

CHAPTER 25

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 Municipality 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, Park and Open Space use zone, Green buffer zone, Special use zones, Water Body 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 uses come under the category 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 the District Office of the Department of Town and Country 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 Department of Town and Country 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.

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
1	RESIDENTIAL USE ZONE			
	All Residences including residential apartments, Ashram/Mutt Orphanages, Old Age Homes, Dharmasala, Residential quarters. Automobile workshops for 2/3 wheelers up to 200 sq m floor		Fuel filling stations	Any other uses not specified

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
	area provided that the access road has a width of 5m minimum.			
	Shops/ Professional Offices up to 100 sq m floor area	Shops/ Professional Offices in between 100 to 500 sq m floor area	Shops/ Professional Offices above 500 sq m floor area	
	Banking and Financial institutions up to 200 sq m floor area, Diagnostic centre, Godowns up to 200 sq m	Banking and Financial institutions in between 200 to 500 sq m floor area	Banking and Financial institutions above 500 sq m floor area	
	Gymnasium/Yoga Centers, Clinics (outpatient) up to 100 sq m floor area.	Transmission towers and Wireless Stations. Places of Worship Auditorium / Wedding hall / Community halls above 500 sqm floor area provided that the access road has a width of 12m minimum	Higher education/hospitals up to 100beds provided that the access road has a width of 12m minimum.	
	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.			
	Day Care and Crèche, Nursery Schools, Kindergarten, Primary Schools, Schools up to HSS when access road has a width of 7m minimum.	Hospitals 50 beds and weigh bridge, if the access road has a width of 7m minimum.		
	Local/state/central government			

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
	offices like Police Post, Fire Post/Fire Station, Post office etc serving the local community 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	Residential buildings up to 300 sqm (plotted), Ashram / Mutts, Residential apartments with lower floors for commercial uses, Orphanages, Old Age Homes	Hospitals & Health Centers above 50 beds provided that the access road has a width of 12m minimum	Any other uses not specified
	IT Software units	Places of Worship		
	Movie Halls, Auditorium / Wedding Halls / Community halls, Indoor games stadium, Convention Centers, Exhibition centers and art gallery			
	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			

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
	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 existing buildings/addition of new block(s) without altering the use, Buildings incidental to the main use with floor area up to 100 sqm		Skill development centers, Training centers, incidental use above 100sqm.	Any other uses not Specified
4	RESIDENTIAL MIXED LAND USE ZONE			
Land to a depth of 100 m on either side of roads having proposed width of 18m or more and 50m on either side of roads having proposed width of 15m in Residential and Dry Agriculture zones are also deemed as Residential mixed Land use zone				

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
4.1	All uses that are permitted in Residential Use Zone. Museum, Exhibition Centers and Art Gallery.			Any other uses not specified
	Guest Houses / Lodges	Places of Worship		
	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-nuisance nature (See Annex -1) engaging not more than19 workers without power or 9 workers with power limited to 15 HP			Any other uses not specified
	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.		

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
	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 Financial Institutions, Restaurants / Canteen, Hotels, IT / Software Units - floor area up to 1000 sq m			Any other uses not specified
	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			

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
	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	Commercial cum residential buildings	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		Skill development centre/ Training centre	Any other uses not Specified
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 Nursery, Dairy farm, Poultry farm.	Places of Worship	Fuel Filling Stations	Any other uses not specified

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
	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	saw mills		
	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 area upto 500 sq m	Weigh bridge		

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
	Godowns / Warehouses / Storage - non hazardous - floor area upto 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	
7	PADDY / ENVIRONMENTALLY SENSITIVE 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
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			Any other uses not specified

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
10	GREEN BUFFER ZONE			
	Agriculture / Horticulture / Vegetable / Fodder cultivation, Fish farms, River training works, Boat landing centers, Hooking platform, Any construction essentially incidental to water supply /irrigation schemes, bridges			Any other uses not specified
11	LAND RECONSTITUTION ZONE			
	As per the provisions of the Detailed Town Planning Scheme to be prepared by the Municipality			Any other uses not specified
12	SPECIAL USE ZONES			
	Special Use Zones include the areas specifically demarcated for certain projects. No other activity unless otherwise specified should be permitted in these areas			
12.1	Special Zone. 1 Centre of Excellence in Education	70% of the total buildable plot area is reserved for buildings of main use. Remaining 30% of the buildable area is reserved for incidental uses like canteens, residential quarters, recreational facilities and other buildings for incidental uses (If this projects is not materialised within a period of 10 years, the area shall be deemed to be zoned as Residential use zone. Any construction in such deemed zone shall be with the prior approval of CTP (Planning)).		
12.2	Special Zone. 2 Centre of Excellence in Health	70% of the total buildable plot area is reserved for buildings of main use. Remaining 30% of the buildable area is reserved for incidental uses like canteens, residential quarters, recreational facilities and other buildings for incidental uses.		
12.3	Special Zone. 3 Exhibition Ground	Structures for incidental uses like electrical room, pump house, water tank, sanitation complex, office room etc. with floor area up to 100 sq m are permitted (If this projects is not materialized within a period of 10 years, the area shall be deemed to be zoned as Residential Mixed use Zone. Any construction in such deemed zone shall be with the prior approval of CTP (Planning)).		
12.4	Special Zone. 4 Industry for making materials from Non-Bio degradable waste	Buildings/Structures incidental to the main use only are permitted.		

SL No.	Uses Permitted	Uses Restricted 1	Uses Restricted 2	Uses Prohibited
12.5	Special Zone. 5 Solid waste management units	Buildings/Structures incidental to the main use only are permitted (If this projects is not materialized within a period of 10 years, the area shall be deemed to be zoned as per the existing land use 2010 map. Any construction in such deemed zone shall be with the prior approval of CTP (Planning)).		
12.6	Special Zone. 6 Agriculture applied activity Centre	30% of the buildable plot area is reserved for buildings incidental to the main use and balance area is reserved for agricultural activities that support and promote the agriculture activity of the municipality and surrounding area (If this projects is not materialized within a period of 10 years, the area shall be deemed to be zoned as Dry Agricultural Zone. Any construction in such deemed zone shall be with the prior approval of CTP (Planning)).		
12.7	Special Zone. 7 Municipal Traffic terminal	All uses specified under Traffic and Transportation use zone, Parking areas, Parking Plazas are permitted.		
12.8	Special Zone. 8 Truck / Taxi Stand	Buildings/Structures incidental to the main use only are permitted. (If this project is not materialised within a period of 10 years, the area shall be deemed to be zoned as Residential Zone. Any construction in such deemed zone shall be with the prior approval of CTP Planning)		
13	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 500 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 Kerala State Department of Town and Country Planning, the Head of office of the District Office of the Department of Town and Country Planning being the convener and the Secretary of the municipality and satisfying following conditions:-

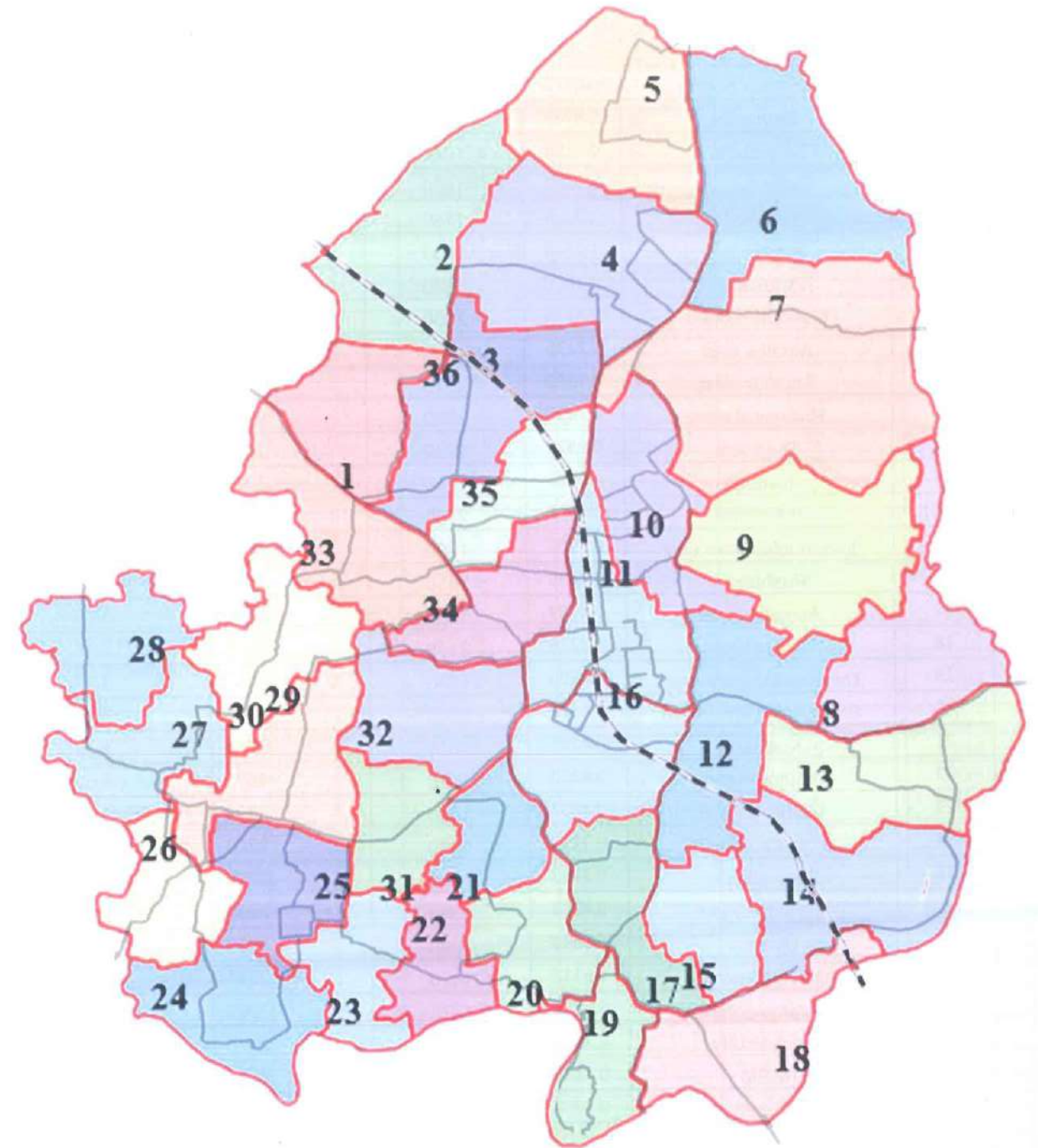
- a) The developer shall produce project cum feasibility report and environmental impact assessment report, if required, of the project to the convener of the committee, 15 days in advance of the committee meeting.
- b) The developer shall produce before the committee, all required clearances from the 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
Meenthallakkara	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 popn	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	Meenthallakkara	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 7.1
LIST OF NON- OBNOXIOUS AND NON-NUISANCE TYPE OF SERVICE OR LIGHT INDUSTRIES

SL NO	INDUSTRY
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.

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	20,663	1.25	residential area, T-intersection at Muthoor Junction, Side drain.
3	Deepa Junction to SCS Junction	0.35	7.50	16.00	BT	12,350	38,888	3.15	residential area, bottle neck deficiency 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 Kalathipady Junction	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 Kattoode 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 Junction to Chilaika Junction	0.20	5.00	9.00	BT	5,000	15,950	3.19	residential area
16	Chilaika 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 THIRUVALLA MUNICIPALITY

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 Junction 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 Kalathipady Junction	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 Junction 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	Autorikshaws	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 STATION 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	1541	420	140	560	280	420	0	1382	4158	4517	3130	1050	2175	834	2705	1141	587	1346	1148			24173
2 Ward Nos I, II, III, IV, XXXII, XXXIII	3662	367	876	660	1025	1534	292	230	978	1354	0	571	230	1028	0	0	285	691				5367
3 Ward Nos V, VI, VII, VIII, IX, XI	5339	1580	1120	1350	1212	890	537	461	652	478	143	325	214	461	1233	0	0	822				4790
4 Ward Nos XII, XIII, XIV, XV, XVI	3787	367	75	374	1048	225	672	1195	1672	1173	391	169	371	479	854	0	0	641	956			7901
5 Ward Nos XVII, XVIII, XIX, XX, XXI, XXII, XXIII	812	0	0	292	584	0	0	461	1213	1047	591	489	714	461	1233	652	0	206	230			7297
6 Ward Nos XXIV, XXV, XXVI, XXVII, XXVIII, XXXI	2174	449	225	599	599	823	605	1151	815	967	520	163	500	230	411	652	302	0	691			6402
7 Pulikeezhu Block	1460	1914	584	0	584	0	230	0	909	822	494	352	428	0	1382	303	286	1672	212			10221
8 Elanthoor, and Koipram	514	0	0	0	150	0	760	466	1190	163	0	70	0	1287	0	0	2622	715	178	0	37	8227
9 Mallappally Block	1561	75	1408	77	352	704	2501	2661	648	1372	1247	1099	1229	70	894	1914	0	941				19382
10 Kulanada, Pandalam and Parakode Block	4372	704	0	140	632	560	230	3058	978	563	1879	989	327	523	801	1351	1126	0	0	36		17665
11 Ranny & Konni	352	0	0	0	0	0	0	0	0	0	71											423
12 Chengannur	0	0	77	0	0	0	0	0	0	0	0	36	0	70	0	71	0	103				357
13 Mavelikkara	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	103				103
14 Changanassery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
15 Pathanamthitta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
16 Kollam	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
17 Kottayam, Idukki	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
18 Alappuzha, Ernakulam, Thrissur and Palghat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
19 Malappuram, Kozhikkode	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
20 Tamilnadu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
21 East Indian States	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				0
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	*	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

Origin	TOWN																		Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
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, XXIX							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	233	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 CONSUMPTION

DETAILS OF KSEB - THIRUVALLA MUNICIPAL AREA							
POWER							
CONNECTIONS DETAILS							
SL.N O.	NAME OF SECTION	CATEGORY WISE BREAK - NO. OF CONNECTIONS					TOTAL NO. OF CONNECTI ONS
		DOMES TIC	INDUSTRI AL	COMMERC IAL	AGRICULT URE	OTHE RS	
1	THIRUVALLA	9604	153	2071	14	763	12605
2	KAVUMBHAG OM	12915	138	1753	175	3	14984
3	THOTTABHA GOM	2200	40	200	12	559	3011

DETAILS OF KSEB - THIRUVALLA MUNICIPAL AREA							
POWER							
CONSUMPTION DETAILS							
SL.N O.	NAME OF SECTION	CATEGORY WISE BREAK - NO. OF CONNECTIONS					TOTAL CONSUMPT ION
		DOMES TIC	INDUSTRI AL	COMMERC IAL	AGRICULT URE	OTHE RS	
1	THIRUVALLA	136726	61500	669138	267	14916 6	1016797
2	KAVUMBHAG OM	222954 3	60408	295064	4864	64377	2654256
3	THOTTABHA GOM	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	Aanjalmoodu	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)	Periodicities 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 Daily market	Thirumoolapuram	0.607	Local	Daily	Vegetables, Fish	Changanacherry & Local, Alleppy, Kollam	Local Area	Shed	24000	
6	Manjadi market	Ward 7	0.101	2	Daily	Vegetables, 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	Kizhakkemuthoor			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 MUNICIPALITY

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	Central	Rented			25
2	Post Office, Kizhakkann Muthoor		1	Central	Rented			3
3	Post Office Kattod		3	Central	Rented			5
4	Post Office, Manchadi		4	Central	Rented			2
5	Railway 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 Electrical 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 welfare Inspector Office		7	State	Rented	1986		11
31	Excise 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 Procurement 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	Rente d		1	14
50	Asst. Registrar of Co Operative Society(General)		18	State	Rente d		1	12
51	Asst.Engineer PWD Bridges Section		18	State	Rente d	1961	1	5
52	Taluk Office Thiruvalla		18	State	Own		2	51
53	Asst. Director of Agriculture, Kavumbhagom		18	State	Rente d		1	6
54	Town Employment Office		18	State	Rente d	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	Rente d	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	Rente d		1	3
72	Legal Metrology Office		20	State	Rente d			4
73	Food Inspector Office		20	State	Rente d			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	Rente d		1	12
77	KSFE Thiruvalla		24	State	Rente d	1977		25
78	Asst. Engineer PWD Building		24	State	Own		1	7
79	Fire station		24	State	Own	1990		36
80	Junior Soil Conservation Office	129.07	24	State	Rente d	1984	1	18
81	Taluk SC Development Officer	95.8	24	State	Rente d	1955	1	5
82	DTO, KSRTC Thiruvalla		25	State	Own		1	471
83	Excise Circle Inspector Office	90.27	26	State	Rente d	1994	1	26
84	15 th Batalian Kerala NCC Office	245.89	26	State	Rente d	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	Rente d		1	7
93	Asst. EE Panchayat Sub Dvn(PWD)	100.14	26	State	Rente d	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	Rente d	1998	1	7
97	HDFC Bank	92.9	Ramanchira	Bank	Rente d	2002		7
98	Panchab National Bank	78.96	Ramanchira	Bank	Rente d	2003		6
99	City Union Bank	92.84	Ramanchira	Bank	Rente d	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 Hyderabad	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	Kizhakkenn Muthoor	Bank	Rented	1976		10
112	Kuttappuzha Service Co-Operative Bank	232.25	Kizhakkenn 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	Thukalasari	Bank	Rented	1980		7
117	Primary Co Operative Agricultural Development 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	Federal bank	185.8	Kavum Bhagam	Bank	Rented	1977		10

127	Federal bank	139.35	Azhiyidathu Chira	Bank	Rented	1977		5
128	Federal 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	Thukalasari	Bank	Rented	2000		5
132	Karnataka 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	Catholic Syrian Bank	185.8	Town	Bank	Rented	1970		12
145	Catholic 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	Federal 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	Kurisuka vala	Bank	Rente d	2000		5
155	Kosamattom Bank	37.16	Kurisuka vala	Bank	Rente d	2002		3
156	Oriental Bank	278	Kurisuka vala	Bank	Rente d	1994		10
157	UCO Bank	111.48	Kurisuka vala	Bank	Rente d	1996		10
158	Muthoot Bank	46.45	Kurisuka vala	Bank	Rente d	2004		4
159	Canera Bank	192.77	Kurisuka vala	Bank	Rente d	1992		11
160	Indian Bank	232.25	Kurisuka vala	Bank	Rente d	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	POPULA TION	INCREA SE	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,

$$P_{2021} = 52883 + (136 \times 1) + \{(1(1+1))/2\} \times -3127 = 49892$$

For year 2031

$$P_{2031} = 52883 + (136 \times 2) + \{(2(2+1)/2)\} \times -3127 = 43774$$

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

$$IG = (.04393 \times 0.0375 \times -0.0695)^{1/3} = -0.0485578$$

Population in year 2021 is,

$$P_{2021} = 52883 \times (1 + -0.0485578)^1 = 50315$$

Similarly for year 2031 and 2041 can be calculated by,

$$P_{2031} = 52883 \times (1 + -0.0485578)^2 = 47872$$