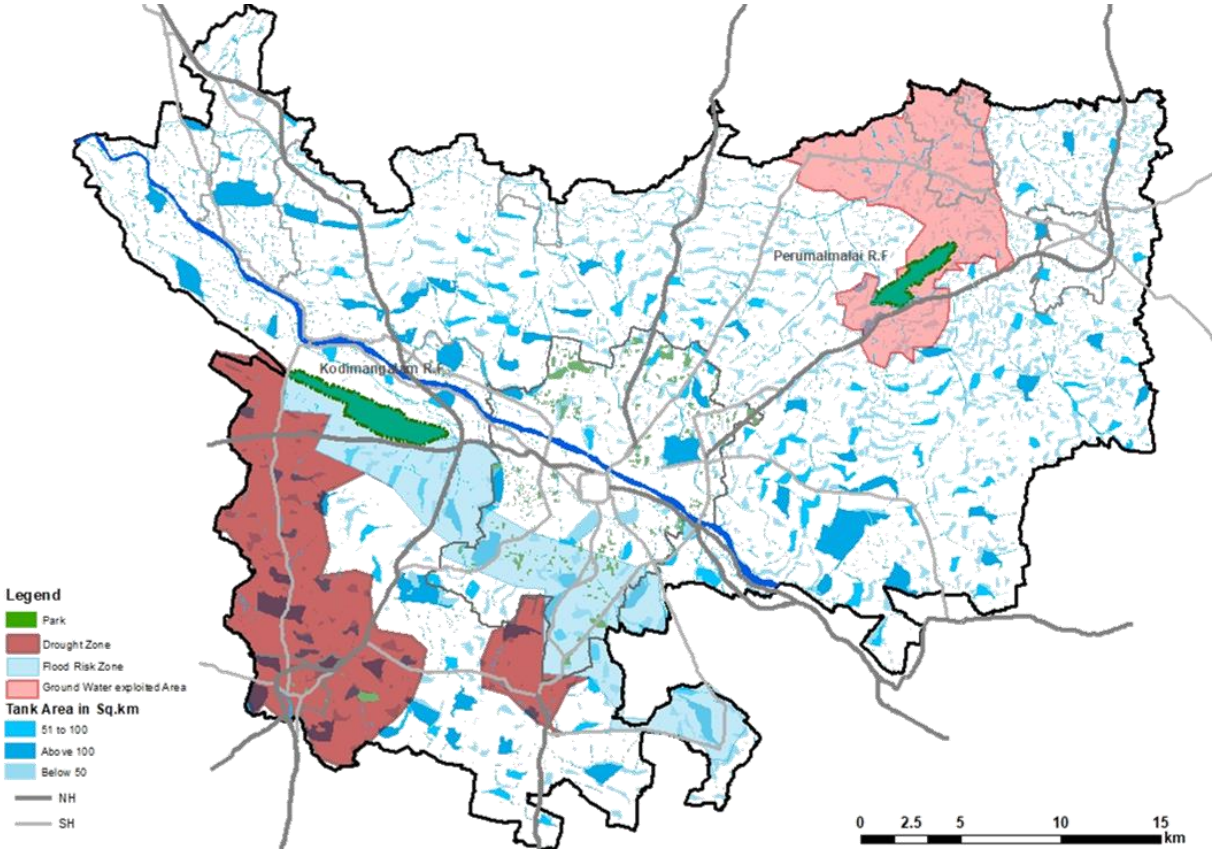


Figure 12-7 **Key Challenges in Madurai LPA**

12.10. Potentials for Environment

Madurai boasts rich eco-sensitive characteristics, particularly centered around the Vaigai River, designated as a crucial water body and biodiversity site. The city's ecological landscape includes prioritized wetlands like T. Kunnathur and Vandiyur, which play vital roles in supporting diverse flora and fauna while contributing to the overall environmental balance.

The Vaigai River, a lifeline for the region, not only provides water for irrigation and sustenance but also fosters unique biodiversity along its course. The river and its surrounding areas are considered eco-sensitive zones, emphasizing the need for conservation and sustainable management practices.

Wetlands, such as T. Kunnathur and Vandiyur, are identified as priority sites for their ecological significance. These wetlands contribute to maintaining water quality, supporting diverse plant and animal species, and serving as critical habitats for migratory

birds. Preserving and prioritizing these wetlands align with broader environmental conservation goals, promoting biodiversity and enhancing the overall ecological resilience of Madurai.

Efforts to protect and manage these eco-sensitive areas involve a combination of conservation measures, community engagement, and adherence to eco-friendly practices. Recognizing the eco-sensitive characteristics of Madurai contributes to fostering a harmonious relationship between urban development and environmental preservation, ensuring a sustainable future for the city and its unique ecological treasures.

The Chittirai Thiruvizha festival, celebrated on the banks of the River Vaigai in Madurai, presents a unique opportunity for riverfront development. A well-developed riverfront can become a major attraction for tourists during the Chittirai Thiruvizha and beyond. The scenic backdrop of the river enhances the ambiance of the festival, creating a memorable experience for attendees. It can include the creation of recreational spaces, such as parks, walkways, and seating areas.

13

PROJECTED REQUIREMENTS

13.1. Population Projection

Population projection estimates the future population for the plan period based on the past trends. It serves as a long-term planning process that make it possible to analyse future demands in terms of infrastructure and other services. The mathematical methods involve the charting of past and present population data, the determination of "trends" and the projection of these present population trends into the future. There are three main types of mathematical projection: arithmetic, growth rate and incremental increase methods.

Madurai has a fluctuating population and growth trend. Madurai being rich in culture and heritage, is one of the oldest cities. Its economy is mainly driven by agriculture and trade, which can be attributed to the past fluctuating growth trend. Three methods namely, arithmetic, incremental increase, and average growth rate have been used to predict the population.

Of these methods, the arithmetic approach is often considered a conservative method as it projects population based on past trends, while assuming a constant rate of population growth over time. The incremental increase projection method takes account of population changes in terms of increments of the change in population. A notable feature of the average growth rate method is the predicted cumulative increase in the population of Madurai resulting in exponential increase in 2041.

The population is reprojected for the base year 2011 considering the previous three decades population and compared with the actual data. It is seen that the incremental increase shows a lower trend and not recommended with a fluctuating trend in growth rate. However, this method assumes the higher decadal change when the past trend is high and vice versa.

The projection population using arithmetic and average growth rate method is relatively closer. However, the average growth rate method may be attributed to the method's sensitivity to growth rate which is varying significantly over time. Average growth rate method estimates based of the average growth trends separately for corporation at 16% and rest of the planning area at 17% which are the average growth rate of past decades respectively. On the other hand, the arithmetic method, which assumes a constant rate of growth, is more suitable for projecting population in a heritage city where conservative growth is preferred.

In conclusion, the projected population of Madurai has been subject to various methods of projection, with the arithmetic approach being the most suitable for a heritage city with a conservative growth trajectory. While the growth rate method has predicted a drastic increase in population in 2041.

Being a heritage city, considering the current and driving factors of economy, the arithmetic method is chosen for planning area. Main reasons are from the reprojection, as the growth rate is in a declining trend in the past decades from 2001. It is seen to increase only in the last decade due to recent industrial developments. Thus, arithmetic method is best suited for the planning area.The resulting projection in population shows various scenarios of the rate of development. However, for a historic town, the arithmetic method is more suited. Hence the Arithmetic method of projected population is opted for the planning area.

As per the projections, the total population of Madurai LPA increased from 22.63 lakhs in 2011 to 33.76 lakhs in 2041 (Table 13-1). In 2041, corporation is projected to have a population of 22.24 lakhs, municipalities of 1.21 lakhs, and the rest of LPA of 10.31 lakhs (Table 13-1). The LPA has a decreasing growth rate from 19.7% between 2001-11 to 12.4% between 2031-41 (Table 13-1).

Table 13-1 Population Distribution in LPA, 2011-41

Administrative Unit	2011	2021	2031	2041
Madurai Corporation	14.73	17.23	19.74	22.24
Municipalities	0.91	1.01	1.11	1.21
Rest of LPA	6.99	8.07	9.19	10.31
Total LPA	22.63	26.32	30.04	33.76

Source: 2011 Census, 2021-2041 projected

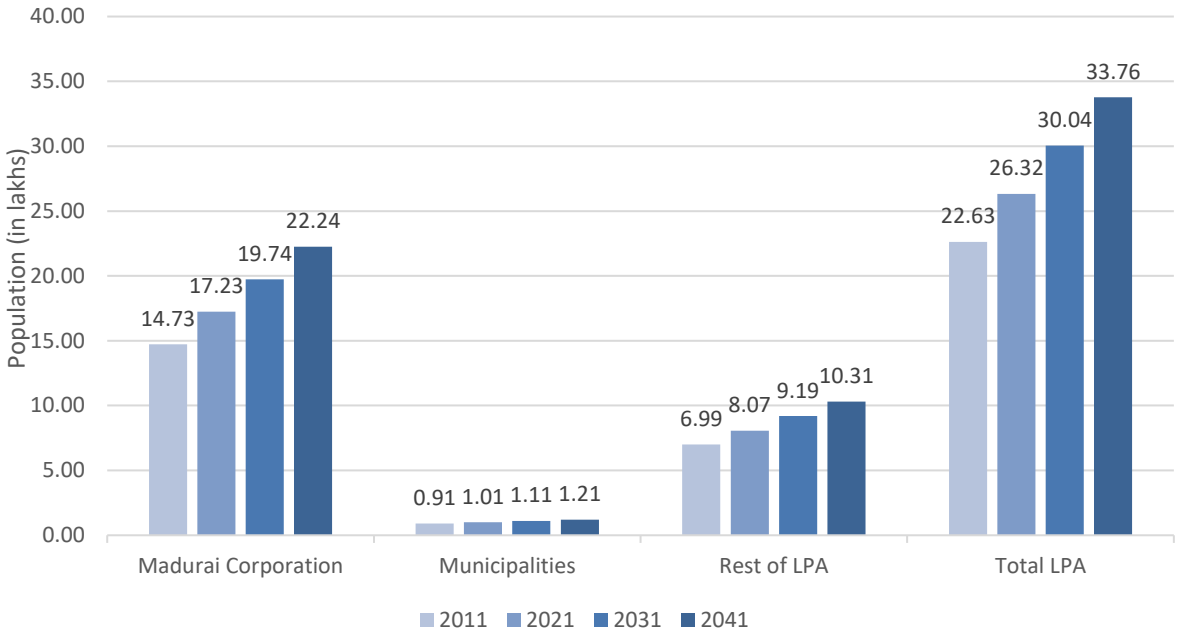


Figure 13-1 Population Projection in LPA, 2011-41

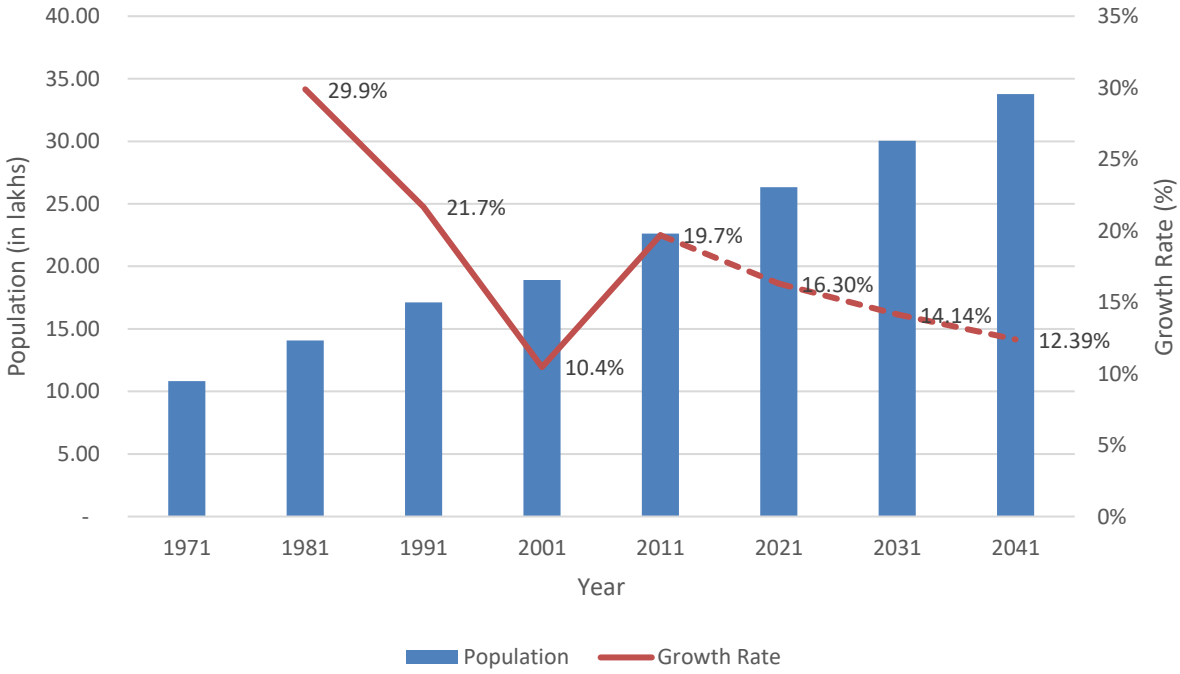


Figure 13-2 Population Projection & Growth Rate in Madurai LPA, 1971-2041

13.2. Employment Projection

13.2.1. Total Workforce Participation Rate:

The combined workforce participation rate, considering both the corporation and the rest of the planning area, is calculated at 41.43%. This rate indicates the overall proportion of the working-age population actively engaged in the workforce across the entire region under consideration.

Table 13-2 Work Force Details, 2011

Area	No. of Workers		
	Total	Male	Female
Madurai Corporation	5,63,077	4,26,895	1,36,182
Rest of LPA	3,64,966	2,35,769	1,29,197
Planning Area	9,28,043	6,62,664	2,65,379

Source: Census of India (2011)

The information provided from the Census 2011 regarding the working population in both the corporation and the rest of the planning area, constituting 40-45% of the total population, serves as a basis for estimating the future workforce in the area.

Table 13-3 Workforce Projection, 2041

Year	Population	Projected Workforce
2021	25,51,770	10,66,138
2031	28,67,104	11,98,362
2041	31,82,438	13,30,587

13.3. Housing Projection

The projected housing requirement for 2041 indicates a substantial demand surge, necessitating strategic planning and development. Anticipating population growth and urbanization, it mandates comprehensive housing solutions addressing diverse needs, infrastructure enhancement, and sustainable urban planning to ensure adequate and affordable housing for the future populace.

In the context of Madurai LPA's population projections, the estimation of housing needs and land requirements for the year 2041 is crucial for urban planning. The projected population increase from 2011 to 2041, amounting to 1,115,462 individuals, has prompted a comprehensive assessment of housing demand. Factoring in an assumed average household size of 4 persons, the additional households derived from the population increase signify a demand for 278,866 new households in 2041. The total housing requirement for 2041, inclusive of existing dwellings in slums, kutcha houses, dilapidated structures, and houseless households, amounts to 3,22,652 residences.

Given an assumed optimal land area of 220 square meters per dwelling unit, the calculation of land required for residential use in 2041 becomes imperative. Multiplying the total housing requirement by the area per dwelling unit, the estimated land area needed for residential purposes in Madurai LPA by 2041 stands at approximately 70,783,440 square meters (70.78 square kilometers). This projection provides a fundamental understanding of the land allocation necessary to accommodate the envisaged housing needs, enabling urban planners to strategize and allocate land resources efficiently for future residential developments within the region.

The data-driven projections of housing demand and land utilization serve as essential benchmarks for urban development planning. By delineating the anticipated housing requirements and corresponding land needs, local authorities and policymakers can implement informed strategies to ensure sustainable urban growth, equitable access to housing, and efficient land utilization practices, fostering a balanced and resilient urban environment within Madurai LPA.

Table 13-4 Housing Requirement, 2041

Description	Planning Area
Total Population (2011)	2,260,924
Projected Population (2041)	3,376,386
Additional Population in 2041	1,115,462

Description	Planning Area
Additional Households in 2041	278,866
Slum Households in 2011	40,034
Kutcha Houses in 2011	994
Dilapidated Households in 2011	2,205
Houseless Households in 2011	555
Total Housing Requirements in 2041	**322,654**
Optimal Land Area per Household in sq. m	**220**
Residential Area required in 2041 in sq.km	**70.98**

13.4. Physical Infrastructure Projection

13.4.1. Water supply

The projected additional water requirements for Madurai Corporation in 2041 are estimated at 108.26 MLD. However, with the implementation of the proposed Mullai Periyar project and the uninterrupted functioning of existing water supply schemes, the demand is expected to be adequately met.

For Tirumangalam municipality and Melur municipality, the additional water needs in MLD for 2041 are 4.51 and 3.16, respectively. Town Panchayats are expected to require 5.98 MLD for 2041, while Village Panchayats may necessitate 13.00 MLD during the same period. These figures underscore the importance of proactive water resource planning and infrastructure development to meet the growing demands of different regions.

The proposed Mullai Periyar project plays a pivotal role in ensuring a sustainable and sufficient water supply, provided that existing schemes operate efficiently. The detailed breakdown for each locality aids in tailoring solutions to specific requirements, promoting comprehensive water management strategies.

Table 13-5 Future requirements – Water supply

Description	Year	Madurai Corporation	Thirumangalam Municipality	Melur Municipality	Town panchayats	Villages	**Total**
Population	2031	19,73,748	61,300	50,084	1,28,381	7,90,652	**30,04,165**
	2041	22,24,148	66,353	55,117	1,47,519	8,83,249	**33,76,386**
Available Water Quantity at Source (MLD)		192	4.45	3.60	7.29	48.83	**256.17**
Per Capita Norms (LPCD)		135	135	135	90	70	
Quantity of Water required as per standard (MLD)	2031	266.46	8.28	6.76	11.55	55.35	**348.39**
	2041	300.26	8.96	7.44	13.28	61.83	**391.76**
Additional quantity of water required in MLD	2031	74.46	3.83	3.16	4.26	6.52	**92.22**
	2041	108.26	4.51	3.84	5.98	13.00	**135.59**
Total Capacity of OHTs (LL)		40.55	2.95	2.57	4.61	24.42	**75.1**
Storage Capacity Required in ML	2031	266.46	8.28	6.76	11.55	55.35	**348.39**
	2041	300.26	8.96	7.44	13.28	61.83	**391.76**
Additional Storage Capacity in ML	2031	225.91	5.33	4.19	6.94	30.93	**273.3**
	2041	259.71	6.01	4.87	8.67	37.41	**316.67**
Land Requirement in Ha	2031	5.15	0.74	0.71	0.77	1.25	**8.62**
	2041	5.82	0.75	0.73	0.80	1.38	**9.48**

13.4.2. Sewerage

The projected additional sewage treatment plant capacity required for Madurai Corporation in 2041 is estimated at 67.51 MLD, emphasizing the need for substantial infrastructure to manage the increasing wastewater volume. For Tirumangalam municipality and Melur municipality, the additional sewage treatment plant capacity required in 2041 is expected to be 7.13 and 5.93 MLD, respectively. Town Panchayats may necessitate 10.62 MLD, while Village Panchayats are estimated to require a significant capacity of 49.46 MLD during the same period.

These figures underscore the critical importance of planning and implementing advanced sewage treatment facilities to accommodate the growing urban and peri-urban population's wastewater needs. Adequate sewage treatment is essential for maintaining environmental sustainability and public health standards, aligning with the region's expanding demographic and urbanization trends. The detailed breakdown assists in tailoring sewage management strategies to meet the specific requirements of different localities within the Madurai district.

Table 13-6 Future requirements – Sewerage

Description	Year	Madurai Corporation	Thirumangalam Municipality	Melur Municipality	Town panchayats	Villages	**Total**
Population	2031	19,73,748	61,300	50,084	1,28,381	7,90,652	**30,04,165**
	2041	22,24,148	66,353	55,117	1,47,519	8,83,249	**33,76,386**
Quantity of Sewage Generated (MLD)	2031	213.16	6.62	5.41	9.24	44.28	**278.71**
	2041	240.21	7.17	5.95	10.62	49.46	**313.41**
Existing STP Capacity in MLD		172.7	0.04	0.02	0	0	**172.76**
Additional STP Capacity required in MLD	2031	40.46	6.58	5.39	9.24	44.28	**105.95**
	2041	67.51	7.13	5.93	10.62	49.46	**140.65**
Storage Capacity Required in ML	2031	40.46	6.58	5.39	9.24	44.28	**105.95**
	2041	67.51	7.13	5.93	10.62	49.46	**140.65**
Gap in Storage Capacity in ML	2031	40.46	6.58	5.39	9.24	44.28	**105.95**
	2041	67.51	7.13	5.93	10.62	49.46	**140.65**
Land Requirement in Ha	2031	50.58	8.23	6.74	11.55	55.35	**132.44**
	2041	84.38	8.91	7.42	13.28	61.83	**175.81**

13.4.3. Solid Waste Management

The projected additional Micro Composting Centers (MCC) capacity required for Madurai Corporation in 2041 is estimated at 254.43 metric tons, indicating a substantial need for composting facilities to manage organic waste. For Tirumangalam municipality and Melur municipality, the additional MCC capacity required in 2041 is expected to be 2.93 and 8.4 metric tons, respectively. Town Panchayats may necessitate 33.19 metric tons, while Village Panchayats are estimated to require a significant capacity of 198.73 metric tons during the same period.

These figures highlight the importance of expanding micro composting facilities to address the increasing organic waste generated across different localities within the Madurai district. Micro composting is an environmentally friendly waste management strategy that promotes recycling and the production of valuable compost for agricultural purposes. The detailed breakdown assists in tailoring composting infrastructure development strategies to meet the specific needs and waste generation patterns of various regions within the district.

Table 13-7 Future requirements – Solid waste management

Description	Year	Madurai Corporation	Thirumangalam	Melur	Town panchayat	Villages	**Total**
Population	2031	1973748	61300	50084	128381	790652	**3004165**
	2041	2224148	66353	55117	147519	883249	**3376386**
Quantity of Solid waste Generated (MT)	2031	986.87	30.65	25.04	64.19	395.33	**1502.08**
	2041	1112.07	33.18	27.56	73.76	441.62	**1688.19**
Quantity of Dry Waste Generated (MT)	2031	542.78	16.86	13.77	35.3	217.43	**826.15**
	2041	611.64	18.25	15.16	40.57	242.89	**928.51**
Quantity of Wet Waste Generated (MT)	2031	444.09	13.79	11.27	28.89	177.9	**675.94**
	2041	500.43	14.93	12.4	33.19	198.73	**759.69**
Existing MCC Capacity in MT		246	12	4	0	0	**262**
Additional MCC Capacity Required in MT	2031	198.09	1.79	7.27	28.89	177.9	**413.94**
	2041	254.43	2.93	8.4	33.19	198.73	**497.69**
Storage Capacity Required in ML	2031	198.09	1.79	7.27	28.89	177.9	**413.94**
	2041	254.43	2.93	8.4	33.19	198.73	**497.69**
Gap in Storage Capacity in ML	2031	198.09	1.79	7.27	28.89	177.9	**413.94**
	2041	254.43	2.93	8.4	33.19	198.73	**497.69**
Land Requirement in Ha	2031	2.38	0.02	0.09	0.35	2.13	**4.97**
	2041	3.05	0.04	0.1	0.4	2.38	**5.97**

13.5. Electricity

The projected demand for 11KV capacity substations in the Madurai region indicates a substantial increase by the years 2031 and 2041. For Madurai Corporation, the requirements are expected to rise from 131 to 148 by 2031 and 2041, respectively. Similarly, for the Rest of the Planning Area (LPA), the projected figures show an increase from 69 to 77 within the same time frame. The cumulative demand for the Total LPA is projected to reach 200 and 225 by 2031 and 2041, respectively. This data emphasizes the need for strategic infrastructure development to accommodate the growing electricity demands in both Madurai Corporation and the surrounding planning area over the specified time periods.

Table 13-8 Future requirements – Electricity

Stations with 11KV Capacity	2031	2041
Madurai Corporation	131	148
Rest of Planning Area	69	77
Total LPA	**200**	**225**

13.6. Social Infrastructure Projection

13.6.1. School Education

In adherence to the Urban and Regional Development Plans Formulation and Implementation (URDPFI) guidelines, the stipulated ratio dictates that for every 5000 individuals in a population, one primary school is deemed necessary. Similarly, the provision recommends one senior secondary school for every 7500 individuals. Based on these criteria and the current demographic distribution within the Madurai Local Planning Area (LPA), an analysis reveals a demand for an additional 173 schools to meet the educational needs of the growing population.

However, the pursuit of building 173 entirely new schools may not be the most efficient approach. A strategic alternative arises by considering the prospect of upgrading existing high schools to higher secondary schools. This approach not only maximizes the utilization of existing infrastructure but also addresses the evolving educational demands more effectively.

In this context, the recalculated requirement shifts to 55 additional higher secondary schools, considering the upgrading of existing high schools. This reduction in the number signifies a more pragmatic and resource-efficient strategy. The corresponding area requirement for these 55 higher secondary schools is estimated at 99 hectares.

Table 13-9 Future requirements – School Education

	Projected Population 2041	Existing School 2021	Required Schools - 2041	Demand for 2041(Nos)	Demand (2041- Ha)
Primary School	33,76,000	698	675	No Additional Requirements	No Additional Requirements
Higher Secondary School	33,76,000	277	450	173	311.4 Ha

13.6.2. Higher Education

The enthusiasm to seek higher education transcends local boundaries, with individuals exhibiting a greater willingness to travel for advanced learning compared to their inclination for school education.

While the URDPFI guidelines suggest no immediate need for additional higher educational institutes based on population metrics, a crucial consideration arises in optimizing existing institutions. The focus should shift to maintaining a standardized and high-quality educational experience across these institutes. Enhancing faculty expertise, modernizing infrastructure, and promoting research initiatives become paramount. By strategically optimizing the utilization of current higher education establishments, the region can meet the growing demand for advanced learning while ensuring a globally competitive educational ecosystem.

Table 13-10 Future requirements – Higher Education

Types of Higher Education Institutes	Population 2041	Existing Institutes 2021	Required Institutes - 2041	Demand for 2041 (Nos)
Technical College	33,76,000	10	4	No additional Requirement
Professional Colleges	33,76,000	14	4	No additional Requirement
General Colleges	33,76,000	41	27	No additional Requirement
Total		**65**	**35**	**No additional Requirement**

13.6.3. Healthcare

The planning and establishment of Primary Health Centers (PHCs) within the Madurai Local Planning Area (LPA) are meticulously designed, taking into consideration factors such as catchment population, population density, and existing infrastructure. According to established norms, Urban PHCs are strategically positioned in close proximity to urban slums, with each PHC intended to serve a population of 50,000. On the other hand, Rural PHCs are intricately linked to clusters of 5-6 sub-centers, extending their reach to a population of 30,000.

Looking ahead to the horizon year, projections indicate a need for an additional 14 Urban PHCs and 14 Rural PHCs to accommodate the anticipated population growth. However, a comprehensive assessment, taking into account the widespread presence of hospitals and robust private health clinics within the LPA, has led to the conclusion that there is currently no immediate requirement for additional urban facilities.

However, there is a need for an additional 11 Primary Health Centers (PHCs) in village panchayats and an additional 3 PHCs in town panchayats.

Table 13-11 Future requirements – Health care facilities

Administrative boundary	Population	Existing PHC/ UPHC	Required PHC/UPHC-2041	Demand of PHC -2041
Corporation	22,24,148	31	45	14
Melur Municipality	66,353	1	1	0
Thirumangalam Municipality	55,117	1	1	0
Town Panchayats	1,47,519	2	5	3
Villages	8,83,249	19	30	11
Grand Total	**33,76,386**	**54**	**82**	**28**

Healthcare facility projections can also be determined by considering the required number of beds for the anticipated population. The size of hospitals is often quantified by their bed capacity. According to the Indian Public Health Standards (IPHS) 2012, the calculation of beds is grounded in assumptions such as an annual admission rate of 1 per 50 in the population and an average hospital stay of 5 days. Therefore;

- No.of beds required per year = 3376386 x 0.02 x 5 = 3,37,639.
- No.of beds required with 100% occupancy = Beds required per year/365

  = 3,37,639/365 = 925 beds.

Currently, the health department reports a combined total of 8097 beds in both public and private sectors within Madurai LPA, significantly surpassing the anticipated future bed requirements for the projected population. Nevertheless, there is a demand within the community for primary health centers, especially in village areas, to address immediate healthcare needs at the primary level.

13.6.4. Police and Fire

In accordance with the URDPFI guidelines and a population-centric analysis, a demand emerges for the incorporation of six additional fire stations, each occupying an area of six hectares, within the confines of the Madurai Local Planning Area. The suggested expansion in fire stations aligns with this forward-looking approach, anticipating the needs of the projected population.

However, the same analytical scrutiny reveals that, given the existing circumstances and in alignment with URDPFI recommendations, there is currently no immediate requirements of police stations within the Madurai Local Planning Area.

Table 13-12 Future requirements – Police and Fire

S. No.	Description	Total LPA				Area required in 2041 in Sq.km
		Existing number of facilities for 2021 population	Total No. of facilities required in 2041	Additional No. required in 2041	Required area in Ha in 2041	
1	Fire Station	11	17	6	6	0.06
2	Police Station	49	38	0	0	0.00

13.6.5. Parks

The Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines offer a comprehensive framework for urban planning, specifying an ideal provision of 10-12 sq.m of recreational space per person in urban areas. However, in contrast, the National Building Code (NBC) sets a more conservative minimum norm of 3 sq.m per person for recreational space within the

typical built-up area, excluding spaces designated for recreation, forests, vacant land, and other open areas.

Presently, within the Madurai Local Planning Area (LPA), the available recreational area falls significantly short of both the URDPFI and NBC standards. According to existing data on parks and open spaces, the current provision stands at a mere 0.37 sq.m per person. This considerable deficit prompts a critical evaluation of the urban planning landscape, highlighting the pressing need for substantial improvements in recreational space availability.

To align with the NBC norms of at least 3 sq.m per person, an additional **690 hectares** of recreational area is required in Madurai LPA. This signifies a substantial gap between the existing provisions and the minimum standards set by national guidelines. However, to meet the more ambitious URDPFI requirement of 12 sq.m per person, a staggering **2934 hectares** of additional recreational space is needed, emphasizing the comprehensive nature of the urban planning challenge.

The deficit in recreational space not only hinders the well-being and quality of life for residents but also underscores the imperative for strategic urban development that prioritizes green spaces and recreational facilities.

Table 13-13 Future requirements – Parks and open spaces

Administration	Population (2041)	Parks (Nos)	Area Existing (Sq.m)	Area Required (Sq.m)	Available Park area per person in sq.m
Corporation	2224148	484	500034.59	26689776	0.22
Thirumangalam	55117	30	64515	661404	1.17
Melur	66353	7	5711.36	796236	0.08
Town Panchayat	147519	5	1737.3798	1770228	0.011

14

PROPOSAL

14.1. Economy

The vision of Madurai Master Plan 2041 is to improve the promote sustainable economic development, infrastructure improvement, job creation, and overall prosperity. This may include efforts in sectors like agriculture, industry, tourism, education, and healthcare. Madurai district possesses a unique economic landscape shaped by its geographical, cultural, and historical factors. By thoroughly understanding the district-specificities. This chapter deals with the land use planning strategies adopted to meet the objectives of the master plan and LPA.

14.1.1. Planning strategies for economy

The land use zoning to be provided is to be as per the provisions of the Tamil Nadu Combined Development and Building Rules, 2019.

1. Designating specific zones for different economic activities, such as residential, commercial, industrial, and agricultural. Encouraging the clustering of similar businesses in industrial zones to enhance efficiency and competitiveness.
2. Fostering vibrant and economically dynamic neighborhoods that support local businesses and enhance the quality of life.
3. Establishing dedicated industrial parks to concentrate industrial activities, promoting economies of scale and efficient infrastructure use.Designating innovation zones to encourage research and development, technology-driven enterprises, and knowledge-based industries.
4. Supporting sustainable agriculture practices to enhance food security and promote rural economic development.

14.1.2. Economic planning and future growth directions

The sector of Madurai economy is well developed with a few sub-sectors showing a lot of progress. The city is considered as one of the economically developed regions of the state of Tamil Nadu. Economic planning refers to the systematic process of setting objectives, formulating policies, and implementing strategies to achieve sustainable economic development. It involves the organized allocation of resources, both human and capital, to optimize productivity, enhance competitiveness, and improve the overall well-being of a Madurai LPA.

Madurai's geographical location, classified as Seismic Zone 2, implies a relatively lower risk of earthquakes compared to regions in higher seismic zones. Seismic Zone 2 areas generally experience lower seismic activity and are considered to have a low susceptibility to significant earthquakes. This lower risk of earthquakes provides a relatively stable foundation for development and construction activities.

The Vaigai River serves as a geographical demarcation, dividing the city into distinct north and south halves. Recent observations indicate that the pace of development on the south side of the river surpasses that of the north side. Exploring the reasons behind this divergence, including infrastructure projects, economic investments, and urban planning strategies, will shed light on the key drivers shaping the unequal development dynamics across the city.

It appears that there is an emerging trend of industrial growth near Thirumangalam municipality. This developments like IT park Vadapalanji, SIDCO Kappalur, Electrical and Electrical Industry Kappalur, Automobile industry Kappalur etc., could have significant implications for the local economy, employment opportunities, and overall community well-being. To gain a comprehensive understanding, it would be essential to delve into specific details such as the types of industries, investment patterns, and the potential socio-economic impacts on the region.

The city's development trajectory is marked by a clear geographical orientation. The northern side, extending towards Melur, is witnessing significant developmental activities, paralleled by notable growth along the southern axis, particularly along SH-101 leading to Thirumangalam. Exploring the contributing factors, including ongoing infrastructure projects, economic investments, and regional planning strategies, will provide a comprehensive understanding of the city's expanding landscape in these specified directions.

14.1.3. Economy proposal

An economic proposal for a master plan is a comprehensive document that outlines strategies, initiatives, and policies to drive economic development within a specific region. By aligning with the broader master plan objectives, our economic proposal focuses on key pillars such as infrastructure development, sectoral diversification, innovation, and sustainable practices.

14.1.4. Primary Sector

The primary sector, also known as the agricultural sector, is a crucial component of an economy. It involves the extraction of natural resources directly from the Earth or the cultivation of plants and animals. The primary sector plays a foundational role in economic development, providing the raw materials and food necessary for sustaining human life and supporting other economic activities. It provides raw materials for various industries. For example, agriculture produces crops that serve as inputs for the food processing industry, and mining provides metals for manufacturing. The primary sector is a significant source of employment, particularly in developing economies where a large portion of the population is engaged in agricultural activities. The output of the primary sector contributes to the Gross Domestic Product (GDP) of a country. The performance of the primary sector often influences overall economic health.

The paddy fields cultivated in the Vaigai delta across Madurai North, Melur, Nilakottai and Uthamapalayam are known as "double-crop paddy belts". Farmers in the district enhance their income with subsidiary occupations like dairy farming, poultry-farming, pottery, brick making, mat-weaving and carpentry. Madurai is famed for its jasmine plantations in the foothills of Kodaikanal Hills, called "Madurai Malli".

Madurai LPA is rich in Paddy cultivation. Paddy is the principal crop extensively cultivated in two seasons. The rich nature of soil supports other crops such as cotton, jasmine, vegetables etc. Paddy accounts 1.8 lakh tonnes in 2020 - 21. Sugarcane is an important commercial crop in District supplies 1.05 lakh tonnes in the year 2020 – 21 and supplied of entire sugar mills located within the district. Madurai- Jasmine Cultivation (1735 ha), Theni, Dindugal, Tenkasi (4300 ha) – Annual Production 16077 Tonnes. Madurai Malli- First flower crop- GI Tag. Major area under horticulture in Madurai dist especially Madurai Malli. Cotton millet pulses are the major type for agriculture production in Madurai district which contributes 2.61 lakh tonnes of Millet Production (2019-20), Madurai district is an agrarian with rice, maize, millets, cholam, oilseeds and pulses are Bengal gram, green gram, horse gram, and black gram. Cash crops include sugarcane, coconut, chilies, and cotton as major crops. This leads to proposal of paddy and sugarcane and its by product-based industries in the LPA.

1. Encouraging the establishment of agro-processing units or food processing industries that add value to agricultural produce can boost farmers' income and create employment opportunities.

2. Integrated cold chain and value addition infrastructure scheme and export, helping farmers to directly link with the domestic and global value chain thus providing higher income to farmers and improving their livelihood especially in case of Jasmine production.

3. TIDCO/ Agriculture and Farmers Welfare Department to evaluate potential routes for kisan rail services respectively and encourage the initial pilot runs from a market development perspective. The potential routes that will be considered for kisan rail services inter alia include routes to major consumption markets such as Delhi, Mumbai and Kolkata from Madurai and other districts.

Table 14-1 Proposal for Primary sector

S. No	Proposal	Location
1	Integrated cold storage and value addition process for jasmine.	Near Kokkulam Village

14.1.5. Secondary Sector

The secondary sector, also known as the industrial sector or manufacturing sector, is a key component of an economy. It involves the processing and transformation of raw materials obtained from the primary sector into finished goods and products. The secondary sector plays a vital role in economic development by adding value to raw materials, creating employment opportunities, and contributing significantly to a country's Gross Domestic Product (GDP). It involves the production of tangible goods through various processes. Examples include the manufacturing of automobiles, machinery, textiles, electronics, and consumer goods.

1. The establishment of a SIPCOT (State Industries Promotion Corporation of Tamil Nadu) Industrial Estate in Madurai LPA (Local Planning Authority) with a blend of industrial and commercial use holds significant potential for economic growth and development in the region.

2. SIPCOT is also in the process of establishing industrial parks in Madurai [Tamil Nadu Industrial Policy, 2021].

3. The Paravai market area may be rejuvenated into a trade hub which is characterized by significant daily activity involving a large number of Lorries transporting goods, a substantial influx of people engaging in trade, and a massive supply of vegetables and fruits from multiple districts.

4. TIDCO has proposed Multimodal Cargo terminals in Madurai. Feasibility studies on suitable locations shall be undertaken, phase 2 project.

Table 14-2 List of Proposal for Secondary Sector

S. No	Proposal	Location
1	Proposed SIDCO	Near Natham
2	Multimodal logistic park and Warehouse Clusters	Across the alignment of CKIC inside LPA
3	MAADITSSIA-Trade centre	Kappalur
4	SIDCO	Sakkimangalam

Figure 1 Site Location of MAADITSSIA-Trade centre, Kappalur

Figure 2 Site Location of SIDCO, Sakkimangalam

14.1.6. Tertiary Sector

The tertiary sector, also known as the service sector, is a critical component in any master plan for regional development. The tertiary sector encompasses a wide range of services that contribute to the overall well-being of the population and the efficiency of the economy. The tertiary sector is a significant source of employment, providing jobs across various skill levels and specialties. It plays a crucial role in absorbing the growing workforce and contributing to overall economic stability.

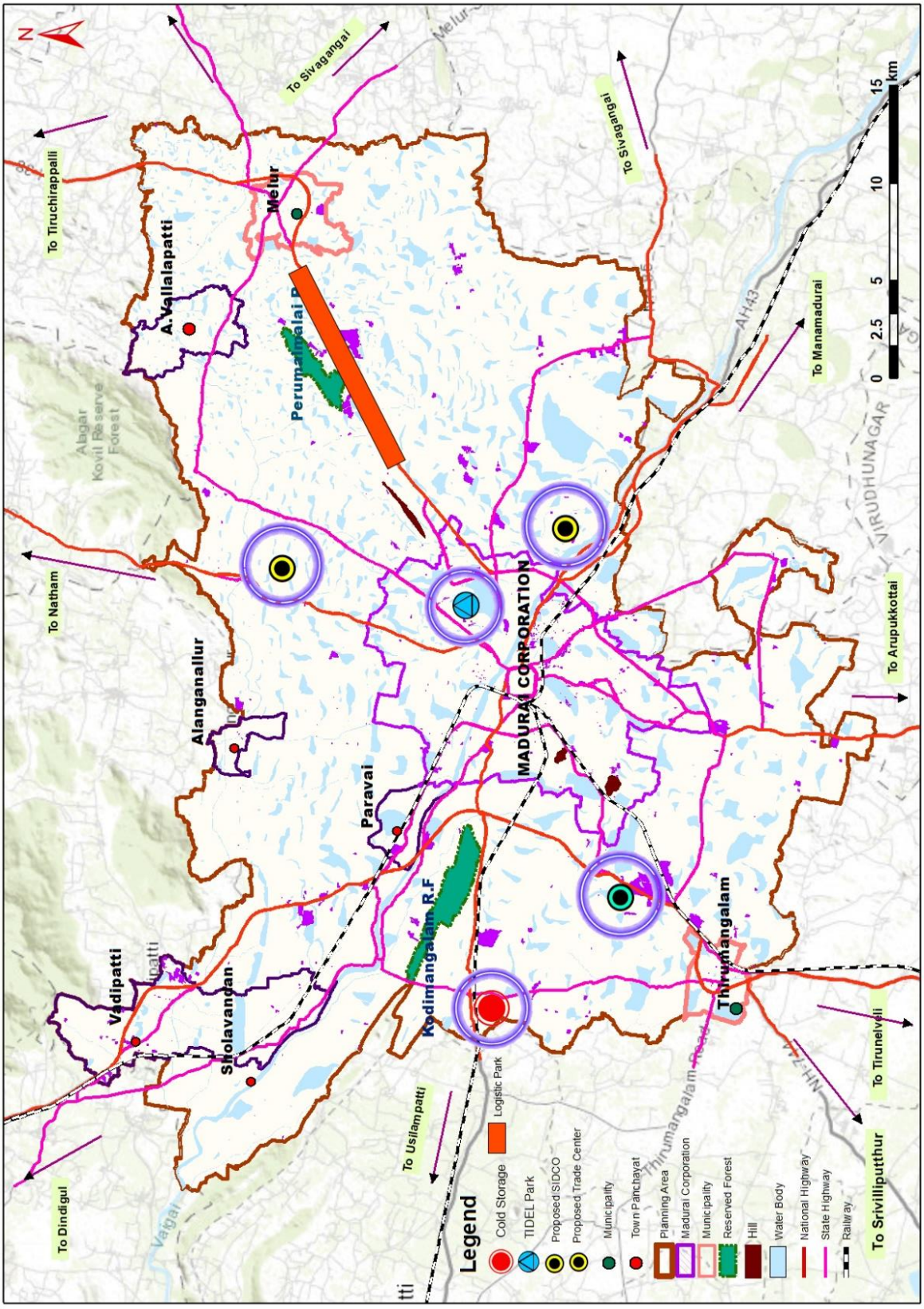
Identify and promote clusters of service industries to create synergies and enhance competitiveness. Develop infrastructure that facilitates easy access to services, such as efficient transportation and digital connectivity. Promote cultural and recreational amenities to enhance the overall quality of life and attract residents and visitors.

Table 14-3 Proposal for Tertiary Sector

S. No	Proposal	Location
1	TIDEL Park	Mattuthavani

The Neo-Tidel park was proposed at Mattuthavani through Special Purpose Vehicle (SPV) at a cost of 500-600 crores rupees. This is part of establishing Neo Tidel Parks in the second-tier cities in Tamil Nadu. This proposal has a potential to generate 10,000 or more jobs in the planning area.

Figure 3 Site Location of Tidel Park, Mattuthavani



Map 14-1 Proposed Industries

14.2. Physical Infrastructure Proposal

14.2.1. Water Supply

14.2.1.1. Ongoing Projects - Madurai Corporation

Dedicated Water Supply scheme from Mullai Periyar Lower camp to Madurai Corporation undue AMRUT

The Madurai City Municipal Corporation's proposed 125 MLD Dedicated Water Supply Scheme originating from the Mullai Periyar River at Lower Camp heralds a significant advancement in addressing Madurai's escalating water demand. This augmentation is set to amplify the total available water capacity for the corporation to 317 MLD. As per the analysis, the projected increase in water availability stands at 40.65 MLD for 2021 and is estimated to escalate to 108.26 MLD by 2041. These figures imply that, if the existing water supply schemes continue functioning without failure following the integration of the new scheme, the city's water supply is anticipated to adequately meet the projected demand for 2041, ensuring stability and sufficiency for future needs.

However, the proposal also outlines a critical necessity for additional Overhead Tank (OHT) capacity, indicating a requirement of 259.71 ML by 2041. Currently, the total available capacity of OHTs is 99.65 ML, signifying a considerable deficit in storage capacity. The recommendation to establish OHTs in both the northern and southern sectors of the corporation aims to facilitate equitable water distribution and ensure efficient delivery across the city. Addressing this shortfall in OHT capacity is crucial to complement the augmented water supply scheme, establishing a resilient infrastructure capable of meeting the burgeoning demands of Madurai's growing population and fostering sustainable development for the city.

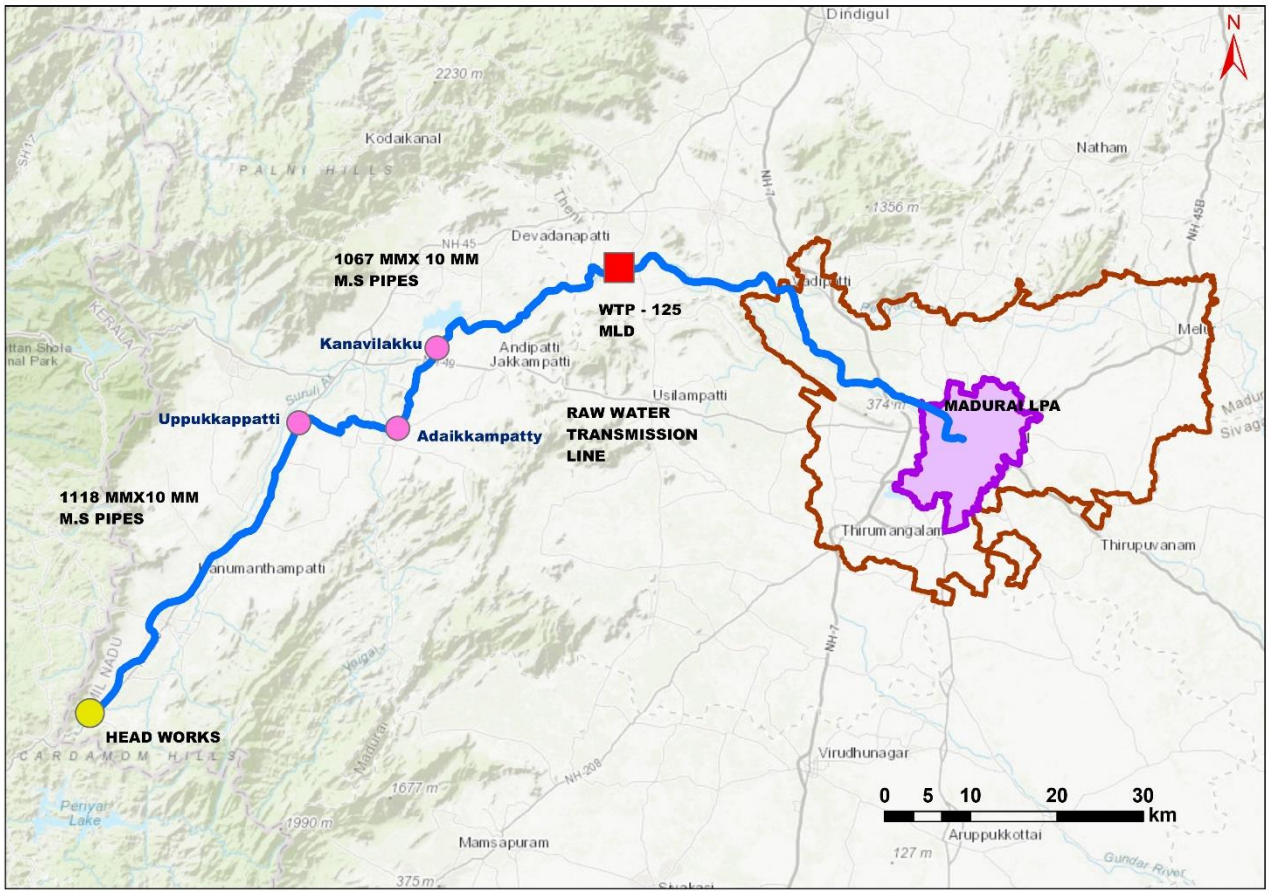


Figure 4: Proposed water supply scheme

14.2.1.2. Utilization of abandoned quarries as a drinking water source

Abandoned quarries hold untapped potential to serve as alternative sources for drinking water supply, presenting an innovative solution to water scarcity. India, with its diverse geographical landscape, has witnessed successful initiatives that repurpose such quarries for water collection and storage. One notable case study is the 'Panchgani Model' in Maharashtra, India, where abandoned stone quarries were transformed into reservoirs to augment the region's water resources.

The transformation of abandoned quarries into viable drinking water sources involves several key steps. Initially, these quarries undergo necessary modifications, including desilting and reinforcing the surrounding walls to prevent contamination and ensure structural stability. This process is crucial to make the quarry suitable for water storage, preventing any adverse impact on the quality of the collected water.

In the case of the 'Panchgani Model,' several abandoned stone quarries in the region were identified and modified into reservoirs by local authorities. These reservoirs were strategically connected to the existing water supply network, enabling the storage of rainwater and runoff from surrounding areas during the monsoon season. The stored water underwent treatment processes to ensure its potability, subsequently becoming a reliable source of drinking water for the local community during dry periods.

Furthermore, community involvement and stakeholder engagement play pivotal roles in the success of such initiatives. Collaborative efforts between government bodies, local communities, environmental experts, and relevant stakeholders are essential to assess the feasibility, design, and implementation of repurposing abandoned quarries for water storage purposes. Regular monitoring, maintenance, and sustainable management practices are also imperative to preserve water quality and the long-term viability of these reservoirs.

The 'Panchgani Model' serves as an inspiring example of repurposing abandoned quarries to alleviate water scarcity, demonstrating the potential to convert neglected sites into valuable water resources. This approach highlights the importance of innovative thinking and sustainable utilization of natural resources to address pressing water challenges in regions facing scarcity.

The potential quarry sites identified are shown in the following map.

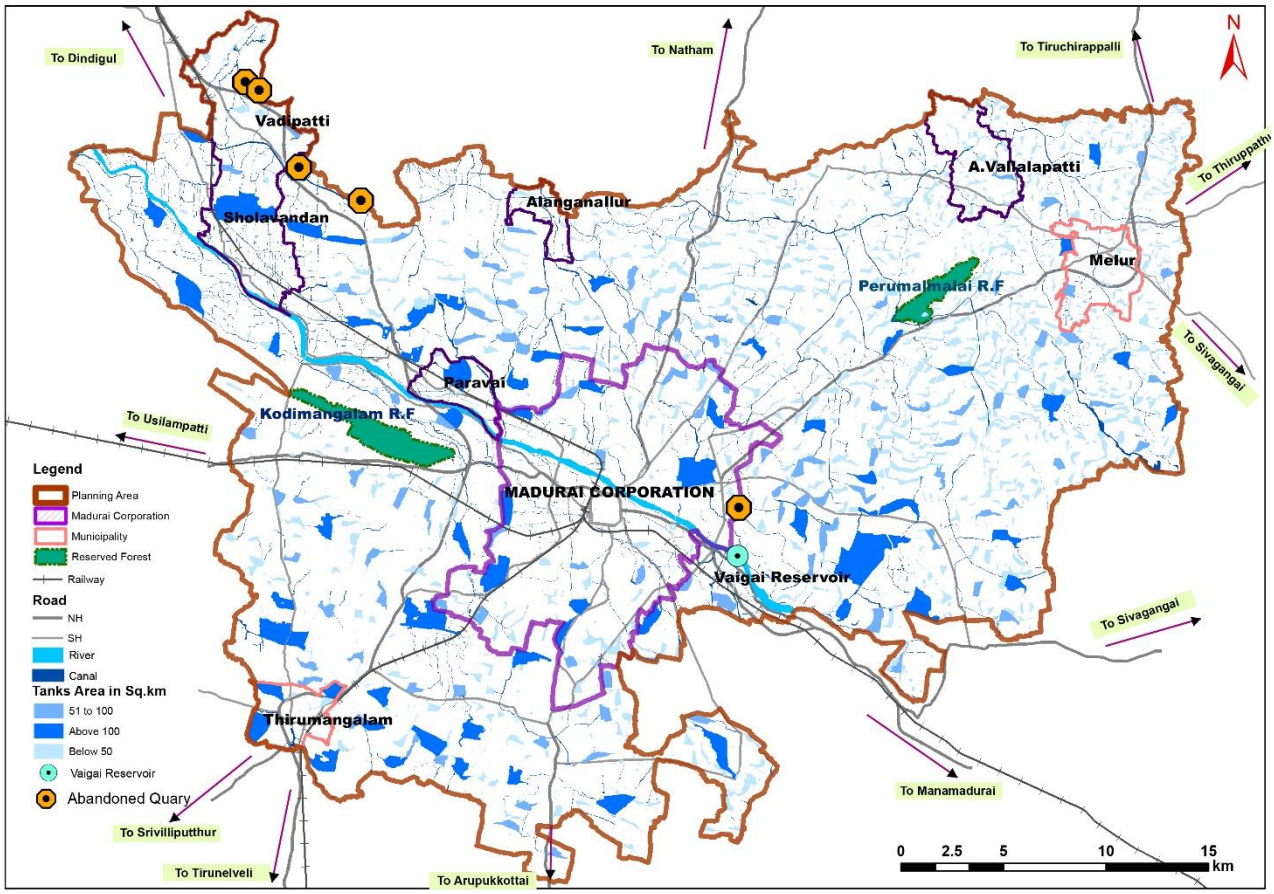


Figure 5: Abandoned Quarries

Further the short term, mid term and long term proposals identified for water supply are elaborated in the following sections.

Short-term proposal

The water supply system in Madurai relies on key sources such as Madakulam, Vandiyur tanks, and others for the Corporation area, while Cauvery and Vaigai rivers serve as primary sources for Melur, Thirumangalam, and the broader Local Planning Area. Recognizing the need for enhanced water distribution, there's a proposed plan to increase Overhead Tank (OHT) provisions in the southern and northern sectors of Madurai city. This strategic move aims to address growing water demands, improve accessibility, and ensure equitable water distribution across different parts of the city.

Mid-term proposal

The proposed initiative involves a concerted effort to clear encroachments in critical areas like Melamadai, Sellur, Thattaneri, Anupanadi, and more. Simultaneously, there is a targeted plan to improve water infrastructure by ensuring household connections. The objective is to address deficits in water supply, with identified targets of 40% for the Corporation area, 20% for Municipalities, and 70% for the remaining areas in the Local Planning Area. This strategic intervention aims to enhance overall urban planning, reclaim public spaces, and improve water accessibility for residents across different regions.

Long-term Proposal

The proposed plan outlines a comprehensive strategy for improving water resources in Madurai city. The focus is on the revampation of existing tanks, including prominent ones like Mudakathan, Ilanthaikulam, Angamalpuram, and an additional 35 tanks. This initiative aims to enhance water storage capacity, improve water quality, and ensure sustainable water supply. Furthermore, there is a component addressing augmentation, specifically related to the Mullai Periyar Dam. This strategic intervention signifies a commitment to bolstering water infrastructure, securing water availability, and fortifying the resilience of Madurai's water supply system.

14.2.2. Sewerage

14.2.2.1. Ongoing Projects - Madurai Corporation

Providing UGSS in added/left out areas in Madurai Corporation

The project is being implemented independently for both the northern and southern regions of the Vaigai River.

In the proposed sewerage network for the northern side of the Vaigai River, the ongoing project includes the execution of the sewerage system in the leftout areas of the north. Three pumping stations located in Vandiyur, Anaiyur, and Vilangudi are currently under construction.

The project envisions a total of 2 proposed pumping stations, 19 lift stations, and 7 proposed Local Maintenance Holes (LMHs). The sewer components feature a range of diameters from 200mm to 600mm, covering a comprehensive length of 218 kilometers in both leftout and added areas in North Vaigai. With a total of 25,555 High Service Connections (HSCs), the project is estimated to cost 20,787.61 Lakhs.

In the South Vaigai region, the additional areas have been strategically divided into eight sewerage zones, labelled Zone-2 to Zone-9, considering the topography and the existing sewerage system.

Each zone is equipped with a dedicated sewage pumping station, facilitating efficient wastewater management. The collected sewage from these zones is planned to be pumped to either another pumping station or the existing Sewage Treatment Plant (STP) with a capacity of 125 MLD located in Avanaipuram, Southern area. The project encompasses a total of 8 proposed pumping stations and 18 lift stations, with an overall estimated cost of 31,333.27 Lakhs.

14.2.2.2. Improvement to the existing Sewerage System in Core Area of 72 wards covering 51.82 Sq.km including SCADA system for entire Madurai City Municipal Corporation.

To enhance the existing Sewerage System in the core city, encompassing 72 wards and covering an area of 51.82 sq.km. Additionally, the initiative seeks to implement a Supervisory Control and Data Acquisition (SCADA) system for the entirety of Madurai City Municipal Corporation (MCMC), covering an expansive area of 147.99 sq.km

Further the short term, mid-term and long-term proposals identified for Sewerage are elaborated in the following sections.

Short-term Proposal

The proposed plan outlines a strategic approach to enhance the Underground Sewerage System (UGSS) connections in specific regions. It suggests a partial to 100% UGSS connection for Thirumangalam and Melur Municipality. Additionally, there is a plan to provide an additional capacity of 10% for the Corporation and 100% for the Rest of the Local Planning Area (LPA).

This initiative is geared towards improving sanitation infrastructure, ensuring efficient waste management, and promoting a healthier and more sustainable living environment across different zones.

Mid-term Proposal

The proposed plan includes the establishment of a Faucal Sludge Treatment Plant (FSTP) in Thirumangalam municipality, highlighting a commitment to sustainable waste management practices.

Additionally, there is a future proposal to be made for the implementation of FSTPs at the municipalities and town panchayat levels. This strategic initiative aims to address sanitation challenges, promote environmental sustainability, and set the foundation for effective faecal sludge management across multiple regions.

Long-term Proposal

The proposed plan involves the implementation of Sewage Treatment Plants (STPs) dedicated to both town panchayats and village panchayats. The emphasis of this initiative is on the recycling of treated sewage water for non-potable purposes. By introducing STPs at the grassroots level, this strategic move aims to improve sanitation infrastructure, mitigate environmental impact, and promote sustainable water management practices across town and village regions.

Reuse strategy:

The Madurai to propose reuse strategy which involves incorporating treated wastewater for non-potable purposes. Integrating decentralized treatment systems, the plan emphasizes efficient water recycling for landscape irrigation, industrial processes, and municipal and village needs. By embracing this sustainable approach, the LPA ensures water resource conservation, mitigates environmental

impact, and promotes a circular economy. The STP reuse strategy aligns with the principles of responsible urban development, fostering resilience and resource efficiency in the community.

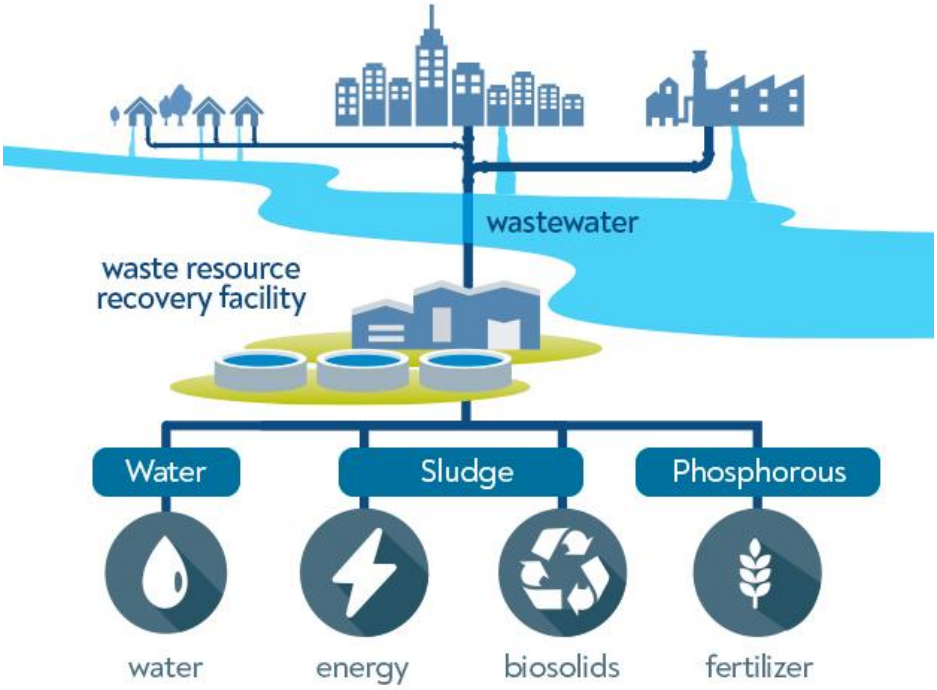


Figure 6: Reuse of sewage water for LPA

14.2.3. Solid Waste Management

Short-term Proposal

An active biomining project is currently underway for waste management in the municipality, corporation, and the rest of the Local Planning Area (LPA). The primary objective is to enhance the efficiency of door-to-door waste collection in the corporation, with a targeted goal of 64% coverage. Simultaneously, there is a dedicated effort to achieve a 30% reduction in waste destined for landfills. This initiative reflects a commitment to sustainable waste management practices, minimizing environmental impact, and optimizing resource utilization across diverse administrative regions.

Mid-term Proposal

The waste management initiative targets a significant 70% reduction in landfill-bound waste, signifying a commitment to sustainable and environmentally responsible practices. A key aspect of the plan involves the implementation of waste-to-energy technologies, specifically Refuse-Derived Fuel (RDF), for the effective utilization of non-biodegradable waste. This strategic move not only addresses the challenge of reducing landfill dependence but also harnesses energy from waste resources, contributing to a more resilient and eco-friendly waste management system.

Implementation Strategies:

1. Waste-to-energy technologies : Energy contained in the MSW can be extracted through what is called waste-to-energy (WtE) technologies where useable energy in the form of electricity, heat and fuels can be obtained. WtE technologies can simultaneously provide alternative to waste generation problem and be a potential renewable energy resource. There are two main recovery or conversion processes of WtE technologies (i.e., biochemical and thermochemical) depending on the waste composition and moisture content.

2. Decentralization of Solid Waste Management: Decentralization involves establishing localized waste collection points in Madurai Corporation and Municipalities processing facilities. This minimizes the need for long-distance transportation and reduces the environmental footprint associated with centralized waste management.

Benefits of Decentralization

- Reduction in Transportation Costs.
- Increased Recycling Rates.
- Easy to segregate.

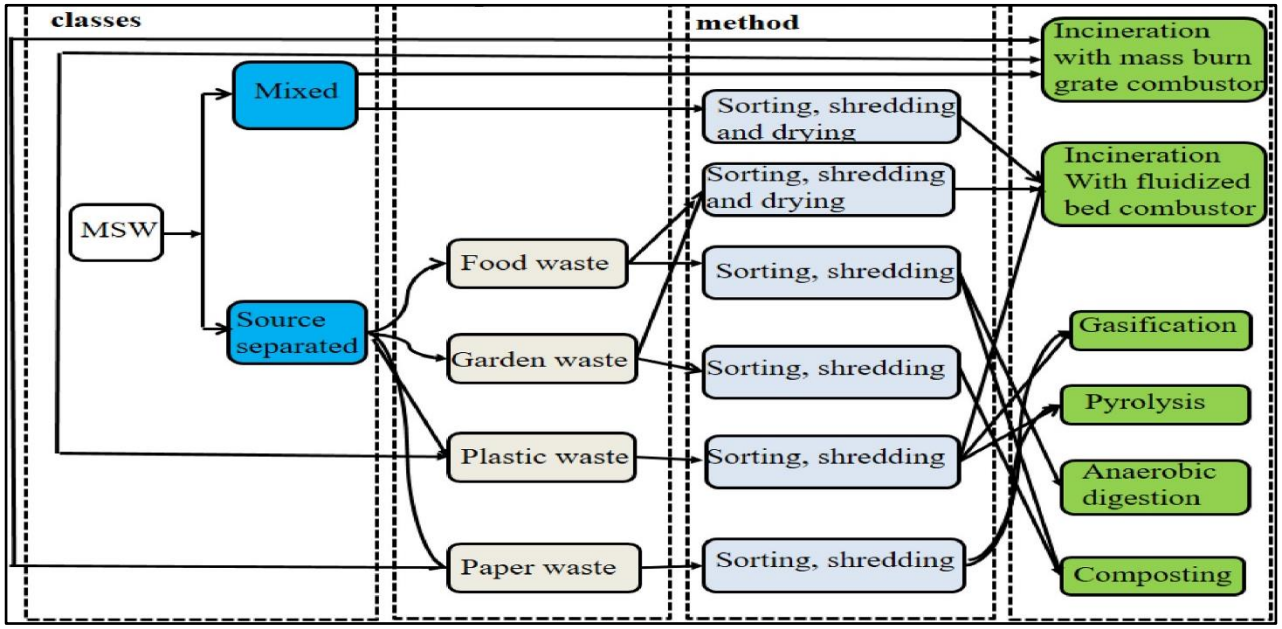


Figure 7: Reuse of sewage water for LPA

Long-term Proposal

Zero landfill System by ensuring Reduce, Reuse, Recycle & Upcycle of waste.

14.2.4. Storm Water Drainage

Preparation of Detailed Project Report (DPR) for Providing Integrated Storm Water Drains (ISWD) in Madurai City Municipal Corporation

The scope of work for the Storm Water Drainage project involves a comprehensive review and integration of existing, ongoing, or proposed projects related to stormwater drainage. This includes conducting detailed topographical and leveling surveys for the project area, followed by hydraulic analysis utilizing standard computer modeling software for water bodies and waterways. The consultant is tasked with providing realistic and effective technical solutions, aligning with social, economic, environmental, and institutional acceptance. The examination of feasibility includes innovative approaches suggested in the CPHEEO Manual on Storm Water Drainage Systems. The design of micro drains (collector & feeder) considers 1 in 2-year to 1 in 5-year return period design storms. Investment planning alternatives and phasing, adhering to timeframes and available funds, are critical aspects. The consultant is also responsible for risk assessment, classification, and adherence to the World Bank Environmental and Social Framework. Additionally, the

preparation of Standard Operating Procedures for stormwater drains aligns with MoUD guidelines, CPHEEO O&M manual on SWD, and NDMA Guidelines on Management of Urban Flooding. Finally, the consultant will develop Bill of Quantities (BoQ), Estimate Provisions, and Bid Documents for the project.

Short-term Proposal

The initiation of a cleaning and desilting project for key natural drainage channels, including the Periyar channel, Kirudhumal channel, and Avaniapuram channel, marks a proactive step toward mitigating potential flooding risks. This strategic endeavor aims to improve water flow, prevent blockages, and enhance the overall resilience of these vital waterways. By prioritizing the cleanliness and maintenance of these channels, the initiative seeks to create a more sustainable and flood-resistant drainage infrastructure for the benefit of the local communities.

Mid-term Proposal

A comprehensive flood mitigation strategy is underway, featuring the establishment of an interlinking channel to optimize water flow. The initiative also includes the restoration of upstream water bodies, enhancing their capacity for water retention. In the corporation, significant progress has been achieved in the stormwater linking project, with 20% of the work already completed. These coordinated efforts signify a commitment to proactive flood management, improved water infrastructure, and heightened resilience in the face of extreme weather events.

Long-term Proposal

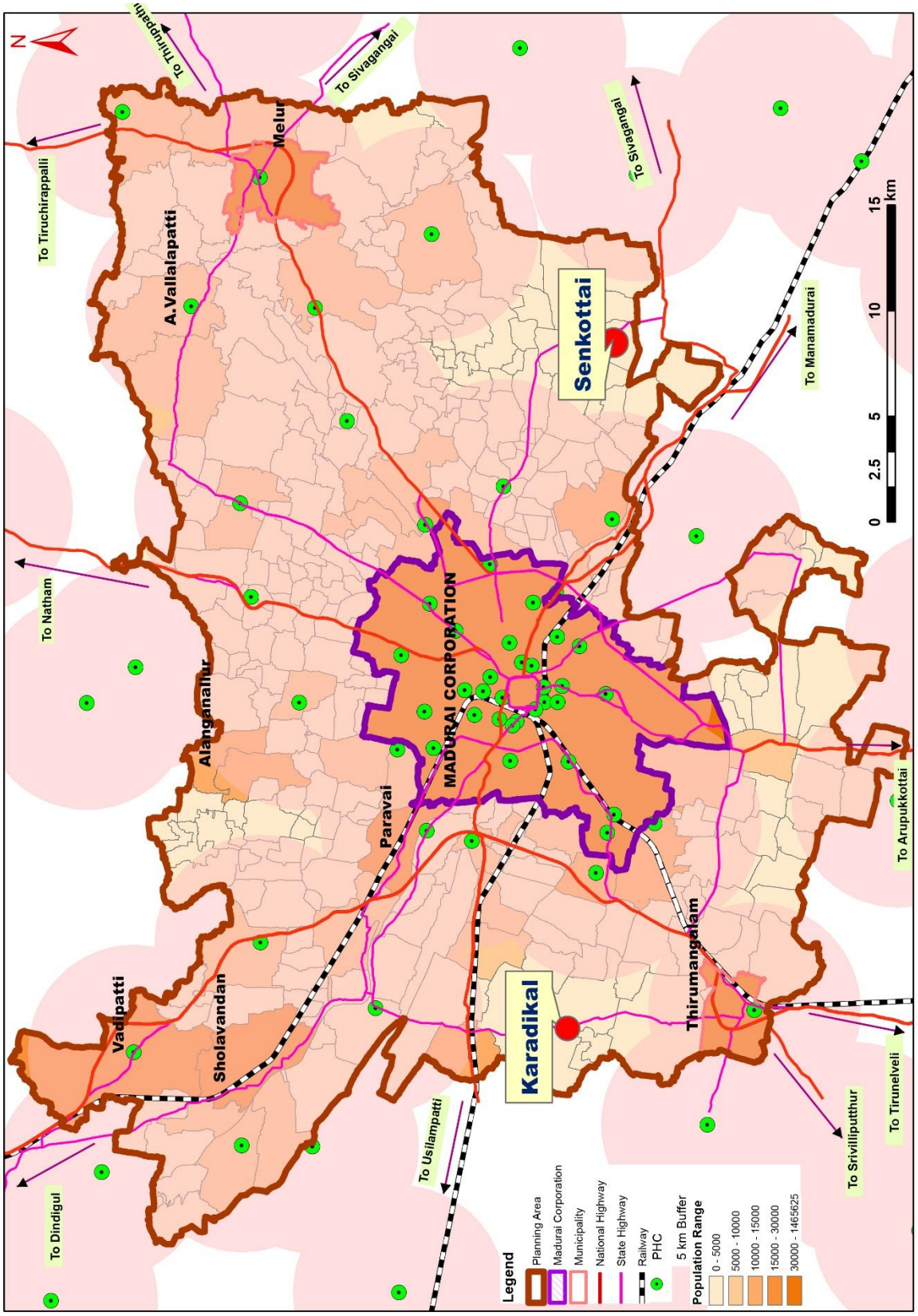
As part of a forward-looking flood management strategy, the initiative strives to achieve 100% linkage of channels, creating a seamlessly interconnected network. Simultaneously, the implementation of a Stormwater Drain (SWD) Management Plan is underway to establish a structured hierarchy of water bodies. This systematic approach not only optimizes water flow but also enhances flood resilience, ensuring a coordinated and effective response to stormwater challenges across the region.

14.3. Social Infrastructure Proposal

14.3.1. Health Facilities

Upgrade existing health facilities with modern infrastructure to accommodate a larger patient influx. Introduce a broader range of medical services to cater to diverse healthcare needs.

Include specialized clinics or departments to address specific health concerns within the community. Provide basic healthcare services at accessible distance for villages as shown in Map 14-2.



Map 14-2 PHC Selected villages based on distance criteria

14.3.2. Recreational Facilities

14.3.2.1. Short-term Proposal

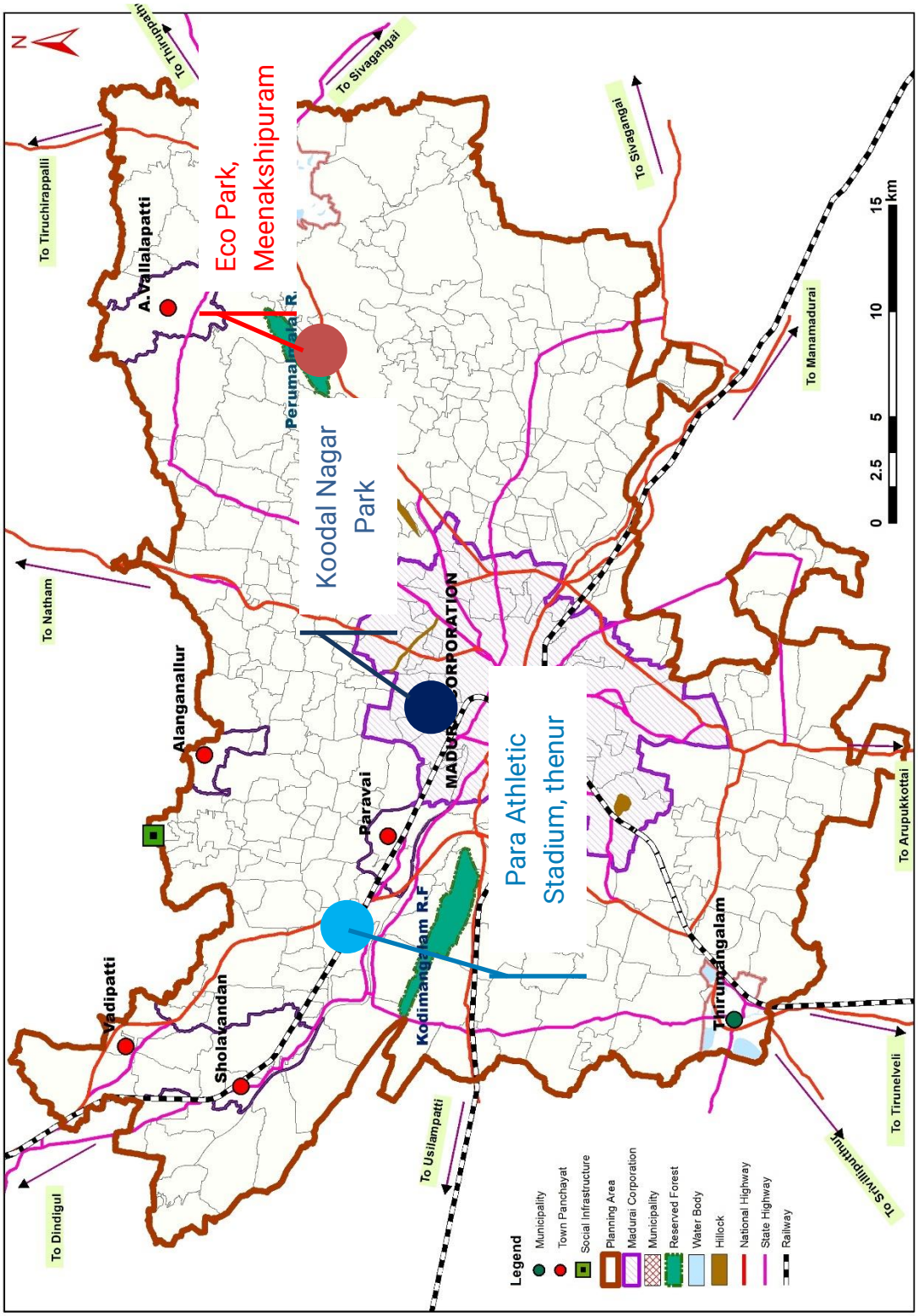
Koodal Nagar Park, situated within the TNHB Housing Board Layout, spanning an area of 3.88 acres. Additionally, there are decentralized parks and open spaces within the Corporation, collectively covering an extensive area of 31.513 Hectares. These green spaces contribute to the overall well-being of the community, offering recreational areas and promoting a healthy living environment. Eco- Park is being proposed at meenakshipuram village, M at an extent of 9.818 Hectares.

14.3.2.2. Mid-term Proposal

The tree plantation initiative on streets involves the strategic planting of trees along roadways and urban streets to enhance the environmental and aesthetic aspects of the area. This effort aims to improve air quality, provide shade, and contribute to the overall beauty and sustainability of the community. The specific goals may include increasing green cover, reducing carbon footprint, and fostering an eco-friendlier urban landscape. Proposed a para-athlete stadium at thenur (survey no.6) at an extent of 6 acres.

14.3.2.3. Long-term Proposal

The concept of urban canopy and hierarchical design of open spaces involves the intentional planning and design of green areas within urban environments. This approach emphasizes creating a layered and structured system of open spaces, each serving distinct purposes and contributing to the overall urban canopy. The hierarchical design ensures that open spaces cater to various needs, such as recreational activities, ecological balance, and aesthetic appeal. This approach aims to maximize the benefits of greenery in urban settings, promoting a sustainable and well-organized urban landscape.



Map 14-3 Proposed stadium and Eco- Park

14.4. Proposal for Urban Forest

Urban forestry is a practice that involves the management and cultivation of trees and forests within urban areas. It focuses on integrating trees into the fabric of cities and towns to enhance the overall quality of life for residents and improve the urban environment. Key aspects of urban forestry include tree planting, maintenance, and conservation, with the goal of creating sustainable, resilient, and healthy urban ecosystems. Urban forestry contributes to various benefits, including air and water quality improvement, temperature regulation, biodiversity support, and aesthetic enhancement, making cities more livable and environmentally friendly.

14.4.1. Location and Area

- Proposed Urban Forest in Madurai Corporation, Ambalathadi
- Ambalathadi Village S.F No: 9pt
- Total Extent 1.00 acre.

Figure 8 Urban Forest in Madurai Corporation

Figure 9 Ambalathadi Village

14.4.2. Environmental Benefits

14.4.2.1. Air Quality Improvement

Trees act as natural air filters, absorbing pollutants and particulate matter, and releasing oxygen. They mitigate air pollution, improving overall air quality and supporting respiratory health.

14.4.2.2. Temperature Regulation

Urban forests contribute to cooling effects by providing shade and reducing the urban heat island effect. Temperature regulation helps create more comfortable living conditions and reduces energy consumption for cooling.

14.4.2.3. Stormwater Management

Trees absorb and slow down rainwater runoff, preventing soil erosion and reducing the risk of flooding. They contribute to improved stormwater management and help recharge groundwater.

14.4.2.4. Biodiversity Support

Urban forests provide habitat for various plant and animal species, promoting biodiversity in urban areas. Green spaces act as corridors for wildlife, supporting a more diverse ecosystem.

14.4.2.5. Carbon Sequestration

Trees capture and store carbon dioxide through photosynthesis, helping mitigate the effects of climate change. Urban forests play a role in reducing the carbon footprint of cities.

14.4.2.6. Aesthetic Enhancement

Trees and greenery enhance the visual appeal of urban areas, contributing to a more pleasant and attractive environment. Aesthetically pleasing surroundings positively impact the mental well-being of residents.

14.4.2.7. Noise Reduction

Trees act as natural sound barriers, absorbing and deflecting noise, reducing overall noise pollution in urban settings. This helps create quieter and more peaceful urban environments.

14.4.2.8. Health and Well-being

Access to green spaces and urban forests has been linked to improved mental health and reduced stress levels. Physical activities in green environments contribute to a healthier lifestyle.

14.4.2.9. Community Spaces

Urban forests serve as valuable community spaces for recreation, relaxation, and social interaction. They enhance the overall quality of life for residents by providing accessible and inviting green areas.

14.4.2.10. Economic Value

Trees and urban forests contribute to the economic value of a city by increasing property values and attracting businesses and tourists. They play a role in creating vibrant, economically thriving urban communities.

14.4.3. Social Benefits

14.4.3.1. Community Spaces

Urban forests serve as communal spaces for recreation, social gatherings, and cultural activities. They create opportunities for residents to connect and build a sense of community.

14.4.3.2. Improved Mental Health

Access to green spaces and nature has been linked to improved mental health and well-being. Urban forests offer residents a respite from the stresses of urban life, promoting relaxation and mental rejuvenation.

14.4.3.3. Enhanced Quality of Life

The presence of trees and greenery in urban areas enhances the overall quality of life for residents. Aesthetic and natural surroundings contribute to a more pleasant and fulfilling living experience.

14.4.3.4. Physical Health Benefits

Urban forests provide spaces for physical activities such as walking, jogging, and cycling. Regular exercise in green environments contributes to better physical health and fitness.

14.4.3.5. Educational Opportunities

Urban forests offer educational opportunities for schools, providing outdoor classrooms and nature-based learning experiences. Residents, especially children, can learn about ecology, biodiversity, and environmental stewardship.

14.4.3.6. Cultural and Historical Significance

Some urban forests may have cultural or historical significance, providing a connection to local heritage. They offer spaces for events, festivals, and celebrations that strengthen cultural identity.

14.4.3.7. Social Inclusion

Well-designed urban forests promote social inclusion by providing accessible spaces for people of all ages and abilities. They contribute to a sense of belonging and equal access to nature for diverse community members.

14.4.3.8. Community Engagement

Urban forestry projects often involve community participation in tree planting, maintenance, and conservation. Such engagement fosters a sense of ownership and pride among residents.

14.4.3.9. Crime Reduction

Well-maintained green spaces can contribute to lower crime rates. The presence of urban forests creates a more secure and comfortable environment, discouraging antisocial behavior.

14.5. PROPOSED BLUE GREEN INFRASTRUCTURE

14.5.1. Introduction

Blue-green infrastructure refers to an integrated and sustainable approach to urban planning that combines traditional "grey" infrastructure (such as roads and buildings) with strategically designed natural features. The term encompasses both water elements (blue) and green spaces (green) to create resilient and environmentally friendly urban areas.

14.5.2. Components

14.5.2.1. Water Management

- Integration of natural water features such as rivers, lakes, ponds, and wetlands into urban planning.
- Utilization of green infrastructure, such as permeable surfaces and green roofs, to manage stormwater and reduce flooding.

14.5.2.2. Green Spaces

- Incorporation of green areas, parks, and urban forests to enhance biodiversity and provide recreational spaces for residents.
- Planting of trees, creation of green corridors, and establishment of sustainable landscaping practices.

14.5.2.3. Urban Heat Island Mitigation

- Implementation of green roofs and walls to reduce the urban heat island effect.
- Maximization of shaded areas through tree planting and the creation of green canopies.

14.5.2.4. Biodiversity Enhancement

- Designing urban spaces to support diverse flora and fauna.
- Creation of habitats that encourage the presence of native species, promoting ecological balance.

14.5.2.5. Sustainable Drainage Systems

- Implementation of sustainable drainage practices, including rain gardens and bio-retention basins.
- Mimicking natural hydrological processes to manage and filter stormwater runoff.

14.5.2.6. Community Engagement

- Involvement of the community in the planning and maintenance of blue-green infrastructure.
- Awareness campaigns and educational programs to encourage responsible use and appreciation of these spaces.

14.5.2.7. Climate Resilience

- Blue-green infrastructure contributes to the overall resilience of urban areas to climate change.
- It helps mitigate the impact of extreme weather events, such as floods and heatwaves.

14.5.2.8. Aesthetic and Cultural Values

- Enhancement of the visual appeal of urban areas through thoughtful design and landscaping.
- Recognition of the cultural significance of natural elements within the urban fabric.

14.5.2.9. Multifunctional Spaces

- Creation of multifunctional spaces that serve both recreational and environmental purposes.
- Integration of blue-green elements into urban design that can adapt to changing needs.

14.5.2.10. Economic Benefits

- Improved property values and economic benefits associated with well-designed and accessible green spaces.
- Job creation and economic opportunities related to the planning, implementation, and maintenance of blue-green infrastructure.

14.5.3. Water Conservation Initiatives

The city has implemented various water conservation initiatives, including rainwater harvesting projects and awareness campaigns, to optimize water usage and reduce wastage.

In Madurai Area under blue and green (excluding agriculture) is 20% the total area of Blue in Madurai LPA is 207.5 sqkm. Total Organized green in Madurai LPA is 39.64 sqkm Madurai LPA Water body 15.92 % of total area. Vaigai River Periyar canal and Irrigation Canal. In Madurai corporation water body covers 22.73 sq.km and 178.82 sq.km by rest of the LPA.

Table 14-4 Water Body Conserving Area in Madurai LPA

Feature	Length / Area
Vaigai River	LPA- 44.3 km Corporation 12.4 km
Kodi Mangalam R.F	Area 7.62 sq.km
Perumalmalai R.F	Area 3.94 sq.km
T. Kunnathur, Vandiyur	Wet land
Aritapatti Biodiversity Heritage Site	Area 193 Ha

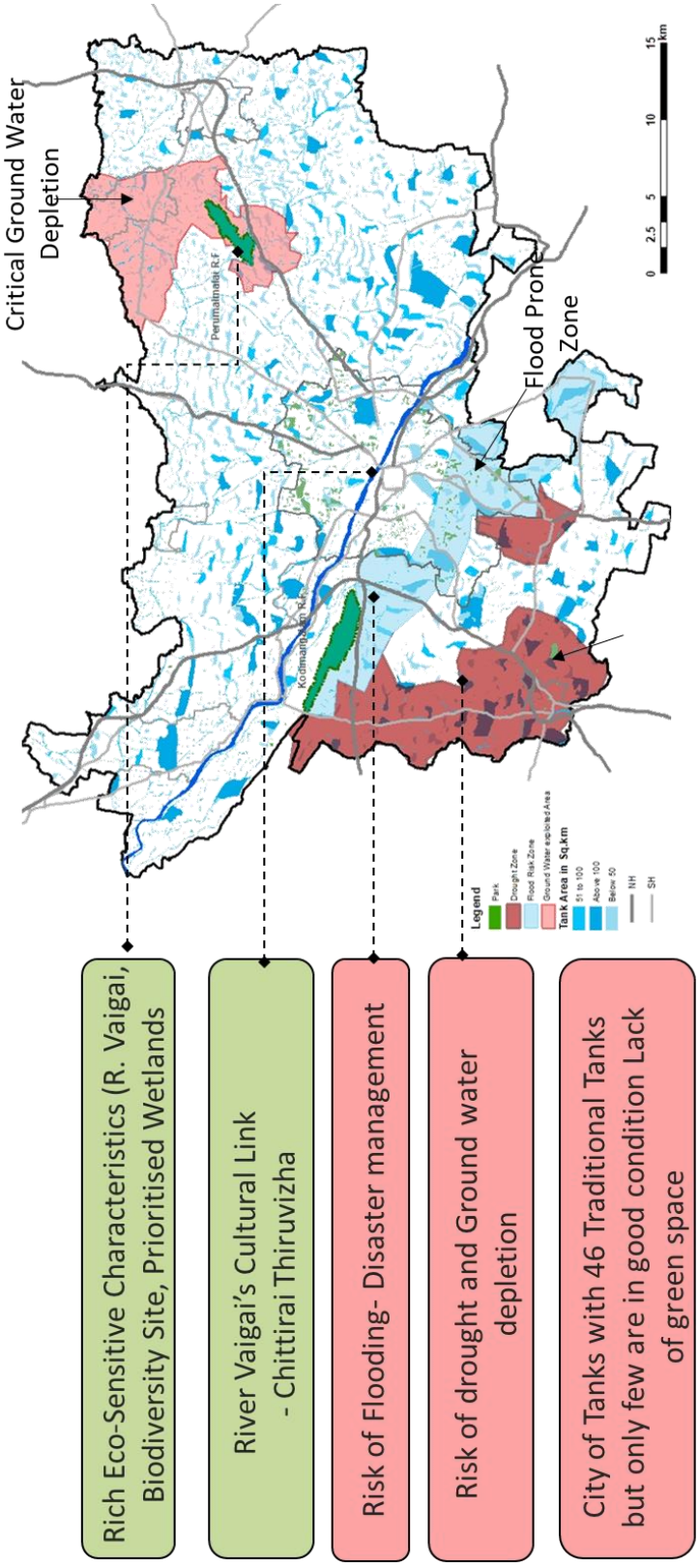


Figure 10 Areas to be notified for environment

14.5.3.1. Key Strategies and Findings to preserve Waterbody

1. Water Quality Management

Monitoring and regulating water quality through measures such as waste control, pollutant reduction, and regular testing. Implementing eco-friendly practices to minimize the impact of human activities on water quality.

2. Erosion Control

Implementing erosion control measures to prevent soil runoff into waterbodies, ensuring sedimentation does not degrade water quality. Stabilizing banks and shorelines to reduce erosion and maintain the structural integrity of waterbodies.

3. Biodiversity Conservation

Protecting and restoring habitats for aquatic flora and fauna. Implementing conservation plans that consider the ecological balance within water ecosystems.

4. Buffer

Around the selected water bodies, 50 meters buffer will be created to preserve their surface area and maintained as recreational spot. Any new constructions around this area will be limited.

Figure 11 Strategies for Blue Green Infrastructure

14.5.4. Proposal for Blue-Green Infrastructure

14.5.4.1. Conservation of Eco-Sensitive Region

An eco-sensitive region (ESR) refers to an area that exhibits unique ecological significance, biodiversity, or environmental sensitivity, and is designated for special conservation and protection measures. The primary goal of identifying and declaring an eco-sensitive region is to preserve and sustain the delicate balance of its ecosystems while minimizing human activities that may adversely impact the environment. Eco-sensitive regions are often characterized by high levels of biodiversity, with a rich variety of plant and animal species. The preservation of these regions helps protect endangered species and maintain ecological balance

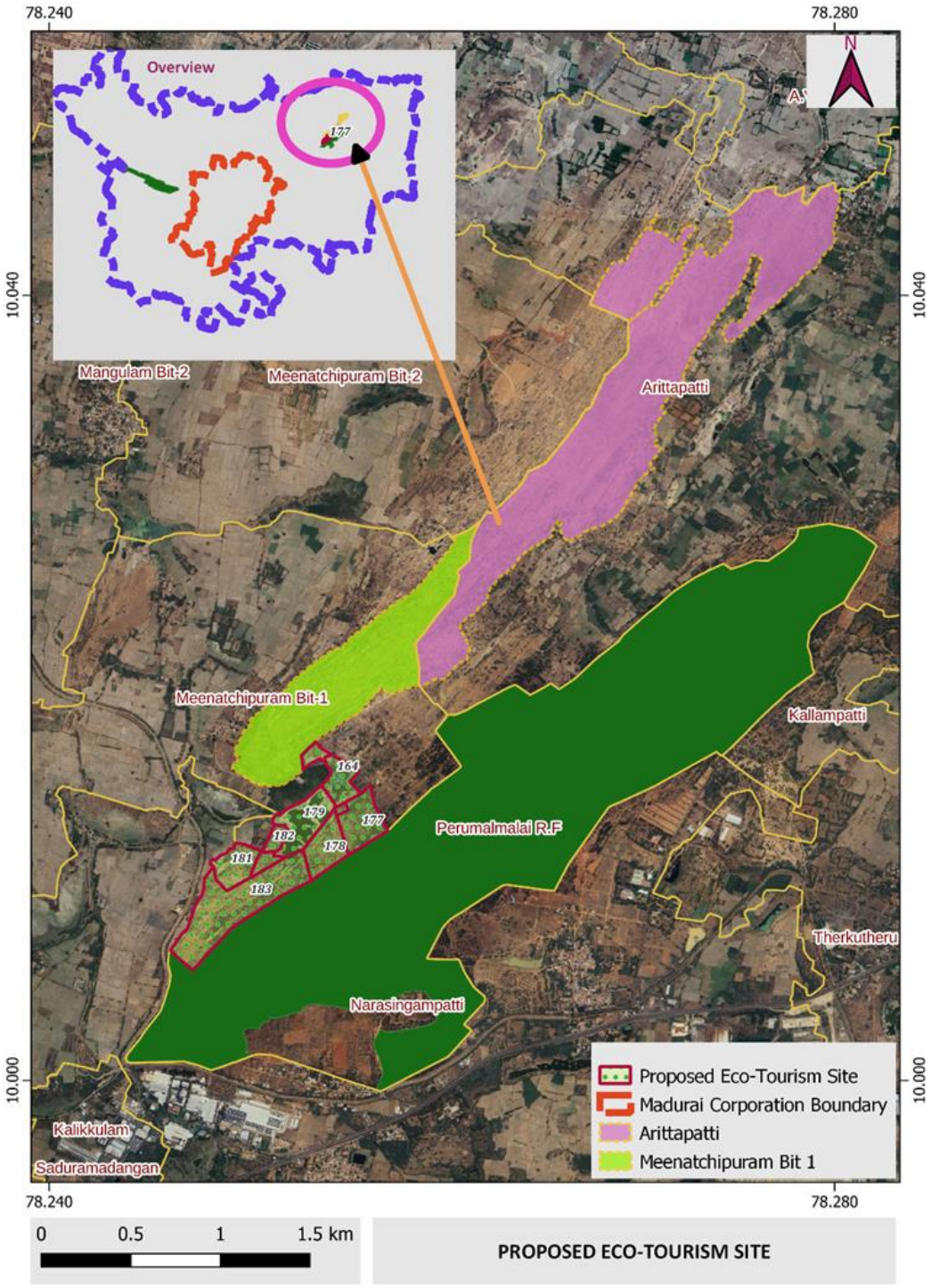
- Existing Proposal: Prioritized Wetlands: Vandiyur.

Vandiyur is an existing proposal aimed at safeguarding and enhancing the ecological integrity of Vandiyur wetlands. Focused on conservation, it addresses critical issues such as habitat preservation, water quality, and biodiversity. The proposal underscores the significance of prioritizing Vandiyur wetlands for sustained environmental well-being.

- T. Kunnathur Wetland Redevelopment is proposed (Area: 0.99 sqkm).

The Kunnathur Wetland Redevelopment proposal envisions the revitalization of a 0.99 sqkm area, emphasizing sustainable conservation practices. This initiative aims to enhance biodiversity, improve water quality, and establish a resilient ecosystem. The redevelopment project is poised to contribute significantly to the overall ecological health of Kunnathur wetlands

- An Eco- Park of 98100 sq.m area near Aritapatti Biodiversity site is proposed under social infrastructure willalso act as conserving eco-sensitive region

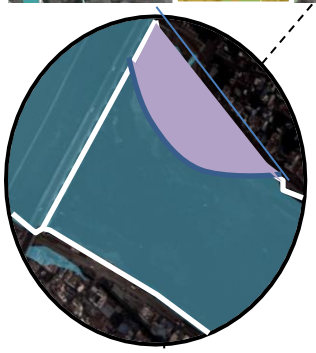


Map 14-4 Aritapatti Biodiversity site

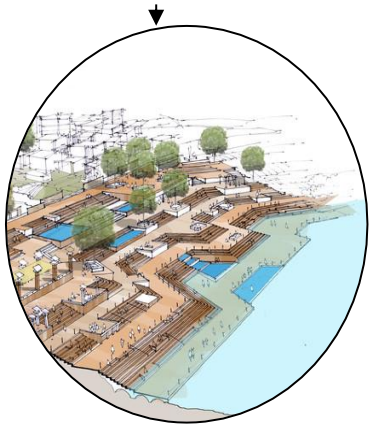
14.5.5. Integrating Blue-Green Infrastructure

14.5.5.1. Vaigai River Front

Vaigai River Front = River + Parks + NMT Pathways



Channel +Parks + Jogging cycling Tracks, Activity area for a stretch of 7 km.



Ghats development near Kalazhagar ritual spot (Area: 8316 sqkm)

14.5.6. Treating Vulnerable zones in LPA

14.5.6.1. Flood Prone Zone

Location: Land reclamation near vacant lands near Pudukullam water body (0.494 sq.km)

Connecting Water Channel and vacant land reclamation. This involves planning and implementing effective drainage systems, flood control measures, and sustainable stormwater management practices. Infrastructure should be designed to redirect and control water flow during heavy rainfall or storm events. Incorporating green spaces, wetlands, and other natural buffer zones in the master plan can act as a natural defense against flooding. These areas can absorb excess water, reduce runoff, and provide a protective barrier for developed regions.

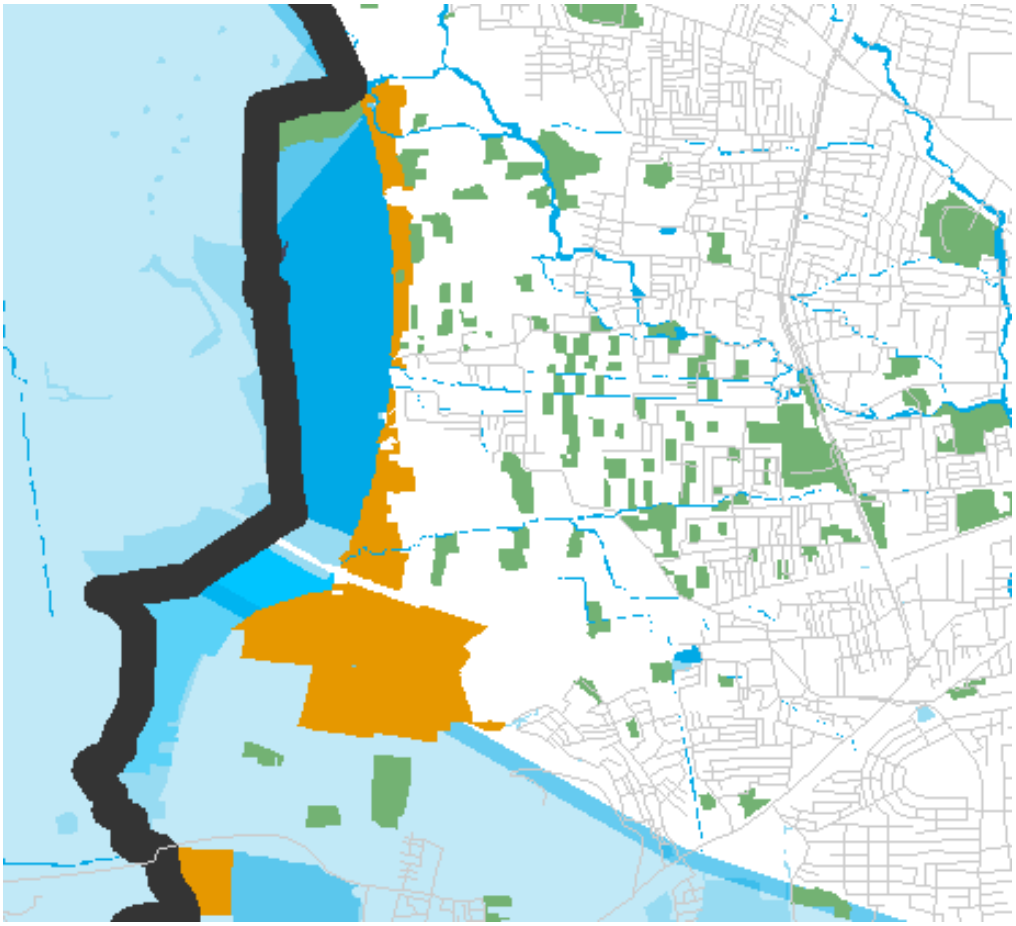


Figure 12 Pudukullam Water Body

14.5.6.2. Integrating Blue-Green Infrastructure – Stretches

Phase-1:

Phase 1 of the strategic plan involves utilizing existing tanks and canals to address drought challenges within the Limited Precipitation Area (LPA). The map illustrates a network connecting various tanks, serving as a key component of the initiative. This phase focuses on ensuring connectivity for 19 tanks and establishing links to 14 parks, with the overarching goal of mitigating drought conditions.

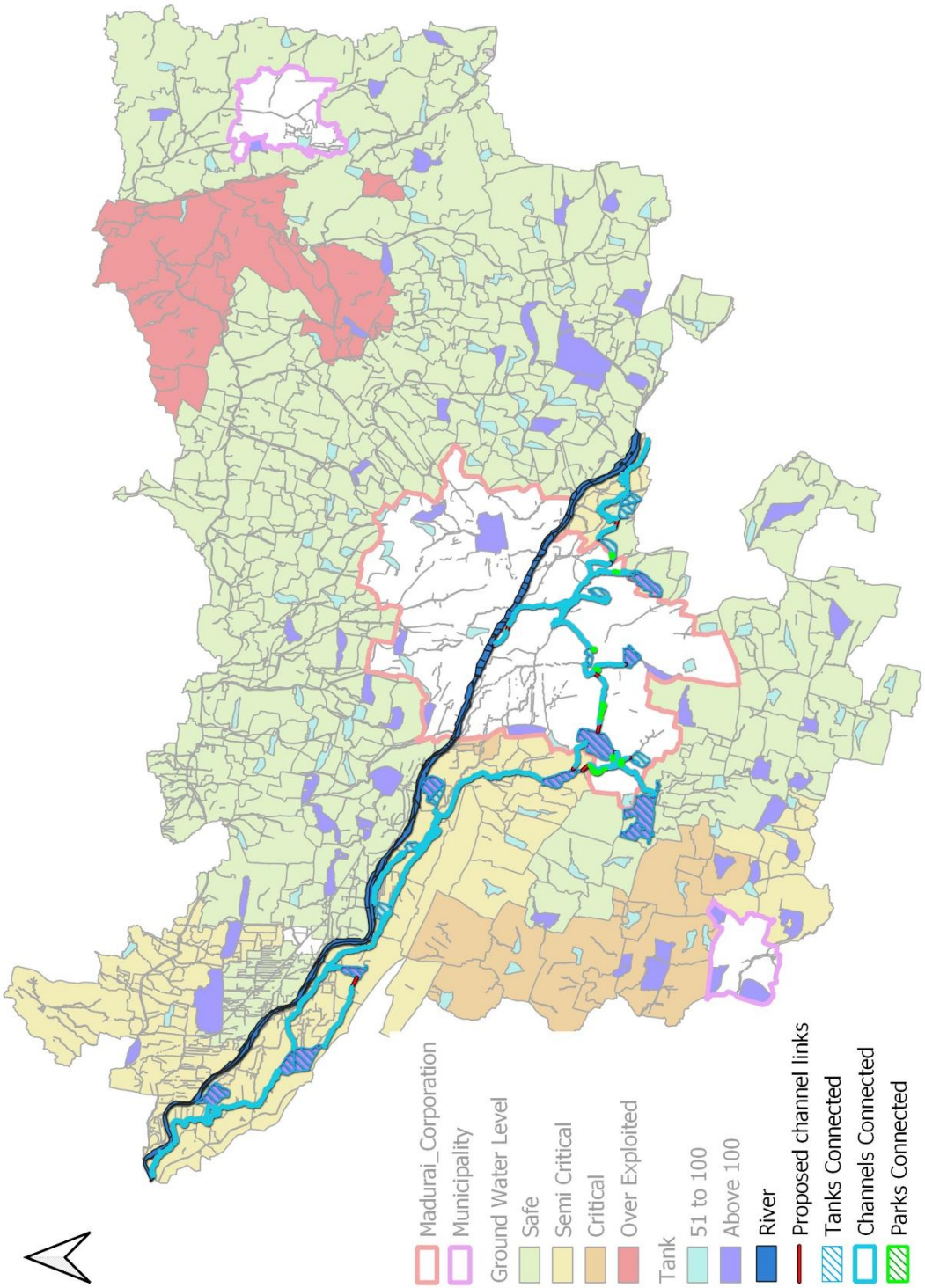
The connectivity plan is designed to enhance the resilience of the LPA against water scarcity. By interconnecting these tanks through canals, a more efficient water distribution system is established, allowing for the optimal utilization of available water resources. This network not only facilitates the equitable distribution of water but also contributes to the overall sustainability of the region.

The inclusion of parks in this connectivity initiative underscores a multifaceted approach to urban planning. Parks are not only recreational spaces but also contribute to environmental well-being. Ensuring connectivity for 14 parks within the network aligns with the broader objective of creating green spaces that enhance the quality of life for residents.

By strategically implementing connectivity measures for these tanks and parks, Phase 1 aims to limit the extent of drought regions within the LPA. This proactive approach leverages existing infrastructure to address water challenges, promoting a more resilient and sustainable urban environment. The success of this phase sets the foundation for subsequent stages of the plan, contributing to the overall development and water security of the region.

Table 14-5 Phase-1 selected water bodies and parks

Phase-1	Numbers	Area/ Length
Parks	14 parks	0.3 sq.km
Water Bodies	19 tanks	11.93 sq.km
Proposed channel length in kms		4.315km



Map 14-5 Phase-1, Connecting channels through blue-green infrastructure

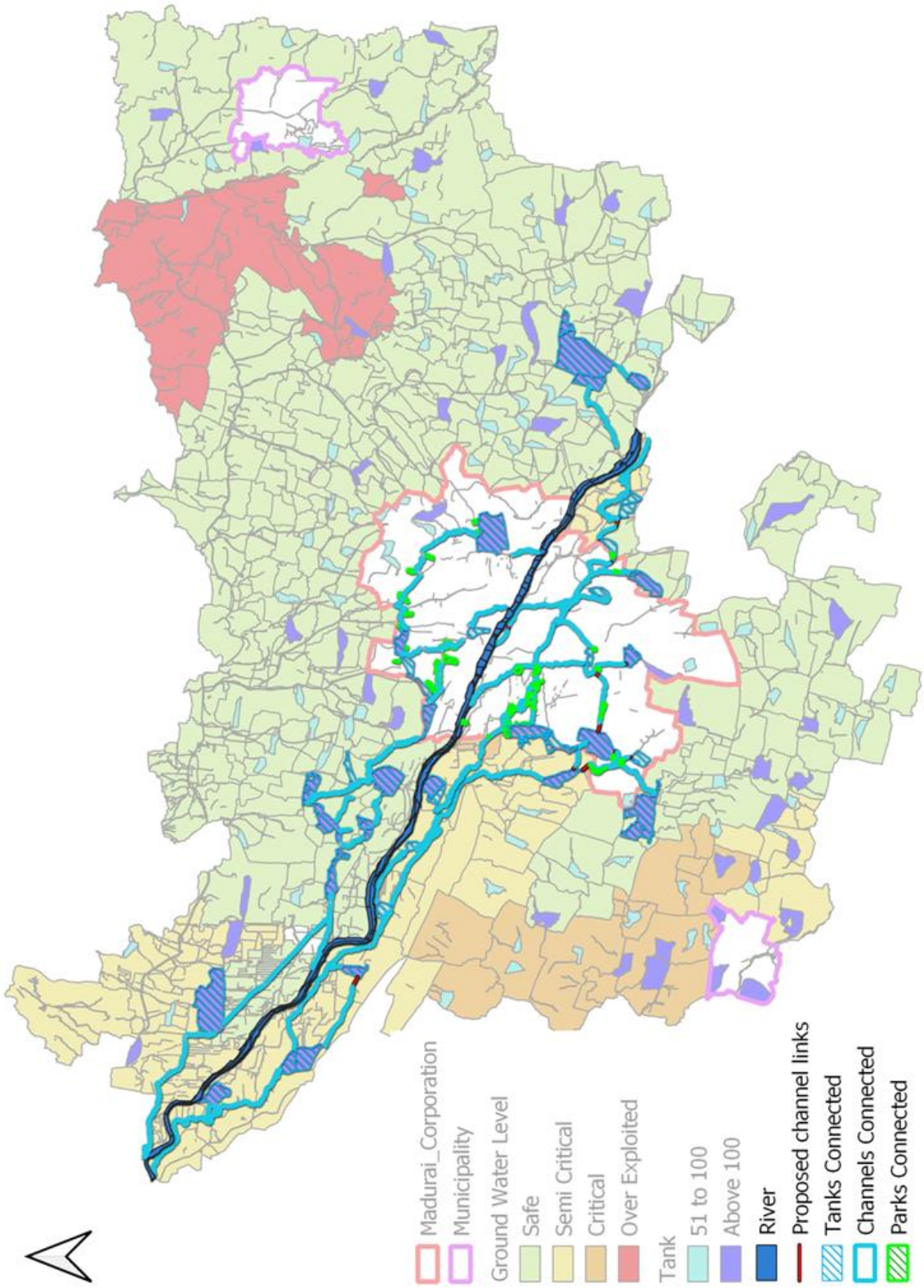
Phase 2

In Phase 2 of the strategic plan, the initiative to enhance Madurai's water resilience and recreational landscape continues through the connectivity of existing tanks and canals within the Limited Precipitation Area (LPA). Building on the success of Phase 1, this phase expands connectivity to a total of 41 tanks and integrates 71 parks into the network.

The primary objective remains the augmentation of the city's sponge characteristics, fortifying its ability to combat drought conditions. The interconnected tanks and canals form an extensive water distribution network, optimizing the sustainable utilization of water resources. By extending connectivity to more tanks, Phase 2 contributes significantly to the city's capacity to absorb and retain water, ensuring a more resilient response to water scarcity.

Table 14-6 Phase-2 selected water bodies and parks

Phase-2	Numbers	Area/ Length
Parks	71 parks	0.857 sq.km
Water Bodies	41 tanks	18.514 sq.km
Proposed channel length in kms		4.72 km



Map 14-6 Phase-2, Connecting channels through blue-green infrastructure

14.5.6.3. Drought Zone

Watershed Management (Protecting the land use, Agroforestry)- Separate DPR can be proposed. By the preparation of DPR and proposing this watershed management during summer season the water can be used to mitigate drought.

Agroforestry involves strategically integrating trees, shrubs, and crops on the same piece of land in LPA. These systems can take various forms, such as alley cropping, and forest gardening, offering flexibility to adapt to different ecological contexts.

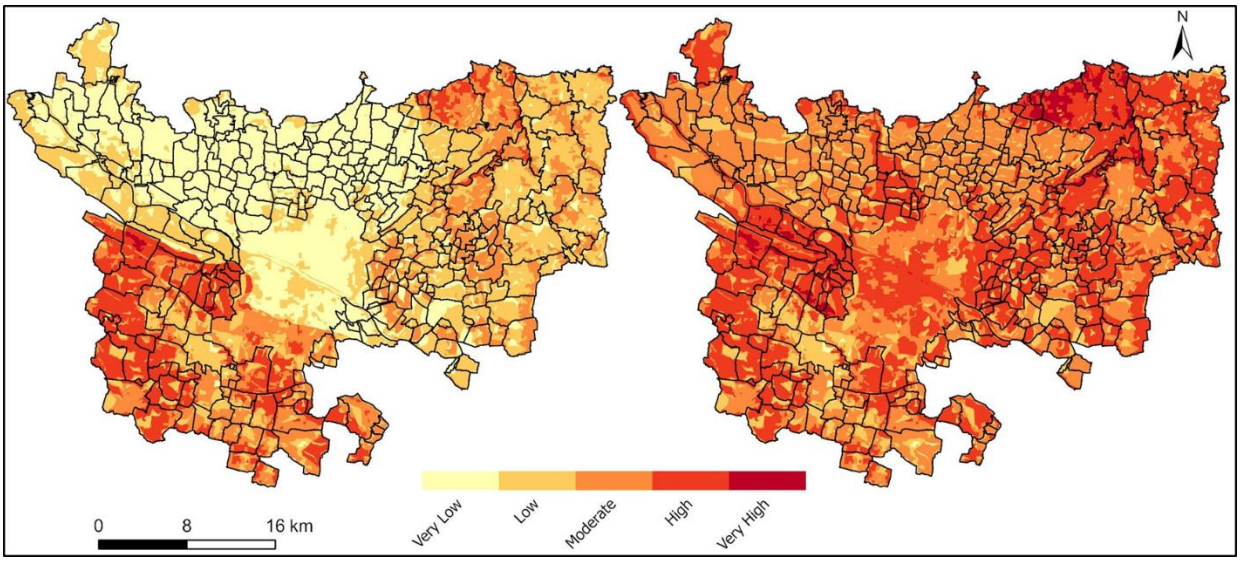


Figure 13 Drought Frequency and Drought Magnitude of Madurai LPA

14.5.6.4. Enhancement of existing green and blue cover in LPA

Proposal for reclamation of Abandoned quarries at:

Table 14-7 Locations for reclamation of abandoned quarries

S.No	Location	Area
1	Vandiyur	2.63 Ha
2	Katchaikatti	6.62 Ha
3	Virelipatti	1.94 Ha
4	Kulasekaran Kottai	0.25 Ha

Reclamation Strategies:

1. **Ecological Restoration:**
    - Introducing native vegetation helps stabilize soil, prevents erosion, and restores biodiversity.
    - Planting native trees and shrubs enhances the aesthetics of the site and provides habitat for wildlife.
2. **Water Management:**
    - Transforming water-filled quarries into functional ecosystems involves creating wetlands or recreational lakes.
    - Implementing water management techniques prevents stagnation and improves water quality.
3. **Innovative Land Uses:**
    - Exploring alternative land uses, such as recreational areas, parks, or sustainable agriculture, transforms quarries into community assets.
    - Adaptive land planning considers the local context and community needs.

Environmental and Social Benefits:

1. **Biodiversity Enhancement:**
    - Reclaimed quarries can support diverse plant and animal species, contributing to local biodiversity.
    - Establishing wildlife corridors connects habitats and promotes ecological resilience.
2. **Economic Opportunities:**
    - Repurposing reclaimed quarries for sustainable activities, such as eco-tourism or renewable energy projects, stimulates local economies.
    - Job creation and increased property values contribute to long-term community development.

14.6. Transportation Proposal

14.6.1. Grid of Road

A grid of roads refers to a network of interconnected streets and highways laid out in a pattern of intersecting horizontal and vertical lines, forming a series of square or rectangular blocks. The Grid of Roads proposed for Madurai's Local Planning Area (LPA) aims to address challenges related to the linkage and connectivity of the existing road network. The planning and implementation of this grid system involves creating a structured pattern of intersecting roads to enhance transportation efficiency, urban accessibility, and overall urban development.

The grid layout is designed to enhance connectivity by establishing a network of roads that intersect at right angles. This ensures a more direct and efficient linkage between different parts of the city. The grid system facilitates the distribution of traffic across multiple routes, reducing congestion on specific roads. This can lead to smoother traffic flow and improved vehicular movement throughout the city. With a regular and systematic road layout, residents and visitors will experience ease of navigation. The grid pattern simplifies wayfinding and reduces the likelihood of getting lost, contributing to a more user-friendly urban environment.

The uniform blocks created by the grid allow for optimized land use and development. Developers and city planners can efficiently allocate space for residential, commercial, and recreational purposes within standardized blocks. The proposed grid system likely involves a logical and predictable addressing system. Street numbering and addressing can follow a systematic pattern, making it easier for emergency services, mail delivery, and residents to locate specific addresses.

While focusing on functionality, the grid system can contribute to the enhancement of urban aesthetics. Well-designed intersections and streetscapes can improve the overall visual appeal of the city. The proposed grid is adaptable to the specific needs of Madurai's LPA. It takes into consideration the existing urban context, land use patterns, and future growth projections, ensuring a flexible and sustainable road network. The Indian Road Congress (IRC) is a professional body that establishes standards and guidelines for the design, construction, and maintenance of roads and highways in India.

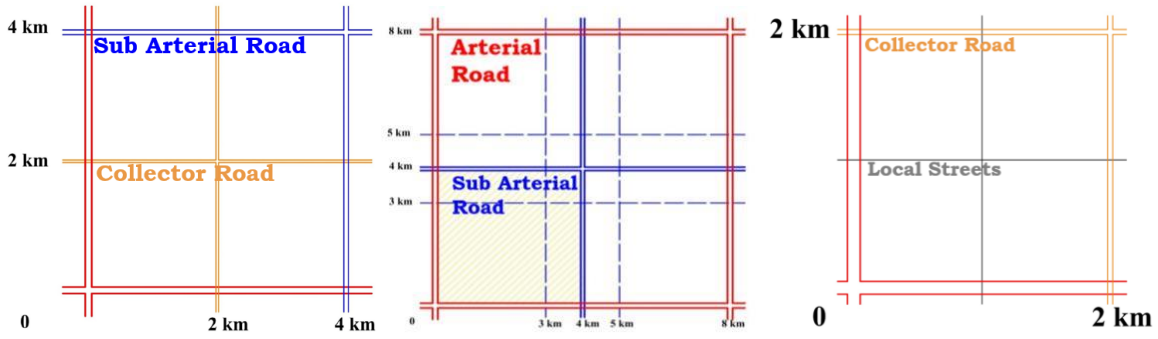


Figure 14 Conceptual Network of Grid of Roads

14.6.2. List of New Road Alignment and Road Wide

The proposed project, emphasizing the need for a new alignment and the widening of NH-744 up to Thirumangalam Route the alignment details Present the specifics of the new alignment, indicating the starting point (Vadipatti) and ending point (Ayilangudyi).

The expansion of the existing road (SH72) from Thirumangalam Bypass to Nachikulam for 25 Kms

The sub-arterial road project, emphasizing the need for the new road connection from Sholavanthan to Narasingam. The length of the road 25.5 km.

The sub-arterial road project, emphasizing the need for a new road connection from Tirumangalam to the Airport for the length of 11 km and for Thekutheru to Idiyapatti length 24.5KM.

Table 14-8: Proposed Road Network in Madurai LPA

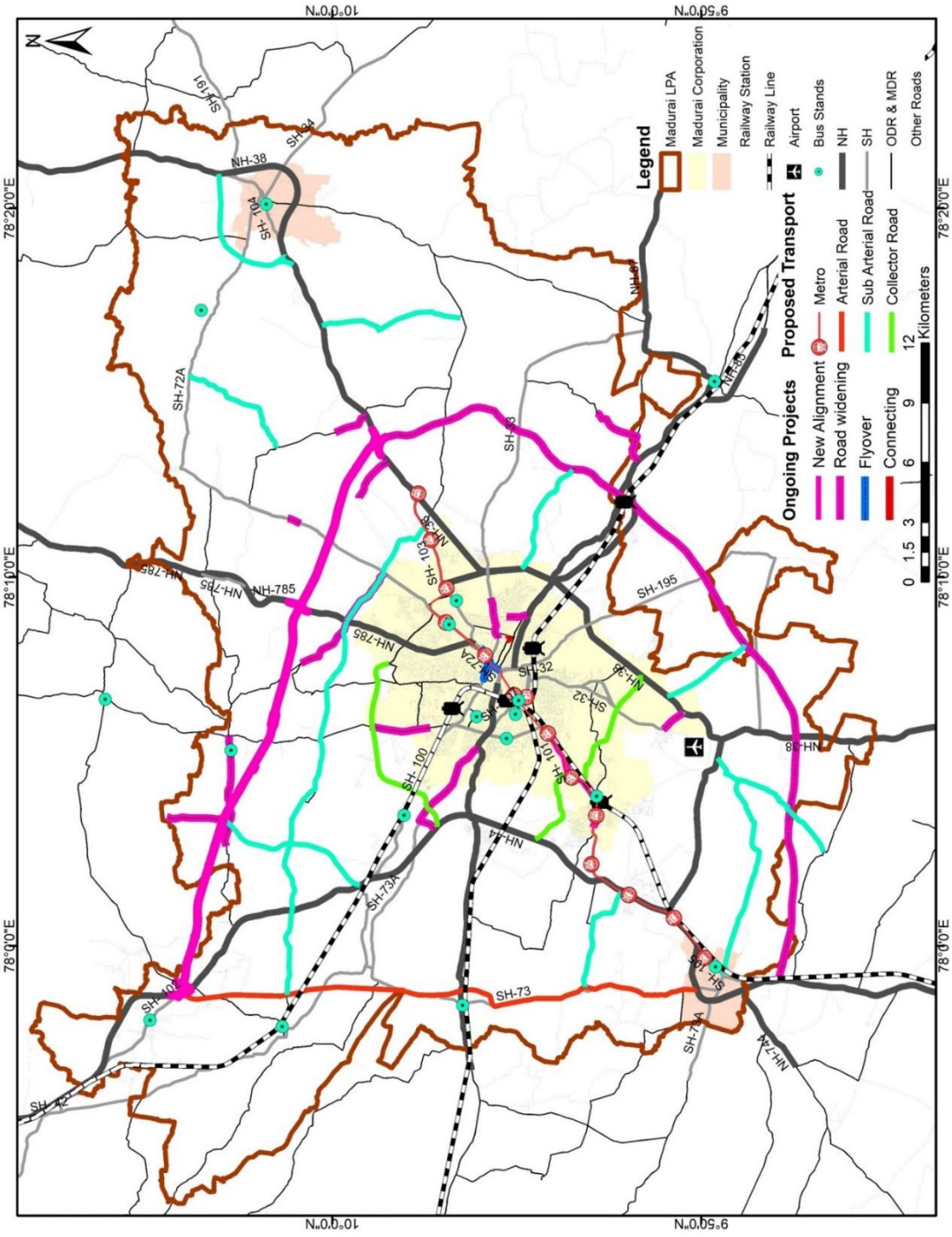
S. No	Proposed Ring Road/Link Road name	Connecting Places	Length of Road
1	A1	New Alignment (Vadipatti – Ayilangudyi) - NH-744 and widening of road up to Thirumangalam	-
2	B1	Widening existing road SH72 Thirumangalam Bye-pass to Nachikulam	25KM
3	C1	Sub-Arterial Road- Sholavanthan to Narasingam	25.5Km
4	C2	Sub-Arterial Road- Tirumangalam- Airport	11Km
5	C3	Sub-Arterial Road- Thekutheru-Idiyapatti	24.5KM

14.6.3. Proposal for Truck Terminal

Location: Truck parking facilities in Madurai corporation – Kochadai.

The objective of the truck terminal is to enhance transportation efficiency, reduce congestion, and provide essential facilities for truck drivers. Aggregation points for industries for inward and outward flow for domestic corridor CKIC corridor- Madurai to Thoothukudi industrial corridor- TN logistic policy report 2023; PIB - Ministry of ports& highway,2021. High traffic volume to capacity ratio over stretches on the following key corridors:Chennai – Tiruchirappalli – Madurai – Kanyakumari

Figure 15 Reference Image for Truck Terminal



Map 14-7 Proposed New Alignment and Widening of Roads

14.6.4. New Bus Route Alignment Proposal

Introducing the proposal to establish a new bus route in Madurai LPA is to enhance public transportation services. This will address transportation needs, improve accessibility, and contribute to the efficiency of the existing public transit network in Madurai LPA.

Table 14-9 Proposed Bus Routes

Link Colour	Major Locations
	K.Pudhur- Jains Beds Thirupurankundram- Samyanallur- K.Pudhur
	Airport- Kappalur- Jain-Bed Thiruparankundrum- Airport
	Thirumangalam- Valayankulam- Andipatti- Thirumangalam
	Keela Urappanur- Vadapalanchi- Keelakuyilkudi- Keela Urappanur
	Vadipatti- Samayanallur- Shlovandhang- Vadipatti
	Samayanallur- T.Andipatti- Paravai- Samayanallur
	Iyer Bungalow- Melur- Yanaimalai- Narasingam- Iyer Bungalow
	Viraganur- Melur- Thirupuvanam-Silaiman- Viraganur
	Viraganur-Silaiman- Mangulam- Airport- Viraganur

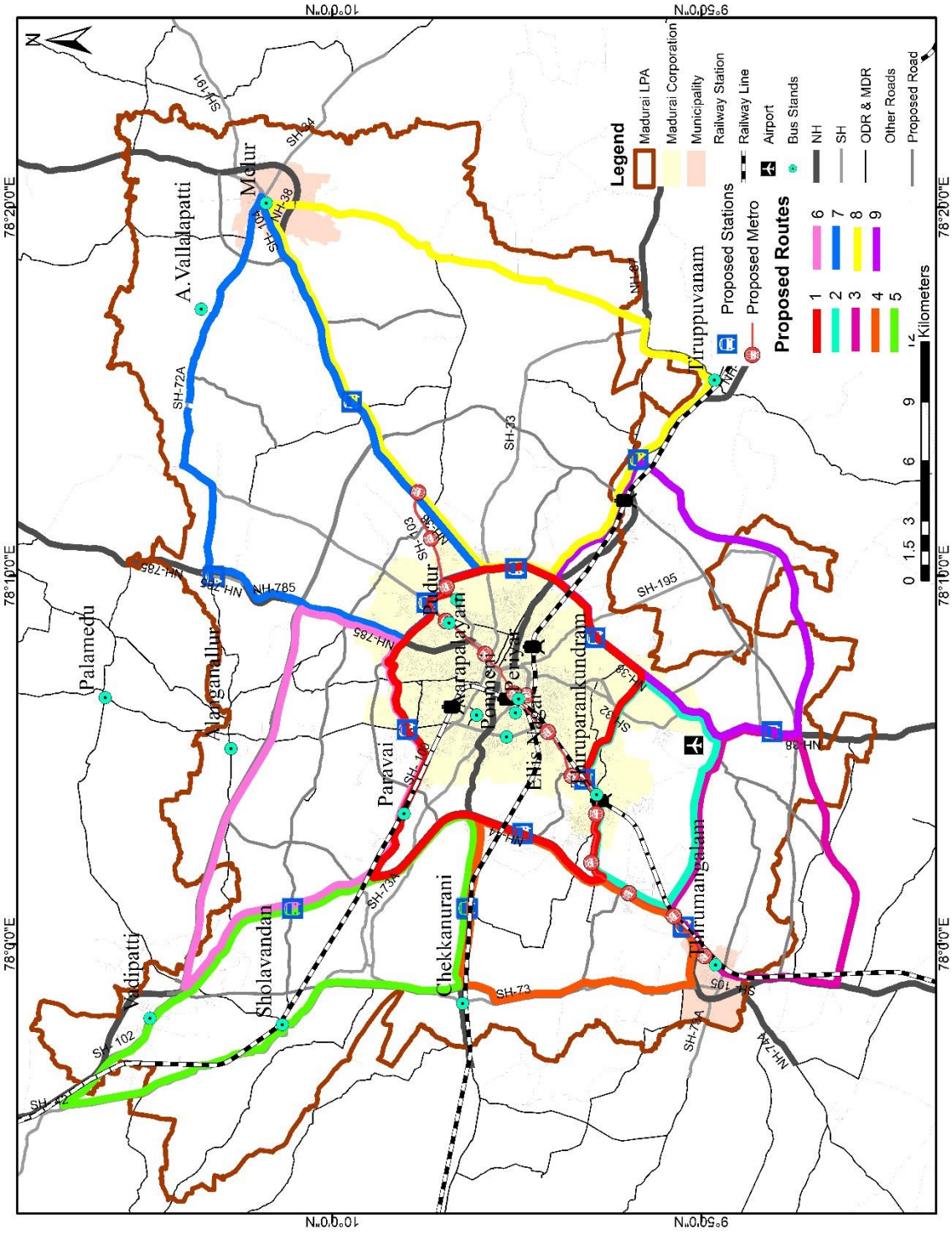
The proposal divided into 9 Zones connects 15 Bus stands generates 448 trips –Good Last mile Connectivity.

Infra structure requirements for bus stands is to plan the locations and design of bus stops, considering accessibility and passenger safety. Include shelters, seating, and information boards for passenger convenience. Propose a frequency of bus services based on demand and operational feasibility and to define the operating hours, considering peak and off-peak times. It summarizes the key components of the new bus route alignment proposal.

Table 14-10: Bus Frequency analysis for Madurai LPA

Table 7 shows the Frequency and Trip generation of the proposed bus route alignment. The trip pattern is divided into 9 zones which connects the major tourism location and junction throughout Madurai LPA.

Major Locations	Distance in km	Headway (in mins)	Frequency (bus /hr)	Average Speed (km/hr)	Trips foreach bus	Trips Generated
K.Pudhur- Jains Beds Thirupurankundram- Samyanallur- K.Pudhur	56	10	6	30	7	91
Airport- Kappalur- Jain-Bed Thiruparankundrum- Airport	30	15	4	30	12	60
Thirumangalam- Valayankulam- Andipatti- Thirumangalam	37	20	3	40	13	52
Keela Urappanur- Vadapalanchi- Keelakuyilkudi- Keela Urappanur	42	20	3	40	12	48
Vadipatti- Samayanallur- Shlovandhang- Vadipatti	52	20	3	40	10	50
Samayanallur- T.Andipatti- Paravai- Samayanallur	58	20	3	40	9	45
Iyer Bungalow- Melur- Yanaimalai- Narasingam- Iyer Bungalow	61	20	3	40	9	54
Viraganur- Melur- Thirupuvanam-Silaiman- Viraganur	65	20	3	40	8	48
Viraganur-Silaiman- Mangulam- Airport- Viraganur	58	20	3	40	9	45



Map 14-8 Proposed Bus Route and Para Transit Junction

14.6.5. Proposal for Integrated Para Transit Junctions

Paratransit vehicles are flexible for for-hire that do not necessarily follow fixed routes and schedules. They provide two types of services: one involving trips along a defined route with stops to pick up or discharge passengers on request. The other is demand-responsive transport which can offer a door-to-door service from any origin to any destination in a service area.

Total 12 Junctions are proposed inside the LPA these locations of Para-transit stations act as a bridge the accessibility gap, allowing individuals with disabilities, seniors, and others with mobility challenges to navigate the city conveniently. Real-time tracking and scheduling systems enhance predictability and convenience for users. Para-transit services often fill the last-mile connectivity void, linking users from their doorstep to major transit hubs.This connectivity improves the overall efficiency and reach of the public transportation network.

14.7. Tourism

14.7.1. Heritage and Religious Tourism

14.7.1.1. Proposed Circuits

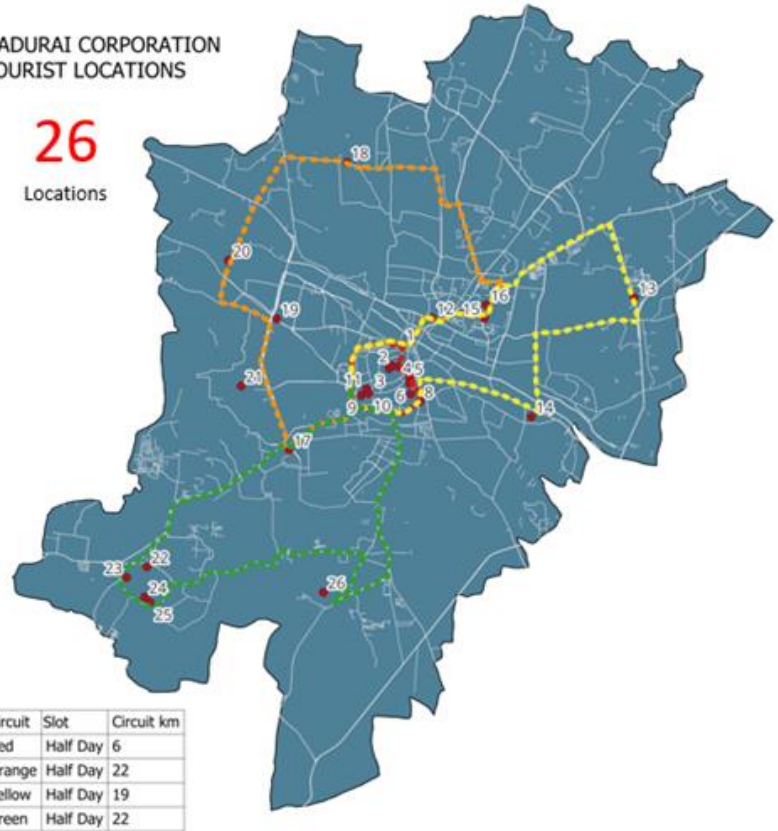
The proposed tourism circuits for Madurai offer a meticulously planned exploration of the city and its surroundings, catering to diverse preferences and time constraints. Categorized into Madurai Corporation, Madurai LPA, and Madurai District, the circuits present a range of options for tourists to customize their experiences.

Within Madurai Corporation, half-day circuits are designed to showcase the city's rich heritage and vibrant local markets. The Meenakshi Amman Temple and Thirumalai Nayakkar Palace feature prominently in the Heritage and Culture Tour, while the Market and Local Delights circuit immerses visitors in the lively atmosphere of Periyar Market and the flavors of Madurai's street food.

Madurai LPA offers day-long and half-day circuits, allowing tourists to explore historical and religious marvels or indulge in nature and tranquility. The flexibility to combine circuits provides visitors with a tailored experience, aligning with their specific interests and available time.

MADURAI CORPORATION
TOURIST LOCATIONS

26
Locations



No	Circuit	Name
1	Red	Arulmigu Athi Chokkanathar Temple.
2	Red	Aayiram Kaal Mandapam
3	Red	Sri Meenakshi Amman Temple
4	Red	Pudhu Mandapam
5	Red	Vilakkuthoon
6	Red	Paththu Thungal,Madurai South
7	Red	Thirumalai Nayakar Mahal
8	Red	St. Mary's Cathedral
9	Red	Koodal Azhagar Temple
10	Red	Mathana Gopala Samy Temple.
11	Red	Innai nanmai tharuvar Temple
12	Yellow	Goripalayam Dargah
13	Yellow	Pandi Muni Kovil
14	Yellow	Vandiyu Mariamman Teppakulam
15	Yellow	Gandhi Memorial Museum
16	Yellow	World Tamil Sangam
17	Orange	Kovalan Pottal,Madakulam
18	Orange	Anaiyur Ayrabathishwarar Kovil
19	Orange	Kazimar Periya Pallivasal
20	Orange	Kochadai Muthaiah Temple
21	Orange	Madakulam
22	Green	Thiruparangundram Temple
23	Green	Cavern with Pancha Pandava beds , Tirupparangundram
24	Green	Rock-cut Cave & Inscriptions, Tirupparangundram
25	Green	Thirupparankundram Eco Park
26	Green	Avaniyapuram Tank

id	Circuit	Slot	Circuit km
1	Red	Half Day	6
3	Orange	Half Day	22
2	Yellow	Half Day	19
4	Green	Half Day	22

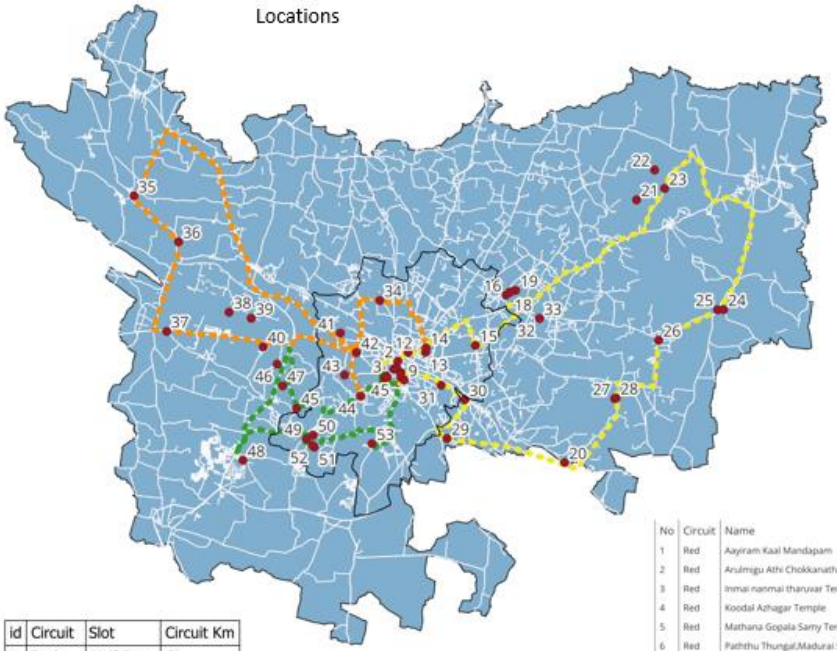
Map 14-9 Proposed Tourist Circuit in Madurai Corporation

Sivan Kovil, Arittapatti

World Tamil Sangam

Viraganur Tank

MADURAI LPA
TOURIST LOCATIONS **53**
Locations



id	Circuit	Slot	Circuit Km
1	Red	Half Day	6
2	Orange	Full Day	71
3	Yellow	Full Day	82
4	Green	Full Day	40

No	Circuit	Name
1	Red	Aayiram Kaal Mandapam
2	Red	Arulmigu Athi Chokkanathar Temple.
3	Red	Inmai nanmai tharuvar Temple
4	Red	Koodal Azhagar Temple
5	Red	Mathana Gopala Samy Temple.
6	Red	Paththu Thungal,Madurai South
7	Red	Pudhu Mandapam
8	Red	Sri Meenakshi Amman Temple
9	Red	St. Mary's Cathedral
10	Red	Thirumalai Nayakar Mahal
11	Red	Vilakkuthoon

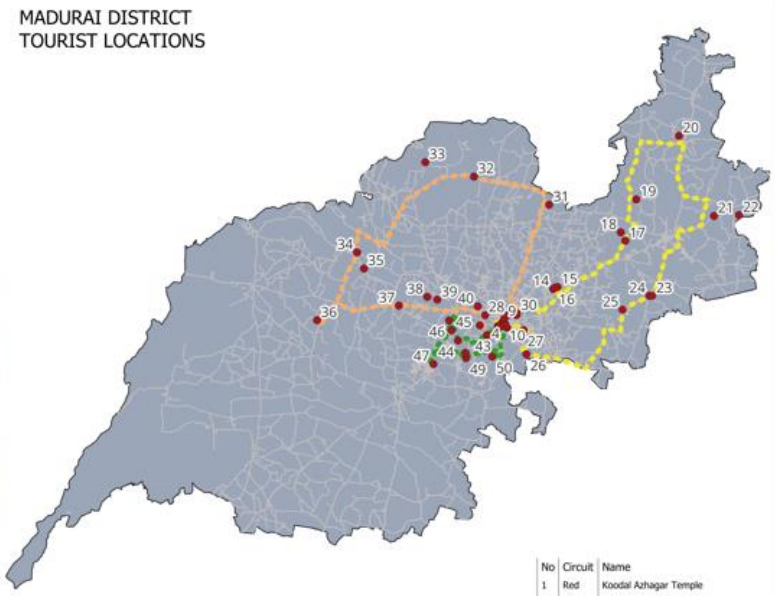
No	Circuit	Name
12	Yellow	Goripalayam Dargah
13	Yellow	Gandhi Memorial Museum
14	Yellow	World Tamil Sangam
15	Yellow	Pandi Muni Kovil
16	Yellow	Theerthangarar Sculptures,Yanaimalai
17	Yellow	Yoga Narasiga Perumal Temple, Narasingam
18	Yellow	Ladan koil,Yanaimalai
19	Yellow	Brahmi Kalvettugal,Yanaimalai
20	Yellow	Sivankoil,Ayyapatti (Tharkakudi)
21	Yellow	Ovamalai Kalvettu,Meenakshipuram
22	Yellow	Sivankoil,Arittapatti
23	Yellow	Tamizhi Inscriptions and Theerthangara Sculptures,Arittapatti , Melur
24	Yellow	Manikavasagar Birth Place, Thiruvathavur
25	Yellow	Tiruvadavur Kalvettu,Thiruvathavur
26	Yellow	Idayapatti Kovilkaadu
27	Yellow	Kalvettup Padukkaigal, Murugan koil,Varichiyur
28	Yellow	Udayagiriswarar koil,Vanchurmalai , Kunnathur
29	Yellow	Samanatham Tank
30	Yellow	Viraganur
31	Yellow	Vandiyu Mariamman Teppakulam
32	Yellow	Thirumoohur Temple, Othakkadai
33	Yellow	Thirumohoor Kalamegaperumal Temple
34	Orange	Analyur Ayrabathishwarar Kovil
35	Orange	Sholavandhan
36	Orange	Thiruvedagam
37	Orange	Brahmi Kalvethu,Kongarapuliyankulam
38	Orange	Cave in Sitharmalai, Melakuilkudy
39	Orange	Pulluthu @ Thuvariman
40	Orange	Rock-cut bas relief and beds, Karadipatti
41	Orange	Kochadai Muthaiah Temple
42	Orange	Kazimar Periya Pallivasal
43	Orange	Madakulam
44	Green	Kovalan Pottal,Madakulam
45	Green	Villachery Village
46	Green	Samanar Hills
47	Green	Keezhakuyilkudi
48	Green	Koothiyaar Gundu
49	Green	Cavern with Pancha Pandava beds , Tirupparangundram
50	Green	Thiruparangundram Temple
51	Green	Thirupparankundram Eco Park
52	Green	Rock-cut Cave & Inscriptions, Tirupparangundram
53	Green	Avaniyapuram Tank

Map 14-10 Proposed Tourist Circuit in Madurai LPA

Sathayar Dam, Madurai

Karungalkudi, Madurai

Thidiyan Malai, Madurai``



id	Circuit	Circuit Km
1	Red	6
3	Orange	103
2	Yellow	120
4	Green	40

No	Circuit	Name
1	Red	Koodal Azhagar Temple
2	Red	Sri Meenakshi Amman Temple
3	Red	Aayiram Kaal Mandapam
4	Red	Pudhu Mandapam
5	Red	Thirumalai Nayakar Mahal
6	Red	St. Mary's Cathedral
7	Red	Inmai nanmai tharuvar Temple
8	Red	Mathana Gopala Samy Temple.
9	Red	Arulmigu Athi Chokkanathar Temple.

No	Circuit	Name
10	Red	Vilakkuthoon
11	Red	Jain statues, rock inscriptions and Pancha Pandava, Kallkuthu
12	Red	Paththu Thungal,Madurai South
13	Yellow	Yoga Narasiga Perumal Temple, Narasingam
14	Yellow	Theerthangarar Sculptures,Yanaimalai
15	Yellow	Brahmi Kalvettugal,Yanaimalai
16	Yellow	Ladan koil,Yanaimalai
17	Yellow	Tamizhi Inscriptions and Theerthangara Sculptures,Arittapatti , Melur
18	Yellow	Sivankoil,Arittapatti
19	Yellow	Pulipatti
20	Yellow	SRI AGASTHEESWARAR TEMPLE, Tiruchunai, Kottampatti
21	Yellow	Pancha Pandava bed, Jain statue, Keelavalavu
22	Yellow	Keezhavalavu
23	Yellow	Manikavasagar Birth Place, Thiruvathavur
24	Yellow	Tiruvadavur Kalvettu,Thiruvathavur
25	Yellow	Idayapatti Kovilkaadu
26	Yellow	Samanatham Tank
27	Yellow	Vandiyu Mariamman Teppakulam
28	Orange	Goripalayam Dargah
29	Orange	Gandhi Memorial Museum
30	Orange	World Tamil Sangam
31	Orange	Kiluvamalai, Kadavur Village
32	Orange	Sathayar Dam
33	Orange	Thadagai Nachiamman Temple & Falls Kutladampatti (Vadipatti)
34	Orange	Vikramangalam
35	Orange	Karunkkalakudi Kalvettu,Karungalakkudi
36	Orange	Thidiyan Malai
37	Orange	Brahmi Kalvethu,Kongarapuliyankulam
38	Orange	Cave in Sitharmalai, Melakullkudy
39	Orange	Pulluthu @ Thuvariman
40	Orange	Kochadai Muthaiah Temple
41	Orange	Kazimar Periya Pallivasal
42	Orange	Madakulam
43	Green	Kovalan Pottal,Madakulam
44	Green	Villachery Village
45	Green	Keezhakuyilkudi
46	Green	Samanar Hills
47	Green	Koothiyaar Gundu
48	Green	Thiruparangundram Temple
49	Green	Thirupparankundram Eco Park
50	Green	Avaniyapuram Tank

Source: ASI Sites;
District Handbook, 2021-2022; Corporation Handbook,2021-2022

Map 14-11 Proposed Tourist Circuit in Madurai District

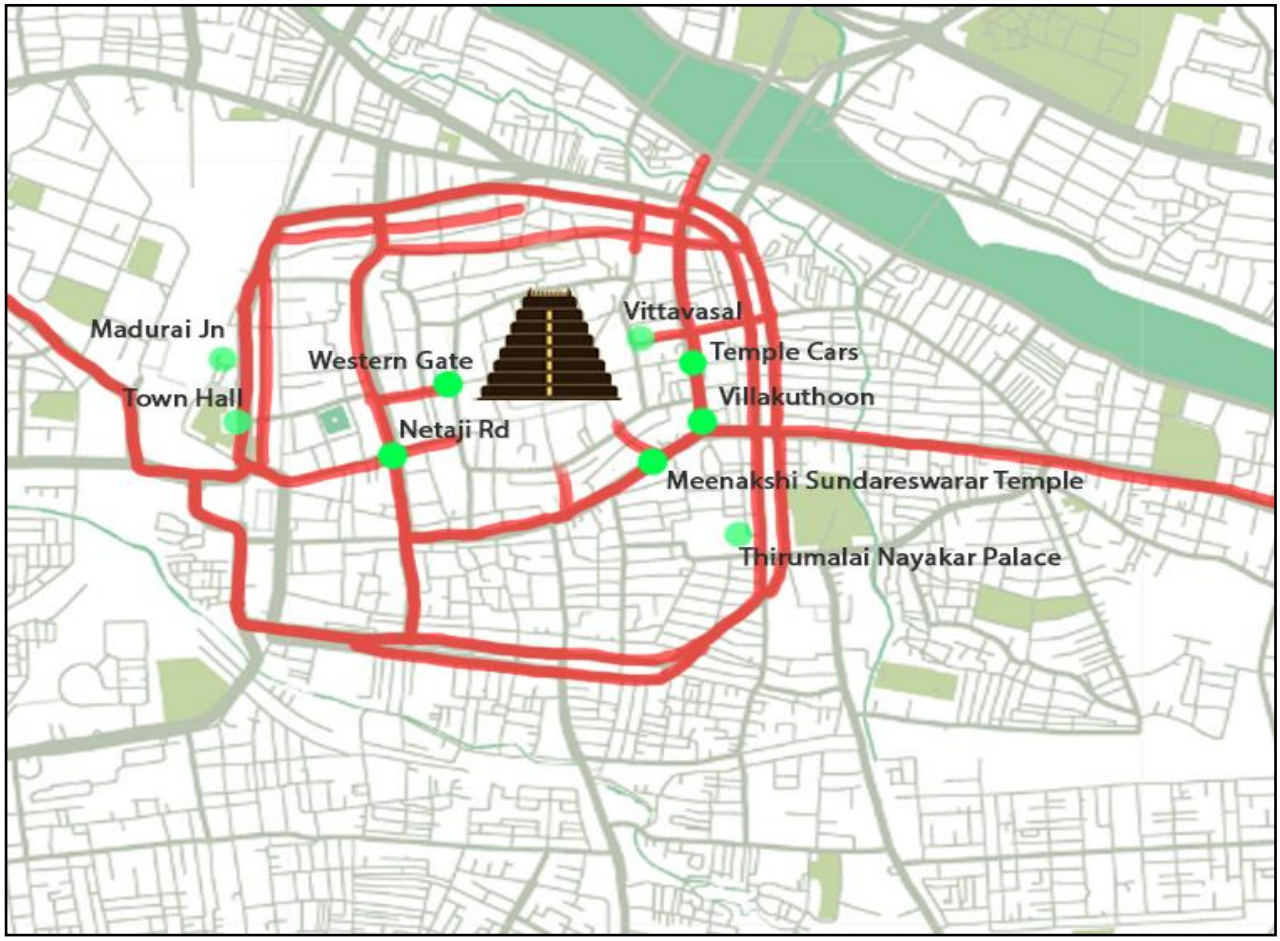
For a more extensive exploration, the Madurai District circuit covers the city and its diverse regions, including the northwest, south, and east. This comprehensive approach ensures that tourists can delve into historical monuments, cultural hotspots, and natural landscapes, creating a holistic and enriching travel experience in and around Madurai.

14.7.1.2. Heritage Walk

A heritage walk is a guided or self-guided tour that takes participants through areas of historical, cultural, or architectural significance, allowing them to explore and learn about the heritage and legacy of a particular place. Heritage walks are designed to provide insights into the history, traditions, and unique features of a location, often incorporating visits to historical monuments, landmarks, cultural sites, and other points of interest.

The proposed heritage walk in the core city of Madurai centers around the majestic Meenakshi Temple, leading participants through a captivating exploration of 15 significant tourist sites. This carefully crafted journey encompasses architectural marvels, historical landmarks, and cultural hotspots that collectively unveil the rich heritage of Madurai. The iconic Meenakshi Temple, a masterpiece of Dravidian architecture, serves as the focal point, radiating religious and cultural significance. The heritage walk extends to the colonial-era Town Hall, contributing historical depth and architectural diversity to the experience.

Villakuthoon, Vittavasal, and the grand Thirumalai Nayakar Palace further enrich the walk, offering insights into the city's past and showcasing the grandeur of the Nayaka period. Beyond these key sites, the heritage walk promises additional surprises, potentially featuring traditional markets, cultural performances, and community engagement. Knowledgeable guides accompany participants, weaving narratives that bring each location to life, providing historical context and cultural anecdotes. This immersive experience not only deepens the understanding of Madurai's heritage but also fosters a connection with the vibrant soul of the city, making the heritage walk an enriching and memorable exploration of its multifaceted history and culture.



Map 14-12 Proposed Heritage Walk

Street Design

Non-Motorized Transport (NMT) in the core city, fostering sustainable mobility, reducing traffic congestion, and preserving the city's unique character. The proposal focuses on key areas within Madurai's core city, identifying zones where NMT interventions can have the most significant impact. These areas include commercial districts, heritage zones, and transportation hubs. To promote NMT, the proposal suggests the development of dedicated cycling lanes, pedestrian pathways, and green spaces. These infrastructure enhancements will be strategically implemented to connect important points within the city, facilitating a seamless and safe NMT experience.

Zoning regulations will be proposed to favor pedestrian-friendly spaces, and incentives will be recommended for businesses that actively support and promote NMT

within their operations. Smart pedestrian crossings and the introduction of cycle-sharing programs will be explored to provide users with convenient and user-friendly options.

This proposal envisions a transformative initiative to convert Chithirai and Avani Streets, surrounding the Meenakshi Amman Temple in Madurai, into exclusive pedestrian-friendly zones accommodating cycles and electric carts. This strategic shift aims to enhance the overall visitor experience, preserve the city's cultural heritage, and contribute to sustainable urban development.

Revitalizing pedestrian infrastructure along the Heritage Walk near Meenakshi Amman Temple in Madurai involves a comprehensive strategy to blend cultural preservation with safety and convenience. Prioritizing pavement quality is essential; upgrading existing paths with durable, aesthetically pleasing materials ensures a smooth and secure surface for pedestrians. Introducing heritage signage along the walk imparts historical context and details about key landmarks, enriching the educational experience for visitors.

Enhancing the pedestrian experience involves incorporating green spaces and planters, not only for visual appeal but also to provide shade and foster a pleasant environment. Strategically placed seating areas contribute to the overall comfort of walkers, encouraging them to immerse themselves in the rich cultural surroundings.

Furthermore, creating designated zones for street vendors and artisans can promote local businesses and add vibrancy to the Heritage Walk. Ensuring accessibility for differently abled individuals by incorporating ramps and clear pathways is crucial for an inclusive experience.

14.7.2. Cultural Identify

14.7.2.1. City of Gastronomy

UNESCO's City of Gastronomy project is an integral component of the wider Creative Cities Network, initiated in 2004. This global network organizes member cities into seven distinct creative fields: Crafts and Folk Art, Design, Film, Gastronomy, Literature, Media Arts, and Music. The designation of a City of Gastronomy comes with specific criteria that cities must fulfill to showcase their culinary heritage and commitment to sustainable gastronomy.

For a city to be approved as a City of Gastronomy, it must demonstrate several key characteristics:

•The city should boast a well-developed gastronomy that is characteristic of its urban center and/or region.

•A vibrant gastronomy community is essential, featuring numerous traditional restaurants and chefs.

•Traditional cooking must involve the use of indigenous ingredients, showcasing a connection to local culinary traditions.

•Cities should maintain local know-how and traditional culinary practices that have survived industrial and technological advancements.

•The presence of traditional food markets and a robust traditional food industry contributes to the authenticity of the gastronomic experience.

•A tradition of hosting gastronomic festivals, awards, contests, and other broadly targeted means of recognition is crucial.

•Cities must demonstrate a commitment to environmental respect and the promotion of sustainable local products in their culinary practices.

•Nurturing public appreciation for gastronomy, promoting nutrition in educational institutions, and including biodiversity conservation programs in cooking school curricula are essential.

Cities aspiring to attain the City of Gastronomy designation submit bids to UNESCO, which are reviewed every four years. This meticulous process ensures that recognized cities continue to meet the established criteria, promoting ongoing commitment and excellence in gastronomy.

Hyderabad, Telangana's capital, epitomizes the blend of Hyderabadi and Telugu cuisines, resulting in iconic dishes like Hyderabadi biryani and haleem. The city's culinary landscape boasts a fusion of flavors, including murtabak, upma, dosa, and avakaya. Celebratory events like Ramzan and Bathukamma play a pivotal role in promoting and preserving Hyderabad's unique gastronomic culture, making it famous for its diverse and flavorful culinary offerings that reflect the rich heritage of both culinary traditions. Hyderabad's inclusion in UNESCO's City of Gastronomy project is a testament to the city's

culinary excellence, its preservation of traditional recipes, and its dedication to sustainability and cultural richness.

Madurai, a city steeped in history and culture, is renowned for its culinary excellence, offering a diverse and flavorful array of dishes. At the heart of Madurai's gastronomy is the iconic Meenakshi Temple, influencing the city's vibrant food culture. Madurai is famed for its unique blend of Chettinad and Tamil cuisines, featuring dishes like Kari dosa, bun parotta, and the delectable Madurai Jigarthanda, a refreshing local beverage. The city's bustling streets host a myriad of street food vendors, serving up aromatic and spicy delights that captivate the taste buds. Madurai's culinary landscape is a reflection of its rich heritage, blending tradition with innovation to create a gastronomic experience that is both authentic and delightful.

To promote Madurai as a City of Gastronomy, the city can organize annual gastronomic festivals around the Meenakshi Amman Temple, featuring diverse culinary showcases and street food extravaganzas. Instituting Madurai Culinary Excellence Awards and hosting gastronomic contests will recognize local talent and innovation. Designating specific zones for street food stalls, live cooking demonstrations, and integrating cultural performances will create a vibrant atmosphere. Collaborating with local businesses and leveraging social media campaigns will enhance the visibility of these events, positioning Madurai as a dynamic culinary destination rich in tradition and innovation.

14.7.2.2. World Heritage City Program

There are numerous cities around the world that have been designated as UNESCO World Heritage Sites due to their cultural, historical, or natural significance. These designations aim to recognize and protect sites that hold outstanding universal value. UNESCO World Heritage Cities are typically chosen based on their unique architectural, cultural, or urban value.

UNESCO World Heritage City status is conferred based on a site's Outstanding Universal Value (OUV), assessed against specific criteria. Cultural sites, for instance, must embody human creative genius, depict cultural interchange, testify to unique traditions or civilizations, or represent significant historical stages. Natural sites should showcase exceptional beauty, geological features, ecological processes, or important biodiversity habitats. Mixed sites integrate cultural and natural significance. Cities worldwide, like Venice and Kyoto, earn this prestigious designation for their extraordinary architectural, historical, or natural attributes. The process involves rigorous evaluations by experts, and

a site must meet at least one criterion while demonstrating adequate management for protection and preservation. UNESCO's World Heritage recognition not only honors outstanding sites but also fosters global awareness of their significance, encouraging responsible conservation practices to safeguard these treasures for future generations. It serves as a testament to humanity's shared heritage, promoting appreciation, understanding, and the importance of preserving the diverse wonders that contribute to the richness of our collective human experience.

In India, Jaipur and Old city of Ahmedabad are recognized as UNESCO World Heritage City. Madurai as a UNESCO World Heritage City would likely underscore the city's exceptional historical and cultural significance. Madurai, one of the oldest continuously inhabited cities in the Indian subcontinent, boasts a rich heritage dating back centuries. At the heart of the proposal is the iconic Meenakshi Amman Temple, a sublime example of Dravidian architecture and a cultural beacon. The document would delve into Madurai's unique urban planning, architectural marvels, and the preservation of living traditions, including music, dance, and literature.

The proposal would emphasize the integral role of community engagement, showcasing how local residents actively contribute to the preservation and promotion of Madurai's heritage. Sustainable tourism initiatives, infrastructure development, and efforts to strike a balance between urban growth and heritage preservation would feature prominently. The proposal would also highlight ongoing conservation endeavors for historical sites, monuments, and traditional architecture. Madurai's cultural diversity, shaped by various influences over time, would be celebrated as a defining aspect of its unique identity. Ultimately, the submission would align with UNESCO's criteria for Outstanding Universal Value, emphasizing Madurai's commitment to safeguarding its exceptional cultural and historical legacy for future generations.

14.7.2.3. Craft Village

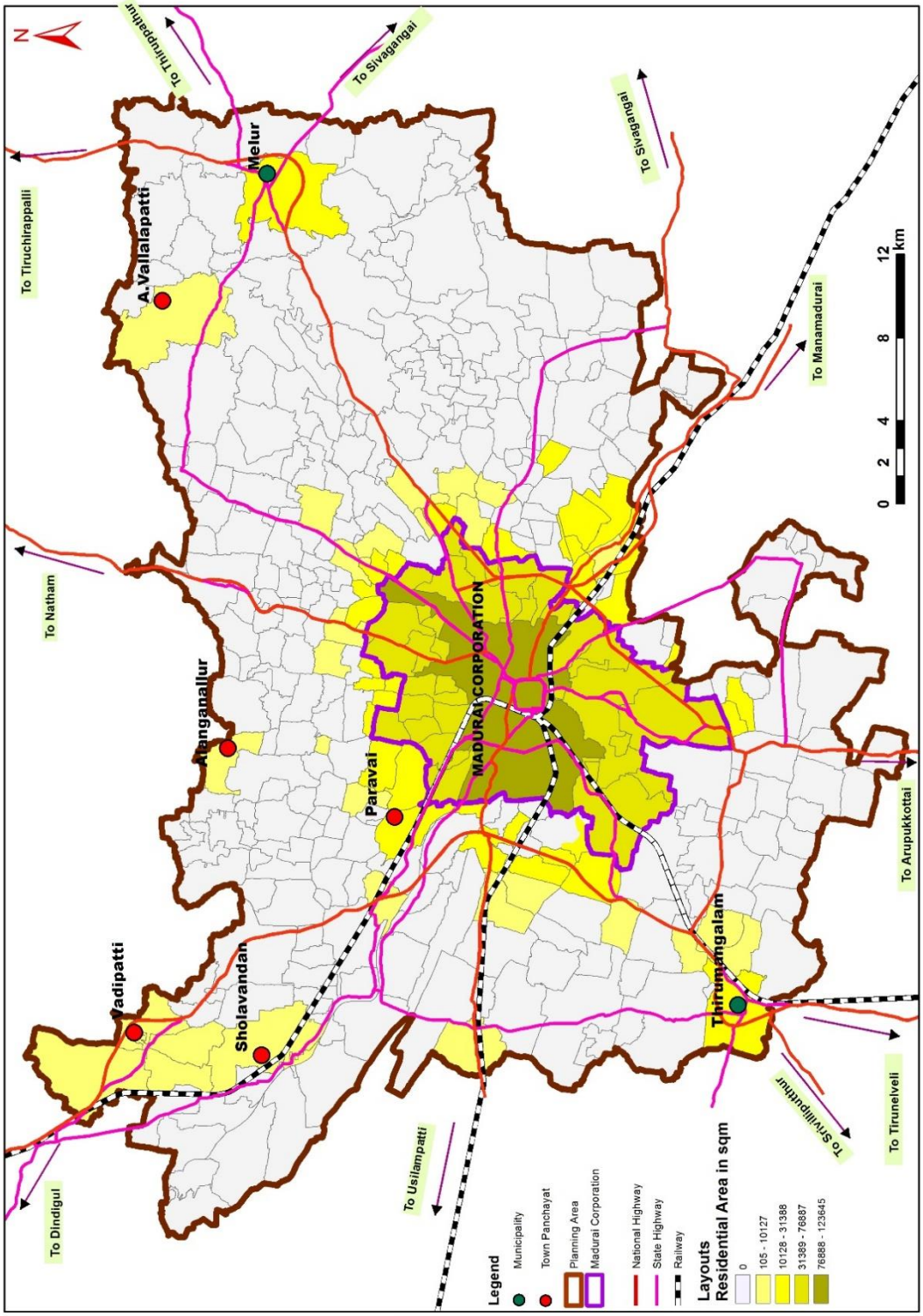
A Craft Village is a dynamic community designed to celebrate and sustain traditional craftsmanship. These villages serve as cultural hubs, nurturing the skills of artisans and preserving heritage crafts. Typically featuring a variety of workshops, Craft Villages house skilled artisans practicing diverse crafts such as pottery, weaving, woodwork, metal crafting, handloom, and textiles. The primary goal is to maintain and promote cultural heritage by ensuring that traditional techniques are passed down through generations, preventing the loss of age-old art forms.

According to the Craft Council of India, there are 11 recognised clusters in Madurai. Textile –sungudi, theater craft – Muthangi, Wood carving, metalware - pancha loam, stone carving, metalware – Kavasam, Toy making, etc. A craft village can be proposed to create a working space for the artists, showcase their work, and conduct skills development to pass down the traditional techniques.

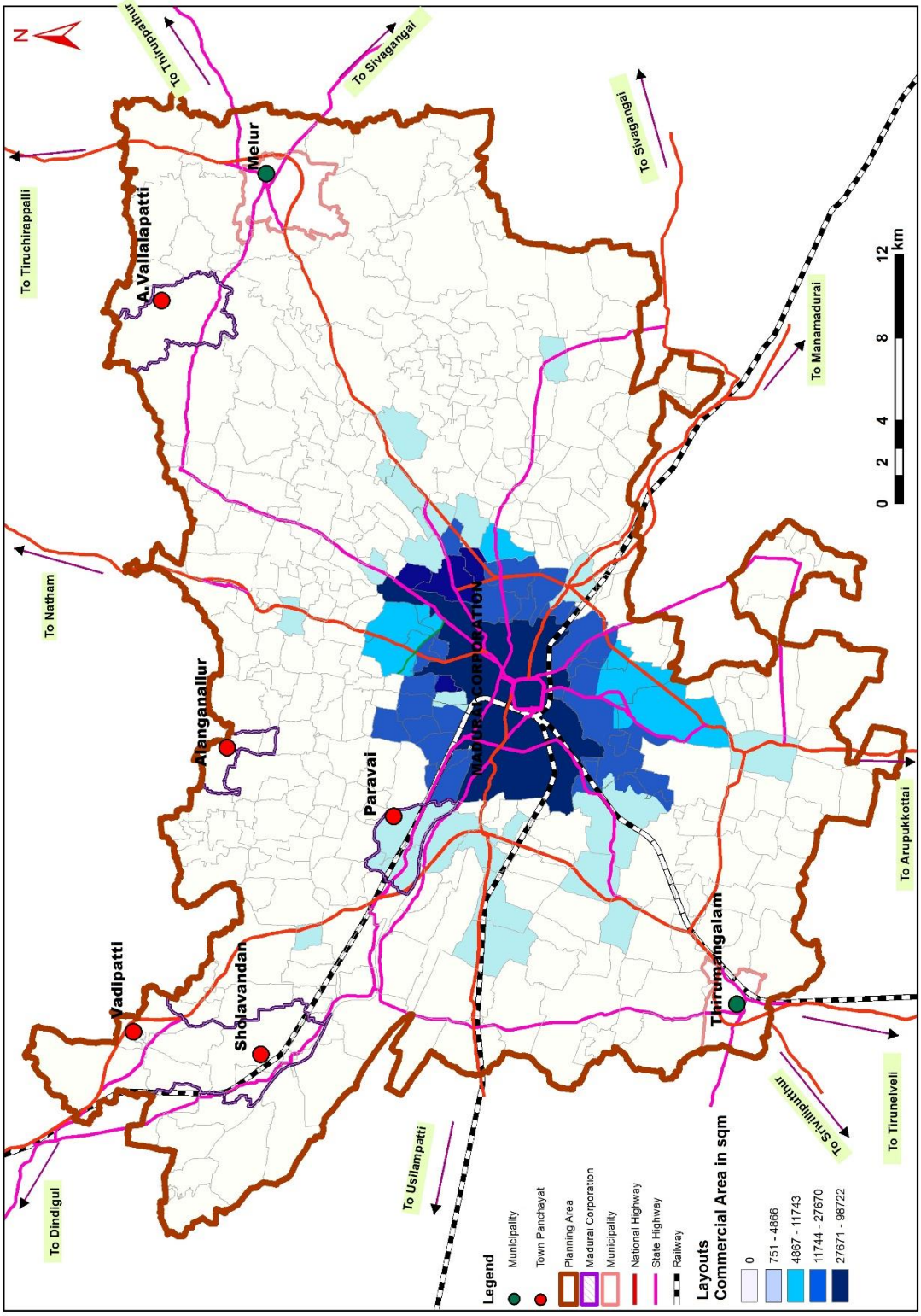
Craft Villages often incorporate marketplaces where artisans directly showcase and sell their handmade products. This direct connection between creators and consumers fosters a sense of community and allows visitors to appreciate the authenticity and craftsmanship behind each piece. The villages may also offer accommodations for artisans, creating an immersive environment where they can live, work, and collaborate. As a case study Common Facility Centre proposed for Toy cluster in Vilachery was visited nearly 550 families and 250 Manufacturers in Melamathur, Keelamathur, Melakuyikudi, Keelakuyilkudi, Sambakudi, Karadipatti, Tattanur, Vadivelkarai, Thuvariman villages involved in Pottery making and eco-Friendly Toy making since 1965 under the association of Kulala Handicrafts Artisan Welfare Association and they making annual turnover of 20 crores through exporting their products to USA,UK, Malaysia and few Asian countries. Families involved in craft making are working at their individual houses and no common places for production and marketing of products for the rural artisans.

Figure 16 Reference Image - Shilparamam, Hydrabad.

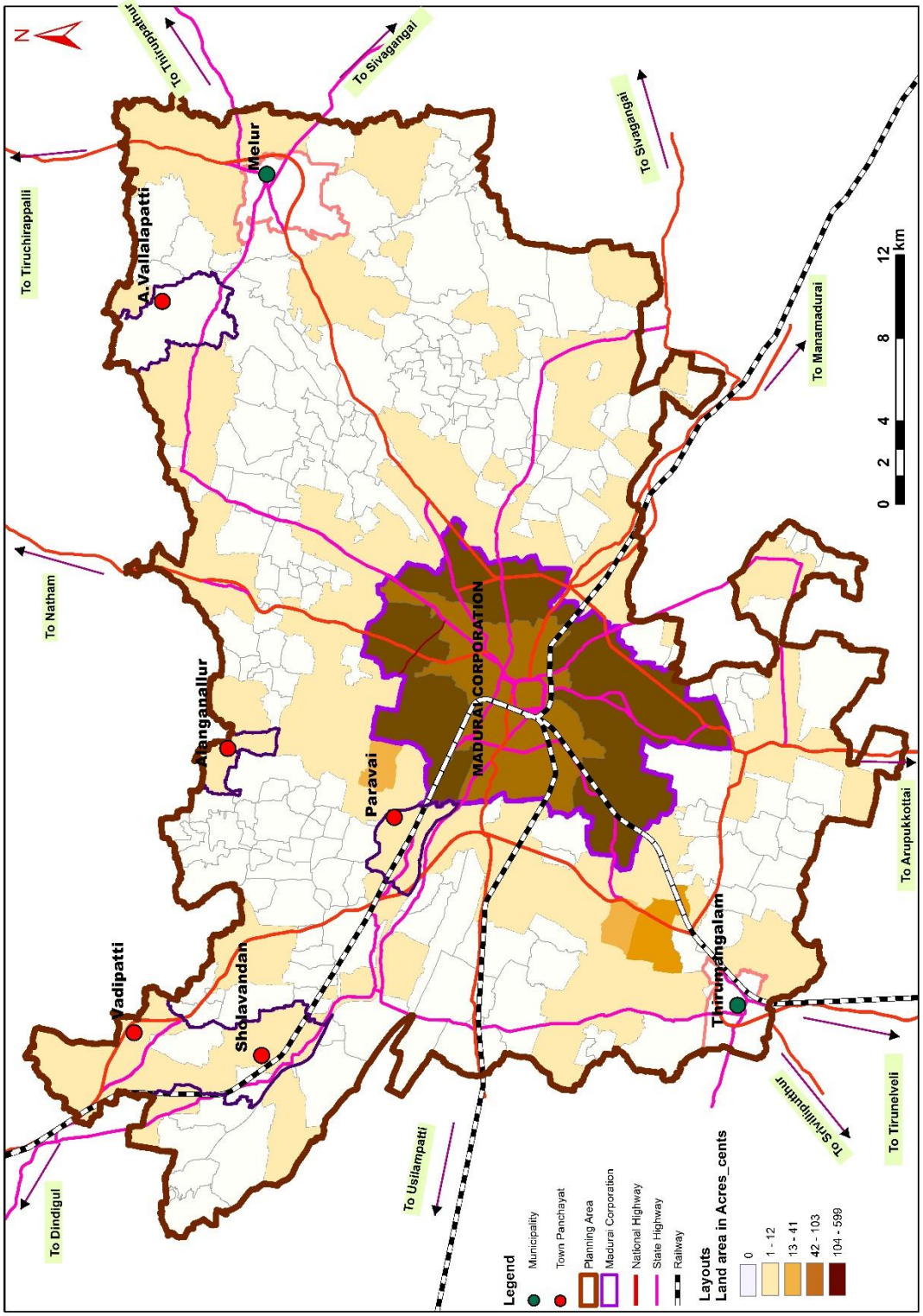
14.8. Trend Analysis



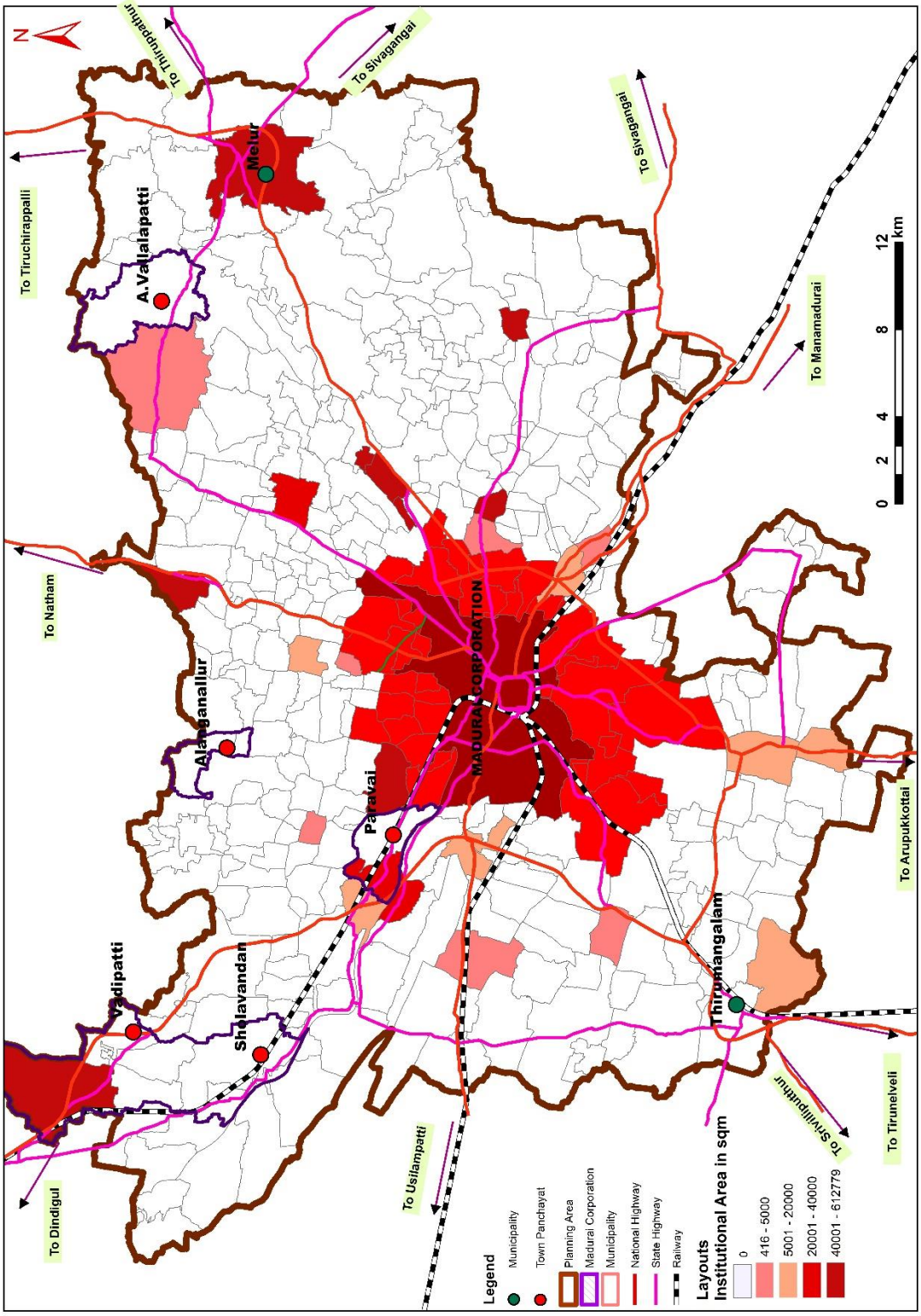
Map 14-13 Trend Analysis for Residential Building



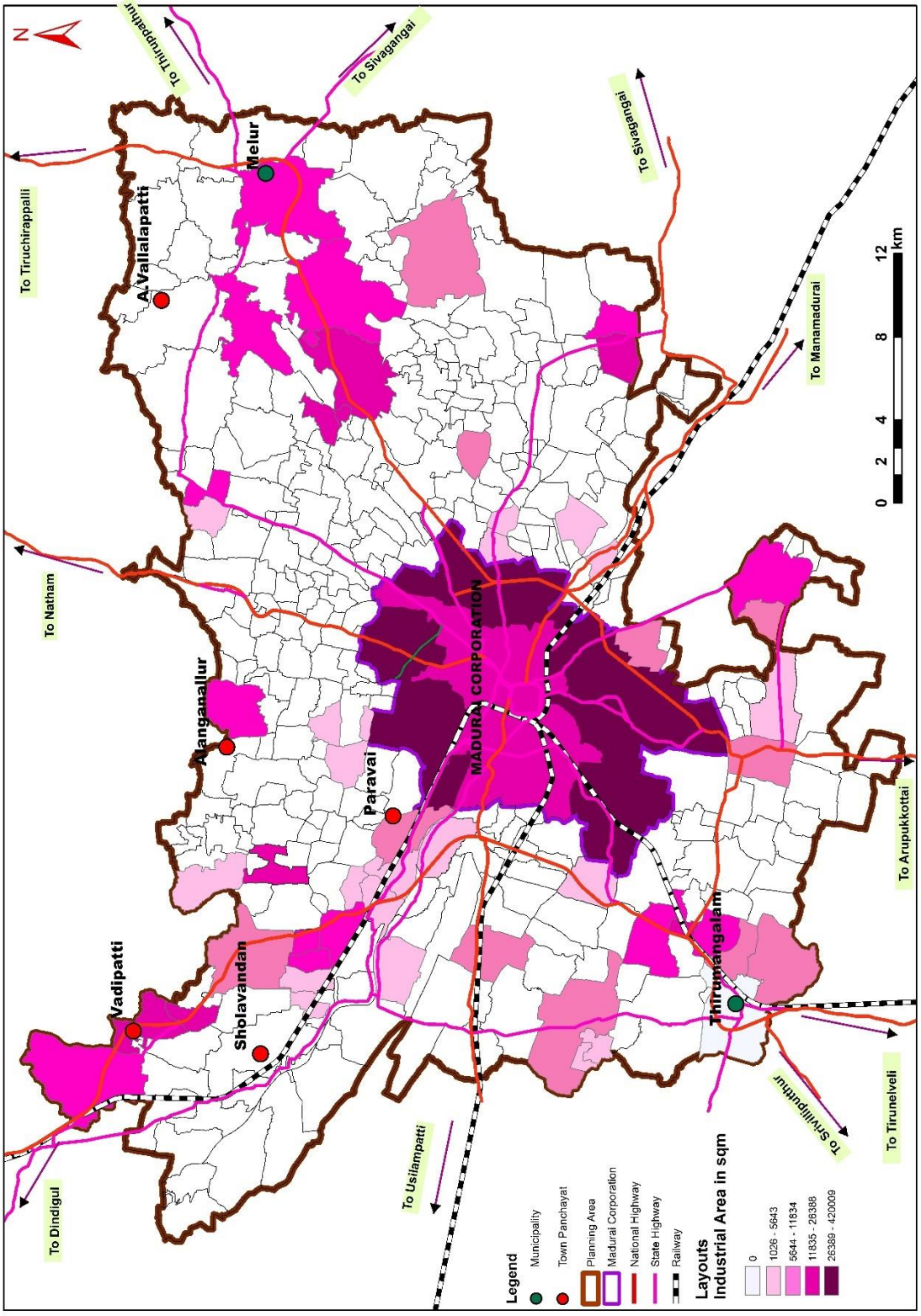
Map 14-14 Trend Analysis for Commercial layout



Map 15- Trend Analysis for Residential Layout



Map 14-16 Trend Analysis for Institutional Layout



Map 14-17 Trend Analysis for Industrial Layout

14.9. Proposed Land Use Plan

14.9.1. Proposed Land Use for Corporation

The proposed land use plan aims for a balanced urban environment, allocating spaces for residential, commercial, industrial, institutional, recreation, transportation, agriculture, forest, hills, and water bodies, fostering sustainable development.

For Corporation area Residential areas are designated 30.36%, reflecting a commitment to providing suitable living spaces for Madurai's growing population.

Commercial zones occupy 1.2%, strategically positioned to foster economic activities and entrepreneurial ventures. Industrial areas, constituting 0.73%, demonstrate Madurai's vision for balanced economic growth, mindful of environmental considerations. Institutional spaces, comprising 1.7%, highlight the city's dedication to education, healthcare, and public services.

Open space and recreation areas claim 0.20%, emphasizing Madurai's commitment to enhancing the quality of life for its residents. Transportation, allocated at 0.34%, underscores the city's foresight in planning for efficient and sustainable mobility. Agriculture takes a share of 0%, recognizing the significance of preserving Madurai's agricultural heritage and ensuring food security.

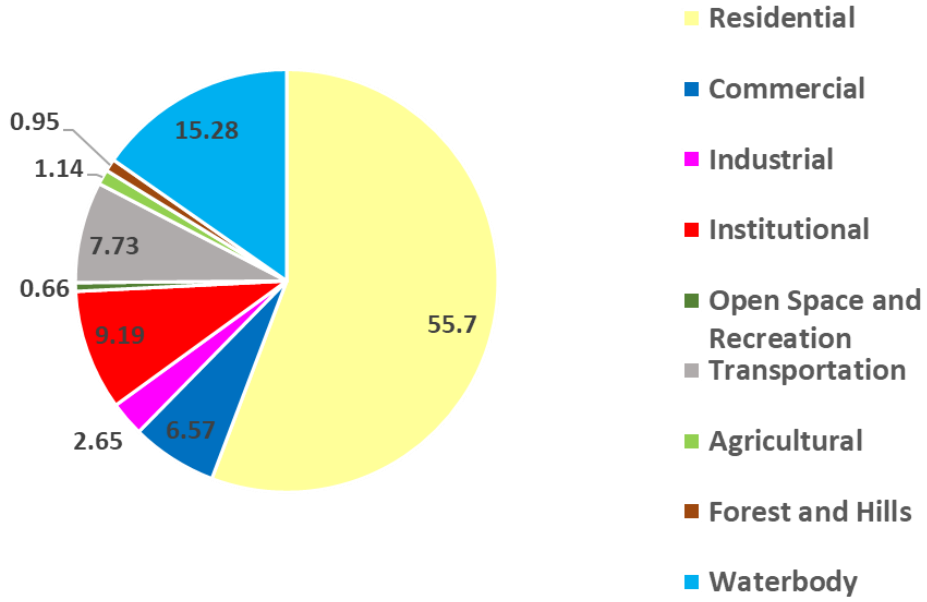
Forest and hills cover 0%, and water bodies encompass %, showcasing Madurai's dedication to environmental conservation. This allocation reflects the city's commitment to maintaining biodiversity and preserving the natural landscapes that contribute to the overall ecological balance.

Table 11: Proposed Land Use Calculation for Corporation

Proposed Land Use for Corporation	Existing Land Use 2021 In Sq. Km	Proposed Land use 2041 In Sq. Km	% of proposed land use for Corporation	Change in Area Sq.km	URDPFI
Residential	52.19	82.11	55.4	29.92	36-39
Commercial	8.53	9.73	6.57	1.2	5-6
Industrial	3.2	3.93	2.65	0.73	7-8
Institutional	11.9	13.6	9.19	1.7	10-12

Open Space and	0.787	0.99	0.66	0.203	12-14
Transportation	11.11	11.45	7.73	0.34	
Agricultural	35.78	1.69	1.14	-34.09	
Forest and Hills	1.42	1.42	0.95	0	
Waterbody	23.06	23.06	15.58	0	
Total	147.98	147.98			

Figure 17 Proposed Land Use for Corporation,2041



14.9.2. Proposed Land Use for Rest of LPA

The rest of the Local Planning Area (LPA) underscores a commitment to addressing the housing needs of Madurai's expanding population. Specifically, residential areas are designated to cover 12.11% of the LPA. This allocation emphasizes the importance of creating appropriate and sustainable living spaces to accommodate the city's growth. The focus is on ensuring that the residential developments align with the city's overall planning goals, taking into consideration factors such as infrastructure, amenities, and the well-being of the residents. This allocation signifies a proactive approach to urban planning and development, aiming to enhance the quality of life for Madurai's residents.

Commercial zones occupy 2.73%, strategically positioned to foster economic activities and entrepreneurial ventures. Industrial areas, constituting 3.77%, demonstrate Madurai's vision for balanced economic growth, mindful of environmental considerations. Institutional spaces, comprising 2.62%, highlight the city's dedication to education, healthcare, and public services.

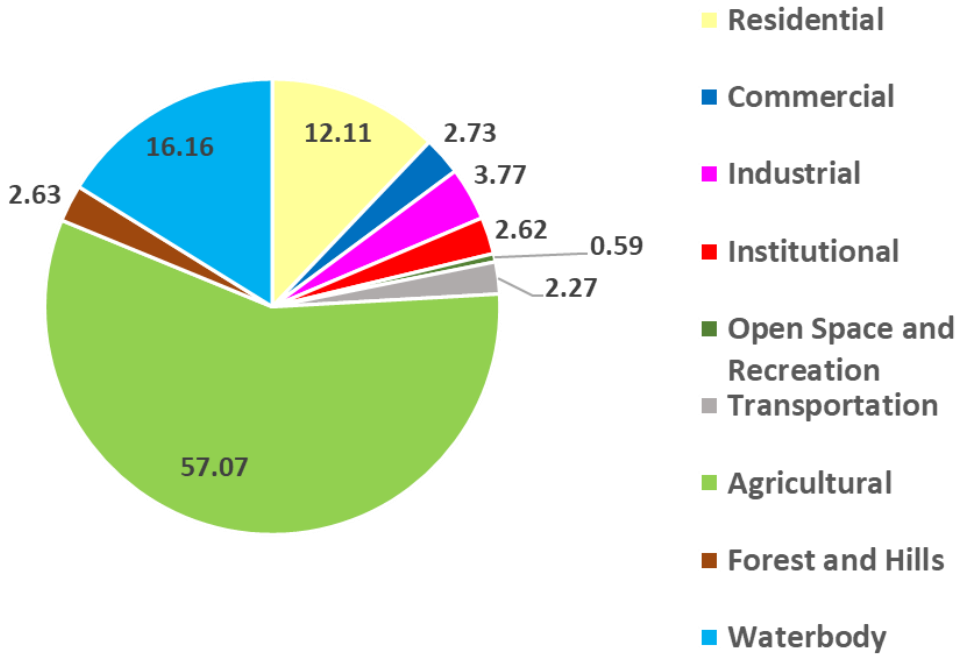
Open space and recreation areas claim 0.59 %, emphasizing Madurai's commitment to enhancing the quality of life for its residents. Transportation, allocated at 2.27 %, underscores the city's foresight in planning for efficient and sustainable mobility. Agriculture takes a share of 57 %, recognizing the significance of preserving Madurai's agricultural heritage and ensuring food security.

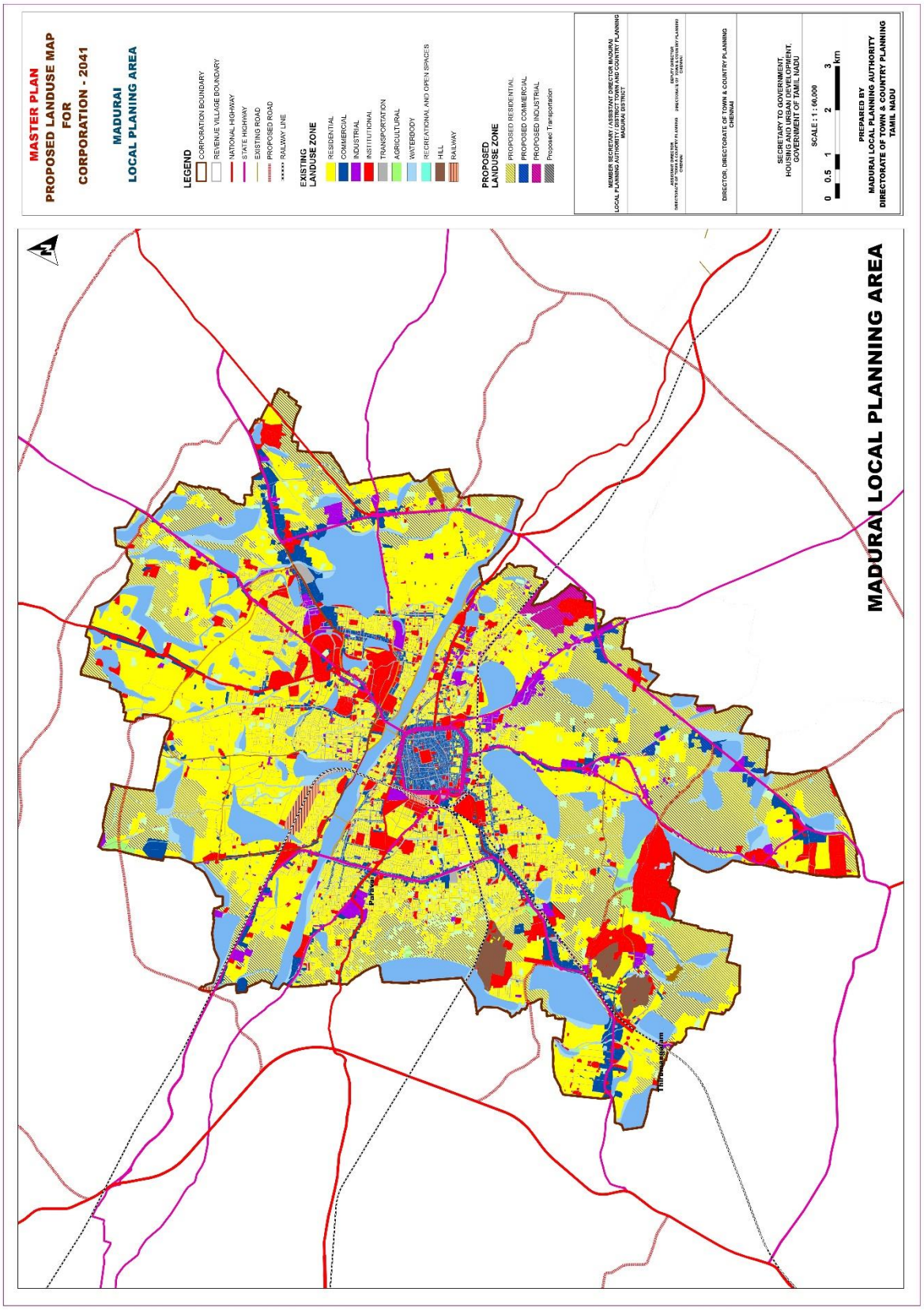
Forest and hills cover 16.16 %, and water bodies encompass %, showcasing Madurai's dedication to environmental conservation.

Table 12 Proposed Land Use Calculation for Rest of the LPA

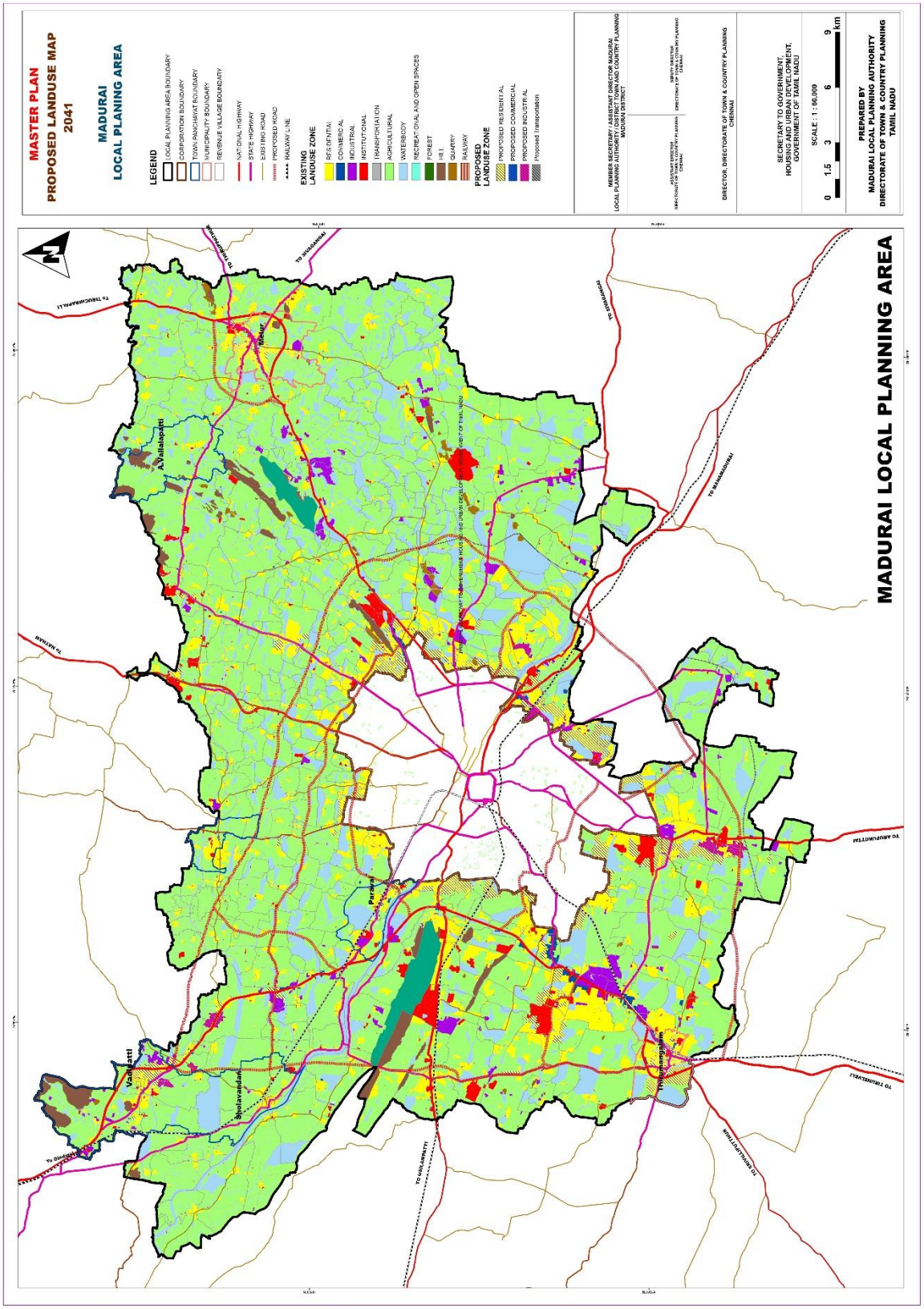
Proposed Land Use for Rest of the LPA	Existing Land Use – 2021 In Sq. Km	Proposed Land use – 2041 In Sq. Km	% of proposed land use for Rest of LPA	Change in Area In Sq. Km
Residential	115.78	134.08	12.11	18.3
Commercial	4.76	30.32	2.73	25.56
Industrial	15.21	41.78	3.77	26.57
Institutional	18.21	29.11	2.62	10.9
Open Space and	4	6.613	0.59	2.613
Transportation	21.57	25.13	2.27	3.56
Agricultural	719.76	631.8	57.0	-87.96
Forest and Hills	29.19	29.2	2.63	0.01
Waterbody	178.49	178.92	16.16	0.43
Total	1106.95	1106.95		

Figure 18: Proposed Land Use for Rest of the LPA, 2041





Map 14- 18 Proposed Land Use Map, 2041



Map 14 – 19 Proposed Land Use Map for Rest of the LPA,2041

ANNEXURE

முழுமைத் திட்டம் மதுரை உள்ளூர் திட்டப் பகுதி

1. **அரசாணை எண்.832, ஊரக வளர்ச்சி மற்றும் உள்ளாட்சித் துறை, நாள்.29.03.1974:**

நகர் ஊரமைப்புச் சட்டம் 1971, சட்டப் பிரிவு 10(1)-ன் கீழ் மதுரை மாவட்டத்தில் 47 வருவாய் கிராமங்களை உள்ளடக்கி மதுரை உள்ளூர் திட்டப் பகுதி என பொது அறிவிப்பு வெளியிடப்பட்டது.

இதற்கான அறிவிப்பு தமிழ்நாடு அரசிதழ் எண்.16, நாள் 24.04.1974-ல் பாகம் II - பிரிவு 2-ல் பக்கம் எண்.233-ல் பிரசுரிக்கப்பட்டது.

2. **அரசாணை எண்.1782, ஊரக வளர்ச்சி மற்றும் உள்ளாட்சித் துறை, நாள்.03.08.1974:**

மேலே வரிசை எண்.1-ல் கண்டுள்ள அறிவிப்பு சட்டப் பிரிவு 10(4)-ன் கீழ் உறுதி செய்யப்பட்டது.

இந்த அறிவிப்பு தமிழ்நாடு அரசிதழ் எண்.36, நாள் 11.09.1974-ல் பாகம்-II - பிரிவு 2-ல் பக்கம் எண்.476-ல் பிரசுரிக்கப்பட்டது.

3. **அரசாணை எண்.611, வீட்டுவசதி மற்றும் நகர்புற வளர்ச்சித் துறை, நாள்.07.05.1980:**

சட்டப்பிரிவு 10(1)(b)-ன் கீழ் 167 கிராமங்கள் மதுரை உள்ளூர் திட்டப் பகுதியில் கூடுதலாக சேர்க்கப்பட்டு, அரசால் முதன்மை அறிவிப்பு வெளியிடப்பட்டது. இரு கிராமங்கள் அரசாணை எண்.1782-ல் உறுதி செய்யப்பட்டதால் நீக்கம் செய்து 165 கிராமங்கள் 10(1)(b)-ன் கீழ் அறிவிப்பு செய்யப்பட்டது.

4. **அரசாணை எண்.838. வீட்டுவசதி மற்றும் நகர்புற வளர்ச்சித் துறை, நாள்.03.07.1980:**

சட்டப்பிரிவு 26-ன் கீழ், மேலே அறிவிக்கப்பட்ட மதுரை உள்ளூர் திட்டப் பகுதிக்கான முழுமைத் திட்டம் தயாரிப்பதற்கான அறிவிப்பை வெளியிட சட்டப்பிரிவு 24 (2)-ன் கீழ் இசைவு (Consent) அளிக்கப்பட்டது.

5. **அரசாணை எண்.503, வீட்டு வசதி மற்றும் நகர்புற வளர்ச்சித் துறை, நாள்.27.06.1984:**

மேலும், கூடுதலாக 4 கிராமங்களை மதுரை உள்ளூர் திட்டப் பகுதிக்குள் கொண்டுவர சட்டப் பிரிவு 10(1)-ன்படி அறிவிக்கையை அரசு வெளியிட்டது.

6. **அரசாணை எண்.122, வீட்டு வசதி மற்றும் நகர்புற வளர்ச்சித் துறை, நாள்.06.02.1995:**

169 கிராமங்களை உள்ளடக்கிய மதுரை உள்ளூர் திட்டப் பகுதிக்கான முழுமைத் திட்ட அறிக்கையை, சட்டப் பிரிவு 28-ன் கீழ் அரசு ஒப்புதல் வழங்கியது.

7. **அரசாணை எண்.161, வீட்டு வசதி மற்றும் நகர்புற வளர்ச்சித் துறை, நாள்.11.07.2006:**

11.09.1974 நாளிட்ட தமிழ்நாடு அரசிதழ், பாகம்]] பிரிவு 2-ல் பக்கம் 476-477-ல் வெளியிடப்பட்ட ஊரக வளர்ச்சி மற்றும் உள்ளாட்சித் துறை அறிவிக்கை எண்.II(2)/RUL/3935/74-க்கு திருத்தம் ஒன்றினை சட்டப் பிரிவு 10(4)-ன் கீழ் அரசு வெளியிட்டது.

அதன்படி மதுரை உள்ளூர் திட்டப் பகுதிக்கான கிராமங்கள் திருத்த பட்டியல் அறிவிக்கப்பட்டது.

ANNEXURE 1.1

GOVERNMENT OF TAMILNADU
ABSTRACT

LOCAL PLANNING AREA - Madurai - Declaration of Local Planning Area under section 10 (1) of the Town and Country Planning Act. 1971 - Revised Preliminary notification issued.

RURAL DEVELOPMENT AND LOCAL ADMINISTRATION DEPARTMENT

G.O.MS.NO. 832 Dated 29th March 1974

READ :

G.O.MS.NO.1987, RD & LA, dated 20.9.1973
From the Director fo Town and Country Planning
Madras, letter No. 37958 / 73 / SM. dated 7.1.74.

ORDER :

In supersession of the notification issued with the G.O.cited, it is proposed to declare the local areas specified in column (3) of the table in the notification appended to this order forming a local planning area mentioned in the corresponding entry in column (2) thereof to be a local planning area and to constitute for such local planning area of local authority. The appended notification will be published in English and in Tamil in the Madurai District Gazette.

2. The Collector of Madurai is requested to republish the motification in the district Gazette.

3. The Director of Translation, Madras is requested in arrange to have the notification translated into Tamil and forward the translation urgently to the collectors.

4. The collector of Madurai is requested to report to Government the date of republication of the notification in the District Gazette.

(BY THE ORDER OF THE GOVERNOR)

C.G.Rengabashyam
Secretary to Government

/True copy/

APPENDIX

NOTIFICATION

Inexercise of the power conferred by sub-section (1) of section 10 of the TamilNadu Town and Country Planning Act. 1971 (Tamilnadu act 35 of 1972), the governor of Tamilnadu hereby declare his intention to specify the local areas specified in column (3) of the table below to be a local planning area with the name specified in the corresponding entry in column (2) thereof.

Notice is hereby given that this notification will be taken into consideration again under sub-section (4) of the said section 10 on or after the expiry of two months from the date of the publication of this notification in the Tamilnadu Government Gazette and that any objection or suggestion which may be received from an inhabitant or any local authority or institution in the said local area with respect thereto before the expiry of the period aforesaid will be duly considered by the Government of Tamilnadu. Objection and suggestions in writing, if any, should be addressed to the Secretary in Government, Rural Development and Local administration Department, Fort.St. George, Madras - 9.

THE TABLE

Sl.No	Name of the Local Planning Area	Area forming the local planning Area No. and Name of Revenue Villages
1.	Madurai	Madurai Taluk
		6 Thuvariman
		9 Karadipatti
		13/1 Pudukottai
		13/2 Vilacheri
		14 Vadivelkarai
		15/1 Pudukkulam
		15/2
		16 Sambakkudi
		17 Erukudi
		18 Achambathu
		19 Kochadai
		20 Kokkalappi
		21 Vilangudi

22	Arappalayam
23	Ponmeni
24	Madakulam
25	Thirupparankundram
38	Meenakshipuram
40	Avaniyapuram
41	Sinthamani
46	Anuppanadi
47	West Madurai
	East Madurai
49/1	
49/2	Managiri
50	Tallakulam
136	Chokkikulam
	Bibikulam
	Goripalayam
	North Madurai
51	Sellur
52	Thathaneri
53	Anaiyur
54	Silayaneri
55	Mulakaranai
97	Hanumarpatti (Vandiyur Part)
166	Parayathikulam
130	Melakuilkudi
131	Keelakuilkudi
137	Kalkulam
138	Melanedungulam
132	Thathanur
153	Iravadanallur
154	Villapuram
155	Sathamangalam
156	Sambandar Alangulam
164	Athikulam
165	Parasurampatti
201/1	Melamadai

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GOVERNMENT OF TAMIL NADU
1974

[Registered No. M-l.

TAMIL NADU GOVERNMENT GAZETTE

PUBLISHED BY AUTHORITY

No. 16] MADRAS, WEDNESDAY, APRIL 24, 1974
[CHITHIRAI 11, ANANTHA (2005—TIRUVALLUVAR ANDU)]

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...anja. ...cles Taxati...
. March 1974.)
...ercise o... the powers ...ion 11 ... Tamil Nadu ...Tha...] (Tamil Nadu Act III of ...u hereby directs that with

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AGRICULTURE DEPARTMENT.

Appointment of certain person as Director and Chairman of Tamil Nadu Agro-Industries Corporation, Limited.

(*G.O. Ms. No. 548, Agriculture, 28th March 1974.*)

No. II (2)/AG/2227/74.—In exercise of the powers conferred under Articles 74 and 91 of the Articles of Association of the Tamil Nadu Agro-Industries Corporation Limited, the Governor of Tamil Nadu hereby appoints Thiru K. V. Subbiah, M.L.A. as a Director and the Chairman of the Tamil Nadu Agro-Industries Corporation Limited, for a further period of one year from 7th April 1974.

P. N. VEDANARAYANAN,
Secretary to Government.

Declaration of Coimbatore district as notified area in respect of Chillies under Tamil Nadu Agricultural Produce Markets Act.

(*G.O. Ms. No. 586, Agriculture, 2nd April 1974.*)

No. II (2)/AG/2228/74.—In exercise of the powers conferred by sub-section (1) of section 4 of the Tamil Nadu Agricultural Produce Markets Act, 1959 (Tamil Nadu Act 23 of 1959), the Governor of Tamil Nadu hereby declares that the Coimbatore district shall be a notified area for the purposes of the said Act in respect of chillies, the intention to make such declaration having been previously published as required by section 3 of the said Act.

LATIKA D. PADALKAR,
Deputy Secretary to Government.

Declaration of Coimbatore district as notified area in respect of Paddy under Tamil Nadu Agricultural Produce Markets Act.

(*G.O. Ms. No. 587, Agriculture, 2nd April 1974.*)

No. II (2)/AG/2229/74.—In exercise of the powers conferred by sub-section (1) of section 4 of the Tamil Nadu Agricultural Produce Markets Act, 1959 (Tamil Nadu Act 23 of 1959), the Governor of Tamil Nadu hereby declares that the Coimbatore district shall be a notified area for the purposes of the said Act in respect of paddy, the intention to make such declaration having been previously published as required by section 3 of the said Act.

P. N. VEDANARAYANAN,
Secretary to Government.

FINANCE DEPARTMENT.

Orders regarding availing of earned leave of 180 days at any one time.

Fort St. George, April 24, 1974.

No. II (2)/FIN/2230/74.

[Leave benefits—Earned leave—Availing of 180 days at any one time—Orders issued.]

The following Government Order is published:—

G.O. Ms. No. 444, Finance (FR. II), dated 30th March 1974.

READ—the following papers:—

I

G.O. Ms. No. 226, Finance, dated 8th February 1971.

II

G.O. Ms. No. 1072, Finance, dated 18th August 1972.

Order—No. 444, Finance (FR-II), dated 30th March 1974.

At present Government servants in superior service can accumulate earned leave up to a maximum of 180 days. But they are allowed to avail of earned leave up to a maximum of 120 days at any one time. The Tamil Nadu Civil Services Joint Council has recommended that the maximum limit of earned leave availed of at any one time may be enhanced to 180 days as against present limit of 120 days.

2. The Government after careful consideration have decided to accept the recommendation and they accordingly permit Government servants in superior service to avail of earned leave up to a maximum of 180 days at any one time instead of 120 days. They shall also be permitted to draw house rent allowance and City Compensatory allowance for the entire period of 180 days. The Government aso direct that the maximum limit of encashment of earned leave at the time of retirement be enhanced to 180 days. The above orders will also apply in the case of encashment of leave at the credit of Government servants who die while in service.

3. This order will take effect from 1st April 1974.

4. Necessary amendments to the Tamil Nadu Leave Rules and Fundamental Rules will be issued separately.

(By order of the Governor)

S. VENKITARAMANAN,
Secretary to Government.

FOREST AND FISHERIES DEPARTMENT.

Appointment of Chief Wild Life warden under wild life (Protection) Act.

AMENDMENT TO NOTIFICATION.

(*Memo. No. 13994/FR. III/71-1, Forest and Fisheries, 1st April 1974.*)

No. II (2)/FOFI/2231/74.—The following amendment is issued to the Notification No. II (2)/FOFI/1644/71, dated the 26th February 1974, published at page 153 of Part II—Section 2 of the *Tamil Nadu Government Gazette*, dated the 20th March 1974:—

AMENDMENT.

In the notification, *for* the expression "Conservator of Forests (Development and Working Plan), Madras", the expression "Conservator of Forests (Working Plan and Research), Madras" shall be substituted.

K. CHOCKALINGAM,
Special Secretary to Government.

HOME DEPARTMENT.

Concessional rate of tax on vehicles belonging to Sacred Heart Leprosy Hospital, Sakkottai, Thanjavur district payable under Tamil Nadu Motor Vehicles Taxation Act.

(*G.O. Ms. No. 668, Home, 25th March 1974.*)

No. II (2)/HO/2232/74.—In exercise of the powers conferred by sub-section (1) of section 11 of the Tamil Nadu Motor Vehicles Taxation Act, 1931 (Tamil Nadu Act III of 1931), the Governor of Tamil Nadu hereby directs that with

effect from the date of this order the tax payable in respect of the following vehicles belonging to the Sacred Heart Leprosy Hospital, Sakkottai, Thanjavur district, be one-fourth of the normal tax payable so long as the vehicles are used exclusively for the works associated with the said hospital without letting them for hire or reward

Serial number.	*Make.*	*Type.*	*Registration number.*
(1)	(2)	(3)	(4)
1	Willys Jeep ..	Tourer used with a Trailer.	MDO 4073.
2	Willys Jeep ..	Tourer	MDO 2486.
3	Wolkswagon ..	Ambulance Van ..	MDO 8730.
4	Standard 20 ..	Do. ..	MDO 5860.

A. KITCHANAN,
Joint Secretary to Government.

Appointment of Transport Commissioner, Madras, as Officer to grant permits under Motor Cars (Distribution and Sale) Control Order.

(G.O. Ms. No. 684, Home, 26th March 1974.)

No. II (2)/HO/2233/74.—In supersession of the Home Department Notification II-1 No. 3704 of 1971, dated 26th April 1971, published at page 793 in Part II—Section 1 of the *Fort St. George Gazette*, dated 1st September 1971, the Governor of Tamil Nadu hereby appoints under clause 8 of the Motor Cars (Distribution and Sale) Control Order, 1959, the Transport Commissioner, Madras, as the Officer to grant permits under the said clause.

Appointment of Deputy Transport Commissioner, Office of Transport Commissioner, Madras, as Officer to grant permits under Motor Cars (Distribution and Sale) Control Order.

(G.O. Ms. No. 684, Home, 26th March 1974.)

No. II (2)/HO/2234/74.—Under clauses 7 and 7-A of the Motor Cars (Distribution and Sale) Control Order, 1959, the Governor of Tamil Nadu hereby appoints the Deputy Transport Commissioner, Office of the Transport Commissioner Madras, as the Officer to grant permits under the said clauses.

Appointment of Deputy Transport Commissioner, Office of Transport Commissioner, Madras as Officer to grant permits under Scooters (Distribution and Sale) Control Order.

(G.O. Ms. No. 684, Home, 26th March 1974.)

No. II (2)/HO/2235/74.—Under clauses 7 and 8 of the Scooters (Distribution and Sale) Control Order, 1960 the Governor of Tamil Nadu hereby appoints the Deputy Transport Commissioner, Office of the Transport Commissioner, Madras, as the Officer to grant permits under the said clauses.

Appointment of Regional Transport Officer, Madras, as an Officer to Inspect Registers under Scooters (Distribution and Sale) Control Order and Motor Cars (Distribution and Sale) Control Order.

(G.O. Ms. No. 684, Home, 26th March 1974.)

No. II (2)/HO/2236/74.—In partial modification of the Home Department Notification S.R.O. No. 361 of 1961, published at page 130 in Part II—Section 1 of the *Fort St. George Gazette*, dated 25th January 1961, the Governor of Tamil Nadu hereby appoints, under sub-clause (5) of clause 6 of the Scooters (Distribution and Sale) Control Order, 1960 and Motor Cars (Distribution and Sale) Control Order, 1959, the Regional Transport Officer, Madras, as an Officer to inspect the registers referred to in sub-clause (1) of the said clause 6 and maintained by any dealer within Madras City.

S. P. AMBROSE.
Secretary to Government.

Opening a Police Station at Pasupathipalayam in Tiruchirappalli district.

(G.O. Ms. No. 686, Home, 26th March 1974.)

No. II (2)/HO/2237/74.—In exercise of the powers conferred by clause of sub-section (II) of section 4 of the Code Criminal Procedure 1898 (Central Act No. 5 of 1898), the Governor of Tamil Nadu hereby declares that with effect from 26th April 1974 the villages specified in column (4) of the Schedule below shall cease to be included in the local area of the Police Station specified in column (3) of the said Schedule and shall form part of the local area of the Police Station specified in column (6) thereof

THE SCHEDULE.

District.	*Circle to which at present attached.*	*Police station to which at present attached.*	*Name of villages.*	*Circle to which here after to be attached.*	*Police station to which there after to be attached.*
(1)	(2)	(3)	(4)	(5)	(6)
Tiruchirappal ..	Karur ..	Vengal ..	Puliyur, Melapalayam and Sanapiratty.	Karur ..	Pasupathipalayam.
		Vellianai ..	Thanthoni, Aechimangalam, Thoranakalpatty, Karuppampalayam, Appipalayam and Thirumanilaiyur.	Do.	Do.
		Karur ..	Pasupathipalayam, Ramagoundanoor and Kolandagoundanoor.	Do.	Do.

N. D. THIRUNAVUKKARASU
Deputy Secretary to Government.

INDUSTRIES DEPARTMENT.

Reconstitution of All-India Handicrafts Board.

[*G.O. Ms. No.* 519, *Industries* (*Special*), 4*th April* 1974.]

No. II (2)/IND/2238/74.—The following resolutions of the Government of India, Ministry of Commerce, dated New Delhi, the 28th January 1974, is republished: –

The Government of India have decided to reconstitute the All-India Handicrafts Board which was originally set up under the Ministry of Commerce and Industry Resolution No. 51-Cot. Ind. (1)/32, dated the 5th November 1952 and subsequently reconstituted from time to time. The personnel of the reconstituted Board will be as follows: –

CHAIRMAN.

1. Shri Mohammed Yunus, Secretary (Internal Trade), Ministry of Commerce, New Delhi.

MEMBERS.

2. Shrimathi Pupul Jayakar, Chairman, Handicrafts and Handlooms Export Corporation of India, New Delhi.

3. Miss Usha Bhagat, Social Secretary to the Prime Minister, Prime Minister's House, New Delhi.

4. Chairman, U.P. Exports Corporation, Kanpur.

5. Director, Handicrafts, Government of Jammu and Kashmir, Srinagar.

6. Chief, Small and Village Industries Division, Planning Commission, New Delhi.

7. Director, Finance (Commerce Division), Department of Expenditure, Ministry of Finance, New Delhi.

8. Commodity Officer in-charge of Handicrafts, Ministry of Commerce, New Delhi

MEMBER-SECRETARY.

9. Development Commissioner, All-India Handicrafts Board, New Delhi.

2. The names of the non-official members of the Board will be notified later.

3. The functions of the Board will be generally to advise Government on the problems of the Handicrafts Industry regarding measures necessary for the improvement and development of industry and in particular—

(*a*) to study the technical, financial, organisational artistic and other aspects of these industries and to recommend measures for their development;

(*b*) to advise and assist the State Governments in Planning and Executing Schemes for the development of handicrafts and to co-ordinate such developmental efforts among various State Governments;

(*c*) to examine the proposals received from the State Governments and other institutions for general financial assistance and to make recommendations to the Government of India in such cases;

(*d*) to formulate schemes to be undertaken directly by the Central Government;

(*e*) to advise on measures for expansion and promotion of sales of handicrafts in India and abroad; and

(*f*) to recommend any other measures necessary for the development of handicrafts such as technological improvement, design development, quality control, research, training and extension, publicity, organisation of museums, co-operatives and allied institutions, securing of raw materials and credit and housing and welfare of craftsmen.

4. The Board may appoint with the prior approval of the Government Committees and sub-Committees and panels of experts to deal with special problems or groups of problems in regard to the development of handicrafts, etc.

5. The Board shall meet at least once in every four months in a year.

[No. F. 26012/1/73-HC.]

DAULAT RAM,
Under Secretary to Government of India.

C. RAMACHANDRAN,
Joint Secretary to Government.

LABOUR AND EMPLOYMENT DEPARTMENT.

Appointment of certain persons as Inspectors under Employees' Provident Funds and Family Pension Fund Act.

(*Memo. No.* 76682/C3/72-1, *Labour and Employment*, 20*th March* 1974.)

No. II (2)/LE/2239/74.—The following notification of the Government of India, Ministry of Labour and Rehabilitation (Department of Labour and Employment), dated New Delhi, Pin. 110001, the 10th October 1972, is republished:—

S.O. No. 3771.—In exercise of the powers conferred by sub-section (1) of section 13 of the Employees' Provident Funds and Family Pension Fund Act, 1952 (19 of 1952), and in supersession of the notification of the Government of India in the late Ministry of Labour, Employment and Rehabilitation (Department of Labour and Employment), S.O. No. 3648, dated the 2nd September 1971, in so far as it relates to Shri C. Pullaiah, the Central Government hereby appoints Shri C. Pullaiah to be an Inspector for the whole of the State of Andhra Pradesh for the purposes of the said Act and of any Scheme framed thereunder, in relation to any establishment belonging to, or under the control of the Central Government or in relation to any establishment connected with a railway company, a major port, a mine or an oilfield or a controlled industry or in relation to an establishment having departments or branches in more than one State.

[No. A. 12016/2/72-PF. I (ii).]

DALJIT SINGH,
Under Secretary.

(*Memo. No.* 76682/C3/72-1, *Labour and Employment*, 20*th March* 1974.)

No. II (2)/LE/2240/74.—The follwing notification of the Government of India, Ministry of Labour and Rehabilitation (Department of Labour and Employment), dated New Delhi, Pin. 110001, the 10th October 1972, is republished:—

S.O. No. 3767.—In exercise of the powers conferred by sub-section (1) of section 13 of the Employees' Provident Funds and Family Pension Fund Act, 1952 (19 of 1952), and in supersession of the notification of the Government of India in the late Ministry of Labour and Employment S.O. No. 1183, dated the 16th June 1958, in so far as it relates to Shri K. Rajasekhara Rao, the Central Government hereby appoints Shri K. Rajasekhara Rao to be an Inspector for the whole of the Union Territory of Delhi for the purposes of the said Act and of any Scheme framed thereunder, in relation to any establishment belonging to, or under the control of the Central Government or in relation to any establishment connected with a railway company, a major port, a mine or an oilfield or a controlled industry, or in relation to an establishment having departments or branches in more than one State.

[No. A. 12015/2/72-PF. I.]

DALJIT SINGH,
Under Secretary.

(*Memo. No. 76682/C3/72-1, Labour and Employment, 20th March 1974.*)

No. II (2)/LE/2241/74.—The following notification of the Government of India, Ministry of Labour and Rehabilitation (Department of Labour and Employment), dated New Delhi, Pin. 110001, the 16th November 1972, is republished:

S.O. No. 3945. In exercise of the powers conferred by sub-section (1) of section 13 of the Employees' Provident Funds and Family Pension Fund Act, 1952 (19 of 1952), and in supersession of the notification of the Government of India in the Ministry of Labour, Employment and Rehabilitation (Department of Labour and Employment), S.O. No. 2283, dated the 3rd June 1963, the Central Government hereby appoints Shri V. S. Desikachari to be an Inspector for the territories to which the said Act extends for the purposes of the said Act and of any Scheme framed thereunder, in relation to any establishment belonging to, or under the control of the Central Government, or in relation to any establishment connected with a railway company, a major port, a mine or an oilfield or a controlled industry.

[No. 15/5/69-PF. I (ii).]

DALJIT SINGH,
Under Secretary.

(*Memo. No. 76682/C3/72-1, Labour and Employment, 20th March 1974.*)

No. II (2)/LE/2242/74.—The following notification of the Government of India, Ministry of Labour and Rehabilitation (Department of Labour and Employment), dated New Delhi, Pin. 110001, the 11th January 1973, is republished:—

S.O. No. 194.—In exercise of the powesr conferred by sub-section (1) of section 13 of the Employees' Provident Funds and Family Pension Fund Act, 1952 (19 of 1952), the Central Government hereby appoints Sarvashri M. C. Hiruthayanathan and N. Kesavan to be Inspectors for the whole of the State of Tamil Nadu for the purposes of the said Act and of any Scheme framed thereunder in relation to any establishment belonging to, or under the control of the Central Government or in relation to any establishment connected with a railway company, a major port, a mine or an oilfield or a controlled industry and in relation to establishments having departments or branches in more than one State.

[No. A. 12015/5/71-PF. I.]

DALJIT SINGH,
Under Secretary.

Employees' Provident Funds (Sixth Amendment) Scheme 1972.

(*Memo. No. 90237/C3/71-5, Labour and Employment, 21st March 1974.*)

No. II (2)/LE/2243/74.—The following notification of the Government of India, Ministry of Labour and Rehabilitation (Department of Labour and Employment), dated New Delhi, the 26th August 1972, is republished:—

G.S.R. No. 1185.—In exercise of the powers conferred by section 5, read with sub-section (1) of section 7 of the Employees' Provident Funds and Family Pension Fund Act, 1952 (19 of 1952), the Central Government hereby makes the following Scheme further to amend the Employees' Provident Funds Scheme, 1952, namely:—

1. This scheme may be called the Employees' Provident Funds (Sixth Amendment) Scheme, 1972.

2. In the Employees' Provident Fund, Scheme, 1952, in paragraph 62 in sub-paragraph (2) in the proviso, the word "half yearly or" shall be omitted.

[No. S-70012/1/72-PF. II.]

DALJIT SINGH,
Under Secretary.

Employees' Provident Funds (nineth Amendment) Scheme 1972.

(*Memo. No. 90237/C3/71-5, Labour and Employment, 21st March 1974.*)

No. II (2)/LE/2244/74.—The following notification of the Government of India, Ministry of Labour and Rehabilitation (Department of Labour and Employment), dated New Delhi, Pin. 110001, the 13th October 1972, is republished:

G.S.R. No. 1348.—In exercise of the powers conferred by section 5 read with sub-section (1) of section 7 of the Employees' Provident Funds and Family Pension Fund Act, 1952 (19 of 1952), the Central Government hereby makes the following scheme further, to amend the Employees' Provident Funds Scheme, 1952, namely:—

1. This scheme may be caled the Employees' Provident Funds (Nineth Amendment) Scheme, 1972.

2. In the Employees' Provident Funds Scheme, 1952 in paragraph 68-B, in sub-paragraph (6A), after the proviso the following further provisos shall be inserted, namely:—

"provided further that the requirement of depositing the title deeds with the Commissioner may be dispensed with if the title deeds of the property stand deposited or mortgaged to any of the authorities specified in sub-paragraph (1) against a loan taken by the member from any such authority for the specific purpose of meeting in part the cost of construction or acquisition of the same house or purchase of the same house-site, as the case may be, and if that authority furnishes a letter of guarantee specifying that the loan has been granted to the member to enable him to meet the cost of construction or acquisition in part of the same house or purchase of the same house-site, as the case may be, against the title deeds deposited or mortgaged by the member and that he has a clear and marketable title to the land free from encumbrances and attachments and that the title deeds (*a*) will be kept deposited with or mortgaged to that authority till the expiry of five years from the date the Fund grants the advance to the member, or (*b*) will be released in favour of the Fund and sent directly to the Regional Commissioner concerned in case the loan including the interest thereon is repaid to that authority earlier than the expiry of the five years and that a note regarding the interest of the Employees' Provident Fund Authorities has been duly kept in the records of the authorities:

Provided also that the member shall undertake not to part with the possession of the house so built or acquired or house-site so purchased by way of sale, mortgage, gift, exchange or lease till the expiry of the period of five years and shall also submit a declaration not later than the 31st day of December of every year to the effect that the house or as the case may be, the house-site continues to be in his possession and in case the house-site together with the house construction thereon stands mortgaged to any of the authorities specified in sub-paragraph (1) in consideration of a house building advance taken from that authority the above declaration will specify that the house-site for the construction of which or for the acquisition of which loan has also been taken from that authority continues to be in his possession but stands mortgaged to that authority in consideration of the loan".

[No. S. 70012 (6)/71-PF. II.]

DALJIT SINGH,
Under Secretary.

Employees' Provident Funds (First Amendment) Scheme, 1972.

(*Memo. No. 90237/C3/71-5, Labour and Employment, 21st March 1974.*)

No. II (2)/LE/2245/74.—The following notification of the Government of India, Ministry of Labour and Rehabilitation (Department of Labour and Employment) dated New Delhi the 15th January 1972, is republished:—

G.S.R. 151.—In exercise of the powers conferred by section 5 read with sub section (1) of section 7 of the Employees' Provident Funds and Family Pension Fund Act

1952 (19 of 1952), the Central Government hereby makes the following scheme further to amend the Employees' Provident Fund Scheme, 1952, namely:—

1. This scheme may be called the Employees' Provident Funds Scheme (First Amendment) Scheme, 1972.

2. In the Employees' Provident Funds Scheme, 1952, in paragraph 68-K after sub-paragraph (3), the following sub-paragraph shall be inserted, namely:—

"(4) If the Commissioner is satisfied that the advance granted under this paragraph has been utilised for a purpose other than that for which it was granted, or that the conditions of advance have not been fulfilled within a reasonable time, the Commissioner shall forthwith take steps to recover the amount due with interest at the rate not exceeding 6¼ per cent per annum thereon, from the wages of the member in such number of instalments as the Commissioner may determine. For the purpose of such recovery, the Commissioner may direct the employer to deduct each such instalment from the wages of the member and on the receipt of such direction the employer shall deduct accordingly. The amount so deducted shall be remitted by the employer to the Commissioner within such time and in such manner as may be specified in this behalf by the Commissioner, for being credited to the member's account:

Proivded that only that portion of the interest which might have been credited to the member's account by way of interest had he not taken any such advance shall be credited to the member's account and the excess shall be credited to the Interest Suspense Account.

[No. S. 70012 (11)/71-PF-II.]

Under Secretary.
DALJIT SINGH,

Employees' Provident Funds (Seventh Amendment) Scheme, 1972.

(*Memo. No.* 90237/C 3/71-5, *Labour and Employment*, 21*st March* 1974.)

No. II (2)/LE/2246/74.—The following notification of the Government of India, Ministry of Labour and Rehabilitation (Department of Labour and Employment), dated New Delhi, Pin 110001, the 19th November 1972, is republished:—

G.S.R. 1490.—In exercise of the powers conferred by section 5, read with sub-section (1) of section 7 of the Employees' Provident Funds and Family Pension Fund Act, 1952 (19 of 1952), the Central Government hereby makes the following scheme further to amend the Employees' Provident Fund Scheme, 1952, namely:—

1. This scheme may be called the Employees' Provident Funds (Seventh Amendment) Scheme, 1972.

2. In the Employees' Provident Funds Scheme, 1952,—

(i) in clause (*b*) of sub-paragraph (3) of paragraph 1, sub-clause (LXX) shall be renumbered as sub-clause (LXXI) and before sub-clause (LXXI) as so re-numbered, the following sub-clause shall be inserted, namely:—

"(LXX) as respects cotton ginning, baling and pressing industry specified in the notification of the Government of India in the Ministry of Labour and Rehabilitation (Department of Labour and Employment), No. G.S.R. 1251, dated the 23rd September 1972 come into force on the thirtieth day of September 1972".

(ii) In clause (KK) of paragraph 2, for the words "or ice cream industry", the words "ice or ice cream industry" or cotton ginning, baling and pressing industry shall be substituted.

[No. 4/2/70-PF-II (ii).]

DALJIT SINGH,
Under Secretary.

M. S. PALANISWAMI,
Joint Secretary to Government.

Dispute between workman and management referred to Industrial Tribunal, Madras for adjudication.

HINDUSTAN MOTORS LIMITED, EARTHMOVING EQUIPMENT DIVISION, TIRUVELLORE.

(*G.O. R. No.* 635, *Labour and Employment*, 5*th April* 1974.)

No. II (2)/LE/2247/74.—Whereas the Government are of opinion that an industrial dispute has arisen between the workman Thiru M. S. Kamalakannan, and the management of Hindustan Motors Limited, Earthmoving Equipment Division Tiruvellore, in respect of matters mentioned in the annexure to this order;

And whereas, in the opinion of the Governor of Tamil Nadu it is necessary to refer the said dispute for adjudication;

Now, therefore, in exercise of the powers conferred by section 10 (1) (*c*) of the Industrial Disputes Act, 1947 (Central Act XIV of 1947), the Governor of Tamil Nadu hereby directs that the said dispute be referred for adjudication to the Industrial Tribunal, Madras-1.

Annexure.

Whether the non-employment of the worker Thiru M. S. Kamalakannan is justified; if not to what relief he is entitled;

To compute the relief, if any awarded in terms of money if it could be so computed.

Disputes between workmen and managements referred to Labour Courts for adjudication.

SRI GANAPATHI MOTOR SERVICE, NAGERCOIL.

(*G.O. R. No.* 404, *Labour and Employment*, 2*nd March* 1974.)

No. II (2)/LE/2243/74.—Whereas the Government are of opinion that an industrial dispute has arisen between the workman Thiru A. D. Paul Raj, and the management of Sri Ganapathi Motor Service, Nagercoil, Kanyakumari district, in respect of matters mentioned in the annexure to this order;

And whereas, in the opinion of the Governor of Tamil Nadu, it is necessary to refer the said dispute for adjudication;

Now, therefore, in exercise of the powers conferred by section 10 (1) (*c*) of the Industrial Disputes Act, 1947 (Central Act XIV of 1947), the Governor of Tamil Nadu hereby directs that the said dispute be referred for adjudication to the Labour Court, Madurai.

Annexure.

Whether the non-employment of Thiru A. D. Paul Raj, is justified; if not to what relief he would be entitled;

To compute the relief if any, awarded in terms of money, if it can be so computed.

MADRAS ALUMINIUM CO., LTD., METTUR.

(*G.O. R. No.* 489, *Labour and Employment*, 14*th March* 1974.)

No. II (2)/LE/2249/74.—Whereas the Government are of opinion that an industrial dispute has arisen between the workman Thiru M. Rajagopalan and the management of Madras Aluminium Company Limited, Mettur, in respect of matters mentioned in the annexure to this order;

And whereas, in the opinion of the Governor of Tamil Nadu, it is necessary to refer the said dispute for adjudication;

Now, therefore, in exercise of the powers conferred by section 10 (1) (*c*) of the Industrial Disputes Act, 1947 (Central Act XIV of 1947), the Governor of Tamil Nadu hereby directs that the said dispute be referred for adjudication to the Labour Court, Coimbatore.

Annexure.

Whether the non-employment of Thiru M. Rajagopalan is justified and if not to what relief he would be entitled to;

To compute the relief, if any, awarded in terms of money, if it can be so computed.

CORPORATION OF MADURAI.

(*G.O. R. No. 471, Labour and Employment, 27th March 1974.*)

No. II (2)/LE/2250/71. Whereas the Government are of opinion that an industrial dispute has arisen between the workman, Thiru M. Muniandi and the management of the Corporation of Madurai, Madurai, in respect of matters mentioned in the annexure to this order;

And whereas, in the opinion of the Governor of Tamil Nadu, it is necessary to refer the said dispute for adjudication;

Now, therefore, in exercise of the powers conferred by section 10 (1) (c) of the Industrial Disputes Act, 1947 (Central Act XIV of 1947), the Governor of Tamil Nadu hereby directs that the said dispute be referred for adjudication to the Labour Court, Madurai.

Annexure.

Whether the non-employment of Thiru M. Muniandi is justified, if not to what relief, he would be entitled;

To compute the relief, if any awarded, in terms of money, if it can be so computed.

R. PASUPATHI,
Secretary to Government.

CHANDRA MOULDING WORKS, KOMARAPALAYAM.

(*G.O. R. No. 406, Labour and Employment, 2nd March 1974.*)

No. II (2)/LE/2251/74.—Whereas the Government are of opinion that an industrial dispute has arisen between the workmen and the management of Chandra Moulding Works, Komarapalayam, in respect of matters mentioned in the annexure to this order;

And whereas, in the opinion of the Governor of Tamil Nadu it is necessary to refer the said dispute for adjudication;

Now, therefore, in exercise of the powers conferred by section 10 (1) (c) of the Industrial Disputes Act, 1947 (Central Act XIV of 1947), the Governor of Tamil Nadu hereby directs that the said dispute be referred for adjudication to the Labour Court, Coimbatore.

Annexure.

Whether the non-employment of the following workmen is justified; if not to what relief each of them is entitled :—

1. T. K. Gobi.
2. K. Chinnappan.
3. M. Ayyavu.
4. G. Philiphs.
5. C. Vivekanandan.
6. M. Vaithilingam.
7. V. Kadirvel.
8. R. Balan.
9. K. Raji.
10. S. Chellapandian.
11. M. Manickam.
12. K. S. John.
13. G. Asirvatham.
14. Thiyagarajan.
15. V. Palanisamy.
16. P. Appavu.
17. S. Ramadas.
18. K. Muthuramalingam.
19. P. Raman.
20. R. Subbaiyan.
21. K. Sithayan.
22. P. Sourirajan.
23. G. N. Ravikumar.
24. K. Selvakumar.
25. Devendran.

NELLAI MAVATTA SARVODHAYA SANGAM, TIRUCHENDUR.

(*G.O. R. No. 621, Labour and Employment, 3rd April 1974.*)

No. II (2)/LE/2252/74.—Whereas the Government are of opinion that an industrial dispute has arisen between the workman Thiru S. Chellaperumal and the management of Nellai Mavatta Sarvodhaya Sangam, Tiruchendur Branch in respect of matters mentioned in the annexure to this order;

And whereas, in the opinion of the Governor of Tamil Nadu, it is necessary to refer the said dispute for adjudication;

Now, therefore, in exercise of the powers conferred by section 10 (1) (c) of the Industrial Disputes Act, 1947 (Central Act XIV of 1947), the Governor of Tamil Nadu hereby directs that the said dispute be referred for adjudication to the Labour Court, Madurai.

Annexure.

Whether the non-employment of Thiru S. Chellaperumal is justified; if not, to what relief he would be entitled;

To compute the relief, if any awarded, in terms of money, if it can be so computed.

VINAY JHA,
Deputy Secretary to Government.

PUBLIC DEPARTMENT.

(Special.)

Fixation of time limit for applications for leave preparatory to retirement under All-India Services (Leave) Rules.

Fort St. George, April 24, 1974.

No. II (2)/PUSP/2253/74.

[All-India Services (Leave) Rules, 1955—Rule 9—Application for leave preparatory to retirement—Fixing of time limit—Further orders—Issued.]

The following Government Order is published :—

G.O. Ms. No. 666, Public (Special-A), 1st March 1974.

READ—the following papers :—

1. G.O. Ms. No. 1929, Public (Special-A), dated 29th July 1972.
2. Letter from the Government of India, Cabinet Secretariat No. 14/2/71-AIS (III), dated 20th December 1973.
3. From the Government of India, Department of Personnel O.M. No. 1/2/72-AIS (III), dated 17th April 1972.

Order—No. 666, Public (Special-A), dated 1st March 1974.

In modification of the orders issued in G.O. first read above the Government direct that the instructions issued by the Government of India in the memorandum third read above regarding the grant of refused leave to the members of the All-India Services serving in connection with the affairs of the Central Government shall apply to the members of the All India Services serving under the State Government also.

P. SABANAYAGAM.
Chief Secretary.

REVENUE DEPARTMENT.

Remission of stamp duty chargeable in respect of sale deed to be executed in favour of Swedish Red Cross Rehabilitation Trust, Katpadi, in respect of certain lands.

(*G.O. Ms. No. 1321, Revenue, 25th March 1974.*)

No. II (2)/REV/2254/74.—In exercise of the powers conferred by clause (*a*) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby remits the stamp duty chargeable under the said Act, in

favour of the Swedish Red Cross Rehabilitation Trust, Kaipadi, in respect of the lands specified in the Schedule below in Dharapadavedu village, Gudiyatham taluk, North Arcot district.

THE SCHEDULE.

S. Number.	Extent.
576-2.	2.16 acres.
613-1.	0.43 acre.
614-5.	0.47 acre.
614-4.	0.03 acre.
577-1.	1.38 acres.
577-2.	0.53 acre.
613-2.	0.26 acre.
567-4 D.	0.03 acre.
567-1 A.	0.54 acre.
575-1 C.	0.12 acre.
575-2.	0.12 acre.
575-3.	0.20 acre.
	6.27 acres.

J. A. AMBASANKAR,
Secretary to Government.

Remission of stamp duty chargeable in respect of mortgage deed to be executed by Tamil Nadu Electricity Board in favour of Housing and Urban Development Corporation Limited, New Delhi for obtaining certain loan.

(G.O. Ms. No. 1376, Revenue, 27th March 1974.)

No. II (2)/REV/2255/74.—In exercise of the powers conferred by clause (*a*) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby remits the stamp duty chargeable under the said Act in respect of the mortgage deed to be executed by the Tamil Nadu Electricity Board in favour of the Housing and Urban Development Corporation Limited, New Delhi for obtaining a loan of Rs. 159.60 lakhs (rupees one hundred and fifty-nine lakhs and sixty thousand only) from the said Corporation for the purpose of construction of quarters for the Operation and Maintenance Technical Staff both at Ennore and Basin Bridge Power Houses of the Tamil Nadu Electricity Board.

Remission of stamp duty chargeable in respect of mortgage deeds to be executed by loanees in favour of Tamil Nadu Theatre Corporation, Limited, Madras.

(G.O. Ms. No. 1466, Revenue, 1st April 1974.)

No. II (2)/REV/2256/74.—In exercise of the powers conferred by clause (*a*) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby remits with effect on and from the 23rd March 1974, the stamp duty chargeable under the said Act in respect of the mortgage deeds to be executed by the loanees in favour of the Tamil Nadu Theatre Corporation Limited, Madras, for obtaining loans from the said Corporation for the purpose of construction of semi-permanent theatres in Tamil Nadu.

Amendment to Table of Fees under Indian Registration Act.

(G.O. Ms. No. 1467, Revenue, 1st April 1974.)

No. II (2)/REV/2257/74.—Under section 78 of the Indian Registration Act, 1908 (Central Act XVI of 1908), the Governor of Tamil Nadu hereby makes the following amendment to the Table of Fees, published with the late Judicial Department Notification Number 177, dated the 30th March 1909, at pages 315-319 of Part I of the *Fort St. George Gazette*, dated the 30th March 1909, as subsequently amended:—

AMENDMENT.

In the said Table of fees, in Article I, after clause K (LXXXXII), the following clause shall be added, namely:—

"K (LXXXXIII) No registration fee shall be payable in respect of a settlement deed to be executed by the American Board of Commissioners for Foreign Mission and now known as the United Church Board for World Ministries in favour of the American College Governing Council, Madurai, in respect of 37.77 acres of land within the Madurai Corporation limits including the building thereon and valued at Rs. 99,15,602 (rupees ninety-three lakhs fifteen thousand six hundred and two only)."

M. S. RAMESH,
Additional Secretary to Government.

RURAL DEVELOPMENT AND LOCAL ADMINISTRATION DEPARTMENT.

Declaration of certain local areas as local Planning Areas.

MADURAI.

(G.O. Ms. No. 832, Rural Development and Local Administration, 29th March 1974.)

No. II (2)/RUL/2258/74.—In exercise of the powers conferred by sub-section (1) of section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu hereby declares his intention to specify the local areas specified in column (3) of the Table below to be a local planning area with the name specified in the corresponding entry in column (2) thereof.

Notice is hereby given that this notification will be taken into consideration again under sub-section (4) of the said section 10 on or after the expiry of two months from the date of the publication of this notification in the *Tamil Nadu Government Gazette*, and that any objection or suggestion which may be received from any inhabitant or any local authority or institution in the said local area with respect thereto before the expiry of the period aforesaid will be duly considered by the Government of Tamil Nadu. Objections and suggestions in writing, if any, should be addressed to the Secretary to Government, Rural Development and Local Administration Department, Fort St. George, Madras-9.

THE TABLE.

Serial number.	*Name of local planning area.*	*Area forming the local planning area.*
		Number and name of revenue villages.
(1)	(2)	(3)
1	Madurai ..	*Madurai taluk*—
		6 Thuvariman.
		9 Karadipatti.
		13/1 Pudukottai.
		13/2 Vilachcheri.
		14 Vadivelkarai.
		15/1, 15/2 Pudukkulam.
		16 Sambakkudi.
		17 Erkudi.
		18 Alchampattu.
		19 Kochadai.
		20 Kokkalappi.
		21 Vilangudi.
		22 Arappalayam.
		23 Ponmeni.
		24 Madakulam.

Serial number.	Name of Local Planning area.	Area forming the Local Planning area. Number and name of Revenue Villages.
(1)	(2)	(3)
1	Madurai—*cont.*	25 Thirupparankunram,
		38 Meenakshipuram.
		40 Avaniapuram.
		41 Sinthamani.
		46 Anuppanadi.
		47 West Madurai.
		East Madurai.
		49/1, 49/2 Managiri.
		50 Tallakulam.
		136 Chokkikulam.
		Bibikulam.
		Goripalayam.
		North Madurai.
		51 Sellur.
		52 Tattaneri.
		53 Anaiyur.
		54 Silaneri.
		55 Mulakaranai.
		97 Hanumarpatti (Vandiyur part).
		113 Parayattikulam.
		130 Melakuilkudi.
		131 Keelakuilkudi.
		137 Kalkulam.
		138 Melanedungulam.
		140 Thattanur.
		153 Iravadanallur.
		154 Villapuram.
		155 Sattamangalam.
		156 Sambandar Alangulam.
		164 Attikulam.
		165 Parasurampatti.
		201/1 Melamadai.

Variation to Pattamangalam West Town-Planning Scheme, Mayuram.

(G.O. Ms. No. 907, Rural Development and Local Administration, 2nd April 1974.)

No. II (2)|RUL|2259|74.—In exercise of the powers conferred by sub-section (3) of section 33 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu hereby makes the following variation to the Pattamangalam West Town Planning Scheme, Mayuram, sanctioned in the Rural Development and Local Administration Department Notification No. 19 of 1971, dated the 7th January 1971, published at pages 18 to 30 of Part II—Section 2 of the *Tamil Nadu Government Gazette*, dated the 17th March 1971, as subsequently amended, the same having been previously published as required by clause (*b*) of sub-section (2) of section 15 of the Tamil Nadu Town Planning Act, 1920 (Tamil Nadu Act VII of 1920).

VARIATION.

In the said scheme, in sub-clause (*a*) of clause 21, for the expression "within two years of the date of the scheme", the expression "within three years of the date of the scheme" shall be substituted.

C. G. RANGABASHYAM,
Secretary to Government.

TRANSPORT DEPARTMENT.

Trustee elected to Tuticorin Port Trust Board.

(G.O. R. No. 114, Transport, 30th March 1974.)

No. II (2)|TRA|2260|74.—Under section 7 of the Tuticorin Port Trust Act, 1924 (Tamil Nadu Act II of 1924), it is hereby notified that on 22nd February 1974 Thiru K. Ananthan has been elected by the Tuticorin Chamber of Commerce and Industry as a Trustee of the Tuticorin Port Trust Board, *vice* Thiru S. Satakopan.

K. J. M SHETTY,
Additional Secretary to Government.

LATE NOTIFICATIONS

NOTIFICATIONS BY GOVERNMENT.

AGRICULTURE DEPARTMENT.

Enforcement of provisions of Tamil Nadu Cattle Disease Act in Ettayapuram village, Koilpatti taluk, Tirunelveli district.

(G.O. R. No. 441, Agriculture, 19th April 1974.)

No. II (2)|AG|2308 (*m-a*)|74.—In exercise of the powers conferred by section 1 of the Tamil Nadu Cattle Disease Act, 1866 (Tamil Nadu Act II of 1866), the Governor of Tamil Nadu hereby directs that the provisions of the said Act shall be put in force in Ettayapuram village, Koilpatti taluk, Tirunelveli district, from 1st to 15th May 1974 (both days inclusive).

Enforcement of provisions of Tamil Nadu Cattle Disease Act in Avanashi Town Panchayat, Avanashi taluk, Coimbatore district.

(G.O. R. No. 442, Agriculture, 19th April 1974.)

No. II (2)|AG|2308 (*m-b*)|74.—In exercise of the powers conferred by section 1 of the Tamil Nadu Cattle Disease Act, 1866 (Tamil Nadu Act II of 1866), the Governor of Tamil Nadu hereby directs that the provisions of the said Act shall be put in force within a radius of five miles in Avanashi Town Panchayat, Avanashi taluk, Coimbatore district, from 26th April to 13th May 1974 (both days inclusive).

D. BONNIE,
Deputy Secretary to Government.

PRINTED AND PUBLISHED BY THE DIRECTOR OF STATIONERY AND PRINTING, MADRAS
ON BEHALF OF THE GOVERNMENT OF TAMIL NADU

ANNEXURE - 1.2

GOVERNMENT OF TAMILNADU

Abstract

LOCAL PLANNING AREA - Madurai - Declaration - Notification under section 10(4) of the Tamilnadu Town and Country Planning Act., 1971 issued.

RURAL DEVELOPMENT AND LOCAL ADMINISTRATION DEPARTMENT

G.O.MS.NO.1782 Dated 3rd August, 1974

Read

G.O.MS.NO.832, RDLA, Dated : 29-3-74.

ORDER :

A proposal notifying the intention of the Government to declare certain local areas forming a local planning area and to constitute for such local planning area, a local authority was published at pages 223 - 224 of part II section 2 of the Tamil Nadu Government Gazette, dated 24.4.74 for general information as required under subsection (3) of section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972) No objection or suggestion having been received the government declare the local areas specified in Column (3) of the Table in the Notification appended to this order to be a local planning area by the name specified in the corresponding entry in colmn (2) thereof.

2. The appencded notification will be published in the Tamil Nadu Government Gazette.

(BY ORDER OF THE GOVERNOR)

M.M.Rajendran
Secretary to Government

/True copy/

APPENDIX
NOTIFICATION

Inexercise of the power conferred by sub-section (4) of section 10 of the TamilNadu Town and Country Planning Act. 1971 (Tamilnadu act 35 of 1972), and after previous publication of the declaration under sub section (1) thereof the governor of Tamilnadu hereby declares his intention to specify the local areas specified in column (3) of the table below to be a local planning area with the name specified in the corresponding entry in column (2) thereof the table

Sl.No	Name of the Local Planning	No. and Name of Revenue Villages
1.	Madurai	Madurai Taluk
		6 Thuvariman
		9 Karadipatti
		13/1 Pudukottai
		13/2 Vilacheri
		14 Vadivelkarai
		15/1 Pudukkulam
		15/2
		16 Sambakkudi
		17 Erukudi
		18 Achambathu
		19 Kochadai
		20 Kokkalappi
		21 Vilangudi
		22 Arappalayam
		23 Ponmeni
		24 Madakulam
		25 Thirupparankundram
		38 Meenakshipuram
		40 Avaniyapuram
		41 Sinthamani
		46 Anuppanadi
		47 West Madurai
		East Madurai

49/1	
49/2	Managiri
50	Tallakulam
136	Chokkikulam
	Bibikulam
	Goripalayam
	North Madurai
51	Sellur
52	Thathaneri
53	Anaiyur
54	Silayaneri
55	Mulakaranai
97	Hanumarpatti (Vadiyur Part)
166	Parayathikulam
130	Melakuilkudi
131	Keelakuilkudi
137	Kalkulam
138	Melanedungulam
132	Thathanur
153	Iravadanallur
154	Villapuram
155	Sathamangalam
156	Sambandar Alangulam
164	Athikulam
165	Parasurampatti
201/1	Melamadai

/True copy/

GOVERNMENT OF TAMIL NADU
1974

[Registered No. M-1,

TAMIL NADU GOVERNMENT GAZETTE

PUBLISHED BY AUTHORITY

No. 36] MADRAS, WEDNESDAY, SEPTEMBER 11, 1974

[AVANI 26, ANANTHA (2005—TIRUVALLUVAR ANDU)]

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NOTIFICATIONS BY GOVERNMENT.

COMMERCIAL TAXES AND RELIGIOUS ENDOWMENTS DEPARTMENT.

Proposal to extend the provisions of Hindu Religious and Charitable Endowments Act to Charitable Endowment known as "Bhuvanagiri Poocha Chinnia Chettiar Anna Chatram" in Thanjavur district.

(Memo No. 124513 (1)/End. III (2)/72-15. Commercial Taxes and Religious Endowments- 26th July 1974.)

No. II (2)/CTRE/3930/74.—Whereas it has been represented to the Government of Tamil Nadu that there are irregularities in the administration of the Charitable Endowment known as "Bhuvanagiri Poocha Chinnia Chettiar Anna Chatram", Vaideeswaran Koil village, Sirkali taluk. Thanjavur district, as enumerated in the schedule below;—

And whereas the Government have reason to believe that the said charitable endowment is being mismanaged;

And whereas the Government are satisfied, after considering the report of the Commissioner submitted under sub-section (1) of section 3 of the Tamil Nadu Hindu Religious and Charitable Endowments Act, 1959 (Tamil Nadu Act 22 of 1959), that in the interests of the administration of the said charitable endowment, it is necessary to extend to it the provisions of the said Act and the rules made thereunder;

And whereas in exercise of the powers conferred by sub-section (3) of section 3 of the said Act, the Governor of Tamil Nadu intends to extend to the charitable endowment aforesaid, the provisions of the said Act and the rules made thereunder;

Now, therefore, in pursuance of the proviso to sub-section (3) of section 3 of the said Act, notice is hereby given that persons interested in the said charitable endowment may show cause against the issue of the proposed notification for the extension of the said Act and the rules made thereunder to the charitable endowment aforesaid before the expiry of a period of two months from the date of publication of this notification in the *Tamil Nadu Government Gazette*. Any representation which may be received before the expiry of the said period by the Secretary to Government, Revenue Department, Fort St. George Madras-9, will be duly considered by the Government of Tamil Nadu.

THE SCHEDULE.

(1) No accounts have been maintained for the income and expenditure of the endowment as per the Will, dated 10th July 1918 of Thiru P. S. Chinniah Chettiar since the taking over charge of the management in the year 1959 till 31st March 1971. The trustees appointed by the testator have not cared to see that any accounts are maintained.

(2) No lease agreements have been obtained from the lessees for the lands belonging to the endowment for the fasli 1381 and earlier period.

(3) A portion of the income from the lands belonging to the endowment is being utilised for the personal use by the trustee Thirumathi Thailammal, which amounts to misappropriation of the endowed properties.

(4) An amount of Rs. 3,000 mentioned in the Will dated 10th July 1918 has not been accounted for.

(5) Even though it has been stated in the will that the properties endowed should not be alienated, the land in S. No. 166/8 measuring 1.12 acres has been sold by Thirumathi Ammayee Ammal (second wife of the testator) in the year 1946 for Rs. 1,000 and the sale amount has not been accounted for. Further the present trustee has not taken any steps to recover the lands in question.

(6) The excess income of the endowment has not been utilised for purchase of landed properties for the endowment as per the Will of the testator.

(7) The trustee Thirumathi Thaiammal has not been managing the endowment herself but appointed her husband as her agent for the purpose of the management of the endowment.

Remission of Stamp duty chargeable in respect of mortgage deed executed by Tamil Nadu Housing Board in favour of Housing and Urban Development Finance Corporation (Private), Limited, New Delhi, under Indian Stamp Act.

AMENDMENT TO NOTIFICATION,

(G. O. Ms. No. 95, Commercial Taxes and Religious Endowment 5th August 1974)

No. II (2)/CTRE/3931/74.—In exercise of the powers conferred by clause (*a*) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby makes the following amendment to Revenue Department Notification II—1 No. 6076 of 1973, dated the 19th November 1973, at page 647 of Part II, Section 1 of the *Tamil Nadu Government Gazette*, dated the 19th December 1973 :—

AMENDMENT.

In the said notification for the figures and words "Rs. 11-25 lakhs (rupees eleven lakhs and twenty-five thousand only)", the figures and words "Rs. 14 lakhs (rupees fourteen lakhs only)" shall be substituted.

A. VISWANATHAN,
Deputy Secretary to Government.

HEALTH AND FAMILY PLANNING DEPARTMENT.

Nomination of certain person as member of Medical Council of India.

(G. O. Ms. No. 1782, Health and Family Planning, 1st August 1974

No. II (2)/HF/3932/74.—The following notification of the Government of India, Ministry of Health and Family Planning (Department of Health), New Delhi, dated 7th June 1974, is republiished :

No. V. 11013/2/73—MPT.—Whereas the Central Governmentl has, in pursuance of the provisions of Clause(*a*) of sub-section (1) of section 3 of the Indian Medical Council Act, 1956 (102 of 1956), and in consultation with the Government of Tamil Nadu, nominated Dr. M. Nraayanan, Director of Medical Education, Madras, to be a member of the Medical Council of India with effect from 11th April 1974, *vice* Dr. N. R. Ratnakannan, resigned ;

* * * *

* * * *

Now, therefore, in pursuance of the provisions of sub-section (1) of section 3 of the said Act, the Central Government hereby makes the following further amendments in the notification of the Government of India, the late Ministry of Health No. 6-13/59-M I dated the 9th June 1960, namely :—

In the said notification :—

(i) under the head, "nominated under Clause (*a*) of sub-section (1) of section 3 " for the entry against serial No. 6 the following entry shall be substituted, namely :—

" Dr. M. Narayanan,
Director of Medical Education, Madras ".

* * * *

A. PADMANABHAN,
Secretary to Government.

LABOUR AND EMPLOYMENT DEPARTMENT,

Disputes between workmen and management0 referred to Labour Courts for djudication.

VALLI VILAS SERVICE.

(*G. O. R. No.* 1494, *Labour and Employment*, 6th *August* 1974.)

No. II (2)/LE/3933/74. Whereas the Government are of opinion that an industrial dispute has arisen between the workman Thiru Ali Hussain and the management of Valli Vilas Service (Kumaran Transports), Cuddalore, in respect of mateers mentioned in the annexure of this order ;

And whereas, in the opinion of the Governor of Tamil Nadu, it is necessary to refer the said dispute for adjudictaion ;

Now, therefore, in exercise of the powers conferred by section 10 (1) (c) of the Industrial Disputes Act, 1947 (Central Act XIV of 1947), the Governor of Tamil Nadu hereby directs that the said dispute be referred for adjudication to the Labour Court, Madras.

Annexure.

"Whether the non - employment of Thiru Ali Hussain is justified if not to what relief he is entitled.

To compute the relief, if any awarded in terms of money, if it can be so computed.

T. JOHN ABRAHAM,
Joint Secretary to Government.

COMMERCIAL TRANSPORTS, SIVAGANGAI

(*G. O. R. No.* 1514, *Labour and Employment*, 8th *August* 1974.)

No. II (2)/LE/3934/74.—Whereas the Government are of opinion that an industrial dispute has arisen between the workman Thiru P. Ramachandran and the management of the Commercial Trans port, Sivagangai, in respect of matters mentioned in the annexure to this order ;

And whereas, in the opinion of the Governor of Tamil Nadu, it is necessary to refer the said dispute for adjudication ;

Now, therefore, in exercise of the powers conferred by section 10 (1) (c) of the Indistrial Disputes Act, 1947 (Central Act XIV of 1947), the Governor of Tamil Nadu hereby directs that the said dispute be referred for adjudication to the Labour Court, Madurai

Annexure

"Whether the non-employment of Thiru P. Ramachandran is justified and if not to what relief he is entitled; To compute the relief, if any awarded in terms of money, if it can be so computed"

C. CHELLAPPAN,
Deputy Secretary to Government.

RURAL DEVELOPMENT AND LOCAL ADMINISTRATION DEPARTMENT

Declaration of certain areas as local planning areas

MADURAI.

(*G. O. Ms. No.* 1782, *Rural Development and Local Administration*, 3rd *August* 1974.)

No. II (2)/RUL/3935/74.—In exercise of the powers conferred sub-section (4) of section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972) and after publication of the declaration under sub-section (1) thereof, the Governor of Tamil Nadu hereby declares the area comprising the revenue villages specified in column (3) of the Table below to be a local planning area under the name specified in the corresponding entry in column (2) thereof :—

THE TABLE.

Serial number and name of Local Planning area. (1)	*Number and name of Revenue villages.* (2)
1 Madurai	Madurai taluk:—
	6 Thuvariman.
	9 Karadipatti.
	13/1 Pudukottai.
	13/2 Vilachcheri.
	14 Vadivelkarai.
	15/1, 15/2 Pudukkulam
	16 Sambakkudi.
	17 Erkudi.
	18 Achchampattu.
	19 Kochadai.
	20 Kokkalappi.
	21 Vilangudi.
	22 Arappalayam.
	23 Ponmeni.
	24 Madakulam.
	25 Thirupparankunram
	38 Meenakshipuram.
	40 Avaniapuram.
	41 Sinthamani.
	46 Anuppanadi.
	47 West Madurai.
	East Madurai.
	49/1, 49/2 Managiri.
	50 Tallakulam.
	136 Chokkikulam.
	Bibikulam.
	Goripalayam.
	North Madurai.
	51 Sellur.
	52 Tattaneri.
	53 Anaiyur.
	54 Silaneri.
	55 Mulakaranai.
	97 Hanumarpatti (Varior part).
	113 Parayanikulam.
	130 Melakuilkudi.
	131 Keelakuilkudi.
	137 Kalkulam.
	138 Melanedungulam.
	140 Thattanur.
	153 Iravadanallur.
	154 Villapuram.
	155 Sattamangalam.
	156 Sambandar Alangulam
	164 Attikulam.
	165 Parasurampatti.
	201/1 Melamadai.

M. M. RAJENDRAN,
Secretary to Government.

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ON BEHALF OF THE GOVERNMENT OF TAMIL NADU.

ANNEXURE - 1.3

Copy of
GO Ms No. 611 dated 7.5.80 from commissioner and secretary to Government, Housing and Urban Development Department, Govt. of Tamilnadu.

ABSTRACT : Local Planning Area - Madurai - Declaration of Local Planning Area under Section 10 (1) (b) of Tamilnadu Town and Country Planning Act. 1971 - Preliminary Notification - Issued.

Read :
1. G.O.Ms.No. 1782, RD & LA, dated 3.8.74
2. From the director of Town and Country Planning Lr.Roc.No. 16505/77/MP dated 18.6.77 and 19.11.77.
3. From the Director of Town and Country Planning Roc.No.16505/77/D6dt. 7.8.79
4. From the Director of Town and Country Planning Roc.No. 16505/77/D6dt 12.10.77 and 27.12.79

ORDER :

It is proposed to declare the intention of the Government include the local areas specified in column (3) of the Table the notification appended to this order, in the Madurai Local planning Area already declared in the G.O. first read above. The appended Notification will be published in English in the Tamilnadu Government Gazette and republished in English and in Tamil in the Madurai District Gazette.

2. The collector of Madurai is requested to republish the notification in the District Gazette.

3. The director of Translation, Madras is requested to arrange to have the notification translated into Tamil and forward the Translation urgently to the collector.

4. The collector of Madurai is requested to report to Government the date of republication of the notification in the district Gazette.

(BY ORDER OF THE GOVERNOR)

P. Kandasamy,
COMMISSIONER AND SECRETARY TO GOVT.

/True Copy/

APPENDIX
NOTIFICATION

In exercise of the power conferred by clause (b) of subsection (1) of section 10 of the Tamilnadu Town and Country planning Act, 1971 (Tamil Nadu Act 35 of 1972), the governor of Tamilnadu hereby declared his intention to include the local areas specified below, in the Madurai Local Planning Area and makes the following amendment to the Rural Development and Local Administration Department Notification No.II (2)/Rul/3939/74 dt. 3rd August, 1974 published in Pages 476 in part II section (2) of the Tamilnadu Government Gazette dated the 11th september, 1974.

Notice is hereby given that this notification will be taken into consideratation under sub-section (4) of the said section 10 of the said Act on or after and expiry of two months from the date of the publication of this notification in the Tamilnadu Government Gazette and that, and objection of suggestion which may be received from any inhabitant or any local authority or institution in the said local area with respect there to before the expiry of the period aforesaid will be duly considered by the Government of Tamilnadu. Objection and Suggestions in writing, if any, should be addressed to the commissioner and secretary to Government, Housing and Urban Development Department. Fort.St.George Madras - 9.

DRAFT AMENDMENT

In the said notification in column (3) of the table against the entry Madurai in column (2) the following entries shall be added namely :-

MADURAI SOUTH TALUK

1	Kodimangalam
7	Keelmathikattinam
8	Melamathur
12	Vedarpuliangulam
15/ 3	Pudukulam
26	Nilaiyur
27	Valanendal
28	Surakulam
31	Eliarpatti
32	Nallur

34	Virahanur
35	Kusavapatti
36	Sholanguruni
37	Kuthiraikutty
39	Ayanpappakudi
42	Panaiyur
43	Silaiman
44	Puliankulam
45	Kallambal
132	Thathanur
133	Thanakkankulam
135	Thoppur
139	Perungudi
140	Mullakulam
141	Valayapatti
145	Kusavankundu
146	Valayangulam
147	Koodal Sengulam
148	Perumalendal
149	Chettikulam
150	Samanatham
151	Virathanur
152	Nedumadurai
218	K.Pudupatty
219	Peria Alangulam
220	Othai Alangulam
221	Kombadi
222	Thottiapatti
223	Ramankulam
224	Pirakudi

MADURAI NORTH TALUK

2	Thenur	3	Thodaneri
56	Koil Papakudi	57	Aathalai
58	Pothumbu	59	Boothakudi
60	Petchikulam	61	Kulamangalam

62	Kavanur	63	Manthikulam
64	Koola Pandi.	65	Chettikulam
66	Kodimangalam and Kodimangalam R.F.	67	Usilampatty
68	Erukkalainatham	69	Paraipatti
70	Periapatti	71	Karuvanur
72	Therkkupethampatti		
84	Avilankudi	86	Thamaraipatti
87	Kodikulam	88	Arumbanur
89	Thuyyaneri	90	Puthupatti
91	Mangalakkudi	92	Uthangudi
93	Rajakambeeram	94	Kalikappan
95	Thirumohur	96	Thindiyur
97	Vandiyur	98	Andarkottaram
99	Sakkimangalam	100	Elamanur
119	Vairavanatham	120	Vittankulam
121	Siruvalai	122	Sambakulam
123	Pillaiyranatham	124	Moolakurichi
125	Keelanedunkulam	126	Kallikudi
127	Pattakurichi	128	Koilkurunthankulam
134	Vayalur	157	Keelapanangadi
158	Melapanangadi	159	Vagaikulam
160	Veppangulam	161	Vadugapatti
162	Veerapandi	163	Thiruppalai
166	Parayathikulam	167	Alathur
168	Kannikudi	169	Maranavariyendal
170	Iluppakudi	171	Iraniyam
172	Poonari	173	K.Pappankulam
177	Kollankulam	179	Velliankundram
180	Sembiendal	181	Kathakinar
182	Narasingam	183	Podasapatti
197	Thathangulam	198	Veerapanjan
199	Ulaganeri	200	Ilandaikulam
201/2	Melamadai II bit	202	Poolankulam
203	Kattavanendal	204	Segangulam
205	Pappakudi	206	Eachchaneri
210	Kondapethan	211	Keruppapillaiendal

SIVANGANGA TALUK

102	Keeladi	103	Sothathatti
104	Sayanapuram	105	Konthagai
106	Pattapalayam	107	Karisalkulam
108	Kaluvankulam	109	Kanjirankulam

ARUPPUKOTTAI TALUK

1. Mangulam

USILAMPATTY TALUK

10 Panniyan

THIRUMANGALAM TALUK

62	Urappanur	63	Kudiraisanikulam
64	Uchapatty	65	Tharmathupatti
66	Kappalur	67	Puliyankulam
68	Virusankulam	72	Vadagarai
73	Thirumangalam	74	Venkatasamudram
212	Chettikulam	213	Palakapudupatty
214	Sokkanathampatty	215	Sengulam
216	Maravankulam	271	Vidathakulam

NILAKKOTTAI TALUK

79	Kallanai	80	Kumaram
81	Maniyanji	82	Thandalai
85	Ilavankulam	90	Parali
39	Pettai	42	Ayanthengarai
43	Kachirairuppu	44	Melakkal
45	Thiruvedagam	46	Solaikurichi
47	Sholavandan	49	Kattakulam
50	Nedungulam	110	Thanichiyam
111	Thirumalnatham	112	Thiruvalavayanallur
113	Nagari	114	Thathangulam
115	Sithalangudi	116	Sambakulam

ANNEXURE 1.7

GOVERNMENT OF TAMIL NADU
ABSTRACT

MASTER PLAN - Master Plan of Madurai Local Planning Area Consent under section 24(2) of the Tamil Nadu Town and Country Planning Act, 1971 for issue of Notice for prepartion of Master Plan for Madurai Local area - orders - Issued.

HOUSING AND URBAN DEVELOPMENT DEPARTMENT

G.O.MS.NO. 833 Dated 3rd July, 1980

Read :

1. From the Director of Town and Country Planning letter No.58259g 77-D6, dated 20.9.1979 and 21.12.1979.
2. From the Member Secretary, Madurai Local Planning Authority, Lr.No.K2/20119/80 dt. 26.3.1980.

ORDER :

The Madurai Local Planning Authority in its resolution No.924/10, dated 10.3.1980 has resolved to request the government to accord consent to the publication of the notice for prepartion of Master plan for Madurai Local Planning Area under sub-section (2) of section 24 of Tamil Nadu Town and Country planning Act, 1971 (Tamil Nadu Act 35 of 1972). The Director of Town and Country Planning has recommended that consent under the said section of the said act may be accorded to the publication of a notice for the preparation of Master plan for Madurai Local Planning Authority.

2. Under sub-section (2) of section 24 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu hereby gives his consent to the Madurai Local Planning Authority to the publication of a notified under section 26 of the said act, for the preparation of the Masterplan for Madurai Local Planning Area.

3. The Master plan for Madurai is returned herewith. The Member Secretary, Madurai Local Planning Authority is requested to acknowledge the receipt.

(By order of the Governor)

P.Kandasamy
Commr.and Secy. to Government.

/True Copy/

Town Planning Officer

ANNEXURE - 1.4

GOVERNMENT OF TAMILNADU

Abstract

Fort St.George
Madras - 9

Local Planning Area - Madurai Local Planning Authority inclusion of additional villages in the Madurai Local Planning Area - Notification of under section 10(1) of the Act issued.

HOUSING AND URBAN DEVELOPMENT DEPARTMENT

G.O.MS.NO.503 DATED 27.6.84

Read :

i. G.O.Ms.No. 832, RDLA, dated 29.3.74
ii. G.O.Ms.No.1882 RDLA, dated 3.8.74
iii G.O.Ms.No.611 H&UD., dated 7.5.80
iv. From the DT&CP letter Roc.No.31998/82/D3 dt.7.1.83

ORDER :

It is proposed to declare the intention of the Government to include local areas specified in column (3) of the table in the notification appended to this order, in the Madurai Local Planning Area already notified in the Government order first read above. This will be in addition to the additional areas notified under section 10(1) (b) of the Act in the G.O. third read above. The appended notification will be published in English in the Tamilnadu Government Gazette and republished in English and in Tamil in the Madurai District Gazette.

2. The collector Madurai is requested to republish the notification in the District Gazette.

3. The Director of Translation Madras is requested to arrange to have the notification translated into Tamil and forward the transalation urgently to the collector of Madurai under intimation to the Director of Town and Country Planning. Madras - 2

4. The collector of Madurai is requested to report to government and the Director of Town and Country planning the date of republication of the notification in the District Gazette.

(BY ORDER OF THE GOVERNOR)

OM.KUMAR, I.A.S.,
SECRETARY TO GOVERNMENT.

/True Copy/

APPENDIX

In exercise of the power conferred by sub section (1) section 10 of the Tamilnadu Town and Country Planning Act. 1971 (Tamilnadu Act 35 of 1972) the governor of Tamilnadu hereby declares his intention to specify the areas specified below. In the Madurai Local Planning Area and makes the following amendment to the Rural Development and Local Administration Department notification No. II (2)/Rul/3935/74 dt. 3rd August. 1974 published at page 476 in part II section (2) of the Tamilnadu Government Gazette dated the 11th September. 1974 as subsequently amended.

2. Notice is hereby given that this notification will be taken into consideration under sub-section (4) of the said section 10 of the said Act on or after the expiry of two months from the date of the publication of this notification in the Tamilnadu Government Gazette and that, any objection or suggestion which may be received from any inhabitant or any local authority or institution in the said area with respect there to before the expiry of the period aforesaid will be duly considered by the government of Tamilnadu. Objections and suggestions in writing, if any, shall be addressed to the sepretary to Government. Housing and Urban Development Department. Fort, St.George Madras - 600 009.

DRAFT AMENDMENTS

In the said notification, in column (3) of the table, against the entry Madurai in column (2) (i) under the heading "Madurai South Taluk"

a) After the entry '37 Kuthiraikutty' the entry 38 Pappanodai shall be inserted.

b) After the entry'45 Kallambal', they entry 129 kilamatahur' shall be inserted : and

c) under the heading Madurai North Taluk after the entry.

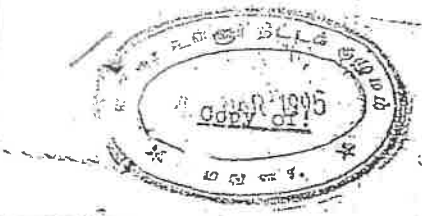
3. Thodaneri the following entries shall be inserted namely :

(4) Samayanallur

(5) Paravai

/True Copy/

(6)



GOVERNMENT OF TAMIL NADU

ABSTRACT

Local Planning area - Master Plan for Madurai Local Planning area - Approval under section 28 of the Tamil Nadu Town and Country Planning Act, 1971 - Accorded.

HOUSING AND URBAN DEVELOPMENT (UDIV) DEPARTMENT

G.O.Ms.No.122, Dated: 6th February, 1995.

Read again:-

1. G.O.Ms.No.652, Rural Development and Local Administration, dated 8.4.75.
2. G.O.Ms.No.838, Housing and Urban Development, dt. 3.7.80.
3. G.O.Ms.No.909, Housing & Urban Development dated 8.9.89.

Read also:-

4. From the Director of Town and Country Planning, Lr.Roc. No. 31198/81/MP2, dt.14.2.94 and 15.6.94.

...

ORDER:

In the Government order second read above, the Government have given their consent to the Madurai Local Planning Authority to the publication, of a notice of the preparation of the master plan for Madurai Local Planning area. The Director of Town and Country Planning in his letter fourth read above has forwarded the master plan for Madurai local planning area and requested the Government to accord approval to the said master plan under section 28 of the Tamilnadu Town and Country Planning Act, 1971.

2. The Government, after careful examination of the proposal of the Director of Town and Country Planning referred to in para 1 above, have decided to approve it. Accordingly, under section 28 of the Tamilnadu Town and Country Planning, Act, 1971 (Tamilnadu Act 35 of 1972), the Governor of Tamilnadu hereby approved the master plan for Madurai Local planning area. The Government permit the delay of 4356 days in the preparation of the master plan and convening a meeting of the local planning authority. Four copies of the master plan for Madurai local planning area as approved by the Government are communicated to the Director of Town and Country Planning.

3. The following Notification will be published in the next issue of the Tamil Nadu Government Gazette:-

NOTIFICATION

In exercise of the powers conferred by sub-section(1) of section 30 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu hereby publishes the approval of the Government under section 28 of the said act for the master plan for Madurai local planning area submitt by the Director of Town & Country Planning.

2. The master plan for Madurai local planning area wi
all its enclosures shall be kept open to the inspection of th
public in the office of the Madurai Local Planning authority at
Corporation Building, Madurai - 625002.

(BY ORDER OF THE GOVERNOR)

L.N.VIJAYARAGHAVAN
SECRETARY TO GIVERNMENT.

/true copy/

Office of the Director of
Town and Country Planning,
Master Plan division, Madras-2.

Endt.Rc.No.31998/81 MP2. dated 11.3.95.

G.O.Ms.No.122, Housing and Urban Development Department (UDIV) Department, dated 6.2.95 is communicated.

for Director of Town & Country Planning.

To

The Member Secretary, Madurai Local Planning Authority, Madurai.
The Regional Deput Director of Town & Country Planning, Madurai.
The Deputy Directors of Buildings & D.P Divisions.
Additional Director/All Joint Directors
Assistant Director of MP and DP divisions
Supervisors of MP division
MP1, MP2,
Stock file, Spare-10.

MADURAI LOCAL PLANNING AUTHORITY

MADURAI SOUTH TALUK

S.No.	Village No. Old	Village No. New	Village Name	Remarks
1	39	43	Ayanpappakudi	Included in Avaniyapuram Town Panchayat
2	149	39	Chettikulam	
3	36	67	Cholankuruni	
4	31	65	Eliayarpatti	
5	01	01	Kodimangalam and Kodimangalam RF	
6	07	04	Kilamathikattinam	
7	129	03	Kilamathur	
8	218	18	K.Pudupatti	
9	45	35	Kallambal	
10	147	44	Koodalsenkulam	
11	145	45	Kusavankundu	
12	37	46	Kudhiraikuthi	
13	221	60	Kombadi	
14	35	68	Kusavapatti	
15	8	2	Melamathur	
16	140	55	Mullakulam	
17	26/1 26/2	54	Nilaiyur Bit I Nilaiyur Bit II	
18	152	62	Nedumadurai	
19	32	66	Nallur	
20	220	59	Othai Alankulam	
21	15/3	26/3	Pudukulam Bit III	
22	224	30	Pirakudi	
23	44	33	S.Pullankulam	
24	42	36	Panaiyur	
25	148	40	Perumanendal	
26	38	48	Pappanodai	
27	139	51	Porunkudi	
28	219	58	Periya Alankulam	
29	223	47	Ramankulam	
30	43	34	Silaiman	
31	150	38	Samanatham	
32	28	57	Surakkulam	

S.No.	Village No. Old	Village No. New	Village Name	Remarks
33	133	21	Thanakkankulam	
34	135	19	Thoppur	
35	222	61	Thottiyapatti	
36	151	32	Viraganur	
37	146	49	Valayankulam	
38	141	50	Valayapatti	
39	27	56	Valenandhal	
40	34	69	Virudhanur	
41	12	20	Vedarpuliankulam	

MADURAI NORTH TALUK

S.No.	Village No. Old	Village No. New	Village Name	Remarks
1	05	14	Paravai Bit I and II	Town Panchayat
2	57	16	Adhalai	
3	88	46	Arumbanur (Bit-I & II)	
4	167	53	Alathur	
5	84	82	Ayilankudi	
6	98	104	Andarkottaram	
7	59	31	Boothakudi	
8	65	54	Chettikulam	
9	68	58	Erukkalainatham	
10	206	107	Echaneri	
11	97	92	Vandiyur Part (Bit I and II)	
12	100	134	Ilamanur	
13	200	93	Ilandhaikulam	
14	170	49	Iluppaikudi	
15	171	48	Iraniam	
16	181	42	Kathakkinaru	
17	94	103	Kallkappan (Bit 1 & II)	
18	126	12	Kallikkudi	
19	168	52	Kannikudi	
20	211	136	Karuppapillaiyendal	
21	203	101	Kathavanendal	
22	71	62	Kavanur	
23	157	29	Kilapanankadi	
24	125	11	Kilanedunkulam	
25	128	13	Koilkurundhankulam	
26	56	18	Kovilpappakudi	
27	61	33	Kulamangalam (Bit I & II)	
28	62	34	Karuvanur	
29	173	43	K.Pappankulam	
30	64	55	Koolapandi	
31	66	56	Kodimangalam	
32	177	80	Kollankulam	
33	87	85	Kodikulam (Bit I & II)	
34	210	135	Kandapethan	
35	124	10	Moolakurichi	
36	158	28	Melapanankudi	
37	63	60	Mandhikulam	

38	169	51	Maranavariyendal	
39	91	87	Mangalakudi	
40	201/2	91	Melamadai Bit II	
41	182	86	Narasingam Bit I,II,III,IV	
42	123	9	Pillayarnatham	
43	127	15	Pattakurichi	
44	53	17	Podumbu Bit I &II	
45	60	36	Pechikulam	
46	90	44	Pudupatti	
47	172	50	Ponari	
48	69	59	Paraipatti	
49	70	61	Periyapatti	
50	183	96	Podasapatti	
51	202	102	Poolankulam	
52	205	106	Pappakudi	
53	93	95	Rajakambeeram	
54	99	222	Sakkimangalam Bit I & II	
55	4	2	Samayanallur	
56	122	8	Sambakkulam	
57	180	45	Sembianendal	
58	204	105	Seegankulam	
59	121	7	Siruvalai	
60	2	1	Thenur Bit I & II	
61	3	3	Thodaneri (Bit I & II)	
62	163	37	Thiruppalai Bit I, II and III	
63	89	47	Thuyaneri	
64	72	63	Therkupethampatti	
65	86	83	Thamaraipatti Bit I & II	
66	95	97	Thirumogur	
67	96	98	Thindivur	
68	197	99	Thathankulam	
69	67	57	Usilampatti	
70	92	88	Uthankudi	
71	199	94	Ulaganeri	
72	119	4	Vairavanatham	
73	120	5	Vittankulam	
74	134	6	Vayalur	
75	159	27	Vagaikulam	
76	160	30	Veppankulam	
77	161	32	Vadugapatti	
78	162	35	Veerapandi (Bit I & II)	
79	179	81	Velliankundram (Bit I to VII)	
80	198	100	Veerapanchan	

THIRUMANGALAM TALUK

S.No.	Village No Old	Village No. New	Village Name	Remarks
1	212	5	Chettikulam	
2	214	8	Chokkanathampatti	
3	63	12	Kudhiraisanikulam	
4	66	10	Kappalur	
5	216	94	Maravankulam	Thirumangalam Municipality (Part of village only included in Municipality)
6	213	7	Palakkapudupatti	
7	67	9	S.Pullankulam	
8	215	91	Senkulam	Thirumangalam Municipality
9	74	90	Venkatasamudram	-do-
10	73	92	Thirumangalam	-do-
11	72	93	Vadagarai	(Part of village only included in Municipality)
12	65	11	Dharumathupatti	
13	64	6	Uchapatti	
14	62	13	Urappanur (Bit I & II)	
15	217	95	Vidathikulam	
16	68	96	Virusankulam	

VADIPATTI TALUK

S.No.	Village No. Old	Village No. New	Village Name	Remarks
1	42	18	Ayanthenkaral	
2	85	48	Ilavankulam	
3	49	8	Kattakulam	
4	43	20	Kachirairuppu	
5	79	44	Kallanai	
6	80	45	Kumaram	
7	44	19	Melakkal	
8	81	46	Manjanji	
9	113	29	Nagari	
10	50	27	Nedunkulam	

22	82	47	Thandalai	

MANAMADURAI TALUK (Sivaganga District)

S.No.	Village No. Old	Village No. New	Village Name	Remarks
1	108	1	Kalavankulam	
2	107	2	Karisalkulam	
3	109	14	Kanjirankulam (part)	
4	102	7	Keeladi	
5	105	4	Kondhagai	
6	105	3	Pottapalayam	
7	104	5	Sayanapuram	
8	103	6	Sottathatti	

USILAMPATTI TALUK

S.No.	Village No. Old	Village No. New	Village Name	Remarks
1	10	8	Panniyan	

KARIAPATTI TALUK (Virudhunagar District)

S.No.	Village No. Old	Village No. New	Village Name	Remarks
1	1	1	Mangalam	

ABSTRACT

S.No.	Name of Taluk	No.of villages to be confirmed under section 10(4)
1	Madurai South Taluk	41
2	Madurai North Taluk	80
3	Thirumangalam Taluk	16
4	Vadipatti Taluk	22
5	Manamadurai Taluk	8
6	Usilampatti Taluk	1
7	Kariapatti Taluk	1
	Total	169

GOVERNMENT OF TAMIL NADU
1995

Registered No. M-1
Price : Rs. 1-50

TAMIL NADU GOVERNMENT GAZETTE

PUBLISHED BY AUTHORITY

No. 7

MADRAS, WEDNESDAY, FEBRUARY 22, 1995
Maasi 10, Bhava, Thiruvalluvur Aandu-2026

Part II - Section 2

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NOTIFICATION BY GOVERNMENT

COMMERCIAL TAXES AND RELIGIOUS ENDOWMENTS DEPARTMENT.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Ashok Leyland Limited, Madras.

G.O.(D) No.5, Commercial Taxes and Religious Endowments, 11th January 1995.

No.II(2)/CTRE/633/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 2,00,000 (Two lakhs) share certificates bearing serial numbers from 1 to 200000 to be issued by Thiruvalargal Ashok Leyland Limited, 19, Rajaji Salai, Post Box No.5073, Madras-600 001.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Uma Maheswari Mills Limited, 30, Sugavaneswara Road, Balaji Nagar, Salem-4.

G.O.(D) No.18, Commercial Taxes and Religious Endowments, 20th January 1995.

No.II(2)/CTRE/634/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 50,000 (fifty thousand only) share certificates bearing serial numbers from 6501 to 56500 to be issued by Thiruvalargal Uma Maheswari Mills Limited, Salem-4, 30, Sugavaneswara Road, Balaji Nagar, Post Box No. 415, Salem-636 004.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Sree Uma Parameswari Mills Limited, Salem.

G.O.(D) No.19, Commercial Taxes and Religious Endowments, 20th January 1995.

No.II(2)/CTRE/635/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 10,000 (ten thousand only) share certificates bearing numbers from 10001 to 20000 to be issued by Sree Uma Parameswari Mills Limited, Salem.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Anugraha Wood Products Limited, Coimbatore.

G.O.(D) No.20, Commercial Taxes and Religious Endowments, 20th January 1995.

No.II(2)/CTRE/636/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 23,000 (twenty-three thousand) share certificates bearing serial numbers from 101 to 23100 to be issued by Thiruvalargal Anugraha Wood Products Limited, Coimbatore.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Ram Kaashyap Investment Limited, Madras.

G.O.(D) No.21, Commercial Taxes and Religious Endowments, 20th January 1995.

No.II(2)/CTRE/637/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 30,000 (Thirty thousand only) share certificates bearing serial numers from 3001 to 33000 to be issued by Thiruvalargal Ram Kaashyap Investment Limited, Madras-600 018.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Sri Nachammai Cotton Mills Limited, Salem.

G.O.(D) No.26, Commercial Taxes and Religious Endowments, 23rd January 1995.

No.II(2)/CTRE/638/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 15,000 (fifteen thousand) share certificates bearing serial numbers from 27501 to 42500 to be issued by Sri Nachammai Cotton Mills Limited, Sugavaneswara Road, Balaji Nagar, Salem-636 004.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Tatia Intimate Exports Limited, Madras-102.

G.O.(D) No.35, Commercial Taxes and Religious Endowments, 25th January 1995.

No.II(2)/CTRE/639/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 96,000 (Ninty-six thousand) share certificates bearing serial numbers from 00001 to 96000 to be issued by Thiruvalargal Tatia Intimate Exports Limited, F 39, Anna Nagar East, Madras-600 102.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Kunal Engineering Company Limited, Madras-6.

G.O.(D) No.46, Commercial Taxes and Religious Endowments, 31st January 1995.

No.II(2)/CTRE/640/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 75,000 (seventy-five thousand) share certificates bearing serial numbers from 45001 to 1,20,000 to be issued by Thiruvalargal Kunal Engineering Company Limited, 16, Haddows Road, Madras-600 006.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Sterling Resorts (I) Limited, Madras-18.

G.O.(D) No.48, Commercial Taxes and Religious Endowments, 31st January 1995.

No.II(2)/CTRE/641/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 50,000 (fifty thousand) share certificates bearing serial numbers from 65001 to 115000 to be issued by Thiruvalargal Sterling Resorts (I) Limited, 154, Eldams Road, Madras-600 018.

Provision for consolidation of stamp duty on share certificates to be issued by Thiruvalargal Indo National Limited, Madras-34.

G.O.(D) No.51, Commercial Taxes and Religious Endowments, 1st February 1995.

No.II(2)/CTRE/642/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act,

1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 20,000 (twenty thousand) share certificates bearing serial numbers from 12243 to 32242 to be issued by Thiruvalargal Indo National Limited, 35, Nungambakkam High Road, Madras-600 034.

Provision for consolidation of stamp duty on share certificates debentures and Warrant Certificates to be issued by Thiruvalargal Aruna Sugars Finance Limited, Madras-34.

G.O.(D) No.28, Commercial Taxes and Religious Endowments, 24th January 1995.

No.II(2)/CTRE/643/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of one rupee per share certificate in respect of 11,000 (Eleven thousand) share certificates bearing serial numbers from 30001 to 41000 at the rate of seventy five paise per debenture of Rs.75 in respect of 3,70,000 (Three lakhs and seventy thousand) debentures of Rs.75 each bearing serial numbers from 40001 to 410000 and at the rate of one rupee per warrant certificate in respect of 22,500 (twenty two thousand and five hundred) Warrant certificates bearing serial numbers from 1 to 22500 respectively to be issued by Thiruvalargal Aruna Sugars Finance Limited, 145, Sterling Road, Madras-600 034.

Provision for consolidation of stamp duty on debentures to be issued by Thiruvalargal MAC Industries Limited, Madras.

G.O.(D) No.36, Commercial Taxes and Religious Endowments, 25th January 1995.

No.II(2)/CTRE/644/95.--In exercise of the powers conferred by clause (b) of sub-section (1) of section 9 of the Indian Stamp Act, 1899 (Central Act II of 1899), the Governor of Tamil Nadu hereby provides for the consolidation of duty chargeable under the said Act at the rate of seventy five paise per debenture of Rs.100 each in respect of 300000 (three lakhs) debentures of Rs.100 each bearing serial numbers from 1 to 300000 to be issued by Thiruvalargal MAC Industries Limited, 185, Mount Road, Madras-600 015.

E.M. BALASUBRAMANIAN,
Joint Secretary to Government.

HOUSING AND URBAN DEVELOPMENT DEPARTMENT.

Approval of Master plan for Madurai Local Planning Area.

G.O.Ms.No.122, Housing and Urban Development (UDIV), 6th February 1995.

No.II(2)/HOU/645/95.--In exercise of the powers conferred by sub-section (1) of section 30 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil

Nadu hereby publishes the approval of the Government under section 28 of the said Act for the master plan for Madurai local planning area submitted by the Director of town and Country Planning.

2. The master plan for Madurai local planning area with all its enclosures shall be kept open to the inspection of the public in the office of the Madurai local planning authority at Corporation Building, Madurai-625 002.

L.N. VIJAYARAGHAVAN,
Secretary to Government.

LABOUR AND EMPLOYMENT DEPARTMENT.

Disputes between workmen and managements referred to Labour Courts, Madras for adjudication.

Veljee Laxmidas and Company, Kumbakonam.

G.O.(D) No.54, Labour and Employment, 12th January 1995.

No.II(2)/LE/646/95.--whereas the Government are of opinion that an Industrial dispute has arisen between the workman represented by the Secretary, Kudanthai Vattam Anna Pothu Thozhilalar Sangam and the management of Veljee Laxmidas and Company, Kumbakonam in respect of matters mentioned in the Annexure to this order;

And, whereas, in the opinion of the Governor of Tamil Nadu it is necessary to refer the said dispute for adjudication;

Now, therefore, in exercise of the powers conferred by section 10(1) (c) read with the proviso to section 10(1) (d) of the Industrial Disputes Act, 1947 (Central Act XIV of 1947), the Governor of Tamil Nadu hereby directs that the said dispute be referred for adjudication to the Labour Court, Cuddalore.

Further under section 10(2A) of the Industrial disputes Act, 1947, the Labour Court, Cuddalore is requested to submit its award within three months from the date of the receipt of this order.

ANNEXURE

தொழிலாளர்களுக்கு வீட்டு வாடகைப்படி வழங்க வேண்டுமென்ற கோரிக்கை நியாயமானதா? ஆம் எனில், அதற்கான நிவராணம் பற்றி நிர்ணயிக்கவும்.

தற்போது வழங்கப்பட்டு வரும் ஆண்டு ஊதிய உயர்வினை உயர்த்த வேண்டுமென்ற கோரிக்கை நியாயமானதா? ஆம் எனில், தக்க ஆணைகள் வழங்கவும்.

உள்ளூர் விற்பனை பிரதிநிதிகளுக்கு தற்போது வழங்கப்பட்டு வரும் படிகாசினை உயர்த்த வேண்டுமென்ற கோரிக்கை நியாயமானதா? ஆமெனில், உயர்வுத் தொகையை நிர்ணயிக்கவும்.

தொழிலாளர்களுக்கு அடையாள அட்டை வழங்க வேண்டுமென்ற கோரிக்கை நியாயமானதா? ஆம் எனில், தக்க ஆணைகள் வழங்கவும்.

GOVERNMENT OF TAMIL NADU

ABSTRACT

Local Planning Area-Madurai Local Planning Area-Inclusion of additional villages in the Madurai Local Planning Area-Notification under section 10(4) of the Tamil Nadu Town and Country Planning Act 1971-Orders-Issued.

Housing and Urban Development (UD IV(2)) Department

G.O.Ms.No.414

Dated 11.7.2006

Read:

1. G.O.Ms.No.832, Rural Development and Local Administration Department, Dated 29.03.1974.
2. G.O.Ms.No.1782, Rural Development and Local Administration Department, Dated 3.8.1974.
3. G.O.Ms.No.611, Housing and Urban Development Department, Dated 7.5.1980.
4. G.O.Ms.No.838, Housing and Urban Development Department, Dated 3.7.80.
5. G.O.Ms.No.503, Housing and Urban Development Department Dated 27.6.1984.
6. From the Director of Town and Country Planning Letter Roc. No.19746/2000-MP2/Dated 26.4.2004 and 7.12.2005.

%%%%%

ORDER:

In the Government Order first read above, the Government have declared 48 villages under sub-section (1) of section (10) of the Town and Country Planning Act, 1971 as Madurai Local Planning Area. The same was published in Tamil Nadu Government Gazette Part II – Section 2, Page No.223, 224 Dated 24.7.1974.

2. In the Government Order 2nd read above, the Government confirmed the above 48 villages under sub-section (4) of section (10) of the Tamil Nadu Town and Country Planning Act, 1971as Madurai Local Planning Area. It was published in Tamil Nadu Government Gazette Part II Section 2 Page No.475 dated 11.9.1974.

3. In the Government order third read above the Government have declared additionally 165 villages after deleting Thatanur and Parayanikulam villages already confirmed in G.O.Ms.No.1782, Rural Development and Local Administration Department, Dated 3.8.1974 and published in Tamil Nadu Government Gazette in Part II Section 2 at page 176 dated 11.9.1974 under sub-section (1) of section 10 of the Town and Country Planning Act, 1971 as Local Planning Area and the same was published in the Housing and Urban Development Department Notification No.II(2)/HOU.2647/80 at pages 415 to 416 in Part II Section 2, of the Tamil Nadu Government Gazette dated the 25th June 1980.

4. In the Government order fifth read above, Government have notified further 4 villages in addition to 169 villages already declared as Local Planning Area. It has also been published in the Housing and Urban Development Department Notification No.II(2)/HOU 4.33/84 at pages 623 to 624 in Part II –Section 2 of the Tamil Nadu Government Gazette dated the 25th July 1984.

5. A proposal notifying the intention of the Government to include certain local areas (169 villages) forming a local planning area and to constitute Local Planning Authority, was published in the Housing and Urban Development Department Notification No.II(2)/HOU.2647/80 at pages 415 to 416 in Part II – Section 2 of the Tamil Nadu Government Gazette, dated the 25th June 1980 and Housing and Urban Development Department Notification No.II(2)/HOU.4 33/84 at pages 623 to 624, of Part II Section 2 of the Tamil Nadu Government Gazette dated 25th July 1984 for general information as required under sub-section(3) of section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act, 35 of 1972). As no objection or suggestion have been received, the Government declare the additional Local Areas specified in column (3) of the Table in the Notification appended to this order a Local Planning Area by the name specified in the corresponding entry in column (2) thereof.

6. The appended notification will be published in the Tamil Nadu Government Gazette.

(BY ORDER OF THE GOVERNOR)

R.SELLAMUTHU.
SECRETARY TO GOVERNMENT.

To
The Works Manager.
Government Central Press, Chennai-79.(for publication of the Notification in the Tamil Nadu Government Gazette)
The Director, Town and Country Planning, Chennai-2.
The District Collector, Madurai.
The Member Secretary, Madurai Local Planning Authority, Madurai. Thro': The DTCP. Chennai-2.
The Regional Deputy Director of Town and Country Planning, Madurai.
The Commissioner, Corporation of Madurai, Madurai.
Thro'. The DTCP, Chennai-2.
Copy to: The Senior Personal Assistant to Minister (Information), Chennai-9.
The Law Department, Chennai-9.
SF Sc Copy for file.

Forwarded:by order.

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SECTION OFFICE

31/5/[illegible]
Member Secretary
[illegible] Authority

APPENDIX.
NOTIFICATION.

In exercise of the power conferred by sub-section (4) of section 10 of the Tamil Nadu Town and Country Planning Act 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu hereby makes the following amendment to the Rural Development and Local Administration Department Notification No.II(2) RUL 3935 74, published at pages 476 to 477 in Part-II - Section 2 of the Tamil Nadu Government Gazette, dated the 11th September 1974, the draft of the same having been previously published, as required under sub-section (1) of section 10 of the said Act.

AMENDMENTS

In the said Notification for the Table, the following Table shall be substituted, namely:-

"THE TABLE

MADURAI NORTH TALUK

Village No (Old) (1)	Village No (New) (2)	Village Name (3)	Remarks (4)
		Goripalayam North Madurai	
51		Seliur	
52		Tattaneri	
53		Anaiyur	
54		Silaneri	
55		Mulakaranai	
97		Hanumarpatti(VandiyurPart)	
113		Parayanikulam	
155		Saitamangalam	
156		Sambandar Alangulam corp	
164		Athikulam corp	
165		Parasurampatti	
201/1		Melamadai	
05	14	Paravai Bit I and II	
57	16	Adhlai	
88	46	Arumbanur Bit I and II	
167	53	Alathur	
84	82	Avilankudi	
98	104	Andar kottaram	
59	31	Boothagudi	
65	54	Chetti Kulam	
68	58	Erukkalanathan	
206	107	Isaneri	
97	92	Vandiyur Part(Bit I and II)	
100	134	Elamanur	

200	93	Ilandhaikulam
170	49	Illuppakudi
171	48	Iranian
181	42	Kothankinar
94	103	Kalikappan(Bit I and II)
126	12	Kallikkudi
168	52	Kanankudi
211	136	Keruppapillaiendal
203	101	Kattavanendal
71	62	Kavanur
157	29	Keelapanangudi
125	11	Keelanedunkulam
128	13	Koil Kurundhankulam
56	18	Koilpappakudi
61	33	Kulamangalam(Bit I&II)
62	34	Karuvanur
173	43	K.Pappankulam
64	55	Kocia Pandi
66	56	Kodimangalam
177	80	Koilankulam
87	85	Kodi Kulam(Bit I & II)
210	135	Kerdapethan
124	10	Moolakurichi
158	28	Melapanangudi
63	60	Manthikulam
169	51	Maruvariendal
91	87	Mangalakudi
201-2	91	Melanadai Bit II
182	86	Narasingam Bit I,II,III,IV
123	9	Pillaiyarnatham
127	15	Panakurichi
58	17	Pothumbu Bit I & II
60	36	Petchikulam
90	44	Puthupatti
172	50	Poonari
69	59	Paraipatti
70	61	Periapatti
183	96	Podasapatti
202	102	Poolangulam
205	106	Pappakudi
93	95	Rajakambeeram
99	222	Sakki Mangalam Bit I & II
4	2	Samayanallur
122	8	Sambakulam
180	45	Sombiendal
204	105	Seegankulam
121	7	Siruvalai

47		West Madurai	
		East Madurai	
130		Melakuilkudi	
131		Keelakuilkudi	
137		Kalkulam	
138		Melanedungulam	
132		Thattanur	
153		Iruvadanallur	
154		Villupuram	
39	13	Ayanpappakudi	Included in Avaniyapuram Town Panchayat.
149	39	Chetikulam	
36	67	Sholanguruni	
01	01	Kodimangalam and Kodimangalam RF	
07	04	Keelamathikattinatti	
129	03	Kilamathur	
218	18	K.Pudupatty	
45	35	Kallambal	
147	44	Kodal Sengulam	
145	45	Kusavankundu	
37	46	K.Thuraikuny	
221	60	Kombadi	
35	68	Kusavapatti	
8	2	Melamathur	
140	55	Mulakkulam	
26/1	54	Nilayur Bit I	
26/2		Nilayur Bit II	
152	62	Nedumadurai	
32	66	Nallur	
220	59	Othai Alangulam	
15/3	26/3	Pudukulam Bit III	
224	30	Pirakudi	
44	33	Pulinakulam	
42	36	Panaiyur	
148	40	Perumalanendal	
38	48	Pappanodai	
139	51	Perungudi	
219	58	Periya Alangulam	
223	47	Ramankulam	
43	34	Silaiman	
150	38	Samanatham	
28	57	Surakulam	
133	21	Thanakkankulam	
135	19	Thoppur	
222	61	Thottiapatti	
151	32	Virahanur	

2	1	Thanur Bit I & II
3	3	Thodaneri(Bit I & II)
163	37	Thiruppalai Bit I, II and III
89	47	Thuyyaneri
72	62	Therukkupatham Patti
86	83	Thamarai Patti Bit I & II
95	97	Thirunohur
96	98	Thindiyur
197	99	Thathangulam
67	57	Usilampatti
92	88	Uthankudi
199	94	Ulaguneri
119	4	Vairavanathan
120	5	Vithan Kulam
134	6	Vavalur
159	27	Vagaikulam
160	30	Veppangulam
161	32	Vadugapatti
162	35	Veerapandi (Bit I & II)
179	81	Vellankundram (Bit I & VII)
198	100	Veerapanjam

MADURAI LOCAL PLANNING AUTHORITY

MADURAI SOUTH TALUK

Village No (Old) (1)	Village No (New) (2)	Village Name (3)	Remarks (4)
6		Thuvariman	
9		Karadipatti	
13/1		Pudukottai	
13/2		Vilachcheri	
14		Vadivelkarai	
15/2,15/2		Pudukkulam	
16		Sambakkudi	
17		Erkudi	
18		Achchampatu	
19		Kochadai	
20		Kokkalappi	
22		Arappalayam	
23		Ponmeni	
24		Madakulam	
25		Thiruparankunram	
38		Meenakshipuram	
40		Avaniapuram	
41		Sinthamani	
46		Anuppanadi	

146	49	Valayangulam
141	50	Valayapatti
57	56	Valeandhal
54	69	Virathanur
12	20	Vedar Pulliangulam

THIRUMANGALAM TALUK

Village No (Old)	Village No (New)	Village Name	Remarks
(1)	(2)	(3)	(4)
212	5	Chettikulam	
214	8	Shekanathanpatti	
63	12	Kudiraisanikulam	
66	10	Kappalur	
216	94	Maravankulam	Thirumangalam Municipality (Part of Village only included in Municipality)
213	7	Palakkapudupatty	
67	9	Pillankulam	
215	91	Sengulam	Thirumangalam Municipality
74	90	Venkata Samudram	-do-
73	92	Thirumangalam	-do-
72	93	Vadagarai	Part of village only included in Municipality
65	11	Tharumathupatty	
54	6	Uchapatti	
52	13	Urappanur(Bit I & II)	
217	95	Vidarbakulam	
68	96	Virusangulam	

VADIPATTI TALUK

42	18	Avanthengarai
85	48	Havankulam
49	8	Kattakulam
43	20	Kechuramuppu
79	44	Kallanai
80	45	Kunaram
44	19	Melakkal
81	46	Manivanji
113	29	Naga
50	27	Nedungulam

//True Copy//

Member Secretary
Madurai Local Planning Authority

90	43	Parali	
115	31	Sithalangudi	
116	34	Sambakulam	
47	23	Sholavandan	Sholavandhan Town Panchayat
46	24	Solai Kurichi	-do-
39	22	Pettai	-do-
45	25	Thiruvepagam	
111	26	Thirumalanatham	
113	28	Thiruvayavanallur	
114	30	Thathangulam	
110	32	Thanichiyam	
82	47	Thandalai	

MANAMADURAI TALUK (SIVAGANGA DISTRICT)

Village No (Old) (1)	Village No (New) (2)	Village Name (3)	Remarks (4)
108	1	Kalviraikulam	
107	2	Karisal Kulam	
109	14	Kanjirangulam(part)	
102	7	Keeladi	
105	4	Kondagai	
106	3	Pottapalayam	
104	5	Savanapuram	
103	6	Sothathetti	

USILAMPATTI TALUK

Village No (Old) (1)	Village No (New) (2)	Village Name (3)	Remarks (4)
10	8	Pannivam	

KARIAPATTI TALUK (VIRUDHUNAGAR DISTRICT)

Village No (Old) (1)	Village No (New) (2)	Village Name (3)	Remarks (4)
1	1	Mangalam	

9017/12 MP2

ABSTRACT

Local Planning Area – Madurai Local Planning Area – Addition of certain villages to Madurai Local Planning Area - Notification under section 10(1) (b) of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972) - Amalgamation of Melur and Thirupuvanam Local Planning Areas with Madurai Local Planning Area - Notification under section 10(5) of the said Act – Existing rules and regulations made under Tamil Nadu Town and Country Planning Act, 1971 applicable to Madurai Local Planning Area - Applicable to areas included in Madurai Local Planning Area - Notification under section 10(6) of the Act - Declaring the Assets and Liabilities of Melur and Thirupuvanam Local Planning Authority shall vest with amalgamated Madurai Local Planning Authority – Notification under section 10(7) of the said Act – Orders Issued.

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Housing and Urban Development [UD4(2)]Department

G.O.(Ms).No.89 **Dated:29.05.2014**

ஜய வருடம் வைகாசி திங்கள் 15
திருவள்ளுவர் ஆண்டு 2045

Read:

1. G.O.Ms.No. 1782, Rural Development and Local Administration Department, dated 3.8.1974.
2. G.O.Ms.No.1475, Housing and Urban Development Department, dated 10.11.1980.
3. G.O.Ms.No.367, Housing and Urban Development Department, dated 05.05.1984.
4. G.O.Ms.No.161, Housing and Urban Development Department, dated 11.07.2006.

Read also:

5. From the Commissioner of Town and Country Planning, letter No.9017/2012/MP2,dated 13.7.2012.

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ORDER:

In the Government Order first read above, the local planning area of Madurai was declared and notified under sub-section (4) of section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972).

2. In the Government Order second read above, Melur local planning area was declared under sub-section (4) of section 10 of the said Act.

3. In the Government Order third read above, the local planning area for Thirupuvanam was declared and notified under sub-section (4) of section 10 of the said Act.

4. In the Government Order fourth read above, the 169 Villages were added to Madurai local planning area and was notified under sub-section 4 of section 10 of the said Act.

5. In his letter read above, the Commissioner of Town and Country Planning has stated that the boundaries of Madurai Corporation has expanded and a large chunk of villages have been added to Madurai Corporation. The road from Trichy to Tirunelveli has been a four lane road and there are huge developments along that road. Hence the expansion of Madurai local planning area has been necessitated and has requested the Government to include 152 Villages and 6 Town Panchayats and the villages covered under Madurai Palkalai Nagar New Town Development to Madurai local planning area and amalgamate Thirupuvanam local planning area and Melur local planning area with Madurai local planning area, under section clause (b) of sub-section (1) of section 10 and sub-section (5) of section 10 of the said Act respectively.

6. The Government, after careful consideration of the proposal of Commissioner of Town and Country Planning and in consultation with the Director and the local planning authorities concerned hereby amalgamate the local planning areas of Thirupuvanam and Melur with Madurai local planning area and direct that the existing rules, orders made and regulations under the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972) and hitherto followed in Madurai local planning area shall apply to amalgamated Madurai local planning area which includes areas covered under Thirupuvanam and Melur local planning area. The Government also declare that the assets and liabilities of the Thirupuvanam local planning authority and Melur local planning authority shall vest in the amalgamated Madurai local planning authority. The Government have also decided to declare the intention of the Government to include additional areas as proposed by the Commissioner of Town and Country Planning and the 6 villages covered under Madurai Palkalai Nagar New Town Development Area to Madurai local planning area under clause (b) of sub-section (1) of section 10 of the said Act.

7. Accordingly, the appended Notifications shall be published in the next issue of Tamil Nadu Government Gazette.

8. The Collector of Madurai District is requested to republish the Notification both in English and Tamil in the District Gazette.

9. The Director of Tamil Translation is requested to arrange to have the Notifications translated into Tamil and forward the translation urgently to the Collector of Madural District.

10. The Collector of Madural District is requested to report to the Government, the republication of the Notification in the District Gazette.

(BY ORDER OF THE GOVERNOR)

K. PHANINDRA REDDY,
PRINCIPAL SECRETARY TO GOVERNMENT.

To

1) The Commissioner of Town and Country Planning, Chennai - 600 002.
2) The Works Manager, Government Central Press, Chennai - 600 079.
3) The District Collector of Madural, Madural.
4) The Member Secretary, Madural Local Planning Authority. (Thorugh Commissioner of Town and Country Planning, Chennai-600 002).
5) The Member Secretary, Melur Local Planning Authority. (Thorugh Commissioner of Town and Country Planning, Chennai-600 002).
6) The Member Secretary, Thirupuvanam Local Planning Authority. (Thorugh Commissioner of Town and Country Planning, Chennai-600 002.)
7) The Member Secretary, Madurai Palkalai Nagar New Town Development Authority. (Thorugh Commissioner of Town and Country Planning, Chennai-600 002)
8) The Senior Personal Assistant to Minister (Hg&UD), Chennai-600 009.
9) The Private Secretary to Secretary to Government, Housing and Urban Development Department, Chennai-600 009.
10) The Law Department, Chennai -600 009.

Sf/Sc.

/ FORWARDED / BY ORDER /

SECTION OFFICER.

30/5/14

APPENDIX.

NOTIFICATION – I.

In exercise of the powers conferred by clause (b) of sub-section (1) of section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu hereby declares his intention to include certain villages under the non-plan area and villages under the Madurai Palkalai Nagar New Town Development area and to make the following amendment to the Rural Development and Local Administration Department Notification No.II (2) / RUL /3935/74, published at page 475 of Part II - Section 2 of the Tamil Nadu Government Gazette, dated the 11th September 1974.

2. Notice is hereby given that the following draft amendment will be taken into consideration under sub-section (4) of section 10 of the said Act on or after the expiry of two months from the date of publication of this Notification in the Tamil Nadu Government Gazette and that any objection or suggestion, which may be received from any inhabitant or any local authority or institution in the local areas, with respect thereto, before the expiry of the period aforesaid will be duly considered by the Government of Tamil Nadu. Objection or suggestion in writing, if any, should be addressed to the Secretary to Government, Housing and Urban Development Department, Fort St. George, Secretariat, Chennai – 600 009.

DRAFT AMENDMENT.

In the said Notification, for "THE TABLE" the following Table shall be substituted, namely:-

"THE TABLE"

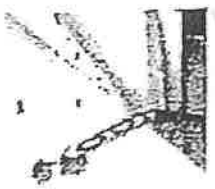
Serial Number	Name of local planning area	Number and Name of revenue villages.
(1)	(2)	(3)
1	Madurai	1. Madurai South Taluk
		06 Acharnpattu
		39 Shettikulam
		67 Solankuruni
		65 Eliyarpathi
		11 Erkudi
		01 Kodimangalam
		Kodimangalam RF
		04 Keelamathukattam
		03 Kilmathur

73	Nedunkulam
63	Periakudakoil
64	Paralpatti
17	Sakkiliapatti
16	Thenpalanji
15	Vadapalanji

2. Madurai North Taluk

16	Adalai
53	Alattur
31	Boothakudi
54	Chettikulam
58	Erukkalainatham
49	Iluppaikkudi
48	Iraniyam
12	Kallikudi
52	Kannikudi
62	Kavanur
29	Kilpanangadi
11	Kilnedungulam
13	kurandankulam
18	Kovilpappagudi
33	Kulamangalam (BIT I & II)
34	Karuvanur
55	Koolapandi
56	Kodimangalam
10	Mulakkurichchi
28	Melapanangadi
60	Mandikulam
51	Maranavariendal
9	Pillayarnattam
15	Pattakkurichchi
17	Podumbu (Bit I & II)
36	Pechikulam
50	Poonari
59	Paraippatti
61	Periapatti
2	Samayanallur
8	Sambakulam
7	Siruvalai
	Siruvalai (Ariyur)
	Siruvalai (Ambalathadi)
	Siruvalai (Sellakavundanpatti)

18	K.Pudupatti
35	Kallambal
44	Kudalsenkulam
45	Kusavankundu
46	Kudiraikuthi
60	Kombadi
68	Kusavapatti
14	Karadipatti
23	Kilkuyilkudi
2	Melamathur
55	Mullakulam
22	Melakulkudi
54	Nilaiyur Bit I
	Nilaiyur Bit II
62	Nedumadurai
66	Nallur
59	Ottai Alangulam
26/1	Pudukulam Bit – I
30	Pirakkudi
33	S.Puliyankulam
36	Panaiyur
40	Perumalendal
48	Pappanodal
51	Perunkudi
58	Periya Alangulam
47	Ramankulam
34	Silaiman
38	Samanatham
57	Soorankulam
12	Sambakudi
21	Thanakkamkulam
19	Thoppur
61	Thottiyapatti
5	Thuvariman
24	Tattanur
32	Viraganur
49	Valayankulam
50	Valayapatti
56	Valanendal
69	Viradhanur
20	Vedarpuliangulam
13/1	Vilacheri – Bit I
13/2	Vilacheri – Bit II
25	Vadivelkaral
70	Moothankulam
71	Panaikulam
72	Muthupillai Alankulam



1	Thenur (Bit I & II)
3	Thodaneri (Bit I &II)
63	Therkupettanpatti
57	Usilampatti
4	Valravanattam
5	Vittangulam
6	Vayalur
27	Vagaikulam
30	Veppankulam
32	Vadugapatti
35	Veerapandi (BIT I & II)
46	Arumbanur Bit I & II
82	Aiyolangudi
104	Andarkottaram
107	Ichchaneri
134	Ilamanur
42	Kadakkinaru
103	Kalikappan (Bit I & II)
136	Karuppapillaiendal
101	Kathavanendal
43	K.Pappankulam
80	Kollankulam
85	Kodikulam (Bit I & II)
135	Kandapettan
86	Narasingam Bit I.(Senguttam)
	Narasingam Bit 2 (thettankulam)
	Narasingam Bit 3, (Kadachenendal)
	Narasingam Bit 4 (Narasingam)
44	Pudupatti
96	Podasapatti
102	Pulangulam
106	Pappakudi
95	Rajagambiram
137	Sakkimangalam
45	Sembiyendal
105	Singankulam
83	Thamaraipatti (Bit I & II)
97	Thirumohur
98	Thindiyur
99	Tadankulam
47	Thuyyaneri
81	Vellangundram Bit I (Andaman)
	Vellankundram Bit II (Appanthirupathi)

	Velllankundram Blt III (Velllankundram)
	Velllankundram Blt IV (Mathur)
	Velllankundram Blt V (Porasupatti)
	Velliankundram Blt VI (Chettlkulam)
	Velllankundram Blt VII (Pullucheri)
100	Veerapanjan Alagarkovil RF
70	Kadavur
68	Chattra Tondaman patti Kilavumalai RF
69	Manjampatti
66	Velichinatham
67	Sinnapatti
64	Poolampatti
65	Malaippattl
71	Poykkaral patti
72	Naickan patti
73	Mangulam
79	Savalakkarayan
74	Meenakshipuram
75	Kurudur
77	Kallandiri
78	Povakkudi
76	Govlndankundu Pappankulam
84	Perakkur
108	Mundanayagam
109	Kusavikulam
110	Rajakur
111	Sivalingam
112	Nattar mangalam
113	Ilangiyendal
114	Slttakkur
115	Panalkulam
116	Kundukulam
117	Poblampatti
118	Valaichikulam
119	Thirukkanai
120	Nedungulam
121	Varaganerl
122	Vellaikuppan
123	Idayapatti

124	Isalani
125	Parayankulam
126	Thatchanendal
127	Karuppukkal
128	Velankulam
129	Varichiyur
130	Vellakundu
131	Vedathakulam
132	Attikulam
133	Vilathur
138	Sakkudi
139	Karseri
140	Udangundu
141	koilikudi
142	Pottapanayur
143	Kunnathur
144	Alavandan
145	Senkottai
146	Ovalur
147	Kalimangalam
148	Ananjiyur
149	Angadimangalam

3. Thirumangalam Taluk

33	Chettikulam
37	Chockanathan patti
35	Dharmathupatti
39	Kappalur
31	Kudirai chanikulam
40	Maravankulam (part)
36	Palakkapudu patti
38	S.Puliankulam
34	Uchappatti
32	Urappanur Bit- I
	Urappanur Bit- II
60	Vadagaral (part)
61	Vidathakulam
62	Virusankulam
2	A.Kokkulam
1	K.Pulilyankulam
3	Kinnimangalam

4. Melur Taluk

52	Ayithipatti
53	Valaiyappatti

51	Kidaripatti
49	Pullpatti
40	Pudusukkam.patti
54	Arittapatti
55	Kallampatti
39	Surakkundu
	Perumalmalai R.F.
59	Narasingam patti
56	Kaligulam
57	Chaduramadangan
58	Uduppalkkulam
36	Terkutheru
33	Valayankulam
35	Vellalapatti
34/1,2	Manikkampatti
32	Padinettamkudi
31	Attukulam
30	Navinippatti
71	Thiruvadur
72/1,2	Perungalakudi
73	Kottakudi
74	Nalukulam
76	Panangadi
75	Arasappanpatti
70	kovilpatti
65	Mukkampatti
64	Sorikulipatti
63	Amoor
60	Marudur
61	Urukalpuliyankulam
62	Kilavaikulam
69	veppadappu
68	Punjutti
67	Kiranur
66	Tuvarangulam
41	Ettimangalam
42	Kavathayam patti
43	Sennagaram patti
21	Tumbappatti

5. Vadipatti Taluk

18	Ayanthenkaral
8	Kattakulam
20	Katchirairuppu
19	Melakkal
29	Nagari

27	Nedungulam
31	chittalangudi
25	Thiruvedagam
26	Thirumal natham
28	Thiruvalavayanallur
30	Tatankulam
48	Ilavangulam
44	Kallanai
45	Kumaram
46	Manlanji
43	Parali
34	Sambakulam
32	Thanichchiyiam
47	Thandalai
06	Andipatti
14	Ayankuruvi thural
05	Chinnamanayakkan patti
12	Irumbadi
13	Karupatti
15	Kovil kuruvithural
21	Kovil Thenkarai
16	Mannadi Mangalam
17	Mullipallam
11	Nachikulam
09	Niretham
04	Tatampatti
07	Thummachcham patti
	Vikra mangalam RF
49	Achchampatti
41	Alagapuri
36	Amaradakki
37	Chinna Ilandaikulam
35	Kallivellipatti
40	Kilkarai
39	Kuttimelkupatti
50	Pannaikudi
38	Perla Ilandaikulam
51	Vavidamarudur

6. Manamadurai Taluk

01	Kaluvankulam
14/1,	Kanjirangulam
02	Karisal kulam
07	Kiladi
04	Kondagai
03	Pottapalayam
05	Sayanapuram

06	Sottattatti
9	Adi karai
21	Allinagaram
18	Ambalattadi
28	Enadi
15	Erukkilai vellur
31	Kanur
34	Ladanendal
26	Madappuram
19	Mangudi
20	Mel rangiyam
16	Mukkudi
22	Panaiyanendal
30	Pappagudi
27	Puvandi
29	Sembar
17	Sengulam
25	Teli
23	Velaianendal
13	Vellur
14/2	Kanjirankulam

7. Kariyapatti Taluk

1	Mangulam

8. Usilampatti Taluk

8 Panniyan
Vadipatti Town Panchayat
Alaganallur Town Panchayat
A. Vallalapatti Town Panchayat
Palamedu Town Panchayat

K. PHANINDRA REDDY,
PRINCIPAL SECRETARY TO GOVERNMENT.

/ True Copy/

Section Officer.

30/5/14

NOTIFICATION – II.

In exercise of the powers conferred by sub-section (5) of section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu, in consultation with the Director and the local planning authorities of the Madurai, Melur and Thiruppuvanam local planning areas hereby amalgamates the Thirupuvanam and Melur local planning areas with the Madurai local planning area, and constitutes the said areas so amalgamated as Madurai local planning area.

K. PHANINDRA REDDY,
PRINCIPAL SECRETARY TO GOVERNMENT.

/ True Copy/

Section Officer.

30/5/14

NOTIFICATION – III.

In exercise of the powers conferred by sub-section (6) of section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu, hereby directs that the rules and orders made, regulations and directions issued and powers conferred under the said Act and in force in the Madurai local planning area shall apply to the Thirupuvanam and Melur local planning areas as so amalgamated with the Madurai local planning area.

K. PHANINDRA REDDY,
PRINCIPAL SECRETARY TO GOVERNMENT.

/ True Copy/

Section Officer.

30/5/14

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TAMIL NADU GOVERNMENT GAZETTE

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No. 24] CHENNAI, WEDNESDAY, JUNE 25, 2014
Aani 11, Jaya, Thiruvalluvar Aandu – 2045

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[G.O. Ms. No. 89, Housing and Urban Development [UD4(2)], 29th May 2014, வைகாசி 15, ஜய, திருவள்ளுவர் ஆண்டு 2045.]

No. II(2)/HOU/382/2014.—In exercise of the powers conferred by clause (b) of sub-section (1) of Section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu hereby declares his intention to include certain villages under the non-plan area and villages under the Madurai Palkalai Nagar New Town Development area and to make the following amendment to the Rural Development and Local Administration Department Notification No. II (2) / RUL /3935/74, published at page 475 of Part II - Section 2 of the *Tamil Nadu Government Gazette*, dated the 11th September 1974.

2. Notice is hereby given that the following draft amendment will be taken into consideration under sub-section (4) of Section 10 of the said Act on or after the expiry of two months from the date of publication of this Notification in the *Tamil Nadu Government Gazette* and that any objection or suggestion, which may be received from any inhabitant or any local authority or institution in the local areas, with respect thereto, before the expiry of the period aforesaid will be duly considered by the Government of Tamil Nadu. Objection or suggestion in writing, if any, should be addressed to the Secretary to Government, Housing and Urban Development Department, *Fort St. George*, Secretariat, Chennai - 600 009.

DRAFT AMENDMENT

In the said Notification, for "THE TABLE" the following Table shall be substituted, namely:—

THE TABLE

Serial Number	*Name of local planning area.*	*Number and Name of revenue villages.*
(1)	*(2)*	*(3)*
1	Madurai	**1 Madurai South Taluk**
		06 Achampattu
		39 Shettikulam
		67 Solankuruni
		65 Eliyarpathi
		11 Erkudi
		01 Kodimangalam Kodimangalam RF
		04 Keelamathukattam
		03 Kilmathur
		18 K. Pudupatti
		35 Kallambal
		44 Kudalsenkulam
		45 Kusavankundu
		46 Kudiraikuthi
		60 Kombadi
		68 Kusavapatti
		14 Karadipatti
		23 Kilkuyilkudi
		2 Melamathur
		55 Mullakulam
		22 Melakulkudi
		54 Nilaiyur Bit I Nilaiyur Bit II
		62 Nedumadurai
		66 Nallur
		59 Ottai Alangulam
		26/1 Pudukulam Bit - I
		30 Pirakkudi
		33 S.Puliyankulam
		36 Panaiyur
		40 Perumalendal
		48 Pappa[illegible]kai
		51 Pe[illegible]kudi
		58 Periya Alan[illegible]
		47 Ram[illegible]n
		34 Silaiman
		38 Samanatham
		57 Soorankulam
		12 Sambakudi
		21 Thanakkamkulam
		19 Thoppur
		61 Thottiyapatti
		5 Thuvariman
		24 Tattanur
		32 Viraganur
		49 Valayankulam
		50 Valayapatti

Serial Number (1)	Name of local planning area. (2)	Number and Name of revenue villages. (3)
		56 Valanendal
		69 Viradhanur
		20 Vedarpuliangulam
		13/1 Vilacheri - Bit I
		13/2 Vilacheri - Bit II
		25 Vadivelkarai
		70 Moothankulam
		71 Panaikulam
		72 Muthupillai Alankulam
		73 Nedunkulam
		63 Periakudakoil
		64 Paraipatti
		17 Sakkiliapatti
		16 Thenpalanji
		15 Vadapalanji
		2. Madurai North Taluk
		16 Adalai
		53 Alattur
		31 Boothakudi
		54 Chettikulam
		58 Erukkalainatham
		49 Iluppaikkudi
		48 Iraniyam
		12 Kallikudi
		52 Kannikudi
		62 Kavanur
		29 Kilpanangadi
		11 Kilnedungulam
		13 Kurandankulam
		18 Kovilpappagudi
		33 Kulamangalam (BIT I & II)
		34 Karuvanur
		55 Koolapandi
		56 Kodimangalam
		10 Mulakkurichchi
		28 Melapanangadi
		60 Mandikulam
		51 Maranavarlendal
		9 Pillayamattam
		15 Pattakkurichchi
		17 Podumbu (Bit I & II)
		36 Pechikulam
		50 Poonari
		59 Paraipatti
		61 Periapatti
		2 Samayanallur
		8 Sambakulam
		7 Siruvalai
		Siruvalai(Ariyur)
		Siruvalai (Ambalathadi)
		Siruvalai (Sellakavundanpatti)
		1 Thenur (Bit I & II)
		3 Thodaneri (Bit I & II)
		63 Therkupettanpatti
		57 Usilampatti
		4 Vairavanatham
		5 Vittangulam
		6 Vayalur
		27 Vagaikulam
		30 Veppankulam
		32 Vadugapatti
		35 Veerapandi (Bit I & II)
		46 Arumbanur (Bit I & II)
		82 Alyolangudi
		104 Andarkottaram
		107 Ichchaneri

Serial Number (1)	Name of local planning area. (2)	Number and Name of revenue villages. (3)
		134 Ilamanur
		42 Kadakkinaru
		103 Kalikappan (Bit I & II)
		136 Kanappapillaiendal
		101 Kathavanendal
		43 K. Pappankulam
		80 Kollankulam
		85 Kodikulam (Bit I & II)
		135 Kandapettan
		86 Narasingam Bit I (Senguttam)
		Narasingam Bit 2 (Thettankulam)
		Narasingam Bit 3 (Kadachenendal)
		Narasingam Bit 4 (Narasingam)
		44 Pudupatti
		96 Podasapatti
		102 Pulangulam
		106 Pappakudi
		95 Rajagambiram
		137 Sakkimangalam
		45 Sembiyendal
		105 Singankulam
		83 Thamaraipatti (Bit I & II)
		97 Thirumohur
		98 Thindiyur
		99 Tadankulam
		47 Thuyyaneri
		81 Velliangundram Bit I (Andaman)
		Velliankundram Bit II (Appanthirupatti)
		Velliankundram Bit III (Velliankundram)
		Velliankundram Bit IV (Mathur)
		Velliankundram Bit V (Porasupatti)
		Velliankundram Bit VI (Chettikulam)
		Velliankundram Bit VII Pullucheri)
		100 Veerapanjan
		Alagarkovil RF
		70 Kadavur
		68 Chattra Tondaman patti
		Kilavumalai RF
		69 Manjampatti
		66 Velichinatham
		67 Sinnapatti
		64 Poolampatti
		65 Malaippatti
		71 Poykkarai patti
		72 Naickan patti
		73 Mangulam
		79 Savalakkarayan
		74 Meenakshipuram
		75 Kurudur
		77 Kallandiri
		78 Povakkudi
		76 Govindankundu
		Pappankulam
		84 Perakkur
		108 Mundanayagam
		109 Kusavikulam
		110 Rajakur
		111 Sivalingam
		112 Nattar mangalam
		113 Ilangiyendal

Serial Number (1)	Name of local planning area. (2)	Number and Name of revenue villages. (3)
		114 Sittakkur
		115 Panaikulam
		116 Kundukulam
		117 Poolampatti
		118 Valaichikulam
		119 Thirukkanal
		120 Nedungulam
		121 Varaganeri
		122 Vellaikuppan
		123 Idayapatti
		124 Isalani
		125 Parayankulam
		126 Thatchanendal
		127 Karuppukkal
		128 Velankulam
		129 Varichiyur
		130 Vellakundu
		131 Vedathakulam
		132 Attikulam
		133 Vilathur
		138 Sukkudi
		139 Karseri
		140 Udangudi
		141 Koilikudi
		142 Pottapanayur
		143 Kunnathur
		144 Alavandan
		145 Senkottai
		146 Ovalur
		147 Kalimangalam
		148 Ananjiyur
		149 Angadimangalam
		3. Thirumangalam Taluk
		33 Chettikulam
		37 Chockanathan patti
		35 Dharmathupatti
		39 Kappalur
		31 Kudirai chanikulam
		40 Maravankulam (part)
		36 Palakkapudu patti
		38 S.Pudiankulam
		34 Uchappatti
		32 Urappanur Bit- I
		Urappanur Bit- II
		60 Vadagarai (part)
		61 Vidathakulam
		62 Virusankulam
		2 A. Kokkulam
		1 K.Puliyankulam
		3 Kinnimangalam
		4. Melur Taluk
		52 Ayithipatti
		53 Valaiyappatti
		51 Kidaripatti
		49 Pulipatti
		40 Pudusukkam patti
		54 Aritta patti
		55 Kallampatti
		39 Surakkundu
		Perumalmalai R.F.
		59 Narasingam patti
		56 Kaligulam
		57 Chaduramadangan
		58 Uduppaikkulam
		36 Terkutheru
		33 Valayankulam
		35 Vellalapatti
		34/1,2 Manikkampatti
		32 Padinettamkudi
		31 Attukulam

Serial Number (1)	Name of local planning area. (2)	Number and Name of revenue villages. (3)
		30 Navinippatti
		71 Thiruvadur
		72/1,2 Perungalakudi
		73 Kottakudi
		74 Nalukulam
		76 Panangadi
		75 Arasappanpatti
		70 Kovilpatti
		65 Mukkampatti
		64 Sorikulipatti
		63 Amoor
		60 Marudur
		61 Urukalpuliyankulam
		62 Kilavaikulam
		69 Veppadappu
		68 Punjuti
		67 Kiranur
		66 Tuvarangulam
		41 Ettimangalam
		42 Kavathayam patti
		43 Sennagaram patti
		21 Tumbappatti
		5. Vadipatti Taluk
		18 Ayanthenkarai
		8 Kattakulam
		20 Katchirairuppu
		19 Melakkal
		29 Nagari
		27 Nedungulam
		31 Chittalangudi
		25 Thiruvedagam
		26 Thirumalnatham
		28 Thiruvalavayanallur
		30 Tatankulam
		48 Ilavangulam
		44 Kallanai
		45 Kumaram
		46 Manianji
		43 Parali
		34 Sambakulam
		32 Thanichchiyiam
		47 Thandalai
		06 Andipatti
		14 Ayankuruvi thurai
		05 Chinnamanayakkan patti
		12 Irumbadi
		13 Karupatti
		15 Kovil kuruvithurai
		21 Kovil Thenkarai
		16 Mannadi Mangalam
		17 Mullipallam
		11 Nachikulam
		09 Niretham
		04 Tatampatti
		07 Thummachcham patti
		Vikra mangalam RF
		49 Achchampatti
		41 Alagapuri
		36 Amaradakki
		37 Chinna ilandaikulam
		35 Kallivellipatti
		40 Kilkarai
		39 Kuttimeikupatti
		50 Pannaikudi
		38 Peria Ilandaikulam
		51 Vavidamarudur
		6. Manamadurai Taluk
		01 Kaluvankulam
		14/1, Kanjirangulam
		02 Karisal kulam
		07 Kiladi
		04 Kondagai
		03 Pottapalayam
		05 Sayanapuram

Serial Number	Name of local planning area.	Number and Name of revenue villages.
(1)	(2)	(3)
		06 Sottattatti
		9 Adi karai
		21 Allinagaram
		18 Ambalattadi
		28 Enadi
		15 Erukkilai vellur
		31 Kanur
		34 Ladanendal
		26 Madappuram
		19 Mangudi
		20 Mel rangiyam
		16 Mukkudi
		22 Panaiyanendal
		30 Pappagudi
		27 Puvandi
		29 Sembar
		17 Sengulam
		25 Teli
		23 Velaianendal
		13 Vellur
		14/2 Kanjirankulam
		7. Kariyapatti Taluk
		1 Mangulam
		8. Usilampatti Taluk
		8 Panniyan Vadipatti Town Panchayat Alaganallur Town Panchayat A. Vallalapatti Town Panchayat Palamedu Town Panchayat

NOTIFICATION-II.

[G.O. Ms. No. 89, Housing and Urban Development [UD4(2)], 29th May 2014, வைகாசி 15, ஐய, திருவள்ளுவர் ஆண்டு 2045.]

No.II(2)/HOU/383/2014.—In exercise of the powers conferred by sub-section (5) of Section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu, in consultation with the Director and the local planning authorities of the Madurai, Melur and Thiruppuvanam local planning areas hereby amalgamates the Thirupuvanam and Melur local planning areas with the Madurai local planning area, and constitutes the said areas so amalgamated as Madurai local planning area.

NOTIFICATION-III.

[G.O. Ms. No. 89, Housing and Urban Development [UD4(2)], 29th May 2014, வைகாசி 15, ஐய, திருவள்ளுவர் ஆண்டு 2045.]

No.II(2)/HOU/384/2014.—In exercise of the powers conferred by sub-section (6) of Section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972), the Governor of Tamil Nadu, hereby directs that the rules and orders made, regulations and directions issued and powers conferred under the said Act and in force in the Madurai local planning area shall apply to the Thirupuvanam and Melur local planning areas as so amalgamated with the Madurai local planning area.

NOTIFICATION-IV.

[G.O. Ms. No. 89, Housing and Urban Development [UD4(2)], 29th May 2014, வைகாசி 15, ஐய, திருவள்ளுவர் ஆண்டு 2045.]

No.II(2)/HOU/385/2014.—In exercise of the powers conferred by sub-section (7) of Section 10 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972) the Governor of Tamil Nadu, in consultation with the Director and the local planning authorities of the Madurai, Melur and Thiruppuvanam local planning areas hereby declares, that the assets and liabilities of the Melur local planning authority, Thirupuvanam local planning authority and Madurai local planning authority shall vest in the Madurai local planning authority.

K. PHANINDRA REDDY,
Principal Secretary to Government.

LOBOUR AND EMPLOYMENT DEPARTMENT

Constitution of Committee for fixation of minimum rates of wages for the employment in Folding Textile Goods under the Minimum Wages Act.

[G.O.Ms. No. 46, Labour and Employment (J2), 28th May 2014, வைகாசி 14, ஐய, திருவள்ளுவர் ஆண்டு 2045.]

No.II(2)/LE/386/2014.

In exercise of the powers conferred by clause (a) of sub-section (1) of Section 5 read with Section 9 of the Minimum Wages Act, 1948 (Central Act XI of 1948), the Governor of Tamil Nadu hereby appoints a committee consisting of the following members to hold enquires and advise

அரசாணை (நிலை) எண். 22, நகராட்சி நிர்வாகம் மற்றும் குடிநீர் வழங்குதல் (நநி.1), நாள்.30.1.97.

தமிழ் நாடு அரசு
சுருக்கம்

கட்டிட அனுமதி - புராதன நகரங்களில் கட்டிட அனுமதி வழங்குதல் - அரசு ஆணைகள் இரத்து செய்தல் மற்றும் உயரத் கட்டுப்பாடு விதித்தல் - ஆணை வெளியிடப்படுகிறது.

நகராட்சி நிர்வாகம் மற்றும் குடிநீர் வழங்குதல் (நநி.1) துறை

அரசாணை (நிலை) எண்.22 நாள். 30.1.97

1. அரசாணை (நிலை) எண். 163 நதி & கு.வ.துறை. நாள். 6.7.93
2. அரசாணை (நிலை) எண். 191 நதி & கு.வ.துறை நாள், 18.7.94.
3. அரசாணை (நிலை) எண். 233 நதி & கு.வ. துறை நாள் 27.11.95
4. அர்சாணை (நிலை) எண்.234 நதி & கு.வ.துறை நாள் 27.11.95.

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ஆணை,

ஸ்ரீரங்கம் நகரத்தில் ஸ்ரீரங்கம் கோவில் சுற்றுச் சுவரிலிருந்து 1கி மீட்டர் சுற்றளவுக்குள் கட்டப்படும் கட்டிடங்கள் தரை மற்றும் முதல் தளம் சேர்ந்து உயரம் 9 மீட்டருக்குள் இருக்க வேண்டும் என்றும், இந்த வரையறைக்குட்படாத அதாவது 1கி மீட்டர் துரத்திற்கு அப்பால் உள்ள கட்டிடங்கள் உட்பட அனைத்து கட்டிடங்களுக்கான விண்ணப்பங்களும் அரசுக்கு பரிசீலனைக்கு அனுப்பப்படவேண்டும் என்றும் அரசாணை நிலை எண்.233 நகராட்சி நிர்வாகம் மற்றும் குடிநீர் வழங்குத்துறை நாள் 27.11.95ல் உத்திரவிடப்பட்டது. 27.11.95 நாளிட்ட நகராட்சி நகரத்தை போலவே மற்ற இணைப்பில் கண்ட புராதன நகரங்களில் கட்டப்படும் கட்டங்களை முறைப்படுத்துவதை கருத்தில்கொண்டு மற்ற புராதன நகரங்களுக்கும் அவைகளின் தனித்தன்மையை கணக்கில் எடுத்துக்கொண்டு விதிமுறைகளை முடிவு செய்து அரசுக்கு பரிசீலனைக்கு அனுப்புமாறும் மேற்கண்ட முறைகளை முடிவு செய்யும் வரை எல்லா புராதன நகரங்களுக்கும் கட்டிட அனுமதி கோரும் செயற்குறிப்பினை அரசின் ஒப்புதலுக்கு அனுப்புமாறும் நகர் ஊரமைப்பு இயக்குநர் கேட்டுக் கொள்ளப்பட்டார்.

2. மேற்படி ஆணைகளின் படி புராதன நகரங்களில் கட்டக்கூடிய கட்டங்களுக்கென அனுமதியை அரசிடம் பெற வேண்டும் என்பதில் நடைமுறையில்

ஏற்படுகிற பல சிக்கல்களையும் கால தாமதங்களையும் பொதுமக்களுக்கு ஏற்படுகிற பிரச்சனைகளையும் தவிர்க்கும் பொருட்டு மேற்படி அரசாணைகளை இரத்து செய்வது பற்றி அரசு பரிசீலனை செய்தது.

3. பரிசீலனைக்குப் பின் மேலே பத்தி 1ல் கூறப்பட்டுள்ள அரசாணைகளை அரசு இரத்து செய்கிறது. மேலும் இணைப்பில் கண்டுள்ள 38 புராதன நகரங்களிலும் புராதன கோவிலின் கற்றுச் சுவரிலிருந்து 1 கிலோ மீட்டர் கற்றளவிற்குள் கட்டப்படும் கட்டங்கள் (தரை தளம் மற்றும் முதல் தளம்) 9 மீட்டர் உயரத்திற்கு மிகாமல் கட்டப்பட வேண்டும் எனவே இந்தக் கட்டுப்பாட்டின் அடிப்படையில் சம்பந்தப்பட்ட உள்ளாட்சி நிறுவனங்கள் கட்டடங்களுக்கான அனுமதியை வழங்கலாம் எனவும் அரசாணை பிறப்பிக்கிறது.

(ஆளுநரின் ஆணைப்படி)

எஸ்.மாலதி
அரசு செயலாளர்

பெறுநர்
நகர் ஊரமைப்பு இயக்குநர் சென்னை - 2.

உண்மை நகல்

இணைப்பு

அரசாணை நிலை எண்.22 நகராட்சி நிர்வாகம் மற்றும் குடிநீர் வழங்குத்துறை நாள் 30.1.97.

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1. காஞ்சிபுரம்
2. சிதம்பரம்
3. ராமேஸ்வரம்
4. ஸ்ரீரங்கம்
5. திருவில்லிபுத்தூர்
6. மாமல்லபுரம்
7. தஞ்சாவூர்
8. கும்பகோணம்
9. கங்கைகொண்ட சோழபுரம்
10. பூம்புகார்

மதுரை
2. பழனி
3. திருச்செந்தூர்
4. திருத்தணி
5. கன்னியாகுமரி
6. திருவண்ணாமலை
7. செஞ்சி
8. செட்டிநாடு
9. வாலிநோக்கம்
10. தரங்கம்பாடி
11. நாகூர்
12. வேளாங்கண்ணி
13. குத்தாலம்
14. ஸ்ரீபெரும்புதூர்
15. திருநெல்வேலி
16. திருச்செங்கோடு
17. காரைக்குடி
18. பேரூர்
19. பவானி
20. பிச்சாவரம்
21. மருதூர்
22. குறிச்சிப்பாடி
23. திருமயம்
24. சித்தன்னவாசல்
25. ஆவுடையார்கோவில்
26. பத்மநாபபுரம்
27. குளச்சல்
28. மரக்கானம்

எஸ். மாலதி
அரசு செயலாளர்

உண்மைநகல்

அனுப்புநர்:	பெறுநர்:
திரு.V.பார்த்திபன், பி.எஸ்.சி பி.எட்.., வட்டாட்சியர், திருப்பரங்குன்றம்	உதவி இயக்குநர்/உறுப்பினர் செயலர்(பொ) மாவட்ட நகர் ஊரமைப்பு அலுவலகம் மதுரை மாவட்டம்

ந.க.எண். 5541/22/எஸ் நாள்: 14.10.2022

பொருள்: முழுமைத்திட்டம் - மாவட்ட நகர் ஊரமைப்பு அலுவலகம் - மதுரை மாவட்டம் - மதுரை முழுமைத்திட்டம் பணிகள் மேற்கொள்ள ஏதுவாக மதுரை மாநகராட்சி வார்டு-IV பிளாக் -47-ன் பிளாக் வரைபடம் அடங்கல் நகல்கள் ஆகியவற்றினை வழங்க வேண்டுதல் - தொடர்பாக

பார்வை: உதவி இயக்குநர்/உறுப்பினர் செயலர்(பொ), மாவட்ட நகர் ஊரமைப்பின் ந.க.எண்.1251/2015/மதி2 நாள்:12.10.2022

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பார்வை காணும் கடிதத்தில் மதுரை மாநகராட்சி, வார்டு-ஐஏ பிளாக்-47-ன் பிளாக் வரைப்படம் மற்றும் அடங்கல் நகல்கள் ஆகியவற்றினை வழங்க கேட்டு வரப்பெற்றுள்ளது. மேற்கண்ட கடிதத்தில் கோரப்பட்டுள்ள வார்டு-IV பிளாக்-47ற்கான வரைபடம் அடங்கல் நகல்கள் இவ்வலுவலகத்தில் இல்லை என்ற விவரத்தினை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

14.10.2022

வட்டாட்சியர்
திருப்பரங்குன்றம்

14.10.22

அனுப்புநர்:

திருமதி.வி.தமிழ்செல்வி, B.A.,
வட்டாட்சியர்,
மதுரை மேற்கு.

பெறுநர்:

உதவி இயக்குநர்/உறுப்பினர் செயலர்(பொ)
மாவட்ட நகர் ஊரமைப்பு அலுவலகம்,
மதுரை மாவட்டம், செக்டர்-6 ஆனையூர்,
முடக்காத்தான் பிரதான சாலை, கூடல்புதூர்,
மதுரை - 625 017.

ந.க.எண்: J / 4097 / 2022 நாள்: .10.2022

அய்யா:

பொருள்: முழுமைத்திட்டம் - மாவட்டநகர் ஊரமைப்பு அலுவலகம் - மதுரை மாவட்டம் மதுரை முழுமைத்திட்டம் பணிகள் மேற்கொள்ள ஏதுவாக சர்வே வார்டு-IV, பிளாக்-47ன் பிளாக் வரைபடம் மற்றும் அடங்கல் நகல்கள் கோருவது - தொடர்பாக.

பார்வை: மாவட்ட நகர் ஊரமைப்பு அலுவலக உதவி இயக்குநரின் ந.க.எண்: 1251/2015/மதி2 நாள்:12.10.2022.

* * * * *

பார்வைக்கடிதத்தில் குறிப்பிட்டுள்ளபடி மதுரை மேற்கு வட்டம், சர்வே வார்டு-IV, பிளாக்-47ன் பிளாக் வரைபடம் மற்றும் அடங்கல்கள் கோரி வரப்பெற்ற மனு பரிசீலனை செய்யப்பட்டது. சர்வே வார்டு-IV, பிளாக்-47 ஆனது மதுரை மேற்கு வட்டம் எல்லைக்குட்பட்டது இல்லை என்பதை பணிவுடன் தெரிவித்துக்கொள்கிறேன்.

தங்கள் நம்பிக்கையுள்ள,

14/10/22

வட்டாட்சியர்,
மதுரை மேற்கு.

14.10.2022

Proceedings of the District Collector, Madurai
Present. Tmt. M.S.Sangeetha, I.A.S.,

Roc. No. Y2/1612914/2023 Dated:29.12.2023

Sub: **Permission** – Madurai District – Madurai North Taluk – Ambalathadi Village – S.No. 9 – Extent 1.09.0 Hectare – Assessed Dry - 0.40.5 Hect. (1 Acre) given to the Department of Town and country planning for the scheme for Special Assistance to states for Captital investement 2023-2024 part II (Urban Planning reform) – permission given to create urban forestry – regarding.

Ref: 1. Assistant Director, District Town and Country planning, Madurai letter No. 4050/2023/Ma. Thi.2 dated: 30.11.2023
2. Madurai North Tahsildar Roc.No.8536/2023/A2 dated: 29.12.2023

******

Order:

The Assistant Director of Town and Country Planning, Madurai has requested permission to grant one acre of land in S.No. 9 of Ambalthadi Village, Madurai North Taluk, Madurai District for creation of Urban Forestry under the scheme for Special Assistance to states for Captital investement 2023-2024 part II (Urban Planning reform),

The Tahsildar, Madurai North Taluk also recommended to grant 0.40.5 Hect. of land in S.No. 9, total extent 1.09.0 Hect. Assessed Dry in Ambalathadi village Madurai North Taluk and also stated that there is round well, no historical momunents, HPT lines in the above said land. He also stated that a small canal runs towards Eastward through the above field and without obstructing to the above canal, permission may be granted to create urban forestry.

Four boundaries of the above land:

North:	Survey No.10
South:	Survey No.15
East:	Siruvalai Village
West:	remaining part of Survey No. 9

As per the request from the Assitant Director of District Town and country planning, Madurai and the recommendation report received from the Tahsildar, Madurai North Taluk an extent of 0.40.5 Hect. in Esatern side of S.No. 9, (total

(P.T.O)

extent 1.09.0 Hect.) Assessed Dry in Ambalathadi village Madurai North Taluk permission is hereby granted to the above department for creation of Urban Forestry under the scheme for Special Assistance to states for Captital investement 2023-2024 part II (Urban Planning reform) with the following conditions.

Conditions:

1. The land should not be used for any purpose other than the purpose for what it is provided.
2. No buildings should be constructed on the said land.

Sd/-M.S.Sangeetha,
District Collector,
Madurai.

/T.C.B.O/

For Collector

29/12/23

To:
The Assistant Director,
District Town and Country planning,
Madurai.

Copy to:
1. The Revenue Divisional Officer,
   Madurai.
2. The Tahsildar,
   Madurai North Taluk.
3. Copy to Stock file
4. Copy to Y2 file

கூட்டப்பொருள் எண்.01 கோப்பு எண். 1251/2015/மதி2

பொருள் : தொடர் கட்டிட பகுதியாக அறிவிப்பு (Continuous Building Area) மாவட்ட நகர் ஊரமைப்பு அலுவலகம் – மதுரை மாவட்டம் – நகர்ப்புற வளர்ச்சி – பழங்கால கட்டிடங்கள் அமைந்த பகுதியினை கண்டறிந்து அவற்றை தொடர் கட்டிட பகுதிகளை அறிவிப்பு செய்ய நகர் ஊரமைப்பு இயக்குநர், சென்னை அவர்கள் மூலம் அரசுக்கு சமர்ப்பிக்கும் பொருட்டு உள்ளூர் திட்டக் குழுமத்தின் பார்வைக்கும், ஒப்புதலுக்கும் சமர்ப்பிதல் – தொடர்பாக.

பார்வை :

1) மாண்புமிகு அமைச்சர், வீட்டு வசதி மற்றும் நகர்ப்புற வளர்ச்சி துறையால் அறிவிக்கப்பட்ட மானிய கோரிக்கை எண்.26–ன் அறிவிப்பு–4
2) நகர் ஊரமைப்பு இயக்குநர், சென்னை அவர்களின் கடிதம் ந.க.எண். 10422/2023/டிசிபி3, நாள்.05.05.2023.
3) மதுரை மாநகராட்சி கடிதம் Ref.No : மதி1/011141/2023, நாள்.08.10.2023.
4) மதுரை மாநகராட்சி மாமன்ற தீர்மானம் எண்.312, நாள். 22.09.2023.
5) மேலூர் நகராட்சி தீர்மானம் எண். 342, நாள்.30.09.2023.
6) திருமங்கலம் நகராட்சி தீர்மானம் எண். 431, நாள்.17.11.2023

பார்வை 1–ல் காணும் வீட்டு வசதி மற்றும் நகர்ப்புற வளர்ச்சித் துறையின் மானியக் கோரிக்கை அறிவிப்பில் மாண்புமிகு வீட்டு வசதி மற்றும் நகர்ப்புற வளர்ச்சித் துறை அமைச்சர் அவர்களால் அறிவிக்கப்பட்ட மானிய கோரிக்கை எண் 26–ன் அறிவிப்பு எண் 4–ல் கீழ்கண்டவாறு தெரிவிக்கப்பட்டுள்ளது.

"புராதன கட்டிடங்கள் (Heritage Building) மற்றும் பழங்கால கட்டிடங்கள் அமைந்த பகுதிகளை கண்டறிந்து அவற்றை தொடர் கட்டிட பகுதியாக (Continuous Building Area) முழுமைத்திட்டத்தில் நடைமுறைப்படுத்த நடவடிக்கை மேற்கொள்ளப்படும்."

தமிழ்நாடு ஒருங்கிணைந்த வளர்ச்சி மற்றும் கட்டிட விதிகள் 2019–ன் படி தொடர் கட்டிட பகுதி (Continuous Building Area) அல்லாத மற்ற பகுதிகளில் அமையும் 18.3மீ–க்கும் குறைவான உயரம் கொண்ட கட்டிடங்களுக்கு (Non High Rise Building) பக்கத்திறவிடம் 1மீ முதல் 6.0மீ வரை கட்டிடத்தின் வகை, அணுகுசாலை மற்றும் உயரம் பொருத்து தேவைப்படும். அதேபோல் பின்புற திறவிடம் 0.0மீ முதல் 6மீ வரை கட்டிடத்தின் வகை மற்றும் உயரத்தினை பொருத்து தேவைப்படும். ஆனால் பழங்காலத்திலேயே வளர்ச்சியடைந்த, மேற்கண்ட அளவுகளில் பக்க மற்றும் பின்புற திறவிடங்கள் விட்டு கட்டிடங்களை கட்டுவதற்கு போதிய இட அமைப்பு வசதிகள் இருப்பதற்கான சாத்தியக்கூறுகள் மிக குறைவாகவே உள்ளது. ஆகையால் தமிழ்நாடு ஒருங்கிணைந்த வளர்ச்சி மற்றும் கட்டிட விதிகள் 2019–ல் தொடர் கட்டிட பகுதிகளில் (CBA) கட்டங்கள் கட்டுவதற்கு பக்கத் திறவிடங்களுக்கு விலக்களிக்கப்பட்டுள்ளது. அதனைப் பின்பற்றி விதிவிலக்கு வழங்க தொடர் கட்டிட பகுதிகளை கண்டறிந்து அதன் முறையே தமிழ்நாடு ஒருங்கிணைந்த வளர்ச்சி மற்றும் கட்டிட விதிகள் 2019–ல் விதி எண் 30(1)–ன் படி தொடர் கட்டிட பகுதி என அரசால் அங்கீகரிக்கப்பட்ட முழுமைத்திட்டம் அல்லது விரிவு அபிவிருத்தி திட்டம் அல்லது நகர் ஊரமைப்பு இயக்குநர் மற்றும் அரசின் முன் ஒப்புதலுடன் உள்ளாட்சியால் அவ்வப்போது அறிவிப்பு செய்யப்பட வேண்டும்.

அதனைத் தொடர்ந்து பார்வை 3-ல் காணும் கடிதத்துடன் பெறப்பட்ட பார்வை 4, 5, 6-ல் கண்ட மதுரை மாநகராட்சி மாமன்ற தீர்மாணம், மேலூர் நகராட்சி தீர்மாணம், திருமங்கலம் நகராட்சி தீர்மாணம் ஆகிய நகர் பகுதியில் அமைந்துள்ள பழங்கால கட்டிடங்கள் அமைந்துள்ள வார்டு மற்றும் பிளாக் குறித்த விபரத்தினை நகர் ஊரமைப்பு இயக்குநர், சென்னை அவர்களுக்கு உறுப்பினர் செயலர், மதுரை உள்ளூர் திட்டக் தெரிவிக்கப்பட்டுள்ளது. குழுமம் மூலம் சமர்ப்பிக்கப்படலாம் எனத் மதுரை மாநகராட்சி, மேலூர் நகராட்சி, திருமங்கலம் நகராட்சி ஆகிய பகுயிலிருந்து பெறப்பட்டுள்ள விபரத்தின் அடிப்படையிலும் மற்றும் குறுகிய தெருக்கள் அமைந்த நகரின் மையப்பகுதிகள் ஆகியவற்றை கண்டறிந்தும் அவற்றை தொடர் கட்டிட பகுதிகளாக அறிவிப்பு செய்ய மதுரை மாவட்ட நகர் ஊரமைப்பு அலுவலகத்தால் களஆய்வு மேற்கொள்ளப்பட்டு தொடர் கட்டிட பகுதிகளை வார்டு, பிளாக் ஆகியவை இணைப்பில் கண்டவாறு பட்டியலிட்டு சமர்ப்பிக்கப்படுகிறது.

அலுவலக குறிப்பு : தொடர் கட்டுமான பகுதி, மாவட்ட நகர் ஊரமைப்பு அலுவலகம், மதுரை மாவட்டம், மதுரை உள்ளூர் திட்டக்குழுமபகுதி முழுமை திட்ட பகுதியில் அமையும் தொடர் கட்டுமானங்களாக வளர்ச்சியடைந்த பகுதிகளை Continuous Building Area – ஆக அறிவிப்பு செய்வதற்கு உள்ளாட்சிகளின் தீர்மானங்கள் உரிய திருத்தங்களுடன் நகர் ஊரமைப்பு இயக்குநர், சென்னை அவர்களின் வழியாக அரசிற்கு சமர்ப்பிக்கப்படலாம் என்ற குறிப்பு குழுமத்தின் பார்வைக்கு ஒப்புதலுக்கும் சமர்ப்பிக்கப்படுகிறது.

தீர்மானம்எண் .47 நாள் 01.12.2023

'அலுவலக குறிப்பு ஏற்கப்பட்டது'

மதுரை உள்ளூர் திட்டக்குழுமபகுதி முழுமை திட்ட பகுதியில் அமையும் தொடர் கட்டுமானங்களாக வளர்ச்சியடைந்த பகுதிகளை Continuous Building Area – ஆக அறிவிப்பு செய்வதற்கு உள்ளாட்சிகளின் தீர்மானங்கள் உரிய திருத்தங்களுடன் நகர் ஊரமைப்பு இயக்குநர், சென்னை அவர்களின் வழியாக அரசிற்கு சமர்ப்பிக்க தீர்மானிக்கப்பட்டது.

01/12/2023

உதவி இயக்குநர்/உறுப்பினர் செயலர்(பொ),
மதுரை உள்ளூர் திட்டக்குழுமம்,
மதுரை மாவட்டம்.

01/12/2023

தலைவர்/ மாவட்ட ஆட்சித்தலைவர்,
மதுரை உள்ளூர் திட்டக்குழுமம்,
மதுரை மாவட்டம்.

மதுரை மாநகராட்சி
அறிஞர் அண்ணா மாளிகை
தல்லாகுளம்
மதுரை - 625 002

Ph : 0452-2530521 to
0452-2530528

திரு.கே.ஜேபிரவீன்குமார்.,இ.ஆ.ப.,
ஆணையாளர். மதுரை மாநகராட்சி

Ref. No.: மதி 1/011141/2023 நாள்.: 16 .10.2023

பெறுநர்

உதவி இயக்குநர்/உறுப்பினர் செயலாளர்(பொ)
மதுரை உள்ளூர் திட்டக் குழுமம்,
செக்டார் 6, ஆனையூர்,
முடக்கத்தான் பிரதானசாலை,
கூடல்புதூர், மதுரை – 625 017.

பொருள் : முழுமைத் திட்டம் – மதுரை மாநகராட்சி – மதுரை முழுமைத்திட்ட அறிக்கை நகர் ஊரமைப்பு சட்டம் – 1971 பிரிவு 24–ன் கீழ் இணக்கத்திற்கு சமர்ப்பித்தல் Continuous Building Area குறித்த பட்டியல் மாமன்ற ஒப்புதல் பெற்று அனுப்பி வைத்தல் – தொடர்பாக.

பார்வை : 1.உதவி இயக்குநர்/உறுப்பினர் செயலாளர், மதுரை உள்ளூர் திட்டக் குழும கடித ந.க.எண்: 1251/2015/மதி2, நாள்: 07.09.2023.
2.மதுரை மாநகராட்சி மாமன்ற தீர்மான எண்: 312, நாள்: 22.09.2023.

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பார்வை 1ல் காணும் மதுரை உள்ளூர் திட்டக் குழும கடித ந.க.எண்: 1251/2015/மதி2, நாள்: 07.09.2023–ல் மதுரை மாவட்டம், மதுரை மாநகராட்சிக்குட்பட்ட பகுதியில் அமையும் Continuous Building Area பகுதிகளை புல எண்கள் வாரியாக கண்டறிந்து உள்ளாட்சியில் தீர்மானம் இயற்றி அரசுக்கு சமர்ப்பிக்க ஏதுவாக அதன் விபரத்தினை வழங்க கோரப்பட்டுள்ளது.

மதுரை மாநகராட்சி எல்லைக்குட்பட்ட Continuous Building Area (CBA) தொடர் கட்டிடப் பகுதிகளுக்கான புல எண்கள் குறித்த விவரப் பட்டியல் மதுரை மாநகராட்சி மாமன்றத்திற்கு பொருள் வைத்து ஒப்புதல் பெறப்பட்டுள்ளது. மாமன்றத்தின் தீர்மான நகல் இத்துடன் இணைத்து அனுப்பி வைக்கப்படுகிறது.

இணைப்பு:
பார்வை 2ல் காணும் மாமன்ற தீர்மான நகல்.

ஆணையாளர்
மதுரை மாநகராட்சி

மதுரை மாநகராட்சி

மாமன்ற கூட்டப் பொருள்

மதி1/011141/2023

மதுரை மாநகராட்சிக்கான முழுமைத்திட்டம் 1992–ம் ஆண்டு நகர் ஊரமைப்புத் துறை இயக்குநர் சென்னை அவர்களால் ஒப்புதல் வழங்கப்பட்டுள்ளது. தற்பொழுது அரசாணை எண்: 89, வீட்டு வசதி மற்றும் நகர்ப்புற வளர்ச்சித்துறை(UD 4(2)) நாள்: 29.05.2014–ல் மதுரை உள்ளூர் திட்டக் குழும எல்லை விரிவாக்கம் செய்து உத்திரவு பிறப்பிக்கப்பட்டுள்ளது. அதன் பேரில் மதுரை உள்ளூர் திட்டக் குழுமத்தினால் முழுமைத்திட்ட உத்தேச வரைபடம் மற்றும் நில உபயோகங்கள் குறித்த பட்டியல் தயாரிக்கும் பணி மேற்கொள்ளப்பட்டு வருகிறது. மதுரை உள்ளூர் திட்டக் குழும உறுப்பினர் செயலர் மற்றும் உதவி இயக்குநர்(பொ) மதுரை அவர்களின் கடிதம் ந.க.எண்: 1251/2015/மதி2, நாள்: 07.09.2023–ஆம் தேதிய கடிதத்தில் மதுரை மாநகராட்சிக்குட்பட்ட பகுதியில் அமையும் Continuous Building Area (CBA) தொடர் கட்டிடப் பகுதிகளை புல எண்கள் வாரியாக கண்டறிந்து உள்ளாட்சியில் தீர்மானம் இயற்றி அனுப்பி வைக்குமாறு கோரப்பட்டுள்ளது. மதுரை மாநகராட்சி எல்லைக்குள் Continuous Building Area (CBA) தொடர் கட்டிடப் பகுதிகளுக்கான புல எண்கள் குறித்த விவரப் பட்டியல் மாமன்றத்தின் ஒப்புதலைக் கோரும் ஆணையாளர் அவர்களின் குறிப்பு.

ஆணையாளர்
மதுரை மாநகராட்சி

19/09/23

மேலூர் நகர்மன்ற கூட்ட நடவடிக்கைகள்

தீர்மான எண். 342. நாள். 30.09.2023

அரசாணை எண்.18, நகராட்சி நிர்வாகம் மற்றும் குடிநீர்வழங்கல்துறை, நாள்.04.02.2019ம் தேதிய உத்தரவின்படி,"தமிழ்நாடு ஒருங்கிணைந்த அபிவிருத்தி மற்றும் கட்டிட விதிகள் 2019" வெளியிடப்பட்டுள்ளது. மேற்கூறிய விதிகளில் குறிப்பிட்டுள்ளவாறு விதி எண்30(1) (2) ன்படி நகராட்சி தொடர் கட்டுமான பகுதிகள் (Continous Building Area) மற்றும் பொருளாதாரத்தில் நலிவடைந்தோர் பகுதி (EWS) ஆகியவற்றை கண்டறிந்து அவற்றின் சர்வே எண்களின் விபரங்களை, உறுப்பினர் செயலர், மேலூர் உள்ளூர் திட்டக்குழுமம் அவர்களின் வாயிலாக, நகர்ஊரமைப்பு ஆணையர், சென்னை அவர்களின் ஒப்புதல் பெற்று, நடவடிக்கை தொடர ஆணைபிறப்பிக்கப்பட்டுள்ளது.

அதன்படி,இணைக்கப்பட்டுள்ள பட்டியலில் கண்டுள்ளவாறு தொடர் கட்டுமானப் பகுதிகள் மற்றும் பொருளாதாரத்தில் நலிவடைந்தோர் பகுதிகள் ஆகியவற்றினை உறுப்பினர் செயலர்,மேலூர் உள்ளூர் திட்டக்குழுமம் அவர்கள் வாயிலாக நகர் ஊரமைப்புஆணையர், சென்னை அவர்களுக்கு அனுப்பி வைக்க மன்றத்தின் ஒப்புதலுக்கு.

அலுவலகக்குறிப்பு

1. அனுமதிக்கலாம்.
2. தொடர் கட்டுமானப்பகுதிகள் மற்றும் பொருளாதாரத்தில் நலிவடைந்தோர் பகுதிகளைஉரிய வழியாக நகர் ஊரமைப்பு ஆணையர், சென்னை அவர்களுக்கு அனுப்ப அனுமதிக்கலாம்

.தீர்மானம்:- அனுமதிக்கப்பட்டது.

(ஒம்)

திரு.உ.முகமதுயாசின்

நகர்மன்றத்தலைவர்

மேலூர் நகராட்சி.

//உண்மை நகல்//

30/9/2023

ஆணையாளர்

மேலூர் நகராட்சி.

30/9/2023

திருமங்கலம் நகராட்சி

மன்றப் பொருள்

உதவி இயக்குநர் உறுப்பினர் செயலர் (பொ), மாவட்ட நகர் ஊரமைப்பு அலுவலகம், மதுரை அவர்கள் கடிதம் ந.க.எண்.1251/2015/மதி2, நாள் 07.09.2023ன்படி தற்போது மதுரை முழுமைத் திட்ட உத்தேச வரைபடம் மற்றும் நில உபயோகங்கள் தயாரிக்கும் பணிக்கு திருமங்கலம் நகராட்சிக்குட்பட்ட பகுதியில் அமையும் Continues Building Area பகுதிகளின் புல எண்கள் வாரியாக கண்டறியப்பட்ட கீழ்க்கண்ட சர்வே எண்களின் பட்டியலினை உதவி இயக்குநர் உறுப்பினர் செயலர் (பொ), மாவட்ட நகர் ஊரமைப்பு அலுவலகம், மதுரை அவர்களுக்கு அனுப்பி வைக்க மன்றத்தின் அனுமதிக்கு வைக்கப்படுகிறது.

Continues Building Area

Sl.No.	Ward	Block	T.S.Nos.
1	C	6	2,10,11,17, 26-48, 51, 55-57, 66, 67, 69
	C	3	33, 34, 35, 37-55
2	C	5	2,3,4,5
	D	4	18-22, 24, 38, 83, 89, 92, 174-176, 211, 212, 245
3	D	6	1,2,15,22,23,41,54,55,84,91-113,115-143, 157-160, 163-165
	D	5	110, 117, 123-126, 136, 139, 140
	C	7	13-19, 21, 22, 107
	C	18	2-49
	C	19	2,4,5-9, 16, 17, 20, 27, 28, 33, 43, 44, 124, 128, 129,172,173, 180,181,182,183,184,189,193,195
	C	24	1-3, 9,10,12,13,113,114,115,116
	C	25	2,4,5,24,27

அ.கு

1)மன்றம் அனுமதிக்கலாம்.

2)நிர்வாக நலன் கருதி அவசர அவசியம் கருதியும் சர்வே எண்களின் பட்டியலினை உதவி இயக்குநர் உறுப்பினர் செயலர் (பொ), மாவட்ட நகர் ஊரமைப்பு அலுவலகம், மதுரை அவர்களுக்கு அனுப்பி வைக்க நகர் மன்றத் தலைவர் அவர்களின் முன் அனுமதி பெற்று தொடர் நடவடிக்கை மேற்கொண்டதை மன்றம் அங்கீகரிக்கலாம்.

ந.க.எண். 2007 /2023/எப்1

ஆணையாளர், 31.10.2023
திருமங்கலம் நகராட்சி.

நகர்மன்றத் தலைவர்,
திருமங்கலம்.