



# City level self assessment form

A Sl. No.	B Feature	C Definition	H Self-assessment of the city (for Pan-City Solution) with regard to each feature	I Basis for assessment and/or quantitative indicator (Optional - only if data exists)	J Projection of 'where the city wants to be' with regard to the feature/indicator	K Input/Initiative that would move the city from its current status to Advanced status (Scenario 4: Column G)	Multiplier effect on other features
1	Citizen participation	A smart city constantly shapes and changes course of its strategies incorporating views of its citizen to bring maximum benefit for all. (Guideline 3.1.6)	<p style="text-align: center;">Scenario 2</p> 	<p>Website of GoTN and Thoothukudi district profile, stakeholder consultation held for various Thoothukudi development initiatives.</p> <p>Source: Govt. Website of GoTN and Thoothukudi district profile</p>	<p style="text-align: center;">Scenario 4</p>	<p>Develop smart processes to reinstate citizen voices, empowered networked society instead of simply deploying ICT as a linear flow from government – to – citizen including assessing the transparency, accountability and review the performance on the ULB to assess how far ULB's are citizen friendly</p>	<ul style="list-style-type: none"> <li>▶Identity and culture</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Health</li> <li>▶Mixed use</li> <li>▶Compact</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Transport</li> <li>▶Walkable</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> <li>▶Energy supply</li> <li>▶Energy source</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Underground electric wiring</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>
2	Identity and culture	A Smart City has a unique identity, which distinguishes it from all other cities, based on some key aspect: its location or climate; its leading industry, its cultural heritage, its local culture or cuisine, or other factors. This identity allows an easy answer to the question "why in this city and not somewhere else?" A Smart City celebrates and promotes its unique identity and culture. (Guideline 3.1.7)	<p style="text-align: center;">Scenario 2</p> 	<p>Thoothukudi better known as Pearl city because of thriving pearl culture industry significant contributor of salt production in the country Presence of 3rd largest port in the country</p> <p>Source : Thoothukudi vision 2025 by CII</p>	<p style="text-align: center;">Scenario 4</p>	<p>Extensive level of brand promotion in media, on line platforms, social media and other communications for brand Smart Thoothukudi city</p>	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Economy and employment</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Walkable</li> <li>▶ICT-enabled government services</li> <li>▶Safety and security</li> </ul>

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3	Economy and employment	A smart city has a robust and resilient economic base and growth strategy that creates large-scale employment and increases opportunities for the majority of its citizens. (Guideline 2.6 & 3.1.7 & 6.2)	Scenario 2	The GDDP of the district in 2012 was 2048 million USD. The tertiary sector contributes about 65% to GDDP of the district. Food & agro based industries, metal and metal products and textile industry are the major contributors to the GDDP.  Source :  Thoothukudi district profile	Scenario 4	Industrial business sustenance, enabling ecosystem for employment and economic recovery, improvement to physical and social infrastructure and pairing it with effective, efficient social safety nets to protect vulnerable group, access to livelihood activities, skilling opportunities and lesser incidence of crime. Establishment of related infrastructure and other business facilitation initiatives	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Education</li> <li>▶Health</li> <li>▶Compact</li> <li>▶Housing and inclusiveness</li> <li>▶Transport</li> <li>▶Walkable</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> <li>▶Energy supply</li> <li>▶Energy source</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Underground electric wiring</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>
4	Education	A Smart City offers schooling and educational opportunities for all children in the city (Guideline 2.5.10)	Scenario 2	12 government schools 62 private schools Teacher to student ratio is 1:40  Source:  Chief Educational Officer, Thoothukudi	Scenario 4	Strengthening skill development initiatives, developing smart industry specific skill development programmes and developing employability index through smart tools	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Economy and employment</li> <li>▶Health</li> <li>▶Housing and inclusiveness</li> <li>▶Transport</li> <li>▶Walkable</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> <li>▶Energy supply</li> <li>▶Energy source</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Underground electric wiring</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>



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5	Health	A Smart City provides access to healthcare for all its citizens. (Guideline 2.5.10)	Scenario 2	No. of hospitals = 30 (Govt. & private) No. of emergency care centers = 5 No. of specialized hospital = 4 No. of doctors = 95 No. of para medical staff = 400 Doctor to bed ratio = 1:450  Source: Chief Health Officer, Thoothukudi City Municipal Corporation	Scenario 4	Develop robust industrial and pollution health hazards monitoring response system	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Public open spaces</li> <li>▶Walkable</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> <li>▶Air quality</li> <li>▶Safety and security</li> </ul>
6	Mixed use	A Smart City has different kinds of land uses in the same places; such as offices, housing, and shops, clustered together. (Guidelines 3.1.2 and 3.1.2)	Scenario 2	The city has predominant mixed use development and the master plan has stipulated guidelines to streamline development process.  Source: Thoothukudi local planning authority official website	Scenario 4	Enforcement of development regulations, mixed uses, compact development, public open spaces development ICT applications in urban planning and urban forms	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Economy and employment</li> <li>▶Compact</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Safety and security</li> </ul>

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7	<b>Compact</b>	A Smart City encourages development to be compact and dense, where buildings are located close to one another and are ideally within a 10-minute walk of public transportation, forming concentrated neighbourhoods. (Guidelines 2.3 and 5.2)	<b>Scenario 2</b>	<p>The city is rapidly expanding at its periphery along North and South directions which is evident from Thoothukudi Municipal area – master plan (existing and proposed)</p> <p>Source: Thoothukudi local planning authority official website – Master plan for Thoothukudi municipal area (existing and proposed)</p>	<b>Scenario 4</b>	<p>Enforcing policy, regulatory and institutional framework for the city land use, smart urban forms and compact planning using extensive ICT applications</p>	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Health</li> <li>▶Mixed use</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Transport</li> <li>▶Walkable</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> <li>▶Energy supply</li> <li>▶Energy source</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Underground electric wiring</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>



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8	Public open spaces	A Smart City has sufficient and usable public open spaces, many of which are green, that promote exercise and outdoor recreation for all age groups. Public open spaces of a range of sizes are dispersed throughout the City so all citizens can have access. (Guidelines 3.1.4 & 6.2)	Scenario 2	An area of 256646 sq.km has been earmarked for development of 61 parks in master plan. 9.5% of the area accounting to 24408 sq.km has been developed 3 parks maintained by TCMC and 5 parks by private sector Proposal for development of 6 parks is under active consideration  Source: TCMC	Scenario 3	Extensive level of retrofitting of existing public open spaces of various types - natural, green, plazas, parks, or recreation areas serving various sections of people including development of new open spaces and monitoring the usage through smart applications	<ul style="list-style-type: none"> <li>▸Citizen participation</li> <li>▸Identity and culture</li> <li>▸Economy and employment</li> <li>▸Walkable</li> <li>▸Air quality</li> <li>▸Sanitation</li> <li>▸Safety and security</li> </ul>



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9	Housing and inclusiveness	A Smart City has sufficient housing for all income groups and promotes integration among social groups. (Guidelines 3.1.2)		<p>Houses constructed by TNHB, Tirunelveli circle during 2009-10</p> <p>a. HIG – 232 b. MIG – 722 c. LIG – 1153 d. EWS – 1097</p> <p>Source: Tamil Nadu Housing Board, Tirunelveli circle</p>		<p>Developing new affordable functional housing format in green clusters concepts with eco friendly and energy efficient features</p>	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Economy and employment</li> <li>▶Health</li> <li>▶Mixed use</li> <li>▶Compact</li> <li>▶Transport</li> <li>▶Walkable</li> <li>▶Energy supply</li> <li>▶Energy source</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Underground electric wiring</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>



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10	Transport	A Smart City does not require an automobile to get around; distances are short, buildings are accessible from the sidewalk, and transit options are plentiful and attractive to people of all income levels. (Guidelines 3.1.5 & 6.2)	Scenario 2	Public transportation from bus terminal Govt - 348 nos Private - 57 nos Minibus - 59 nos  Bus frequency 1 city bus every minute 1 mofossil bus every 5 minutes 1 State Express Transport Corporation bus every 35 minutes  The city has minimal pedestrian walkways  Source: Regional Transport Office, Thoothukudi	Scenario 4	Efficient, environment friendly & sustainable, good mobility, pedestrian safety & facilities, parking infrastructure thus ensuring that citizens can easily and affordably connect to work, leisure and healthy recreation thereby creating overall improvement of sector including ICT in the service delivery	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Health</li> <li>▶Mixed use</li> <li>▶Compact</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Walkable</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> <li>▶Air quality</li> <li>▶Safety and security</li> </ul>
11	Walkable	A Smart City's roads are designed equally for pedestrians, cyclists and vehicles; and road safety and sidewalks are paramount to street design. Traffic signals are sufficient and traffic rules are enforced. Shops, restaurants, building entrances and trees line the sidewalk to encourage walking and there is ample lighting so the pedestrian feels safe day and night. (Guidelines 3.1.3 & 6.2)	Scenario 1	Footpaths are available for only 5.2% of the road length in the city  Source:  Comprehensive mobility plan for Thoothukudi LPA	Scenario 4	Efficient, environment friendly & sustainable, pedestrian walkways ensuring that citizens can easily and affordably connect to work, leisure and healthy recreation thereby creating overall improvement of sector including ICT in the service delivery	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Education</li> <li>▶Health</li> <li>▶Public open spaces</li> <li>▶Sanitation</li> <li>▶Safety and security</li> </ul>



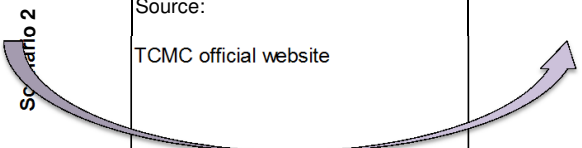
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12	IT connectivity	A Smart City has a robust internet network allowing high-speed connections to all offices and dwellings as desired. (Guideline 6.2)		<p>City has a designated OFC network provided by BSNL especially for E governance activities</p> <p>Source: TCMC – IT department</p>		<p>Digital inclusion as priority and support citizens and communities to be digitally skilled so that they can be part of global digital economy and ensure that young people are equipped with the right skills for the jobs of the future, yet to be invented.</p>	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Health</li> <li>▶Compact</li> <li>▶Housing and inclusiveness</li> <li>▶ICT-enabled government services</li> <li>▶Energy supply</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Underground electric wiring</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>



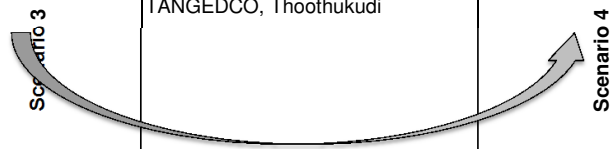


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13	ICT-enabled government services	A Smart City enables easy interaction (including through online and telephone services) with its citizens, eliminating delays and frustrations in interactions with government. (Guidelines 2.4.7 & 3.1.6 & 5.1.4 & 6.2)		<p>Online activities : Information on city profile, committee details, department details, city services &amp; schemes.</p> <p>Facility for downloading birth certificate and application forms for building license, D &amp; O trade, licensed surveyor, property tax, hall booking, water supply connection and water charges</p> <p>Source: TCMC official website</p>	 <p>Scenario 2</p> <p>Scenario 4</p>	<p>Evolving easy interaction, eliminating delays through online and offline platforms. Establishing substantial improvement in</p> <ul style="list-style-type: none"> <li>• Operational characteristics: integrity, reliability, security, safety, efficiency</li> <li>• Transition characteristics: usability, portability, transferability</li> <li>• Revision characteristics: maintainability, extensibility, scalability, modularity, flexibility</li> </ul>	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Health</li> <li>▶IT connectivity</li> <li>▶Energy supply</li> <li>▶Energy source</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Underground electric wiring</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>

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14	Energy supply	A Smart City has reliable, 24/7 electricity supply with no delays in requested hook-ups. (Guideline 2.4)		Power supply is from two major substation  1. 110KV/22KV Town SS Tuticorin 2. 110KV/22KV SIPCOT SS Tuticorin and the city's per day energy consumption is 1.5 million units.  Source :  TANGEDCO, Thoothukudi		Secure access to resilient affordable energy supplies, reliable quality power, enhance the poor contribution of renewable in the energy mix, smart applications for energy	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Health</li> <li>▶Housing and inclusiveness</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> <li>▶Energy source</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Underground electric wiring</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>





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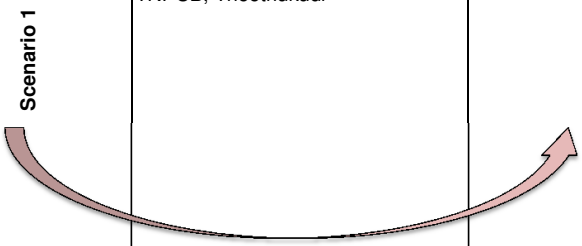
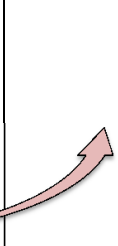
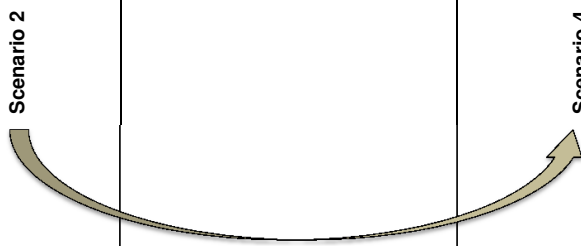
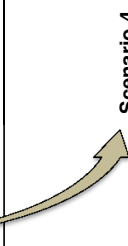
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15	Energy source	A Smart City has at least 10% of its electricity generated by renewable. (Guideline 6.2)	Scenario 2	The main sources of power generation are Wind mills and Thermal. The Thoothukudi Thermal Power station (TTPS) is the biggest power station in Tamil Nadu Private Power Plants Thermal Solar and Biomass=1203 M.W upcoming generation Plants for 2920 M.W.  Source: District profile	Scenario 4	Secure access to resilient affordable renewable energy supplies solar, waste to energy, energy efficiency in urban infrastructure, smart applications for energy efficiency	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Health</li> <li>▶Housing and inclusiveness</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> <li>▶Energy supply</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>
16	Water supply	A Smart City has a reliable, 24/7 supply of water that meets national and global health standards. (Guidelines 2.4 & 6.2)	Scenario 2	Present supply rate is 73 lpcd and unaccounted water loss is 48%. Implementation of water supply network across the entire city under JICA funding is on the verge of completion  Source: DPR submitted for AMRUT DPR for improvement of water supply scheme, JICA	Scenario 4	Establishing affordable 24 x 7 treated water supply in sufficient quantity, and quality with unaccounted loss less than 15%.	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Economy and employment</li> <li>▶Health</li> <li>▶Mixed use</li> <li>▶Compact</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Energy efficiency</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>

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17	Water management	A Smart City has advanced water management programs, including smart meters, rain water harvesting, and green infrastructure to manage storm water runoff. (Guideline 6.2)	Scenario 1	32% of the city area is provided with storm water drainage facilities  Source: TCMC - DPR submitted under AMRUT scheme	Scenario 4	Establishing smart meters, remote monitoring with extensive mechanism for recharging, recycling, and use in secondary applications	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Economy and employment</li> <li>▶Health</li> <li>▶Housing and inclusiveness</li> <li>▶ICT-enabled government services</li> <li>▶Water supply</li> <li>▶Waste water management</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>
18	Wastewater management	A Smart City treats all of its sewage to prevent the polluting of water bodies and aquifers. (Guideline 2.4)	Scenario 1	32.9% of city area is provided with sewerage network  Source: TCMC - DPR submitted under AMRUT scheme	Scenario 4	Zero wastewater with full recycling, augmenting wastewater infrastructure and treatment, providing treated waste water for urban horticulture	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Health</li> <li>▶Mixed use</li> <li>▶Compact</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Water supply</li> <li>▶Water management</li> <li>▶Air quality</li> <li>▶Sanitation</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>



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19	Air quality	A Smart City has air quality that always meets international safety standards. (Guideline 2.4.8)	 <p>Scenario 1</p>	<p>Air quality is well within the permissible standards</p> <p>Source: TNPCB, Thoothukudi</p>	 <p>Scenario 4</p>	<p>Incorporating disaster management, resilience strategy, water logging and flood risk, water and air pollution monitoring system, smart environment monitoring</p>	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Economy and employment</li> <li>▶Health</li> <li>▶Housing and inclusiveness</li> <li>▶Safety and security</li> </ul>
20	Energy efficiency	A Smart City government uses state-of-the-art energy efficiency practices in buildings, street lights, and transit systems. (Guideline 6.2)	 <p>Scenario 2</p>		 <p>Scenario 4</p>	<p>Secure access to resilient energy supplies, while ensuring affordable energy for all and at the same time meeting the obligations to satisfy clean green agenda. Reliable quality power, enhance poor contribution of renewable in the energy mix like solar, waste to energy, smart applications for energy efficiency in urban infrastructure.</p>	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Health</li> <li>▶Housing and inclusiveness</li> <li>▶ICT-enabled government services</li> <li>▶Energy supply</li> <li>▶Energy source</li> <li>▶Air quality</li> <li>▶Safety and security</li> </ul>

# City level self assessment form

Sl. No.	Feature	Definition	Self-assessment of the city (for Pan-City Solution) with regard to each feature	Basis for assessment and/or quantitative indicator (Optional - only if data exists)	Projection of 'where the city wants to be' with regard to the feature/indicator	Input/Initiative that would move the city from its current status to Advanced status (Scenario 4: Column G)	Multiplier effect on other features
21	Underground electric wiring	A Smart City has an underground electric wiring system to reduce blackouts due to storms and eliminate unsightliness. (Guideline 6.2)	Scenario 1 		Scenario 4	Systematic adoption of underground cabling	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Health</li> <li>▶Mixed use</li> <li>▶Compact</li> <li>▶Housing and inclusiveness</li> <li>▶Walkable</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> <li>▶Energy efficiency</li> <li>▶Safety and security</li> </ul>
22	Sanitation	A Smart City has no open defecation, and a full supply of toilets based on the population. (Guidelines 2.4.3 & 6.2)	Scenario 1 	97% of sanitation coverage in the city  Source:  DPR submitted for AMRUT scheme	Scenario 4	Providing best in class sanitation facilities, community toilets, differently abled	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Health</li> <li>▶Mixed use</li> <li>▶Compact</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Walkable</li> <li>▶Waste water management</li> <li>▶Waste management</li> <li>▶Safety and security</li> </ul>

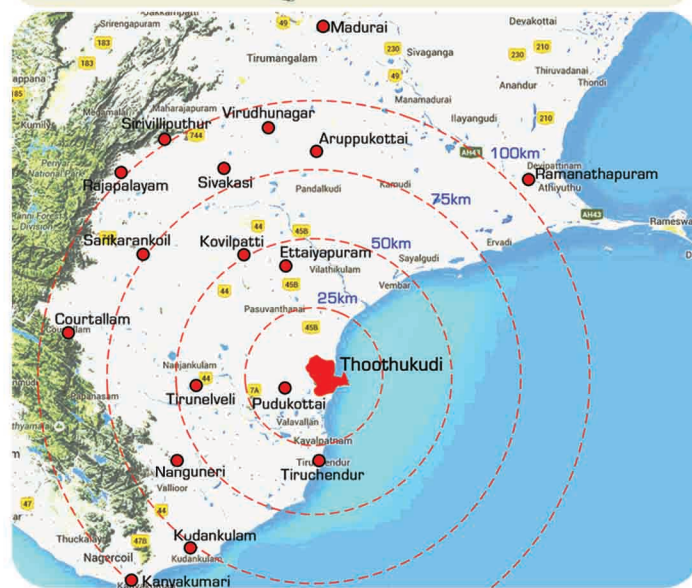
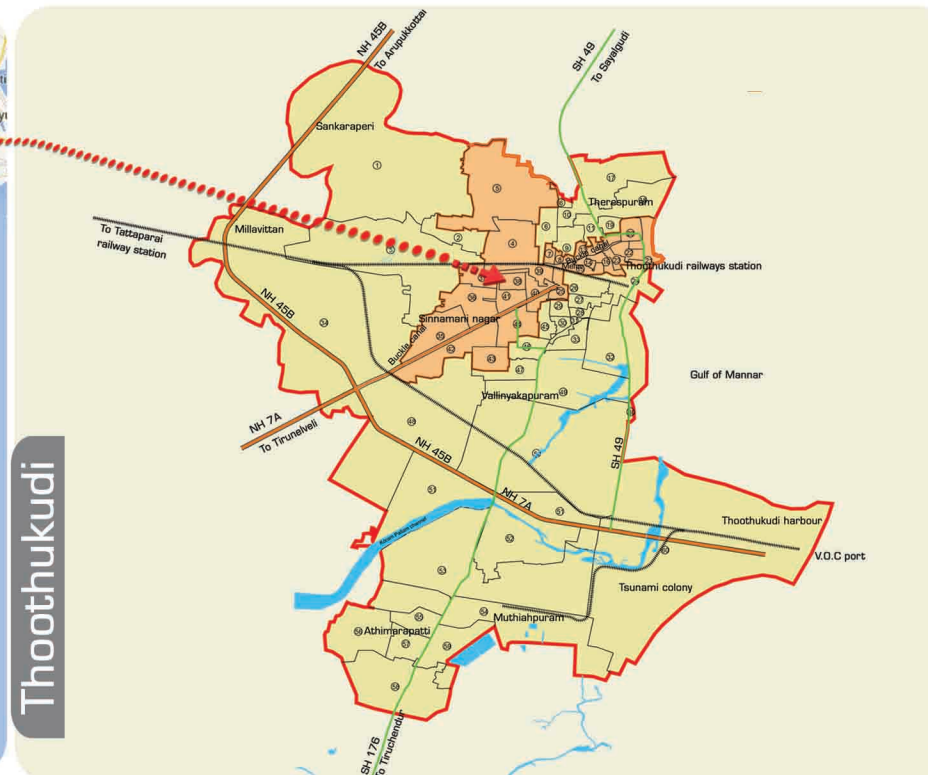
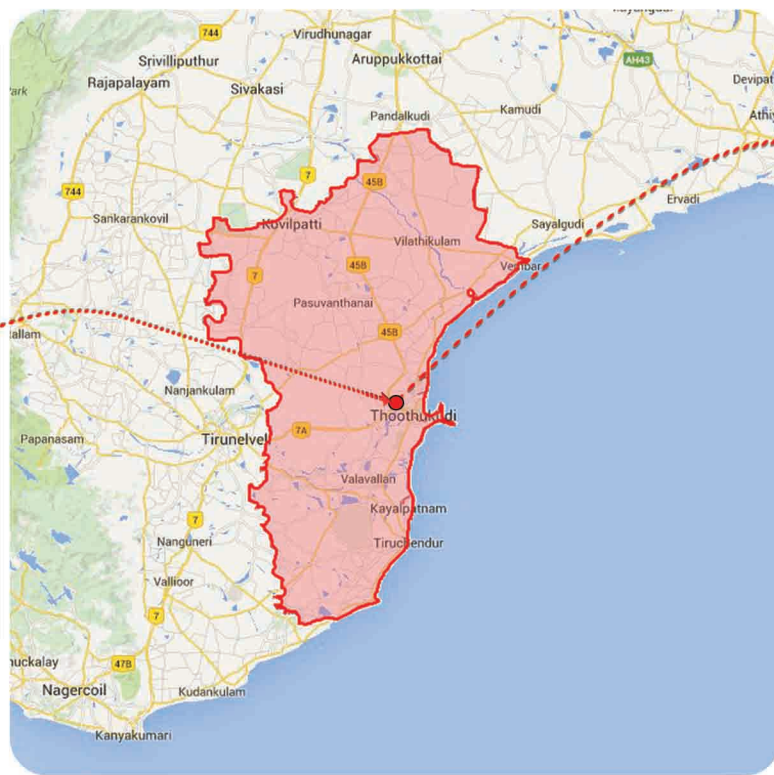
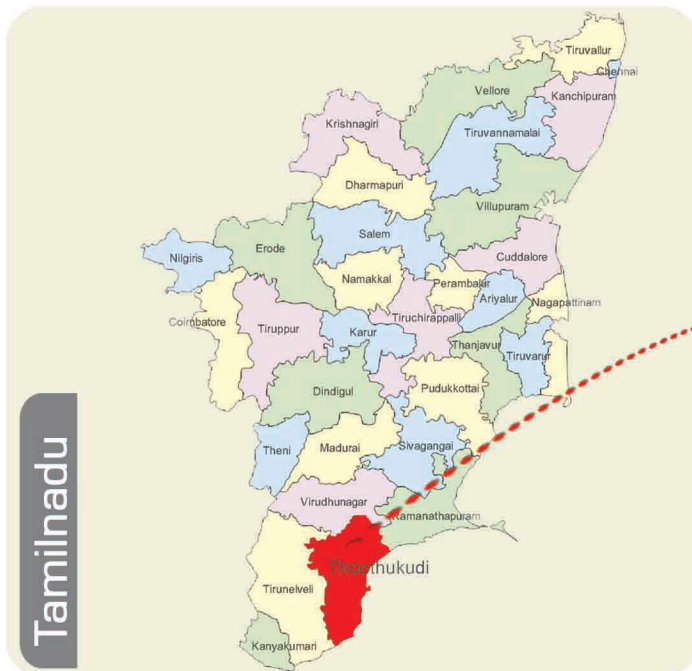
## City level self assessment form

Sl. No.	Feature	Definition	Self-assessment of the city (for Pan-City Solution) with regard to each feature	Basis for assessment and/or quantitative indicator (Optional - only if data exists)	Projection of 'where the city wants to be' with regard to the feature/indicator	Input/Initiative that would move the city from its current status to Advanced status (Scenario 4: Column G)	Multiplier effect on other features
23	Waste management	A Smart City has a waste management system that removes household and commercial garbage, and disposes of it in an environmentally and economically sound manner. (Guidelines 2.4.3 & 6.2)	Scenario 1	Door to door solid waste collection is in practice covering 70% of the house holds  Source: Chief Health Officer, TCMC	Scenario 4	Promulgating zero waste city, source segregation of waste, efficient collection mechanism, transportation, processing, recycling, composting and landfill, sustainable and create ways of integrated municipal solid waste management including end produce utilization and sector governance including smart applications	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Health</li> <li>▶Mixed use</li> <li>▶Compact</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Walkable</li> <li>▶Water management</li> <li>▶Waste water management</li> <li>▶Air quality</li> <li>▶Sanitation</li> <li>▶Safety and security</li> </ul>
24	Safety and security	A Smart City has high levels of public safety, especially focused on women, children and the elderly; men and women of all ages feel safe on the streets at all hours. (Guideline 6.2)	Scenario 2	CCTV monitoring and surveillance is available at 30 locations in the city  Source: Police department, Thoothukudi city	Scenario 4	Enhanced focus on public safety, especially focused on women, children and the elderly including smart applications towards public safety	<ul style="list-style-type: none"> <li>▶Citizen participation</li> <li>▶Identity and culture</li> <li>▶Economy and employment</li> <li>▶Education</li> <li>▶Health</li> <li>▶Public open spaces</li> <li>▶Housing and inclusiveness</li> <li>▶Transport</li> <li>▶Walkable</li> <li>▶IT connectivity</li> <li>▶ICT-enabled government services</li> </ul>

# 1 Thoothukudi city profile & key performance indicators



# Pearl City



**Municipal area (sq. km)**  
91.21

**Decadal growth rate**  
41.98%

**Population 2011 (lakh)**  
3.72

**Population density (pph)**  
41

**City highlights**

- Port based industrial and economic activities
- Thoothukudi port is one of the fastest growing major ports in India
- Third largest container terminal in India (handling over 16.6 million tonnes of cargo every year)

**Education**

- High literacy rate - 81.7%
- Government schools - 12
- Private schools - 62
- Teacher - Student ratio 1 : 40 for every 100 students
- Major educational establishments in the city include Thoothukudi government medical college, Fisheries college and research institute, Marine training academy, V.D.C. arts & science college, Government polytechnic college and Anna university - Thoothukudi campus

**Sewerage**

- Coverage of sewerage network - 32.9%
- STP capacity at Tharuvaikulam - 22.5%
- Coverage of toilet - 97%
- Collection of sewerage - 30%
- Sewage generation - 23.85 MLD

**Water**

- Coverage of water supply connection- 34%
- Per capita supply- 73 lpcd (meeting 61% of total demand)
- Reduction in NRW - 48% to 20%
- Quality of water supply - 87% as against 100%
- Cost recovery - 68%
- Efficiency in collection of water supply charges - 85% as against 90%
- Water supply improvement scheme (JICA funding) under implementation
- Implementation of SCADA and AMR meters are in pipeline under AMRUT scheme

**Energy**

- Per day consumption - 1.5 MU
- Capacity - 76 MVA
- Demand - 55.96 MVA
- Proposal: 110/22 KV substation at Beach road near Roche park substation

**Health**

- Hospital - 30
- Dispensary - 5
- Emergency care - 5
- Paramedical staff - 400
- Doctor bed ratio 1:450

**Solid Waste Management**

- Total solid waste generation- 220 MT/day
- Total bio-degradable solid waste- 110 MT/day
- Door to door collection - 70% of household waste
- Out of 60 wards, 31 wards privatised for SWM
- Source segregation at 6 wards only (out of 60 wards)

**Transport**

- Coverage of urban transport in city - 0.82 as against 2
- Availability of public transport per 1000 population - 0.91 as against 1
- NMT coverage -3.3 %
- Public transport has 75% of city share with 464 buses for city and mofussil
- Two bus terminals for decentralization of bus operations to ease the traffic movement

**E-Gov**

- The official website of TCMC
- Birth certificates
- Information on zonal wise house tax & vacant land tax values
- Corporation audit financial statement

**Reforms**

- Central government- AMRUT, SBM, NMEM, Nibhya fund
- Government of Tamil Nadu- Madurai Thoothukudi industrial corridor
- IPDS
- GIM
- Digital India

**Economy**

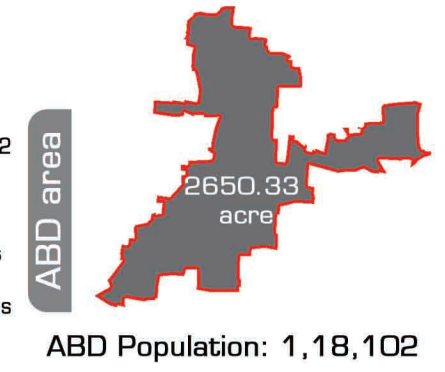
- The salt pans produce 1.2 million tonnes of salt every year, contributing to 90% of the salt produced in the state and 50% needed by the chemical industries of the state
- Fishing is one of the largest contributors to the local economy
- Thoothukudi fishing harbour is one of the oldest and largest in Tamil Nadu

**Storm water drain**

- Coverage - 32%
- Incidence of sewerage mixing in drains - 20%
- Incidence of water logging - 12%

**Open green spaces**

- Coverage - 9.51%
- 0.9 sq.m per person (for plain areas as against 10 to 12 sqm per person)
- 0.9% sqm per person (for built-up areas as against 2 sqm per person)



Fast growing port based city  
Third largest container terminal in India  
Salt pan of the state

**CITY USP**

Questions answered  
Q1  
Q2



1.02 Lakh



### 1 Engagement

- Round i**: Engaging and seeking aspiration (60,662)
- Round ii**: Selection of ABD and PC solution (7,788)
- Round iii**: Comments on draft proposal (1,585)

### 2 Engagement platforms

Thoothukudi City Municipal Corporation website

Zone wise citizen engagement

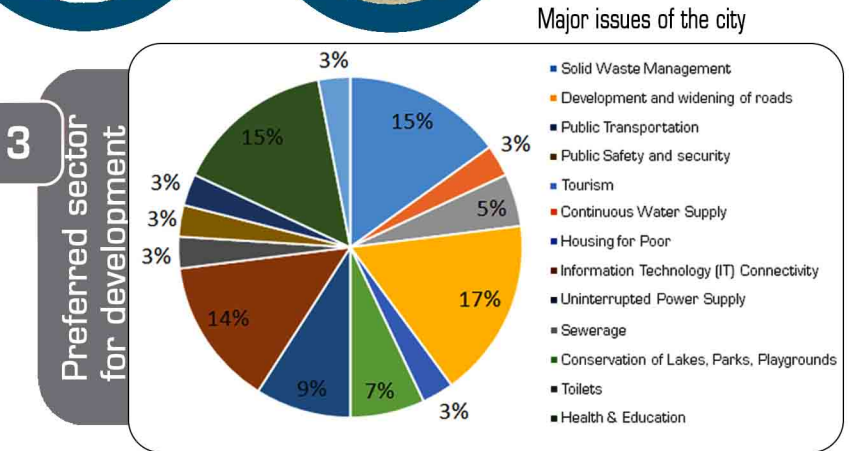
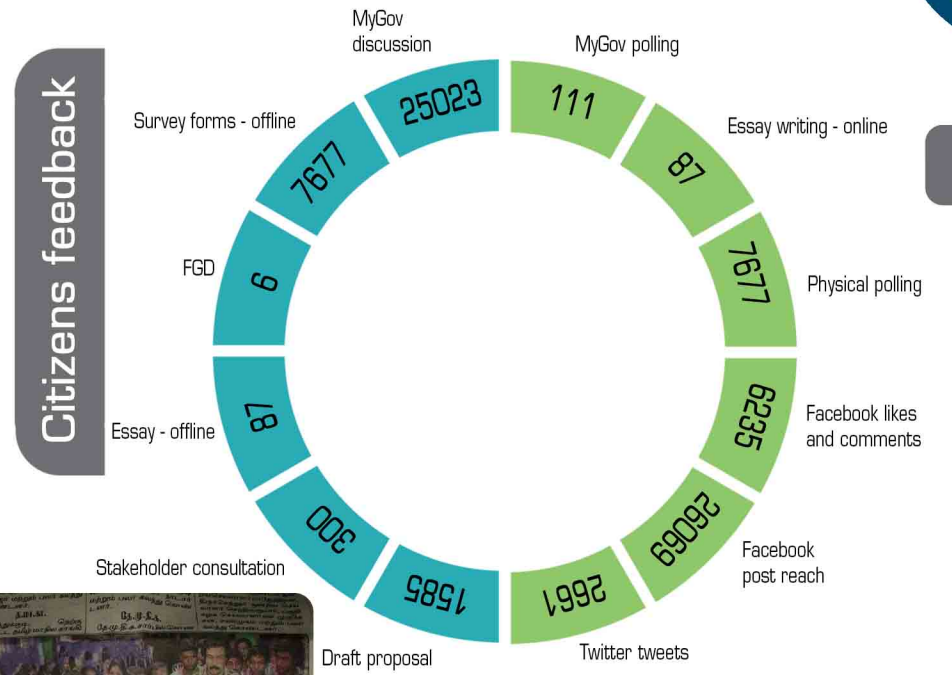
MyGov.in (Discussions, polls, essay competition)

Social media (Facebook, Twitter)

Email

#### Publicity modes

- Facebook
- Twitter
- Mail
- Schools & Colleges
- Newspapers



- CCTV: 86.92%
- Smart waste management: 6.5%
- Smart Water meter: 3.08%
- Priority for Pan City Smart street light: 2.5%
- Smart parking: 1.0%

### ABD options - Replicable model

- 43.23% Retrofitting
- 35.62% Redevelopment
- 21.15% Greenfield development

Replicable model - I, II, III

Thoothukudi City Municipal Corporation



1. Redevelopment of ward 21
2. Redevelopment of ward 35
3. Redevelopment of ward 49
4. Redevelopment of ward 57
5. Retrofitting of ward 4, 7, 8, 12, 13, 14, 15, 16, 20, 21, 22, 23, 25, 35, 36, 37, 38 and 39
6. Green field development near Tiruchendur bypass



# 3 Thoothukudi - City Vision and Goals



# Pearl City



City profiling & self assessment



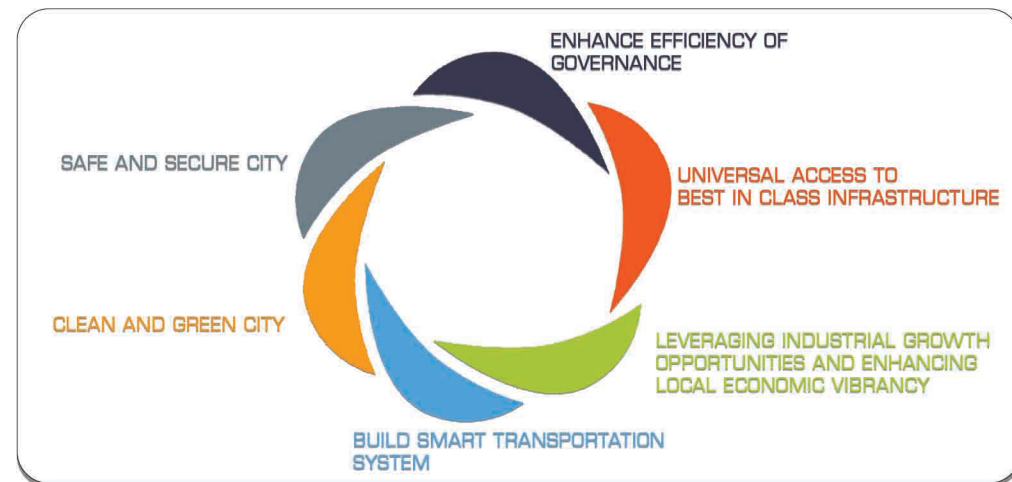
SWOT analysis



Citizen engagement

Vision

**"Thoothukudi aspires to leverage its industrial city identity by investing in inclusive and transformative solutions that enhance the quality of life for its citizens"**



**Aspire**

Repositioning Thoothukudi as the industrial hub of Southern districts of TN

**Leverage**

Thoothukudi shall leverage its strengths for socio-economic development

**Inclusive**

"Citizen Connect" in inclusive planning that benefits all.

**Transformative**

Design and implement sustainable and technology oriented solutions to usher in a paradigm shift in how the city functions, engages with citizens, delivers services, mobility, safety and revives the economic character around heritage & culture to benefit the citizens and administration on the lines of "doing more with less"

**Quality of life**

A holistic approach based on pragmatic solutions to provide a better quality of life through improved physical and social infrastructure

Vision elements

Goals	Sub-goals	Process & activities , KPI's
ENHANCE EFFICIENCY OF GOVERNANCE	SG1: Enhance efficiency of governance and ensure inclusive improved services delivery SG2: Two way communication between citizen and administration with ICT enabled government services	<ul style="list-style-type: none"> <li>Increase in digital literacy rate to 100%</li> <li>Percentage of G2C transactions made online to 90%</li> <li>Average resolution time for grievances resolution to be 1 day.</li> <li>Increase in efficiency of tax, user charge collection to 95%-100%</li> </ul>
LIVEABLE AND SLUM FREE CITY	SG3: To provide 100% housing for all income groups SG4: To provide 100% of citizens adequate water supply system with 150lpcd, 24X7 water supply of required quality, replacement of old water pipes to arrest leakages and reduce NRW with advanced water meter systems and efficient SCADA system SG5: Moving significantly in augmenting the storage capacities SG6: To provide adequate sanitation and wastewater management including sewerage connection to all properties, sewage network with 100% coverage, treatment system up to a minimum of secondary treatment and re-use of treated water SG7: To provide underground drainage system and lining of nallahs (drains) SG8: To establish social and community development facilities including skill development centres, e-service centres, up-gradation of infrastructure facilities in selected schools and colleges, e-counselling centres, smart libraries, etc. SG9: To provide core urban services to all slum households including adequate water supply, sewerage & sanitation, solid waste management, etc. SG10: To provide affordable housing to those slum households who are living in kuchha and semi-pucca houses/sub-standard condition. To make Thoothukudi slum free by 2025	<ul style="list-style-type: none"> <li>Availability of affordable housing units to 100%</li> <li>Health index and air quality improvements as per CPCB standards</li> <li>Augmenting the water storage capacities from 40%</li> <li>Increase in average daily hours of water supply from 8-10 hours per day to 24x7</li> <li>Increase in water connections to 100% HH</li> <li>Reduction in UFW to 15%</li> <li>Scientific disposal - 100%</li> </ul>
ENHANCING LOCAL ECONOMIC VIBRANCY	SG11: To promote marine and port based industries and to encourage ancillary industries/SMEs SG12: To develop planned business districts with smart infrastructure system and position Thoothukudi to play a major role in realizing the state vision, as reflected in the citizen survey SG13: To provide skill development, healthcare and education to poor and vulnerable communities with smart applications and provide opportunities for livelihood	<ul style="list-style-type: none"> <li>Increase in city GDP by 15%</li> <li>Increase in employment</li> </ul>
BUILD SMART TRANSPORTATION SYSTEM	SG14: To establish an integrated city mobility management system including transit services, traffic services, parking services, fibre optic based city network and safe city infrastructure SG15: To redesign and develop all key roads with provision for NMT and foot paths for safe pedestrianisation. Increased trip share of NMT with walkable footpaths and bicycle lane SG16: To implement smart parking system and establish multi-level parking SG17: To improve efficiency of public transport system SG18: To implement a traffic management system, ICT solutions with Adaptive Traffic Control System (ATCS) to manage network of road intersections and additionally provide camera based traffic violation detection system to improve speeds, availability of road to motorists and safe operation condition SG19: To ensure efficient urban mobility through implementation of bus-based transit system	<ul style="list-style-type: none"> <li>Achieve service level 1 as identified in CMP - public transport, pedestrian infrastructure facilities, NMT facilities, ITS facilities, travel speed along major corridors, parking space, road safety</li> <li>Increase in percentage of streets having unobstructed footpaths to 100%</li> <li>Increased trip share of NMT to 40% with walkable footpaths and bicycle lane</li> <li>Average travel speed increased by 25%</li> <li>Percentage of street (kms) having mixed land use to 30%</li> </ul>
CLEAN , GREEN CITY	SG20: To clean Buckle canal and develop canal promenade SG21: To introduce efficient ICT enable effective solid waste management solution SG22: To ensure proper treatment and disposal of sewage generated SG23: To eradicate open defecation, 100% sanitation over next 5 years SG24: Clean streets, public spaces with smart bins at every 100 metre SG25: To promote solar mission through implementation of solar PV roof tops on all government and institutional buildings in the city SG26: Smart public lighting to reduce consumption SG27: Increased level of solar usage SG28: To promote waste recycling through conversion of waste to energy SG29: To promote green living, cleaning of water bodies and to ensure untreated wastewater not polluting water bodies with monitoring through smart tools SG30: To implement the rain water harvesting system and replenish ground water SG31: To develop a number of open spaces within the city from almost nil to 15% benchmark SG32: To support and empower people with the tools and incentives to manage and improve their own environment and industrial pollution monitoring	<ul style="list-style-type: none"> <li>Decrease in carbon footprint</li> <li>Percentage of city area developed as open green public space- nil to 15% benchmark</li> <li>Access to toilets - 100%</li> <li>Smart public lighting to reduce average consumption by 20%</li> <li>Increase in solar power capacity atleast 15%-20%</li> </ul>
SAFE AND SECURE CITY	SG33: To implement laying of UG cables, shifting of all DTRs & smart energy metering SG34: To implement security and surveillance system throughout the city SG35: To reduce road accidents	<ul style="list-style-type: none"> <li>Wi-Fi access coverage to 100%</li> <li>Reduce road accidents by 90%</li> </ul>

**Vision** Thoothukudi's vision comprises specific constituent development goals voiced by the aspirations of the citizens. Each of the goals listed below are geared towards making Thoothukudi a more livable city that is socially, economically and environmentally sustainable.

Questions answered: Q3, Q4, Q5 & Q16

# 4 Delineation of ABD



# Pearl City

## Citizen's choice

Retrofitting of wards 4, 5, 7, 8, 12 to 16, 20 to 23, 25 & 35 to 44 (contiguous area) along the Buckle canal acting as a spine for the city

## Natural ecological wealth

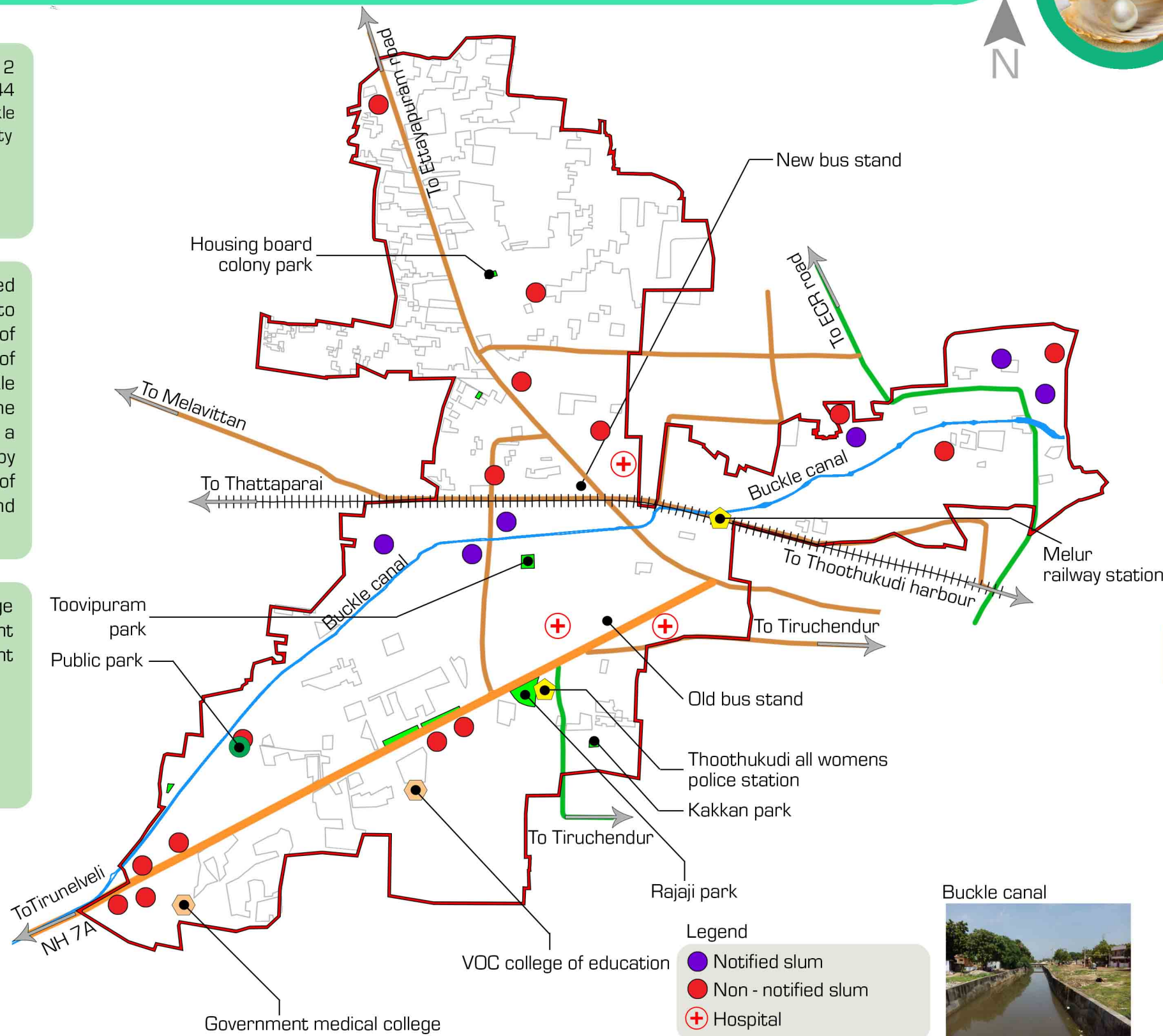
The canal was constructed during the British period to drain rainwater into the Bay of Bengal to prevent flooding of the city. The historic Buckle canal, which runs through the heart of Thoothukudi city to a stretch of 5.28 km, is built by the British with an intention of draining the rainwater and excess water into the sea

## Education center

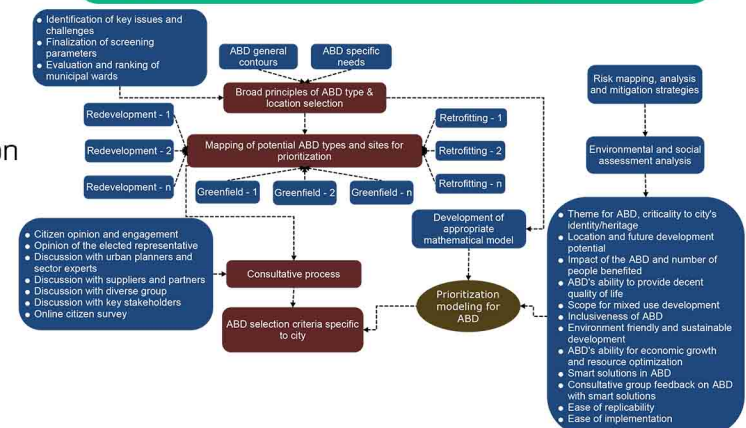
VOC arts and science college and Thoothukudi Government medical college are present within ABD

- Population of ABD - 1,18,102
- No of households - 29,863
- Slum population - 20,392
- ABD area - 2,650.33 acre

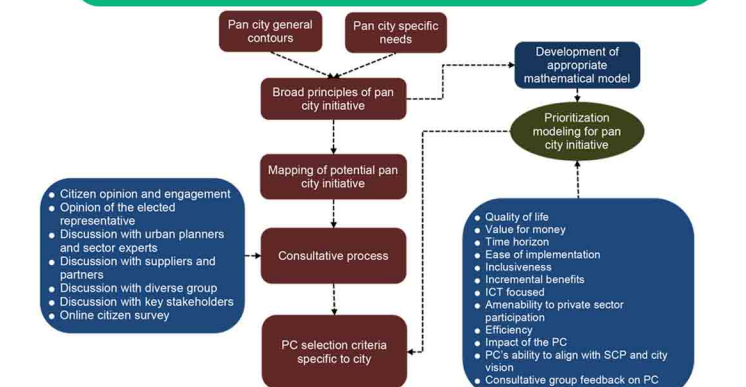
Government medical college



## Approach & methodology - ABD



## Approach & methodology - Pan city



Corporation building



Buckle canal



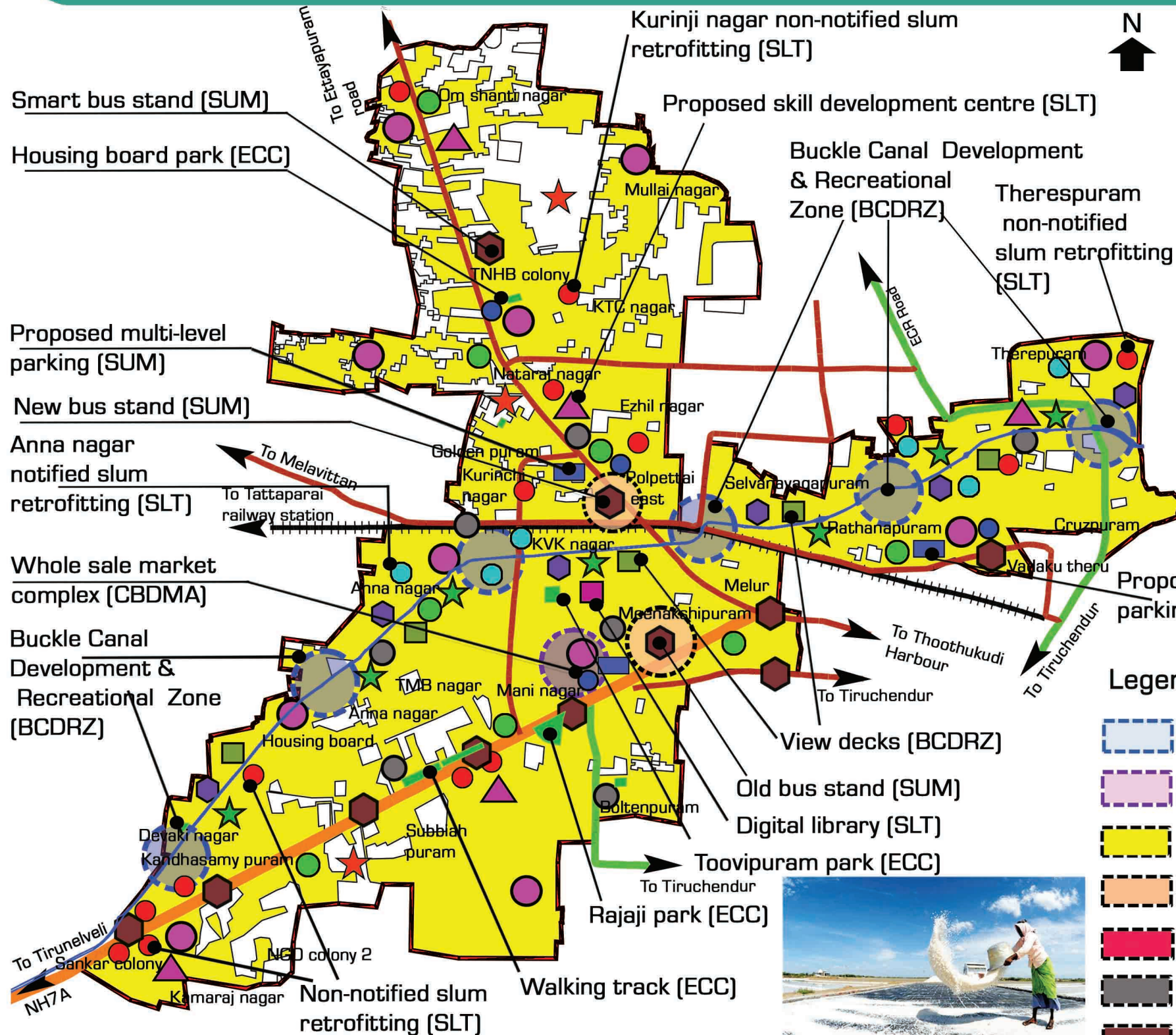
Thoothukudi aspires to leverage its port based industrial city identity by investing in inclusive and transformative solution that enhance the quality of life for its citizens

Questions answered  
Q9  
Q11  
Q12  
Q16  
Q18

# 5 Conceptualization of TCC - ABD



# Pearl City



Thoothukudi port trust



Our lady of snows basilica

### Legend

- Buckle canal recreation & leisure park
- Viewing decks
- Skill development centres
- Digital kiosk
- Digital library
- Sewage treatment plant
- Multi-level parking
- Air pollution monitoring
- Water monitoring
- Junction monitoring with CCTV
- Non-notified slum
- Notified slum
- Water supply, sewerage system, storm water drain, solid waste management & power supply
- NMT corridor with pedestrian footpath, cycle track, pelican & puffin pedestrian crossing system, Non-vehicle street, smart bus stand & signages

### Legend

- Buckle Canal Development & Recreational Zone (BCDRZ)
- Central Business District and Market Area (CBDMA)
- Sustainable Livable Thoothukudi (SLT)
- Smart Urban Mobility (SUM)
- Green Thoothukudi (GT)
- Environmentally Committed City (ECC)
- Smart Central Thoothukudi (SCT)



Thoothukudi salt pan

7-Themes ..... 48 projects

Questions answered  
Q9 Q16  
Q11 &  
Q12 Q18

# 6 Buckle Canal Development & Recreational Zone



**BCDRZ** Buckle Canal Development & Recreational Zone  
 BCDRZ - 1 Canal development  
 BCDRZ - 2 Canal promenade development  
 BCDRZ - 3 Leisure park development

**Existing conditions**

- Inadequate wastewater management mechanism
- Unmonitored public spaces mainly in the market areas and along the Buckle canal stretches

**Natural ecological wealth:**

- The channel was constructed during the British period to drain rainwater into the Bay of Bengal to prevent flooding of the city.
- The historic Buckle channel, which runs through the heart of Thoothukudi city to a stretch of 5.28 km, is built by the British with an intention of draining the rainwater and excess water into the sea.



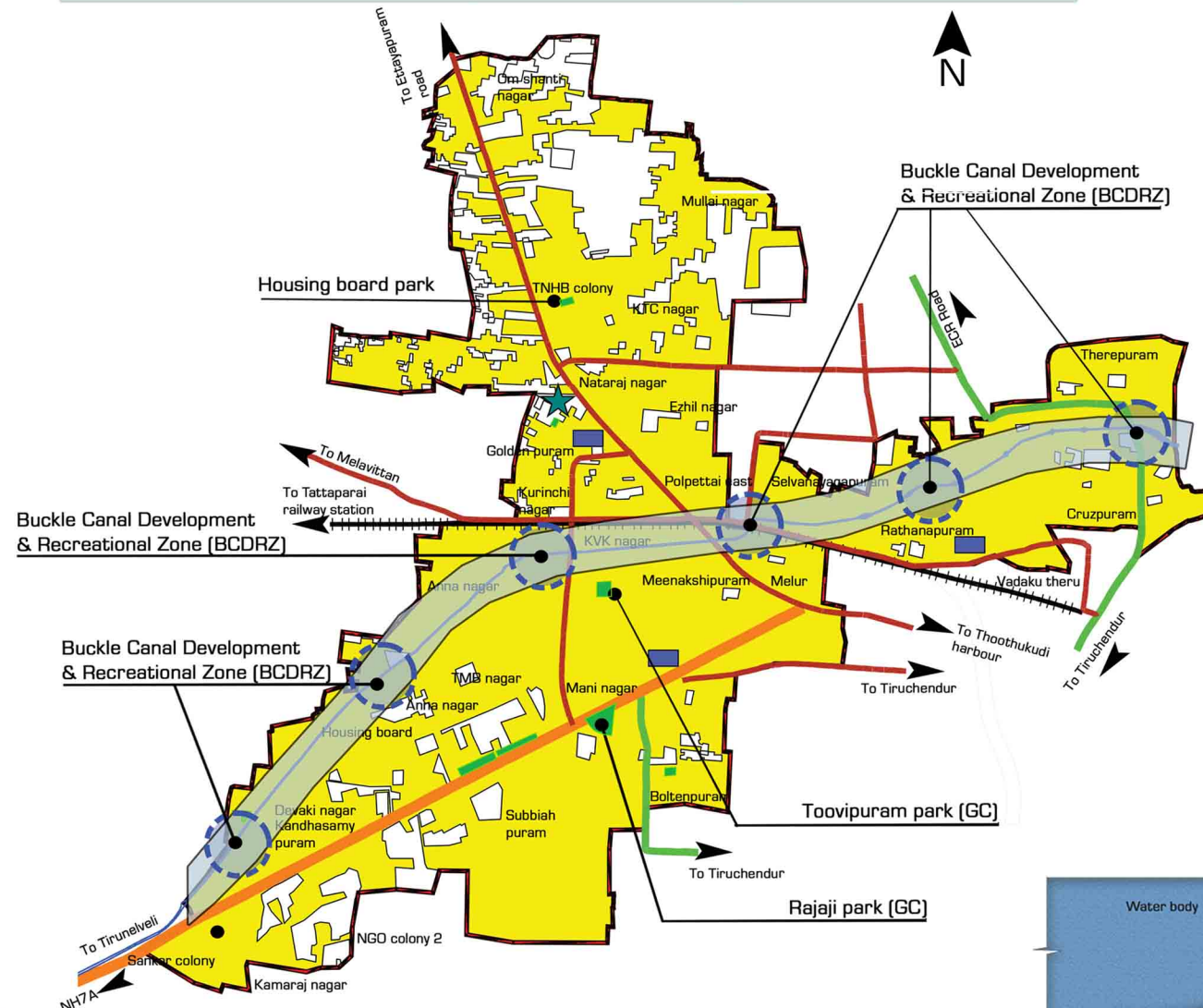
Existing canal front



Canal promenade development



Canal promenade development



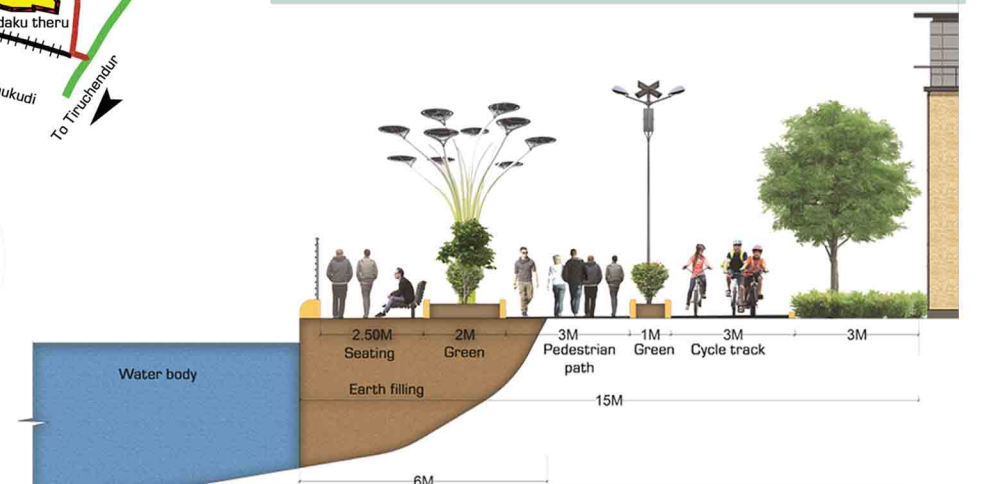
Buckle Canal Development & Recreational Zone



Canal promenade



Canal promenade



Detail A - Lake promenade section



Questions answered  
 Q9, Q11, Q12  
 Q16, Q18, Q31  
 Q34 & Q35

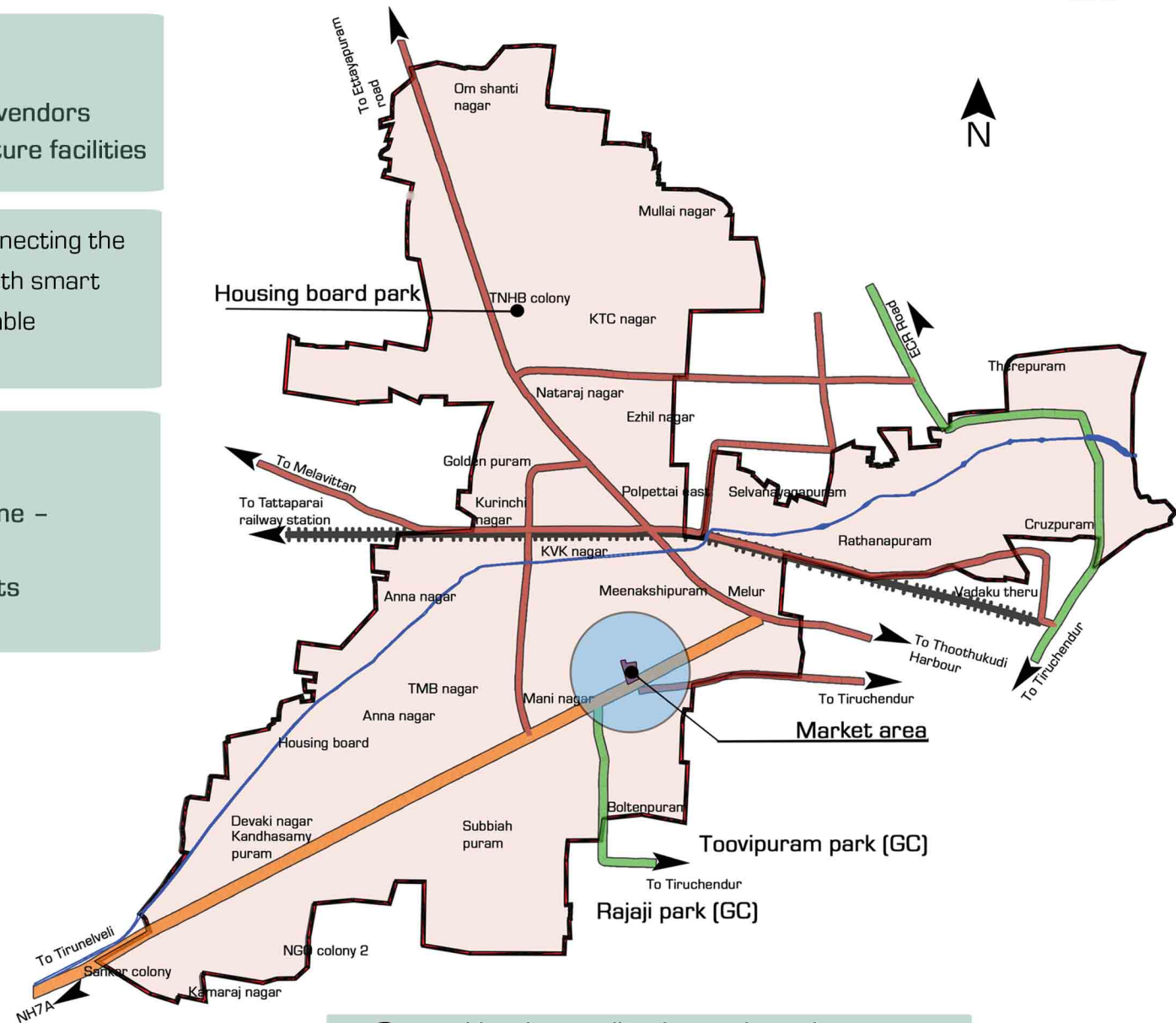
# 7 Central Business District and Market Area



**CBDMA** Central Business District and Market Area  
 CBDMA - 1 Market complex for street vendors  
 CBDMA - 2 Development of infrastructure facilities

**CENTRAL BUSINESS DISTRICT** including connecting the CBD with public transport and NMT corridor with smart market complex for street hawkers and vulnerable communities.

- Existing conditions**
- Traffic & people congestion
  - Market delivery & servicing at same time – creates more burden on urban form
  - No clear signages for access to markets
  - No identified vendor zones



Existing wholesale market



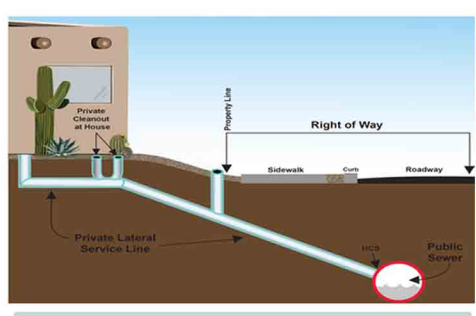
Existing market



Power supply



Water supply



Sewerage network



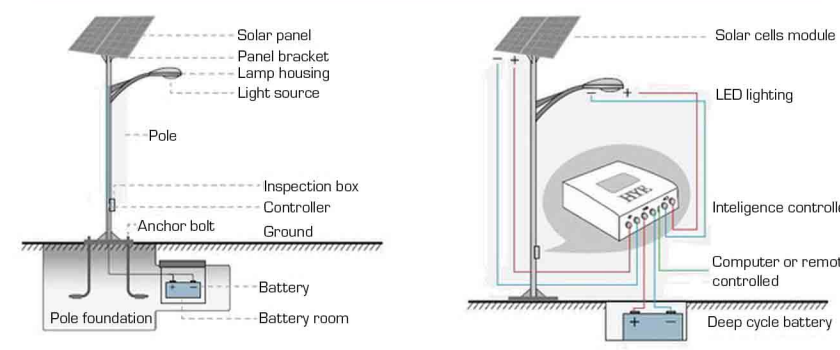
Storm water drain



Solid waste management



Smart roads



Smart street light structure



Increase in footfall  
10%



Increase in employment  
5%



Market rejuvenation  
100%

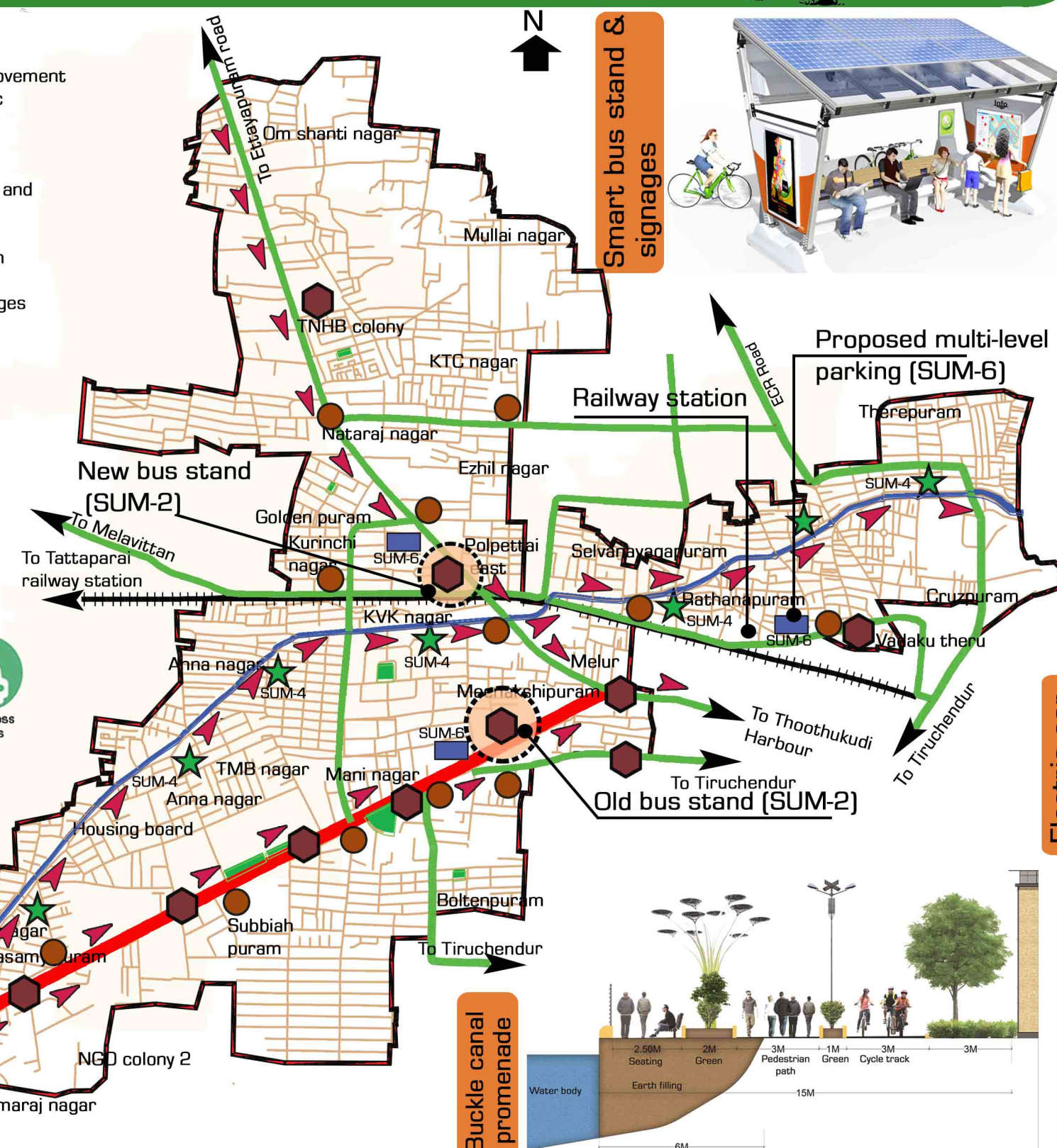
Questions answered  
Q9, Q11, Q12, Q16, Q18, Q31, Q34 & Q35





LEGEND:

- █ SUM - 1 - Public transit corridor improvement
- █ SUM - 2 - Multi model intelligent public transport system
- █ SUM - 3 - Retrofitting other roads
- ▶ SUM - 4 - NMT corridor
- ▶ SUM - 4.1 - Pedestrian footpath and cycling track
- SUM - 4.2 - Pelican and puffin pedestrian crossing system
- █ SUM - 4.3 - Non-vehicle street
- SUM - 5 - Smart bus stand and signages
- █ SUM - 6 - Multi-level parking

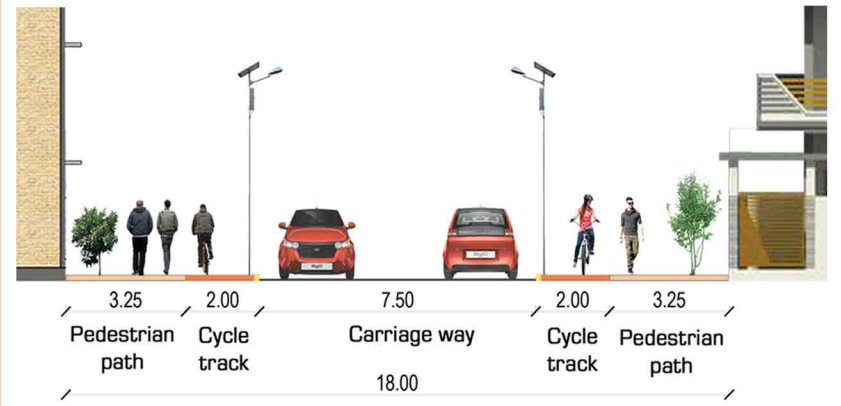


Smart bus stand & signages



Proposed multi-level parking (SUM-6)

Section along NH-7A



Multi level parking



Existing conditions

- \* Poor road surface
- \* Vehicle conjection on roads
- \* Lack of footpaths
- \* Inefficient junctions
- \* Irregular parking
- \* Limited accessibility for differently abled

Electric car



Highlights

- \* Road section improvement providing pedestrian friendly footpaths and NMT
- \* Upgradation of junctions
- \* Pedestrian zones

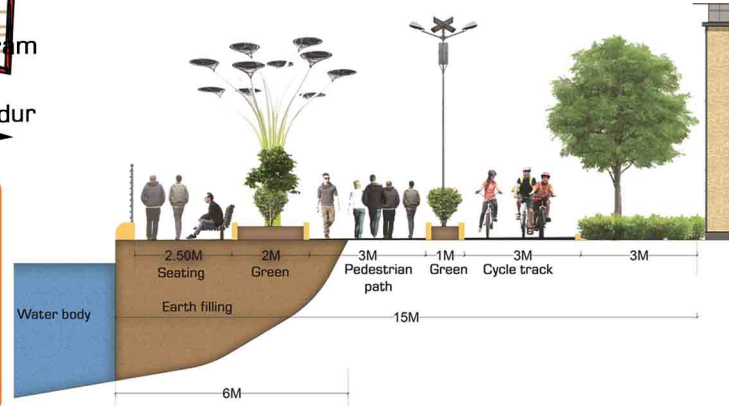
Pelican & puffin



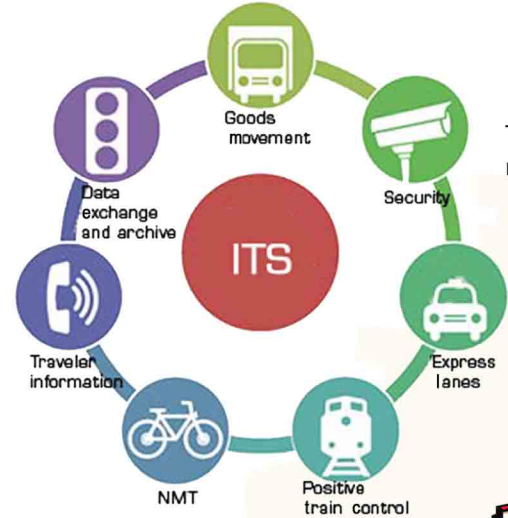
Electric rickshaw



Buckle canal promenade



Intelligent transport system



	Increase in foot path 0 to 100%		Increase in NMT 0 to 40%		% of street with mixed land use 30%		Differently abled friendly 100%		Average travel speed increase by 25%		Increase in ridership of public transport 0 to 30%
--	------------------------------------	--	-----------------------------	--	--	--	------------------------------------	--	---	--	---

Questions answered  
Q9 Q18  
Q11 Q31  
Q12 Q34  
Q16 Q35



# 10 Green Thoothukudi & Environmentally Committed City



# Pearl City

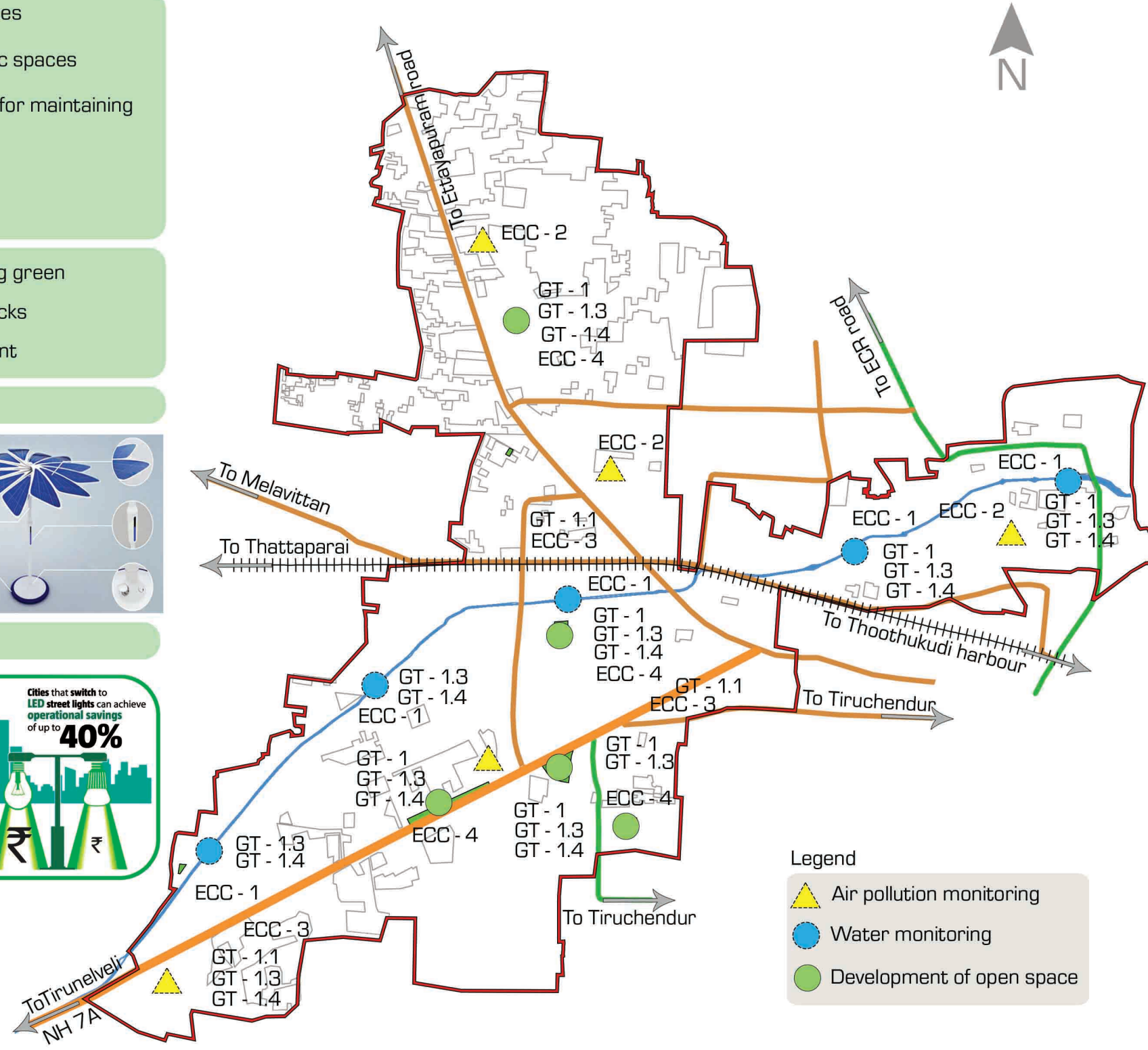
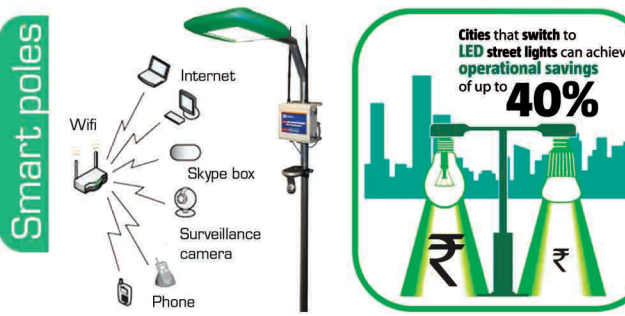
- Existing Conditions**
- Unattended open spaces
  - Encroachment of public spaces
  - No citizens ownership for maintaining own surrounding

- Highlights**
- NMT tracks connecting green
  - Cycling and jogging tracks
  - Landscape improvement

## Solar mission



## Waste to energy



- GT : Green Thoothukudi**
- GT - 1 : Solar mission
  - GT - 1.1 : Installation of solar PV on roof top in all government and institutional buildings
  - GT - 1.2 : Installation of solar PV on roof top in all government and institutional buildings through PPP
  - GT - 1.3 : Energy efficient smart solar street lighting
  - GT - 1.4 : Solar umbrellas
  - GT - 1.5 : Retrofitting of all government and institutional buildings as energy efficient and green buildings
  - GT - 2 : Waste to energy
- ECC : Environmentally Committed City**
- ECC - 1 : Canal regeneration and cleaning
  - ECC - 2 : Environmental quality monitoring stations
  - ECC - 3 : Rainwater harvesting for all government owned institutional and office buildings
  - ECC - 4 : Development of open spaces in retrofitting area
  - ECC - 5 : Visible improvement in the area

## Rain water harvesting



**KPIs**

- Increase in green cover: 15%
- Increase in solar power capacity atleast: 15% to 20%
- Percentage of city area developed as open green public space nil to: 15% benchmark
- Access to toilets from: 49% to 100% of population
- Smart public lighting to reduce consumption by: 20%

Questions answered: Q9, Q11, Q12, Q16, Q18, Q31, Q34 & Q35

# 11 Smart Central Thoothukudi

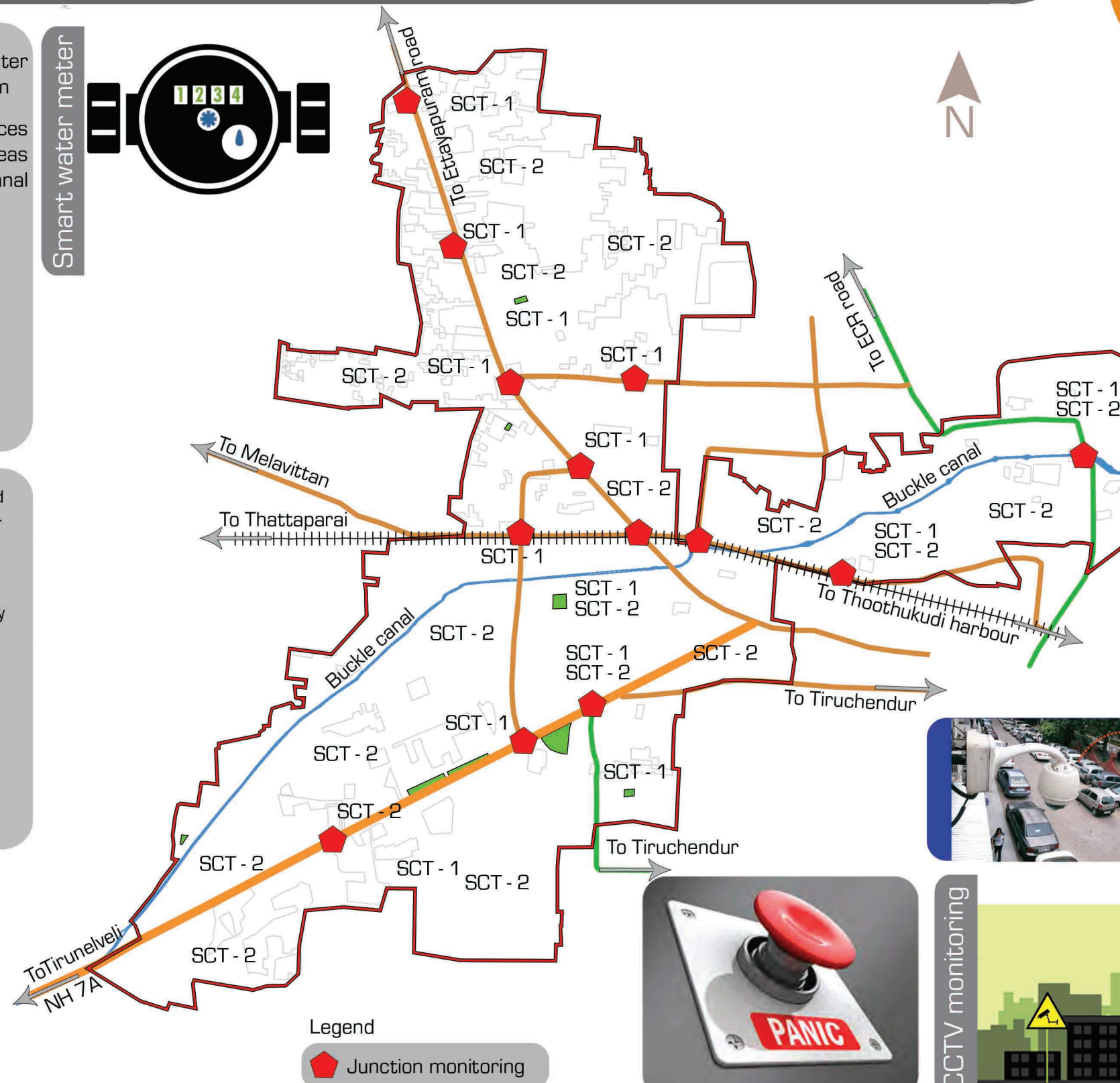


## Existing conditions

- Inadequate wastewater management mechanism
- Unmonitored public spaces mainly in the market areas and the Buckle canal stretches



Smart water meter



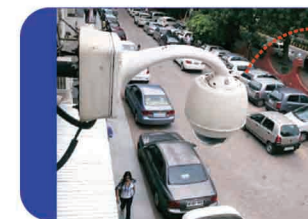
## SCT Smart Central Thoothukudi

- SCT - 1 : Safe and assured electricity supply
  - SCT-1.1 : Underground electrical HT lines
  - SCT-1.2 : Underground electrical LT lines
  - SCT-1.3 : Shifting of DTRs, GIS substation/ transformer replacement
  - SCT-1.4 : Smart electric meters
  - SCT-1.5 : Smart water meters and other meters
- SCT - 2 : Smart safety, surveillance & monitoring
  - SCT - 2.1 : Robust IT connectivity and Wi-Fi zone
  - SCT - 2.2 : CCTV city safety and monitoring system
  - SCT - 2.3 : GPS enabled shuttle services
  - SCT - 2.4 : Emergency response system

## Highlights

- Improved focus on children and child safety :CCTV surveillance network & analytics for 24x7 monitoring of key public areas
- Citizen safety (especially for women & elderly) with one touch emergency response App
- Panic button at key locations
- Crowd sourcing and community policing
- 24x7 ICOC
- Women, child and differently abled friendly street

Smart electric meter



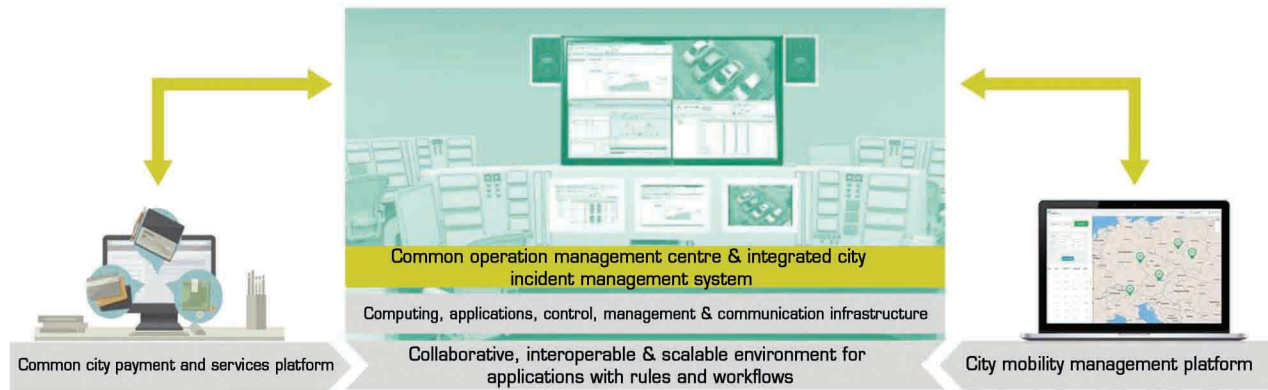
## KPIs

Emergency response <15min

Wi-Fi coverage to 100%

Reduce road accidents by 85%

Questions answered Q9, Q11, Q12, Q16, Q18, Q31, Q34 & Q35



## Pan city solutions



### Intelligent Transit System

- Automated fare collection system | Automated vehicle location system | Passenger information system | Planning & scheduling system | Depot management system | Ticketing handheld device | Smart card bus validators | Station PIS display | Bus camera based surveillances | Vehicle tracking unit - buses | Vehicle tracking unit - municipal vehicles (solid waste, engineering, official etc) | Vehicle tracking unit - fire trucks | Vehicle tracking unit - ambulance depot & terminal hardware | Other recreational ticketing systems

### Common City Payments & Services Processing Platform

- Service delivery points | Communication units | One App mobile platform | EMV / Rupay card | Bank card host system | Service applications | Mobile wallet integration

### Safety & Security Platform

- CCTV cameras | Civil work and poles | Network etc.

### Parking Management System

- On-street parking sensors | Wireless aggregator | Ticketing handheld device

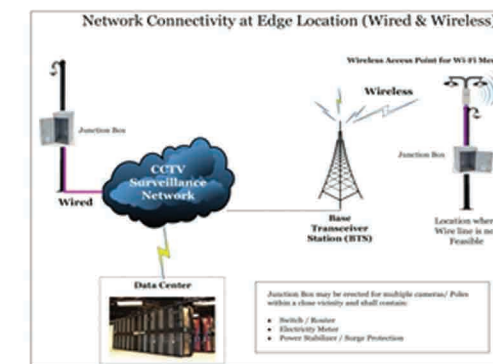
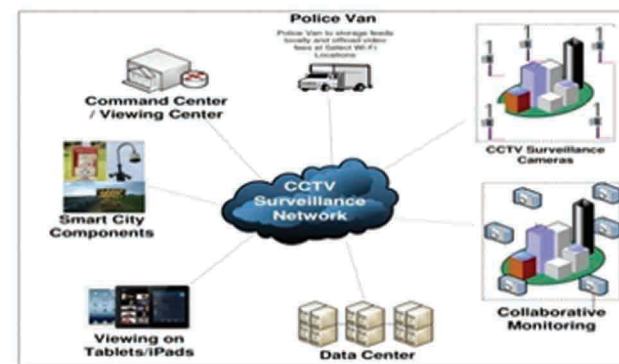
### Area Traffic Control System

- Adaptive traffic management system | Junction controllers | Traveller information displays | Speed violation detection system | Junction violation detection system

### Fibre Optic Network and City Communications Backbone

- 96 core + 48 core + 12 core fiber | Active network elements etc.

Data centre construction	<p><b>Integrated city operations control centre</b></p> <ul style="list-style-type: none"> <li>Data integration platform</li> <li>Radio communication</li> <li>Server infrastructure</li> </ul>	Operations consoles
Network infrastructure		DR ITS Cost
System softwares		IT peripherals like printers, scanners etc
Communication system		UPS & gen-sets
Video walls		Incident management system
Security system		Business intelligence system
Storage system		EMS/NMS
Disaster recovery centre construction		Parking management software



Integrated & intelligent service platform across Thoothukudi



Traffic speed at intersections  
**25-30km/hr**



Integrated operations  
**100%**

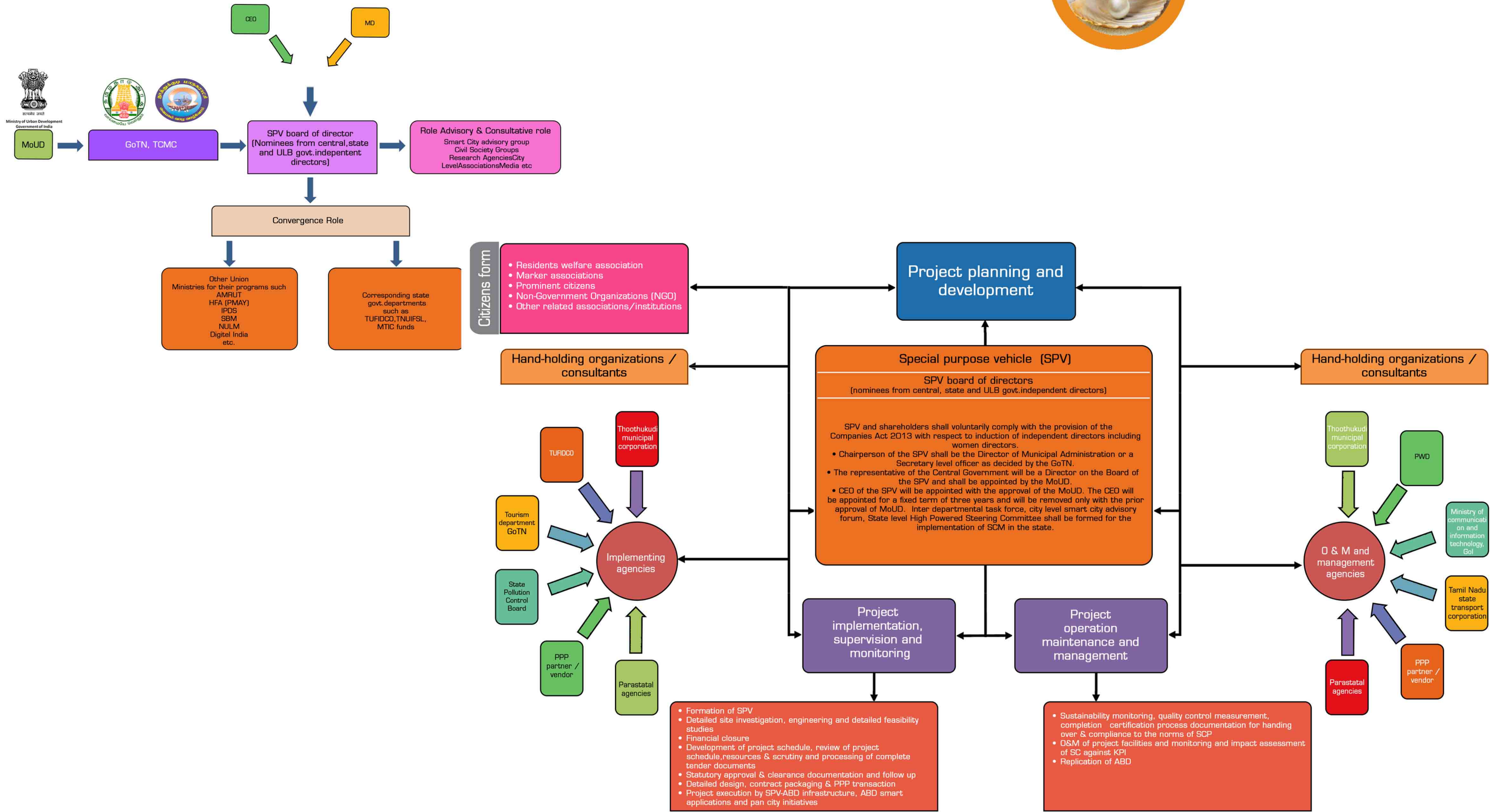


Paid parking space coverage  
**70%**

Questions answered  
Q16  
Q19  
Q20  
Q22



# 14(a) SPV Relationship & network 14(b) Stakeholder organogram





Capital cost (Summary)

Sl. No.	Item	Amount (in crore)	Percentage
1	Thoothukudi City Central - Area Based Development (TCC-ABD)	1,182.05	84.51%
2	Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)	144.99	10.37%
3	Technical and administrative support	71.72	5.13%
	<b>Total</b>	<b>1,398.76</b>	<b>100.00%</b>

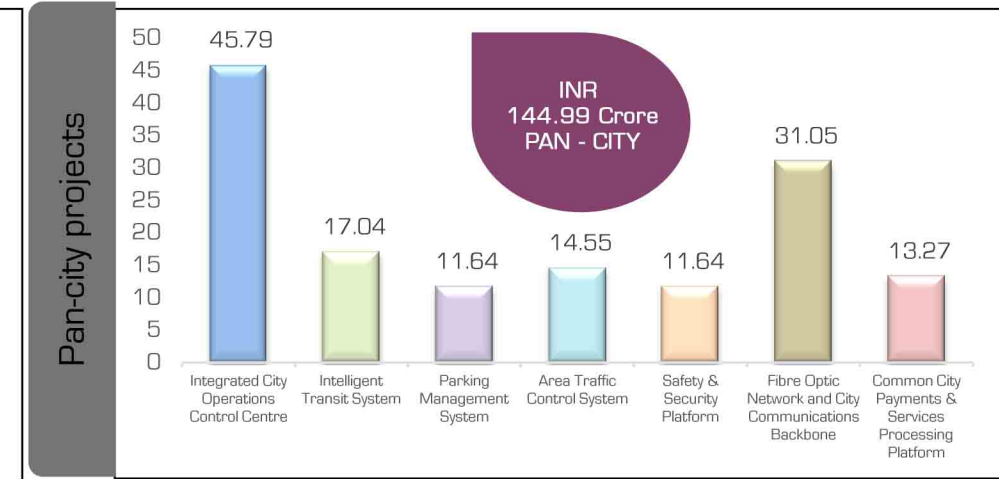
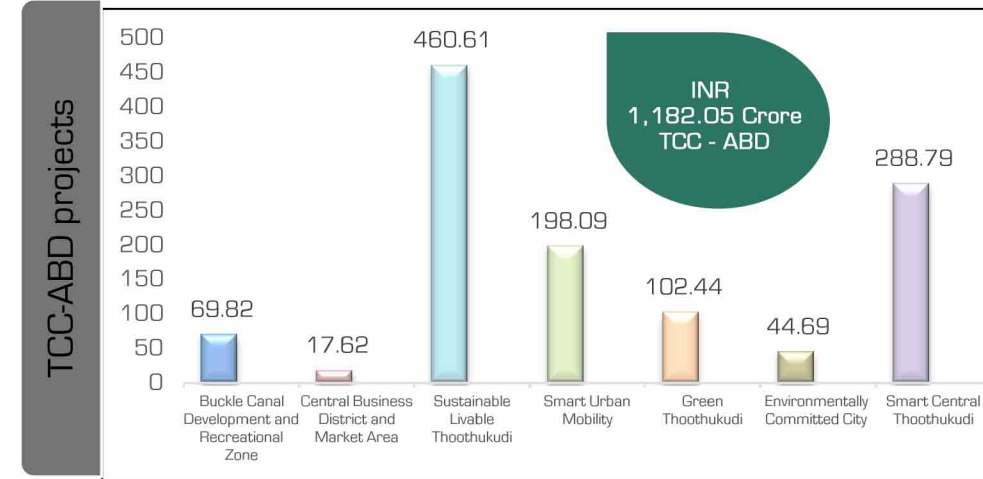
Capital cost - Component wise

Sl. No.	Component / Major	Activities / Minor	Particulars	Amount in crore	%	%
A			<b>Thoothukudi City Central - Area Based Development (TCC-ABD)</b>	<b>1,182.05</b>	<b>100.00%</b>	<b>84.51%</b>
	BCDRZ	LFRZ 1 - 2	Buckle Canal Development and Recreational Zone	69.82	5.91%	
	CBDMA	CBDMA 1 - 2	Central Business District and Market Area	17.62	1.49%	
	SLT	SLN 1 - 3	Sustainable Livable Thoothukudi	460.61	38.97%	
	SUM	SUM 1 - 6	Smart Urban Mobility	198.09	16.76%	
	GT	GT 1 - 2	Green Thoothukudi	102.44	8.67%	
	ECC	ECC 1 - 5	Environmentally Committed City	44.69	3.78%	
	SCT	SUB 1 - 2	Smart Central Thoothukudi	288.79	24.43%	
B			<b>Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)</b>	<b>144.99</b>	<b>100.00%</b>	<b>10.37%</b>
	ICOCC	ICOCC 1 - 17	Integrated City Operations Control Centre	45.79	31.58%	
	ITS	ITS 1 - 15	Intelligent Transit System	17.04	11.75%	
	PMS	PMS 1 - 3	Parking Management System	11.64	8.03%	
	ATCS	ATCS 1 - 5	Area Traffic Control System	14.55	10.04%	
	SSP	SSP 1 - 3	Safety & Security Platform	11.64	8.03%	
	FONCCB	FONCCB 1 - 2	Fibre Optic Network and City Communications Backbone	31.05	21.41%	
	CCPSPP	CCPSPP 1 - 7	Common City Payments & Services Processing Platform	13.27	9.15%	
C			<b>Technical and administrative support</b>	<b>71.72</b>	<b>100.00%</b>	<b>5.13%</b>
			<b>Total</b>	<b>1,398.76</b>		<b>100.00%</b>

Project - package wise itemized cost of components and financial plan - Thoothukudi City Central - Area Based Development (TCC-ABD)

Sr. No.	Components of Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)	Total cost at escalated prices
ICOCC	<b>Integrated City Operations Control Centre</b>	<b>45.79</b>
ICOCC-1	Data centre construction	4.85
ICOCC-2	Server infrastructure	4.37
ICOCC-3	Network infrastructure	1.94
ICOCC-4	System softwares	3.88
ICOCC-5	Communication system	0.97
ICOCC-6	Video walls	3.64
ICOCC-7	Operations consoles	0.44
ICOCC-8	Security system	1.46
ICOCC-9	Storage system	2.91
ICOCC-10	Disaster recovery centre construction	1.94
ICOCC-11	DR ITS Cost	9.70
ICOCC-12	IT peripherals like printers, scanners etc.	0.97
ICOCC-13	UPS & gen-sets	0.97
ICOCC-14	Incident management system	1.94
ICOCC-15	Business intelligence system	2.91
ICOCC-16	EMS/NMS	1.94
ICOCC-17	Parking Management Software	0.97
	<b>Sub-total cost</b>	<b>45.79</b>
ITS	<b>Intelligent Transit System (ITS)</b>	<b>17.04</b>
ITS-1	Automated fare collection system	1.46
ITS-2	Automated vehicle location system	1.94
ITS-3	Passenger information system	1.46
ITS-4	Planning & scheduling system	1.94
ITS-5	Depot management system	1.46
ITS-6	Ticketing handheld device	0.96
ITS-7	Smart card bus validators	2.62
ITS-8	Station PIS display	0.19
ITS-9	Bus camera based surveillances	0.87
ITS-10	Vehicle tracking unit - buses	2.18
ITS-11	Vehicle tracking unit - municipal vehicles (solid waste, engineering, official etc)	0.31
ITS-12	Vehicle tracking unit - fire trucks	0.44
ITS-13	Vehicle tracking unit - ambulance	0.87
ITS-14	Depot & terminal hardware	0.19
ITS-15	Other recreational ticketing systems	0.15
	<b>Sub-total cost</b>	<b>17.04</b>

TCC - ABD project cost INR 1182.05 crore



Project - package wise itemized cost of components and financial plan - Thoothukudi City Central - Area Based Development (TCC-ABD)

Themes, Projects & Components	Indicative quantity	Unit	Indicative unit rate, INR	Total cost at escalated prices
<b>BCDRZ</b>				<b>69.82</b>
BCDRZ - 1	Canal development	54500.00	Sq m	49.05
BCDRZ - 2	Canal promenade development	6.50	Km	4.88
BCDRZ - 3	Leisure park	50454	Sq m	15.90
<b>CBDMA</b>				<b>17.62</b>
CBDMA-1	Market complex for street vendors	50000	Sq ft	15.00
CBDMA-2	Development of infrastructure facilities	7890.00	Sqm	2.62
<b>SLT</b>				<b>460.61</b>
SLT - 1	Housing for existing HHS living in kachna & semi pucca houses in slum area including slum infrastructure			
SLT - 1.1	Housing for existing HHS living in kachna & semi pucca houses in slum area	250.00	Nos	11.25
SLT - 1.2	Slum infrastructure	1.00	LOT	13.45
SLT - 2	Non-slum residential areas retrofitting			
SLT - 2.1	Adequate water supply	59.30	Km	71.24
SLT - 2.2	Sewerage collection & wastewater recycling	35.72	Km	215.51
SLT - 2.3	Sanitation	41.00	Nos	8.20
SLT - 2.4	Solid waste management collection and transportation	59.05	TPD	9.19
SLT - 2.5	Solid waste management treatment	59.05	TPD	22.79
SLT - 2.6	Storm water drainage	60.01	Km	90.61
<b>SLT - 3</b>	<b>Social and community development</b>			
SLT - 3.1	Smart school management software	1.00	LOT	1.32
SLT - 3.2	Smart class rooms, e monitoring, etc.	1.00	LOT	5.04
SLT - 3.3	Green contract language and awareness	1.00	LOT	0.74
SLT - 3.4	Centre for excellence for smart city and smart eco park	1.00	LOT	3.50
SLT - 3.5	Skill development centre	1.00	LOT	2.55
SLT - 3.6	Digital kiosk to overcome digital divide and e municipality	1.00	LOT	3.56
SLT - 3.7	Digital library	1.00	LOT	1.65

Themes, Projects & Components	Indicative quantity	Unit	Indicative unit rate, INR	Total cost at escalated prices
<b>SUM</b>				<b>198.09</b>
SUM - 1	Public transit corridor improvement	14.40	Km	19.02
SUM - 2	Multi modal intelligent public transport system	1	LOT	15.19
SUM - 3	Retrofitting other roads	80.49	Km	64.40
SUM - 4	NMT corridor			
SM - 4.1	Pedestrian footpath and cycling track	172.54	Km	37.96
SM - 4.2	Pelican and puffin pedestrian crossing system	295.00	Nos	10.33
SM - 4.3	Non vehicle street	43.13	Km	7.20
SUM - 5	Smart bus stand and signage's	100.00	Nos	4.25
SUM - 6	Multi-level parking	3	Nos	39.75
<b>GT</b>				<b>102.44</b>
GT - 1	<b>Solar mission</b>			
GT - 1.1	Installation of solar PV on roof top in all Government and institutional buildings	1.12	MW	8.93
GT - 1.2	Installation of solar PV on roof top in all Government and institutional buildings through PPP	6.32	MW	50.58
GT - 1.3	Energy efficient smart solar street lighting	3877.00	Nos	19.39
GT - 1.4	Solar umbrellas	18.00	Nos	1.35
GT - 1.5	Retrofitting of all Government and institutional buildings as energy efficient and green buildings	1.00	LOT	8.00
GT - 2	Waste to energy	1.23	MW	14.20

Themes, Projects & Components	Indicative quantity	Unit	Indicative unit rate, INR	Total cost at escalated prices
<b>ECC</b>				<b>44.69</b>
ECC - 1	Environmentally Committed City			
ECC - 1	Buckle canal regeneration and cleaning	1.00	LOT	3.25
ECC - 2	Environmental quality monitoring stations	1.00	LOT	6.44
ECC - 3	Rainwater harvesting for all Govt. owned institutional and office buildings	1.00	LOT	3.19
ECC - 4	Development of open spaces in retrofitting area	1.00	LOT	21.20
ECC - 5	Visible improvement in the area	1.00	LOT	10.60
<b>SCT</b>				<b>288.79</b>
SCT - 1	<b>Safe and assured electricity supply</b>			
SCT - 1.1	Underground electrical lines HT lines	34.86	Km	43.23
SCT - 1.2	Underground electrical lines LT lines	116.21	Km	12.77
SCT - 1.3	Shifting of DTRs, GIS substation/transformer replacement	1.00	LOT	33.60
SCT - 1.4	Smart electric meters	44,291	Nos	24.36
SCT - 1.5	Smart water meters and others meters	27,317	Nos	57.37
SCT - 2	<b>Smart safety, surveillance &amp; monitoring</b>			
SCT - 2.1	Robust IT connectivity and WIFI zone	116	Km	7.90
SCT - 2.2	CCTV city safety and monitoring system	295.00	Nos	103.63
SCT - 2.3	GPS enabled shuttle services	21	Nos	3.22
SCT - 2.4	Emergency response system	1.00	LOT	2.70
<b>Total Thoothukudi City Central - Area Based Development (TCC-ABD)</b>				<b>1,182.05</b>

TCIOCCS - Pan city project cost INR 144.99 crore

Thoothukudi SCP project cost INR 1398.76 crore

Questions answered

Q 9  
Q 31  
Q 37  
Q 38

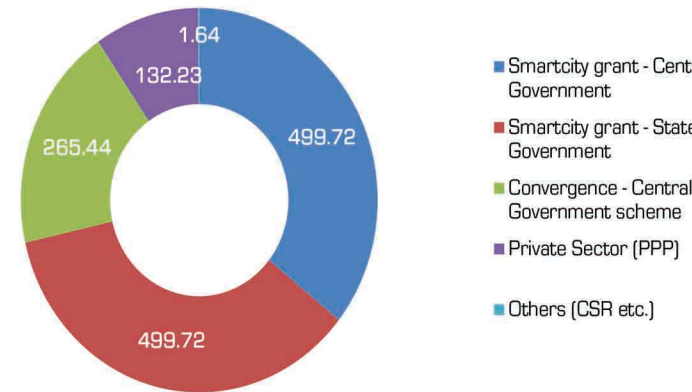


Resource plan - SCP for Thoothukudi City Central - Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)

INR crore

Sources of funding	Figures in cr.	Total - INR 1,398.76 crore
Smart city grant		
Central Government	499.72	
State Government	499.72	
Convergence		
Central Government Scheme	265.44	
State Government Scheme	-	
Private Sector (PPP)	132.23	
ULB level funded schemes	-	
External Agencies (DFID)	-	
Others (CSR etc.)	1.64	

Source of funding



Source of funding	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Government of India SCM fund	200.00	100.00	100.00	99.72	-	499.72
State Government SCM fund	200.00	100.00	100.00	99.72	-	499.72
ULB funding schemes	0.00	0.00	0.00	0.00	-	0.00
State government funding schemes	-	-	-	-	-	-
AMRUT	88.99	57.32	44.61	25.29	26.02	242.23
SBM	1.34	1.04	0.59	0.35	0.16	3.48
External aided fund	-	-	-	-	-	-
NULM	0.20	0.15	0.09	0.05	0.02	0.51
Digital India	-	-	-	-	-	-
Housing for all	1.08	0.84	0.47	0.28	0.13	2.81
IPDS	6.56	2.46	4.92	1.64	0.82	16.41
CSR	0.63	0.49	0.28	0.16	0.08	1.64
PPP	44.10	25.78	30.16	22.96	9.22	132.23
<b>Total</b>	<b>542.89</b>	<b>288.09</b>	<b>281.12</b>	<b>250.19</b>	<b>36.46</b>	<b>1,398.76</b>

Financial plan - SCP for Thoothukudi City Central - Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)

Themes, Projects & Components - TCC-ABD	Convergence fund	PPP	SCM fund	Total
BCDRZ - Buckle Canal Development and Recreational Zone	-	-	69.82	69.82
BCDRZ - 1 Canal development	-	-	49.05	49.05
BCDRZ - 2 Canal promenade development	-	-	4.88	4.88
BCDRZ - 3 Leisure park	-	-	15.90	15.90
<b>CBDMA - Central Business District and Market Area</b>	<b>-</b>	<b>15.00</b>	<b>2.62</b>	<b>17.62</b>
CBDMA-1 Market Complex for street vendors	-	15.00	-	15.00
CBDMA-2 Development of infrastructure facilities	-	-	2.62	2.62
<b>SLT - Sustainable Livable Thoothukudi</b>	<b>148.31</b>	<b>26.89</b>	<b>285.40</b>	<b>460.61</b>
SLT - 1 Housing for existing HHS living in kachha & semi pucca houses in slum area including slum infrastructure	-	-	-	-
SLT - 1.1 Housing for existing HHS living in kachha & semi pucca houses in slum area	2.81	-	8.44	11.25
SLT - 1.1.1 Slum infrastructure	-	-	13.45	13.45
SLT - 1.2 Non-slum residential areas retrofitting	-	-	-	-
SLT - 2.1 Adequate water supply	21.18	-	50.06	71.24
SLT - 2.2 Sewerage collection & wastewater recycling	52.80	-	162.71	215.51
SLT - 2.3 Sanitation	3.28	4.10	0.82	8.20
SLT - 2.4 Solid waste management collection and transportation	1.84	-	7.35	9.19
SLT - 2.5 Solid waste management treatment	-	22.79	-	22.79
SLT - 2.6 Storm water drainage	65.89	-	24.72	90.61

Themes, Projects & Components - TCC-ABD	Convergence fund	PPP	SCM fund	Total
SLT - 3 Social and community development	-	-	-	-
SLT - 3.1 Smart school management software	-	-	1.32	1.32
SLT - 3.2 Smart class rooms, e monitoring, etc.	-	-	5.04	5.04
SLT - 3.3 Green contract language and awareness	-	-	0.74	0.74
SLT - 3.4 Centre for excellence for smart city and smart eco park	-	-	3.50	3.50
SLT - 3.5 Skill development centre	0.51	-	2.04	2.55
SLT - 3.6 Digital kiosk to overcome digital divide and e municipality	-	-	3.56	3.56
SLN - 3.7 Digital library	-	-	1.65	1.65
<b>SUM - Smart Urban Mobility</b>	<b>97.01</b>	<b>39.75</b>	<b>61.32</b>	<b>198.09</b>
SUM - 1 Public transit corridor improvement	9.51	-	9.51	19.02
SUM - 2 Multi modal intelligent public transport system	7.60	-	7.60	15.19
SUM - 3 Retrofitting other roads	32.20	-	32.20	64.40
SUM - 4 NMT corridor	-	-	-	-
SM - 4.1 Pedestrian footpath and cycling track	36.82	-	1.14	37.96
SM - 4.2 Pelican and puffin pedestrian crossing system	5.16	-	5.16	10.33
SM - 4.3 Non vehicle street	3.60	-	3.60	7.20
SUM - 5 Smart bus stand and signage's	2.13	-	2.13	4.25
SUM - 6 Multi-level parking	-	39.75	-	39.75
<b>GT - Green Thoothukudi</b>	<b>-</b>	<b>50.58</b>	<b>51.86</b>	<b>102.44</b>
GT - 1 Solar mission	-	-	-	-
GT - 1.1 Installation of solar PV on roof top in all Government and institutional buildings	-	-	8.93	8.93
GT - 1.2 Installation of solar PV on roof top in all Government and institutional buildings through PPP	-	50.58	-	50.58
GT - 1.3 Energy efficient smart solar street lighting	-	-	19.39	19.39
GT - 1.4 Solar umbrellas	-	-	1.35	1.35
GT - 1.5 Retrofitting of all Government and institutional buildings as energy efficient and green buildings	-	-	8.00	8.00
GT - 2 Waste to energy	-	-	14.20	14.20

Themes, Projects & Components - TCC-ABD	Convergence fund	PPP	SCM fund	Total
ECC - Environmentally Committed City	5.35	-	39.34	44.69
ECC - 1 Buckle canal regeneration and cleaning	-	-	3.25	3.25
ECC - 2 Environmental quality monitoring stations	-	-	6.44	6.44
ECC - 3 Rainwater harvesting for all Govt. owned institutional and office buildings	-	-	3.19	3.19
ECC - 4 Development of open spaces in retrofitting area	5.35	-	15.85	21.20
ECC - 5 Visible improvement in the area	-	-	10.60	10.60
<b>SCT - Smart Central Thoothukudi</b>	<b>16.41</b>	<b>-</b>	<b>272.38</b>	<b>288.79</b>
SCT - 1 Safe and assured electricity supply	-	-	-	-
SCT - 1.1 Underground electrical lines HT lines	2.26	-	40.97	43.23
SCT - 1.2 Underground electrical lines LT lines	2.56	-	10.22	12.77
SCT - 1.3 Shifting of DTRs, GIS Substation/transformer replacement	6.72	-	26.88	33.60
SCT - 1.4 Smart electric meters	4.87	-	19.49	24.36
SCT - 1.5 Smart water meters and others meters	-	-	57.37	57.37
SCT - 2 Smart safety, surveillance & monitoring	-	-	-	-
SCT - 2.1 Robust IT connectivity and WiFi zone	-	-	7.90	7.90
SCT - 2.2 CCTV city safety and monitoring system	-	-	103.63	103.63
SCT - 2.3 GPS enabled shuttle services	-	-	3.22	3.22
SCT - 2.4 Emergency response system	-	-	2.70	2.70

Theme	Projects & components - Pan City	Convergence fund	PPP fund	SCM fund	Total
ICOCC	Integrated City Operations Control Centre	-	-	45.79	45.79
ICOCC - 1	Data centre construction	-	-	4.85	4.85
ICOCC - 2	Server infrastructure	-	-	4.37	4.37
ICOCC - 3	Network infrastructure	-	-	1.94	1.94
ICOCC - 4	System softwares	-	-	3.88	3.88
ICOCC - 5	Communication system	-	-	0.97	0.97
ICOCC - 6	Video walls	-	-	3.64	3.64
ICOCC - 7	Operations consoles	-	-	0.44	0.44
ICOCC - 8	Security system	-	-	1.46	1.46
ICOCC - 9	Storage system	-	-	2.91	2.91
ICOCC - 10	Disaster recovery centre construction	-	-	1.94	1.94
ICOCC - 11	DR ITS Cost	-	-	9.70	9.70
ICOCC - 12	IT peripherals like printers, scanners etc	-	-	0.97	0.97
ICOCC - 13	UPS & gen-sets	-	-	1.94	1.94
ICOCC - 14	Incident management system	-	-	2.91	2.91
ICOCC - 15	Business intelligence system	-	-	1.94	1.94
ICOCC - 16	EMS/NMS	-	-	0.97	0.97
ICOCC - 17	Parking Management Software	-	-	-	-
<b>ITS - Intelligent Transit System</b>				<b>17.04</b>	<b>17.04</b>
ITS - 1	Automated fare collection system	-	-	1.46	1.46
ITS - 2	Automated vehicle location system	-	-	1.94	1.94
ITS - 3	Passenger information system	-	-	1.46	1.46
ITS - 4	Planning & scheduling system	-	-	1.94	1.94
ITS - 5	Depot management system	-	-	1.46	1.46
ITS - 6	Ticketing handheld device	-	-	0.96	0.96
ITS - 7	Smart card bus validators	-	-	2.62	2.62
ITS - 8	Station PIS display	-	-	0.19	0.19
ITS - 9	Bus camera based surveillances	-	-	0.87	0.87
ITS - 10	Vehicle tracking unit - buses	-	-	2.18	2.18
ITS - 11	Vehicle tracking unit - municipal vehicles (solid waste, engineering, official etc)	-	-	0.31	0.31
ITS - 12	Vehicle tracking unit - fire trucks	-	-	0.44	0.44
ITS - 13	Vehicle tracking unit - ambulance	-	-	0.87	0.87
ITS - 14	Depot & terminal hardware	-	-	0.19	0.19
ITS - 15	Other recreational ticketing systems	-	-	0.15	0.15

Theme	Projects & components - Pan City	Convergence fund	PPP fund	SCM fund	Total
PMS	Parking Management System	-	-	11.64	11.64
PMS-1	On-street parking sensors	-	-	4.85	4.85
PMS-2	Wireless aggregator	-	-	2.91	2.91
PMS-3	Ticketing handheld device	-	-	3.88	3.88
<b>ATCS - Area Traffic Control System</b>				<b>14.55</b>	<b>14.55</b>
ATCS - 1	Adaptive traffic management system	-	-	2.43	2.43
ATCS - 2	Junction controllers	-	-	7.76	7.76
ATCS - 3	Traveler information displays	-	-	1.75	1.75
ATCS - 4	Speed violation detection system	-	-	0.87	0.87
ATCS - 5	Junction violation detection system	-	-	1.75	1.75
<b>SSP - Safety &amp; Security Platform</b>				<b>11.64</b>	<b>11.64</b>
SSP-1	CCTV cameras	-	-	8.73	8.73
SSP-2	Civil work and poles	-	-	0.73	0.73
SSP-3	Network etc.	-	-	2.18	2.18
<b>FONCCB - Fibre Optic Network and City Communications Backbone</b>				<b>31.05</b>	<b>31.05</b>
FONCCB-1	96 core + 48 core + 12 core fiber	-	-	5.82	5.82
FONCCB-2	Active network elements etc.	-	-	25.23	25.23
<b>CCPSPP - Common City Payments &amp; Services Processing Platform</b>				<b>13.27</b>	<b>13.27</b>
CCPSPP-1	Service delivery points	-	-	1.22	1.22
CCPSPP-2	Communication units	-	-	0.05	0.05
CCPSPP-3	One app mobile platform	-	-	2.91	2.91
CCPSPP-4	EMV / Rupay card	-	-	1.94	1.94
CCPSPP-5	Bank card host system	-	-	2.13	2.13
CCPSPP-6	Service applications	-	-	3.88	3.88
CCPSPP-7	Mobile wallet integration	-	-	1.14	1.14

Smart city grant INR 999.45 crore

Central government scheme convergence INR 265.44 crore

Private sector (PPP) INR 132.23 crore

Others [CSR] INR 1.64 crore

Questions answered

Q 38  
Q 40



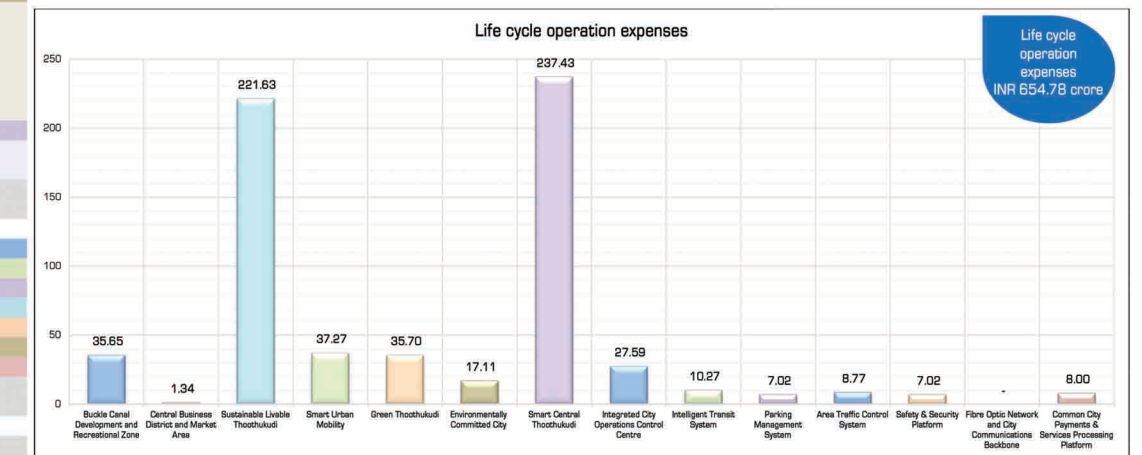
## Life time cost - Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)

S.No	Major	Minor	Projects	Capital cost, INR crore	Replacement cost over life cycle, Rs crore	Operation and maintenance cost per annum, % of capital assets	Total operation and maintenance cost, INR crore over the life cycle for SPV	Total life cycle cost, capital + replacement + O&M cost, INR crore for SPV	Total operation and maintenance cost, INR crore over the life cycle for PPP projects	Total life cycle cost, capital + replacement + O&M cost, INR crore for PPP projects	Remarks
<b>Thoothukudi City Central - Area Based Development (TCC-ABD)</b>											
1	BCDRZ -Buckle Canal Development and Recreational Zone	BCDRZ - 1	Canal development	49.05	0.00	2%	25.05	74.10			
		BCDRZ - 2	Canal promenade development	4.88	0.00	2%	8.37	13.24			
		BCDRZ - 3	Leisure park	15.90	0.00	2%	2.24	18.14			
2	CBDMA -Central Business District and Market Area	CBDMA-1	Market Complex for street vendors	15.00	0.00	1.25%			4.79	19.79	(*)
		CBDMA-2	Development of infrastructure facilities	2.62	0.13	2.00%	1.34	4.09			
3	SLT -Sustainable Livable Thoothukudi	SLT - 1	Housing for existing HHS living in kachha & semi pucca houses in slum area including slum infrastructure								
		SLT - 1.1	Housing for existing HHS living in kachha & semi pucca houses in slum area	11.25	0.00	2.00%	5.64	16.89			
		SLT - 1.2	Slum infrastructure	13.45	0.67	2.00%	6.74	20.87			
		SLT - 2	Non-slum residential areas retrofitting								
		SLT - 2.1	Adequate water supply	71.24	3.56	2.00%	35.70	110.50			
		SLT - 2.2	Sewerage collection & wastewater recycling	215.51	10.78	2.00%	112.09	338.38			
		SLT - 2.3	Sanitation	8.20	0.00	2.00%	2.26	6.36	2.26	6.36	(*)
		SLT - 2.4	Solid waste management collection and transportation	9.19	1.38	2.00%	4.61	15.18			
		SLT - 2.5	Solid waste management treatment	22.79	0.00	1.75%	31.50		8.71	31.50	(*)
		SLT - 2.6	Storm water drainage	90.61	0.00	2.00%	45.40	136.01			
		SLT - 3	Social and community development								
		SLT - 3.1	Smart school management software	1.32	1.32	2.00%	0.66	3.29			
		SLT - 3.2	Smart class rooms, e monitoring, etc.	5.04	5.04	2.00%	2.53	12.61			
		SLT - 3.3	Green contract language and awareness	0.74	0.74	2.00%	0.37	1.85			
		SLT - 3.4	Centre for excellence for smart city and smart eco park	3.50	3.50	2.00%	1.75	8.75			
		SLT - 3.5	Skill development centre	2.55	2.55	2.00%	1.28	6.38			
		SLT - 3.6	Digital kiosk to overcome digital divide and e municipality	3.56	3.56	2.00%	1.78	8.90			
		SLN - 3.7	Digital library	1.65	1.65	2.00%	0.83	4.13			
4	SUM -Smart Urban Mobility	SUM - 1	Public transit corridor improvement	19.02	0.00	1.75%	4.48	23.49			
		SUM - 2	Multi modal intelligent public transport system	15.19	2.28	1.75%	3.58	21.04			
		SUM - 3	Retrofitting other roads	64.40	0.00	1.75%	15.16	79.55			
		SUM - 4	NMT corridor	55.48	0.00	1.75%	13.06	68.54			
		SUM - 5	Smart bus stand and signage's	4.25	2.13	1.75%	1.00	7.38			
		SUM - 6	Multi-level parking	39.75	0.00	1.75%			18.24	57.99	(*)
5	GT -Green Thoothukudi	GT - 1	Solar mission								
		GT - 1.1	Installation of solar PV on roof top in all Government and institutional buildings and other solar mission components	8.93	0.00	1.75%	4.16	13.09			
		GT - 1.2	Installation of solar PV on roof top in all Government and institutional buildings through PPP	50.58	0.00	1.75%			23.59	74.17	(*)
		GT - 1.3	Energy efficient smart solar street lighting	19.39	5.82	1.75%	9.04	34.24			
		GT - 1.4	Solar umbrellas	1.35	0.27	1.75%	0.63	2.25			
		GT - 1.5	Retrofitting of all Government and institutional buildings as energy efficient and green buildings	8.00	0.00	1.75%	3.73	11.73			
		GT - 2	Waste to energy	14.20	0.71	5.00%	18.13	33.04			
6	ECC -Environmentally Committed City	ECC - 1	Buckle canal regeneration and cleaning	3.25	0.33	1.50%	1.24	4.82			
		ECC - 2	Environmental quality monitoring stations	6.44	0.64	1.50%	2.47	9.55			
		ECC - 3	Rainwater harvesting for all Govt. owned institutional and office buildings	3.19	0.00	1.50%	1.22	4.42			
		ECC - 4	Development of open spaces in retrofitting area	21.20	0.00	1.50%	8.12	29.32			
		ECC - 5	Visible improvement in the area	10.60	0.00	1.50%	4.06	14.66			
7	SCT -Smart Central Thoothukudi	SCT - 1	Safe and assured electricity supply	171.34	0.00	2.00%	87.49	258.83			
		SCT - 2	Smart safety, surveillance & monitoring	117.45	11.75	5.00%	149.94	279.14			
			<b>Subtotal of Thoothukudi City Central - Area Based Development (TCC-ABD)</b>	<b>1182.05</b>	<b>58.79</b>		<b>586.13</b>	<b>1800.41</b>	<b>57.58</b>	<b>189.81</b>	
<b>Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)</b>											
1	ICOCC		Integrated City Operations Control Centre	45.79	9.16	4.00%	27.59				
2	ITS		Intelligent Transit System	17.04	3.41	4.00%	10.27				
3	PMS		Parking Management System	11.64	2.33	4.00%	7.02				
4	ATCS		Area Traffic Control System	14.55	2.91	4.00%	8.77	26.23			
5	SSP		Safety & Security Platform	11.64	2.33	4.00%	7.02	20.99			
6	FONCB		Fibre Optic Network and City Communications Backbone	31.05	6.21	0.00%	0.00				
7	CCPSP		Common City Payments & Services Processing Platform	13.27	2.65	4.00%	8.00				
			<b>Subtotal of Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)</b>	<b>144.99</b>	<b>29.00</b>		<b>68.65</b>	<b>47.22</b>			
			<b>Technical and administrative support</b>	<b>71.72</b>							
			<b>Total SCP-TCC-ABD and TCIOCCS life cycle cost</b>	<b>1398.76</b>	<b>87.79</b>		<b>654.78</b>	<b>1847.63</b>			

## Cash flow and project IRR – Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)

Particulars	INR crore									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
<b>Outflows:</b>										
Total for TCC-ABD	450.12	248.65	255.89	151.54	75.85					
Total for TCIOCCS	43.50	14.50	27.55	59.44	0.00					
Technical and administrative support	41.83	25.89	2.00	2.00	0.00					
Other operating expenses	0.00	0.00	0.08	0.83	29.96	31.16	32.41	33.70	35.05	36.45
Capital expenses, phase wise investment and up gradation										
Provision for tax	0.00	0.11	0.23	0.58	0.00	0.00	0.00	0.00	0.00	0.00
Provision for CSR	0.00	0.01	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total outflow</b>	<b>535.44</b>	<b>289.16</b>	<b>285.77</b>	<b>214.44</b>	<b>105.81</b>	<b>31.16</b>	<b>32.41</b>	<b>33.70</b>	<b>35.05</b>	<b>36.45</b>
<b>Inflows:</b>										
Equity -scheme grant	400.00	200.00	200.00	199.45	0.00	0.00	0.00	0.00	0.00	0.00
Project revenue including interest income	0.00	0.60	1.22	3.68	64.29	62.83	68.60	74.96	81.98	90.60
Convergence scheme grant	98.79	62.31	50.86	27.78	27.24	0.00	0.00	0.00	0.00	0.00
PPP funding	44.10	25.78	30.16	22.96	9.22					
<b>Total Inflows</b>	<b>542.89</b>	<b>288.69</b>	<b>282.24</b>	<b>253.87</b>	<b>100.76</b>	<b>62.83</b>	<b>69.60</b>	<b>74.96</b>	<b>81.98</b>	<b>90.60</b>
<b>Net flows</b>	<b>7.45</b>	<b>-0.47</b>	<b>-3.43</b>	<b>39.43</b>	<b>-5.06</b>	<b>31.67</b>	<b>36.19</b>	<b>41.26</b>	<b>46.93</b>	<b>54.15</b>
<b>Cumulative flows</b>	<b>7.45</b>	<b>6.98</b>	<b>3.55</b>	<b>42.98</b>	<b>37.93</b>	<b>69.60</b>	<b>105.79</b>	<b>147.05</b>	<b>193.98</b>	<b>248.13</b>
<b>Net flow to the Project for the IRR post tax</b>	<b>-91.35</b>	<b>-62.78</b>	<b>-54.39</b>	<b>11.65</b>	<b>-32.30</b>	<b>31.67</b>	<b>36.19</b>	<b>41.26</b>	<b>46.93</b>	<b>54.15</b>
<b>Net flow to the Project for the IRR pre tax</b>	<b>-91.35</b>	<b>-62.66</b>	<b>-54.15</b>	<b>12.23</b>	<b>-32.30</b>	<b>31.67</b>	<b>36.19</b>	<b>41.26</b>	<b>46.93</b>	<b>54.15</b>
<b>Net available flow to the Project</b>	<b>-91.35</b>	<b>-62.78</b>	<b>-54.39</b>	<b>11.65</b>	<b>-32.30</b>	<b>31.67</b>	<b>36.19</b>	<b>41.26</b>	<b>46.93</b>	<b>54.15</b>
<b>Project IRR (Post Tax)</b>	<b>14.39%</b>									
<b>Project IRR (Pre Tax)</b>	<b>15.01%</b>									

Particulars	INR crore										Total
	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	
<b>Outflows:</b>											
Total for TCC-ABD											1182.05
Total for TCIOCCS											144.99
Technical and administrative support											71.72
Other operating expenses	37.91	39.43	41.00	42.64	44.35	46.12	47.97	49.89	51.88	53.96	654.78
Capital expenses, phase wise investment and up gradation											87.79
Provision for tax	0.24	1.86	3.82	5.86	8.30	9.27	11.88	14.74	17.87	21.51	96.28
Provision for CSR	0.02	0.15	0.28	0.43	0.61	0.68	0.88	1.09	1.32	1.59	7.11
<b>Total outflow</b>	<b>38.16</b>	<b>41.43</b>	<b>45.10</b>	<b>48.94</b>	<b>141.05</b>	<b>56.08</b>	<b>60.73</b>	<b>65.71</b>	<b>71.07</b>	<b>77.05</b>	<b>2244.72</b>
<b>Inflows:</b>											
Equity -scheme grant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	999.45
Project revenue including interest income	99.22	108.71	119.04	130.27	143.41	149.73	163.80	179.11	195.78	214.91	1952.76
Convergence scheme grant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	267.08
PPP funding											
<b>Total Inflows</b>	<b>99.22</b>	<b>108.71</b>	<b>119.04</b>	<b>130.27</b>	<b>143.41</b>	<b>149.73</b>	<b>163.80</b>	<b>179.11</b>	<b>195.78</b>	<b>214.91</b>	<b>3219.29</b>
<b>Net flows</b>	<b>61.06</b>	<b>67.28</b>	<b>73.94</b>	<b>81.33</b>	<b>2.36</b>	<b>93.65</b>	<b>103.08</b>	<b>113.40</b>	<b>124.71</b>	<b>137.85</b>	<b>1106.80</b>
<b>Cumulative flows</b>	<b>309.19</b>	<b>376.47</b>	<b>450.42</b>	<b>531.75</b>	<b>534.11</b>	<b>627.76</b>	<b>730.84</b>	<b>844.24</b>	<b>968.95</b>	<b>1106.80</b>	
<b>Net flow to the Project for the IRR post tax</b>	<b>61.06</b>	<b>67.28</b>	<b>73.94</b>	<b>81.33</b>	<b>2.36</b>	<b>93.65</b>	<b>103.08</b>	<b>113.40</b>	<b>124.71</b>	<b>137.85</b>	
<b>Net flow to the Project for the IRR pre tax</b>	<b>61.29</b>	<b>69.14</b>	<b>77.76</b>	<b>87.20</b>	<b>10.67</b>	<b>102.92</b>	<b>114.96</b>	<b>128.14</b>	<b>142.58</b>	<b>159.36</b>	
<b>Net available flow to the Project</b>	<b>61.06</b>	<b>67.28</b>	<b>73.94</b>	<b>81.33</b>	<b>2.36</b>	<b>93.65</b>	<b>103.08</b>	<b>113.40</b>	<b>124.71</b>	<b>137.85</b>	






**Financial plan - SCP for Thoothukudi City Central - Area Based Development (TCC-ABD) and Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)**

(INR crore)

Code	Projects	No. of projects	Total cost	Expenditure					Financing														O & M		Revenue for life cycle – component revenue excluding interest income, ULB income, etc.				
				Year 1	Year 2	Year 3	Year 4	Year 5	Convergence										PPP	SPV Financing			Total	Base year of operation of respective component		Total for life cycle operation expenses			
									ULB funding schemes	State Govt funding schemes	Amrut	SEM	External aided fund	NULM	Digital India	Housing for all	IPDS	CSR		PPP	Loan	Bond					SCM		
BCDRZ	Buckle Canal Development and Recreational Zone	12	69.82	41.89	10.47	6.98	10.47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69.82	69.82	1.63	35.65	11.69
CBDMA	Central Business District and Market Area	2	17.62	6.69	4.89	5.90	0.13	-	0.00	-	-	-	-	-	-	-	-	-	-	15.00	-	-	-	2.62	17.62	0.06	1.34	1.02	
SLT	Sustainable Livable Thoothukudi	15	460.61	176.83	138.18	77.74	46.06	21.80	-	-	139.87	3.48	-	0.51	-	2.81	-	1.64	26.89	-	-	-	285.40	460.61	0.08	221.63	226.12		
SUM	Smart Urban Mobility	8	198.09	69.33	29.71	39.62	19.81	39.62	-	-	97.01	-	-	-	-	-	-	-	39.75	-	-	-	61.32	198.09	1.71	37.27	33.01		
GT	Green Thoothukudi	6	102.44	28.68	15.37	25.61	32.78	-	-	-	-	-	-	-	-	-	-	-	50.58	-	-	-	51.86	102.44	0.74	35.70	103.22		
ECC	Environmentally Committed City	11	44.69	11.17	6.70	13.41	13.41	-	-	-	5.35	-	-	-	-	-	-	-	-	-	-	-	39.34	44.69	0.78	17.11	8.06		
SCT	Smart Central Thoothukudi	9	288.79	115.52	43.32	86.64	28.88	14.44	-	-	-	-	-	-	-	-	-	16.41	-	-	-	-	272.38	288.79	10.88	237.43	-		
<b>Total for TCC-ABD</b>		<b>63</b>	<b>1,182.05</b>	<b>450.12</b>	<b>248.65</b>	<b>255.89</b>	<b>151.54</b>	<b>75.85</b>	<b>0.00</b>	<b>-</b>	<b>242.23</b>	<b>3.48</b>	<b>-</b>	<b>0.51</b>	<b>-</b>	<b>2.81</b>	<b>16.41</b>	<b>1.64</b>	<b>132.23</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>782.74</b>	<b>1,182.05</b>	<b>15.88</b>	<b>586.13</b>	<b>383.12</b>		
ICOCC	Integrated City Operations Control Centre	1	45.79	13.74	4.58	8.70	18.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45.79	45.79	1.26	27.59	-		
ITS	Intelligent Transit System	1	17.04	5.11	1.70	3.24	6.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.04	17.04	0.47	10.27	-		
PMS	Parking Management System	1	11.64	3.49	1.16	2.21	4.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.64	11.64	0.32	7.02	67.50		
ATCS	Area Traffic Control System	1	14.55	4.37	1.46	2.77	5.97	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.55	14.55	0.40	8.77	-		
SSP	Safety & Security Platform	1	11.64	3.49	1.16	2.21	4.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.64	11.64	0.32	7.02	-		
FONCCB	Fibre Optic Network and City Communications Backbone	1	31.05	9.31	3.10	5.90	12.73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31.05	31.05	-	-	72.69		
CCPSPP	Common City Payments & Services Processing Platform	1	13.27	3.98	1.33	2.52	5.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.27	13.27	0.37	8.00	58.15		
<b>Total for TCIOCCS</b>		<b>7</b>	<b>144.99</b>	<b>43.50</b>	<b>14.50</b>	<b>27.55</b>	<b>59.44</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>144.99</b>	<b>144.99</b>	<b>3.15</b>	<b>68.65</b>	<b>198.35</b>		
<b>Technical and administrative support</b>		<b>-</b>	<b>71.72</b>	<b>41.83</b>	<b>25.89</b>	<b>2.00</b>	<b>2.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>71.72</b>	<b>71.72</b>	<b>-</b>	<b>-</b>	<b>-</b>		
<b>Total project cost for TCC-ABD and TCIOCCS</b>		<b>70</b>	<b>1,398.76</b>	<b>535.44</b>	<b>289.03</b>	<b>285.44</b>	<b>212.98</b>	<b>75.85</b>	<b>0.00</b>	<b>-</b>	<b>242.23</b>	<b>3.48</b>	<b>-</b>	<b>0.51</b>	<b>-</b>	<b>2.81</b>	<b>16.41</b>	<b>1.64</b>	<b>132.23</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>999.45</b>	<b>1,398.76</b>	<b>19.03</b>	<b>654.78</b>	<b>581.47</b>		

Revenue for life cycle – component revenue excluding interest income, ULB income, etc. INR 581.47 crore

Total income including component revenue, interest income, ULB income, etc. INR 1952.76 crore

Total life cycle operation expenses cost INR 654.78 crore



### Life time cost – SCP for Thoothukudi City Central - Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)

Life time cost (figures in crore)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total	
<b>Thoothukudi City Central - Area Based Development (TCC-ABD) initial investment</b>	450.12	248.65	255.89	151.54	75.85																	1182.05
<b>Annual OPEX for TCC-ABD during life cycle</b>	0.00	0.00	0.08	0.83	26.81	27.89	29.00	30.16	31.37	32.62	33.93	35.29	36.70	38.17	39.69	41.28	42.93	44.65	46.43	48.29		586.13
<b>Replacement cost for TCC-ABD during life cycle</b>																						58.79
<b>Technical and administrative support</b>	41.83	25.89	2.00	2.00											58.79							71.72
<b>Pan-city proposal Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS) initial investment</b>	43.50	14.50	27.55	59.44	0.00																	144.99
<b>Annual OPEX for TCIOCCS during life cycle</b>	0.00	0.00	0.00	0.00	3.15	3.27	3.40	3.54	3.68	3.83	3.98	4.14	4.31	4.48	4.66	4.84	5.04	5.24	5.45	5.67		88.65
<b>Replacement cost for TCIOCCS during life cycle</b>																						29.00
<b>Total</b>	<b>535.44</b>	<b>269.03</b>	<b>285.52</b>	<b>219.81</b>	<b>105.81</b>	<b>31.16</b>	<b>32.41</b>	<b>33.70</b>	<b>35.05</b>	<b>36.45</b>	<b>37.91</b>	<b>39.43</b>	<b>41.00</b>	<b>42.64</b>	<b>44.32</b>	<b>46.12</b>	<b>47.97</b>	<b>49.89</b>	<b>51.88</b>	<b>53.96</b>		<b>2141.32</b>

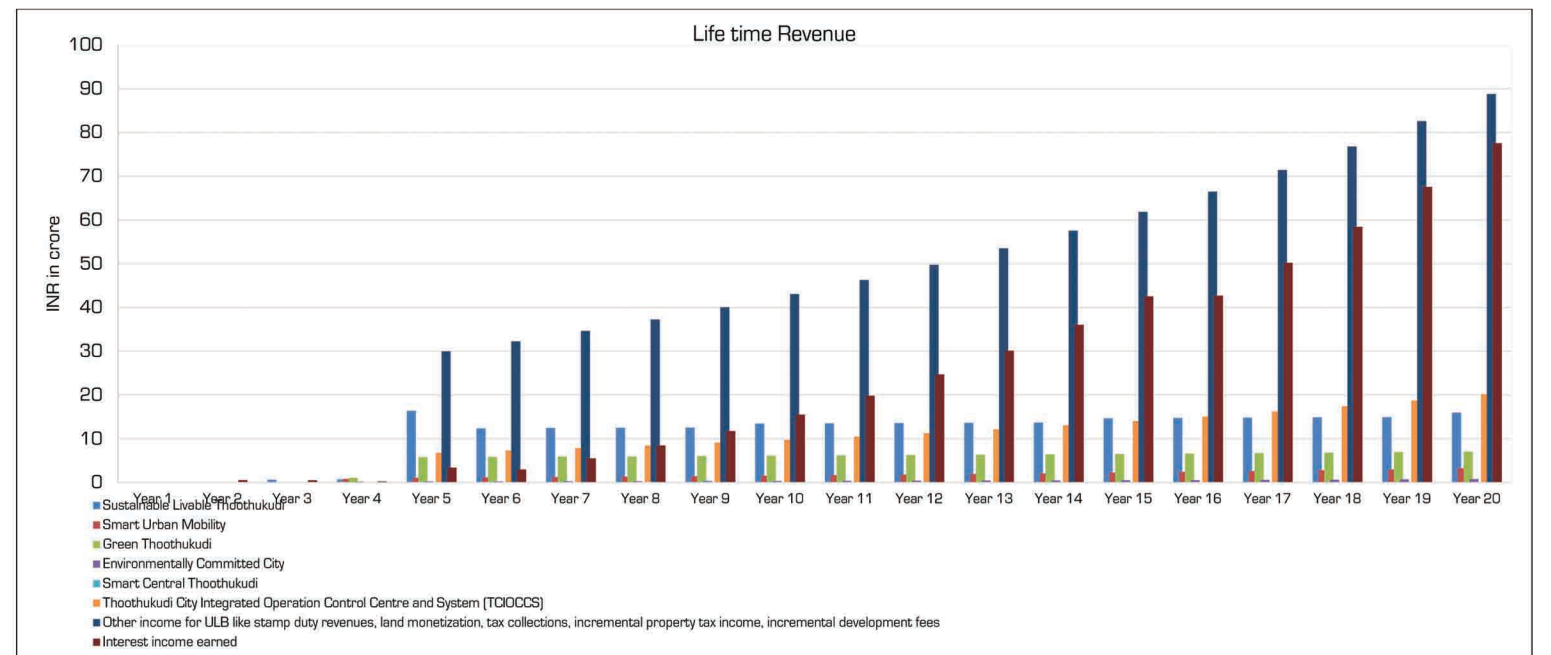
### Profit & loss – SCP for Thoothukudi City Central - Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)

Particulars	Construction										Commercial operation										Total							
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20								
<b>SPV Revenue</b>																												
<b>Total revenue from Buckle Canal Development and Recreational Zone</b>				0.36	0.39	0.42	0.45	0.48	0.52	0.56	0.60	0.65	0.69	0.75	0.80	0.86	0.93	1.00	1.07	1.15		11.69						
<b>Total revenue from Central Business District and Market Area</b>				0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.08	0.08	0.09	0.09	0.10		1.02						
<b>Total revenue from Sustainable Livable Thoothukudi</b>			0.66	0.78	16.42	12.41	12.46	12.52	12.58	13.50	13.55	13.61	13.67	13.73	14.72	14.78	14.84	14.90	14.96	16.03		226.12						
<b>Total revenue from Smart Urban Mobility</b>				0.85	1.11	1.19	1.28	1.37	1.48	1.59	1.71	1.84	1.97	2.12	2.28	2.45	2.63	2.83	3.04	3.27		33.01						
<b>Total revenue from Green Thoothukudi</b>				1.13	5.81	5.87	5.93	6.00	6.07	6.14	6.22	6.30	6.38	6.47	6.56	6.66	6.76	6.86	6.98	7.09		103.22						
<b>Total revenue from Environmentally Committed City</b>			0.25	0.27	0.29	0.31	0.33	0.36	0.39	0.41	0.45	0.48	0.52	0.55	0.60	0.64	0.69	0.74	0.80			8.06						
<b>Total revenue from Smart Central Thoothukudi</b>					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
<b>Total revenue from Components of Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)</b>					6.82	7.33	7.88	8.47	9.11	9.79	10.53	11.32	12.17	13.08	14.06	15.11	16.25	17.47	18.78	20.18		198.35						
<b>Other income for ULB like stamp duty revenues, land monetization, tax collections, incremental property tax income, incremental development fees</b>											30.00	32.25	34.67	37.27	40.06	43.07	46.30	49.77	53.50	57.52	61.83	66.47	71.45	76.81	82.57	88.77		872.32
<b>Total income</b>			0.66	3.40	60.85	59.80	63.03	66.50	70.22	75.08	79.37	83.98	88.93	94.24	100.87	107.00	113.58	120.65	128.24	137.39		1453.79						
<b>Expenses</b>																												
<b>Operation and maintenance expenses for TCC-ABD and TCIOCCS</b>				0.08	0.83	29.96	31.16	32.41	33.70	35.05	36.45	37.91	39.43	41.00	42.64	44.35	46.12	47.97	49.89	51.88		53.96	654.78					
<b>Total Operating Expenses</b>				0.08	0.83	29.96	31.16	32.41	33.70	35.05	36.45	37.91	39.43	41.00	42.64	44.35	46.12	47.97	49.89	51.88		53.96	654.78					
<b>EBDITA</b>				0.58	2.57	30.89	28.64	30.62	32.80	35.17	38.63	41.46	44.55	47.92	51.60	55.52	60.88	65.61	70.76	76.36		83.43	799.01					
<b>Depreciation</b>				0.00	0.00	60.16	60.16	60.16	60.16	60.16	60.16	60.16	60.16	60.16	60.16	60.16	60.16	60.16	60.16	60.16		60.16	962.56					
<b>EBIT</b>				0.58	2.57	-29.27	-31.52	-29.54	-27.36	-24.99	-21.53	-18.70	-15.61	-12.24	-8.56	-3.64	0.72	5.45	10.60	16.20		23.27	-163.55					
<b>Term loan interest cost during Operation period</b>																												
<b>Financing Charges</b>																												
<b>Interest income earned</b>			0.60	0.56	0.28	3.44	3.03	5.57	8.46	11.76	15.52	19.85	24.74	30.12	36.03	42.54	49.73	57.62	66.21		75.52	498.97						
<b>EBT</b>			0.60	1.15	2.86	-25.83	-28.49	-23.97	-18.90	-13.23	-6.01	1.15	9.13	17.88	27.47	38.90	43.45	55.67	69.07		83.74	335.42						
<b>Provision for tax</b>			0.11	0.23	0.58	0.00	0.00	0.00	0.00	0.00	0.24	1.86	3.82	5.86	8.30	9.27	11.88	14.74	17.87		21.51	96.28						
<b>Total expenditure</b>			0.11	0.31	1.41	90.12	91.32	92.57	93.86	95.21	96.61	98.30	101.45	104.98	108.87	112.81	115.56	120.01	124.79		129.91	135.63	1713.63					
<b>Profit/(Loss) for the year</b>			0.48	0.91	2.27	-25.83	-28.49	-23.97	-18.90	-13.23	-6.01	0.92	7.27	14.07	21.61	30.60	34.17	43.79	54.33		65.86	79.28	238.14					
<b>Provision for CSR</b>			0.01	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.15	0.28	0.43	0.61	0.88	1.09	1.32		1.59	7.11						
<b>PAT less CSR</b>			0.47	0.89	2.23	-25.83	-28.49	-23.97	-18.90	-13.23	-6.01	0.90	7.12	13.78	21.17	29.99	33.49	42.92	53.24		64.55	77.69	232.03					
<b>Retained Profit for the year</b>			0.47	0.89	2.23	-25.83	-28.49	-23.97	-18.90	-13.23	-6.01	0.90	7.12	13.78	21.17	29.99	33.49	42.92	53.24		64.55	77.69	232.03					
<b>Profit/(Loss) brought forward</b>			0.00	0.47	1.37	3.59	-22.23	-50.72	-74.69	-93.59	-106.82	-112.83	-111.93	-104.81	-91.02	-69.85	-39.86	-6.37	36.55		89.79	154.33						
<b>Profit/(Loss) carried to balance sheet</b>			0.47	1.37	3.59	-22.23	-50.72	-74.69	-93.59	-106.82	-112.83	-111.93	-104.81	-91.02	-69.85	-39.86	-6.37	36.55	89.79		154.33	232.03						

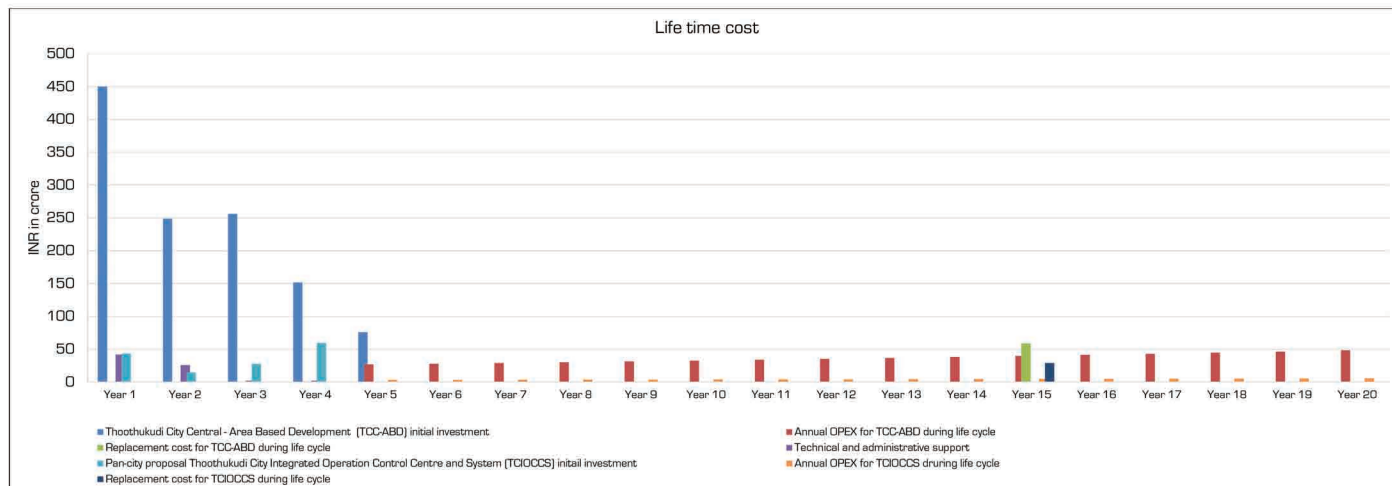
### Life time revenue – Thoothukudi City Central - Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)

Life time revenue (figures in crore)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Total	
<b>Buckle Canal Development and Recreational Zone</b>	0.36	0.39	0.42	0.45	0.48	0.52	0.56	0.60	0.65	0.69	0.75	0.80	0.86	0.93	1.00	1.07	1.15				11.69	
<b>Central Business District and Market Area</b>	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.07	0.08	0.08	0.09	0.09	0.10	1.02						1.02
<b>Sustainable Livable Thoothukudi</b>	0.66	0.78	16.42	12.41	12.46	12.52	12.58	13.50	13.55	13.61	13.67	13.73	14.72	14.78	14.84	14.90	14.96	16.03				226.12
<b>Smart Urban Mobility</b>	0.85	1.11	1.19	1.28	1.37	1.48	1.59	1.71	1.84	1.97	2.12	2.28	2.45	2.63	2.83	3.04	3.27					33.01
<b>Green Thoothukudi</b>	1.13	5.81	5.87	5.93	6.00	6.07	6.14	6.22	6.30	6.38	6.47	6.56	6.66	6.76	6.86	6.98	7.09					103.22
<b>Environmentally Committed City</b>	0.25	0.27	0.29	0.31	0.33	0.36	0.39	0.41	0.45	0.48	0.52	0.55	0.60	0.64	0.69	0.74	0.80					8.06
<b>Smart Central Thoothukudi</b>					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00
<b>Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)</b>					6.82	7.33	7.88	8.47	9.11	9.79	10.53	11.32	12.17	13.08	14.06	15.11	16.25	17.47	18.78			198.35
<b>Other income for ULB like stamp duty revenues, land monetization, tax collections, incremental property tax income, incremental development fees</b>					30.00	32.25	34.67	37.27	40.06	43.07	46.30	49.77	53.50	57.52	61.83	66.47	71.45	76.81	82.57			872.32
<b>Interest income earned</b>		0.60	0.56	0.28	3.44	3.03	5.57	8.46	11.76	15.52	19.85	24.74	30.12	36.03	42.54	49.73	57.62	66.21				498.97
<b>Total</b>	<b>0.60</b>	<b>1.22</b>	<b>3.66</b>	<b>64.29</b>	<b>62.83</b>	<b>66.60</b>	<b>74.96</b>	<b>81.98</b>	<b>80.60</b>	<b>89.22</b>	<b>108.71</b>	<b>119.04</b>	<b>130.27</b>	<b>143.41</b>	<b>149.73</b>	<b>163.80</b>	<b>179.11</b>	<b>195.76</b>				<b>1952.76</b>

### Life time revenue – SCP for Thoothukudi City Central - Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)



### Life time cost – SCP for Thoothukudi City Central - Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)



**Life time cost INR 2141.32 crore**

**Life time revenue INR 1952.76 crore**  
 (Project income INR 1453.79 crore & interest income INR 498.97 crore)

Questions answered

Q 40  
Q 41



## Balance Sheet – SCP for Thoothukudi City Central - Area Based Development (TCC-ABD) and Pan-City (TCIOCCS)

(INR crore)

Year No.	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
<b>Equity and liabilities</b>																				
<b>Shareholder's fund</b>																				
Share capital	400.00	600.00	800.00	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45	999.45
Share capital private sector	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reserves & surplus	0.00	0.47	1.37	3.59	-22.23	-50.72	-74.69	-93.59	-106.82	-112.83	-111.93	-104.81	-91.02	-69.85	-39.86	-6.37	36.55	89.79	154.33	232.03
<b>Total shareholder funds</b>	<b>400.00</b>	<b>600.47</b>	<b>801.37</b>	<b>1003.04</b>	<b>977.21</b>	<b>948.73</b>	<b>924.76</b>	<b>905.86</b>	<b>892.63</b>	<b>886.62</b>	<b>887.52</b>	<b>894.64</b>	<b>908.42</b>	<b>929.60</b>	<b>959.59</b>	<b>993.08</b>	<b>1035.99</b>	<b>1089.23</b>	<b>1153.78</b>	<b>1231.47</b>
<b>Debt</b>																				
<b>Total debt</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Other grants	98.79	161.10	212.06	239.84	267.08	267.08	267.08	267.08	267.08	267.08	267.08	267.08	267.08	267.08	267.08	267.08	267.08	267.08	267.08	267.08
PPP funding	44.10	69.88	100.04	123.00	132.23	132.23	132.23	132.23	132.23	132.23	132.23	132.23	132.23	132.23	132.23	132.23	132.23	132.23	132.23	132.23
<b>Current liabilities</b>																				
<b>Total current liabilities</b>																				
<b>Total equity and liabilities</b>	<b>542.89</b>	<b>831.46</b>	<b>1113.47</b>	<b>1365.89</b>	<b>1376.52</b>	<b>1348.04</b>	<b>1324.07</b>	<b>1305.17</b>	<b>1291.94</b>	<b>1285.93</b>	<b>1286.83</b>	<b>1293.95</b>	<b>1307.73</b>	<b>1328.91</b>	<b>1358.90</b>	<b>1392.39</b>	<b>1435.30</b>	<b>1488.54</b>	<b>1553.09</b>	<b>1630.78</b>
<b>Assets</b>																				
<b>Land</b>																				
Property, plant & equipment (net after capital grant)															87.79	87.79	87.79	87.79	87.79	87.79
Capital work in progress	535.44	824.48	1109.92	1322.90	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76	1398.76
Additional																				
Less depreciation	0.00	0.00	0.00	0.00	60.16	120.32	180.48	240.64	300.80	360.96	421.12	481.28	541.44	601.60	661.76	721.92	782.08	842.24	902.40	962.56
<b>Total fixed assets</b>	<b>535.44</b>	<b>824.48</b>	<b>1109.92</b>	<b>1322.90</b>	<b>1338.60</b>	<b>1278.44</b>	<b>1218.28</b>	<b>1158.12</b>	<b>1097.96</b>	<b>1037.80</b>	<b>977.64</b>	<b>917.48</b>	<b>857.32</b>	<b>797.16</b>	<b>824.78</b>	<b>764.62</b>	<b>704.46</b>	<b>644.30</b>	<b>584.14</b>	<b>523.98</b>
Cash & bank balances	7.45	6.98	3.55	42.98	37.93	69.60	105.79	147.05	193.98	248.13	309.19	376.47	450.42	531.75	534.11	627.76	730.84	844.24	968.95	1106.80
Inventory																				
<b>Total assets</b>	<b>542.89</b>	<b>831.46</b>	<b>1113.47</b>	<b>1365.89</b>	<b>1376.52</b>	<b>1348.04</b>	<b>1324.07</b>	<b>1305.17</b>	<b>1291.94</b>	<b>1285.93</b>	<b>1286.83</b>	<b>1293.95</b>	<b>1307.73</b>	<b>1328.91</b>	<b>1358.90</b>	<b>1392.39</b>	<b>1435.30</b>	<b>1488.54</b>	<b>1553.09</b>	<b>1630.78</b>
<b>Profit and loss account</b>																				
<b>Total Assets</b>	<b>542.89</b>	<b>831.46</b>	<b>1113.47</b>	<b>1365.89</b>	<b>1376.52</b>	<b>1348.04</b>	<b>1324.07</b>	<b>1305.17</b>	<b>1291.94</b>	<b>1285.93</b>	<b>1286.83</b>	<b>1293.95</b>	<b>1307.73</b>	<b>1328.91</b>	<b>1358.90</b>	<b>1392.39</b>	<b>1435.30</b>	<b>1488.54</b>	<b>1553.09</b>	<b>1630.78</b>

## Financial analysis of Market Complex for Street Vendors - PPP project -1

(INR crore)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Investment	(5.25)	(4.50)	(5.25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O & M charges	-	-	-	(0.22)	(0.23)	(0.24)	(0.25)	(0.26)	(0.27)	(0.28)	(0.29)	(0.30)	(0.31)	(0.32)	(0.34)	(0.35)	(0.37)	(0.38)	(0.40)	(0.40)
Net revenue after sharing with SPV	-	-	2.07	2.22	2.39	2.57	2.76	2.97	3.19	3.43	3.69	3.97	4.26	4.58	4.93	5.30	5.69	6.12	6.58	6.58
<b>Net cash flow</b>	<b>(5.25)</b>	<b>(4.50)</b>	<b>(5.25)</b>	<b>2.07</b>	<b>2.00</b>	<b>2.16</b>	<b>2.33</b>	<b>2.52</b>	<b>2.71</b>	<b>2.93</b>	<b>3.15</b>	<b>3.40</b>	<b>3.67</b>	<b>3.95</b>	<b>4.26</b>	<b>4.59</b>	<b>4.95</b>	<b>5.33</b>	<b>5.74</b>	<b>6.18</b>
Project IRR	15.05%																			

## Financial analysis of Solid Waste Management Treatment - PPP project -3

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Investment	(9.12)	(6.84)	(3.42)	(2.28)	(1.14)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O & M charges	-	-	-	(0.40)	(0.41)	(0.43)	(0.45)	(0.47)	(0.49)	(0.50)	(0.52)	(0.55)	(0.57)	(0.59)	(0.61)	(0.64)	(0.66)	(0.69)	(0.72)	(0.72)
Net revenue after sharing with SPV	-	-	3.14	3.38	3.63	3.90	4.20	4.51	4.85	5.21	5.60	6.02	6.48	6.96	7.48	8.05	8.65	9.30	9.99	9.99
<b>Net cash flow</b>	<b>(9.12)</b>	<b>(6.84)</b>	<b>(3.42)</b>	<b>0.86</b>	<b>1.84</b>	<b>3.22</b>	<b>3.47</b>	<b>3.75</b>	<b>4.04</b>	<b>4.36</b>	<b>4.71</b>	<b>5.08</b>	<b>5.48</b>	<b>5.91</b>	<b>6.37</b>	<b>6.87</b>	<b>7.41</b>	<b>7.98</b>	<b>8.61</b>	<b>9.28</b>
Project IRR	14.94%																			

## Financial analysis of Installation of Solar PV on Roof Top in all Government and Institutional Buildings through PPP - PPP project -5

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Investment	(14.16)	(7.59)	(12.64)	(16.19)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O & M charges	-	-	(1.00)	(1.04)	(1.08)	(1.12)	(1.16)	(1.21)	(1.26)	(1.31)	(1.36)	(1.42)	(1.47)	(1.53)	(1.59)	(1.66)	(1.72)	(1.79)	(1.86)	(1.86)
Net revenue after sharing with SPV	-	-	6.30	6.61	6.94	7.29	7.66	8.04	8.44	8.86	9.30	9.77	10.26	10.77	11.31	11.88	12.47	13.09	13.75	13.75
<b>Net cash flow</b>	<b>(14.16)</b>	<b>(7.59)</b>	<b>(12.64)</b>	<b>(10.88)</b>	<b>5.58</b>	<b>5.87</b>	<b>6.17</b>	<b>6.49</b>	<b>6.83</b>	<b>7.18</b>	<b>7.55</b>	<b>7.94</b>	<b>8.35</b>	<b>8.78</b>	<b>9.24</b>	<b>9.72</b>	<b>10.22</b>	<b>10.75</b>	<b>11.30</b>	<b>11.88</b>
Project IRR	11.39%																			

## Financial analysis of Sanitation - Toilet Complex - PPP project -2

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Investment	(1.64)	(1.23)	(0.62)	(0.41)	(0.21)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O & M charges	-	-	(0.08)	(0.09)	(0.10)	(0.10)	(0.11)	(0.11)	(0.12)	(0.12)	(0.13)	(0.13)	(0.14)	(0.14)	(0.15)	(0.15)	(0.16)	(0.17)	(0.17)	(0.17)
Net revenue after sharing with SPV	-	-	0.63	0.68	0.72	0.77	0.82	0.87	0.91	0.96	1.01	1.06	1.10	1.15	1.20	1.25	1.29	1.34	1.39	1.43
<b>Net cash flow</b>	<b>(1.64)</b>	<b>(1.23)</b>	<b>(0.06)</b>	<b>0.18</b>	<b>0.42</b>	<b>0.67</b>	<b>0.72</b>	<b>0.76</b>	<b>0.80</b>	<b>0.84</b>	<b>0.89</b>	<b>0.93</b>	<b>0.97</b>	<b>1.01</b>	<b>1.06</b>	<b>1.10</b>	<b>1.14</b>	<b>1.18</b>	<b>1.22</b>	<b>1.26</b>
Project IRR	17.18%																			

## Financial analysis of Multi-Level Parking - PPP project -4

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Investment	(13.91)	(5.96)	(7.95)	(3.98)	(7.95)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
O & M charges	-	-	-	-	(0.81)	(0.85)	(0.88)	(0.92)	(0.95)	(0.99)	(1.03)	(1.07)	(1.12)	(1.18)	(1.24)	(1.30)	(1.37)	(1.44)	(1.51)	(1.58)
Net revenue after sharing with SPV	-	-	-	-	7.50	8.06	8.67	9.32	10.02	10.77	11.56	12.44	13.38	14.38	15.46	16.62	17.86	19.20	20.64	22.19
<b>Net cash flow</b>	<b>(13.91)</b>	<b>(5.96)</b>	<b>(7.95)</b>	<b>(3.98)</b>	<b>(1.26)</b>	<b>7.22</b>	<b>7.79</b>	<b>8.40</b>	<b>9.06</b>	<b>9.78</b>	<b>10.55</b>	<b>11.37</b>	<b>12.25</b>	<b>13.20</b>	<b>14.22</b>	<b>15.32</b>	<b>16.50</b>	<b>17.77</b>	<b>19.14</b>	<b>20.61</b>
Project IRR	17.72%																			

## Sensitivity analysis

Particulars	IRR% (Post tax)	NPV INR crore	Remarks
Case - I : Base cost with base benefits	14.39%	50.23	
Case - II : Base cost escalated by 15 % with base benefits	8.08%	-118.58	
Case - III : Base cost with base benefits reduced by 15 %	14.37%	48.10	
Case - IV : Base cost escalated by 15 % with base benefits reduced by 15 %	7.86%	-120.72	
The maximum limit that the sensitivity analysis support the project cost and time overrun			4.4% of the increase in the project cost
The maximum limit that the project has capacity to absorb the increase in the O&M			1.3 times increase in the O&M cost

PPP project 1 IRR - 15.05%

PPP project 3 IRR - 14.94%

PPP project 5 IRR - 11.39%

PPP project 2 IRR - 17.18%

PPP project 4 IRR - 17.72%

Questions answered

Q 43

## **Exhibit No. 1**

**Thoothukudi Municipal corporation  
resolution approving the SCP including  
financial plan**

K.Rajamani, I.A.S.,  
Commissioner and Special Officer,




Corporation Office,  
113, Palai Road,  
Thoothukudi.

Letter no.E1/3209/2015

Date: 27-03-2017

**RESOLUTION OF THE MUNICIPAL CORPORATION**

In exercise of the resolution passed by and authorization conferred upon me by Empowered Standing Committee of Thoothukudi City Municipal Corporation, K.Rajamani, I.A.S., Corporation Commissioner and Special Officer, Thoothukudi, hereby resolve for approval of the SMART CITY PLAN including the Financial plan prepared and the Special Purpose Vehicle (SPV) set up for implementation of the same, for submission to the Chairman, High Powered Steering Committee (HPSC) of the State of Tamil Nadu for Smart Cities Mission, for necessary action at their end.

  
(K.RAJAMANI, I.A.S.,)  
Commissioner and Special Officer,  
Thoothukudi City Municipal Corporation

954  
27/3/17

Telephone Nos. : 0461 2326901, 2326902, 2326903-Fax 0461-2320457

E-mail : [commr.thoothukudi@tn.gov.in](mailto:commr.thoothukudi@tn.gov.in)

## **Exhibit No. 2**

**External convergence - Madurai Thoothukudi Industrial Corridor (MTIC) - GoTN resolution to include MTIC as high priority fast track project and achieve implementation**



**ABSTRACT**

Industries Department - Approval for the Project Proposal and project structure Madurai-Thoothukudi Industrial Corridor - Orders Issued.

**Industries (MIG.1) Department**

G.O. (Ms) No.245

Dated:19.12.2014

பார்வதி 4, ஜய வரூடம்  
திருவள்ளூர் ஆண்டு 2045

Read:

1. Government Letter No.6053/Infrastructure Cell/2014-8, Finance Department, dated 25.09.2014 along with the Minutes of the Second Tamil Nadu Infrastructure Development Board meeting held on 23.09.2014.
2. Government Letter No.6053/ Infrastructure Cell/2014-9, Finance Department, dated 23.10.2014
3. Letter No.57204/TNIDB/2014-2, Tamil Nadu Infrastructure Development Board, dated 27.10.2014.

\*\*\*

**ORDER:**

In the first Board meeting of the TNIDB held on 4<sup>th</sup> February 2013, chaired by the Hon'ble Chief Minister, it was resolved to include the Madurai-Thoothukudi Industrial Corridor project in the list of high priority fast track projects in order to ensure faster clearances, closer monitoring, finalising project financing assistance as required and achieve fast-track implementation. The Feasibility Study of the Corridor Project was completed by M/s. Mahindra Acres Consulting Engineers Private Limited (MACE) and submitted to SIPCOT in May 2012.

**2. Background:**

- a. The Hon'ble Minister of Finance, in the Budget for 2013-2014, had announced the proposal to develop the Madurai-Thoothukudi Industrial Corridor covering the nine southern districts, envisioned to attract Rs.1,90,000 crore of industrial investment over a period of 10 years.
- b. The Industrial Policy, 2014 of Tamil Nadu proposes the establishment of Industrial Corridors of Excellence in the State. As part of this initiative, the Government will promote an Industrial Corridor along Madurai-Thoothukudi covering the southern districts of Tamil Nadu. The Corridors will have excellent road and rail connectivity, specific investment regions and other industrial and social infrastructure like townships, schools, hospitals, etc.
- c. Industries Department, Government of Tamil Nadu vide G.O. MS. No. 177, dated 8<sup>th</sup> October 2013 issued sanctioning of special package of incentives for the industrial development of Southern Districts. The Special Package of incentives inter alia provides for creation of infrastructure facilities required for industries to be created by the Government. In the Government letter First and

Second read above, Tamil Nadu Infrastructure Development Board has communicated the minutes of the second meeting of the Tamil Nadu Infrastructure Development Board chaired by the Hon'ble Chief Minister held on 23.09.2014. The Board has inter alia approved the proposal for the project structure clearance for Madurai-Thoothukudi Industrial Corridor.

**3. Madurai-Thoothukudi Industrial Corridor Project (MTI Corridor Project) – Integrated Approach**

- a. Madurai-Thoothukudi Industrial Corridor Project (MTI Corridor Project) passes through a combination of well developed, moderately developed and under developed areas with varying natural resources, human skills and physical and social infrastructure. The "missing link" is the infrastructure comprising of logistics, industrial and social, which is incapable of handling the envisaged industrial output. Therefore, the MTI Corridor Project would provide the missing link and improve business activity and facilitate economic development in the southern region of the State.
- b. Considering the best practices in the development of Industrial Corridors in India and abroad, the Government has approved the Integrated Corridor Development Approach by seamlessly integrating the Trunk Infrastructure Projects with the Link and Internal infrastructure to be developed in the various Investment Regions and Industrial Areas to achieve effective utilization of infrastructure investment and create attractive potential for private sector industrial investment in the region.
- c. The Phase II document of Vision Tamil Nadu 2023 released by the Hon'ble Chief Minister, proposed Link and Internal infrastructure projects at a cost of Rs.39,454 crore ( Rupees Thirty Nine Thousand Four Hundred and Fifty Four crore only) as part of the Madurai-Thoothukudi Industrial Corridor (MTI Corridor). The details of these individual infrastructure projects (Link and Internal) are given in Annexure 1. These have been identified based on the techno - feasibility report prepared by M/s. MACE from SIPCOT.
- d. In addition, 18 trunk infrastructure projects having direct/ significant impact on the Madurai - Thoothukudi Industrial Corridor (MTI Corridor) which have an estimated investment outlay of Rs.1,44,365 crore are also identified as part of the Phase II document of the Vision Tamil Nadu 2023. Details of these projects are given in Annexure 2.
- e. Synergy with the National Investment and Manufacturing Zone (NIMZ) and Regional Integrated Manufacturing Zone (RIMZ) policies of the Government of India would also be ensured.

**4. Project Governance Structure:**

Government approves the Project Governance structure for the MTI Corridor Project as follows:

- (a) Tier I - Apex Authority
- (b) Tier II - Project Implementing Agencies
- (c) Tier III - Trunk Infrastructure SPVs and Node - level Concessionaire SPVs



**(a) Tier I**

Tamil Nadu Infrastructure Development Board (TNIDB) shall be the Apex coordinating agency between various State Government departments and agencies for the implementation of the MTI Corridor Project.

**(b) Tier II**

**(i) MTI Corridor Project Development Company (MTICPDC)**

Government approve the establishment of the Madurai – Thoothukudi Corridor Project Development Company by SIPCOT, SIPCOT, TIDCO and with TNIDB (if required) would hold a majority shareholding (at least 51%) of the MTI Corridor Project Development Company while Financial Institutions including bilateral and multi – lateral institutions would be invited to participate in the equity of the MTICPDC. The MTICPDC shall undertake the following activities:

- Project Sponsor functions
- Project Development functions
- Project related Land Planning, Development and Facilitation related functions
- Project Financing functions
- Project Management functions
- Node Development and Monetization
- Co – signatory in Concession Agreement along with Concessioning Authority

The authorized capital of the MTI Corridor Project Development Company will be Rs.10 crore (Rupees Ten crore only) which can be enhanced based upon the requirement.

**(ii) Industrial Township Development Authority**

The Government also order the constitution of an Authority under the Tamil Nadu Industrial Township Area Development Authority Act, 1997, The Authority shall have jurisdiction over the Industrial Nodes to be set up. Separate orders would be issued detailing the composition, powers and area of coverage of the Authority.

- (iii)** The Government in the Finance Department will separately issue orders regarding constitution and management of the Madurai - Thoothukudi Industrial Corridor Project Development Fund and MTI Corridor Project Implementation Revolving Fund.

**(c) Tier III**

The Third Tier of Project Governance would include the agencies responsible for establishing industrial nodes and creating trunk infrastructure. The industrial nodes would be established by PPP Concessionaire SPVs which would be owned and managed by the private sector and governed through Concession

Agreements to be executed with the designated Concessing Authority. Trunk infrastructure would be established either by Government Agencies directly or through SPVs which could be set up through the PPP route.

**5. Project Appraisal:**

All the MTI Corridor Projects shall have three stages of project appraisal subject to appropriate delegation of powers, as follows:

- a. Level 1 – within the MTI Corridor Project Development Company
- b. Level 2 – by an Appraisal and Investment Committee under the MTI Corridor Project Implementation Revolving Fund with the support of TNIFMC.
- c. Level 3 – TNIDB would undertake the third level of Project Appraisal for all MTI Corridor Projects.

**6. Award of Concessions under Corridor Development :**

- a) Government of Tamil Nadu will be the Concessing Authority for the award of concessions for the development and management of Nodes including Link and Internal Infrastructure Projects under the MTI Corridor Project.
- b) SIPCOT and/or MTI Corridor Project Development Company will be the co-signatories to the Concession Agreement.
- c) In case of Trunk Infrastructure, the Government of Tamil Nadu will be concessing Authority, with the respective Implementing Agencies and/or the MTI Corridor Project Development Company as co-signatories to the Concession Agreement.

**7. Role of SIPCOT:**

The Government designates State Industries Promotion Corporation of Tamil Nadu Limited (SIPCOT) as Nodal Agency for the development of the MTI Corridor Project. SIPCOT shall promote and form the MTI Corridor Project Development Company.

**8. Land Acquisition and Assembly:**

SIPCOT shall also function as the nodal agency for land acquisition for node development and internal infrastructure. Land required for the development of trunk infrastructure and link infrastructure will be acquired by the concerned Implementing Agencies. The land acquisition cost for the entire MTI Corridor Project will be funded by SIPCOT and TIDCO and in case of any shortfall, by Government of Tamil Nadu as per existing procedures.

(BY ORDER OF THE GOVERNOR)

**C.V. SANKAR**  
**ADDITIONAL CHIEF SECRETARY TO GOVERNMENT**

To  
The Principal Secretary to Government,  
Finance Department, Chennai – 600 009  
The Principal Secretary to Government/ Chief Executive Officer,  
Tamil Nadu Infrastructure Development Board, Chennai – 600 009

✓ The Principal Secretary to Government,  
Highways Department, Chennai - 600 009

The Secretary to Government,  
Revenue Department, Chennai - 600 009

The Managing Director,  
State Industries Promotion Corporation of Tamil Nadu Ltd. (SIPCOT)  
19-A, Rukmani Lakshmi pathy Road, Egmore, Chennai -600 008

The Principal Secretary/ Chairman and Managing Director,  
Tamil Nadu Industrial Development Corporation Limited (TIDCO),  
19-A, Rukmani Lakshmi pathy Road, Egmore, Chennai -600 008

The Executive Vice Chairman,  
Guidance Bureau,  
19-A, Rukmani Lakshmi pathy Road, Egmore, Chennai -600 008

**Copy to:**

Finance (Infrastructure Cell) Department, Chennai - 600 009

✓ Industries (MID/MIB/OP.II) Department, Chennai - 600 009

Sf/Scs.

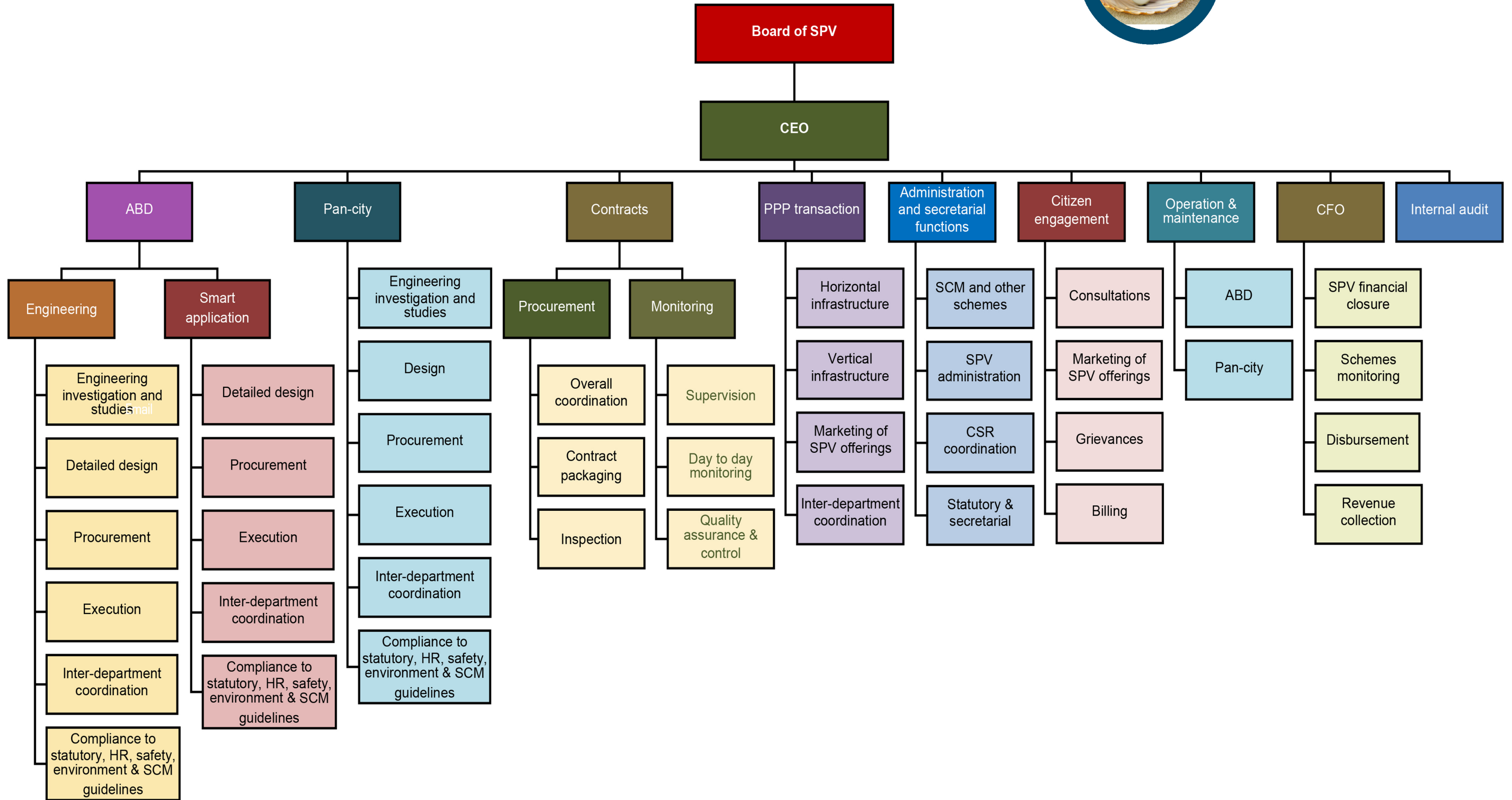
//Forwarded By Order//

  
SECTION OFFICER 19/11/18

## **Exhibit No. 3**

HR plan for SPV

# 3 HR plan for SPV



Supporting team - Managers, executives, environmentalist, safety specialist, engineers, HR assistant, accountant, supervisors, surveyors, officestaffs

## **Exhibit No. 4**

**Minutes of HPSC held on March 29,  
2017 approving the SCP**

**MINUTES OF THE FOURTH STATE LEVEL HIGH POWERED STEERING COMMITTEE MEETING HELD ON 29.03.2017 AT 10.30 A.M FOR SMART CITY MISSION**

The fourth meeting of the **State Level High Powered Steering Committee** for **Smart City Mission** was held in the Old Conference Hall, Secretariat on 29.03.2017 at 10.30 A.M under the Chairmanship of **Dr.Girija Vaidyanathan, I.A.S.,** Chief Secretary to Government, Secretariat, Chennai 600 009.

The Following members attended the meeting:

1	Thiru K.Shanmugam, I.A.S., Addl Chief Secretary to Government, Finance Department, Secretariat, Chennai - 600 009	Member
2	Thiru P.W.C. Davidar, I.A.S., Chairman and Managing Director, TUFIDCO.	Member-Secretary
3	Thiru K.Phanindra Reddy, I.A.S., Principal Secretary to Government Municipal Administration and Water Supply Department Secretariat, Chennai - 600 009.	Member
4	Thiru S.Krishnan, I.A.S., Principal Secretary to Government, Planning Development and Special Initiatives Department Secretariat, Chennai - 600 009.	Member
5	Thiru. Dheeraj Kumar, I.A.S., Managing Director, Tamil Nadu Water Supply & Drainage Board, Chepauk, Chennai - 600 009	Member
6	Dr. D.Karthikeyan, I.A.S., Commissioner, Greater Chennai Corporation	Member
7	Thiru G.Prakash, I.A.S., Commissioner of Municipal Administration, Chepauk, Chennai 600 005.	Member

## **INVITEES**

1	Tmt. R. Jaya, I.A.S., Special Secretary to Government, MA&WS Dept. Secretariat, Chennai 600 009.
2	Thiru K.S. Kandasamy, I.A.S., Deputy Commissioner, Greater Chennai Corporation, Chennai 600 003.
2	Thiru K. Rajamani, I.A.S., Commissioner, Thoothukudi Corporation
3	Thiru N.Ravichandran Commissioner, Tirchy Corporation
4	Thiru N.Manohar, Commissioner, Dindigul Coporation
5	Thiru. Sivasubramaniam, Commissioner, Tirunelveli Corporation
6	Thiru. Seeni Ajmalkhan, Commissioner, Erode Corporation
7	Thiru M.Ashokan, Commissioner, Tiruppur Corporation

The Principal Secretary to Government, MA&WS Department detailed the status of the Smart Cities allocated to Tamil Nadu. Further, the Chairman and Managing Director, TUFIDCO elaborated the process adopted such as Citizen Engagement, Impact on the population, the rationale behind selection for Area Based Development and PAN city Development Strategy by the Corporations for finalizing the remaining 6 Smart Cities proposals before the Committee.



The Committee reviewed the tabled proposals presented by the 6 Corporations and deliberated in detail. The Committee accepted the rationale behind the strategy adopted by all the 6 Cities. The Committee requested to incorporate all the basic service projects in the ABD area and also explore the possibility of more PPP projects. The Committee directed that all the Smart Cities Proposals should include waste water treatment to secondary / tertiary level to the maximum extent and to utilize the same for other purposes. The Committee also agreed that the proposals are now robust and well-rounded such as would benefit both the concerned cities and serve as a role model for the future planning of other cities in Tamilnadu. On discussion, the committee directed that the proposals be recommended to Ministry of Urban Development, Government of India on-time for final approval and implementation thereafter.

  
Principal Secretary/Chairman & Managing Director,  
TUFIDCO & Mission Director (Smart Cities)

## **Exhibit No. 5**

Covering letter addressed to SCP  
Mission Director from GoTN SCP  
Mission Director

# Tamilnadu Urban Finance and Infrastructure Development Corporation Limited



(A Government of Tamilnadu Undertaking)

Regd. Office : No. 490/1-2, Anna Salai, Nandanam, Chennai - 600 035.

Phone : 24329800, 24329801  
24329802  
Fax : 24350814  
Grams : TUFIDCO  
E-mail : tufidco@gmail.com

Lr.No. TUFIDCO/SCP/044/AM (M)/2016

30.03.2017

From

Thiru P.W.C.Davidar, I.A.S.,  
Principal Secretary to Government/  
Chairman and Managing Director, TUFIDCO  
Mission Director, Smart Cities Mission  
Tamil Nadu.

To

The Mission Director, Smart Cities Mission/  
Additional Secretary to Government of India  
Ministry of Urban Development  
New Delhi - 110 011

Sir,

Sub: Smart Cities Mission - Smart City Proposals of the 6 Cities of Tamil Nadu - Forwarded - Regarding

I am directed to inform you that, the fourth meeting of the State Level High Powered Steering Committee of the Smart Cities Mission of the State of Tamil Nadu under the Chairmanship of the Chief Secretary to Government, held on 29.03.2017, reviewed the Smart City Proposals of the 6 Mission Cities of the State viz., Tiruchirapalli, Tirunelveli, Thoothukudi, Erode, Tiruppur and Dindigul and resolved to forward the said proposals for participation in the Stage III National Level Challenge. Accordingly the proposals are forwarded.

Yours Faithfully,  
For TUFIDCO,

For Chairman and Managing Director

**tufidco**

Web : [www.tufidco.in](http://www.tufidco.in)

## **Exhibit No. 6**

Covering letter from Thoothukudi  
Corporation for submission of SCP

From,  
Commissioner and Special Officer,  
K. Rajamani, I.A.S.,  
Thoothukudi Corporation.



To,  
The Mission Director,  
Smart Cities Mission,  
Ministry of Urban Development,  
Government of India,  
Nirman Bhawan  
Dr, Maulana Azad Road,  
New Delhi-110011.

RoC No.E1/3209/2015

Date 30-03-2017

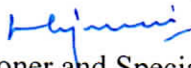
Dear Sir,

Sub: Submission of Smart City Proposal (SCP) for Thoothukudi Smart city – reg.

-----  
This has reference to the Smart city proposal under the Smart City challenge – Stage 2 for Thoothukudi. Please find enclosed the following:

1. Five hard copies of the SCP for Thoothukudi city
2. Five soft copies of the SCP for Thoothukudi city
3. Resolution of the Thoothukudi City Municipal Corporation for the approval of the SCP including the financial plan and setting up of the Special Purpose Vehicle (SPV).
4. Covering letter addressed to SCP Mission Director from GoTN SCP Mission Director, dated March. 30, 2017
5. Support letter from TANGEDCO for implementing SCP dated Dec. 23, 2015
6. Minutes of the High powered steering committee for the approval of the Smart City mission dated March 29, 2017
7. External convergence – Madurai Thoothukudi Industrial Corridor (MTIC) – GoTN resolution to include MTIC as high priority fast track project and achieve fast track implementation
8. Letter from TNUIFSL dated Dec. 18, 2015 stating the availability of externally aided funds for implementation of urban infrastructure projects by the ULBs in Tamil Nadu.
9. Executive summary for Thoothukudi SCP

Kindly acknowledge the receipt of the documents.

  
Commissioner and Special Officer,  
Thoothukudi Corporation

Encl.:  
Thoothukudi SCP 5 hard copies and 5 soft copies

  
30/3/17

Telephone Nos. : 0461 2326901, 2326902, 2326903-Fax 0461-2320457

E-mail : [commr.thoothukudi@tn.gov.in](mailto:commr.thoothukudi@tn.gov.in)

## **Exhibit No. 7**

Letter of support - TANGEDCO for  
implementing SCP in Tamil Nadu



POWERING TAMILNADU'S PROGRESS

### **To whomsoever it may concern**

Consequent to the 12 Corporations getting selected as Smart Cities, TANGEDCO has brought to the knowledge of the Corporation, the implementation of schemes that are in operation and in full agreement to the convergence of the schemes in the Smart City Mission. The department is very much interested in getting involved and providing necessary support in the implementation and operation of the sub projects identified under Area Based Development and Pan City Solutions, provided that there is funding by the Government of India/ Government of Tamil Nadu.

We confirm, No objection (NOC) towards implementation of the identified projects and wish Corporation for successful submission of Smart City Proposal to Government of India.

*Om*  
23/12/15  
Chief Engineer/Planning & Resource Centre  
TANGEDCO

## **Exhibit No. 8**

Letter of support - TNUIFSL stating the availability of externally aided funds for implementation of urban infrastructure projects by the ULBs in Tamil Nadu



**Kakarla Usha, I.A.S.,**  
Managing Director

18 December 2015

Tamil Nadu Urban Infrastructure Financial Services Limited operates three externally aided projects for funding urban infrastructure projects implemented in Tamil Nadu as detailed below:

i) KfW assisted Sustainable Municipal Infrastructure Financing in Tamil Nadu – Phase-II – Part-1 (SMIF-TN-II-1) Program with an outlay of Euro 80 mn (equivalent to about Rs.578.16 crores). The entire amount is allotted for investment in urban infrastructure projects.

ii) KfW assisted Sustainable Municipal Infrastructure Financing in Tamil Nadu – Phase-II – Part-2 (SMIF-TN-II-2) Program with an outlay of Euro 107.75 mn (equivalent to about Rs.877.39 crores). Of the above Euro 100 mn (equivalent to about Rs.814.30 crores) is allotted for investment in urban infrastructure projects.

iii) World Bank assisted Tamil Nadu Sustainable Urban Development Project (TNSUDP) with an outlay of US \$ 600 mn (equivalent to about Rs.3831 crores) of which the World Bank financing is US \$ 400 mn (equivalent to about Rs.2554 crores). Of the above US \$ 384 mn (equivalent to about Rs.2451.84 crores) is allotted for investment in urban infrastructure projects.

Further, resources may also be mobilized from the capital markets on pooled finance mechanism for funding urban infrastructure projects. A sum of Rs.222.30 crores has already been mobilized and utilized for implementing urban infrastructure projects within the State. Further resources under the pooled finance mechanism will be mobilized based on the requirement for implementing urban infrastructure projects by the Urban Local Bodies in Tamil Nadu.



Kakarla Usha  
Managing Director

## Exhibit No. 9

### Executive summary



## **THE SMART CITY CHALLENGE**

### **STAGE 2**

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"Thoothukudi aspires to leverage its industrial city identity by investing in inclusive and transformative solutions that enhance the quality of life for its citizens"

Traditionally known as "Pearl City," the port city Thoothukudi, also known as Tuticorin is the headquarters of Thoothukudi district, Tamil Nadu and is located along the Gulf of Mannar about 125 km north of Cape Comorin (Kanyakumari) and 590 km south of Chennai. It is one of the fastest growing port cities at present.

In line with GoI's SCM observation that "citizen involvement is much more than a ceremonial participation in governance", highly stakeholder focused and citizen-centric approach was adopted. More than 70,029 people actively participated in citizen engagement through various media and channels. Vision, goals, selection of area-based development (ABD) and Pan-City (PC) solutions developed are stakeholder focused with a citizen-centric approach based on people's aspirations and local needs.

Thoothukudi's vision comprises specific constituent development goals voiced by the aspirations of the citizens. With an aim of making Thoothukudi a livable city, each of the goals work towards making Thoothukudi that is social, economically and environmentally sustainable.

- Goal 1: Enhanced efficiency of governance
- Goal 2: Livable and slum-free city
- Goal 3: Leveraging industrial growth opportunities and enhancing local economic vibrancy
- Goal 4: Build smart transportation
- Goal 5: Clean and green city
- Goal 6: Safe and secure city

#### **Area Based Development (ABD)**

The 'Thoothukudi City Central' (TCC)-ABD will retrofit 2650.33 acres located in the heart of the city at the cost of INR 1182.05 crore. The Buckle canal that runs through the ABD area as a spine bisects the area. Envisaged as a transformational project, TCC-ABD shall convert the heart of the city (CBD of Thoothukudi City) and is replicable in other parts of Thoothukudi as well as other

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**SMART CITY CODE:**

**EXECUTIVE SUMMARY**

**TN-11-TTK**



## **THE SMART CITY CHALLENGE**

### **STAGE 2**

cities of the state. TCC-ABD focused on seven themes with 48 projects including sub-projects and designed in line with the identified strategic focus areas, vision, and goals.

The TCC-ABD components revolve around the six strategic focus, six goals and 35 sub goals identified in the visioning exercise with embedded smart components that support the following themes.

- Theme #1: Buckle canal development & recreational zone
- Theme #2: Central business district and market area
- Theme #3: Sustainable, Livable Thoothukudi
- Theme #4: Smart urban mobility
- Theme 5#: Green Thoothukudi
- Theme 6#: Environmentally committed city
- Theme 7#: Smart central Thoothukudi

#### **Pan-City**

ICT-based Pan-City solutions encompass Integrated Operation Control Centre and System and the key components include:

- Integrated city operations control center
- Intelligent transit system
- Parking management systems
- Area traffic control system
- Safety and security platform
- Fiber optic network and city communications backbone
- Common city payments and services processing platform



## THE SMART CITY CHALLENGE

### STAGE 2

#### Project cost

Sl. No.	Item	Amount (in crore)	Percentage
1	Thoothukudi City Central - Area Based Development (TCC-ABD)	1,182.05	84.51%
2	Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)	144.99	10.37%
3	Technical and administrative support	71.72	5.12%
	<b>Total</b>	<b>1,398.76</b>	<b>100.00%</b>

#### Component wise project cost

Sl. No.	Particulars	Amount in crore
<b>A</b>	<b>Thoothukudi City Central - Area Based Development (TCC-ABD)</b>	<b>1,182.05</b>
	Buckle Canal Development and Recreational Zone	69.82
	Central Business District and Market Area	17.62
	Sustainable Livable Thoothukudi	460.61
	Smart Urban Mobility	198.09
	Green Thoothukudi	102.44
	Environmentally Committed City	44.69
	Smart Central Thoothukudi	288.79
<b>B</b>	<b>Thoothukudi City Integrated Operation Control Centre and System (TCIOCCS)</b>	<b>144.99</b>
	Integrated City Operations Control Centre	45.79
	Intelligent Transit System	17.04
	Parking Management System	11.64
	Area Traffic Control System	14.55
	Safety & Security Platform	11.64
	Fiber Optic Network and City Communications Backbone	31.05
	Common City Payments & Services Processing Platform	13.27
<b>C</b>	<b>Technical and administrative support</b>	<b>71.72</b>
	<b>Total</b>	<b>1,398.76</b>

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## THE SMART CITY CHALLENGE

### STAGE 2

#### Resource plan

Sl. No.	Source	Amount (in crore)	Percentage
1	Smart City Grant - Central Government	499.72	35.73%
2	Smart City Grant - State Government	499.72	35.73%
3	Convergence Central Government Scheme	265.44	18.98%
4	Convergence State Government Scheme	-	0.00%
5	Private Sector (PPP)	132.23	9.45%
7	ULB level funded schemes	0.00	0.00%
8	External Agencies	-	0.00%
9	Others- CSR	1.64	0.12%
	<b>Total</b>	<b>1,398.76</b>	<b>100.00%</b>

#### Details of convergence plan

- SCM financing - INR 999.45 crore (GoI funding INR 499.72 crore and GoTN funding INR 499.72 crore).
- GoI convergence schemes - INR 265.44 crore (AMRUT funding - INR 242.23 crore; Housing for All - INR 2.81 crore; IPDS funding - INR 16.41; SBM funding - INR 3.48 crore NULM funding INR 0.51 crore).
- CSR funding - INR 1.64 crore
- PPP projects - INR 132.23 crore

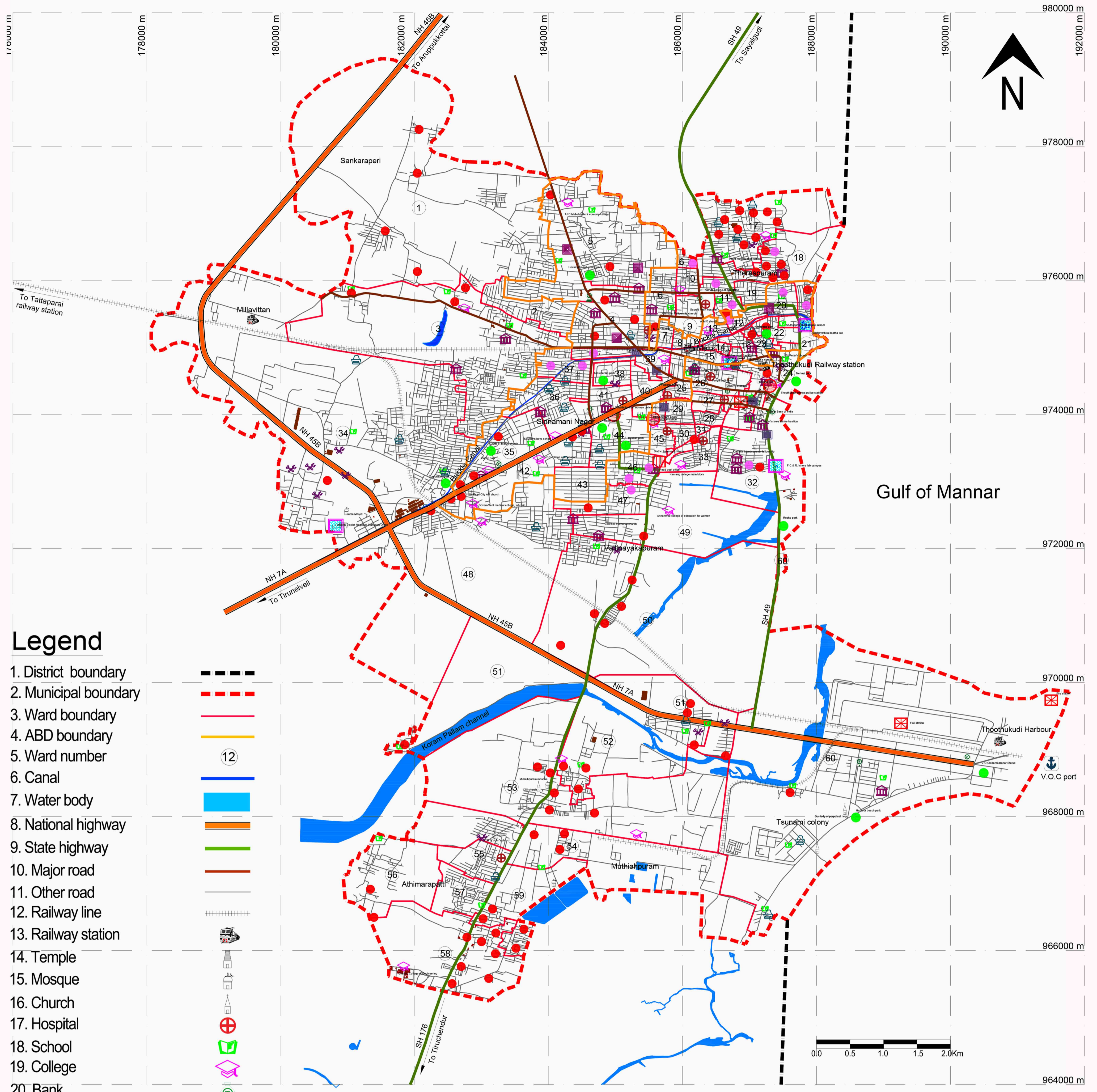
The lifetime cost of the SCP (both TCC-ABD and Pan-City) for the first 20 years - INR 2142.32 crore (present value of INR 1595.50 crore discounted at a rate of 7.5%).

Project IRR: 14.39% (post tax) and the SPV shall comfortable positive cash position after meeting the operation and maintenance expenses.

**SMART CITY CODE:**

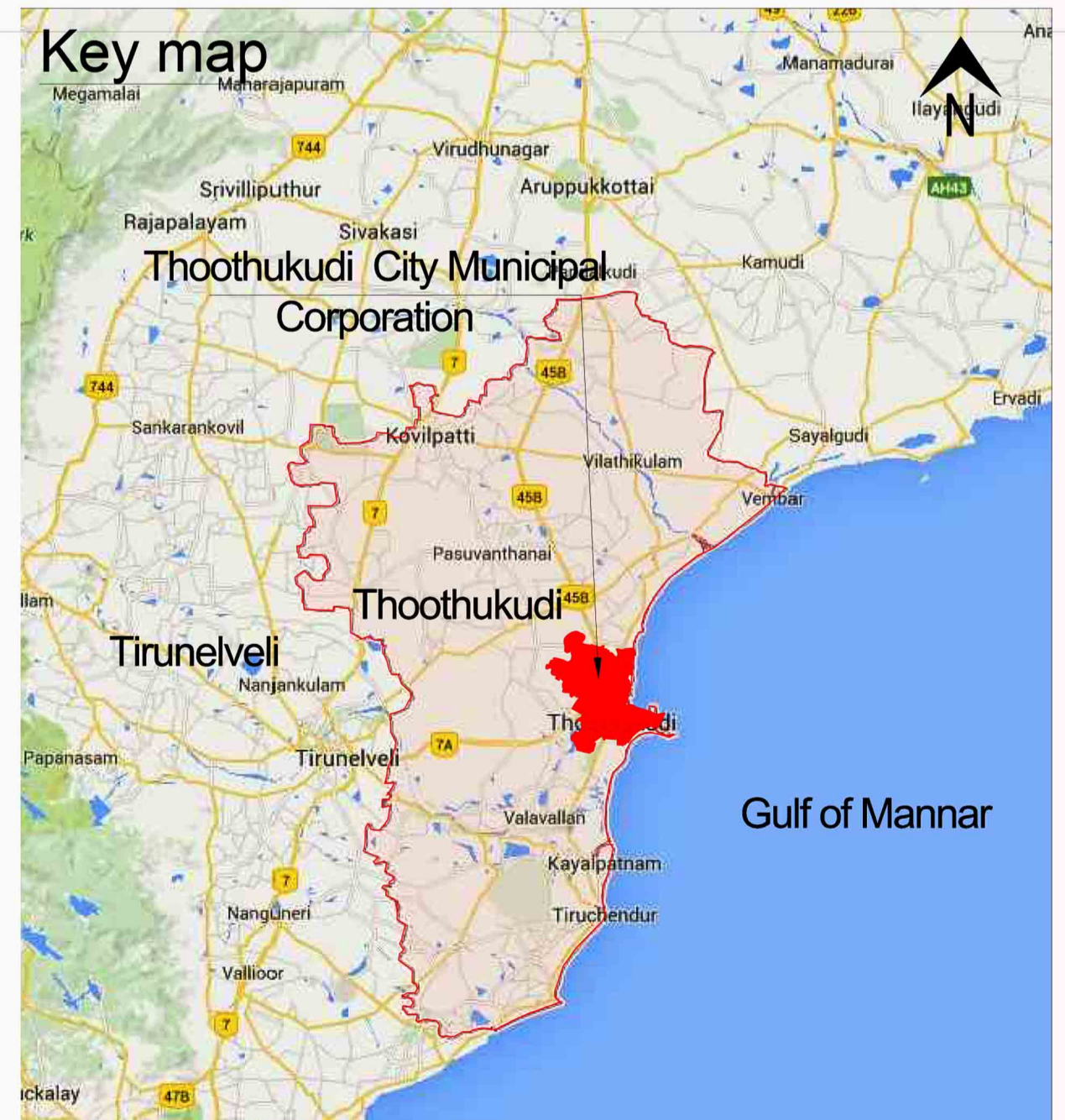
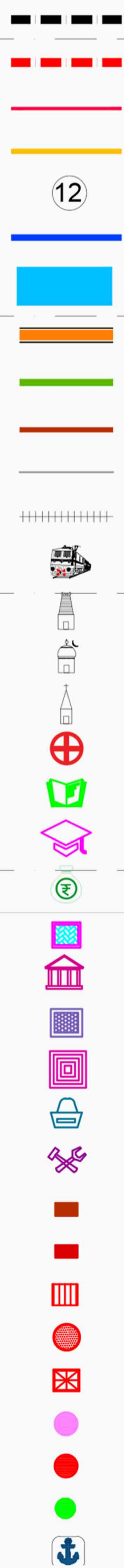
**TN-11-TTK**

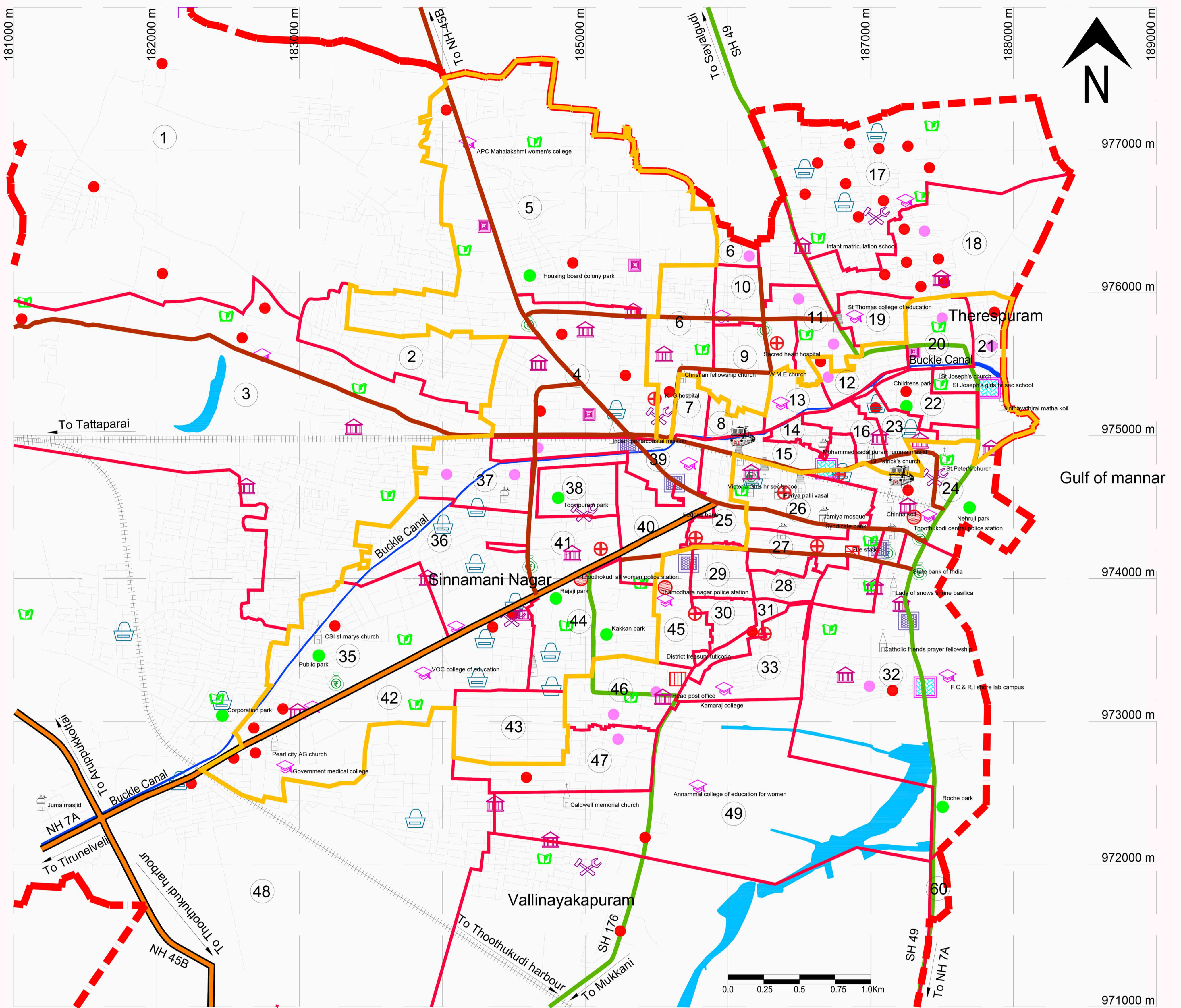
**EXECUTIVE SUMMARY**



## Legend

1. District boundary
2. Municipal boundary
3. Ward boundary
4. ABD boundary
5. Ward number
6. Canal
7. Water body
8. National highway
9. State highway
10. Major road
11. Other road
12. Railway line
13. Railway station
14. Temple
15. Mosque
16. Church
17. Hospital
18. School
19. College
20. Bank
21. Government buildings
22. Community & marriage hall
23. Hotel
24. Market
25. Shop
26. Work shop
27. Godown
28. Shed
29. Post office
30. Police station
31. Fire station
32. Notified slum
33. Non notified slum
34. Park
35. Port



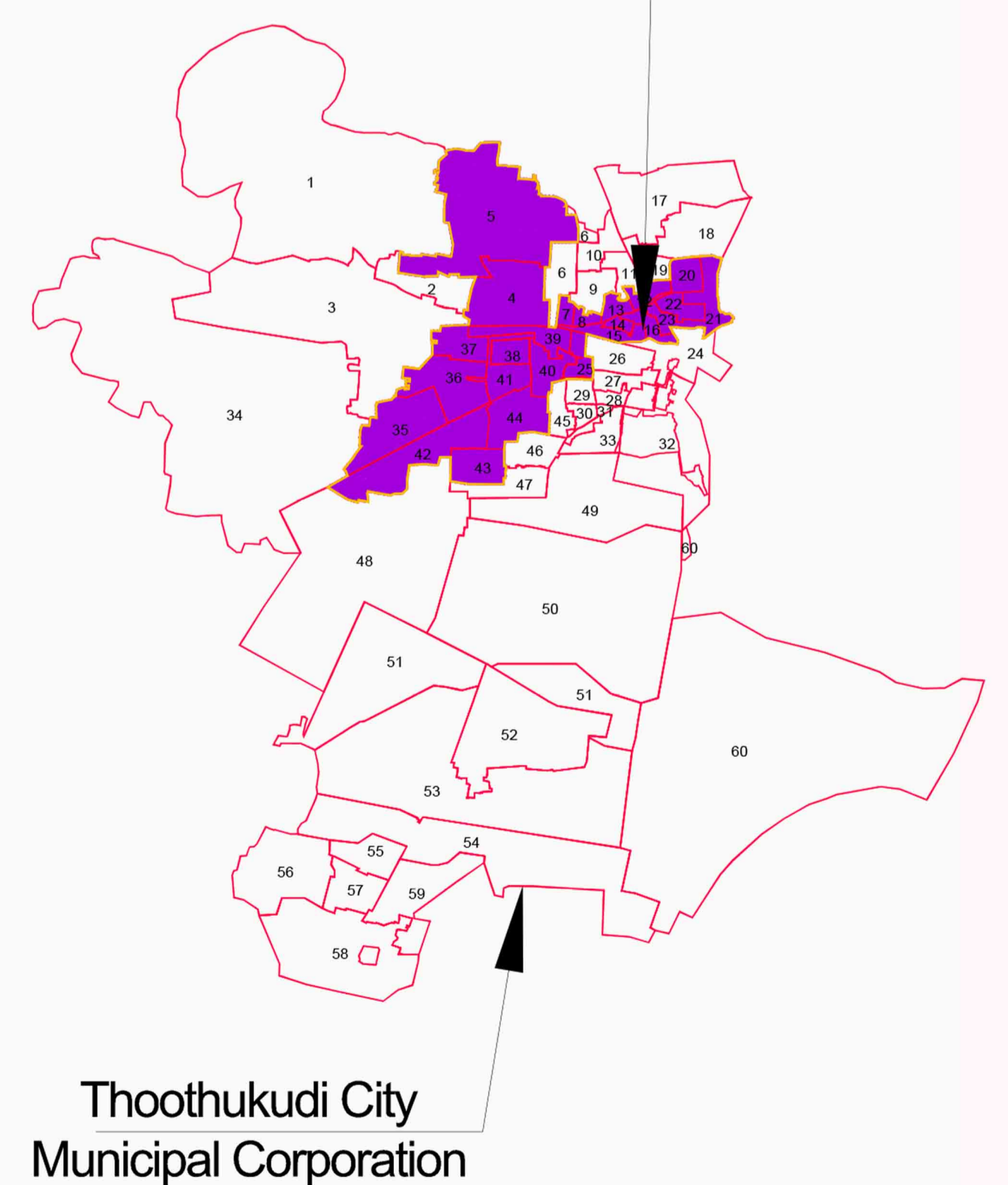


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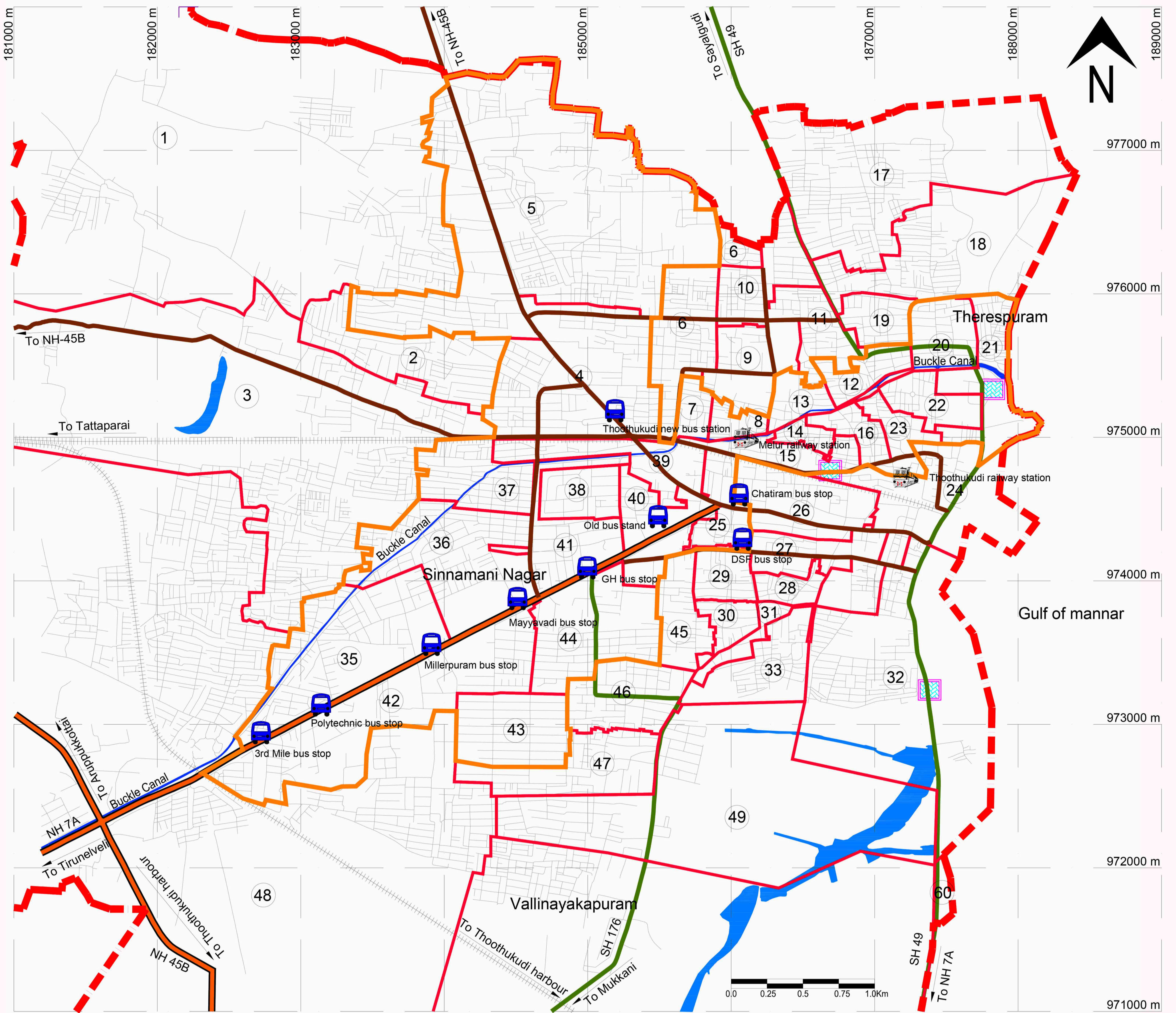
- |                       |  |                               |  |
|-----------------------|--|-------------------------------|--|
| 1. Municipal boundary |  | 16. Hospital                  |  |
| 2. Ward boundary      |  | 17. School                    |  |
| 3. ABD boundary       |  | 18. College                   |  |
| 4. Ward number        |  | 19. Bank                      |  |
| 5. Buckle Canal       |  | 20. Government buildings      |  |
| 6. Water body         |  | 21. Community & marriage hall |  |
| 7. National highway   |  | 22. Hotel                     |  |
| 8. State highway      |  | 23. Market                    |  |
| 9. Major road         |  | 24. Shop                      |  |
| 10. Other road        |  | 25. Work shop                 |  |
| 11. Railway line      |  | 26. Godown                    |  |
| 12. Railway station   |  | 27. Shed                      |  |
| 13. Temple            |  | 28. Post office               |  |
| 14. Mosque            |  | 29. Police station            |  |
| 15. Church            |  | 30. Fire station              |  |
|                       |  | 31. Notified slum             |  |
|                       |  | 32. Non notified slum         |  |
|                       |  | 33. Park                      |  |

## Key map

Area based development cluster - Retrofitting





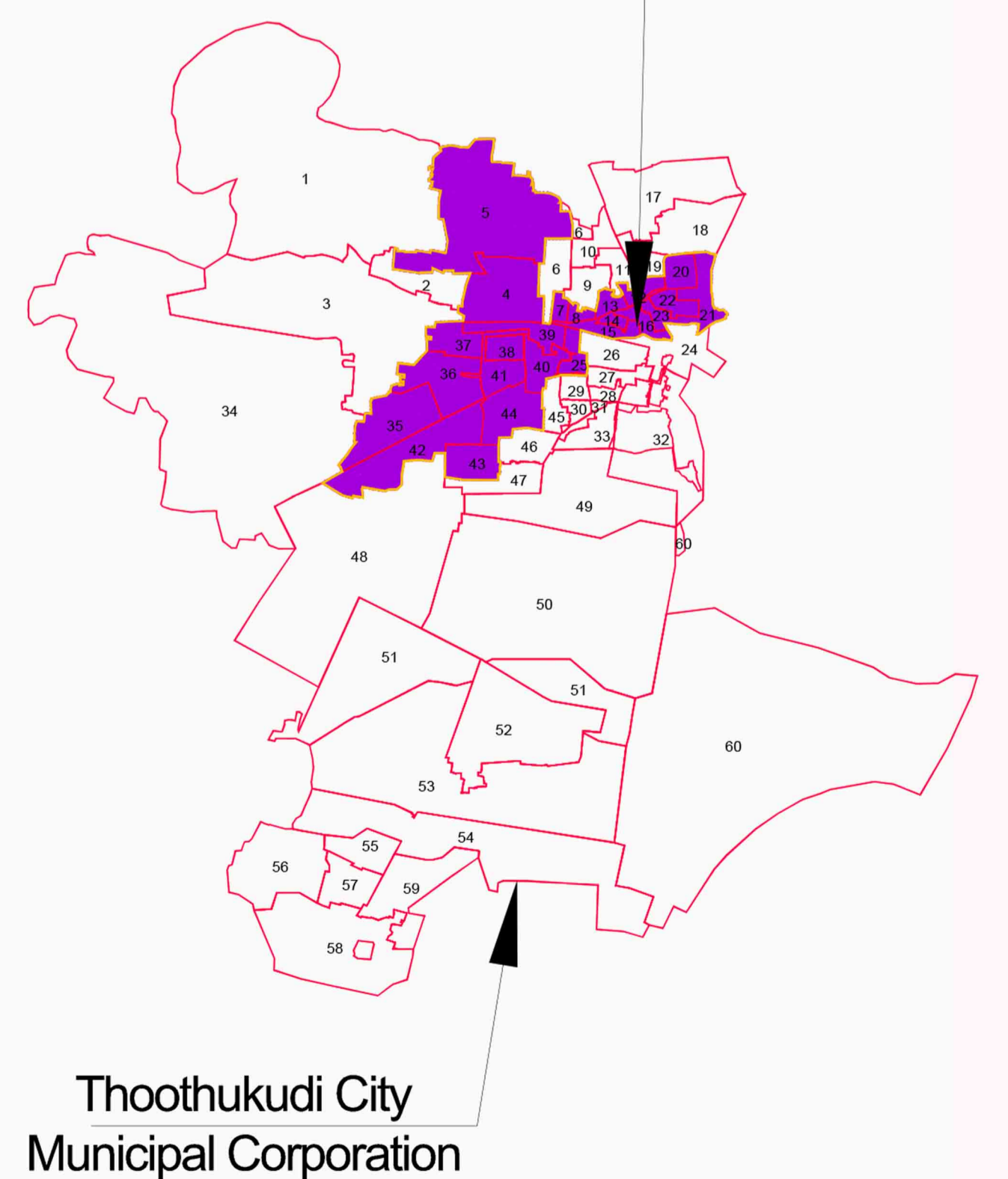


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- 9. Major road
- 10. Other road
- 11. Railway line
- 12. Railway station
- 13. Bus stop

## Key map

Area based development cluster - Retrofitting





## **THE SMART CITY CHALLENGE**

### **STAGE 2**

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