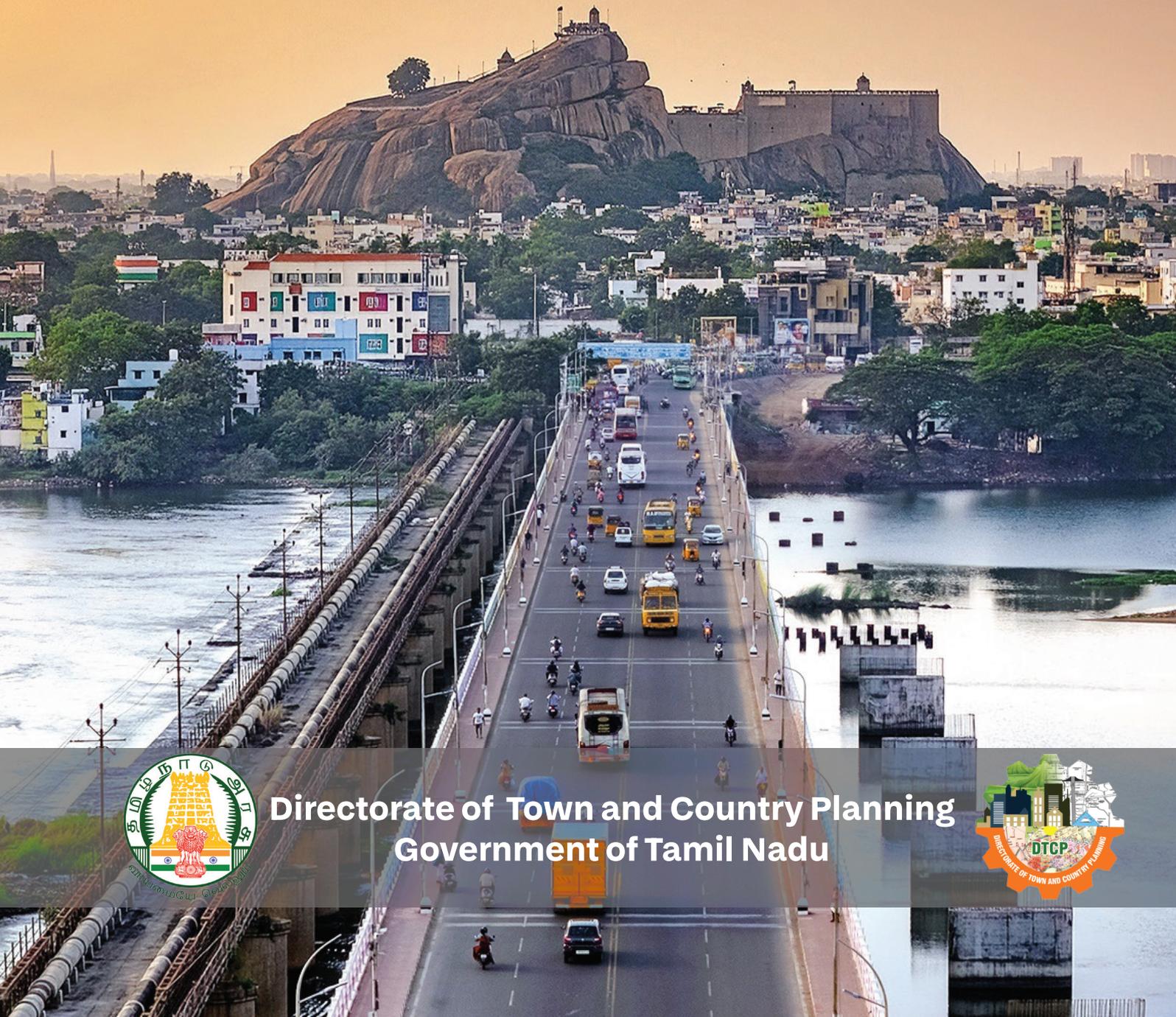


TIRUCHIRAPPALLI

Master Plan - 2045

GIS BASED PLAN

Executive Summary



**Directorate of Town and Country Planning
Government of Tamil Nadu**



**Tiruchirappalli
Master Plan - 2045
Executive Summary**

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List of Acronyms and Abbreviations

ADB	-	Asian Development Bank
ADS	-	Area Development schemes
AHP	-	Affordable Housing in Partnership
AIS	-	Automotive Industry Standards
AMASR-Act	-	The Ancient Monuments and Archaeological Site and Remains Act 1958 (Amendment & Validation) 2010
AMC	-	Ahmedabad Municipal Corporation
AMRF	-	Automated Material Recovery Facility
AQI	-	Air Quality Index
ARHC	-	Affordable Rental Housing Complex
ASHRAE	-	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASI	-	Archaeological Survey of India
ATCC	-	Automatic Traffic Counter & Classifier
ATIS	-	Advanced Traveller Information System
ATM	-	Automated teller machine
AV	-	Audio Visual
BESS	-	Battery Energy Storage Systems
BHEL	-	Bharat Heavy Electricals Limited
BHELSIA	-	BHEL Small Industries Association
BIT	-	Bharathidasan Institute of Technology
BMTPC	-	Building Materials & Technology Promotion Council
BOD	-	Bio-chemical Oxygen Demand
BRTS	-	Bus Rapid Transit System
CA	-	Competent Authority
CAGR	-	Compound Annual Growth Rate
CBD	-	Central Business District
CBG	-	Compressed Bio Gas
CBO	-	Community-Based Organizations
CCTV	-	Closed-Circuit Television
CDZ	-	Cauvery Delta Zone
CE	-	Common Era
CETPs	-	Common Effluent Treatment Plants

CHC	-	Community Health Centre
CII	-	Confederation of Indian Industry
CKIC	-	Chennai–Kanyakumari Industrial Corridor
CMP	-	Comprehensive Mobility Plan
CPHEEO	-	Central Public Health and Environmental Engineering Organization
CREDAI	-	Confederation of Real Estate Developers' Associations of India
CSI	-	Church of South India
CSR	-	Corporate Social Responsibility
CT	-	Census town
CT	-	Census Town
CWSN	-	Children With Special Needs
CWSS	-	Combined Water Supply Schemes
DAY-NULM	-	Deendayal Antyodaya Yojana- National Urban Livelihoods Mission
dB	-	Decibels
DCC	-	District Development Committee
DCR	-	Development Control Regulation
DCS	-	District Cooling Systems
DDMA	-	District Disaster Management Authority
DDMC	-	District Disaster Management Committee
DDP	-	Detail Development Plan
DEWATS	-	Decentralised Wastewater Treatment System
DGPS	-	Differential Global Positioning System
DH	-	District Hospital
DIC	-	District Industrial Center
DPC	-	District Planning Committee
DTCP	-	Directorate of Town and Country Planning
Eco-Park	-	Ecological Park
ECS	-	Equivalent Car Space
EE	-	External - External
EI	-	External - Internal
ELCOT	-	Electronics Corporation of Tamil Nadu Limited
ESI	-	Employees' State Insurance
EV	-	Electric Vehicle
E-Waste	-	Electronic Waste
EWS	-	Economically Weaker Section

FMCG	-	Fast Moving Consumer Goods
FP	-	Footpath
FSI	-	Floor Space Index
FSTP	-	Faecal Sludge Treatment Plant
FY	-	Financial Year
G.O.	-	Government Order
GCC	-	Global Capability Centre
GDDP	-	Gross District Domestic Product
GH	-	Government Hospital
GI	-	Geographical identification
GII	-	Gender Inequality Index
GIIP	-	Good International Industry Practices
GIS	-	Geographic Information System
GNI	-	Gross National Income
GoTN	-	Government of Tamil Nadu
GSDP	-	Gross State Domestic Product
GSVA	-	Gross State Value Added
GTM	-	Green Tamilnadu Mission
GVA	-	Gross Value Added
H&UD	-	Housing and Urban Development Department
Ha	-	Hectares
HAPP	-	Heavy Alloy Penetrator Plant
HCC	-	Heritage Conservation Committee
HDI	-	Human Development Index
HDR	-	Human Development Report
HFA	-	Housing for all
HG	-	Halting Group
HH	-	Households
HIG	-	Higher Income Group
HSC	-	Health Sub-Centre
HT	-	High Tension
HUDCO	-	Housing and Urban Development Corporation
IBT	-	Integrated Bus Terminus
ICCC	-	Integrated Control and Command Centre
ICCFG	-	IC Center for Governance

ICD	-	Inland Container Depot
ICH	-	Intangible Cultural Heritage
ICOMOS	-	International Council for Monuments and Sites
ICU	-	Intensive Care Unit
IE	-	Internal - External
IHSDP	-	Integrated Housing and Slum Development Programme
II	-	Internal - Internal
IIA	-	Indian Institute of Architects
IIIT	-	Indian Institute of Information Technology
IIM	-	Indian Institute of Management
IMD	-	Indian Meteorological Department
INTACH	-	Indian National Trust for Art & Cultural Heritage
IPD	-	Inpatient Department
IPHS	-	Indian Public Health Standards
IPT	-	Intermediate Public Transport
IRC	-	Indian Road Congress
ISO	-	International Organization for Standardization
IT	-	Information Technology
ITES	-	Information Technology Enabled Services
IUCN	-	International Union for Conservation of Nature
IWM	-	Integrated Water Management
IWMF	-	Integrated Waste Management Facility
JJM	-	Jal Jeevan Mission
KG	-	Kindergarten
KL	-	Kilo Litres
km	-	Kilometre
KPIs	-	Key Performance Indicators
KV	-	Kilovolts
kWh	-	Kilo Watts Hour
LID	-	Low Impact Developments
LIG	-	Lower Income Group
LL	-	Lakh Litres
LPA	-	Local Planning Area
LPCD	-	Liters per capita per day
LST	-	Land Surface Temperature

LT	-	Low Tension
M	-	Municipality
MAWS	-	Municipal Administration and Water Supply Department
MB	-	Mid Block
mbgl	-	Meters Below Ground Level
MCC	-	Micro composting Center
MGNREGS	-	Mahatma Gandhi National Rural Employment Guarantee Act
MIG	-	Middle Income Group
MLCP	-	Multi Level Car Parking
MLD	-	Million Litres per Day
MMR-HCS	-	Mumbai Metropolitan Region – Heritage Conservation Society
MoHUA	-	Ministry of Housing and Urban Affairs
MPI	-	Multidimensional Poverty Index
MSME	-	Micro, Small, and Medium Enterprises
MT	-	Metric Tonnes
MU	-	Million Units
MVA	-	Mega Volt Ampere
MW	-	Mega Watts
NBC	-	National Building Code
NCC	-	National Cadet Corps
NCD	-	Non-Communicable Disease
NDMA	-	National Disaster Management Authority
NDMI	-	Normalized Difference Moisture Index
NDVI	-	Normalized Difference Vegetation Index
NDWI	-	Normalized Difference Water Index
NFHS	-	National Family Health Survey
NGO	-	Non-Government organization
NH	-	National Highway
NHAI	-	National Highways Authority of India
NIT	-	National Institute of Technology
NKHL	-	New Kattalai High-Level Channel
NMT	-	Non Motorized Transport
NRCB	-	National Research Centre for Banana
NRSC	-	National Remote Sensing Centre
NRW	-	Non-Revenue Water

NSG	-	Non Suburan Group
NSS	-	National Service Scheme
NTDA	-	New Town Development Area
NTDP	-	New Town Development Plan
NULM	-	National Mission Management Unit
OC	-	Outer Cordon
OD	-	Origin - Destination
OFT	-	Ordnance Factory Tiruchirappalli
OH	-	Overhead
OHTs	-	Over Head Tanks
OPD	-	Outpatient Department
ORR	-	Outer Ring Road
OSR	-	Open Space Reservation
OUV	-	Outstanding Universal Value
PBS	-	Public Bicycle System
PCU	-	Passenger Car Unit
PHC	-	Primary Health Centre
PIS	-	Passenger Information System
PLFS	-	Periodic Labour Force Survey
PM 10	-	Particulate Matter size 10
PM 2.5	-	Particulate Matter size 2.5
PMAY	-	Pradhan Mantri Awas Yojana
POI	-	Points of Interest
PPH	-	Persons per Hectare
PPP	-	Public-Private Partnership
PSTP	-	Packaged Sewage Treatment Plants
PSU	-	Public Sector Undertaking
PWD	-	Public Works Department
R.m	-	Running Metre
RAY	-	Rajiv Awas Yojana
RC	-	Roman Catholic
RCC	-	Resource Recovery Center
RD & LA	-	Rural Developpment & Local Administration
RKVY	-	Rashtriya Krishi Vikas Yojana
RMSA	-	Rashtriya Madhyamik Shiksha Abhiyan

ROW	-	Right of Way
RS	-	Railway Station
RSC	-	Residual Sodium Carbonate
RTE	-	Right to Education Act, 2009
RTO	-	Regional Transport Office
S&S	-	Site and Services Scheme
SAR	-	Sodium Absorption Ratio
SBR	-	Sequential Batch Reactor
SC	-	Scheduled Caste
SCADA	-	Supervisory Control and Data Acquisition
Scr CVC	-	Screen Line - Classified Volume Count
SDGs	-	Sustainable Development Goals
SDH	-	Sub-District Hospital
SETC	-	State Express Transport Corporation
SEZ	-	Special Economic Zone
SFCPoA	-	Slum Free City Plan of Action
SH	-	State Highway
SHG	-	Self Help Group
SIDCO	-	Small Industries Development Corporation
SIPCOT	-	State Industries Promotion Corporation of Tamil Nadu
SLB	-	Service Level Benchmarks
SMT	-	Small-Medium town
SPG	-	Society for the Propagation of the Gospel
Sq.km	-	Square Kilometre
sq.m	-	Square metre
SSP	-	Shared Socioeconomic Pathway
ST	-	Scheduled Tribe
STP	-	Sewage Treatment Plant
STR	-	Student-Teacher Ratio
SuDS	-	Sustainable [Urban] Drainage Systems
SUH	-	Shelter for Urban Homeless
SWD	-	Storm Water Drains
SWOT	-	Strengths, Weaknesses, Opportunities and Threats
TANGEDCO	-	Tamil Nadu Generation and Distribution Corporation Limited
TANSTIA	-	Tamil Nadu Small and Tiny Industries Association

TANTRANSCO	-	Tamil Nadu Transmission Corporation Limited
TCC	-	Tiruchirappalli City Corporation
TDS	-	Total Dissolved Solids
TES	-	Thermal Energy Storage
TH	-	Total Hardness
TIC	-	Tourism Information Centres
TIDITSSIA	-	Tiruchirappalli District Tiny and Small Scale Industries Association
TIIC	-	Tamil Nadu Industrial Investment Corporation Limited
TIMEA	-	Tiruchirappalli Industrial Manufacturers and Entrepreneurs Association
TN	-	Tamil Nadu
TNCDBR	-	Tamil Nadu Combined Development and Building Rules, 2019
TNEB	-	Tamil Nadu Electricity Board
TNGECL	-	Tamil Nadu Green Energy Corporation Limited
TNGRHS	-	Tamil Nadu Government Rental Housing Scheme
TNHB	-	Tamil Nadu housing board
TN-HR&CE	-	Tamil Nadu Hindu Religious & Cultural Endowments Department
TNIBF	-	Tamil Nadu International Balloon Festivals
TNITPP	-	Tamil Nadu Integrated Tourism Promotion Project
TNPCB	-	Tamil Nadu Pollution Control Board
TNPDCL	-	Tamil Nadu Power Distribution Corporation Limited
TNPGCL	-	Tamil Nadu Power Generation Corporation Limited
TNPHC	-	Tamil Nadu Police Housing Corporation
TNSAD	-	Tamil Nadu State Archaeology Department
TNSTC	-	Tamil Nadu State Transport Corporation
TNUDP	-	Tamil Nadu Urban Development Programme
TNUHDB	-	Tamil Nadu Urban Habitat Development Board
TNULM	-	Tamil Nadu Urban Livelihood Mission
TNWWHCL	-	Tamil Nadu Working Women Hostels Corporation Limited
TOD	-	Transit Oriented Development
TP	-	Town Panchayats
TPJ	-	Tiruchirappalli Junction
TREAT	-	Tiruchirappalli Engineering and Technology Cluster
TRZ	-	Tiruchirappalli International Airport
TTDC	-	Tamil Nadu Tourism Development Corporation
TVC	-	Traffic Volume Count

TWAD	-	Tamil Nadu Water Supply and Drainage Board
UHC	-	Urban Community Health Centre
UDA	-	Urban Development Authority
UG	-	Underground
UGD	-	Under Ground Drainage
UGSS	-	Under Ground Sewerage Scheme
UKG	-	Upper Kindergarten
ULB	-	Urban Local Body
UNDP	-	United Nations Development Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
UPHC	-	Urban Primary Health Centre
URDPFI	-	Urban and Regional Development Plans Formulation and Implementation
VMS	-	Variable Message Signs
W	-	Watts
WHC	-	World Heritage Convention
WHO	-	World Health Organization
WPR	-	Workforce Participation Rate
WRD	-	Water Resource Department
WTP	-	Water Treatment Plant



1. PREAMBLE

1.1 Background

The Master Plan is a statutory long-term planning document that outlines a comprehensive spatial and policy framework for regulating and guiding the future growth and development of the planning areas. It serves as a foundational tool for city planning and policy vision document, integrating diverse components such as the built environment, socio-economic dynamics, ecological systems, infrastructure, and cultural assets. The Tamil Nadu Town and Country Planning Act, 1971, provides a robust legal and institutional framework for the systematic development and utilization of land across both urban and rural areas within the state.

In the context of Tiruchirappalli local planning area, Tiruchirappalli possesses significant heritage and tourism importance, with renowned religious and historic landmarks such as Srirangam Temple, Rockfort Temple, and the Cauvery riverine cultural landscape. The city's economy is diverse, comprising manufacturing, services, trade, defence-related activities, tourism, and informal sectors, supporting employment across a wide regional while maintaining a unique synergy between its deep-rooted cultural heritage and its rapid evolution into a modern, high-tech urban powerhouse.

1.2 Previous Plan for Tiruchirappalli LPA

The Plans for Tiruchirappalli have evolved in a phased manner under the framework of the Tamil Nadu Town and Country Planning Act, 1971. The Local Planning Area (LPA) was first delineated in 1974, followed by the constitution of Tiruchirappalli Local Planning Authority in 1977. The first statutory Master Plan for Tiruchirappalli was approved in year 1996, covering an expanded area 281.14 sq. km, comprising the Municipalities of Tiruchirappalli, Srirangam and Golden Rock, five Town Panchayats, and 40 Revenue Villages in Tiruchirappalli, Lalgudi and Thanjavur Taluks, were approved in 1996, with a planning horizon up to 2011.

The Navalpattu New Town Development Plan was prepared in 1981, and notified in 1982. The Plan covered an extent of 208.14 sq. km, comprising three Town Panchayats namely Tiruverambur, Kuttapar and Thuvakudi, and 15 Revenue Villages in Thiruverambur Panchayat Union, and was approved in 2006 with a planning horizon up to 2021.

The Second Master Plan for Tiruchirappalli was prepared under the Act vide G.O. (Ms) No. 88, Housing and Urban Development Department, dated 30.06.2021. The Plan comprises the First Master Plan area, the Navalpattu New Town

Development Planning Area, and additional areas notified for the Second Master Plan, resulting in a total planning extent of 804.53 sq. km

The Tiruchirappalli Urban Development Authority (UDA) was constituted with the jurisdiction of current LPA boundary, dated 23.11.2022.

1.3 Plan Preparation Process

The preparation of the Master Plan for the Tiruchirappalli Local Planning Area (LPA) began with the systematic collection of relevant spatial and non-spatial datasets from multiple government departments and agencies. Key information included village cadastral maps, survey and land records, approved layouts, transport networks, water bodies, public utilities, and environmentally sensitive zones.

Data were sourced from agencies such as the Tamil Nadu Electricity Board (TNEB), Public Works Department (PWD), Tamil Nadu Water Supply and Drainage Board (TWAD), Highways Department, Tamil Nadu Urban Habitat Development Board (TNUHDB), and the Tamil Nadu Housing Board (TNHB). Social infrastructure related datasets pertaining to education and health were obtained from the respective district departments, while critical environmental information was acquired from the Tamil Nadu Pollution Control Board (TNPCB) and the Forest Department. Together, these datasets formed the backbone for sectoral assessments and the formulation of the proposed land use plan for the LPA.

To ensure spatial precision, Differential Global Positioning System (DGPS) surveys were undertaken to generate Ground Control Points (GCPs) for accurate geo referencing of scanned cadastral and village maps. These geo-referenced maps were subsequently digitized to create detailed vector layers capturing boundaries, survey numbers, and village extents, establishing a robust GIS base for further analyses.

High-resolution satellite imagery procured from the National Remote Sensing Centre (NRSC), ISRO provided the latest visual representation of land use and land cover across the Tiruchirappalli LPA. Using this imagery, an Existing Land Use (ELU) map was prepared in accordance with the Tamil Nadu Combined Development and Building Rules, 2019, classifying land into residential, commercial, industrial, institutional, agricultural, and other designated categories.

Field verification and ground-truthing exercises were then conducted to validate the accuracy of the initial classification, cross-checking mapped information with on-ground conditions. The ELU database was further strengthened through temporal verification using the latest Google Satellite Imagery (2025), enabling the identification of new developments and ensuring that the dataset reflected the most updated growth scenario. Comprehensive quality checks were carried out by overlaying multiple thematic layers—transportation networks, water resources, public amenities, utility infrastructure,

and environmentally sensitive features—to ensure both spatial accuracy and attribute integrity. The final base map and ELU map, prepared through this multistage verification process, served as the spatial foundation for the formulation of the Master Plan.

1.4 Stakeholder Engagement

Stakeholder’s engagement formed a major component of the planning process, ensuring that local needs, institutional priorities, and sectoral concerns were systematically integrated into the planning framework.

The first and second stakeholder Meetings were held on 30.07.2021 and 12.11.2021 to initiate the Master Plan preparation process, during which line departments were instructed to furnish baseline and sector-wise data. The District Collector emphasized need to facilitate preparation of the Master Plan for obtaining Government approval under the Tamil Nadu Town and Country Planning Act, 1971.



Figure 1.1 Time line for Stakeholders Consultation



Figure 1.2 Stakeholder Meeting on 12.11.2023



Figure 1.3 Presentation of Consent Master Plan and To Invite Objection and Suggestions Meeting on 06.03.2024

The third stakeholder meeting held on 17.11.2023 was organised to collect updated departmental data for Tiruchirappalli second Master Plan. Representatives from 55 Government Departments participated, and all departments were directed to submit the required data.

The fourth stakeholder meeting was held on 06.03.2024 to present the consent master plan and to invite objections & suggestions from the public. Through the O&S initiative, numerous public suggestions were received, and after careful examination of revenue records, field verification, and planning parameters, the relevant inputs were incorporated into the land use proposals.

The fifth stakeholder meeting held on 16.12.2025 focused on validation of previous collected and updated data till 2025 for Tiruchirappalli Master Plan. A stakeholder consultation meeting on the preparation of the Tiruchirappalli Master Plan was held on 19.01.2026 at the Collectorate, Tiruchirappalli, under the chairmanship of the District Collector. Representatives from academic institutions such as Bharathidasan University, Indian Institute of Management, National Institute of Technology Trichy, CARE School of Architecture, from governmental department like NHAI, Trichy City Police, Public Work Department, Water Resource Department Corporation, non-government bodies such as IIA, CII, CREDAI, ICCFG, TIDITSSIA other stakeholders participated.



Figure 1.4 Stakeholder Meeting with Line Departments in discussion with proposals on 19.01.2026

Key Takeaways from Stakeholder Consultations

Key proposals included strengthening of manufacturing and MSMEs, development of economic corridors, improvement of regional and urban mobility through ring roads, BRTS corridors, freight terminals, and bus terminals, environmental measures such as groundwater conservation and blue-green infrastructure, enhancement of social and park infrastructure, housing for various income groups and institutional needs, and conservation-led tourism and heritage development.

Stakeholders contributed valuable inputs on a range of topics including increase in residential area, industrial land allocation, logistics and dry port facilities, mixed-use zoning, parking management facility, integration of blue-green infrastructure, decentralized sewage treatment, affordable housing, the EV ecosystem, waste management, heritage linkages, and safety measures. They also requested the incorporation of national policies, regulation of land value impacts, and Stakeholders were also requested to submit their suggestions in writing via shared online Google link.

1.5 Aspiration for Future

The collaborative approach ensures that the plan embodies the collective aspirations of stakeholders with outcome of these deliberations is a strategic vision to reposition Tiruchirappalli as

a “central growth accelerator”—a vital economic and geographical nexus. By its strategic location, seeks to evolve the city into an economically vibrant, globally competitive, and clean-energy-oriented hub by 2045. Stakeholders emphasized the necessity of driving urban transformation through sustainable development, smart infrastructure, and the integration of blue-green ecological networks, all while safeguarding the city’s unique historical and cultural identity.

Accordingly, the vision seeks to support the dynamic dichotomy of Tiruchirappalli city that simultaneously celebrates its rich cultural legacy and advances as a contemporary, inclusive capital for South Tamil Nadu. As a growth accelerator, the city will integrate sustainable urbanism and smart infrastructure with tradition-led innovation. A pivotal component of this strategy is establishing Tiruchirappalli as a leading economic, cultural, and knowledge hub within the Chennai–Kanyakumari Industrial Corridor (CKIC), reinforcing its regional and national significance.

The 2045 Vision Statement:

“By 2045, Tiruchirappalli is envisioned as a heritage city that is established as a vibrant knowledge and economic regional centre that merges its cultural strength and industrial prowess to ensure a radiant quality of life for every resident through balanced spatial growth, seamless mobility and environmental sustainability.”

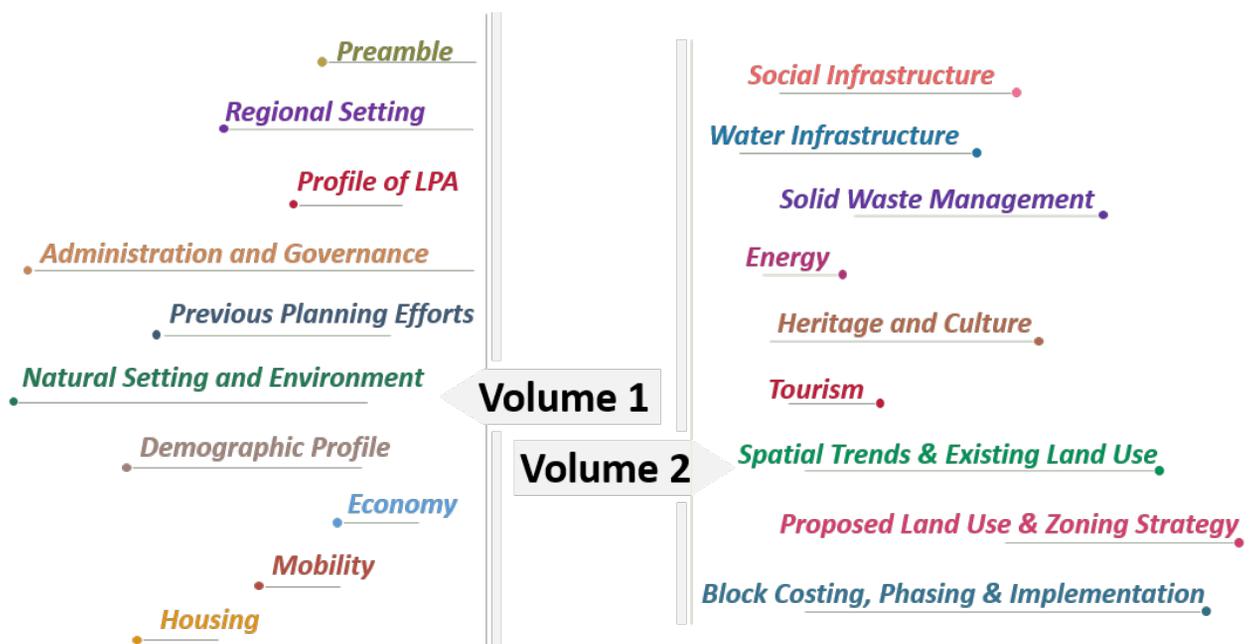
Key Pillars of the Vision:

- **Industrial and Economic Vision:** A Diversified, High-Value Industrial Powerhouse
- **Agriculture and Rural Vision:** Smart, Sustainable, and Profitable Agriculture
- **Urban Infrastructure and Mobility Vision:** A Smart, Connected, Clean, and Inclusive City
- **Environment and Sustainability Vision:** A Green, Water-Secure, and Climate-Resilient City
- **Cultural, Tourism and Heritage Vision:** A Global Heritage Destination

- **Human Capital and Education Vision:** A Leading Education and R&D Hub
- **Social and Quality-of-Life Vision:** A Safe, Inclusive, and Thriving City for all

1.6 Report Structure

The Tiruchirappalli Master Plan 2045 is presented in five volumes, along with a set of existing and proposed land use plans. Volumes I and II comprise the main planning report, while Volume III, IV and V contains the detailed schedule specifying the proposed land use for each survey number within the LPA.





2. PROFILE OF LPA

Tiruchirappalli is widely regarded as the geographical center of both the district and the state of Tamil Nadu, underscoring the importance of planning the Tiruchirappalli Local Planning Area (LPA). The Tiruchirappalli LPA covers an extent of 804.53 sq.km and accounts for 18.27% of the district's area (4403.83 sq. km). It serves as the primary urban core and accommodates 52.6% of the district's population, according to the 2011 census. Tiruchirappalli's strategic location enables seamless connectivity across the state, reinforcing its role as a pre-eminent educational hub, a key economic center, and a critical node for administrative functions.

Tiruchirappalli contributes 3.1% to Tamil Nadu's Gross State Domestic Product (GSDP). As per the Department of Economics and Statistics - FY

2022–23, Tiruchirappalli ranked 11th in terms of Gross District Domestic Product (GDDP). The Tiruchirappalli LPA acts as the economic engine, concentrating the district's major employment, investment, and value-addition activities. The economy of LPA is predominantly service-oriented at 64%, followed by the secondary sector at 27%, while the primary sector contributes less than 9%. It hosts major public and private sector players such as BHEL, Golden Rock Railway Workshop, and a network of engineering, fabrication, food-processing, and logistics-based MSMEs. The economic profile is further strengthened with educational institutions of regional importance, growing IT/ITeS, the presence of GCC, tourism linked to heritage and religious circuits, and a vibrant wholesale and retail trading activities. Collectively, these sectors position the Tiruchirappalli LPA as a diversified, resilient, and growth-driven urban economy within the district and the state.

Tiruchirappalli is gradually transitioning from a core-oriented urban form to a more dispersed, corridor-led pattern of growth. A combination of factors, including major infrastructure investments, improvements in regional and intra-city connectivity, the diversification of economic and institutional activities, and natural constraints, has shaped this transformation.

2.1 Constituents of Tiruchirappalli LPA

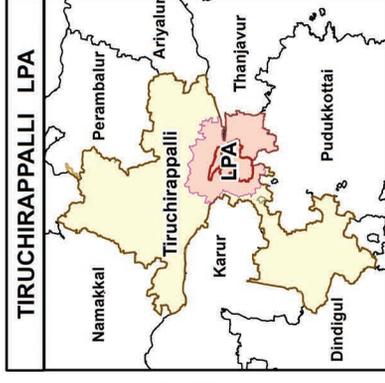
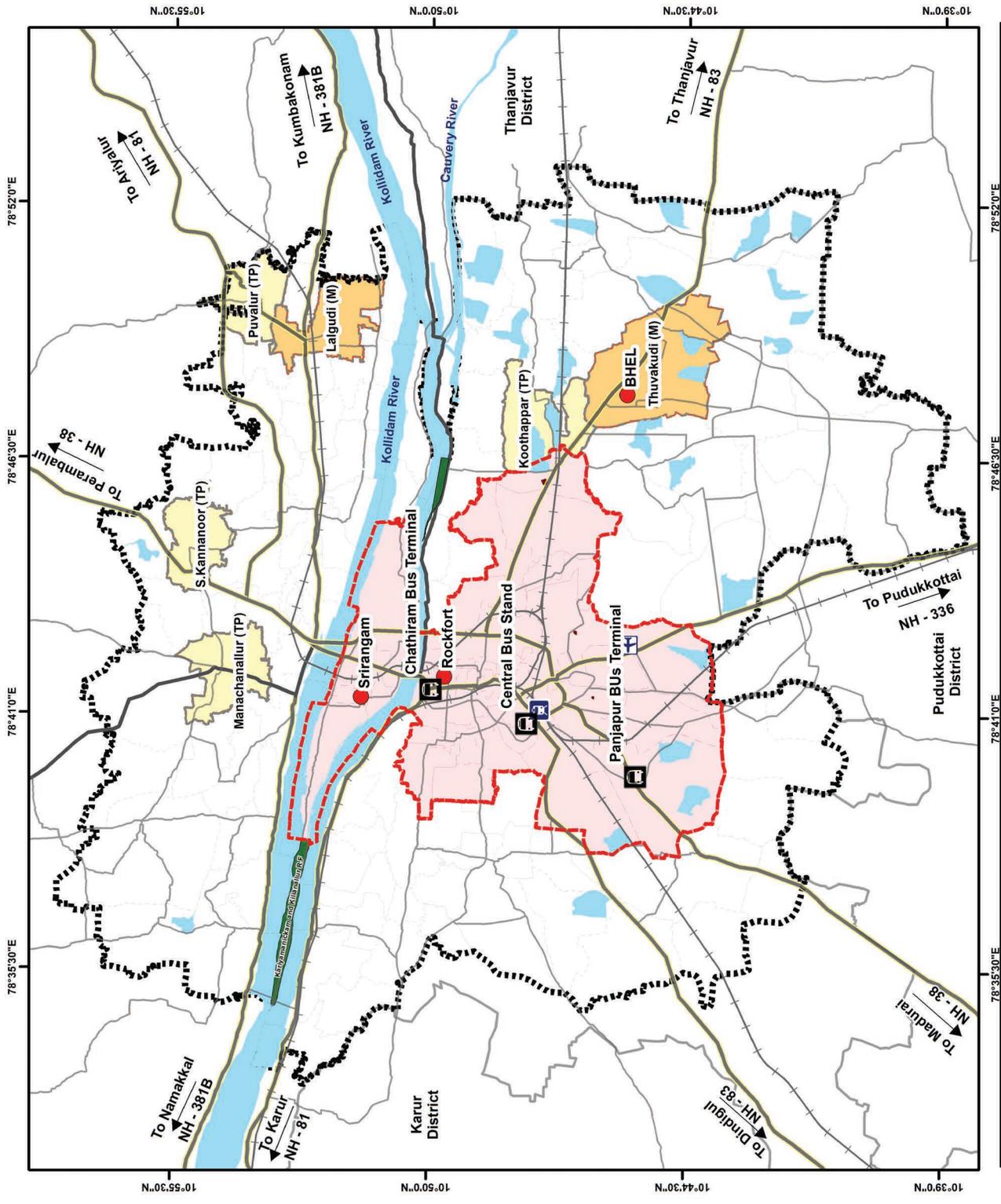
The Tiruchirappalli Local Planning Area (LPA) comprises six taluks, namely, Srirangam, Manachanallur, Lalgudi, Thiruverumbur, Tiruchirappalli East, and Tiruchirappalli West. The urban administrative framework encompasses the Tiruchirappalli City Municipal Corporation (TCMC), two municipalities (Lalgudi and Thuvakudi), and four town panchayats (Koothappar, Puvalur, Manachanallur, and S. Kananoor). The rural administrative framework encompasses 91 Village panchayats (comprising 104 revenue villages). Furthermore, the Tiruchirappalli LPA comprises five blocks, namely Lalgudi, Manachanallur, Andanallur, Manikandam, and Thiruverumbur, in addition to the Tiruchirappalli City Municipal Corporation.

2.1.1 Tiruchirappalli City Municipal Corporation

Tiruchirappalli Municipal Corporation was formed in 1994 by merging 13 local bodies, covering 146.90 sq. km and comprising 60 wards. Considering the rapid urbanisation, the corporation was expanded to 167.23 sq. km with 65 wards, confined as five zones (Srirangam, Ariyamangalam, Thiruverambur, Ponmalai, and K. Abishekapuram).

Table 2.1: Administrative framework of Tiruchirappalli Local Planning Area

Administrative category	No. of Local bodies	Area (in Sq.km)	Spatial share (in %)
Tiruchirappalli City Municipal Corporation	1	167.23	20.8
Municipalities	2	24.40	3.0
Town panchayats	4	21.53	2.7
Village panchayats (comprising 104 revenue villages)	91	591.37	73.5
Total area		804.53	100



LEGEND

- Landmarks
- Busstops
- Airport
- Railway Junction
- District Boundary
- LPA Boundary
- Corporation Boundary
- Ward Boundary
- Municipality
- Town Panchayat
- Village Boundary
- Reserve Forest
- River
- Tanks
- National Highway
- State Highway
- Major District Road
- Railway Line

DIRECTORATE OF TOWN & COUNTRY PLANNING - TAMIL NADU

SURVEY & LAND RECORDS DTCP - TAMILNADU



TIRUCHIRAPPALLI LOCAL PLANNING AREA

Map 2.1: Administrative framework of Tiruchirappalli LPA

The Tiruchirappalli City Municipal Corporation constitutes the historic core of the city, around which growth has evolved. The spatial form of the city is defined by multiple interconnected growth centres, including Rockfort, Woraiyur and Srirangam, and is also influenced by the presence of rivers and canal systems.

2.1.2 Municipalities

There are two Municipalities in the Tiruchirappalli LPA, namely, Lalgudi and Thuvakudi, acting as secondary growth centres within the planning area. They cover a combined area of 24.40 Sq.km.

Lalgudi Municipality, covering an area of 10.03 sq.km, located about 26 km northeast of the Corporation along the Kollidam River, functions as a sub-regional service and commercial centre serving surrounding agrarian settlements. Strong road, rail, and bus connectivity has enhanced its accessibility, positioning it as an emerging growth node.

Thuvakudi Municipality, covering an area of 14.37 sq.km, is situated about 22 km southeast of the Corporation, functions as an industrial-residential satellite town with a predominantly linear urban form along a major transport corridor. The presence of BHEL as the primary economic

anchor, along with NIT Tiruchirappalli and the SIDCO Industrial Estate, has been the key driver of its growth and development.

2.1.3 Town Panchayats

There are four town panchayats in the Tiruchirappalli LPA, namely Puvalur, Manachanallur, S.Kannanoor (West), and Koothappar, forming the peri-urban belt and transitional zones. They cover a combined area of 21.53 Sq.km. These Town Panchayats, comprising eight Revenue Villages, are vital semi-urban settlements with a growing urban character acting as transitional zones between the urban core and the rural hinterlands.

2.1.4 Village Panchayats

The Tiruchirappalli Local Planning Area (LPA) comprises 91 Village Panchayats, encompassing a total of 104 revenue villages, covering an area of 591.37 sq.km. The village panchayats of Tiruchirappalli LPA are predominantly agrarian in character, with growth primarily driven by the development of infrastructure, educational institutions, and related amenities. These settlements constitute agriculturally productive and culturally significant areas that complement the historic city, with their spatial organization, livelihoods closely linked to the Cauvery and Kollidam rivers.



3. REVIEW OF PREVIOUS MASTER PLANS

The following plans have been prepared for Tiruchirappalli viz:

1. Tiruchirappalli First Master Plan (2001)
2. Tiruchirappalli Review Approved Master Plan (2011)
3. Navalpattu New Town Development Plan (2021)
4. 44 Detailed Development Plans.

The earlier Master Plans and Detailed Development Plans have been reviewed to assess how far the proposed road networks, land use allocations, and development proposals have been implemented over time. This review

provides an understanding of how planned infrastructure has influenced the existing urban structure and growth pattern within the planning area. The purpose of this assessment is to establish a clear understanding of past planning efforts and their impact on the existing urban form, supporting the preparation of the current Master Plan.

3.1 Tiruchirappalli Master Plan 2001 and Review Tiruchirappalli Master Plan 2011

The Tiruchirappalli Local Planning Area was declared under Section 10(1) through G.O. Ms. No. 936, RD&LA, dated 05.04.1974, and subsequently confirmed under Section 10(4) through G.O. Ms. No. 1669, RD&LA, dated 16.07.1974. The Local Planning Area covered an extent of 281.14 sq.km comprising 3 Municipalities, 5 Town Panchayats, and 39 revenue villages across 3 taluks as per G.O. Ms. No 1415, H&UD, dated 25.10.1980. This administrative extent formed the statutory basis for preparation of the First Master Plan for the horizon year 2001. The First Master Plan was approved under Section 28 through G.O. (Ms) No. 374, H&UD, dated 29.08.1996.

The Tiruchirappalli First Master Plan was taken up for review for the same planning extent of 281.14 sq.km. The Review Master Plan Received Government consent under Section 32(2)(b) of the Tamil Nadu Town and Country Planning Act, 1971, through G.O. (Ms) No. 237, H&UD, dated 07.07.2005, and was approved under Section 32(4) through G.O. (Ms) No. 143, H&UD, dated 11.08.2009, for the horizon year 2011.

The plan focused on improvement of major regional road corridors with provision for institutional and commercial uses. It also focused on planned residential development and infrastructure improvement to support the growth of settlements, thereby reinforcing Tiruchirappalli's role as a regional hub.

3.1.1 Demographic and Workforce Projection

The First Master Plan projected a population of 10.0 lakhs for the horizon year 2001 using the geometric curve method; however, Census 2001 recorded an actual population of 7.2 lakhs within the Local Planning Area, indicating a variation of 2.8 lakhs. Similarly, the workforce was projected at 3.75 lakhs, while the actual workforce recorded in 2001 was 2.63 lakhs, showing a variation of 1.12 lakhs. The Review Master Plan projected a population of 11.0 lakhs for the year 2011 using the geometric increase method. As per Census 2011, the recorded population of the planning area was 10.08 lakhs. These differences indicate that population and employment growth during the plan period progressed at a more moderate pace, largely aligned with corridor-based development patterns.

3.1.2 Comparison of Proposed Land Use and Existing Land Use 2025

A direct comparison with the Tiruchirappalli First Master Plan (2001) could not be undertaken due to the absence of consolidated land use data and the plan's limited relevance to current development conditions.

The comparison between the Review Master Plan 2011 and the existing land use 2025, shows that residential land use stands at 49.19 sq.km, which is lesser than the proposed extent for 2011, largely due to railway lines acting as physical barriers and limited connectivity in the southern parts of the corporation. Commercial land use has increased exceeding the proposed, reflecting a shift towards corridor based commercial development along major regional roads. Industrial land use has achieved only 4.51 sq.km against the proposed 6.07 sq.km, with a significant share of industrial activity occurring outside the LPA, particularly in the Navalpattu New Town Development Area. Transportation land use has increased from the proposed 12.91 sq.km to 15.70 sq.km due to road widening, formation of new roads, and transport

Table 3.1 Comparison of Proposed Land Use 2001, 2011 and Existing Land Use 2025

Land Use	Proposed Land Use (2011) (Excluding Thogur Village)		Existing Land Use (2025)	
	Area (sq. km)	%	Area (sq. km)	%
Residential	103.83	37.04%	49.19	19.49%
Commercial	5.89	2.10%	6.78	2.69%
Industrial	6.07	2.16%	4.51	1.79%
Educational	25.06	8.91%	21.25	8.42%
Institutional (Public & Semi-Public)				
Transportation	12.91	4.59%	15.70	6.22%
Agricultural	54.676	29.38%	107.64	42.64%
Water Bodies	43.99	15.82%	47.35	18.76%
Total	252.4	100.00%	252.4	100.00%

Source: DTCP, Tiruchirappalli

infrastructure improvements. Agricultural land and water bodies continue to occupy large extents of the planning area, highlighting the semi urban character of the peripheral zones.

3.2 Detail Development Plan

A total of 47 Detailed Development Plans are prepared within the Tiruchirappalli LPA of which 45 are approved and 2 consented. 328 New roads have been proposed of which 39 have been formed and 143 numbers of roads are yet to be developed and 146 roads are presently not feasible. Varaganeri DDP, Golden Rock DDPs, Salai Road Extension DDP has the highest number of roads formed.

Table 3.2 Stages of Detail Development Plans in Tiruchirappalli LPA

Consented DDP	Approved DDP	Total DDP
2	45	47

Source: DTCP, Tiruchirappalli

3.3 Navalpattu New Town Development Area Plan (NTDA) 2021

The Navalpattu area in Thiruverambur Panchayat and adjoining Thuvakudi Town panchayat was declared as a New Town Development Area. The area measuring 208.14 sq.km was notified under Section 10(1) vide G.O.Ms.No.259 H&UD dated 15.04.1981 and

later Navalpattu New Town Development Plan was approved in G.O.Ms.No.180 H&UD dated 19.07.2006, resulting in the Navalpattu NTDA with Plan Period 2021.

The Navalpattu New Town Development Plan was conceived to develop the area as a major industrial hub, considering the presence of large industries. The plan aimed to create a concentrated employment base, supported by residential and allied activities in the surrounding Local Planning Area. The plan projected a population of 2.0 lakhs for the horizon year 2021 using the average incremental increase method.

Residential land use increased from the proposed 20.36 sq.km to 34.65 sq.km, exceeding the proposal by 14.29 sq.km, driven by proximity to industrial areas and improved accessibility. Commercial land use increased from 0.40 sq.km to 1.05 sq.km, responding to growing residential demand. Industrial land use expanded from the proposed 15.47 sq.km to 22.75 sq.km, reflecting favourable terrain, access to major roads, and the presence of technical and educational institutions. Agricultural land reduced from 159.47 sq.km to 93.45 sq.km, indicating the extent of urbanisation within the New Town Development Area.

Table 3.3 Comparison of Landuse in Proposed Navalpattu NTDA plan 2021 and Existing Landuse 2025

Land Use	Proposed Land Use (NTDA -2021)		Existing Land Use (2025)	
	Area (sq. km)	%	Area (sq. km)	%
Residential	20.36	9.78	34.65	16.54
Commercial	0.4	0.19	1.05	0.85
Industrial	15.47	7.44	22.75	11.61
Institutional (Public & Semi-Public)	12.44	5.97	12.85	5.61
Agricultural	159.47	76.62	93.45	46.28
Transport	-	-	6.39	2.47
Water Body	-	-	37.34	16.64
Total	208.14	100	208.14	100

Source: Navalpattu NTDA (2021); DTCP, Tiruchirappalli



4. SPATIAL TRENDS AND EXISTING LANDUSE

4.1 Spatial Trend Analysis

4.1.1 Residential Building Approvals

Building approval activity in the Tiruchirappalli Local Planning Area has remained high over the last five years, with the large concentration in the central part of LPA, Srirangam, southern and eastern peripheral areas. Settlements such as Srirangam, Thillai Nagar, Tennur, Woraiyur, K.K. Nagar, Thendral Nagar and Pappakurichi Kattur have shown considerable number of approvals issued in the last decade. These areas continue to attract growth because of their

strategic location, proximity to the city centre and along major National highway towards Thanjavur in the eastern direction and connecting Chennai in the northern direction.

A similar pattern of expansion is visible along the northern corridor, especially in villages located on NH-38, including Samayapuram, Pitchandarkoil, Manachanallur and S.Kannanoor. These settlements are gaining prominence for new residential developments due to better connectivity and good accessibility to the city. Among the municipalities, the current development patterns indicate that Thuvakudi has shown a significant increase in building approvals and is emerging as the next major growth centre after Tiruchirappalli Corporation. In addition, Manachanallur and S. Kannanoor Town Panchayats in the northern part of the planning area are developing as potential urban centres. Map 4.1 shows the building approvals in Tiruchirappalli LPA from 2015 to 2025.

4.1.2 Residential Layout

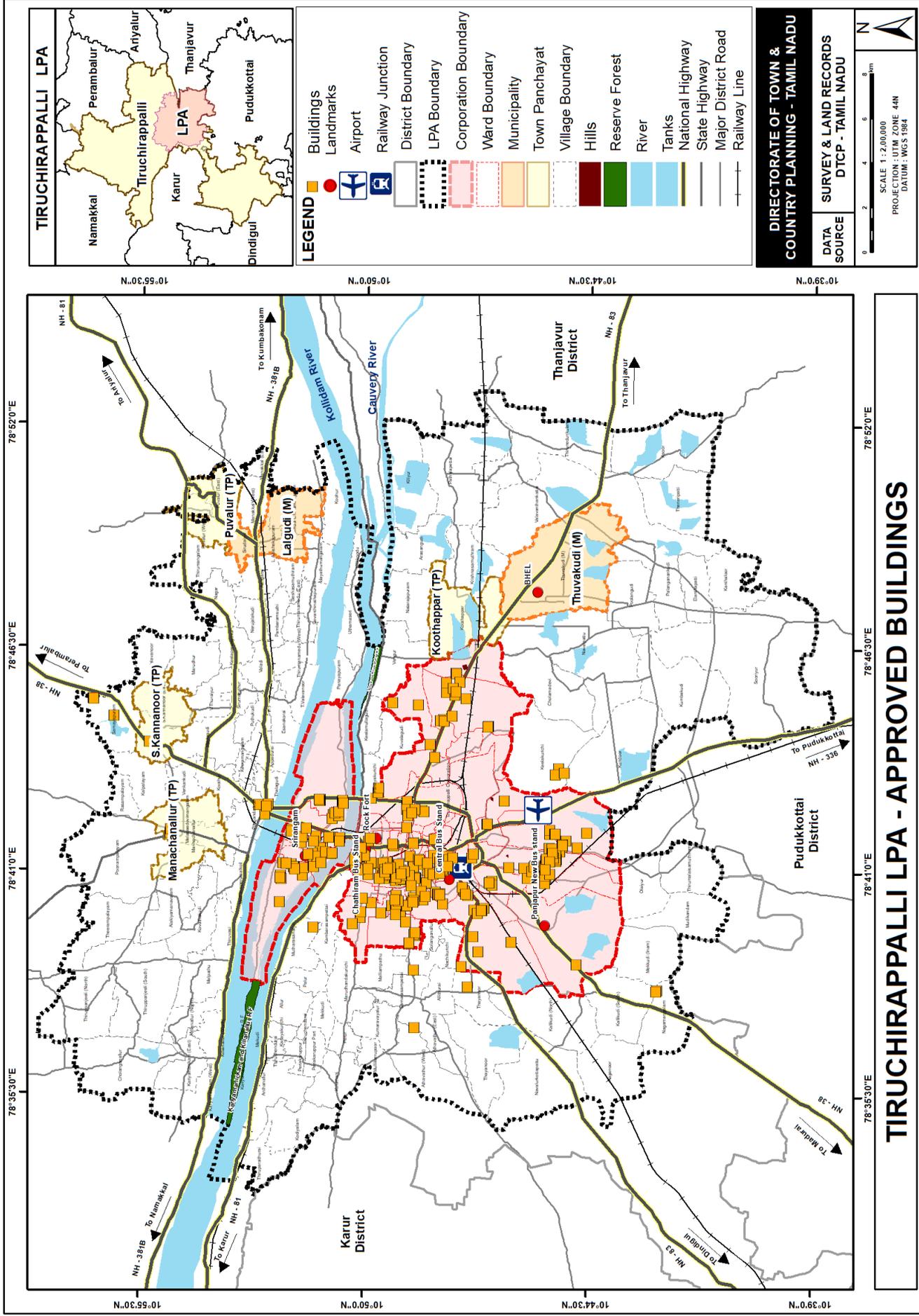
Within the Tiruchirappalli Corporation limits, residential layout approvals have increased significantly over the last decade. Notable growth is observed in areas such as Srirangam, Puthur, Woraiyur, Mela Kalamdar Kottai, Kumarmangalam and Vannangkovil. This rise in layout approvals is mainly driven by proximity to the institutions, rapid urbanisation and improved road connectivity, which have made these locations more accessible and attractive for residential development.

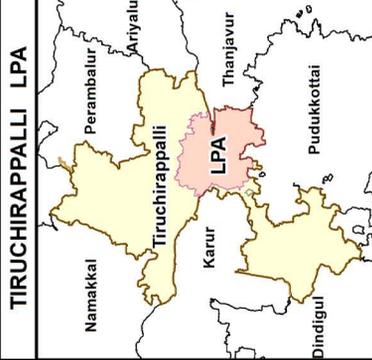
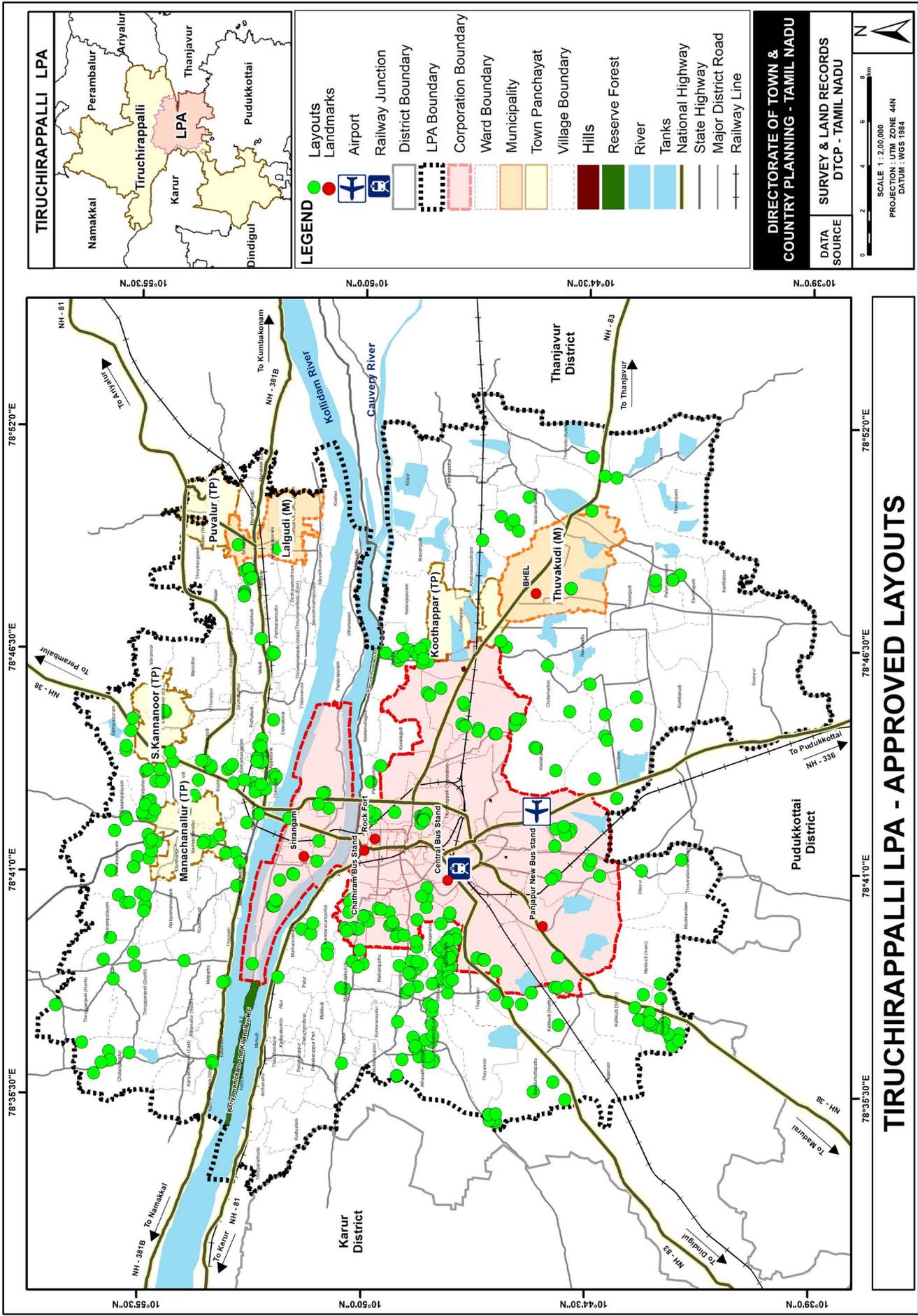
In the rest of the Local Planning Area (LPA), residential layout approvals have increased steadily over recent years. This growth is highly prominent in the northern direction towards Chennai Manachanallur TP, S.Kannanoor TP,

Kalpalayam, Rasampalayam, Poonampalayam, Theerampalam, Thiruppanjeeli and Cholanganallur villages. Profuse concentration of layout approvals are observed in Nachikuruchi, Somarasanpettai, Allithurai, and Athavathur in the western direction of LPA and at Navalurkottapattu, Nagamangalam, Kallikudi in the south-western direction. Sporadic layouts are present in the Navalpattu Area, besides layouts are intensely visible as out spills of Koothappar TP at Vengur and Thuvakudi Municipality in Valavadankottai respectively. These approvals indicate a gradual shift of residential development towards the outer parts of the LPA. Also, recent developments are highly prevalent in Thalagudi, Keeramangalam, Appadurai, Valladi, Aangarai towards Lalgudi in Trichy-Thiruvaiyyaru in the eastern direction along the Cauvery. The availability of land, improved road connectivity, development of industries and expanding urban influence are key factors driving this growth. Map 4.2 shows the residential layout approvals in Tiruchirappalli LPA from 2015 to 2025.

4.1.3 Industrial Buildings

The industrial development trend over the past ten years shows that most industrial building and layout approvals are concentrated on expanding existing industrial clusters at Thuvakudi Municipality and Koothappar TP. New industrial units are coming up in Manachanallur in the north, Gundur in the south, Thalakudi, Ariyamangalm in the central area and Puvalur TP in the east. The pattern indicates a continued preference for consolidation rather than the creation of new industrial areas. Map 4.3 shows the Industrial Approvals in Tiruchirappalli LPA from 2015 to 2025.



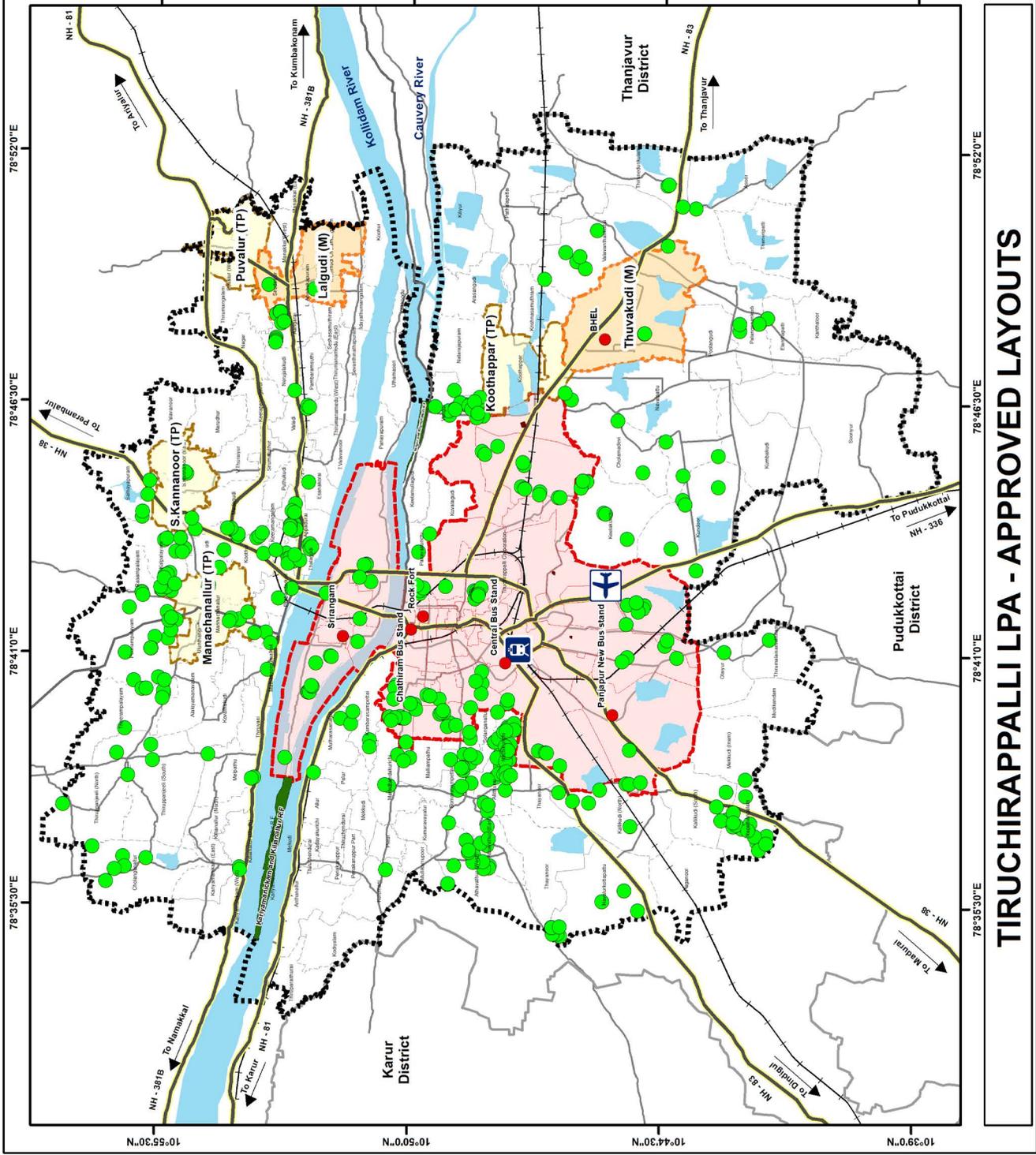


- ### LEGEND
- Layouts
 - Landmarks
 - Airport
 - Railway Junction
 - District Boundary
 - LPA Boundary
 - Corporation Boundary
 - Ward Boundary
 - Municipality
 - Town Panchayat
 - Village Boundary
 - Hills
 - Reserve Forest
 - River
 - Tanks
 - National Highway
 - State Highway
 - Major District Road
 - Railway Line

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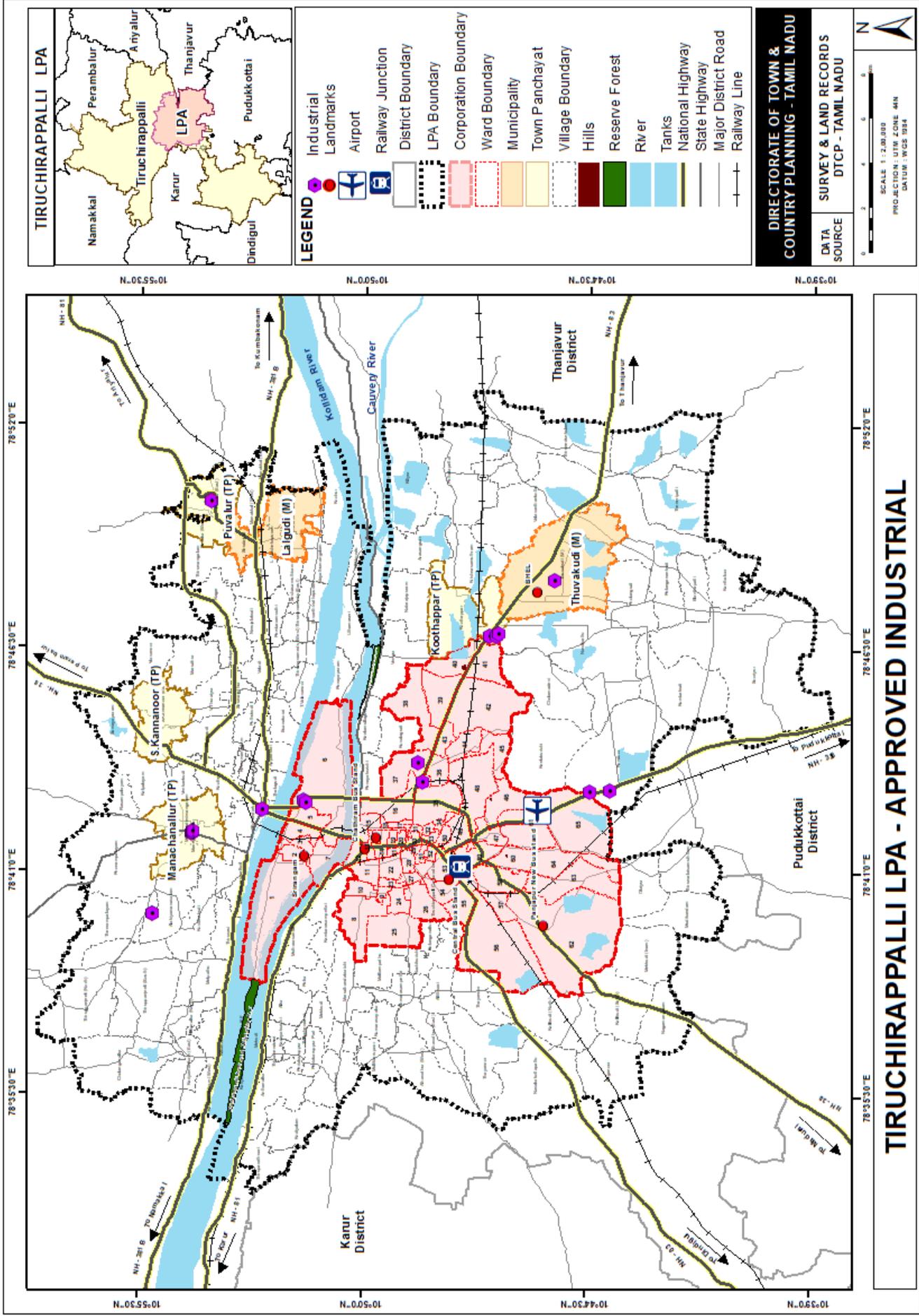
DATA SOURCE
SURVEY & LAND RECORDS
DTCP - TAMIL NADU

SCALE 1 : 2,00,000
PROJECTION : UTM_ZONE 44N
DATUM : WGS 1984



TIRUCHIRAPPALLI LPA - APPROVED LAYOUTS

Map 4.2 shows the residential and commercial building approvals in Tiruchirappalli LPA from 2015 to 2026



Map 4.3 shows the industrial building approvals in Tiruchirappalli LPA from 2015 to 2026

4.2 Land Use Distribution

The existing land use of the LPA, covering an area of 804.52 sq. km, provides information on current land utilisation across residential, commercial, industrial, institutional, open space, recreational, and agricultural uses. The analysis of the existing land use pattern in the various constituents of the LPA offers an understanding of the spatial distribution of activities, their characteristics, and their efficiency which guide land use allocation for the plan period.

4.2.1 Land Use in Tiruchirappalli Corporation

The existing land use pattern of the Tiruchirappalli Corporation area reflects a diverse and evolving urban structure shaped by historical development, economic activities, and recent growth trends. Residential use forms the second largest share, covering 35.53 sq. km (21.25%), comprising traditional neighbourhoods, plotted layouts, apartments, and emerging gated communities. Commercial areas occupy 6.99 sq. km (4.18%), with the Rock Fort precinct acting as the primary commercial core supported by major

secondary hubs such as Thennur, Piratiyur, Karumandapam, Edamalaipatti Pudur, Thiruverumbur and Thirunagar. Industrial use accounts for 1.94 sq. km (1.16%), including traditional, manufacturing and agro-based industries and small-scale units, while special and hazardous industrial activities are concentrated in Golden Rock area, covering 2.77 sq. km (1.66%). Institutional land use spans 19.11 sq. km (11.43%) majority in the Rock Fort Area has the cultural and religious landmarks, Trichy Junction and its surrounding areas for the major railway works, Cantonment area hosts major administrative offices and Tharanallur partakes major educational institutions. Water bodies form a significant 30.03 sq. km (17.96%), including Cauvery & Kollidam Rivers, Uyyakondam Canal, and many lakes, contributing to ecological balance and cultural identity. Transportation-related land use extends over 12.7 sq. km (7.59%), supported by 5 major highways, bus stands, and railway infrastructure. Agricultural land accounts for 57.46 sq. km (34.36%), with the presence of cultivable land parcels which are fertile, with irrigation sources from perennial tributaries.

Table 4.1 Existing Land Use 2025 Tiruchirappalli Corporation

Tiruchirappalli LPA – Corporation		
Land-Use	Area in Sq.KM.	Area in %
Residential	35.53	21.25%
Commercial	6.99	4.18%
Industrial	1.94	1.16%
Special & Hazardous Industries	2.77	1.66%
Institutional	19.11	11.43%
Open Space & Recreational	0.70	0.42%
Agriculture & Others	57.46	34.36%
Transportation	12.70	7.59%
Waterbody	30.03	17.96%
Total	167.23	100%

4.2.2 Land Use in Municipalities

The existing land use pattern of Lalgudi and Thuvakudi Municipalities shows a mix of traditional settlements, growing residential areas due to industrialisation, and significant area under agricultural land. Residential use covers 4.42 sq. km (18.11%), with Lalgudi's housing concentrated in its central wards along the Railway line and extending along NH-81 towards Thiruvaiyyaru while BHEL being the catalyst for Thuvakudi's development being shaped by NH-83 with new plotted layouts around the BHEL Township & NIT. Commercial land accounts for 0.18 sq. km (0.72%), with Lalgudi functioning as a major market town supported by Uzhavar Sandhai, and weekly markets, whereas Thuvakudi has a commercial corridor along Trichy-Thanjavur Road. Industrial land constitutes 2.87 sq. km (11.76%), mainly due to the BHEL and allied industries in Thuvakudi, while Lalgudi has minimal agro-based industrial presence. Special and Hazardous industrial land constitutes 2.60 sq. km (10.66%) owing to the presence of BHEL & SIDCO in Thuvakudi Municipality. Recreational and open

spaces remain very limited at 0.05 sq. km (0.20%). Agriculture is the dominant land use, covering 6.31 sq. km (25.86%), with Lalgudi retaining large agricultural tracts, while Thuvakudi has only small pockets in its southern part. Transportation uses occupy 0.91 sq. km (3.73%), supported by major National Highways, State Highways, a bus stand in each municipality, and a railway station in Lalgudi. Waterbodies cover 3.46 sq. km (14.18%), including BHEL Nagar Pond in Thuvakudi Municipality, Iron river channel from Panguni River in Lalgudi Municipality forming key ecological and water supply assets. Table 4.2 shows Existing Land Use 2045 Tiruchirappalli LPA – Municipalities.

4.2.3 Land Use in Town Panchayats

The existing land use pattern of the four Town Panchayats within the Tiruchirappalli Local Planning Area reflects a transitional landscape shaped by urban influence, transport corridors, and traditional rural characteristics. Residential land covers 4.77 sq. km (22.16%), largely emerging as urban spillover from the Corporation area, with ribbon development patterns prominent in

Table 4.2 Existing Land Use 2045 Tiruchirappalli LPA – Municipalities

Existing Tiruchirappalli LPA – Municipalities		
Land-Use	Area in Sq.KM.	Area in %
Residential	4.42	18.11%
Commercial	0.18	0.72%
Industrial	2.87	11.76%
Special & Hazardous Industries	2.60	10.66%
Institutional	3.60	14.75%
Open Space & Recreational	0.05	0.20%
Agriculture & Others	6.31	25.86%
Transportation	0.91	3.73%
Waterbody	3.46	14.18%
Total	24.40	100%

Manchanallur, S.Kannanoor, Puvalur and Koothappar Town Panchayats. Commercial activity occupies 0.63 sq. km (2.94%), driven by traditional markets and transport-linked corridors, with notable hubs in Manachanallur Market, Corridor development in Koothappar TP in Trichy-Thanjavur Road and Tourism based development in GST Road at S,Kannanoor owing to Samayapuram. Industrial land use extends across 0.65 sq. km (3.01%), concentrated mainly in Koothappar TP and S.Kannanoor TP due to BHEL and allied industries. Institutional uses account for 1.12 sq. km (5.20%), with key facilities such as Educational Institutions viz., NIT Trichy. Recreational spaces are limited to 0.09 sq. km (0.44%). Agriculture remains dominant at 9.18 sq. km (42.64%), especially in Manachanallur, Puvalur and S.Kannanoor. Transportation infrastructure occupies 1.33 sq. km (6.18%), contributed by NH-83, NH-38, SH-99, SH-244, and major district roads. Waterbodies cover 3.66 sq. km (17.00%), including major irrigation channels to Pulambadi Canal, Puvalur Tank, Periya Kulam and BHEL Nagar Pond forming essential ecological and hydrological

assets. Table 4.3 shows Existing Land Use 2045 Tiruchirappalli LPA – Town Panchayat.

4.2.4 Land Use in Revenue Villages

Residential land covers 80.92 Sq. Km (13.68%) and is mainly concentrated around the Tiruchirappalli Corporation and along major roads, with notable growth in Tiruchirappalli East and West, in Srirangam and Thiruverumbur Taluks. Commercial land use occupies 2.65 sq. km (0.45%), largely forming ribbon development along NH-38, NH-83 towards Thanjavur, and key corridors such as Lalgudi Road and Dindigul Road. Industrial land covers 10.99 sq. km (1.86%), with major clusters along NH-83 encompassing the industrial belt around BHEL and several large manufacturing facilities in SIDCO industrial estate. Special and hazardous industries occupy 7.26 sq. km (1.23%) and are located in and around Thuvakudi Municipality and Koothappar Town Panchayat. Institutional land use extends across 13.35 sq. km (2.26%), featuring the airport, Anna University, NIT Trichy, Bharathidasan University,

Table 4.3 Existing Land Use 2045 Tiruchirappalli LPA – Town Panchayat

Existing Tiruchirappalli LPA – Town Panchayat		
Land-Use	Area in Sq.KM.	Area in %
Residential	4.77	22.16%
Commercial	0.63	2.94%
Industrial	0.65	3.01%
Special & Hazardous Industries	0.10	0.46%
Institutional	1.12	5.20%
Open Space & Recreational	0.09	0.44%
Agriculture & Others	9.18	42.64%
Transportation	1.33	6.18%
Waterbody	3.66	17.00%
Total	21.53	100%

and IIM Trichy and several educational institutions. Recreational spaces are limited at 0.4 sq. km (0.07%). Agriculture remains the dominant category with 351.21 sq. km (59.56%), supported by the Cauvery and Kollidam River and its tributaries and Uyyakondan channel. Water bodies form 103.67 sq. km (17.53%), playing a critical role in irrigation, storage, and recharge. Table 4.4

shows Existing Land Use 2025 Tiruchirappalli LPA - Revenue Villages.

4.2.5 Aggregated Land Use: Tiruchirappalli LPA

Table 4.5 and Map 4.4 show the aggregate land use of the Tiruchirappalli LPA and the Existing Land Use of the Tiruchirappalli LPA.

Table 4.4 Existing Land Use 2025 Tiruchirappalli LPA - Revenue Villages

Tiruchirappalli LPA – Revenue Villages		
Land-Use	Area in Sq.KM.	Area in %
Residential	80.92	13.68%
Commercial	2.65	0.45%
Industrial	10.99	1.86%
Special & Hazardous Industries	7.26	1.23%
Institutional	13.35	2.26%
Open Space & Recreational	0.40	0.07%
Agriculture & Others	351.21	59.56%
Transportation	19.92	3.37%
Waterbody	103.67	17.53%
Total	591.37	100%



Table 4.5 Existing Land Use 2025 Tiruchirappalli Local Planning Area

Existing Land Use 2025 Tiruchirappalli Local Planning Area		
Land-Use	Area in Sq.KM.	Area in %
Residential	125.64	15.62%
Commercial	10.45	1.30%
Industrial	16.45	2.04%
Special & Hazardous Industries	12.73	1.58%
Institutional	37.18	4.62%
Open Space & Recreational	1.24	0.15%
Agriculture & Others	425.16	52.85%
Transportation	34.86	4.33%
Waterbody	140.82	17.50%
Total	804.53	100%

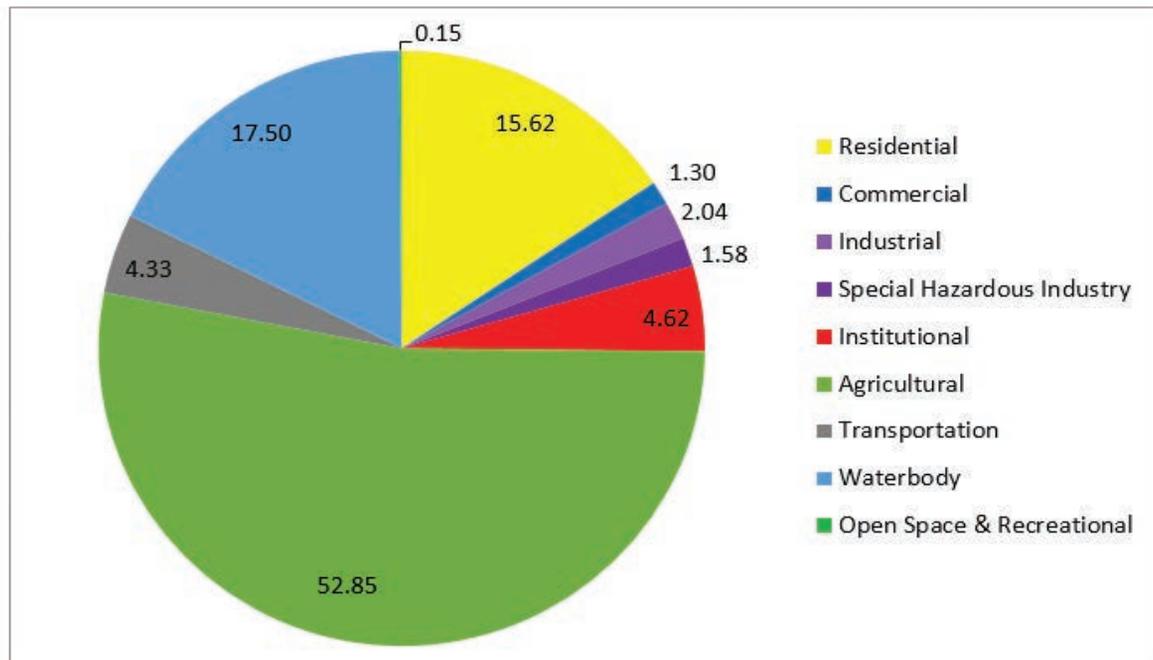
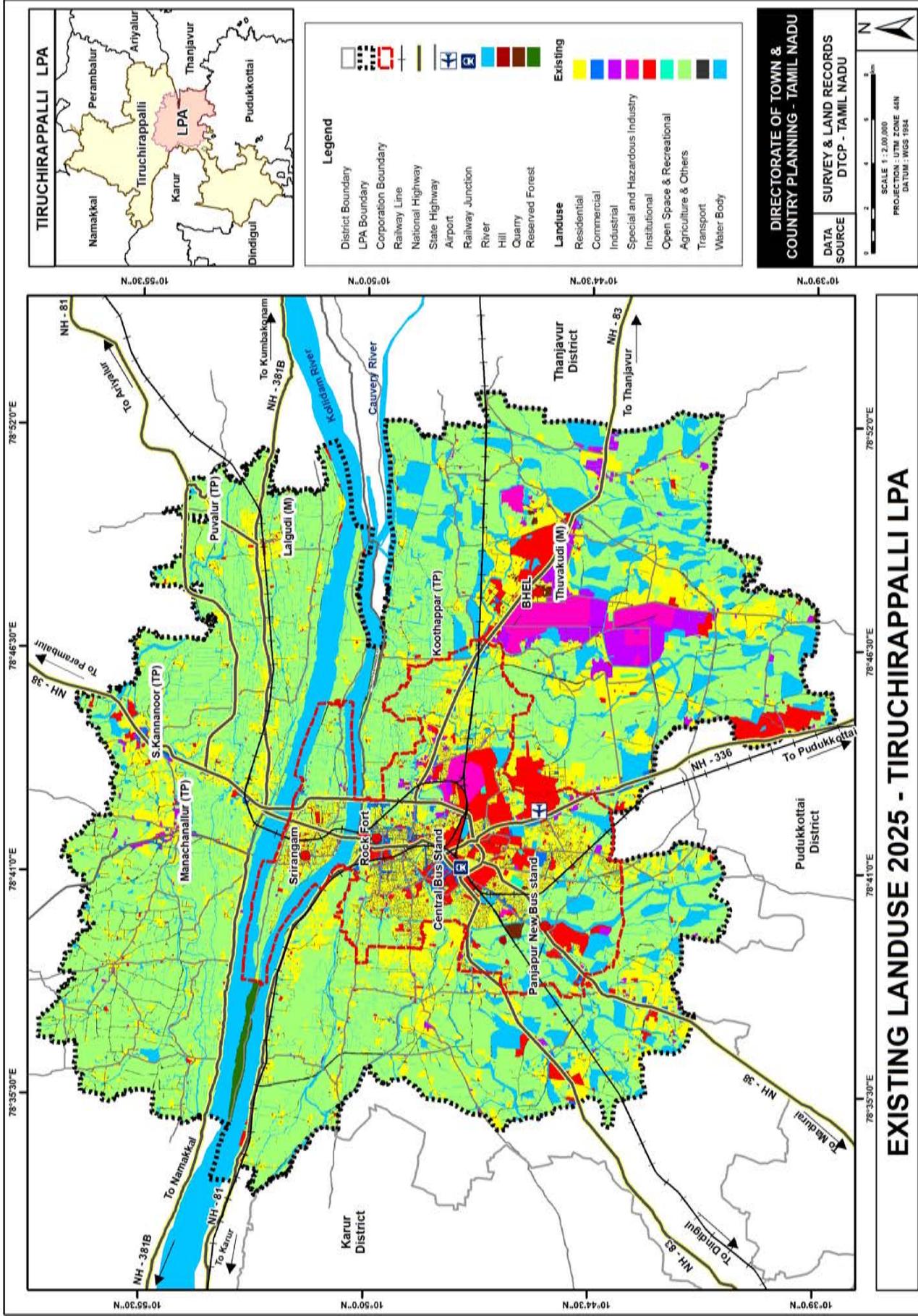


Figure 4.1 Existing Land Use 2025 Tiruchirappalli Local Planning Area







5. NATURAL SETTING AND ENVIRONMENT

5.1. Overview

The Natural Setting and Environment of the Tiruchirappalli Local Planning Area (LPA) is shaped by the dynamic interaction of riverine processes, alluvial plains, hard rock uplands, climatic variability, and rapid urbanisation. Situated within the Lower Cauvery sub-basin, Trichy represents a complex environmental system where hydrology, landforms, ecology, and climate risks intersect, strongly influencing urban growth patterns, resource availability, and disaster vulnerability. This chapter provides a comprehensive assessment of the LPA's physical, ecological, hydrological, and environmental characteristics, establishing a robust analytical foundation for sustainable spatial planning, infrastructure investment, and climate-resilient development.

5.2. River–Plain–Rock Framework: Physical Systems

The spatial structure of the Tiruchirappalli LPA is interpreted through a River–Plain–Rock framework, which offers an integrated understanding of landform evolution, development suitability, and environmental vulnerability. The Cauvery–Kollidam river system constitutes the dominant geomorphic element, bifurcating north of Srirangam Island and creating an extensive fluvial corridor that has historically shaped settlement patterns, agricultural productivity, transport connectivity, and ecological processes.

Flanking the river corridors are expansive alluvial plains, characterised by fertile soils, gentle gradients, and high groundwater potential. These plains support intensive agriculture and host major urban and peri-urban expansion. However, their low elevation and proximity to active channels make them highly susceptible to seasonal flooding, waterlogging, and riverbank erosion. In contrast, hard rock uplands, represented by residual hills such as Rockfort Hill (Malaikottai) and Golden Rock, form stable geomorphic features that limit urban expansion, provide visual landmarks, and offer relatively safer ground conditions. Together, this framework establishes the spatial logic for assessing development suitability, hazard exposure, and ecological sensitivity across the LPA.

5.3. Climate

The Tiruchirappalli LPA experiences a tropical savanna (Aw) climate, marked by persistently high temperatures, a pronounced dry season, and strong dependence on the Northeast Monsoon (October–December). Long-term climatic analysis indicates a warming trend of approximately 0.2°C over the past three decades, with climate projections for 2046 suggesting a further increase of 0.7–0.9°C in maximum temperatures. This intensifying thermal regime

is expected to exacerbate urban heat island effects, thermal discomfort, and energy demand.

Average annual rainfall is 976.38 mm, with inter-annual variability and increasing rainfall intensity. Climate projections indicate a 6.3% increase in extreme rainfall events, heightening the risks of urban flooding, drainage congestion, and infrastructure stress. The combined effect of rising temperatures and changing rainfall regimes underscores the growing vulnerability of Trichy to climate-induced hazards, necessitating climate-responsive planning, heat mitigation strategies, and robust stormwater management systems.

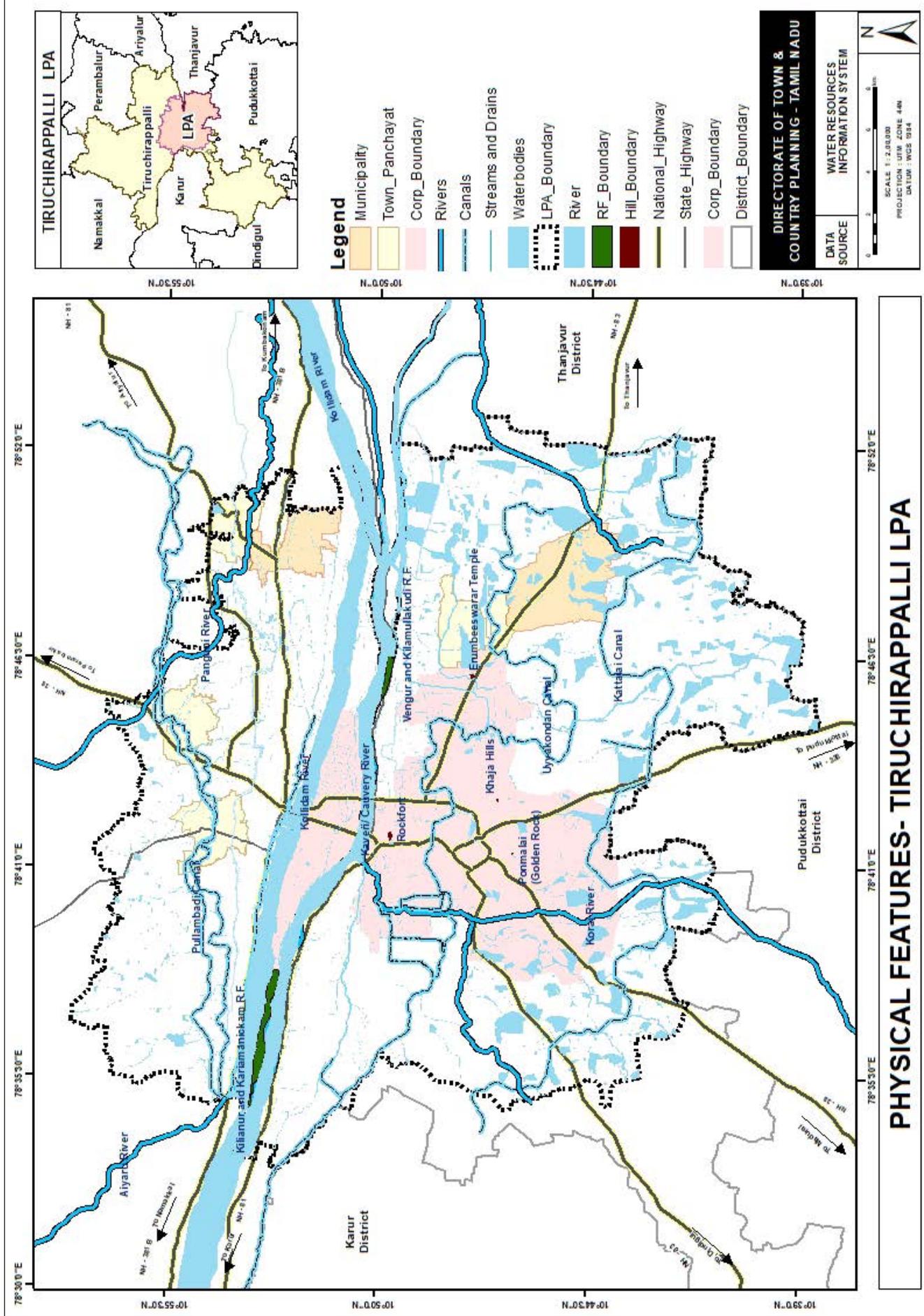
5.4. Land Environment

The LPA is characterised by a gently undulating terrain, with elevations ranging from 42 m to 119 m above mean sea level, sloping generally towards the Cauvery and Kollidam rivers. The geological setting consists of an ancient Archaean crystalline basement, dominated by migmatite and charnockite, overlain in riverine zones by recent alluvial deposits. These formations provide differential foundation conditions and groundwater potential, influencing urban expansion and infrastructure development.

Geomorphologically, the area is dominated by active floodplains, pediment–pediplain complexes, and isolated residual hills. Soils vary from fertile but poorly drained clays and clay loams within floodplains to well-drained sandy loams and red loams in upland zones. While floodplain soils support high agricultural productivity, they are vulnerable to seasonal inundation and waterlogging, whereas upland soils provide relatively stable conditions for urban development.

5.5. Mining and Quarries

Mining and quarrying activities are spatially concentrated in the peripheral taluks, notably limestone quarrying in Lalgudi and rough



Map 5.1 Natural Setting and Physical Features of the Tiruchirappalli LPA

stone and gravel extraction in Manachanallur and adjoining areas. Within the urban fringe, particularly around Pirattiyur and Ariyamangalam, several quarry leases are either expired or abandoned.

5.6. Water Environment and Hydrological Systems

The Tiruchirappalli LPA lies within the Lower Cauvery sub-basin, influenced by the Aiyar, Pungar, Nandhiyar–Kulaiyar, Ponnaniyar and Cauvery Delta watersheds with the Ponnaniyar watershed occupying the largest share of 45.94%. Apart from the Cauvery and Kollidam rivers, and the subsidiary Koraiyar, Panguni, Aiyaru and Vennar Rivers, the hydrological network includes critical irrigation and drainage channels such as the Uyyakondan, Kattalai, and Pullambadi canals, which historically supported agriculture and now function as major urban drainage conduits. Currently, 17.5% of the LPA (140.8 sq.km.) is under the Waterbodies. Remote sensing-based Normalized Difference Water Index (NDWI) analysis between 2015 and 2025 indicates a significant decline in surface water spread and moisture retention, particularly within the urban core and rapidly expanding peri-urban zones. Encroachment of tanks, canal narrowing, and increased impervious surfaces have reduced natural storage capacity, aggravating flood risks during intense rainfall events.

5.7. Groundwater and Aquifer Systems

Groundwater occurs within two principal aquifer systems: highly productive alluvial aquifers along the Cauvery–Kollidam corridor and limited-capacity fractured hard rock aquifers in interior upland areas. Firka-level analysis indicates pronounced spatial variability in groundwater availability and extraction pressure. Manikandam Firka has been classified as over-exploited (>100% extraction), reflecting intense agricultural and domestic pumping, while several

other firkas, though presently classified as 'safe', exhibit declining pre-monsoon recovery levels. Continued groundwater abstraction, coupled with reduced recharge due to urbanisation, threatens long-term water security, highlighting the need for systematic recharge augmentation and demand management.

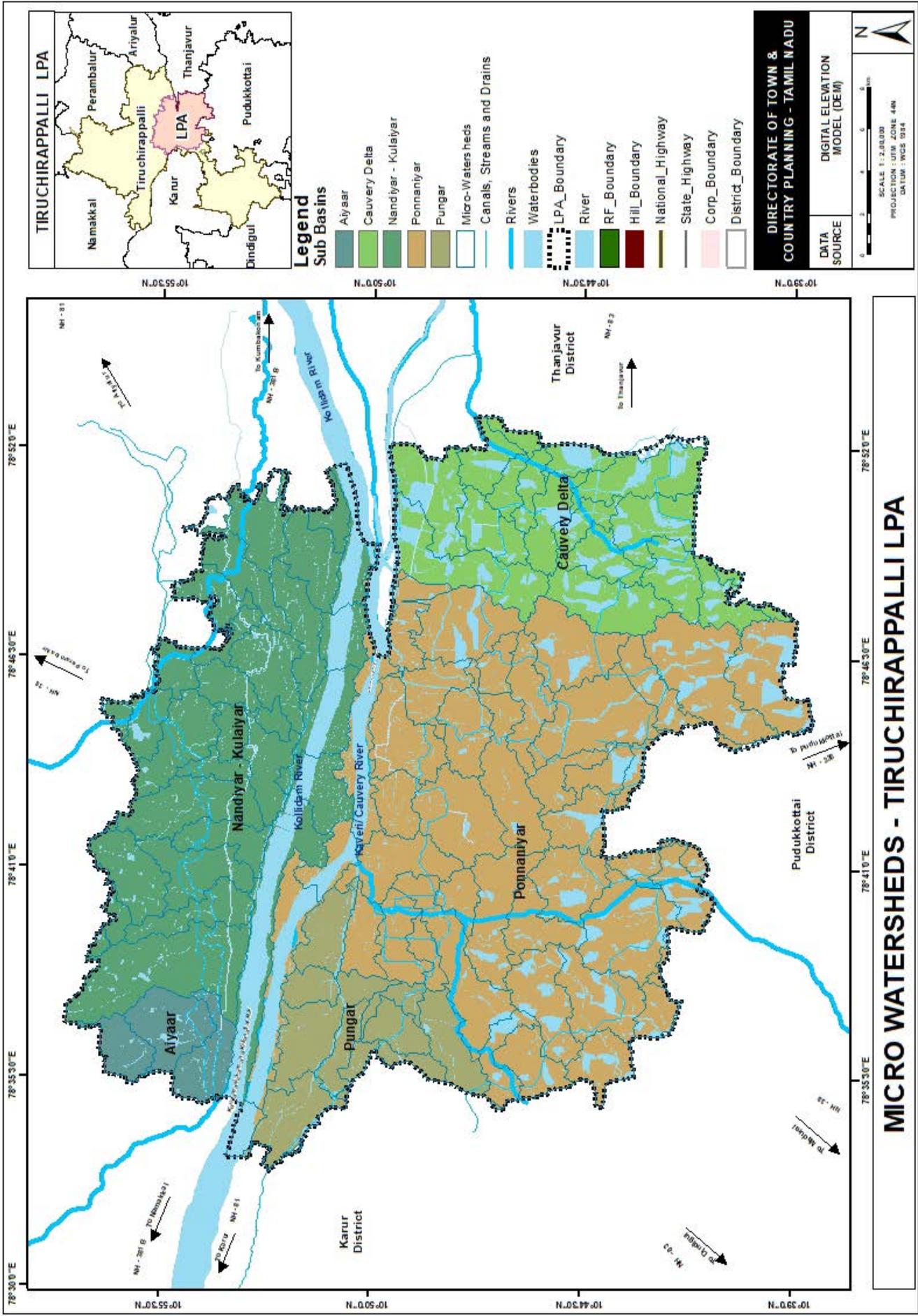
5.8. Biotic and Abiotic Systems

Ecologically, the LPA contains 2 Reserve Forest blocks – Kariyamanickam and Kilianur, Vengur and Kilamullakudi, which serve as important biodiversity refuges supporting species such as the Bonnet Macaque (Vulnerable) and several avifaunal and reptilian species. Urban green cover at the district level is estimated at only 10–11%, well below national and state benchmarks. As of 2023, the City Corporation is estimated to have 10.57% green cover, with 10.57 sq.m. of green cover per person (greater than the WHO recommended minimum of 9 sq.m. per person). However, considering the high temperatures in the city compared to the state average, the city must increase the green cover to better adapt to heat stress.

NDVI and NDMI analyses between 2015 and 2025 reveal a 16.66% decline in vegetation health and surface moisture within the urban core, while river corridors and peripheral agricultural zones retain comparatively better ecological conditions. This spatial imbalance in green infrastructure contributes directly to rising urban temperatures, declining air quality, and reduced ecological resilience.

5.9. Pollution

Air quality assessment indicates elevated concentrations of PM10 (75–87 $\mu\text{g}/\text{m}^3$) and PM2.5 (32–40 $\mu\text{g}/\text{m}^3$), particularly within the central business districts, transport corridors, and industrial zones. Soil quality assessments identify heavy metal contamination around the Ariyamangalam dump yard, attributed to prolonged leachate infiltration. Noise monitoring



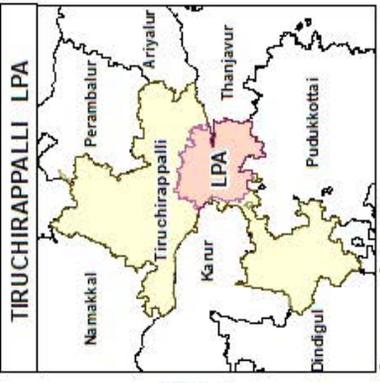
MICRO WATERSHEDS - TIRUCHIRAPPALLI LPA

Map 5.2 Watersheds, Micro-Watersheds and Surface Water within Tiruchirappalli LPA

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DATA SOURCE: DIGITAL ELEVATION MODEL (DEM)

SCALE: 1:2,00,000
 PROJECTION: UTM, ZONE 48N
 DATUM: WGS 1984



Legend

- Sub Basins**
- Aiyaar
 - Cauvery Delta
 - Nandiyar - Kulaiyar
 - Ponnaiyar
 - Pungar
 - Micro-Watersheds
 - Canals, Streams and Drains
- Rivers**
- Rivers
 - Waterbodies
- Boundaries**
- LPA_Boundary
 - River
 - RF_Boundary
 - Hill_Boundary
 - National_Highway
 - State_Highway
 - Corp_Boundary
 - District_Boundary

reveals persistent exceedance of permissible limits, especially along NH-83, Dindigul Road, and major railway corridors, with peak levels exceeding 96 dB(A).

5.10. Flood Susceptibility Assessment and Vulnerable Areas:

The Flood Susceptibility and Vulnerability Map of Tiruchirappalli LPA highlights that very high and high flood-prone zones are predominantly concentrated along the Cauvery River, Kollidam River, Koraiyar River, and Uyyakondan Canal corridors, particularly within low-lying and densely built Continuous Building Areas (CBA). The spatial overlap of vulnerable settlements with high-susceptibility zones indicates significant exposure to riverine flooding and urban runoff, underscoring the need for targeted flood moderation, detention-recharge interventions, and regulated development along riparian buffers to reduce future risk.

5.11. Heat Risk Assessment:

The Heat Risk Map of Tiruchirappalli Corporation indicates concentrated high-risk zones within dense Continuous Building Areas (CBA), particularly around the urban core, industrial clusters, and major transport corridors. Limited vegetation cover, high built-up density, and extensive impervious surfaces contribute to elevated surface temperatures, intensifying urban heat island effects. These findings highlight the urgent need for targeted cool roof programmes, shaded street networks, urban greening, and permeable surface interventions to reduce heat exposure and enhance climate resilience within vulnerable neighbourhoods.

5.12. SWOT Analysis

The SWOT assessment highlights Trichy's strategic strengths in terms of its river-based ecology, fertile plains, and historic water management systems. Key weaknesses include

shrinking surface water assets, declining groundwater levels, growing heat stress and Flood risk in the LPA. Major opportunities lie in ecological restoration, urban greening, and climate-friendly infrastructure, while threats stem from unchecked urban expansion, climate variability, floodplain encroachment, and environmental degradation.

5.13. Proposals and Recommendations:

In response to the identified flood and heat vulnerabilities within the Tiruchirappalli LPA and Corporation Area, an integrated climate resilience framework is proposed, combining nature-based solutions with regulatory and urban design interventions. The strategy addresses the dual challenges of increasing flood intensity and urban heat stress through spatially targeted, ecosystem-based, and infrastructure-supported measures.

- Flood Risk Mitigation Proposals:** The flood mitigation strategy adopts a watershed-based approach integrating river and canal buffers, sponge parks, desiltation of tanks & canal and strategically located flood moderation tanks across high-risk corridors. These interventions attenuate peak runoff, enhance groundwater recharge, restore drainage functions, and reduce downstream flood intensity before discharge into the Cauvery River.
- Heat Risk Mitigation Proposals:** The heat mitigation framework focuses on reducing urban heat island intensity through sponge parks, urban forests, strengthened blue-green buffers, and climate-sensitive street design. In Continuous Building Areas (CBA), cool roofs, cool pavements, shaded pedestrian networks, and climate-responsive streets are recommended to lower surface and ambient temperatures, improve walkability, and enhance thermal comfort in vulnerable neighbourhoods.

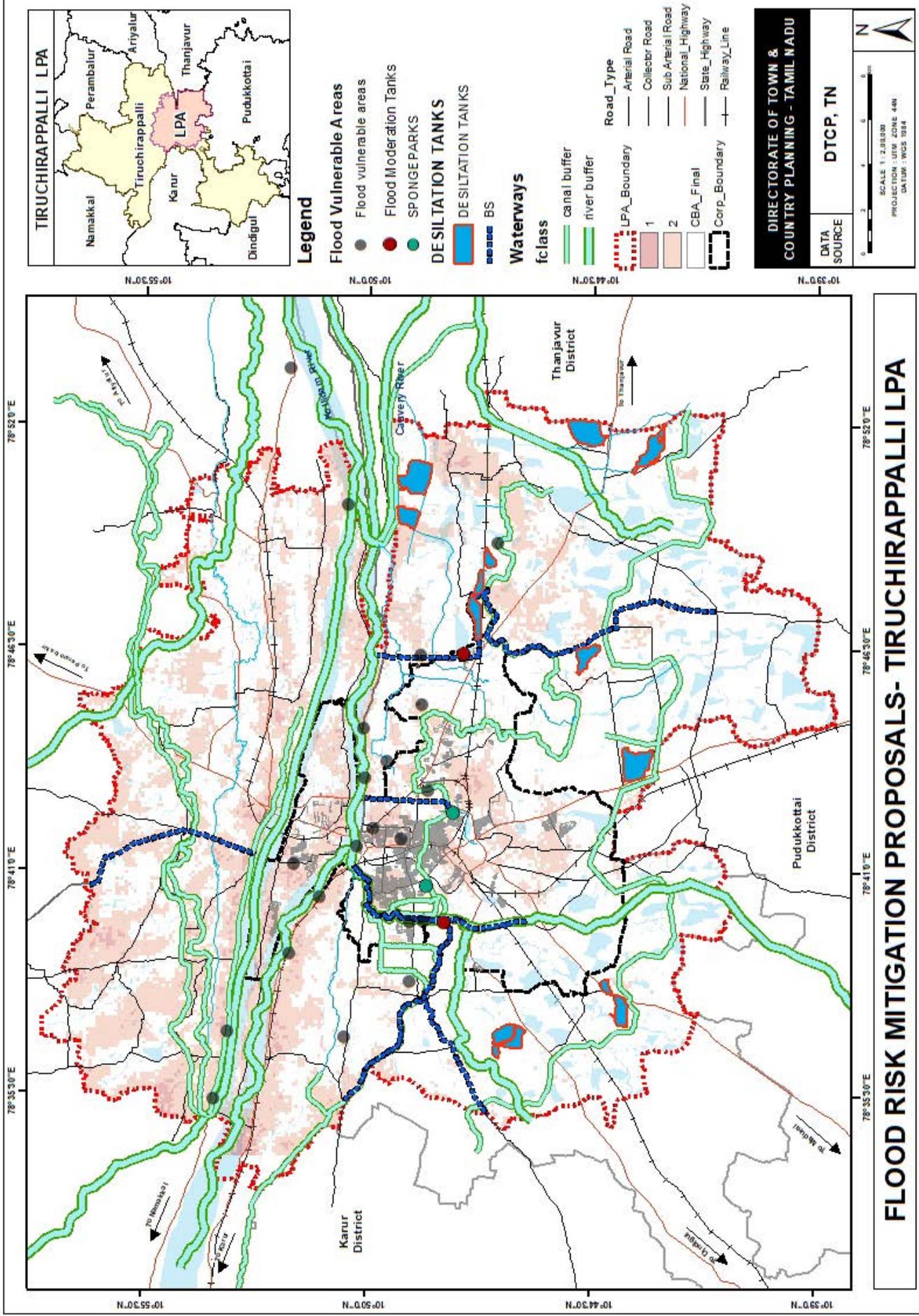
Table 5.1 Summary of Proposals for Tiruchirappalli LPA

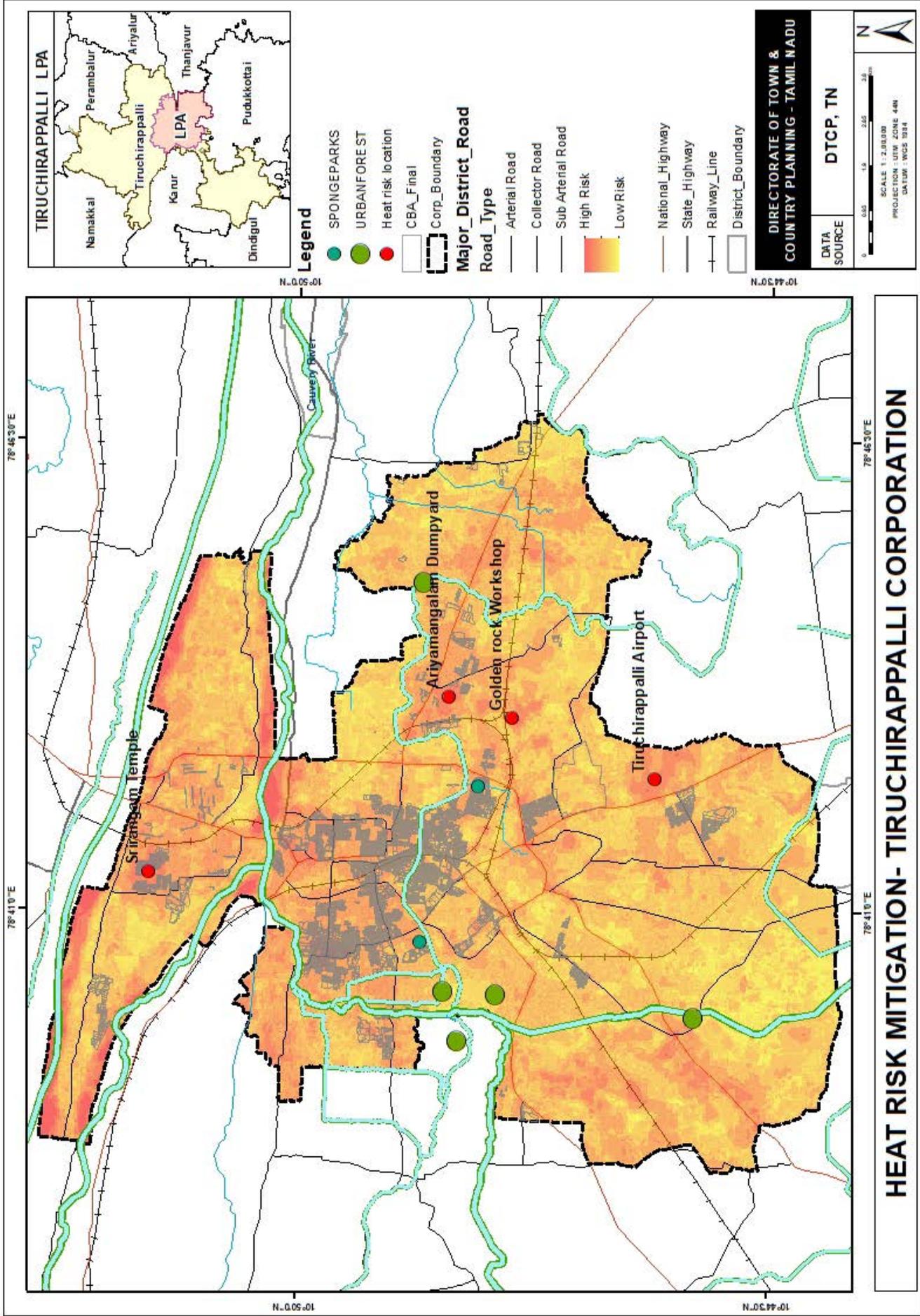
DOMAIN	PROPSALS	NAME	LOCATION	LENGTH/ EXTENT	
FLOOD MITIGATION	BUFFER	Cauvery, Kollidam		50m	
		Aiyar, Koraiyar, Panguni		15m	
		Canals		3m	
	DESILTATION TANKS	1	Thayanur		305.26 acres
		2	K.Kallikudi South		166.8 acres
		3	K.Kallikudi South		56.51 acres
		4	Gundur		360.88 acres
		5	Navalpattu (CT)		176.78 acres
		6	Asur		270.07 acres
		7	Tirunedunkulam		360.94 acres
		8	Koothappar(TP)		163.72 acres
		9	Krishnasamudram		68.79 acres
		10	Semmangulam		68.77 acres
		11	Kiliyur		169.8 acres
		12	Kiliyur		400.44 acres
		13	Uyyakondan canal		348.66 acres
		14	Kattalai canal		271.81 acres
		15	Pullambadi canal		197.68 acres
		16	Pullambadi canal		224.8 acres
		17	Koraiyar river		222.4 acres
	SPONGE PARKS	1	Ward.No- 00Y		1.54 acres
		2	Ward.No- AD		1.54 acres
	BIO-SWALES	1	Kullumani-Mullikarruppar- Athavathur(W)- Kumaravayalur- Athavathur(W)-		7 km
		2	Athavathur(W)- Athavathur(E)		6km
		3	Allithurai- Nachikurichi		4km
		4	Ward.No- 40-45-52-60-58- 57-9		11km
		5	Ward.No- 7		2km

DOMAIN	PROPSALS	NAME	LOCATION	LENGTH/ EXTENT
FLOOD MITIGATION	BIO-SWALES	6	Elanthapatti- Palanganakudi- Poolangudi- Navalpattu- Koothappar- Krishnasamudhram- 64- Vengur	24km
		7	Poonampalayam- Manachanallur- Pitchandarkoil- Mathavaperumal koil	9 km
	Flood Moderation Tanks	1	Uyyakondan canal- Koraiyar river intersection	0.5 acres
		2	Krishnasamudram	68.79 acres
HEAT MITIGATION	URBAN FOREST	1	Solanganallur + Nachikurichi	3.2 acres
		2	Ward Z	2.68 acres
		3	Ward AA	3.4 acres
		4	Ward AP	7.96 acres
		5	Pappakurichi	1.5 acres

Table 5.2 Summary of Recommendations

Domain of Recommendation	Target Areas / Locations	Key Issues Addressed	Major Interventions / Strategies	Expected Outcomes
Over-Exploited Aquifer Management	Manikandam Firka	Declining groundwater levels, excessive irrigation demand	Drip irrigation adoption, recharge pits in farms, mandatory recharge pits in institutional buildings	Reduced abstraction, enhanced recharge, aquifer stabilisation
Heat Mitigation	Continuous Building Areas in the central of the corporation and the Pappakurichi area	Heat Risk	Cool roofs, cool pavements and Shaded pedestrian network and climate sensitive streets	Reduce the indoor temperatures by 2-4 degree Celsius.





Map 5.4 Heat Risk Mitigation



6. POPULATION

6.1 Introduction

Tiruchirappalli District has a population of approximately 27.22 lakh, accounting for about 3.8% of the State's total population. The district consists of 49.15% of urban population, similar to the State average (48.4%), highlighting moderate level of urbanization. The growth of the urban population in Tiruchirappalli District can be attributed to factors such as economic opportunities, presence of educational and research institutions, ease of connectivity and infrastructure facilities leading to in-migration from surrounding rural areas. A comparison of the basic demographic factors across state, district, Local Planning Area (LPA) and Corporation is shown below:

Table 6.1 - State, District, LPA and Corporation level comparison of demographic factors

Demographic Factor	Tamil Nadu State	Tiruchirappalli District	Tiruchirappalli LPA	Tiruchirappalli Corporation
Population (2011)	7,21,47,030	27,22,290	14,32,404	9,15,569
Area (in Ha.)	1,30,05,800	4,40,383	80,453	16,723
Population Density (Persons / Ha.)	6	6	18	55
Literacy Rate – 2011 (%)	80%	83.23%	89.3%	91.4%
Sex Ratio – 2011 (no. of females for 1000 males)	996	1,013	1,013	1,023

Source: Census of India 2011

Within the district, Tiruchirappalli Local Planning Area (LPA) hosts 52.6% of the district's total population. It has a literacy rate of 89.3%, which is higher than the district average (83.23%) and State average (80%). The sex ratio in Tiruchirappalli LPA is 1023, which is higher compared to the State average of 996.

6.2 Growth of constituent units

According to census data, the population of the Tiruchirappalli Corporation (65 wards) increased from 7,07,688 in 1991 to 9,15,569 in 2011. Within the Local Planning Area (LPA), the corporation accounts for 63.9% of the population, while municipalities and town panchayats each constitute 4.4%. The remaining 27.3% of the LPA population resides in rural villages, reflecting a predominantly urban concentration within the LPA. The decadal population growth rate of Tiruchirappalli Corporation increased from 12.6% between 1991–2001 to 14.9% between 2001–2011, indicating an accelerating trend in urban population growth.

Population growth within the study area is significantly influenced by the presence of major transportation corridors, including National Highway-83 (towards Thanjavur), National Highway-336 (towards Pudukkottai), and National Highway-38 (towards Perambalur

and Madurai). In addition, the presence of a major industrial cluster, Bharat Heavy Electricals Limited (BHEL), play a key role in shaping the direction and pattern of population growth.

6.3 Population density

Based on Census 2011 data, Tiruchirappalli Local Planning Area (LPA) exhibits significant variation in population density across its administrative units. The overall gross population density of the Tiruchirappalli LPA is 18 persons per hectare, while the density within the Municipal Corporation area is substantially higher at 55 persons per hectare, reflecting greater urban concentration. The summary density distribution among wards is mentioned in Table 6.2.

The surrounding municipalities show comparatively lower densities, with Thuvakudi Municipality recording 27 persons per hectare and Lalgudi Municipality recording 24 persons per hectare, reinforcing the dominance of Tiruchirappalli Corporation as the primary urban core in the region.

Tiruchirappalli Corporation (65 wards), with a population of 9,15,969 and an area of 167.23 sq.km, exhibits a moderate urban density of approximately 55 persons per hectare, reflecting a balanced urban structure compared to other

Table 6.2 - Classification of population density of Tiruchirappalli Corporation (based on 2011 census data)

S.No.	Classification	Density Range (Persons per Hectare)	No. of wards	Wards
1	Very Low Density	Less than 30	12 (18.5%)	1,6,38,41,42,48,55,56,62,63,64,65
2	Low Density	30 - 60	11 (16.9%)	8,16,25,35,37,39,40,45,46,53,61
3	Moderate Density	60 - 100	8 (12.3%)	26,44,47,49,54,58,59,60
4	High Density	100 - 150	10 (15.4%)	4,5,7,11,15,22,24,36,43,57
5	Very High Density	150 - 250	6 (9.2%)	2,3,12,13,14,50
6	Extremely High Density	More than 250	18 (27.7%)	Rest of the wards in the core area

Source: Census of India, Urban Local Bodies

mid-sized Indian cities such as Vijayawada, Nagpur, Mysore, and Indore. Compared to higher-density Vijayawada (173 person per hectare) and Indore (151 persons per Hectare) or more populous cities like Nagpur (111 persons per hectare), Tiruchirappalli's urban development is more spatially dispersed, with larger land area per capita, whereas the other cities are more compact and densely built, suggesting higher pressure on land, infrastructure and services.

6.4 Migration population dynamics

Tiruchirappalli district accounts for 3.32% of the state's total migrant population (15,04,900). Ranking eighth among the districts, 49,959 people have migrated into the district for job opportunity. Of these, 57.1% (28,544) came from urban areas within Tamil Nadu, 37.3% (18,651) from rural areas and 5.5% (2,764) migrated from other states.

In terms of education background of the migrants, 22.1% (11,020 people) studied below matriculation, while 27.2% (13,599 people) completed matrix/secondary education. There are 10,723 graduates, 4,200 technical or post graduate professionals and 5,689 are diploma holders.

6.5 Key population characteristics of Tiruchirappalli District and LPA

Literacy rate: The literacy rate of Tiruchirappalli LPA as per Census 2011 is 89.3% (Men: 93.7%, Women: 85%). Among urban centres, Tiruchirappalli Corporation has recorded the highest literacy rate at 91.4% (Men: 94.9%, Women: 88%) followed by Municipalities at 90.1% (Men: 94.4%, Women: 85.3%) and Town Panchayats at 87.5% (Men: 93%, Women: 82.2%). Rural villages show the lowest literacy at 84.5% (Men: 90.9%, Women: 78.3%). Overall, the data reveals a consistent trend of higher literacy levels in urban areas compared to rural areas, as well as a persistent disparity between male and female literacy across all settlement categories, underscoring the need for focused educational interventions, particularly in rural areas and among women.

Out of 5 blocks within Tiruchirappalli LPA, 4 blocks considered of revenue villages and urban settlements with literacy rate above 80%. In contrast, a group of revenue villages record substantially lower literacy levels in the range of 60–70%, primarily located in Manikandam block (Olaiyur, Mudikandam, Mekkudi), Manachanallur block [Thiruppangali (South), Thiruppangali

(North)], Thiruverumbur block (Elanthapatti, Sooriyur), Andhanallur block (Uthamaseri). The observed disparity between high- and low-performing revenue villages highlights the need for area-specific and targeted educational interventions, with focused attention on rural and peri-urban settlements exhibiting persistently low literacy outcomes

Sex ratio: The sex ratio within the Tiruchirappalli Local Planning Area (LPA) is recorded at 1,013, indicating a favourable demographic balance when compared to national averages (943). The Municipal Corporation area registers a higher sex ratio of 1,023, reflecting comparatively better demographic and social conditions. Town panchayats also record a balanced sex ratio of 1,016, while revenue villages show a sex ratio of 1,008, indicating near parity between male and female populations. In contrast, municipalities within the LPA exhibit a significantly lower sex ratio of 905, suggesting a skewed gender composition. Overall, the data highlights intra-regional disparities in sex ratio, underscoring the need for focused monitoring and gender-sensitive planning interventions, particularly in municipalities where the sex ratio remains substantially below the LPA average.

The presence of very critically imbalanced sex ratio (Below 850) in several villages and urban settlements, notably Andanallur (795) and Thuvakudi Municipality (842) indicates a gender imbalance within these areas. Locations with moderately skewed sex (900 – 949), are observed in Thiruverumbur block (Natarajapuram, Kanthaloore, Cholamadevi), Manachanallur block (Samayapuram) and Andhanallur block (Perur), further reinforcing the spatial concentration of gender imbalance across select settlements. Overall, these patterns indicate the need for closer demographic monitoring and targeted gender-sensitive planning interventions to address the underlying socio-economic and migratory factors contributing to persistently low sex ratios in these locations.

Age sex composition: As per 2011 Census, about 65.07% of the population fall within the working age group of 15-49 years. The highest share is from the 35-59 age group with 31.07% of men and 32.12% of women. Children and youth aged 0-14 make up 24.1 % of the male population and 22.5% of the female population. As this younger group enters workforce overtime, it will contribute significantly to economic growth by horizon year 2045.

Person with Disabilities: As per Census 2011, there were 40,276 persons with disabilities (PWDs) in Tiruchirappalli District, representing approximately 1.48% of the total population, slightly below the Tamil Nadu state average of 1.63%. Age-wise, 0–19 years accounted for 9,452 PWDs (23.47%), while those aged 20–39 years totalled 14,197 (35.2%), highlighting a substantial share of children, youth, and working-age adults among the disabled population. The major types of disabilities are movement, hearing, and visual impairments, which together constituted the largest proportion of PWDs, followed by mental retardation, speech, mental illness, and multiple disabilities. This indicates a need for targeted interventions across both early-age support programs and working-age rehabilitation services to enhance inclusivity and productivity.

6.6 Population projection for Tiruchirappalli LPA – 2045

For a comprehensive assessment of population growth, it is essential to examine parameters such as development patterns, sectoral trends, and the region's economic role. In Tiruchirappalli, the drivers of population growth through the horizon year include natural increase, internal migration driven by education, employment opportunities and urbanization.

The last official population census was conducted in 2011, and the absence of the 2021 census poses significant challenges for

demographic analysis, including the lack of up-to-date data on population size, age composition, migration flows, and socio-economic characteristics. Since these are pivotal for planning and policy making it is important to address this gap. For this purpose, efforts have been taken to estimate the current population through projection methods, using historical growth rates to provide an approximate assessment of the present demographic scenario for informed planning and development strategies.

The demographic analysis is principally based on population data from the Census of India for the years 1981, 1991, 2001, and 2011. Estimates for the year 2024 have been corroborated with data from the Jal Jeevan Mission, Ministry of Jal Shakti, as well as updated records from the Urban Local Bodies. On the basis of this data, population projections for the horizon years 2035 and 2045 have been prepared to support evidence-based long-term planning and development decision-making.

6.6.1 Methodology for Population Projection

The population of the Tiruchirappalli LPA increased from 10,98,347 in 1991 to 14,32,404 in 2011, and is projected to reach 17,29,189 by 2024. The study explores two methods of population analysis to account for demographic dynamics influenced by education-driven migration, strategic industrial and employment growth, and the district's role as a regional service and transport hub, which have led to significant population inflows.

Option 1 – Comparative model validation involved applying multiple projection models to historical data and comparing their outputs with observed census figures; the model demonstrating the closest alignment with actual data was considered the most reliable. This approach was adopted to capture the uncertainty and structural changes resulting

from the influence of migration and economic growth within the region.

Option 2 focused on a disaggregated approach, wherein growth rates were calculated for every rural village and urban centre and thereafter classified as high, medium, or low. The combined method applies different area specific approaches as mentioned below:

- Low growth – Arithmetic method
- Medium growth – Geometric method
- High growth – Exponential method

The population densities have been cross verified to ensure the appropriateness and accuracy of the selected method. This approach was adopted to capture the population growth due to natural increase and migration driven growth.

In both methodologies, forthcoming employment opportunities estimated to generate approximately 1,08,650 jobs (Source: Guidance TN) have been factored into the population projections. The incremental population attributable to these employment opportunities has been calculated using a workforce participation rate of 38% and a migrant population share of 45%. Accordingly, an additional population of approximately 1.28 lakh persons is anticipated and has been incorporated into the projected population figures.

Both projection approaches, based on historical population trends, were carefully evaluated, and **Option 2** has been adopted as the preferred method for projecting the population in 2045. This approach was selected because it provides a more **precise representation of differential growth patterns, capturing cumulative and long-term growth across various settlement categories. It also generates higher and more realistic population estimates for rural villages and town panchayats** in light of anticipated urban expansion. Furthermore, it is particularly suited for long-term infrastructure and service planning, as it mitigates the risk of population underestimation and

ensures the adequate provision of housing, transportation, water supply, and other essential social infrastructure.

The population projections for Tiruchirappalli LPA's administrative units indicate a steady increase across all categories over the next two decades. The Tiruchirappalli Corporation is projected to grow from 10,72,793 in 2025 to 14,39,978 by 2045, reflecting a growth rate of 17.6% between 2024 and 2035 and 15.7% between 2035 and 2045, resulting in a projected population density of 86 persons per hectare by 2045.

6.6.1.1 Population projection for Corporation zones:

Population projections at the zone level were derived based on the distribution of wards within each zone. Past population trends were analyzed, and appropriate projection techniques, from the selected option, were applied to estimate future population figures and population densities. The results of the calculation are mentioned in Table 6.3.

As per the analysis, the highest growth is anticipated in Zone 5, increasing from 2,88,046 in 2035 to 3,46,533 in 2045 (projected growth rate

- 20.30%), followed by Zone 4, which is expected to grow from 2,69,020 to 3,23,158 over the same period (projected growth rate 20.12%). Zone 3 is projected to increase from 2,34,117 to 2,73,039 (projected growth rate - 16.63%), and Zone 1 from 2,56,736 to 2,95,931 (projected growth rate - 15.27%). Zone 2, representing the core area, is expected to experience the slowest growth, rising from 1,96,148 to 2,01,317 (projected growth rate 2.64%). These projections indicate that population growth will be concentrated primarily in Zones 4 and 5 over the decade.

The population density of the corporation zone is projected to increase steadily from 63 persons per hectare in 2024 to 86 persons per hectare in 2045. Zone-wise, the highest increase in density is expected in Zone 5, rising from 137 to 165 persons per hectare, followed by Zone 1, which is projected to increase from 103 to 118 persons per hectare. Zone 3 is expected to grow from 52 to 61 persons per hectare, Zone 4 from 43 to 52 persons per hectare, while Zone 2, representing the core area, shows a moderate increase from 141 to 145 persons per hectare. The density of Tiruchirappalli's corporation zones are expected to rise overall, with peripheral zones experiencing faster growth than the already dense core, indicating a trend of

Table 6.3 - Existing and projected zone wise population of Tiruchirappalli Corporation

S.No	Corporation zone	Existing population			Projected population		
		2001	2011	2024	2025	2035	2045
1	Zone 1	1,58,474	1,89,476	2,19,589	2,22,663	2,56,736	2,95,931
2	Zone 2	1,80,124	1,75,785	1,90,462	1,93,127	1,96,148	2,01,317
3	Zone 3	1,45,619	1,67,290	1,96,311	1,99,059	2,34,117	2,73,039
4	Zone 4	1,57,547	1,84,208	2,16,575	2,19,610	2,69,020	3,23,158
5	Zone 5	1,54,880	1,98,810	2,35,045	2,38,334	2,88,046	3,46,533
Total		7,96,644	9,15,569	10,57,982	10,72,793	12,44,067	14,39,978

Source: Census of India, Urban Local Bodies

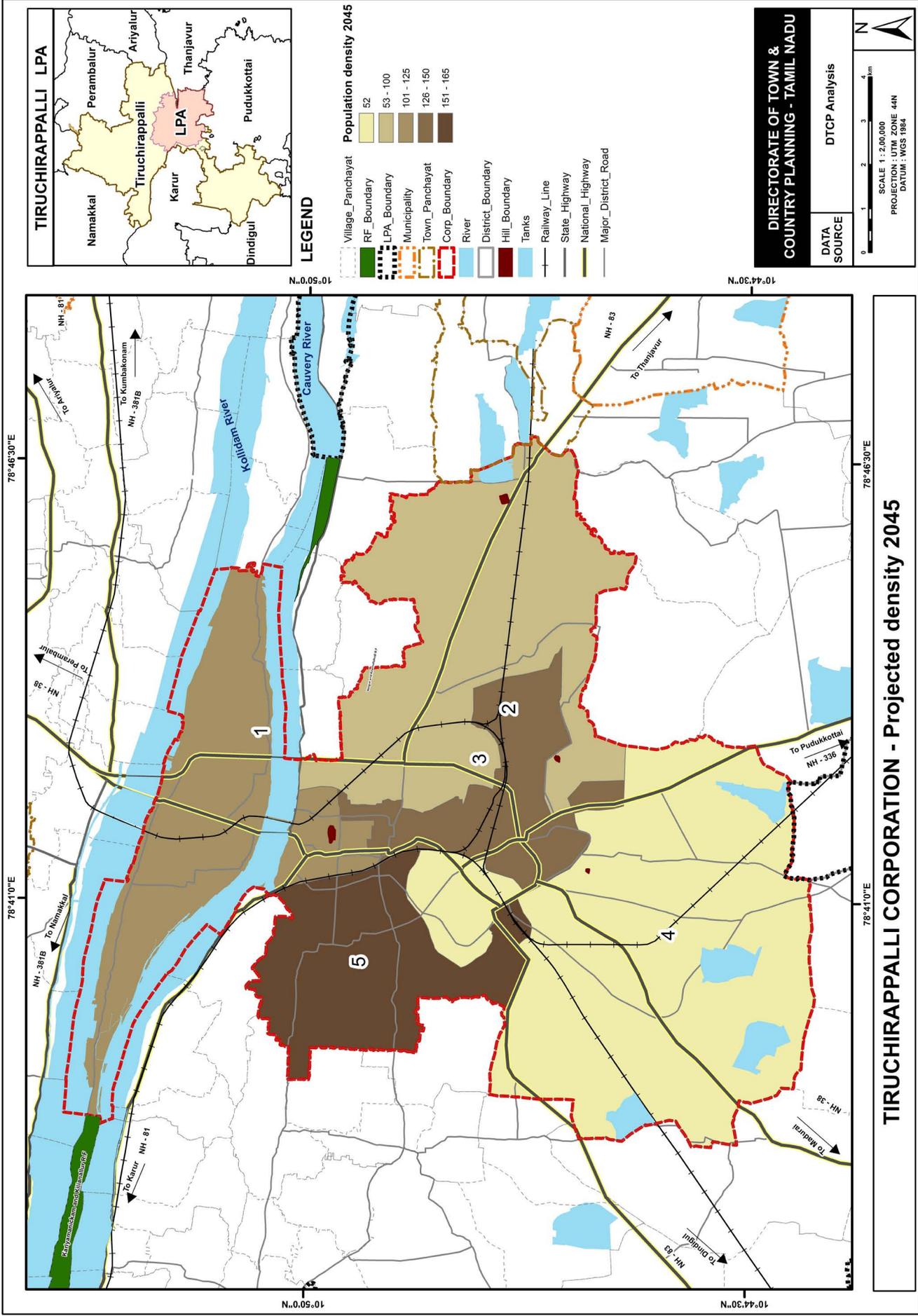


Table 6.4 - Existing and projected densities (persons per Ha) for Tiruchirappalli Corporation

S. No	Corporation zone	Existing population density (persons per Ha)			Projected population (persons per Ha)		
		2001	2011	2024	2025	2035	2045
1	Zone 1	63	76	88	89	103	118
2	Zone 2	129	126	137	139	141	145
3	Zone 3	32	37	44	44	52	61
4	Zone 4	25	30	35	35	43	52
5	Zone 5	74	94	112	113	137	165
Total		48	55	63	64	74	86

Source: Census of India, Urban Local Bodies

gradual urban intensification and balanced expansion. The distribution of population density are mentioned in the Table 6.4 and Map 6.1.

6.6.1.2 Projection for rest of the Tiruchirappalli LPA:

The population of urban settlements in the LPA is projected to grow steadily over the next two decades, with municipalities and town panchayats experiencing notable increases in both population size and density. Municipalities are expected to increase from 80,450 in 2024 to 1,27,355 in 2045, with higher growth rates of 28.5% during 2024–2035 and 23.2% during 2035–2045, yielding a projected density of 52 persons per hectare. Town panchayats are projected to grow from 72,746 in 2024 to 1,08,383 over the same period, with growth rates of 23.0% and 21.1% for the respective decades, resulting in a density of 50 persons per hectare.

Rural villages, while starting with a lower population of 5,30,466 in 2025, are projected to experience the highest relative growth, increasing to 9,59,894 by 2045, corresponding to growth rates of 37.4% and 34.9%, with a projected density of 16 persons per hectare. Overall, the population is anticipated to grow from 17,59,079 in 2025 to 26,35,610 in 2045, reflecting aggregate growth rates of 24.3% and 22.7% for the respective

periods and an overall density of 33 persons per hectare. These projections highlight significant urban expansion in the corporation and municipalities, while rural areas continue to grow at a comparatively higher rate, necessitating strategic planning for infrastructure, services, and sustainable land use.

The population density trends for Tiruchirappalli and its surrounding administrative units demonstrate consistent growth across both urban and rural areas over the past three decades. The Tiruchirappalli Corporation has shown a steady increase in density from 42 persons per hectare in 1991 to 63 in 2024, and it is projected to reach 86 persons per hectare by 2045. Municipalities, starting at 22 persons per hectare in 1991, have gradually increased to 33 in 2024, with projections indicating a rise to 52 by 2045.

Town panchayats exhibit a similar pattern, growing from 24 persons per hectare in 1991 to 34 in 2024, and are expected to reach 50 persons per hectare by 2045. Rural villages, though less densely populated, have experienced growth from 5 persons per hectare in 1991 to 9 in 2024, with projections estimating 16 persons per hectare by 2045. Overall, the combined density across all administrative units has increased from 14 persons per hectare in 1991 to 22 in 2024 and is projected to reach 33 persons per hectare by 2045.

These trends reflect a significant densification in urban centers while rural areas continue to grow steadily, highlighting the need for strategic urban planning, infrastructure development, and resource management to accommodate the anticipated population pressures. Based on the projected

density distribution pattern, future growth in Thuvakudi (M) is expected to occur primarily along key transport corridors - towards Thanjavur and along NH-38 in the direction of Perambalur. In contrast, relatively lower growth is anticipated along NH-38 towards Madurai.

Table 6.5 - Existing and projected population of Tiruchirappalli LPA

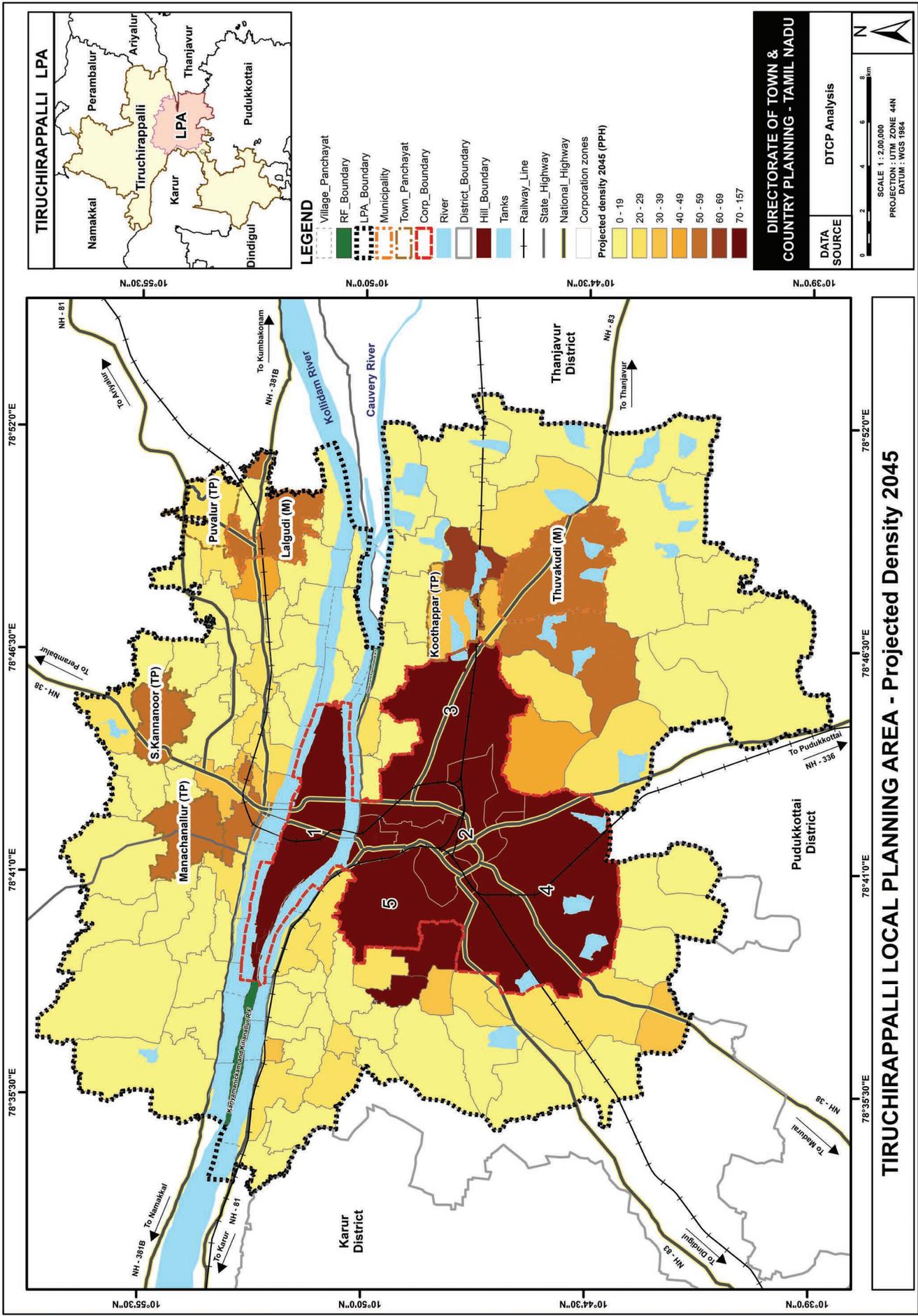
S.No	Description	Existing population				Projected population		
		1991	2001	2011	2024	2025	2035	2045
1	Tiruchirappalli Corporation (65 wards)	7,07,688	7,96,644	9,15,569	10,57,982	10,72,793	12,44,067	14,39,978
2	Municipalities	53,158	58,833	62,627	80,450	81,702	1,03,366	1,27,355
3	Town Panchayats	50,875	59,255	62,852	72,746	74,118	89,486	1,08,383
4	Rural villages	2,86,626	3,16,760	3,91,356	5,18,011	5,30,466	7,11,803	9,59,894
Total		10,98,347	12,31,492	14,32,404	17,29,189	17,59,079	21,48,722	26,35,610

Source: Census of India, Urban Local Bodies

Table 6.6 - Existing and projected population density distribution of Tiruchirappalli LPA

S. No	Description	Existing population density (persons per Ha)				Projected population (persons per Ha)		
		1991	2001	2011	2024	2025	2035	2045
1	Tiruchirappalli Corporation	42	48	55	63	64	74	86
2	Municipalities	22	24	26	33	33	42	52
3	Town Panchayats	24	28	29	34	34	42	50
4	Rural villages	5	5	7	9	9	12	16
Total		14	15	18	21	22	27	33

Source: Census of India, Urban Local Bodies





7. ECONOMY

7.1 Introduction and Context

Tiruchirappalli has evolved as a stable and diversified district economy, supported by strong public institutions, educational infrastructure, defence establishments, manufacturing clusters, and a robust service sector within the Tiruchirappalli's Local Planning Area.

In FY 2022–23, Tiruchirappalli district recorded a Gross District Domestic Product (GDDP) of Rs.44,529 crore, contributing about

3.1% to Tamil Nadu's Gross State Domestic Product (GSDP). Over the period 2015–16 to 2022–23, the district registered a compound annual growth rate (CAGR) of 4.1%, lower than the state average of 6.0%, indicating moderate growth momentum and emerging structural constraints. Despite this, Tiruchirappalli continues to perform a critical regional stabilisation role, anchored by its institutional base, diversified economy, and connectivity advantages.

The LPA serves as a major administrative, educational, healthcare, and logistics hub for surrounding districts such as Karur, Perambalur, Ariyalur, Pudukottai, and parts of Thanjavur. While rural areas supply agricultural produce, labour, and resource inputs, the urban core provides higher-order services, industrial employment, reinforcing a mutually dependent regional economy.

The tertiary sector driven by trade, transport, education, public administration, and real estate. The secondary sector is, anchored in heavy engineering, fabrication, defence production, rail workshops, construction, and a growing MSME base. This evolving structure underscores Tiruchirappalli LPA's transformation into a service-led urban economy, while highlighting the need for targeted industrial revitalisation and agricultural value addition.

Agricultural productivity faces pressures from land conversion, irrigation dependency, groundwater stress, and climate variability. Industrial growth is constrained by limited availability of plug-and-play industrial land, and fragmented. Female workforce participation remains critically low in urban areas, signalling significant untapped human capital. While Tiruchirappalli LPA hosts a large student population and institutional ecosystem, skill-industry mismatches limit the translation of educational strengths into high-value employment.

Against this backdrop, the Master Plan 2045

provides an opportunity to realign economic strategy with spatial planning, fostering compact, connected, and resilient growth. Key priorities include:

- Strengthening agro-based value chains through food parks, cold storage networks, and agro-processing clusters.
- Revitalising manufacturing through cluster-based industrial zoning, logistics integration, and MSME upgrading.
- Expanding the service economy via institutional corridors, knowledge hubs, and education clusters.
- Enhancing workforce participation, especially among women, through skill development, enterprise promotion, and inclusive employment strategies.
- Reinforcing Tiruchirappalli LPA's role as a regional logistics and service hub for central Tamil Nadu.

7.2 Economic profile and Sectoral Dynamics

Tiruchirappalli LPA's economy is shaped by a dynamic interplay between institutional strength, service-led urbanisation, PSU led industrial heritage, and agrarian linkages. The district's economic base reflects both stability and transition, with services consolidating dominance, industry showing moderate recovery, and agriculture undergoing structural transformation.

7.2.1 Gross District Domestic Product (GDDP) & Per Capita Income

Between 2015–16 and 2022–23, Tiruchirappalli's GDDP expanded steadily, despite temporary contractions during the COVID-19 period. In FY 2022–23, the district recorded a GDDP of Rs.44,529 crore. However, the district's CAGR of 4.1% during this period remains below the state average, highlighting the need to accelerate industrial growth and higher-

value service activities.

Per capita income trends mirror this moderate growth pattern. While incomes have shown consistent improvement post-pandemic, Tiruchirappalli exhibits greater volatility compared to the state average, reflecting sensitivity to sectoral shocks and structural constraints. Strengthening industrial depth, diversifying services, and enhancing workforce participation remain to achieving sustained income growth.

Key Trends:

- GDDP (2022–23): Rs.44,529 crore
- CAGR (2015–23): 4.1% (TN: 6.0%)
- Dominant sector: Services (64%)
- Secondary sector: 27%
- Primary sector: 9%

7.2.1.1 Workforce participation

The workforce participation rate (WPR) within Tiruchirappalli Local Planning Area (LPA) stands at approximately 38% (as per census of India, 2011), reflecting moderate economic engagement. Spatial patterns reveal higher participation in peripheral and rural zones (44.8%) compared to Tiruchirappalli Corporation (35.7%), driven by agriculture, informal employment, and household-based activities.

A pronounced gender disparity persists. Male workers account for nearly 73.6% of total employment, while female participation remains critically low at around 26.4% within the LPA. Although rural areas show relatively higher female engagement, these are largely confined to low-productivity, informal, and seasonal activities.

According to PLFS, The tertiary sector share in Tiruchirappalli district's workforce has increased sharply from 47.8% (2017–18) to 71% (2023–24), which is significantly higher than the Tamil Nadu average (47.8%) and also above the national average, indicating strong

urbanisation and service-sector dominance. Thus, Tiruchirappalli district and LPA exhibits a more advanced transition towards a service-led employment structure, driven by trade, transport, education, health, IT, and allied urban services, while agriculture plays a diminishing role in employment.

7.2.2 Sectoral contribution

7.2.2.1 Primary sector

Agriculture and allied activities continue to sustain rural livelihoods but account for a declining share of district output. Between 2015–16 and 2022–23, primary sector GDVA grew by 25.3%, slower than the state average, indicating weakening relative competitiveness. Agriculture exhibits a dual structure: a sustaining intensive paddy-based cultivation, and semi-arid interior blocks characterised by rainfed farming, rising fallow lands, and land-use conversion pressures. Irrigation dependency is high, with 60–65% of irrigated area relying on surface canals and 35–40% on groundwater. Groundwater-intensive blocks face rising energy costs and long-term sustainability risks. Livestock, dairy, fisheries, and household industries supplement rural incomes, but value addition remains limited due to weak processing infrastructure.

Key challenges include:

- Rising land conversion and fragmentation,
- Groundwater stress and climate vulnerability,
- Limited cold storage and agro-processing facilities.

7.2.2.2 Secondary sector

The secondary sector contributes nearly 27% of district output and plays a pivotal role in employment generation. Tiruchirappalli hosts major public-sector industrial establishments, including the Golden Rock Railway Workshop, BHEL fabrication units, and defence production facilities, supported by a growing ecosystem of MSMEs in fabrication, engineering goods,

food processing, chemicals, and construction materials.

Industrial activity is spatially concentrated in SIDCO, SIPCOT, and traditional industrial corridors, but further expansion is constrained by limited availability of ready industrial land, and infrastructure gaps. MSMEs dominate the industrial landscape, yet face challenges related to scale, technology upgrading, market access, and logistics integration.

Strategic priorities include:

- Development of plug-and-play industrial estates,
- Strengthening MSME clusters,
- Integrating industrial zones with logistics corridors, and
- Promoting defence, engineering, and food-processing clusters.

7.2.2.3 Tertiary Sector

Services dominate Tiruchirappalli's economy, contributing about 64% of GDDP. Key sub-sectors include trade, transport, public administration, education, healthcare, finance, and real estate. The city's strong institutional base comprising universities, hospitals, defence establishments, and administrative offices anchors a stable service economy.

Tiruchirappalli also functions as a major educational hub, hosting over 55,000 students across arts, engineering, medical, management, and polytechnic streams, reinforcing its role as a regional knowledge centre. Healthcare services, retail trade, transport logistics, and tourism further consolidate Tiruchirappalli's service dominance.

However, higher-value services such as IT/ITES, research, and knowledge-based industries

remain underdeveloped, indicating significant growth potential.

7.2.3 Land Use requirement

The workforce projections and land requirement estimates for the LPA were carried out using a combination of Census data, PLFS employment structure, and economic trends. The methodology adopted is outlined below:

- Workforce participation for the LPA was calculated using Census data from 1991, 2001, and 2011.
- The total workforce for future years was projected using a method similar to that employed in demographic projections.
- PLFS data for Tiruchirappalli district was used to assess the existing distribution of the workforce across the primary, secondary, and tertiary sectors.
- This sectoral distribution was applied to the projected workforce for the year 2025.
- To estimate the workforce distribution for 2045, trends in Gross District Domestic Product (GDDP), per capita income and PLFS workforce data were analysed.
- Based on these trends, sector-wise employment shares were estimated and applied to the projected 2045 workforce.
- The additional workforce requirement was then estimated.
- Land requirements were estimated by applying URDPFI standards for workers per hectare to the estimated additional workforce.

Table 7.1 Work force of Tiruchirappalli LPA

Tiruchirappalli LPA	Census 1991 workforce	Census 2001 workforce	Census 2011 workforce	Projected 2025 workforce	Projected 2035 workforce	Projected 2045 workforce
	2,59,306	4,25,177	5,50,229	7,42,577	9,39,357	11,74,929

Source: Census of India

Table 7.2 Distribution of Workforce within Tiruchirappalli District

Sector	2023–24 Actual Share%	2045 Estimated share%
Primary	7	4
Secondary	22	26
Tertiary	71	70

Source: Periodic Labour Force Survey, estimation based on GDP growth trend and per capita income

Table 7.3 Additional work force requirement for 2045

S.No	Description	Workers per Ha. standards	Additional workforce required for 2045
1	Projected secondary workforce	90-125	1,42,115
2	Projected tertiary workforce	125-200	2,95,221

Source: URDPFI, Projections, real estate guidelines, DTCP analysis

Table 7.4 Land requirement for Tiruchirappalli LPA

S.No	Description	Land requirement for 2045 (in Ha)	Land requirement 2045 (in sq.km)
1	Secondary	1,377	13.77
2	Tertiary	2,362	23.62

Source: URDPFI, Projections, DTCP analysis

7.2.3.1 Tertiary sector land use requirement

The future demand for tertiary sectors was modelled using workforce projections, employment distribution and workspace norms:

- By 2045, the workforce demand is estimated at 2,95,221 persons, requiring an additional land area of 23.62 sq km.

7.2.3.2 Market absorption

As per 2024 market data reported by CBRE and other industry sources, the current service sector absorption in Tiruchirappalli stands at approximately 50,000–80,000 sq ft per year. To meet the requirement, annual absorption will need to increase substantially and is expected to be driven by large IT/ITeS campuses and Global Capability Centre (GCC) offices, R&D and innovation hubs, corporate offices supporting advanced manufacturing (automobile, EV, electronics, renewables), tourism-linked commercial and hospitality facilities, as well as professional services, finance, and trade offices, which will serve as the key anchor developments facilitating this expansion.

7.2.3.3 Secondary land use requirement

The secondary sector space demand potential is based on automobile manufacturing, EV components, agro and food processing, heavy engineering, aerospace and defence, renewable energy components, The land requirements have been estimated using per-worker area norms (90–125 hectares) along with appropriate buffer provisions:

- By 2045, the workforce demand is estimated at 1,42,115 persons, requiring an additional land area of 13.77 sq km.

7.2.4 Priority Sectors

Advanced Institutional & Professional Services: Education, healthcare, public administration, research, consultancy, and allied professional services anchored by universities, medical

institutions, and public-sector establishments, providing stable employment and sustained demand for formal service and office spaces.

IT-Enabled Services, GCCs and Knowledge-Based Activities: Selective IT-enabled services such as engineering design, technical consulting, analytics, health IT, and education-linked digital services, supported through compact service clusters, incubation spaces, and institutional linkages rather than large-scale IT parks.

Precision Manufacturing and Engineering MSMEs: Defence, heavy engineering ancillaries, fabrication, repair, testing, and component manufacturing activities leveraging existing public-sector units and MSME ecosystems, offering employment-intensive and land-efficient industrial growth.

Agro-Processing and Food-Based Industries: Value addition in paddy, millets, pulses, banana, mango, vegetables, dairy, and livestock through processing, storage, packaging, and marketing, strengthening rural–urban economic linkages and enhancing farm incomes.

Logistics, Warehousing and Trade-Support Services: Regional distribution, agri-logistics, and supply-chain services supporting manufacturing, agriculture, and services, enabled by strong transport connectivity and serving region-wide market functions.

Education-Linked Innovation Services: Training, simulation, research support, and education-related innovation services that complement the city's institutional base, promote knowledge transfer, and support skilled employment generation.

Urban Services and Local Employment Sectors: Retail and wholesale trade, construction, repair services, personal services, and hospitality supporting livelihood stability and urban functionality, integrated with planned commercial and mixed-use development.

7.3 Growth directions, spatial clusters and policy road map

To develop Tiruchirappalli LPA as a knowledge driven, productivity led economy that supports inclusive, environmentally responsible growth, equal sectoral opportunity, and long-term resilience through existing institutions base, skilled manpower and balanced spatial development.

7.3.1 Objectives and Strategic direction

This section outlines the key economic objectives, strategic directions and implementation strategies guiding Tiruchirappalli LPA's long-term development.

- Strengthen Institution-Anchored Economic Clusters
- Precision Manufacturing & Defence Ancillary Strategy proximity to existing clusters
- Agro-Based Value Addition
- Inclusive Workforce & Female Employment Strategy
- Planned Peri-Urban Transition
- Environmental Safeguard as an Economic Strategy
- National-Level Parity without Competition

7.3.2 Spatial Cluster Framework

This chapter presents a cluster-based economic development framework that spatially organises Tiruchirappalli's key economic activities based on existing strengths and future growth drivers.

- **AG – Agro-based & Food Processing Cluster** (Near Mannachanallur, Theerampalayam, Poonampalayam, Alakiyamanavalam, Thiruppanjeeli): The Agro-based cluster is proposed in the northern and eastern peri-urban areas of

the Tiruchirappalli LPA, close to fertile regions and existing rural settlements. These locations enable direct linkage with agricultural hinterlands for food processing, storage, cold chains, and agri-logistics, while reducing transport costs and post-harvest losses.

- **RW – Renewable Energy Cluster** (Keelaperungavur, Towards Lalgudi): Renewable energy clusters are proposed along the western and north-western growth corridors, leveraging highway access and proximity to industrial estates. These locations support large-format manufacturing, and component assembly, aligned with Tamil Nadu's clean energy and EV ecosystem strategies.
- **Automobile Components Cluster** (K.Kallikudi, Valavanthankottai): Automobile clusters are strategically located in the south-eastern and southern parts of the LPA, near existing SIDCO/SIPCOT estates and major transport corridors. This positioning supports integration with automobile ancillaries, precision engineering units, and logistics infrastructure while minimizing heavy freight movement through the CBD.
- **HE – Heavy Engineering & Precision Manufacturing Cluster** (Thirunedunkulam, Pathalpettai, Asoor): Heavy engineering clusters are proposed in the eastern and south-eastern edges of the LPA, where land availability, freight connectivity, and buffer distances from residential areas are adequate. These clusters build on Tiruchirappalli's legacy in fabrication, rail engineering, and large-scale manufacturing, while enabling modernization and precision-based industries.
- **KW – Knowledge & Innovation Cluster** (Kumbakudi, Sooriyur): Knowledge clusters are concentrated in the southern-central

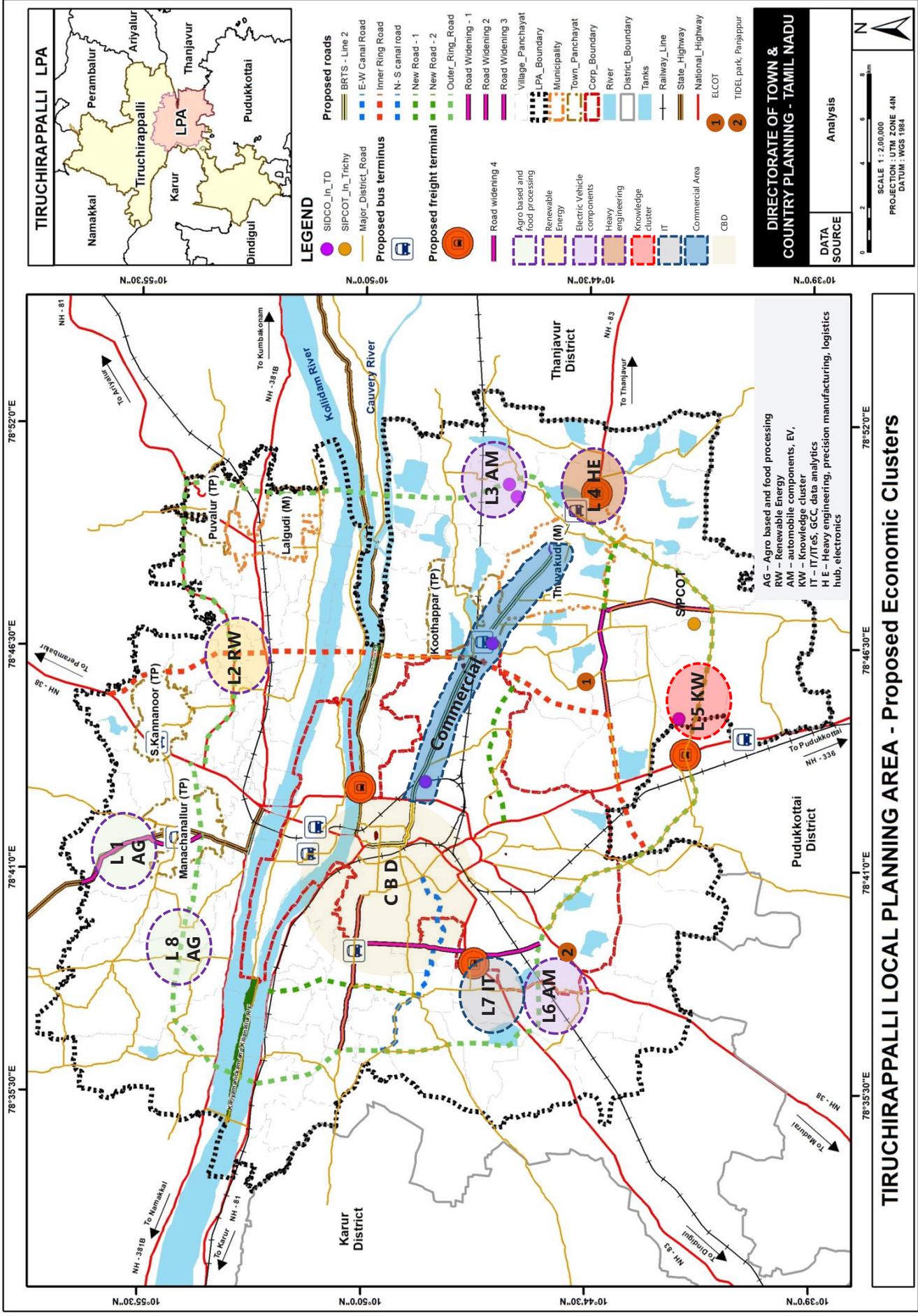
zone of the LPA, close to educational institutions, research centers, IT parks, and urban residential areas. These locations support IT/ITeS, GCCs, R&D, design services, and data analytics, encouraging walk-to-work environments and higher-skilled employment.

- **IT – Information Technology & ITeS Cluster (Panjappur, Punganur, Nachikurichi):** IT clusters are proposed along key urban corridors and near existing IT parks and SEZs, ensuring access to digital

infrastructure, skilled workforce, and public transport. The spatial strategy promotes compact, low-impact employment hubs integrated with institutional and commercial areas.

- **Commercial Cluster (CBD & Sub-CBDs):** Commercial clusters are anchored around the existing CBD and emerging sub-centres along major arterial roads. These areas support wholesale trade, offices, services, and retail, reinforcing Tiruchirappalli's role as a regional service and commercial hub.





TIRUCHIRAPPALLI LOCAL PLANNING AREA - Proposed Economic Clusters

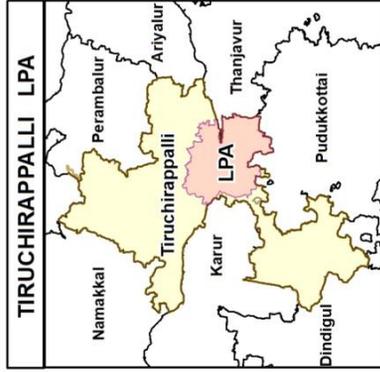
Map 7.1 Proposed Economic Clusters

DIRECTORATE OF TOWN & COUNTRY PLANNING - TAMIL NADU

SCALE 1 : 2,00,000
 PROJECTION : UTM ZONE 44N
 DATUM : WGS 1984

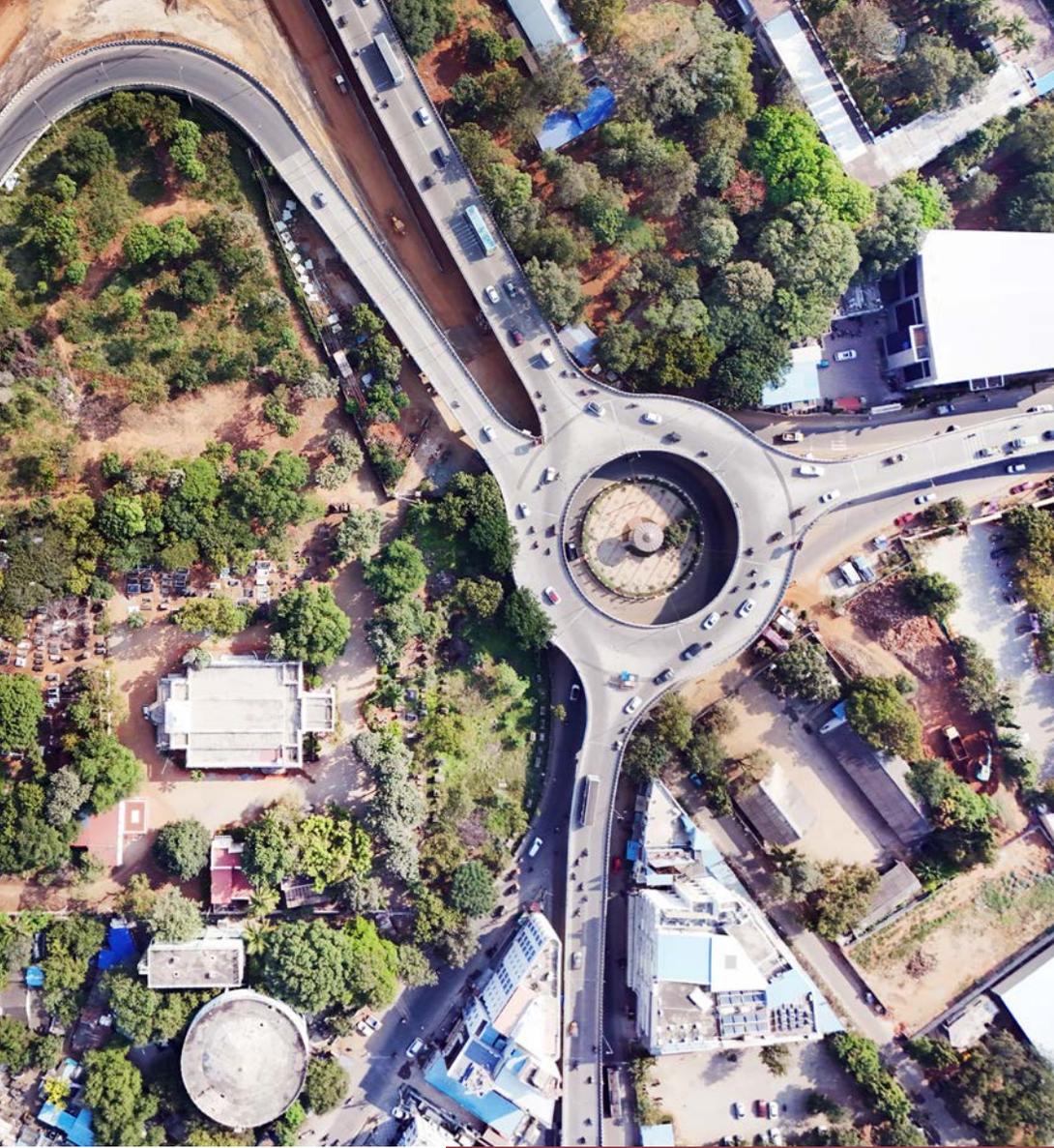
DATA SOURCE Analysis

- LEGEND**
- Proposed roads**
 - SIDCO_In_TD
 - SIPCOOT_In_Trichy
 - BRTS - Line 2
 - E-W Canal Road
 - Major District Road
 - Inner Ring Road
 - N-S canal road
 - New Road - 1
 - New Road - 2
 - Outer_Ring_Road
 - Road Widening - 1
 - Road Widening 2
 - Road Widening 3
 - Road Widening 4
 - Proposed bus terminus**
 - Proposed freight terminal**
 - Agro based and food processing
 - Renewable Energy
 - Electric Vehicle components
 - Heavy engineering
 - Knowledge cluster
 - IT
 - Commercial Area
 - CBD
 - Village_Panchayat
 - LPA_Boundary
 - Municipality
 - Town_Panchayat
 - Corp_Boundary
 - River
 - District_Boundary
 - Tanks
 - Railway_Line
 - State_Highway
 - National_Highway
 - ELCOT
 - TIDEL park, Panjappur



AG - Agro based and food processing
 RW - Renewable Energy
 AM - automobile components, EV,
 KW - Knowledge cluster
 IT - IT/ITEs, GCC, data analytics
 HE - Heavy engineering, precision manufacturing, logistics hub, electronics





8. MOBILITY

Tiruchirappalli Master Plan for 2045 adopts an integrated approach to mobility, focusing on enhancing accessibility, safety, and efficiency, while steering the city towards sustainable and inclusive transport solutions. Tiruchirappalli occupies a strategic central position in Tamil Nadu, functioning as a major educational, transport, and administrative hub. The city is well connected in all directions through road, rail, and air transport, enabling strong regional, inter-state, and international movement of people and goods.

8.1 Regional Connectivity

8.1.1 Road Infrastructure

The regional road network of Tiruchirappalli LPA is anchored by major National Highways—NH 38, NH 81, NH 381B, NH 83 and NH 336—which together extend for about 152 km within the LPA. These highways radiate from the city and provide strong multi-directional connectivity to key urban centres such as Perambalur, Ariyalur, Kumbakonam, Thanjavur, Karur, Namakkal, Madurai, Dindigul and Pudukkottai, reinforcing Tiruchirappalli's role as a central regional road transport node.

8.1.2 Rail Connectivity

Tiruchirappalli Railway Junction handling nearly 1.93 crore passengers annually is a key rail hub in Central Tamil Nadu and falls under the Tiruchirappalli Division of the Southern Railway. With five principal rail corridors radiating towards Chennai, Erode, Coimbatore, Karaikal, Rameshwaram, and Kanyakumari, the city is supported by a 14 station rail network within the LPA, facilitating long-distance and regional passenger movement.

8.1.3 Air Connectivity

Tiruchirappalli International Airport is a major aviation gateway for Central Tamil Nadu, supporting strong passenger and cargo movement. Between April and December 2025, the airport handled over 21.9 lakh passengers, led by international traffic exceeding 14.1 lakh. The airport also handled approximately 6989 Metric Tonne of international air freight during the same period, reinforcing its role as an important node for international connectivity and regional logistics.

8.2 Traffic And Travel Characteristics

8.2.1 Modal Share Insights

Tiruchirappalli's mobility is dominated by personal motorized transport, with two-wheelers and cars comprising 56% of the modal share. While public buses support 22% of trips and autos provide 7% for last-mile connectivity, active modes like walking and cycling remain low at 15% combined. This distribution highlights intense road pressure and the urgent need to expand public transit and non-motorized networks to enhance urban efficiency.

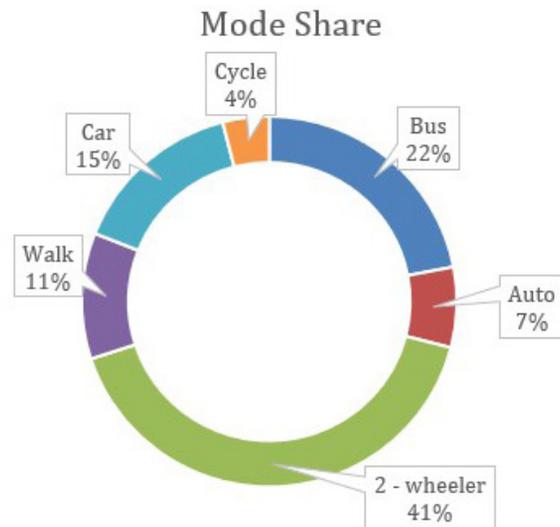
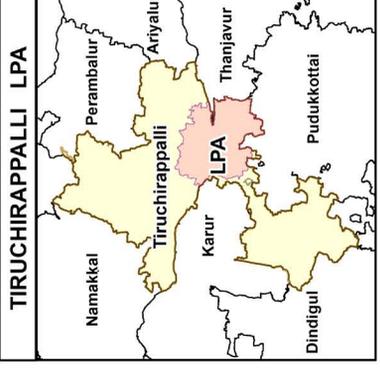
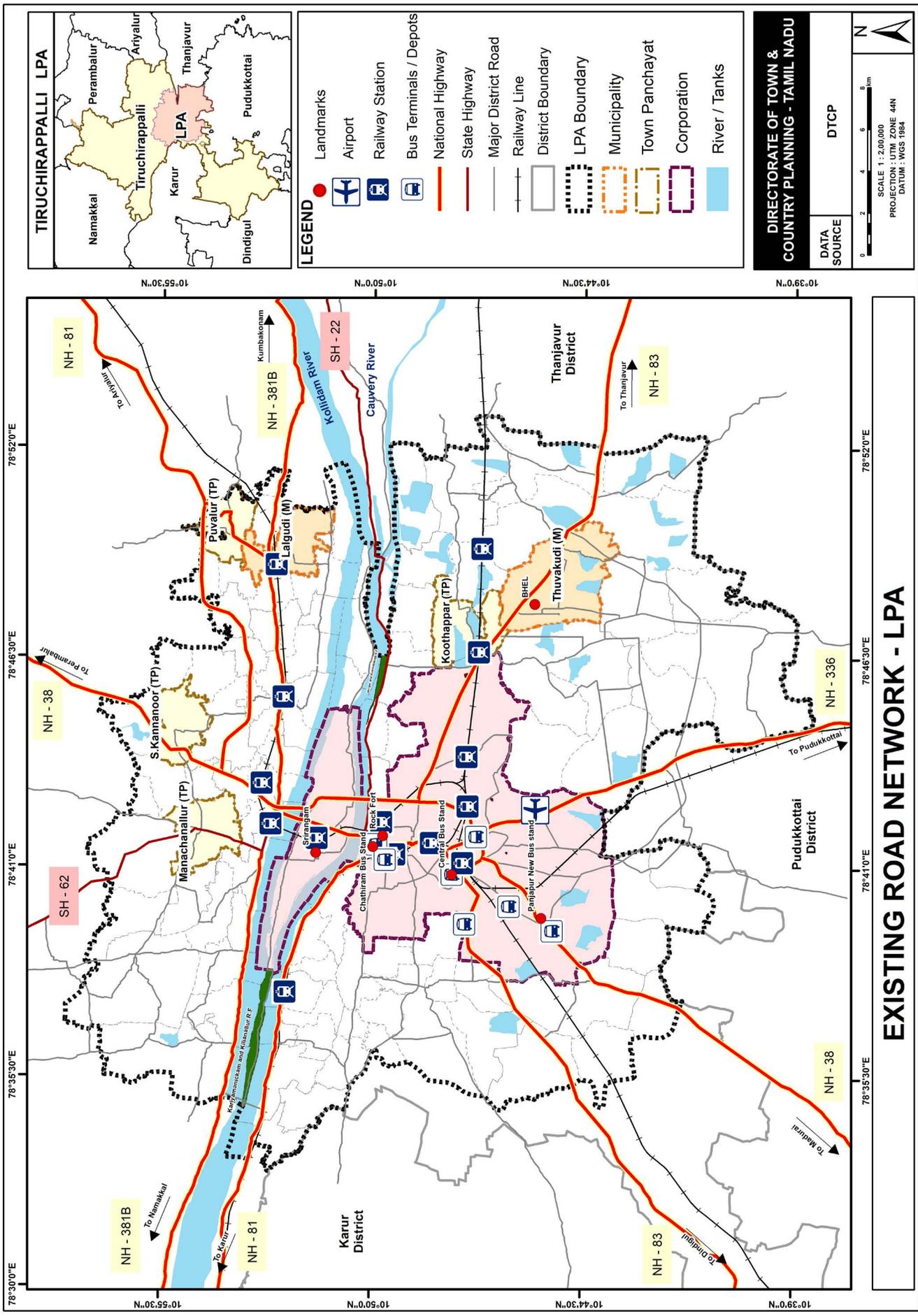


Figure 8.1 Modal Share (%)

8.2.2 Strategic Outer Cordon (OC) Analysis

To manage regional and transit traffic, eight Outer Cordon points were analyzed to identify the nature of vehicle movement (External-to-External (E-E), External-to-Internal (E-I), Internal-to-External (I-E), and Internal-to-Internal (I-I)).



LEGEND

- Landmarks
 - Airport
 - Railway Station
 - Bus Terminals / Depots
- National Highway
- State Highway
- Major District Road
- Railway Line
- District Boundary
- LPA Boundary
- Municipality
- Town Panchayat
- Corporation
- River / Tanks

DIRECTORATE OF TOWN & COUNTRY PLANNING - TAMIL NADU

DATA SOURCE: DTCP

SCALE 1 : 2,00,000
PROJECTION : UTM_ZONE 44N
DATUM : WGS 1984

EXISTING ROAD NETWORK - LPA

Map 8.1 Existing Road Network of Tiruchirappalli LPA

Table 8.1 Outer Cordon Points and Its Respective Insights

OC Point	Location / Road Name	E-E	E-I	I-E	I-I	Key Strategic Insights
OC 1	SH 62	15%	39%	40%	6%	Local Link: Primarily a commuter/supply route (79% internal-external flow) prioritize local access.
OC 2	NH 81 (West)	39%	28%	28%	5%	Mixed-Use: Balanced through-traffic and city entry requires junction management for dual flows.
OC 3	NH 83 (West)	62%	18%	19%	1%	Transit Corridor: Highest through-traffic (62%) priority candidate for bypass diversion.
OC 4	NH 336	50%	30%	18%	2%	Congestion Risk: 50% non-destination traffic necessitates heavy vehicle segregation from the core.
OC 5	NH 83 (East)	19%	39%	18%	24%	Urban Core: Highest local movement (24%) focus on internal street networks and public transit.
OC 6	NH 81 (East)	32%	30%	35%	3%	Commuter Hub: High city-to-east outflow (35%) reflects daily workforce and student migration.
OC 7	NH 38	57%	13%	22%	8%	Logistics Route: Significant long-haul freight (57%) requires dedicated freight corridors.
OC 8	NH 38 (South)	45%	35%	12%	8%	Gateway Entry: High inflow from Madurai (35%) critical need for efficient entry-point junction design.

Source: Comprehensive Mobility Plan, 2022

8.3 Key Issues

8.3.1 Road Infrastructure and Connectivity Constraints

Tiruchirappalli's road network is constrained by the absence of a complete ring road system.

Incomplete ORR stretches and the lack of an intermediate circumferential corridor force regional and freight traffic onto radial highways passing through the city core, resulting in congestion on arterial corridors connecting major growth centres.

Inadequate carriageway widths, inconsistent cross-sections, and poor edge management on several arterials reduce operating speeds, while canal-side roads remain underutilized due to weak integration with the road network.

8.3.2 Public Transport Network Limitations

Public transport in Tiruchirappalli is predominantly bus-based and radial, with services converging at the Central and Chathiram bus stands. While buses currently command a significant 22% share of the city's total mobility, this centralized pattern leads to severe congestion and inefficient cross-city movement. While the existing fleet meets current demand, future growth will strain fleet capacity, depots, and service frequency. The lack of bus only lanes and poorly placed bus stops, combined with the shift toward decentralized hubs like the Panjappur Integrated Bus Terminus, necessitates a modernized network of depots and terminals. By reorganizing these facilities, the city can eliminate traffic delays and provide a more reliable, efficient service for commuters.

8.3.3 Freight Movement and Logistics Challenges

Freight vehicles accessing industrial areas, wholesale markets, and logistics hubs are compelled to use inner-city roads due to the absence of peripheral freight facilities. This results in conflicts with local traffic, pedestrians, and public transport, contributing to congestion and safety risks. The lack of designated loading and unloading zones further leads to roadside encroachments and inefficient use of carriageway space.

8.3.4 Pedestrian Infrastructure, Accessibility and Safety

Pedestrian infrastructure in Tiruchirappalli is fragmented and frequently compromised by non-pedestrian activities. Survey data reveals that while 68% of the road network has footpaths on both sides, 12% of city roads are entirely devoid of them, leading to severe pedestrian-vehicular conflicts in Central Business District (CBD) areas. Furthermore, nearly 50% of existing footpaths are encroached upon by advertisements, on-street parking, and hawkers. High-footfall locations such as the Railway Junction (serving over 58,000 daily vehicles) and the Central Bus Stand (serving over 62,000 daily vehicles) are identified as critical zones lacking safe crossings. Poor maintenance and limited universal accessibility features restrict safe and independent mobility for vulnerable users.

8.3.5 Road Safety and Traffic Management Issues

Road safety is a significant concern, with fatal accidents in the city increasing at an average annual rate of 8.78% despite an overall decline in total accidents. Major intersections like Palpannai, Aristo Circle, and TVS Tollgate experience extreme traffic volumes, with peak hour traffic reaching 12,166 vehicles at MGR Circle and 10,551 vehicles at TVS Tollgate. These junctions suffer from insufficient signage,

markings, lighting, and signal coordination, combined with weak enforcement, contribute to traffic conflicts and accident risks.

8.3.6 Unorganised Parking and Encroachments

Unregulated parking significantly reduces effective road width across the city. Survey results from local establishments indicate a severe infrastructure deficit, with 98% of surveyed businesses reporting no available parking facilities on their premises. This leads to widespread on-street parking, which occupies valuable carriage space. High-demand areas like Srirangam, Thillai Nagar, and the Rockfort area are identified as major congestion points due to this lack of off-street options.

8.4 Strategies and Proposals

Strategies and proposals for the Tiruchirappalli Local Planning Area (LPA) have been formulated to address increasing congestion, fragmented connectivity, and rising dependence on private vehicles, while supporting the city's role as an educational, and transport hub. The Master Plan envisions a shift towards a people-centric and sustainable mobility system by strengthening public transport, improving circumferential road connectivity, and rationalising freight movement. The overarching objective is to improve travel efficiency, safety, and accessibility while accommodating future population and economic growth.

To achieve this, the following strategic directions are proposed:

- Integrated Road Network Development
- Public Transport Enhancement
- Rapid Transit and TOD Integration
- Freight Management and Logistics
- Junction and Traffic Management Improvements
- Parking and Demand Management
- Non-Motorised Transport (NMT)

8.4.1 New Road Development / Widening of Existing Roads

The proposed road network for Tiruchirappalli outlines a strategic expansion to enhance connectivity between key residential areas, growth centres, and activity hubs. The network includes Outer Ring Road and Urban Bypass

Road forming high-capacity circumferential links to facilitate regional and intra-city movement. Other corridors are classified based on proposed widths and lengths, reflecting a hierarchical planning approach. Together, these roads strengthen both long-distance mobility and local accessibility across the planning area.

Table 8. 2 Proposed Road Network Hierarchy

Proposed Road name	Origin	Destination	Length (in Km)	Proposed ROW(m)	Nature of Proposal
A1 – A1 (ORR)	Madakudi	Madakudi	94.14	60	Outer Ring Road - Existing road widening – 43.58 Km, Proposed new road – 50.56 Km
B1 – B1 (Urban Bypass Road)	Irungalur	Kumaramangalam	30.38	45	Urban Bypass Road - Existing road widening – 7.38 Km, Proposed new road – 23 Km
C1 – C1	Kottapattu	Sholamadevi	6.91	30	New road
C2 – C2	Bharath Nagar	Palanganamgudi	3.08	30	New road
C2 – C2	Trichy IT park Road	Bharath Nagar	4.91	30	Existing road widening
C3 – C3	Bharath Nagar	Happ Road	5.05	30	Existing road widening
C4 – C4	Pirattitur	Panjappur	3.5	30	Existing road widening – 0.9 Km, Proposed new road – 2.6 Km
C4 – C4	Pirattiyur	Aravanoor	5.07	30	Existing road widening – 1.71 Km, Proposed new road – 3.36 Km
C5 – C5	Poonampalayam	Manachanallur	6.5	30	Existing Road Widening
D1 – D1	Somarasampettai	Allur	7.02	24	Existing road widening – 3.14 Km, Proposed new road – 3.88 Km
D2 – D2	Mullikarumbur	Woraiyur	7.19	24	Existing road widening
E1 – E1	Adavathur	Tennur	9.84	12	Existing road widening
Total			183.59 Km		

8.4.2 Public Transport Strategy

The Tiruchirappalli LPA emphasizes people-centric, sustainable public transport by strengthening the bus network and introducing high-capacity transit. The existing bus fleet of 1,014 buses will expand to 859 by 2035 and 1,054 by 2045 to meet future demand, reducing private vehicle dependence and improving accessibility along key corridors.

Key Actions/Proposals:

- Establish Panjappur as the main hub by developing it into the primary integrated terminal to anchor the city's regional connectivity. This centralizes long-distance transit while maintaining the Central Bus Stand and seven new TTMCs as supporting nodes for a balanced urban network.
- Develop a phased network of bus depots at key locations to decentralise operations, reduce congestion in the city core, and support efficient intracity and mofussil services. Select depots will be upgraded as electric bus facilities to enable a gradual transition to sustainable public transport.
- Introduce high capacity transit on key corridors through phased BRTS implementation:
 - Phase 1 – Thuvakudi to Panjappur;
 - Phase 2 – Panjapur to Chathiram.
- Strengthen railway stations as multimodal and sub-regional interchange nodes by optimising major stations and upgrading others with improved access, passenger amenities, and safety features. Key locations will be integrated with BRTS, TOD corridors, and last-mile connectivity systems.
- Launch high-frequency shuttle services connecting major transit hubs—Chathiram bus stand, Central bus stand, and

Tiruchirappalli Junction—to the Srirangam and Thiruvanaï Kovil temple circuits. This targeted pilgrim transit strategy aims to prioritize tourist mobility while significantly reducing private vehicle congestion within the inner city.

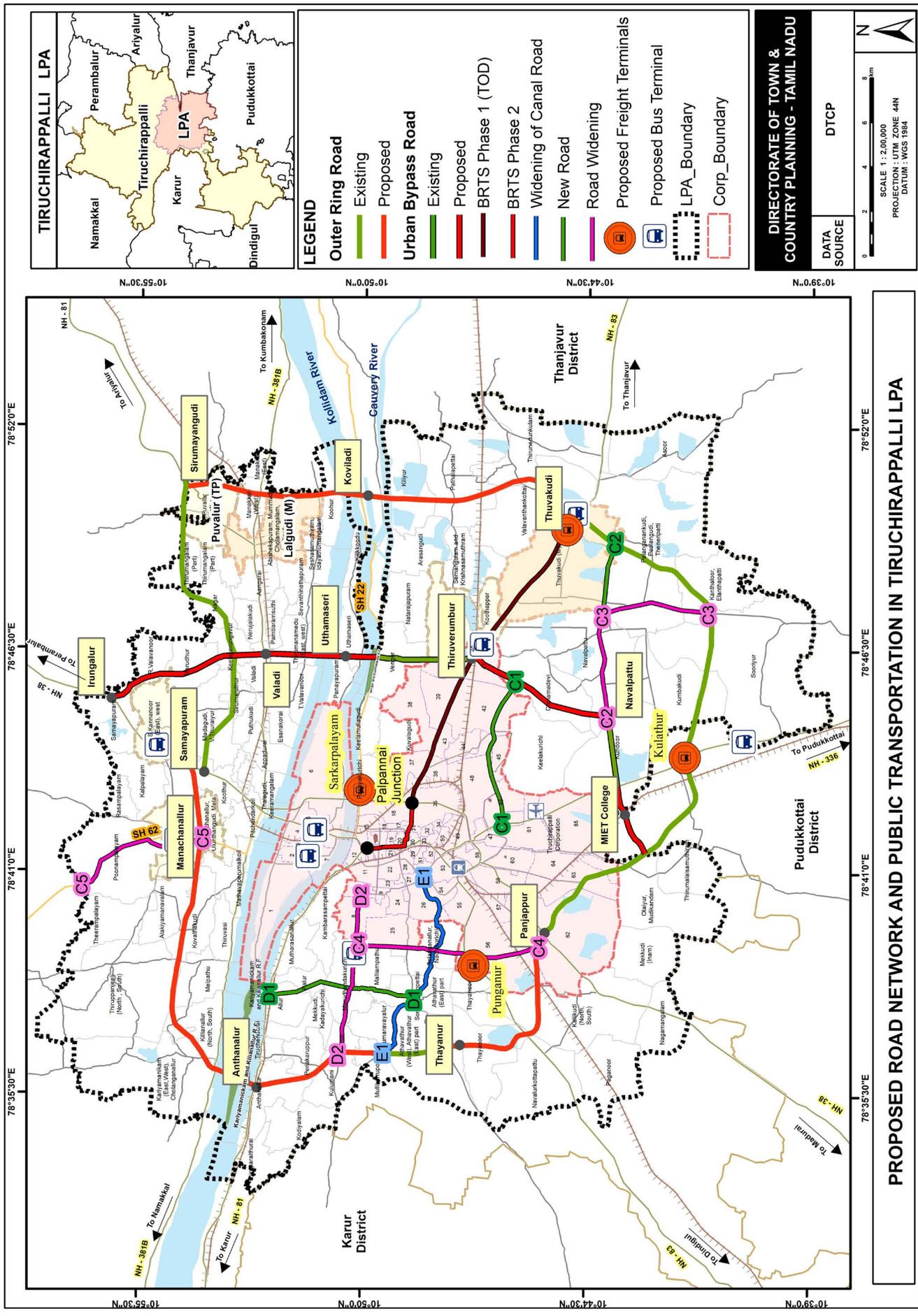
- Rationalize bus routes to improve operational efficiency, reduce overlap, and better match travel demand patterns.
- Rationalize bus stops by maintaining approximately 500 m spacing and relocating stops away from junctions to improve safety and reduce delays.

8.4.3 Transit Orient Development (TOD) Corridor

The 15 km Palpannai–Thuvakudi BRTS corridor is planned as a Transit-Oriented Development (TOD) spine to promote compact, sustainable growth in Tiruchirappalli. High-density residential, commercial, and mixed-use development within 500–800 m of the BRTS encourages a walk-to-transit culture, reducing private vehicle dependence. The corridor connects key industrial, residential, and educational hubs, optimizing commute times and BRTS ridership. By concentrating growth along this spine, it prevents urban sprawl, supports economic integration, and fosters low-carbon, equitable access to the city.

8.4.4 Freight Terminals

The proposed freight terminals at Thuvakudi, Kulathur, and Punganur are designed to manage heavy vehicle traffic and prevent congestion in the city's core. By intercepting trucks at peripheral locations and enabling a hub-and-spoke distribution model, these terminals allow freight to be transferred to smaller, eco-friendly vehicles for last-mile delivery. This approach reduces multi-axle truck movement within the city, lowers air pollution, and creates a safer and more efficient urban logistics system.



Map 8.2 Proposed Road Network and Public Transport in Tiruchirappalli LPA

In addition, a Freight Distribution Centre is proposed at Sarkarpalayam, to support short-haul aggregation and redistribution of goods and further limit heavy vehicle penetration into inner-city areas.

Key Terminal Functions:

- **Thuvakudi (Eastern Gateway):** Consolidation point for industrial goods (BHEL/NIT), keeping heavy traffic off the Thanjavur Highway.
- **Kulathur (Southern Gateway):** Facilitates smooth last-mile mobility by transferring freight from heavy trucks to smaller vehicles, reducing congestion along southern arterial roads and improving connectivity to Panjapur and central districts.
- **Punganur (Western Gateway):** Manages freight from Dindigul and Karur highways, ensuring smooth distribution to western and central business districts.
- **Sarkarpalayam (Northern Gateway) –** Redistribution node, enabling sorting and onward movement through Light Commercial Vehicles and easing freight pressure on northern inner-city roads.

8.4.5 Junction Improvements

The junction improvement plan in Tiruchirappalli targets 17 critical bottlenecks to reduce congestion, optimize traffic flow, and improve safety without expanding road space. Measures include geometric corrections, signal synchronization, slip lanes, and intelligent channelization to manage heavy traffic, intermodal transfers, and peak-hour surges.

Junctions that require improvements:

Cauvery Bridge Junction, Kalaingar Arivalayam, Aristo Circle, Vellamandi Main Rd Junction, Periyar Statue Junction, Amma Mandapam Junction, Gandhi Statue Junction, TVS Tollgate Junction, Mambilai Salai Junction,

Shanmuga Medical Junction, Railway Stn Junction, Palpannai Junction, Thillai & Salai Junction, MGR Circle, Thennur & Keelachatram, Anna Statue Junction, Netaji Nagar Road Junction

8.4.6 Multi Level Car Parking (MLCP)

The proposed Multi-Level Car Parking (MLCP) facilities at Srirangam, Rock Fort, Thiruverumbur, and Singarathope aim to reclaim the city's streets from congestion caused by on-road parking. These high-density commercial, religious, and transit hubs currently experience severe traffic friction due to haphazard parking, reducing road width and blocking movement. By shifting vehicles into vertical, high-capacity structures, MLCPs will enable smoother traffic flow, safer pedestrian environments, and support the success of the broader transit plan, including BRTS lanes and pedestrian zones.

Key MLCP Locations & Functions:

- **Srirangam:** Serves major pilgrimage stretch.
MLCP handles 250–300 vehicles including festival surges, preserving heritage site accessibility.
- **Rock Fort:** Consolidates three high-demand heritage/retail zones.
MLCP with 500–600 bays eases traffic and improves emergency access.
- **Singarathope:** Primary retail hub.
MLCP (750–850 bays) reduces kerbside congestion, supporting local commerce and shopper convenience.
- **Thiruverumbur:** Industrial gateway along Thanjavur Highway
MLCP (300–350 bays) functions as a Park & Ride facility, facilitating commuters to switch to BRTS/public transport.

8.4.7 Non Motorized Transport

Tiruchirappalli is envisioned as a walkable, people-oriented city, with walking and other non-motorized modes promoted through high-quality, safe, and continuous pedestrian infrastructure. The current lack of adequate footpaths, encroached sidewalks, and unsafe crossings limits pedestrian safety and convenience. The proposed strategy focuses on developing continuous footpaths along arterial and sub-arterial roads, providing safe, well-marked crossings at intersections and mid-block locations, and enhancing pedestrian environments along high-activity streets. These interventions aim to improve road safety, increase walkability, and enable inclusive access for children, the elderly, and persons with disabilities, forming a critical first- and last-mile network for the city's broader transit plan.

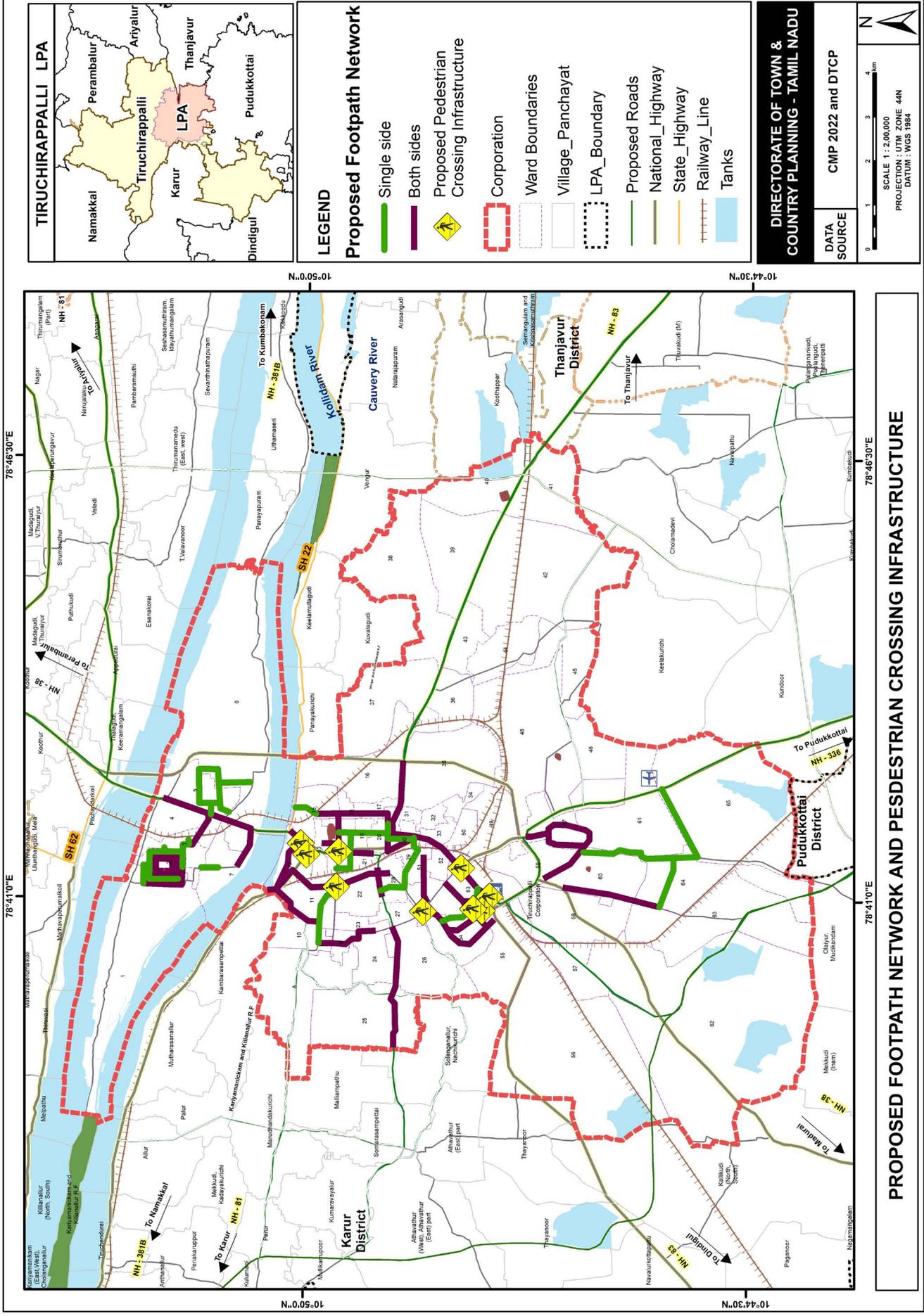
Key Pedestrian Infrastructure Proposals:

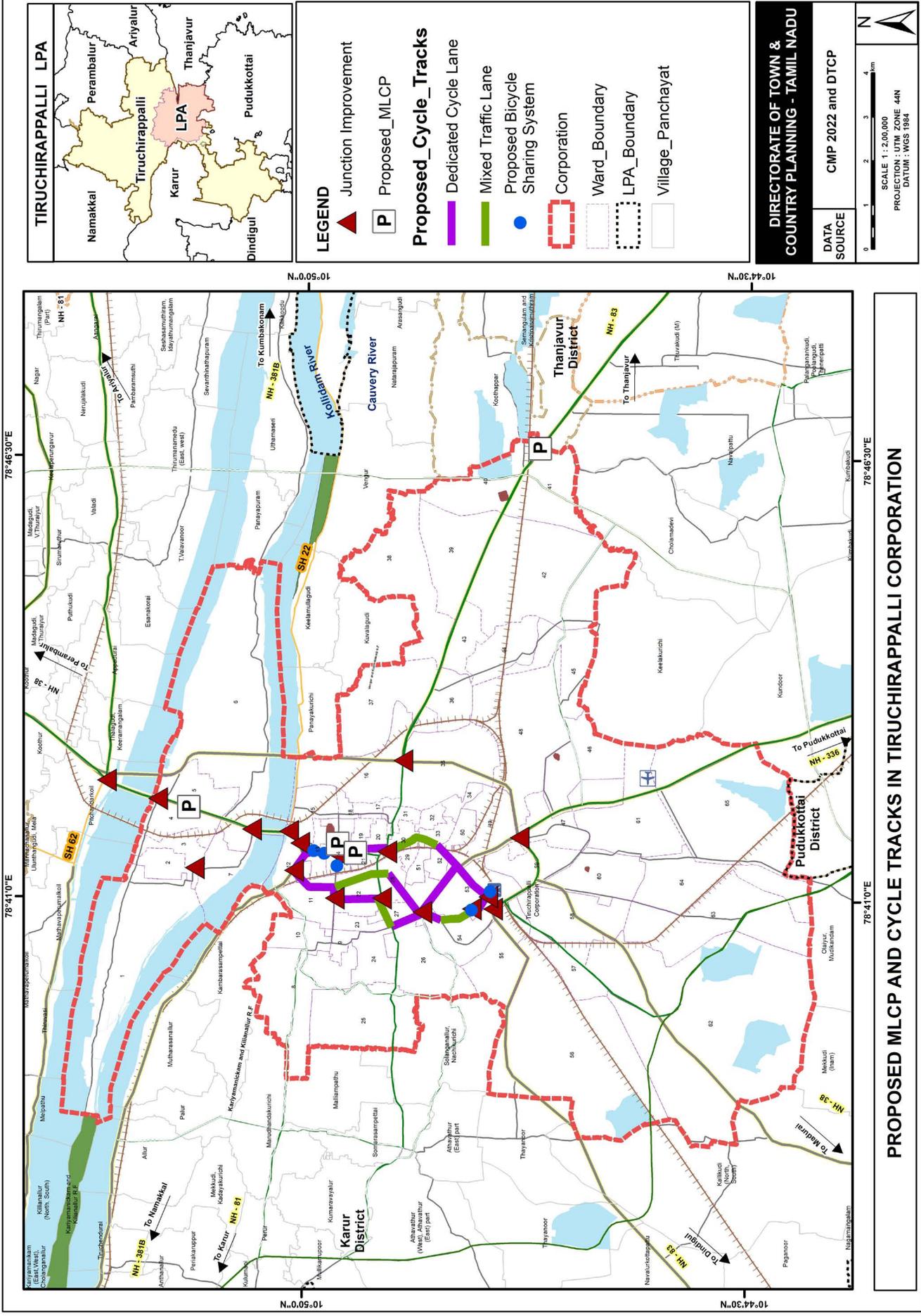
- **Footpath Network:** 70 km of footpaths along key arterial/sub-arterial roads and at high-footfall nodes; minimum clear width of 1.8 m in core areas, 2.5 m elsewhere;

barrier-free elements (tactile paving, ramps) for universal accessibility.

- **Activity Nodes:** Footpaths at institutional, recreational, public, and semi-public areas with high pedestrian volumes.
- **Pedestrian Crossing Improvements:** Nine critical locations to ensure safe movement across high-traffic zones, including:
- **Cycle friendly infrastructure and public bicycle sharing:** Cycle network of about 15 km, comprising shared cycle lanes in constrained city-core corridors and dedicated cycle tracks along wider road sections. A Public Bicycle Sharing system is recommended, with priority at major transit hubs and educational institutions to strengthen first- and last-mile connectivity and promote non-motorised transport.
- **Safety & Connectivity Goals:** Continuous footpaths and pedestrian crossings to reduce accidents, enhance walkability, and support multi-modal transit integration with BRTS and other public transport investments.









9. HOUSING

9.1 Context

The housing sector forms an integral part of the strategic framework in the Tiruchirappalli Master Plan 2045, towards improving the quality of life of residents and enhancing its economic and social vibrancy.

The evolution of settlement patterns in Tiruchirappalli can be traced through the sequential development of Srirangam, Woraiyur, and Rockfort, each reflecting a distinct phase of residential and urban growth shaped by geography, culture,

and governance. As the city expanded, these historically distinct residential settlements gradually merged, forming the present urban core of Tiruchirappalli. The surrounding municipalities and town panchayats experienced phased development as trunk infrastructure and urban services expanded, shaping the settlement with varied characteristics based on their functional roles.

The need and demand for housing in present-day Tiruchirappalli is a result of diversification of economic activities, industrial growth, the emerging IT sector, expansion of institutions, city's pivotal location facilitating regional connection, temple tourism and migration from surrounding areas facilitated by infrastructure development, have collectively engendered diverse housing demands. The existing housing scenario analysis, identifies the systemic challenges that inform the development strategies and recommendations to address the evolving needs of a rapidly growing city.

9.2 Existing Housing Scenario

An integrated assessment of the spatial distribution, density and decadal growth of households, housing conditions, tenure patterns, informal settlements, and understanding the needs of the transient population is undertaken for the Tiruchirappalli Local Planning Area (LPA).

9.2.1 Distribution and Decadal Growth of Households

The Tiruchirappalli LPA has seen a steady increase in population and households over the years. The number of households in the Tiruchirappalli LPA increased from 2,37,555 in 1991 to 5,03,905 in 2025. Urban areas account for 65% of households (of which 57% are concentrated in the Corporation area), while 35% are located in rural areas. The decadal growth observed in Tiruchirappalli Corporation can be largely attributed to the expansion of municipal boundaries, enhanced connectivity

and infrastructure, the city's emergence as a major educational, healthcare hub and sustained urban-urban as well as rural-urban migration. Between 2011-2025, Tiruchirappalli corporation registered a growth of 24.3% in the number of households, while municipalities, town panchayats and village panchayats have registered 28.5%, 24.8% and 76% growth in households, respectively. Meanwhile, there has been a declining trend in household size, which was 4.5, 4.4, 3.9 and 3.5 in 1991, 2001, 2011 and 2025 respectively. Core area saturation and pronounced peri-urban growth clearly indicate a spatial shift in the development patterns. The steady increase in households, with a sharp decline in household size can be attributed to the shift from joint to nuclear families, migration-driven household formation and lifestyle changes toward smaller and more independent living arrangements.

9.2.2 Density of Households

The Tiruchirappalli LPA accounts for only 18.27% of the district's area but contains 52.6% of the district's population, emphasizing its role as the district's urban and densely populated region. As of 2025, residential density is 80 HH/ha in Tiruchirappalli Corporation, 38 HH/ha in Municipalities, 31 HH/ha in Town Panchayats, and 23 HH/ha in Village Panchayats, with an average net residential density of 40 HH/ha in the overall LPA. Household density is highest in the core particularly in the old settlement near Rockfort, parts of Woraiyur and the area around Srirangam temple with Continuous Building Areas and the density gradually decreases towards the periphery.

9.2.3 Housing conditions

According to the 2011 Census, in the Tiruchirappalli LPA, 73.7% of houses were in good condition, 23.1% were livable, and 2% were in a dilapidated state. About 42.6% of households are in one-room units, 25.3% in two-room units, 13.5% in three-room units, 4.2% in four-room

units, 1.51% in five-room units, and 3.2% in six-room units. There were 12.4% of households with no exclusive room, while 70% of the total households lived in one or two rooms, indicating a prevalence of compact housing.

9.2.4 Tenure Pattern

In the Tiruchirappalli LPA, 63.9% of households lived in owned houses, 34.1% in rented houses, and 2.0% in the 'others' category. The rental housing in LPA accounts for nearly 34%, driven largely by its economic activity, connectivity, educational activity, and spiritual tourism. Core city areas and well-established neighbourhoods such as the Tiruchirappalli Core, Cantonment, Srirangam, Woraiyur, and Raja Colony command higher rents across all categories, reflecting better accessibility, infrastructure, and proximity to employment and commercial centres. In contrast, peripheral areas such as Navalpattu, Palanganagudi, Samayapuram and Thuvakudi exhibit comparatively lower rental values, especially for one and two-BHK units, indicating affordability-driven demand.

9.2.5 Student housing

As the Tiruchirappalli LPA continues to emerge as a major educational hub with a growing student population, the demand for off-campus student housing is expected to increase significantly. In particular, focused development of student accommodation is required along NH-38 (towards Perambalur) in areas of S. Kannanoor, Samayapuram, and NH-336 (towards Pudukkottai), in Sooriyur, where expanding institutional activity and strong regional connectivity are evident.

9.2.6 Women's Hostels

Women's hostels in the Tiruchirappalli Local Planning Area are largely concentrated in the corporation's core areas and are predominantly operated by the private sector. However, these hostels are often not conveniently located near

major workplaces in the peri-urban areas. With increasing female workforce participation and the city's growing role in the service sector, there is a clear need for additional Thozhi-type hostels (Government accommodation) to meet present and future demand adequately.

9.2.7 Informal housing

Tiruchirappalli Corporation has 264 slums housing a population of about 1,16,538 across 29,015 households, of which 155 slums (18330 households) are identified as tenable and 109 as untenable based on their suitability for in-situ improvement. The untenable slums, comprising 10,685 households, are located in environmentally and physically hazardous areas such as railway lines, riverbeds, drains and nallahs, and waterbody beds. Considering all Government initiatives, an estimated 25,571 slum households continue to require housing intervention.

9.2.8 Homeless population

As per the Census 2011, about 322 families did not have houses within the Tiruchirappalli LPA. This population remains less visible due to the transient and informal nature of their living conditions.

9.3 Housing Supply Trends

9.3.1 Public Sector Supply

The Tamil Nadu Urban Habitat Development Board (TNUHDB) has implemented several schemes across different time periods, under various Central and State programmes, including the components of 12th and 13th Finance Commissions, Nehru Rojgar Yojana, Fire Proof Houses, VAMBAY, Clearance Scheme, Rajiv Awas Yojana, and PMAY-HFA (AHP). These initiatives have resulted in the construction of a total of 13,028 tenements. Additionally, under the Tamil Nadu Urban Development Programme (TNUDP), 42 slum locations were developed, covering

4,510 slum households, and under the Integrated Housing and Slum Development Programme (IHSDP), 36 slum locations were developed, benefiting 1,128 households. Collectively, these interventions have led to improved housing for 18,666 households. About 160 tenements are under construction by TNUHDB under the Reconstruction Programme and Announcement Projects for 2024–25, to augment overall housing availability.

The Tamil Nadu Housing Board (TNHB) has provided housing through various schemes such as Area Development Schemes (ADS), Small-Medium Town (SMT), Neighbourhood Scheme (NHS), Self-Finance, hire purchase, outright purchase, and Site and Services Schemes targeting various income groups, reflecting a mix of ownership and financing models. These initiatives have resulted in the completion of 14,069 housing units. Additionally, under the Tamil Nadu Government Rental Housing Scheme, TNHB has proposed two schemes to provide 928 rental units for the Government of Tamil Nadu employees in Tiruchirappalli LPA.

The transient population in Tiruchirappalli, comprising pilgrims, tourists, and short-term visitors, need diverse housing across five distinct activity zones. The core precinct, covering areas like Rock Fort, Chathiram bus stand, and Woraiyur, serving as a primary hub for pilgrims and traders, while the northern pilgrimage corridor specifically caters to religious visitors in Srirangam and Thiruvanaikoil. Moving south, the southern institutional belt supports a demographic of students, researchers, and medical tourists near Navalurkottapattu, Sooriyur, Kumbakudi and Mandaiyur. Connectivity-driven housing is required around transport nodes such as Panjapur and the Airport belt, while the peripheral rural and heritage belt encompassing Samayapuram and the Anicuts requires diverse accommodations for ecotourists, researchers, and short-term visitors. At present, there is one

Yatri Niwas located in Srirangam, catering to pilgrims and two Hotel Tamil Nadu, all recording high occupancy due to its strategic proximity to major religious destinations and transport nodes.

Institutional housing forms an important component of Tiruchirappalli's residential stock. The Southern Railways is providing residential quarters for railway employees, industrial establishments such as BHEL and HAPP are providing dedicated residential colonies for their workforce, and Tamil Nadu Police Housing Corporation (TNPHC) is catering to police personnel. These housing clusters are largely self-contained, influencing local density patterns and infrastructure demand, playing a significant role in shaping the city's spatial structure and economic growth.

9.3.2 Private Sector - Residential Demand & Supply Trends

The private housing landscape in Tiruchirappalli is currently undergoing a dual transformation. The city, traditionally characterized by independent homes and religious landmarks, is witnessing the emergence of gated communities and high-rise apartments, while simultaneously expanding from the urban core towards the peripheral areas along major transit corridors.

The development trends across different zones of the Tiruchirappalli LPA show distinct spatial patterns in residential supply and market activity, with the highest supply concentrated in emerging hubs such as Panjapur–Manikandam, driven by large-scale plotted developments and gated communities. The IT and Industrial Belt (Thiruverumbur, Navalpattu, and Kattur) records high development activity, largely in mid-range apartments and budget plots. Established suburbs (KK Nagar, Karumandapam, Vayalur Road, and Manachanallur) continue to see high to moderate supply, mainly premium apartments and independent houses, while heritage areas

Table 9.1 Residential layout approval trends in Tiruchirappalli LPA

Corridor/ Direction	Trend in Layout Approvals	Inference
West and South-West (Athavathur, Somarasampettai, Nagamangalam)	High concentration	Strong residential expansion driven by highway connectivity, land availability, and proximity to industrial and employment zones.
North and North-West (Manachanallur - Kalpalayam)	Moderate to high	Emerging growth corridor with development aligned along highways, supported by improving accessibility and lower land values.
South and South-East (Koothappar–Thuvakudi)	Moderate to high	The layout activity is influenced by industrial areas, institutions, and rail connectivity, indicating housing demand for the workforce.
East (Lalgudi–Puvalur side)	Moderate and scattered	Growth is constrained by river systems and agricultural land, resulting in slower, more fragmented residential expansion.
Core City/Corporation	Low	Limited new layout approvals due to land saturation, with development shifting toward redevelopment and vertical growth.

Source: DTCP approval trends

like Srirangam and Thiruvanaikoil witness niche, controlled development. The trends indicate a predominantly corridor-led outward expansion, with stronger residential growth toward the west and south-west of Tiruchirappalli LPA.

The public sector has delivered about 1,460 housing units over the last five years, while the private sector has supplied around 6,264 housing units and developed 380 layouts with over 12,000 plots. The layout approvals are concentrated in village panchayats along the stretches of Vayalur– Somarasampettai and Panjapur–Nagamangalam. Private sector housing supply is nearly twelve times that of the

public sector, reflecting a strong market response to demand in the MIG and HIG segments. While EWS and sections of LIG remain relatively underserved, indicating the need for targeted public intervention and policy support to bridge supply gaps.

9.4 Housing shortage

The overall housing shortage in the Tiruchirappalli Local Planning Area is estimated at 1,08,456 units, comprising kutchha houses, slum households, the homeless population, and houses that are obsolete or dilapidated.

9.5 Housing Projections and Land Allocation

The total number of households is projected to reach 7,97,964 by 2045, against an existing 5,03,905 households. Accordingly, the additional housing requirement by 2045 is estimated at 2,84,059 households. Further, the existing housing shortage is assessed at 1,08,456 households. To address the total projected housing demand of 3,92,515 dwelling units by 2045, encompassing both the additional requirement and the existing shortage, the corresponding land requirement has been assessed based on the spatial distribution and Density Growth Projection using Tiered Multipliers.

The Tiruchirappalli LPA encompasses a total extent of 804.53 sq.km, of which 125.64 sq.km is the existing residential landuse. For the horizon year 2045, a total area of 239.86 sq.km is required for residential purposes, including 114.22 sq. km of newly proposed residential area, reflecting the continued expansion of housing needs across the LPA.

9.6 Proposals/Recommendations and Strategies

9.6.1 Affordable rental housing for workers

Affordable rental housing for workers is proposed near existing and upcoming industrial clusters, as the demand for rental housing is closely linked to employment hubs and transit corridors for accessibility. These locations are strategically identified based on their potential to emerge as the next major rental housing hubs in the future.

The Affordable Rental Housing Complex (ARHC) scheme, a sub-scheme of Pradhan Mantri Awas Yojana – Urban (PMAY-U), is recommended to be implemented through Tamil Nadu Housing Board (TNHB), Tamil Nadu Urban Habitat Development Board (TNUHDB), Urban Local Bodies (ULBs) under the Municipal Administration & Water Supply Department, and private entities through PPP models. Under this, four housing complexes are proposed,

S.no.	Localities	Rationale for Location Selection
1	Punganur	<ul style="list-style-type: none"> Identified along NH-83 (towards Dindigul), in proximity to the existing institutions and employment in the core. The area has growing demand for rental housing. Considering the proposed economic cluster (services) this location will certainly cater to service sector employees.
2	Allithurai	<ul style="list-style-type: none"> Identified along the prominent residential corridor (Vayalur-Somarasampettai). The area experiences high rental demand owing to its proximity to the urban core and its established residential neighbourhood character.
3	Thuvakudi	<ul style="list-style-type: none"> Identified along the developing Outer Ring Road. It is in proximity to the proposed economic cluster (Heavy manufacturing industries)
4	Cholamadevi	<ul style="list-style-type: none"> Identified along NH-83 (towards Thanjavur) in proximity to existing industrial clusters. It is an emerging residential area, owing to its strategic location between the Corporation area and the major industrial hub of Thuvakudi. It has a high demand for rental housing.

comprising dormitory-type developments at Punganur and Thuvakudi, and apartment-type developments at Allithurai and Cholamadevi.

9.6.2 Women's Hostel

Women's hostels in the Tiruchirappalli LPA are largely concentrated in the Corporation areas, mainly operated by the private sector due to proximity to employment centres and transport nodes. However, their limited presence in peri-

urban areas highlights a gap in hostel availability near emerging workplaces. With increasing female workforce participation and the city's growing role in the service sector, there is a clear need for additional Thozhi-type hostels to meet present and future demand. Three Thozhi Hostel complexes are recommended to be implemented through the Social Welfare and Women Empowerment Department and the Tamil Nadu Working Women's Hostels Corporation Limited (TNWWHCL).

S.no.	Localities	Rationale for Location Selection
1	Punganur	<ul style="list-style-type: none"> Identified along NH-83 (towards Dindigul), in proximity to the existing institutions and employment. The area is expected to become a preferred location for hostel development, given the saturation of private hostels in the core city. Considering the proposed economic cluster (services).
2	Kumbakudi	<ul style="list-style-type: none"> Identified along the major district road in proximity to the developing institutional area. Considering the proposed economic cluster (Knowledge center)
3	Bheema Nagar	<ul style="list-style-type: none"> Identified in the core area, in proximity to existing employment opportunities. There is one Thozhi facility operating at full capacity, demonstrating demand for more such facilities.

9.6.3 Student Housing

Tiruchirappalli LPA is emerging as a prominent educational hub, with a growing student population driving the demand for affordable off-campus housing. Although there are 21 government-run student hostels within and around the corporation, additional facilities are needed, particularly in the northern and

southern parts of the LPA, as highlighted in the proposals.

Two student hostels are recommended under the Social Justice Hostels scheme, which shall be implemented by the Department of Social Justice & Empowerment and Welfare Departments.

S.no.	Localities	Rationale for Location Selection
1	S. Kannanoor (West)	<ul style="list-style-type: none"> Identified along NH-38 (towards Perambalur), in proximity to the existing institutions.
2	Sooriyur	<ul style="list-style-type: none"> Identified along NH-336 (towards Pudukkottai), in proximity to the important existing institutions. Considering the proposed economic cluster (Knowledge center), it will also cater to visiting scholars.

9.6.4 Transient Housing

The transient activities in Tiruchirappalli LPA vary across different zones. The Core Precinct (Rock Fort, Chathiram Bus Stand, Gandhi Market, and Woraiyur) primarily attracts pilgrims, seasonal visitors, and wholesale traders. The Southern Institutional Belt, covering Navalur, Kottapattu, Thuvakudi, Mandavur, Sooriyur, and Kumbakudi, sees a mix of students, medical tourists, and scholars visiting institutions. The Northern Pilgrimage Corridor and Peripheral

Rural/Heritage Belt (Srirangam, Thiruvanaikovil, Samayapuram) is frequented by pilgrims, short-term visitors, and festival-season visitors. Finally, the key transport nodes such as the Panjapur and Airport belt cater to tourists and transit travellers. Based on these, the suitable locations for transient housing are proposed. Two complexes are proposed under the schemes, Yatri Niwas and Hotel Tamil Nadu, which shall be implemented by the Hindu Religious and Charitable Endowments Department and the Tamil Nadu Tourism Development Corporation (TTDC).

S.no.	Localities	Rationale for Location Selection
1	Udayanpatti	<ul style="list-style-type: none"> Identified in proximity to the Tiruchirappalli airport, Panjapur bus terminal and major transit corridors.
2	Keeramangalam	<ul style="list-style-type: none"> The site is strategically located to connect the spiritual tourism corridor of Samayapuram, Srirangam, and Thiruvanaikovil. It can also cater to the tourist spots in the peri-urban area. It is positioned away from the main city traffic and minimizes congestion. It is identified with connectivity and in proximity to Pichchandarkoil railway station.

9.6.5 Night Shelters

It is essential to provide night shelters to ensure that everyone has access to safe and dignified shelter, and they are recommended near major temple precincts and key transit locations (Central Bus Stand, Chathiram Bus Stand, and Tiruchirappalli Junction railway station), where footfall and informal livelihood opportunities are high. Based on population estimates, there is currently a requirement for six additional night shelters. The total demand is projected to increase to a total of 15-night shelters by 2035 and further to 17-night shelters by 2045, to adequately cater to the urban homeless population.

9.6.6 Rehabilitation of Informal settlements & housing for EWS

The spatial distribution of slums in Tiruchirappalli Corporation indicates a noticeable

concentration within the city's older settlement areas, particularly in the core urban zones and along major transport corridors. Over time, most of the tenable slums have been developed, with in-situ tenements and plotted developments implemented by TNUHDB. Further, some of the untenable slums near Panjapur bus terminal and core areas near Rockfort have been rehabilitated. However, the untenable slums located along rivers, waterbodies and low-lying areas persist and are highly vulnerable to flooding and substandard living conditions.

These settlements require relocation to the nearby TNUHDB schemes or appropriate peri-urban locations that offer better connectivity to the urban core and major employment centres, ensuring that livelihoods are not affected. In view of this, areas in the vicinity of Panjapur, Pirattiyur, and Kondayampettai (Srirangam area), are

identified as suitable locations for resettlement due to their connectivity and proximity to employment hubs.

In line with this, the TNUHDB has proposed the allocation of land near Panjapur (4.7 acres),

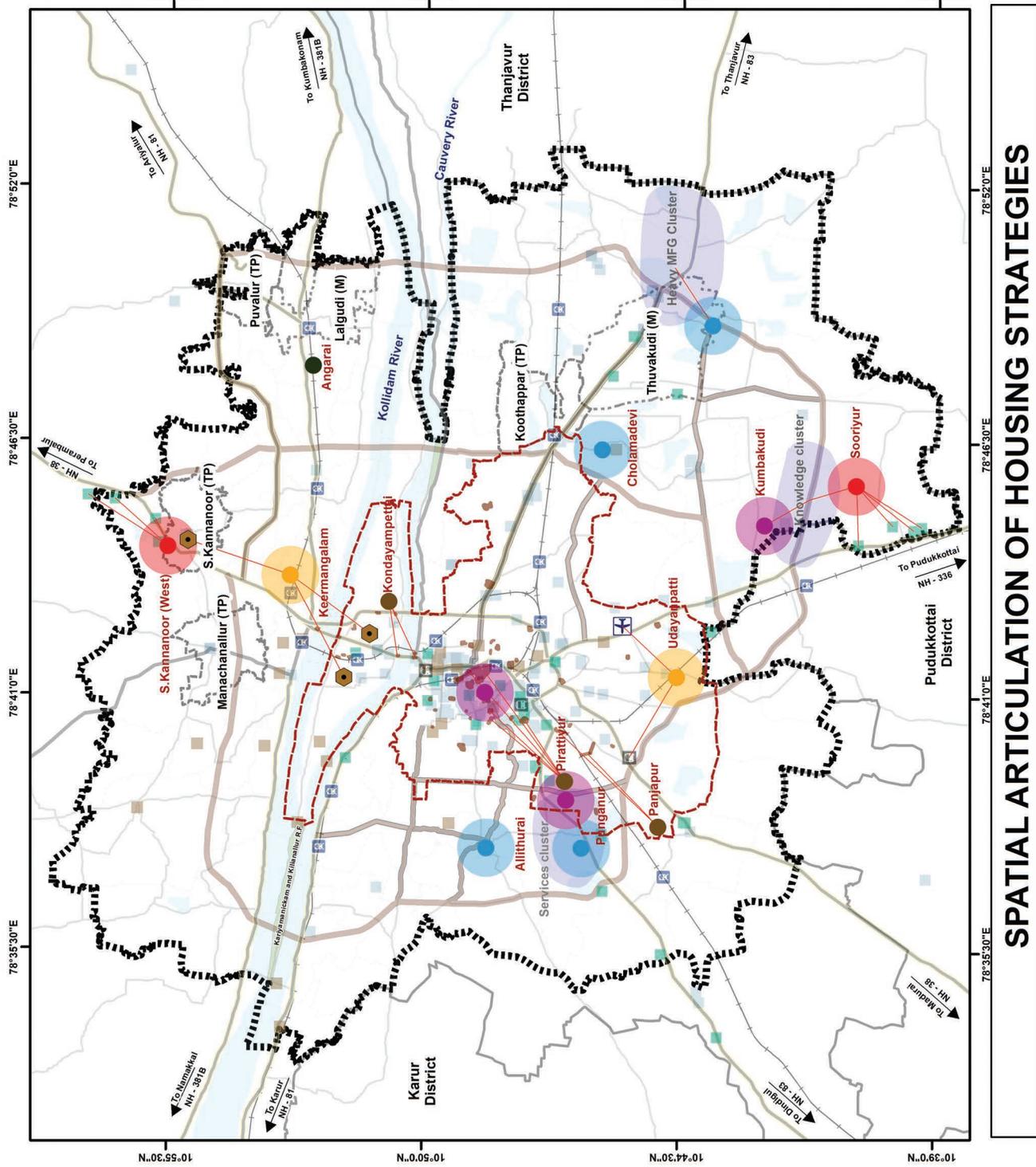
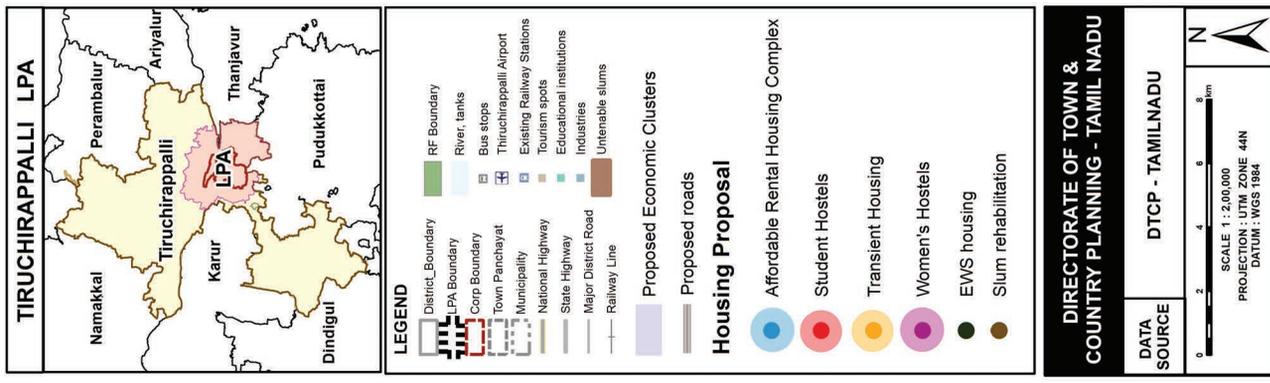
Pirattiyur (7.62 acres), and one more site in Angarai (1.40 acres). The sites at Pirattiyur and Panjapur shall emphasis on rehabilitation of slum dwellers. Whereas the site in Angarai shall cater to the projected EWS households.

Phasing	Localities identified	Rationale for Location Selection (Slum formation is closely tied to livelihood opportunities, rehabilitation must be livelihood-sensitive)	No. of HHs requiring immediate intervention
I	Pirattiyur	<ul style="list-style-type: none"> The slum population is primarily engaged in construction-related work, support and service roles in the nearby government hospital. Slums developed in proximity to temple precincts, where dwellers have established small petty shops to cater to local activity. The relocation is identified in proximity to the cluster of existing slums so livelihood is unaffected. 	1200
II	Kodayampettai	<ul style="list-style-type: none"> Location-based occupations are observed in Alagiripuram (manual clothes washing) and along the Cauvery riverbank (brick-making). Hence an appropriate site has to be identified in Kodayampettai in proximity to the Transit corridors. 	550
III	Panjapur	<ul style="list-style-type: none"> The shall cater to the dwellers along major roads and daily wage labours located along railway lines, who work bus stops. 	750
IV	Angarai	<ul style="list-style-type: none"> This location shall cater to the projected EWS households. As Lalgudi Municipality is emerging as a growing urban node, an increased requirement is anticipated. 	280

9.7 Conclusion

The Housing segment of the Tiruchirappalli Master Plan 2045 outlines a conscious shift towards inclusive, need and demand-based residential development. It addresses the diverse housing requirements of different income groups, students, women workers, and transient users.

Through integrated strategies such as affordable rental housing, slum rehabilitation, institutional hostels, and strategic land allocation, the plan seeks to guide sustainable urban growth while enhancing overall quality of life for all residents by 2045.



Map 9.1 Spatial articulation of housing strategies



10. SOCIAL INFRASTRUCTURE

Tiruchirappalli Local Planning Area (LPA) exhibits a socially balanced development profile shaped by its historic urban core, well-established institutional base, and surrounding peri-urban and rural settlements. The region demonstrates strong human development outcomes supported by higher literacy levels and improved access to basic services. While urban areas continue to perform better across most indicators, peri-urban and rural areas show disparities influenced by infrastructure provision, service accessibility, and socio-economic conditions.

Human Development Index (2017):

Tiruchirappalli ranks 10th in Tamil Nadu with an HDI value of 0.774, indicating performance across health, education, and living standards. Urban areas such as Tiruchirappalli Corporation record higher HDI levels, while certain rural and peripheral blocks record comparatively lower values.

Multidimensional Poverty Index (2017):

The MPI stands at 0.011, with approximately 2.92% of the population identified as multi-dimensionally poor, reflecting improvements in access to basic services and living conditions, though variations persist across administrative units.

Gender Inequality Index (2017)

The GII is 0.082, significantly lower than the state (0.084) and national levels, highlights the need for targeted interventions to strengthen women's workforce participation and health outcomes.

Literacy:

The LPA records an average literacy rate of approximately 89.3%, with most settlements falling within the high-literacy category. A gender gap of around 9% continues to persist, particularly in rural and peripheral areas.

Institutional Growth:

Institutional development is largely concentrated within the urban core and established settlement areas. However, the current land in institutional use is below earlier master plan recommendations, which increases service demand in emerging peri-urban and growth areas.

10.1 Development Priorities

Tiruchirappalli has sufficient social infrastructure facilities concentrated in the urban

core and older settlements, with gradual expansion into surrounding areas. As the city grows in population and spatial extent, future demand will shift toward developing and peri-urban zones. Development priorities should focus on:

1. Upgrading existing institutions while providing new higher-order facilities in emerging areas, ensuring timely access to healthcare, education, sports, and community infrastructure.
2. Extension of facilities along growth corridors and integrating them with transport networks will support balanced and inclusive urban development across the planning area.

10.2 Education Infrastructure

Tiruchirappalli LPA, known for its long-standing educational prominence and central location within the state, continues to function as a major centre of learning in Tamil Nadu. The region supports a well-developed network of institutions ranging from pre-primary to higher education and institutes of regional and national importance such as NIT, IIM and Anna University catering to both urban and rural populations. Education remains a significant driver of socio-economic development and inclusive growth in the planning area, making its spatial integration vital for improving quality of life and promoting balanced regional development.

10.2.1 School Education

Tiruchirappalli LPA has a total of 781 schools distributed across corporation, municipalities, town panchayats, and village panchayats. Pre-Primary & Primary schools constitute the largest share (52%), followed by Higher Secondary schools (20%), Middle schools (17%), and High schools (11%). The distribution of schools in the Tiruchirappalli LPA is presented in Table 10.1.

Table 10.1 Category wise Distribution of Schools in Tiruchirappalli LPA

School Category	Corporation	Municipality	Town Panchayat	Village Panchayat	Grand Total
Higher Secondary School	95	8	8	44	155
High School	46	3	2	35	86
Middle School	72	3	5	50	130
Pre-Primary & Primary School	170	21	22	197	410
Grand Total	383	35	37	326	781

Source: School Education Department, Tiruchirappalli

Management & Funding: Government schools constitute the largest share (40.9%), followed by private institutions (33.4%), which are largely concentrated within the Corporation and Municipal areas. Fully aided schools account for 19.5%, while partially aided and Central Government schools together form about 6.2%. Government schools have a relatively higher presence in Town Panchayat and Village Panchayat areas.

Enrolment: Total student enrolment stands at 2,51,958, with a balanced gender composition (50.3% boys and 49.7% girls).

Student-Teacher Ratio: Student-Teacher Ratios remain within prescribed norms across all school categories, ranging from 20:1 at high school level to 27:1 at higher secondary level, indicating adequate teacher availability.

Inclusivity: With one special school and a majority of Children with Special Needs (488 out of 576) enrolled in mainstream institutions, the LPA reflects the adoption of inclusive education practices.

Spatial Coverage: Primary and pre-primary schools are largely concentrated within the Corporation area and major settlement corridors, while high schools and higher secondary schools provide wider coverage across the LPA, indicating the need to improve primary-level access in peripheral areas. However, interior rural pockets

in Andanallur, Manikandam, and peripheral Thiruverumbur areas show minor accessibility gaps.

10.2.2 Higher education

Tiruchirappalli LPA is a prominent centre for higher education in central Tamil Nadu, hosting institutions comprising universities, arts and science colleges, engineering colleges, medical institutes, and other specialised institutions. The presence of nationally significant institutions such as National Institute of Technology Tiruchirappalli, Indian Institute of Management Tiruchirappalli, Indian Institute of Information Technology Tiruchirappalli establishes the city as a major regional education hub attracting students from across India. The distribution of institutions in the LPA is shown in Table below.

Table 10.2 Higher Education Facilities in Tiruchirappalli LPA

Category	Number of Institutions
Engineering	11
Arts & Science	9
Polytechnic	7
Medical College	1
Para Medical and Nursing	5
University	7

10.2.3 Projected Requirements 2045 – Education Infrastructure

- Population projections for 2025, 2035, and 2045 indicate a steady increase in demand for school education infrastructure across Tiruchirappalli LPA. By 2045, the LPA is projected to require approximately 83 additional primary schools and 136 senior secondary schools, with infrastructure gaps largely identified within Tiruchirappalli Corporation, Andanallur Block, and emerging urbanising areas such as Thuvakudi Municipality and Manachanallur Town Panchayat.
- The existing higher education infrastructure is adequate to meet the requirements of 2025 across major disciplines including arts, engineering, and technical education. By 2045, additional demand is expected particularly in medical education, indicating the need for phased strengthening of government institutions. The presence of established private institutions across these streams is expected to supplement future educational demand within the LPA.

10.3 Healthcare Infrastructure

Tiruchirappalli LPA has a structured healthcare system providing primary, secondary, and tertiary care. Rural areas are supported by an extensive network of Health Sub Centres and Community Health Centres ensuring first-contact and preventive care. Spatially, facilities align along major transport corridors, ensuring broad coverage, with limited gaps in peripheral villages. Overall, the LPA demonstrates strong urban coverage and adequate rural reach, with scope for improving last-mile accessibility in select pockets.

10.3.1 Projected Requirements 2045 - Healthcare Infrastructure

The assessment shows that Tiruchirappalli LPA has adequate and even surplus tertiary hospitals, but a significant shortfall in primary and sub-primary facilities such as HSCs, PHCs, and UPHCs. This results in rural and peri-urban populations depending on urban hospitals for basic healthcare. By 2045, 43 PHCs and UPHCs will be required to meet IPHS norms.

Table 10.3 Category wise Distribution of Healthcare Facilities in Tiruchirappalli LPA

Category	Corporation	Municipality	Town Panchayat	Village Panchayat	Total
UPHC/UHC	18	0	0	3	21
PHC/CHC	0	0	1	10	11
Taluk/Sub District	1	2	1	0	4
GH	1	0	0	0	1
ESI/Medical College Hospital	1	0	0	1	2
HSC	9	4	5	59	77
Total	30	6	7	73	116

Source: District Health Office, Tiruchirappalli

10.4 Recreational Infrastructure

Tiruchirappalli LPA hosts several district level recreational destinations include the Tropical Butterfly Conservatory at Srirangam, Anna Science Park at Anna Nagar, Mukkombu (Upper Anaicut) Recreation Area, and the Trichy Birds Park at Kambarasampettai. These spaces function as destination parks supporting leisure, tourism, and environmental education.

The zone-wise assessment of parks and open spaces within Tiruchirappalli Corporation reveals a varied distribution. Zone 4 contains the largest share of green spaces, followed by Zone 3 and Zone 5. While, Zones 1 and 2 have comparatively limited provision of parks and open spaces. This highlights the need for focused planning measures to improve green space availability in the under-served zones, particularly Zone 1 and Zone 2.

Sports Infrastructure

Tiruchirappalli has active sports network anchored by the Anna Stadium, the city's primary venue for athletics, football, and large events. Indoor training and competitions are supported at the Bishop Heber College Indoor Stadium and National College Indoor Stadium. Open grounds across schools and colleges double as community playfields, while emerging interest in traditional disciplines like Mallakhamb and regular district-level tournaments keep grassroots sports active. These facilities serve the city's sporting life, serving both training and public participation.

10.4.1 Projected Requirements 2045 – Open Space and Recreational Infrastructure:

The existing recreational area of approximately 0.506 sq.km is significantly below the standards prescribed under URDPFI and NBC guidelines. By 2045, the additional open space requirement for Tiruchirappalli LPA is projected to range from about 7.40 sq.km (NBC norms) to 25.85 sq.km (URDPFI norms). Addressing this deficit will require development of new parks, playgrounds, riverfront recreational corridors along the Cauvery and Kollidam, and statutory reservation of 10% of land in new residential developments as Open Space Reservation (OSR), along with utilisation of suitable government lands for large public recreational spaces.

10.5 Safety and Emergency Services

The Tiruchirappalli LPA is served by 28 police stations, 8 fire stations, and 1 central Prison and 1 Special Prison for women, supporting the region's public safety and emergency response system. The central prison and Special prison for women is located within the Corporation limits. The distribution in other urban and rural areas is given in Table 10.4.

Police Services: Crime data analysis highlights public areas like Railway Junction, Bus Stand and Market surroundings as areas with a higher concentration of offences, particularly related to

Table 10.4 Distribution of Safety and Emergency Facilities in Tiruchirappalli LPA

Safety & Emergency Facility	Corporation	Municipality	Town Panchayat	Village Panchayat	Total
Police Station	14	3	3	8	28
Fire Station	3	2	1	2	8

Source: Commissionerate of Police, Tiruchirappalli Corporation, District Police Office, Tiruchirappalli District, Tamil Nadu Fire and Rescue Services

property theft, petty crime, and cyber fraud. Policing and safety infrastructure need to be strengthened in these zones.

Fire Services: The 8 fire stations in the LPA provide effective emergency response, with the urban core largely falling within the 5 - 8minute response zone and municipal and peri-urban areas within 10 - 15 minutes. Peripheral rural areas fall within the 15-minute range, indicating generally adequate service coverage in line with NDMA norms, with only marginal long-term strengthening required toward the western blocks.

Projected Requirement by 2045 – Safety and Emergency Services

Police Stations: By 2045, the Tiruchirappalli LPA will require 7 additional police stations to meet the URDPFI standard of one station per 90,000 population, with priority areas including Andanallur Block, Manikandam Block, Manachanallur Block, and selected areas where present coverage is comparatively low.

Fire Stations: Although URDPFI Guidelines indicate a requirement for additional fire stations, spatial service coverage analysis shows that most areas of the LPA are adequately covered within NDMA response time standards. Only the western peripheral fringes indicate potential long-term gaps for strategic strengthening. The total land requirement for these additional facilities is approximately 0.01 sq.km.

10.6 Social Welfare and Civic Utilities

Tiruchirappalli LPA is served by a range of social welfare and civic facilities including libraries, Anganwadi centres, community halls, old age homes, orphanages, regulated markets, and Uzhavar Sandhais. Projection for 2045 indicates additional requirements for key amenities to meet population growth and service standards, while some facilities are already adequate to meet future demand.

Table 10.5 Social Welfare and Civic Utilities in Tiruchirappalli LPA

Social Welfare & Civic Amenities	Existing Units	Additional Requirements (2045)
Library	104	116
Anganwadi	567	221
Orphanages	6	2
Old age Homes	9	-
Regulated Markets	26	-
Uzahavar Sandhai	7	-

Source: Block Development Office, Urban Local Bodies, Open Source

10.7 Proposals and Recommendations

10.7.1 Government Proposals

Table 10.6 Government Proposals in Tiruchirappalli LPA

Category	Proposal	Details
Higher Education	Government Arts & Science College	Govt Arts College at Panjapur near the Integrated Bus Terminus
Social Welfare	Senior Citizens Care Centre (Anbusolai)	Senior citizen day-care centres under the Tamil Nadu 2025–26 Social Welfare scheme, offering basic care, and companionship that promotes holistic elder support could be additionally proposed near Srirangam area.
	Integrated Whole Vegetable Market & Multi-Utility Facilities, Panjapur	The proposed integrated transport and commercial hub in Tiruchirappalli will include a new wholesale market, multi-utility facility centre, and modern bus terminus with retail, logistics.
Education & Knowledge Infrastructure	Central Library	The Kamarajar Grand Library and Intellectual Centre in Trichy modern 7-story facility (1.97 lakh sq. ft.) currently under construction near Mannarpuram, This project features a 1,000-seat auditorium, digital library, AI research Centre, and extensive educational resources.
Nutrition & Social Infrastructure	Community Kitchen	Community kitchen, powered by a non-conventional energy source, is proposed for Bharathi Nagar in the Ariyamangalam zone.
Recreation	SDAT Proposals	Olympic Academy is being established in Elanthappatti Panchayat, Thiruverumbur block, on a 47.87-acre site at a cost of Rs.150 crore. The establishment of the Para Sports Arena will be established at a cost of Rs.1 crore.
	Cauvery Riverfront Development	The riverfront development along the Cauvery River will enhance flood resilience, ecology, and public spaces while improving tourism and local economic activity around Srirangam and Tiruchirappalli Rockfort.

10.7.2 Tamil Nadu Budget Proposals

Table 10.7 TN Budget Proposals in Tiruchirappalli LPA

Category	Proposal	Details
Education & Research Infrastructure	Knowledge & Research Park	Creation of a knowledge hub to promote research, academic collaboration, and innovation along economic clusters.
Innovation Ecosystem	Innovation & Startup Centre	Dedicated centre to nurture startups, entrepreneurship, and incubation activities in collaboration with industries.
Skill Development Infrastructure	Industrial Training Institutes & AVGC-XR Centre of Excellence	Strengthening skill training through ITIs and establishing a Centre of Excellence for AVGC-XR sectors.

10.7.3 Additional Social Facilities Recommended in Tiruchirappalli LPA

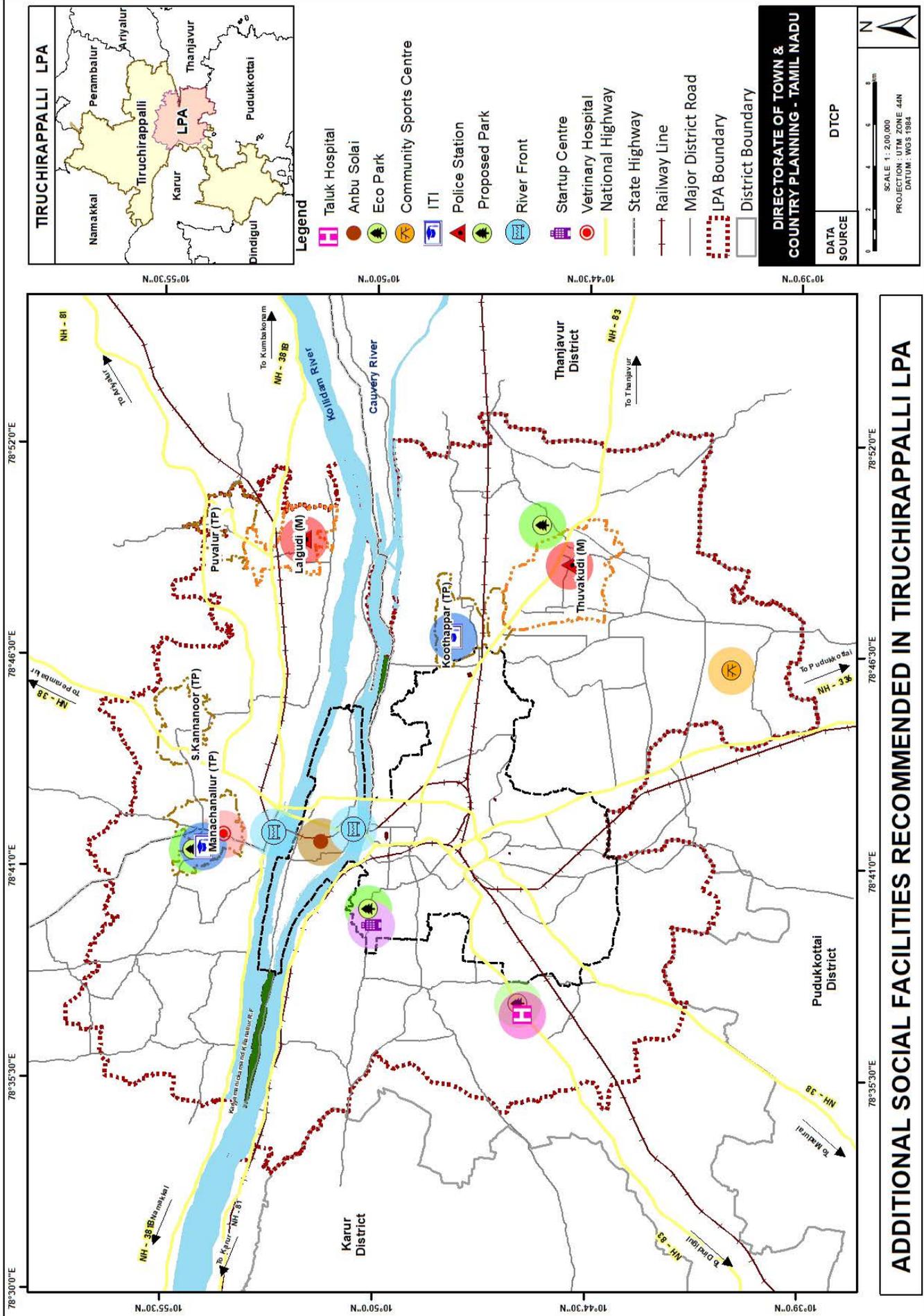
Table 10.8 Additional Social Facilities Recommended in Tiruchirappalli LPA

Category	Recommendation	Details
Health Care Facilities	UPHCs & PHCs	For planning horizon, additional primary healthcare facilities of 8 UPHCs in corporation 13 PHC in rest of LPA
	Taluk Hospitals & Trauma Care centre	One taluk-level hospital at Kallikudi (North), Srirangam Taluk & integrated trauma care in proposed hospital.
	Veterinary Hospitals	A modern veterinary hospital at Meelaseedevimangalam, Manachanallur Taluk to improve animal healthcare services and disease management.
Safety & Emergency Services	Fire Station	A new Fire Station at Mekudi Inam, Srirangam Taluk to serve the western rural part of LPA.
Recreational & Green Spaces	Eco park	An Eco Park at Kallikudi Village in Srirangam Taluk will provide green recreational and ecological space.
	Enhancement of Existing Parks	Upgradation with walking tracks, play areas, seating, lighting, landscaping, and universal access to strengthen daily-use open spaces in the corporation.
	Community Sports Park	Establishment of a sports complex incorporating facilities for conventional sports of 3 hectares at Sooriyur with a dedicated Mallakhamb training academy to promote traditional sports and youth training.

10.7.4 Strategic Recommendations

Table 10.9 Strategic Recommendation in Tiruchirappalli LPA

Focus Area	Recommendations	Details
Skill Development	Cluster Specific Skill Training Institutes	Cluster-specific skilling and research hubs in Tiruchirappalli, including AVGC-XR, healthcare, and industrial skill centres will strengthen workforce capacity, innovation, and industry linkages.
Research & Innovation	Industry-Academia Partnership Cells	Industry-academia partnership cells and new IT, research, and innovation hubs in Tiruchirappalli will strengthen innovation, skill alignment, and job creation.
Urban Resilience	Safe city Framework	The urban safety framework in Tiruchirappalli focuses on strengthening surveillance systems, policing infrastructure, and gender-sensitive safety measures across vulnerable areas.



ADDITIONAL SOCIAL FACILITIES RECOMMENDED IN TIRUCHIRAPPALLI LPA

Map 10.1 Additional Social Facilities Recommended in Tiruchirappalli LPA



11. WATER INFRASTRUCTURE

Tiruchirappalli LPA has a long-standing historical and functional association with its water systems, shaped primarily by the river Cauvery and its distributaries, which have traditionally supported water supply, irrigation, and natural drainage. These water networks constitute the city's critical blue-green infrastructure, underpinning urban growth while also holding socio-cultural significance for local communities. However, rapid urbanisation, rising population pressure, and expanding economic activities have placed considerable stress on existing water resources and infrastructure.

11.1 Existing Water Infrastructure

11.1.1 Water Supply

Tiruchirappalli's water supply is primarily met through the Rivers Cauvery and Kollidam and sources within LPA, supporting both Tiruchirappalli Corporation and peripheral bodies through a network of schemes:

- **Cauvery Supply Schemes [29 Nos. with 13 Headworks]:** Main supply source for

Tiruchirappalli Corporation, Thuvakudi Municipality, Andanallur and Manikandam Blocks.

- **Kollidam Supply Schemes [24 Nos. with 7 Headworks]:** Serves Corporation, Town Panchayats, Lalgudi, Manachanallur and Thiruverumbur Blocks.
- **Majority of the supply managed by Administrative Units with Local Sources:** Lalgudi Municipality and Manachanallur Town Panchayat.

Table 11.1 Summary of Water Supply Infrastructure - Tiruchirappalli LPA

Parameters	Corporation	Municipalities	Town Panchayats	Village Panchayats
Population (2011 Census)	9,15,569	62,627	62,852	3,91,356
Population (2025)	14,39,978	1,27,355	1,08,383	9,59,894
Number of Administrative Units	1	2	4	91
Total area (Sq.km)	167.23	24.4	21.53	591.37
Per day supply (LPCD)	135	85-87	80-96	55
Frequency of supply	2 Hours/Day	2-3 Hours/Day	2 Hours/Day	3-8 Hours/Day
Current water supply (in MLD)	165.18	5.53	5.3296	25.337
Connections				
Households (Nos.)	2,87,998	19,960	20,491	1,75,456
Household Connections (Nos.)	2,65,854	4,661	11,114	1,74,642
Service Coverage (%)	92.31	23.35	54.24	99.54
Storage				
No. of OHTs	120	10	19	900
Total Storage Capacity of OHTs (lakh litre)	702.8	43.8	45.1	345.76
Tariff				
System	Metered	Metered	Slab Rate	Slab Rate
Charges per month [Rs.]	180-660	50-150	60-200	60

Source: Tiruchirappalli Urban Local Bodies and Village Panchayats

11.1.2 Sewerage

Underground sewer network is currently limited to the Corporation, Koothappar and S Kannanur Town Panchayats. Two Sewage Treatment Plants (STPs) using Waste Stabilization Pond [WSP] & Sequential Batch Reactor (SBR) technology serve the city: Panjappur: 58.64 MLD, and Kilakalkandarkottai: 37 MLD. Additionally, a FSTP at Navalpattu with a capacity of 10KLD serves Thiruverumbur Block.

Table 11.2 Summary of Sewerage system in TCC

Parameter	Value
Total Households (2025)	2,87,998
Total House Connections	1,62,291
Total Septic Tank Connections	73,592
No. of Functional STPs	2
Total STP Capacity (MLD)	95.64
Sewerage Generation (MLD)	112.8

Source: Tiruchirappalli Corporation

11.1.3 Storm Water Management

The existing storm water drainage infrastructure covers about 54.84% of the total LPA road network predominantly in urban areas, including the Corporation, Municipalities, and Town Panchayats.

11.1.4 Radar Mapping of Service Level Benchmarks

A radar chart is utilized to visually rank Tiruchirappalli LPA's performance across water supply, sewerage (UGSS), and stormwater management on a scale of 1–10 against established benchmarks. For water and sewerage, the analysis evaluates critical factors like service coverage, supply per capita, non-revenue water, and resource recovery (reuse/recycle), alongside social indicators like complaint redressal

and open defecation status. Stormwater management is similarly assessed by examining drainage coverage, infrastructure typology, and the frequency of waterlogging incidents. It is observed that, Tiruchirappalli Corporation needs immediate attention in achieving most service level benchmarks when it comes to Storm Water Management whereas the Municipalities and Town panchayats need attention when it comes to achieving basic service benchmarks.

In the Water Supply sector [Fig 11.1], the Corporation stands out as the most efficient administrative unit, achieving high scores in connection coverage, collection efficiency, and complaint redressal. While Municipalities maintain relatively good collection mechanisms, they show a noticeable drop in the connection rates, continuity of supply and per capita availability compared to the Corporation. Village Panchayats, despite having high connection coverage and consistent per capita supply, reflect sub-par collection mechanisms and high Non-Revenue Water.

The Sewerage sector [Fig 11.2] reveals a stark contrast between social sanitation achievements and physical infrastructure. All administrative units from the Corporation to Village Panchayats show exemplary performance in maintaining Open Defecation Free (ODF) status, with scores nearing perfection. However, actual sewer network coverage and the reuse/recycling of treated water remain critically low across all categories. The Corporation leads slightly in network coverage, but overall, cost recovery for wastewater management is a shared weakness that limits the sustainability of these systems across the LPA.

Performance in Storm Water Management [Fig 11.3] is the weakest of the three sectors, characterized by low scores across every administrative level. The Corporation possesses the most developed drainage typology and coverage, yet it still struggles with moderate

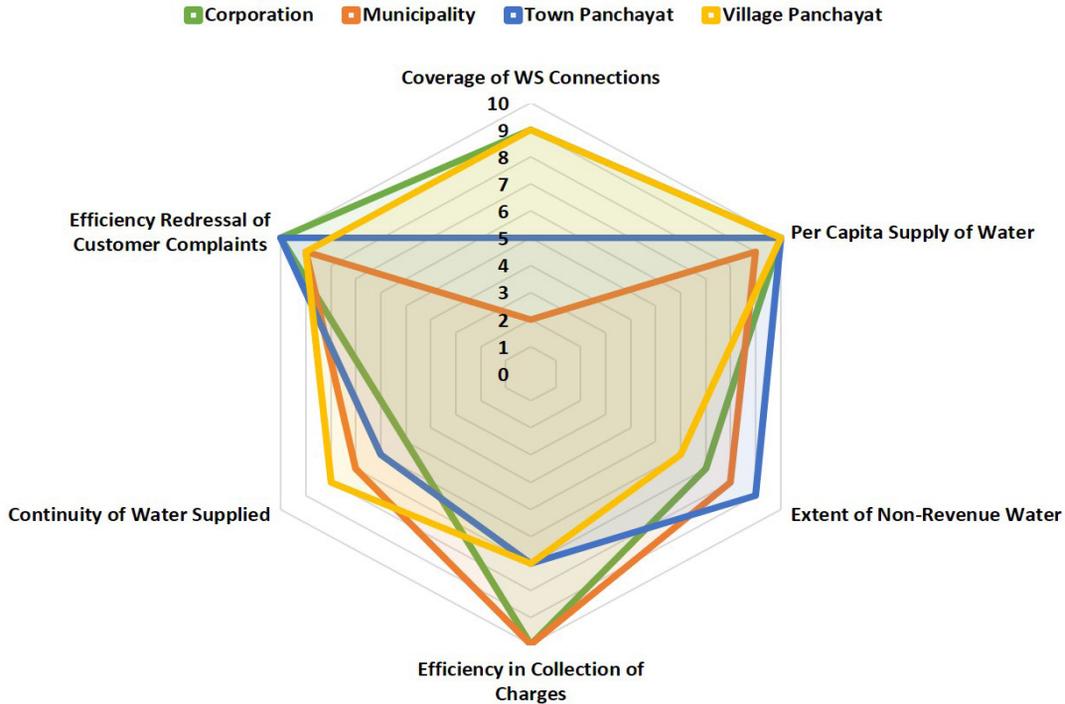


Figure 11.1: Radar Mapping of SLBs for Water Supply - Tiruchirappalli LPA

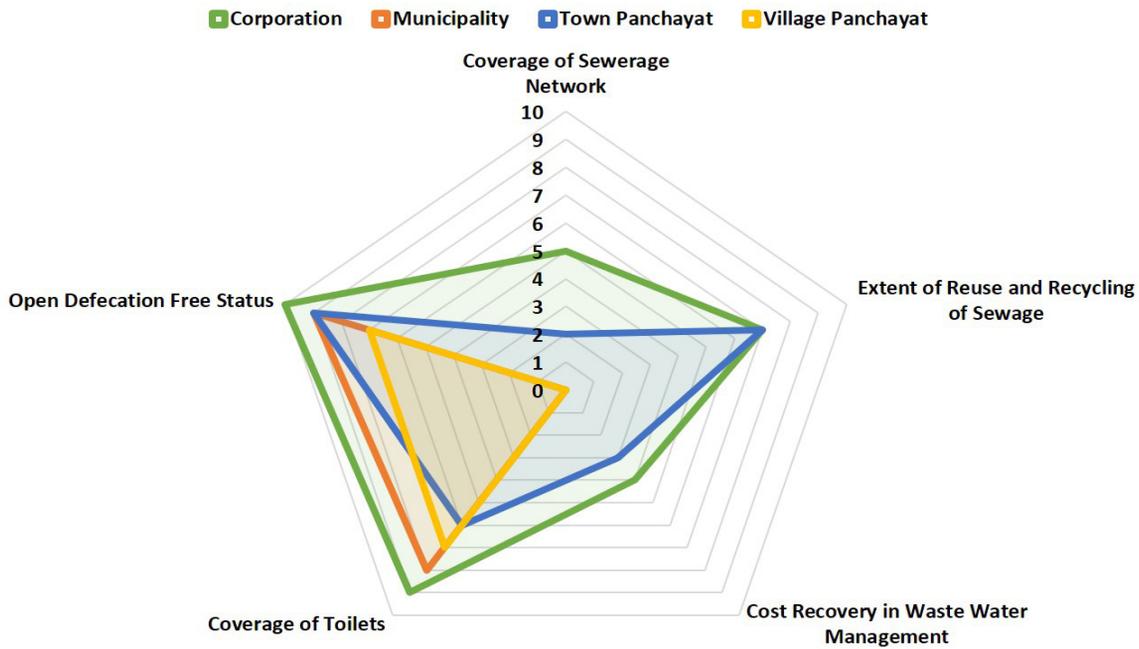


Figure 11.2 Radar Mapping of SLBs for Sewerage - Tiruchirappalli LPA

performance scores due to higher incidences of water logging. In Town and Village Panchayats, the lack of formal drainage infrastructure is most evident, directly correlating with a higher vulnerability to waterlogging incidents. Across the board, this sector indicates a pressing need for integrated drainage planning to improve climate resilience in both urban and rural pockets.

Zone Wise Radar Mapping – Tiruchirappalli Corporation

A similar exercise has been carried out to understand the level of service among the five zones in the corporation, revealing significant disparity in water infrastructure development [Fig 11.4] across the five zones, where Per

Capita Supply of Water stands as the only universally high-performing metric. Zone 5 leads in performance with superior transmission and storage capabilities, whereas Zones 1 and 2 consistently underperform, indicating a critical need for modernization.

The sanitation radar map [Fig 11.5] indicates that while all zones have successfully achieved a perfect score in Open Defecation Free Status, Zones 1 and 2 are the weak performers, with lower house connections and toilet access and network coverage pointing to a potential reliance on decentralized systems like septic tanks rather than a centralized grid.

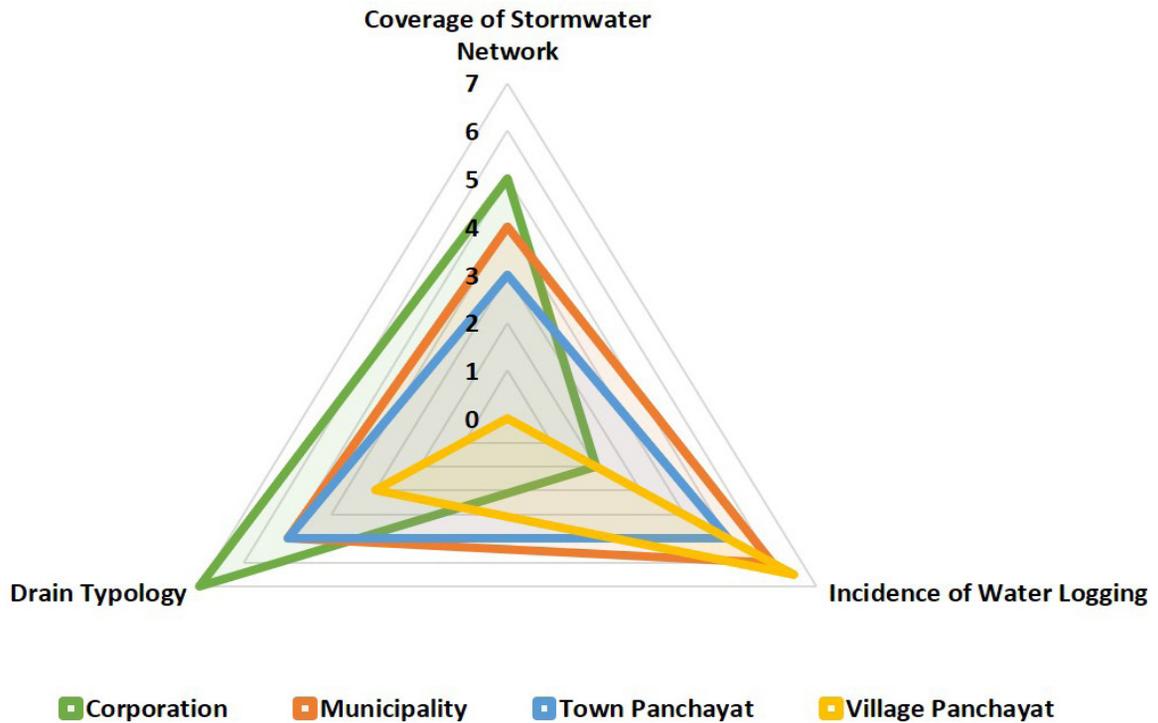


Figure 11.3 Radar Mapping of SLBs for Storm Water Management - Tiruchirappalli LPA

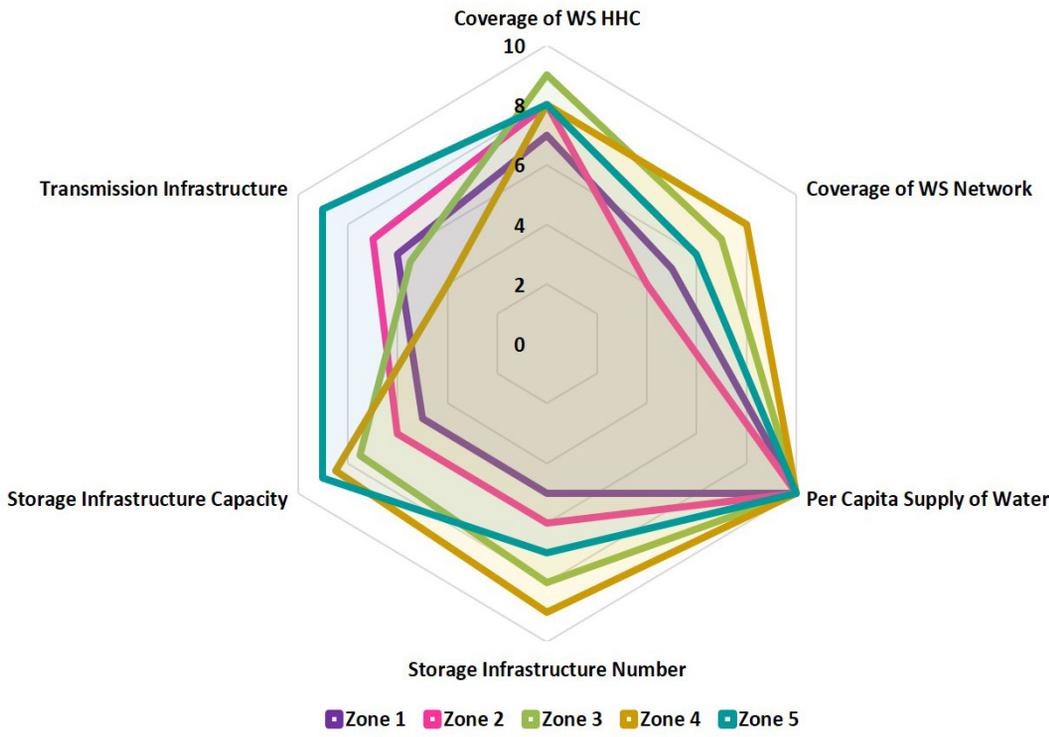


Figure 11.4 Zone Wise Radar Mapping of SLBs for Water Supply - TCC

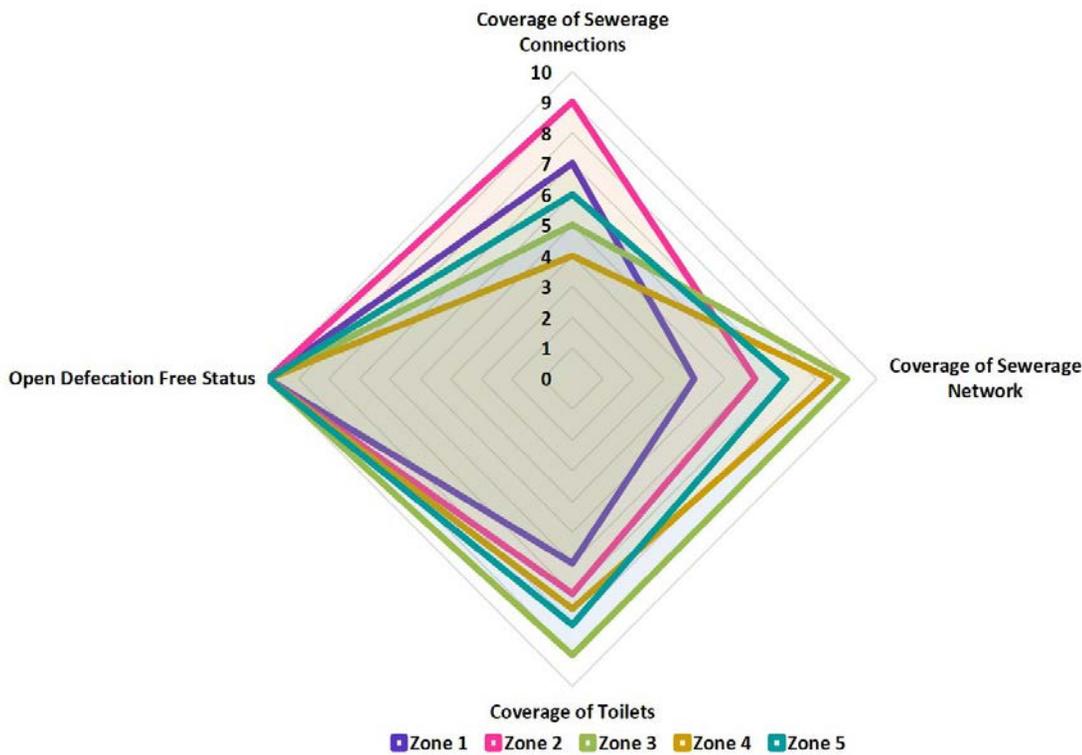


Figure 11.5 Zone Wise Radar Mapping of SLBs for Sewerage - TCC

In stormwater management [Fig 11.6], Zone 5 leads in network coverage, while Zone 2 demonstrates the most effective mitigation of flood vulnerability and water logging incidence. Conversely, Zone 1 is consistently underperforming with lowest scores across all stormwater indicators, signifying infrastructure

and resilience gaps and zone 4 reflects high susceptibility to flood.

These findings suggest that Zones 1 [Srirangam] and 2 [Ariyamangalam] require immediate, focused and comprehensive interventions to bridge service delivery gaps.

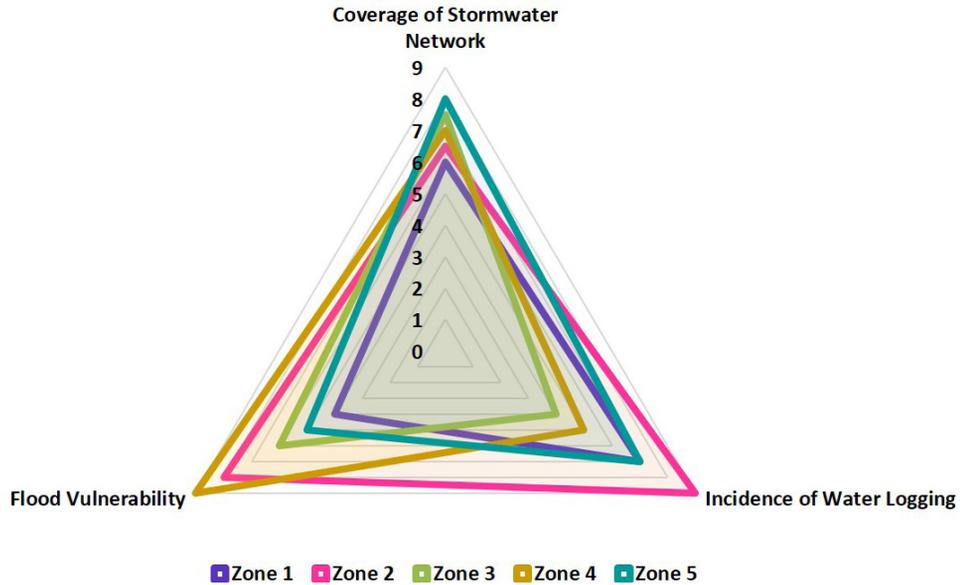


Figure 11.6 Zone Wise Radar Mapping of SLBs for Storm Water Management – TCC

11.2 SWOT Analysis



Figure 11.7 SWOT Analysis - Water Infrastructure

11.3 Demand Assessment and Projections

To forecast future water and wastewater needs within the Tiruchirappalli Local Planning Area (LPA), the Master Plan relies on nationally accepted norms and state-specific planning guidelines. The URDPFI Guidelines (2015) and CPHEEO standards serve as the basis for Per capita infrastructure requirements including the floating population, while Jal Jeevan Mission norms guide the projections for rural settlements.

11.3.1 Service Level Norms and Planning Assumptions

Water demand is projected based on service typologies across administrative units, with differentiated benchmarks as follows:

- **Tiruchirappalli Corporation (MC):** 150 LPCD [due to urban density, predominant flush toilets, and the projected metropolitan status]
- **Municipalities:** 90 LPCD
- **Town Panchayats:** 70 LPCD
- **Village Panchayats:** 55 LPCD [aligned with Jal Jeevan Mission minimum norms]

In addition to base domestic consumption, the following planning allowances are included:

- 25 LPCD for public services and floating population
- 10% of domestic demand allocated for potable water use in industries
- 11% transmission losses, as per TWAD recommendations
- 1% of domestic demand reserved for firefighting and emergencies
- 80% of total water supply considered as sewage generated

11.3.2 Growth Scenarios

To assess future demand under varied development trajectories, two growth scenarios have been developed:

- **Business as Usual Scenario [BAU]:** LPCD - 150 (TCC) -90 (Municipalities) -85.75 (Town Panchayats) -55 (Village Panchayats)
- **Integrated Water Management Scenario [IWM]:** (Preferred) Mapped considering the usage of both potable and treated water [with the prescribed quality standards] to manage the standard water requirements of the LPA. LPCD - 150 (TCC) - 120 (Municipalities) -120 (Town Panchayat) -120 (Village Panchayats)

11.3.3 Projected Demand

Considering the projected demand from both scenarios, the additional demand for 2045 is as follows:

- **Water Supply Requirement:** Treatment infrastructure for an additional 405 MLD will be required to meet the demand across all administrative units.
- **Sewage Generation:** Approximately 289 MLD of wastewater will be generated and will require treatment and disposal infrastructure.

These projections have been forecasted taking into account for population growth, floating population, industrial usage, public consumption, losses, and emergency provisions.

11.4 Recommended Infrastructure/ Strategic Interventions

Based on the identified service gaps and future demand projections, the Master Plan – 2045 outlines a series of targeted infrastructure and strategic interventions which ensures that the LPA remains water-secure and sanitation-resilient.

11.4.1 Water Supply Augmentation

To address the estimated additional water demand by 2045, a three-pronged strategy has been formulated involving new treatment plants, storage infrastructure, and improved distribution [Map 11.1].

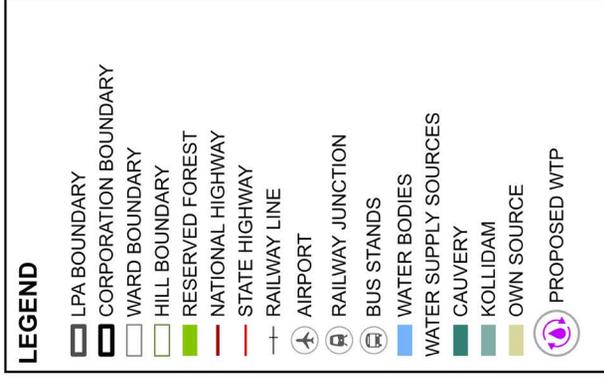
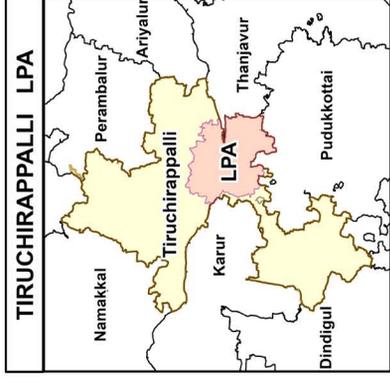
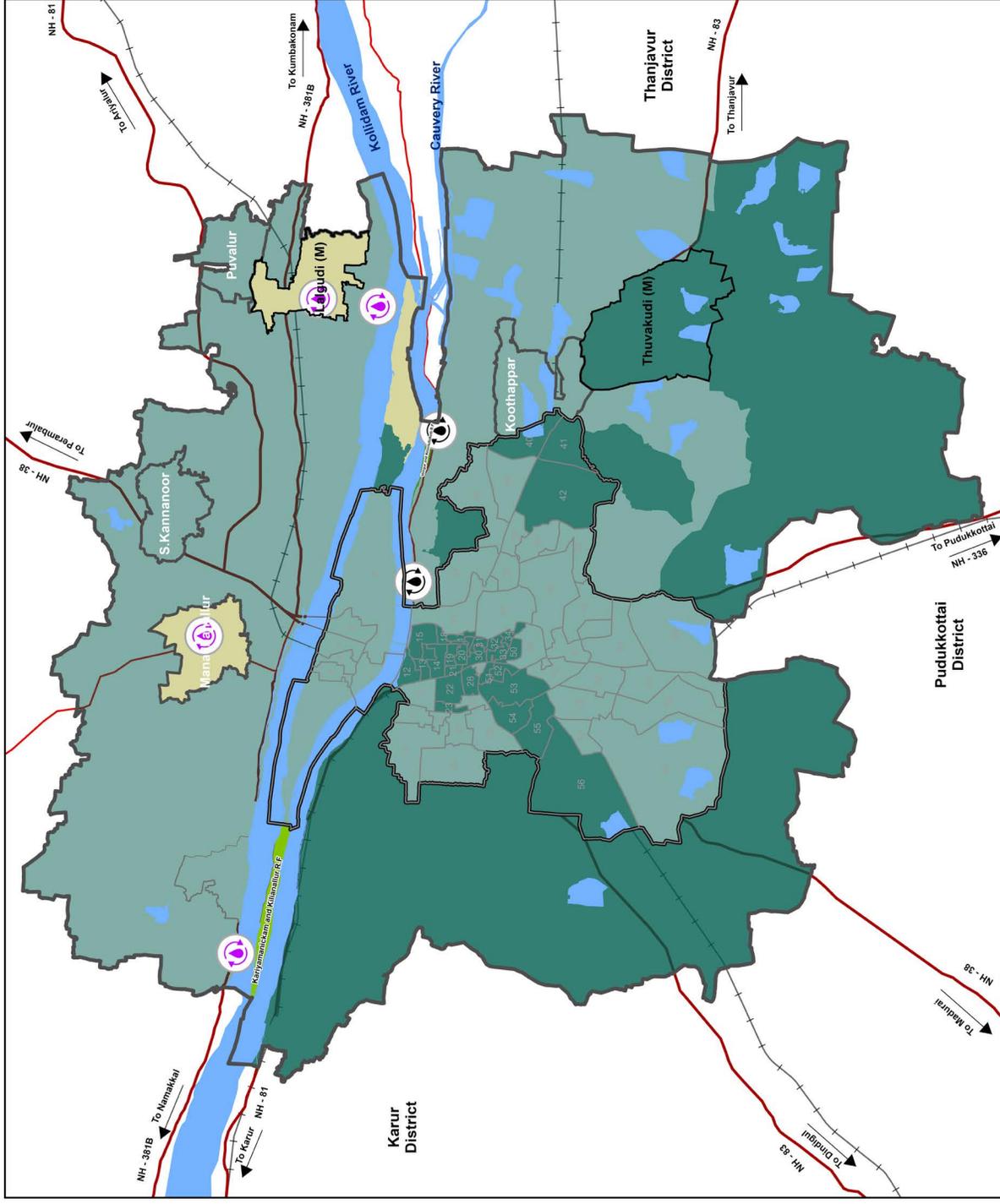
- Water Treatment Plants (WTPs) are recommended in four strategic locations close to potential water sources with a cumulative treatment capacity of 277.57 MLD.
- Overhead Tank Infrastructure (OHTs) are advised to be strengthened across all administrative categories. A total of 93 new OHTs, with a cumulative capacity of 82 MLD, are recommended to bridge current storage deficits and provide buffer during supply variations.

11.4.2 Sewage and Wastewater Treatment

To manage the projected 289 MLD of sewage by 2045, the plan envisions both centralized and decentralized treatment solutions. This combination of central and decentralized solutions offers flexibility, scalability, and cost-effectiveness across diverse urban typologies within the LPA [Map 11.2].

- It is recommended to augment the treatment capacity of Kilakalkandarkottai STP to 60 MLD.
- Decentralized Wastewater Treatment Systems (DEWATS) are recommended for smaller settlements and peri-urban areas that allow localized treatment at source, reducing conveyance, Operational & Maintenance costs and minimizing environmental impacts.



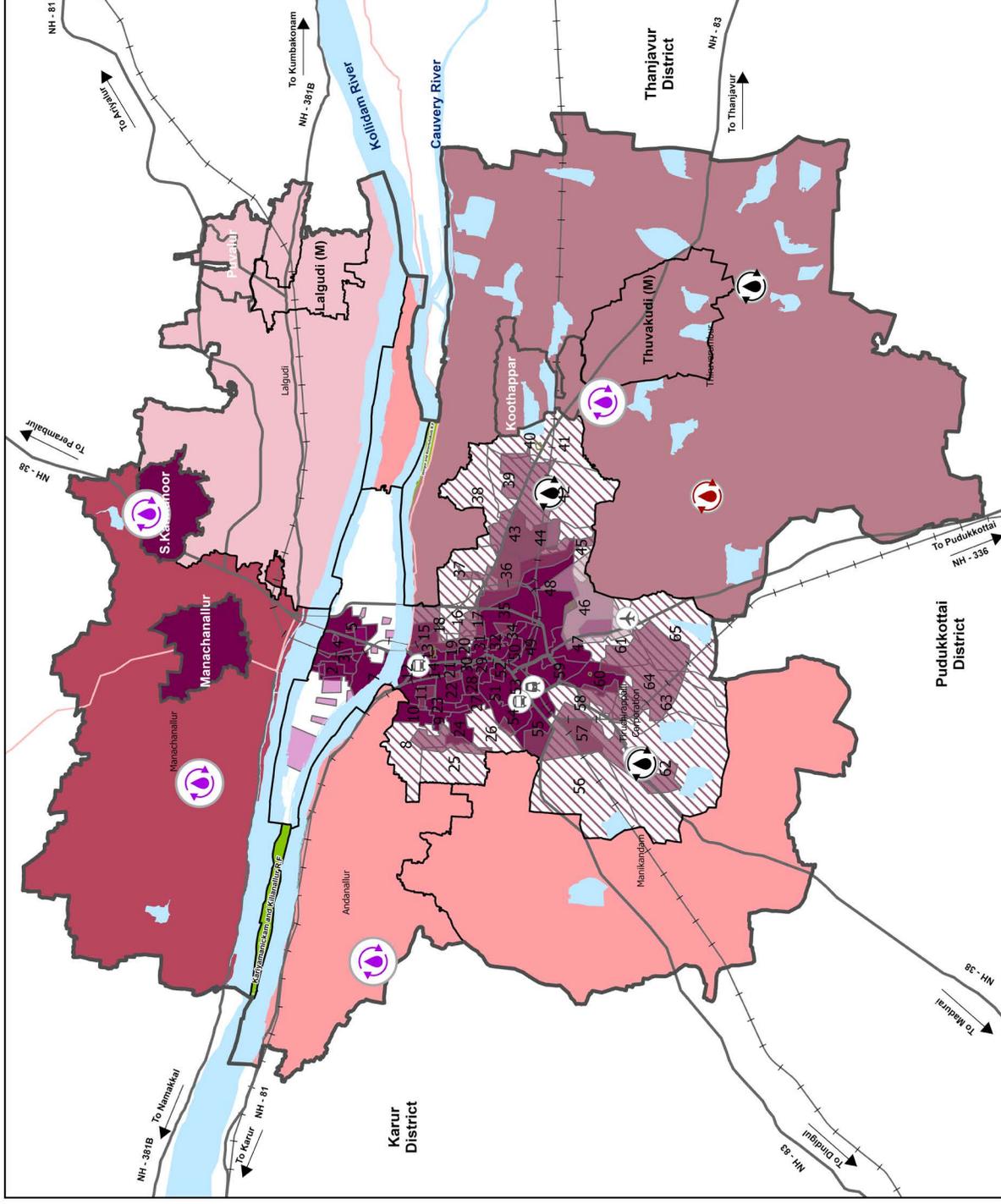


DIRECTORATE OF TOWN & COUNTRY PLANNING - TAMIL NADU

DATA SOURCE	DTCP ANALYSIS
SCALE : 1 : 2,00,000 PROJECTION : UTM, ZONE 44N DATUM : WGS 1984	

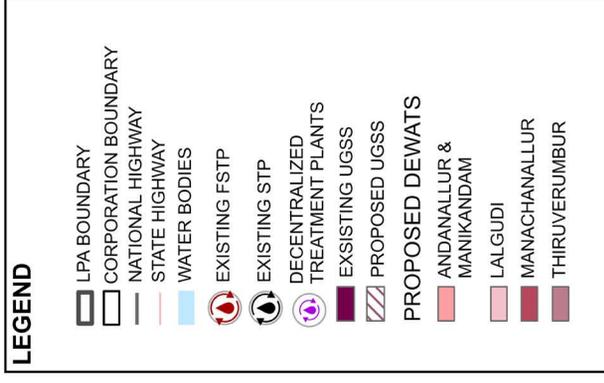
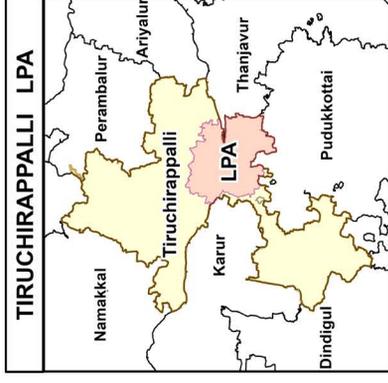
PROPOSED TREATMENT PLANTS AND COVERAGE - TIRUCHIRAPPALLI LPA

Map 11.1.1 Recommended Water Supply Infrastructure – Tiruchirappalli LPA



PROPOSED SEWAGE TREATMENT FACILITIES & COVERAGE - TIRUCHIRAPPALLI LPA

Map 11.2 Recommended Sewer Infrastructure – Tiruchirappalli LPA



DIRECTORATE OF TOWN & COUNTRY PLANNING - TAMIL NADU

DATA SOURCE	DTCP ANALYSIS
SCALE : 1 : 2,00,000 PROJECTION : UTM, ZONE 44N DATUM : WGS 1984	

11.4.3 Stormwater Management and Drainage

Infrastructure Gap Closure:

- Corporation: 730.51 km additional storm water drains with SuDS
- Municipalities: 74.62 km additional drainage infrastructure
- Town Panchayats: 102.85 km new drainage network

Sustainable Urban Drainage Systems (SUDS)

Implementation:

- Rain Gardens: Green landscapes that will temporarily store water predominantly in water - logged areas
- Riparian Buffers: Ecological protection zones along Uiyakondan & Cauvery and Koraiyaaru rivers

11.4.4 Strategic Recommendations

The Master Plan aims to prioritize comprehensive strategies to enhance water management through the following initiatives,

- 100% supply connections for equitable access.
- Reduction of Non-Revenue Water (NRW) through deployment of Supervisory Control and Data Acquisition (SCADA) system with the existing Integrated Control and Command Centre [ICCC].
- Establishment of a unified Water Centre will centralize water management efforts by shifting towards a holistic approach that integrates both increasing water supply and managing demand more effectively, thereby promoting a circular economy within the water sector. This centre shall,

Table 11.3 Summary of Recommendations for Additional Infrastructure - Tiruchirappalli LPA

Recommendations for Additional Infrastructure					
S.No	Administrative Units	OHTs	WTPs	STPs	SWD
1	Tiruchirappalli Corporation	12	2+2*	2 [Augmentation - 1]	730.51 Kms Integrated with Sustainable Urban Drainage Systems [SUDS] [Phased implementation]
2	Lalgudi Municipality	6	1	1*	74.62 Kms
3	Thuvakudi Municipality	5	1*	1	
4	Puvalur TP	-	-	1	102.85 Kms
5	Manachannallur TP	6	1	1	
6	S Kannanoor TP	3	-	-	
7	Koothappar TP	-	-	-	
8	Village Panchayats	62	2*	4 [DEWATS] + 1[FSTP]*	Desilting and conservation of drain channels

* Coverage beyond Administrative Units

TIRUCHIRAPPALLI MASTER PLAN 2045

- Develop comprehensive Treated Water Reuse Policies
- Mandate Treated Water use for non-potable purposes in industries, institutions, irrigation, GW recharge and new constructions
- Create a digital marketplace for treated water
- **Nadanthai Vazhi Cauvery & Kudimaramathu:** Community participation initiatives to restore water bodies, and to create a digital water atlas to manage the LPA's water resources more sustainably and dynamically.
- **Adaptive Reuse of Mined Lands** – To enhance water security and infrastructure



resilience within the Local Planning Area through transformation of mined lands into productive water capture facilities, post detailed assessment, leveraging existing topographical modifications to create sustainable water storage solutions.

- **District Cooling System** – Incorporating DCS in phased stages with focus on effective use of recycled water for IT and industrial clusters and educational institutions with later expansion to commerce and other activities.





12. SOLID WASTE MANAGEMENT

Solid waste management in Tiruchirappalli LPA shows a dual structure: urban areas have organised collection and advanced treatment facilities, while rural areas rely on basic collection and composting. Increasing solid waste generation and limited rural infrastructure highlight the need for decentralised, sustainable, and inclusive SWM strategies across the LPA.

12.1 Existing Scenario of Solid Waste Management

Total solid waste generated in the Tiruchirappalli LPA currently estimated as 525.30 MT/day. Tiruchirappalli District's per-capita (0.2 to 0.6 kg/day) waste generation is significantly lower than that of Chennai's (0.70 kg/day) and the Tamil Nadu (0.72 kg/day) average.

- Tiruchirappalli Corporation generates about 470 MT/day (Per-Capita 438 grams/day)
- Municipalities generate a combined 20.87 MT/day (Per-Capita 256 grams/day).
- Town Panchayat generate a combined 20.1 MT/day (Per-Capita 271 grams/day)
- Village Panchayat generate a combined 14.33 MT/day (Per-Capita 27 grams/day)

The higher waste generation in the Corporation area is driven by mixed-use activities, including commercial zones, tourist spots, and high-density residential neighbourhoods. In contrast, the rest of the LPA is predominantly residential, with a notable presence of institutional and industrial areas.

12.1.1 Solid Waste Generation in Tiruchirappalli Corporation

Tiruchirappalli City Corporation spans an area of 167.23 sq. km and has a population of 10,72,793 as of 2025. The Corporation generates approximately 470 tonnes of solid waste per day with per capita waste generation of 438 grams per day.

Zone 5 generates the highest solid waste within the Corporation at about 118 MT/day, contributing nearly 25% of the total waste, largely due to its high population density and dominant residential areas such as Thillai Nagar, Anna Nagar, and Woraiyur. In contrast, Zone 2 accounts for the lowest share at approximately 13%, as it is predominantly characterised by institutional land uses, including Golden Rock workshop, Railway

Colony, and Bharathidasan University, resulting in comparatively lower waste generation.

Waste Composition

- Organic Waste – 207 MT (44.04%)
- Dry Waste (Bio Degradable) – 219 MT (46.60%)
- Dry Waste (Non-Bio degradable) – 19 MT (4.04%)
- Construction and Demolition waste – 21 MT (4.47%)
- Hazardous waste – 4 MT (0.85%)

Existing Treatment Facilities in Tiruchirappalli Corporation

The City Corporation is supported with

- 40 MCC (200 MT) - Organic Waste collected is sent to decentralised MCCs.
- 5 RRC (25 MT) - The recyclable dry waste is segregated in Material Recovery Facility Centre in the 5 RRC station distributed across the Corporation.
- 5 Incinerator (6 MT) processes the household hazardous waste.
- 5 Bio-methanation plant (16 MT) treating high calorific organic waste to produce biogas.

Bio Mining at Ariyamangalam

Bio-mining at the Ariyamangalam landfill was initiated in 2019 by the Tiruchirappalli City Corporation under the Smart Cities Mission to remediate legacy waste and reclaim land. The landfill, spread over an area of 47.7 acres, had accumulated a substantial quantity of legacy waste over several years. The Bio mining is being implemented in 3 Phases,

- **Phase I** : 7,58,560 cubic meters of waste cleared, 36 acres of land reclaimed
- **Phase II**: 3,31,285 cubic meters of waste cleared, 3 acres of land reclaimed

- **Phase III:** 617000 cubic meters of waste is proposed to be cleared, and 8.7 acres of land will be reclaimed.

Swachh Survekshan Rank

Swachh Survekshan is an annual survey by the Ministry of Housing and Urban Affairs (MoHUA) that evaluates cities on waste management, sanitation, and citizen feedback. In the 2024–25 survey, Tiruchirappalli scored 8,239 out of 12,500 points and ranked 49th among 95 cities in the ‘big cities’ category (population 3–10 lakh)

12.1.2 Service level benchmarks analysis in the Corporation

The radar analysis evaluates the Solid Waste Management (SWM) performance of the Tiruchirappalli Local Planning Area (LPA) based on the Ministry of Urban Development (MoUD) service level benchmarks across five parameters.

- Household-level coverage of SWM services

- Efficiency of collection of Municipal Solid Waste
- Extent of segregation of Municipal Solid Waste
- Extent of Municipal Solid Waste recovered
- Extent of scientific disposal of Municipal Solid Waste

An 8-point ranking scale was applied across all five service benchmarks for each zone: Good (8), Moderate (6–7), and Weak (<5).

- Zone 1 (Srirangam, Venkateshwaranagar, Vasanth Nagar, Jambukeswarar Temple) Predominantly residential with major tourist activity; good collection coverage, moderate segregation and recovery. With an increased floating population, the waste generated in the zone requires localised processing and monitoring.
- Zone 2 (Gandhi Market, Palakarai, Sangiliyandapuram, Railway Colony) Mixed



Figure 12.1: Bio-mining at Ariyamangalam

residential-commercial area with moderate collection and coverage but weak recycling and recovery. Bulk waste generators necessitate stronger on-site segregation and enforcement.

- Zone 3 (Ariyamangalam, Balaji Nagar, Cauvery Nagar) is predominantly residential with good treatment facilities and moderate collection and segregation; recycling and recovery remain poor, indicating the need for monitoring and enforcement in segregation.
- Zone 4 (Panjapur, Edamalaipatti, Anna Nagar) Dense and emerging residential areas with good collection efficiency, moderate recycling and treatment, but poor segregation. Targeted source segregation and centralised composting are required.
- Zone 5 (Tennur, Pudur, Thillai Nagar) Best-performing zone with good collection and

coverage and moderate segregation, recycling, and treatment; continued monitoring can further enhance performance.

Tiruchirappalli shows strong performance in Zones 1, 4, and 5 due to effective collection and infrastructure, while Zones 2 and 3, with mixed-use activities, underperform in segregation, recycling, and collection. Overall, the corporation exceeds LPA-wide performance, with opportunities to improve source segregation and material recovery in market and mixed-use areas.

12.1.3 Solid Waste Management in Municipalities

Waste Generation by Municipalities

- Thuvakudi generates 11.4 MT of Solid Waste with 7MT of organic waste, 4.38 MT of dry waste and 0.06 MT of domestic hazardous waste

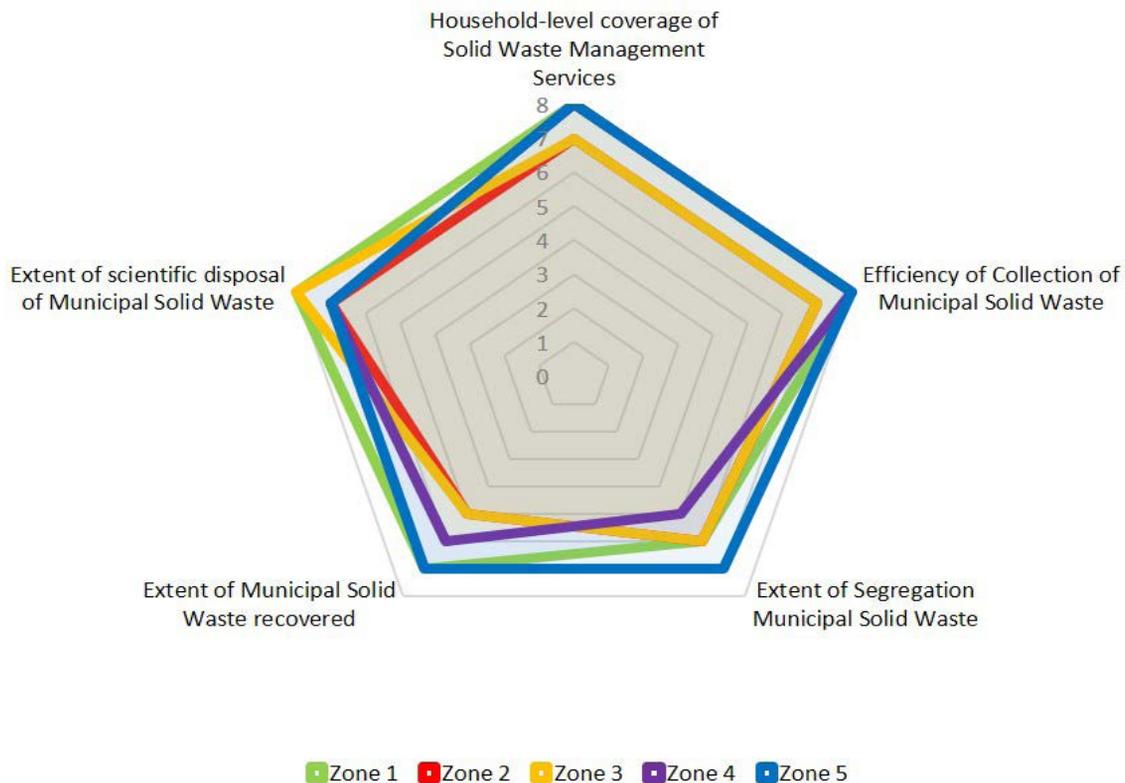


Figure 12.2: Radar Chart Showing the Existing Situation of Zones in Tiruchirappalli Corporation

- Lalgudi generates 9.4 MT of Solid waste with 5.5 MT of organic waste, 3.89 MT of dry waste and 0.002 MT of domestic hazardous waste.

Existing Treatment Facilities in Municipalities

- Thuvakudi achieves 98% of source segregation and is supported by MCC of 5 MT to process the organic and biodegradable waste, 7 MT RRC to process the recyclable waste and a 2MT Windrow composting plan to process the organic waste
- Lalgudi achieves 85 % of source segregation and is supported by MCC of 5 MT to process the organic and biodegradable waste, 4 MT RRC to process the recyclable waste

12.1.4 Solid Waste Management in Town Panchayat

The four Panchayats together generate about 20.1 MT/day of Solid Waste (271 grams/day), contributing nearly 38%. The waste is being managed by,

- Koothappar - 2.5 MT/day
- Manachanallur - 9.5 MT/day
- Puvalur - 2.1 MT/day
- S. Kannanoor(west) – 6 MT/day

Manachanallur and S. Kannanoor(west) generates 77% of the total solid waste generated from the Town Panchayat, and the least share of solid waste is generated from Puvlaur TP.

Existing Treatment Facilities in Municipalities

Koothappar Town Panchayat is supported by a Resource Recovery Centre (RRC), windrow composting, vermicomposting units, and an incinerator, with a combined treatment capacity of 1.39 MT/day. Manachanallur is equipped with an RRC, incinerator, bio-methanation plant, and vermicomposting facilities, providing a total treatment capacity of 9.77 MT/day. Puvalur is

supported by an RRC, incinerator, windrow composting, and vermicomposting units, contributing a total capacity of 2.16 MT/day. S. Kannanoor (West) has a vermicomposting facility with a capacity of 0.5 MT/day. Collectively, the Town Panchayats have an overall solid waste treatment capacity of 13.82 MT/day.

12.1.5 Solid Waste Management in Village Panchayat

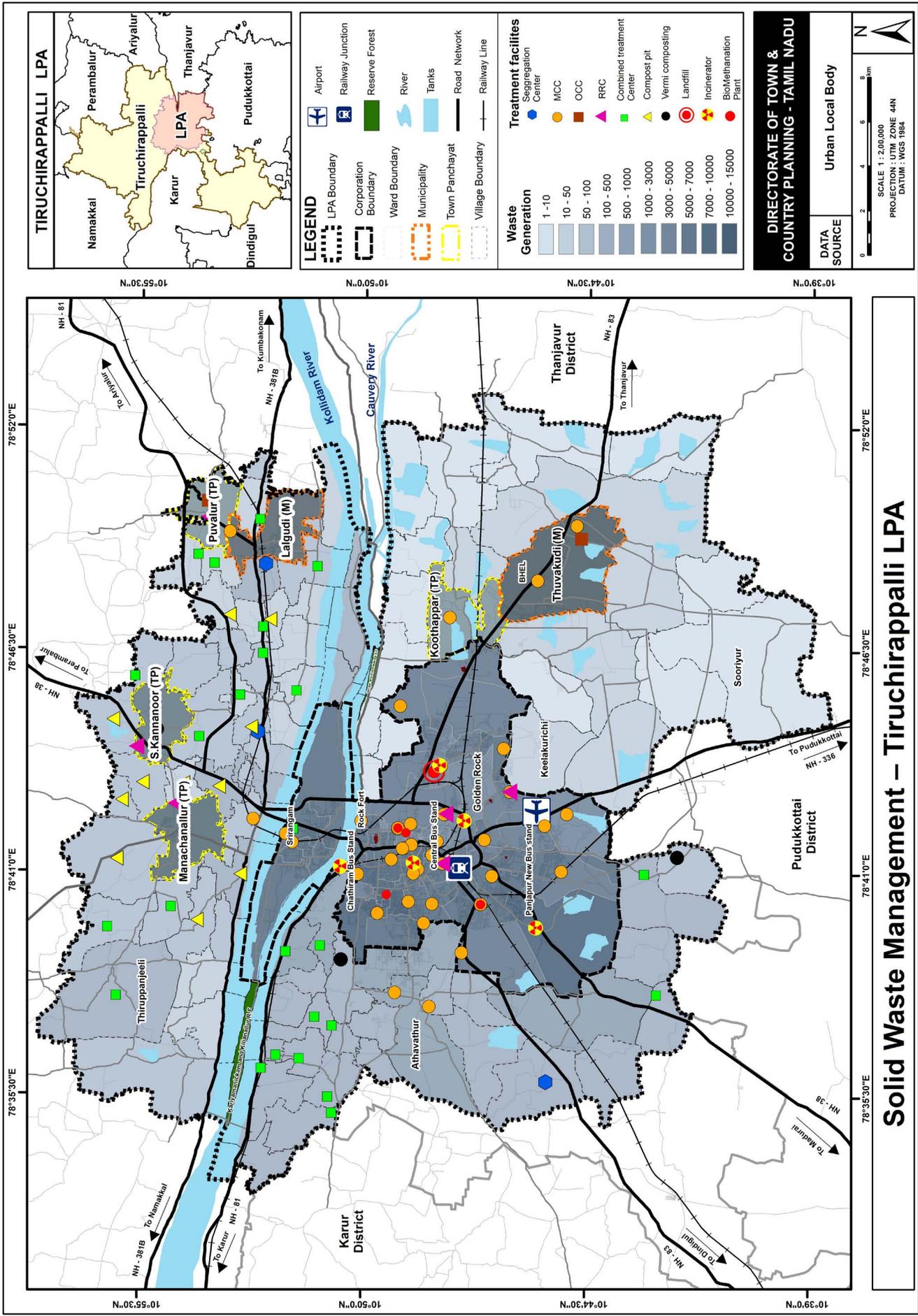
The Tiruchirappalli LPA includes 91 Village Panchayats distributed across five blocks, generating 14 MT/day of solid waste, accounting for about 2.8% of total waste generated in the LPA. Among the administrative blocks, Manikandam Block accounts for the highest share of solid waste generation at 6.27 MT per day, followed by Andanallur Block with 5.43 MT per day.

Existing Treatment facilities in Village Panchayat

Solid waste treatment facilities in the Village Panchayats are decentralised at the village level and are limited primarily to segregation sheds and vermicomposting units or compost pits. Manikandam Block is additionally supported by three Micro Composting Centres (MCCs) located at Allithurai, Nachikurichi, and Somarasampettai. The existing treatment handling capacity is 10.1 MT/day, resulting in an existing gap of 4.22 MT/day. Map 12.1 shows the spatial location of solid waste management facility in Tiruchirappalli LPA.

12.1.6 Service level benchmarks analysis for Tiruchirappalli LPA

- **Corporation:** The best-performing local body in the LPA, with strong household coverage, collection efficiency, treatment facilities, and recycling, though source segregation remains moderate.
- **Municipalities:** Lalgudi and Thuvakudi demonstrate good collection efficiency but face gaps in recycling and treatment capacity, with moderate household coverage and source segregation.



Solid Waste Management – Tiruchirappalli LPA

Map 12.1 Existing Treatment Facility in Tiruchirappalli LPA

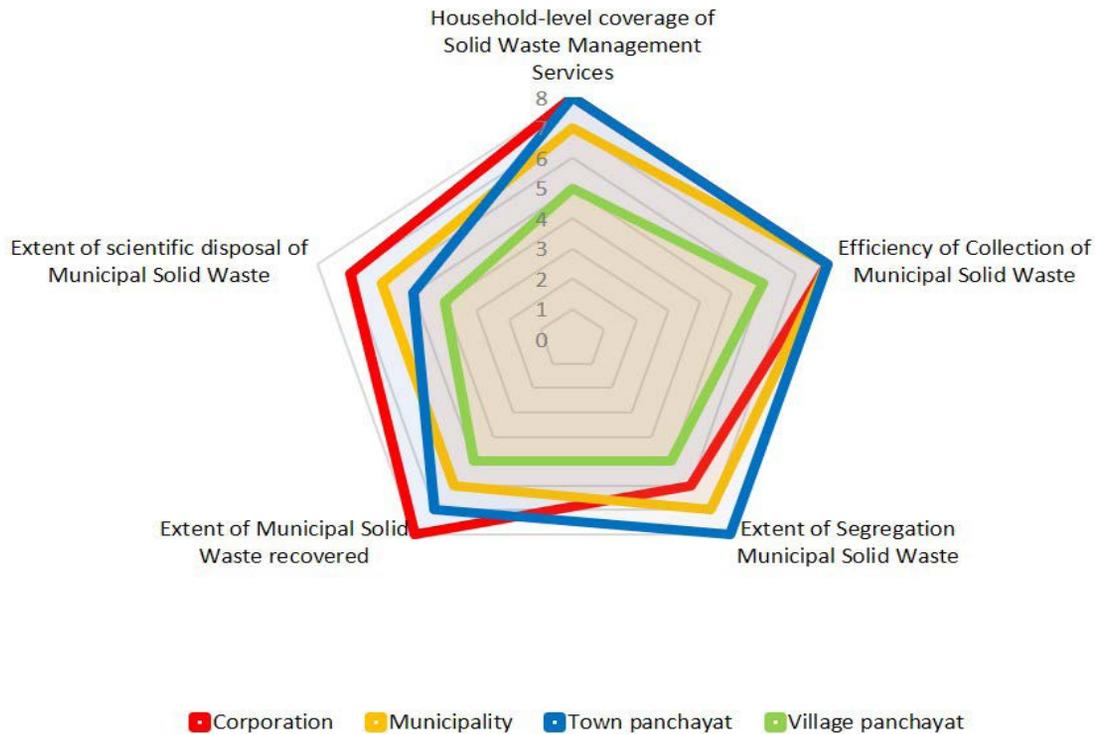


Figure 12.3: Radar Chart Showing the Existing Situation of Tiruchirappalli LPA

- **Town Panchayats:** Predominantly residential areas with good coverage, collection efficiency, and source segregation, but limited recycling and inadequate treatment infrastructure.
- **Village Panchayats:** Shows the weakest SWM performance, with moderate collection but poor coverage, segregation, recycling, and treatment facilities due to infrastructure and operational constraints.

- The Corporation area generates 470 MT/day against a treatment capacity of 247 MT/day. Although 219 MT/day is recycled, a treatment gap of **4.00 MT/day** persists.
- The Municipalities generate 20.87 MT/day, with 23 MT/day of treatment capacity and 1.68 MT/day recycled, leading to a surplus capacity of 3.81 MT/day.
- The Town Panchayats generate 20.10 MT/day, supported by 18.82 MT/day of treatment capacity, with 9.60 MT/day recycled, resulting in a surplus of 8.32 MT/day.
- The Village Panchayats generate 14.33 MT/day, but have only 10.10 MT/day of treatment capacity and no recycling facilities, resulting in a treatment gap of **4.22 MT/day**.

12.2 Solid Waste Management Gap Analysis

The Tiruchirappalli LPA generates 525.30 MT/day of solid waste, with an existing treatment capacity of 298.93 MT/day and 230.28 MT/day being recycled, resulting in an overall surplus of 3.92 MT/day.

12.3 Projected Waste Generation for 2045

The Tiruchirappalli Corporation is projected to have a population of 14.39 lakh by 2045, generating approximately 719.99 MT/day of solid waste. To manage this quantum of waste, an additional treatment capacity of 137.48 MT/day is required, while about 335.52 MT/day of waste is expected to be recycled following the current trend of recycling rate. Future solid waste generation for the LPA has been estimated using NEERI standards and current per capita waste generation rates, with the higher of the two values adopted to ensure adequate infrastructure planning.

The Municipalities within the LPA are projected to accommodate a population of 1.27 lakh by 2045, with a corresponding waste generation of 34.39 MT/day. This will necessitate an additional treatment capacity of 8.63 MT/day, with 2.75 MT/day of waste expected to be recycled. For the Town Panchayats, the projected population by 2045 is 1.08 lakh, resulting in a waste generation of 33.48 MT/day and requiring an additional treatment capacity of 3.83 MT/day. The Village Panchayats are projected to accommodate a future population of 9.59 lakh by 2045, generating about 48.02 MT/day of solid waste. Due to limited existing infrastructure, an additional treatment capacity of 37.92 MT/day will be required.

Table 12.1 Projected Solid Waste Generation for Tiruchirappalli LPA

Category	Projected population 2045	Projected Waste Generation (MT/day)	Existing Treatment Capacity (MT/day)	Proposed Recycling		Future Treatment Demand (MT/day)
				(%)	(MT/day)	
Corporation	14,39,978	719.99	247	46.6	335.52	137.48
Municipalities	1,27,355	34.39	23	8.01	2.75	8.63
Town Panchayats	1,08,383	33.48	13.82	49.55	15.83	3.83
Village Panchayats	9,59,894	48.02	10.1	0	0	37.92
Total	26,35,610	835.88	293.92	42.45	354.1	187.86

Source: DTCP Analysis

12.4 Proposals / Recommendations

Proposals for Tiruchirappalli Corporation

Tiruchirappalli Corporation is proposed to implement Integrated Waste Management facility at Ariyamangalam with a Bio-CNG gas plant, an Automated Material Recovery Facility and a Construction and Demolition Waste Management Centre in addition to this, considering the E-waste generation in the Corporation an E-Waste Collection Centre is proposed,

- Bio-CNG Gas plant to treat the organic waste with 100 MT /day capacity
- Automated Material Recovery Facility with 250 MT/day capacity
- Construction and Demolition Waste Management Centre with 50 MT/day capacity
- E waste Collection centre with 5 MT/day
- Integrated Waste Management Facility with 405 MT/day capacity at Ariyamangalam

Proposals for Municipalities

Combined treatment facility with incinerator, RRC and MCC for each of the Municipalities,

- Lalgudi combined treatment facility centre with 4.5 Mt/day overall capacity, including Incinerator (1 MT), Micro composting plant (2 MT) and Resource recovery centre (1.5 MT)
- Thuvakudi combined treatment facility centre with 5 Mt/day overall capacity, including Incinerator (1 MT), Micro composting plant (2 MT) and Resource recovery centre (2 MT)

Proposals for Town Panchayats

The existing treatment capacity of Manachanallur Town Panchayat is surplus to support the future demand, and only policy recommendations are proposed. Additional Micro Composting Centres (MCCs) and Resource

Recovery Centres (RRCs) are proposed for Koothappar, Puvalur, and S. Kannanoor Town Panchayats to address future waste management requirements. Specifically, an additional 3 MT/day Micro Composting Centre is proposed for Koothappar Town Panchayat, a 2 MT/day Micro Composting Centre for Puvalur Town Panchayat, and for S. Kannanoor Town Panchayat, a 3 MT/day Micro Composting Centre along with a 3 MT/day Resource Recovery Centre is proposed.

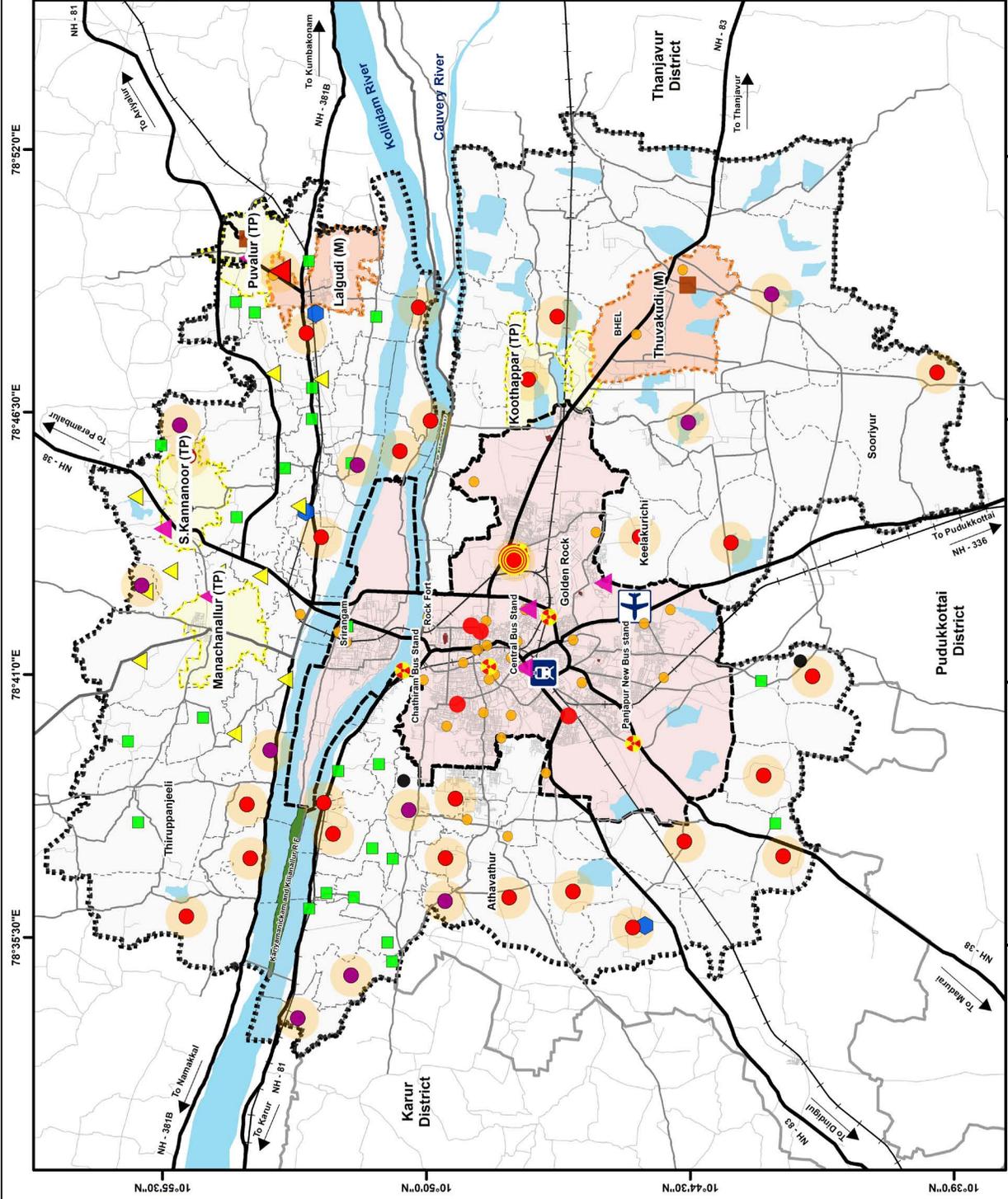
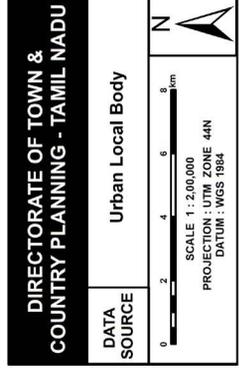
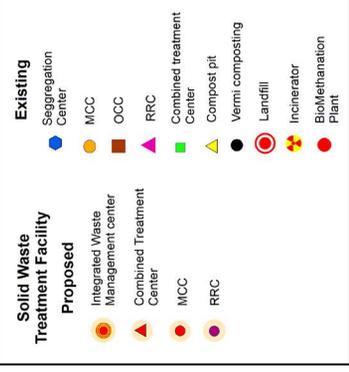
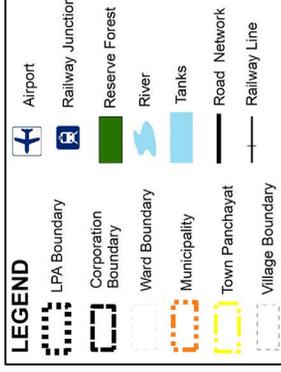
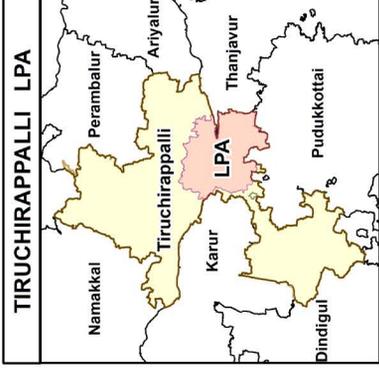
Proposals for Village Panchayats

Considering the spatial distribution of the Village Panchayats, decentralised individual treatment facilities are proposed for the low-performing Village Panchayats. Accordingly, a total of 22 Micro Composting Plants (1 MT/day each) and 17 Resource Recovery Centres (1 MT/day each) are proposed to be distributed across the LPA, covering 39 Village Panchayats. The location of the proposed treatment facilities is provided in Map 12.2.

12.5 Area Requirement

The total land area required for the proposed solid waste treatment centre is 7.08 Hectares, the land is distributed as follows:

- Corporation: Integrated Waste Management facility – 5.86 Hectares
- Municipalities
 - Combined treatment facility at Lalgudi – 0.09 Hectares
 - Combined treatment facility at Thuvakudi – 0.11 Hectares
- Town Panchayats – Additional MCC and RRC
 - Koothappar TP – 0.06 Hectares
 - Puvalur TP – 0.04 Hectares
 - S. Kannanoor TP – 0.12 Hectares
- Village Panchayats - Additional MCC and RRC – 0.80 Hectare.



Proposed Treatment Facility in LPA

Map 12.2 Proposed Treatment Facilities in Tiruchirappalli LPA

Out of 7.08 Ha, 5.86 Ha of land area is available at Ariyamanagalam land fill site, and hence the net area requirement for the proposed solid waste management facility is 1.22 Ha.

12.6 SWM Strategies / Recommendation Under Swachh Survekshan

Tiruchirappalli scored 8,239/12,500 Swachh Survekshan 2024-25, which shows better

performance of the city in cleanliness, waste management, sanitation access, governance and citizen engagement. The city is performing better than in 2023, when it was in 112th rank nationally and now improved to 49th rank nationally out of 95 cities (population between 3 lakh and 10 lakh) category. In order to improve the city into much better state, the following interventions are provided with respect to solid waste management.

Table 12. 2: Solid Waste Management Strategies / Recommendations

S.no	Category	Existing Issues in Tiruchirappalli	Master Plan Proposal / Recommendations
1	Solid Waste Management	1. Legacy dumpsites at Ariyamangalam	Bio mining is in progress, and Phase III to clear 617000 m ³ of waste is proposed
		2. Inadequate processing and treatment capacity in LPA.	Integrated and Decentralised Waste Treatment Facilities are proposed <ul style="list-style-type: none"> • Corporation – Integrated Waste Management Facility • Municipality – Combine Treatment Facility • Town panchayat – Additional MCC and RRC • Village panchayat – 22 MCC and 17 RRC
		3. Absence of E-waste Collection	E-waste collection centre of 5 MT is proposed in the Corporation
		4. Low recycling rate	Recycling will be incentivised through financial and non-financial measures
2	Segregation, Collection & Transportation of Waste	5. Inconsistent collection and segregation at source <ul style="list-style-type: none"> • Tiruchirappalli (70.63 %) • Lalgudi (85%) • Village Panchayat (50%) 	100% 3 bin door-to-door waste collection and segregation for Overall LPA.
			GPS-enabled and 100% battery-operated vehicles
			Establish Urban Sanitation Cell for urban local bodies in Tiruchirappalli LPA

Source: DTCP analysis





13. ENERGY

13.1. Overview

Energy systems are the foundational enabler for urban growth and economic activities in the Tiruchirappalli Local Planning Area (LPA). It supports the LPA's diverse functions as a regional administrative centre, a hub for higher education, and a critical industrial nucleus. The LPA exhibits a complex and sustained demand for reliable electricity, extending across the Municipal Corporation, surrounding municipalities, town panchayats, and rapidly expanding peri-urban village panchayats. The energy planning framework is aligned with Sustainable

Development Goal 7 (SDG 7), with a focus on balancing universal access and system reliability while transitioning towards cleaner and more resilient energy system. This vision is reinforced by the Tamil Nadu Energy Policy 2024, which targets 50% renewable energy consumption by 2030 and a 70% reduction in carbon emissions.

Beyond its role as a major electricity consumer, Tiruchirappalli occupies a strategic position within the regional and national power ecosystem. Widely recognised as the Energy Equipment and Fabrication Capital of India, the city plays a foundational role in enabling India's power sector. Through BHEL's boiler and power-equipment manufacturing facilities, Tiruchirappalli anchors the nation's thermal energy infrastructure by producing critical high-pressure components that support power generation across the country. Thus, Tiruchirappalli functions not merely as an energy consumer, but as a national enabler of power generation infrastructure. This industrial legacy positions Tiruchirappalli to leverage its engineering and manufacturing expertise to support the ongoing transition toward renewable energy infrastructure, particularly in wind and solar equipment fabrication, as the city looks ahead to 2045.

13.2. Integrated Flow of Energy: Generation to Consumption

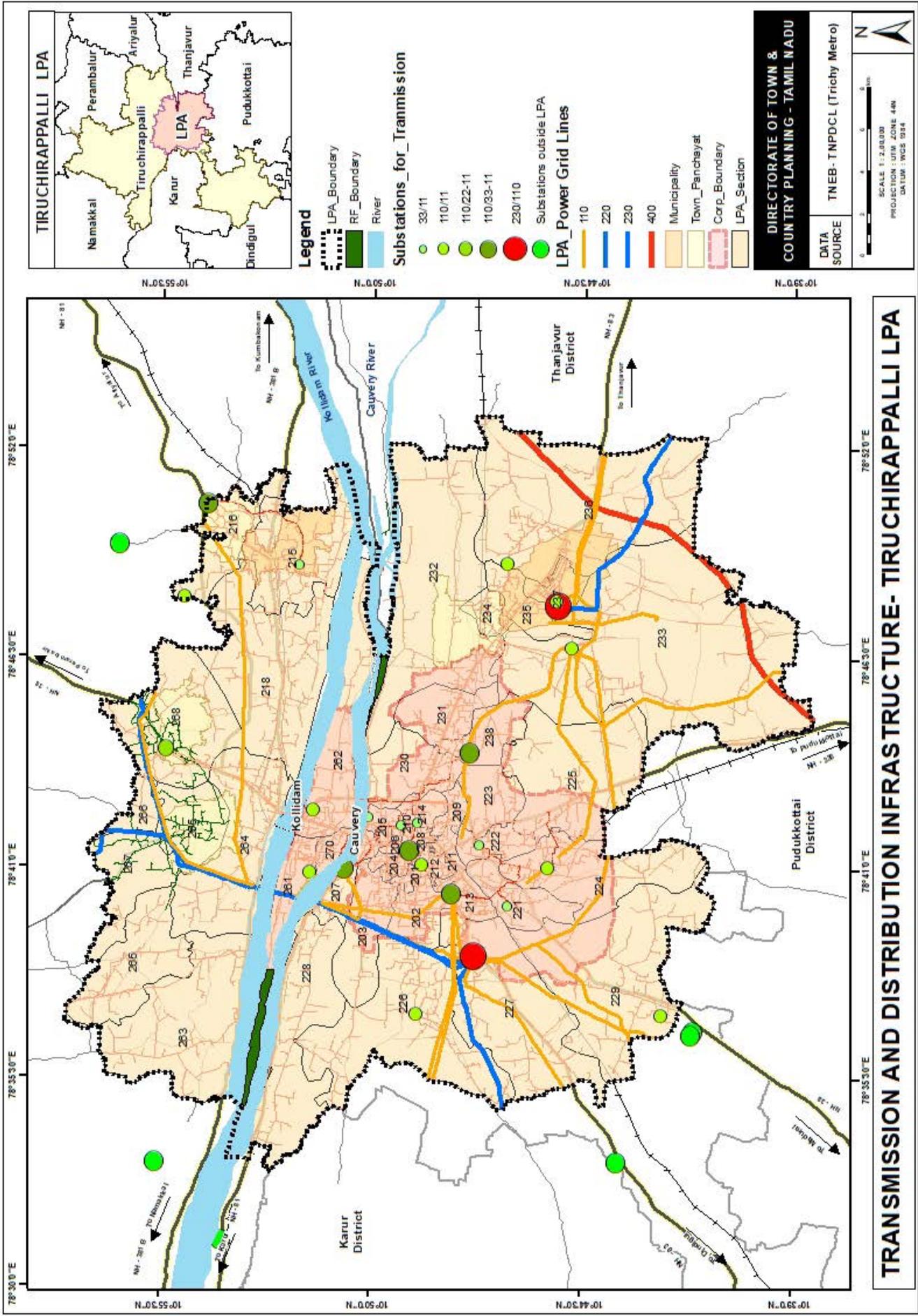
The electricity system of the Tiruchirappalli LPA is structured around a strong dependence on the state grid, with power flowing from regional transmission nodes to local consumption centres. The LPA does not host large conventional power generation facilities and relies primarily on grid-based supply for both base-load and peak demand. At the district level, renewable energy dominates local generation, with an installed capacity of approximately 850.5 MW, largely from solar sources, while generation within the LPA itself remains limited to small-scale, decentralised installations.

Transmission Interface and Distribution Infrastructure

Bulk power supply is received through two 230/110 kV transmission substations located at Pirattiyur and Thuvakudy, providing a combined transformation capacity of 400 MVA, forming the core supply backbone for the urban and industrial areas. In addition, four external 230/110 kV substations—Alundur, Thachankuruchy, Mondipatty, and Jambunathapuram—contribute a supplementary 780 MVA, strengthening system reliability, redundancy, and peak load management. Overall, the combined transmission interface capacity serving the LPA is approximately 1,180 MVA, which is adequate to support medium-term demand growth.

Electricity distribution within the LPA is structured through a network of 14 primary (110 kV) and 6 secondary (33 kV) substations, with a combined installed capacity of 677 MVA. The Corporation area hosts the majority of primary substations, reflecting its dominance in residential, commercial, institutional, and service-sector electricity demand. Substations in Thuvakudy, Lalgudi, Samayapuram, Poovalur, Manikandam, Valavanthankottai, and Thiruverumbur support industrial activity, peri-urban growth, and agricultural demand, enabling spatially balanced power distribution. The network is supported by over 6,300 distribution transformers with a total capacity of nearly 950 MVA, ensuring comprehensive last-mile connectivity. Transformer density is highest in the urban core, with rapidly increasing deployment in growth corridors such as Nachikurichi, Navalpattu, Panjappur, Manachanallur, Valavanthankottai, and Pitchandarkoil, reflecting accelerating suburban expansion.

The LPA is served by an extensive EHT, HT, and LT line network exceeding 28,000 km in cumulative length, forming a hierarchical grid structure. Underground cabling is concentrated in high-density urban corridors and critical infrastructure



Map 13.1 Transmission and Distribution Infrastructure within LPA

zones, while overhead lines dominate in peri-urban and rural areas, reflecting a selective network modernisation strategy focused on urban reliability and resilience. The spatial structure of the electricity network reflects a polycentric urban system, with energy infrastructure expanding radially from the urban core toward emerging industrial, logistics, and residential nodes. This radial expansion enables decentralised growth by ensuring that energy infrastructure precedes and supports industrial clustering and peri-urban development, thereby reducing pressure on the urban core while facilitating balanced regional expansion.

13.3. Energy Adequacy and Infrastructure Constraints

The Tiruchirappalli LPA currently maintains an overall surplus distribution capacity of approximately 203 MVA, based on an installed substation capacity of 677 MVA against a maximum recorded demand of 474 MVA. While this indicates short-term system-level adequacy, significant spatial imbalances persist within the distribution network. Substations serving rapidly growing peri-urban and industrial areas are operating close to their rated capacities, despite surplus availability at the aggregate level.

Key constraints include ageing electrical

infrastructure requiring systematic modernisation, localised overloading in high-growth urban fringes, and exposure of critical electrical assets in low-lying and flood-prone areas along the Cauvery River system. Limited deployment of smart grid technologies and advanced metering further restricts the ability to manage technical losses, respond to faults in real time, and implement effective demand-side management. Addressing these constraints through grid modernisation—particularly upgrades to the 110 kV and 33 kV networks—is essential to ensure system resilience under projected demand growth and increasing climate variability.

13.4. Projected Demand and Energy Requirement- 2045

Future electricity demand in the Tiruchirappalli LPA is projected to increase significantly, driven by a nearly 50% population growth to 26.36 lakh by 2045, along with expanding industrial activity and peri-urbanisation. Total peak demand is expected to rise from 448 MW in 2025 to 1,520 MW by 2045, while annual electricity consumption is projected to grow from 1,661 MU to 5,728 MU over the same period.

Although the Tiruchirappalli Corporation will remain the primary consumer, with demand increasing to approximately 697 MW due to higher

Table 13.1 Energy Existing and Projected Demand and Consumption

Jurisdiction	2025 (Existing)			2045 (Projected)		
	Population	Demand (MW)	Consumption (MU)	Population	Demand (MW)	Consumption (MU)
Corporation	10,72,793	231	881	14,39,978	697	2,660
Municipalities	81,702	29	88	1,27,355	90	287
Town Panchayat	74,118	18	39	1,08,383	60	133
Village Panchayat	5,30,466	170	653	9,59,894	673	2,648
Tiruchirappalli LPA	17,59,079	448	1,661	26,35,610	1520	5,728

urban densities and vertical development, growth is increasingly decentralised. Village Panchayats are projected to experience a fourfold increase in electricity demand, reaching 673 MW by 2045, driven by industrial spillover and residential expansion in nodes such as Nachikurichi, Navalpattu, Panjappur, and Manachanallur. Municipalities such as Lalgudi and Thuvakudi are projected to reach a combined demand of around 90 MW as they evolve into secondary urban service centres.

Qualitative demand drivers, including rising cooling loads during peak summer months and the gradual adoption of electric vehicle charging infrastructure, will further alter the region's load profile. To sustainably accommodate this growth, the LPA's required substation capacity must expand to approximately 2,111 MVA by 2045, supported by feeder strengthening, transformer augmentation, and smart grid integration. Together, these trends signal a structural shift from a monocentric urban load profile to a highly decentralised regional energy system by 2045.

13.5. Long Term Proposal: A Resilient Regional Hub for Decentralized Solar and Sustainable Energy

The LPA's energy strategy under the Master Plan positions the city as a regional energy enabler and power interface, rather than a land-intensive power generation hub. The long-term approach focuses on modernising distribution infrastructure, improving energy efficiency, strengthening demand-side management, and optimising grid-based supply while selectively integrating decentralised renewable energy solutions.

Electricity demand across the Trichy LPA is projected to rise from 909 MVA in 2035 to 1,689

MVA by 2045, requiring substation capacity expansion from 1,136 MVA to 2,111 MVA through a phased investment of Rs. 849 Crores. While current capacity provides short-term buffers, rapid peri-urban growth and industrial expansion necessitate timely upgrades of substations, feeders, transformers, and smart grid systems, particularly in high-growth locations such as Nachikurichi, Navalpattu, Pitchandarkoil, and Manachanallur.

In parallel, the city's renewable energy strategy emphasises decentralised, consumption-linked solar deployment to reduce dependence on grid-based power and enhance local energy resilience. The Tiruchirappalli LPA has an estimated rooftop solar potential of 1,493 MW, capable of generating approximately 2,199 MU annually and reducing nearly 1,800 metric tonnes of CO₂ emissions per year. Further, it is recommended to:

- Build on early momentum from the 2.4 MW Smart Cities rooftop installations and the Panjappur Solar Park.
- Implement targeted solar installations in high heat-risk industrial zones, particularly Manachanallur and Thuvakudy.
- Leverage industrial rooftops and utility structures for clean energy generation and thermal risk reduction.
- Provide focused investment of approximately Rs.20 crore in Manachanallur to support industrial-scale rooftop solar deployment.
- Use industrial solar to reduce peak grid loads, lower operational energy costs, and enhance industrial resilience.

Together, these measures position Tiruchirappalli as a polycentric, resilient energy hub, enabling industrial productivity, decentralised urban growth, and India's broader transition toward a low-carbon energy future through 2045.





14. HERITAGE & CULTURE

14.1 Cultural Identity Of Tiruchirappalli

Tiruchirappalli is a pre-eminent heritage city defined by a layered legacy of dynastic rule, architectural brilliance, and a convergence of faith and education. Its identity is shaped by the Chola, Pallava, and Pandya dynasties, later transformed by colonial strategic interests and missionary-led social reforms.

14.1.1 Etymology

The city's name reflects diverse linguistic and legendary roots. Interpretations range from **Chirapalli** (referencing a Jain monastery) and **Tiru-ssila-palli** ("Holy Rock Town") to the Telugu Chiruta-palli ("Little Town"). Local mythology attributes the name to **Trisira**, the three-headed brother of Ravana, who attained divine grace at this site.

14.1.2 Legacy of The Historic Twin Town

The urban continuum of Tiruchirappalli and Thiruvarangam forms a unique “Twin Town” synergy dictated by the Kaveri River. Thiruvarangam serves as the Sacred Nucleus, home to the massive Sri Aranganathaswamy Temple organized in concentric Prakarams. Conversely, Tiruchirappalli acts as the Fortified Core, anchored by the 273-foot Rock-Fort, balancing spiritual authority with administrative and military history (Figure 14.1).

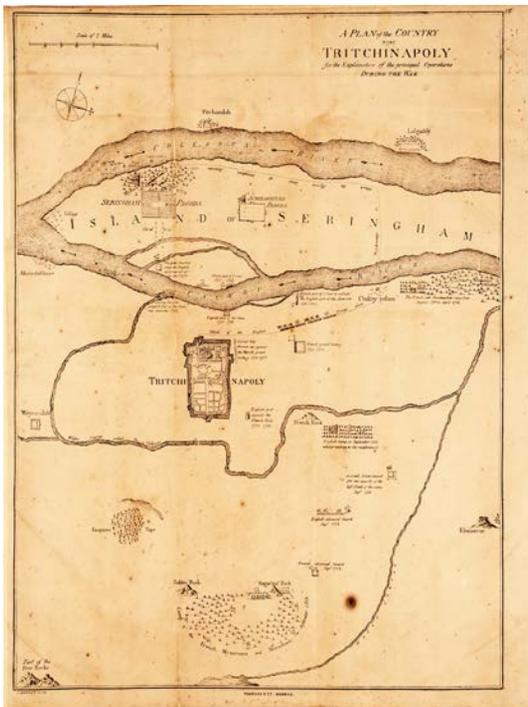


Figure 14.1 A Plan of the country near Trichinopoly!
Source: Tamil Virtual Academy

¹A Plan of the country near Trichinopoly for the explanation of the principle operation during the war (Drawn in 1751-52)

14.1.3 Origin of Tiruchirappalli

Dating back to the Sangam period, the city originated in Uraiyur, the early Chola capital noted by Ptolemy. Its evolution spans Mahendravarman I’s 6th-century rock-cut caves to its role as a strategic stronghold for the Nayakas and British. Archaeological finds, including roulette ware, confirm its ancient global trade links and its

enduring status as a continuous cultural and political hub.

14.1.4 Multi Religious Foci

Tiruchirappalli and Thiruvarangam form a unique dual landscape of South Indian devotion, balancing the **Saivite** strength of the Rock-Fort with the **Vaishnavite** sanctuary of the Thiruvarangam island. This region served as a pivotal stage for the Bhakti movement, where classical traditions seamlessly integrated with local folk worship.

Saivism and Vaishnavism:

The Saivite tradition, immortalized by the hymns of the Nayanars, centers on ancient cave temples and sacred groves. Conversely, Thiruvarangam—the “first Rangam”—remains the intellectual and spiritual heart of Vaishnavism. Together, they fostered a culture where Vedic scholarship and emotional piety coexisted with local village deity worship.

Christianity and the Educational Revolution:

Established in the 17th century by Jesuits like Robert de Nobili and Beschi, the “New Madura Mission” transformed Tiruchirappalli into a hub for modern education and social reform. Beyond iconic landmarks like St. Lourdes Church, the mission’s enduring legacy is St. Joseph’s College (1844) and a network of schools that provided an “educational ladder” for marginalized communities, introducing secular and scientific learning to the region.

The Sultanate Period and Islamic Influence:

Beginning in the 14th century, Islamic rule under the Nawabs of Arcot reshaped Tiruchirappalli into a strategic military prize. This era introduced Sufi veneration, centred around “holy places” and the tombs of saints like Saiyyad Ali. The period also left a significant administrative footprint, introducing sophisticated land revenue systems (Nirarambam) and influencing local textile industries and urban fortifications that define the city’s modern layout.

14.2 Urban Morphology

14.2.1 Political Legacy of the City & Surrounds

The urban morphology of Tiruchirappalli has evolved through successive political regimes, with the Rock fort and fort precinct forming the historic nucleus of the city. Subsequently Chola, Pallava, Pandya, Nayak, and colonial influences guided the expansion of settlements within the LPA along strategic, administrative, and trade corridors. Figure 14.2 depicts the political history pertaining to the Evolution of Tiruchirappalli.

14.2.2 Early Settlements

Tiruchirappalli is among Tamil Nadu's oldest inhabited cities, situated along the Cauvery. It rose to prominence as the Early Chola capital, Uraiyur (Kozhiyur), from the 3rd century BC to the 3rd century AD. Archaeological excavations confirm its ancient trade links with Rome. The city's medieval trajectory began in the 7th century under Pallava King Mahendravarman I, who initiated the Rock-Fort. Following the Chola decline, the region saw Pandya rule until the 1311 conquest by Malik Kafur.

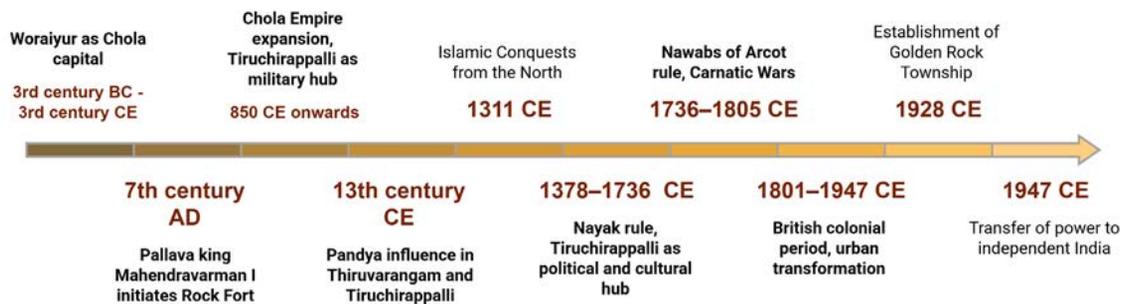


Fig 14. 2 Chronological Evolution and Urban Development Timeline of Tiruchirappalli



14.2.3 Landscape Under Successive Dynasties

Between 1311 and 1378, Tiruchirappalli transitioned through the Delhi and Madurai Sultanates before becoming a strategic stronghold for the Vijayanagar Empire and the Nayaks. Under the Nayaks, the city served as a military capital, as evidenced by the fortified core, palace complexes, and the Teppakulam.

British colonial rule further maintained Tiruchirappalli's role as a strategic military capital, shifting focus from the Rock-Fort to the sprawling Cantonment. Key developments included the Development of Railways, which established the South Indian Railway headquarters and the industrial Golden Rock township. The introduction of Judicial Court Complexes and Colonial Institutions cemented a modern administrative framework, creating a dual urban identity that fused medieval fortifications with structured Indo-Saracenic planning.

14.3 Cultural Heritage Resources Of Tiruchirappalli

14.3.1 Natural Heritage:

Tiruchirappalli's natural heritage is defined by iconic geological formations like Malaikottai and Sugar Loaf Hill, alongside vital riparian ecosystems like the Thiruvaramangalam island. The Cauvery and Kollidam rivers, supported by ancient Chola canals like Uyyakondan, serve as foundational lifelines. These features blend scientific value with deep historical significance, sustaining the region's biodiversity and unique urban character.

14.3.2 Cultural Heritage: A Tapestry Of History And Tradition

Tiruchirappalli, one of India's oldest continuously inhabited cities inclusive of Thiruvaramangalam & Thiruvanaikovil, boasts a rich cultural heritage that is a remarkable blend of ancient history, architectural grandeur, and vibrant

living traditions. This heritage is evident in its archaeological sites, its diverse architectural landscape, and the intangible cultural practices that are a part of daily life.

Archaeological Sites, Epigraphical and Literary Evidence

Tiruchirappalli's archaeological legacy is anchored by Pallava-era rock-cut caves (6th–7th century CE) at Rock-Fort, featuring the Upper and Lower shrines. These sites, along with Thiruverumbur, showcase early Dravidian architecture, sacred inscriptions, and the transition to structural temples. Alongside the engineering marvel of Kallanai, these active pilgrimage sites represent a continuous living heritage of religious and socio-political history.

Architectural Heritage

Tiruchirappalli's architectural landscape is a profound collage of strategic military history, diverse belief systems, and its identity as the "Oxford of the South." The city's urban fabric is defined by three primary heritage pillars: religious, administrative, and educational.

- **Religious Landscape:** The city's sacred geography spans ancient Hindu, Christian, and Islamic traditions. Hindu heritage is anchored by monumental Dravidian sites like Thiruvaramangalam (the world's largest functioning temple-settlement) and Thiruvanaikoil (representing the Water element). Christian heritage reflects centuries of missionary activity, featuring grand cathedrals like St. Mary's and historic parochial schools. Islamic heritage, dating to the 8th century, is centred around the 1,000-year-old Hazrath Nathar Vali Dargah, establishing Tiruchirappalli as a historic South Indian centre for Sufism.
- **Institutional and Palatial Grandeur:** The administrative core is concentrated in a central historic nucleus near the Cauvery. Notable palatial buildings include the 17th-

century Rani Mangammal Mahal, which transitioned from a Nayak palace to a British office. Modern governance is represented by the District Court (1919), modelled after London’s courts, and the City Municipal Corporation headquarters.

- **Educational and Social Infrastructure:** As a regional intellectual hub, Tiruchirappalli houses prestigious colonial-era institutions like St. Joseph’s College and Bishop Heber School. Architectural gems like the Indo-Saracenic Devasikhamani Block showcase superior craftsmanship with Burma teak and high, climatically efficient ceilings. Complementing these are vital social landmarks, including Coronation Park and the Railway Hospital, which reflect the public health and recreational framework that supported the city’s urban expansion.

14.3.3 Intangible Cultural Heritage

Tiruchirappalli’s intangible heritage is a vibrant synthesis of riverine traditions, cosmic rituals, and sophisticated craftsmanship that defines its cultural soul.

Festivals and Festivities: The city’s calendar is dictated by the Cauvery River and temple cycles. Pongal and Aadi Perukku celebrate the region’s agrarian heart, honoring the life-giving monsoons. In Thiruvaramam, Vaikunta Ekadasi serves as a “cosmic gateway,” drawing lakhs of devotees to the Vaikunta Dwaram. Other key rituals include the austere Poo Choridhal at Samayapuram, the illuminated Teppotsavam (Float Festival) at Rock-Fort, and the community-centric Kuttikudi Thiruvizha. Uraiyur remains a historic nucleus, hosting unique events like the Serthi Sevai reunion and the legend-based Bangle Festival.

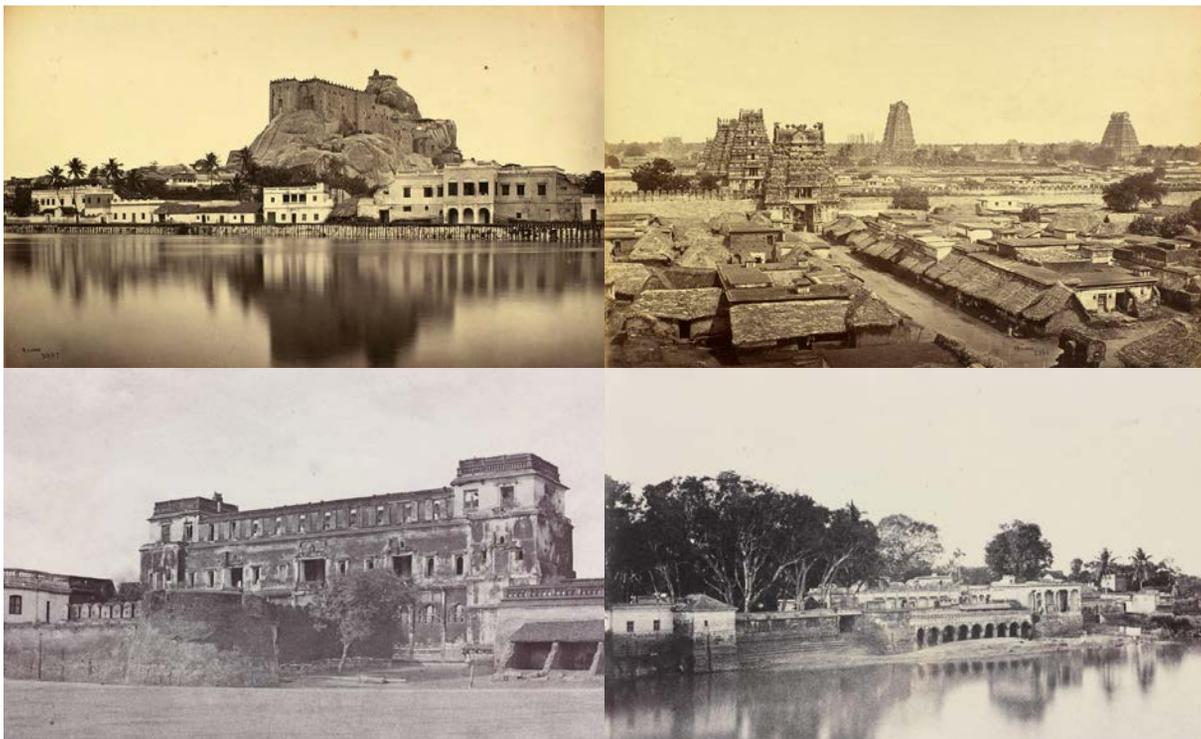


Figure 14.3 (Clockwise from Top left) Archival images of Malaikottai from Theppakulam, The Gopuram of Thiruvaramam, Kaveri Padithurai on the South Bank, Rani Mangammal Palace

Source: Archives of Victoria & Albert Museum, UK

Festivals involving Procession: The tradition of Ula (procession) animates the urban fabric, transforming streets into ritual landscapes. These include Hindu car festivals in Rock-Fort and Uraiyur, Islamic Annual Urs (Sandanakoodu), and Christian processions for St. Lourdes Church and Good Friday. These events foster inter-faith harmony and ensure the city’s heritage remains a “living” experience.

Arts & Crafts: Tiruchirappalli is a sophisticated artisan hub where ancient methods like lost-wax bronze casting and Kuthuvilakku (brass lamp) making flourish. The region is renowned for textile arts, including Batik, Kalamkari, and specialized Applique work for temple umbrellas. It also serves as a trade centre for Tanjore paintings, pith work, and granite stone carving by modern-day Sthapathis.

GI Tags: Tiruchirappalli’s artisanal legacy is preserved through Geographical Indication (GI) tags, honoring the delicate craftsmanship of the handwoven Uraiyur Cotton Saree and the storied, hand-rolled tradition of the Trichinopoly Cigar.

14.4 Ownership and Management of Heritage Resources

14.4.1 Governance Of Archaeological Sites & Precincts:

Tiruchirappalli’s heritage is managed through a multi-tiered regulatory framework. National and State-level protection is spearheaded by the ASI, which oversees three major monuments including the Rock-Fort Cave Temples, and the State Department of Archaeology, which manages eight regional sites such as the Thiruvellarai Swastik Well. These entities enforce the AMASR Act and TN-AMASR Act respectively to ensure development complies with buffer zone controls.

14.4.2 Cultural And Religious Custodianship:

The HR&CE Department serves as the primary custodian for 2,441 temples, managing 417 sites

within the LPA, including the high-revenue Thiruvaramam and Samayapuram complexes. Similarly, the Tamil Nadu Waqf Board administers Islamic endowments, with over 75% of the district’s Masjids and Dargahs located within the LPA. Christian heritage is safeguarded by the CSI and Roman Catholic Dioceses, maintaining a network of historic churches and colonial-era schools.

14.4.3 Administrative and Social Support:

The Public Works Department (PWD) maintains a draft list of heritage buildings, including the Rani Mangammal Fort Campus and judicial courts. Meanwhile, the Department of Art & Culture supports nearly 50% of classical and folk artists through welfare schemes and the Regional Art and Cultural Centres. The Handlooms and Khadi Department bolsters the artisan economy through the Tiruchirappalli Mega Handloom Cluster and Poompuhar outlets, ensuring the continuity of traditional craftsmanship.

14.5 Potential Cultural Heritage Sites and Precincts

Tiruchirappalli’s heritage is evaluated through a framework assessing historical importance, architectural merit, rarity, and socio-cultural influence. Based on these criteria, several Heritage Character Zones have been identified within the LPA, anchored by religious, administrative, and archaeological significance. These buildings, sites, and precincts – identified based on their concentration in characteristic location – serve key public functions, including religious, administrative, and cultural activities. They are predominantly public-use structures and are either owned or managed by statutory authorities or religious and cultural endowment institutions.

Key Potential Heritage Zones:

- **Malaikottai (Rock-Fort Area):** The city’s military and geological nucleus, representing

a collage of Jain, Pallava, Nayaka, and British history.

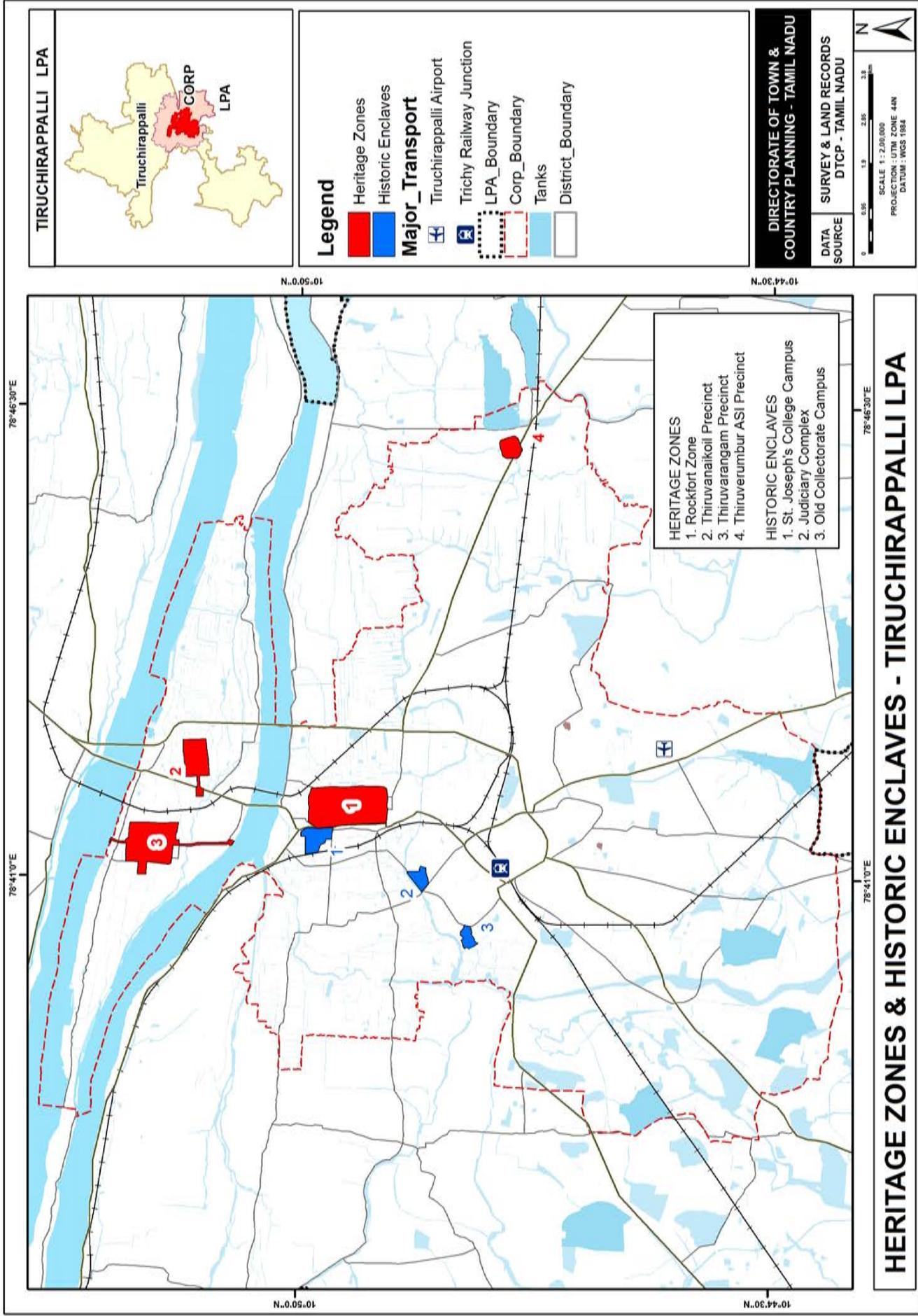
- **Thiruvaramgam Island:** A premier religious landscape featuring sophisticated Chola-Vijayanagara temple-town planning.
- **Thiruverumbur:** Archaeological anchors highlighting early Chola stone architecture and Pallava-era engineering marvels like the Swastika tank.
- **Administrative & Judiciary Zones:** Clusters including the Old Collector Office and Court Campus that reflect Tiruchirappalli's colonial transition through Indo-Saracenic and British civil architecture.
- **St. Joseph's College Campus:** An educational anchor preserving Jesuit architectural contributions and scholarly traditions since 1844.

Map 14.1 represents potential heritage zones and heritage enclaves in Tiruchirappalli LPA respectively.

14.6 Existing Heritage Rules And Regulations

India's heritage is protected by a comprehensive legal framework, encompassing central, state, and local-level regulations. The Ancient Monuments and Archaeological Sites and Remains (AMASR) Act, 1958, protects sites of national importance by establishing "prohibited" and "regulated" zones around them. At the state level, the Tamil Nadu Ancient and Historical Monuments and Archaeological Sites and Remains Act, 1966, mirrors this law for state-protected sites, though enforcement can be challenging in rural areas. The Tamil Nadu Combined Development and Building Rules, 2019, broadens this protection by allowing for the designation of "Heritage Towns" and precincts, regulating new construction, marinating skyline and introducing incentives like Transferable Development Rights (TDRs). The TN Heritage Commission Act, 2012 (amended in 2024), establishes a commission to protect heritage buildings not covered by other laws. While these laws exist, a significant gap remains in their enforcement, particularly in the lack of comprehensive inventories and regulatory oversight for private heritage properties, leaving many monuments vulnerable to unrestricted development.





TIRUCHIRAPPALLI LPA



Legend

- Heritage Zones
- Historic Enclaves
- Major_Transport**
- Tiruchirappalli Airport
- Trichy Railway Junction
- LPA_Boundary
- Corp_Boundary
- Tanks
- District_Boundary

DIRECTORATE OF TOWN & COUNTRY PLANNING - TAMIL NADU

DATA SOURCE: SURVEY & LAND RECORDS
DTCP - TAMIL NADU



- HERITAGE ZONES**
1. Rockfort Zone
 2. Thiruvanaikoil Precinct
 3. Thiruvarangam Precinct
 4. Thiruvurumbur ASI Precinct
- HISTORIC ENCLAVES**
1. St. Joseph's College Campus
 2. Judiciary Complex
 3. Old Collectorate Campus

HERITAGE ZONES & HISTORIC ENCLAVES - TIRUCHIRAPPALLI LPA

Map 14. 1 Potential Heritage Zones and Historic Enclaves in Tiruchirappalli LPA

14.7 SWOT

Table 14.1 SWOT Analysis

Strengths (S)	Weaknesses (W)	Opportunities (O)	Threats (T)
Deep Heritage: 1000+ year old tradition, strong cultural identity, and centre for language and literature	Preservation Indifference: Public awareness exists, but general indifference hinders preservation efforts.	Reviving Cultural Attractions: Developing lesser-known cultural sites for safeguarding heritage and knowledge dissemination.	Irreversible Loss: Urban decay, demolition, and insensible modifications cause permanent loss of historical fabric.
Vibrant Festivals: The City hosts year-round festivals, including the massive Vaikunda Ekadasi & Aadi Perukku.	Uncontrolled Urbanization: Ad-hoc growth is encroaching on heritage sites, water bodies, and green spaces.	Community Engagement: Conservation efforts can be fueled by community-wide efforts and grassroots initiatives (heritage walks, clean-up drives).	Carrying Capacity: High floating population and traffic constantly threaten the capacity of heritage cores.
Urban Coherence: Planning and Urban fabric from the Panidan, Chola Nayaka period remains relevant for festivities	Regulatory Gaps: Absence of heritage bylaws and clear development guidelines.	Judicial & Administrative Support: Heritage City policy and preservation frameworks can provide a legal mechanism to strengthen conservation efforts.	Landmark Disappearance: Modifications & Negligence have destroyed historical landmarks like the Ritual Mandapams.
Tourism Hub: Major center for pilgrimage and tourism, supporting the regional economy.	Capacity Deficit: Lack of a dedicated Heritage Cell and capacity to manage heritage issues.	World Heritage nomination: Cultural Landscape of Sri Rangam & Thiruvanaikovil has potential as Cultural Heritage & Intangible Cultural Heritage	Development Pressure: Uncontrolled encroachments threaten underutilized heritage sites.
Rich Resources: Abundant variety of tangible resources (Architectural and Archaeological) and intangible assets (festivals, arts, performance arts, traditional sports).	Infrastructure Strain: Insufficient infrastructure for large tourist populations, especially during festivals.	Model for Urban Heritage: Establishing Tiruchirappalli's exemplary heritage management and conservation efforts as a blueprint for other heritage cities in Tamil Nadu.	Systemic Failure: Administrative bottlenecks and a lack of a coherent framework hinder action.

<p>Protection: Key archaeological sites are protected by Central and State AMASR Acts; strong local pride in culture.</p>	<p>Neglected Sites: Lesser-known sites lack amenities, proper signage, and suffer from vandalism.</p>	<p>Conservation Demonstration: Pilot projects of Conservation of Public buildings to motivate heritage property owners to take up heritage-sensitive interventions and livelihoods</p>	<p>Loss of Knowledge: Traditional systems like Kudimaramathu (community water management) are diminishing.</p>
<p>Public Awareness: Commitments to Language and Cultural Belief Systems</p>	<p>Intangible Heritage Recognition Gap: Lack of formal recognition for Tiruchirappalli's intangible cultural heritage.</p>	<p>Tourism Boost: New infrastructure (thematic museums, epigraphy centres) can enhance heritage centric tourism.</p>	<p>Recognition Lag: The slow pace of UNESCO nominations threatens the formal preservation of diverse intangible heritage.</p>

14.8 Recommendations

14.8.1 Heritage Conservation Committee

To effectively manage Tiruchirappalli's diverse and rich heritage, a Heritage Conservation Committee (HCC), a statutory regulatory body formed based on the Tamil Nadu Heritage Commission Act, 2012. It will function as the high-level regulator and a statutory under the Local Planning Authority (LPA)/UDA to manage operational conservation efforts. The HCC acts as the key intermediary, coordinating policies between government agencies, public and other stakeholders. As an immediate mandate, Heritage conservation committee shall be implemented for the exceptionally significant heritage precincts of Srirangam, Thiruvanaikovil & Thiruverumbur.

14.8.2 Intangible Cultural Heritage Promotion Body

A specialized Intangible Cultural Heritage (ICH) Promotion Committee is necessary to safeguard Tiruchirappalli's non-physical traditions, drawing inspiration from the Ahmedabad model. This framework focuses on four pillars: Inventory and

Documentation (for traditions like the Vaikunda Ekdasi, Samayapuram Poochorithal and local cuisine), Impact and Risk Assessment of urban development, ensuring Local Participation, and implementing Mitigation and Preservation Measures. It shall have representatives from statutory bodies, NGOs and the committee shall ensure a holistic and collaborative approach. Its mandate shall be to promote the region's heritage globally, potentially working towards World Heritage status, while leveraging traditional skills for economic development.

14.8.3 Institutional Framework For Urban Local Bodies- Heritage Cell

To ensure effective, on-the-ground management of Tiruchirappalli's architectural and cultural legacy, a dedicated Heritage Cell/Department is recommended within the Tiruchirappalli Corporation as a first phase, Municipalities of Lalgudi, Thuvakudi and Town Panchayats and other concerned Urban Local Bodies (ULBs) at later stages, modelled after successful frameworks in Mumbai and Ahmedabad. This cell will function as the primary technical body and Competent

Authority (CA) for the entire Local Planning Area. This specialized unit will provide regulatory oversight and expert guidance essential for preserving the city's unique character and also, implement projects. Its core responsibilities and functions shall include Listing- Grading of heritage buildings, sites and precincts, assisting HCC in notifying them, identification of TDR & Incentives, Character Zone Delineation and preparation of heritage byelaws, implementation of Heritage revitalization plans and Capacity building.

14.8.4 Heritage City Policy Formulation And Cultural Resource Mapping

A comprehensive Heritage City Policy is vital for protecting Tiruchirappalli's 1000+ year old historical and cultural identity from unmanaged urban expansion. The policy shall aim to integrate heritage protection directly into the planning process, allowing for differentiated development based on the specific needs of various heritage zones. It will not only provide guidelines for all

developmental actions—even minor infrastructure work—but also extend its scope beyond urban limits to include rural settlements and sacred landscapes. Supporting this policy is Cultural Resource Mapping, an initiative by the Heritage Cell to create holistic, multi-layered maps that use heritage as a catalyst for urban growth, tourism, and a heritage-led economy.

14.8.5 Delineation Of Character Zones As Heritage Areas

Specific zones within LPA shall be demarcated as "character zones / heritage zones". These zones need to be subject to development controls and byelaws designed by the heritage cell to preserve their unique historical and cultural identity. The goal is to revitalize Tiruchirappalli's historic core through Comprehensive Heritage Management tailored to its specific character zones. It shall aim at the careful management of change over time, focusing on the five key areas: Protection of Existing Heritage, restoration of deteriorated sites and precincts, Enhancing

Table 14.2 Summary of Character Zones identified

Type	Tag	Location	Significance
Heritage Zones	ZONE 1	Malaikottai (Rockfort Area)	Fortification of the Nayaka Period Multi-religious Landmarks
	ZONE 2	Thiruvanaikoil temple precinct	Religious & Cultural Landscape
	ZONE 3	Thiruvarangam temple precinct	Religious & Cultural Landscape
	ZONE 4	Thiruverumbur	Religious + Archaeological Importance
Historic Enclaves	CAMPUS 1	Old Collector Office zone	Administrative buildings of the British Colonial Period
	CAMPUS 2	St. Joseph's College campus	Educational Campus of the Jesuit Mission
	CAMPUS 3	Court Campus zone	Judiciary Campus of Colonial Heritage Buildings

Compatibility, upgrading essential Infrastructure, and Improving User Experience. The primary aim is to create a coherent, vibrant, and legible precinct that honours the city's rich past while accommodating modern life. This involves enhancing heritage streetscapes and bridging infrastructure gaps with sustainable solutions.

To achieve this vision, the strategy will focus on several key measures within historical premises: establishing Heritage Bylaws, conserving historic structures, thoughtful street-scaping, using harmonious building materials, designing proper access points, and planning for the continuity of intangible cultural heritage. The core principle is conservation, ensuring heritage components remain relevant today and are preserved for the future, in strict adherence to international charters and in line with SDG 11.4 for holistic, zone-based development. Comprehensive conservation and Management recommendations for the Identified character zones are provided in the following table.

14.8.6 Revitalization Recommendation & Proposals of Heritage Zones

Following are some of the recommendations common for all the heritage zones identified.

14.8.6.1 Formulation of Heritage Bye-laws

The Differential Bye-Laws for each identified heritage zone are recommended, aiming to holistically preserve its built and living heritage. These codes ensure architectural harmony, referencing traditional designs, and promote climate-conscious planning, all while utilizing tools like Transferable Development Rights (TDR) to incentivized private conservation efforts.

- Recommended Building Height Regulation
- Buffer around Notified Heritage Buildings and Sites
- Form Based Iterations for New Buildings
- Imageability of Important Structures
- Reconstruction & Architectural Integrity
- Facade Control Regulations
- Revitalisation of Public Space
- Additional Regulations & Markers
- Visual Homogeneity in design elements

14.8.6.2 Z1 - Malaikottai Rock Fort

This urban conservation framework for the Rock Fort precinct focuses on preserving its geological and architectural significance through three strategic pillars:



- **Street Specific Urban Design:** A categorised network of Concentric (looping), Axial (leading), and Segmental (connector) streets will prioritise walkability and visual axes while regulating building heights to maintain the hill's dominance as an "outdoor museum."
- **Conservation of Waterbodies:** A comprehensive management plan for Teppakulam, Nandhavanam, and Naganathaswamy Temple tank aims to enhance structural stability and ecological sustainability, transforming these sacred sites into active, accessible civic spaces.
- **Restoration of Rani Mangammal Palace Complex:** Beyond building conservation, the strategy integrates the palace with Coronation Park and Super Bazaar to revive the complex as a vibrant public hub.
- **Urban Management:** Key interventions include participatory parking solutions, plot amalgamation caps to retain heritage character, and a decluttering exercise to enhance the imageability of historic landmarks like the Main Guard Gate and diverse religious sites.

14.8.6.3 Z2_Aranganathaswamy temple precinct, Thiruvarangam and Z3_Jambukeswarar temple precinct, Thiruvanaikovil

Thiruvanaikovil and Thiruvarangam exemplify the Historic Urban Landscape (HUL) through their intricate layering of natural and cultural values. The conservation framework for Thiruvarangam and Thiruvanaikovil applies the Historic Urban Landscape (HUL) approach to preserve the island's layered heritage:

- **Street Specific Urban Design:** A categorised strategy uses Concentric loops for building control, Axial lines for landmark visibility, and Segmental routes for urban regeneration and crowd management.
- **Integrating HUL of Sacred Precincts:** Interventions focus on connecting major temples via Gandhi Road, prioritising NMT and EV shuttles, and creating breathing spaces. It emphasises revitalising Padithurais, implementing nature-based flood mitigation, and using street art to enhance the cultural bond between residents, pilgrims, and the riverine ecosystem.
- **Strategies for Thiruvarangam Island Urbanism:** To prevent over-tourism, the plan prioritises the "everydayness" of the island, balancing resident needs with 24/7 activation of civic spaces and tech-driven heritage interpretation.

14.8.7 Revitalization Recommendation & Proposals for Historic Enclaves

This section outlines the revitalisation of heritage institutional campuses through two primary frameworks:

- **Comprehensive Conservation Management Plan:** This plan prioritises Cultural Resource Mapping for heritage grading and establishes a clear Buffer around Heritage structures to ensure structural stability and visual prominence. It focuses on enhancing Imageability via urban pauses, active Promotion of the campus through public events, and implementing Façade Control regulations and a Homogeneity in visual language to create a readable urban environment.
- **Democratization of Campuses:** This initiative reimagines campuses as inclusive "commons". Strategies include creating Permeable boundaries with active façades, ensuring Universal Design for accessibility, and developing 24x7 edges. By integrating Mixed-use functions, treating Streets as the storytellers, and deploying Incidental Activity Generators, the campuses transform into vibrant, multifunctional congregation spaces.

PROJECT PROPOSALS

14.8.8 Rejuvenation of Blue-Green Infrastructure

Proposals focus on identifying key nodes for tactical urbanism and detailed design to enhance the civic experience through tailor-made guidelines, building regulations, and art-led placemaking.

- **Mukkombu and Kallanai:** Recommendations include designating these as Special Heritage Zones (SHZ) with specific buffer requirements to restrict high-density construction and incorporating architectural interventions to host documentation and information centres.
- **Uyyakondan Canal:** The proposal envisions the canal as a heritage water system integrated with green corridors, specifically proposing new ghat sections and climate-sensitive material upgrades at the Major Saravanan Road and Students Road nodes.
- **Koraiyar Channel:** Proposals aim to strengthen the channel's carrying capacity for flood management while transforming its banks into active, well-managed public spaces that link adjacent residential colonies to the Dindigul Road corridor.

14.8.9 World Heritage Nomination Potential

14.9.8.1 Island Towns of Thiruvarangam & ThiruvanaiKovil

The Sri Aranganathaswamy Temple was placed on the UNESCO World Heritage Tentative List in 2014, cited for its unique "Temple Town" urbanism where seven concentric enclosures integrate seamlessly with the religious site. A 2017 UNESCO Asia-Pacific Award of Merit further validated its conservation efforts.

The current proposal suggests revising this listing into a "Cultural Landscape" category to encompass the entire island of Thiruvarangam,

including the Thiruvanaikovil Jambukeswarar Temple. This revision recognizes the island as a sacred riverine ecosystem defined by hydraulic engineering and living traditions. To support this, precise buffer zones are proposed along the Cauvery and Kollidam rivers to protect the "island" identity, maintain historic gopuram-to-gopuram visual corridors, and preserve traditional processional streets. This functional buffer is essential for maintaining the site's authenticity and safeguarding it from modern urban pressures.

14.9.8.2 Nomination Of Rock Fort Zone as World Heritage Site

The Tiruchirappalli Rock-Fort is a unique convergence of geological antiquity, cultural continuity, and architectural significance. Rising prominently above the city, it is a rare rock heritage element that has shaped the historical, spiritual, and urban evolution of Tiruchirappalli over centuries. Its nomination as a World Heritage site is essential to ensure long-term conservation and global recognition of its multi-layered history.

Justification of Outstanding Universal Value (OUV)

- **Geological Antiquity:** The precinct is anchored by a 3.8-billion-year-old rock formation, making it one of the oldest geological structures in the world and a significant natural landmark.
- **Human Creative Genius:** The site exhibits a masterpiece of human creative genius through its Pallava-era rock-cut cave temples (6th–7th century CE), which feature finely carved pillars and shrine chambers excavated directly into the granite face.
- **Living Heritage Precinct:** It represents a "living heritage" site where ancient fortified settlements and medieval temple traditions have evolved into a dense, vibrant urban core that still hosts centuries-old festivals and rituals.

Comparative Analysis

To establish its global significance, the Rock-Fort can be compared to the World Heritage properties. The Tiruchirappalli Rock-Fort is a globally significant site that blends ancient geology with military fortification and spiritual architecture. It stands alongside world-class landmarks like Sigiriya, Sri Lanka and Meteora, Greece and Hill forts of Rajasthan, Rock shelters of Bhimbetka at the national level by uniquely integrating sacred spaces into a strategic, high-altitude natural landscape.

14.9.8.3 Intangible Cultural Heritage – Festival Syncretism

The festival Syncretism is a compelling candidate for UNESCO's Intangible Cultural Heritage list, as this living tradition of social

practice and ritual provides Tiruchirappalli with a strong sense of identity and continuity. A successful nomination would elevate the festival onto a global platform, increasing international awareness and fostering dialogue between diverse religious and folk traditions. This process necessitates the active participation and informed consent of all community members who are the true bearers of the ritual practices, including temple authorities, musicians, and performers.

The above table is a listing of known festivals that the Tiruchirappalli hosts across the year. Achieving a successful nomination requires establishing a robust institutional framework, ideally led by a core, multi-disciplinary committee at the district or state level. This committee's essential responsibilities include the systematic documentation of all festival aspects, from oral

Table 14.3 Listing of key festivals of Tiruchirappalli

Name of Festival	Time Period	Category	Importance / Key Features
Vaikunta Ekadasi	Margazhi (Dec–Jan)	Spiritual	Opening of the Vaikunta Dwaram; Thiruvaramam's signature 21-day festival.
Pragyan	Feb–March	Educational	NIT Tiruchirappalli's international techno-managerial fest; one of India's largest, featuring robotics and global guest lectures.
Festember	September	Cultural	NIT Tiruchirappalli's national-level cultural extravaganza; features "Pro-Shows" with celebrity artists and inter-college arts contests.
Tiruchirappalli Book Fair	Sept or July	Educational	Organized by the District Administration; a major event for bibliophiles with lakhs of books and literary discussions.
Aadi Perukku	Aadi (July–Aug)	Cultural/Nature	Gratitude to the Kaveri River; families gather at Amma Mandapam for community dining and rituals.

Name of Festival	Time Period	Category	Importance / Key Features
Saint Tyagaraja Aradhana	January	Cultural	Held in nearby Thiruvaiyaru; a world-renowned Carnatic music festival where thousands sing the Pancharatna Kritis in unison.
Pongal / Uzhavar Thirunal	Thai (Jan 14–17)	Secular/Agrarian	The Farmers' Festival; includes Mattu Pongal (cattle worship) and Jallikattu (bull-taming) in surrounding villages like Suriyur.
Kaanum Pongal	Jan 17th approx.	Secular	A day for public outings; thousands flock to the Kaveri riverbanks, Mukkombu (Upper Anaicut), and Anna Science Centre.
Flower Show (Anna Science Centre)	Jan–Feb	Secular	Annual horticultural exhibition at the Planetarium complex showcasing rare flora and garden competitions.
Chithirai Car Festival	Chithirai (Apr–May)	Spiritual/Social	Grand chariot procession; a major local holiday that brings the entire city's commerce and community together.
National Science Day	Feb 28th	Educational	Celebrated at Anna Science Centre & Planetarium with sky-watching sessions and science exhibitions for schools.
Lourdes Church Feast	February	Spiritual/Social	Commemorates the appearance of Our Lady of Lourdes; includes a grand street procession near Rockfort.
Annual Urs (Sandanakoodu)	Variable (Islamic)	Spiritual/Social	Sandalwood paste procession; a symbol of communal harmony involving people of all faiths in Tiruchirappalli.
Teppotsavam (Float Festival)	Masi (Feb–Mar)	Spiritual/Social	Visual spectacle at the Rockfort Teppakulam and Thiruvarangam; the city lights up for these evening raft processions.

traditions to procession routes, and the creation of a detailed safeguarding plan. This plan must address modern challenges, such as urbanization and the need for inter-generational knowledge transfer. Ultimately, the framework must foster continuous collaboration, ensuring the nomination marks the beginning of a sustained effort to protect this unique cultural treasure.

14.9.9 Selection And Management Of Bio-Diversity Sites

The declaration of the Tropical Butterfly Conservatory and Bird Sanctuary on the Island of Thiruvaramam as a Biodiversity Heritage Site would follow the successful precedent of Arittapatti in Madurai, safeguarding a unique riverine ecosystem. By formally designating this site under Section 37 of the Biological Diversity Act, 2002, the state can empower local bodies to protect these critical ecological and cultural assets from urban pressure.

Justifications for Declaration:

- Critical Riparian Biodiversity: Situated within the “Great Divide” of the Cauvery and Kollidam rivers, the sanctuary serves as a

vital habitat for migratory birds and diverse butterfly species, functioning as an essential ecological anchor for the Sri Rangam island.

- Fusion of Natural and Cultural Heritage: As part of a “Cultural Landscape,” the sanctuary protects the riparian land parcels and “Nandavanams” (sacred groves) that have historically sustained the region’s micro-climate and temple rituals for centuries.

14.9.10 Handloom Experience Centre & GI Promotion Hub

To safeguard Tiruchirappalli’s artisanal legacy, a dedicated GI Facility Centre is proposed to identify and promote high-potential products. While the Woraiyur Cotton Sari and Trichinopoly Cigar hold existing status, this centre will champion candidates like Manamedu Cotton, Pachamalai Jackfruit, and Lalgudi Glasswork.

Leveraging Tiruchirappalli’s central location for state-wide accessibility, this hub will serve as a premier cooperative centre for all GI-tagged products of Tamil Nadu. It will function as a relationship-building space for the recognition and promotion of regional arts and crafts.

Table 14.4 Current and Potential GI Tags of Tiruchirappalli

Category	Product	Key Feature
GI TAGGED	Woraiyur Cotton Sari (2025)	Chola-era heritage; famous for Korvai borders.
	Trichinopoly Cigar (2008)	Historically favored by world leaders; handmade.
	Manapparai Murukku	Iconic snack made with local well water.
POTENTIAL	Pachamalai Jackfruit	High-altitude sweetness & firm texture.
	Manamedu Cotton	High thread count; extremely breathable fabric.
	Lalgudi Glasswork	Traditional mouth-blown glass techniques.
	Thuraiyur Towels	Unique honeycomb weave; Durability
	Leather Tanning	Century-old vegetable tanning process (East India Leather)

A core feature is the Handloom Demonstration cum Experience Centre. Operating in collaboration with Co-optex and Poompuhar, this Handloom Hub will offer an immersive curriculum:

- **Live Weaving Sessions:** Visitors witness the intricate creation of regional silks and cottons.
- **Hands-on Workshops:** Scheduled classes where tourists can try their hand at traditional looms.
- **Artisan Storytelling:** Interactive sessions detailing the history of Chola-era weaving and Korvai borders.

This outlet will serve as a dual demonstration and sales centre, blending traditional craftsmanship with modern promotion to stimulate a tourism-based economy.

14.9.11 Promoting Rural Heritage

The key resource that has attracted a continuous inhabitation, evolving over multiple layers and under various powerhouses, by creating a unique palette of Urbanity and Heritage is the riverine edge of Kaveri and Kollidam rivers.

Aiming at promoting rural economy, documentation and appropriately conserve with a community-led programme, the heritage of the landscape of Kaveri and Kollidam Basin. Suitable villages with heritage importance (such as Allur, Mutharasanallu, Melur, Gunaseelam and Thiruvasi as public and privately owned heritage structures and / or historic importance shall be identified and promoted for rural tourism in a community-led programme.





15. TOURISM

15.1 Overview

Tiruchirappalli stands as a cornerstone of Tamil Nadu's tourism economy, driven by a powerful blend of ancient engineering and profound spiritual and cultural heritage. As a premier destination for domestic pilgrims, the city is anchored by architectural marvels such as the Arulmigu Aranganathaswamy Temple the world's largest functioning Hindu temple complex and the historic Rockfort, which offers a glimpse into a 3.8-billion-year-old geological past.

Benefiting from a diverse array of cultural and historical anchors, Tiruchirappalli has evolved into a multi-dimensional tourism powerhouse, seamlessly accessible via a robust multi-modal transportation network. The

city serves as a highway nexus, providing direct arterial connectivity to major regional hubs including Chennai, Thanjavur, Coimbatore, Madurai, and Kanyakumari. This terrestrial strength is bolstered by the historic Tiruchirappalli Railway Junction, the state's second-busiest international airport, (which facilitates a global influx of visitors) and the recent commissioning of the state-of-the-art Panjappur Integrated Transit Hub, Tiruchirappalli has firmly established itself as the primary strategic gateway to both the

Cauvery Delta and the broader southern landscape of Tamil Nadu.

15.2 Popular Destinations in and Around Tiruchirappalli

Tiruchirappalli offers a multi-dimensional tourism experience, encompassing both stand-alone attractions and broad regional circuits. Key pilgrimage destinations within this network include-

Table 15.1 Significant Tourist Sites in Tiruchirappalli

Ecological	Archaeological	Historical	Knowledge	Religious
Mukkombu (on the River Cauvery)	Rock cut cave temples of Rockfort campus	Uyyakaondan Thirumalai, Vayalur, Woraiyur – Historic settlements from Chola Dynasty	St. Joseph's College & Museum	The group of rock-cut temples at Rockfort
Bird park and Butterfly Park	Thiruverumbur – Hill & temple - ASI site	Rani Mangammal Palace, and Fortification of Rockfort – Nayak Dynasty	Jamal Mohammed College & museums	Hindu pilgrimage sites - Arulmigu Thayumanaswamy temple, Arulmigu Aranganatha swamy temple, Jambukeswarar temple, Vayalur Murugan temple, Samayapuram Mariyamman temple
Heritage water infrastructures like Uyyakondan Canal, Thirumanjana cauvery, Religious Theppakulam (water tanks)	Thiruvellarai – Swastika Well (outside LPA) – State Archeology	Cantonment area – developed during the British period	Anna Science Centre & Planetarium	Islamic Pilgrimage sites – Old Mekka Pallivasal (Kalluppalli), Mohamedia Masjid, Nathar Vali Dargah, Begum Sahaib Pallivasal.

Ecological	Archaeological	Historical	Knowledge	Religious
Pulianchulai Forest (outside LPA), Pachamalai Hills (outside LPA)	Cholamadevi temple, Thiruvermbur – State Archeology	Cultural resources across Srirangam island	The Tiruchirappalli District Government Museum	Christianity Pilgrimage sites - Lady of Lourdes Church, St. Mary's Cathedral Church, St. John's Cathedral Church, CSI Christ Church
Kallanai – The Grand Anicut (Thanjavur district)	Pachil Amaleeswarar Sivankovil, Alagiamanavalam – State Archeology	Other historic settlements of Mannachanallur, Lalgudi, Samayapuram, Thiruppanjeeli	Tiruchirappalli Railway Museum	
Cauvery and Kollidam river edges	Agastheeswarar Temple, Perungudi – State Archeology		Sir C.V. Raman STEM Park	

15.3 Tourism Flow and Trend (2016-2024)

Pre-COVID Growth (2016-2019):

Domestic tourist arrivals increased sharply from 1.79 crore in 2016 to nearly 3.0 crore in 2017, followed by a phase of consolidation and moderate decline, reaching 2.75 crore by 2019. International tourist arrivals showed a gradual downward trend, decreasing from 4.28 lakh in 2016 to about 3.97 lakh in 2019, indicating limited international market penetration prior COVID and a stronger reliance on domestic visitor flows.

COVID Impact (2020-2021):

The COVID-19 pandemic had a severe impact on tourism in Tiruchirappalli. Domestic tourist arrivals declined sharply by over 61% in 2020, dropping to 1.04 crore visitors, while international arrivals fell by more than 74%, reducing to just over 1.0 lakhs.

Post-COVID Recovery (2022-2024):

Domestic tourism has recovered sharply, with growth rates of over 39% in 2022, reaching 2.04

crore, followed by a further 22% growth in 2023, touching 2.49 crore visitors.

Seasonal Tourism Variations

District statistics and tourism reports, including the 2025 dataset, indicate that Tiruchirappalli's tourism industry is influenced by its harsh tropical climate. While the peak winter season provides optimal weather for sightseeing, high visitor numbers continue during the summer months due to holidays and events such as the Chithirai Festival.

Tiruchirappalli's tourism economy is defined by seasonal surges tied to religious festivals and academic calendars. Major events like Vaikunta Ekadasi and Adi Perukku draw over a lakh of visitors, creating significant economic boons but straining local infrastructure. Given its concentration of numerous institutions, Tiruchirappalli regularly attracts educational visitors, including students, researchers, and families, with peak activity occurring during admissions periods and seasonal academic breaks. The steady influx of a large floating

Table 15.2 Annual Percentage of Tourist flow in Tiruchirappalli

Year	Domestic with Annual % Change	International with Annual % Change	Total with Annual % Change
2016	1,78,97,140	4,28,048	1,83,25,188
2017	2,98,91,282 (67.02%)	5,34,682 (24.91%)	3,04,25,964 (66.04%)
2018	2,95,87,503 (-1.02%)	4,38,088 (-18.07%)	3,00,25,591 (-1.32%)
2019	2,71,32,490 (-8.30%)	3,97,750 (-9.21%)	2,75,30,240 (-8.31%)
2020	1,04,10,946 (-61.63%)	1,02,797 (-74.17%)	1,05,13,743 (-61.81%)
2021	1,46,62,517 (40.83%)	6,267 (-93.90%)	1,46,68,784 (39.51%)
2022	2,03,65,852 (38.90%)	76,560 (1121.50%)	2,04,42,412 (39.36%)
2023	2,48,58,542 (22.06%)	1,03,455 (35.13%)	2,49,61,997 (22.11%)

Source: Tourism Department, Government of Tamil Nadu

population demands enhanced capacity planning and diverse, flexible lodging options like homestays. Strengthening tourism infrastructure and integrating programs like Incredible India Rural Homestay Guidelines and Skill India training can professionalize services while preserving cultural authenticity.

Legislative and Regulatory Framework:

To regulate the tourism sector and encourage private investment, the government has introduced the Tamil Nadu Tourism Promotion and Facilitation Act, which aims to enhance tourism infrastructure, attract investments, and establish regulations for stakeholders in the tourism sector. By implementing this act, the government can establish minimum standards for homestays, bed and breakfast providers, and tour guides. Programs like skill development for eco-guides and green certifications for accommodations, will ensure a high-quality, sustainable, and professional tourism experience across Tiruchirappalli.

15.4 Key Challenges

Tiruchirappalli's rich heritage makes it a key tourist destination, but the sector faces challenges impacting its growth and sustainability:

- **Layout and circulation:** Tiruchirappalli's narrow streets, limited entry and exit routes create major circulation problems during peak festivals. The sudden surges of devotees after important rituals or processions often overwhelm these confined spaces, leading heavy congestion.
- **Crowd Control & Safety, Monitoring:** Significant gatherings in commercial hubs and major temple festivals necessitate heavy police intervention to prevent congestion. Crowd control is particularly challenging to manage due to shortages of trained personnel and volunteers, as well as inadequate staff placement in high-risk areas.

- **Traffic Management:** To address the significant influx of visitors, the city will implement a strategic traffic management plan to mitigate widespread urban congestion. This requires specialized traffic regulations, including real-time vehicle monitoring, temporary one-way corridors, and designated high-capacity transit lanes, parking plans and parking facilities.

- **Infrastructure Facilities:** Facilities such as restrooms, drinking water, and emergency services are insufficient to meet the needs of the crowd at important tourist destinations. This results in creating pressure points and leading to disruptions in guest flow.

Despite having better segregation rates (89%) in Tamil Nadu, Tiruchirappalli faces challenges with inadequate processing infrastructure during high-waste generation periods, such as festivals. Additionally, visitors, especially those unfamiliar with the city, face difficulties due to the lack of clear signages and inadequate lighting along pathways, junctions, and exit routes. This adds to confusion and safety concerns during high-density periods.

- **Limited Global Visibility:** Insufficient marketing and promotional efforts hinder Tiruchirappalli's recognition on the global tourism map. Even with Srirangam's tentative UNESCO listing, many aspects of the district's rich history remain under-promoted and largely unnoticed by international travellers.
- **Issue due to Climatic conditions:** High average temperatures and the lack of shade make the city generally non-walkable.
- **Inadequate Signages:** Despite Tiruchirappalli's rich heritage and pilgrimage sites, many historic zones lack clear, consistent, well-maintained signage. The absence of directional markers, multilingual information, and interpretive panels hinders visitor understanding. Strategic, uniform, and heritage sensitive signage with digital integration can enhance wayfinding, heritage awareness, and tourism.

15.5 Key Implication for Tourism Planning

- **Prioritize the Domestic & Transit Market:** Tiruchirappalli should prioritize domestic tourism by investing in infrastructure, offering tailored experiences, and targeted marketing. This resilient segment provides a stable foundation, making the region more adaptable to future shocks.
- **Targeted Strategy for Diaspora-Driven International Recovery:** Unlike other districts, Tiruchirappalli's international market is primarily fueled by the Tamil diaspora- Malaysia, Singapore, and Sri Lanka. Tiruchirappalli must identify key source markets and pursue focused promotions and collaborations. The "COVID deficit" underscores the magnitude of this challenge, demanding a patient and sustained effort to attract foreign visitors and diversify the tourism base.
- **Climate-Responsive & Resilience Planning:** It is suggested for Tiruchirappalli to develop a proactive climate management plan specifically Heatwave Action Plans (shaded walkways, hydration points) and Flood Safety Protocols for the Cauvery banks during Aadi Perukku.
- **Investment in Smart Pilgrim Management and Data:** Tiruchirappalli's tourism must adopt AI for crowd management at Srirangam, Samayapuram, etc. Real-time data will help anticipate festival crowds, enabling better planning and resource allocation for more efficient tourism.
- **Temporal Infrastructure for Festivals:** High footfall during Vaikunda Ekadasi (Dec-Jan) and Aadi Perukku (August) requires a flexible infrastructure plan. Establish dedicated facilities for the Samayapuram temple procession, including paved paths, shaded rest areas, and enhanced sanitation to ensure pilgrim safety and comfort.

- **Strategies for Heritage Activation:** Marketing strategies must focus on creating Eco-Heritage Corridors, improving basic amenities (toilets, signage) at these sites to attract adventure seekers and nature lovers, thereby diversifying the tourism base beyond just religious pilgrimage.
- **Integrated Crowd & River Safety Management (Crisis Planning):** A shift from reactive policing to proactive zone management is recommended, supported by permanent integrated command centres at Thiruvarangam and Samayapuram.

15.6 Tourism Projections

Tourist Flow Projections for 2045

The growth rate is based on 2016-2019 data, excluding 2020-2021 and 2022 recovery years. The Compound Annual Growth Rate (CAGR) is 6.3%, projecting significant growth from 2022 to 2045. Domestic tourists is expected to rise from 1.12 crore to 6.64 crore, while international tourists are expected to grow from 46,000 to 25 lakh, totalling over 6.66 crore visitors by 2045.

Accommodation Projections for 2045

By 2045, over 66.6 million tourists annually will create a significant accommodation deficit of 21,204 hotel rooms daily, with current supply at 6,500 rooms. To meet this future demand and

achieve an aspirational 60% occupancy rate, the city must significantly expand its lodging capacity. The development plan suggests a diverse mix of new accommodations, 22 five-star hotels (15% of the total), 202 other-star hotels (60%), and 196 shared accommodations like home stay, dormitories and guesthouses (25%). This expansion requires 118 acres of land for hospitality developments across urban and rural areas.

15.7 Exiting Recommendations and Proposals

Government Proposals

Tamil Nadu Integrated Tourism Promotion Project (TNITPP)

Through the Tamil Nadu Integrated Tourism Promotion Project (TNITPP), the Government of Tamil Nadu seeks to integrate the State's diverse tourism assets into a cohesive framework that highlights its living traditions, cultural landscapes, festivals, and rich heritage. Tiruchirappalli is identified as a Flagship Hub in the Integrated Tourism Master Plan, serving as a key node for multiple tourism trails including the Chola Trail, Ramayana Trail, Gopuram Trail, and Divya Desam Trail. Tourism-specific master plans prepared under TNITPP emphasize strengthening infrastructure, conserving heritage assets, and enhancing visitor experiences through targeted and context-sensitive interventions.

Table 15.3 Table showing category-wise key sites in Tiruchirappalli identified for development under TNITPP

S. no	Categories for development under TNIPP	Masterplans for Tourist sites in Tiruchirappalli under TNITPP
A	Ramayana Sites	Sri Ranganathaswamy Temple, Srirangam
		Rock Fort Ucchi Pillayar Temple
B	Gopuram Sites	Sri Ranganathaswamy Temple, Srirangam
		Rock Fort Ucchi Pillayar Temple
		Jambukeswarar Temple, Thiruvanaikoil
C	Chola Sites	Jambukeswarar Temple, Thiruvanaikoil
		Sri Ranganathaswamy Temple, Srirangam
		Rock Fort Ucchi Pillayar Temple
D	Divya Desam Sites	Sri Ranganathaswamy Temple, Srirangam
		Pundarikakshan Perumal Temple, Thiruvellarai
		Sundararaja Perumal Temple, Anbil
		Azhagiya Manavala Perumal Temple, Uraiyur
		Uthamar Kovil, Uthamarkoil
E	Panchbhootha Sites	Jambukeswarar Temple, Thiruvanaikoil
F	Caves and Fort Sites	Mariamman Temple, Samayapuram
		Rock Fort Ucchi Pillayar Temple
G	Other temples	Brahmapureeswarar Temple, Thirupattur
		Vekkaali amman temple, Uraiyur
		Akkaraipatti Saibaba temple
H	Waterbodies	Mukkombu
		Puliyancholai
I	Hotels	Hotel Tamil Nadu, Tiruchirappalli
		Hotel Tamil Nadu, Tiruchirappalli - II -SRM Hotel

15.8 Masterplan Recommendations and Proposals

15.8.1 Recommendations

15.8.1.1 Linking potential sites as tourism circuits

The proposal identifies Tiruchirappalli's core area as ideal for walking tours, along with other key sites like Thiruvarangam, Thiruvanaikoil and Tiruchirappalli Cantonment. At a broader level, the circuits would be themed around Tiruchirappalli's

rich religious heritage (including Saivism, Vaishnavism, Jainism, Christianity, and Islam), its architectural marvels and its ecological zones. The strategy of creating interlinked trails, empowering residents to align with a Public-Private Partnership (PPP) model, where local NGOs/CBOs can collaborate with the private sector on operating the rural and responsible tourism circuits for mutual economic and cultural benefit. The following table is a summary of all the tourist trails and nexus recommended in the master plan.

Table 15.4 Summary of all the tourist trails at the Micro, Meso & Macro level for Tiruchirappalli

Levels of Tourism	Sr. no.	Name of the trail	Number of buildings/precincts	Distance (in Kilometres)	Time (in Hours)	Means of transport
Micro level	I	Tiruchirappalli Core				
	1	Architectural Landmarks - Tiruchirappalli Rockfort precinct	13	1.21	3.41	Walk
	2	Architectural landmarks in depth trail - Tiruchirappalli Rockfort precinct	22	3.01	4.52	Walk
	3	Mixed religious trail - Tiruchirappalli city	6	3.25	2.98	Walk
	4	Islamic heritage - Tiruchirappalli city	4	4.18	2.00	Vehicular
	II	Thiruvarangam Core-Heritage resources trail	17	4.47	3.31	Walk
	III	Thiruvanaikoil Core-Heritage resources trail	6	3.11	1.87	Walk
Meso level	IV	Heritage Churches trail	6	12.40	2.31	Vehicular
	V	Institutions and Administration Heritage trail	6	10.15	2.25	Vehicular
	VI	Thiruvaranagam & Thiruvanaikoil temple trail	2	3.80	1.32	Vehicular & walk

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Macro level	VII	Religious pilgrimage nexus				
	1	Temple trail (Thenkarai)- Religious nexus	6	48.40	7.21	Vehicular
	Two-day circuit	Day 1	3	12.30	3.31	Vehicular
		Day 2	3	36.10	3.90	Vehicular
	2	Temple trail (Vadakarai)- Religious nexus	4	65.10	5.63	Vehicular
	Two-day circuit	Day 1	2	37.60	2.94	Vehicular
		Day 2	2	27.50	2.69	Vehicular
	VIII	Ecotourism trail	6	64.80	2.95	Vehicular
	IX	Educational tourism trail	6	29.60	3.24	Vehicular



15.8.1.2 Tourism Accommodation:

The development of tourist accommodation and allied hospitality components should Prioritize compact, high-density tourist accommodations around heritage and pilgrimage zones, utilizing heritage buildings for adaptive reuse as shared stays. Locate large hospitality developments near major transport corridors, especially in **Panjabur, Madakudi, Udayanpatti, Thirunagar, and Kumbakudi**. To accommodate the city's diverse visitor profile, transient housing is proposed across four strategic zones. In the Core Precinct (Rock Fort and Woraiyur), facilities will serve pilgrims and traders, while the Southern Institutional Belt (Navalur to Thuvakudi) will cater to students and medical tourists. The Northern Pilgrimage Corridor (Srirangam and Samayapuram) requires housing for seasonal devotees, and the Transport Nodes near Panjabur and the Airport will provide essential lodging for transit travellers.

15.8.1.3 Low-Impact Tourism Strategies

The core strategy for Tiruchirappalli tourism future is to move beyond conventional sightseeing by developing sustainable, responsible, and experiential tourism through eco-friendly trekking, community-led cultural immersion, and hands-on workshops centred on local heritage and traditional crafts. Table 15.5 is a list of identified sites and

rural settlements for low- impact tourism strategies.

15.8.1.4 Tiruchirappalli Festival Renaissance

Tiruchirappalli is poised to elevate its festivals into world-class cultural events by drawing inspiration from successful models like Gujarat's Rann Utsav and Kerala's Kochi-Muziris Biennale. These examples demonstrate that strategic planning and curated experiences can transform traditional celebrations into major tourist attractions. By focusing on strong branding and infrastructure, Tiruchirappalli can leverage its deep-rooted history to drive economic growth and gain global recognition.

Implementation Festival Upgrades

To implement the "Festival Renaissance" in Tiruchirappalli, targeted interventions will modernize religious tourism with digital queue systems and pilgrim lounges during high-footfall events. A new cultural identity will be promoted through the annual "**Trichy Thiruvizha**" arts festival featuring large installations and curated performances. Rural heritage and ethno-sports like Jallikattu will be enhanced with standardized spectator galleries and strict safety protocols. Additionally, river-based celebrations along the Cauvery will be revitalized with floating stages and illuminated riverfronts. These initiatives aim to preserve culture while boosting modern tourism.

Table 15.5 Low impact Tourism Strategies with the identified sites

Tourism Initiatives	Identified Rural Settlements/ Sites
Sustainable Tourism	Hiking – Pachamalai and Pulianchulai (outside LPA)
Responsible Tourism	Community Led tourism -Mannachanallur, Lalgudi, Woraiyur, Samayapuram, Thiruppanjeeli and Uyyakondan Thiruyumalai
Experiential Tourism	Saree weaving- Manamedu, Woraiyur Dhoti making - Thathaingarpettai Dhoties

15.8.1.5 Hop-On Hop-Off EV Buses

To improve tourist mobility, Tiruchirappalli need to plans to introduce Hop-On Hop-Off buses on its key heritage and religious trails. This service shall allow visitors to conveniently explore major attractions and cultural sites. The plan also includes establishing Tourism Information Centres (TICs) at key locations like railway stations and airports to provide maps, guides, and multilingual support. These measures deem to streamline visitor flow and strengthen Tiruchirappalli's position as a premier heritage tourism destination.

15.8.1.6 Tourist card

Guidance Based Proposals/ Tourist Incentives

Proposal for digital kiosks at key heritage and tourism sites in Tiruchirappalli to guide visitors. Additionally, install signage for self-guided walks to promote independent exploration, improve accessibility, and deepen cultural engagement. Tour Cards unifying all Heritage, Cultural Tourist Attractions and Tourism Incentives: To optimize the visitor experience, it is essential to introduce a unified tour card for Tiruchirappalli's major

heritage sites, landmarks, and attractions to streamline access, promote longer stays, and boost integrated tourism, enhancing the visitor experience across the city.

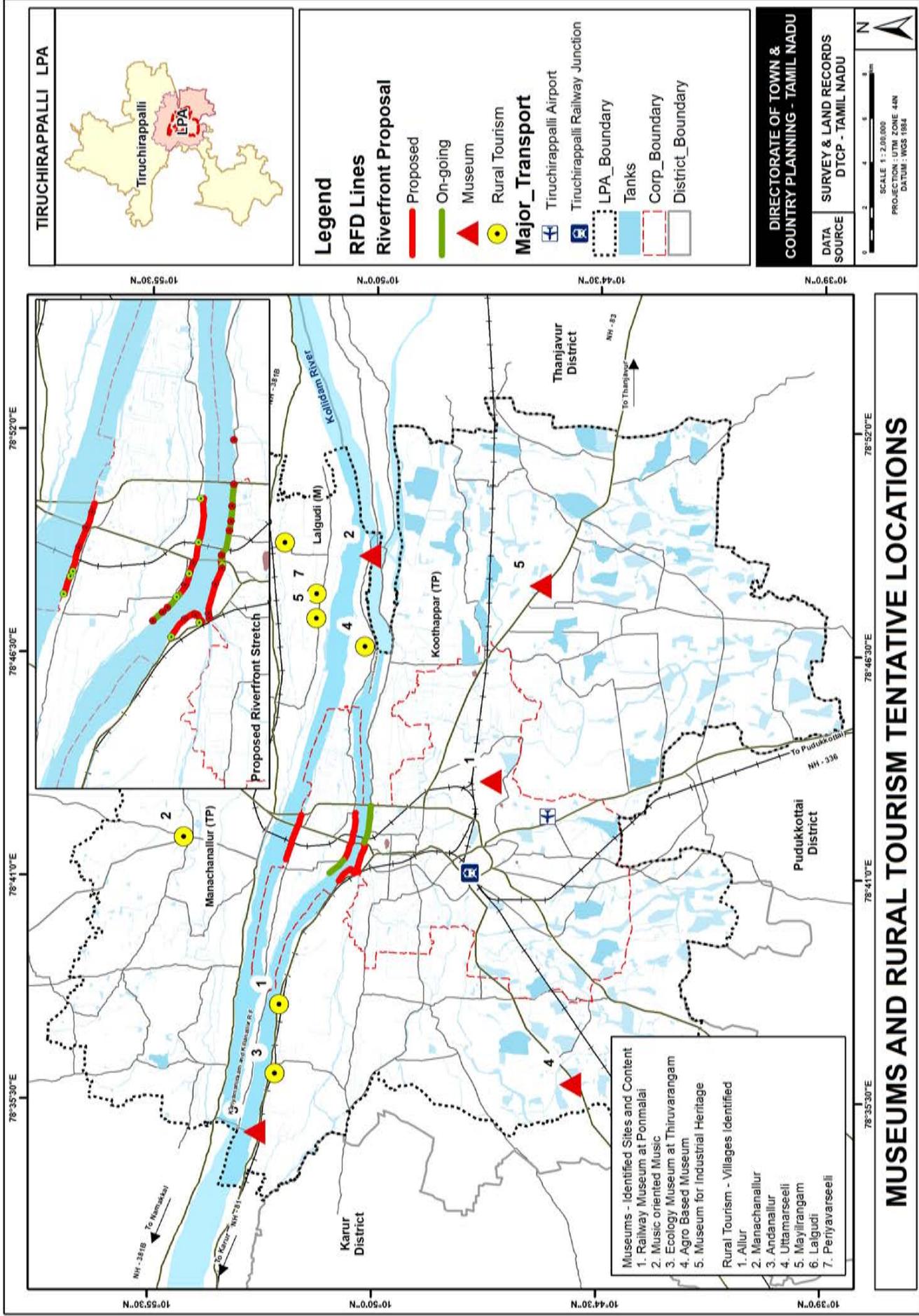
15.8.2 Proposals

15.8.2.1 Riverfront Development

The city of Tiruchirappalli, historically anchored by the perennial flow of the Cauvery and Kollidam rivers, faces A critical need to reconnect its urban fabric with its natural water assets. The proposed Riverfront Development Project aims to rejuvenate these banks, which have suffered from urbanization pressures and ecological degradation, by creating a sustainable, scenic, and functional waterfront. The Tiruchirappalli corporation has proposed to develop its first riverfront projects along the Cauvery, covering the southern and Northern banks in two phases at Odathurai and Srirangam. The master plan emphasizes the need for expanded riverfront development, recognizing the rivers' multi-sector importance. It recommends strategic revitalization of key stretches within the Local Planning Area.

Table 15.6 Recommended Phases of Riverfront Development

River Front Development		
Phases	Location	Distance (km)
PHASE – 1 (Cauvery)	Amma Mandapam to Mambazha Salai	0.94km
	Mambazha Salai to A.I.B.E.A. Colony	1.34km
	Appar Mandapam to Sanjeevi Nagar	0.26km
PHASE – 2 (Cauvery)	Kambarasampettai to Bird Park	1.0km
	Bird Park to Appar Mandapam	1.34km
Phase – 3 (Kollidam)	Thirumangai mannan padithurai to Stem Park	1.11km
	Stem Park to Kannimar Thopppu Road Junction	1.0km



TIRUCHIRAPPALLI LPA

Legend

RFD Lines

Riverfront Proposal

- Proposed
- On-going
- Museum
- Rural Tourism

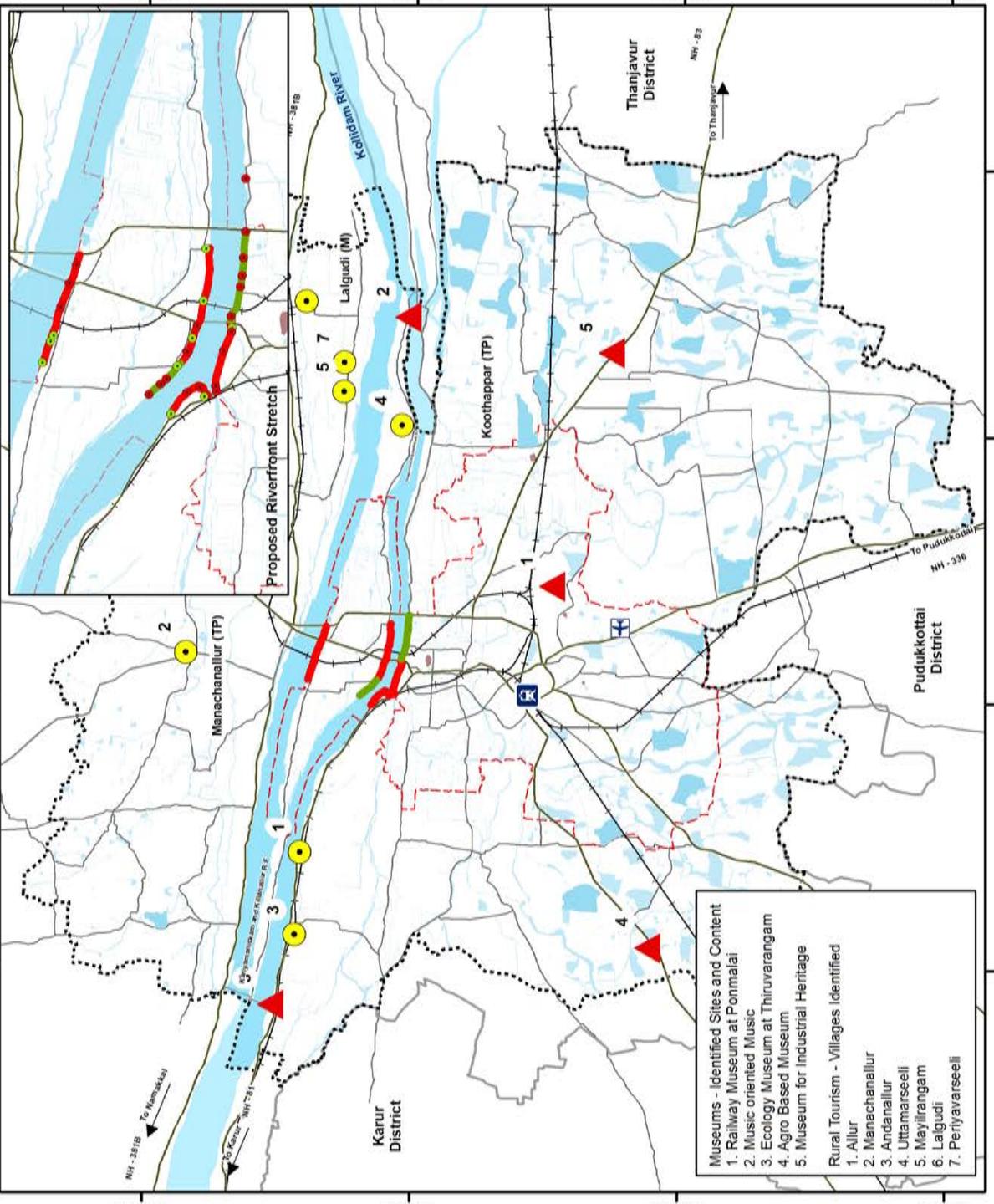
Major_Transport

- Tiruchirappalli Airport
- Tiruchirappalli Railway Junction
- LPA_Boundary
- Tanks
- Corp_Boundary
- District_Boundary

DIRECTORATE OF TOWN & COUNTRY PLANNING - TAMIL NADU

DATA SOURCE
SURVEY & LAND RECORDS
DTCP - TAMIL NADU

SCALE 1 : 2,00,000
PROJECTION : UTM_ZONE 48N
DATUM : WGS 1984



Map 15.2: Combined Map of project proposals within Tiruchirappalli LPA

15.8.2.2 Recommended Museums

Museums are vital components of tourism, acting as premier cultural attractions that drive economic growth, preserve heritage, and educate visitors. They function as “must-see” destinations that enhance the authenticity of travel experiences, fostering understanding of local history, art, and traditions while providing interactive “edutainment” to tourists.

Types of museum proposed-

- Railways at Ponmalai (golden rock)
- Agri Hub
- Music and History of Cauvery basin
- Ecological importance of Thiruvaramgam island
- Academic excellence
- Industrial Heritage Museum

15.8.2.3 Infrastructure facilities at tourist sites to be improved

To position Tiruchirappalli as a world-class destination, the government must upgrade key tourist sites with modern amenities such as signage, lodging, water points, sanitation, shaded rest areas, and quality paving. Accessibility should be prioritized with ramps, tactile flooring, and dedicated parking with digital billing. These improvements will enhance visitor experience,

increase dwell time, and boost positive word-of-mouth.

15.9 Conclusion

The future of tourism in Tiruchirappalli is envisioned as a strategic convergence of its historic legacy and modern urbanism, transforming the city from a mere transit node into a vibrant Flagship Hub for the Delta region. By implementing a diverse array of trails and upgrading site infrastructure, the city can transform from a transit point into a primary destination. The introduction of hop-on-hop-off bus services and a unified tourist card, paired with strategic incentive programs, will significantly lower the barriers for exploration, making the district’s rich tapestry accessible to a global audience. Furthermore, the revitalization of museums and the renaissance of local festivals ensure that Tiruchirappalli’s intangible heritage is preserved and celebrated with vibrancy. Underpinning these efforts is a commitment to low-impact tourism strategies and enhanced accommodation facilities, ensuring that growth remains sustainable and respectful of the local ecosystem. Ultimately, these proposed projects aim to create a seamless, high-quality experience that honours Tiruchirappalli’s past while securing its position as a cornerstone of South Indian tourism.





16. PROPOSED LAND USE & ZONING STRATEGY

16.1 Need for Zoning Strategy

With Tiruchirappalli's population expected to grow from 17,59,079 in 2025 to 26,35,610 by the horizon year, the city requires a robust framework for land use planning and infrastructure expansion. The strategy emphasises sustainable growth, balanced urban development, and the protection of ecological and cultural assets. Special focus is given to heritage zones, prime agricultural land, and ecologically sensitive areas to ensure sustainable land use and zoning for the horizon period.

The land use framework is derived through an integrated assessment of existing land use patterns, spatial development trends, conceptual land use zones, land suitability analysis, and proposals from line departments. Emphasis has been placed on aligning future development with observed growth corridors, transit infrastructure, and economic drivers, while minimising pressure on the urban core of Tiruchirappalli Corporation. The strategy promotes a multi-nodal and corridor-based growth structure extending towards Thuvakudi in the east, Manachanallur–Lalgudi in the north, Panjapur along the southern corridor, and Vayalur–Somarasampettai in the west.

16.2 Proposed Land Use Zones

Residential Use Zone

Residential land use within the Tiruchirappalli LPA has increased from 125.64 sq.km to 240.12 sq.km (an 91.11% increase) to meet future housing demand. Residential allocation is guided by road connectivity, integration with existing settlements, proximity to economic centres, infrastructure availability, and land suitability. The proposed residential land use aligns with spatial development trends, land suitability, and the conceptual land use framework

Within the Corporation limits, residential growth is focused in Pappankurichi, Thiruverumbur, and Agaram, supported by vacant lands availability and eastward expansion trends, with infill zoning promoting compact development. High residential intensification is proposed along the Vayalur–Somarasampettai corridor and in the area between the Dindigul and Madurai Roads, while transit-oriented residential development is promoted along the Madurai Road around the Panjapur Bus Stand.

Beyond the Corporation limits, residential growth is directed towards key nodes and corridors, including Athavathur–Thayanur, InamMelakudi, Kallikudi South, Manachanallur, and Lalgudi, guided by urbanisation trends, transport connectivity, and

land suitability. Residential development is proposed in identified pockets along the proposed Urban Bypass road near Tirumanamedu and along the Outer Ring Road through Vengur, Gundur, and Kumbakudi, supporting institutional growth in and around Sooriyur village.

Commercial Use Zone

Commercial land use in the Tiruchirappalli LPA has increased from 10.45 sq.km to 31.22 sq.km, with an additional 20.77 sq.km allocated to support future economic and service-sector growth. Key indicators used to identify commercial zone includes existing commercial clusters, proximity to major transport nodes, including Panjapur Bus Stand, Tiruchirappalli Junction, Lalgudi Railway Station, and Tiruchirappalli Airport and linkages with industrial areas.

Within the Tiruchirappalli Corporation, commercial activities are concentrated in the urban core from Tharanallur, Singarathrope, and Andar Street around Rockfort to the Chintamani Bazaar–Gandhi Market stretch along Big Bazaar Road, supported by major arterial corridors such as College Road, Gandhi Market Road, Karppalayam–Kattur Road, Thanjavur Road (proposed BRTS corridor), Anna Salai, Chatiram Road, and Palayabazar Road. The proposed Economy Cluster IT Hub in Ward 56 and the Thayanur fringe further strengthen the primary commercial zone.

Beyond the Corporation limits, commercial development is directed along major corridors, including NH-38 (Chennai–Kanyakumari Industrial Corridor) around Panjapur and Manachanallur, NH-83 (Tiruchirappalli–Dindigul) near Killakudi North, and the NH-83 Tiruchirappalli–Thanjavur corridor towards Thuvakudi to support the proposed industrial hub and allied services. Additional commercial land use is proposed in the Lalgudi–Valadi region and around Andanallur to support agro-based economic activities and sub-regional centres.

Industrial Use Zone

Industrial land use in the Tiruchirappalli Local Planning Area has been expanded from 16.45 sq.km to 43.55 sq.km, with an additional 27.10 sq.km earmarked to accommodate future industrial development. This expansion is intended to promote balanced industrial growth and strengthen the economic base of the LPA.

To support this objective, eight major economic clusters are proposed within the Tiruchirappalli LPA, comprising of six industrial clusters with a commercial and institutional clusters that collectively support economic development. Key industrial clusters include a heavy engineering cluster at Thirunedunkulam–Asoor aligned with the BHEL led industrial framework of the Thuvakudi–Navalpattu region; automobile component manufacturing at Valavanthakottai near Thuvakudi, complementing the existing SIDCO industrial estate; and another automobile component manufacturing along the Chennai–Kanniyakumari Industrial Corridor (NH-38, Madurai Road) near Panjapur, leveraging strong transit connectivity. Renewable energy component manufacturing is proposed at Valadi–Keelapunganur, supported by existing solar installations and proximity to the Outer Ring Road, while agro-based and food processing clusters are proposed at Poonampalayam–Manachanallur, Thiruppanjeeli.

These clusters have been identified based on regional economic potential, existing industrial presence, and strategic connectivity advantages, and together are envisioned to act as key drivers of employment generation, industrial diversification, and long-term economic growth in the Tiruchirappalli LPA.

Special and Hazardous Use Zone

The Master Plan classifies existing industrial areas into general industries and special & hazardous industries, based on notifications issued by the Pollution Control Board. Special and Hazardous use zone is spread over 12.73 sq.Km

of total LPA area with major industries concentrated around Navalpattu – Thuvakudi region, which has existing red industries such as BHEL, Ordnance Factory Tiruchirappalli (OFT) and High Energy Projectile Factory (HAPP). Considering their pollution intensity and the continued requirement for such industries, no new clusters of such types are proposed, but Navalpattu, Poolangudi and Palangudi areas are delineated for controlled expansion.

Institutional Use Zone

The institutional use zone is proposed to be increased from 37.18 sq.Km to 43.50 sq.km representing a 16.99% increase over the existing area, to support future educational, healthcare, and infrastructure service requirements. Tiruchirappalli, as a major regional institutional hub, exhibits a high concentration of educational and institutional uses within the urban core and along key corridors. The additional increase in the land use is predominately due to the proposed Knowledge and innovation cluster at Sooriyur, proposed new institutions such as St. Joseph College in Vengur near Corporation and additional infrastructure facilities proposed for the horizon year.

The additional institutional areas have been evenly distributed across the planning area, based on accessibility, the spatial pattern of proposed residential developments, and the requirements proposed by various government departments for upcoming projects.

Open Space and Recreational Use

The Open space & recreational use have been expanded from 1.24 sq.km to 1.90 sq.km, with an additional of 0.66 sq.km to support the recreational needs of the future. The major open spaces and recreational use include Butterfly Park, Birds Park, Children's Park, Mukkombu Park, and Anna Stadium, which together form the primary recreational network of the region. In addition, 10% Open Space Reservation (OSR) areas from approved residential layouts have been incorporated into the proposed open space framework.

Transportation Use Zone

Tiruchirappalli, being a transient city higher emphasis is given for the transportation use zone. To mitigate the through traffic and to improve the regional connectivity Outer Ring Road (ORR) of 40 km from connecting Thuvakudi – Lalgudi (East), Panjappur – Thayanur and Kumaravayalur–Kovathakudi is proposed and an Urban bypass road of 30.3 Km connecting Irungalur – Valadi – Uthamaseri – Thiruverumbur – Navalapattu – MIET College to ease the through traffic and to promote development along the corridor.

Public transport is strengthened through the proposed Bus Rapid Transit System (BRTS) along the Chatiram–Thuvakudi corridor, which is also designated as a Transit-Oriented Development (TOD) corridor. Further, three new road links and the widening of six existing roads are proposed to ensure smooth traffic movement, improve road safety and enhance public transportation. Collectively, these interventions increase transportation land use from 34.86 sq.km to 38.98 sq.km, adding 4.12 sq.km to the transportation use zone.

Agriculture and Others

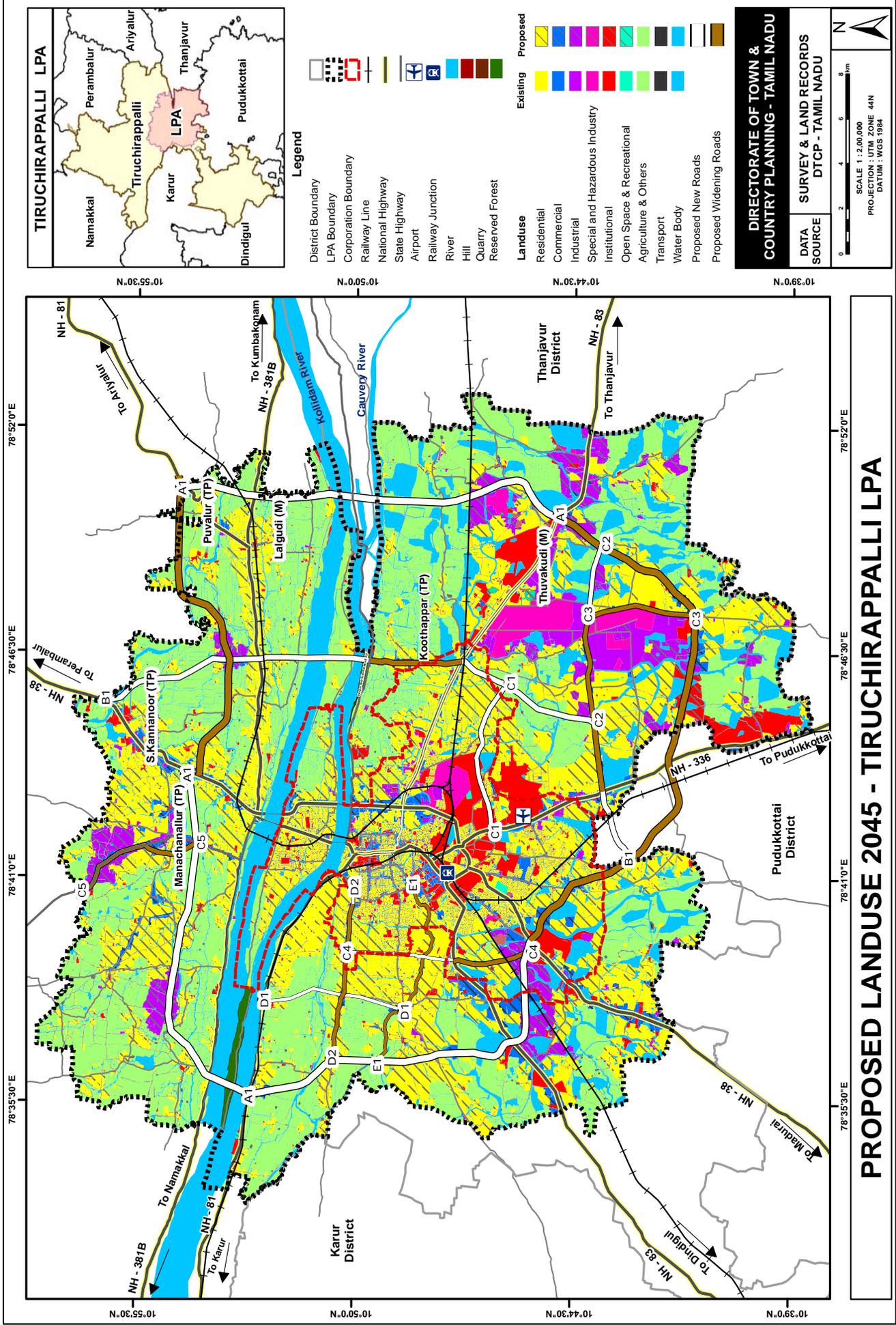
The agricultural land retained within Tiruchirappalli LPA is 251.71 sq.Km, accounting for about 31.29% of the LPA area. Agricultural activity is predominantly observed in the northern LPA, covering Lalgudi and Manachanallur taluks, with additional concentrations in the western part of Andanallur and the eastern part of Thiruverumbur taluks. Consistent with the proposed agro-based economic clusters, key agricultural zones in Poonampalayam, Manachanallur, Tiruppanjeeli, Kiliyanallur and Kariyamanikam have been retained to strengthen agro-economic activities. Wet agricultural lands along the Cauvery River and around major water bodies have been conserved in recognition of their high productivity and ecological sensitivity.

These areas have been preserved in the proposed land use plan to ensure long-term agricultural sustainability and environmental conservation. Table 16.1 shows the Existing Land Use 2025 and the Proposed Land Use 2045 of Tiruchirappalli LPA. Map 16.1 shows the Proposed Land Use Map of Tiruchirappalli LPA – 2045.

Table 16.1: Existing Land use 2025 and Proposed Land use 2045 of Tiruchirappalli LPA

Land use	Existing Land use 2025		Proposed Land Use 2045	
	Area in Sq. Km	Percentage of Area	Area in Sq. Km	Percentage of Area
Residential	125.64	15.62%	240.12	29.85%
Commercial	10.45	1.30%	31.22	3.88%
Industrial	16.45	2.04%	43.55	5.41%
Special & Hazardous	12.73	1.58%	12.73	1.58%
Institutional	37.18	4.62%	43.50	5.41%
Open Space & Recreational	1.24	0.15%	1.90	0.24%
Agriculture & Others	425.16	52.85%	251.71	31.29%
Transportation	34.86	4.33%	38.98	4.85%
Water body	140.82	17.50%	140.82	17.50%
Total	804.53	100%	804.53	100%

Source: DTCP, Tiruchirappalli



16.3 Local Area Plans and Heritage Plan

Master Plans provide a broad-based spatial framework and a set of physical development proposals to guide the overall growth of the Local Planning Area during the plan period. However, issues in older and built-up areas are largely legacy in nature and require area-specific, micro-level planning interventions for effective resolution.

Four strategies sites have been identified within Tiruchirappalli LPA for the preparation of Local area plans, Transit Hub development and for heritage plans, the sites are selected considering the existing conditions, type of development, socio economic characters, transportation patterns, the sites selected exhibit distinct urban and heritage characteristics. For Local area plan, Chathiram to Palpannai area is selected within the core and the area is divided into 4 zones such that, each of which can be implemented as a separate urban renewal scheme.

Local Area Plan:

- **Scheme 1 - Gandhi Market–Palakarai:** High dense mixed-use area with intense commercial activity and narrow internal streets; identified for urban renewal, road network improvement, and streetscape enhancement.
- **Scheme 2 - Tharanallur:** Very high-density residential area with limited open spaces and linear commercial activity along Big Bazaar Road; suitable for micro-level planning and liveability-oriented urban renewal.
- **Scheme 3: -Singarathope:** Dense development with commercial concentration along NSB Road and Chinna Kadai Street and poor internal circulation; offers potential

as a transition zone between the Rockfort heritage precinct and Gandhi Market commercial core.

- **Scheme 4 - Rockfort–Theppakulam:** Heritage-rich area with high pedestrian footfall, narrow streets, and intensive commercial use; identified for heritage-sensitive renewal, pedestrianisation, and public realm improvements.

Transit Hub at Panjapur:

The Panjapur new bus stand is identified as a major transit node with strong potential for development as an integrated bus and freight (truck) terminal. An area along the Chennai–Kanyakumari corridor around Panjapur, encompassing existing transport terminals, the proposed vegetable market, and Panjapur village, has been identified for this purpose. Owing to its strategic location and transit-oriented potential, the area is proposed to be developed as a high-density mixed-use zone.

Heritage Plan:

- **Srirangam Heritage Plan:** The heritage core of Srirangam Island, covering areas around the Sri Ranganathaswamy Temple, is identified for the preparation of a dedicated Heritage Plan aimed at conserving its cultural and spiritual significance while integrating infrastructure upgrades, mobility improvements, and sensitive urban design interventions.
- **Thiruvanaikoil Heritage Plan:** The heritage core around the Thiruvanaikoil Temple is also proposed for a Heritage Plan, focusing on heritage conservation, public realm enhancement, and socio-economic revitalisation through coordinated planning and institutional collaboration within the historic precinct.

Collectively, the Local Area Plans, Panjapur Transit Hub development, and Heritage Plans establish an integrated framework for urban renewal, mobility enhancement, and heritage conservation in Tiruchirappalli LPA. Table 16.2 provides the

proposed local area plan and heritage plan zone for Tiruchirappalli LPA. Figure 16.1 shows the Location of proposed Local area Plan zones, proposed Transit Hub and proposed Heritage plan area in Tiruchirappalli LPA.

Table 16.2: Proposed local area plan and heritage plan Area for Tiruchirappalli LPA

S.No	Local Area Plan Name	Area in Ha.
1	Gandhi Market - Palakarai - Scheme 1 North: Karappalyam- Kattur Road South: Uyyakondan Channel. East: Varaganeri Bazar road West: Madurai Road	54.66
2	Tharanallur - Scheme 2 North: Jaffersha street, Mapillai Nayakan Kulla street South: Karappalyam- Kattur Road East: WBlvd road West: Karappalyam- Kattur Road	43.62
3	Singarathope scheme 3 North: Chinna Kadai Street, NSB road South: Jaffersha street, Mapillai Nayakan Kulla street East: WBlvd road West: Karappalyam- Kattur Road	46.44
4	Rock fort - Scheme 4 North: Sankaran Pillai Road South: Chinna Kadai Street, NSB road East: Karappalayam Kattur road West: College Road	46.64
5	Transit Hub at Panjapur- Ward no 62	307.38
6	Heritage Plan : Srirangam Zone North: Melur Road and Alarmel Avenue South: Gandhi Road and Thiruvadi Street East: Keerakara Street and North Devi street West: Melur Road	101
7	Heritage Plan :Thiruvanaikoil North: North Viboothi Pragaram road South: Thambiran road East: Thambiran road West: West Viboothi Pragaram Street	44.5
Total area in Ha.		644.24

Source: DTCP Analysis

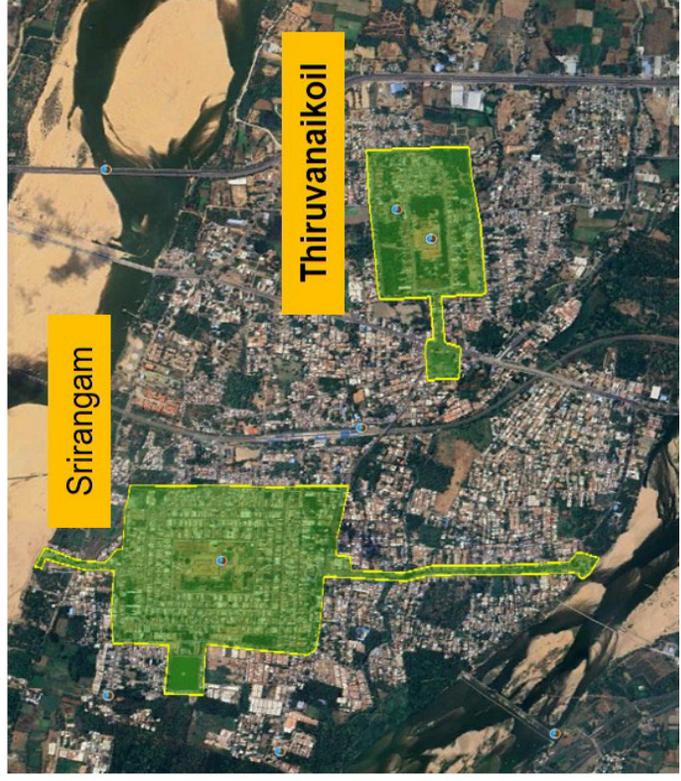
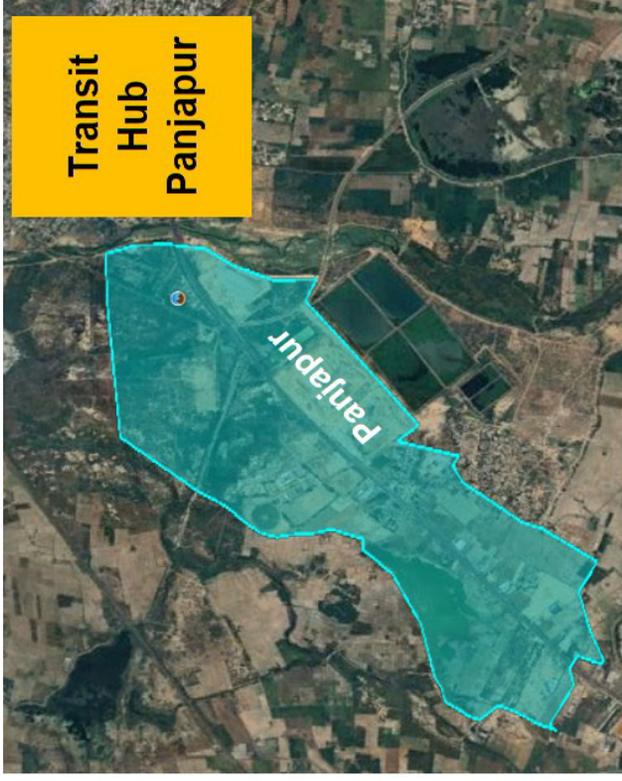
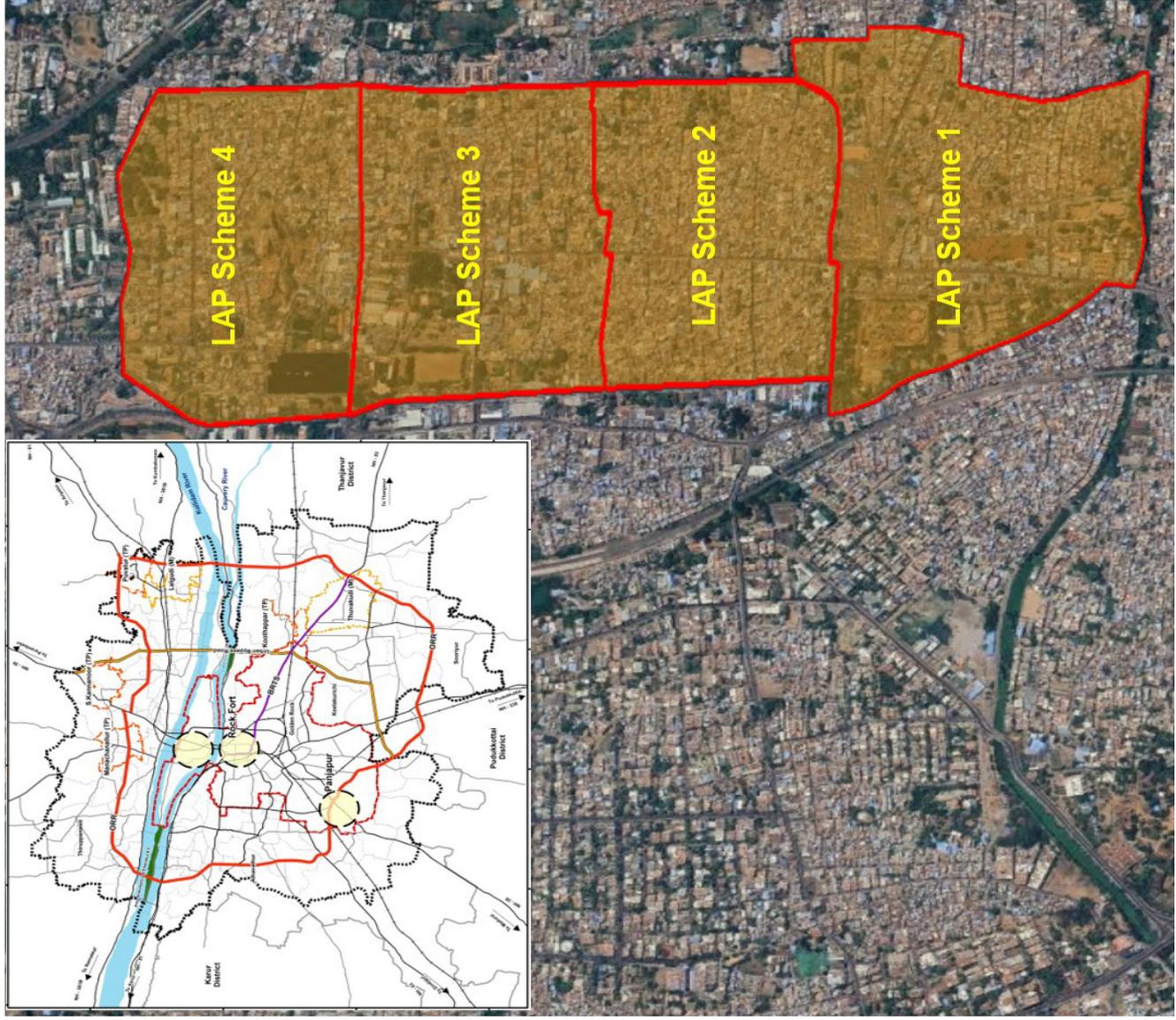


Figure 16.1 - Proposed Local Area Plan and Heritage plan zone for Tiruchirappalli LPA

16.4 Land pooling Area Development Plan

In greenfield areas, Land Pooling Area Development (LPAD) Schemes have emerged as an effective urban planning tool across several States for achieving planned and orderly development in undeveloped locations. Accordingly, LPAD is proposed as a key implementation mechanism for guiding planned growth within the greenfield areas of the Tiruchirappalli Local Planning Area (LPA). The scheme facilitates orderly land assembly, hierarchical road networks, open spaces, and public infrastructure in line with the Master Plan, ensuring equitable landowner participation. The statutory basis for LPAD implementation is provided under Chapter IVA of the Tamil Nadu Town and Country Planning (TNTCP) Act, 1971.

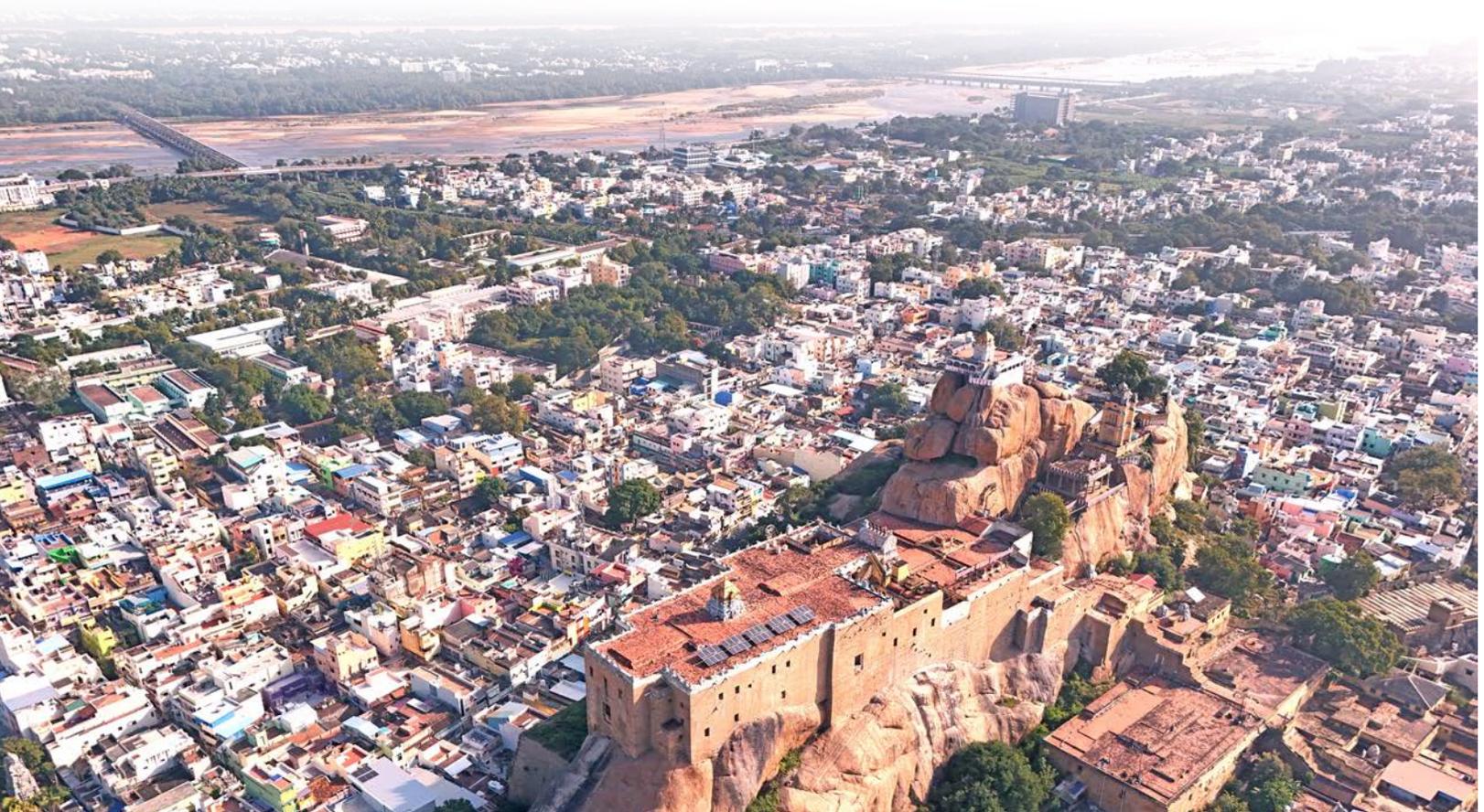
To support the development of the proposed Urban Bypass Road, a Land Pooling Scheme is recommended as the preferred approach for securing land for road infrastructure. A greenfield stretch at Tirumanamedu has been identified for implementation, covering a 4.32 km segment of the Urban Bypass Road with a proposed 45 m right-of-way and 5 m buffers on either side. Through this scheme, approximately 23.76 hectares of land will be assembled for road development and allied infrastructure.

The scheme is proposed to be implemented in three phases, subject to detailed scheme formulation and statutory approvals. Figure 16.2 illustrates the location of the proposed Land Pooling Area Development Scheme.

Table 16.3: Proposed Land Pooling Area Development Scheme – Tiruchirappalli LPA

S.No	Land pooling scheme Tirumanamedu	Area in Ha.
1	Scheme 1: Keelaperungavoor	73.95
2	Scheme 2: Valadi	54.70
3	Scheme 3: Thirumanamedu West	89.15
Total area in Ha.		217.80

Source: DTCP, Tiruchirappalli



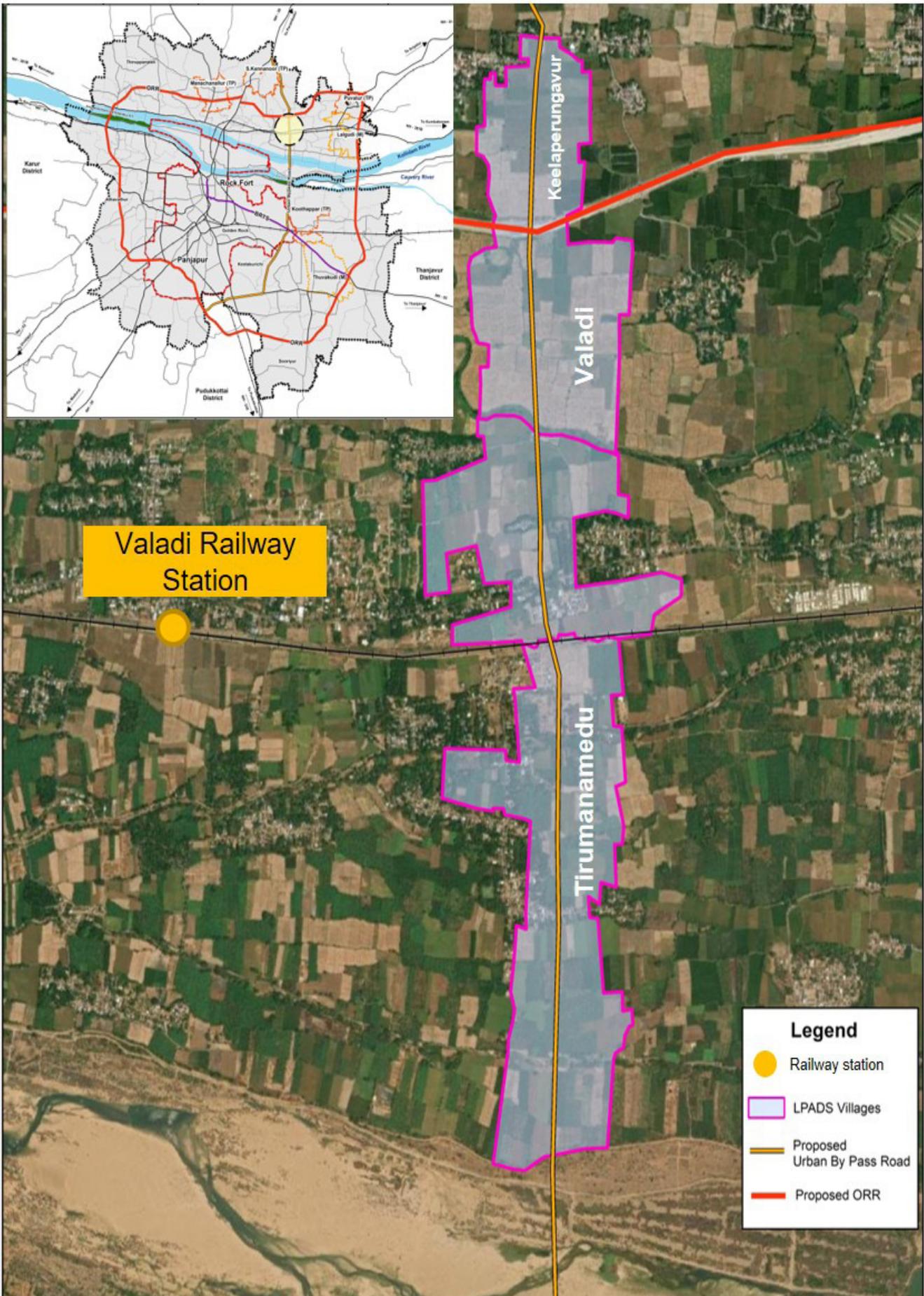


Figure 16.2: Proposed Land Pooling Area Development Scheme



17. BLOCK COSTING, PHASING AND IMPLEMENTATION

17.1 Introduction

The Master Plan presents a sector wise strategic road map for Tiruchirappalli Local Planning Area across diverse sectors such as economy, transport, physical infrastructure, social infrastructure, environmental, heritage and tourism. Based on a long term vision for the horizon year 2045, a number of sector specific strategies and recommendations have been identified to support the urban expansion and economic growth. For each sector, priority recommendations have been formulated, accompanied by indicative block cost estimates and

phased implementation timelines, providing a structured framework for investment planning, execution and monitoring.

The costing analysis indicates that mobility sector contributes the largest share of the overall project expenditure. High value mobility investments include road infrastructure recommendations such as New Road Links (10 Lane) and Road Widening (4 Lane to 10 lane). Beyond mobility substantial capital investments are directed towards on housing, storm water drain network including SUDS – TCC (storm water management), desilting of tanks (with decontamination) (Environment), Imageability of Important Structures (Heritage).

The sector wise costs and their distribution into different phases is provided in Table 17.1:

17.2 Implementation

The Master Plan outlines a set of recommendations and challenges across multiple sectors, along with land use plans aimed at transferring Tiruchirappalli into a thriving knowledge and economic regional centre and sustainable city that offers a high quality of life. The effectiveness of Master Plan depends on timely and coordinated implementation. Since many of the recommendations have been conceived in consultation with the respective departments, it is essential that the concerned

Table 17.1 - Summary of sector wise block costs and phase distribution

S. No	Sectors	Phase I	Phase II	Phase III	Phase IV	Total cost (in Rs. Crores)
1	Mobility	Rs.3,607.98	Rs.2,951.40	Rs.40.00	Rs.0.00	Rs.6,599.38
2	Water Supply Infrastructure	Rs.145.90	Rs.211.10	Rs.202.55	Rs.13.90	Rs.573.45
3	Sewerage	Rs.105.33	Rs.88.72	Rs.111.74	Rs.109.88	Rs.415.67
4	Storm Water Management	Rs.200.77	Rs.736.62	Rs.829.72	Rs.548.89	Rs.2,316.00
5	Solid Waste Management	Rs.45.10	Rs.45.74	Rs.10.17	Rs.6.67	Rs.107.68
6	Energy	Rs.96.00	Rs.280.20	Rs.445.20	Rs.0.00	Rs.821.40
7	Social Infrastructure	Rs.157.00	Rs.239.50	Rs.281.00	Rs.192.50	Rs.870.00
8	Housing	Rs.2,217.82	Rs.145.29	Rs.139.29	Rs.133.29	Rs.2,635.69
9	Heritage and Culture	Rs.245.30	Rs.123.53	Rs.247.46	Rs.79.32	Rs.695.61
10	Tourism	Rs.309.55	Rs.315.60	Rs.280.92	Rs.81.15	Rs.987.22
11	Ecology and Environment	Rs.362.66	Rs.245.99	Rs.201.93	Rs.232.80	Rs.1,043.37
12	Local Area Plan Zones	Rs.223.35	Rs.73.71	Rs.0.00	Rs.0.00	Rs.297.06
Grand total		Rs.7,716.76	Rs.5,457.37	Rs.2,789.98	Rs.1,398.39	Rs.17,362.50

Departments take up the projects for implementation on priority basis. A committee headed by District Collector, Commissioner of Corporation, Member Secretary LPA / UDA shall periodically review sector wise progress through structured meetings with the District heads of the concerned Department in each sector and move the Government for sanction of works with required funds.

17.3 Monitoring and review

Many of the standards prescribed for estimating the future requirements of social facilities and physical infrastructure are population-based. The Master Plan for Tiruchirappalli LPA has projected population trends using historical census data to estimate the horizon year population upto 2045. Despite thorough analysis to estimate the 2045 projected population, the absence of 2021 census data may lead to differences between the estimates and the actuals, which will become apparent only after the census is conducted.

The Master Plan outlines the projected needs upto 2045. However, given the ever-changing nature of technological advancements and development trends, the prescriptions in the Master Plan may require periodic refinement. In accordance with the provisions of the Tamil Nadu Town and Country Planning Act, 1971, which mandates the review of the Master Plan once every five years, it is recommended that the Plan be systematically reviewed at five year intervals through the formulation of clearly defined Key Performance Indicators (KPI) and continuous monitoring mechanisms.

During the review of the Master Plan, upon the release of the proposed 2027 census data, the population projections and sectoral requirements can be moderated accordingly. A comprehensive and integrated database shall be created to capture developments in all sectors within the Tiruchirappalli Local Planning Area (LPA) – including their magnitude, conformity with the land use plan, usage, additional occupancy created, parking spaces added, land value, utilities and service levels, social facilities, traffic volume, new roads, and streets. Such data base will enable evidence-based assessment of development patterns and support informed revisions to the Master Plan. Additionally, a separate Research and Development (R&D) cell has to be set up in the Tiruchirappalli LPA / Urban Development Authority (UDA) with dedicated staff to ensure the plan is adaptive to changing demands.

Overall, the phasing and implementation framework of Tiruchirappalli Master Plan provides a structured and realistic path way for achieving balanced, inclusive and sustainable urban development over the plan period. By aligning sectoral priorities with phased investments, statutory review mechanisms and coordinated inter departmental action, the Plan ensures that growth is managed in a systematic manner while responding to emerging economic, environmental and social needs. Periodic review and course correction, as envisaged under the statutory planning framework will enable the Plan to remain relevant and effective, supporting Tiruchirappalli's long term vision transformation as a knowledge and economic regional centre.

