

# URBAN DESIGN STUDIO

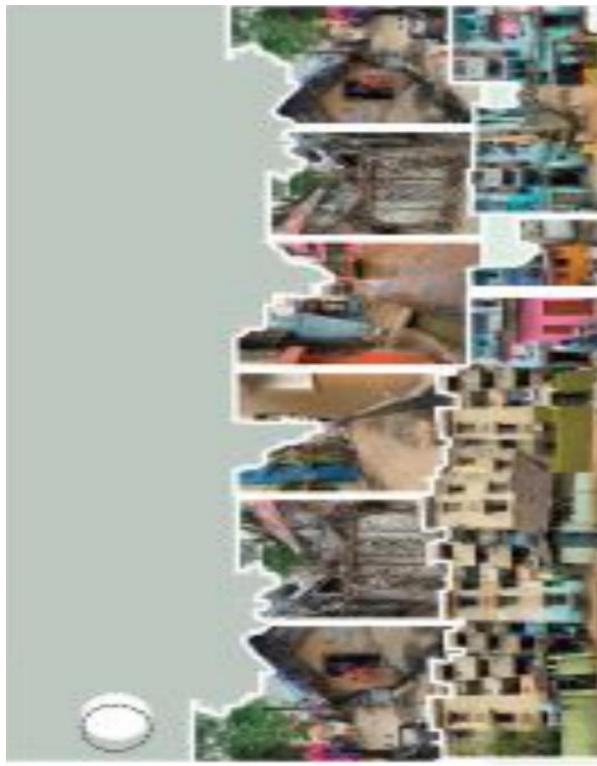
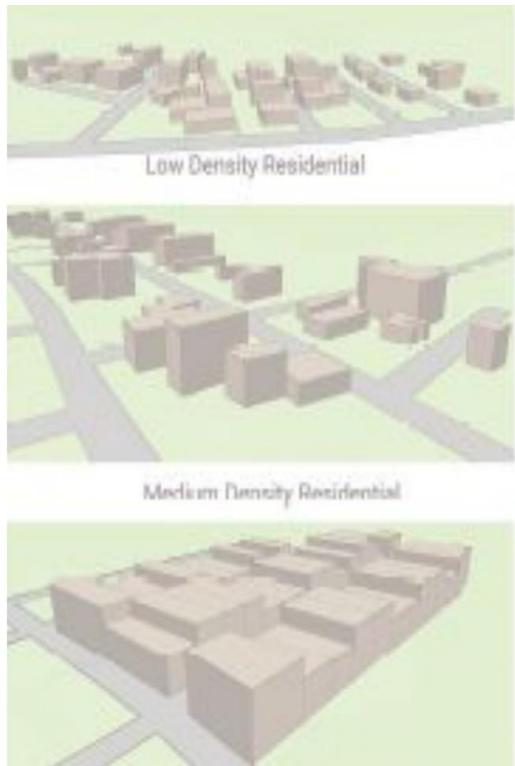
## INTRODUCTION

Urbanism reflects the ways in which humans interact with the built environments through their characteristic way of life involving various aspects and layers of society. Cities which were traditionally built to support basic human activities have gradually transformed into complex, evolving, living mechanisms where socio – environmental relationships are constantly being redefined. With over half of the world's population living in urban areas there is a need to strike a balance between our living styles / patterns and urban ecosystems for a sustainable future with a focus on health and well-being.

**PROJECT TYPE:** ACADEMIC , group of 8

**MY ROLE:** questionnaire preparation, vision strategies, presentation, conceptual drawings





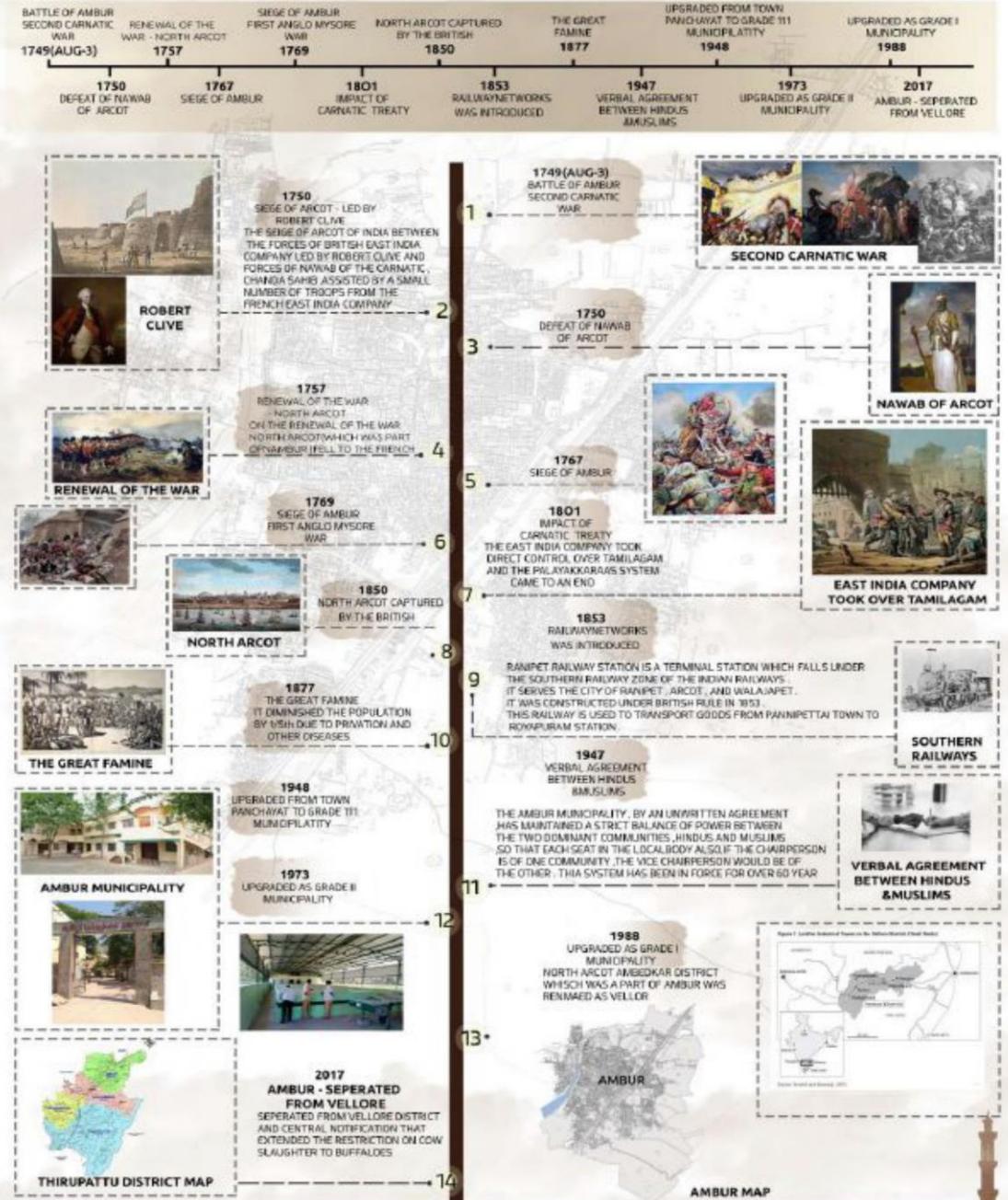
## WHAT WILL WE SEE ?

This Urban Design Studio will primarily focus on providing an overarching opportunity to the undergraduate students to experience the urbanism as a way of life. Indian cities are expanding and there is a vulnerability to assume that the present patterns of urban expansion are inevitable with the concomitant negative impacts on ecology (human and natural). The first impression one might get many times is that the chaotic, conglomerate development leads to discomfort on the first count, but over time people and existing ecosystem adapt themselves. That is but a defeatist attitude. The history has shown forms (of buildings and development) for the sake of monumentality artistry, etc. to typical tribal settlement and its space in the nature stand testimony to the adjustments and adaptability skills of man and nature (Ekistics – Doxiadis). To inculcate this fact in urban artifact this studio project is introduced at the senior levels of undergraduate studies.

## OBJECTIVES

- 01** To study the socio-cultural influence and its spatial manifestation
- 02** To review the potential and viability of the place to live, work and visit, in the current context of rapid urban growth, sprawl and development
- 03** To analyze the issues and problems faced by the urban spaces, the mechanism of growth and adaptability
- 04** Proposals of renovation, reuse and redevelopment of the built environment leading to urban enhancement of the neighborhood with the focus on the Environmental sustainability
- 05** To understand the Physical Structure, Urban Morphology & Spatial Characteristics of small urban towns

## HISTORICAL TIMELINE

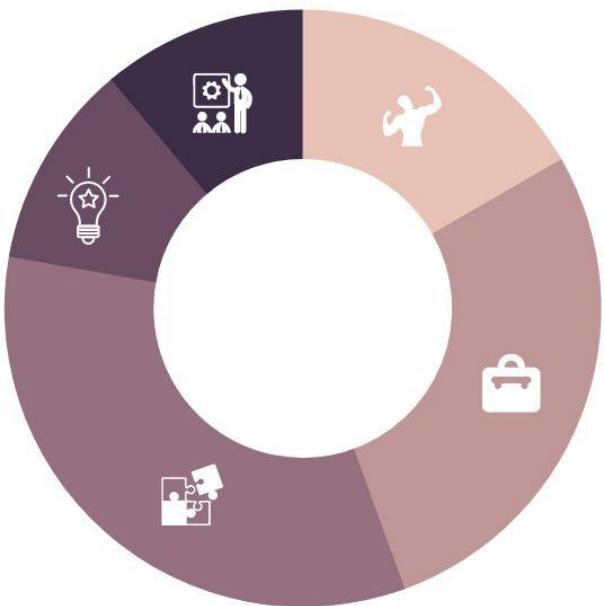


## A LITTLE CONTEXT :

In India, settlement agglomerations (may not be urban by census of India) which are independent of the metropolis have emerged through historical and market drivers. These settlements are autonomous in their interactions with other settlements whether local or global. The urbanization in these is largely unacknowledged and unaddressed, with an informal economy waiting to become formal and livable cities / towns. A closer investigation into these small towns will help in understanding the nature of these settlements and the underlying factors which can transform these settlements beyond their current role / existence into livable cities of Global South.

This town is pivotally situated on the Chennai – Bangalore Highway (NH 46), 180 Km from Bangalore and 200 Kms from Chennai. The primary focus of this study is to understand the urban dynamics shaping this settlement, the characteristics of the identified zone/site and its surrounding through survey, mapping and analyzing the information and the findings form secondary sources. The outcome of the analysis results in defining and deriving an appropriate measure and regulation to guide the trajectory of urbanization towards a Self – Sustainable Town / City.

# METHODOLOGY Project



# VISION Strategies



**Identification of Potential Areas of growth**  
Land Use Prediction for future

**Additional or New Proposal of Transit System**  
Indicators of Areas of Urban Expansion

**Improvement in Social, Physical and Environmental Infrastructure to improve quality of life**  
Cluster of Urban Centers: Road /Rail and Community transports

**Planning Policies to protect, Neighborhoods, Public Realms, Open Spaces**  
Identifying Emerging centers of activities

# CHECKLIST:

**01**

## **Relationship to the city**

Evolution and historic growth  
Location Setting and connectivity  
Functional Role  
Demographic Characteristics

**02**

## **Land Use Characteristics**

Proposed and existing land use  
Categories  
Zones – Identification, Classification,  
Details

**03**

## **Ecology and Landscape**

Major ecological systems and features at city and area levels  
Ecological precincts and components in and around the area  
Land profile, topography and characteristics  
Open space systems and types  
Predominant flora and fauna

**07**

## **Planned Interventions, regulations and new growth areas**

Statutory bodies, jurisdiction and roles  
Master plan, ZDP and major proposals/schemes under MPLAD etc  
Planning norms, development and heritage regulations  
Major land ownership  
Development trends, private and public.

**06**

## **Society and Culture**

Functional districts and activity areas  
Housing – Typology, Need and Demand  
Industries and Work places  
Wholesale, retail markets and networks  
Institutions- educational, religious, social, cultural, etc.  
Government policies, standards

# **Process SITE information FLOW Chart**

**05**

## **Functional Structure**

Functional districts and activity areas  
Housing – Typology, Need and Demand  
Industries and Work places  
Wholesale, retail markets and networks  
Institutions- educational, religious, social, cultural, etc.  
Government policies, standards

**04**

## **Transportation and Infrastructure**

Movement network – pedestrian and vehicular  
Public transportation systems and networks  
Parking characteristics and para transit operations  
Transport nodes and terminals  
Water supply, drainage, power, telecommunication systems and networks  
Sewerage and solid waste disposal systems, waste

## INTRODUCTION TO THE STUDY

### About the region

- Ambar is a town and municipality in newly announced Tirupattur District, Tamil Nadu, India.
- It is located on the banks of the Palar River between Chennai and Bangalore.
- Ambar has a sizeable leather industry, and is known for its spicy biryani and for the insect, makthupetra.
- The economy is dependent on the leather industry.
- The town houses leather tanning and manufacturing factories and is a leading cluster for export of finished leather and leather-related products.
- Ambar being a third tier city that has developed rapidly over the last decade and has the needs of the people remain unmet. This is an attempt to reimagine ambar as a holistic leather city.

### Aims

To identify the urban issues in the proposed area and identifying possible interventions that are required to achieve socially, economically and environmentally sustainable urban spaces.

To envision Vision Ambar 2040 as a futuristic industrial town with the necessary residential and social infrastructure to accommodate and improve the residents' quality of life.

### Objectives



- To promote ease of movement in a place that is easy to get to and move through.
- The framework of routes and spaces that connect locally and more effectively.
- Public spaces and routes attractive, safe, uncluttered and work effectively.
- To promote the continuity of street frontages, a place that has a clear image and is easy to understand.
- To promote compatible development that can respond to changing social, technological, economic conditions and that respond to local needs.

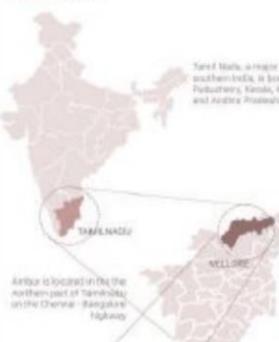
### Opportunities

- Internationally designed market area - organized commercial and shopping developments.
- Pedestrian plaza.
- Residential developments.
- Mixed use developments.
- Elevated public spaces.
- Entertainment spaces such malls and other cultural recreational spaces.
- Smart development.

### Challenges

- Leather industry.
- Urban sprawl.
- Water scarcity.
- Industrial pollution.
- Population growth.
- Infrastructure development.
- Transportation issues.
- Social inequality.
- Environmental degradation.

### Location



### Process

- Define the baseline.
- Identification of the study area.
- Site visit analysis.
- Problem & issue identification.
- Identified interventions.
- Micro-level interventions.
- Detailed drawings for the given interventions.
- Urban design report and documentation.

### Parameters studied

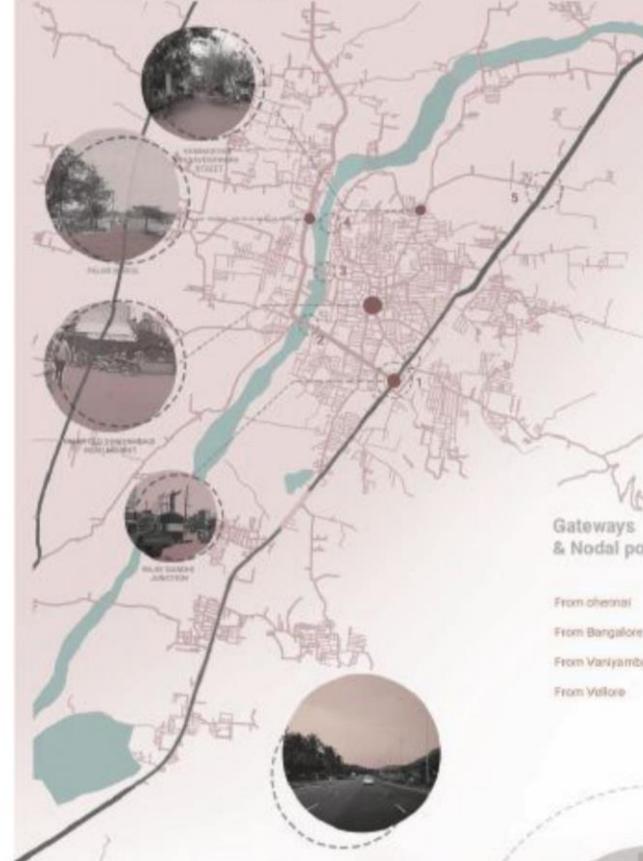
**HISTORY | DEMOGRAPHICS | GEOGRAPHY | RAILWAY | LAND USE | LANDMARK CONNECTIVITY | ROAD NR | PHYSICAL INFRASTRUCTURE | SOCIAL INFRASTRUCTURE | URBAN DRAMA | INDUSTRIES | OPEN SPACES | PARKS | ENVIRONMENTAL IMPACT**



### ONSITE DOCUMENTATION



## INTRODUCTION TO AMBUR



### Meaning of the word 'Ambar'

The word 'Am' refers to spring water. The spring town was called Ambar. This can be correlated to its proximity with the palar river.

### Important landmarks

#### TIMPLES

The Hogenakkal Temple in Ambur is one of the famous temples which is believed to be one of the very oldest temples. In Tamil Nadu there are many Murugan temples located in the hills like Palani, Thiruthadi, etc. The Murugan temple in Kalaswaram Hill located near Ambur is one among them.

#### MOSQUE

The Jami Masjid is the big Mosque in Ambur town. December 2009 celebrated the 250th Urs of the Great Saint Hazrat Ghadhar Shah Abya outside the mosque complex.

The Jami Masjid, Sivaji Masjid, Santhosa Masjid, Chichen Masjid, Khapergot Masjid, Mohammadpet Masjid, Mohammedpur Masjid, Muthukkudi Masjid and Kangalakuppam Masjid are oldest Mosques in Ambur.

**ROAD CONNECTIVITY**  
Ambur is well-connected to the national highway. Bangalore-National Highway 4 passes through the town at a distance of 200 km from Chennai, 180 km from Bengaluru and 50 km from Vellore. The town is well connected by road and rail with the nearby urban centers.

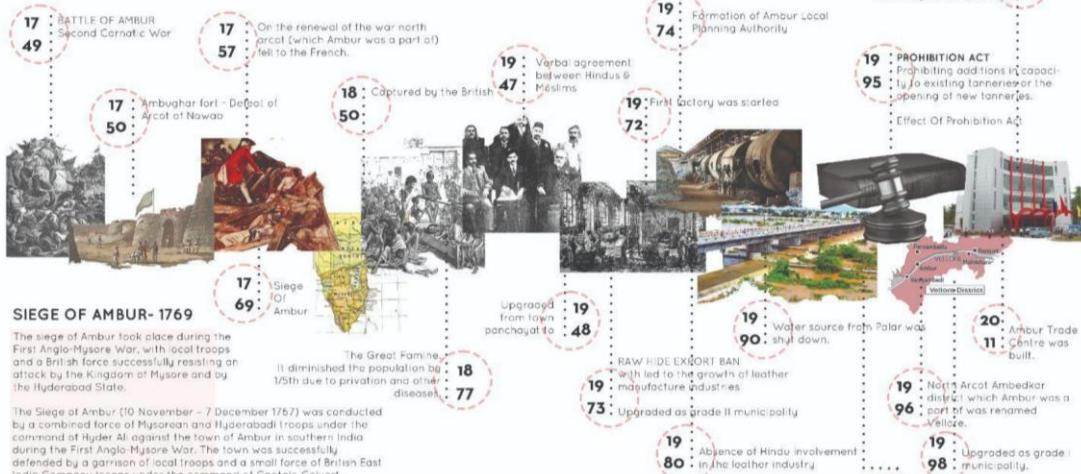


## HISTORY & INTRODUCTION

## HISTORICAL TIMELINE

BATTLE OF AMBUR - 1749

In 1749, Nawab MUZAFFAR JANG was defeated and killed at AMUR by his rival CHANDRA SAH assisted by the French and MUZAFFAR JANG. Different claimants to the posts of the Nizam of Hyderabad, and the Nawab of the Carnatic; each claimant being supported either by the British or the French. Muzaffar Jang became Hyderabad's Nizam. Muhammad Ali became the Nawab of the Carnatic. This was the site of Muzaffar Jang's defeat of the Nawab of Arcot in 1750 which was also the first significant battle in which European forces were used in warfare.



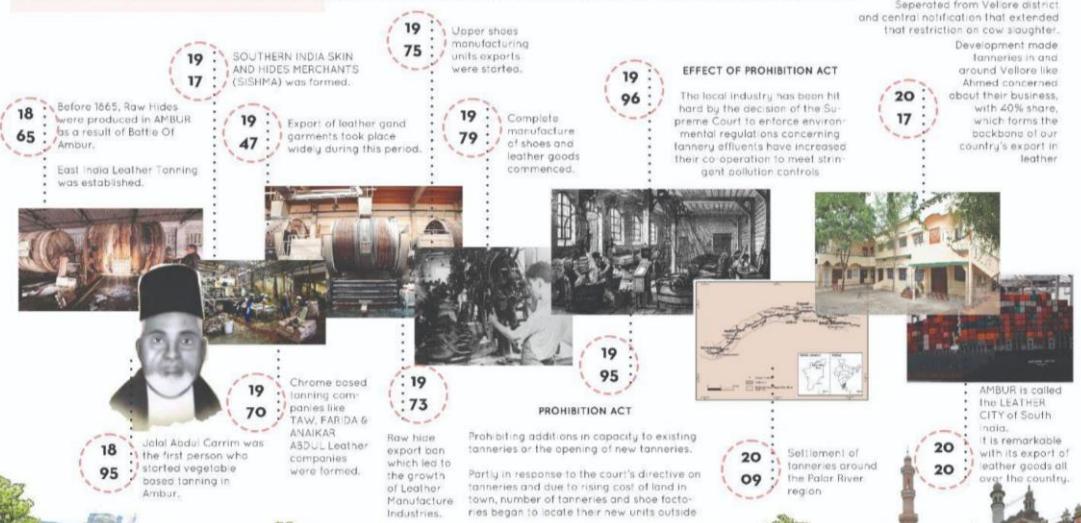
## INDUSTRIAL TIMELINE

First tannery setup during British East India Company:

Ambur town was not only important for Nizams of Hyderabad but also for Nawabs of Arcot and British East India Company but they also fought wars to retain it. But also importing for britishers for trading purpose Ambur served as a major hub. Due to its geographic location.

When the British East India Company rule started in late 18th century they required leather for their army so they developed tanned leather which was now known as tanned leather after the East India tannery was prevalent in Ambur tanneries.

In determines it also allows semi tanned leather which was not fully furnished and semi leather and east India tanning is still prevalent in Ambur up to this date.

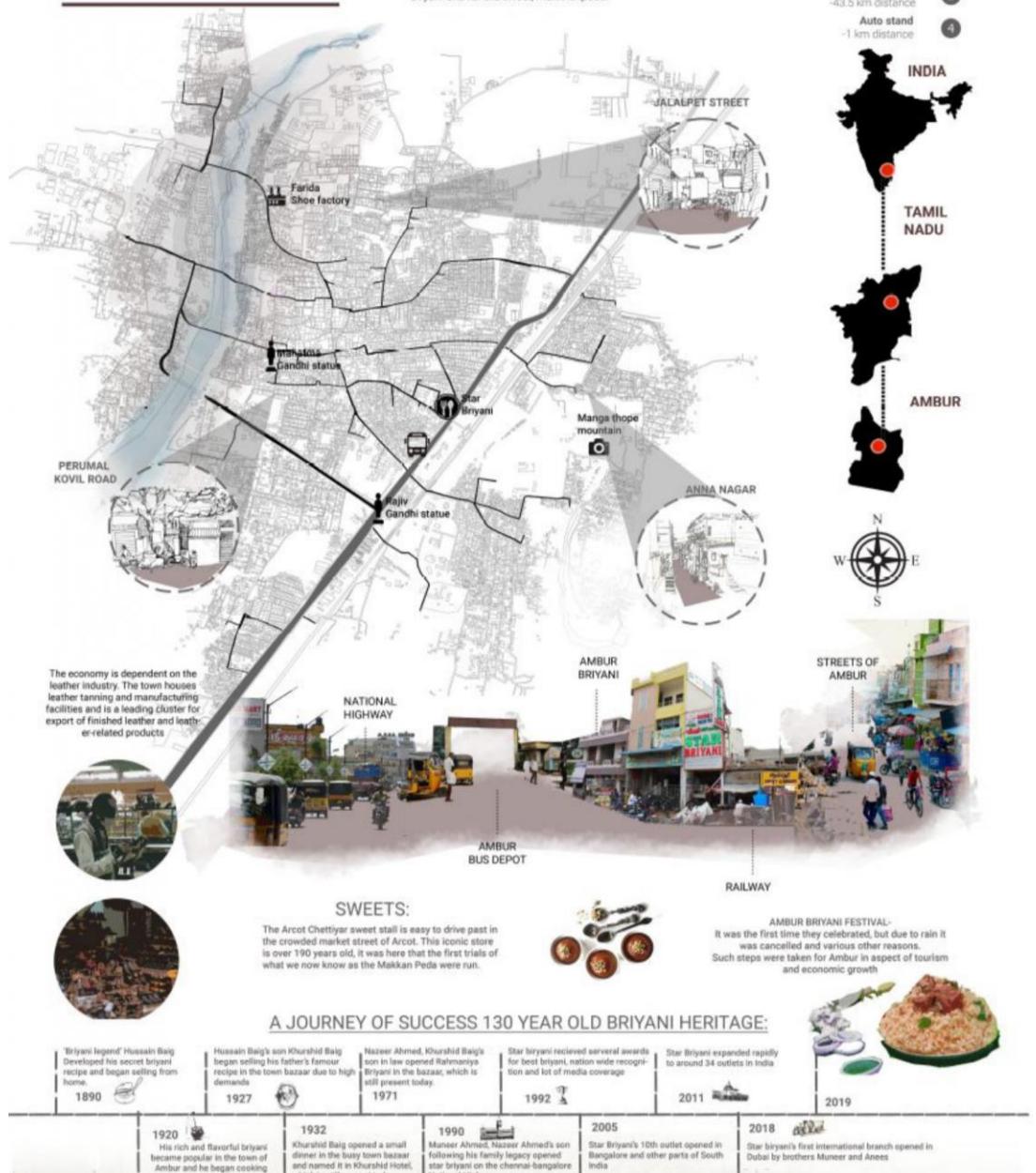


TOURSIM

DISCOVER  
**AMBUR**

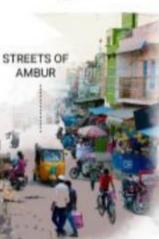
## **"Leather city of SOUTH INDIA"**

Ambur is a town and municipality in newly announced Tirupattur District, Tamil Nadu, India. It is located on the banks of the Palar River between Chennai and Bangalore. Ambur has a sizeable leather industry, and is known for its spicy biryani and for the sweet, makkhenpeda.



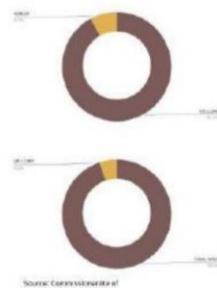
## ACCESSIBILITY

- Lumbur Railway station**  
-3 km distance  
**Nearest Bus Stand**  
-5.2 km distance  
**e Airport (Domestic)**  
-43.5 km distance  
**Auto stand**  
-1 km distance



## DEMOGRAPHY AMBUR

### POPULATION & DISTRIBUTION



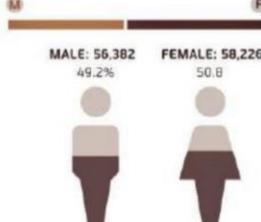
The town population growth rate has been consistent between 1.5% to 3.7% during the past decades from 1971-2001.

The population growth during 1991-2001 was 3.12 % lower than the State figure for urban population growth.

### POPULATION GROWTH



### SEX RATIO



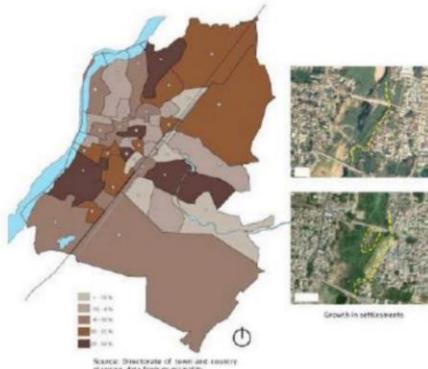
### CHILD SEX RATIO

Category	Population
BOYS	13,21m
GRAND TOTAL	67.7m
DAUGHTERS	8.51m

SOURCE: Ambur City population Census 2001

The Child Sex Ratio is defined as the number of females per 1000 males in the age group 0-6 years.

### GROWTH DISTRIBUTION



Growth mainly observed in the wards 6, 21, 26, 29, 36 is primary residential growth.  
The highest growth rate is 22% - 54%

## DEMOGRAPHY sheet 2

### LITERACY RATE

Source: CENSUS 2001

MALE: 76.31% FEMALE: 66.44%



Average literacy rate in urban areas is 85% in the rural areas is 76.7%.

The total literacy rate of Ambur Taluk is 80.43%.

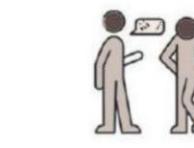
### RELIGION

Source: CENSUS 2001

### LANGUAGE

Source: CENSUS 2001

DECCANI URDU .48.27% TAMIL .44.36%



Deccani Urdu and Tamil are the most spoken language.

6.17% speaks Telugu

### INCOME DISTRIBUTION RATE

Source: CENSUS 2001



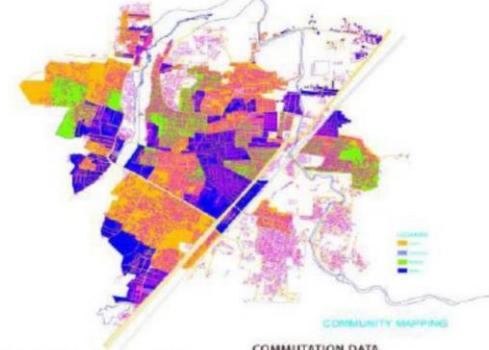
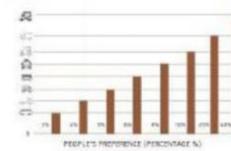
Among all affected businesses

Average monthly income works out to ₹7,000 with minimum ₹3,000 and maximum ₹15,000.

A total of 88% of the AMBUR's population are the single breadwinners in their respective families.

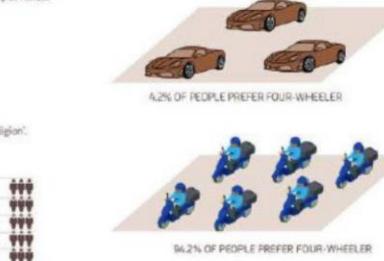
### COMMUTATION DATA

COMMERCIAL VEHICLES



### COMMUTATION DATA

NON-COMMERCIAL VEHICLES



### INCOME DISTRIBUTION

NAME

TOTAL NO. OF POPULATION

TOTAL NO. OF WORKERS

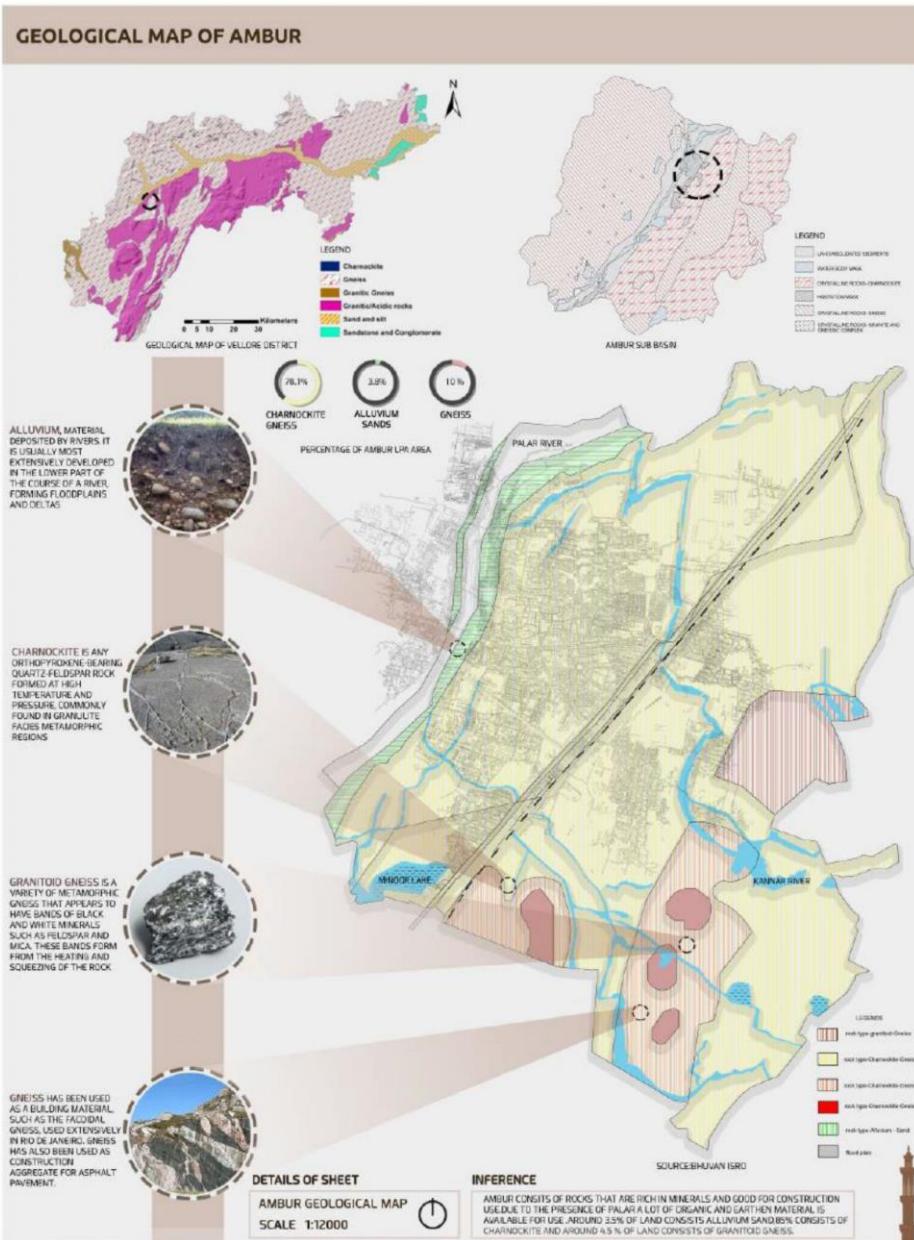
WFPR %

NO. OF MAIN INDUSTRIES

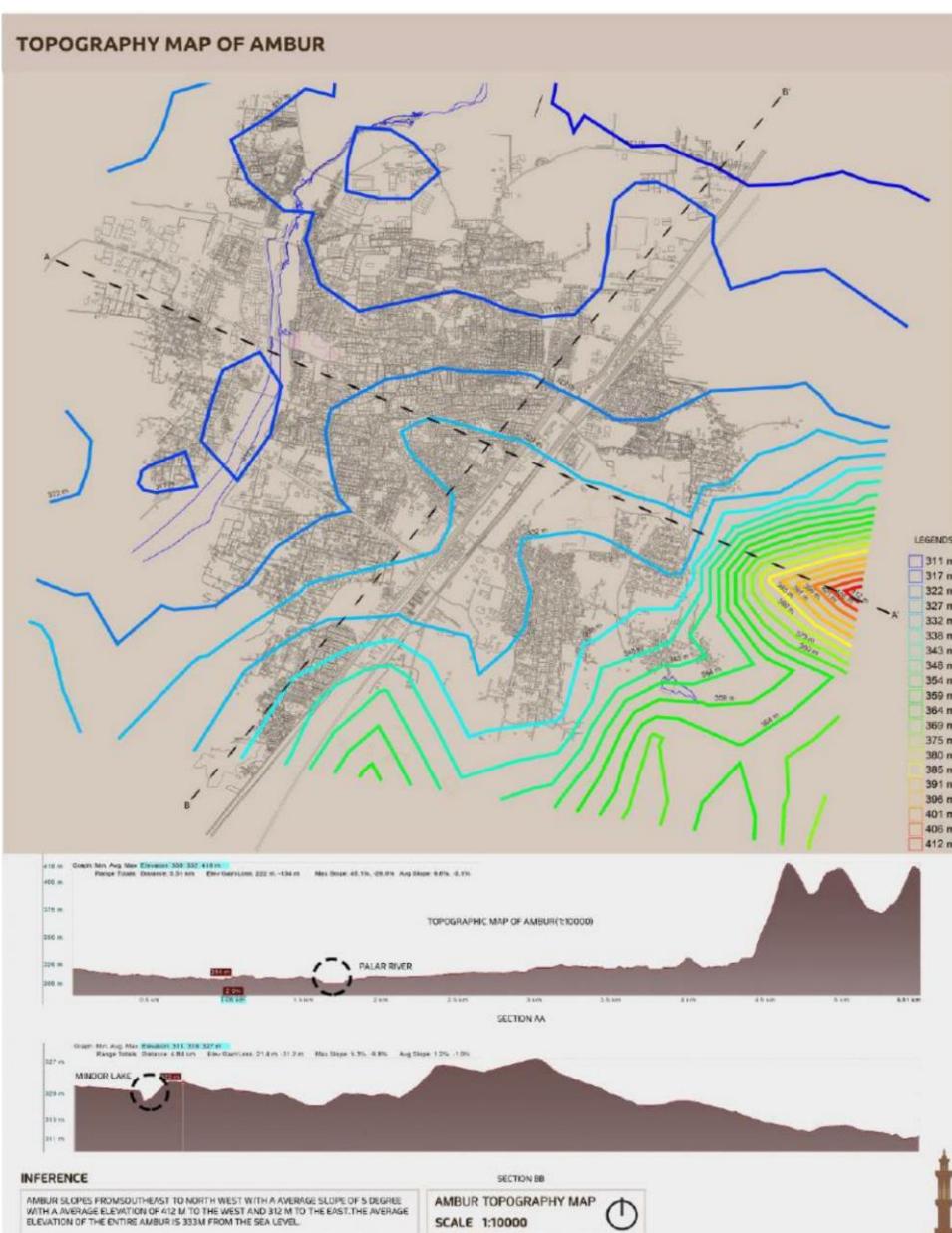
NO. OF MARGINAL INDUSTRIES

WFPR %

## GEOLOGICAL MAP OF AMBUR

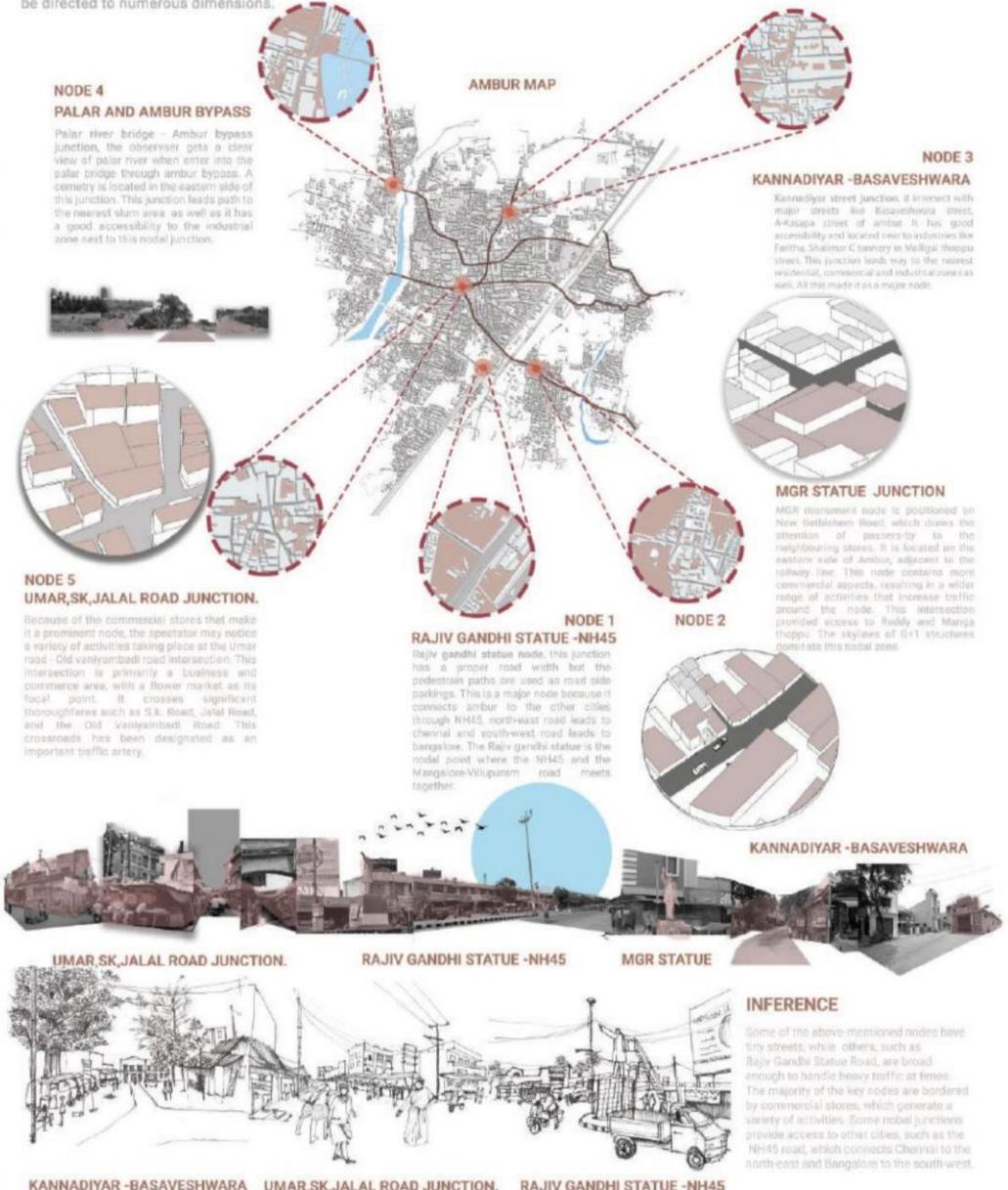


## TOPOGRAPHY MAP OF AMBUR

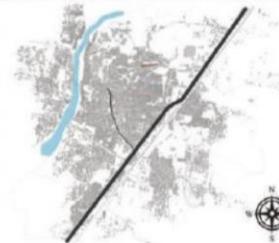


NODE

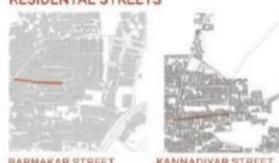
Nodes are important places in a city where an observer can be and which serve as intensive focuses to and from which he travelled. It's possible that they're largely junctions or concentrations. It can be a gathering spot, a crossroads, or a place for activities, and the user can enter it and be directed to numerous dimensions.



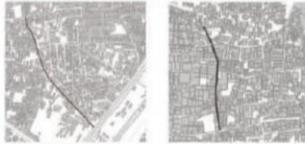
#### **RESIDENTIAL STREETSCAPE**



#### **RESIDENTIAL STREETS**      **COMMERCIAL STREETS**



## COMMERCIAL STREETS



KANNADIYAR STREET  
ELEVATIONS OF KANNADIYAR STREET



BARNAKAR STREET

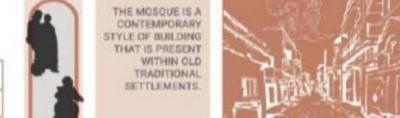
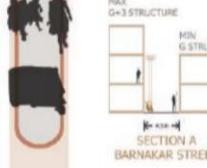


#### STREET SECTIONS

THE MOSQUE IS A  
CONTEMPORARY  
TYPE OF BUILDING  
THAT IS PRESENT  
WITHIN OLD  
TRADITIONAL  
SETTLEMENTS.



11



THE STREET IS  
CHARACTERIZED BY  
MUSLIM SETTLEMENTS  
THAT CONSIST OF  
GRILLS FOR SECURITY



CIV  
POSITIVE  
INFLUENCES ON

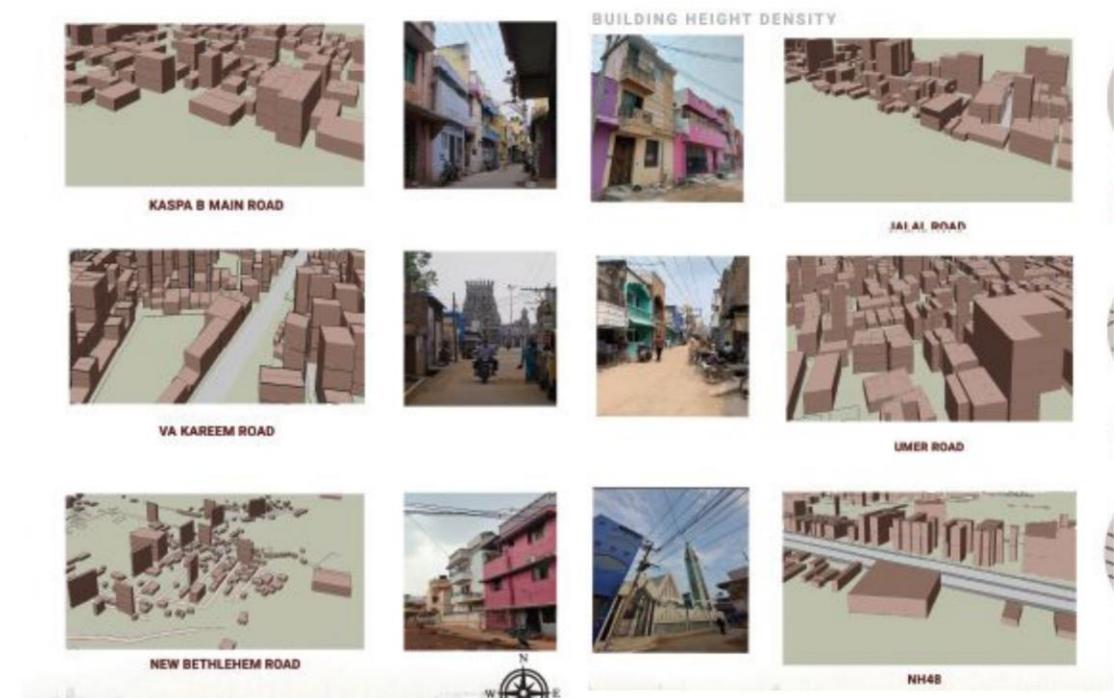
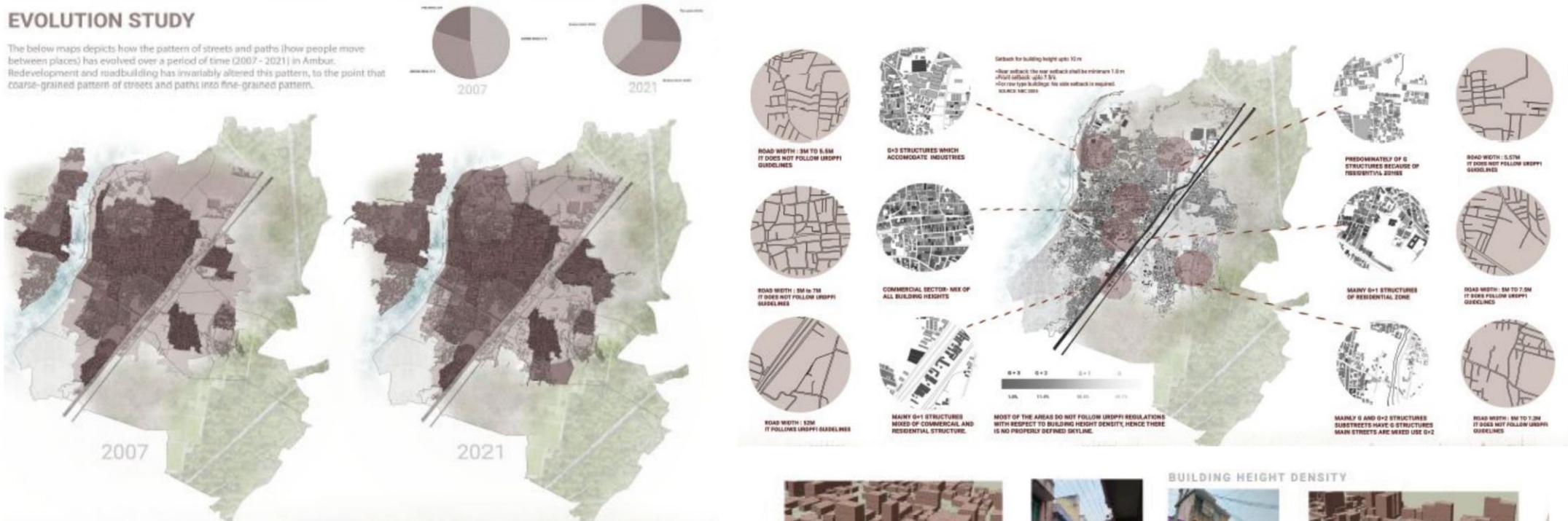


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## EVOLUTION STUDY

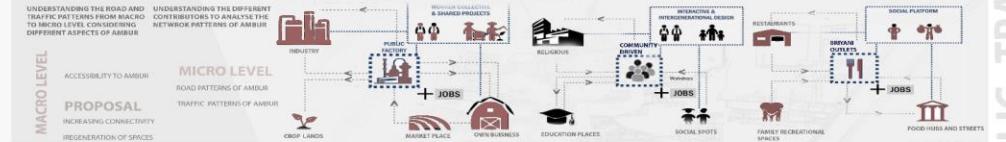
The below maps depicts how the pattern of streets and paths (how people move between places) has evolved over a period of time (2007 - 2021) in Ambur. Redevelopment and roadbuilding has invariably altered this pattern, to the point that coarse-grained pattern of streets and paths into fine-grained pattern.



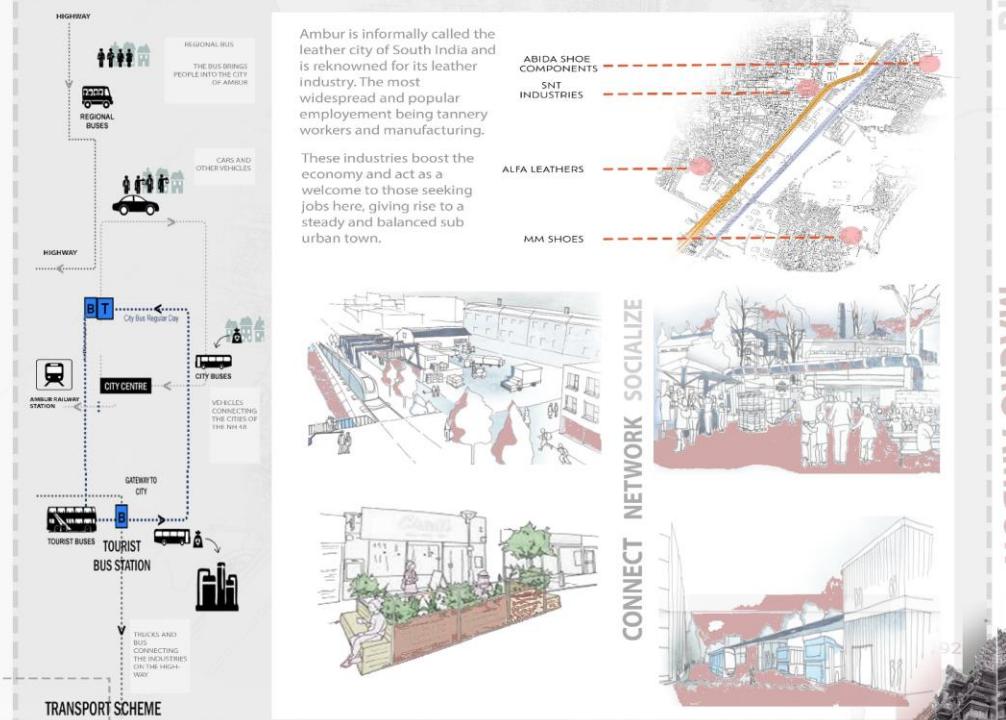
## MAIN IDEA



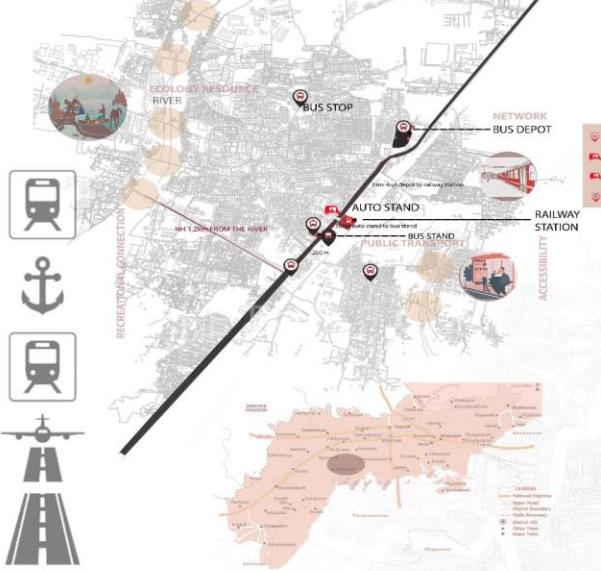
## METHODOLOGY



## IMPLEMENTATION



## TO STUDY THE ACCESS TO THE DISTRICT



The town of ambur started to develop from 1972 and has got its road branched out from the NH to major district roads and village roads. This main road connects metro cities of Madras and banglore.

National Highway 48 is a National highway of India that starts at Delhi and terminates at Chennai traversing through seven states of India. It has a total length of 2807 km.

This road is well connected with the national highway district roads and municipal roads that traverse the length and breadth of the district of vellore .

Being a major connection road , this road is active throughout the day causing constant vehicular flow . From the observation of settlement pattern , it is concluded that the roads are branched to form arterial settlement.

## MICRO AMBUR



## MACRO AMBUR

### TYPES OF ROADS

VEHICULAR, PEDESTRIAN CIRCULATION WITH THE TRAFFIC ANALYSIS

### ROAD CONDITION AND FINISHES

VEHICLE OWNERSHIP AND PARKING PATTERNS

### ANALYSIS

Classification of the roads of ambur according to municipality, study the roads along with their strengths and weaknesses

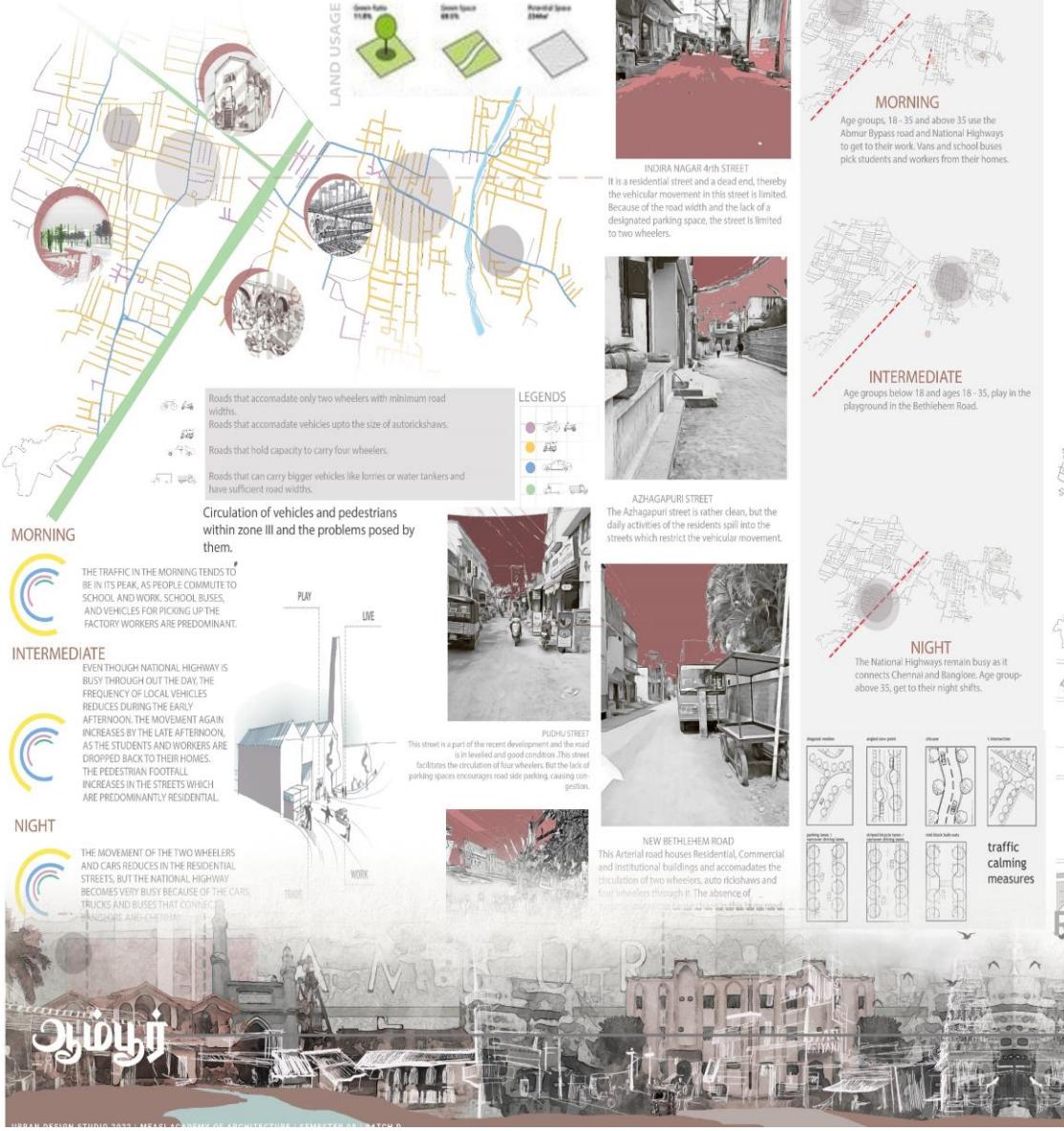
Study the condition of road with respect to its finishes and workability with respect to the usage pattern

Circulation map of ambur is generated and studied to understand the vehicular flow of ambur and its effects on the traffic problems .

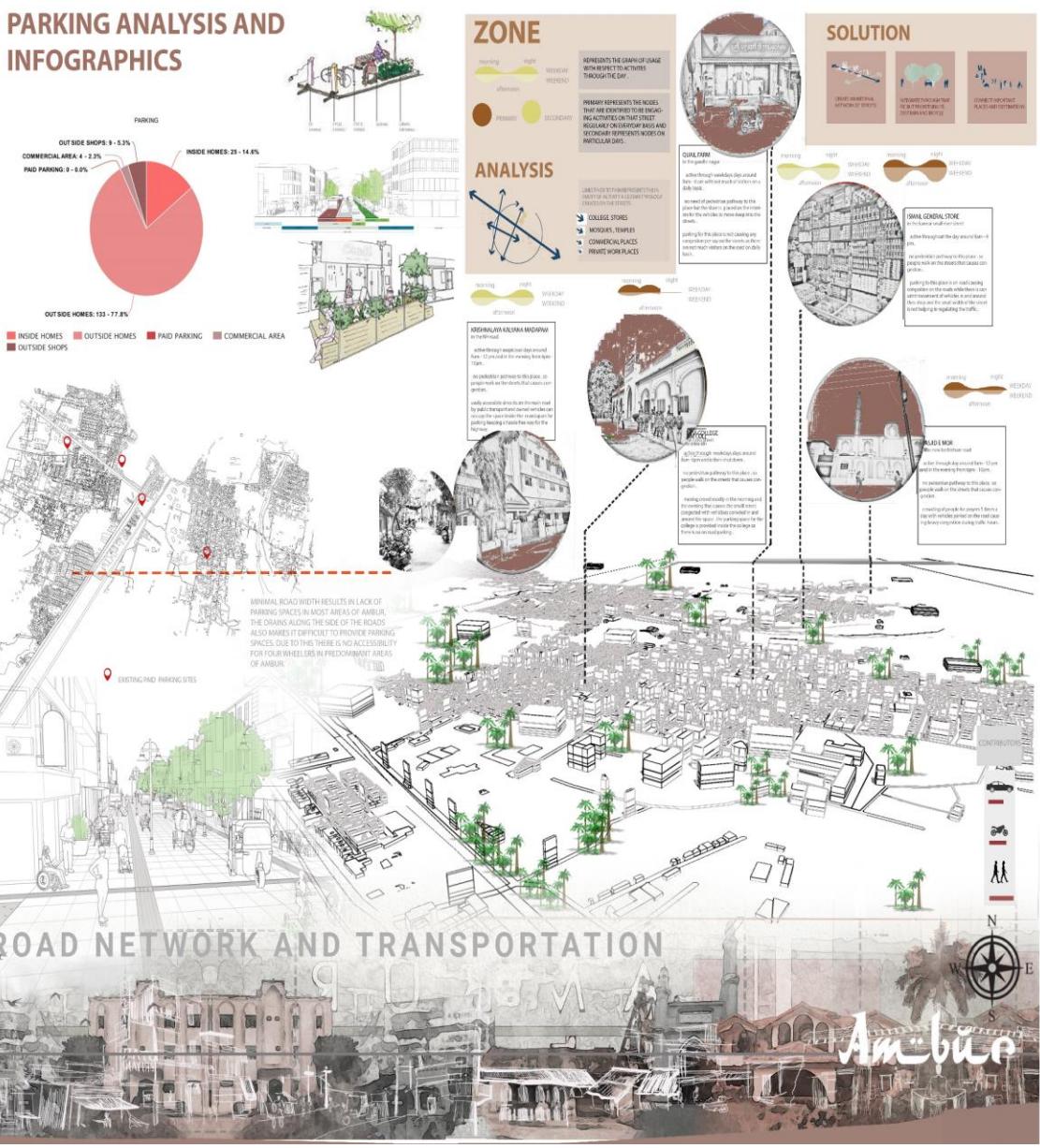
Nodal representation of identified issues along with solutions provided and inferred proposals depicted

## ROAD AND TRANSPORTATION - URBAN DESIGN IV D

## MOVEMENT AND CIRCULATION ZONE 3

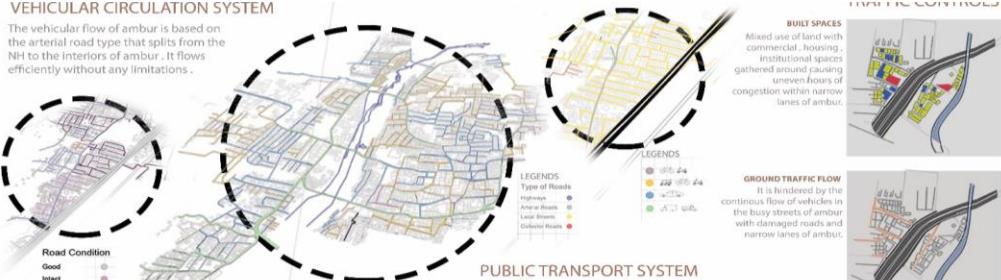


# PARKING ANALYSIS AND INFOGRAPHICS



## VEHICULAR CIRCULATION SYSTEM

The vehicular flow of ambur is based on the arterial road type that splits from the NH to the interiors of ambur. It flows efficiently without any limitations.



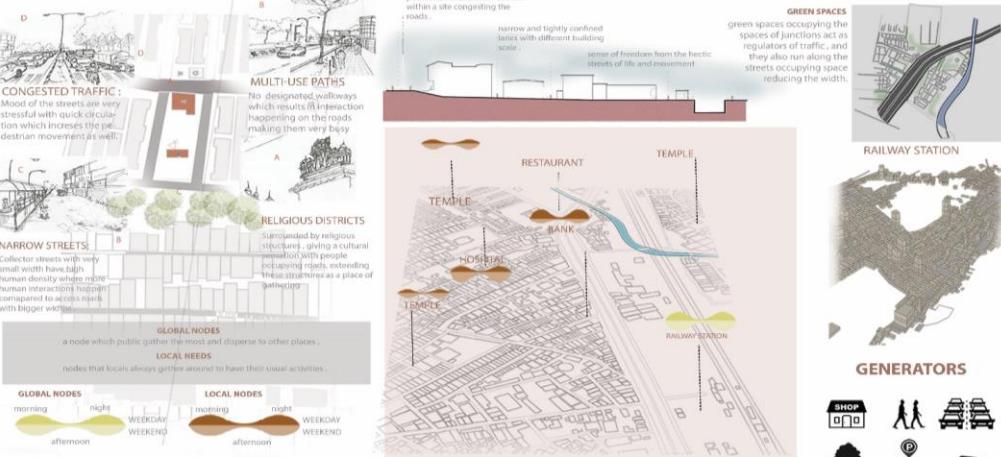
## TYPE OF ROAD

The condition of roads in ambur and very damaged causing a lag in the movement of vehicles, since most of the roads width is also less causing congestion in free movement.



## SITE PERSPECTIVES

### MACRO SITE PERCEPTION



## TRAFFIC GENERATORS OF AMBUR

## ROAD NETWORK AND TRANSPORTATION



Mixed use of land with commercial, business, institutional spaces gathered around causing uneven hours of congestion within narrow lanes of ambur.

There is an overall damage in the quality of roads which affects the livelihood of the users that attracts only lower class people.



NATIONAL HIGHWAYS  
It acts as a major contributor to access to the town by since it connects metropolitan cities like Chennai and Bangalore and there is a large number of vehicles causing heavy movement and congestion.



PUBLIC TRANSPORT  
a separate route for the public transport - service lanes - on certain parts of the highway regulates the flow.



RAILWAY STATION  
Large open spaces left empty and sudden variation in density with haphazard growth.

Internal traffic congestion and restriction in pedestrian movement.



CONNECTIVITY - DISTINCT DIFFERENCE BETWEEN DEVELOPMENT OF EAST AND WEST SIDE OF NH, CLUSTERED LANDUSE ALONG THE NH AND SPARSELY POPULATED ALONG PERIPHERY

CONGESTION - ALONG THE SERVICE LANES OF NH DUE TO LACK OF SPACE AND ROAD WIDTH, INTERNAL ROADS IN POOR QUALITY, CONDITION AND SPACE RESULTS IN IMPROPER FLOW OF CIRCULATION

IDENTITY OF AMBUR IS NOT REFLECTED ALONG THE NH OR INTERNALLY ANYWHERE

VEHICULAR FLOW DISCONTINUOUS OWING TO TRAFFIC AND USER CONGESTION AND LANDUSE DOES NOT RESONATE WITH THE ROAD WIDTH OR THE FLOW OF PEDESTRIAN MOVEMENT

ISSUES

CONNECTIVITY - THE MISSING CONNECTIONS ARE THE CRUCIAL POINTS IN THE STUDY AREA.

2. ADDING AND IMPROVING NETWORKING AND CONNECTIVITY ARE THE CRUCIAL POINTS IN THE STUDY AREA.

3. INTERSECTION AREAS ARE THE CRUCIAL POINTS IN THE STUDY AREA.

4. ADDING AND IMPROVING NETWORKING AND CONNECTIVITY ARE THE CRUCIAL POINTS IN THE STUDY AREA.

5. INTERSECTION AREAS ARE THE CRUCIAL POINTS IN THE STUDY AREA.

CONCLUSIONS

STREET CHARTER

VISION

To facilitate, better connectivity throughout the urban built environment making it more inclusive and creating an identity along the central spine

CONNECTIONS

CONNECTING THE 2 SIDES OF AMBUR

CONNECT

Anuradha being a special Grade Municipality is under the CWSS scheme- Under Vellore Cauvery water supply scheme. Therefore this municipality has been supplied with 7.00 MLD.  
Per capita supply 50Lpcd  
Supply Duration: Alternative days once (2 hours)  
No of MPF=266 nos  
No of Power Pump=21 nos.

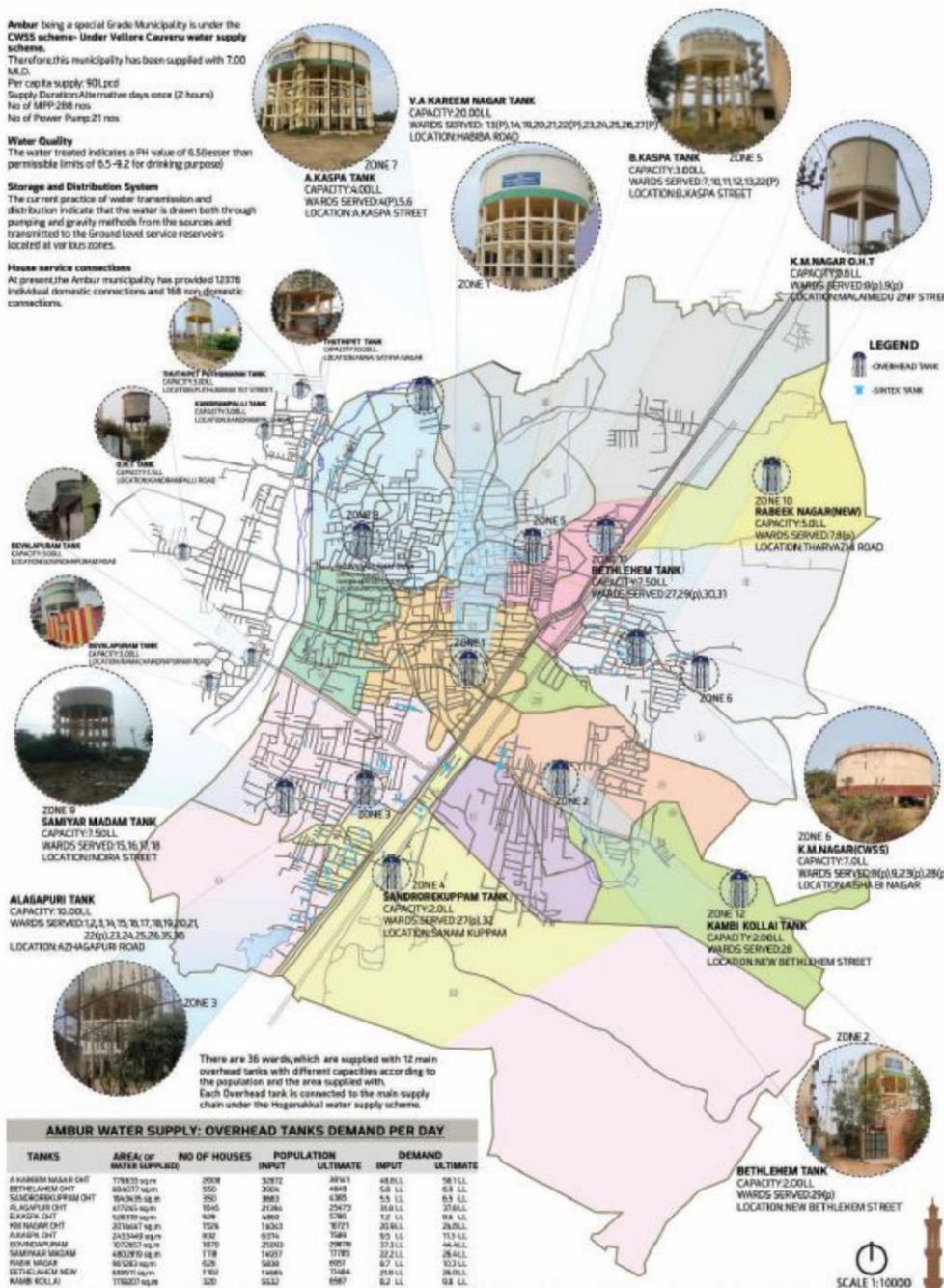
**Water Quality**

The water treated indicates a PH value of 6.5(lesser than permissible limits of 6.5-9.2 for drinking purpose)

**Storage and Distribution System**  
The current practice of water transmission and distribution indicate that the water is drawn both through pumping and gravity methods from the sources and transmitted to the Ground level service reservoirs located at various zones.

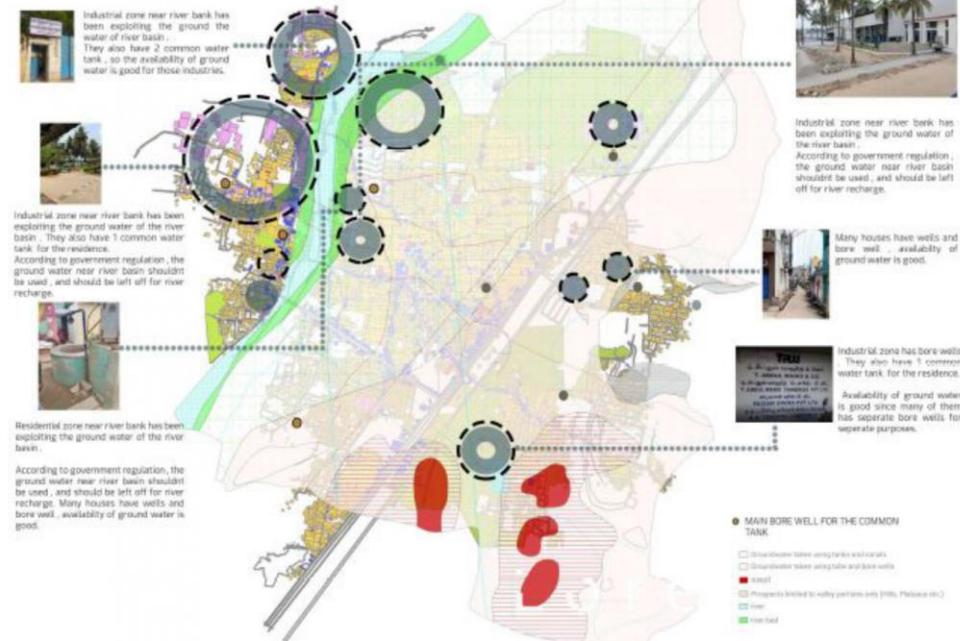
#### **Main service connections**

At present the Ambur municipality has provided 12378 individual domestic connections and 168 non-domestic connections.



## COMPARATIVE ANALYSIS

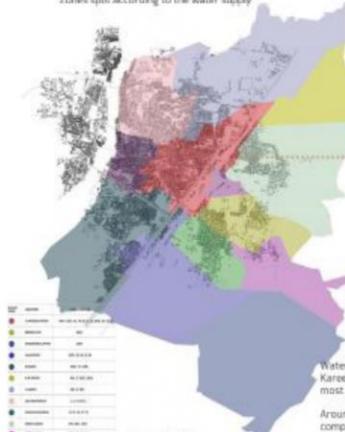
## OF GROUNDWATER AVAILABILITY AND LANDU



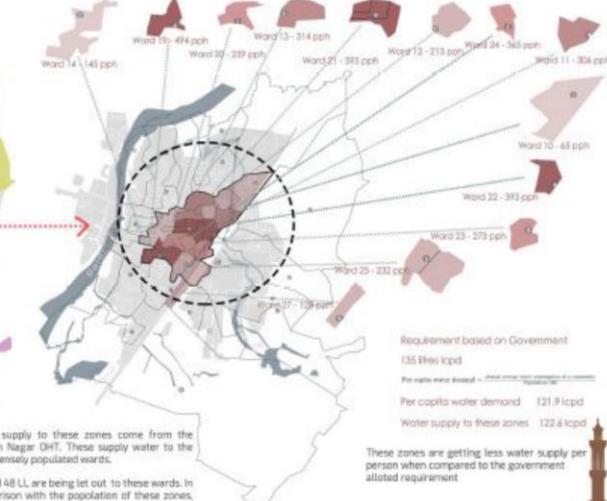
WATER SUPPLY ANALYSIS

The groundwater quality in ambur is very poor and is suitable for drinking , so the drinking water is sourced from the OHT located in each zone .

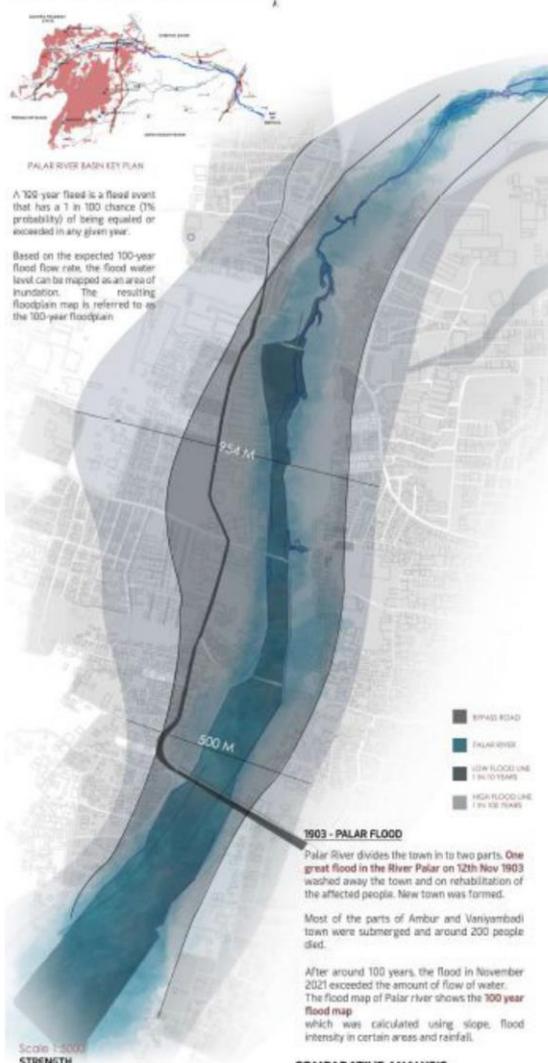
Zones split according to the water su-



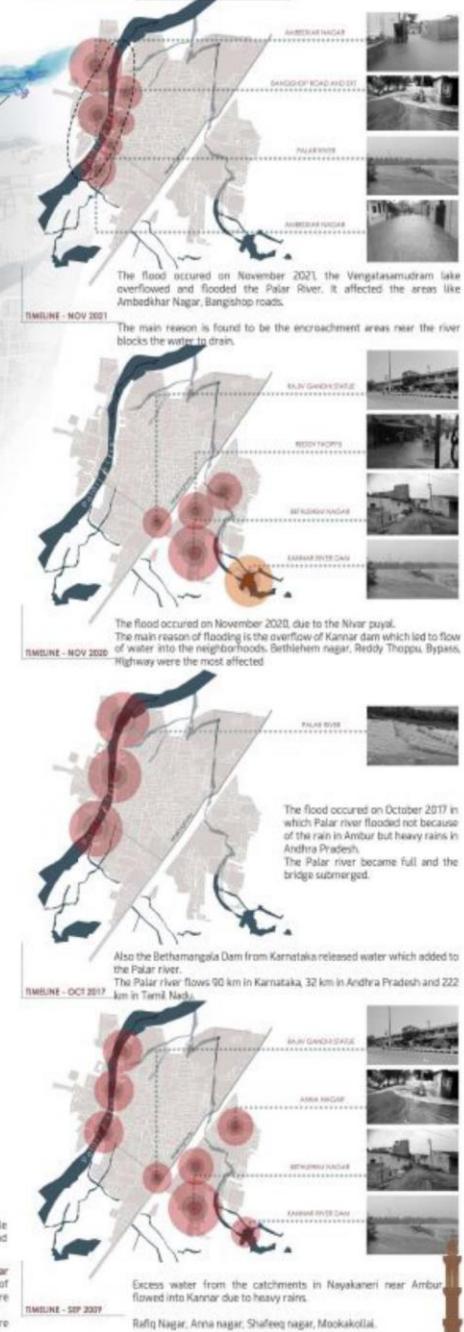
## Analysing the water supply to the most densely populated ward



## FLOOD MAP 100 YEAR FLOOD



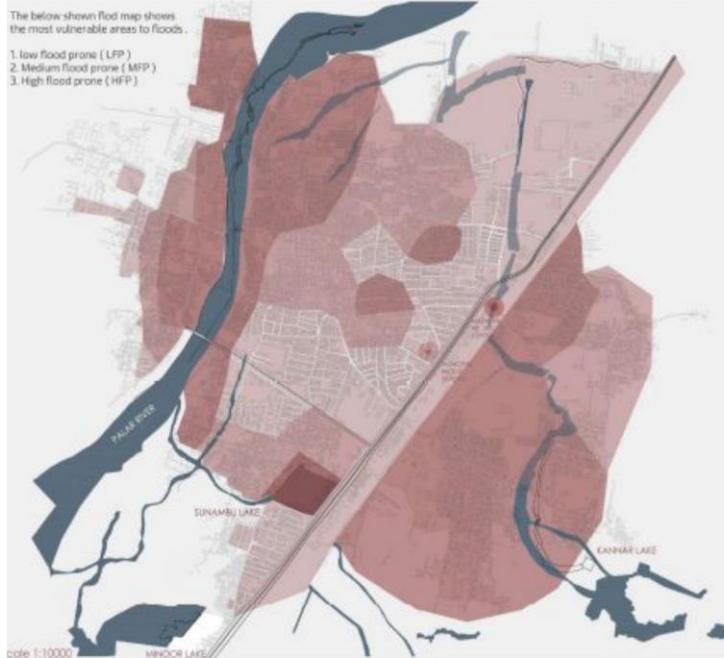
## TIMELINE (MOST AFFECTION ZONES)



## FLOOD MAP ANALYSIS

The below shown flood map shows the most vulnerable areas to floods .

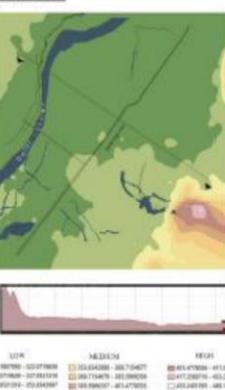
1. low flood prone (LFP )
2. Medium flood prone (MFP )
3. High flood prone (HFP )



**LEGENDS**

RANGE	
CATCHMENT AREAS	0.15M - 0.3M
LOW FLOOD PRONE	0.3M - 0.6M
MEDIUM FLOOD PRONE	0.6M - 0.9M
HIGH FLOOD PRONE	0.9M - 1.1M
WATERBODY	1.5M - 1M
RELIEF CENTERS	1.5M - 1M

## SLOPE MAP



## COMPARISON WITH LANDUSE



## INTERVENTIONS

- 1) Encroachments in the flood way should be removed and taken necessary actions.
- 2) Prohibition of any dumping in Channel and flood way that would restrict flow.
- 3) Specification of minimum elevation of sub division roads that they are above selected flood level.
- 4) Development of a community level flood warning system to aware the people in the flood prone areas.



## Risk Assessment

Palar River is the major river draining the district, flowing towards east for a distance of about 295 km. It has a vast flood plain in the lower reaches, but is dry for major part of the year.

The houses build in the villages next to the embankments are vulnerable to Floods

## Prevention and Preparedness

- Set up River Basin Organisations to deal with the management of water resources at basin level.
- Preparation of Flood Management Plan by joint effort of States and concerned department of Central.

## Mitigation Measures

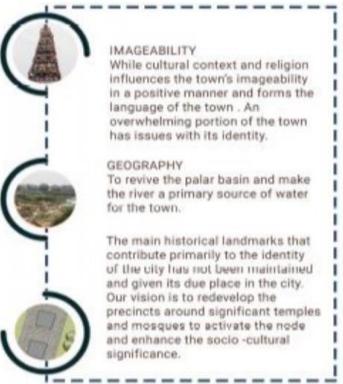
- Identification and marking of flood prone areas on maps, preparation of close contour and flood vulnerability maps, formulating plans for expansion and modernisation of flood can also be included in Development Plans.
- Implementation of the schemes for expansion and modernisation of the flood forecasting and warning network, execution of flood protection and drainage improvement scheme and



# VISION 2050

Regional/industrial multi-functional growth centre encompassing and overarching social development through maximising the existing entrepreneurial momentum to achieve an urban growth for Ambur town so as to become a sub-regional node in Chennai Bangalore development corridor

Thrust area: socio economic syntax



Vision for slum -

'Eradication of slum settlements'. Slums might go out of existence by 2050 as these areas will be converted to proper residential area with inclusive residential communities, vertical developments.

Vision for residential

Residential- Proper re-planning of the settlements is with Compact vertical developments with horizontal spread, with good administration and appropriate facilities. Communal spaces can lead to a successful town incorporating principles of New Urbanism thus improving livability.

Vision for figure and ground:

Greening the city, thus creating identity, encouraging cultural and social meets. Designing recreational facilities such open grounds for activities, parks, more interactive ooco like cafes, restaurants.

Vision for industrial

More number of production units and leather hubs within the administrative area of Ambur which helps the overall economic and infrastructure growth of ambur by 2050



Vision for Commercial

Vision : With the increasing rise of such as Swiggy, Zomato, Dunzo, and Zepto, it is expected that commercial complexes would be reduced by 2050. As a result, the landuse pattern will shift to warehouses and godowns.

