MASTER PLAN FOR

THIRUVALLA TOWN



REPORT

MAY 2022

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(Modified after considering the Municipal Council suggestions received on the Master plan, published on 21.1.2020)

THIRUVALLA MUNICIPALITY

LOCAL SELF GOVERNMENT DEPARTMENT, PLANNING, GOVERNMENT OF KERALA

FORWARD

Thiruvalla is one of the 32 towns included in the scheme "Preparation of Master Plans and Detailed Town Plans" announced in the Budget speech of 2008-2009. The scheme aims to prepare statutory Town Planning Schemes for Towns in the State, under Town Planning Acts so as to ensure their planned development.

Thiruvalla is identified as the first order settlement of the district in the regional study. As the first order settlement, it has an influence area of the entire district and a few areas of the surrounding districts. The education and health facilities available in this town have a widespread influence area. Thiruvalla railway station is the sole railway station in Pathanamthitta District. Earlier Thiruvalla had the role of a predominant administration and marketing center of the region. Thiruvalla has been showing a continuous development momentum during the last two decades. The town now functions as an administrative center and a commercial centre of surrounding settlements as well. In general Thiruvalla shall be developed as a centre of excellence in terms of higher order facilities with strong economic base. During urbanization the tertiary sector attains maximum growth while the primary and secondary sector needs willful efforts for development. Hence the Master plan envisages vitalizing primary and secondary sectors and thereby to strengthen the economy and to develop the town as a centre of excellence in education and health and develop necessary infrastructural facilities.

The Master Plan for Thiruvalla Municipality is now modified according to the valuable information from the public in terms of objections and suggestions enforced under the Town Planning Act-2016. The concrete decisions made by the Municipal council in this position also give the plan a clear direction for the future development of Thiruvalla municipality.

I take this opportunity to appreciate the efforts of the Local Self Government Planning Department and special committee members to bring out this report. I also use this opportunity to request the wholehearted cooperation of all stakeholders, for the successful implementation of this plan.

Thiruvalla,
May 2022

Bindu Jayakumar
Chairman,
Thrivualla Municipality.

PREFACE

Thiruvalla had its origin as a temple town, developing around the ancient and famous "Sreevallabha Temple". There is historical evidence indicating that Thiruvalla was one of the sixty four ancient *Brahmanagramas* and was very prosperous especially during the first half of the first millennium.

Thriuvalla serves as an entry point towards some of the important worship centres of Central Tranvancore like Sabarimala, Chakkulathukavu Temple, Parumala Church, Edathuva Church, Maramon Convention Area and Cherukolpuzha Convention area. Thiruvalla is the biggest commercial centre in the district. The rapid urbanization and developments thereon in the region necessitate Thriuvalla to act as a service centre for a much wider hinterland. As the first order settlement of the district, Thriuvalla is to be developed as a centre of excellence in the area indicates maximum growth in the tertiary sector whiles the primary and secondary sector need willful efforts for development. Hence to vitalise primary and secondary sectors and thereby to strengthen the economy and to develop the town as a centre of excellence in education and health, necessary infrastructural facilities are to be developed. All these aspects establish the necessity of master plan for Thiruvalla town.

The Kerala State Town and Country Planning Act 2016 provides for preparation of Master Plans. Government of Kerala entrusted the Local Self Government Department Planning to anchor and provide technical support for the preparation of the Master Plan and accorded permission for preparation/revision of development plans for 32 urban areas in the state including Thiruvalla town vide G.O(Rt) No:3982/2008/LSGD dated 13the November 2008. Thriuvalla Municipality and the Local Self Government Department Planning took concerted efforts in this regard that made the successful completion of the Master Plan possible.

The invaluable support and cooperation of Smt. Bindu Jayakumar, Municipal Chairman, Thiruvalla deserves special mention. The efforts and suggestions of the Special Committee of

Thiruvalla Municipality without which the time bound preparation of the plan would not have been possible are also acknowledged.

I take this opportunity to appreciate the team of officers of the town Planning Office, Pathanamthitta under the leadership of Sri.G.Arun, District Town Planner for his consistent efforts in materilisation of the Master Plan, right from conceptualization to completion. Certainly, the Master Plan for Thiruvalla will provide a framework for development of the town for years to come.

Prasanth. H

Chief Town Planner (Planning)

Local Self Government Department Planning

Government of Kerala.

Thiruvananthapuram



ACKNOWLEDGMENT

Thiruvalla Municipality, Located at the North West part of Pathanamthitta District is the leading one among the four municipalities of the district in terms of population, population density and is a well developed commercial centre also. Situated in the advantageous location on MC Road at its meeting point with Thiruvalla - Kumpazha Road, Thiruvalla – Kayamkulam road and Thiruvalla – Ambalappuzha road, the town boasts of many administrative and commercial facilities that cater to quite a large area around. The town links the eastern parts of the district with the western rice bowl of "Kuttanad". The rich culture and heritage of Thiruvalla shows the importance of this place from ancient period. The development of this town took place in a rapid manner without proper physical and spatial planning, leading to haphazard development in the town. Hence a development plan is required for planned and organized development of Thiruvalla to enhance the beauty and retain the heritage and culture value along with a healthy living condition for the people.

The works for the preparation of Master Plan for Thiruvalla was taken up as a joint exercise of the Thiruvalla Municipality and the Local Self Government Department Planning under the Scheme of preparation of Master Plans and Detailed Plans. The Master Plan for Thiruvalla Municipality is now modified according to the valuable information from the public in terms of objections and suggestions enforced under the Town Planning Act-2016. The concrete decisions made by the Municipal council in this position also give the plan a clear direction for the future development of Thiruvalla municipality. The plan prepared will certainly stream line the growth of the town in a planned and organized manner.

With great pleasure I acknowledge the support and the motivation received from Honorable Minister for Local Self Governments Shri M.V.Govindan Master who have been very keen to see that the preparation of the Master Plans are completed at the earliest. Also with gratitude I acknowledge my sincere thanks Smt. Sarada G Muraleedharan IAS, Additional Chief Secretary, Local Self Government Department, for constant monitoring of the progress of the scheme.

The active involvement of the Council members under the admirable leadership of Thiruvalla Municipal Chairman Smt. Bindu Jayakumar is worthy of applause. Vice Chairperson Sri. Philip George and former Chairman Sri.R.Jayakumar who have provided continuous support for this effort. I thank them for their immense support of Sri. Narayanan. S, Secretary, Thiruvalla Municipality. The concerned line departments also cooperated wholeheartedly in all activities and readily shared the data, which is gratefully acknowledged.

I am thankful to Sri Pramod Kumar C.P, Chief Town Planner for the advices and encouragement provided. I am indebted to Sri Prasanth. H, Chief Town Planner (Planning) for the constant technical guidance motivation and encouragement. I also thank for the cooperation imparted by all planners and technical staffs of the office of the Chief Town Planner, Thiruvananthapuram.

I sincerely appreciate the hard work and unequivocal sincerity of the planning team in the district office comprising of Smt.Gigi Abraham, Deputy Town Planner, Sri. Vineeth. G, Assistant Town Planner, Sri.Vishnu M., Planner Associate and Smt. Aalia, Planning Assistant (GIS) in time. I also appreciate the contributions of Sri. Anil Kumar.P, former Town Planner. I am also indebted to all other members both in the technical and non-technical section for all the co-operation and keen participation at various stages.



Arun.G
Town Planner, Pathanamthitta,
Local Self Government Department Planning
Pathanamthitta.

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CHAPTER1

INTRODUCTION

1.1 INTRODUCTION

Thiruvalla Municipality, located on the northwest border of Pathanamthitta District is the leading one among the four municipalities of the district in terms of population, area, and is well commercial development. Situated at an advantageous location on M.C. Road at its meeting point with T.K. Road, Kayamkulam Road, Ambalappuzha Road and Mallapally Road, the town boasts of many administrative and commercial facilities that cater to quite a large area around. The town links the eastern parts of the district with the western rice bowl of 'Kuttanad'

It is believed that Thiruvalla had its origin as a temple town, a town developing around the ancient and famous "Sree Vallabha Temple''. There is historical evidence proving that Thiruvalla was one of the thirty-two villages in the past and was very prosperous especially during the first half of the first millennium. Historical evidence like copper plates and proclamations discovered point to Thiruvalla as a flourishing and major centre of spiritual and educational prominence as early as in the eleventh century.



Sree Vallabha Temple

Thiruvalla serves as a hub of the routes towards some of the most important pilgrim centres of Central Travancore like Sabarimala, Maramon Convention area, Cherukolpuzha Convention, Chakkulathukavu Temple, Parumala Church and Edathua Church. Thiruvalla had wide trade links with important trade centres like Alappuzha, Changanassery, and Kottayam, etc. in the past. The agricultural produce from Thiruvalla was transported through waterway from Chanthakkadavu to these places.

The modern history of Thiruvalla begins with its formation as a municipality in the year 1920 with 14.46 sq km area comprising of 12 wards. When the state was reconstituted in 1950, Thiruvalla municipality became part of Alappuzha district. Later on, when the Pathanamthitta district was constituted in 1982, this town becomes the headquarters of Thiruvalla Taluk. On August 1, 1987, the municipality was expanded to an area of 27.94 sq. km by adding some portion of Kuttapuzha Panchayat, with 32 wards. Later in 2005, it was divided into 36 wards. At present (in 2011) there are 39 wards.

The population of this municipality was 54,780 as per the 1991 census, which got increased to 56,837 in the 2001 census and decreased to 52,883 as per the 2011 census, registering a decadal growth rate of 3.76% and -6.95% respectively during 1991-2001 and 2001-2021. The density of population as per the 2001 census was 2034 persons/sq. km and 1892 persons /sq.km as per the 2011 census. This is the highest density among the local bodies in the district. The sex ratio as per the 2001 census was 1098. The literacy rate was 96.9%, which is also the highest among the local bodies of the district.

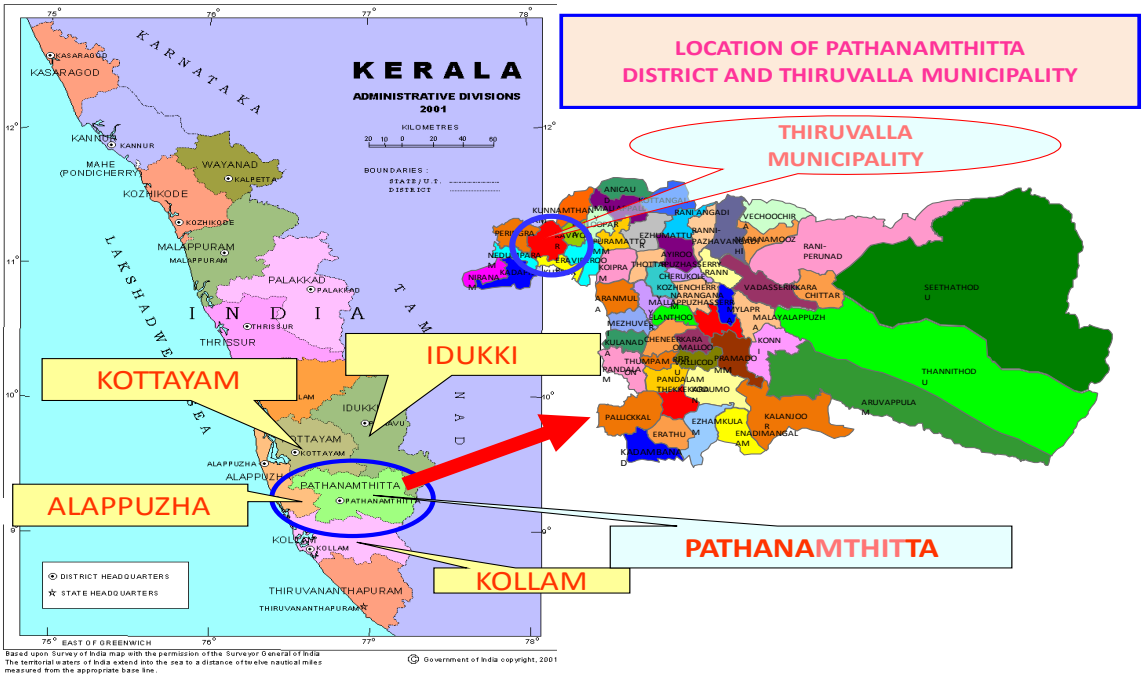
The topography comprises plains, paddy fields, and small hillocks. The slope of this area varies from 0 to 15 degrees. Nearly 92% of the area is having a slope in the range of 0- 6. The

town has a tropical climate with a high temperature of nearly 35 ^{0} C in summer and 18^{0}C in winter with heavy rainfall of around 305cm. Another important aspect of Thiruvalla is that this is the town having the largest NRI deposit in nationalized banks of the country. A large number of educated citizens, from all walk of life, of Thiruvalla; work in different countries all over the world.

1.2 LOCATION

Thiruvalla Municipality is located in Thiruvalla Taluk of Pathanamthitta district in southern Kerala. The location of the town is shown in Map 1.1. It lies between 9^{0} 21' 30" N and 9^{0} 25' 30" N latitudes and 76^{0} 32' 30" Eand76^{0} 36' 30" E longitudes. It is surrounded by Payipad Grama Panchayat of Kottayam district in the north, Kuttoor Grama Panchayat in the south, and Kaviyur, Kunnamthanam, and Eraviperoor Grama Panchayat in the east, and Peringara and Nedumpuram Grama Panchayats in the West and is shown in Map 1.2.

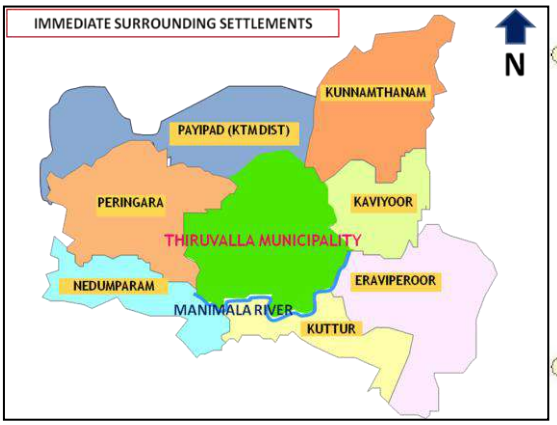
This town is an important urban node along the Main Central Road (SH 1). It is located at a distance of 9 km from Changanassery, 26 km from Kottayam, 99 km from Ernakulam, 9 km from Chengannur, 30 km from Kayamkulam, 30 km from Pathanamthitta, and 125 km from Thiruvananthapuram.



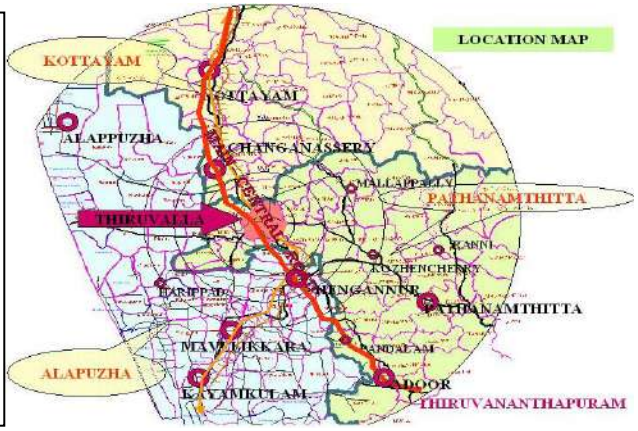
Map 1.1 Location of Thiruvalla Municipality

The nearest airport is Thiruvananthapuram Airport, located at a distance of 125 km from the town. Cochin International Airport is at a distance of 130km from Thiruvalla.

Map 1.3 portrays the location of Thiruvalla Municipality and surrounding settlements in the Kottayam, Alappuzha and Pathanamthitta districts. Thiruvalla is well connected to other important places through road and rail networks. Thiruvalla railway station is the only railway station in Pathanamthitta District. Changanassery and Chengannur are other railway stations located within a distance of 10km from the town. This municipality is one of the major urban nodes along MC road and was formed as early as 1920 AD. The nearest municipalities are Chengannur and Changanassery which lie about 10 km away from Thiruvalla.



Map 1.2 Surrounding Local Bodies Of Thiruvalla



Map 1.3 Thiruvalla municipality and surrounding major settlements

1.3 EVOLUTION AND GROWTH OF TOWN

The name Thiruvalla is a colloquial form of Shiruvallabhapuram, which is the Malayalam version of the earlier coinage Srivallabhapuram, named after the chief deity of the central temple complex, Sri Vallabha. Another belief is that the ancient name of Thiruvalla was "Valla vai". This name had some relation with the river Manimala that was known as "Vallapuzha". The mouth is known as "Valla vai".



Marthoma Syrian Church



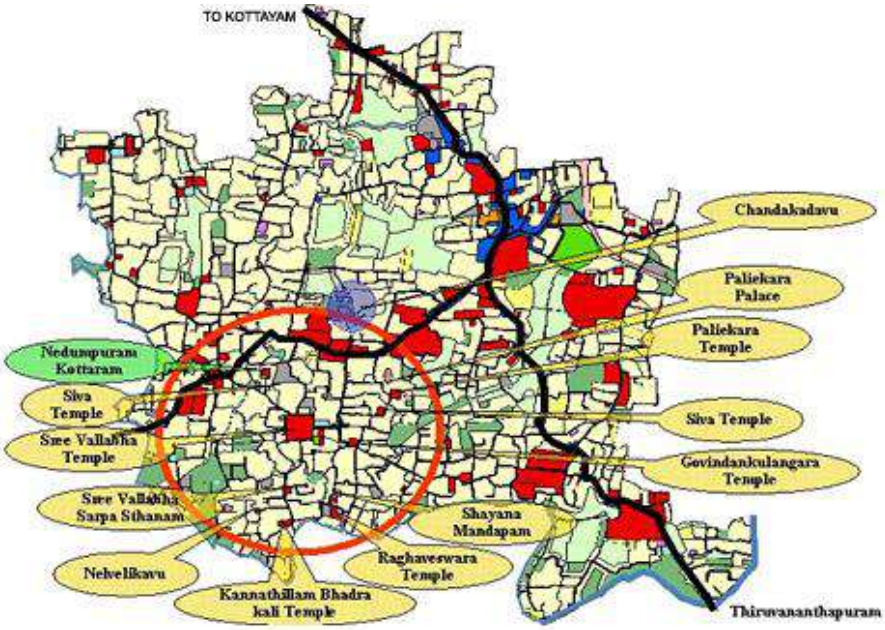
Manimala River

The culture and heritage of Thiruvalla are tied up with the temples. Historical evidence such as copper plates and proclamations are point to Thiruvalla as a flourishing and major center of spiritual and educational prominence in AD 1100. The Sree Vallabha Temple governed a Vedic School with one thousand students and one hundred teachers. The temple also maintained a

hospital in the service of the public at large. The rulers of Thiruvalla belonged to the Thekkumkoor Dynasty, which had one of its headquarters at Edathil near Kavil Temple. Today's Paliakara Palace is a branch of Lakshmipuram Palace of Changanassery, which was the branch of Alikottu Kovilakam of Pazhancherry in Malabar.

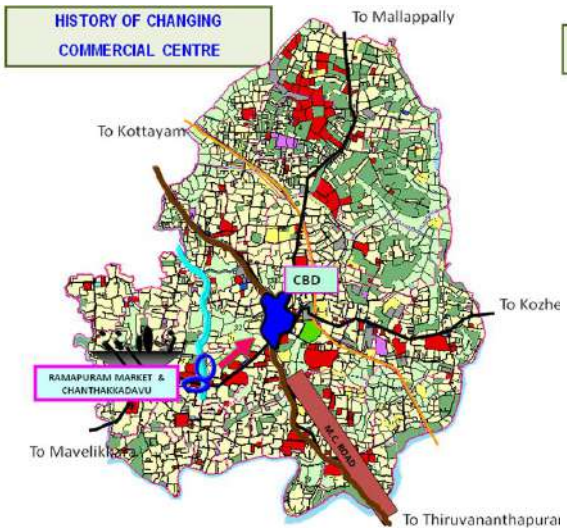
The existence of broad roads near the palace shows the presence of 'Raja veedhi' near the palace towards temples, which is considered as the major corridor during the ancient period. Map 1.4 shows the location of major palaces and temples surrounding the famous Sree Vallabha Temple, which was considered the heart of the town earlier. But later due to the development of M.C.Road connecting other districts, the area surrounding this road gained more importance for communication of people and shifted activities from Kavumbhagom to SCS junction. With the construction of Revenue Tower, many government offices got shifted to this building. This building is now acting as the administrative center of the town. The evolution of the town is shown in Map 1.6 and Map 1.7.

Christianity arrived in Thiruvalla in the early days through St.Thomas, who is believed to have come to Niranam in A.D. 52 through Purakkadu. Thiruvalla, for centuries, has been recognized as a center of Christian culture and influence. This is the entry town to the Maramon Convention Centre, near Kozhencherry which is said to be the largest Christian gathering in Asia. Maramon and Kozhencherry, on the banks of the river Pampa are 16 kilometers east of Thiruvalla.

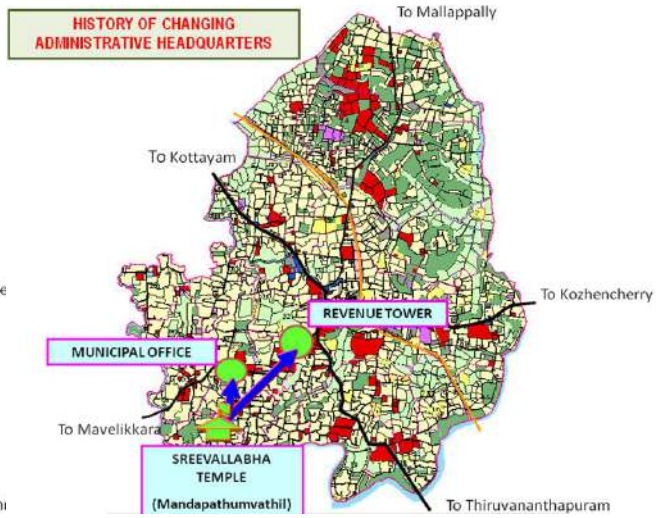


Map 1.4 Locations of major palaces and Temples surrounding Sree Vallabha Temple

The Headquarters of Marthoma Syrian Church of Malabar is situated in Thiruvalla which has contributed very much in the fields of higher education and established a first grade Arts and Science College and a B.Ed. College in the town. In addition to that, in large number of buildings of the church many of the major trading, banking and other institutions are housed.



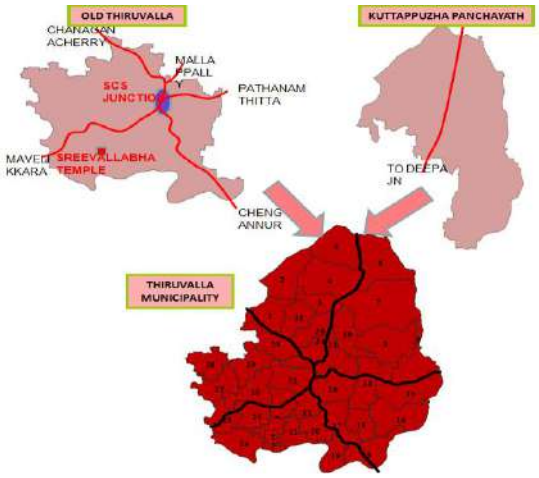
Map 1.5 Thiruvalla municipality-Evolution of commercial centre



Map 1.6 Thiruvalla Municipality-Administrative headquarters changing

The Ayiroor-Cherukolpuzha Hindu convention is held every year near Kozhencherry, and is about 18 km away from Thiruvalla. The river Pampa at Aranmula is the venue of the famous Aranmula snake boat race. The race is held on the last day of the week-long Onam Festival to commemorate Lord Krishna's crossing of the river. The participants cheerfully row up and down the river to the tune of songs known as vanchipattu. The Sree Ramakrishna Ashramam is located at Thukalassery in the town.

Thiruvalla is also blessed with certain wonderful works of architecture. The Flag post in the Sree Vallabha Temple with a height of 5.3m from ground level and 1.5m below ground level with a Garudan sculpture at the top constructed from a single rock is believed to be built by "Perumthachan" is an example.

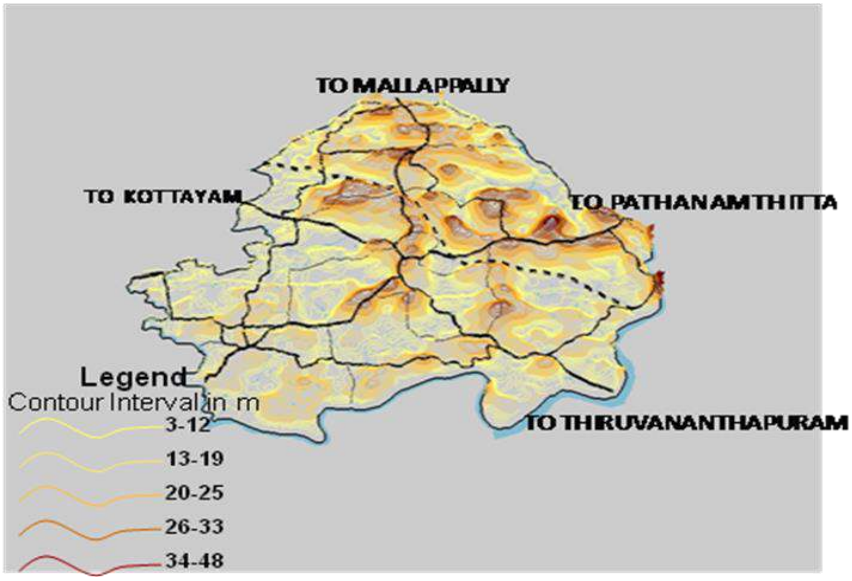


Map 1.7 Old Thiruvalla municipal area, Kuttappuzha Panchayat area and Present Municipal area

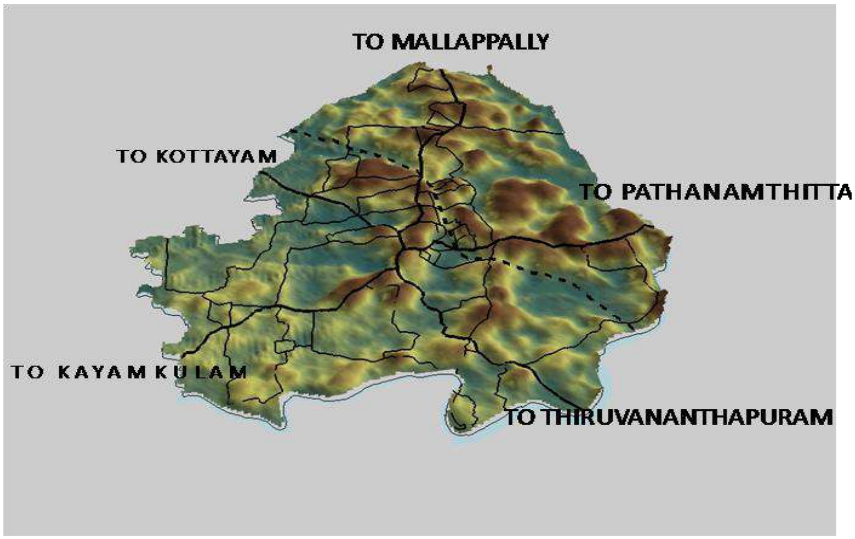
The history of present day Thiruvalla starts with the formation of the Thiruvalla Town Improvement Committee in 1910 and later, Thiruvalla municipality in 1920 with 14.46 sq km area comprising 12 wards. Thiruvalla is one of the oldest Municipal Towns in Kerala. On August 1, 1987, Kuttapuzha Panchayat was added to the municipality thus forming an area of 27.94 sq. km with 32 wards. Later, it was divided into 36 wards in 2005 and at present, there are 39 wards. The ward map of Thiruvalla is given Annex 1.1.

1.4 PHYSIOGRAPHY

Major parts of the municipality are plain land with a few hilly areas and the remaining are paddy fields. About 12 drains pass across the town and there are 4 major ponds. The ground level varies from 3 m to 48 m above mean sea level. The contour map @10m interval is given in Map 1.8.



Map 1.8 Contour Map of the town

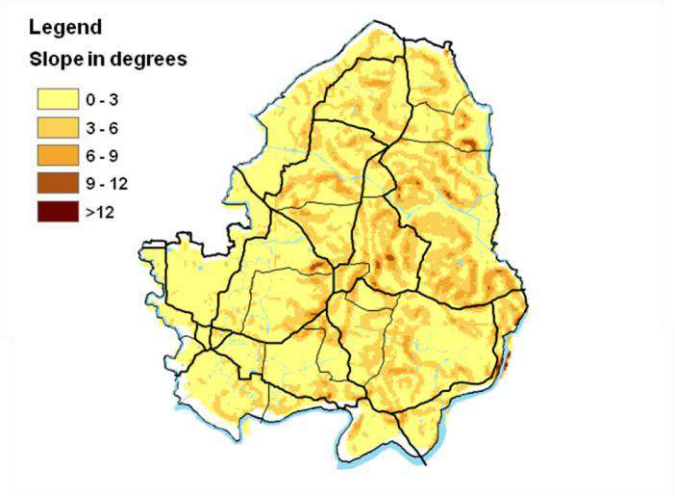


Map 1.9 Three dimensional view of the town

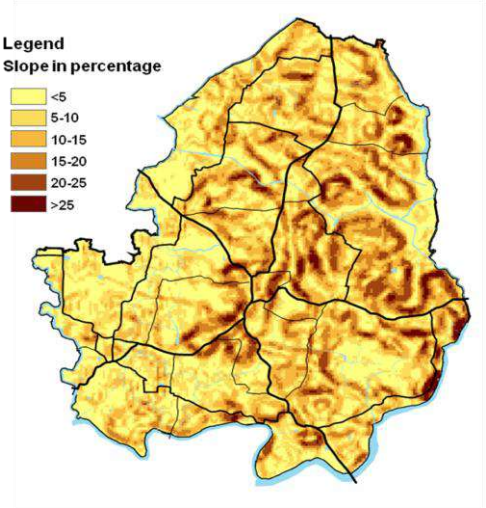
From the map, it can be seen that the central and north-eastern parts of the municipality are elevated areas with paddy fields/ wetlands in the valleys. Map 1.9 which is a three dimensional view of the area with important roads and junctions gives a clearer picture of the physiography of the municipal area. It may be noted that almost all the roads pass through elevated areas to avoid flooding during the rainy season.

1.5 SLOPE

The slope of the municipal area in degrees and in percentage is given in Maps 1.10 and 1.11 respectively. The slope varies from 0 to nearly 15 degrees. The slope percentage varies from 0 to nearly 25%



Map 1.10 Slope in Degrees of Thiruvalla Municipal area



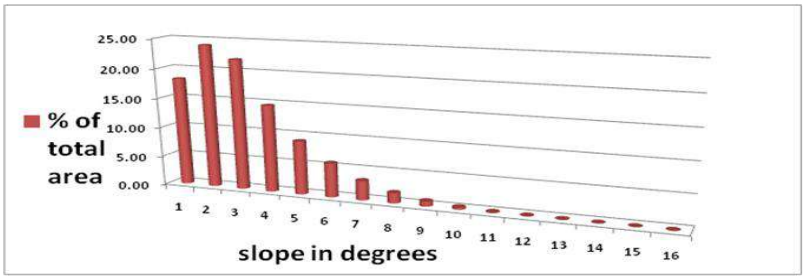
Map 1.11 Slope in % of Thiruvalla Municipal area

The break-up of areas under different slopes are given in Table 1.1. It can be seen from the table that nearly 42% of the municipal area is plain with slope up to 1% -55% of the area of the municipality is having only slope up to 6. This means that this area is almost plain and hence suitable for urban development.

Slope- area breakup

Table 1.1 Details of areas of municipality under different slopes (in degrees)

Slope in degrees	Sum_area	% of total area
0	4640459.183	18.22
1	6123102.518	24.04
2	5584148.053	21.93
3	3723791.565	14.62
4	2299212.928	9.03
5	1465260.217	5.75
6	830689.0519	3.26
7	440026.7071	1.73
8	212438.165	0.83
9	87355.7866	0.34
10	29066.5804	0.11
11	15002.106	0.06
12	7501.053	0.03
13	4688.1581	0.02
14	1875.2633	0.01
15	2812.8949	0.01



42% of the town area is level. Nearly 55% of the town area has slope between 2° and 6° (42% + 55% = 92%).

1.6 GEOLOGY

A major portion of the area contains soil of the type clay mixed with sand. In some areas, red soil with gravel is also seen and clayey soil is seen in paddy fields. 11.50% of the land is paddy fields, 30.20% other different types of agriculture and 0.65% rocks. Manimala River is the main source of water to the municipality, which is not enough to satisfy the needs of the town. During the summer season, the rate of flow becomes very low which leads to depletion of the water table in surrounding areas. Most of the wells in the low-lying areas of the town are perennial and maintain a water column even in the summer season. But in hilly areas, the water table is high enough to make available water in the wells, only in the rainy season.

1.7 CLIMATE

Thiruvalla Municipality belongs to a tropical humid climate area with a hot summer and monsoon. The hot season from March to May is followed by the rainy season from June to September. The period from October to December is a pleasant winter season. From the end of December to the beginning of March the season is generally cold and dry. The town has a tropical climate with a high temperature of nearly 35°C in summer and 18°C in winter with heavy annual rainfall of nearly 305cm.

1.8 CULTURE AND HERITAGE

As in many other places in India, the culture and heritage of Thiruvalla are varied and tied up with its temples. In the olden days, temples were not just places of worship but also centers of judicial, educational and cultural activities. Here, the Hindu tradition has kept its purity in peaceful harmony and tolerance towards the other communities. A large number of churches co-existed near a large number of temples in Thiruvalla town. It is noticed that there is at least one temple and one church in all the wards in the Thiruvalla municipal area. Four mosques have also acquired an integral prominence in this area. People from various communities were invited to Thiruvalla by the then rulers and were given all assistance for setting up places of worship. Both the sides of the road in front of the Thiruvalla temple were studded with several trading centers, and then known as "Chalai". There is a reference to this place in the epic," Unnineelisandesam". Chalai at that time was a powerful competitor to the markets of Kollam and Kozhikode.

“Sree Vallabha Temple” is believed to have been constructed in the year 59 B.C. There is evidence that the area was inhabited since 500 B.C. History reveals that this was one of the thirteen provinces which were profoundly praised by the ancient Vaishnava Poets, “Azhvanmar”. The famous Sree Vallabha temple was an important spiritual center. There was a Vedic school attached to the Sree Vallabha temple, known as ‘Thiruvalla sala’. This school had facilities for accommodating 1000 students.

It is learned that martial arts were also taught here. The ‘Thiruvalla Sasanam’ which is believed to be the first non-poetic book in Malayalam is associated with Sree Vallabha Temple. The temple had also maintained a hospital for the service of the public at large. The important

art forms that flourished during the early periods were Kathakali, Thullal, Kolam Thullal, Kaduvakali, Parichamuttukali, etc. Kathakali is performed every day in Sree Vallabha Temple as an offering to the Lord Vishnu.

Maramon and Kozhencherry, on the banks of the river Pampa, 16 kilometers east of Thiruvalla. Thiruvalla, for centuries, has been recognized as the center of Christian culture and influence. This is the entry town to the Maramon Convention Centre, near Kozhencherry which is said to be the largest Christian gathering in Asia. Ayiroor-Cherukolpuzha Hindu convention is also held every year and the venue of this convention is also near Kozhencherry which is only approximately 18 km away from Thiruvalla.

1.9 CONCLUSION

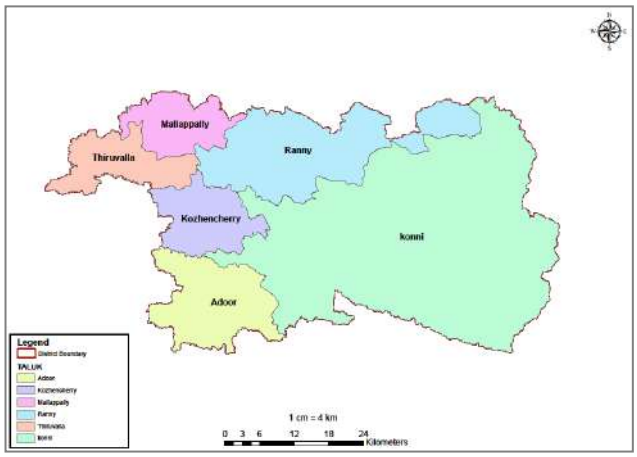
Thiruvalla had its origin as a temple town, a town developing around the ancient and famous "Sree Vallabha Temple''. "Sree Vallabha Temple" is believed to have been constructed in the year 59 B.C. There is evidence that the area was inhabited since 500 B.C. History reveals that this was one of the thirteen provinces which were profoundly praised by the ancient Vaishnava Poets, "Azhvanmar". The famous Sree Vallabha temple was an important spiritual center. Christianity arrived in Thiruvalla in the early days through St.Thomas, who is believed to have come to Niranam in A.D. 52 through Purakkadu. Thiruvalla, for centuries, has been recognized as a center of Christian culture and influence. The town acts as a gateway to the major pilgrim centers of surrounding areas. The history of present day Thiruvalla starts with the formation of the Thiruvalla Town Improvement Committee in 1910 and later, with the formation of Thiruvalla municipality in 1920. It is one of the oldest Municipal Towns in Kerala. Major parts of the municipality are plain land with a few hilly areas and the remaining are paddy fields. The area of the municipality is 27.94 sq. km and present there are 39 wards and the population as per the 2011 census is 52,883.

CHAPTER 2

REGIONAL SETTING

2.1 GENERAL

Thiruvalla municipality was formed in 1920. It became part of Pathanamthitta district when it formed in 1982 and the district was consists of 5 Taluks viz. Thiruvalla, Kozhencherry, Mallappally, Adoor and Ranni and it is shown in Map 2.1. Later the Kozhanchery taluk was bifurcated into Kozhanchery and Konni taluks. There are 4 Municipalities and 53 Grama Panchayats in the district. As per the 2001 census, Thiruvalla municipality ranked first in its area, population and population density when compared with the other three Municipalities. There are three villages in Thiruvalla municipality namely Kavumbhagom, Thiruvalla and Kuttappuzha.

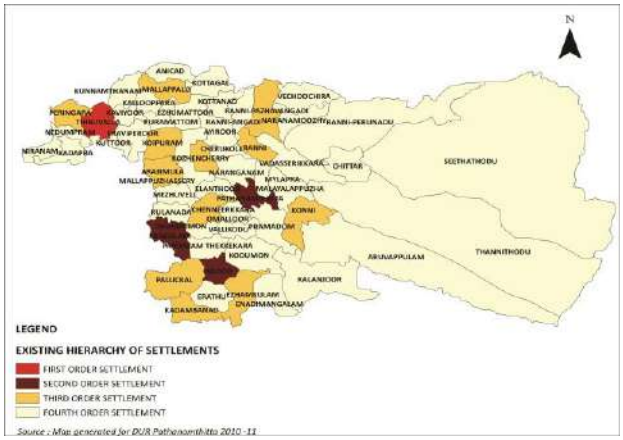


Map 2.1 Taluks in Pathanamthitta District

2.2 REGIONAL SETTING

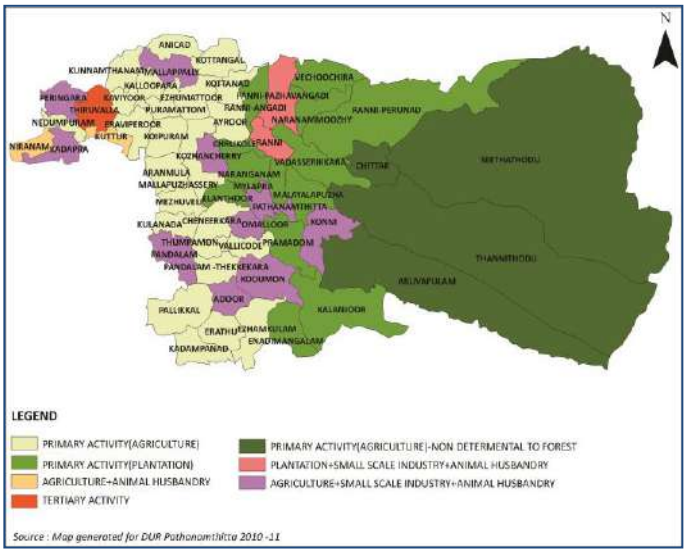
2.2.1 Activity Pattern

A regional study of the district was conducted for identifying the hierarchy, connectivity and activity pattern of the settlements in the district. The hierarchy of settlements was arrived at by analyzing the parameters- Educational facilities, Health facilities, Market facilities, Facilities in the Agriculture and allied sector, Physical infrastructure facilities and Transportation facilities. The existing hierarchy of settlements is shown in Map 2.2. Thiruvalla is the first order settlement in the existing hierarchy of settlements of the district. The district head quarters Pathanamthitta and the other two municipalities i.e. Adoor and Pandalam are the second order settlements of the district.



Map 2.2 Existing hierarchies of settlements

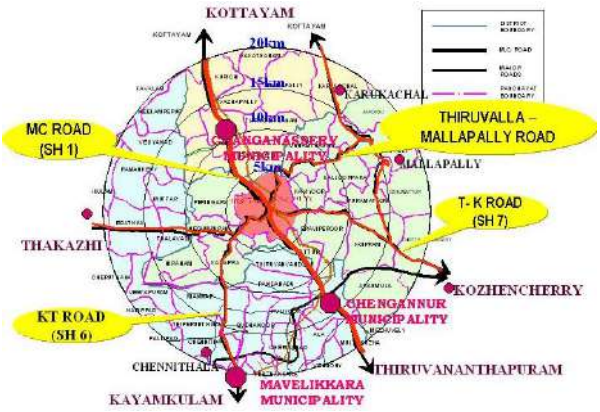
The activity pattern of each settlement is decided based on its functional character, land use concentration pattern and urban profile. The functional character of a settlement is decided by its average plot size, land use and population distribution. Land use concentration is the measure of the concentration of particular land use to the total of that particular land use of the district. The urban profile of a settlement is arrived at based on its occupational structure and hierarchy of settlements. Thus, the activity pattern of each settlement is a reflection of population distribution, occupational structure, land use concentration, average plot size and facilities available of that settlement. Map 2.3 shows the activity pattern of the district. Only Thiruvalla municipality is showing tertiary activity. It can be inferred that Thiruvalla has a concentration of tertiary activities compared to other settlements in the district.



Map 2.3 Activity pattern of Pathanamthitta district

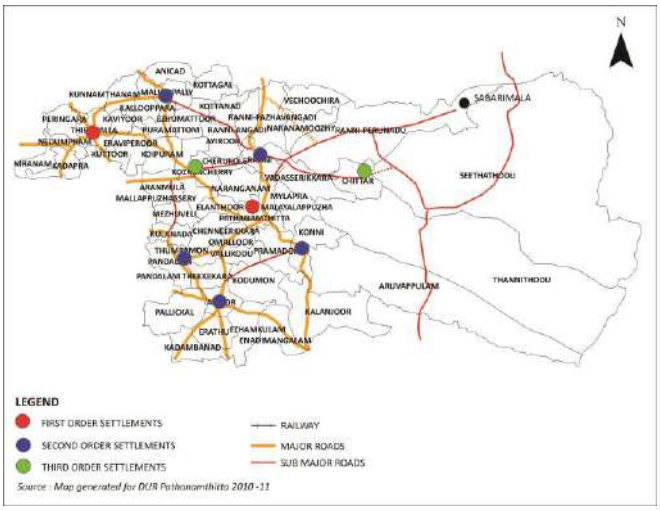
2.2.2 Connectivity of Thiruvalla Municipality

Thiruvalla is well connected to other important places through road and rail networks. Chengannur and Changanassery municipalities are located within a distance of 10 kms from Thiruvalla. Thiruvalla town is connected to the nearby towns viz Chengannur and Changanassery through the Main Central Road (MC road SH 1). SH7, the (Thiruvalla –Kumbazha road) connects the town to the district headquarters, Pathanamthitta. Kozhencherry is an important place along this road. Thiruvalla –Kayamkulam road connects Thiruvalla to Mavelikkara and Kayamkulam in Alappuzha district. Another important road is Thiruvalla - Mallappally road which connects an important neighbouring settlement Mallappally to Thiruvalla. Thiruvalla-Ambalappuzha road is another road with regional importance and connects Thiruvalla with Alapuzha. This town is linked to important places inside and outside the state by rail network. The Thiruvalla railway station is the only station in the Pathanamthitta district and is located within in Thiruvalla Municipal limit. In the ancient period, this town was having a waterway transport network as well. Thiruvalla connected to TS Canal through Chanthakkadavu thodu.



Map 2.4 Linkages of Thiruvalla municipality

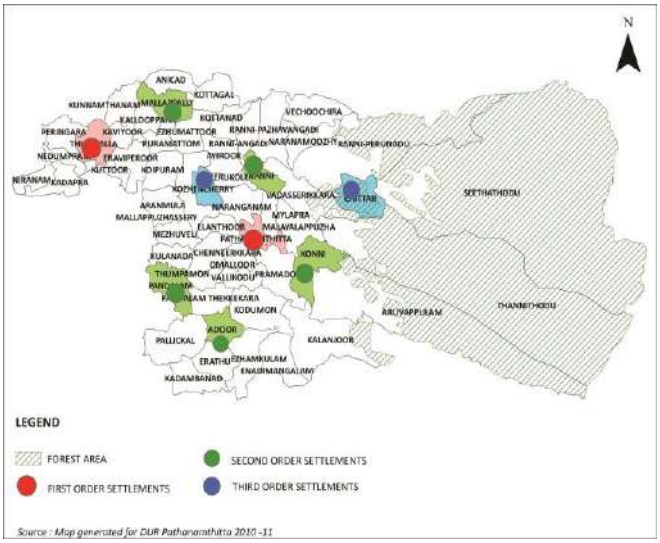
A road network for the district was proposed in the regional study, which is shown in map 2.5. The proposed road network of the district is derived based on the hierarchy of settlements, connectivity to the famous pilgrim centre Sabarimala and promotion of Eco-tourism in the settlements of the eastern part of the district. The road network is proposed to ensure proper connection among the higher order settlements by major roads. Sub-major roads and minor roads were also proposed connecting the lower order settlements. Besides, connections with the surrounding districts are also considered. The Thiruvananthapuram-Angamaly MC Road, Thiruvalla-Kumbazha TK Road, Thiruvalla-Kayamkulam road and Thiruvalla-Mallappally Road are classified as major roads passing through this town.



Map 2.5 Proposed road network of Pathanamthitta District

2.2.3 Proposed Hierarchy of Settlements as per District Urbanisation Report 2011.

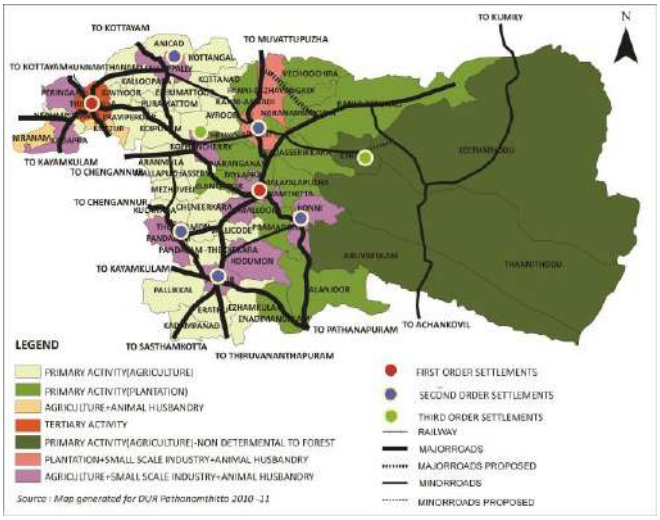
The settlements in the district are grouped into four in the proposed hierarchy as shown in map 2.6, i.e. first order, second order, third order and fourth order. Thiruvalla is suggested as a first order center of the district along with Pathanamthitta, the district headquarters.



Map 2.6 Proposed hierarchy of settlements in Pathanamthitta

2.2.4 Spatial Structure

The spatial structure of the district is obtained by overlaying the activity pattern, road network and hierarchy of settlements and the Map 2.7 shows the spatial structure of the district. In the spatial structure, it can be seen that Thiruvalla is a first order settlement of the district with major roads connecting to the surrounding districts and higher order settlements in the district.



Map 2.7 Spatial structure of Pathanamthitta district

2.3 PLANNING AREA AND PLANNING POPULATION

The planning area is delineated based on the regional study and physical development of the town. The urban profile, land use concentration and functional character in the regional study of the district in respect of the municipality and the surrounding settlements were considered for this purpose. These characters of Thiruvalla municipality and surrounding settlements are given in Table 2.1. It can be seen that only Thiruvalla Municipality shows tertiary activity.

Table 2.1 Activity Pattern of Thiruvalla Municipality and adjoining settlements

Sl. No.	Name of the settlement	Urban Profile	Land use Concentration	Functional Character	Activity Pattern
1	Thiruvalla	Urban	Urban	Urban	Tertiary
2	Kunnamthanam	Non-urban	Agriculture	Rural	primary
3	Kaviyur	Non-urban	Agriculture	Rural	primary
4	Eraviperoor	Non-urban	Agriculture	Rural	primary
5	Kuttur	Non-urban	Agriculture	Semi-rural	Agriculture +Animal husbandry
6	Nedumparam	Non-urban	Agriculture	Rural	primary
7	Peringara	Urban	Agriculture	Rural	Agriculture + Small scale industry +Animal husbandry

The geography of this town has a special character. Thiruvalla municipality is bounded by Manimala River on South, Kaviyoor puncha and Vayatadu - Nattukkadavu thodu on North East and Payippadu - Muthoottuvelil puncha on North West. Thus the municipal area has physical barriers almost all around, preventing continuous physical development towards the outer areas of municipal boundaries.

Thiruvalla Municipality consists of 36 wards spread over an area of about 27.94 sq. km. In 2010, the number of wards was increased to 39. The population as per the 2001 census is 56837 and in 2011 it is found to be 52883. The studies given are based on 36 wards. Thiruvalla municipality ranks first in area, population and population density when compared with other municipal towns in the Pathanamthitta district.

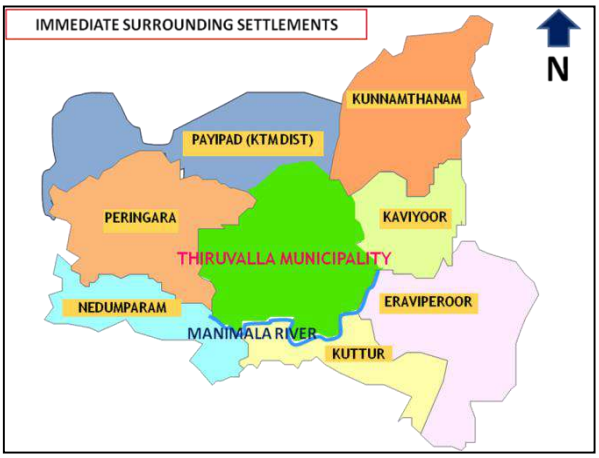
2.4 REGIONAL ROLE OF THIRUVALLA MUNCIPALITY

Thiruvalla has been identified as the first order settlement of the district in the regional study. As the first order settlement, it has an influence area of the entire district and a few areas of the surrounding districts. The education and health facilities available in this town have a widespread influence area. Similarly, the rail facility also influences a wider area. However, the influence area, here, is taken as the area closer to the Thiruvalla municipal area where there is frequent movement of people for their more frequent needs.

The following factors are considered for delineating the influence area.

1. O-D survey conducted as part of transportation study of Thiruvalla town conducted by NATPAC
2. The frequency of bus services to the surrounding areas of Thiruvalla municipality

Accordingly, Kunnamthanam, Kaviyoor, Eraviperoor, Puramattam, Koipram, Kuttoor, Nedumpuram, Kadapra, Niranam and Peringara Grama Panchayat areas are delineated as the influence area of the municipality. The population as per 2011 census of these areas are given in Table 2.2 and is shown in Map 2.8.



Map 2.8 Surrounding settlements of Thiruvalla

2.5 FLOATING POPULATION

Based on the daily bus and train services to this municipality, it is estimated that on average, there is a daily floating population of nearly 60,000 persons, which is more than the residential population of the municipality.

2.6 CONCLUSION

Thiruvalla is the first order settlement of the district. This area shows purely urban character in terms of urban profile, land use concentration and functional character as per the regional study. Thiruvalla is the only settlement in the district which shows such a character. Four major roads identified as per the transportation network in the regional study pass through this town. Moreover, this is the only settlement in the district having a railway station. The town has a large influence area, spread over 10 surrounding Grama Panchayat.

Table 2.2 Details of the influence area of the town

Sl. No.	Name of the settlement	Population as per 2011 census	Area in sq.km.
1	Thiruvalla	52883	27.94
2	Kunnamthanam	20573	17.57
3	Kaviyoor	16852	12.67
4	Eraviperoor	25172	18.64
5	Kuttur	19974	12.16
6	Nedumparam	12694	8.49
7	Peringara	21001	20.10
8	Kadapra	20827	14.74
9	Niranam	13445	13.17
10	Puramattam	14069	14.66
11	Koippuram	26425	22.26
	TOTAL	**243915**	**182.40**

CHAPTER 3

DEMOGRAPHY

3.1 INTRODUCTION

The study of population is one of the bases of all planning processes. Planning is done for the benefit of people to provide sufficient facilities within the limitation of space, economy and available resources. Hence the study of the size, growth, concentration and migration, etc. of the population is inevitable for planning for future development.

3.2 POPULATION SIZE

As per census 2011, the population of Thiruvalla Municipality is 52883, out of which 24,817 are male and 28,066 are female. The population of the town in 1991 was 54780 and in 2001 population were 56831. The municipality registered a growth rate of 3.76% during the decade 1991-2001 and it is declined to -6.95% during 2001-2011.

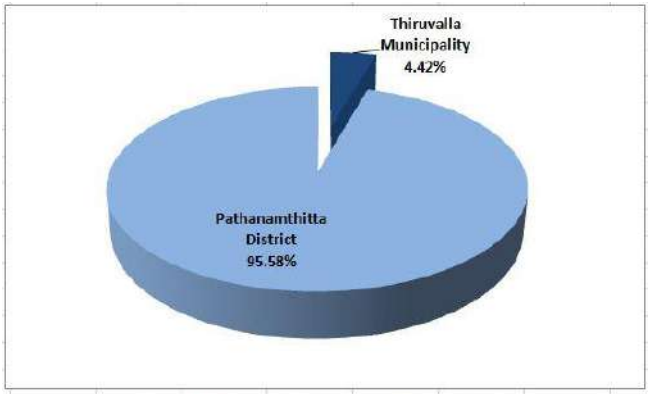


Figure 3.1 : Share of Population of Thiruvalla in Pathanamthitta district

As per census 2011, Pathanamthitta district accounts for an area share of 6.82% of the state. Thiruvalla Municipality is having an area share of 1.06% of the district. The population share of Thiruvalla is 4.42% of the district and it is shown in figure 3.1. A comparative study of population of Thiruvalla with corresponding figures of taluk, district and state is shown in Table 3.1.

Table 3.1 Comparative study of population with Taluk, District and State.

Name of the settlement	Population			Density		
	1991	2001	2011	1991	2001	2011
Thiruvalla Municipality	54780	56837	52883	1961	2034	1892
Thiruvalla Taluk	226822	234503	218189	1378	1425	1326
Pathanamthitta District	1188332	1234377	1197412	450	467	452
Kerala State	29098518	31838619	33406061	749	819	860

Source: Census 1991 and 2001

Thiruvalla municipality had a density of 1961 persons per sq. km. as per 1991 census, 2034 persons per sq. km as per 2001 census and 1893 persons per sq.km as per 2011 census, shows a fluctuating trend in density. During this period, Pathanamthitta district showed a change in density of population-450 person/ sq. Km (1991), 467 person/ sq. Km(2001) and 453 person/

sq. Km (2011). Kerala state also showed an increasing trend in density from 749 to 819 person/Sq. Km during 1991 and 2001 respectively and it became 860 person/sq.km in 2011. Thiruvalla municipality shows the highest population density among the municipalities of the district. The population density of Thiruvalla is 1893 person/sq.km, which is far more than that of Pathanamthitta Municipality (1598 person/ sq.km) which is the District Headquarters. The state registered an average population density of 860 persons per sq. km as per the 2011 census. The percentage of the decadal growth rate of the state population during 2001-2011 was 4.91 %. The population of Pathanamthitta district as per the 2011 census is 11,97,412. The growth rate of population of the district during 2001-2011 is at the rate of -2.97% against the state growth rate of 4.91%. But Thiruvalla town shows a population growth rate of -6.95% during 2001-2011.

Table 3.2: Ward wise population and population density of Thiruvalla Municipality

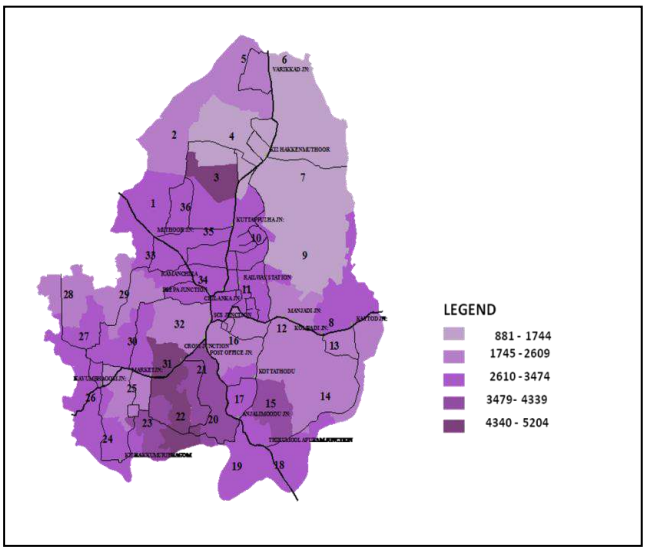
Ward	Area(Ha)	Population 2011			Population Density (Persons/ Sq.Km)
		Male	Female	Total	
1	72	684	796	1480	2056
2	96	984	1019	2003	2086
3	38	813	901	1714	4511
4	128	595	709	1304	1019
5	106	771	863	1634	1542
6	137	788	870	1658	1210
7	217	854	926	1780	820
8	113	903	1005	1908	1688
9	121	521	517	1038	858
10	91	645	689	1334	1466
11	89	920	1026	1946	2187
12	106	874	1009	1883	1776
13	91	668	813	1481	1627
14	115	917	1029	1946	1692
15	62	753	835	1588	2561
16	92	370	413	783	851
17	81	640	764	1404	1733
18	75	706	840	1546	2061
19	43	545	651	1196	2781
20	49	636	724	1360	2776
21	39	589	653	1242	3185
22	38	708	765	1473	3876
23	44	616	742	1358	3086
24	66	748	846	1594	2415
25	52	540	600	1140	2192
26	45	552	614	1166	2591
27	59	595	725	1320	2237
28	55	570	638	1208	2196
29	62	582	665	1247	2011
30	71	699	844	1543	2173
31	44	678	820	1498	3405
32	67	651	678	1329	1984
33	74	773	943	1716	2319
34	54	559	650	1209	2239
35	50	563	619	1182	2364
36	54	807	865	1672	3096
Total	**2796**	**24817**	**28066**	**52883**	

Source: 1. Census Reports 2011

2. Area calculated from the land use map.

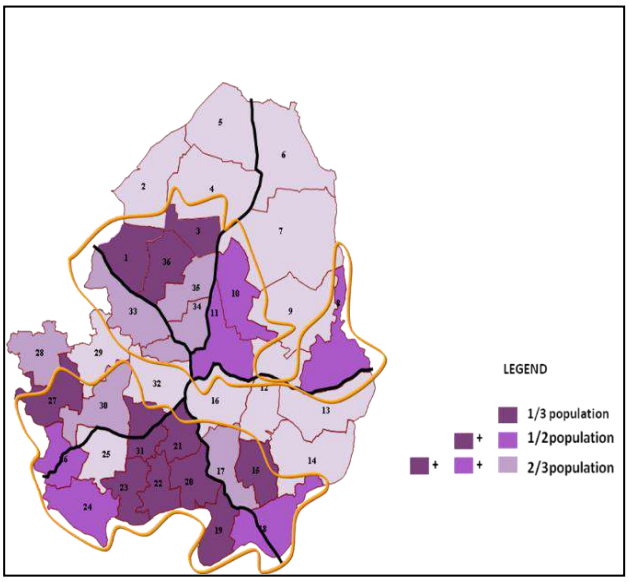
3.3 WARD WISE POPULATION AND CONCENTRATION PATTERN

Ward wise distribution of population within the municipality is given in Table 3.2. From the table, it is clear that the population is the highest in ward 2, followed by wards 18, 8, 14, 11, 10, 33, 27, 4, 22, etc. The density of population is the highest in ward 3 (4511 person/sq. km) followed by ward 22 (3876 persons /sq. km). The lowest population density is seen in ward 7 (820 persons per sq. km) and ward 16 (851 persons per sq. km).



Map 3.1 Ward wise Density of Population in persons/sq.km

The low density of population is seen in wards 4, 7 and 9 where agriculture activities are prominent. Wards 7 and 9 are near the Kaviyoor Panchayat area where paddy fields dominate. The concentration of population is seen in the southern part of the municipality. This was the area where the human habitation was concentrated from olden days i.e., the area surrounding the SreeVallabha Temple, where the town had taken its origin. The ward wise population density of Thiruvalla Municipality is shown in Map 3.1.



Map 3.2 Population Concentration pattern of Thiruvalla Municipality

A further study was carried out about the concentration of population in different wards. It reveals that 1/3 portion of the population of the municipality is concentrated in wards, 1, 3, 15, 19, 20, 21, 22, 23, 27, 31 and 36. It can be noted that there is a concentration of population in the area surrounding Sree Vallabha Temple. Half of the population is concentrated in 8, 10, 11, 18 and 26 and the above said wards. 2/3 of the population of the municipality is concentrated within an additional area comprising of wards 17, 28, 33, 34 and 35. The detail of population concentration is shown in Map 3.2 and in Annex 3.1.

3.4 POPULATION COMPARISON WITH OTHER MUNICIPALITIES OF THE DISTRICT

During the decade 2001-2021, the population growth rate of Thiruvalla municipality (-6.95%) is lower than the growth rates of the state (4.91%), Pathanamthitta district (-2.77), Pandalam municipality (1.92%), Adoor municipality (0.76%) and Pathanamthitta Municipality (-1.24). Pathanamthitta district, Pathanamthitta municipality and Thiruvalla municipality record negative growth rates. It is represented in Figure3.2.

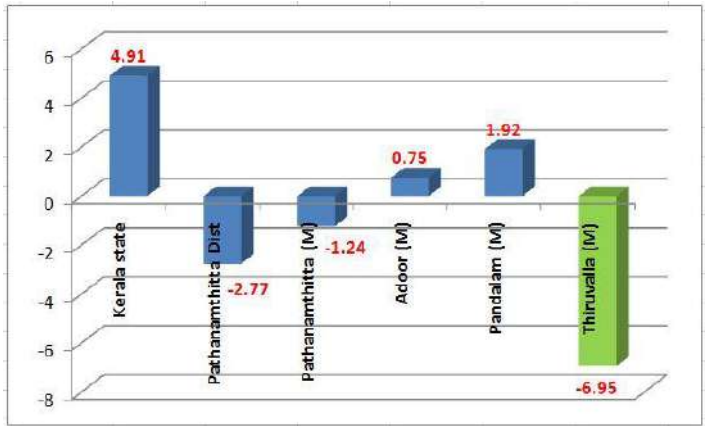


Figure 3.2 Comparison of population growth rate with other Municipalities of the district

As per census 2011, population density in Thiruvalla Municipality is 1893 persons per sq. km, which is higher than that of other three municipalities of the district -Pathanamthitta (1598 persons/sq.km.), Pandalam (1436 persons/sq.km.) and Adoor (1429 persons/sq.km.) and it is shown in Figure 3.3. But the decadal growth rate of population in Thiruvalla is less than the other three municipalities in the district – Adoor, Pandalam and Pathanamthitta.

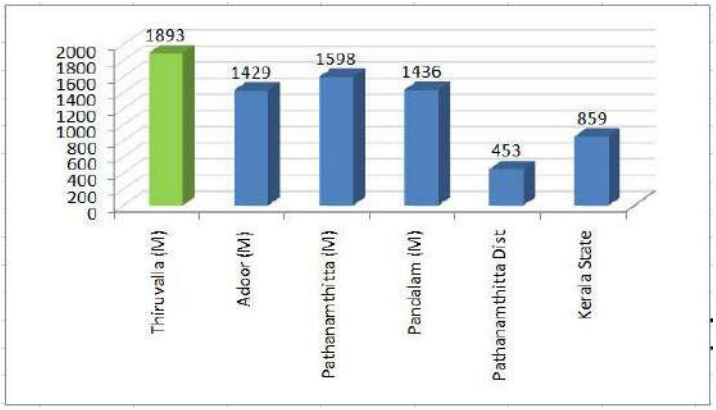


Figure3.3 Comparison of population density of Thiruvalla with other municipalities in the district

3.5 POPULATION- COMPARISON WITH OTHER TOWNS OF THE REGION

A comparison of population size, population density and population decadal growth rate of Thiruvalla with other urban settlements of the region is shown in Table 3.3

Table 3.3 Comparison of Population figures of Thiruvalla with other Municipalities of the region

Sl. No:	Name of the Local Govt.	Population			Population Density(persons/ Sq. Km)			Decadal Growth Rate of population
		1991	2001	2011	1991	2001	2011	2001-2011
1	Thiruvalla	54780	56837	52883	1961	2034	1892	-6.96
2	Chengannur	24862	25397	23466	1912	1953	1805	-7.60
3	Changanassery	52448	51967	47685	3885	3849	3532	-8.24
4	Pathanamthitta	35882	38009	37538	1527	1618	1598	-1.24
5	Adoor	26639	28952	29171	1305	1418	1429	0.76
6	Alappuzha	174666	177029	174176	3739	3790	3729	-1.61
7	Kottayam	63155	60725	55374	3965	3812	3476	-8.81
8	Mavelikkara	28299	28439	26421	2237	2248	2088	-7.10
9	Pathanamthitta (D)	1188332	1234377	1197412	450	467	453	-2.99
10	Kerala State	29098518	31838619	33406061	749	819	859	4.92

Source: Census 1991, 2001 and 2011

The population growth rate of the major surrounding urban settlements of Thiruvalla is given in Figure 3.4. Among these towns, Alappuzha, Kottayam and Pathanamthitta are district headquarters. Changanassery and Chengannur are the nearest municipalities. Thiruvalla (-6.96) along with Chengannur (-7.60), Changanassery (-8.24) Alappuzha (-1.61), Kottayam (-8.81), and Mavelikkara (-7.10) recorded a negative growth rate.

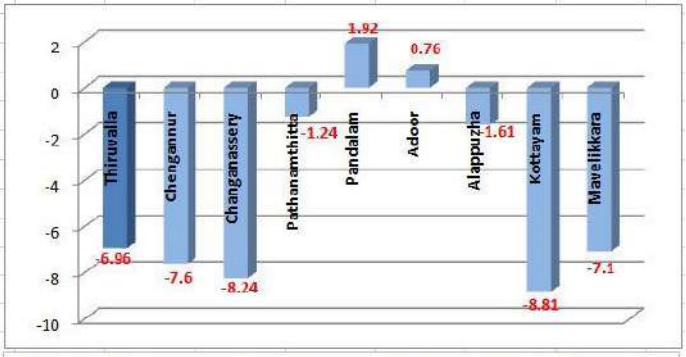


Figure 3.4 : Comparison of population growth rate with other urban centers of the region

Comparison of population density is shown in Figure 3.5 and the density of Thiruvalla municipality is comparitively low.

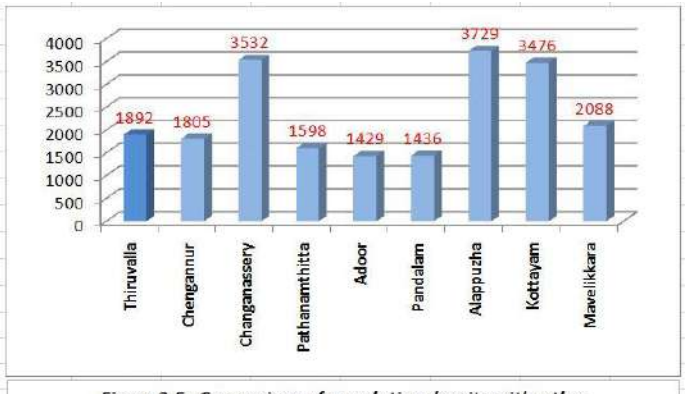


Figure 3.5 : Comparison of population density with other urban centers of the region

3.6 POPULATION- COMPARISON WITH SURROUNDING GRAMA PANCHAYATHS

Thiruvalla Municipality is surrounded by Payippad Grama Panchayat of Kottayam district is on the northern side. Kunnamthanam Grama Panchayat lies on the north-east side, Kaviyoor and Eraviperoor Grama Panchayat on the eastern side, Kuttur Grama Panchayat on the Southern side, and Nedumprom Grama Panchayat on the southwest and Peringara Grama Panchayat on

the western side. Table 3.4 gives population, the density of population, and decadal growth rate of population of immediate surrounding Grama Panchayats.

Table 3.4 Comparison of population figures of Thiruvalla Municipality with surrounding Grama Panchayats

Sl. No.	Name of the settlement	Population			Decadal Growth Rate of population		Population Density per Sq. km.		
		1991	2001	2011	1991-01	2001-11	1991	2001	2011
1	Thiruvalla	54780	56837	52883	3.76	-6.96	1961	2034	1893
2	Payippad	21781	23612	21338	8.41	10.67	1043	1131	1022
3	Kunnamthanam	18489	20157	20573	9.02	2.06	1052	1147	1171
4	Kaviyoor	16311	17502	16852	7.30	-3.71	1287	1381	1330
5	Eraviperoor	24558	26038	25179	6.03	-3.30	1317	1397	1350
6	Kuttur	18433	19974	19652	8.36	-1.62	1516	1643	1616
7	Nedumparam	12864	13089	12694	1.75	-2.05	1515	1542	1495
8	Peringara	22167	22109	14440	-0.26	-34.69	1092	1089	711
9	Pathanamthitta (D)	1188332	1234377	1197412	3.72	-2.99	450	467	453
10	Kerala State	29098518	31838619	33406061	9.42	4.92	749	819	860

Source: Census 1991, 2001 and 2011

In Figure 3.6 the growth rate of population in Thiruvalla during the decade 2001-2021 is compared with major surrounding settlements. All Grama Pachayths except Payippad (10.67%) and Kunnamthanam (2.06%) recorded negative growth rate and decline in population during the decade 2001-2021. The rate of decrese in population is high in Thiruvalla Municipality.

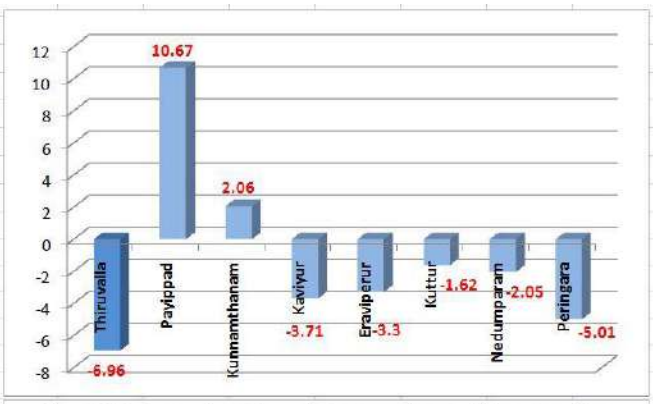


Figure 3.6 : Comparison of population growth rate with surrounding Grama Panchayaths

As per the 2011 census, Thiruvalla municipality has a density of 1892 persons per sq. km which is higher than any surrounding Grama Panchayats. The surrounding Grama Panchayats has population density in the range of 711 persons per sq. km (Peringara Grama Panchayat) to 1616 persons per sq. Km (Kuttur Grama Panchayat). The comparison of density of population is shown in Figure 3.7.

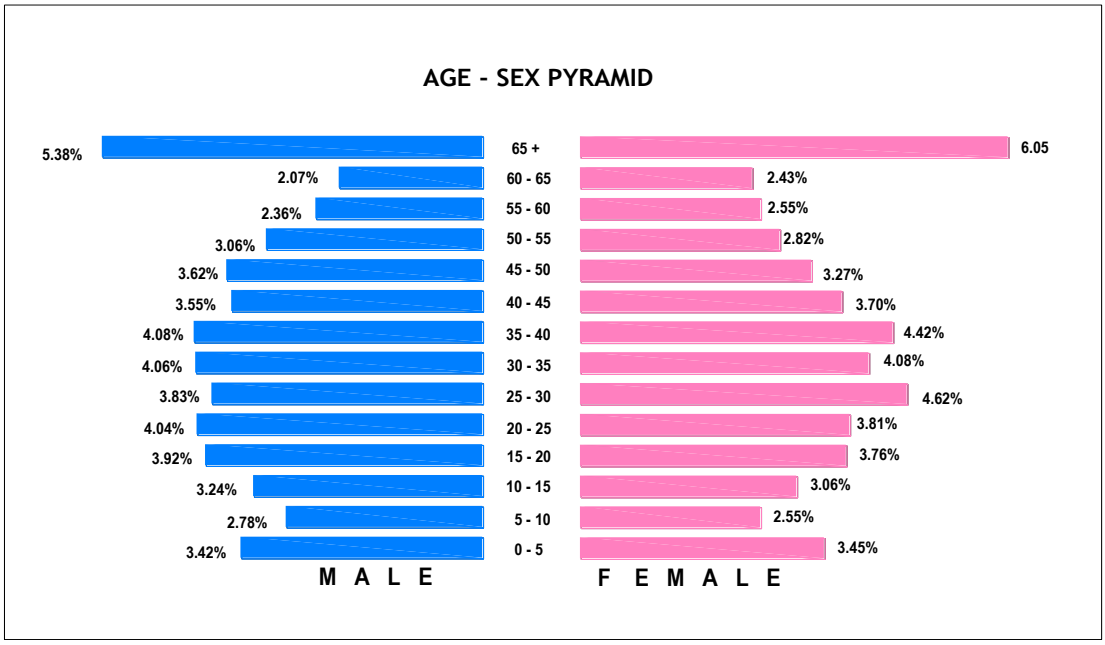
3.7 AGE- SEX RATIO

Thiruvalla municipality is having a male population of 50.40% and 49.60% female population in 1991 and as per the 2001 census 51.02% male and 48.98% female population.

The Age-Sex pyramid for the municipality compiled from the socio-economic survey data conducted in 2006 is given in Figure 3.8. From this, out of the total population, above 65



Figure 3.7 : Comparison of population density with surrounding Grama Panchayaths



Source: socio economic survey 2006

Figure3.8 Age –Sex Pyramid

years old comes to 11.43%, which is the maximum. The next higher range is the age groups 35-40 (8.5%) followed by 25-30 (8.4%) and 30-35(8.14%). This shows that the dependent people are more and more employment required for attracting the younger generation.

3.8 CONCLUSION

Thiruvalla Municipality ranks first in terms of total population, area and density of population when compare to other urban centers of the district. The decadal growth rate of the population is negative and less in Thiruvalla Municipality compared to other municipalities in the district. Also, the percentage of the senior citizen is considerably more compared with the total population.

CHAPTER 4

OCCUPATIONAL STRUCTURE

4.1 INTRODUCTION

This chapter gives an overview of the socio-economic status of the town based on occupational structure. Employment status, occupational structure, Work Participation Rate spatial distribution of workers, the migration rate of people within the municipality and its changes over a while are studied and analyzed.

4.2 EMPLOYMENT STATUS

Table 4.1 shows the employment status of the municipality between the ages of 20 and 40, as found in the socio-economic survey. It can be seen that nearly 23% are unemployed, nearly an equal percentage of the population is employed in the private sector, followed by nearly 16% self-employed and nearly 7% employed in the public sector.

Table 4.2 shows the educational qualifications of the unemployed in Thiruvalla Municipality. It reveals that nearly more than half of unemployed people (i.e. 54.81%) are with qualification of High school and higher secondary. Therefore Institutions for higher education, training centers on semi-skilled jobs like electrification and plumbing, electronic assembling are required more in numbers.

4.3 WORK FORCE

The workforce of a place is usually indicated by workforce participation rate (WPR), which is the ratio of total workers (main and marginal) to the total population of the place, generally expressed as a percentage. As per

Table 4.1 Employment Status in Thiruvalla Municipality

Sl. No	Employment Status	2006	
		Nos.	Percentage
1	Public Sector	2490	6.56
2	Semi Public Sector	560	1.48
3	Private Sector	8600	22.66
4	Self Employed	6010	15.83
5	Public Worker	70	0.18
6	Unemployed	8800	23.18
7	Unemployed	340	0.90
8	Pensioner	3080	8.11
9	Others	8010	21.10
	Total	**37960**	**100.00**

Source-Socioeconomic survey2006

Table 4.2 Qualification of the Unemployed persons in Thiruvalla Municipality

Qualification	General		SC	
	No	%	No	%
Illiterate	2500	3.09	30	2.88
Primary Education	1720	21.23	280	26.92
High school	2630	32.47	440	42.31
Pre-degree	1200	14.81	130	12.50
Degree	1130	13.95	90	8.65
Post graduation	300	3.70	30	2.88
Technical Education	510	6.30	40	3.85
Professional Education	340	4.20	0	0.00
Others	20	0.25	0	0.00
Total	**8100**	**100.00**	**1040**	**100.00**

Source-Socioeconomic survey 2006

census 2011, the work participation rate of Thiruvalla municipality is 30.83%. That means out of the total population of 52883 people only 16303 are workers and it is shown in Figure 4.1.

The total workers are further divided into main and marginal workers. Main workers in Thiruvalla constitute 25.87% and marginal workers constitute 4.95% of the total population and the remaining are non workers which is 69.18% of total population and it is shown in Figure 4.2.

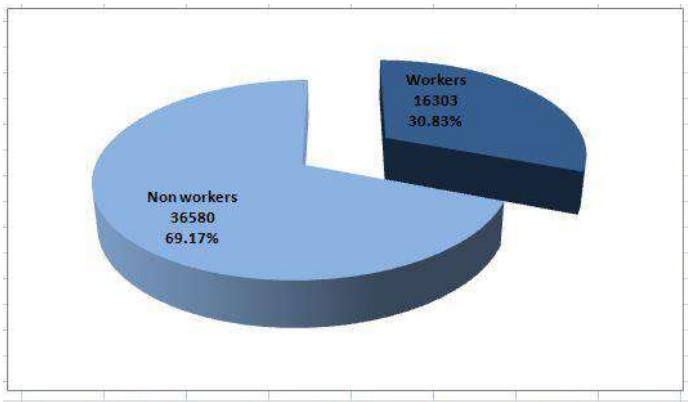


Figure. 4.1 Workers and Non-workers of Thiruvalla Municipality

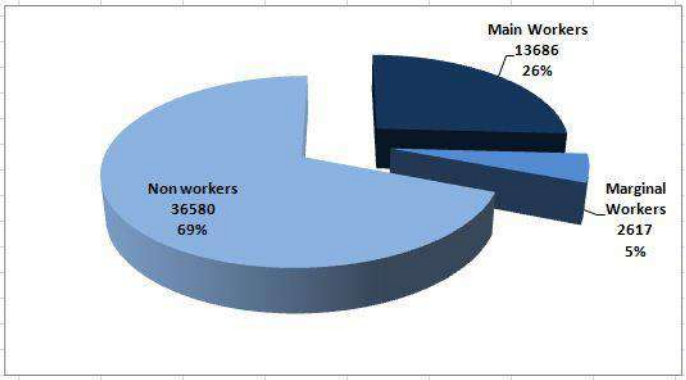


Figure. 4.2 Main workers, Marginal workers and Non-workers of Thiruvalla Municipality

A comparison of the work participation rate with neighbouring municipalities and Grama Panchayats are shown in Table 4.3. The work participation rate of Thiruvalla as per the 1991 census was 26.74% and increased to 27.79% in the 2001 census and 30.83 in the 2011 census. The work participation rate of Thiruvalla is more or less the same as the district work participation rate, but less than the state rate. The work participation rate of the surrounding Grama Panchayats – Payippad, Kunnamthanam, Kaviyoor, Eraviperoor, Kuttoor and Nedumpuram also shows an increasing trend in the work participation rate. Neighbouring urban settlements except for Adoor Municipality also show an increasing trend in the work participation rate. Kerala State also shows an increasing trend the rate after 1991.

Table 4.3 Comparison of WPR (%) of Thiruvalla with surrounding settlements, district and state

Sl. No.	Name of Settlement	1991 Census	2001 Census	2021 Census
1	Thiruvalla	26.74	27.79	30.83
2	Payippad	29.6	31.57	30.04
3	Kunnamthanam	25.87	28.14	33.51
4	Kaviyoor	27.14	28.75	32.35
5	Eraviperoor	27.13	27.51	30.88
6	Kuttoor	28.4	28.92	30.01
7	Nedumpuram	27.61	29.61	32.04
8	Chengannur (M)	26.7	27.73	24.73
9	Changanassery (M)	27.31	29.53	32.92
10	Adoor (M)	29.88	26.38	28.53
11	Pathanamthitta (M)	28.16	27.15	32.64
12	Pandalam (M)	29.38	28.49	32.69
13	Pathanamthitta Dist.	29.71	29.66	32.80
14	Kerala State	31.4	32.3	34.78

Source : Census Reports, 1991, 2001,2021

The growth in the number of total workers and the main workers as per census from 1991 to 2011 is shown in Figure 4.3. Though the total workers are increasing over the decade (from 1991 to 2011) with a decadal growth rate of 13.82%, 3.22% the growth rate of main workers is only 4.52 % and -0.09%. This shows the increase in the percentage of

marginal workers than that of main workers. This means the employment opportunity of the town is to be increased by new economically productive activities.

4.4 OCCUPATIONAL STRUCTURE

As per the 2001 census, the main workers are classified into four categories viz. cultivators, agriculture labourers, household industrial workers and other workers. The other workers include the primary sector workers like fishermen, workers engaged in mining and plantation workers also. The occupational structure of Thiruvalla municipality is given in Table 4.4. The workers engaged in agriculture and allied activities are only 4.08% of total workers. Also engaged in the household industrial sector is just 1.80%. The ward wise number of workers and concentration index of the workers is shown in Annex 4.1 and Annex 4.2.

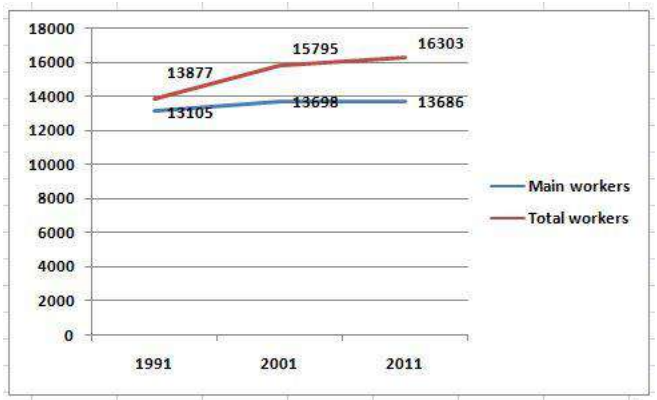


Figure 4.3 Growth of Total Workers and Main Workers

Table 4.4 Workers Classification of Thiruvalla Municipality, 2001 & 2011

Sl No.	Workers Classification	2001		2011	
		Person	%	Person	%
1	Cultivators	117	0.85	108	0.79
2	Agricultural Labourers	549	4.01	451	3.29
3	Household Industries	318	2.32	247	1.80
4	Other Workers	12714	92.82	12880	94.11
	Total Main Workers	13698	100.00	13686	100

Source: Census reports

The workers engaged in agriculture and allied activities in the four municipalities of the district- Thiruvalla, Pathanamthitta, Adoor and Pandalam are 4.08%, 8.80%, 13.98% and 21.11% respectively. Among the four towns Thiruvalla is showing more urban character.

The percentage of workers engaged agriculture and allied activities (Cultivators and Agriculture labours) in the surrounding Grama Panchayaths Payippad (6.23%), Kunnamthanam (17.17%), Kaviyoor (13.99%), Eravipeeroor (11.79%), Kuttoor (16.73%), Nedumpuram (13.62%), Peringara (16.27%) are also very low.

A decline of the primary sector workers has occurred in Thiruvalla municipality and agriculture activities are diminishing in the municipal area and confining to certain pockets in the boundary area.

4.5 MIGRATION

The characteristics of migration observed in the Socio-economic survey are furnished in Table 4.6. While considering the out-migration, most of the people migrated to middle east countries and other parts of India. In the case of in-migration, most of the people are migrated from other parts of the Pathanamthitta district, but from Kerala and other parts of the district. A major share of migrants to the town is from outside the district but within Kerala (52.48%) and Outside the LSG but within the Dist (29.70%).

Table 4.5 Migration Details of Thiruvalla Municipality

Family details	Percentage of out migration with respect to Population	Places of out migration	Break up of migration (in%)
Out migration	5.86	Outside LSG but within the Dist	2.38
		Thiruvananthapuram District	1.32
		Other Parts of Kerala	7.14
		Other Parts of India	20.37
		Middle East	67.46
		Other Parts	1.32
In Migration	1.57	Places from Migration	
		Within the LSG	12.87
		Outside the LSG but within the Dist.	29.70
		Outside Dt. But within Kerala	52.48
		Tamil Nadu	3.96
		Other Parts in South India	0.00
		Other Parts in India	0.99
		Outside India	0.00

Source-socioeconomic survey2006

4.6 CONCLUSION

The majority of people of the town are working in the private sector or self-employed. While analyzing the educational qualification of unemployed, more than 50% have a qualification of high school or less. The growth rate of main workers is less than that of total workers. The work participation rate of the town is comparatively high.

CHAPTER 5

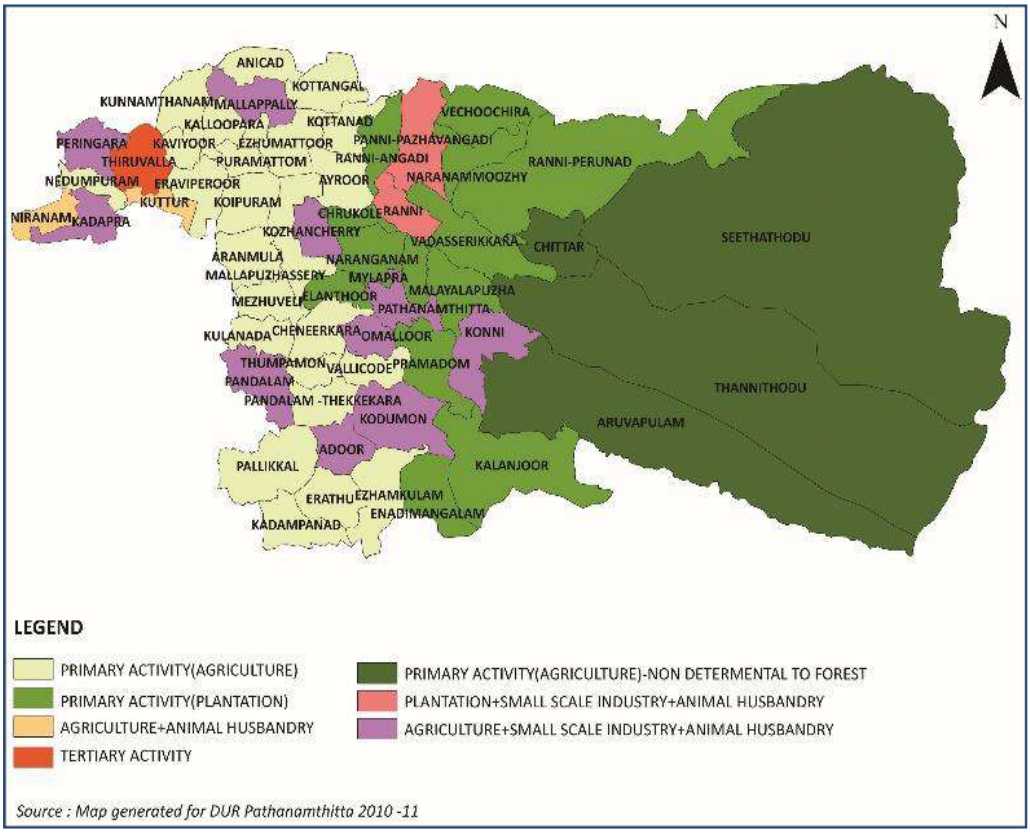
LAND USE

5.1 INTRODUCTION

The land use of an area is indicated by the predominant activity of that area, be it agriculture, residential, commercial, public and semi-public, transportation, park and open spaces, industrial, etc. Hence the analysis of existing land use is inevitable to understand the predominant economic activity of the area and to assess the availability of suitable land for the future urban development activities of the town. The distribution of different land uses across the planning area is analyzed with special attention to the variation of their concentration so that future land use suitable for each parcel of land can be assessed.

5.2 LANDUSE OF PATHANAMTHITTA DISTRICT

The activity pattern based on the land use of the district is shown on Map. 5.1. The analysis of the land use concentration pattern shows that most of the plantation activities are concentrated in the highland region of the district. The urban activity is confined to one settlement, at Thiruvalla. The agricultural activities are predominantly concentrated in the plains and low-lying regions of the district.



Map 5.1 Activity pattern of Pathanamthitta district

5.3EXISTING LANDUSE OF THIRUVALLA MUNICIPALITY

The total extent of Thiruvalla municipality is 27.94 sq. km and was divided into 39 wards at the time of conducting the land use survey in 2010. The existing land use of Thiruvalla town is shown in Map.5.2 and the breakup of land use is given in Table 5.1, and Figure.5.1. The land use shows that the major portion of the town is under residential use (45.45%) followed by public and semi-public use (16.39%), wet agriculture use (13.10%) and dry agriculture use (11.45%).

Table 5.1 Existing Land use 2010- Thiruvalla Municipality

Sl. No:	Land use	Area in Sq. Km	Percentage
1	Residential	12.70	45.45
2	Public & semi public	4.58	16.39
3	Wet Agriculture	3.66	13.10
4	Dry Agriculture	3.20	11.45
5	Transportation	1.62	5.80
6	Water bodies	1.10	3.94
7	Open space	0.66	2.36
8	Commercial	0.27	0.97
9	Industrial	0.15	0.54
	TOTAL	**27.94**	**100.00**

Source: Land use survey,2010

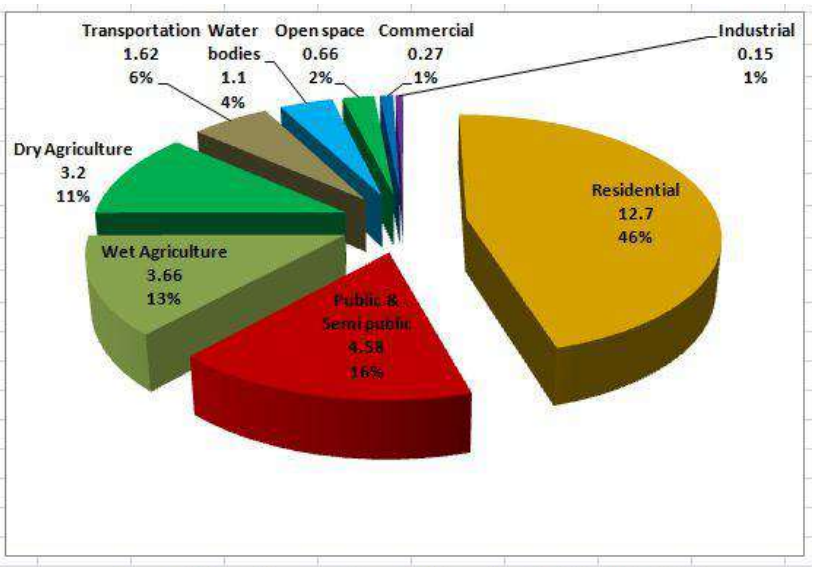
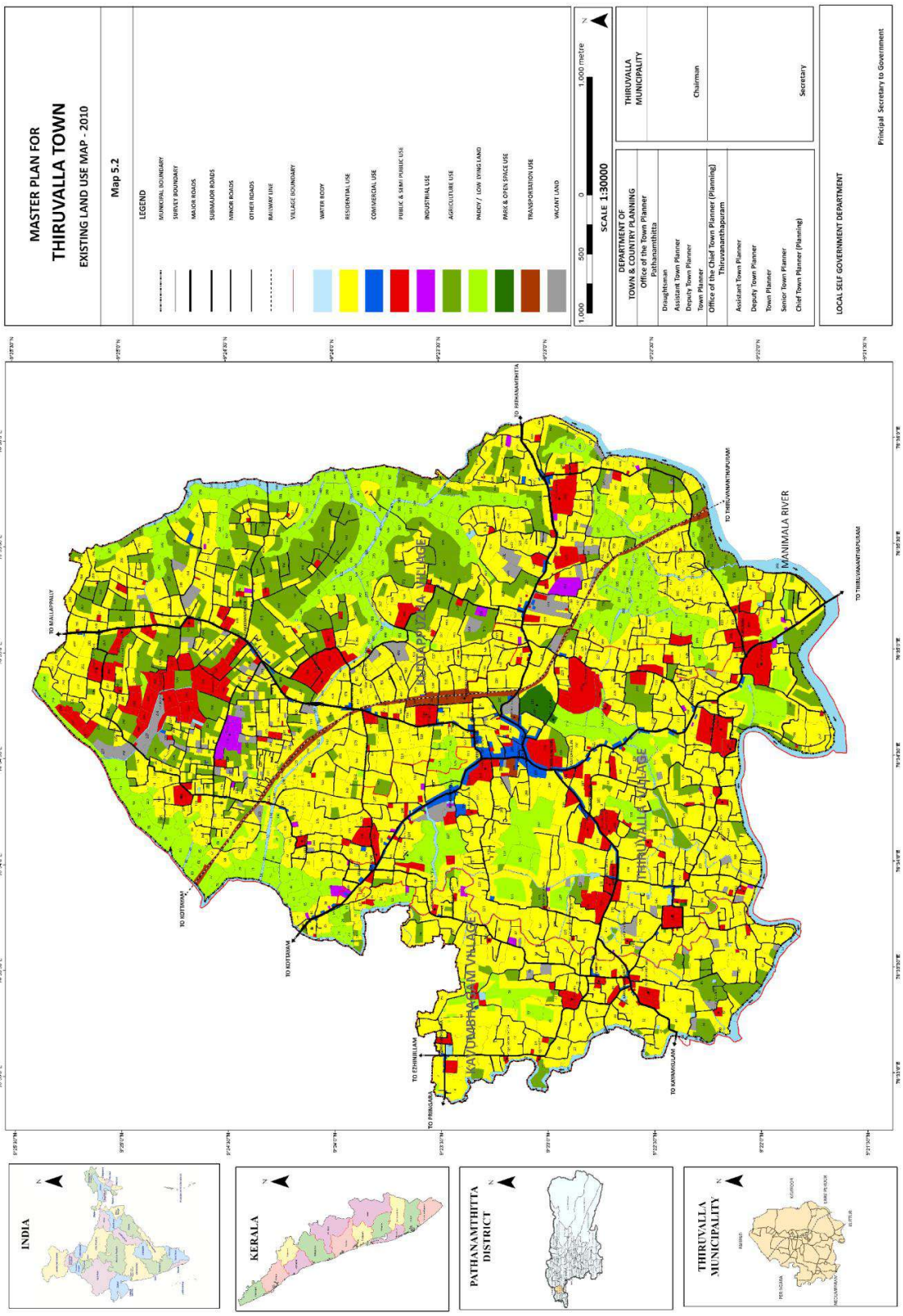


Figure 5.1 Land use breakup of Thiruvalla Municipality, 2010

The residential land use is mainly concentrated in the south west portion of the Municipality, whereas the dry agriculture area is along the fringe of the south east part and in the north east quarter of the municipality. These areas are part of the erstwhile Kuttappuzha Panchayat. It can also be seen that the commercial use is concentrated along the major transportation corridors, whereas the public and semipublic use is scattered throughout the entire area of the municipality. The satellite imagery of the town is shown in Figure 5.2. The residential land use is mainly concentrated in south-west portion of the Municipality, whereas the dry agriculture area is along the fringe of the south east part and in the north east quarter of the municipality. These areas are part of the erstwhile Kuttappuzha Panchayat. It can also be seen that the commercial use is concentrated along the major transportation corridors, whereas the public and semipublic use is scattered throughout the entire area of the municipality. The satellite imagery of the town is shown in Figure 5.2.



Map 5.2 Existing land use of Thiruvalla

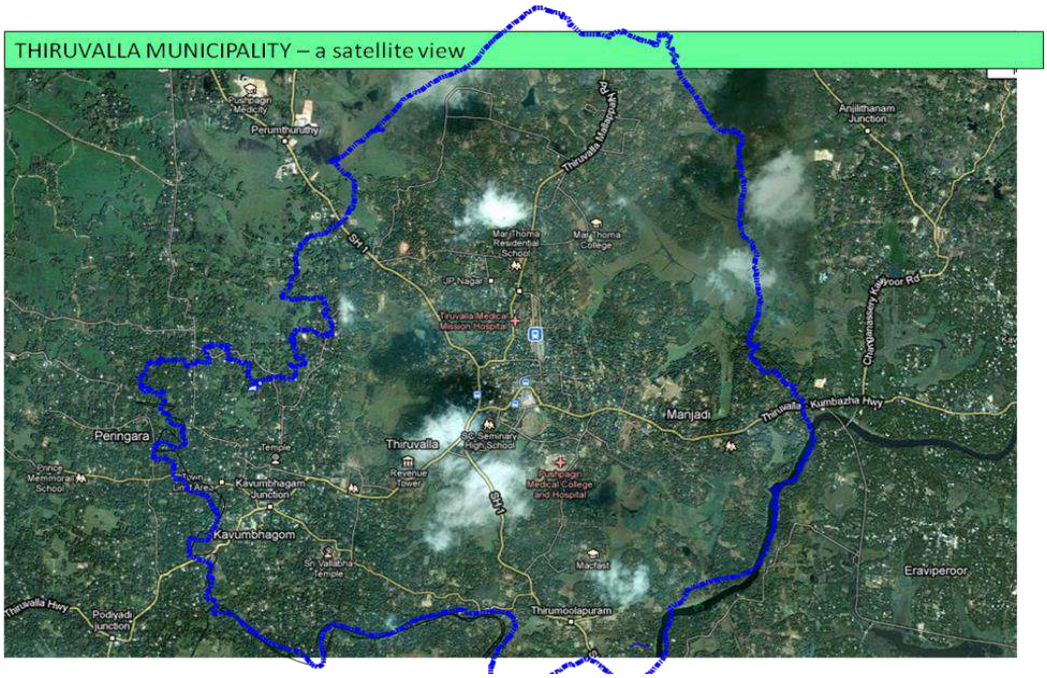
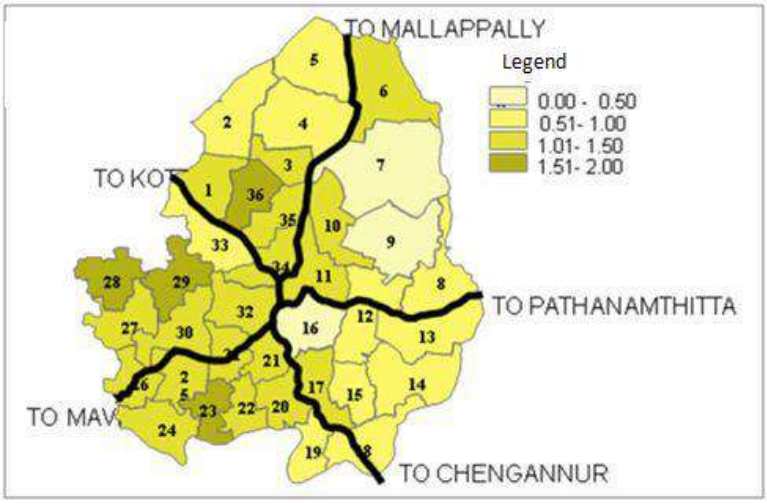


Figure 5.2 Satellite imagery of Thiruvalla Municipal area

5.4 CONCENTRATION PATTERN OF DIFFERENT LANDUSES

The concentration pattern of a particular land use gives an idea about where that particular land use is concentrated within the town. The concentration pattern of land use can be ascertained by the concentration index (CI) of that land use. The concentration index (CI) of a particular land use = ((Area of that land use in a ward) / (Total area of the ward)) / ((Area of that land use in the town) / (Total area of the town)). The concentration index values may be greater than one, equal to one, or less than one. The CI greater than one for a particular land use indicates that the land use under consideration is concentrated more in that ward than other wards of the town.

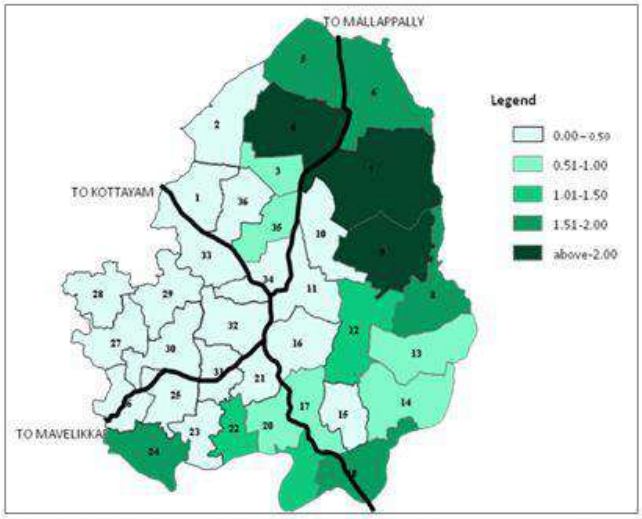
The concentration of major land uses such as residential, dry agriculture, paddy, commercial, public & semi-public and industries are shown in Map 5.3 to 5.8.



Map 5.3 Concentration pattern of Residential use

5.4.1 Concentration pattern of Residential land use.

Map 5.3 shows the concentration pattern of residential land use. It can be seen that the residential uses are highly concentrated in wards 23, 28, 29 29 & 36 with a value greater than 1.5, followed by wards 1, 6, 10, 11, 20, 21, 22, 24, 25, 26, 27, 30, 32, 34 and 35 with a value in between 1 and 1.5.



Map 5.4 Concentration pattern of Dry Agriculture use

5.4.2 Concentration pattern of Dry agriculture land use

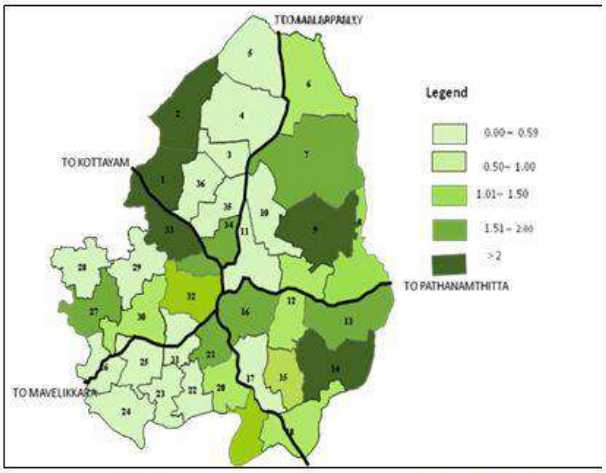
Map 5.4 shows the concentration pattern of dry agriculture. High concentration of this land use is in wards 4, 7 & 9, where the residential land has the least concentration.

5.4.3 Concentration pattern of Paddy field

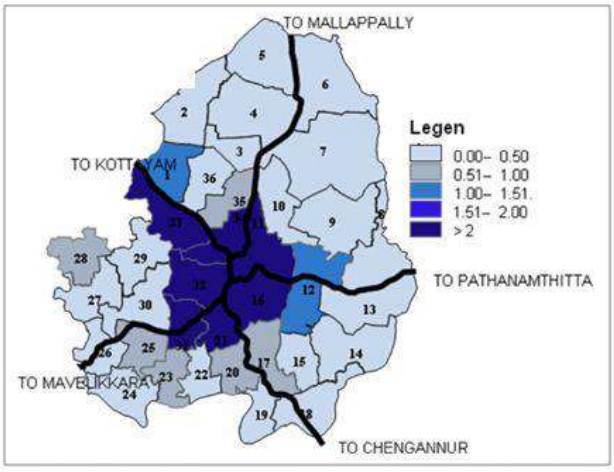
The paddy fields have a high concentration in wards 1,2,33,9 and 44 and the concentration pattern is shown in Map 5.5. The wards with a high concentration of paddy fields are located in the peripheral area of the Municipality.

5.4.4 Concentration pattern of Commercial land use

The commercial areas have more concentration in wards 11, 16, 21, 31, 32, 33 and 34. These wards are located in the central area of the town adjacent to M.C.Road, T.K.Road, Kayamkulam road and Mallapally road. The concentration pattern of commercial land use is shown in Map 5.6.



Map 5.5 Concentration pattern of Paddy field



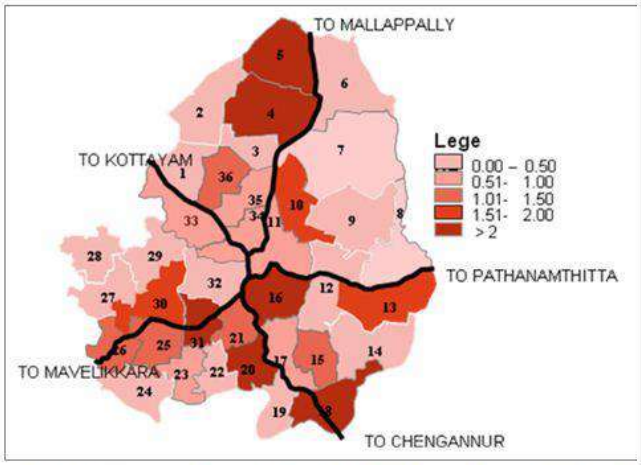
Map 5.6 Concentration pattern of Commercial use

5.4.5 Concentration Pattern of Public and Semi-Public land use.

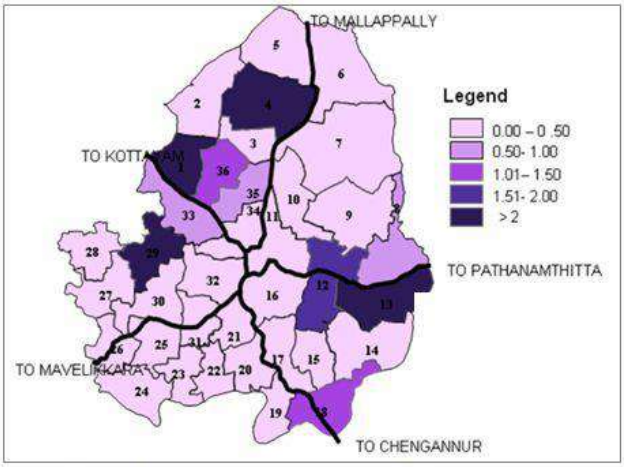
The concentration pattern of public and semi-public land use, which includes Government, establishments, educational facilities, health facilities, social institutions and religious institutions. The concentration pattern is shown in Map 5.7 and Public & semi-public areas are concentrated along the major transportation corridors. The public and semipublic areas are highly concentrated in wards 4, 5, 16, 18, 20 and 31.

5.4.6 Concentration Pattern of Industrial land use.

The concentration pattern of industrial land use is shown in map 5.8. The industrial areas have a concentration towards the outer areas of the municipality. Industrial have more concentration in wards 1, 4, 13 and 29.



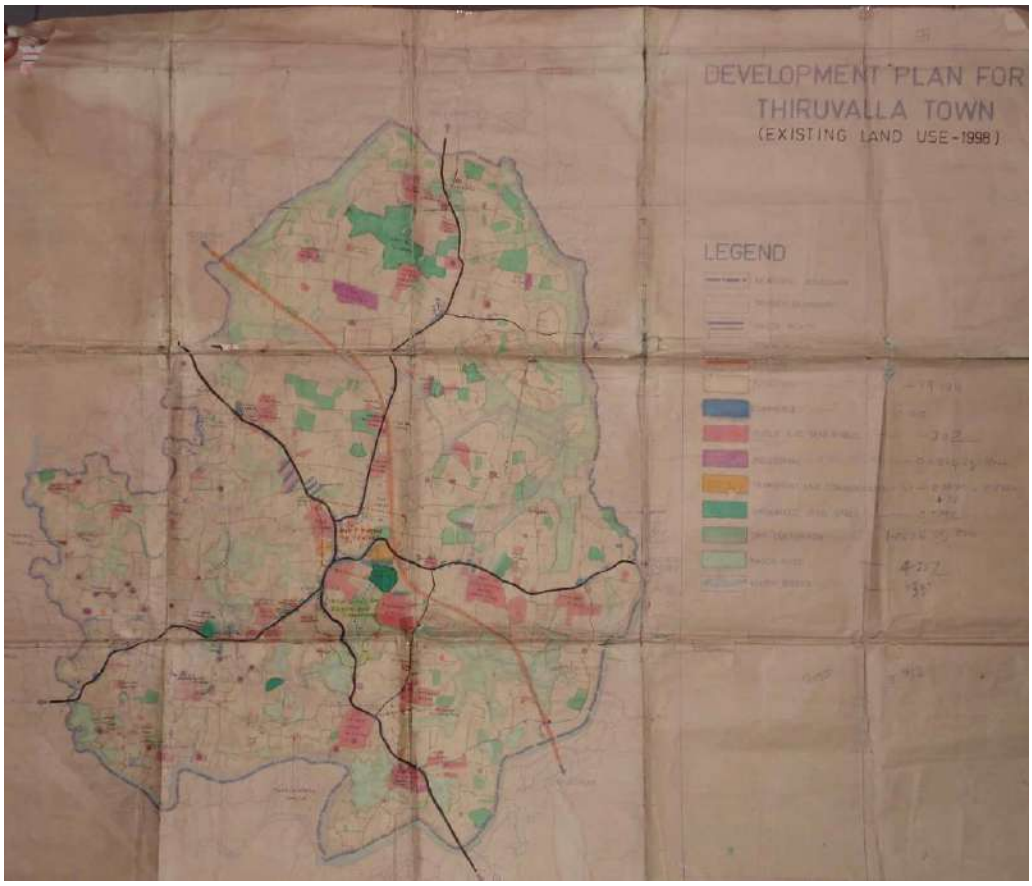
Map 5.7 Concentration pattern of Public and semi public use



Map 5.8 Concentration pattern of Industrial use

5.5 COMPARISON OF LAND USES IN 1998 AND 2010

The existing land use of Thiruvalla - 1998 is shown in Map 5.9. The comparison of land use of 1998 and 2010 is shown in Table 5.2. There is an increase in public and semipublic land use area and dry cultivation area and a reduction in wet agriculture area.



Map 5.9 Existing Land use map- 1998

Table 5.2 Change in Land use of the town

Sl No.	Land Use	Percentage (1998)	Percentage (2010)
1	Residential	65.03	45.45
2	Commercial	0.96	0.97
3	Public & Semi Public	4.69	16.39
4	Industrial	0.32	0.54
5	Transportation	4.76	5.80
6	Dry Agriculture	3.87	11.45
7	Wet Agriculture	15.25	13.10
8	Water bodies	4.83	3.94
9	Open space	0.29	2.36
	TOTAL	**100.00**	**100.00**

Source: Landuse Survey, 1998

Table 5.3 Land use- Comparison with neighboring towns

Land use	Chengannur (1999)	Thiruvalla (2010)	Changanassery (2002)
Residential	74.3	45.45	
Commercial	0.29	0.97	2.75
Public& Semipublic	4.91	16.39	6.56
Industry	0.27	0.54	0.43
Transportation	5.31	5.8	5.98
Dry Cultivation	1.55	11.45	
Residential & Dry cultivation			56.56
Paddy/Wet Cultivation	6.95	13.1	23.63
Water body	5.91	3.94	3.4
Marshy land	0.51		
Park&/Open space		2.36	0.69

Source: Development Plan reports

5.6 COMPARISON WITH NEIGHBOURING MUNICIPALITIES

A comparison of the land use breakup of the Thiruvalla Municipal area with that of the neighboring towns, Chengannur and Changanassery is given in Table 5.3 and Figure.5.3. It is

observed that the land under public and semipublic use is the highest for Thiruvalla Municipality which indicates concentration of more public institutions in the town.

5.7 LAND USE- COMPARISON WITH UDPFI STANDARDS

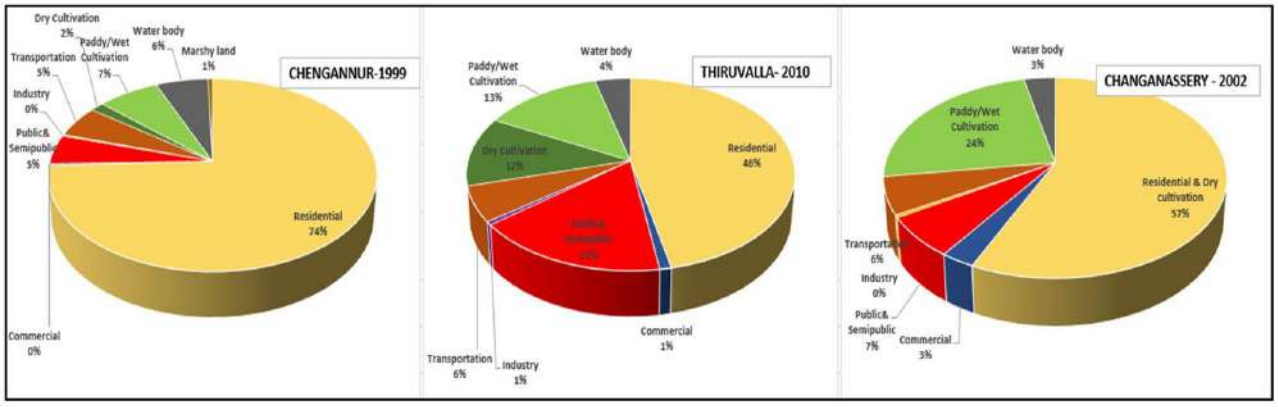


Figure 5.3: Land use -Comparison with adjacent Municipalities

As per UDPFI guidelines, the desirable area for different uses for a medium town like Thiruvalla is given in Table 5.4. When compared with the UDPFI guidelines, it can be seen that the availability of land for Commercial, Industrial, Recreational and Transportation are less than the suggested values and in the case of Public & Semi-public use it is higher than the suggested values.

Table 5.4 Comparison of land use with UDPFI guidelines

Sl. No.	Land use	Percentage of land use in Thiruvalla municipality	Desirable percentage of the total area of town as per UDPFI guidelines
1	Residential	45.45	40-45%
2	Commercial	0.97	3-4%
3	Industrial	0.54	8-10%
4	Public & semi-Public	16.39	10-12%
5	Recreational	2.36	18-20%
6	Transport & Communication	5.80	12-14%
7	Agriculture & Water bodies	28.49	Balance

Source: UDPFI guidelines

5.8 LAND OWNED BY THIRUVALLA MUNICIPALITY

The Municipality owns a land area of 25.4375 hectares in different parts of the town. The details of such lands are given in table 5.5. The largest area is that of the Stadium, which measures 6.885 hectares.

Table 5.5 Land owned by Thiruvalla Municipality

Sl. No.	Description	Survey no.	Area (hector)	Village
1	Manjadi Market	778/1	0.142	Thiruvalla
2	Ramapuram Market	149/3	0.349	Thiruvalla

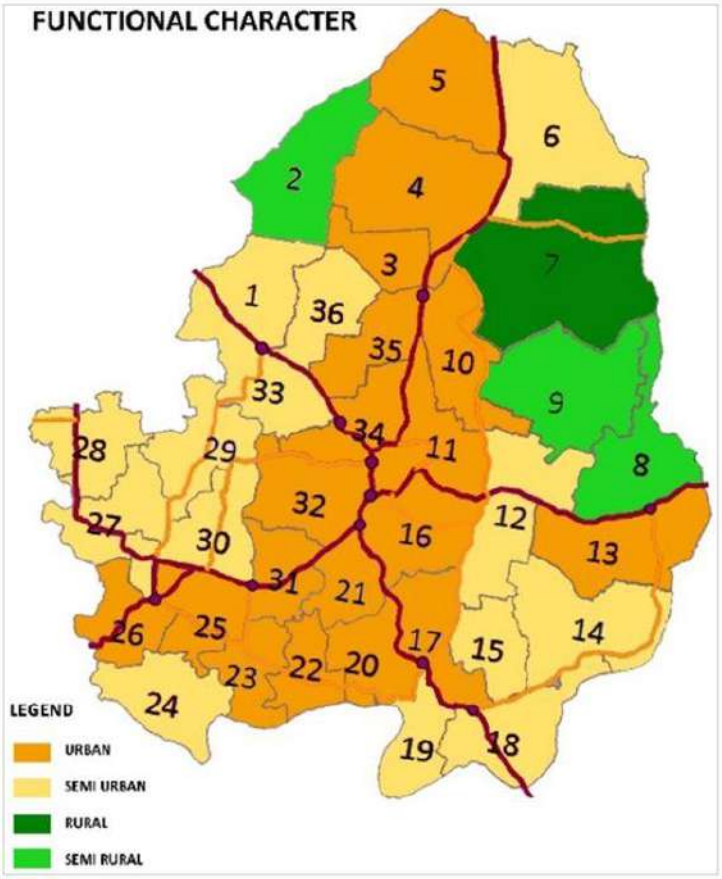
3	Thirumoolapuram Market	244/3	1.45	Thiruvalla
4	Private Bus stand	217/8	1.152	Thiruvalla
5	Slaughter Houses	826/2	1.8	Thiruvalla
6	Crematorium	182/5(1)(2)	0.1805	Thiruvalla
7	Site for Ayurveda Hospital	314	0.2	Thiruvalla
8	Government Hospital	182/7	1.84	Thiruvalla
9	School	53/3	0.6	Kavumbhagom
10	Sub centre		0.008	Thiruvalla
11	Govt. Model L.P.S. Thiruvalla	144/5	0.299	Thiruvalla
12	Govt. L.P.S. Kavumbhagom	29/15	0.224	Kavumbhagom
13	Family welfare centre	339/1	0.56	Thiruvalla
14	Govt. U.P.S. Chumathra	110/9	0.408	Thiruvalla
15	School	89/22	0.18	Kavumbhagom
16	Yogakshemam Govt. UPS	169/5	0.218	Thiruvalla
17	Pre. Metric Hostel	191/2	0.8	Thiruvalla
18	Hospital	221/2	0.348	Thiruvalla
19	Pre. Metric Hostel	190/6	0.152	Thiruvalla
20	Family welfare centre , Manjadi		0.109	Thiruvalla
21	Municipal Park	219/1	1.1365	Thiruvalla
22	Land near Municipal Park, Ampilipalam	137/1	0.139	Thiruvalla
23	Health Inspector Office	173/1	0.109	Thiruvalla
24	King George Silver Memorial Hall	191/8	0.1165	Thiruvalla
25	Golden Jubilee Memorial Shopping complex	217/8	0.2538	Thiruvalla
26	Municipal shopping Complex, Kavumbhagom	43/33	0.129	Kavumbhagom
27	Municipal Office, Library, Town Hall	149/2	0.4245	Thiruvalla
28	Land near Private Bus Stand	216/9,10,11	1.9785	Thiruvalla
29	Site for Kalayana Mandapam	216/1,2,3,4,5	0.8772	Thiruvalla
30	Municipal stadium	216/3	6.885	Thiruvalla
31	Diet UPS	192/26	0.44	Thiruvalla
32	School land	603/6	0.205	Thiruvalla
33	Govt. UPGS, Thiruvalla	144/5	0.299	Thiruvalla

34	Staff Quarters	73/39	0.169	Kavumbhagom
35	Veterinary Hospital	182/22	0.147	Thiruvalla
36	Govt. Girls H.S. Thiruvalla	191/12	0.94	Kavumbhagom
37	Cultural Centre, Kavumbhagom	73/39	0.169	Thiruvalla
	TOTAL		**25.4375**	

5.9 FUNCTIONAL CHARACTER OF THE TOWN

The functional character of different wards of Thiruvalla has been determined and it is shown in Map 5.11. In this analysis, it is found that only one ward of the town has a rural character, i.e. Nattukadavu Ward.

Wards Attuchira, Cable factory, Varikkode, Amallur west, JP Nagar, Town, Railway station, Pushpagiri, Aanjalimoodu, Sreeramakrishnasram, Kulakkad, Thugalasseri, Mathilbhagom, Sreevallabha, Kavumbhagom and MGM have an urban character. That means a total of 17 wards have an urban character. WardsMuthoor north, Annavattom, Theepani, Iruvallipra, Thirumoolapuram east, Thondara, Thirumoolapuram west, Kizhakkummuri, Utramel, Azhiyidathuchira, Mannamkarachira, Anchalkutty, Muthoor and Kottalil have semi-urban character. Ward Chumatra, Meenthalakkara and Amallur east have semi-rural character. The details are shown in Annex 5.1.



Map 5.10 Functional Character of the Town

The study shows that, wards with urban and semi urban characters are located along the major travel corridors of the town. The study also shows the predominantly urban character of the town.

5.10 CONCLUSION

Nearly 24% of the area of the municipality is under agricultural use, out of which nearly 13% is paddy/ wetland area. Paddy fields are seen scattered in the entire area of the town. It is seen that even though Thiruvalla is a first-order settlement of the district, agriculture is still a predominant activity. There is a higher concentration of public and semi-public land use (nearly 16%) than the nearby municipalities. Public and Semi-Public area is distributed throughout the entire municipal area and is at a higher level than the nearby urban centers. Commercial land use is 0.97%, which is seen concentrated in the center of the town. The municipal area is bounded by Paddy field, Thodu, or River. Predominantly the functional character of the town is urban.

CHAPTER 6

AGRICULTURE AND ANIMAL HUSBANDRY

6.1 INTRODUCTION

Nearly one-fourth of the Thiruvalla municipal area comes under agricultural land use and the extent of agricultural land use is next to residential land use. Agriculture and allied activities have a major role in the economy of the town and still, agriculture is one of the major activities of Thiruvalla town.

6.2 AGRICULTURAL LAND USE

In the land use survey conducted as part of the preparation of the Master Plan, the agricultural land has been classified into two categories- dry agriculture and paddy/low lying land. The total extent of land under agriculture use is 246.86 hectares (Wet Agriculture land -3.66 hectares and Dry Agriculture land – 3.20 hectares) which is 24.55% of the total municipal area and the agriculture area of the town is shown in Figure 6.1. The agricultural land is distributed in almost all parts of the town with more concentration towards the north east part.



Map 6.1 Agriculture area of the Town

Coconut, Fruit trees, Rubber, Plantain, Tapioca, Pepper and Tubers & Vegetables are the major cultivation in the municipal area. Coconut is the major crop of the town and 910 hectares of land which is 55 % of agricultural land. Fruit trees coming in the second position. Land used for different crop cultivation is shown in Figure 6.1.

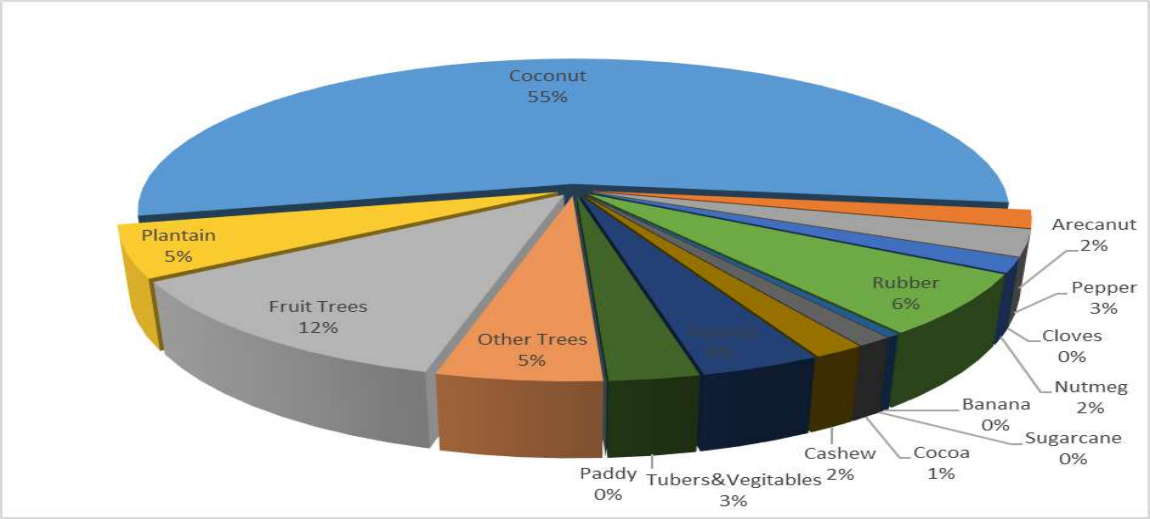


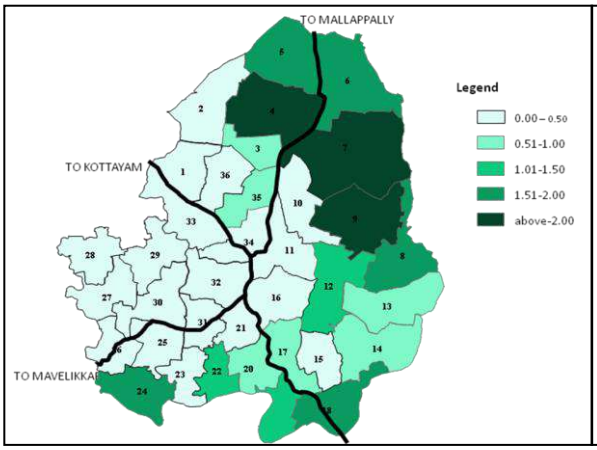
Figure 6.1 Percentage of land used for different crop cultivation

6.3 CONCENTRATION OF AGRICULTURE LAND USE

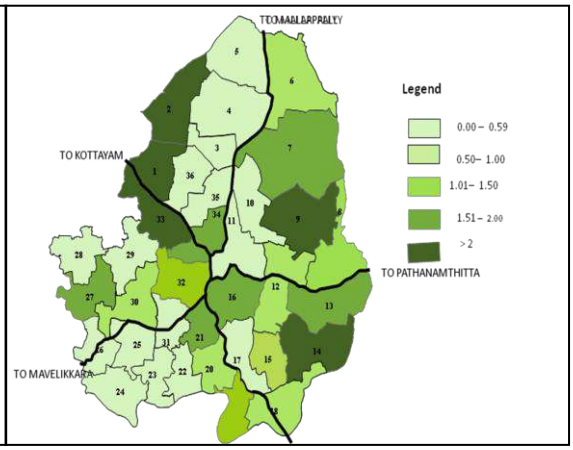
As mentioned in the previous paragraph, the agriculture area is distributed almost in all parts of the town. It is mixed with other urban land uses especially the residential area. The concentration pattern of Agriculture land use has been discussed in the following paragraph. More concentration of Agriculture land is along the north eastern periphery of the town.

6.3.1 Concentration pattern of Dry agriculture land use.

The concentration pattern of Dry Agriculture land use and Paddy fields is shown in Map 6.2 and Map 6.3 respectively. From the map, it can be observed that the dry agriculture land use has more concentration in the elevated eastern part of the town. Paddy fields have more concentration in the peripheral area of the town with continuity to adjacent Grama Panchayaths.



Map 6.2 Concentration of Dry Agriculture land use



Map 6.3 Concentration of Paddy fields

6.4 LABOUR STRENGTH

The temporal variation of workers engaged in the agricultural sector is shown in Table 6.1. As per the 2001 census out of total workers of 13698, 117 (0.85%) workers are cultivators, 549 (4.01%) workers are agriculture laborers. It means 26.62 % of workers as per the 1991 census are engaged in agriculture and allied activities. But in the in 2001 census, the percentage of cultivators has reduced to 0.85% and the agriculture laborers have reduced to 4.01%. But in the census, the plantation laborers, which are a predominant group in the town, are included in the other category of workers.

Table 6.1 Temporal variation of Cultivators and Agricultural Labourers

Workers Classification	1991		2001		2011	
	Person	%	Person	%	Person	%
Cultivators	843	6.07	117	0.85	108	0.33
Agricultural Labourers	2769	19.95	549	4.01	451	3.29

6.5 FARMING METODS

Conventional farming methods are adopted in the area. Labour shortage is the major problem and methods like group farming are not adopted. The mechanization of farming is limited to the usage of tractors and tillers.

6.6 MAJOR CROPS OF THE TOWN

Major crops, their area of cultivation and the productivity of Thiruvalla town are shown in Table 6.2. Coconut is the major crop of the town as far as the area of cultivation is concerned, followed by fruit tree, cashew, tapioca and banana. Vegetables, pepper, arecanut, and pulses, are the other major crops.

Table 6.2 Details of crops

Sl. No	Name of the crop	Area (In Hect)	Production	Productivity
1	Coconut	545	5.3 lakhs nuts	41250 nuts/ Hect
2	Arecanut	7	3.1 lakhs nuts	19000 nuts/ Hect
3	Tapioca	100	322 MT	7.5 tones/ Hect
4	Banana	215	254 MT	3.5 tones/ Hect
5	Pepper	20	54 MT	3 tones/ Hect
6	Rubber	50	90 MT	1.2 tones / Hect
7	Ginger	2.5	2.4 MT	1.2 tones / Hect
8	Turmeric	2	3 MT	2.5 tones/ Hect
9	Cocoa	5	16 MT	2.1 tones / Hect
10	Minor tubers	75	355 MT	5.2 tones / Hect
11	Vegetables	20	370 MT	25 MT/ Hect
12	Paddy	172	860 MT	5 MT/ Hect

6.7 CONDITION OF PADDY FIELDS

The paddy cultivation is there in a very small part of the existing paddy fields. A major area of paddy fields is remaining as vacant marshy areas or under cultivation of other crops. The paddy fields constitute nearly 13% of the area of the Municipality. The important paddy fields and their extents are given in Table 6.3. Even though these paddy fields are cultivable, they are kept fallow for more than 15 years. The main reasons for keeping them fallow are non-availability of labour at the appropriate time, high labour charges, high cost of fertilizers and pesticides. As a result, the farmers were incurring a constant loss. However, cultivation is being revived in Kaviyoor puncha and Meenthalavayal puncha for the last 2 years. The problems faced during revival process are, inadequate irrigation facilities due to blockage of canals and thodus, flooding, etc.

Table 6.3 Details of Paddy Fields

Sl. No.	Name of Paddy field	Area in Hectares
1	Varikkad	47.00
2	Vayattad	20.00
3	Kaviyoor	60.00
4	Meenthalavayal and Kavirayil	40.00
5	Azhiyidathuchira	35.00
6	Kulakkad	27.00
7	Kathikkara and Paliakkara	36.00
8	Muthoothivdi (Ramanchia)	32.00
9	Memaradi and Kannanhonari	30.00

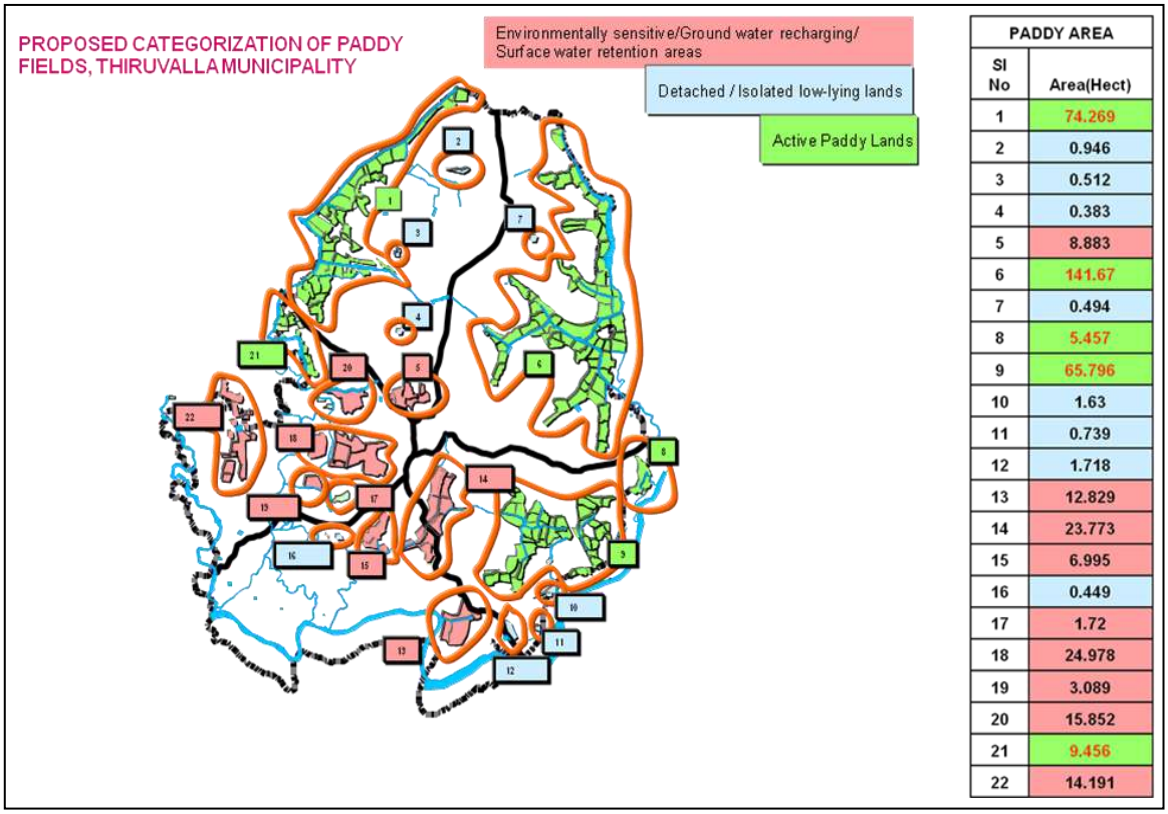


Figure 6.2 Categorization of Paddy fields

Thiruvalla municipality has a prominent role in paddy cultivation. The existing paddy areas are classified into three categories to identify the areas which are to be retained at any cost. They are- i Environmentally sensitive/ Groundwater Recharging/ Surface water retention areas ii. Detached/ isolated low-lying land and iii.Active Paddy fields. These three categories are given in Figure 6.4. Categories-1 and 3 are to be retained undisturbed whereas category-2 can be reclaimed/ converted for other purposes. At present, large areas of paddy fields are being reclaimed mainly for dry cultivation and construction purposes without any regard to environmental issues.

6.8 DRY AGRICULTURE AREA

The commercial crop coconut is the major cultivation in the dry agriculture area followed by tapioca and banana. Coconut cultivation is spreading to more and more areas of the town. Average Profit as compared to other commercial crops is one of the reasons for this. Being located in a hilly area, soil erosion is experiencing in this area.

6.9 AGRICULTURE INFRASTRUCTURE

6.9.1 Institutions

Thiruvalla agriculture office is located at Kavumbhagam is the major institution in the agriculture sector.

6.9.2 Irrigation Facilities

Nearly half the boundary of Thiruvalla Municipality is bordered by the Manimala river. The western side of the town is the part of the Upper Kuttanad area and the northern side of the town is bounded by Mulakkudi chal. The following thodus (canals) also act as irrigation sources.

i. Kattod-Kannad thodu (Kaviyoor puncha thodu)
ii. Amalloor – Kuttappuzha thodu
iii. Varathodu
iv. Kottathodu
v. Chathamalathodu
vi. Kulakkad thodu
vii. Panakkuzhi Kallirikkal thodu
viii. Mannurukhi thodu
ix. Chanthathodu
x. Pathanadu thodu
xi. Churathil thodu
xii. Muranithodu-Varikkad puncha



Kattilappara Minor Irrigation Scheme- Intake spot in Manimala River

Even though all these thodus and canals form a criss-crossing network for irrigation, the free flow of water is obstructed due to blockage at many places. Besides, there are two minor irrigation schemes as well viz Kattod and Kattilappara which supply water to the Kaviyoor and Meenthalavayal puncha areas.

6.10 MARKETING FACILITIES

Ramapuram market is a major agriculture market of the region. Agriculture products like banana, yam, ginger, coconut, etc from the town and surrounding area are transacted through this market. The details of markets available in the municipal area are given in Table 6.4. The Ramapuram market near the Municipal office is the major market in the town. The area of this market is only 0.36 hectares. This is very congested at present. The other markets like Manjadi market, Thirumoolapuram market are also not having enough facilities.

Table 6.4 Markets in Thiruvalla Municipality

Sl. No.	Name of market	Location	Area of the market (In Hect)	Frequency of transaction	Commodities transacted
1	Ramapuram	Near Municipality	0.36	Tuesday, Friday	Vegetables, fish
2	Evening Market	Near private bus stand		Daily evening	Vegetables, fish
3	Fish market (whole sale)	Mazhuvangad	0.404	Daily	Fish
4	Thirumoolapuram cattle market	Thirumoolapuram	0.607	Fortnightly	Cattle
5	Thirumoolapuram daily market	Thirumoolapuram	0.607	Daily	Vegetables, fish
6	Manjadi market	Manjadi	0.101	Daily	Vegetables, fish

Source: Thiruvalla Municipality

ANIMAL HUSBANDRY

6.11 LIVESTOCK POPULATION

The livestock population for the years 2000 and 2003 and 2007 are given in table 6.5. The table shows that the most livestock population has been decreasing over these years.

Table 6.5 Livestock population

Sl.No.	Year	Cattle (Nos.)					Buffaloes (No.)				Goats (No.)	Dogs		Others (No.)	Total Live Stock (No.)	Fowls	Ducks	Others	Total Poultry
		Non Descript		Cross breed		Total													
		Male	Female	Male	Female		Male	Female	Young	Total		Domestic	Others						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	As per 2000 Census	38	1252	173	2145	3608	27	13	14	54	2137	6129	1455	13279	29191	38397	2578	4304	45279
2	As per 2003 Census	-		2554		2554	14			14	2210	-	-	-	-	18275	861	-	19136
3	2007	2113					Not available				1987	1558		829	24370	13037	186	11	13234

Source: Census

The ward wise detail of livestock population as per the 18th Quinquennial livestock census conducted in 2007 is given in Table 6.6. The cattle population is the highest in ward 2 and the population of hens is highest in ward 8.

Table 6.6 Livestock Population, 2007

Ward No.	Total No. of Dogs	Total No. of Rabbits	Total No. of Elephants	Total No. of Cats	Fowls			Total No. of Ducks	Total No. of Turkeys	Total No. of Cattle	Total No. of Goats
					Cocks	Hens	Below 5 Months				
1	35	0	0	2	4	76	50	0	0	120	70
2	25	12	0	3	35	100	215	0	0	182	175
3	31	0	0	30	7	89	49	0	0	42	124
4	22	7	0	4	21	55	80	0	0	64	52
5	8	0	0	4	10	83	42	0	0	68	52
6	23	15	0	17	33	103	218	0	0	135	10
7	27	0	0	18	21	80	59	0	0	70	25
8	51	4	0	9	34	373	376	36	11	69	103
9	40	0	0	11	47	96	96	11	0	34	28
10	86	0	0	14	35	178	74	13	0	106	136
11	35	0	0	15	16	302	82	0	0	36	25
12	33	3	0	2	16	40	50	0	0	58	60
13	83	17	0	55	100	415	185	0	0	58	70
14	38	0	0	11	29	111	114	0	0	123	65
15	21	0	0	10	37	240	323	0	0	90	30
16	51	0	0	22	35	78	103	0	0	48	38
17	80	6	0	23	6	316	84	0	0	22	165
18	83	12	0	83	29	1111	60	0	0	100	160
19	54	47	0	34	100	258	100	0	0	68	60
20	50	3	0	3	50	200	100	4	0	42	44
21	53	12	2	17	104	200	200	0	0	25	25
22	33	0	0	12	50	206	50	8	0	18	43
23	51	0	0	47	20	120	64	40	0	25	25
24	28	2	0	18	30	170	90	0	0	82	17
25	30	0	0	16	12	170	30	0	0	16	26
26	40	0	0	26	30	10	70	24	0	36	15
27	104	0	0	33	25	175	50	0	0	24	39
28	29	0	0	16	20	110	28	0	0	32	30
29	50	12	0	42	40	250	100	40	0	45	40
30	24	14	0	0	24	300	50	0	0	44	24
31	63	0	0	7	50	250	154	0	0	29	30
32	72	0	0	50	30	876	360	10	0	25	36
33	2	0	0	0	32	200	0	0	0	38	50
34	19	0	0	0	18	100	130	0	0	45	48
35	63	0	0	7	12	350	98	0	0	29	16
36	21	0	0	0	20	70	60	0	0	65	31
Tota	1558	166	2	661	1182	7861	3994	186	11	2113	1987

Source: Economics & Statistics dept.

6.12 DAIRY FARMS AND BROILER FARMS

Only a few Dairy Farms Broiler farms are functioning in the Municipality. The details of quantities of milk collected and distributed through milk co-operative societies in the municipal town are given in Table 6.7. Out of 18,152 litters collected, 7501 litters are locally distributed.

Table 6.7 Details of Milk Co- Operative societies

Sl. No.	Place	Daily collection in liters	Locally distributed in liters per day
1	Thirumoolapuram	2879.6	1245
2	Chumathra	5398.4	2422.5
3	Muthoor	2807.3	1960.5
4	East Muthoor	3371	1698
5	Amalloor	3696	175
	Total	**18152.3**	**7501**

Source: Dairy Development office, 2006

The outlets for selling broiler chicken are given in Table 6.8. It is seen that nearly 12000 birds are sold, on average, every month. Taking an average weight of 2.5 kg per bird this amounts to 30000kg of chicken.

Table 6.8 Chicken Selling Outlets

Sl. No.	Location	No. of birds sold per month
1	MM Hospital Jn.	750
2	Near MM Hospital Jn.	1500
3	Kurisu Kavala Jn	900
4	Head Post office Jn.	600
5	Near Private Bus station	1500
6	Near Private Bus station	3000
7	Near Private Bus station	1000
8	Municipal Market	2250
9	Kavumbhagam	450
Total=11950*2kg =23900kg		

Source: Municipal records, 2006

6.13 SLAUGHTER HOUSES

The details of animals slaughtered per month are given in Table 6.9. This shows that nearly 55,250kg of meat is consumed in a month.

Table 6.9 Animals slaughtered per month

Sl. No.	Name of ward/place	Cattle			
		Female	Male	Total No.	Kilogram (250 kg x total)
1	Kavumbhagom	15	37	52	13000
2	Thirumoolapuram	14	30	44	11000
3	Thiruvalla	29	19	48	9500
4	Kuttappuzha	26	11	37	9250
5	Manjadi	19	21	40	9500
	TOTAL	**103**	**118**	**221**	**55250**

Source: Municipal records

6.14 PER CAPITA CONSUMPTION STANDARDS

The average per capita consumption standards of milk, meat and egg in Kerala (Source of data: Animal Husbandry Dept.) is given below

- Milk : 240 ml/average daily
- Meat : 10-35 gm/daily
- Egg : 78 nos. /year

Estimated monthly consumption as per the above standards for milk, meat and egg in the Thiruvalla municipal area are given below.

Item	Estimated monthly consumption
Milk	409226 liters
Meat	38365 kg
Egg	369441 no/month

From the above tables, it is seen that milk, meat and egg production is satisfactory compared to the consumption. But the decreasing area of grazing land, increasing price of cattle and poultry feeds, etc make cattle and poultry rearing unprofitable, hence the production of milk, meat, etc. are dwindling.

6.16 CONCLUSION

4.55% of the land of the municipal area is under agriculture use, out of which 13.1% is paddy/wetland. The paddy fields are vacant for the last 15 years; Meenthalavayal punja and Kaviyoor punja were recultivated in 2009. The punjas are being filled for other purposes like dry cultivation, building construction, etc. The problems in paddy cultivation are scarcity of laborers, less profitability, block of irrigation canals leading to lack of irrigation facilities, inadequate marketing facilities, etc. Paddy cultivation can be revived through willful efforts. The major cultivation in the municipal area is coconut, fruit trees, rubber, plantain, tapioca, pepper, tubers & vegetables. The scarcity of laborers, high cost of cultivation, high land value and pressure on land for non-agriculture purposes are major problems in the agriculture sector.

The livestock population is diminishing over the years. This is due to less availability of land, high cost of feeds, less profitability, etc. Being an area exhibiting urban character Animal and allied activities seem not having much scope for development in the Municipality.

CHAPTER 7

INDUSTRIES

7.1 INTRODUCTION

The Industries of a region play a key role in the economy of that area even though it is not very much manifested in Kerala. This sector generates considerable employment opportunities and controls the lifestyle of people in that region. The number of workers engaged in the industrial sector is one of the factors that decide the urbanization of the area. The existing scenario of industrial activities of the town is discussing in this chapter.

7.2 PRIVATE AND PUBLIC SECTOR INDUSTRIES

No large-scale industries are functioning in the municipal area. The important industrial units, details of their products, employees, etc are given in Table 7.1. The locations of these industries are given in Figure 7.1. The 'Traco Cable Factory' in the public sector which produces electric cables is the major industry functioning in the Municipality. Private owned industrial units which are significant in number are engaged in the production of products like curry powder, rubber-based items, Building materials, etc. The locations of industries reveal that there is no concentration of industrial units in a particular area, but are scattered in the entire area of the municipality.

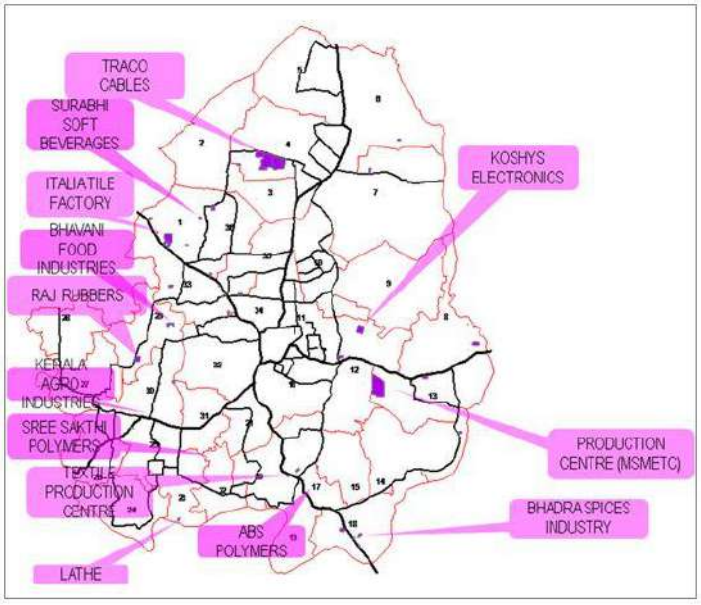


Figure 7.1 Locations of important industrial units in Thiruvalla

Table7.1 Details important industrial units in Thiruvalla Municipality

Sl.No.	Name of Establishment	Description of Products	Public (Central / State / Society / Others) / Private	Area of Premises (Hect.)	Building Area (Hect.)	Total Number of Workers					
						House Hold			Hired		
						Technical	Administrative	Others	Technical	Administrative	Others
1	Kaveri Chemicals Thirumoolapuram	Alam	Private	0.34	0.074		1		8	1	1
2	Bhadra's Spices	Curry	Private	0.121	185		1		4		3

	Thirumoolapuram	Powder									
3	Stitch& Style KizhakkenMuthoor	Ready Made garments	Private	*	0.00004		1		2		
4	Traco Cable Company, Chumathara	Telephone Cables	Public-State	5.66	0.0836				142	15	229
5	Kerala Agro Industries, KavumBhagom	Servicing Agent	Public	0.125	0.041				5	1	1
6	Kozhy'sEletricalsManjadi	Poly propeline	Private	0.5	0.065		1		17	1	15
7	Ittalia Tiles and woodcraft	Tiles	Private			6	1	1	3	0	3
8	Raj rubbers	Rubber bands	Private			2	1		1		7
9	ABS Polymers	Bushes	Private			2	1				5
10	Surabhi soft beverages	Soft drinks	Private				1				12
11	Aiswarya beverages	Soft drinks	Private				1				13
12	Sreesakthi Polymers	Polymer containers	Private				1				3
13	Sreenivas Wheat Industries Thirumoolapuram	Atta, Maida, Rava	Private	0.607	0.092		1		4		4

Source: Primary survey Thiruvalla, Municipality

The analysis of the industrial sector shows that the industries based on building materials, textiles, automobiles, etc have potential in the town.

7.3 TRADITIONAL INDUSTRIAL UNITS

Handloom sheets and towels produced at Thukalasserry CMS weaving school have been, once, very famous. The 'weaver's guild' which was established years back imparts training for weaving and cross stitch. The cross-stitch clothes for embroidery making were also produced here. The embroidery clothes produced at the unit called 'weaver's guild' have been in great demand both in abroad and India. Even though these two units are still functioning, the production is very meager.

7.4 TRAINING

The Taluk Industries Centre in Thiruvalla, District Industries Centre at Kozhencherry, Micro, Medium and Small Entrepreneurs Training centre (MSMETC) at Manjad (a central govt. institution) providing training for industrial entrepreneurs.

7.5 CONCLUSION

The Municipality has not achieved much progress in the Industrial sector though there is the presence of industries like Traco Cables. In the private sector, some Small Scale industrial units are functioning. These units which might have come up not in a planned manner and which lie scattered in the municipality, possibly without any care to the environment can be causing environmental issues. This demands the suggestion of an industrial zone. The main problem is the non-availability of land due to high population density.

CHAPTER 8

TRAFFIC AND TRANSPORTATION

8.1 INTRODUCTION

Among the various urban infrastructure facilities, transportation is the one, which shapes the structure and growth of a town. A workable circulation plan ensuring efficient operation of the transportation system facilitates economic growth of the town. With progressive urbanization travel demand in towns has increased tremendously. This is evident from the long delays and traffic congestion observed on urban roads in most of the towns. To make the transport system efficient, there is a continuous need to maintain a balance between demand and supply of facilities within the towns and their environs. As part of the preparation of the Master Plan for Thiruvalla, various studies related to Traffic and Transportation has been conducted. The study on Traffic and Transportation was entrusted with the National Transportation Planning and Research Centre (NATPAC).

8.2 ROAD NETWORK

The roads in the municipal area are classified into two, viz., the roads which connect the Municipality with the surrounding regions (Roads of regional importance) and those which connect the different areas within the Municipality (Internal Roads). These two categories of roads are given below.

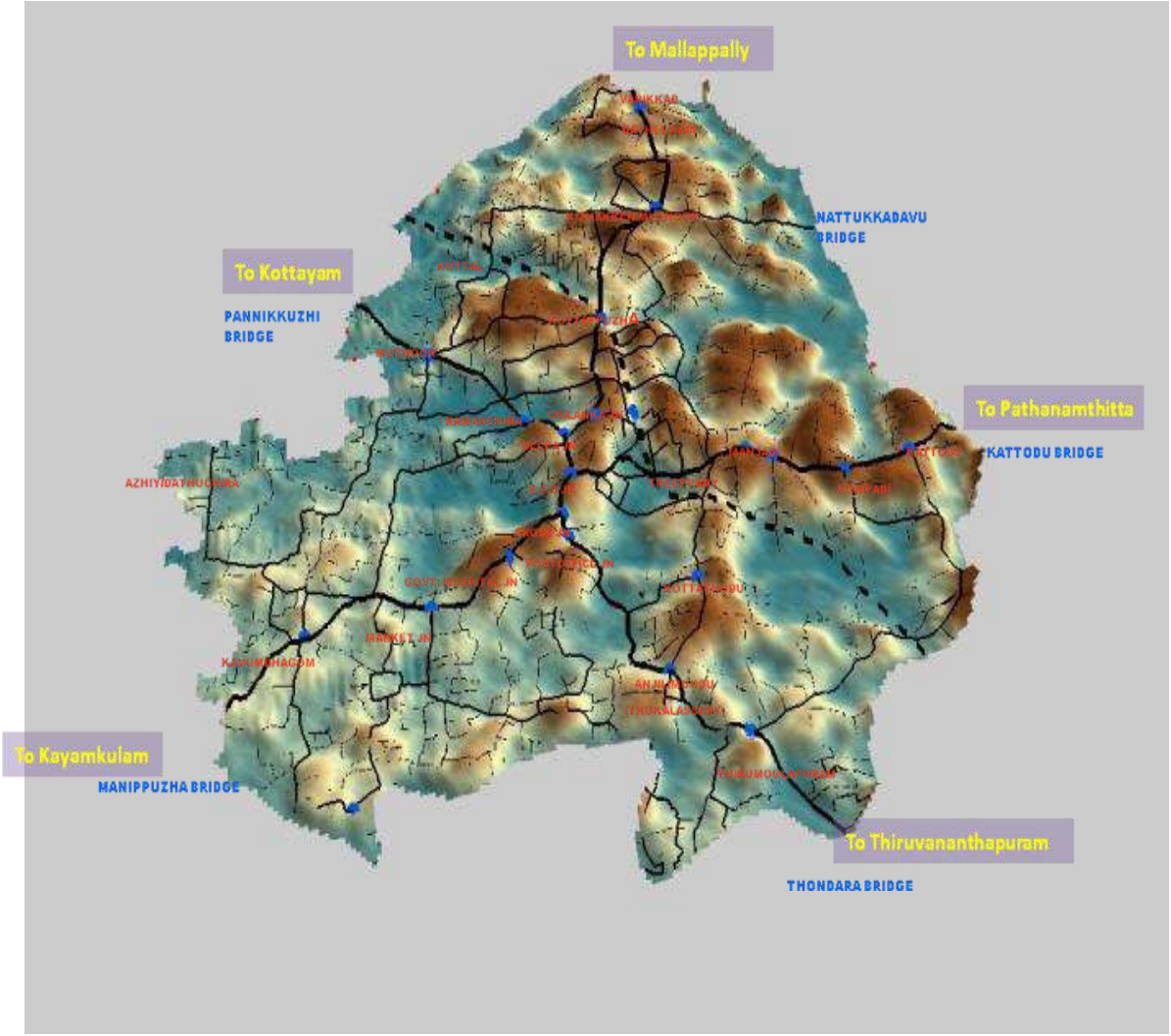
Roads of regional importance

i. Main Central Road (MC Road-SH1)
ii. Thiruvalla- Kumbazha Road (TK Road – SH7)
iii. Kayamkulam-Thiruvalla (SH 6)
iv. Thiruvalla- Mallappally Road (MDR)
v. Ambalappuzha-Thiruvalla Road (SH-12) (Join SH-7 at Podiyadi Jn of Nedumbram Grama Panchayath)

The important internal roads are

i. Kizhakkan Muthoor-Nattukkadavu Road
ii. Muthoor- Chumathra- Madamukku Road
iii. Muthoor- Kavumbhagom Road
iv. Kavumbhagom–AzhiyidathuchiraRoad
v. Kavumbhagom–Thukalassery Road
vi. Kattode–Thirumoolapuram Road
vii. Anjilimood –Theeppany Road
viii. Theeppany-KizhakkanMuthoor Road

Roads of regional importance are given in map 8.1 and the road network of the town is shown in Map. 8.2. It can be seen that almost all areas within the municipality are connected with roads, except some areas isolated by paddy fields. The municipality is well connected with other important centers within the district and is having good road connectivity between interior nodes.



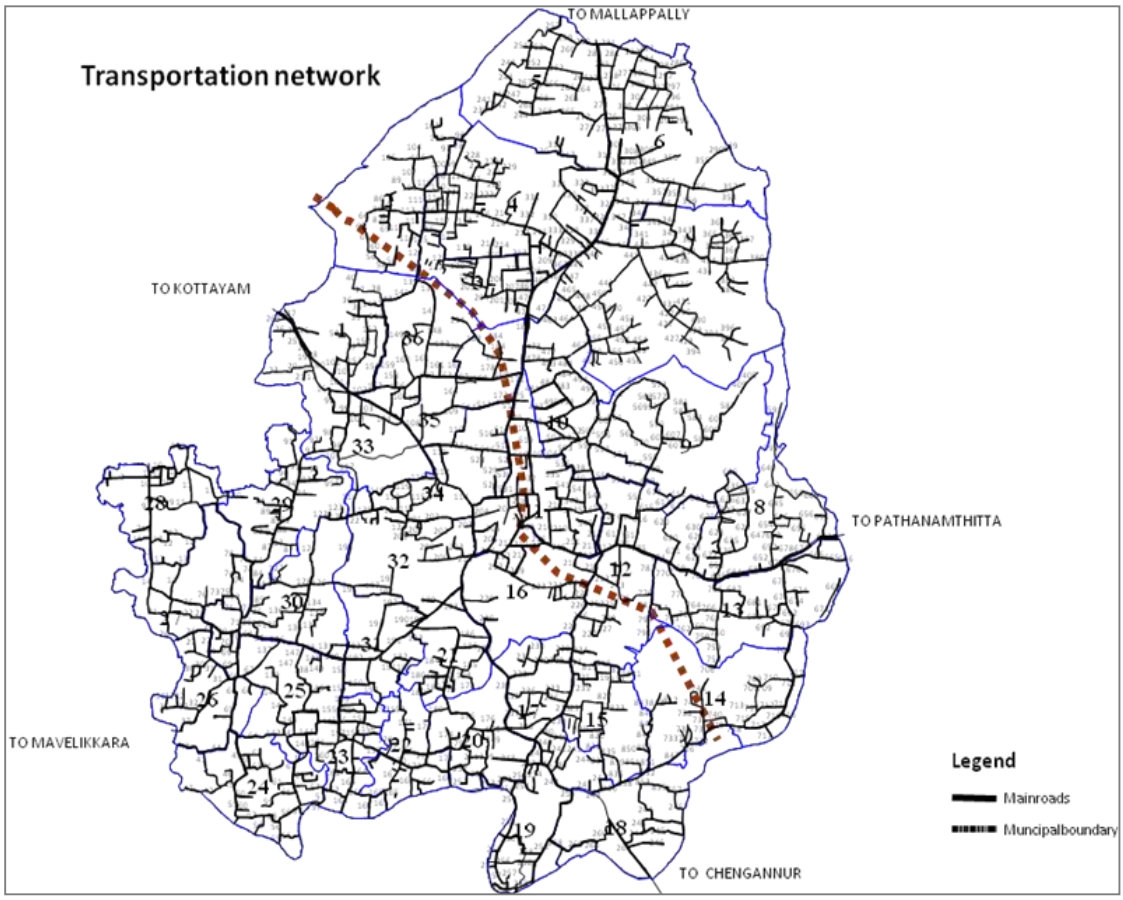
Map 8.1 Maps of Regional importance

8.3 RAILWAYS AND WATER WAYS

Ernakulam - Thiruvananthapuram railway line is passing through Thiruvalla and providing rail connectivity to other parts of the country. It is only one railway station in the Pathanamthitta district and train services are available to major cities of the country from Thiruvalla.

In earlier days, the town was connected with the water way net-work of the state through Chandathodu with a terminal facility adjacent to market Jn.

But with the decline of the water transport system, the canal and the terminal facilities are dilapidated conditions.



Map 8.2 Road of Thiruvalla Municipality

8.4 VOLUME AND CAPACITY OF ROADS

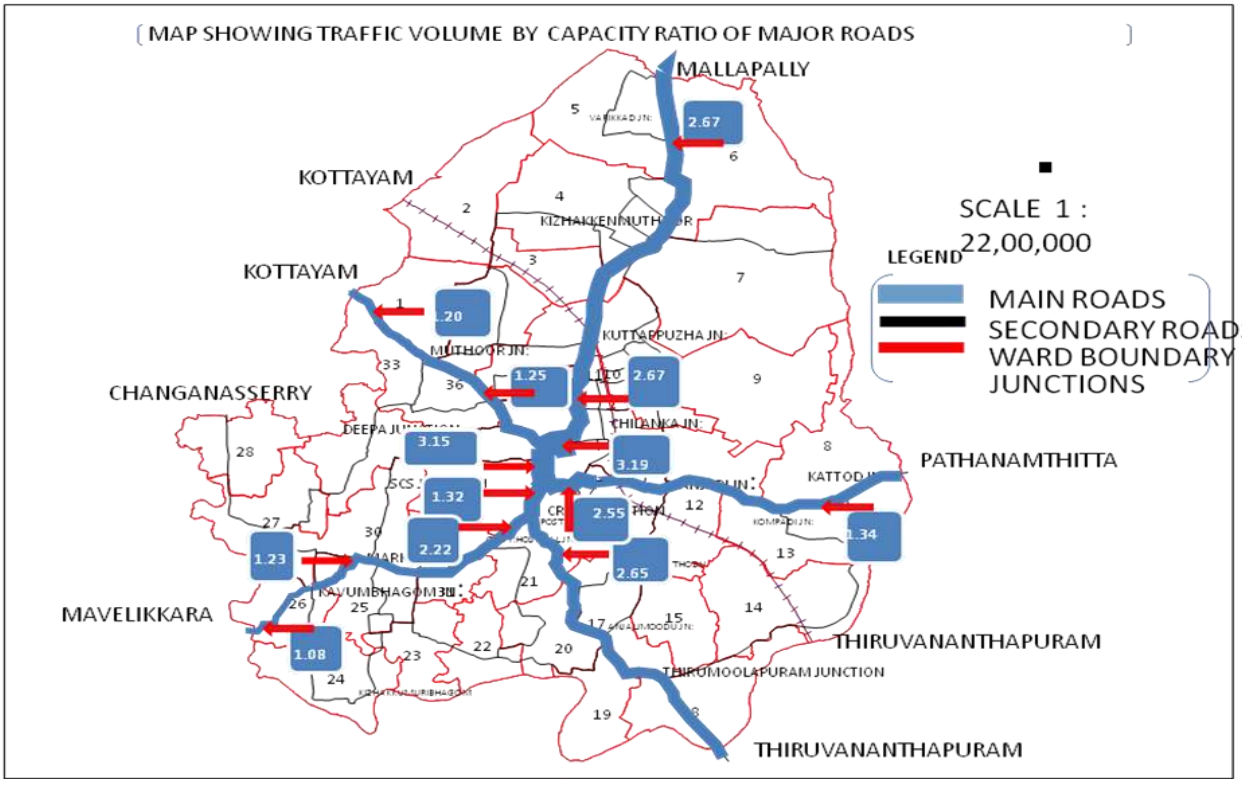
NATPAC conducted a transportation study in Thiruvalla in 2001. The road inventory details are available in Annex 8.1. The details of the volume and capacity of various stretches of roads in the Municipal area collected during the study are given in Table 8.1 and Map 8.3. The details of traffic volume on major traffic corridors is shown in Annex 8.3.

Table8.1 Details of important roads with Volume and Capacity in the municipal Town

Sl. No.	Name of road / Stretches	Length (kms)	Carriage Way (m)	Road Way (m)	Type of surface	Capacity (PCUs)	Volume (PCUs)	V/C Ratio
1	Pannikuzhy bridge to Muthoor Jn.	0.85	9.00	15.00	B.T	16,000	19138	1.20
2	MuthoorJn. to Deepa Jn.	1.35	9.00	15.00	B.T	16,000	20063	1.25
3	DeepaJn. to SCS Jn.	0.35	7.50	16.00	B.T	12,350	38888	3.15

4	SCS Jn. to Kurissadi Jn.	0.30	8.00	15.50	B.T	14,000	37075	2.65
5	Kurissadi Jn. to Kalathilpady Jn.	1.50	7.00	13.50	B.T	10,000	13213	1.32
6	Kalathilpady Jn. to Thondara Bridge	1.55	7.00	13.50	B.T	10,000	13213	1.32
7	Kurissadi Jn. to Market Jn.	1.10	6.50	10.00	B.T	8700	19275	2.22
8	Market Jn. to Kavumbhagom Jn.	1.00	7.00	10.50	B.T	10000	12275	1.23
9	Kavumbhagom Jn. to Manipuzha bridge	0.75	7.00	10.50	B.T	10000	10825	1.08
10	SCS Jn. to Private Bus Stand Jn.	0.30	7.00	12.00	B.T	10,000	25538	2.55
11	Private Bus Stand Jn. to Railway Station Road Jn.	0.15	8.00	12.00	B.T	14,000	12538	0.90
12	Railway Station Road Jn. R.O.B(One-way)	0.35	8.00	12.00	B.T	14,000	10275	0.73
13	R.O.B to Kattode Bridge	2.45	8.00	12.00	B.T	14,000	18763	1.34
14	R.O.B to Private Bus Stand Jn. (One-way)	0.30	8.50	12.00	B.T	14,900	8563	0.57
15	Deepa Jn. to Chilanka Jn.	0.20	5.00	9.00	B.T	5,000	15950	3.19
16	Chilanka Jn. to Kuttapuzha Jn.	1.10	5.00	9.00	B.T	5,000	13363	2.67
17	Kuttapuzha Jn. to Payippad(Mosque)	2.70	5.00	9.00	B.T	5,000	13363	2.67

Source; NATPAC, survey



Map 8.3 Volume- capacity ratios of major roads

From Table 8.1, it is clear that the stretch of MC Road between SCS Jn. and Deepa Jn. has the highest traffic volume and volume-capacity ratio. The stretches of roads from Deepa junction to SCS junction and Deepa junction to Chilanka junction are the most congested portions and all

roads which are of regional importance have volume-capacity ratio greater than 1 and hence require immediate remedial measures.

8.5 ORIGIN – DESTINATION STUDIES

The locations identified for conducting the OD survey are shown in Table 8.2 and the desire lines of inter-town passenger trips are shown in Figure. 8.1. Vehicular traffic volume at outer cordon survey station is shown in Annex 8.7.

Table 8.2 Locations identified for OD survey

Sl.No.	Name of road	Survey location
1	Changanassery road	At Pannikkuzhi bridge
2	Thiruvananthapuram road	At Kuttoor
3	Kayamkulam road	At Manipuzha bridge
4	Kumbazha road	At Kattode bridge
5	Mallappally Road	After Payippad mosque

From the figure, it can be seen that a lot of trips of Pathanamthitta-Kottayam, Pandalam-Kottayam, Mavelikkara-Kottayam, etc. can be diverted from the municipality.

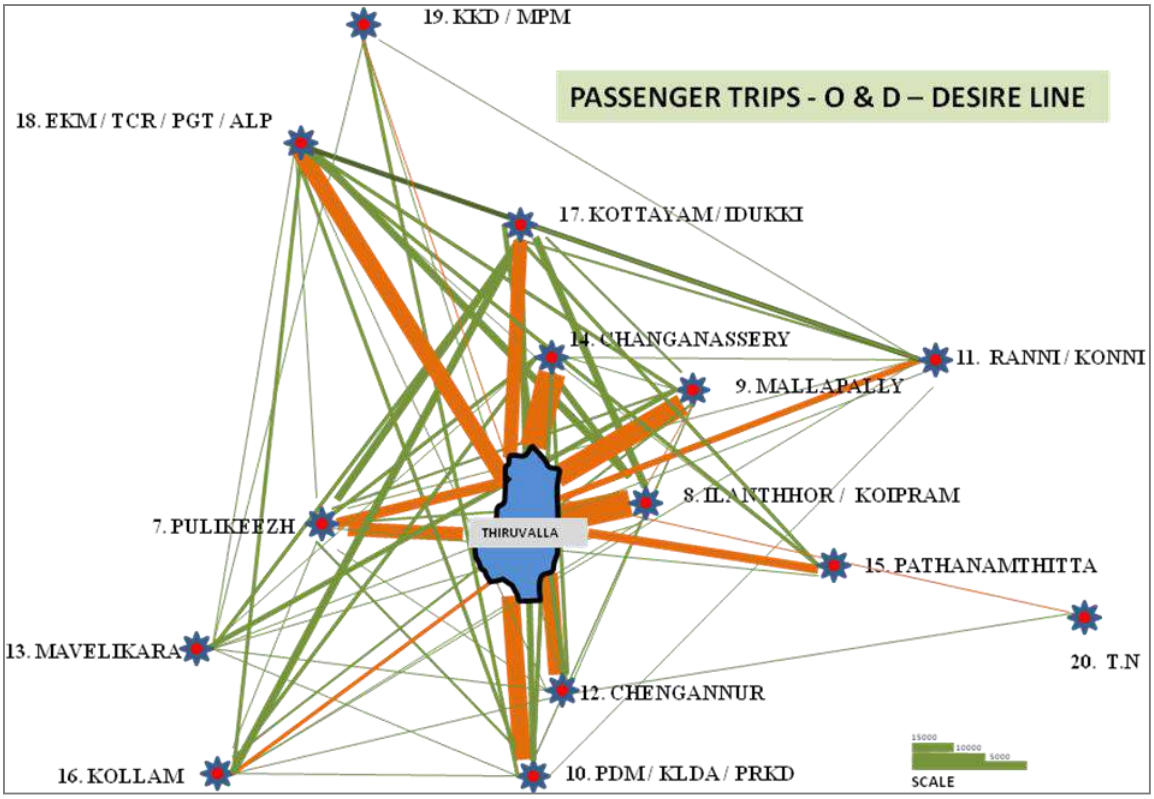


Figure 8.1 Desire lines of passenger trips

Distribution of intercity vehicular traffic by car, auto and two-wheeler is furnished in Annex 8.8, Annex 8.9 and Annex 8.10.

8.6 IMPORTANT ROAD INTERSECTIONS AND THEIR VOLUME OF TRAFFIC

The road intersections where traffic volume counts (direction wise) were taken are given in table 8.3 and their values are given in Figures 8.3 to 8.8. The study aimed to assess the peak hour traffic volume on the roads meeting at these important roads intersections of the municipality.

Table8.3 Road Intersections identified for traffic volume count

Sl.No.	Name of Road	Name of Intersections
1	MC Road (SH1)	Deepajn., SCS jn, Cross Jn.
2.	Mavelikkara Road (SH 6)	Kavumbhagomjn.
3.	Kumbazha Road (SH 7)	Private Bus stand junction
4.	Mallappally Road (MDR)	Chilanka junction

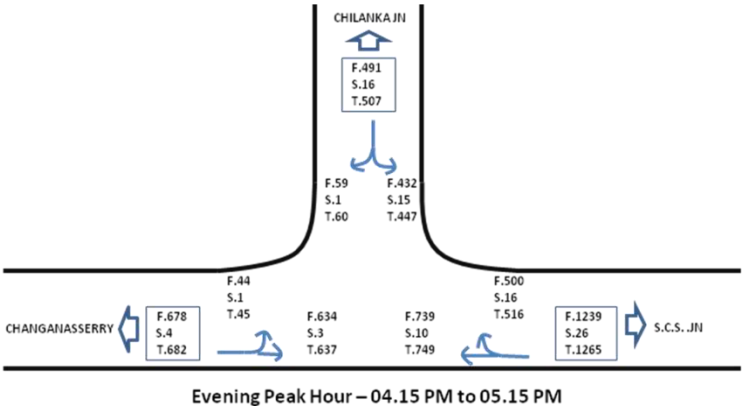
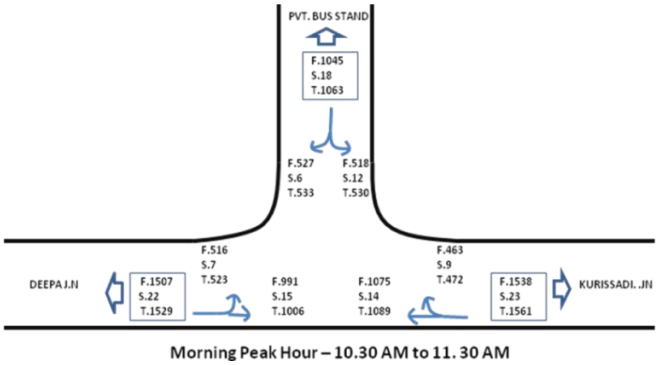


Figure 8.2 Evening peak hour traffic volumes at Deepa Jn.



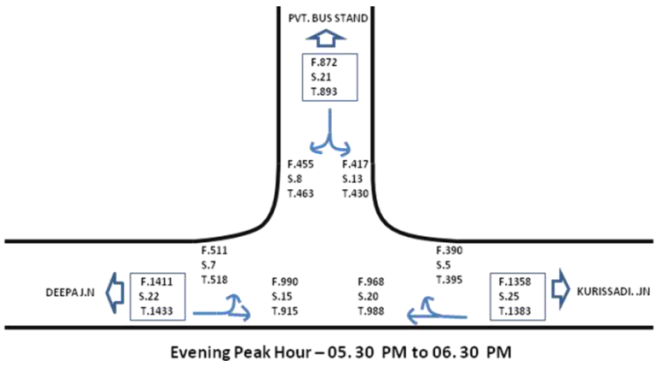


Figure 8.3 Morning and evening peak hour traffic volumes at SCS Jn.

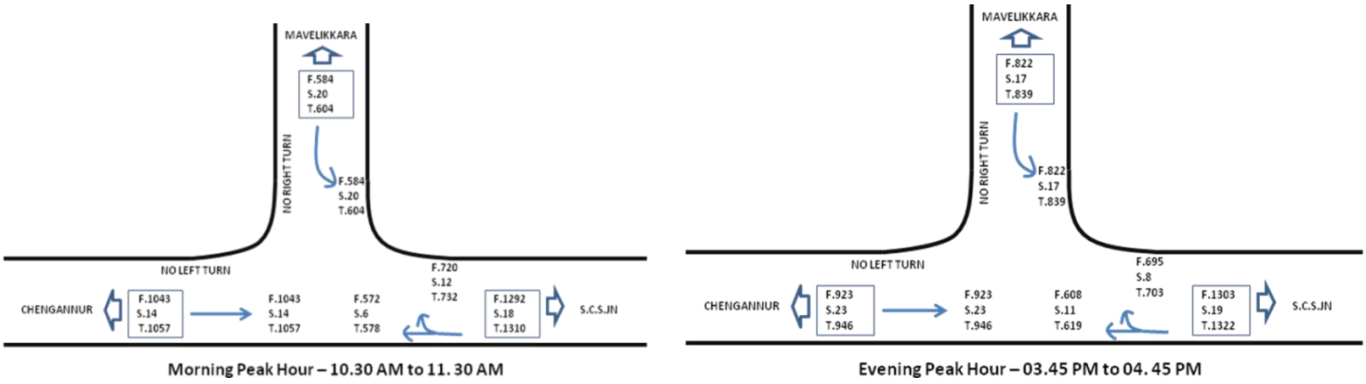


Figure 8.4 Morning and evening peak hour traffic volumes at Kurissadi Jn.

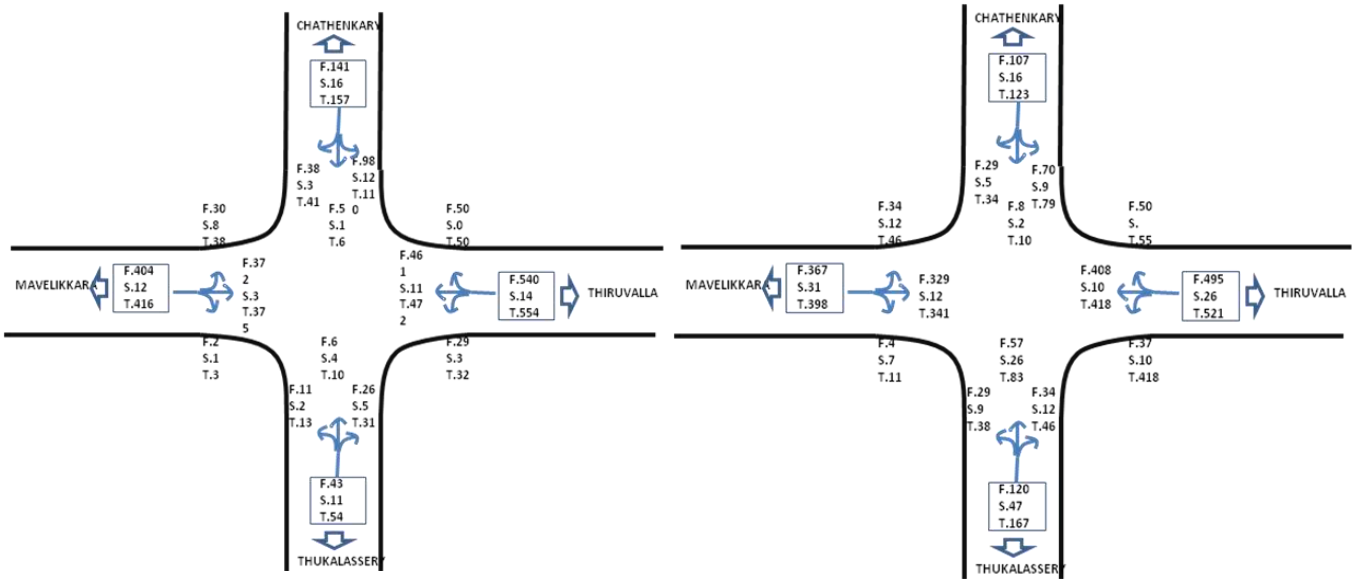


Figure8.5 Morning and evening peak hour traffic volumes at Kavumbhagam Jn.

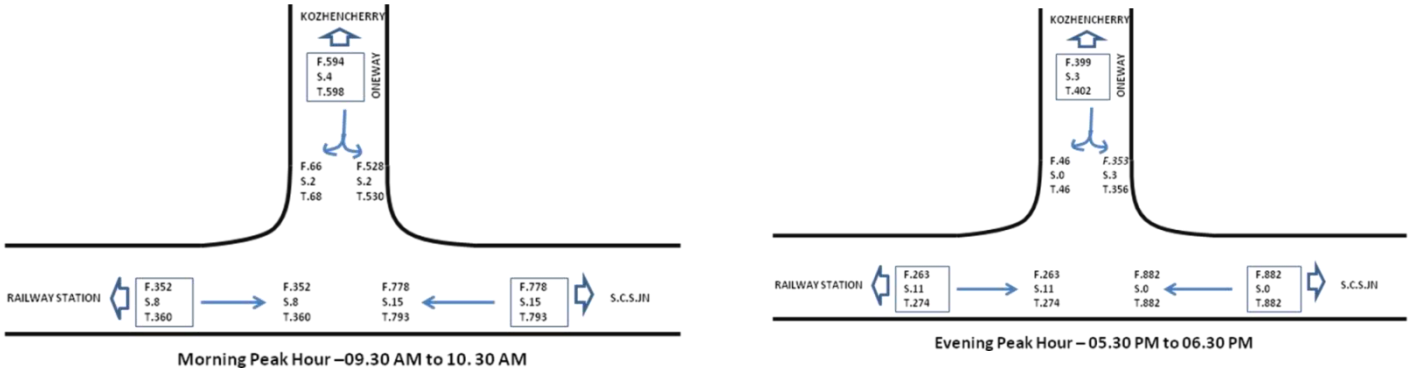


Figure 8.6 Morning and evening peak hour traffic volumes at Private Bus Stand Jn.

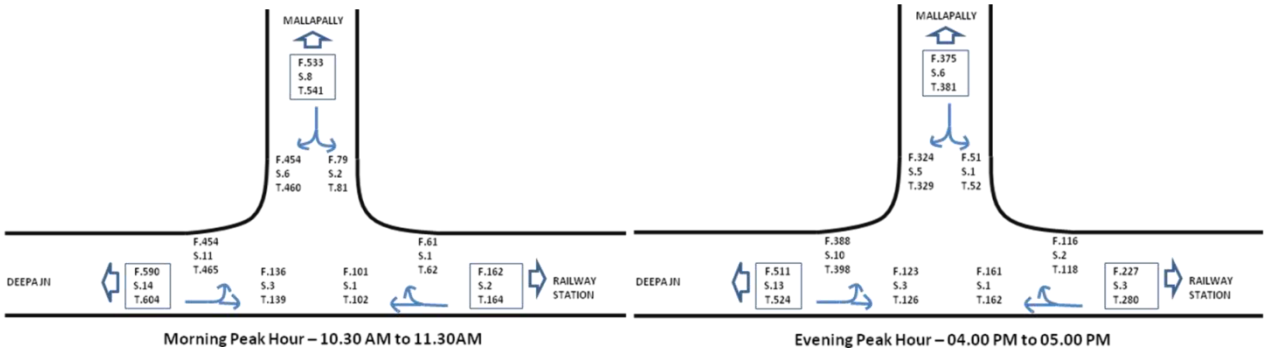


Figure 8.7 Morning and evening peak hour traffic volumes at Chilanka Jn.

The traffic volume along M.C. Road is higher and correspondingly the SCS Jn., Deepa Jn. and Cross Jn handling more traffic volume.

8.7 SPEED AND DELAY STUDY

Moving car observer method was used for studying the speed and delay study along major transportation corridors. This study was conducted in MC road (SH1), TK road (SH7), Mavelikkara road (SH6), and Mallappally road (MDR) and the result of the study is given in Table 8.4. The major causes of delay are high volume-volume capacity ratio, on street parking of vehicles, a higher proportion of slow moving vehicles, unplanned intersections, unorganized bus stops, narrow bridges and uncontrolled pedestrian crossings. Details of speed and delay characteristics are available in Annex 8.2.

In the stretch of MC road from Deepa Jn to SCS Jn and from SCS Jn to Kurissadi, noted a delay of 94 sec and 150 sec occurred due to unorganized bus stop and parking. Traffic block is very common on MC road (SH-1), the major state highway. In those areas on MC road needs an immediate modification on road to reduce traffic congestion.

Table 8.4 Speed and Delay Characteristics of major road stretches in Thiruvalla Municipality

Sl. No.	Name of Road / Stretches	Time Taken (Sec)			Speed (Km/Hr)			Remarks
		Length (Kms)	With delay	Without delay	With delay	Without delay	Delay time (Sec)	
M. C. Road (SH -1)								
1	Pannikuzhy bridge to Muthoor Junction	0.85	91.00	90.00	33.63	34.00	1.00	Narrow Bridge
2	Muthoor Junction to Deepa Junction	1.35	106.00	105.00	48.84	46.28	1.00	Intersection, Bus Stop
3	Deepa Junction to SCS Junction	0.35	94.00	90.00	13.40	14.00	4.00	Congestion, Bus Stop
4	SCS Junction to Kurissadi Junction	0.3		90.00		12.00		
5	Kurissadi Junction to Kalathipady Junction	1.5	150.00	120.00	36.00	45.00	30.00	Bus Stop, Congestion, Parking

6	Kalathipady Junction to Thodara Bridge	1.55		120.00		46.50		
Kayamkulam Road (SH-6)								
7	Kurissadi Junction to Hospital Junction	0.70	121.00	120.00	20.83	21.00	1.00	Intersection
8	Hospital Junction to Market Junction	0.40	61.00	60.00	23.61	24.00	1.00	Intersection
9	Market Junction to Ambili Junction	0.50	63.00	60.00	28.57	30.00	3.00	Bus Stops, Slow Vehicle in front
10	Ambili Junction to Kavumbhagom Junction	0.50	61.00	60.00	29.51	30.00	1.00	Parking
11	Kavumbhagom to Manipuzha bridge	0.75		120.00		22.5		
T. K. Road (SH-7)								
12	SCS Junction to Private Bus Stand Junction	0.3	137.50	121.25	7.85	8.91	16.25	Bus Stop, Double side parking, Signal Control
13	Private Bus Stand Junction to Railway Station Road Junction	0.15		36.00		15.00		Bus Stop, Double side parking
14	Railway Station Road Junction to R.O.B. (One-way)	0.35		37.20		33.87		Parking, Congestion, Double Side Parking, Slow Vehicle
15	R.O.B. to Kattode Junction	1.85	151.00	150.00	44.11	44.40	1	Slow Vehicle in front
16	Kattode Junction to Kattode Bridge	0.6		60.00		36.00		
17	R.O.B. to Private Bus Stand Junction (One-way)	0.3		45.00		24.00		
Mallappally Road (MDR)								
18	Deepa Junction to Chilanka Junction	0.20	74.75	73.75	9.63	9.76	1.00	Bus stop, Intersection
19	Chilanka Junction to Kuttapuzha Junction	1.10		150.00		26.40		Intersection
20	Kuttapuzha Junction to KizhakkamMuthur	1.10		75.00		53.00		Parking, Slow moving vehicle, Bus Stand, Pedestrian Crossing
21	KizhakkamMuthur to Padappad	0.55		60.00		33.00		Narrow Bridge
22	Padappad to Payippad (Mosque)	1.05		120.00		31.50		

Source; NATPAC survey

An average speed of 12 km/hour was found on M.C.Road (SH-1). The maximum speed of 46 km/hour along this road was recorded on the 1.55 km section between the Kalathil padi Jn-Thondara bridge stretch. From Kurissadi

Jn to Kalathipadi Jn on the same road, a speed of about 45 km/hour and a maximum delay of about 30 seconds were recorded. This 1.5 km stretch is crowded and congested with roadside parking, bus stops, etc.

On Kayamkulam Road (SH-6) the running speed varied between 21 and 30 km/hrs between Kurissadi Junction and Kavumbhagom Junction. The same level speed of 30kms/hour was observed for the stretch from Market Junction to Kavumbhagom Junction. The journey speed for this road varied from 21-30 km/hr. The major causes for delay along this stretch are due to unplanned intersections, irrational bus stops and curbside parking of vehicles.

In the case of T.K.Road (SH-7), the stretch between SCS Junction to Private Bus Stand Junction has recorded a running speed of 9 km/hour. The maximum delay of 16.25 seconds has been recorded at this stretch and this is mainly due to signal-controlled intersection, double side parking and the bus stops. For the stretch between R.O.B and Kattode Junction, the speed recorded with delay and without delay is 44 km/hour and 44.50km/hour. The speed of this road varied from 9 km/hour to 44.50 km/hour without delay at various sections. The one-way road from Railway station Road Junction to R.O.B and from R.O.B to Private Bus Stand Junction experienced a speed of 34 km/hours and 24 km/hours respectively. The 0.6 km road stretch from Kattode Junction to Kattode bridge experienced an average speed of 36 km/hour without delay.

On Mallappally Road (MDR), the speed varied from 10km/hour to 50kms/hour without delay at various stretches. The maximum speed of 53.0 km/hour was obtained at the stretch from Kuttapuzha Junction to Kizikkam Muthur. The stretch from Deepa Junction to Chilanka Junction has the minimum speed of without delay and 9.6 km/hour with delay, which is mainly due to impedance caused by bus stops and intersection control. Road stretch from Kizhikkam Muthur to Padappad on the above road experienced a spot speed of 33.00 km/hours.

8.8 PARKING STUDIES

There is no designated off-street parking lot for vehicles in Thiruvalla town. Table 8.5 shows road stretches where on street, parking studies were conducted.

Table8.5 Parking Survey Locations

Sl. No.	Name of Stretch
1.	From Bharat petroleum pump to SCS jn. On MC road
2	From Elite Hotel to deepa jn on MC road
3	From SCS jn. To Kurissadi jn on MC road
4	Near Kurissadi jn on Mavelikkara road
5	From SCS jn. To Market on TK road (Right side)
6	From SCS jn. To Market on TK road (Left side)
7	Near private Bus stand junction on Railway station road
8	On Thukalassery road and Mavelikkara road near Kavumbhagom jn
9	On Chathenkary road near Kavumbhagom jn

The parking accumulation of vehicles in various on street parking locations is given in Table 8.6.

Table 8.6 The parking accumulation of vehicles

Time (in hours)			8.30	9.00	9.30	10.00	10.30	11.00	11.30	12.00	12.30	13.00
M.C Road	S.C.S.Jn. to Kurissadijn.	Car/Van/Jeep	3	4	8	13	20	40	26	21	19	23
		Autorikshaws	1	5	6	3	8	16	8	8	8	6
		Two wheelers	2	5	2	13	24	61	24	23	31	23
	Elite Hotel to Deepa Junction	Car/Van/Jeep	18	21	31	38	30	30	25	34	36	27
		Autorikshaws	22	38	52	44	45	47	44	49	35	31
		Two wheelers	11	8	10	4	12	17	5	26	19	16
	Bharat Petroleum pump to SCS Jn.	Car/Van/Jeep	7	6	6	12	13	9	7	9	9	8
		Autorikshaws	2	5	4	6	11	9	17	11	10	9
		Two wheelers	7	15	18	26	28	36	26	26	29	32
Kayamkulam Road	Kurissadi jn.	Car/Van/Jeep	1	2	2	11	6	13	12	15	7	8
		Autorikshaws	1	1	3	3	3	2	5	2	3	4
		Two wheelers	1	2	5	8	8	14	13	16	13	18
	Thukalaserry and Mavelikara Road arms in KavumbhagomJunction	Autorikshaws only	17	15	9	9	11	7	7	7	5	2
	Chathenkary Road arms in KavumbhagomJn	Autorikshaws only	9	7	5	7	9	6	7	6	5	5
T.K. Road	S.C.S.Jn. to Market (Right side)	Car/Van/Jeep	3	9	22	24	20	36	34	26	35	20
		Autorikshaws	18	23	22	21	28	18	31	24	46	35
		Two wheelers	2	10	19	21	30	35	26	41	15	45
	S.C.S.Jn. to Market (Left side)	Car/Van/Jeep	7	19	16	13	21	10	9	23	30	25
		Autorikshaws	9	7	9	6	7	13	21	14	14	11
		Two wheelers	2	3		2	6	15	12	7	10	3
	Railway Station road at Private Bus stand Junction	Autorikshaws only	10	26	7	9	11	13	13	8	6	5

Source;NATPAC survey

The parking duration of vehicles in M.C.Road, TK Road and Mavelikkara are furnished in Annex 8.4, Annex 8.5 and Annex 8.6 respectively. It can be seen that M.C. Road, where major commercial establishments experience the highest degree of parking accumulation.

8.9 PEDESTRIAN SURVEY

The pedestrian survey was carried out at the following locations. The details of pedestrian volume at major locations are given in Table 8.7.

i. In front of KSRTC Bus stand
ii. In front of Elite Hotel

iii. Along TK Road at SCS jn
iv. In front of market in YK road
v. Along Kottayam road at SCS jn
vi. Along Thiruvalla road on private bus stand jn
vii. Along Thiruvananthapuram road at Deepajn
viii. Along Thiruvananthapuram Road at Kurissadyjn.
ix. Along Mavelikkara road at Kavumbhagomjn
x. Along Thiruvalla Road at Kavumbhagomjn
xi. In front of private bus stand along Kumbazha road

Table 8.7 Pedestrian volumes at important locations

Hour-wise Pedestrian volume in front of KSRTC Stand on M. C. Road			
Time Interval	Direction		Total
	East-West	West-East	
8.30-9.30	312	388	700
9.30-10.30	424	445	869
10.30-11.30	524	444	968
11.30-12.30	391	374	765
12.30-1.30	416	384	800
Total	2067	2035	4102
Hour-wise Pedestrian volume in front of Elite Hotel on M. C. Road			
8.30-9.30	221	160	381
9.30-10.30	241	161	402
10.30-11.30	156	111	267
11.30-12.30	122	97	219
12.30-1.30	123	85	208
Total	863	614	1477
Hour-wise Pedestrian volume at Deepa Junction on M. C. Road			
8.30-9.30	118	88	206
9.30-10.30	213	137	350
10.30-11.30	214	195	409
11.30-12.30	253	211	464
12.30-1.30	224	244	468
Total	1022	875	1897

Hour-wise Pedestrian volume at Kurissadi Junction on M C. Road			
8.30-9.30	80	66	146
9.30-10.30	79	68	147
10.30-11.30	72	68	140
11.30-12.30	62	67	129
12.30-1.30	66	67	133
Total	359	336	695
Hour-wise Pedestrian volume at SCS Junction on Kottayam Road			
8.30-9.30	161	189	350
9.30-10.30	240	243	483
10.30-11.30	168	127	295
11.30-12.30	139	120	259
12.30-1.30	149	136	285
Total	857	815	1672

Hour-wise Pedestrian volume at SCS Junction on T. K. Road			
Time Interval	Direction		Total
	South-North	North-South	
8.30-9.30	353	97	450
9.30-10.30	398	212	610
10.30-11.30	270	231	501
11.30-12.30	220	243	463
12.30-1.30	284	266	550
Total	1525	1049	2574
Hour-wise Pedestrian volume in front of Market on T. K. Road			
8.30-9.30	54	52	106
9.30-10.30	75	65	140
10.30-11.30	65	59	124
11.30-12.30	61	56	117
12.30-1.30	65	62	127
1.00-1.30	33	32	65
Total	353	326	679

Hour-wise Pedestrian volume at Private Bus Stand Junction on Thiruvalla Road			
Time Interval	Direction		Total
	East-West	West-East	
8.30-9.30	45	73	118
9.30-10.30	54	50	104
10.30-11.30	71	60	131
11.30-12.30	65	56	121
12.30-1.30	55	58	113
1.00-1.30	31	29	60
Total	321	326	647
Hour-wise Pedestrian volume in front of Private Bus Stand Junction on Kozhencherry Road (One-way)			
Time Interval	Direction		Total
	South-North	North-South	
8.30-9.30	165	154	319
9.30-10.30	153	114	267
10.30-11.30	132	114	246
11.30-12.30	144	105	249
12.30-1.30	120	119	239
Total	714	606	1320
Hour-wise Pedestrian volume on Thiruvalla Road at Kavumbhagom Junction			
3.00-4.00	70	90	160
4.00-5.00	191	222	413
5.00-6.00	143	164	307
Total	404	476	880
Hour-wise Pedestrian volume on Mavelikkara Road at Kavumbhagom Junction			
Time Interval	Direction		Total
	East-West	West-East	
3.00-4.00	42	27	69
4.00-5.00	144	31	175
5.00-6.00	30	22	52
Total	216	80	296

Source; NATPAC survey

The highest pedestrian movement is observed at K.S.R.T.C. Bus Stand in M.C. Road between 10.30 am-11.30 am.

8.10 PUBLIC TRANSPORT SYSTEM

The public transport system of the town comprises of the services operated by the state owned Kerala State Road Transport Corporation (KSRTC) and private entrepreneurs. The details of bus operated by KSRTC buses and Private buses is given in Table 8.8 and Table 8.9 respectively.

Table 8.8 Details of KSRTC Bus operated

Sl No	Name of road / Stretches	Type of surface	Length (kms)	Average width(m)	Bus volume (K.S.R.T.C)
M.C.Road					
1	Pannikuzhy bridge to muthoorjn.	B.T	0.85	9.00	442
2	Muthoorjn. to Deepa Jn.	B.T	1.35	9.00	442
3	Deepajn. to SCS Jn.	B.T	0.35	7.50	548
4	SCS Jn. to Kurissadi Jn.	B.T	0.30	8.00	399
5	Kurissadi Jn. to Kalathilpady Jn.	B.T	1.50	7.00	260
6	Kalathilpady Jn. to Thondara Bridge	B.T	1.55	7.00	260
Kayamkulam Road					
7	Kurissadi Jn. to Market Jn.	B.T	1.10	6.50	88
8	Market Jn. to Ambili Jn.	B.T	0.50	7.00	88
9	Ambili Jn. to Kavumbhagom Jn.	B.T	0.50	7.00	83
10	Kavumbhagom Jn. to Manipuzha bridge	B.T	0.75	7.00	83
T.K. Road(SH-7)					
11	SCS Jn. to Private Bus Stand Jn.	B.T	0.30	7.00	210
12	Private Bus Stand Jn. to Railway Station Road Jn.	B.T	0.15	8.00	102
13	Railway Station Road Jn. R.O.B(One-way)	B.T	0.35	8.00	102
14	R.O.B to Kattode Bridge	B.T	2.45	8.00	108
15	R.O.B to Private Bus Stand Jn (One-way)	B.T	0.30	8.50	
Mallapally Road(MDR)					
16	DeepaJn to Chilanka Jn.	B.T	0.20	5.00	41
17	Chilanka Jn. to Kuttapuzha Jn.	B.T	1.10	5.00	41
18	Kuttapuzha Jn. to Payippad(Mosque)	B.T	2.70	5.00	41

Table 8.9 Details of Private Bus operated

Sl No	Name of road / Stretches	Type of surface	Length (kms)	Average width(m)	Bus volume (Private Buses)
M.C.Road					
1	Pannikuzhy bridge to Muthoorjn.	B.T	0.85	9.00	10
2	Muthoorjn. to Deepa Jn.	B.T	1.35	9.00	10
3	Deepajn. to SCS Jn.	B.T	0.35	7.50	210
4	SCS Jn. to Kurissadi Jn.	B.T	0.30	8.00	244

5	Kurissadi Jn. to Kalathilpady Jn.	B.T	1.50	7.00	12
6	Kalathilpady Jn. to Thondara Bridge	B.T	1.55	7.00	12
Kayamkulam Road					
7	Kurissadi Jn. to Market Jn.	B.T	1.10	6.50	232
8	Market Jn. to Ambili Jn.	B.T	0.50	7.00	232
9	Ambili Jn. to Kavumbhagom Jn.	B.T	0.50	7.00	232
10	Kavumbhagom Jn. to Manipuzha bridge	B.T	0.75	7.00	232
T.K. Road(SH-7)					
11	SCS Jn. to Private Bus Stand Jn.	B.T	0.30	7.00	454
12	Private Bus Stand Jn. to Railway Station Road Jn.	B.T	0.15	8.00	176
13	Railway Station Road Jn. R.O.B(One-way)	B.T	0.35	8.00	176
14	R.O.B to Kattode Bridge	B.T	2.45	8.00	347
15	R.O.B to Private Bus Stand Jn. (One-way)	B.T	0.30	8.50	175
Mallapally Road(MDR)					
16	Deepa Jn. to Chilanka Jn.	B.T	0.20	5.00	200
17	Chilanka Jn. to Kuttapuzha Jn.	B.T	1.10	5.00	200
18	Kuttapuzha Jn. to Payippad(Mosque)	B.T	2.70	5.00	200

Source;NATPAC survey

The private buses operate 600 trips per day and the KSRTC station operates 332 trips daily. Besides, nearly 100 trips are operated through Thiruvalla from other KSRTC depots. KSRTC mainly catering the need of long-distance passengers while private buses provide services to the centers adjacent to the town.

8.11ROAD ACCIDENTS STUDY

The locations, number of accidents and number of persons injured are given in Table. 8.11 and major accident locations are shown in Map.8.4.

Table8.10 Details of Road Accidents in Thiruvalla Municipality

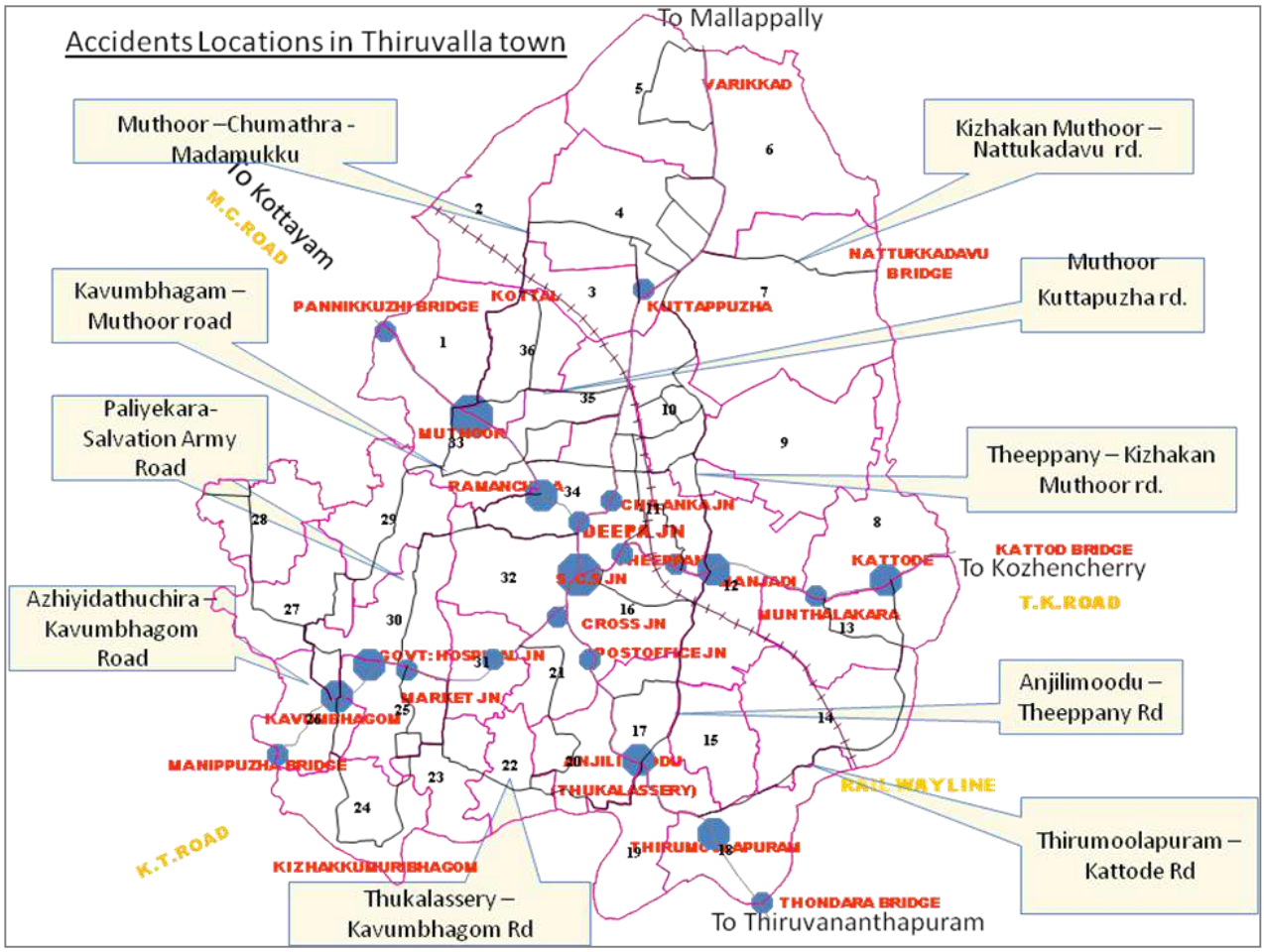
Sl no	Location	No of Accidents	No of persons injured
I	M.C.Road		
1	Town	27	27
2	Muthoor	27	45
3	Kalathipady	14	24
4	Ramanchira	14	17
5	Thirumoolapuram	13	15
6	Kuttoor	9	11
7	Kurissadi Jn.	9	7
8	Pannikkuzhi Bridge	6	11

9	Mazhuvangaduchira	6	8
10	SCS Jn.	2	2
11	Anjalimoodu	1	1
12	T.B.Jn.	1	1
	Total	129	169
II	Mavelikkara Road		
1	Kavumbhagam Jn.	18	21
2	Paliyekkara church	12	17
3	Hospital Jn.	4	7
4	Market Jn.	4	5
5	Manipuzha Bridge	4	5
6	Aramanapadi	1	1
	Total	43	56
III	T.K.Road		
1	Near SCS Jn.	21	25
2	Manjadi	19	19
3	Kattode Jn.	15	20
4	Meenthalakkara	8	10
5	Theeppany	7	10
	Total	70	84
IV	Mallappally Road		
1	Near Deepa Jn.	6	10
2	Chilanka Jn.	3	3
3	Madanmukku	2	3
4	Kuttapuzha	2	2
5	Kizhakumbhagam	1	4
	Total	14	22
	GrandTotal	256	331

Source;NATPAC survey

The major accident spots identified in the town area-

i. **Along MC road** **:** Town area, Muthoor, Kalathilpady, Ramanchira,Thirumolapram
ii. **Mavelikkara road** **:** Kavumbhaghom Jn and PaliyakkaraChurchJn.
iii. **Kumbazha road** **:** Near SCS Jn., Manjadi and Kattod Jn.
iv. **Mallappally road** **:** Near Deepa Jn.



Map 8.4 Accident Locations in Thiruvalla Municipal area

8.12 TRAFFIC TERMINALS

i. Railway station: The railway station in Thiruvalla, located at Mallapally road within a distance of 0.50km from KSRTC bus station and private bus station.

ii KSRTC Bus station: There is a Bus station in the heart of the city with 81 buses having nearly 400 schedules. This station is now being renovated with a multi-storied shopping complex, garage, office and other passenger facilities.

iii Private Bus station: Nearly 150 private buses operate from here. This station is very small has an area of1.152 hectares.Which is not adequate to accommodate these buses.

8.13 GOODS MOVEMENT

The inter-city goods carriers in the study region consist of trucks, mini trucks, goods auto, etc. About 26,000 tonnes of intercity goods traffic was handled on an average, a day, by different types of vehicles which consisting of 2715 trucks,1806 mini trucks and 451Goos-autos. Out of the total intercity goods traffic that was transported to various destinations, the share of trucks constituted 77%(19828 MT), followed by mini trucks225(5,553MT). Goods transported by auto-

rickshaw accounted for a meager 317 MT, which formed less than 1%of the total. The detail of the modal split of goods traffic is given in table8.11.

Table 8.11 Modal split of goods traffic

Sl.No	Type of vehicles	No of vehicles	Goods traffic (tones)	Percentage	Lead (km)
1	Truck	2715	19828	77	156
2	Mini-truck	1806	5553	22	84
3	Goods auto	451	317	1	12
	Total	4972	25698	100	139

Source;NATPAC survey

Of the 4972 goods vehicles encountered at the outer cordon survey points,1.2 percent of the vehicles(61) were found to be empty vehicles. In the remaining goods vehicles, the major commodities carried were cement(4929MT),brick and tiles (3049MT), rice and paddy(2313MT), earth and gravel(1795MT), sand and clay (1732MT), wheat(1380MT), provisions(1251MT) and stationary & paper (1066MT). Other major commodities are LPG (985MT), manures(678MT), timber(609MT), cattle feed (593MT) and rubber and plastic goods(576MT). The highest lead distance of 2403 km was found in the case of glass, followed by miscellaneous items (609km), vegetables(406 km) and eggs (400 km).

8.14 CONCLUSION

The configuration of the existing road network within the town resembles more or less like a ring and radial type having radial roads connected with partial ring roads. The road inventory shows that majority of roads are with inadequate right of way and carriageway width. The Municipal roads are generally narrow with narrow bridges and culverts. And the local road network system is needed to be improved. The public transport system is available are only along the major radial roads. Bus bays and shelters are needed at different locations. An adequate off-street parking area has to be provided in the town as haphazard on-street parking areas cause traffic problems. Pedestrian facilities are inadequate and need to be improved. Delay is experiencing in main roads of the town. No organized Taxi stand or auto rickshaw stand exists within the town.

CHAPTER 9

EDUCATION

9.1 INTRODUCTION

In this chapter, the present status of the town in the education sector is analyzed. Thiruvalla occupied a prominent role traditionally in education. The first English medium school (CMS School) in Travancore was established in Thiruvalla. The town catering the educational need of surrounding areas in modern education from earlier days.

9.2 EDUCATIONAL INSTITUTIONS

There are 6 higher secondary schools, 9 High schools, 6 UP schools, 20 LP Schools and one Deaf and Dumb school situated within the municipal limit. The students from surrounding Grama Panchayats also make use of the educational facilities available in the municipal area. The Nicholson Residential school, Marthoma Residential school, Deaf and Dumb School, etc. have students from other districts as well. The number of students studying in various categories of schools is given in Table 9.1.

Table 9.1 Number of Schools and students in Thiruvalla municipality

Category of School	Government	No.of Students	Aided	No.of Students	Un Aided	No.of Students	Total Schools	Total Students
LP SCHOOL	4	442	9	858	7	1274	20	2574
UP SCHOOL	3	306	2	1073	1	160	6	1539
HIGH SCHOOL	2	176	9	7175	1	325	12	7676
HIGHER SECONDARY			5	2406	1	171	6	2577

As per standards, there shall be an LP school within 0.5 km, one UP school within 0.5-1 km, a High school, a higher secondary school within 2 km. This is satisfied within the municipal area. The total numbers of students from LP classes to HSS schools are about 14366. It is noticeable that the numbers of LP schools are 20 and UP schools are only 1/3rd of that; similarly, HSS schools are only half of the number of High schools.

9.3 HIGHER EDUCATION FACILITIES

Details of higher education institutes of the town are shown in Table 9.2. There is one arts and Science College, named Marthoma College which is an aided one located at Kuttappuzha which offers degree and post-graduation courses in arts and science subjects. The St.Thomas College in SCS compound offers TTC courses, Titus II Teachers College in SCS compound offers B-Ed course and the Government TTI offers TTC course. The Pushpagiri Medical College conducts courses in MBBS, B.Sc. Nursing, B. Pharm, General nursing, MPH, MLT, etc with an annual intake of 500. In the Educational sector, its service spread throughout

the state. The Believers Church Medical College established in 2016, offering courses in MBBS and MD.

Table 9.2 Higher Educational institutions in Thiruvalla municipality

Sl. No.	Name of College	Location / Ward	Public/private	mixed/Men's/ Women	No. of students	No. of teachers	No. of non-Teaching staff	Courses * offered (Degree, Postgraduate)	Remarks
1	Marthoma College, Thiruvalla	Kuttappuzha	Private	Mixed	1548	101	68	BA, BSc, MA, MSc	Aided
2	St.Thomas Thiruvalla	SCS Compound	Private	Mixed	80	4	3	TTC	Aided
3	Titus II Teacher's College Thiruvalla	SCS Compound	Private	Mixed	150	12	8	B.Ed.	Aided
4	Govt. TTI Thiruvalla	Market Junction	Public	Mixed	74	21	9	TTC	Govt.
5	Pushpagiri Medical College	Stadium Jn.	Private	Mixed	460	62	36	MBBS, B.Sc. Nursing, General Nursing, MPH, MLT	Self Financing

Source: College Records, Local Enquiry

9.4 TECHNICAL EDUCATION FACILITIES

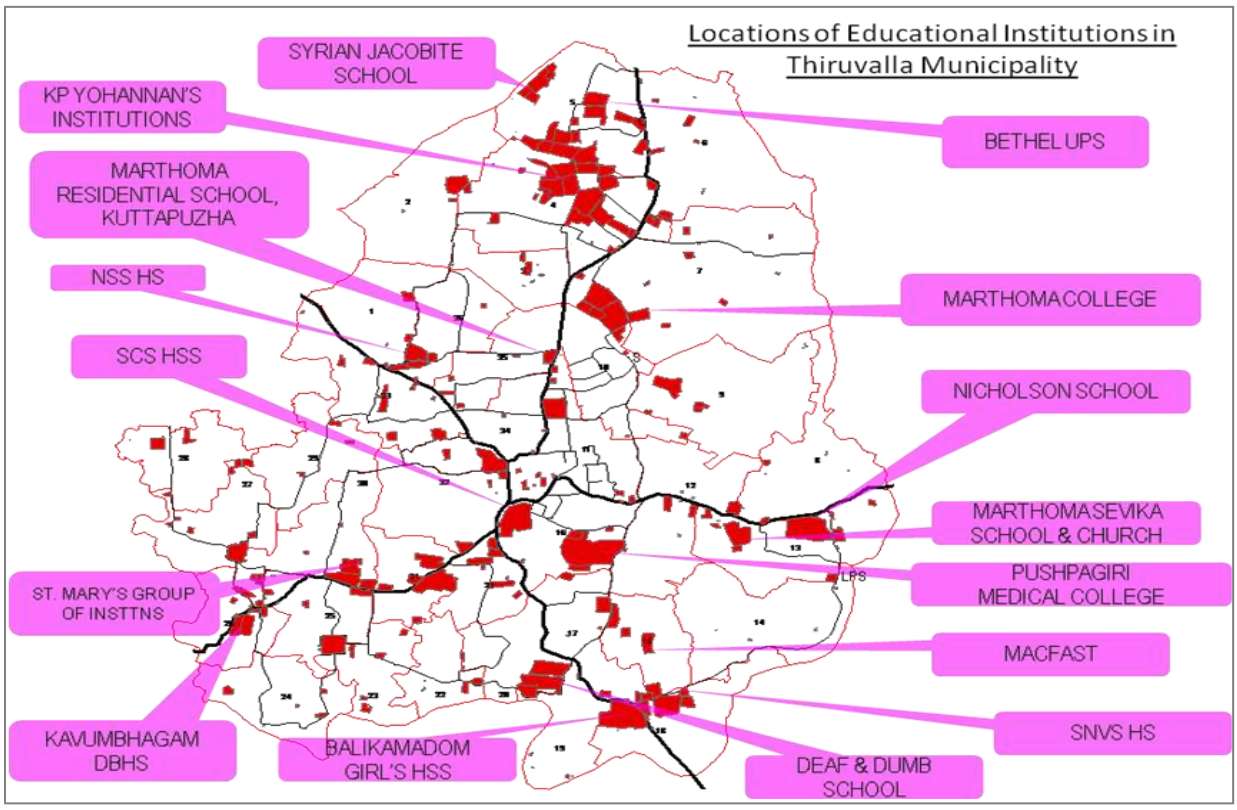
The technical education institutions in the town are limited to a few ITCs in the private sector, which conducts job oriented certificate courses, like electrician, plumber, Fitter, computer, electronics, etc. There is an institute owned by the Government of India near Manjadi, where industrial entrepreneur development training programs are conducted. Technical institutions like Polytechnic College and Engineering College are not functioning within the municipal area. Details of technical institutions are shown in Table 9.3.

Table 9.3 Technical Education institutions in Thiruvalla municipality

Sl. No.	Name and Address	Location / Ward	Govt. / Private	Courses/ Trades of study	No. of Students	No. of teachers	No. of non-Teaching staff	Area in possession of the institution (Hect.)
1	St.John's ITC Thiruvalla	Kacherippadi jn.	Private	Electronics& Computer	25	9	1	0.037
2	National ITC Thiruvalla	Govt.Hospital Jn.	Private	Electrician, Fitter, Civil, Electronics	149	8	1	0.15

3	SEPTI	Manjadi	Govt.	Entrepreneur Promotion Training	1000	24		4.04
4	Professors College	Pushpagiri Road	Private	Computer	200	2	1	0.029
5	IT Campus (Manipal Institute of Computer Education) Kacheri jn	Thiruvalla Kacheri junction	Private	Computer	150	2	1	0.01
6	Hindustan Technical Institute, Thiruvalla	Near medical Mission Hospital	Private	Refrigeration & Air Conditioning	15	1	1	0.01
7	Renji Daniel, NICT, Pynummoottil Building Thiruvalla	Thiruvalla	Private	Computer Training	15	3	1	
8	MGEF Thiruvalla	Karyanthara Towers	Private	Computer Training	20	2		0.01
9	IATS	Karyanthara Towers	Private	IATA Training	20	2		0.01
10	APTECH Computer Education Centre	Western Complex	Private	Computer Training	200	10	3	0.17
11	S.D Institute of Commerce Cross junction Thiruvalla	Thiruvalla Town	Private	Type Writing & Short Hand	30	1	1	0.006
12	Mar Gregorious ITC	Near Private Bus stand	Private	Process instrumentation, Electronics	40	4	2	0.008

From the above paragraphs, it can be observed that Thiruvalla has almost all types of educational institutions except polytechnic and engineering colleges. The locations of important educational institutions are shown in Map 9.1.



Map 9.1 Locations of Educational Institutions in Thiruvalla municipality

9.5 COMPARISON WITH PLANNING STANDARDS

The planning standards for various levels of educational institutions are given in Table 9.4.

Table 9.4 Planning Standards-Education

Sl. No	Type	Planning Standard	No. of seats as per standards
1	High School	1 H.S for 13000 ppn	700
2	Higher Secondary School	1 H.S.S with 8 div: for 13000 ppn	400
3	Arts and Science college	1 Arts and Science college for 80000 ppn	500
4	Professional College	1 Professional College for 250000 ppn	250
5	Polytechnic College	1 Polytechnic for 36000 ppn	150
6	I.T.C/I.T.I	1 I.T.I/I.T.C for 35000 ppn	300
7	I.T.C/I.T.I	1 I.T.I/I.T.C for 35000 ppn	120

As per the standards, there is a lack of technical institutions like Polytechnic College and Engineering College within the municipal area. The occupational structure and analysis of Table 9.4 reveal that people of Thiruvalla are not getting technical training and most of them are getting only up to High school level education. Lack of institutes might be one of the reasons for this.

9.6 LITERACY

The literacy rate of Thiruvalla municipality is 97.21%, with a male literacy rate of 98.03% And a female literacy rate of 96.38%.

9.7 CONCLUSION

Thiruvalla has got a rich tradition and still retains its old glory in possessing various institutions of higher secondary level, Bed, I.T.I., an Arts and Science College and two Medical Colleges. The Municipality has a high literacy rate and educational standards are high too. The town has regional importance in the Educational sector. But the town lacks technical educational institutions of higher order. It is observed that the strengths in Govt. schools are much lower than private ones possibly due to the lack of infrastructure facilities and low educational standards. The possibility of modern schools with “SMART” classrooms and technical training centers can be explored.

CHAPTER 10

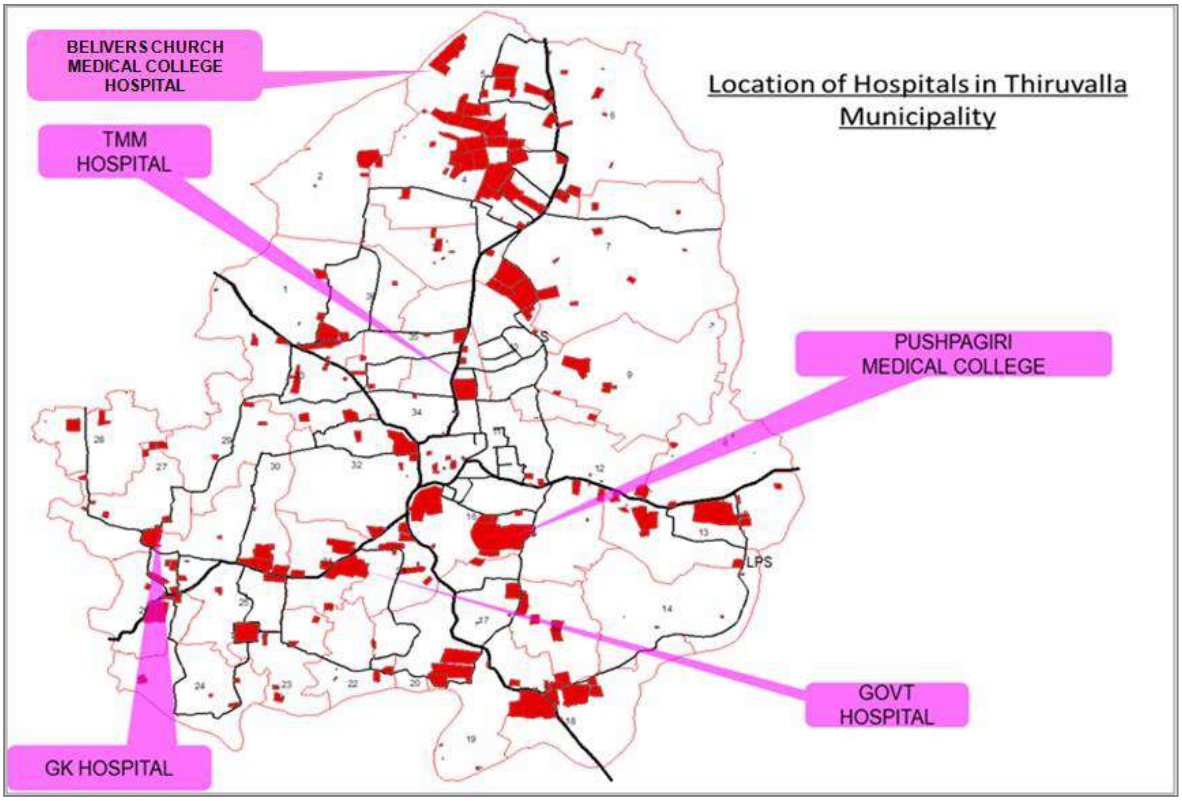
HEALTH

10.1 INTRODUCTION

In this chapter, the existing medical systems of the town are analyzed. Institutions both in the Public and Private sectors are serving the needs of the medical need of the people. Thiruvalla has a long tradition in the field of Health. The Thiruvalla Medical Mission hospital and Pushpagiri Hospitals were established during the British period itself. A study about existing hospitals and clinics in all the three streams of Health care viz. Allopathy, Ayurveda and Homoeo are carried out.

10.2 HEALTH INSTITUTIONS

Few hospitals are situated in Thiruvalla. The important ones are TMM Hospital, Pushpagiri Medical College Hospital, Believers Church medical College, G.K.Hospital and Taluk headquarters Hospital. The details of health institutions under various systems of medicine - Allopathic, Ayurvedic, Homeopathic and other categories are shown in Table 10.1, 10.2, 10.3 and 10.4 respectively. The locations of major hospitals are given in Map 10.1.



Map 10.1 Locations of major Hospitals in Thiruvalla Municipality

Table 10.1 Details of Allopathic Hospitals/ Dispensaries/ Clinics

Sl.No	Name & Address	Govt/Pvt/Co-operative/local body	Area in possession of the institution	Own/Rent	Location	Hospital/ Dispensary/Clinic	No. of Beds	Average daily No. of Out patients	No. of Doctors	No. of Nurses	No. of other technical staff
1	Taluk HQrs Hospital, Thiruvalla	Govt.	1.84	Own	Kayamkulam road	Hospital	173	900	18	44	14
2	Pushpagiri Medical College	Private	11.2	Own	Thiruvalla	Hospital	900	1255	261	627	125
3	G K Hospital	Private	1.2	Own	Kavumbhagom	Hospital	50	250	15	8	6
4	Nakkada Mission Hospital	Private	0.1	Own	Ramanchira	Hospital	36	15	150	5	6
5	Thiruvalla Medical Mission	Private	15	Own	Mallappally Road	Hospital	523	800	70	331	46
6	Believers Church Medical College	Private	2.02	Own	Kuttappuzha	Hospital	612	850	186	628	257
7	Mary Queen Allergic Skin & Cosmetology Centre	Private	0.2	Own	Kurishukavala	Clinic	0	30	2	5	0
8	ESI Hospital	Govt.	0.16	Own	Madathil Bhagom	Hospital	10	60	5	3	
9	PH Centre Kuttapuzha	Govt.	0.6	Own	Kuttappuzha	Hospital	12	35	4	2	1

Table 10.2 Details of Ayuevedic Hospitals/ Dispensaries/ Clinics

Sl. No.	Name & address	Govt./ Private/Cooperative / Local Body	Area in possession of the institution (Hect)	Own/ Rent	Location	Hospital/ Dispensary /Clinic	No. of beds	Average daily no. of out patients	No. of Doctors	No. of Nurses	No. of other Technical staff	No. of Other Staff
1	Ayurveda Dispensary, Thiruvalla	Govt.	0.04	Rent	Kizhakkan Muthoor	Hospital/ Dispensary	7	65	2	1		6
2	Sudarsanan Nethra Chikilsalayam Manjadi	Private	0.04	Rent	Manjadi, Thiruvalla	Hospital	8	15	2	2	1	4
3	Dhanwantharikendra	Private	0.02	Rent	Hospital jn.	Dispensary		20	1	1		1
4	Physiotherapy Centre	Private	0.01	Rent	Hospital jn.	Dispensary		6	1	1		
5	Aswathi Bhavan Chikilsa Nilayam	Private	0.06	Own	TVLA Town	Hospital	5	50	2	3	9	1

Table 10.3 Details of Homeopathic Hospitals/ Dispensaries/ Clinics

Sl. No.	Name & address	Govt./ Private/Cooperative / Local Body	Area in possession of the institution (Hect)	Own/ Rent	Location	Hospital/ Dispensary /Clinic	No. of beds	Average daily no. of out patients	No. of Doctors	No. of Nurses	No. of other Technical staff	No. of Other Staff
1	Homeo Dispensary	Govt.	0.03	Rent	Kuttappuzha Manjadi	Hospital		40		1		3
2	Kairali Homeo Clinic, Manjadi	Private	0.03	Rent	Manjadi, Thiruvalla	Dispensary		2	1	1		
3	Naveen Homeo Clinic	Private	0.02	Rent	Ramanchira	Dispensary		16	1	1		
4	Parathuvayalil (Ayurvedic & Homeo)	Private	0.04	Own	Thirumoolapuram Jn.	Dispensary		15	1	2		1
5	Homeo Clinic	Private	0.02	Rent	Thirumoolapuram Jn.	Dispensary		13	1	1		
6	Bio-Natural Clinic(Homeo)	Private	0.02	Rent	Kavumbhagom	Dispensary		20	1	1		1

Table 10.4 Details of Other Clinics

Sl. No.	Name & address	Govt./ Private/Cooperative / Local Body	Area in possession of the institution (Hect)	Own/ Rent	Location	Hospital/ Dispensary /Clinic	No. of beds	Average daily no. of out patients	No. of Doctors	No. of Nurses	No. of other Technical staff	No. of Other Staff
1	Dental Clinic & Orthodontic Specialty Centre	Private	0.02	Rent	SCS Jn	Dispensary		12	1	1		1
2	Bharath Opticals & Eye Clinic	Private	0.01	Rent	T.K.Road	Dispensary		7	1	1		1
3	Dental care Centre	Private	0.01	Rent	SCS Jn.	Dispensary		12	1	2		
4	Eye clinic & Family planning Clinic	Private	0.02	Rent	MC Road, TVLA	Dispensary		10	1	1		
5	C.K.Opticals & Eye Clinic	Private	0.02	Rent	SCS Jn.	Dispensary		6	1	1		
6	Trinity Dental Specialty clinic	Private	0.02	Rent	SCS Jn.	Dispensary		10	1	1		
7	Thuruthel Poly Dental Clinic	Private	0.02	Rent	Elite jn.	Dispensary		20	1	1		
8	Dental Clinic	Private	0.01	Rent	Elite jn.	Dispensary		18	1	2		
9	Dental Clinic	Private	0.01	Rent	Kurisukavala	Dispensary		15	1	1		
10	Mulamoottil Dental Clinic	Private	0.01	Rent	Court Jn.	Dispensary		10	1	1		
11	Cosmetic Dental Clinic	Private	0.01	Rent	Municipal Jn.	Dispensary		10	1	1		

The planning standards for health facilities are given in table 10.5. As per the standards, there are adequate health institutions in Thiruvalla municipality.

Table10.5 planning standards- Health Sector

1	P.H.C	One P.H.C for a population of 20000 to 25000 ppn	4 beds per 10000 population
2	Block level P.H.C	One Block P.H.C for a population of 1 lakh	44 beds per 1 lakh population (50 beds as per Health Dept)
3	Taluk Hospital	One Hospital in a Taluk	50 beds per 1 lakh population
4	District Hospital	One District level hospital for a population of 11 lakh	60 beds per 1 lakh population

From the above tables, it can be seen that hospitals/ dispensaries of all systems are functioning here. Among different systems of medicines, the Allopathic system has a major role and Pushpagiri Medical College Hospital, Thiruvalla medical mission Hospital are the hospital with the highest number of beds. Another important medical institution is Believers Church Medical College, which started functioning in 2016, has 500 beds. The breakup of the patients during 2008 is given in Table 10.6.

Table10.6 Annual Details of patients visiting major hospitals in Thiruvalla municipality

Hospital	Native of Patients visiting hospitals (annually)								
	Thiruvalla Municipality	Pathanamthitta District	Alappuzha District	Kottayam District	Kollam District	Idukki District	Other districts	Other state	Total
Taluk Hospital	34086	66452	8502	3833	152	0	30	76	**113131**
G.K. Hospital, Thiruvalla	3822	1829	409	176		3	8	5	**6257**
G.K. Hospital, Kavumbhagam	2712	3547	499	72	10	0	12	0	**6852**
Thiruvalla Medical Mission Hospital	39019	139306	22156	7774	840	228	400	270	**209993**
Pushpagiri Medical College Hospital	6464	30040	12685	6434	1232	273	1810	198	**59136**
TOTAL	**86103**	**241174**	**44251**	**18289**	**2239**	**504**	**2260**	**549**	**395369**

Source: primary survey

These hospitals functioning in the town not only cater to the needs of patients within the town but also the needs of the entire district, neighboring districts like Alappuzha and Kottayam and other parts of the state. Nearly 21% of the patients are from the municipal area and 61% of the patients are from outside the town but within the Pathanamthitta district. Patients from neighboring Alappuzha and Kottayam districts constitute about 16% of the total patients. It indicates that the municipality exhibits a higher level of regional influence in the Health sector.

10.3 VITAL STATISTICS

The birth rate and death rate of Thiruvalla Municipality is 5.07 and 6.81 as in 2010.

10.4 CONCLUSION

The major hospitals, Pushpagiri Medical College, Taluk headquarters hospital, Medical mission hospital, Believers Church Medical College catering the medical needs of the people of the town as well as the region. A sufficient number of Dental, Eye and Cosmetic clinics are also functioning within the town limit. Taluk headquarters hospital, PHC at Kuttappuzha and ESI hospital are the major institutions in the public sector. Thiruvalla Municipality has enough health institutions as per planning standards.

CHAPTER 11
WATER SUPPLY

11.1 INTRODUCTION

This chapter attempts to evaluate the existing status of the municipality with regards to the availability of water in the municipal area from different sources like wells, supply by Kerala Water Authority (KWA) and other sources. Being an area blessed with many water bodies availability of sources of water need not be a cause of worry. The details supply of schemes, water connection, projected demand, etc are also discussed in this chapter.

11.2 SOURCE OF WATER

The major source of water in the Thiruvalla Municipality is from private wells like as seen in many parts of Kerala. Besides, KWA has two water supply schemes in the municipal area, viz, Kuttanad Scheme and Kallissery Scheme. The source of these schemes is Manimala River and Pampa River respectively. Out of the total 33 MLD of water under the Kuttanad scheme, 3 MLD is for the Municipal area and out of the 33 MLD of water under the Kallissery scheme, 10 MLD is for Thiruvalla Municipal area. There is a treatment plant near the Deepa junction in the KWA compound of the Kuttanad scheme. The pump house is near Kattode, in Kaviyoor GramaPanchayat. The treatment plant of the Kallissery scheme is located at Kallissery.

11.3 SUPPLY OF WATER

As per KWA records, 13 MLD of water is being supplied to the municipal area. However, water is supplied only once or twice a week, to the elevated areas of the municipality like Chumathra, Thirumoolapuram, etc. The average consumption of water is 9.5MLD per day. Ward wise supply frequency is average 24/7hours. ISI standard Quality of water is supplied. The scarcity of water is not reported in the town.



Water Authority Compound – a satellite view

11.4 WATER CONNECTION

The numbers of water connections in 2010 in the Municipal area are,

1.Domestic connections including flat connections	-9166 nos.
2.Institutional connections	- 900 nos.
3.Industrial	- 11nos
Total	**- 10,077 Nos.**

There exist 150 Km of distribution lines. This covers 58-68% in each ward.

11.5 NEW SCHEMES

The improvement of distribution lines in municipal area and new overhead tank at Kattode under Kallissery scheme under UIDSSMT are being implemented. With the commissioning of new schemes for Kuttanad, Neerettupuram and Kaviyoor; 7 MLD of additional water is expected for Thiruvalla from Kuttanad, 4 MLD of water for Thiruvalla is expected from the new scheme for Kuttanad and another 3 MLD is expected from Neerettupuram and Kaviyoor schemes.



Pump house near Kattodu

During the year 2018-19 under the KIIFB scheme augmentation of 24MLD water treatment plant at Kallissery and renovation of 33 MLD water treatment plant at Thiruvalla catering for Thiruvalla, Changanassery municipalities and adjoining panchayaths has been commissioned.

11.6 CONCLUSION

The existing water supply through Kerala Water Authority is 13 MLD and the expected supply after implementation of new schemes is 20 MLD. It can be inferred that the complete implementation of the above-said schemes will meet the water requirement of the municipal area. The elevated areas of the town needed special attention.

CHAPTER 12
WASTE DISPOSAL

12.1 INTRODUCTION

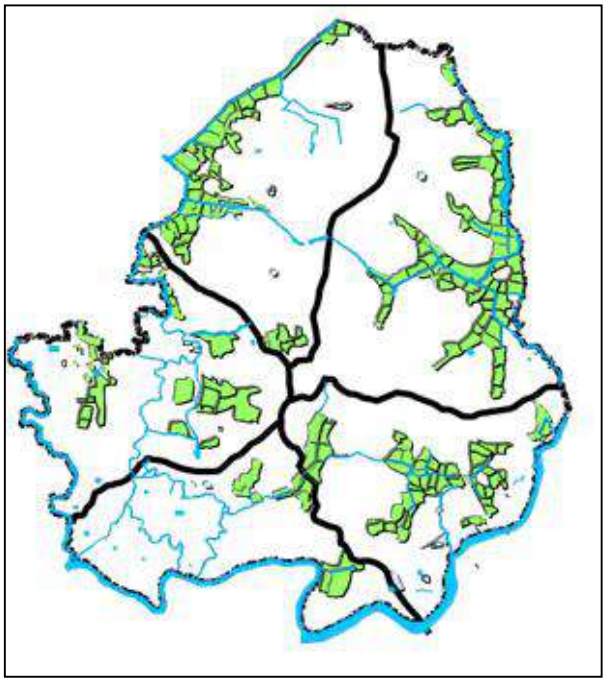
Management of solid waste is one of the major challenges faced by the urban local bodies. The scarcity of land and the increase in waste generation caused due to urbanization creates immense pressure on any area and its development. In this chapter, the present system of solid waste disposal, the necessity of new schemes, and the availability of drainage systems, sewerage systems, etc. are analyzed.

12.2 SOLID WASTE MANAGEMENT

The solid waste generated in the Municipality is about 18 Tonnes /day. The Health wing of the Municipality is in charge of the collection and disposal of wastes. Only a part of the solid waste generated in the Municipal area is being collected and disposed of by the Municipality. No agency other than the Municipality is engaged in the collection of solid waste.

12.2.1 Present System of Solid Waste Disposal

Presently, there is no organized scientific system for solid waste disposal. The wastes are collected and dumped in municipal land near the Stadium. The transportation facilities are one tipper lorry, one tractor, one tiller, one goods auto etc. The total number of sanitary workers in the municipal town are 40 nos. excluding drivers.



Map 12.1: Existing Canals and Thodu

12.2.2 New schemes

The municipality is now providing 320 biogas plants, 4200 pipe compost, and 27 plastic collection centers to address the waste management issues of the municipal area.

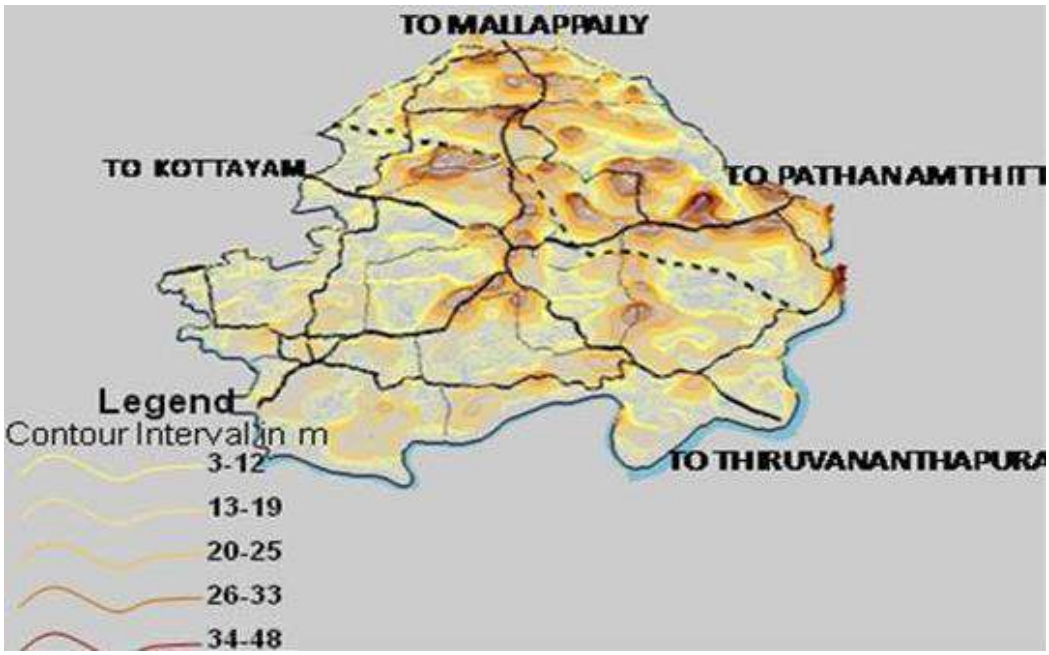
12.3 DRAINAGE.

The disposal of surface runoff is carried out through the drains available along the major roads. The waste water and rain water are drained in the existing drains / thodu and are finally discharged into the river. The major drainage canals are shown in Map 12.1. These drains are ultimately leading to natural drains for the disposal of water.

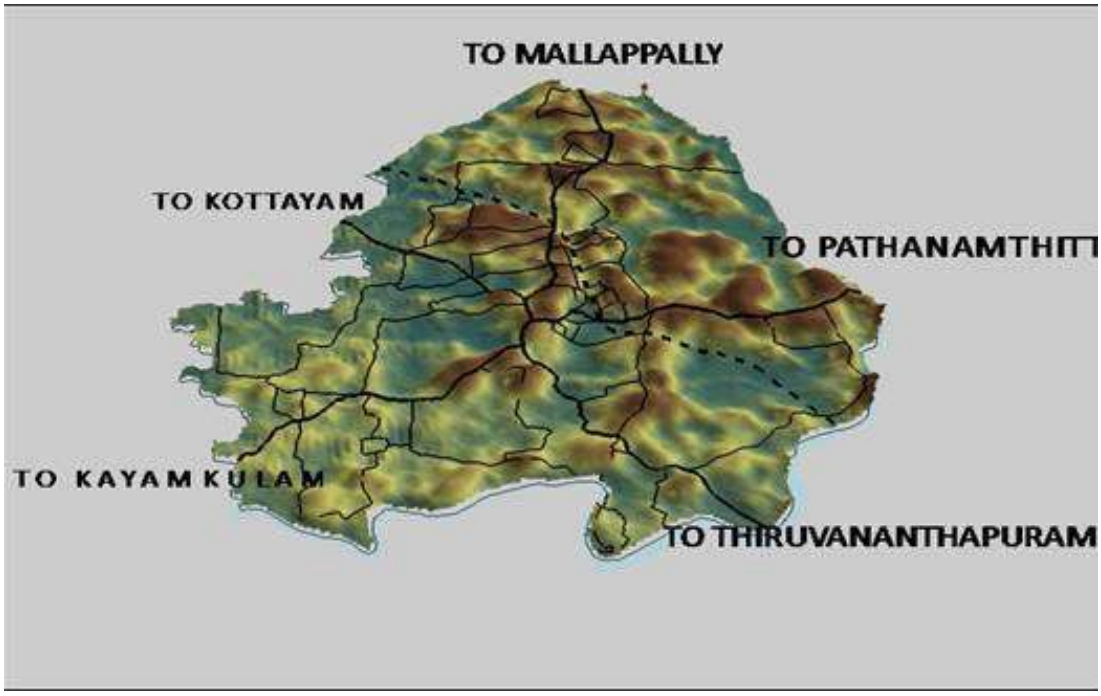
These drainage channels lie blocked at several locations and as the resulting in severe water pollution and environmental degradation. These drains further discharge to rivers polluting them.



Major parts of the municipality are plain land with a few hilly areas and the remaining are paddy fields. About 12 drains pass across the town and there are 4 major ponds. The ground level varies from 3 m to 48 m above mean sea level. The contour map at 10m interval is given in Map 12.2.



Map 12.2 Contour Map of the Municipality



Map 12.3 Digital Elevation Model of the municipality

From the map, it can be seen that the central and north-eastern parts of the municipality are elevated areas with paddy fields/ wetlands in the valleys. Map 12.3 which is a 3D view of the area with important roads and junctions gives a clearer picture of the physiography of the municipal area. It may be noted that almost all the roads pass through elevated areas to avoid flooding during the rainy season.

12.4 CONCLUSION

Waste management is an obligatory function of the Municipalities. Solid waste includes domestic and commercial waste, industrial waste, hospital waste, e-waste, and construction debris that need to be addressed systematically. The disposal of hospital waste and industrial waste is the responsibility of the generator. Presently there is no scientific method of waste disposal available within Thiruvalla municipality. The current waste management system in the Municipality needs to be improved by doing an environmental assessment at an existing landfill site and suitable measures have to be taken for their improvements.

CHAPTER 13
POWER

13.1 INTRODUCTION

Adequacy of Electric Power is essential for the development of an area. The distribution of electric power in Thiruvalla town is under the control of KSEB.

13.2 POWER DISTRIBUTION

Electric power to Thiruvalla town is distributed through 66 KV Sub-Station located at Manjadi and 66KV sub-station located at Kuttappuzha. There are 240Nos of Transformer-feeders are in the tow. There is no voltage problem in the town.

13.3 POWER CONNECTION AND CONSUMPTION

There are mainly four categories of electric connections, viz., Domestic, Industrial, Commercial and Agriculture. The distribution of power in the Municipality is controlled by KSEB Sections of Thiruvalla, Kavumbhagam, and Thottabhagam. The details of connections and consumption of power under these Sections are given in Table 13.1. These details furnished in the table include the connections of Grama Panchayats which are coming under the above sections. The details are also furnished in Annex 13.1.

Table 13.1: Details of connections and consumption of power in municipal area, 2008

Sl. No	Name of Section	Details	Category wise breakup					Total
			Domestic	Industrial	Commercial	Agriculture	Others	
1	**Thiruvalla**	Connection (nos.)	9604	153	2071	14	763	12605
		Daily Consumption (kWh)	136726	61500	669138	267	149166	1016797
2	**Kavum bhagom**	Connection (nos.)	12915	138	1753	175	3	14984
		Daily Consumption (kWh)	2229543	60408	295064	4864	64377	2654256
3	**Thotta bhagom**	Connection (nos.)	2200	40	200	12	559	3011
		Daily Consumption (kWh)	376881	14354	38071	1074	3009	433389

13.4 CONCLUSION

KSEB is the sole agency controlling the power scenario of the Municipality and is supplying power with acceptable standards to the consumers mainly through Thiruvalla and Kavubhagam electrical sections. Low voltage is not a problem in the town. Petroleum gas and firewood is a major domestic fuel in the town.

CHAPTER 14
HOUSING

14.1INTRODUCTION

Housing is one of the basic needs of human beings and it is important next to food and clothing. Normally the quality of housing reflects the quality of life. Good climate and availability of facilities like education and health institutions and the status as a major commercial Centre of the district cause migration to the town which in turn means there is always demand for new houses. The Kerala State Housing Board has implemented three housing schemes in the municipal area. Besides, there are several private developers.

14.2HOUSE HOLD SIZE

The number of households and number of houses is more or less equalizing. Measures are to be taken to provide houses to houseless people. A number of houses and households are shown in Table 14.1 and their comparison with district and state are shown in Table 14.2.

Table 14.1: Variation in number of houses and households

Sl:No	Year	Population	Number of houses	Number of households	No. of houses per 1000 HH
1	1991	54780	11272	11283	999
2	2001	56837	12680	12900	983

Table 14.2: Comparison of number of houses and households with district and state

Sl: No	Year	Number of houses			Number of households		
		Thiruvalla municipality	Pathanamthitta Dist.	Kerala state	Thiruvalla municipality	Pathanamthitta Dist.	Kerala state
1	1991	54780	258873	5459474	11283	259629	5513200
2	2001	56837	308068		12900	297134	
3	2011				13952	322684	7853754

14.3 CATEGORY OF HOUSES

The housing condition of higher-income groups is very good, whereas that of the economically weaker section is bad and most of which are located in waterlogged areas and with low structural quality. As per the socio-economic survey conducted in 2003, 70 percentages of the houses in Thiruvalla municipality are pucca buildings. The remaining 22 percentage constitute moderate buildings and the remaining 8 percentages are Kutcha buildings. It is represented in Figure 14.1.

The number of building under different range of floor area is shown in Figure 14.2. Most of the resident have floor area in the range of 50 and 100 sq:m. The residential plot area details are shown in Figure 14.3 and percentage of plots in different plot size is shown in Annex 14.1.

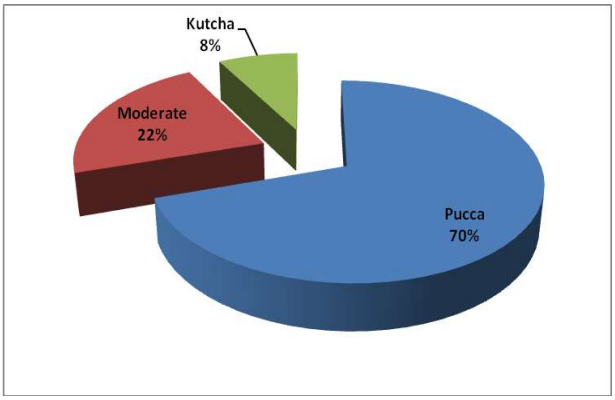


Figure 14.1: Category of Houses

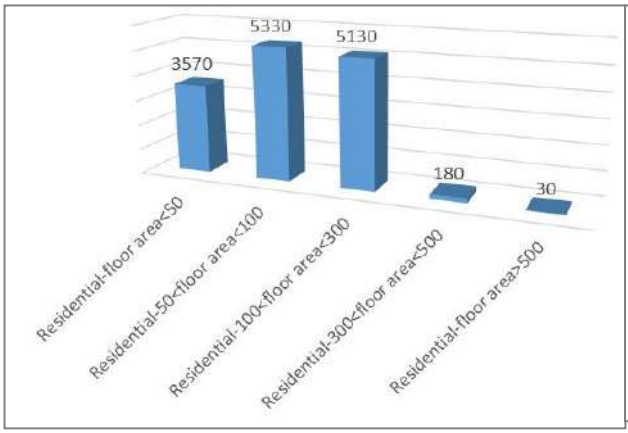


Figure 14.2: Average Floor Area

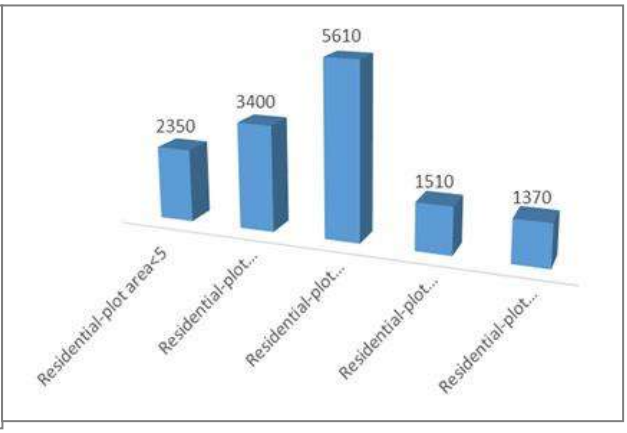


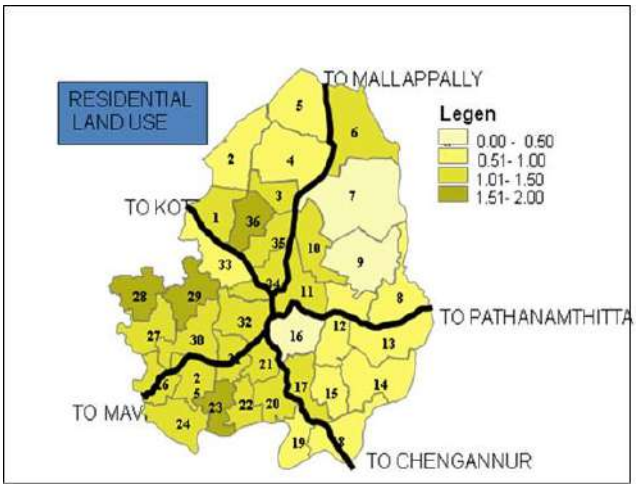
Figure 14.3: Average Plot area

14.4 SPACIAL DISTRIBUTION OF HOUSES

The concentration pattern of a particular land use gives an idea about where that particular land use is concentrated within the town. The concentration pattern of land use can be ascertained by the concentration index (CI) of that land use. The concentration index (CI) of a particular land use = ((Area of that land use in a ward) / (Total area of the ward)) / ((Area of that land use in the town) / (Total area of the town)). The concentration index values may be greater than one, equal to one, or less than one. The CI greater than one for a particular land use indicates that the land use under consideration is concentrated more in that ward than other wards of the town.

The residential land use is mainly concentrated in Wards Mathilbhagom (23), Azhiyidathuchira (28), Mannamkarachira (29) and Kottalil (36) with a value greater than 1.5, followed by the wards Muthoor north (1), Annavattom (6), Amallur west(10), Railway station (11), Sreeramakrishnasram (20), Kulakkad (21), Thugalasseri, (22), Kizhakkummuri(24), Sreevallabha (25), Kavumbhagom (26), Utramel (27), Anchalkutty (30), Town (32), Ramanchira(34) and JP Nagar (35) with a value in between 1 and 1.5.

The total area of the municipality is 27.94 sq. km and was divided into 36 wards at the time of the land use survey (2006). Later, in 2010, it was divided into 39 wards. The land use map of the municipal area was prepared in 2010. The breakup of land use is given in Table 14.3, and Figure.14.4. The land use shows that the major portion is utilized for the residential purpose (45.45%). The residential area is mainly concentrated in northwest part of the municipality. The land under residential use is 22hectare/ 1000 population, which is the highest. The total average size of availability of land per 1000 persons as per the 2001 census is 49 hectares. Residential land use is concentrated in the southwest part of the Municipality.



Map 14.1: Concentration of Residential Land use

Table 14.3 Land use breakup of Thiruvalla Municipality, 2010

Sl. No:	Land use	Area in Sq. Km	Percentage
1	Residential	12.70	45.45
2	Public & Semi public	4.58	16.39
3	Paddy/Wetland	3.66	13.10
4	Dry Agriculture	3.20	11.45
5	Transportation	1.62	5.80
6	Water bodies	1.10	3.94
7	Open space	0.66	2.36
8	Commercial	0.27	0.97
9	Industrial	0.15	0.54
	TOTAL	**27.94**	**100.00**

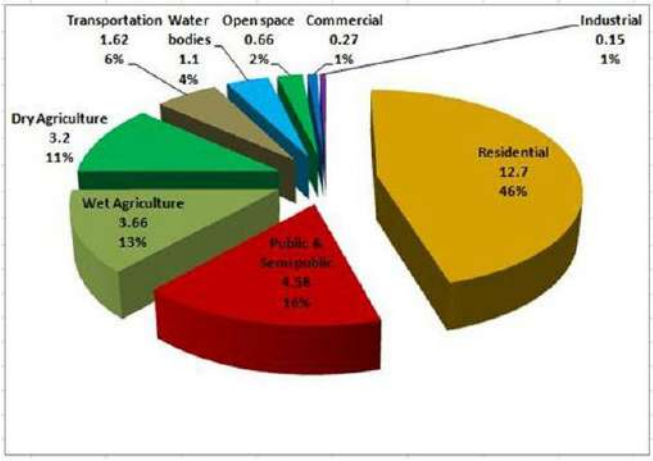
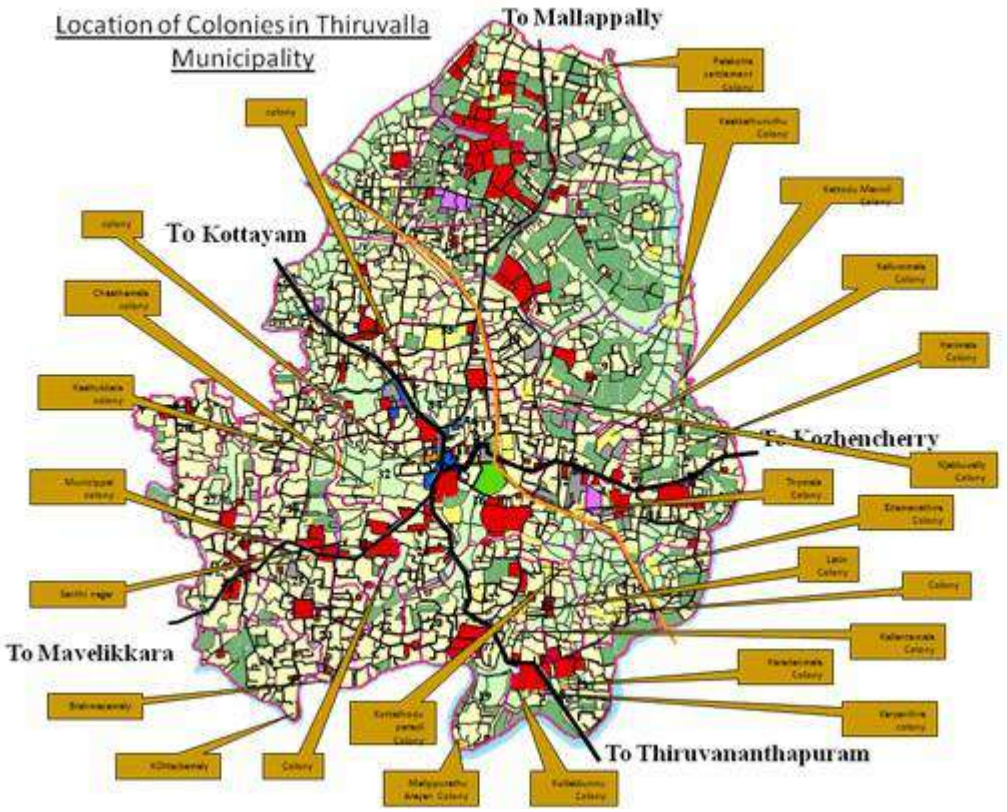


Figure 14.4 Land use breakup of Thiruvalla Municipality, 2010

14.5 SC COLONIES

The SC colonies in Thiruvalla Municipal area is given is Table 14.4 below, the locations of which are shown in Map 14.2.



Map 14.2: Location of SC Colonies in Thiruvalla Municipality

Table 14.4: List of Scheduled Caste Colonies In Thiruvalla Municipality, 2010

Sl. No.	Name of colonies	Ward no.	No. of houses
1	Chirakkadavu	1	13
2	Idathitta	1	7
3	Ayithum parampu	1	5
4	Laksham veedu	2	7
5	Attuchira chumathra	2	13
6	Kanjirathum moodu	3	14
7	Kulathumkara	34	8
8	Kattodu Kalapurackal	8	8
9	Kompadi	8	14
10	Karimala	8	14
11	Kakkathuruthu, Manjadi	9	8
12	Mamparampil	13	6
13	Kongappallil	14	5
14	Adumpada	14	16
15	Thuruthum malappara	14	6
16	Idamanathara	14	13

17	Kottathoduharijon colony	15	7
18	Pariyarathumala	17	13
19	Anjilimoodu	17	9
20	Varyanthara	18	6
21	Mangalassery	18	13
22	Karadanmala	18	6
23	Chanthaparampil	18	6
24	Pulickatharakuzhy	18	9
25	Chenathara	20	6
26	Chirappurayidom	21	6
27	Charivupurayidom	21	7
28	Charivupurayidom	22	8
29	Kottackattumali	24	12
30	Kanjiram mali	25	6
31	Puthenchira	30	8
32	Thittappalli	32	10
33	Mattathayil	32	8
34	Planthara	32	7
35	Attuchira Muthoor	36	10
36	Attuchira Muthoor	1	6
37	Kottavayal colony	3	7
38	Chirappurathu colony	3	6
39	Perumpallikkattu malayil	15	6

14.6 HOUSING SCHEMES

The details of housing schemes of Kerala State Housing Board is shown in Table 14.5

Table 14.5 Scheme Details

Sl.No	Name of Scheme	Area of Scheme in Acre	No. of house plots
1	JP Nagar, Kuttappuzha, stage - 1	4	37
2	JP Nagar, Kuttappuzha, stage - 2	10	125
3	Mamman Mathai Nagar, Manjadi		79

A new project under EMS Housing Scheme in 3 acres of land near Iruvellipra is being implemented.

14.7 CONCLUSION

It is observed that it is the private Developers rather than Public sector has major role in meeting the additional housing requirement of the people. The public sector activities be limited to solely for the economically weaker sections. The condition of colonies of the town is to be improved.

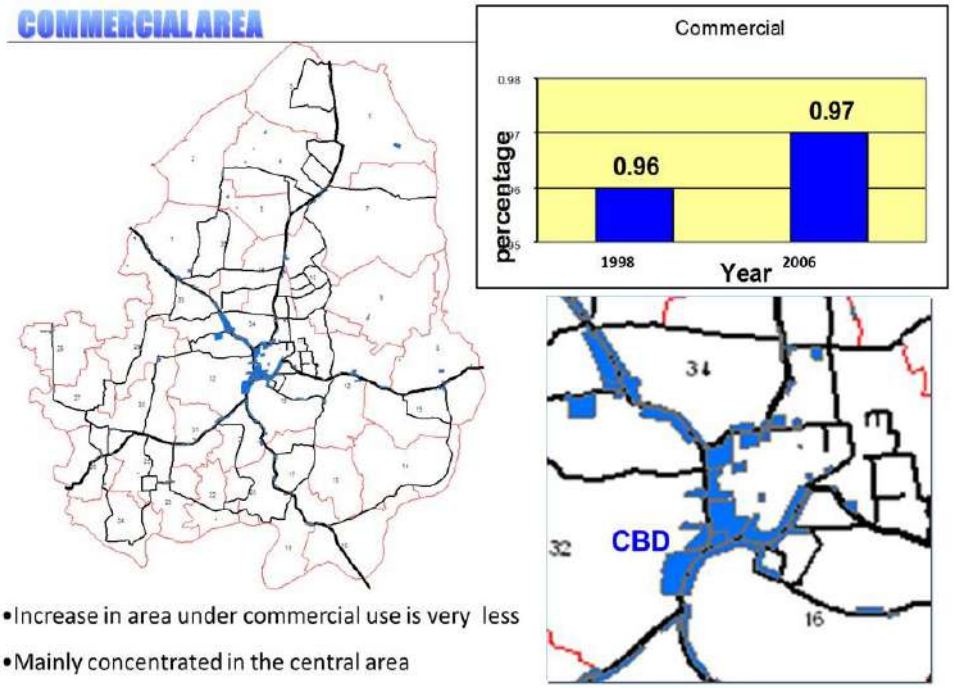
CHAPTER 15
TRADE AND COMMERCE

15.1 INTRODUCTION

The Commercial scenario of the Municipality is being analyzed in this chapter. Thiruvalla, a very old town has long been serving as the Commercial capital of the district. With the establishment as the District capital, Pathanamthitta town has of late started developing on the commercial side too. However Thiruvalla is the only first-order settlement of the district as per hierarchy analysis of various settlements of the district and this area shows the purely urban character in terms of urban profile, land use concentration, and functional character as per the regional study. Thiruvalla is the only settlement in the district which shows such character. Four major roads identified as per the transportation network in the regional study pass through this town. Moreover, this is the only settlement in the district where the railway station is available. It still keeps its position as an important commercial center of the district. Also, the town has a large influence area, spread over 10 surrounding Grama Panchayats.

15.2 COMMERCIAL LAND USE

The commercial land use of Thiruvalla municipal town is mostly concentrated in and around the junctions where the MC Road meets TK Road (SCS Jn.), Mavelikkara Road (Kurissukavala) and Mallappally Road (Deepa Jn.) as shown in Map 15.1. As per the existing land use plan, 2006, there is only 0.97% of the town area under this use. It was 0.96% for the year 1998. This shows that there is only very little increase in a period of 8 years.



Map 15.1: Commercial Land use of Thiruvalla Municipal Town

The total area and the percentage of commercial land use area of neighbouring towns such as Adoor, Pathanamthitta, Chengannur and Changanassery compared with that of Thiruvalla are given in Table 15.1. It is seen that Changanassery has the largest commercial area and % of the commercial land use (0.37 sq. km. and 2.75%). The next higher position is that of Adoor with an area of 0.31 sq. km and 1.49%. Thiruvalla occupies the third position. As per UDPFI guidelines, a medium town shall have a land use area of nearly 3% of the total area. The commercial land use of this town is far less than the standard.

Table 15.1: Comparison of commercial area with surrounding municipalities

Town	Pathanamthitta	Thiruvalla	Adoor	Chengannur	Changanassery
Area (in Sq.km)	0.22	0.27	0.31	0.04	0.37
% to total town area	0.94	0.97	1.49	0.29	2.75

15.3 IMPORTANT FINANCIAL ESTABLISHMENTS

There are about 160 public offices and commercial institutions in Thiruvalla municipality and the details are shown in Annex 15.1. The details of Banks and Financial Establishments functioning in the town are given in Table 15.2. The details of deposits in 44 banks were collected and are given in table 15.3. It can be seen that Rs.1923.79 crores rupees is available as deposit in 2008, out of which only Rs. 590 cores have been given as advance with a credit deposit ratio of less than 50%. The remaining 69% is kept unutilized.

Table 15.2: Banks and Financial Establishments in Thiruvalla municipality

Sl. No.	Name	Area in Possession of the institution (m^2)	Location/ Ward No	Central/ State/ k/ Others.	Rented or own building	Date of establishment	No of employees	
							Gazetted	Non-gazetted
1	2	3	4	5	6	7	8	9
1	KSFE Thiruvalla		24	State	Rented	1977		25
2	HDFC Bank	92.90	Ramanchira	Bank	Rented	2002		7
3	Punjab National Bank	78.96	Ramanchira	Bank	Rented	2003		6
4	City Union Bank	92.84	Ramanchira	Bank	Rented	1996		7
5	Muthoot Bank	60.38	Ramanchira	Bank	Rented	1996		6
6	Gokulam Chitty and Finance	139.35	Ramanchira	Others	Rented	2003		10
7	ING Vysa bank	111.48	Ramanchira	Bank	Rented	1994		7

8	IDBI Bank	130.06	Ramanchira	Bank	Rented	1999		5
9	ICICI Bank	204.38	Ramanchira	Bank	Rented	1996		6
10	Travancore Bank	55.74	Ramanchira	Bank	Own	1998		4
11	South Malabar Grameena Bank	111.48	Ramanchira	Bank	Rented	2004		5
12	Sree Raga General Finance	46.45	Ramanchira	Others	Rented	2003		5
13	Muthoot Bank	60.38	Muthoor	Bank	Rented	1994		4
14	State Bank of Hyderabad	92.90	Muthoor	Bank	Rented	2000		5
15	Muthoor Co-Operative Bank No. 3118	92.90	Muthoor	Bank	Own	1970		5
16	SBT Kuttappuzha	139.35	Kizhakken Muthoor	Bank	Rented	1976		10
17	Kuttappuzha Service Co-Operative Bank	232.25	Kizhakken Muthoor	Bank	Own	1927		4
18	Thiruvalla Urban Co Operative bank	37.16	Manjadi	Bank	Rented	1980		3
19	Union Bank of India	222.96	Town	Bank	Rented	1976		15
20	SBT	83.61	Thirumoolapuram	Bank	Rented	1977		7
21	IOB	92.90	Thukalasseri	Bank	Rented	1980		7
22	Primary Co Operative Agricultural Development bank	278.70	Town	Bank	Own	1963		10
23	Kerala Housing Finance LTD	139.35	Town	Others	Rented	1998		6
24	Govt.Employees Co Operative bank	46.45	Town	Bank	Own	1964		5
25	Andhra Bank	111.48	Town	Bank	Rented	2001		4
26	Bank of India	120.77	Kacheri Jn.	Bank	Rented	1995		7
27	Thiruvalla Urban Sahakarana bank	120.77	Kacheri Jn.	Bank	Own	1923		6
28	State bank of India	167.22	Near Market	Bank	Rented	1985		10
29	Maharashtra Bank	157.93	Near Market	Bank	Rented	2001		4
30	SBT MGM Branch	232.35	Near Market	Bank	Rented	1978		10
31	Federal bank	185.8	Kavum Bhagam	Bank	Rented	1977		10
32	Federal bank	139.35	Azhiyidathu Chira	Bank	Rented	1977		5
33	Federal bank	235.25	Town	Bank	Rented	1967		20
34	Thiruvalla Service Co Operative Bank	185.80	Kavum Bhagam	Bank	Own	1965		8
35	Thiruvalla Service Co Operative Bank	139.35	Azhiyidathu Chira	Bank	Rented	1998		5

36	Thiruvalla Service Co Operative Bank	111.48	Thukalasseri	Bank	Rented	2000		5
37	Karnataka Bank	185.80	Town	Bank	Rented	1998		7
38	South Indian Bank	185.8	Town	Bank	Rented	1985		9
39	SBT Kattode	204.38	Kattode	Bank	Rented	1980		9
40	Dhanalekshmi Bank	185.8	Town	Bank	Rented	1982		6
41	State bank of India	1114	Town	Bank	Rented	1974		51
42	SBT Town	650	Town	Bank	Rented	1961		31
43	Syndicate Bank	418	Town	Bank	Rented	1978		15
44	Pathanamthitta District Co Operative bank	111.48	Town	Bank	Rented	1984		9
45	Lord Krishna Bank	232.25	Town	Bank	Rented	2001		7
46	Punjab National Bank	185.8	Town	Bank	Rented	1996		8
47	IOB	315	Town	Bank	Rented	1961		21
48	UTI Bank	134.7	Town	Bank	Rented	2004		4
49	Catholic Syrian Bank	185.8	Town	Bank	Rented	1970		12
50	Catholic Syrian Bank	139.35	Town	Bank	Rented	1999		3
51	Central Bank of India	232.25	Town	Bank	Rented	1994		10
52	IOB	185.8	Kuttappuzha	Bank	Rented	1970		8
53	Vijaya Bank	229.6	Kurisukavala	Bank	Rented	1985		10
54	Corporation bank	139.35	Kurisukavala	Bank	Rented	1995		8
55	Baroda bank	235.25	Kurisukavala	Bank	Rented	1978		13
56	Fedaral bank	325.16	Kurisukavala	Bank	Rented	1967		22
57	SBT (NRI)	260.12	Kurisukavala	Bank	Rented	1993		8
58	Muthoot Bank	46.45	Kurisukavala	Bank	Rented	1996		5
59	Muthoot Mini Bank	46.25	Kurisukavala	Bank	Rented	2000		5
60	Kosamattam Bank	37.16	Kurisukavala	Bank	Rented	2002		3
61	Oriental Bank	278	Kurisukavala	Bank	Rented	1994		10
62	UCO Bank	111.48	Kurisukavala	Bank	Rented	1996		10
63	Muthoot Bank	46.45	Kurisukavala	Bank	Rented	2004		4
64	Canara Bank	192.77	Kurisukavala	Bank	Rented	1992		11
65	Indian Bank	232.25	Kurisukavala	Bank	Rented	1993		11
28	State bank of India	167.22	Near Market	Bank	Rented	1985		10
29	Maharashtra Bank	157.93	Near Market	Bank	Rented	2001		4

30	SBT MGM Branch	232.35	Near Market	Bank	Rented	1978		10
31	Federal bank	185.8	Kavum Bhagam	Bank	Rented	1977		10
32	Federal bank	139.35	Azhiyidathu Chira	Bank	Rented	1977		5
33	Federal bank	235.25	Town	Bank	Rented	1967		20
34	Thiruvalla Service Co Operative Bank	185.8	Kavum Bhagam	Bank	Own	1965		8
35	Thiruvalla Service Co Operative Bank	139.35	Azhiyidathu Chira	Bank	Rented	1998		5
36	Thiruvalla Service Co Operative Bank	111.48	Thukalasseri	Bank	Rented	2000		5
37	Karnataka Bank	185.8	Town	Bank	Rented	1998		7
38	South Indian Bank	185.8	Town	Bank	Rented	1985		9
39	SBT Kattode	204.38	Kattode	Bank	Rented	1980		9
40	Dhanalekshmi Bank	185.8	Town	Bank	Rented	1982		6
41	State bank of India	1114	Town	Bank	Rented	1974		51
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45	Lord Krishna Bank	232.25	Town	Bank	Rented	2001		7
46	Panchab National Bank	185.8	Town	Bank	Rented	1996		8
47	IOB	315	Town	Bank	Rented	1961		21
48	UTI Bank	134.7	Town	Bank	Rented	2004		4
49	Catholic Syrian Bank	185.8	Town	Bank	Rented	1970		12
50	Catholic Syrian Bank	139.35	Town	Bank	Rented	1999		3
51	Central Bank of India	232.25	Town	Bank	Rented	1994		10
52	IOB	185.8	Kuttappuzha	Bank	Rented	1970		8
53	Vijaya Bank	229.6	Kurisukavala	Bank	Rented	1985		10
54	Corporation bank	139.35	Kurisukavala	Bank	Rented	1995		8
55	Baroda bank	235.25	Kurisukavala	Bank	Rented	1978		13
56	Fedaral bank	325.16	Kurisukavala	Bank	Rented	1967		22
57	SBT (NRI)	260.12	Kurisukavala	Bank	Rented	1993		8
58	Muthoot Bank	46.45	Kurisukavala	Bank	Rented	1996		5
59	Muthoot Mini Bank	46.25	Kurisukavala	Bank	Rented	2000		5

60	Kosamattam Bank	37.16	Kurisukavala	Bank	Rented	2002		3
61	Oriental Bank	278	Kurisukavala	Bank	Rented	1994		10
62	UCO Bank	111.48	Kurisukavala	Bank	Rented	1996		10
63	Muthoot Bank	46.45	Kurisukavala	Bank	Rented	2004		4
64	Canara Bank	192.77	Kurisukavala	Bank	Rented	1992		11
65	Indian Bank	232.25	Kurisukavala	Bank	Rented	1993		11
54	Corporation bank	139.35	Kurisukavala	Bank	Rented	1995		8
55	Baroda bank	235.25	Kurisukavala	Bank	Rented	1978		13
56	Fedaral bank	325.16	Kurisukavala	Bank	Rented	1967		22
57	SBT (NRI)	260.12	Kurisukavala	Bank	Rented	1993		8
58	Muthoot Bank	46.45	Kurisukavala	Bank	Rented	1996		5
59	Muthoot Mini Bank	46.25	Kurisukavala	Bank	Rented	2000		5
60	Kosamattam Bank	37.16	Kurisukavala	Bank	Rented	2002		3
61	Oriental Bank	278	Kurisukavala	Bank	Rented	1994		10
62	UCO Bank	111.48	Kurisukavala	Bank	Rented	1996		10
63	Muthoot Bank	46.45	Kurisukavala	Bank	Rented	2004		4
64	Canara Bank	192.77	Kurisukavala	Bank	Rented	1992		11
65	Indian Bank	232.25	Kurisukavala	Bank	Rented	1993		11

Source: Thiruvalla Municipality, PWD (Building), Lead Bank & Primary Survey

Table 15.3: Details of Deposits in 44 banks

Year	No: of a/c holders	Deposit (crores)	No: of NRI a/c holders	NRIdeposit (crores)	Advance amount (crores)	C/d ratio
1998	100646	539.56	39071	313.44	68.58	0.13
2000	124711	705.98	45640	409.58	88.41	0.12
2002	153350	968.62	53526	550.73	143.55	0.15
2004	177448	1277.3	62608	1007.78	276.5	0.22
2006	232806	1511.79	70746	1143.1	477.7	0.32
2008	258974	1923.79	80495	1226.32	590.14	0.31

15.4 Hotel Industry

The details of major hotels functioning in the town are shown in the Table 15.4. It includes one hotel with two star facilities. The details of lodging facilities are also included in the Table 15.5 with Non-Star accommodation facilities.

Table 15.4: Major Hotels functioning in the town

Table 15.4 Major Hotels functioning in the town

Sl. No	Name	Govt./Private/Local body	No. of rooms	No. of persons for whom accommodations available	Distance from (km)		No. of employees
					Railway station	Municipal bus stand	
1	Hotel Heritage	Private	3	2	1.5	1	5
2	Hotel Sky	Private	32	50	1	0.5	42
3	Hotel Panchami	Private	6	10	0.2	1	29
4	Hotel Thilak	Private	16	10	1	0.2	27
5	Hotel Bezzotta	Private	16	20	0.5	0.5	52
6	Hotel Aryas Park	Private	12	15	0.5	0.5	32
7	Elite	Private	22	20	0.6	0.1	83
8	Sareethan Home stay	Private	2	4	2	2	2
9	Puliyel Home stay	Private	2	4	2	2	2

Table 15.5 Major Lodges functioning in the town

Sl. No	Name	Govt./Private/Local body	No. of rooms	No. of persons for whom accommodations available	Distance from (km)		No. of employees
					Railway station	Municipal bus stand	
1	Mankulanagara Home Stay	Private	5	8	1	0.5	6
2	Atlas Residency	Private	24	42	1	1	3
3	Fantazia Lodge	Private	16	25	1	0.5	4
4	Menaka Tourist Home	Private	19	30	1	1	9
5	Gulf Horaison Lodge	Private	16	30	2	3	2
6	Airco Tourist Home	Private	13	18	2	3	4
7	Johns Home Stay	Private	4	6	2	3	2
8	Meleparambil lodge	Private	16	10	2	3	2
9	International Tourist Home	Private	26	30	1	1	4
10	Cheriyan's Lodge	Private	10	18	1	1	2
11	Nice Lodge	Private	11	20	2	1.5	3
12	Prabhu Tourist Home	Private	16	12	2	1.5	2
13	Al-Sara Home Stay	Private	3	6	1.5	1.5	2

15.5 MARKETS

There are five markets owned and maintained by the municipality is functioning in the town. Of these, the Ramapuram market near the Municipal office is the important one. The

other markets are functioning near the Private bus stand, Manjadi and Thirumoolapuram. Different commodities are transacted through these markets. All these markets are very old and the space is not adequate. The details of these markets are given in Table 15.6 and Annex15.1. Vegetables are coming mainly from Tamil Nadu. Besides, there are major shopping complexes at Manjadi, Kizhakkan Muthoor, Kuttappuzha, Ramanchira, Chanthakkadavu, Kavumbhagom, Thirumoolapuram and near private bus stand. There is a wholesale market of fish near Mazhuvangad.

Table 15.6: Details of Markets in Thiruvalla Municipality

Sl. No.	Name of Market	Location	Area of the market place (Hect.)	Area of influence (KM Radius)	Periodicies of transaction	Commodities transacted	Places from where commodities are brought to the market	Places to which goods are sent	Whether public convenience provided by the Municipality	Annual income from the market for the Municipality	Turnover of goods per year (tonne)
1	2	3	4	5	6	7	8	9	10	11	12
1	Ramapuram	Ward 18	0.36	3	Tues day, Friday	Vegetables, Fish	Tamil Nadu, Paipadu, Peringara, Alleppy	Municipal Town Area	8 Nos. Room and sheds	156100	6000
2	Evening Market	(SCS Jn.)		Local	Daily evening	Vegetables, Fish	Tamil Nadu, Paipadu, Peringara, Alleppy	Municipal Town Area		9600	2500
3	Fish Market (Whole Scale)	Mazhuvangad	0.404	5	Daily	Fish	Alleppy, Kollam	Thiruvalla, Mallappally	Shed	115000	
4	Thirumoolapuram Cattle market	Thirumoolapuram	0.607	6	Fortnightly	Cattle	TamilNadu & Local	Local Area	Shed	39800	
5	Thirumoolapuram Daily market	Thirumoolapuram	0.607	Local	Daily	Vegetable, Fish	Changanassery & Local,Alleppy, Kollam	Local Area	Shed	24000	
6	Manjadi market	Ward 7	0.101	2	Daily	Vegetable, Fish	Changanassery & Local,Alleppy, Kollam	Local Area	Shed	15000	1200
7	Private bus stand	Stalls		1	Daily	Meat	TamilNadu & Local	Local Area	Shed	23000	
8	Thirumoolam			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	24000	
9	Kavumbhagom			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	22500	
10	Manjadi			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	65000	
11	Chanthakkadavu			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	61500	
1	Ramanchira			1	Daily	Meat	TamilNadu &	Local	Shed	21500	

2							Local	Area			
13	Kizkakken Muthoor			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	26000	
14	Kuttappuzha			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	40500	

Source: Thiruvalla Municipality

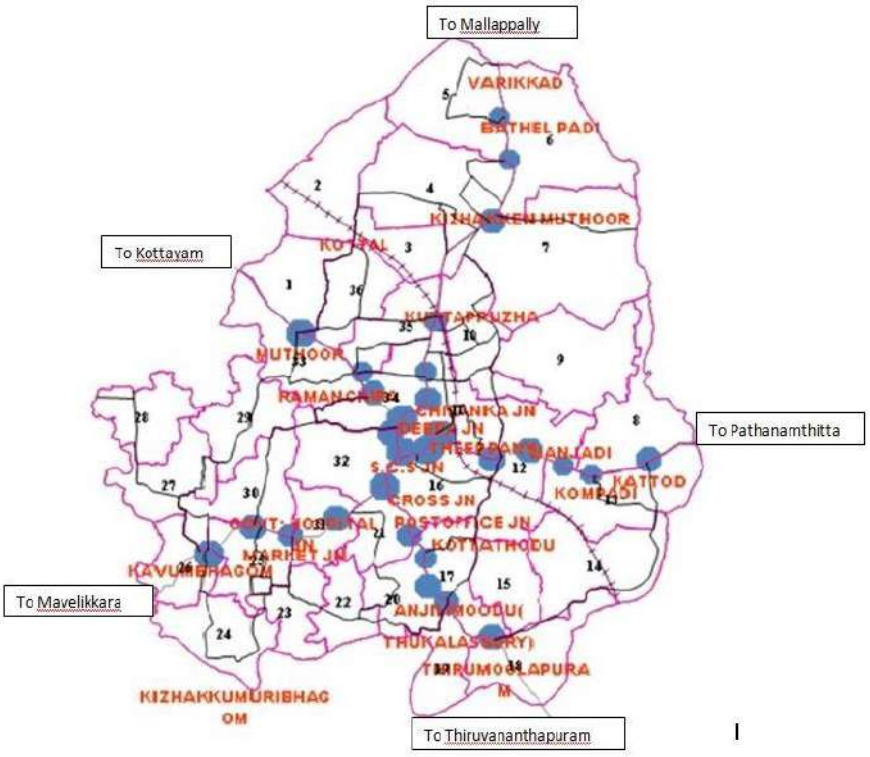
15.6 HIERARCHY OF NODES

The nodes are identified by considering the commercial facilities available at the node and giving weightage according to the importance of roads meeting at the nodes. The hierarchy of nodes is decided based on the weightage obtained. The weightage, hierarchical order of the nodes is given in Table 15.7 and their locations are shown in Map 15.2. It can be seen that the nodes along the MC Road are top of the list. The other leading nodes are along Mallappally road, TK Road and Mavelikkara road. The most important node is SCS Jn. The next nodes in the hierarchical order are Cross Jn., Muthoor Jn., Kavumbhagom Jn., Deepa Jn., B1 B1 Road Jn, Kizhakkan Muthoor Jn., Theepani Jn., Ramanchira Jn., etc.

Table15.7: Hierarchy of nodes in Thiruvalla municipality

Sl. No	Name of Junction	Weightage	Order of the node
1	S.C.S. Jn.	9	lst order
2	Cross Jn.	9	
3	Muthoor	8.25	
4	Kavumbhagom	8.25	
5	Deepa Jn.	8	
6	B1B1 road Jn. (East)	8	
7	B1B1 road Jn. (West)	8	
8	Kizhakkenmuthoor jn.	7.25	2nd order
9	Theeppany	7	
10	Ramanchira Jn.	7	
11	Pushpagiri road starting Jn.	7	
12	Paliakkara Jn.	7	
13	Market Jn.	7	
14	Manjadi	7	
15	Kattodu	7	
16	Govt. Hospital Jn.	7	
17	Chilanka Jn.	7	

18	Thukalassery (Angilimoodu)	6.75	
19	Thirumoolapuram Jn.	6.75	
20	Post Office Jn.	6.75	
21	K.S.R.T.C Jn	6.75	
22	T.M.M road starting jn in M.C. Road	6	3rd order
23	Reginamundi Jn.	6	
24	Mazhuvangad Jn	6	
25	Mammenmathai Nagar Jn.	6	
26	Kompadi	6	
27	Cheekkolathilpadi	6	
28	Kuttappuzha	5.75	
29	T.M.M .Hospital Jn.	5	4th order
30	Bathelpadi	5	
31	Padappad Temple Jn.	4.25	



Map 15.2: Hierarchy of nodes in Thiruvalla

15.7 INFORMAL SECTOR

Hawkers and vendors have long been a common feature of sidewalks and markets of urban centers. Hawkers contribute substantially to meeting the needs of the community. They indirectly support the local artisans and poorer sections of the community, by making available commodities at a comparatively cheaper rate. Even though their activities can be justified socially, it is conflicting with the management of traffic and pedestrian movement on street and in many cases affects the environmental quality.

The major locations of street hawkers are

i. Area at the side of TK road
ii. B1 B1 road
iii. Area near Kuttapuzha Bridge
iv. Near DBHS ,Manipuzha

15.8 CONCLUSION

Thiruvalla is one of the ancient trade centers of Central Travancore. Now it acts as the commercial hub of the district and surrounding areas. The commercial area of the town is confined to the central part with less than 1% of the area. One hurdle that stands in the way of commercial development is the lack of adequate parking area. The buildings in the existing market are very old and the market itself is very congested.

CHAPTER 16
RECREATION AND CIVIC AMENITIES

16.1 INTRODUCTION

The availability and requirement of recreational facilities of the Municipality are assessed in this Chapter. Every settlement ought to provide its population sufficient spaces for leisure be it sports or for cultural or social activities.

16.2 RECREATIONAL FACILITIES

The important recreational facilities available are the following

- **Municipal Stadium:** Important sports events are held in the stadium. The stadium is not properly developed and is underutilized. The stadium has to be improved at par with global standards to meet the growing demand from the public from the adjoining local bodies of the Municipality.
- **Chanthakkadavu Park:** In Chanthakkadavu Park, boating was introduced by DTPC Pathanamthitta. But presently, it is not functioning due to unhygienic conditions of water due to the blockage of flow from river Manimala to Chanthakadavu through Valiyathodu and Pooni thodu
- **Children's Park near Pushpagiri Hospital:** The Children's Park has been renovated recently and the upgraded Park is now opened for public. The renewed facilities including the play equipments, roller skating, swimming pool and small auditorium etc. of the park are being made use of by the public in the vicinity in a very good manner.

The details of recreational centers of the town are furnished in Table 16.1.

Table 16.1: Details of Recreational Centers in Municipality

Sl. No.	Type	Local Body		State Government	
		No.	Area (Sq. M)	No.	Area (Sq. M)
1	Public Park	1	900	1	2000
2	Play Grounds (Other than those attached to schools and colleges)	2	24281		
3	Stadium	1	123630		



16.3 PUBLIC LIBRARIES AND READING ROOMS

The details of libraries functioning in the Municipal Area are given in Table 16.2. It can be seen that there is a fairly good distribution of libraries in all parts of the town.

Table 16.2: Public libraries and Reading Rooms in Thiruvalla Municipality

Sl. No.	Name and Description	Location	Rented or own building	Year of start	No. of Books Available	No of Dailies subscribed for		No. of periodicals subscribed for	No. of members
						English	Malayalam		
1	2	3	4	5	6	7	8	9	10
1	Thiruvalla Municipal Library	Ward 8	Own	1936	20645	1	6	74	2070
2	Mahathma Ghandhi Smaraka Grantha Sala/ vayanasala, Thirumoolapuram	Thirumoolapuram	Own	1971	6820		6	9	810
3	Kavumbhagom Vayanasala	Kavumbhagam	Own	1956	2000	1	4	7	310
4	Muthoor GranthaSala/ Vayanasala	Muthoor	Own	1964	9200	1	4	12	940
5	Idikula Mappila Memmorial GranthaSala/ Vayanasala Kattodu	Kattodu	Rent	1962			3	2	430

Source: Municipal records, Vikasana rekha, Primary Survey 2005

16.4 CINEMA THEATRES

There are two theatres in the municipal area. Chilanka Theatre in Chilanka Jn. and Jacob' Theatre, at Kavumbhagom.

16.5 AUDITORIUMS AND HALLS

There are a good number of auditoriums and public halls in the municipal area, the details of which are given in table 16.3

Table 16.3: Auditoriums and Halls in Thiruvalla Municipality

Sl. No	Name	Location	Built Up Area (Sq.M)	Plot Area (Sq.M)	Seating capacity	Year of construction	Ownership
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1	Municipal Town Hall	Near Municipal Office	300	1000	600	1984	Municipality
2	Hotel Elite Auditorium	Town	200		250	1995	Private
3	Hotel Aryas Park	Deepa Jn.	200		250	1990	Private
4	Y.M.C.A Auditorium	TK road	150	1618	200	1969	Private
5	Alankar Plaza	SCS Jn.	70		80	1990	Private
6	St.John's Hall	Near Govt Hospital	750		700		Private
7	Dr. Alexander Marthoma Memorial Hall	Cross Jn.	2500	75000	3000	1998	Private
8	VGM Hall	Cross Jn.	500	75000	450	1955	Private
9	Sharon Hall	Town	750	1214	700	1990	Private
10	Lions Auditiroum	Ramanchira	250	1800	300	1994	Private
11	Y.W.C.A Hall	Chilanka Jn	100	5300	150	1943	Private
12	Marthoma Hall	Kuttappuzha	500		600		Private
13	Ashokhs Hall	Town	200		250		Private
14	Panchami Banquet Hall	Railway Station Road	75		50		Private

Source: Municipal Records, Primary survey 2005

16.6 PUBLIC COMFORT STATIONS

The details of public comfort stations available in the municipal area are given in table 16.4.

Table16. 4: Public Comfort Stations in municipal area

Sl.No	Location	Run by local body or Private	Free/ Charged
1	Private Bus Stand	Local Body	Charged
2	Market	Local Body	Free
3	KSRTC Bus Stand	KSRTC	Charged
4	Chalakkuzhy Jn.	Local Body	Charged
5	Railway Station	Railway	Charged

16.7 BURIAL GROUND

There is a public burial ground located near the Taluk Hospital. An electric crematorium was constructed here, but it is not functioning at present. Now the municipality decided to change it to a gas crematorium.

16.8 PLACES OF WORSHIP

Thiruvalla is the centre of worship of all religions and groups. The number of worship places reveals this fact. Besides, Thiruvalla is the headquarters of several Christian Sabhas like Marthoma, Marygiri, Gospel for Asia, Salvation Army, and etc. There are 22 important temples, 26 churches and 4 mosques in the municipal area. The most important temple is Sree Vallabha Temple. The Paliekkara church is famous for its mural paintings. The St. John's Cathedral is famous for its architectural beauty and paintings inside the hall. The list of worship places is given in Table 16.5

Table 16.5 Details of major Worship centers

Sl. No	Places of Worship	Location/ Ward	Festivals		
			Name	Date	Average no of persons attended
	A. Temples				
1	Sreevallabha Temple Thiruvalla	MathilBhagam	Thiruvulsavam	Kumbam Uthram to 10 days	20000
2	Eram Kavu Devi Temple Kavumbhagom	Kavumbhagam	Thiruvulsavam	Meenam Bharani to 10 days	15000
3	Mahadeva Temple, Thukalasseri	Thukalasseri	Sivarathri	Kumbam sivarathri	8000
4	Subryamanya Swamy Temple, Paliakkara	Paliakkara	Thyppooyam	Makaram	10000
5	Meenthalakara Sastha Temple	Meenthalakara	Mandala Vilakku	Vrichikam	2000
6	Thiru Kuruchi kulangara Devi Temple	Kavumbhagam	Nil		
7	Krishnaswamy Temple	Kavumbhagam	Nil		
8	Lekshmi Narayana Temple	Kavumbhagam	Nil		
9	Anandeswara Siva Temple	Kavumbhagam	Nil		
10	Sri Hanuman Temple	Paliekkara	Nil		
11	Karinattukavu Sreekrishna Swamy Temple	Kavumbhagam	Ulsavam	3rd August	5000
12	Karinattukavu Devi Temple	Kavumbhagam	Ulsavam	5th August	1200
13	Uthramel Devi Temple	Kavumbhagam	Ulsavam	1st March	600
14	Devikshethram	Govindankulang	Ulsavam	20th March	2000

		ara			
15	Sreebhadra kali Temple	Muthoor	Ulsavam	10th April	3000
16	Thiruvatta Siva Temple	Paliekkara	Nil		
17	Subryamanya Swamy Temple	Thirumoolapuram	Typooyam		1000
18	Mahadevar Temple	Chumathra	Typooyam		1000
19	Padappattu Devi temple	Padappattu	Nil		
20	Sreenarayanapuram Temple	Mannankarachira	Meenabharani		1000
21	Kesavapuram Temple	Mannankarachira	Nil		
22	Siva Temple	Chumathra	Sivarathri		1000
	B. Churches				
1	Marthoma Syrian Church of malabar	Scs Junction	Convention	5th October	1500
2	St. John's Cathedral Church	Mary Giri	Perunal	6th May	1000
3	St. John's Orthodox Church, Kattappuram	Kavumbhagam	Perunal	8th May	1000
4	St. George Orthodox church	Paliekkara	Perunal	8th May	1500
5	St Mark Orthodox church	Kavumbhagam	Perunal	2nd October	750
6	St. George Jacobite Syrian Church	Kavumbhagam	Perunal	8th May	750
7	Ebenezer Marthoma Church	Kavumbhagam	Nil		
8	Sharon Fellowship Church	Ward 19	Convention	December	2000
9	Salvation Army	Ward 19	Convention	January	1000
10	CSI Church	Padappattu	Nil		
11	Ebenezer Marthoma Church	Unnavattom	Nil		
12	Gospel Centre	Ward 27	Nil		
13	St. Thomas Evanjalickal Church	Ward 31	Nil		
14	Sehiyon Marthoma Church	Varikkadu	Nil		
15	SDA Church	Ward 10	Nil		
16	Believers Church	Kuttappuzha	Nil		
17	St. Thomas Evangelical Church	Padappattu	Nil		
18	Bethel Asrama Church	Kuttappuzha	Nil		
19	Ebenezer Brethren Assembly	Kizhakken Muthoor	Nil		
20	St. Paul Marthoma Church	Kizhakken Muthoor	Nil		
21	Salvation Army	Kuttappuzha	Nil		
22	St. Gregorios Orthodox church	Kuttappuzha	Perunal	1st November	1000
23	St. James CSI Church	Kuttappuzha	Nil		
24	Jerusalem Marthoma Church	Kuttappuzha	Nil		
25	St. George Jacobite Church	Kizhakken Muthoor		7, 8th May	1000

26	St. George Catholic Church	Kizhakken Muthoor	Perunal	8th May	1000
	C. Mosques				
1	Muthoor Mosque	Ramanchira	Nil		
2	Thukalasseri Juma Masjid	Ayikkad	Nil		
3	Town Juma Masjid	Ward 19	Nil		
4	Juma Masjid	Chumathra	Nil		
Source: Vikasana rekha, Temples, Churches, Municipality, Primary survey					

16.9 PETROL PUMPS

Nearly seven petrol pumps are functioning within Thiruvalla town and the details are furnished in Table 16.6

Table 16.6 Details of major Worship centers

Petrol Pumps	Numbers
Mazhuvangadu-MC road	1
Kurishu Kavala	2
Near Alukkas	1
Opposite to KSRTC bus stand	2
Ramanchira	1

16.10 LPG GODOWNS

Four LPG godowns are functioning within the Thiruvalla town limit. One at Kattukara and others at Manjadi, Chunathara and Eravallipra as well.

16.11 FIRE STATION AND POLICE STATION

The fire station is located near Revenue tower at Kacheryppadi. The police station office of the circle inspector and office of the sub-inspector are situated at the same place. The subdivision office is situated at the Kulakkadu road.

16.12 CONCLUSION

Thiruvalla town owns a few recreational facilities like a large stadium, some parks and playgrounds. But the conditions of these facilities are to be improved. On the cultural side, there are many Auditoriums, Cultural halls reading rooms, available in the Municipal limit. The town is having a long tradition of communal harmony, despite the presence of numerous religious communities. Most of the civic amenities are also located at a reasonable distance from the residential areas.

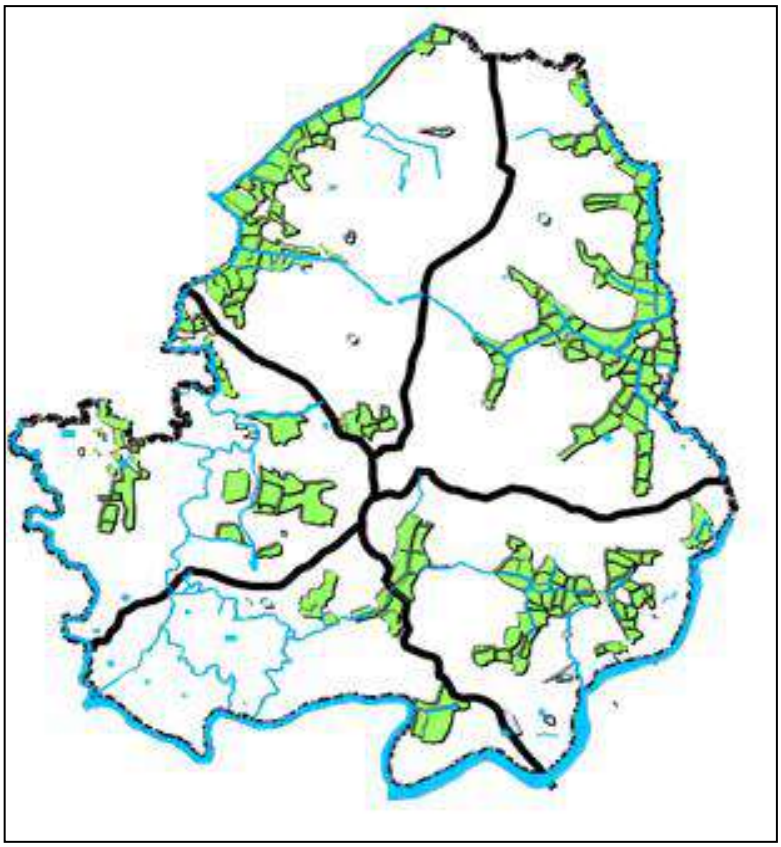
CHAPTER 17
ENVIRONMENTALLY SENSITIVE AREAS AND HERITAGE AREAS

17.1 INTRODUCTION

In this Chapter, the environmentally sensitive areas of the town are discussed. Also, the buildings which are important from the point of view of environmental protection, architectural or heritage value which are to be preserved/ conserved is also listed.

17.2 ENVIRONMENTALLY SENSITIVE AREAS

Paddy fields and canals are the environmentally sensitive areas of the town. The existing canals and paddy fields of the town are shown in Map 17.1. The paddy fields constitute nearly 13% of the area of the Municipality. The paddy fields which are acting as water collection basins during the rainy season and act as a medium for groundwater recharging. The paddy cultivation is there in a very small part of the existing paddy fields. A major area of paddy fields is remaining as vacant marshy areas or under cultivation of other crops. Even though these paddy fields are cultivable, they are kept fallow for last many years. The uncultivated paddy fields which remain as marshy area creating many environmental issues. Large areas of paddy fields are being reclaimed mainly for dry cultivation and construction purposes without any regard to environmental issues. In the study, the paddy fields/ wetlands are grouped into two categories, viz., environmentally sensitive areas and other areas. The environmentally sensitive areas are to be protected/ conserved.



Map 17.1: Existing paddy fields and canals

The disposal of surface runoff of the town is carried out through the drains available along the major roads. The wastewater and rainwater are drained in the existing drains / thodu and are finally discharged into the river. There is no sewerage system or septage treatment plant for the town. The drains with polluted water ultimately leading to natural drains create environmental issues.


Sree Vallabha Temple

17.3 HERITAGE AREAS

The town is blessed with many buildings with heritage values and historically important. The important heritage areas/premises identified are Sree Vallabha Temple, Paliyakkara Church, St. John's Cathedral, Paliyakkara Palace and Chanthakkadavu area.

Sree Vallabha Temple: This is an important ancient temple situated in Thiruvalla. This is the only temple in Kerala where Kathakali is offered every day.

Paliakkara Church: This church is believed to be constructed by St. Thomas. The mural paintings available here are of artistic value and are too preserved.


Paliakkara palace

St. John's cathedral: This church located near Taluk hospital was renovated in the year 2008. This is a very beautiful structure with a cone-shaped roof.

Paliakkara Palace: This is said to be constructed by the Maharaja of Travancore as his local palace. Hence this is to be conserved as a remnant of the Maharaja's period.


St. John's Cathedral





St.John's Cathedral

Chanthakkadavu area: This was a terminal point of goods and commodities transported by waterways in the olden days. From here, the commodities are brought to the nearby market. The godown facilities available at that time owned by Melam agencies are still seen here.

17.4 CONCLUSION

The environmentally sensitive areas of the municipality mainly consist of paddy fields and canals and are to be conserved for the sustainable development of its people. The Heritage precincts are primarily religious centers other than a palace and old market area precincts. These should be preserved with utmost revere and care so that every generation should be able to see and feel how mankind has developed over years.

CHAPTER 18
SUMMARY OF FINDINGS

18.1 INTRODUCTION

Settlement studies, regional setting studies, and detailed analyses of different development sectors of the town have been made in the previous chapters and findings of these studies are summarized in this chapter.

18.2 GENERAL INFORMATION

The Thiruvalla Municipality was constituted in 1920, with an area of 14.46 km2, comprising 12 wards and later in 1987 Kuttappuzha Panchayat was added, thus increasing the area to 27.94 sq km. The headquarters of Thiruvalla Taluk and the Revenue division is located here. Thiruvalla serves as an access centre to Sabarimala, Maramon Convention, Cherukolpuzha Convention, Chakkulathukavu Temple, Parumala Church and Edathua Church. Thiruvalla railway station is the only railway station in the district. As per the Regional study of Pathanamthitta district, Thiruvalla is the only first-order settlement of the district. The activity pattern is purely urban, with the tertiary sector as the leading economic activity. Since 92% of the land is of 00 to 60 slopes, the terrain is suitable for urban development.

18.3 DEMOGRAPHY

Thiruvalla Municipality ranks first in terms of total population, area and density with respect to other urban centers of the district. The decadal growth rate of population is less in Thiruvalla Municipality compared to other Municipalities in the district but more when compared with the Municipalities in the surrounding districts. The decadal growth rate of Thiruvalla municipality is -6.95 (2001-2011 census) which is lower than surrounding local bodies except for Nedumparam and Peringara Grama Panchayats. The workforce participation rate is 27.79% as per the 2001 census, which is less than that of the district and state. (29.66% and 32.3%). However, it shows an increase when compared with the 1991 census. The growth rate is showing low because of the outward immigration of the people from Thiruvalla municipality.

18.4 LAND USE

Area under Residential land-use area is high in the town with 45.46 % of the total area and the industrial land use is the least with 0.54%. The commercial area is also comparatively less (0.96%) and is concentrated in the centre of the town. Public and Semi-Public area land use is distributed the entire municipal area and have a higher percentage, compared to nearest urban centers. Paddy fields constitute 13.10% of total town area and scattered in the entire area of the town. The municipal area is bounded by Paddy field, Thodu, or River

18.5 TRADE AND COMMERCE

The commercial area is confined to the central part of the town with less than 1% of the municipal area. The major commercial establishments are hotels, textiles, jewellery, building materials, electronics and home appliances etc. Thiruvalla acts as the commercial hub of the

district and surrounding areas. The town lacks adequate infrastructural facilities like parking areas and organised market areas. Existing commercial buildings are very old buildings and are congested.

18.6 INDUSTRIAL SECTOR

Only 0.61 % of the land use of the town is under industrial use. The major industries of the town like Traco cables, Koshy's electronics, etc show a decline in production. The other important categories of industries are automobile workshops, wood-based industries, building materials production units, polymer-based industries, soft drinks manufacturing units, etc. Small scale industries in the fields of construction, automobile workshops are the new-coming industries. Entrepreneur training programs are being conducted at MSMETC near Manjadi. The problems are high land value, marketing problems and changing trends of products. Potential industries are agro-based, textile, food, hardware and software, tourism, automobile and construction based industries.

18.7 AGRICULTURE SECTOR

The total land under agriculture use is 24.55% of the town area and out of which, 13.1% is paddy/ wetland. Most of the paddy fields are remaining vacant. Meenthalavayal punja and Kaviyoor Punja were re-cultivated in 2009. The paddy fields are being filled for other purposes like dry cultivation, building construction, etc. The problems in paddy cultivation are scarcity of laborers, less profitability, block of irrigation canals leading to paddy fields, inadequate marketing facilities, etc. Paddy cultivation can be rejuvenated through willful efforts. The major cultivation in the municipal areas is coconut, fruit trees, rubber, plantain, banana, tapioca, pepper, tubers & vegetables. The scarcity of labourers, high cost of cultivation, high land value and pressure on land for non-agriculture purposes are major problems in the agriculture sector.

18.8 INFRASTRUCTURE - TRAFFIC AND TRANSPORTATION

Almost all stretch of main roads in Thiruvalla municipality shows a volume-capacity ratio higher than 1, which indicates traffic congestion in the town. Mainly the road stretch from Chilanka Jn to Deepa Jn and from Deepa junction to S.C.S junction is suffering from traffic problem where Volume – capacity ratio is more. The Volume – capacity value between Chilanka Junction to Payippad is 2.67, between S.C.S junction to Kurissadi junction is 2.65 and between S.C.S junction to Private bus stand junction 2.55. There is always traffic congestion in the central area from SCS junction to Deepa junction. The junctions are not developed as per standards. Constructions obstructing sight distance, KSRTC Bus Station in the heart of the town with entry and exit to MC Road, haphazard on-street parking of vehicles, non-availability of sufficient off-street parking spaces, etc lead to traffic congestion. The major roads are Radial roads starting from the town Centre where the commercial area predominates. There are no proper ring roads to divert traffic from one radial road to another. The roads and bridges/ culverts are narrow. The bus routes are only along the major radial roads. There are no adequate parking

areas on road near major junctions. There is no organized off-street parking even in commercial areas. The haphazard on-street parking on both sides of the roads causes traffic problems. The residential areas are linked with public institutions only through the major radial roads. There are no bus bays/bus shelters in the central area. There is no sufficient pedestrian facility. The present private bus stand is not developed with necessary passenger facilities like waiting area, toilets, etc. The parking area for buses also does not meet the demand. Thiruvalla is the only Railway Station in the district. The nearest airport is at Thiruvananthapuram, at a distance of nearly 125km. Nedumbassery Airport (Cochin International Airport) is at a distance of 130km from Thiruvalla.

18.9 EDUCATIONAL FACILITIES

As per standards, only one integrated school (class I to XII) is required for up to 1 lakh population with the strength of 1500 students. School Level Educational institutions are more than the required for town population, and offering facilities for the students from neighboring areas. The first English School in Travancore was started in Thiruvalla (CMS School). At present, there is no adequate Technical Education facility available to cater to residents of Thiruvalla.

18.10 HEALTH FACILITIES

The number of patients availing of medical facilities available at Thiruvalla in a year is about 4 lakhs. Out of this 61% of the patients are from the Pathanamthitta district and 21% from the town limit. With the presents of two Medical Colleges, the town offers, higher-order medical facilities to neighboring areas and even from other parts of the state.

18.11 WATER SUPPLY

Currently, wells are the main source of potable water in Thiruvalla. Now Kuttanad and Kallissery water supply schemes provide 13MLD of water to the municipality area. It is expected that after the completion of the Kuttanad, Neerattupuram & Kaviyoor project an additional 7 MLD water will be available for the town. At present, some areas of the town are getting water supply only once or twice a week. With the implementation of these new schemes, it is expected that there will be a sufficient supply of water to the water scarcity area.

18.12 POWER

KSEB is the sole agency controlling the power scenario of the Municipality and is supplying power with acceptable standards to the consumers mainly through Thiruvalla and Kavubhagam electrical sections. Low voltage is not a problem in the town. Petroleum gas and firewood is a major domestic fuel in the town.

18.13 HOUSING

It is observed that it is the private Developers rather than Public sector has major role in meeting the additional housing requirement of the people. The public sector activities be

limited to solely for the economically weaker sections. The condition of colonies of the town is to be improved.

18.14 TRADE AND COMMERCE

Thiruvalla is one of the ancient trade centers of Central Travancore. Now it acts as the commercial hub of the district and surrounding areas. The commercial area of the town is confined to the central part with less than 1% of the area. One hurdle that stands in the way of commercial development is the lack of adequate parking area. The buildings in the existing market are very old and the market itself is very congested.

18.15 WASTE DISPOSAL

Solid waste includes domestic and commercial waste, industrial waste, hospital waste, e-waste, and construction debris that need to be addressed systematically. The disposal of hospital waste and industrial waste is the responsibility of the generator. Presently there is no scientific method of waste disposal available within Thiruvalla municipality. The current waste management system in the Municipality needs to be improved by doing an environmental assessment at an existing landfill site and suitable measures have to be taken for their improvements.

18.16 RECREATION

The Municipal Stadium, Chanthakkadavu Park, Children's Park near Pushpagiri hospital are the major recreation facilities available in the town. Important sports events are held in the stadium. In Chanthakkadavu Park, boating was introduced by DTPC, Pathanamthitta, but presently it is not functioning due to blockage of the canal. This is due to the blockage of flow from river Manimala to Chanthakadavu through Valiyathodu and Pooni thodu. The children's park has been renovated recently and the upgraded Park is now opened to the public.

18.17 ENVIRONMENT AND HERITAGE

The environmentally sensitive areas of the municipality mainly consist of paddy fields and canals and are to be conserved for the sustainable development of its people. The Heritage precincts are primarily religious centers other than a palace and an old market area precincts. These should be preserved with utmost revere and care so that every generation should be able to see and feel how mankind has developed over years.

18.18 CONCLUSION

The town is developed as an administrative, commercial and educational centre. It is the headquarters of many religious communities and acting as a transit point to many famous pilgrim centers in the neighboring areas. Thiruvalla is the first order settlement of the district and most of the wards of the town showing urban character. The town is the meeting point of many roads of regional importance and acts as a major transportation node of a large

surrounding area. Sufficient medical and general educational facilities are available in the town. It is one of the few urban local bodies having two Medical College Hospitals. The physical and social infrastructure facilities of the town are to be improved and facilities as per standard are to be provided to the resident as well as the floating population. Proper land-use planning is needed with due consideration to the environmental protection of the town.

CHAPTER 19
DEVELOPMENT GOALS AND OBJECTIVES

19.1 DEVELOPMENT GOALS

A. Thiruvalla is the first-order settlement of Pathanamthitta District, which has to cater to the needs of the nearby LSGIs in higher-order facilities. As the town has already manifested its strength in the fields of Health and Education sectors, developing the town with primary thrust on these fields.

B. In line with its high position in the hierarchy of the settlements, other supporting facilities or development activities are also required to be provided to cater to present and future needs. Provide adequate infrastructure facilities as per standard.

C. The sector which shows continuous growth is a tertiary sector, especially trade and commerce. The tertiary sector is the economic base of the town. The activities under the tertiary sector need to be strengthened and streamlined.

D. Like other towns, Thiruvalla town is also experiencing environmental degradation. The natural drains and other water bodies are to be rejuvenated. The paddy fields, which are now kept fallow, are waste dumping areas. This is to be changed by cultivating these fields. The solid waste generated is to be properly treated and disposed of for which a suitable solid waste management system is necessary. The utmost goal of any development plan is to provide a healthy living condition, giving due regard to the environment.

E. The rich Art and Heritage values of the town are to be conserved.

F. Nearly 24% of the land of Thiruvalla Municipality is in agriculture use, out of which 13% is paddy fields/wetlands. But, these paddy fields are kept fallow. These are to be vitalized for producing the staple food as much as possible. For this, the infrastructure facilities are also to be developed. The production of vegetables, fruits, etc can also be increased by suitable promotional activities. Floriculture, pisciculture, horticulture, etc can also encourage.

G. The major industries in the town are not recording any growth. However, the construction industry and other service industries are showing growth to an extent. Promotion of micro and small scale industry is another goal.
H. Sector which shows continuous growth is a tertiary sector, especially trade and commerce. The tertiary sector is the economic base of the town. The activities under the tertiary sector need to be strengthened and streamlined.

Thus, in a nutshell, the goals of this plan

- To provide infrastructure facilities for the region with primary thrust on the fields of Health and Education.
- Provide adequate infrastructure facilities.
- To strengthen the economic base of the town.
- To provide a healthier living environment with the provision of compatible land uses
- Conservation of Art and Heritage values of the town.
- Vitalize the primary sector.
- Promotion of micro and small scale industries.

19.2 DEVELOPMENT OBJECTIVES

The objectives of the master plan are

I. Develop or introduce higher-order facilities in the education and health sectors.
II. Provide proper linkages, terminal facilities, traffic and transportation facilities, marketing and storage facilities etc essential to supplement the above-said development.
III. Protect environmentally sensitive areas, Conserve/ preserve areas of heritage importance.
IV. Promote paddy cultivation, cultivation of other edible crops, vegetable cultivation floriculture, agriculture etc.
V. Promote agriculture activities, industrial activities and tertiary activities such as trade and commerce etc so that the economic base of the town is strengthened with due importance on all types of development activities.
VI. Ensure healthy living conditions for human beings by properly controlling the developments, introducing suitable waste management systems etc.

CHAPTER 20
SPATIAL STRUCTURE AND DEVELOPMENT CONCEPT

20.1 INTRODUCTION

The spatial structure of a settlement portrays the geographical picture of the area, spatial distribution of existing development, Environmentally Sensitive Areas, Spatial distribution of population, the nodes, and the Road Network.

20.2 SPATIAL STRUCTURE

The existing spatial structure of the municipal area is evolved based on the following factors and it is represented in Map 20.1.

I. Existing Land use
II. Topography
III. Transportation network
IV. Population Density and Population Concentration Pattern
V. Residential Land use Concentration Pattern
VI. Paddy/ Wetland Land use Concentration Pattern
VII. Commercial Land use Concentration Pattern
VIII. Public and Semi public Land use Concentration Pattern
IX. Environmentally sensitive areas and Art & Heritage areas

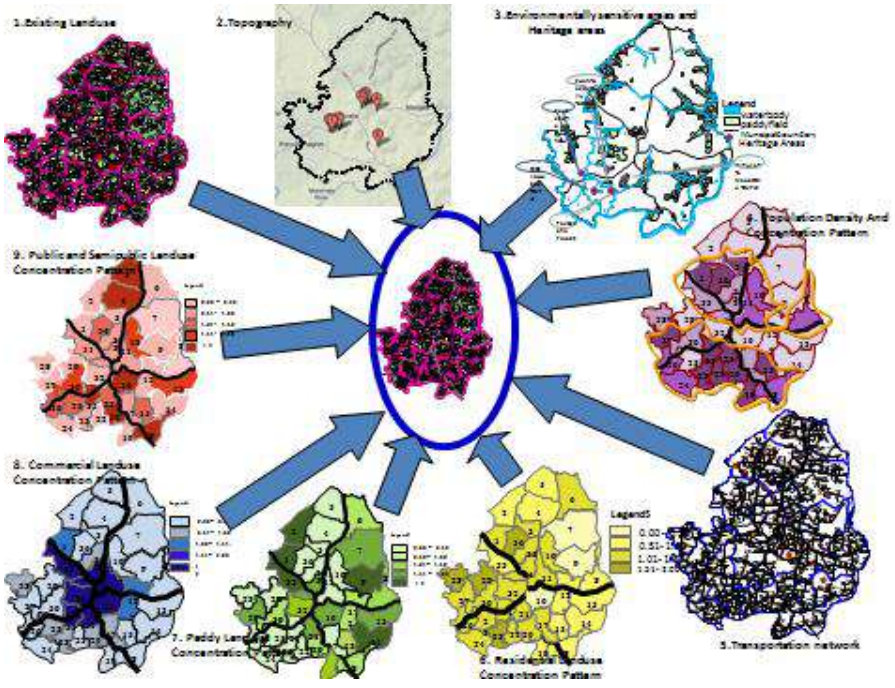


Figure 20.1: Factors considered in evolving Spatial Structure

I. **Existing Land use:** The residential area is concentrated in the western half of the municipality, the commercial area in the central part and the agriculture area in the eastern part. The public and semi public areas are distributed in the entire area intermittently, in a haphazard manner. The main areas under industrial use are that of the TRACO Cable company area in Chumathra and the area of MSMEDC at Manjadi.

II. **Topography:** The topography of the area is more or less plain, with the slope varying from 0 to 25%. Nearly 92% of the municipal area is within a 6% slope. This shows that the area is ideal for residential and other urban development activities.

III. **Transportation Network:** The transportation network is a major deciding factor in identifying locations of new development activities. The existing pattern of the road network is radial. As a result, the traffic along various major roads converges in the CBD area resulting in congestion. Hence it is proposed to provide new roads/ develop the existing roads to have interconnection between the radial roads so that the CBD area can be relieved from congestion. Besides, the areas which are less developed due to less connectivity are proposed to be provided with more linkages with the main transportation corridors.

IV. **Population density and Population concentration pattern:** The population is concentrated in the southwest corner of the municipal area and hence this area shall be reserved mainly for residential purposes.

V. **Residential land use concentration pattern:** This land-use concentration is in the southwest part of the municipal area.

VI. **Paddy/ Wetland land use concentration pattern:** These areas are concentrated in the outer parts of the municipality and the central area. These areas are classified into three categories, viz., cultivable paddy fields, environmentally sensitive areas which are to be preserved and other wetlands which can be converted for other development activities.

VII. **Commercial Land use Concentration Pattern:** Commercial land use is concentrated in the central part of the municipality and along the sides of the major roads. This results in congestion of the central area. Hence it is necessary to provide basic commercial facilities in the less developed areas as well.

VIII. **Public and Semi public Land use Concentration Pattern:** The public and semipublic land uses are distributed intermittently throughout the entire area of the municipality.

There is a high concentration of this use compared to the surrounding municipalities and hence forms a leading land use of this area.

IX. **Environmentally sensitive areas and Heritage areas:** Besides the environmentally sensitive paddy fields/ wetlands identified, the areas identified to be protected are the coastal areas of the Manimala River and the heritage areas identified in chapter 17.

Based on these factors, the spatial structure is derived and depicted below in Fig 20.2. The major uses in the municipal area are residential and agriculture. The residential areas are concentrated in the south-west corner and then narrowing down towards the north in the middle area

20.3 CONCEPT PLAN

The spatial structure thus evolved is further modified by incorporating the proposed facilities like industrial area, transportation terminal, special use zones, recreational areas, etc., and proposed road network and thus concept plan is evolved. It could be seen that the higher nodes of the Municipality are located at the town centre and roads passing through having a radial pattern. So the proposed Road Network also has radial and partial ring road patterns. The concept plan so evolved in given in Figure 20.3.

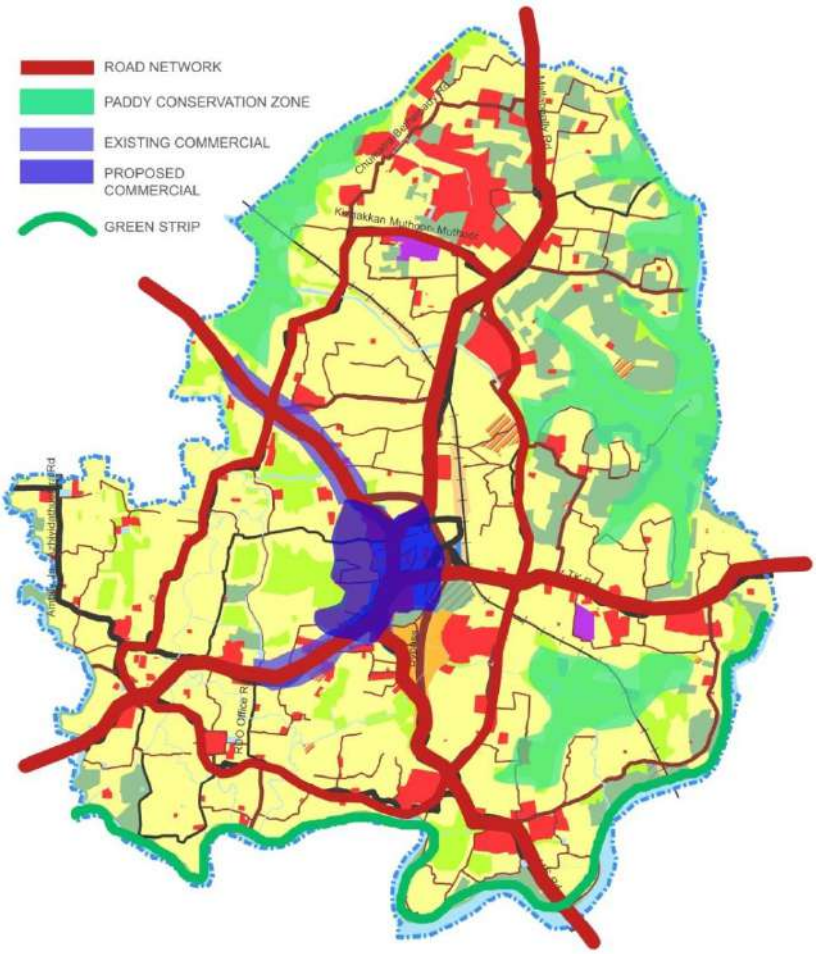


Figure 20.2: Spatial Structure (proposed)

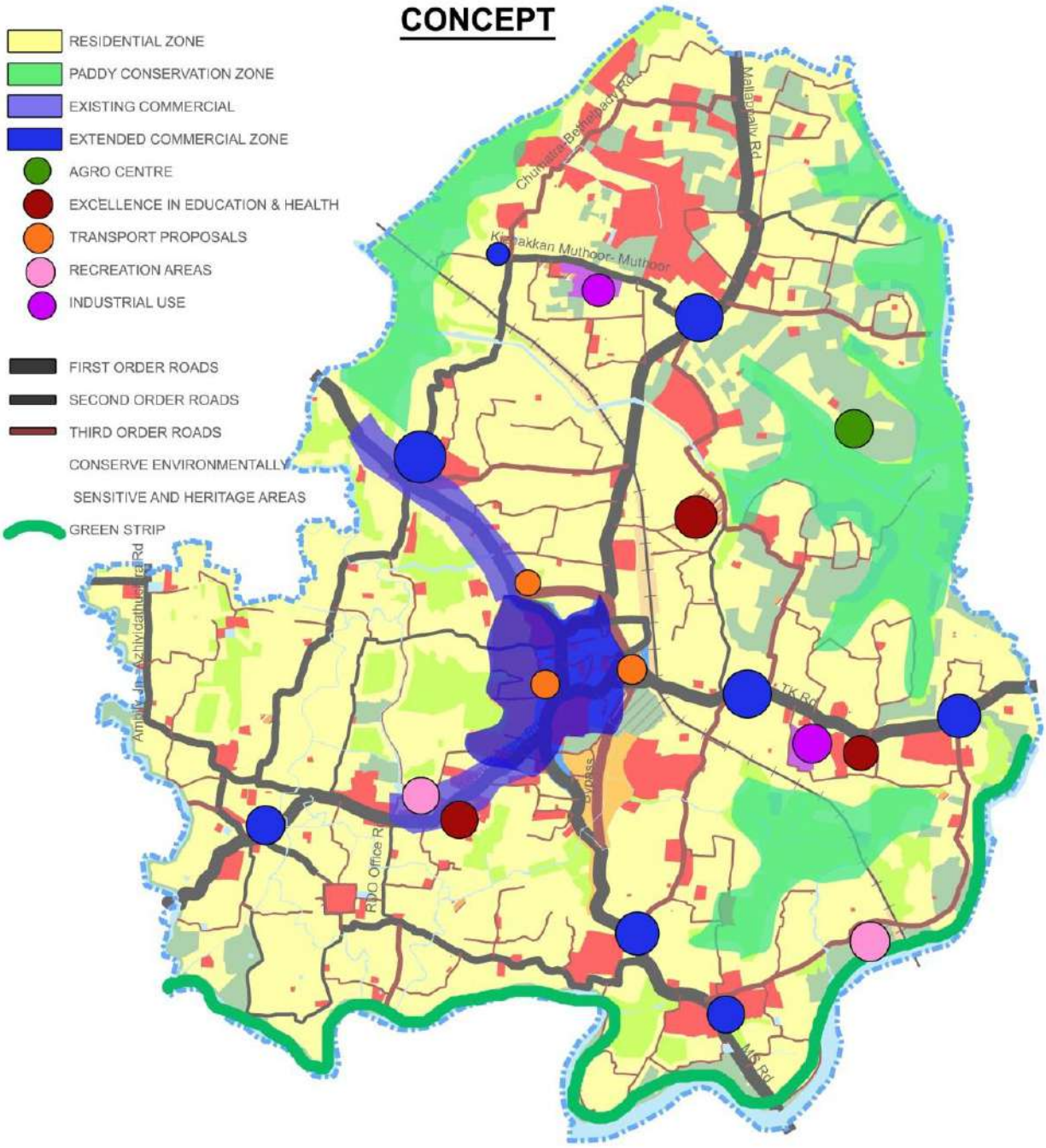


Figure20.3: Concept Plan

CHAPTER 21
POLICIES AND STRATEGIES

21.1 INTRODUCTION

Based on the studies and analysis in various chapters included in this report, a development concept has been evolved. The development policies and strategies evolved for the implementation of the development concept formulated for 20 years have been included in this chapter. The general development policy and sectoral development policy are included in this chapter.

21.2 GENERAL POLICY

As a 1st order settlement of the district, Thiruvalla shall be developed as a center of excellence in terms of higher-order facilities with a strong economic base. During urbanization, the tertiary sector attains maximum growth while the primary and secondary sectors need willful efforts for development. Hence to vitalize primary and secondary sectors and thereby to strengthen the economy and to develop the town as a center of excellence in education and health, develop necessary infrastructural facilities is the general policy adopted in the plan.

21.3 SECTORAL POLICIES AND STRATEGIES

21.3.1 Agriculture and allied sectors

It is proposed to develop the agriculture and allied sector to create an additional income to the families and for the environmental protection. Homestead cultivation shall be given importance coupled with animal husbandry and reusing of wastes. The strategies adopted are -

i. Promote homestead agricultural cultivation, animal husbandry and recycling of biodegradable solid waste.
ii. Promote production of bio-fertilizers indigenously by introducing new technologies and promote such bio-fertilizer plants for energy consumption like cooking, etc.
iii. Rejuvenate the existing canals and thodus for irrigation purposes.
iv. Introduce marketing centers for proper marketing of the agriculture products
v. Introduce industrial units for food processing and value addition of agriculture products.

21.3.2. Industrial sector

Steps for promoting small-scale industries which satisfy local needs which make use of local agriculture products. Modern industries making use of Information Technology/ Biotechnology shall also be promoted considering the locational advantage and availability of infrastructural facilities. The strategies adopted are -

I. Introduce industrial units for processing agricultural products.
II. Introduce IT/ BT Park.
III. Introduce an apparel park so that the local demand for textile shops is satisfied.
IV. Promote small-scale industrial units for the production of building materials.

V. Introduce an industrial unit for recycling and reusing the wastes generated.

21.3.3. Tertiary Sector

Provision of necessary services, attached with the primary and secondary sectors, transportation, warehousing trade, and commerce sector has to be developed as to the demand. The strategies adopted are -

I. Introduce commercial areas where such facilities are lacking.
II. Identify potential areas for commercial activities and promote the development of such areas.
III. Introduce modern marketing facilities and storage facilities for perishable goods.
IV. Develop an efficient network of transportation corridors for the easy movement of vehicles and provide necessary parking areas, terminal facilities, etc.
V. As the 1ST order settlement of the district, provide higher-order health and educational facilities catering to the surrounding settlements.
VI. Ensure healthy living environments by introducing appropriate regulations over developments.

CHAPTER 22
POPULATION PROJECTION

21.1 INTRODUCTION

The population projection by two methods namely the Incremental Increase method (IIM) and the Geometric Progression Method (GPM) is shown in Table 22.1. But the mathematical projections show a decrease in the population in future decades. The details of calculation are shown in Annex 22.1. But the town shall show an increase in population for its sustainability. It is expected that there is an increase in the population of the town with the implementation of proposals of the Master Plan and it is assumed that there is an increase at the rate of 3% per decade and the population of the town will attain a figure of 56,100 by 2031.

Table 22.1 Projected Population of Thiruvalla Municipality.

population in 2011	Projected Population	
	IIM	GPM
	2021	2031
52883	49892	43774
	50315	47872

22.2 PROJECTION OF OCCUPATIONAL STRUCTURE

As per the 2011 census, out of the total population of 52883, 16303 people are workers with a work participation rate of 30.82%. Out of the workers, 84% are main workers, i.e; 13686 Nos. Out of this, the cultivators are 108 (0.66%), agricultural laborers are 451 (2.76%), household and industrial workers are 247 (1.51%) and others are 12880 (79%). It can be seen that the major share of the main workers is engaged in the classification 'Others'.

With the effect of various development activities, it is expected that the work participation rate of the town will increase to 35% by 2031. With the promotion of agricultural activities, it is assumed that 5% of the total workers are in the primary sector. It is also assumed that the share of workers in the household industrial sector is 10%. The projected number of workers in the agriculture sector and household industrial sector by 2031 is estimated as 982 and 1964 respectively.

22.3 HOUSING PROJECTION

The total population in Thiruvalla town as per 2011 cessus is 52833 in 2011 and a total number of houses is 14353 (11051 – Pucca houses and 3302 Katcha houses) from the data, the average household size is found to be 3.68. The projection of housing requirement of is shown in Table

22.2. The additional housing requirement by 2031 is estimated as 892. The replacement/up gradation of Kutcha houses is also considered during the plan period.

Table 22.2: Housing requirement

Sl no	Average house hold size	Number of houses 2011	Projected population 2021	Projected requirement of houses 2031	Projected number of houses 2031
1	3.68	14353	56100	15245	892

22.4 PROJECTION WASTE GENERATION

The projection of waste generation is shown in Table 22.3. The standards of UDPFI guidelines is adopted for projection. It is estimated that the generation of waste by 2031 is 69,720 kg per day.

Table 22.3: Projection of Waste Generation

Land use	Waste Generation per capita per day	Projected Population 2031	Quantity of waste generated by 2031
Residential refuse	0.3 to 0.6 kg/cap/day	56100	36,060
Commercial refuse	0.1 to 0.2 kg/cap/day		11,220
Street sweepings	0.05 to 0.2 kg/cap/day		11220
Institutional refuse	0.05 to 0.2 kg/cap/day		11220
Total			69,720 kg/day

Source: URDPFI guidelines

22.5 WATER SUPPLY PROJECTION

The Projection of Water requirement for the town 2031 is shown in Table 22.4. The existing capacity of the treatment plant is 13 MLD and the projected demand of water by 2031 is 13.614 MLD.

Table 22.4: Projection of Water requirement

Year	2031
Population	56100

Domestic water demand	11.220
Demand due to public use	00.561
Fire demand	00.056
Total demand	11.838
Demand due to loss during transmission	01.776
Total water demand	13.614
Existing capacity of treatment plant	13

Source: - IS: 1172- 1993(2003 Revised), IS Code on “Basic Requirement of Water Supply, Drainage, and Sanitation.

CHAPTER 23
PROPOSED LAND USE PLAN 2031

23.1 INTRODUCTION

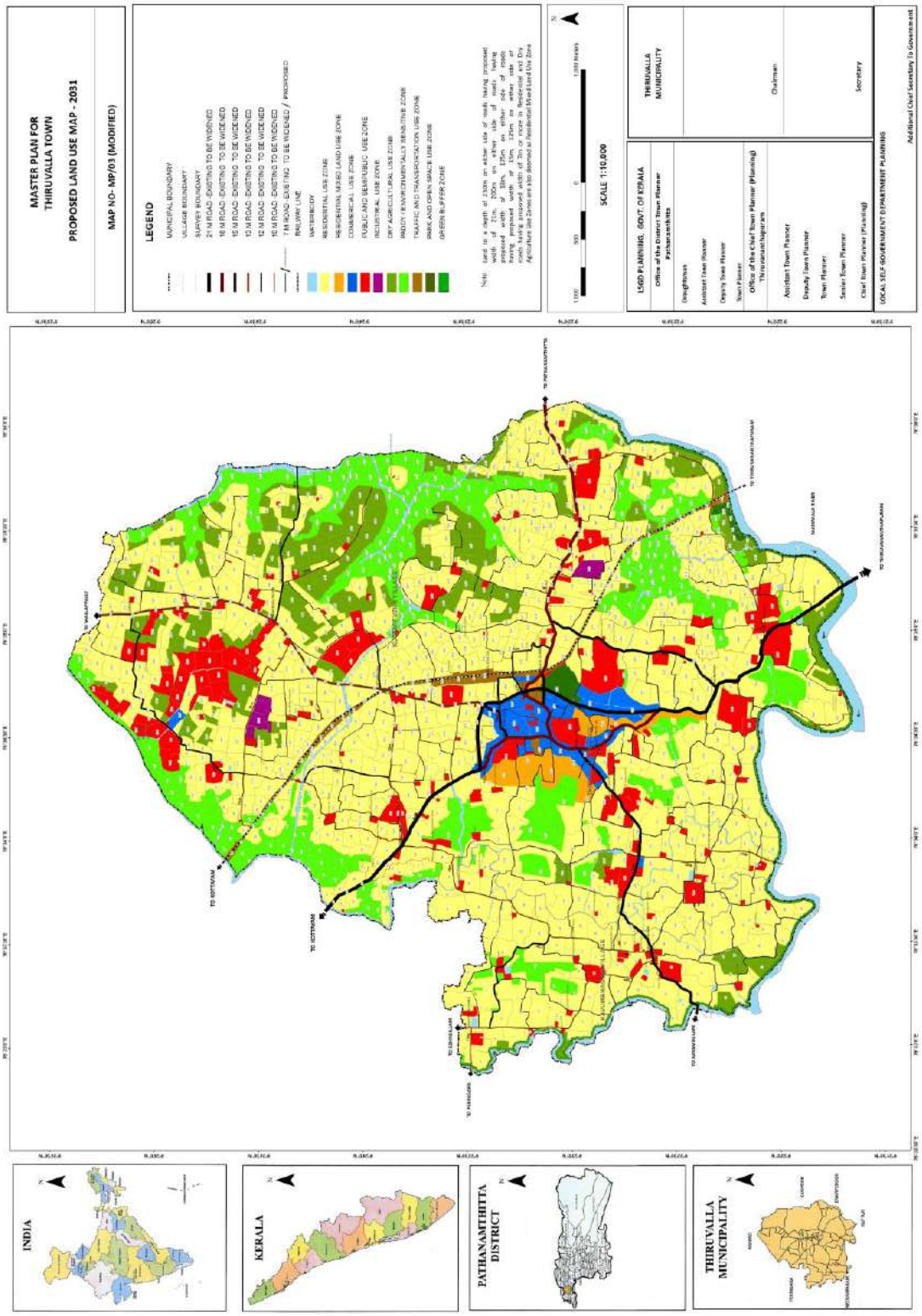
Land use plays a major role in the process of evolving better environment for the town. Better management and distribution of activities in the town will reduce many problems relating to traffic and provision of services. Thiruvalla is expected to be a trade centre and a first order service town. The land use plan is proposed in tune with the policies and strategies mentioned in previous chapters, considering the present trend of land development and projected requirements and based on the development concept evolved.

23.2 USES PROPOSED IN THE PROPOSED LANDUSE PLAN

The following land use zones are proposed in the Land use plan 2031.

1. Residential use zone
2. Commercial use zone
3. Public and Semipublic use zone
4. Residential mixed land use zone
5. Industrial use zone
6. Dry Agricultural use zone
7. Paddy/Environmentally sensitive zone
8. Traffic and Transportation use zone
9. Parks and Open Space use zone
10. Green buffer zone
11. Water Bodies

The proposed land use of the town is shown in Map 23.1 and the land use breakup is shown in Table 23.1.



Map 23.1: Proposed Land use

Table 23.1 Proposed Land use breakup

Sl. No	Landuse	Area in Hectare	Percentage
1	Residential Use Zone	1690.61	60.51
2	Commercial Use Zone	42.92	1.54
3	Public and Semi-public Use Zone	233.8	8.37
4	Residential Mixed Use Zone	27.98	1.00
5	Industrial Use Zone	9.01	0.32
6	Dry Agricultural Use Zone	245.57	8.79
7	Paddy/ Environmentally Sensitive Zone	370.72	13.27
8	Traffic and Transportation Use Zone	28.58	1.02
9	Parks and Open space Use Zone	10.82	0.39
10	Green Buffer Zone	12.6	0.45
12	Water Bodies	121.39	4.34
	Total	**2794**	**100**

23.2.1 Residential use zone

The high-density residential areas identified in the existing land use have been reserved for purely residential purposes. This area lies outside of the commercial and residential mixed zones. 60.51 % of the total area of the municipality is reserved for this purpose.

23.2.2. Commercial use zone

The MC road is proposed to be widened to 21m. The CBD of Thiruvalla municipality is concentrated mainly along the MC Road. It is proposed to expand this area by providing suitable links. While framing the Road network, a partial-inner ring road has been proposed for the central part. The area within this inner ring road is proposed as a commercial zone. Besides the ring road a good number of roads of lower hierarchy has been proposed in this area.

23.2.3. Public and Semi-public use zone

All existing Public and Semi-public land use zone will continue as such under this zone.

23.2.4 Residential Mixed-use zone

Land to a depth of 250 m on either side of roads having proposed width of 21 m , 200m on either side of roads having proposed width of 18m, 175 m on either side of roads having proposed width of 15m, 125m on either side of roads having proposed width of 7m or more in Residential and Dry Agriculture zones are also deemed as Residential mixed Land use zone

23.2.5. Industrial use zone

All existing uses under industry will continue as such. Besides, an IT Park and Apparel park are proposed in the existing MSMETC compound, Manjadi.

23.2.6. Dry agriculture use zone

Areas with high intensity of agriculture activities are included in this zone.

23.2.7. Paddy/Environmentally sensitive zone

The wetland/ paddy areas are classified into two, viz., environmentally sensitive areas and others. The environmentally sensitive areas which are proposed to be retained are included in this group.

23.2.8. Traffic and Transportation use zone

All areas which are present in the use of traffic and transportation are proposed to continue under this zone.

23.2.9 Parks and Open Space use zone

In addition to the existing areas under this use, the wetland area continuous to the present Children's park is proposed to be developed as a park without adversely affecting the environment. A Water Theme Park is also proposed near the railway bridge crossing the Manimala River.

23.2.10. Green Buffer zone

A Green buffer zone of 10 m with control in construction activities is proposed along the bank of the Manimala River.

23.2.11 Water bodies

It is proposed to conserve all existing of water bodies.

CHAPTER 24
SECTORAL PROPOSALS

The sector wise proposal of Thiruvalla Master Plan is included in this chapter. The sector wise proposals are derived based on development concept and development issues pertaining to the sector. The economic feasibility and the environmental feasibility etc are considered for finalizing the proposals. The sector wise proposals are furnished below:

24.1 AGRICULTURAL SECTOR

i. Supplying high yield verities of seeds and onsite technical guidance through trained personals. The agriculture department can provide help in this regard.
ii. Promote intense paddy cultivation, vegetable cultivation pisciculture, and floriculture. Co-operative societies of farmers are proposed for providing various services including supply of agricultural machinery.
iii. Rejuvenation of Irrigation canals and natural water bodies are effectively linked and improve the irrigation facilities.
iv. To provide marketing facilities' VFPC Vipanana Kendra shall be started in the present market at Manjadi. Besides, Kudumbasree outlets shall be opened in each ward for the sale of agriculture products of Kudumbasree units.
v. Establish Food research centre at Manjadi.
vi. New Veterinary Hospital at Manjadi.

24.2 INDUSTRIES

i. The analysis of the industrial sector shows that the major industries are showing a declining trend. However, the industries based on building materials, textiles, automobiles etc have potential.
ii. The 'weaver's guild' which was established years back imparts training for weaving and cross-stitch. The bed sheets known as Thukalassery sheets were very famous. The hands cross-stitched clothes were even exported in the early days. These are still functioning but are for the namesake. These units are to be revived with necessary modernization.
iii. An industrial park for IT and an apparel park is provided in the present compound owned by the Central Government at Manjadi (MSMETC).
iv. A Biotechnology park and a food park may be started in ARC area at Manjadi.
v. Provide Rice processing unit.
vi. A Rubber wood processing unit in Kuttappuzha village. A factory can be started for the processing of the rubber wood.

vii. A Latex processing unit for the latex produced in the local area can be value-added and marketed.

viii. Provide a cattle feed and Poultry feed unit: The rice bran from rice processing units can be used for manufacturing cattle feed, poultry feed etc.

ix. To provide baby food manufacturing unit: The rice, cereals, etc produced locally can be made use of for starting such industries.

x. Explore building materials industries: Tiles, cement blocks, prefabricated doors, windows, slabs, pillar cover, etc can be manufactured in these units.

xi. Soft drinks made out of tender coconut, coconut, fruits like papaya, jack fruits, banana, etc and shall be explored to provide food industrial units.

xii. Bio-fertilizers from azola shall be explored: For marketing the products made in these units, a permanent sale outlet can be started by the municipality with counters for each type of product and these counters shall be hired out for entrepreneurs or private merchants.

xiii. To utilize the potential of value-added products shall be made from locally available fruits like plantain, jack fruit, mango, papaya, guava, etc.

24.3 EDUCATION

i. As given earlier, Thiruvalla shall be developed as a centre of excellence in education in the district and hinterlands.

ii. Modernize the Azhiyidathuchira High School with high tech facilities.

iii. Convert the Thiruvalla Girl's High School into a mixed school with high tech facilities.

24.4 HEALTH

i. A complex for various health facilities such as a modern diagnostic and treatment complex with various specialties of medical science is proposed in the existing Taluk Hospital compound utilizing the land of the present Veterinary

clinic also. The Veterinary Clinic can be shifted to the existing slaughterhouse compound where a modern slaughterhouse is proposed.

24.5 WATER SUPPLY

With the commissioning of new schemes, it is expected that, sufficient drinking water will be available to the town.

24.6 WASTE DISPOSAL

i. A decentralized system of waste management unit shall be proposed. Each division can be entrusted to one Kudumbasree unit or other suitable agencies. The municipality shall supply vehicles for movement of the wastes to the dumping and processing yard. The wastes shall be segregated into biologically degradable, plastic, glass and others.
ii. Biogas plants shall be constructed for the processing of these types of wastes. The gas produced can be collected and used in the General hospital. The remaining waste can be used as a bio-fertilizer.
ii. A modern Septage treatment plant.

24.7 CREMATORIUM

i. Modernisation of the existing crematorium located near the Taluk Headquarters Hospital.

24.8 TRADE AND COMMERCE

i. Modernization of existing Markets.
ii. It is proposed to introduce commercial sub-centers at Kattod, Kavumbhagam, Azhiyidathuchira, Kizhakkan Muthoor, Chumathra andKizhakkanmuri.
iii. A new shopping Centre near Revenue Tower, where the old pre-metric hostel functioned.

24.9 RECREATION

i. The Chanthakadavu Park is to be revitalized by introducing boating, walkway, benches, etc.
ii. A water theme park is proposed in the land near the railway bridge crossing Manimala River from where the earth was taken for filling municipal stadium land.

iii. The existing Children's park near Pushpagiri is proposed to be expanded without disbursing the surrounding areas environmentally.
iv. A walkway is proposed around the stadium with resting benches at intermediate locations.
v. Modernization of the Public stadium with International Standards.
vi. New swimming pool adjacent to Public Stadium.

24.10 TRAFFIC AND TRANSPORTATION

24.10.1 Roads

The major existing roads are radial and originating from the CBD area. To have proper intermediate connections and to relieve congestion in the CBD area, it is proposed to widen the existing internal roads near the CBD.

First order Roads (21 m wide)

- Chengannur Changanassery road (Part of MC Road - excluding from Mazhuvangadu to Ramanchira)
- Mazhuvangadu Ramanchira Bypass road

Second order Roads (18 m wide)

- Chengannur Changanassery road (Part of MC Road - from Mazhuvangadu to Ramanchira
- Pathanamthitta Road (Railway station road and Pathanamthitta road SCS Jn to boundary

Third order roads (15 m wide)

- Kayamkulam road (Cross Jn to Boundary)
- Mallappally Road (Deepa Jn to Bypass crossing point near Chilanka Jn)
- B1 - B1Link Road Connection between Pathanamthitta Road
- Anjilimoodu Jn. to Kottathadu Pushpagiri Joecees Jn. road

Fourth Order Road (13 m wide)

- Mallappally Road (Bypass crossing point near Chilanka Jn. To Boundary)

Fifth Order Road (12 m wide)

- Railway station road from Chilanka Jn to Pathanamthitta road Jn
- Kaviyoor road from Kizhakkakken Muthoor to Nattukadavu
- Chumathra to Bethelpadi in Mallappally road
- From Kuttappuzha Flyover to Marthoma College road
- Theepani Railway Underpass Road
- Paruthikkappadi – Azhiyidathuchir via Uthramel Temple
- Jn on Muthoor- Kizhakkan muthoor to Karikkodu Thrikkannapuram Temple Road

Sixth order Roads (10 M Wide)

- Thirumoolapuram - Kattodu Road
- Kizhakkanmuthoor to Muthoor throuogh Chumathara and Kottalil

- Muthur Jn to Kavumbhavam Jn
- Idinjillam road from Kavumbhagom to Azhiyidathu Chira Boundary
- Mepral road from Azhiyadathuchira to Swamy Palam
- Muthoor to Kuttappuzha through JP Nagar
- Kuttur Road from Pallivettayal to Chakrashalanakadavu
- Market Jn to RDO Office - Sreevallabha Temple Jn Road
- Chumathara Muslimpalli - Kattillam through Perunthuruthy road

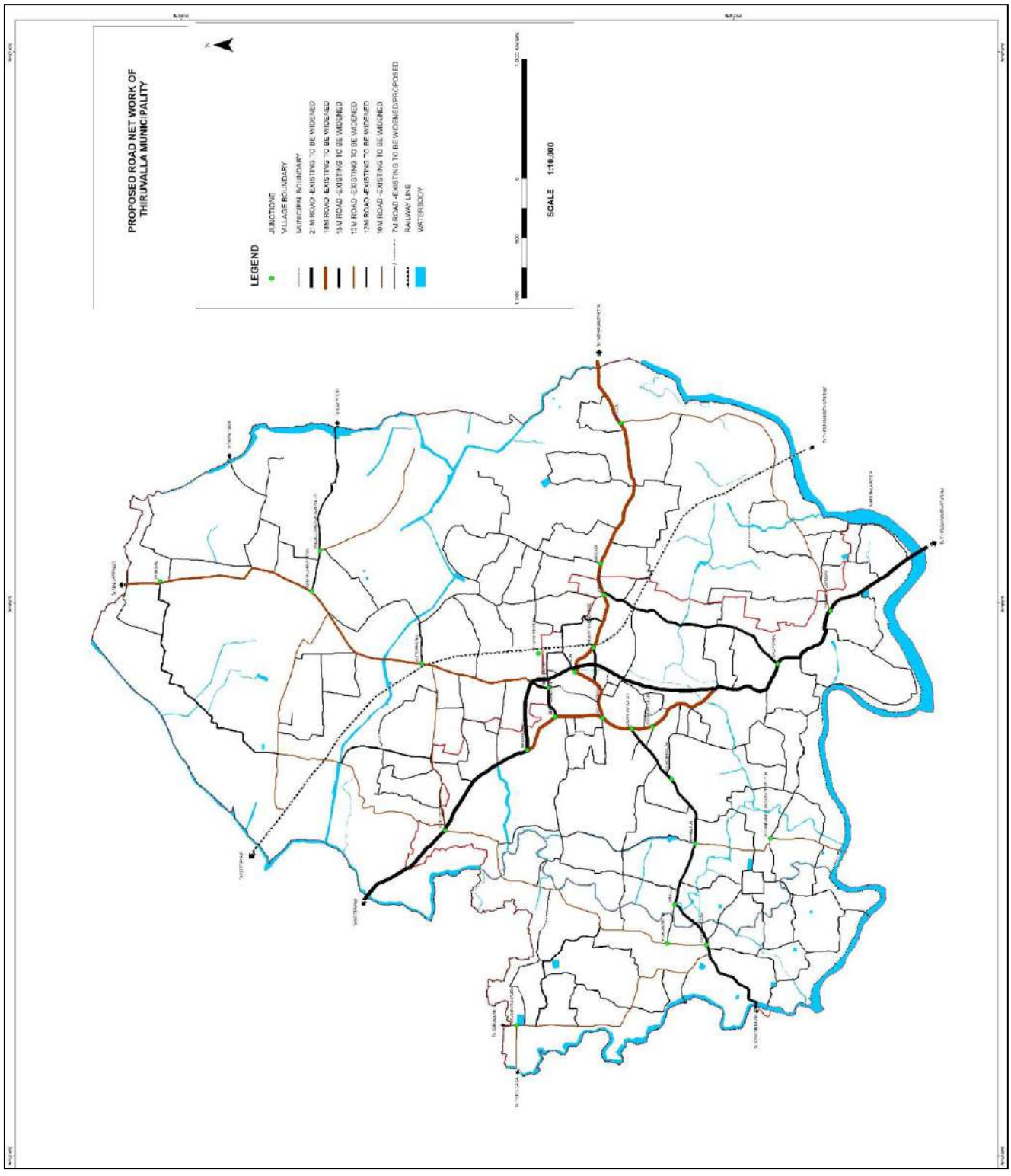
Seventh Order Road (7 m wide)

- Refer the Road network map (Map 24.1) for the details of these roads.

24.10.2 Road Intersections

The following road junctions shall be improved with sufficient space for vehicular maneuvering and safe pedestrian crossings.

- Deepa junction.
- SCS junction.
- Kurissadi junction.
- Kavumbhagom junction.
- Private bus stand junction.
- Chilanka junction.
- Traffic intersections of the new bye pass



Map 24.1 Proposed Road network

24.10.3 Municipal Traffic Terminal

The new KSRTC Bus stand, garage and shopping complex have been completed and functioning in the CBD area itself. But the present private bus stand is not having adequate parking and passenger facilities. Hence it is proposed to renovate the bus stand in the plot owned by the Municipality in between the TK Road and B1-B1 Road.

24.10.4 Parking Areas

- Suitable traffic management measures to control on street parking.
- Private landowners along the side of major roads within the municipal area especially congested areas shall be promoted to provide pay and park areas.

24.10.5Expansion of Public Transport System

The public transport system is now limited to along major corridors alone. This causes congestion in the CBD area. It is suggested that public transport system shall be started along the outer roads, along Pushpagiri road, college road, etc during peak hours, to begin with, and then the frequency of services can be increased with the development of roads.

24.10.6 Pedestrian Traffic Proposals

- Foot over bridges at Muthoor Jn, SCS Jn, Kurisukavala, Thirumoolapuram Jn, Deepa Jn, In front of KSRTC Bus Station
- Zebra lines shall be marked in the congested areas of the road, for pedestrian crossings.
- Handrail protected pedestrian ways shall be given along both sides of the road with openings only at the crossings
- All pedestrian trails at major destinations such as, central area, stadium and surrounding, bus stations, Sree Vallabha temple premises etc. have to be provided with LED street lights.

24.10.7 Widening of Bridges and Culverts

All bridges and culverts shall be widened in a phased manner.

Strengthening side walls of Pallippalam- Kanjiraveli palam Thodu

24.10.8 Traffic signals

Synchronize the traffic signals installed at new by-pass road and at other major junctions.

24.10.9 Railway station

Development of access to the railway Station. Improvement of passenger amenities of the Railway Station.

24.10.10 Road Overbridges

Road Overbridges at Thirumoolapuram, Chumathra and Pushpagiri level crossings

24.10.11 Elevated Roads

An elevated road from Thirumoolapuram to town Centre

24.11ENVIRONMENT

i. The wet lands/paddy fields which are classified as paddy / environmentally sensitive/ ground water recharging/ surface water retention use areas are to be protected/ conserved. No wastes shall be dumped in these areas.

ii. The paddy cultivation shall be promoted in the paddy fields identified as environmentally sensitive areas.

iii. The 10.00m wide green buffer zone proposed on the banks of Manimala River shall be protected and construction shall be controlled.

24.12 ART & HERITAGE

i. The important art and heritage places/ areas identified are to be preserved.

- Sree Vallabha Temple
- Paliyakkara Church
- St. John's Cathedral
- Paliyakkara Palace and
- Chanthakkadavu Area

ii. A centre for temple art especially for Kadhakali at Sree Vallabha temple

24.13 TOWN BEAUTIFICATION

i. Gate way at four main entrances to the town

ii.Installing LED Lights in streets around Sree Vallabha temple

24.14 OTHER PROPOSALS

i. Modernization of Municipal office

ii. Quarters for Municipal Staff

CHAPTER 24
ZONING REGULATIONS

1. Zoning is a device of land use planning used in a Master Plan. The word is derived from the practice of designating permitted uses of land based on mapped zones which separate one set of land uses from another. Zoning Regulations are the means to achieve development of a use zone envisaged in the Master Plan. In other words Zoning Regulations are laws that define and restrict how to use a particular property coming under a Master Plan. Thus is the public regulation of land and building use to control the character of a place.

2. All future developments shall be in conformity with the provisions of the Master Plan for Thiruvalla and future constructions shall conform to the Building Rules and other applicable statutes in force unless otherwise specified in this regulation or in any detailed scheme prepared within the frame work of this Plan.

3. For the implementation and enforcement of the proposals envisaged in this Master Plan, areas have been zoned under various categories such as Residential use zone, Commercial use zone, Public and Semi public use zone, Residential mixed land use zone, Industrial use zone, Dry Agricultural use zone, Paddy/Environmentally sensitive zone, Traffic and Transportation use zone, Parks and Open Space use zone, Green buffer zone(Along the bank ofManimala River for land to a depth of 10.00m from the boundary of the river), Water Bodies etc. Details regarding the nature of uses 'permitted', uses 'restricted' and uses 'prohibited' in each zone are given in the accompanying sheets. These regulations shall be enforced in conjunction with other specific provisions if any mentioned elsewhere in the plan and in accordance with the other statutes applicable.

   Uses "permitted" in a zone cover the uses that can be normally accommodated in the relevant zone. In some cases it may be possible to permit some other uses also, which are not likely to affect the quality and environment in a zone specified for a particular use. Such cases have to be individually studied based on their performance characteristics and special locational factors. Such cases which come under this category are classified as "Uses Restricted". Restricted-1 category deals with the uses that shall be restricted by the Secretary, Thiruvalla municipality, hereinafter referred to as the Secretary, with the concurrence of the Head of office of the District Office of the Local Self Government Department Planning (LSGD Planning). Restricted-2 category deals with the uses that shall be restricted by the Secretary with the concurrence of the Chief Town Planner concerned of the Local Self Government Department Planning (LSGD Planning).

4. "Uses prohibited" enlists the various objectionable uses in each zone which shall not be permitted under normal circumstances.

5. If any portion of a zone is put to a "Use prohibited" as stated in Para 4, before the sanctioning of the Master Plan, such use shall be termed as non-conforming use. A non-conforming use may be allowed to continue in its existing location, if lawfully established prior to the enforcement of these regulations, and essential repairs and the maintenance for the structure may be permitted by the Secretary, provided that the said use creates no adverse environmental influence in the zone. Addition, alteration or reconstruction, if found necessary as part of any mitigation measures may be permitted for such uses by the Secretary with the concurrence of the Chief Town Planner concerned.

6. Existing areas and structures of archaeological importance, agricultural uses and religious uses shall be permitted to continue in all the zones and shall not constitute non-conforming uses.

7. Constructions and / or land developments, if any, in paddy lands and in wet lands, shall be in conformity with the Paddy land and Wetland Act in force in the state.

8. The zoning regulation of the plan is shown in Table 25.1

Table 25.1 Zoning Regulation

Sl No.	Use Permitted	Use Restricted 1	Use Restricted 2	Use Prohibited
1	**RESIDENTIAL USE ZONE**			
	All Residences including residential apartments,		Fuel filling stations	Any other uses not specified.
	Ashram/Mutt Orphanages, Old Age Homes, Dharmasala, Residential quarters. Automobile workshops for 2/3 wheelers up to 200 sq m floor area provided that the access road has a width of 5m minimum.			
	Shops/ Professional Offices up to 250sq m floor area.	Shops/ Professional	Shops/ Professional	

<table>
<tr><td></td><td></td><td>Offices above250Sq.m and utpo1000sq m floor area.</td><td>Offices above 500 sq m floor area.</td><td rowspan="8"></td></tr>
<tr><td></td><td>Banking and Financial institutions up to 200 sq m floor area, Diagnostic centre, Godowns up to 200 sq m.</td><td>Banking and Financial institutions in between 200 to 500 sq m floor area.</td><td>Banking and Financial institutions above 500 sq m floor area</td></tr>
<tr><td rowspan="2"></td><td rowspan="2">Gymnasium/Yoga Centers, Clinics (Outpatient) up to 100 sq m floor area.</td><td>Transmission Towers and Wireless Stations.</td><td rowspan="5">Higher Education/ hospitals up to 100beds provided that the access road has a width of 12m minimum.</td></tr>
<tr><td>Place of Worship</td></tr>
<tr><td></td><td>Cottage Industries, Service Industries of non-nuisance Nature (See Annex 7.1), with number of workers limited to 10 without power or 5 workers with power limited to 10 HP Auditorium/Wedding halls/community halls up to 500 sq m floor area provided that the access road has a width of 7m minimum.</td><td>Auditorium / Wedding hall / Community halls above 500 sq.m floor area Provided that the access road has a width of 12m minimum.</td></tr>
<tr><td></td><td>Day Care and Crèche, Nursery Schools, Kindergarten, Primary Schools, Schools up to HSS when access road has a width of 7m minimum.</td><td rowspan="2">Hospitals 50 beds and weigh bridge, if the access road has a width of 7m minimum.</td></tr>
<tr><td></td><td>Local/state/central government offices like Police Post, Fire Post/Fire Station, Post office etc. serving the local community</td></tr>
</table>

	Tot Lots, Parks, Play Grounds			
	Public Utility areas & buildings essentially serving the needs of the local community, markets 500 sq m.			
	Plant nursery, Pump House, Wells and irrigation ponds			
2	**COMMERCIAL USE ZONE**			
	All Shops including shopping Complexes, Shopping malls, Multiplex, Hypermarkets, Automobile showrooms, Restaurants, Hotels, Professional offices, Commercial Offices & Establishments, Banking and financial institutions.		Hospitals & Health Centers above 50 beds provided that the access road has a width of 12m minimum.	Any other uses not specified
	Residential buildings up to 300 sq.m	Residential buildings above 300 sq.m		
	IT Software units	Places of worship		
	Movie Halls, Auditorium / Wedding Halls / Community halls, Indoor games stadium, Convention Centers, Exhibition centers and art gallery	Ashram / Mutts, Orphanages, Old age Homes		
	Markets, Fair Grounds, Plant nursery			
	Godowns /Warehouses/ Storage of non hazardous materials stacking yards			
	Gymnasium / Yoga Centers			
	Fuel filling stations			
	Automobile workshops,			

	Automobile Service Stations			
	Cottage Industries, Cold storage, Service Industries of non-nuisance Nature (See Annex 7.1 , with number of workers limited to 19 without power or 9 workers with power limited to 30 HP), weigh bridges, Printing Press, IT Hardware / Electronic Industries, Marble and Granite storage/cutting centers, saw mills			
	Day Care and Creche, Nursery Schools, Kindergarten, Expansion of existing educational institutions, Govt. or Public sector offices			
	Public utility areas & buildings			Any other uses not specified
	Transmission towers, Telecommunication towers and Wireless Stations			
	Social Welfare centers, Library and Reading Rooms			
	Clinics, Diagnostic Centers and hospitals up to 50 beds provided that the access road has a width of 7m minimum			
	Parks & playgrounds, Open air Theatre			
	Night Shelters, hostels and boarding houses, lodges and guesthouses			
	Parking Plazas, Transport terminals			
3	**PUBLIC AND SEMIPUBLIC USE ZONE**			
	Additions and alterations to the		Skill	Any other

	existing buildings/addition of new block(s) without altering the use, Buildings incidental to the main Use with floor area up to 100 sqm.		development centres, Training centers, incidental use above 100sqm.	uses not specified
	All uses under Residential mixed use Zones.			
4	**RESIDENTIAL MIXED LAND USE ZONE**			
	Land to a depth of 250 m on either side of roads having proposed width of 21 m, 200 m on either side of roads having proposed width of 18m, 175m on either side of roads having proposed width of 15m, 125m on either side of roads having proposed width of 7mor more in Residential and Dry Agriculture zones are also deemed as Residential mixed Land use zone.			
4.1	All uses that are permitted in Residential Use Zone.			Any other uses not specified
	Museum, Exhibition Centers and Art Gallery.			
	Guest Houses / Lodges	Places of Worship		
	Commercial cum residential Buildings			
	Shops, Professional Offices,Banking and Financial Institutions, Commercial Offices/ Establishments,Gymnasium / Yoga Centers, Community Halls - floor area up to 200 sq m.	Fuel Filling Stations		
	Automobile workshops for 2/ 3 Wheelers	Indoor Games Stadium		
	Service Industries of non-nuisancenature (See Annex -7.1) engaging not more than19 workers withoutpower or 9			Any other uses not specified

	workers with power limited to 15 HP			
	Civil Defense and Home Guard			
	Transmission towers, Telecommunication towers and Wireless Station			
	Local/State/central government offices like Police Post, Fire Post/Fire Station, Post office etc. serving the local community			
	Public Utility Areas & Buildings			
	Diagnostic Centers - floor area up to 100 sq m.			
	Social Welfare centers - floor area up to 200 sq m			
	Parking Plaza, Taxi / Jeep Stand			
	Fish Farms, Seed Farms, Diary Farms, Poultry Farms			
	Storage of Agricultural Produces and Seeds			
4.2	Provided that the access road has a width of 5m minimum.			
	Shops, Professional Offices, Banking and Financial Institutions, Commercial Offices / Establishments, - floor area up to 500 sq m.			Any other uses not specified
	Gymnasium / Yoga Centers, Community Halls - floor area up to 500 sq m.			
	Clinics (Outpatient)/Diagnostic Centers - floor area up to 500 sq m			
4.3	Provided that the access road has a width of 7m minimum.			
	Shops, Professional Offices, Commercial Offices / Establishments, Banking and			Any other uses not specified

	Financial Institutions, Restaurants / Canteen, Hotels, IT / Software Units - floor area up to 1000 sq m			
	Weigh Bridge			
	Social Welfare centers - floor area above 200 sq m			
	Secondary / Higher Secondary Schools, Junior Technical Institutions			
	Movie Halls/Auditorium / Wedding Halls / Community halls - floor area up to 1000 sq m			
	Local/State/central Government/ Public Sector Offices			
	Diagnostic centers above 500 sq. m floor area, Hospitals & Health Centers -up to 10 beds			
	Markets - Plot Area up to 500 sq m			
	Godowns / Warehouses / Storage - non hazardous- floor area up to 1000 sq m			
	Service Industries of Non Nuisance Nature (See Annex 7.1) engaging not more than 19 workers without power or 9 workers with power limited to 30 HP			
	Marble and Granite Storage / Cutting centers			
	Industrial Estates & Industrial Parks			
	Automobile workshops /Automobile Service Stations - Light Vehicles			
4.4	Provided that the access road has a width of 12m minimum.			

	Educational institutions of higher order		Bus Terminal / Stand, Lorry stand.	Any other uses not specified
	Shops/ Offices above 1000 sq.m floor area			
	Markets			
	Hospitals & Health Centers – up to 100 beds			
	Godowns / Warehouses / Storage - non hazardous			
	Automobile workshops /Automobile Service Stations for Heavy Vehicles			
	Movie Halls, Auditorium / Wedding Halls / Community halls			
4.5	Provided that the access road has a width of 18m minimum.			
	Hospitals & Health Centers – up to 300 beds		Container Terminal	Any other uses not specified
	Convention centers			
5	**INDUSTRIAL USE ZONE**			
	Industrial use including IT parks and buildings/premises incidental to the industrial use	Food research centre, Veterinary Hospital	Skill development centre/ Training centre	Any other uses not Specified
	All constructions with the similar use of existing authorised buildings in the plot			
6	**DRY AGRICULTURE USE ZONE**			
	Agriculture, Horticulture, Fodder cultivation, Pastures, Grazing grounds, Fish Farms, Seed Farms, Pump House, Wells and Irrigation Ponds, Storage of Agricultural Produces and Seeds, Plant	Places of worship	Fuel Filling Stations	Any other uses not specified

	Nursery, Dairy farm, Poultry farm.			
	Public Utility Areas & Buildings	Transmission towers, Telecommunication towers and Wireless Station		
	All Residential buildings- floor area up to 1000 sq m, Orphanages, Old Age Homes, Dharmasala, Ashram / Mutt	Automobile workshops for 2/3 wheelers		
	Shops/ Professional Offices / Banking and financial institutions / Restaurants /Canteens - floor area upto 200 sq m	Sawmills		
	Clinics (outpatient), diagnostic centres up to 200 sq m floor area			
	Local/State/central government offices like Police Post, Fire Post/Fire Station, Post office etc serving the local community			
	Cottage Industries, Service Industries of non-nuisance Nature (See Annex 7.1), with number of workers limited to 10 without power or 5 workers with power limited to 10 HP.			
	Day Care and Crèche, Nursery / Kindergarten / Primary schools, Library and Reading Rooms,			
	Tot Lots/Parks/Play Grounds			
6.1	Provided that the access road has a width of 7m minimum			
	Residential Flats / Apartments floor area up to 3000 sq. m	Social Welfare centers up to 200 Sq. m floor area		
	Hospitals & Health Centers - floor	Weigh Bridge		

	area up to 500 sq m			
	Godowns / Warehouses / Storage - non hazardous – floor area up to 500 sq m, Markets, Stacking Yards	Auditorium / Wedding Halls / Community halls floor area upto 500 sqm		
6.2	Provided that the access road has a width of 12m minimum			
	Residential Flats / Apartments floor area up above 3000 sqm.		Higher education/ health care facilities	
6.3	Provided that the access road has a width of 10.00m			
	All uses permitted in Residential Mixed zone as per Sl. No. 4 above			
7	**PADDY / ENVIRONMENTALLY SENSITIVE USE ZONE**			
	Paddy Cultivation	Agriculture/ Horticulture/ Vegetable/Fodder cultivation, Fish Farms/Seed Farms without any building construction, Pump House/ Wells and Irrigation Ponds	Minor public utility areas and buildings which will not affect the character of the area.	Any other uses not specified
	Constructions/ land developments in conformity with the Conservation of Paddy Land and Wet Land Act in force in lands Designated as paddy land or wetland under the said Act			
	All uses permitted in Dry Agriculture use zone as per Slno.6 above, in plots which permission has been obtained for construction of residential buildings as per paddy and			

	wetland Act which is in force from time to time from the concerned Revenue Authority, subject to satisfaction of the conditions in the order issued by the Authority.			
	Residential buildings in plot which is classified as dry land (Purayidam) in basic tax receipt (BTR) as on 21.01.2020			
8	**TRAFFIC AND TRANSPORTATION USE ZONE**			
	Constructions that form an integral part of the traffic and Transportation use, Transmission /Telecommunication towers and Wireless stations, Fuel filling stations.	Parking Plazas	Retail shops/ Restaurants/ Canteen/Commercial establishments, ATMs, Residential Quarters, Guest House, Lodge, Night Shelter etc which form an integral part of the transportation use proposed.	Any other uses not Specified
9	**PARKS AND OPEN SPACE USE ZONE**			
	Any construction for the development / improvement of park and open spaces, incidental uses to Park and open spaces, Stadiums and related sports facilities, swimming pools etc.			Any other uses not specified
10	**GREEN BUFFER ZONE**(Along the bank of Manimala River for land to a depth of 10.00m from the boundary of the river)			
	Agriculture/ Horticulture/			Any other

	vegetable/ Fodder Cultivation, Fish Farms, River training works, Boat Landing centers, Hooking platform, Any construction essentially incidental to water supply/ irrigation schemes, bridges			uses not specified
	Maintenance / addition to the existing authorised residential buildings of total plinth area upto 60 Sq.m.			
11	**WATER BODIES**			
	Bridges, side protection walls, Water landings, Pump houses, Hooking Platform, Fish farms			Any other uses not specified

ZONING REGULATIONS OF VARIOUS ZONE

1. Large scale development proposals in an area not less than 2 hectares, exceeding and investment of Rs.50 crores, which provide direct employment (after commissioning of the project) to the tune of not less than 100 nos., may be permitted in all zones other than Heritage and Park & Open space, subject to the recommendation of a committee to be constituted by the Government for this purpose, under the Chairmanship of the Secretary, Local Self Government Department, consisting of Chief Town Planner concerned of Local Self Government Department Planning, the Head of office of the District Office of the Local Self Government Department Planning being the convener and the Secretary of the municipality and satisfying following conditions. Research centers, Professional Educational Institutions, Public Utility Services etc are also can be considered by the committee.

a) The developer shall produce project cum feasibility report and environmental impact assessment report, if required, of the project to the convener of the committee, 15 days in advance of the committee meeting.

b) The developer shall produce before the committee, all required clearances from the State and Central Government agencies concerned.

c) Adequate provision shall be made for supporting infrastructure such as water supply, Sewerage, Solid Waste Management etc. Separate sewage treatment plant and solid waste management measures shall be provided and maintained by the developer at his/her cost.

d) Adequate Memorandum of understanding between the developer and Secretary of Local body concerned shall be undertaken to bring this into effect.

e) Maximum floor area ratio shall be 2 and minimum access width 12 metres.

f) The project shall be completed within a period of 3 years if not specified otherwise.

GENERAL NOTES

1. Subject to the Zoning Regulations of the respective use zones, more than one use may be combined in a building provided that the total floor area of such a building shall not exceed the maximum floor area for any of such use premises in that use zone.

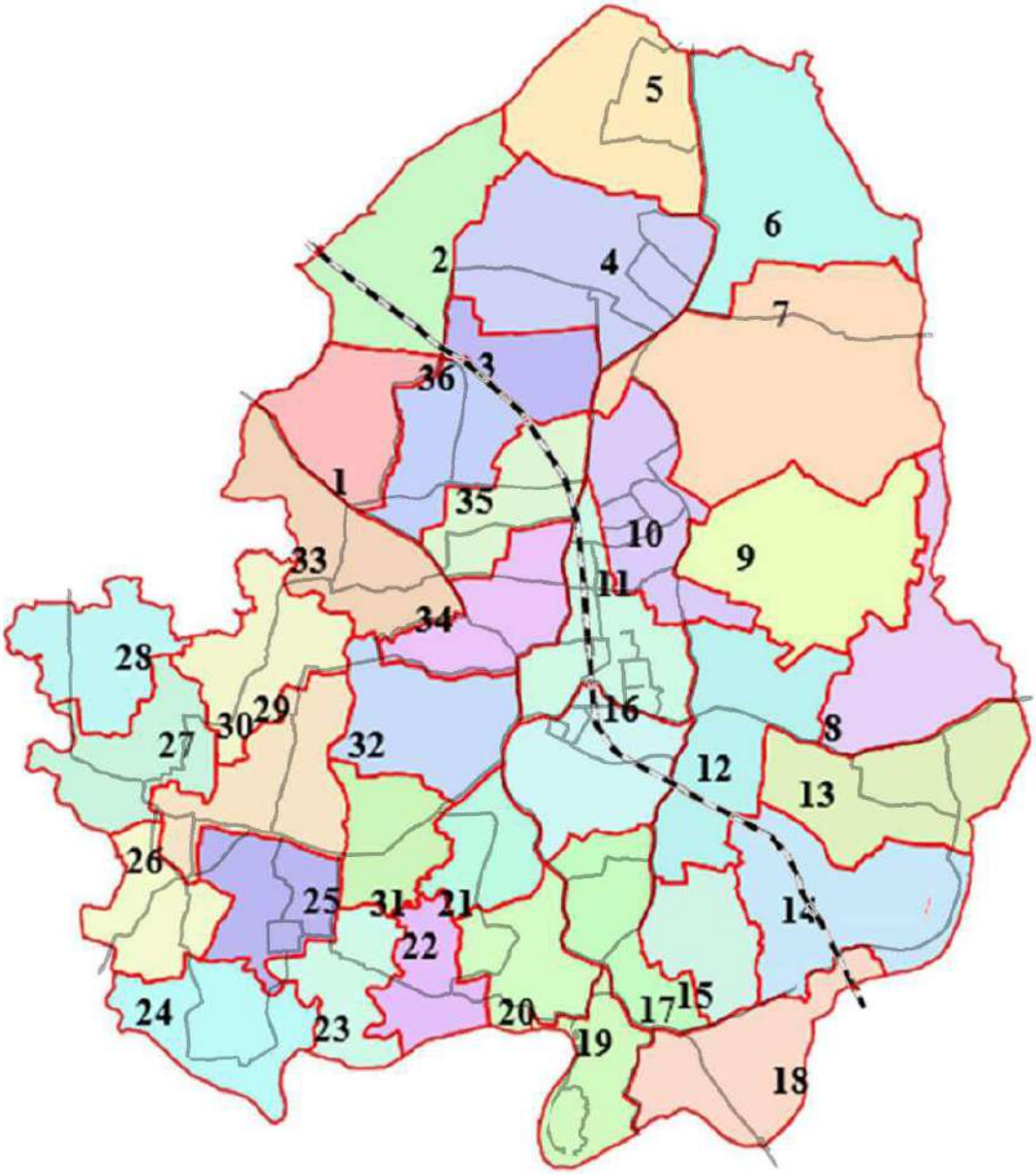
2. For the purpose of these regulations, floor area means the total floor area of the building on all floors.

3. The Government shall have the power to issue any clarification in respect of Technical interpretation, if any, required in consultation with the Chief Town Planner concerned.

4. Any use not specified in the 'uses permitted' or 'uses restricted' category of a particular use zone, but which is of a similar nature to any use permitted or restricted in that particular use zone can be considered by the Secretary, with the concurrence of the Chief Town Planner concerned.

ANNEXES

Annex 1.1
Thiruvalla – Ward Map



ANNEX 3.1
POPULATION CONCENTRATION PATTERN

Ward No	Wards	Area	Population	Population density	Population Concentration pattern
1	Muthoor north	0.6472	1920	2967	3
2	Chumatra	0.9789	2150	2196	1
3	Attuchira	0.4193	1940	4627	3
4	Cable factory	1.3151	1990	1513	1
5	varikkode	1.0653	1780	1671	1
6	Annavattom	1.3478	1930	1432	1
7	Nattukadavu	2.1327	1880	881	1
8	Meenthalakkara	0.8748	2250	2572	2
9	Amallur east	1.2136	1460	1203	1
10	Amallur west	0.7550	2010	2662	2
11	Railway station	0.7637	2090	2737	3
12	Theepani	0.9973	1930	1935	1
13	Kattode	0.9984	1740	1743	1
14	Iruvallipra	1.0863	2100	1933	1
15	thirumoolapuram east	0.4904	1760	3589	3
16	Pushpagiri	0.7636	1450	1899	1
17	Aanjalimoodu	0.6169	1530	2480	2
18	Thondara	0.8224	2170	2638	2
19	Thirumoolapuram west	0.4805	1470	3059	3
20	Sreeramakrishnasram	0.5372	1880	3500	3
21	Kulakkad	0.4266	1610	3774	3
22	Thugalasseri	0.4239	1980	4671	3
23	Mathilbhagom	0.4807	1600	3328	3
24	Kizhakkummuri	0.7252	1960	2703	2
25	Sreevallabha	0.5798	1290	2225	2
26	Kavumbhagom	0.4988	1340	2686	2
27	Utramel	0.6549	1990	3039	3
28	Azhiyidathuchira	0.6117	1420	2321	2
29	Mannamkarachira	0.6841	1370	2003	1
30	Anchalkutty	0.7870	1950	2478	2
31	MGM	0.4811	1980	4116	3
32	Town	0.7357	1560	2120	1
33	Muthoor	0.8006	2000	2498	2
34	Ramanchira	0.5946	1510	2540	2
35	JPNagar	0.5559	1430	2572	2
36	Kottalil	0.5930	1860	3137	3

Source : Census Report 2011

ANNEX 4.1
WARD WISE NUMBER OF WORKERS

Wards	NUMBER OF WORKERS				
	Cultivators	Agriculture laboures	House hole Industrial Workers	Cultivators and Agriculture laboures	Other Workers
Muthoor north	3	5	5	8	402
Chumatra	3	24	5	27	536
Attuchira	1	34	3	35	262
Cable factory	7	4	16	11	279
varikkode	9	11	14	20	473
Annavattom	3	12	6	15	447
Nattukadavu	2	14	5	16	399
Meenthalakkara	6	11	2	17	353
Amallur east	3	8	1	11	260
Amallur west	3	6	3	9	377
Railway station	2	14	8	16	500
Theepani	10	21	4	31	488
Kattode	3	17	6	20	358
Iruvallipra	3	17	6	20	430
thirumoolapuram east	3	3	5	6	401
Pushpagiri	0	5	20	5	220
Aanjalimoodu	4	5	7	9	422
Thondara	6	6	14	12	275
Thirumoolapuram west	1	0	0	1	242
Sreeramakrishnasram	2	4	6	6	367
Kulakkad	1	45	9	46	244
Thugalasseri	7	13	3	20	433
Mathilbhagom	1	1	2	2	321
Kizhakkummuri	3	6	10	9	331
Sreevallabha	2	0	13	2	294
Kavumbhagom	0	1	4	1	265
Utramel	2	12	8	14	292
Azhiyidathuchira	4	13	2	17	312
Mannamkarachira	4	14	6	18	331
Anchalkutty	3	3	7	6	370
MGM	1	9	4	10	361
Town	0	78	4	78	295
Muthoor	3	11	9	14	420
Ramanchira	0	0	10	0	334
JPNagar	0	2	10	2	314
Kottalil	3	22	10	25	472

Source : Census Report 2011

ANNEX 4.2
CONCENTRATION INDEX OF WORKERS

Wards	Concentration Index of workers				
	Cultivators	Agriculture laboures	House hold Industrial Workers	Cultivators and Agriculture laboures	Other Workers
Muthoor north	0.93	0.37	0.68	0.48	1.04
Chumatra	0.83	1.59	0.61	1.44	1.24
Attuchira	0.31	2.50	0.40	2.07	0.67
Cable factory	2.09	0.29	2.09	0.64	0.70
varikkode	3.01	0.88	2.05	1.29	1.33
Annavattom	0.93	0.89	0.81	0.89	1.16
Nattukadavu	0.63	1.06	0.69	0.98	1.06
Meenthalakkara	1.59	0.70	0.23	0.87	0.78
Amallur east	1.22	0.78	0.18	0.87	0.89
Amallur west	0.89	0.43	0.39	0.51	0.94
Railway station	0.57	0.95	1.00	0.88	1.19
Theepani	3.08	1.55	0.54	1.85	1.26
Kattode	1.03	1.39	0.90	1.32	1.03
Iruvallipra	0.85	1.15	0.74	1.10	1.02
thirumoolapuram east	1.01	0.24	0.74	0.39	1.14
Pushpagiri	0.00	0.49	3.59	0.40	0.76
Aanjalimoodu	1.56	0.47	1.19	0.68	1.38
Thondara	1.65	0.39	1.68	0.64	0.63
Thirumoolapuram west	0.40	0.00	0.00	0.08	0.82
Sreeramakrishnasram	0.63	0.30	0.83	0.37	0.97
Kulakkad	0.37	3.98	1.45	3.29	0.76
Thugalasseri	2.10	0.94	0.39	1.16	1.09
Mathilbhagom	0.37	0.09	0.33	0.14	1.00
Kizhakkummuri	0.91	0.44	1.33	0.53	0.84
Sreevallabha	0.92	0.00	2.62	0.18	1.14
Kavumbhagom	0.00	0.11	0.78	0.09	0.99
Utramel	0.60	0.86	1.05	0.81	0.73
Azhiyidathuchira	1.68	1.30	0.37	1.38	1.10
Mannamkarachira	1.74	1.46	1.14	1.51	1.21
Anchalkutty	0.92	0.22	0.93	0.35	0.95
MGM	0.30	0.65	0.53	0.58	0.91
Town	0.00	7.13	0.67	5.75	0.94
Muthoor	0.89	0.78	1.17	0.80	1.05
Ramanchira	0.00	0.00	1.72	0.00	1.10
JPNagar	0.00	0.20	1.82	0.16	1.10
Kottalil	0.96	1.69	1.40	1.55	1.27

Source : Census Report 2011

ANNEX 5.1
FUNCTIONAL CHARACTER

NUUMBER OF WARD	NAME OF WARD	Total ppn	Ward area(sqkm)	Functional Character
1	Muthoor north	1920	0.6472	SEMI URBAN
2	Chumatra	2150	0.9789	SEMI RURAL
3	Attuchira	1940	0.4193	URBAN
4	Cable factory	1990	1.3151	URBAN
5	varikkode	1780	1.0653	URBAN
6	Annavattom	1930	1.3478	SEMI URBAN
7	Nattukadavu	1880	2.1327	RURAL
8	Meenthalakkara	2250	0.8748	SEMI RURAL
9	Amallur east	1460	1.2136	SEMI RURAL
10	Amallur west	2010	0.7550	URBAN
11	Railway station	2090	0.7637	URBAN
12	Theepani	1930	0.9973	SEMI URBAN
13	Kattode	1740	0.9984	URBAN
14	Iruvallipra	2100	1.0863	SEMI URBAN
15	thirumoolapuram east	1760	0.4904	SEMI URBAN
16	Pushpagiri	1450	0.7636	URBAN
17	Aanjalimoodu	1530	0.6169	URBAN
18	Thondara	2170	0.8224	SEMI URBAN
19	Thirumoolapuram west	1470	0.4805	SEMI URBAN
20	Sreeramakrishnasram	1880	0.5372	URBAN
21	Kulakkad	1610	0.4266	URBAN
22	Thugalasseri	1980	0.4239	URBAN
23	Mathilbhagom	1600	0.4807	URBAN
24	Kizhakkummuri	1960	0.7252	SEMI URBAN
25	Sreevallabha	1290	0.5798	URBAN
26	Kavumbhagom	1340	0.4988	URBAN
27	Utramel	1990	0.6549	SEMI URBAN
28	Azhiyidathuchira	1420	0.6117	SEMI URBAN
29	Mannamkarachira	1370	0.6841	SEMI URBAN
30	Anchalkutty	1950	0.7870	SEMI URBAN
31	MGM	1980	0.4811	URBAN
32	Town	1560	0.7357	URBAN
33	Muthoor	2000	0.8006	SEMI URBAN
34	Ramanchira	1510	0.5946	URBAN
35	JPNagar	1430	0.5559	URBAN
36	Kottalil	1860	0.5930	SEMI URBAN
	Source : Land Use Survey 2013			

ANNEX 8.1 ROAD INVENTORY DETAILS

Sl No	Name of Road section	Length (Kms)	Carriage way width(m)	Road way width(m)	Type of surface	Capacity (PCUs)	Volume (PCUs)	V/C ratio	Remarks
A	**MAIN CENTRAL ROAD(SH-1)**								
1	Pannikuzhi bridge to Muthoor Junction	0.85	9.00	15.00	BT	16,000	19,138	1.20	Residential area
2	Muthoor Junction to Deepa Junction	1.35	9.00	15.00	BT	16,000	20,063	1.25	residential area,T-intersection at Muthoor Junction, Side drain.
3	Deepa Juncion to SCS Junction	0.35	7.50	16.00	BT	12,350	38,888	3.15	residential area,bottle neck deficiery in turning radius
4	SCS Junction to Kurissadi Junction	0.30	8.00	15.50	BT	14,000	37,075	2.65	residential area,bridge
5	Kurissadi Junction to KalathipadyJunction	1.50	7.00	13.50	BT	10,000	13,213	1.32	residential area,side drain
6	Kalathipady Junction to Thondara Bridge	1.55	7.00	13.50	BT	10,000	13,213	1.32	residential area
B	**KAYAMKULAM ROAD(SH-6)**								
7	Kurissadi Junction to Market Junction	1.10	6.50	10.00	BT	8,700	19,275	2.22	commercial area
8	Market Junction to Kavumbhagam Junction	1.00	7.00	10.50	BT	10,000	12,275	1.23	commercial area,Deficiency in turning radius,T intersection at Kavumbhagam junction,side
9	Kavumbhagam Junction to Manipuzha bridge	.0.75	7.00	10.50	BT	10,000	10,825	1.08	residential area,curve
C	**T.K.ROAD(SH-7)**								
10	SCS Junction to Private Bus Stand Junction	0.30	7.00	12.00	BT	10,000	25,538	2.55	residential area,culvert,railway overbridge
11	Private Bus Stand Junction to Railway Station Road Junction	0.15	8.00	12.00	BT	14,000	12,538	0.90	residential area,bridge
12	Railway Station Road Junction to R.O.B(One-Way)	0.35	8.00	12.00	BT	14,000	10,275	0.73	residential area,culvert
13	R.O.B to Kattode Bridge	2.45	8.00	12.00	BT	14,000	18,763	1.34	residential area,side drain,slab culvert
14	R.O.B to Private Bus Stand Junction(One-Way)	0.30	8.50	12.00	BT	14,900	8,563	0.57	residential area
D	**MALLAPALLY ROAD(MDR)**								
15	Deepa Juncion to Chilanka Junction	0.20	5.00	9.00	BT	5,000	15,950	3.19	residential area
16	Chilanka Junction to Kuttapuzha Junction	1.10	5.00	9.00	BT	5,000	13,363	2.67	side drain,residential area
17	Kuttapuzha Junction to Payippad(Mosque)	2.70	5.00	9.00	BT	5,000	13,363	2.67	residential area

ANNEX 8.2
SPEED AND DELAY CHARACTERISTICS OF MAJOR ROAD STRETCHES IN THIRUVALLAMUNICIPALITY

Sl. No	Name of road / Stretches	Length (km)	Time taken(sec)		Speed(km/hr)		Delay time (sec)	Remarks
			With delay	Without delay	With delay	Without delay		
M.C.ROAD (SH –1)								
1	Pannikuzhy bridge to Muthur junction	0.85	91	90	33.63	34	1	Narrow bridge
2	Muthur junction to Deepa junction	1.35	106	105	45.84	46.28	1	Intersection,Bus stop
3	Deepa junction to S.C.S junction	0.35	94	90	13.4	14	4	Congestion,Bus stop
4	S.C.S junction to Kurissadi junction	0.3		90		12		
5	Kurissadi junction to Kalathipady junction	1.5	150	120	36	45	30	Congestion,Bus stop,Parking
6	Kalathipady junction to Thondara Bridge	1.55		120		46.5		
KAYAMKULAM ROAD (SH-6)								
7	Kurissadi junction to Hospital junction	0.7	121	120	20.83	21	1	Intersection
8	Hospital junction to Market junction	0.4	61	60	23.61	24	1	Intersection
9	Market junction to Ambili junction	0.5	63	60	28.57	30	3	Bus stop,Slow vehicle in front
10	Ambili junction to Kavumbhagom Junction	0.5	61	60	29.51	30	1	Parking
11	Kavumbhagom to Manipuzha bridge	0.75		120		22.5		
12	SCS junction to Private Bus Stand Junction	0.3	137.5	121.25	7.85	8.91	16.25	Bus stop,Doubleside parking,Signal control

13	Private Bus Stand Junction to Railway Station Road Junction	0.15		36		15		Bus stop,Doubleside parking
14	Railway Station Road Junction to R.O.B (One-way)	0.35		37.2		33.87		Parking,Congestion,Doubleside parking,Slow vehicle
15	R.O.B to Kattode junction	1.85	151	150	44.11	44.4	1	Slow vehicle in front
16	Kattode junction to Kattode Bridge	0.6		60		36		
17	R.O.B to Private Bus Stand Junction (One-way)	0.3		45		24		
MALLAPPALLY ROAD (MDR)								
18	Deepa Junction to Chilanka Junction	0.2	747.75	73.75	9.63	9.76	1	Bus stop,Intersection
19	Chilanka Junction to Kuttapuzha Junction	1.1		150		26.4		Intersection
20	Kuttapuzha Junction to Kizhakken muthoor	1.1		75		53		Parking,Pedestrian crossing,Slow moving vehicle,Bus stand
21	Kizhakken muthoor to Padappad	0.55		60		33		Narrow bridge
22	Padappad to Payippad(Mosque)	1.05		120		31.5		

Source: Speed and Delay survey NATPAC,2001

ANNEX 8.3 VOLUME OF DAILY VEHICULAR TRAFFIC

Sl. No.	Name of road section	FAST VEHICLES								SLOW VEHICLES			TOTAL	
		Bus	Mini Bus	Car	Pass auto	Two Wheeler	Truck	Mini truck	Goods auto	Bicycle	Handcart	Others	(No of veh)	in PUC
A	**MAIN CENTRAL ROAD(SH-1)**													
1	Pannikuzhi bridge to Muthoor Junction	75	13	426	320	569	37	75	12	21		2	1,550	1,531
2	Muthoor Junction to Deepa Junction	75	13	439	347	604	37	77	17	39		2	1,650	1,605
3	Deepa Juncion to SCS Junction	107	32	762	1076	1097	59	76	25	62	1	1	3,298	3,111
4	SCS Junction to Kurissadi Junction	131	16	727	939	969	68	79	22	57	5	1	3,014	2,966
5	Kurissadi Junction to Kalathipadyjunction	50	12	216	339	402	22	28	7	17	-	1	1,094	1,057
6	Kalathipady Junction to Thondara Bridge	50	12	216	339	402	22	28	7	17	-	1	1,094	1,057
B	**KAYAMKULAM ROAD(SH-6)**													
7	Kurissadi Junction to Market Junction	43	8	461	559	573	12	14	11	43	1		1,725	19,275
8	Market Junction to Kavumbhagam Junction	43	14	289	205	240	42	32	14	59			938	12,275
9	Kavumbhagam Junction to Manipuzha bridge	40	9	268	158	193	40	30	9	62	1		810	10,825
C	**T.K.ROAD(SH-7)**													
10	SCS Junction to Private Bus Stand Junction	63	13	519	697	812	34	42	15	63			2,258	25,538
11	Private Bus Stand Junction to Railway Station Road Junction	32	27	213	265	201	58	32	4	49			917	12,538
12	Railway Station Road Junction to R.O.B(One-Way)	32	24	190	220	184	38	24	25	26			763	10,275
13	R.O.B to Kattode Bridge	62	37	402	437	274	66	36	20	22			1,356	18,763
14	R.O.B to Private Bus Stand Junction(One-Way)	30	13	212	222	105	18	17	4	7			628	8,563
D	**MALLAPALLY ROAD(MDR)**													
15	Deepa Juncion to Chilanka Junction	27	9	296	509	470	18	25	13	47	2	1	1,471	15,950
16	Chilanka Junction to Kuttapuzha Junction	27	5	263	434	402	5	21	14	41	-	-	1,212	13,363
17	Kuttapuzha Junction to Payippad(Mosque)	27	5	263	434	402	5	21	14	41	-	-	1,212	13,363

ANNEX 8.4 PARKING DURATION OF VEHICLE ON M.C.ROAD IN THIRUVALLA TOWN

Duration(in minutes)	Bharat Petroluem pumps to SCS Junction			Elite Hotel to Deepa Junction			SCS Junction to Kurissadi junction		
	Car/Van/Jeep	Autorikshaws	Two wheelers	Car/Van/Jeep	Autorikshaws	Two wheelers	Car/Van/Jeep	Autoriks haws	Two wheelers
upto 30 minutes	40	48	121	88	209	77	56	38	92
31-60	8	12	20	24	61	11	13	5	23
61-90	2	1	3	10	15	6	5	4	7
91-120	2	1	4	5	6	1	5	1	1
above 120 minutes	1	4	7	5	11	1	8	2	10

ANNEX 8.5 PARKING DURATION OF VEHICLE ON T.K.ROAD IN THIRUVALLA TOWN

Duration(in minutes)	SCS Junction to Market(Right side)			SCS Junction to Market(left side)			Railway station road arm at Private bus stand junction
	Car/Van/Jeep	Autorikshaws	Two wheelers	Car/Van/Jeep	Autorikshaws	Two wheelers	Autorikshaws only
upto 30 minutes	114	158	148	73	58	38	50
31-60	34	37	35	30	19	10	10
61-90	13	7	9	4	4	1	4
91-120	2	1	1	3	1	-	2
above 120 minutes	1	-	-	3	-	-	-

ANNEX 8.6
PARKING DURATION OF VEHICLE ON MAVELIKKARA ROAD IN THIRUVALLA TOWN

Duration(in minutes)	Mavelikkara road arm at Kurissadi Junction			Thukalasserry and Mavelikkara road arm at Kavumbhagam Junction	Chathenkery road arm in Kavumbhagam Junction
	Car/Van/Jeep	Autorikshaws	Two wheelers	Autorikshaws only	Autorikshaws only
upto 30 minutes	34	16	57	40	35
31-60	12	6	7	15	11
61-90	3	-	4	4	2
91-120	1	-	1	2	1
Above 120 minutes	1	-	2	1	-

ANNEX 8.7 VEHICULAR TRAFFIC AT OUTER CORDON SURVEY STSTION IN THIRUVALLA TOWN

Sl.No	Type of vehicle	Manipuzha bridge			Kuttoor			Paippad			Kattode Bridge			Pannikuzhi bridge		
		TO	FROM	TOTAL	TO	FROM	TOTAL	TO	FROM	TOTAL	TO	FROM	TOTAL	TO	FROM	TOTAL
1	Bus	430	418	848	231	369	600	149	151	300	367	342	709	462	524	986
2	Mini-bus	102	37	139	44	66	110	53	50	103	117	79	196	94	100	194
3	Car	1494	1476	2971	1126	1425	2551	606	666	1272	2013	1789	3802	1824	2130	3954
4	Pass auto	788	790	1578	625	818	1443	460	465	925	695	685	1380	67	840	1510
5	Two-wheeler	1846	1761	3607	1316	1375	2691	664	656	1321	1893	1732	3626	1262	1528	2791
6	MAT	0	0	0	6	2	8	5	0	5	3	2	5	5	0	5
7	Truck	439	425	863	110	263	373	57	59	116	338	328	667	586	799	1385
8	Mini-truck	192	288	480	214	296	510	62	76	138	187	197	385	316	320	635
9	Goods auto	102	80	182	47	86	133	26	15	41	77	75	152	98	110	207
1	Bi-cycle	347	538	885	406	511	917	124	155	279	95	105	200	253	259	512
11	Hand cart	2	4	6	1	2	3	0	0	0	1	3	4	4	0	4
12	Bull cart	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Others	0	0	0	2	0	2	1	0	1	1	1	2	1	0	1
Total(No)		**5741**	**5818**	**11558**	**4128**	**5213**	**9341**	**2207**	**2294**	**4501**	**5789**	**5337**	**11126**	**5574**	**6610**	**12184**
Total(PUC)		**6534**	**6528**	**13063**	**4108**	**5728**	**9836**	**2301**	**2371**	**4672**	**6375**	**5915**	**12289**	**7149**	**8570**	**15719**

ANNEX 8.8 DISTRIBUTION OF INTERCITY VEHICULAR TRAFFIC BY CAR ACCORDING TO ORIGIN AND DESTINATION IN THIRUVALLA TOWN

	Origin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Total
1	Ward Nos X,XXIX,XXX							1382	4158	4517	3130	1050	2175	834	2705	1141	587	1346	1148				24173
2	Ward Nos I,II,III,IV,XXXII.XXXIII							230	978	1354	0	0	571	230	1028	0	0	285	691				5367
3	Ward Nos V,VI,VII,VIII,IX,XI							461	652	478	143	326	214	461	1233	0	0	822					4790
4	Ward Nos XII,XIII,XIV,XV,XVI							1195	1672	1173	391	169	371	479	854	0	0	641	956				7901
5	Ward Nos XVII,XVIII,XIX,XX,XXI,XXII,XXIII							461	1213	1047	591	489	714	461	1233	652	0	206	230				7297
6	Ward Nos XXIV,XXV,XXVI,XXVII,XXVIII,XXXI							1151	815	967	520	163	500	230	411	652	302	0	691				6402
7	Pulikeezhu Block	1541	420	140	560	280	420	0	909	822	494	352	428	0	1382	303	286	1672	212				10221
8	Elanthoor,and Koipram	3662	367	876	660	1025	1534	292	0	239	206	0	292	230	1978	0	230	2020	1431				1542
9	Mallappally Block	5339	1580	1120	1350	1212	890	537	470	0	602	0	505	1428	703	0	532	660	906				17834
10	Kulanada,Pandalam and Parakode Block	3787	367	75	374	1048	225	672	75	374	0	75	0	75	1290	0	0	2541	1252				12230
11	Ranny & Konni	812	0	0	292	584	0	0	0	0	143	0	0	292	206	0	373	292	1156	206			4356
12	Chengannur	2174	449	225	599	599	823	605	639	464	0	0	0	37	722	0	0	1858	660				9854
13	Mavelikkara	1336	495	355	710	355	140	0	443	1466	0	0	70	0	280	0	0	1294	416				7360
14	Changanassery	2297	495	1056	781	1561	704	704	1591	406	735	887	1240	621	0	515	1335	0	499				16846
15	Pathanamthitta	1460	1914	584	0	584	0	230	0	0	0	0	0	0	249	0	0	827	1207				5141
16	Kollam	514	0	0	0	150	0	760	466	1190	163	0	70	0	1287	0	0	2622	715	178	0	37	8227
17	Kottayam,Idukki	1561	75	1408	77	352	704	2501	2661	648	1372	1247	1099	1229	70	894	1914	0	941				19382
18	Alappuzha,Ernakulam,Thrissur and Palghat	4372	704	0	140	632	560	230	3058	978	663	1879	989	327	523	801	1351	1126	0	0	36		17665
19	Malappuram,Kozhikkode	352	0	0	0	0	0	0	0	0	71												423
20	Tamilnadu	0	0	77	0	0	0	0	0	0	0	0	36	0	70	0	71	0	103				357
21	East Indian States	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103				103
	Total	**29207**	**6371**	**5916**	**5543**	**8382**	**6000**	**11411**	**19800**	**16123**	**9224**	**6637**	**9274**	**6934**	**16224**	**4958**	**6981**	**18212**	**13317**	**384**	**36**	**37**	**200971**

ANNEX 8.9 DISTRIBUTION OF INTERCITY VEHICULAR TRAFFIC BY AUTO ACCORDING TO ORIGIN AND DESTINATION IN THIRUVALLA TOWN

	Origin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total
1	Ward Nos X,XXIX,XXX							473	432	364	682	0	125	0	792	0	0	0	158	3026
2	Ward Nos I,II,III,IV,XXXII.XXXIII							315	0	261	250	0	125	0	495					1446
3	Ward Nos V,VI,VII,VIII,IX,XI							0	364	0	0	0	0	158	297					819
4	Ward Nos XII,XIII,XIV,XV,XVI							315	182	182	182	0	125	158	99					1243
5	Ward Nos XVII,XVIII,XIX,XX,XXI,XXII,XXIII							0	0	261	125	182								568
6	Ward Nos XXIV,XXV,XXVI,XXVII,XXVIII,XXXI							473	182	182	0	0	125	158	99	0	0	0	158	1377
7	Pulikeezhu Block	488	98	49	146	195	586	0	0	231	0	0	174	0	345	0	0	49		2361
8	Elanthoor,and Koipram Blocks	776	0	0	0	0	0	0	0	261										1037
9	Mallappally Block	351	351	0	176	776	176	158	176	0	0	0	0	158						2322
10	Kulanada,Pandalam and Parakode Block	0	1391	0	1391	0	0	0	0	261	0									3043
11	Ranny & Konni	0	0	0	0	0	0	0	0	0	125									125
12	Chengannur	49	0	0	0	0	0	0	0	0	0	0	0	0	180					229
13	Mavelikkara	146	0	0	0	0	0	0	0	261	0	0	0	0	0	0	0	24		431
14	Changanassery	1128	0	238	476	0	714	0	0	0	0	0	244	88						2888
15	Pathanamthitta	0	0	0	0	0	776	0	0	0	0	0	0	0	0	0	0	50		826
16	Kollam,Thiruvananthapuram	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	24		74
17	Kottayam,Idukki	0	238																	238
18	Alappuzha,Ernakulam,Thrissur and Palghat	342	0	0	0	0	49	0	0	0	0	0	0	0	73					464
	TOTAL	**3280**	**2078**	**287**	**2189**	**971**	**2301**	**1734**	**1336**	**2264**	**1364**	**182**	**918**	**720**	**2430**	**0**	**0**	**147**	**316**	**22517**

ANNEX 8.10 DISTRIBUTION OF INTERCITY VEHICULAR TRAFFIC BY TWO-WHEELERS ACCORDING TO ORIGIN AND DESTINATION IN THIRUVALLA TOWN

	Origin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total
1	Ward Nos X,XXIX,XXX							381	1110	644	468	0	596	423	576	427	0	55	288	4968
2	Ward Nos I,II,III,IV,XXXII.XXXIII							127	107	211	85	0	85	0	332	0	0	79	40	1066
3	Ward Nos V,VI,VII,VIII,IX,XI							254	427	167	0	0	85	0	79	0	0	40		1052
4	Ward Nos XII,XIII,XIV,XV,XVI							254	214	130	170	0	213	381	119	0	0	40		1521
5	Ward Nos XVII,XVIII,XIX,XX,XXI,XXII,XXIII							0	320	242	128	0	85	0	159					934
6	Ward Nos XXIV,XXV,XXVI,XXVII,XXVIII,XXXI							508	320	197	0	0	43	0	213	0	0	55		1336
7	Pulikeezhu Block	363	0	121	242	363	363	0	121	90	43	0	164	0	159	0	0	55		2084
8	Elanthoor,and Koipram Blocks	1130	73	147	147	220	220	0	0	15	43	0	0	127	0	0	0	94	40	2256
9	Mallappally Block	1359	167	119	40	253	283	315	15	0	15	0	131	358	0	0	15	0	157	3587
10	Kulanada,Pandalam and Parakode Block	455	62	0	123	309	0	62	230	0	0	0	0	0	40	0	0	101	62	1444
11	Ranny & Konni	0	0	0	0	0	0	0	0	0	43									43
12	Chengannur	556	62	0	62	185	0	0	107	92	0	0	0	0	112	0	0	71	94	1341
13	Mavelikkara	608	0	121	0	121	121	0	0	45	0	0	61	0	100	0	0	40		1217
14	Changanassery	490	284	190	381	251	254	79	170	63	43	0	108	190	0	63	21		63	2650
15	Pathanamthitta	428	0	73	0	0	0	0	0	0	0	0	0	0	0	0	0	20		521
16	Kollam,Thiruvananthapuram	62	62	0	0	0	0	127	0	30	0	0	0	0	0	0	0	20	31	332
17	Kottayam,Idukki	205	63	0	0	63	0	254	15	107	15	0	53	95	0	139	21	0	116	1146
18	Alappuzha,Ernakulam,Thrissur and Palghat	427	321	0	121	121	0	0	0	122	85	0	74	21	140	53	32	61		1578
	TOTAL	6083	1094	771	1476	1886	1241	2361	3156	2155	1138	0	1698	1595	2029	682	89	731	891	29076

ANNEX 13.1
POWER CONSUPTION

DETAILS OF KSEB - THIRUVALLA MUNICIPAL AREA							
POWER							
CONNECTIONS DETAILS							
SL.NO.	NAME OF SECTION	CATEGORY WISE BREAK - NO. OF CONNECTIONS					TOTAL NO. OF CONNECTIONS
		DOMESTIC	INDUSTRIAL	COMMERCIAL	AGRICULTURE	OTHERS	
1	THIRUVALLA	9604	153	2071	14	763	12605
2	KAVUMBHAGOM	12915	138	1753	175	3	14984
3	THOTTABHAGOM	2200	40	200	12	559	3011

DETAILS OF KSEB - THIRUVALLA MUNICIPAL AREA							
POWER							
CONSUMPTION DETAILS							
SL.NO.	NAME OF SECTION	CATEGORY WISE BREAK - NO. OF CONNECTIONS					TOTAL CONSUMPTION
		DOMESTIC	INDUSTRIAL	COMMERCIAL	AGRICULTURE	OTHERS	
1	THIRUVALLA	136726	61500	669138	267	149166	1016797
2	KAVUMBHAGOM	2229543	60408	295064	4864	64377	2654256
3	THOTTABHAGOM	376881	14354	38071	1074	3009	433389

ANNEX.14.1

PERCENTAGE OF PLOT SIZE IN DIFFERENT RANGE

Ward No	Wards	% of building in each category of plot area					Average plot area(Sqm)
		<=5 cents	5 to 10	10 to 30	30 to 50	>50	
1	Muthoor north	28.21	35.90	20.51	10.26	5.13	
2	Chumatra	24.44	28.89	28.89	8.89	8.89	
3	Attuchira	24.39	34.15	26.83	4.88	9.76	
4	Cable factory	15.00	7.50	52.50	5.00	20.00	
5	varikkode	7.89	15.79	36.84	21.05	18.42	
6	Annavattom	11.63	11.63	39.53	25.58	11.63	
7	Nattukadavu	0.00	25.58	39.53	13.95	20.93	
8	Meenthalakkara	12.00	32.00	32.00	14.00	10.00	
9	Amallur east	19.35	12.90	32.26	16.13	19.35	
10	Amallur west	28.57	20.41	24.49	12.24	14.29	
11	Railway station	22.22	17.78	37.78	15.56	6.67	
12	Theepani	27.08	14.58	37.50	6.25	14.58	
13	Kattode	20.51	38.46	35.90	5.13	0.00	
14	Iruvallipra	30.43	30.43	30.43	8.70	0.00	
15	thirumoolapuram east	14.29	33.33	35.71	9.52	7.14	
16	Pushpagiri	25.81	16.13	25.81	19.35	12.90	
17	Aanjalimoodu	11.90	19.05	50.00	11.90	7.14	
18	Thondara	17.50	25.00	35.00	12.50	10.00	
19	Thirumoolapuram west	14.71	29.41	41.18	8.82	5.88	
20	Sreeramakrishnasram	19.51	39.02	36.59	2.44	2.44	
21	Kulakkad	31.58	13.16	39.47	2.63	13.16	
22	Thugalasseri	11.43	34.29	40.00	11.43	2.86	
23	Mathilbhagom	5.41	21.62	59.46	10.81	2.70	
24	Kizhakkummuri	6.98	23.26	44.19	11.63	13.95	
25	Sreevallabha	9.68	22.58	48.39	16.13	3.23	
26	Kavumbhagom	9.68	29.03	45.16	9.68	6.45	
27	Utramel	8.11	10.81	56.76	10.81	13.51	
28	Azhiyidathuchira	3.33	16.67	60.00	6.67	13.33	
29	Mannamkarachira	2.94	23.53	47.06	14.71	11.76	
30	Anchalkutty	13.33	20.00	37.78	11.11	17.78	
31	MGM	25.00	25.00	39.58	8.33	2.08	
32	Town	25.71	28.57	40.00	0.00	5.71	
33	Muthoor	8.70	21.74	56.52	6.52	6.52	
34	Ramanchira	20.51	15.38	48.72	10.26	5.13	
35	JPNagar	12.12	33.33	36.36	9.09	9.09	
36	Kottalil	11.43	31.43	31.43	11.43	14.29	

Source: Socio Economic Survey 2010

ANNEX 15.1
DETAILS OF MARKETS IN THIRUVALLA MUNICIPALITY

Sl. No.	Name of Market	Location	Area of the market place (Hect)	Area of influence (KM Radius)	Periodicies of transaction	Commodities transacted	Places from where commodities are brought to the market	Places to which goods are sent	Whether public convenience provided by the Municipality	Annual income from the market for the Municipality	Turn over of goods per year (tonne)
1	2	3	4	5	6	7	8	9	10	11	12
1	Ramapuram	Ward 18	0.36	3	Tuesday, Friday	Vegetables, Fish	Tamilnadu, Paipadu, Peringara, Alleppy	Municipal Town Area	8 Nos. Room and sheds	156100	6000
2	Evening Market	(SCS Jn)		Local	Daily evening	Vegetables, Fish	Tamilnadu, Paipadu, Peringara, Alleppy	Municipal Town Area		9600	2500
3	Fish Market (Whole Scale)	Mazhuvangad	0.404	5	Daily	Fish	Alleppy, Kollam	Thiruvalla, Mallappally	Shed	115000	
4	Thirumoolapuram Cattle market	Thirumoolapuram	0.607	6	Fortnightly	Cattle	TamilNadu & Local	Local Area	Shed	39800	
5	Thirumoolapuram Dailly market	Thirumoolapuram	0.607	Local	Daily	Vegetable, Fish	Changanacherry & Local,Alleppy, Kollam	Local Area	Shed	24000	
6	Manjadi market	Ward 7	0.101	2	Daily	Vegetable, Fish	Changanacherry & Local,Alleppy, Kollam	Local Area	Shed	15000	1200
7	Private bus stand	Stalls		1	Daily	Meat	TamilNadu & Local	Local Area	Shed	23000	
8	Thirumoolam			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	24000	
9	Kavumbhagom			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	22500	
10	Manjadi			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	65000	
11	Chanthakkadavu			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	61500	
12	Ramanchira			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	21500	
13	Kizkakkenmuthoor			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	26000	
14	Kuttappuzha			1	Daily	Meat	TamilNadu & Local	Local Area	Shed	40500	

Source: Thiruvalla Municipality

ANNEX 16.1
PUBLIC OFFICES AND FINANCIAL INSTITUTIONS IN THIRUVALLA MUNICIPLITY

Sl.No.	Name	Area in Possession of the institution (m^2)	Location / Ward No	Central State/ Bank/ Others.	Rented or own building	Date of establishment	No of employees	
							Gazetted	Non-gazetted
1	2	3	4	5	6	7	8	9
1	Income tax Circle I		25	Cental	Rented			25
2	Post Office, Kizhakkan Muthoor		1	Central	Rented			3
3	Post Office Kattod		3	Central	Rented			5
4	Post Office, Manchadi		4	Central	Rented			2
5	Raiway Station(SM Office,PWI Office)		5	Central	Own			55
6	RMS Division		5	Central	Own		1	79
7	LIC of India		7	Central	Rented	1989	5	43
8	Post Office Thirumoolapuram		13	Central	Rented			3
9	Head Post Office		15	Central	Own			91
10	Bharat Sanchar Nigam Ltd		15	Central	Own			420
11	Sub Record Office, P & T		15	Central	Own			75
12	Post office Azhiyadathuchira		21	Central	Rented			3
13	Micro wave Station		26	Central	Own			5
14	Kerala State Housing Board ii		29	Central	Rented			15
15	Village Office Kuttapuzha		31	Central	Rented			4
16	Deputy Commissioner Spl. Branch	121.25	31	Central	Rented	2000	1	7
17	Sub Post Office Muthoor		26	Central	Own			4
18	Oriental Insurance Company		7	Others	Rented			22
19	Unit Trust of India		25	Others	Rented			2
20	National insurance Company		25	Others	Rented			9
21	Air india Ltd		26	Others	Rented			2
22	Post Office, Chumathara		30	Others	Rented			2

23	Kerala Civil Suppliers Corporation, kattod		3	State	Rented			6
24	Asst Labour Office		6	State	Rented			3
25	KSEB Bill Section		6	State	Own		4	4
26	KSEB Office		6	State	Own		4	3
27	KSEB Eletrical division, Thiruvalla		7	State	Own		12	33
28	Sub Regional Transport Office		7	State	Rented	1987	2	8
29	Taluk supply Office	228.85	7	State	Rented	1999	1	14
30	Toddy wefare Inspector Office		7	State	Rented	1986		11
31	Excice Range Office		6	State	Rented		1	17
32	DD Poultry Diseases, Thiruvalla		7	State	Rented		5	9
33	Asst. Exe.Engineer, Sub Dvn.		7	State	Own		1	10
34	Asst. Director,Hydrology,Thiruvalla		10	State	Rented			
35	Asst. Public Procecuter Office		15	State	Rented			2
36	Sales Tax Office		15	State	Rented		1	13
37	Vetinary Poly Clinic		16	State	Rented		2	7
38	Post office (near Govt Hospital)		16	State	Rented			3
39	RDO Thiruvalla		18	State	Rented		2	12
40	Asst.Engineer, Minor Irrigation Section Office	83.26	18	State	Rented	1993	1	11
41	Devaswam sub group officer		18	State	Own			26
42	Devaswam Asst. Engineer		18	State	Own			4
43	Devaswam Commissioner		18	State	Own		1	8
44	Asst. Devaswam Audit Officer, Thiruvalla		18	State	Own		1	7
45	Asst.Engineer,Major Irrigation Section Office		18	State	Rented		1	3
46	Diary Extension Officer Thiruvalla		18	State	Rented		1	2
47	Asst.Executive Engineer, PWD,Thiruvalla		18	State	Own		1	6
48	Municipal Commissioner Office		18	State	Own	1920	1	104

49	Asst. Registrar of Co Operative Society(Audit)		18	State	Rented		1	14
50	Asst. Registrar of Co Operative Society(Genaral)		18	State	Rented		1	12
51	Asst.Engineer PWD Bridges Section		18	State	Rented	1961	1	5
52	Taluk Office Thiruvalla		18	State	Own		2	51
53	Asst.Director of Agriculture,Kavumbhagom		18	State	Rented		1	6
54	Town Employment Office		18	State	Rented	1980	1	10
55	Asst. Exe.Engineer PWD Sub Dvn. (Building)	257.44	18	State	Own		1	11
56	Office of the Deputy Director,Education	509.66	18	State	Own		6	49
57	Office of the District Education Officer, Thiruvalla	208.44	18	State	Own	1955	2	21
58	Office of the Asst.Education officer, Thiruvalla	199.45	18	State	Own	1948	2	8
59	Text Book Depot		18	State	Own			4
60	Sub Judge Sub Court		18	State	Rented	1905	2	53
61	AE PWD Roads Section		18	State	Own	1953	1	18
62	AE PWD Roads Sub.Dvn.	306.25	18	State	Own	1953	1	11
63	Judicial 1 st Class Magistrate Court	375.65	18	State	Own	1962	1	12
64	Munisif Court		18	State	Own		1	23
65	Kerala State Housing Board		18	State	Own	1983	1	2
66	Sub treasury Office Thiruvalla		18	State	Own		3	18
67	Asst. Engineer PWD Eletrical Wing		18	State	Own		1	7
68	Sub Registrar Office	300.5	18	State	Own	1948	1	10
69	Sub Inspector Of Police	242.44	18	State	Own	1947		43
70	Village Office	99.49	18	State	Own			4
71	Asst.Engineer PWD Panchayat Section, Thiruvalla		18	State	Rented		1	3
72	Legal Metrology Office		20	State	Rented			4
73	Food Inspector Office		20	State	Rented			3
74	Village office, KavumBhagom	52.93	20	State	Own			2

75	The Kerala Agro Industries Corporation Ltd		20	State	Own			6
76	Taluk Statistical Office		22	State	Rented		1	12
77	KSFE Thiruvalla		24	State	Rented	1977		25
78	Asst.Enginieer PWD Building		24	State	Own		1	7
79	Fire station		24	State	Own	1990		36
80	Junior Soil Conservation Office	129.07	24	State	Rented	1984	1	18
81	Taluk SC Development Officer	95.8	24	State	Rented	1955	1	5
82	DTO, KSRTC Thiruvalla		25	State	Own		1	471
83	Excise Circle Inspector Office	90.27	26	State	Rented	1994	1	26
84	15 th Batalian Kerala NCCOffice	245.89	26	State	Rented	1964		27
85	Asst. Engineer, KWA Section 1		26	State	Own	1984	1	28
86	Asst.Engineer KWA Section 2		26	State	Own	1984	1	13
87	Kerala water Authority IPD Sub Division		26	State	Own			2
88	Kerala water Authority IPD Sub Dvn		26	State	Own			5
89	Kerala water Authority PH Dvn		26	State	Own			19
90	Kerala water Authority PH Dvn 1		26	State	Own		1	14
91	Kerala water Authority PH Dvn 2		26	State	Own		1	11
92	Taluk Industries Office, Ramanchira		26	State	Rented		1	7
93	Asst.EE Panchayat Sub Dvn(PWD)	100.14	26	State	Rented	1955	1	11
94	Asst. Engineer 66KV Sub Station Chumathara		30	State	Own		5	5
95	State warehousing Corporation		30	State	Own			6
96	Krishi Bhavan, Thiruvalla	165.84	31	State	Rented	1998	1	7
97	HDFC Bank	92.9	Ramanchira	Bank	Rented	2002		7
98	Panchab National Bank	78.96	Ramanchira	Bank	Rented	2003		6
99	City Union Bank	92.84	Ramanchira	Bank	Rented	1996		7

100	Muthoot Bank	60.38	Ramanchira	Bank	Rented	1996		6
101	Gokulam Chitty and Finance	139.35	Ramanchira	Others	Rented	2003		10
102	ING Vysa bank	111.48	Ramanchira	Bank	Rented	1994		7
103	IDBI Bank	130.06	Ramanchira	Bank	Rented	1999		5
104	ICICI Bank	204.38	Ramanchira	Bank	Rented	1996		6
105	Travancore Bank	55.74	Ramanchira	Bank	Own	1998		4
106	South Malabar Grameena Bank	111.48	Ramanchira	Bank	Rented	2004		5
107	Sree Raga General Finance	46.45	Ramanchira	Others	Rented	2003		5
108	Muthoot Bank	60.38	Muthoor	Bank	Rented	1994		4
109	State Bank of Hydrabad	92.9	Muthoor	Bank	Rented	2000		5
110	Muthoor Co-Operative Bank No 3118	92.9	Muthoor	Bank	Own	1970		5
111	SBT Kuttappuzha	139.35	Kizhakken Muthoor	Bank	Rented	1976		10
112	Kuttappuzha Service Co-Operative Bank	232.25	Kizhakken Muthoor	Bank	Own	1927		4
113	Thiruvalla Urban Co Operative bank	37.16	Manjadi	Bank	Rented	1980		3
114	Union Bank of India	222.96	Town	Bank	Rented	1976		15
115	SBT	83.61	Thirumoolapuram	Bank	Rented	1977		7
116	IOB	92.9	Thukalaseri	Bank	Rented	1980		7
117	Primary Co Operative Agricultural Developement bank	278.7	Town	Bank	Own	1963		10
118	Kerala Housing Finance LTD	139.35	Town	Others	Rented	1998		6
119	Govt.Employees Co Operative bank	46.45	Town	Bank	Own	1964		5
120	Andhra Bank	111.48	Town	Bank	Rented	2001		4
121	Bank of India	120.77	Kacheri Jn.	Bank	Rented	1995		7
122	Thiruvalla Urban Sahakarana bank	120.77	Kacheri Jn.	Bank	Own	1923		6
123	State bank of India	167.22	Near Market	Bank	Rented	1985		10
124	Maharashtra Bank	157.93	Near Market	Bank	Rented	2001		4
125	SBT MGM Branch	232.35	Near Market	Bank	Rented	1978		10
126	Fedaral bank	185.8	Kavum Bhagam	Bank	Rented	1977		10

127	Fedaral bank	139.35	Azhiyidathu Chira	Bank	Rented	1977		5
128	Fedaral bank	235.25	Town	Bank	Rented	1967		20
129	Thiruvalla Service Co Operative Bank	185.8	Kavum Bhagam	Bank	Own	1965		8
130	Thiruvalla Service Co Operative Bank	139.35	Azhiyidathu Chira	Bank	Rented	1998		5
131	Thiruvalla Service Co Operative Bank	111.48	Thukalaseri	Bank	Rented	2000		5
132	Karnadaka Bank	185.8	Town	Bank	Rented	1998		7
133	South Indian Bank	185.8	Town	Bank	Rented	1985		9
134	SBT Kattode	204.38	Kattode	Bank	Rented	1980		9
135	Dhanalekshmi Bank	185.8	Town	Bank	Rented	1982		6
136	State bank of India	1114	Town	Bank	Rented	1974		51
137	SBT Town	650	Town	Bank	Rented	1961		31
138	Syndicate Bank	418	Town	Bank	Rented	1978		15
139	Pathanamthitta District Co Operative bank	111.48	Town	Bank	Rented	1984		9
140	Lord Krishna Bank	232.25	Town	Bank	Rented	2001		7
141	Panchab National Bank	185.8	Town	Bank	Rented	1996		8
142	IOB	315	Town	Bank	Rented	1961		21
143	UTI Bank	134.7	Town	Bank	Rented	2004		4
144	Cathelic Syrian Bank	185.8	Town	Bank	Rented	1970		12
145	Cathelic Syrian Bank	139.35	Town	Bank	Rented	1999		3
146	Central Bank of India	232.25	Town	Bank	Rented	1994		10
147	IOB	185.8	Kuttappuzha	Bank	Rented	1970		8
148	Vijaya Bank	229.6	Kurisukavala	Bank	Rented	1985		10
149	Corporation bank	139.35	Kurisukavala	Bank	Rented	1995		8
150	Baroda bank	235.25	Kurisukavala	Bank	Rented	1978		13
151	Fedaral bank	325.16	Kurisukavala	Bank	Rented	1967		22
152	SBT (NRI)	260.12	Kurisukavala	Bank	Rented	1993		8
153	Muthoot Bank	46.45	Kurisukavala	Bank	Rented	1996		5

154	Muthoot Mini Bank	46.25	Kurisukavala	Bank	Rented	2000		5
155	Kosamattom Bank	37.16	Kurisukavala	Bank	Rented	2002		3
156	Oriental Bank	278	Kurisukavala	Bank	Rented	1994		10
157	UCO Bank	111.48	Kurisukavala	Bank	Rented	1996		10
158	Muthoot Bank	46.45	Kurisukavala	Bank	Rented	2004		4
159	Canera Bank	192.77	Kurisukavala	Bank	Rented	1992		11
160	Indian Bank	232.25	Kurisukavala	Bank	Rented	1993		11

Source: Thiruvalla Municipality , PWD (Building), Lead Bank & Primary Survey

ANNEX 22.1
POPULATION PROJECTION

The population of Kuttapuzha Panchayats is also added to the population of Thiruvalla to get the total population of Thiruvalla municipal area during the year 1981 for doing the population projection

1. INCREMENTAL INCREASE METHOD

YEAR	POPULATION	INCREASE	INCREMENTAL INCREASE
1981	52475		
1991	54780	2305	
2001	56837	2057	-243
2011	52883	-3954	-6011
Total		**408**	**-6254**
Average		**136**	**-3127**

Population in year 2021 is,

P2021 = 52883 + (136 x 1) + {(1 (1+1))/2} x -3127 = 49892

For year 2031

P2031 = 52883 + (136 x 2) + {(2 (2+1)/2)} x -3127 = 43774

2. GEOMETRIC PROGRESSION METHOD

YEAR	POPULATION	INCREASE	GEOMETRICAL INCREASE RATE OF GROWTH
1981	52475		
1991	54780	2305	(2305/52475)=0.04393
2001	56837	2057	(2057/54780)=0.0375
2011	52883	-3954	(-3954/56837)=-0.0695

Geometric mean

IG = (.04393 x 0.0375 x -0.0695)1/3= -0.0485578

Population in year 2021 is,

P2021 = 52883 x (1+ -0.0485578)1= 50315

Similarly for year 2031 and 2041 can be calculated by,

P2031 = 52883x (1+ -0.0485578)2= 47872

ANNEX 25.1
LIST OF NON-OBNOXIOUS AND NON-NUISANCE TYPE OF SERVICE OR LIGHT INDUSTRIES

1. Flour mills
2. Embroidery and lace manufacturing.
3. Gold and Silver Smithy.
4. Watch, pen and spectacles repairing.
5. Laundry, dry cleaning and dyeing
6. Photo and picture framing
7. Manufacture and repair of musical instruments
8. Automobile servicing (excluding repair)
9. Radio servicing and repairing
10. Cotton and silk printing
11. Bakeries
12. Confectioneries
13. Cold storage
14. Aerated water and fruit beverages
15. Manufacture of tobacco products.
16. Garment making
17. Electroplating
18. Bamboo and cane products.
19. Sports goods
20. Cardboard box and paper products
21. Domestic electrical appliances
22. Toy making
23. Furniture without machinery
24. Wooden electrical accessories.
25. Copper, brass and metal utensils
26. Small foundries
27. Padlocks
28. Sanitary fittings and other similar industries.
29. Apparel Making.
30. Assembly of air coolers and conditioners
31. Assembly of bicycles, baby carriage and other small non-motorized vehicles.
32. Atta - Chakkies
33. Ayurvedic Medicinal Formulations, Ayurvedic health club
34. Block making for printing
35. Carpet weaving
36. Cement and concrete products (Where crusher is not used)
37. Coir (Without bleaching/dyeing)
38. Concrete batching plants
39. Electronics and electrical goods
40. Electronics equipment (Assembly)
41. Engineering workshop and general fabrication works (With out any chemical Treatment)
42. Foam bed, latex threads

43. Footwear (Rubber and PVC)
44. Furniture making
43. Fountain pens
44. Garment stitching, tailoring
45. Gold and Silver thread saree work
46. Ice cream or ice making
47. Insulation and other coated paper (Paper or pulp manufacturing excluded)
48. Jobbing and machining
49. Light engineering
50. Manufacturing of formulated synthetic detergent products
51. Manufacture of soaps involving process without generation of trade effluents (Saponification of fats and fatty acids only)
52. Mineralsed water
53. Musical instruments manufacturing
53. Oil ginning/expelling
54. Optical frames
55. Paint (by mixing process only)
56. Paper Pins and U Clips
57.Power looms/handlooms (without dyeing & bleaching)
58. Pressure testing units
59. Printing press
60. Rice Millers
61. Rope (Cotton and Plastic)
62. Rubber gloves other than that for surgical and medical purpose
63. Rubberized coir mattresses
64. Scientific and mathematical instruments
65. Steeping and processing of grains
66. Tissue culturing
67. Toys
68. Water Softening and demineralization plants
69. Slaughtering preservation of meat, fish and cleaning fish
70. Manufacture of Beverages
71. Manufacture of wood and wooden products
72. Sawing and planning of wood.












OFFICE OF THE DISTRICT TOWN PLANNER, PATHANAMTHITTA
LOCAL SELF GOVERNMENT DEPARTMENT PLANNING, KERALA STATE