15 -ാം കേരള നിയമസഭ

11 -ാം സമ്മേളനം

നക്ഷത്രചിഹ്നമിട്ട ചോദ്യം നം. 155 **21-06-2024 - ൽ മറുപടിയ്ക്ക്**

സ്മാർട്ട് സിറ്റി പദ്ധതി

ചോദ്യം		ഉത്തരം	
ശ്രീ. ടി. വി. ഇബ്രാഹിം , ശ്രീ. കെ. പി. എ. മജീദ്, ശ്രീ. പി. കെ. ബഷീർ, ശ്രീ. എൻ. ഷംസുദ്ദീൻ		**ശ്രീ. എം.ബി. രാജേഷ് (തദ്ദേശ സ്വയംഭരണം, എക്സൈസ് വകുപ്പ് മന്ത്രി)**	
(എ)	സംസ്ഥാനത്ത് നടപ്പാക്കുന്ന സ്മാർട്ട് സിറ്റി പദ്ധതികളുടെ വിശദാംശം നൽകുമോ;	(എ)	കേന്ദ്ര-സംസ്ഥാന സർക്കാരുകളുടെ 50:50 അനുപാതത്തിൽ തുല്യമായ ഫണ്ടുകൾ ലഭ്യമാക്കുന്ന കേന്ദ്രാവിഷ്കൃത നഗരവികസന പദ്ധതിയാണ് സ്മാർട്ട് സിറ്റി. സ്മാർട്ട് സിറ്റീസ് മിഷൻ നടപ്പാക്കാൻ രൂപീകരിച്ച സ്പെഷ്യൽ പർപ്പസ് കമ്പനി ആയ കൊച്ചിൻ സ്മാർട്ട് മിഷൻ ലിമിറ്റഡ് (സി.എസ്.എം.എൽ) കൊച്ചിൻ നഗരസഭയുടെ വിഹിതമുൾപ്പെടെ 1070 കോടി രൂപയുടെ പദ്ധതികളും സ്മാർട്ട് സിറ്റി തിരുവനന്തപുരം ലിമിറ്റഡ് (എസ്.സി.ടി.എൽ) തിരുവനന്തപുരം നഗരസഭയുടെ വിഹിതമുൾപ്പെടെ 1135 കോടി രൂപയുടെ പദ്ധതികളുമാണ് സംസ്ഥാനത്ത് നടപ്പിലാക്കുന്നത്. സ്മാർട്ട് സിറ്റി തിരുവനന്തപുരം ലിമിറ്റഡിന് കീഴിൽ 373.87 കോടി രൂപയുടെ 79 പദ്ധതികൾ പൂർത്തികരിച്ചിട്ടുണ്ട്. നിലവിൽ 677.76 കോടി രൂപയുടെ 48 പദ്ധതികളുടെ പൂർത്തീകരണ പ്രവർത്തനം പുരോഗമിക്കുന്നു. കൊച്ചിൻ സ്മാർട്ട് മിഷൻ ലിമിറ്റഡിന് കീഴിൽ 283.02 കോടി രൂപയുടെ 31 പദ്ധതികൾ പൂർത്തിയാക്കിയിട്ടുണ്ട്. 523.07 കോടി രൂപയുടെ 38 വിവിധ പദ്ധതികളുടെ പണികൾ പുരോഗമിക്കുന്നു. അടിസ്ഥാന സൗകര്യങ്ങൾ മെച്ചപ്പെടുത്തി ദ്രുചിത്വമുള്ള സുസ്ഥിരമായ ചുറ്റുപാടുകൾക്കുള്ള നൂതന പരിഹാരം നൽകി ജീവിത നിലവാരം ഉയർത്തുക എന്ന ലക്ഷ്യം മുന്നിൽ കണ്ടുകൊണ്ട് സമഗ്രമായ ഗതാഗത സംവിധാനങ്ങൾ, പശ്ചാത്തല സൗകര്യ വികസനം എന്നീ വിഷയത്തിൽ ഊന്നി സ്മാർട്ട് സിറ്റീസ് മിഷൻ എല്ലാ പദ്ധതികളും വിഭാവനം ചെയ്തിരിക്കുന്നത്. പദ്ധതിയുടെ കീഴിൽ സ്മാർട്ട് റോഡുകൾ, പാർക്കുകളുടെ നവീകരണം, ട്രാഫിക്

			കമാൻഡ് കൺട്രോൾ സെന്റർ, ബഹുനില പാർക്കിംഗ് സമുച്ചയങ്ങൾ, ഇ-മൊബിലിറ്റി, സോളാർ സിറ്റി, നഗര സൗന്ദര്യവൽക്കരണം, സ്മാർട്ട് ക്ലാസ് റൂമുകൾ, വിവര സാങ്കേതിക വിദ്യയുമായി ബന്ധപ്പെട്ട പദ്ധതികൾ (ഇന്റലിജന്റ് ട്രാഫിക് മാനേജ്മെന്റ് സിസ്റ്റം (ITMS)), ഇന്റഗ്രേറ്റഡ് കമാന്റ്, കൺട്രോൾ ആന്റ് കമ്മ്യൂണിക്കേഷൻ സെന്റർ (IC4), കൊച്ചി ജനറൽ ഹോസ്പിറ്റലിൽ കാൻസർ കെയർ സെന്റർ, പൊതു ഇടങ്ങളുടെ നിർമ്മാണം, മറൈൻ ഡ്രൈവ് വാക് വേ, ഓപ്പൺ എയർ തീയറ്റർ, റൂഫ് ടോപ് സോളാർ പദ്ധതി തുടങ്ങിയവയാണ് പ്രധാന പദ്ധതികൾ.
(ബി)	പ്രസ്തുത പദ്ധതി നടപ്പാക്കുന്ന ഓരോ നഗരത്തിന്റെയും വികസന പദ്ധതി രേഖ ലഭ്യമാക്കുമോ;	(ബി)	സ്മാർട്ട് സിറ്റീസ് മിഷനുകീഴിൽ സ്മാർട്ട് സിറ്റി തിരുവനന്തപുരം ലിമിറ്റഡ്, കൊച്ചിൻ സ്മാർട്ട് മിഷൻ ലിമിറ്റഡ് എന്നിവയുടെ വികസന പദ്ധതി രേഖ (Proposal submitted to MoHUA for inclusion of Trivandrum and Kochi in Smart Cities Mission project) യഥാക്രമം അനുബന്ധം 1, 2 ആയി ചേർത്തിരിക്കുന്നു.
(സി)	സ്മാർട്ട് സിറ്റി പദ്ധതിയിൽ ഉൾപ്പെടുത്തിയ പ്രവൃത്തികൾ യഥാസമയം പൂർത്തീകരിക്കാൻ കഴിയാതിരുന്നത് ശ്രദ്ധയിൽപ്പെട്ടിട്ടുണ്ടോ; എങ്കിൽ കാരണം വ്യക്തമാക്കുമോ;	(സി)	ശ്രദ്ധയിൽപ്പെട്ടിട്ടുണ്ട്. 2017-22 വരെയുള്ള 5 വർഷക്കാലയളവായിരുന്നു സ്മാർട്ട് സിറ്റി പദ്ധതികൾ പൂർത്തീകരണത്തിന് ലക്ഷ്യമിട്ടിരുന്നത്. എന്നാൽ സ്മാർട്ട് സിറ്റീസ് മിഷന്റെ കാലാവധി 30.06.2024 വരെ MoHUA ദീർഘിപ്പിച്ച് നൽകിയിട്ടുണ്ട്. ആയതിന്റെ പകർപ്പ് അനുബന്ധം-4 ആയി ചേർത്തിരിക്കുന്നു. സ്മാർട്ട് സിറ്റീസ് മിഷന്റെ പദ്ധതികൾ എല്ലാം തന്നെ നടപ്പാക്കുന്നത് നഗരത്തിന്റെ വളരെ തിരക്കേറിയ മേഖലകളിലും ജനസാന്ദ്രത ഏറിയ പ്രദേശങ്ങളുമാണ്. അതിനാൽ തന്നെ പദ്ധതി നടത്തിപ്പിനായി ഉദ്ദേശിച്ചതിലും അധികം സമയം വേണ്ടി വരുന്നതായി കാണപ്പെടുന്നുണ്ട്. അപ്രതീക്ഷിതമായ കോവിഡ് മഹാമാരി മൂലം പ്രവർത്തികൾ ഏകദേശം 18 മാസം മുടങ്ങിയിരുന്നു. കരാറുകാരുടെ അനാസ്ഥമൂലവും, പുതുതായി തിരഞ്ഞെടുത്ത പദ്ധതികൾ പൂർത്തീകരിക്കുന്നതിൽ വന്ന കാലതാമസവും പല പദ്ധതികളും നിരവധി തവണ റീ-ടെൻഡർ ചെയ്യേണ്ട സാഹചര്യവും ഉണ്ടായതിനാലും തുടരെ ഉണ്ടായ പ്രതികൂല കാലാവസ്ഥ ഘടകങ്ങളും കാരണമാണ് പദ്ധതി പ്രതീക്ഷിച്ച സമയം പൂർത്തീകരിക്കാൻ കഴിയാതിരുന്നത്. ചില പദ്ധതികൾ നടപ്പാക്കുന്ന പ്രദേശങ്ങളിൽ പുരാവസ്തു വകുപ്പ് , ജയിൽ വകുപ്പ് എന്നീ വകുപ്പുകളുടെ അനുവാദം, CRZ ക്ലിയറൻസ് എന്നിവ ലഭിച്ചതിനു ശേഷം ആണ് നിർമാണം തുടങ്ങാൻ സാധിച്ചത്. ഇതെല്ലം പദ്ധതിയുടെ

			പുരോഗതിയെ സാരമായി ബാധിച്ചിട്ടുണ്ട്. പ്രദേശവാസികളുടെ എതിർപ്പ് കാരണം ചില പദ്ധതികൾ ഒഴിവാക്കി പുതിയ പദ്ധതികൾ എടുക്കേണ്ടതായും വന്നിട്ടുണ്ട്. പദ്ധതികൾ കാര്യക്ഷമമായും സമയബന്ധിതമായും നടപ്പിലാക്കാൻ ഉള്ള കോൺട്രാക്ടർമാരുടെ അഭാവം പദ്ധതിയുടെ നടത്തിപ്പിനെ കാര്യമായി ബാധിച്ചിട്ടുണ്ട്.
(ഡി)	പ്രസ്തുത പദ്ധതികളുടെ നിലവിലെ സ്ഥിതിയും അവ എന്നത്തേക്ക് പൂർത്തീകരിക്കാൻ കഴിയുമെന്നും വ്യക്തമാക്കാമോ?	(ഡി)	സ്മാർട്ട് സിറ്റി തിരുവനന്തപുരം ലിമിറ്റഡ്, കൊച്ചിൻ സ്മാർട്ട് മിഷൻ ലിമിറ്റഡ് എന്നിവയുടെ കീഴിലെ പദ്ധതികളുടെ പൂർത്തീകരണ വിശദാംശം അനുബന്ധം-3 ആയി ചേർത്തിരിക്കുന്നു.

സെക്ഷൻ ഓഫീസർ

ANNEXURE-1

SMART CITY THIRUVANANTHAPURAM LIMITED

INDIA SMART CITY MISSION

MISSION TRANSFORM-NATION

THE SMART CITY CHALLENGE

STAGE 2

SMART CITY PROPOSAL

SMART CITY CODE:

KL-02-TVM

Ministry of Urban Development
Government of India

CHECKLIST

All fields in the SCP format document have to be filled. The chart below will assist you in verifying that all questions have been answered and all fields have been filled.

Q. No	TICK			
PART A: CITY PROFILE				
1.	✔	QUALITY OF LIFE		
2.	✔	ADMINISTRATIVE EFFICIENCY		
3.	✔	SWOT		
4.	✔	STRATEGIC FOCUS AND BLUEPRINT		
5.	✔	CITY VISION AND GOALS		
6.	✔	CITIZEN ENGAGEMENT		
7.	✔	SELF-ASSESSMENT: BASELINE		
8.	✔	SELF-ASSESSMENT: ASPIRATIONS & IMPERATIVES		
PART B: AREA BASED PROPOSAL				
9.	✔	SUMMARY		
10.	✔	APPROACH & METHODOLOGY		
11.	✔	KEY COMPONENTS		
12.	✔	SMART URBAN FORM		
13.	✔	CONVERGENCE AGENDA	✔	Table 1
14.	✔	CONVERGENCE IMPLEMENTATION		
15.	✔	RISKS	✔	Table 2
16.	✔	ESSENTIAL FEATURES ACHIEVEMENT PLAN		
17.	✔	SUCCESS FACTORS		
18.	✔	MEASURABLE IMPACT		
PART C: PAN-CITY PROPOSAL(S)				
19.	✔	SUMMARY		
20.	✔	COMPONENTS		
21.	✔	APPROACH & METHODOLOGY		

22.	✔	DEMAND ASSESSMENT				
23.	✔	INCLUSION				
24.	✔	RISK MITIGATION	✔	Table 3		
25.	✔	FRUGAL INNOVATION				
26.	✔	CONVERGENCE AGENDA	✔	Table 4		
27.	✔	CONVERGENCE IMPLEMENTATION				
28.	✔	SUCCESS FACTORS				
29.	✔	BENEFITS DELIVERED				
30.	✔	MEASURABLE IMPACT				
PART D: IMPLEMENTATION PLAN						
31.	✔	IMPLEMENTATION PLAN	✔	Table 5		
32.	✔	SCENARIOS				
33.	✔	SPV	✔	Table 6	✔	7 DOCUMENTS
34.	✔	CONVERGENCE	✔	Table 7		
35.	✔	PPP	✔	Table 8		
36.	✔	STAKEHOLDER ROLES				
PART E: FINANCIAL PLAN						
37.	✔	ITEMISED COSTS				
38.	✔	RESOURCES PLAN				
39.	✔	COSTS				
40.	✔	REVENUE AND PAY-BACK				
41.	✔	RECOVERY OF O&M				
42.	✔	FINANCIAL TIMELINE				
43.	✔	FALL-BACK PLAN				

ANNEXURE 1	Smart City features
ANNEXURE 2	A-3 sheets (self-assessment)
ANNEXURE 3	max 20 sheets (A-4 and A-3)
ANNEXURE 4	Documents for Question 33

INSTRUCTIONS

1. This document must be read along with the Smart City Mission Guidelines. An electronic version of the SCPformat is also available on the website <smartcities.gov.in>
Follow: 'Downloads' > 'Memos'.

2. The responses must be within the word limits given. The font size must be 12 Arial, with 1.5 spacing, left aligned paragraphs with one inch margins. All additional information must be given in 20 nos. A-4 size pages in Annexure 3.

3. For the Area-Based Proposal, only one 'Area' should be selected. The Area selected can be a combination of one or more types of area-based developments. This can be retrofitting or redevelopment or greenfield alone or a combination of these, but the area delineated should be contiguous and not at separate locations in the city.

4. The Area-based Development must contain all the Essential Features as per para 6.2 of the Mission Guidelines. Please fill out the following checklist.

S. No	Essential Feature	Confirm if included (✓)	Para. No. in SCP
1.	Assured electricity supply with at least 10% of the Smart City's energy requirement coming from solar	✔	EF 06 Project 30
2.	Adequate water supply including waste water recycling and storm water reuse	✔	EF 06 Project 30
3.	Sanitation including solid waste management	✔	EF 01 Project 4 & 6
4.	Rain water harvesting	✔	EF 06 Project 30
5.	Smart metering	✔	EF 01 Project 2
6.	Robust IT connectivity and digitalization	✔	EF 01,02,03,08 Project 8,15,29,28
7.	Pedestrian friendly pathways	✔	EF 07 Project 9,11 & 13
8.	Encouragement to non-motorised transport (e.g. walking and cycling)	✔	EF 02 Project 9
9.	Intelligent traffic management	✔	EF 02 Project 11
10.	Non-vehicle streets/zones	✔	EF 07 Project 32
11.	Smart parking	✔	EF 02 Project 10
12.	Energy efficient street lighting	✔	EF 02 Project 15

13.	Innovative use of open spaces	✔	EF 03,04,07 Project16,21,24,31
14.	Visible improvement in the Area	✔	EF 03,04 17,18,20,22,23,25
15.	Safety of citizens especially children, women and elderly	✔	EF 02 Project 15
16.	At least 80% buildings (in redevelopment and green-field) should be energy efficient and green buildings		NA
17.	In green-field development, if housing is provided, at least 15% should be in 'affordable housing' category.		NA
18.	Additional 'smart' applications, if any	✔	EF 05 Project 27,28,29

5. The pan-city Smart Solution should be IT enabled and improve governance or public services. Cities may propose one or two such Smart Solution(s). If more than one solution is presented kindly use supplementary template 'Pan-City Proposal No 2'.

6. In order to make the proposal credible, all claims must be supported with government order, council resolutions, legal changes, etc and such supporting documents must be attached as Annexure 4.

7. The Questions can be answered directly in this editable PDF file and can be saved on local computer, before printing. Your submission in electronic form should contain:
   1. The SCP in whole (92) pages
   2. The Self Assessment Sheet (Annexure 2)
   3. Additional 20 Sheets (Annexure 3)
   4. Additional list of Documents (Annexure 4)

   Electronic submission to be sent on DVD along with printed copies. 5 printed copies of the SCP document (complete in all respect) should be sent to MoUD along with the DVD containing the complete electronic copy. The printed copies should be spiral bound as separate volumes.

   It is advised to use latest version of Acrobat Reader (Acrobat XI or higher) to fill the form.
   Acrobat Reader XI can be downloaded from:
   https://www.adobe.com/support/downloads/thankyou.jsp?ftpID=5507&fileID=5519

SCORING DIVISION

TOTAL 100 POINTS

CITY-LEVEL:	**30**
AREA-BASED DEVELOPMENT:	**55**
PAN-CITY SOLUTION:	**15**

CITY LEVEL CRITERIA: 30%

S.No.	Criteria	%
1.	Vision and goals	5
2.	Strategic plan	10
3.	Citizen engagement	10
4.	Baseline, KPIs, self-assessment and potential for improvement	5

AREA-BASED DEVELOPMENT (ABD): 55%

S.No.	Criteria	%
1.	'Smartness' of proposal	7
2.	Citizen engagement	5
3.	Results orientation	15
4.	Process followed	3
5.	Implementation framework, including feasibility and cost-effectiveness	25

PAN-CITY SOLUTION: 15%

(If more than one solution is proposed, each proposed solution will be graded separately and the average of the two aggregate scores will be awarded to the city toward the 15% overall weightage)

S.No.	Criteria	%
1.	'Smartness' of solution	3
2.	Citizen engagement	1
3.	Results orientation	5
4.	Process followed	1
5.	Implementation framework, including feasibility and cost-effectiveness	5

A. CITY PROFILE

1. QUALITY OF LIFE

In the last three years, what efforts have been made by the city to improve livability, sustainability and economic development? Give specific examples along with improvement with KPIs that are in the public domain and/ or can be validated. Your answer should cover, but not be restricted to (Describe in max. 50 words each, mentioning the source of the data):

a. Transportation condition in the city

■ Pilot PPP project implemented by TRDCL for city centre roads(42 kms); Maintained on BOT model since 2006. (widening, geometric alignment, 63 junctions, 2 flyovers, 2m footpath, 94 bus bays, solar based traffic signals, signage, SWD, trees etc)
■ State pjts-1) LRT from Techno city to Karamana station(21.82 km) by 2020 (approved); 2) ORR(50 km) under CRDP Phase-II interconnecting radially (DPR under process)
KPIs:
→ Av. speed improved-25 to 35 kms/hr; Av. trip length-7.55 kms; Av. travel time<15mins
→ Share of PT use is 43%; roads covered under PT is 77%
→ Share of NMT -7%; Coverage of footpaths - 10% [Source:CMP, 2014 &TRDCL]

b. Water availability in the city and reduction in water wastage/ NRW

■ Ample water source and continuous water supply system
■ Surface water source -River Karamana; Total Supply - 174 MLD; 5 Distribution zones
■ Total WS network -1500 km; laying of new network for 132.26 km
■ 150 lpcd & NRW reduction through flow meters proposed under AMRUT
KPIs:
→ 100% treated water supplied @ 100 lpcd
→ Increase in water supply network - 76% to 83%
→ Increase in HSCs from 1,67,093 to1,91,845 nos. (100% metered)
→ Quality of water supplied - 92% [Source: TMC, 2017]

c. Solid waste management programs in the city

■ Generation: 350 TPD | 60% Organic, 35% Recyclable, 5% Rejects
■ Launch of ‘My City Beautiful city’ to implement decentralised SWM & segregation at source. 194 Aerobins, 50 Biogas plants and 19 OWCs set up (21% of waste)
■ ‘Green Protocol’ (initiated by Suchitwa Mission) implemented successfully at the 35th National Games (2015), aiming for ‘zero-waste’ events. Replicated by TMC at Attukal Pongala and other city events
■ Plastic ban enforced from 1st March, 2017
KPIs:
→ 41.2% of Organic Waste processed at community level [Source: TMC, Suchitwa 2017]

d. Safety/ security conditions in the city

■ Police stations - 22 nos.,CCTV cameras - 223 nos, hot line nos. to airports, banks & fire station, dedicated whatsapp no.
■ iSafe mobile app based alert system, pink patroling vehicles (3 nos.), pink beat system for daily ground surveillance; 24X7 Vanita helpline-9995399953 & helpline 1091
■ Monthly grievance readdressal for action against crime on elderly; community policing.
KPIs:
→ Response time to crime site - 4 to 5 min.
→ Crime incidents - 36,354 to 47,303; crime under Motor vehicle Act- 11,000 to 13,493 and crime against women - 555 to 533; [Source: City Police, 2017]

e. Energy availability and reduction of outages in the city

■ Present supply- 3.95 MW; Peak demand- 3.72 MW; implemented SCADA/DMS for distribution up to 33 KV; implementing control centre; 24x7 customer care service
■ Installed 12 solar units (235 KW capacity) & additional 4 units (90 KW capacity) under implementation; Solar Master Plan prepared & approved by MNRE.
KPIs:
→ Increase in H/h connections - 3,48,492 to 3,76,543; Metered connections - 97%
→ Reduction in Schedules outages-4064 to 2352; Unscheduled outages-11,259 to 6,516;
→ Reduction in T& D losses - 20.2% to 15%
→ Increase in collection efficiency - 93.5% to 98.5% [Source: KSEB, 2017]

f. Housing situation in the city, specifically role of municipality in expediting building plan approvals, enhancing property tax collection, etc

■ SANCHAY: Online property tax collection system
■ 20,048 EWS housing units constructed by Kudumbashree and 1,707 new units under implementation under VAMBAY scheme.

KPIs:
→ Property tax collection increased from 49.94 Cr to 53.72 Cr (14.98% CAGR)
→ Increase in no of properties covered by 23% (2,18,700 to 2,70,000 nos.)

[Source: TMC, 2017]

2. ADMINISTRATIVE EFFICIENCY

In the last three years, what have been the changes in Administrative Efficiency due to the use of Information and Communication Technology (ICT) (Describe in max. 50 words each, mentioning the source of the data):

a. Overall attendance of functionaries

- Corporation has manual system to ensure & monitor the staff attendance - Daily attendance upkeep & daily submission of consolidated & verified attendance report by the P.A. to Secretary; Compulsory daily evening attendance entry system at 5 pm
- Regular verification of attendance register by the Kerala Local Fund Audit team
- Biometric system not yet implemented for most of the departments

* Increase in attendance during the last three years from 73% to 89%

[Source: TMC, 2017]

b. Two-way communication between citizens and administration

- Toll Free Customer care number (KWA);
- Online grievance system- (KWA,KPWD,KSEB)
- Whatsapp & Facebook page - (TVMC & KWA)
- Online payment facility & status information for property tax (Sanchaya), water tax, electricity bills and disbursement of social security pension (Sevana pension)
- Annual Financial Statements available on its website -www.corporationoftrivandrum.in
- Ente Nagaram (My City) - A publication of TVMC available online & in hard copies.
- SOOCHIKA - Workflow application. Status Monitoring over web and eSMS integration

[Source: TMC & Information Kerala Mission, 2017]

c. Use of e-Gov to enable hassle free access to statutory documents

- SANKHYA - Double entry accounting system
- SUBHADRA - Financial Mgmt system
- SANCHAYA: Online payment facility for property tax
- STHAPANA - application for collection of PF legacy details of corporation employees
- Online access to all civil Registration Certificates - Birth, Death, Ownership certificate
- SEVANA pension - Welfare pension system with online application facility & status on application & disbursement for various old age, labourers, disabled & women groups
- Jana Sevana Kendram (Citizen Service Centre) enabling the public to get all types of payment at a single point [Source: TMC & Information Kerala Mission, 2017]

d. Dashboards that integrate analytics and visualization of data

- State level departments like KSEB, KWA, KPWD, LSGD, Health department, Agriculture department, Kerala Tourism have individual dashboards for administrative decision making process.

[Source: TMC & Information Kerala Mission, 2017]

e. Availability of basic information relevant to citizens

Regularly updated TMC website www.corporationoftrivandrum with following information:

- SANCHITHA - Repository of acts & rules relating to Local Bodies
- SAKARMA - Online information system on handling of council/ committee agenda, minutes of meeting for council meeting, ward meetings etc.
- SAMOOHYA - Citizen database comprising of community level baseline information system for the purpose of micro level planning
- Annual Financial Statements, Annual Budget including plan & project fund details
- Monthly e-News letter describing activities planned every month

[Source: TMC & Information Kerala Mission, 2017]

3. SWOT

Based on the detailed city profiling, what are the strengths and developmental areas of the city? Conduct a detailed SWOT analysis of the city with all relevant metrics and data. (max 1000 words):

STRENGTHS

■ ADMINISTRATIVE CAPITAL: The city being the administrative capital of Kerala is the political power centre. It attracts very large number of people from state and also from other states on government related business opportunities.

■ WELL-CONNECTED & STRATEGICALLY LOCATED: Direct road (NH-47), rail and air connectivity (International airport with 37% international & 32% domestic arrivals of state's average) with the important cities within the country & abroad. It is shortly to have a operational deep sea water port at Vizhinjam. It is the Southern Air Command head quarters of the IAF. Thumba Equatorial Rocket Launching station in city is an Indian spaceport operated by ISRO due to its proximity to earth's magnetic equator.

■ NATURAL LANDSCAPE & CLIMATE: The natural endowments of the city makes it the most livable city in South India. It also has a very amiable climate throughout the year without extreme summer & winter.

■ HIGH QUALITY OF LIFE: As per the Annual Survey of India's City-Systems (ASICS) conducted in 2016, Thiruvananthapuram ranked the highest of the 21 cities surveyed in Quality of Life. The survey ranked 21 Indian cities on 115 parameters & 4 main criteria: urban capacities & resources; urban planning & design; transparency, accountability & participation; & empowered & legitimate political representation. The better a city scores in the survey, the more likely it is able to deliver a better quality of life to citizens over the medium & long-term.

■ RICH BUILT, CULTURAL & NATURAL HERITAGE FABRIC: The city has over 194 heritage buildings & precincts listed & graded to be conserved

► CAPITAL CITY OF THE TRANVANCORE KINGDOM - Rich in built heritage established during its reign. The major heritage buildings include the following:

→ Palaces: Kowdiar palace, Rangavilosam Palace (Museum), Kuthiramalik (Museum), Krishnavilasom palace, Saraswathy Vilasom palace, Valiyakottaram palace, Sree Padma Palace and Yuva Raja Palace.

→ Temples & Temple tanks: Shri Anantha Padmanabha Swamy Temple complex, Mitranandapuram temple & tank, Attukal temple, Trimurthi temple, Ganapathy temple, Karakandeshwaram temple, St. George church, English church and Bheemapally mosque

→ Historic Assets:Chitthira Thirunal statue, Agaraharams,Martyrs square& Clock tower

→ Educational buildings: Public library, Fine Arts college, University hostel, Govt. Model school, govt. arts college, old Travancore university, Swathi Thirunal music college, Government women's college and Sanana Mission school

→ Public Buildings: VJT hall & Connamera market, Old British Residency (KITTS), Old Jail (Regional archives), Post office building, Thycaud women & Children hospital, Legislative museum, Old stamp depot, Commissioner office and Thycaudu house

► RICH NATURAL HERITAGE - Natural heritage sites include River Killi, River Karamana, Akkulam Lake, Veli Lake & lagoon, Thiruvallam, T.S. Irrigation canal, and Edayar island

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► CULTURAL HERITAGE & EVENTS - Various festivals & cultural events across year
→ Major Religious festivals: Attukal pongal, Onam, Navratri festival, Arattu Utsavam, Chandankudam Mahotasavam, Fest of Christ and Uroos of Dargah Sharif.
→ Major Events: International Film Festival Kerala, Nisha Gandhi, Swathi Thirunal Sangeethotsavam, Agri - Fest, Flower show, Manviyaveedhi street local events etc.

■ THRIVING TOURIST DESTINATION: The city has all forms of tourism offering a 'total experience' of heritage, culture, religion, nature, health & education. The sector contributes heavily to the economy of Thiruvananthapuram.
► WORLD TOURIST DESTINATION - The city ranks SECOND in international arrivals in Kerala & THIRD in domestic arrivals. Kovalam was one of the locations selected by GoI in the early seventies to be developed as a tourism destination. Over the years it has emerged as a popular world tourist destination. Other important beaches- Varkala located near Kovallam & Shanghumugham near the city centre.
► AYURVEDA CENTRES -There are more than 100 recognised Ayurveda centres in and around the city, which attract people from world over for recuperation & rejuvenation. Rs 7.15 crore in budget for Global Ayurveda village.
► RELIGIOUS TOURISM - The city falls in the major religious circuit of Sabrimala -Thiruvananthapuram - Aranmula. The city hosts the grand festival of Attukal Pongala drawing millions of women devotees across India and abroad. Other prominent religious festivals which attracts lot of visitors are Padmanabhaswamy Temple Aaraattu, Vettukaad Church Festival and Beemapally Uroos.
► HERITAGE & CULTURAL TOURISM - The heritage & culture of the city is the major attraction for the tourists. The rich history, architecture and landscape blended with the cultural events across the year makes it favorable to visit throughout the year.

■ EDUCATIONAL & RESEARCH CENTRE: Acts as regional educational centre for primary, secondary, higher secondary, graduation and specialised educational facilities [Engineering:15, Medical: 3,Ayurveda:3, Homeopathy:2,Medicine related:6, Law: 2, Agriculture:1, Management: 2]. Nationally renowned research institutions - A.P.J Abdul Kalam Technological University, Indian Institute of science Education&Research, Indian Institute of Space Science &Technology,National Centre for Earth Science and others.

■ STRONG IT & RELATED SECTOR PRESENCE: Thiruvananthapuram was first city in the country to set up an planned IT Park in 1990. It is spread over 760 acres of land with over 350 companies operational & employing more than 50,000 IT professionals.

■ EXECUTING PIONEERING PROJECTS: The city has executed projects like Operation Ananatha, a flagship flood-mitigation drive & Green Protocol where they made the National Games 2015 a zero waste event.

WEAKNESSES
■ DETERIORATING CONDITION OF WATER BODIES: Karamana, Killi Rivers & 5 canals (including the historic waterway – TS Canal) are all polluted due to dumping of solid waste from slaughter houses, markets, hotels, etc., & discharge of untreated sewage directly into them. This not only leads to contamination of water but also makes otherwise potential public spaces, defunct. Unscientific & indiscriminate methods of sand mining have also resulted in erosion of river banks.
■ LACKS BASIC SEWERAGE INFRASTRUCTURE: Though a major percentage of the area of the core city (74.93 sq km) is covered under the sewerage scheme, with the

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extension of the city to cover an area of 141.74 sq km, the coverage is limited to only 30% of the city area. Land acquisition for laying of pipes in the residential areas is the biggest hurdle faced by the administration. No strict regulatory & monitoring measures for regular maintenance of septic tanks/soak pits highly prevalent in the city.

- SHUTTING DOWN OF THE VILAPPILSALA GARBAGE TREATMENT PLANT: The processing plant set up in the year 2000 was shut down 5 years back due to exceeding its planned capacity & thereby accumulating waste.
- LACK OF PARKS & OPEN SPACES: The city has only 0.25% of land demarcated as organized parks & open spaces. It lacks community/ neighbourhood level parks & the ones that exist are no universally accessible.
- INCREASING HEALTH RISK: Due to the prevalence of open dumping of waste & open sewers, the city has become a focal point for mosquito-borne diseases. Moreover the prevalence of diabetes is 17%, which is double the National Average of 8%.
- INCREASING SHARE OF PRIVATE VEHICLES: The city's vehicular population has increased 3 times in last the 10 years. An average of 35,800 vehicles is being added every year. This has resulted in traffic congestion, transportation related environmental pollution and parking issues in the city. The share of NMT is limited to only 7%.
- INCREASING CRIME RATES: Almost 53% increase in no of crimes in 2013-15 alone.
- FREQUENT STRIKES & AGITATIONS: Being a state capital, the city happens to be at the receiving end, when disruption of traffic, disruption of city infrastructure, destruction of public properties etc. occur due to political upheavals, agitations, hartals etc.

OPPORTUNITIES

- DEVELOPMENT OF ICTT (International Container Transhipment Terminal) AT VIZHINJAM: With the realisation of this Port, Thiruvananthapuram City Region in particular & the state in general stand to make substantial economic gains in addition to gaining from the job market generated by the ICTT.
- GROWING IT SECTOR: KELRON is major electronic hub which has set up several production centres engaging more than 5,000 people directly/ indirectly in electronic goods manufacturing. The country's first "Techno Park" developed as IT park is established on the city's Northern side which has created 90,000 direct & 3,50,00 indirect jobs. Additionally, TECHNO CITY (500 acres) at Pallippuram developed by State long with another LIFE SCIENCE PARK will be future growth area of the city
- HIGH SPEED RAIL CORRIDOR (570 km): This is proposed from Thiruvananthapuram to Kasargod by the Nodal Agency Kerala High Speed Rail Corporation Ltd.
- Light Metro Rail Project has been proposed for 21.82 kms with 19 stations, connecting Technocity to Karamana which will boost TOD along its stretch
- Proposed Outer Ring Road (ORR) for a stretch of 55 kms interconnecting NH 66, state highways & MC road starting from Mangalapuram in the North to Vizhinjam by-pass.

THREATS

- FLOODING & WATER-LOGGING: Due to reduced cross sectional area of rivers, flash floods have become common during downpour. Recurrent floods as a result of insufficient drainage are the perpetual problems faced by city during the past several years. Thampanoor & East Fort areas are the worst affected with extensive water-logging during rainy season.
- COASTAL EROSION: Thiruvananthapuram being a coastal city is frequently affected by coastal erosion, which often necessitates rehabilitation of fisher folk.
- DEGRADATION OF URBAN ENVIRONMENT: Lack of basic facilities like sewerage & solid waste management will result in the deterioration of urban environment which will have a severe health impact on the population in future.

4. STRATEGIC FOCUS AND BLUEPRINT

Based on the SWOT analysis, what should be the strategic focus of the city and the strategic blueprint for its development over next 5-10 years to make it more livable and sustainable? (max 500 words):

To move towards a Smart Thiruvananthapuram, the city adapts the principles for creating Liveable High-Density Cities (Singapore, 2013). Through this, it aims to assess & intervene within 'urban systems' of Liveability & Sustainability, i.e. 'Environment', 'Economy' & 'Society'. The key factors therefore, that positively co-relate to improving liveability include basic services, economic development, transportation, land-use, heritage, open spaces & built environment, all of which work towards making the city inclusive, safer, healthier & more accessible.

Accordingly, Thiruvananthapuram's Blueprint is built on 5 'Strategic Pillars (SP)' – 1) Urban Basic Services, 2) Land-use Efficiency, 3) Cultural Identity & Heritage, 4) Resilience & Eco-friendliness, & 5) Socio- economic Inclusiveness. These pillars are guided by 10 'Strategic Directions (SD)' which are the key focus areas for the smart city plan. Together, they lay the foundation for improving the quality of life, co-ordinating growth, leveraging existing city features & creating a technology enabled future for the city.

- SP 01. URBAN BASIC SERVICES: In its simplest form, infrastructure represents the backbone of any city. It includes roads, facilities & systems which keep the city functional, keeps people moving & meets the core needs of people. Ensuring that the necessary structure, facilities, services & systems are well maintained contributes to increased capacity, growth & investment.
  - ► SD 01. Improving basic services: 100% coverage of good quality basic services viz. water, energy, solid waste and sanitation
  - ► SD 02. Streamlining service delivery & governance: Introduction of ICT solutions for monitoring & creating real time database for the ease of efficient service delivery. Upgrading the institutional capacities, employee efficiency & increase accountability.
  - ► SD 03. Creating a well-connected, safe & accessible city centre: Integrated approach towards mobility - Interlinked multi-modal system supported by Intelligent Traffic & Transportation system and NMT infrastructure will facilitate ease of commuting within the city and reduction of congestion & pollution levels.

- SP 02. LAND-USE EFFICIENCY: Areas like the city centre, being the oldest area might have received the highest attention in provision of infrastructure, resulting in high land value in view of location advantages. The inner pockets however, do not have adequate access roads leaving them with FAR below 1.00; some of such parcels remain as dead pockets without adequate access and with sub optimise land use Majority of the buildings are old and continue with facade lifting and cosmetic improvements. Thereby to optimize on land, the pillar respond to the city's need and propose new integrated developments that house multiple activities& optimise 2.5 FAR.
  - ► SD 04. Re-densification with creative land-use: Maximise the available FAR of 2.5 on the public land available in the city centre by developing projects which not only will serve the city's population but also fetch revenue for the Corporation.

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■ SP 03. CULTURAL IDENTITY & HERITAGE: The city's cultural heritage, customs & traditions are a source of pride for the people, contributing to the distinctiveness of the city. Revival & celebration of the heritage & culture will be a catalyst for economic development, community engagement, participation, & social cohesion. Economies like tourism & education are an asset to the city & therefore must be supported & leveraged. Thus, the pillar aims at protecting the city's historic assets & heritage through innovative management solutions & supporting key economies to thrive.

► SD 05. Celebrating & conserving historic & cultural assets: Conservation and upgradation of all heritage structures in the city, making them universally accessible and with appropriate information signage

► SD 06. Leveraging Educational Institutions & Tourism potential: Organising and disseminating Tourist information using technology

■ SP 04. RESILIENCE & ECO-FRIENDLINESS: Climate change & urbanization bring increasing uncertainty & unplanned interruption. Thereby the pillar, aims to build a healthy & resilient city that ensures disaster mitigation, disease prevention, prolonging life & promoting & facilitating the benefits of a healthy lifestyle, through infrastructure change & engagement with the community.

► SD 07. Enabling Disaster Mitigation: Implementation of Phase 2 of operation 'Anantha' to prevent flooding via canals in the city

► SD 08. Encouraging Active Living & Healthy Communities: Increasing physical activity and walkability in the city through the upgradation and development of parks and connecting them via a green link.

► SD 09. Facilitating Sustainable built & natural landscapes: Upgrading existing infrastructure and promoting new construction to become sustainable in all aspects - water, energy, waste and transportation

■ SP 05. SOCIO-ECONOMIC INCLUSIVENESS: TotaI Inclusion is another key priority for Thiruvananthapuram. We are acutely conscious of the vulnerable groups that reside within the city, especially those that are socially or economically disadvantaged. The pillar seeks to support these groups through provision of basic housing, facilities & improving livelihoods. It further promotes their integration in all aspects of the city's social, cultural & economic life.

► SD 10. Promoting diversity & Fostering inclusiveness

5. CITY VISION AND GOALS

What should be the vision of the city based on the strategic blueprint? How does the Vision Statement relate specifically to the city's profile and the unique challenges and opportunities present in your city? Define overall aspirations and goals for the city along with how you see key metrics of livability and sustainability improving over the next 5-10 years? (max 1000 words):

VISION: "A VIBRANT & ALLURING Capital city that is INCLUSIVE, SAFE & ACCESSIBLE; and which respects its NATURAL ENVIRONMENT & celebrates its HERITAGE & CULTURE."

The five Strategic Pillars that lay the foundation for the Vision Statement are derived from City Profile, Citizen Engagement & SWOT analysis. Below are listed the key focus areas – Strategic Direction & Goals, that will support & build on the Vision.

- SD 01. IMPROVING BASIC SERVICES: Basic Services include water, sanitation and waste management. Emphasis is placed on equitable access to these urban basic services, especially for the poor. It promotes the development of clean, energy efficient, affordable, and human-centred design that can deliver better services to citizens, while at the same time make the most effective use of natural resources and cutting down on fossil fuel reliance and energy consumption.
  - ► GOAL 01: 100% coverage of 24x7 water supply & optimization of water usage through smart water network.
  - ► GOAL 02: 100% coverage of roadside storm water drains along with regular cleaning & maintenance of the major drains.
  - ► GOAL 03: Provide adequate public toilets in key public & commercial areas
  - ► GOAL 04: Ensure a clean city through integrated collection, transportation & management of solid waste.
  - ► GOAL 05: Improve service delivery of public utilities & services

- SD 02. STREAMLINING SERVICE DELIVERY & GOVERNANCE: Ensuring the delivery of services through enabling transparency and improving accountability.
  - ► GOAL 07: Ensure open, accountable & responsible governance
  - ► GOAL 08: Improve inter-department co-ordination for services

- SD 03. CREATING A WELL-CONNECTED, SAFE & ACCESSIBLE CITY CENTRE: Thiruvananthapuram City caters to a large district, city & tourist population, a majority of which frequent the city centre, travel to & from work, access healthcare, partake in tourism, entertainment & recreation. To ensure that residents & tourists can experience an increased quality of life, the city aims to improve mobility & connectivity through actions that will contribute to a safe, accessible & convenient transportation network & promote green space in urban areas to make the city a more pleasant & accessible place to live & work.

  A well balanced multi-modal transportation network facilitates the ability of people to move within, around, in & out of the city. Diversifying the methods by which people can get around is an important element of a healthy, sustainable & prosperous Thiruvananthapuram.

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► GOAL 09: Create better planned parking facilities
► GOAL 10: Ensure encroachment free & continuous pathways/walkways
► GOAL 11: Improve traffic discipline
► GOAL 12: Make the city easily Navigable & Legible by all groups of people
► GOAL 13: Promote & encourage a shift from Private vehicles to Public Transport
► GOAL 14: Reduce traffic congestion & frequency of road accidents
► GOAL 15: Create an atmosphere of being & feeling safe through surveillance & street lighting
► GOAL 16: Enable a universally accessible & convenient transportation network

- SD 04. RE-DENSIFICATION WITH CREATIVE LAND-USE: Maximising and optimising government land in the city centre through densification and housing varied activities and programs.
  ► GOAL 17: Encourage a diverse land-use mix
  ► GOAL 18: Plan, build & upgrade infrastructure to support growth & urban intensification

- SD 05. CELEBRATING & CONSERVING HISTORIC & CULTURAL ASSETS: Celebration of culture will be a catalyst for economic development, community engagement, participation, & social cohesion
  ► GOAL 19: Create & re-adapt spaces to celebrate the city's cultural identity
  ► GOAL 20: Restore & upgrade structures of historic importance

- SD 06. LEVERAGING EDUCATIONAL INSTITUTIONS & TOURISM POTENTIAL: Developing expertise for local tourism businesses & hospitality services is central to optimizing the value of tourism in Thiruvananthapuram. Communities with rich cultural heritage & craft skills will be equipped with entrepreneurship & business management skills to assist them in growing their businesses & Thiruvananthapuram's cultural attractions. The city aims to promote cultural & heritage tourism, together with local communities, by implementing community-inclusive business models.
  ► GOAL 21: Expand & leverage the tourism, service industry & hospitality sectors
  ► GOAL 22: Work with business & universities to support talent creation & innovation

- SD 07. ENABLING DISASTER MITIGATION: By supporting & strengthening community-led disaster risk reduction actions & increasing institutional adaptive capacity, the city will support all of Thiruvananthapuram's residents to better adapt to natural & human hazards & the increasing risks posed by climate change.
  While identifying & planning for foreseeable risks is an important part of disaster risk reduction, we will also build resilience in our infrastructure so that they can withstand a range of shocks & stresses, even those that are unforeseen.
  ► GOAL 23: Mitigate flooding via canals in core city areas
  ► GOAL 24: Set up faster emergency response systems

- SD 08. ENCOURAGING ACTIVE LIVING & HEALTHY COMMUNITIES: We will work to promote & facilitate the benefits of a healthy lifestyle, through infrastructure change & engagement with the community.
  ► GOAL 25: Prevent the occurrence of mosquito-borne diseases
  ► GOAL 26: Promote active living & getting outside

- SD 09. FACILITATING SUSTAINABLE BUILT & NATURAL LANDSCAPES: There is a growing importance for people & municipalities when it comes to protecting the

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environment & better understanding the impact & implications of environmental issues. Acting now by preserving the natural environment, reducing our carbon footprint & building the city in an environmentally sound manner, will benefit future generations.
► GOAL 27: Promote & Encourage environmentally friendly urbanization

■ SD 10. PROMOTING DIVERSITY & FOSTERING INCLUSIVENESS: This direction seeks to ensure that vulnerable groups have a voice & their needs are adequately addressed.
► GOAL 28: Total Inclusion in the ABD area
► GOAL 29: Advocate & develop varied & affordable housing
► GOAL 30: Encourage & support a diversified city & community-based economy

■ Improvements in Key metrics of Livability and sustainability over 5-10 years
► Basic Services
→ 100% coverage of basic facilities- water supply, sewerage, SWD, SWM & roads.
→ 100% coverage of well-maintained energy efficient street lighting facilities
→ % increase in online tax payments
→ Prompt response system addressing people's concerns (within 24 hours)
→ Zero instances of flooding within city
► Compact Mixed Land use
→ Proximity to work place (travel time reduced to 15 mins)
→ Variety of adequate public open spaces at walkable distances (20% of city area)
→ Improved quality of city amenities
→ Improvement in neighbourhoodd appearance & scenic quality of city.
► Mobility
→ Increased traffic speeds, use of public transport (>50%) and NMT (25%)
→ Reduced commute time, distance travelled, accident rate, traffic noise & air pollution
→ Efficient traffic mgmt. with reduction in congestion & increased commuters safety
→ Increase in % of NMT through unobstructed footpaths and dedicated cycle tracks
→ Increase in number of wi-fi access points per sq.km
► Economy
→ Increase in tourism sector (50% increase in tourist arrivals) and its related economic activities (30% increase in tourist related employments)
→ Increase in employment rate (20%), income levels and work participation rate
→ Availability of job opportunities for all including disabled & trans gender communities
→ Increase in digital literacy rate
► Urban Environment
→ Increased area under new planned green open spaces (10% of the city area)
→ Access to recreational/ play areas (100% access)
→ Improvement of air and water quality
→ Increased use of renewable energy sources (10%) reducing greenhouse emissions
→ 100% Future proofing against natural & health hazards
→ Increased citizen awareness & involvement in preservation of built & natural heritage
► Safety & Security
→ 50% reduction in crime rates for improved perception of personal safety
→ Better visibility and security
► Total Inclusion
→ Universaltisation of BUD schools (skill training for mentally & physically challenged) & Palliative care facilities for people with extreme disabilities/illness
→ 100% access to different social entitlements - ration card, land titles, welfare pensions

6. CITIZEN ENGAGEMENT

How has city leveraged citizen engagement as a tool to define its vision and goals? Specifically describe (max 150 words each):

a. Extent of citizens involved in shaping vision and goals

Thiruvananthapuram city adopted an extensive and inclusive citizen engagement process for shaping the vision and goals. City Vision and Goals set out in the previous section are in close sync with the responses received from citizens. Over 2.79 lakh (29%) of interactions were encountered with citizens through various citizen engagement processes and the same were analyzed to identify the citizens priorities and focus areas of improvements.

■ CITIZEN FEEDBACK:
(RWAs | Women | Elderly | Disabled | Transgender | Student | Youth | EWS section)
► Suggestion Drop Boxes: 95 suggestions from boxes placed at 15 Locations
► Surveys: 9,387 responses from citizens on key issues in the city
► Contests: Vision & Future Aspirations
(The suggestions & concerns of citizens were consolidated & analyzed through word cloud tool for a deeper understanding of people's aspirations, priorities & key issues)

■ VISIONING EXERCISE:
(Citizens | Key Experts | Corporation)
► Based on city based on self-assessment criteria (Annexure 1 & 2), citizen's priorities & aspirations in Round 1 & Round 2 engagements and insights from key experts

[Refer Annexure 3.3]

b. Engagement strategy to get best results from citizens

The city's engagement strategy aimed at achieving effective touch points with as many citizens & stakeholders as possible; including all community groups. 4 rounds of engagement were carried out to Conceptualize, Develop and Improvise

■ ROUND 1: Conceptualization Phase - Awareness and Setting the Vision & Goals
(Targeted towards all citizen| stakeholders in the city)
► Setting up of the Technical Expert Committee & Smart City Cell by TMC
► Campaigns & events to create awareness and promote the initiative
► Crowdsourcing through contests for suggestions and generate a theme for the city
■ ROUND 2: Project Development Phase - Finalization of Area and Key Interventions
(Citizens | Representatives | Department officials | Corporation officials| Key Experts)
► Ideas, Suggestions & Feedback from Ward Sabhas, varied Citizen groups & Expert
► Survey to prioritize the city's key concerns and select the Area for improvement
► Stakeholder consultations, Technical committee inputs & FGDs to select & prioritize the key interventions in the area and finalization of the pan city initiative
■ ROUND 3 & 4: Proposal Strengthening Phase - Consultations for further improvements
(State Level officials | Corporation | Technical Expert Committee | State committee)
► Post results of SCP - Round 2, Citywide concept and Draft stages of proposal were

[Refer Annexure 3.3]

c. Different means of citizen engagement adopted

■ FOCUS GROUP DISCUSSIONS: 35 FGDs conducted across 20 nos. of Parastatal departments for assessing the existing problems of the city services, proposed improvements under various schemes & future projects.
■ STAKEHOLDER CONSULTATIONS: 20 consultations were conducted (Public Representatives | Students | Councillors | Experts | Technology Providers)

■ PUBLIC OUTREACH
► Direct Connect: EVM machines| Ward Sabhas| Suggestion Drop Boxes| Flash mobs
► Media Platforms:
1. Conventional Platforms: Newspaper Articles | TMC Website | Mobile SMS
2. Other Platforms : Web Page | MyGov Submissions |
► Social Media Platforms : Facebook | WhatsApp | Google Forms | Twitter

■ CROWD SOURCING: Ideas and Propagation
► Contests: Essays | Painting | Marathons | Bike Rally

■ PUBLICITY AND ADVERTISING: For awareness and higher participation
Hoardings and Flyers | Speaker Announcements | Bulk SMS | Radio Announcements |Radio jingles | Ads in Cinema Theatres | Ads in Television | Mobile Fex boards

[Refer Annexure 3.3]

d. Extent of coverage of citizen engagement in different media and channels

■ COVERAGE OF CITIZEN ENGAGEMENT. Overall Interactions - 2.79 lakhs (29%)

► Face-to-Face Meetings:About 70 officials were consulted through 35 nos. of meetings (Parastatal departments | Corporation | Technical Committee)
► Focus Group Discussions: About 538 people were consulted through 20 meetings
► Suggestion Drop Boxes : 15 Locations | 95 suggestions
► Ward Sabhas : 100 ward sabhas | Suggestions - 4,382
► Print Media : More than 10 newspaper articles from 2-Dec to 25-March
► MyGov Submissions : 55 suggestions
► Social Media : Face book - 4,719 page likes
► Google : Emails - 200 | Feedback - 9,387 (Google polling forms)
► Whats App : 100 members | 2086 polling form submissions
► Smart city Website : Connected to Corporation website | 11,318 polling forms
► Electronic Voting Machine: 60 locations | 54,462 polling form submissions
► Ballot boxes : 50 locations | 43,312 polling form submissions
► Mobile SMS : 1,325 poll SMS

[Refer Annexure 3.3]

e. Incorporation of citizen inputs in overall vision

■ KEY CONCERNS: Citizen's Top Issues & Improvements [Refer Annexure: 3.3]

► Waste management (65%): 100% D2D collection (67%), Penality on littering/burning waste (47%), dustbins at public spaces (42%) & dumping in water bodies (39%)

► Sewerage (43%) & Sanitation (48%): Zero discharge into water bodies (66%), Zero discharge of untreated water (64%), 100% UGD (57%), Adequate toilets (52%)

► Water supply (41%): Clean river/water bodies (70%), Rain water harvesting (61%), Reduction in water leakage/wastage (56%) & 24x7 water supply (53%)

► Health (34%): Prevent mosquito-borne diseases (66%), Reduce air pollution (64%), Healthy living &affordable health services (62%), Increased green cover &parks (59%)

► Transportation & Mobility(33%): Traffic discipline (52%), Better planned parking (45%), Reduction in traffic congestion (39%), Accident reduction (39%)

► Safety & Security (28%): Women, child & elderly safety(73%), Greater road safety (61%), Better crime surveillance (51%), Improved lighting at public places (48%)

► Economy & Employment (21%): Leveraging key economy (57%), Partnerships to align skills with employment (55%), Increased investment in green infrastructure(50%)

► Housing & Inclusiveness (21%): Housing for all (77%), Slum redevelopment (76%)

■ CITY VISION: Based on city profile, SWOT & citizens priorities, the theme incorporated into the city's vision & goals are - Urban Basic Services | Land-use efficiency | Cultural Identity & Heritage | Resilience & Eco-Friendliness | Socio- conomic Inclusiveness

7. SELF-ASSESSMENT: BASELINE

Define the baseline for your city based on self-assessment criteria given in Annexure 2 (column 'H'). Marks will be awarded based on how well you know your city (Fill column 'I' in the self assessment sheet in Annexure 2 with as many KPIs and "hard metrics" as possible; max 50 words per cell)

Note: Attach Annexure 2

8. SELF-ASSESSMENT: ASPIRATIONS & IMPERATIVES

Emerging from the vision statement, assess the qualitative or quantifiable outcomes that need to be achieved for each of the Smart City Features described in Annexure 2 (column 'J'). In column 'K' describe the biggest single initiative/solution that would get each feature of the city to achieve 'advanced' characteristics (eg. increasing share of renewable energy generation in the city by X percent). Note that a single initiative/solution may impact a number of features (eg. improved management of public spaces may ease congestion on roads as well as improve public health). (Fill in Annexure 2; max 50 words per cell)

Note: Attach Annexure 2

B. AREA-BASED PROPOSAL

The area-based proposal is the key element of the proposal. An area-based proposal will identify an area of the city that has been selected through desk research, analysis, meetings with public representatives, prominent citizens, and citizen engagement, as the appropriate site for either of three types of development: retrofitting (approx. 500 acres), redevelopment (approx. 50 acres) or Greenfield development (approx. 250 acres). This area will be developed into a 'smart' area, which incorporates all the Essential Features/Elements prescribed in the Mission Guidelines and any additional features that are deemed to be necessary and appropriate.

Mapping of information and data is a key part of your Smart City Proposal. Create a suitable Base Map of your city with all the relevant systems and networks as they exist today, showing its physical, administrative and other characteristics, such as natural features, heritage areas, areas prone to flooding, slums, etc. The base map should show the regional context in which your city is located and should contain the spatial and physical layout/morphology of your city, the street network, the open and green spaces, the geographical features and landmarks and the infrastructure, including for transportation, water supply, sewerage, electricity distribution and generation, and so on.

Using the base map, represent, with the most effective method available, as much information and data about the 'Area' selected for area-based development. **Only one 'Area' should be selected and attached in the form of a map containing the spatial and physical layout/morphology of the Area, the street network, the open and green spaces, the geographical features and landmarks and the infrastructure, including for transportation, water supply, sewerage, electricity distribution and generation, and so on**. The Essential Elements and additional features that are proposed to be part of the area-based development should be included. Describe, using mainly graphic means (maps, diagrams, pictures, etc.) the proposed area-based development, including the project boundaries, connectivity, significant relationships, etc.
(max. 2 nos. of A-3 size sheets)

9. SUMMARY

Summarize your idea for an area-based development. (max. 100 words)

Thiruvananthapuram aims to transform 1403.33 acres (2.6% of city area) of its CBD area into a well-connected, inclusive, vibrant and engaging city centre through Retrofitting development approach. The area receive highest citizen votes among top 7 areas across the city. The impact population includes a resident population of 53,225 (5.6% of city population) apart from the high floating population (students, tourists, vendors and other people from the district) that frequent the city centre.

It has a good land use mix - residential (45.6%), public/semi-public (27.8%), commercial (11.6%), transportation (11.4%); and a small share of parks, open spaces& water bodies. It is also the historic heart of the city with concentration of built as well as natural heritage and strong cultural identity. The ABD projects proposed are targeted towards achieving three main objectives –

■ UPGRADE infrastructure and services
■ CONSERVE & PROMOTE heritage and culture
■ PRESERVE its natural environment

This varied mix with proposed smart city interventions will facilitate in creation of a liveable, sustainable and resilient city centre. [Refer Annexure: 3.5]

10. APPROACH & METHODOLOGY

What is the approach and methodology followed in selecting/identifying the area-based development?

Describe the reasons for your choice based on the following (max. 1000 words):

a. The city profile

b. Citizen opinion and engagement

c. Opinion of the elected representatives

d. Discussion with urban planners and sector experts

e. Discussion with suppliers/ partners

Thiruvananthapuram city is the administrative capital & well known international & national tourist destination. Cultural Identity & heritage being its core strengths it is gradually emerging as a major technological hub in the state. Existence of national level educational, medical and research institutes in the city compliment the emerging economy of the city.

■ CITY PROFILE [Refer Annexure:1, 2, 3.1& 3.2)

► To begin with a detail city assessment was carried out w.r.t to existing services, gaps, issues & its future demands & expectations. All city level pjts either completed/ proposed/ ongoing were assessed to understand proposed sector wise investments.
► City's socio - economic aspects, land use pattern, development trends, growth directions, ward wise population etc were studied in detail to assess the city's economic & spatial growth and future expansion plans.
► The city profile indicates rich in heritage & cultural base, ample water availability, high end educational & health, high participatory planning approach, thriving tourism, emerging IT sector.

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However, the city needs improvements w.r.t 100% coverage of basic services especially sewerage & solid waste management, conservation of its water bodies, good tourist infrastructure facilities, safety & security measures & integrated mobility.

Based on detail assessment of city profile, SWOT and extensive citizen engagement, the strategic blueprint and Vision for the city were chalked out. Based on the Vision, the goals were derived for fulfilling specific objectives. Interlinking of all these were useful in ABD selection with focus on maximum impact on all sections towards an equitable and sustainable growth.

■ DISCUSSION WITH URBAN PLANNERS AND SECTOR EXPERTS

► Setting up of the Technical Expert Committee & Smart City Cell by TMC - Technical Committee appointed by the Corporation has multi disciplinary experts - Urban planners, Visionaries, Historian, Waste mgmt expert & transportation expert. The Smart City Cell also consisted of diverse professionals - Urban Designer, Sociologist and IT Engineer. The mixed team of professionals was involved in strategising, identification of experts in the field to consult, enabling data collection and de-risking the project.

► Meetings Sector Experts - About 70 officials were consulted through 35 nos. of meetings, which included Parastatal departments and the Corporation, to help identify the best areas to be selected, previous projects (approved and concept level), assess land availability and ease of implementation.

The ABD area selection process was initiated by conducting series of discussions with various sector experts, citizen groups, corporation officials & line departments. 12 nos. of potential areas were short listed through this process. The ABD area selection was assessed by the sector experts, visionaries, political representatives & citizen groups based on the following seven parameters.

1. Public Voting: Maximum votes received through citizen voting process
2. Ease of Implementation: Coverage of basic services & convergence of govt. funds
3. City wide Impact: Maximum impact on various sections of people in the city.
4. Scalability: Potential to scale/replicate the action to other areas in the city
5. City Identity: Represents a strong connect to city's cultural identity & heritage
6. Inclusiveness: Mutual benefits and development for all sections
7. Environment friendly: Least impact on urban environment & its preservation

Out of the 12 areas assessed, 7 areas were short listed with approval from corporation officials, Mayor & Ward Councillors. [Refer Annexure: 3.3 & 3.4)

■ CITIZEN OPINION AND ENGAGEMENT [Refer Annexure: 3.3 & 3.4]

Developing the Smart City Proposal included Three broad engagements with citizens through various modes:

► Identification of Issues, Goals & Projects - Participants at the first stage of Citizen engagement were asked to vote for top issues among 24 sectors of concern in their city and within their wards. Through ward sabha meetings and suggestion drop-boxes, opinions and potential interventions were also captured. With over 13,769 votes and opinions captured, the main problem areas of the city were identified as - Waste management (65%), Sewerage (43%), Sanitation (48%), Water supply (41%), Health (34%), Transportation & Mobility(33%), Safety & Security (28%), Economy & Employment (21%) and Housing & Inclusiveness (21%).

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- ► Meetings with various citizen groups - Various meetings were held to capture suggestions from key citizens groups in the city like RWAs, Women, Elderly, Disabled, Transgender,Student, Youth, EWS section, etc.
- ► Voting of ABD Areas - 7 selected areas were put to vote (Akkulam-Veli, Kazhakoottam, City Centre-CBD, Canal & NH-Bypass, Vizhinjam, Medical College and Outer Corridor) and a total 1,12,503 votes received via Ballot, EVMs, Online, SMS and Whatsapp.
- ► Out of the 7 ABD areas highest votes were received by City Centre & CBD area (19%) followed by Canal & NH-bypass (16%) & Medical college area (16%). Other areas voting - Kazhakoottam area (15%), Outer Corridor stretch (12%), Akkulam-Veli (9%) and Vizhimjam area (13%)

The Top Three Areas were further assessed by the Corporation officials & Technical Committee experts. Relating to the city context, the most relevant area to intervene in was identified as the city centre, for the following reasons:

- ► It is the landing area of the city which is frequented by the multiple users of the city (government officials, residents, immigrants, students and tourists).
- ► It reflects all typologies of land-use represented within it, i.e. Residential, Public/ Semi-Public, Industrial, Commercial, Transportation and Parks and open spaces

■ OPINION OF THE ELECTED REPRESENTATIVES [Refer Annexure: 3.3 & 3.4]

- ► Capturing of Issues and Potential Interventions - The elected representatives includes Mayor, Deputy Mayor & 100 Ward Councillors. All representatives worked in collaboration to understand the people's concerns through ward level consultations and carried out a collective decision making process.
- ► Shortlisting from 7 Areas for voting - The Mayor along with Technical Committee presented the12 Areas finalised as per the city's need to all the Councillors in the Council meeting. The process of selection, advantages of each area proposal & components were explained in detail. Based on this, 7 areas were short listed for citizen voting.
- ► Area Finalisation and project details - Consensus of the elected representatives on the selected ABD area out of the 3 top voted options was sought and projects were arrived with the selected ward councillors, based on land availability and do-ability.

■ DISCUSSION WITH SUPPLIERS/PARTNERS

- ► Various discussions were conducted with the service providers relevant to the proposals like e-toilets (Eram Scientific), water fountains, ICT solutions (Enspark Systems Pvt. Ltd), PPP roads (IL&FS), etc. further for which EOIs have been submitted. The TMC was actively involved in collecting and understanding the use, technical inputs, advantages in service delivery through various vendors and market suppliers.

The city has a distinct CBD area and observes high density pattern (resident & floating). It is frequented daily by majority of the residents for their jobs, trade of commodities & commuting needs across the city & region. It also acts as the landing point for the tourists & visitors coming to the city by road & rail. Hence, retrofitting of the city centre & CBD area seemed to be the ideal choice for all to set a good example for the entire city.

11. KEY COMPONENTS

List the key components of your area-based development proposal (eg. buildings, landscaping, on-site infrastructure, water recycling, dual piping for water supply, etc.)? (max. 250 words)

- 100% coverage of basic services- 24x7 water supply with quality potable water, sewerage, storm water drains, decentralised SWM system& public sanitation facilities.
- 100% Underground ducting of service cables creating uncluttered roads/footpaths
- 100% Cleaning and Restoration of the water channels passing through the ABD area
- 10% of city's power requirement will be sufficed by solar power generation units installed on public buildings within the ABD area.
- Rain water harvesting facilities for all public buildings & major institutional buildings
- Traffic management facilities - Provision of Non vehicular zones, pedestrain skywalks at congested locations, road & junction improvements (44 nos.), navigation signage & ICT based traffic management surveillance system
- Development of organised/ designated paid on-street parking zones and provision of multi level car parking facilities at identified parking hot spots.
- Non-motorized transport facilities - well designed user friendly pedestrian pathways, dedicated bi-cycle tracks, public bike sharing pods connected to transport hubs
- Upgrading 35 intermediate roadside bus stops into Hi-tech smart bus stops with real with seating, Wi-fi spots, digital information boards, signage and solar charging points.
- Wi-fi zones at bus terminals, bus shelters & tourist hubs
- Replacing the existing street lights with LED lights and energy saving devices.
- Retrofitting of existing slums in CBD area to provide affordable housing for all.
- CCTV surveillance and monitoring (day & night vision) for the entire city.
- Tourist information kiosks & facilities for better comfort while moving around the city
- Restoration and conservation of heritage monuments and assets
- Upgradation of Public Health centres and Anganwadis with high end infrastructure
- Identification and designation of vending zones and provision of required facilities

12. **SMART URBAN FORM**

Describe the 'smart' characteristics of the proposed development that relate to urban form (eg. uncluttered public places, mixed-use, open spaces, walkability) and how these will be incorporated. (max. 250 words)

■ ECO-DENSITY
- ► Spatial optimisation through densification of existing land (5 MLCPs, markets, etc.) & multi-functional use of land like playgrounds, heritage structures, etc.
- ► Improve viability of energy efficient buildings and green energy systems which can be adopted by public and institutional buildings

■ HEALTH & RESILIENCE
- ► Flood mitigation through Canal improvement
- ► Vector-borne disease prevention through proper sanitation and solid waste management
- ► Prolonging life and promoting and facilitating the benefits of a healthy lifestyle through infrastructure change and engagement with the community

■ HISTORIC HEART
- ► Revival and up gradation of historical buildings/ sites in the city centre
- ► Celebration of culture to activate spaces and act as a catalyst for economic development, tourism, community engagement, participation, and social cohesion

■ COMPLETE STREETS
- ► Providing safe and comfortable transportation choices for people of all ages and abilities and enhancing the public realm with the incorporation of amenities such as vegetation, lighting, and other street-scape improvements
- ► Improving mobility and connectivity through actions that will contribute to a safe, accessible and convenient transportation network and promoting green modes of transportation

■ WAY FINDING
- ► Introduction of a four part signage system to reflect legibility of the city centre where intelligible graphic representation with technology aim to enhance the city experience and reduce confusion in navigation for both tourists and residents alike

13. CONVERGENCE AGENDA

In Table 1, list the Missions/Programmes/Schemes of the Government of India (eg. AMRUT, HRIDAY, SBM, IPDS, Shelter for All, Digital India, Make in India, Skill India) and relevant external projects and describehow your proposal will achieve convergence with these,in terms of human and financial resources, common activities and goals. (max. 50 words per cell)

TABLE 1

S.No	Mission/Programme/ Scheme/Project	How to achieve convergence
1	AMRUT [to start wef 2015-16]	Total fund allocation: INR 96.95 Cr. relating to water supply, underground sewerage, storm water drainage, NMT and parks/ open spaces proposed in the SCP will be converged with AMRUT project.
2	Swadesh Darshan	Total fund allocation: INR 80.36 Cr. Redevelopment of Padamanabaswamy Temple Precinct Area
3	MNRE Solar City Program	Total fund allocation: INR 19.87 Cr. relating to roof top solar on large campuses and government buildings

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TABLE 1		
S.No	**Mission/Programme/ Scheme/Project**	**How to achieve convergence**
4	PMAY/ LIFE project	Fund availability under the scheme: INR 42.36 Cr. for in situ development. The projects relating to slum improvement with basic facilities in the SCP will be converged with PMAY and/or LIFE scheme (State level)
5	SUCHITWA MISSION	INR 1.93 Cr. is proposed to be funded by the Suchitwa Mission (State Level) for setting up processing infrastructure and IEC activities for Solid Waste Management
6	SWACHH BHARAT	INR 1.05 crores can be availed for the upgradation of Public Toilets under the Swachh Bharat Mission
7		

14. CONVERGENCE IMPLEMENTATION

Describe how the convergence will be implemented? For example, convergence with IPDS will be credible if 'smart' city elements (e.g. smart metering, underground cabling, shifting of transformers) are included in the DPR being prepared for IPDS. If, a DPR has already been prepared, then the 'smart' elements should be included in the form of a supplementary DPR. Furthermore, according to the IPDS Guidelines the DPR has to be approved by the State Government and sent to the Ministry of Power, Government of India. All these have to be completed before submitting the proposal. (max. 350 words)

- AMRUT: The projects covered under AMRUT include water supply, UGD, storm water drains, cycle tracks and upgradation of parks in the city. All these projects partly lie in the ABD area and will be converged with AMRUT project by way of project components/ activities, targets, and funding mechanism etc.

  ► The total fund allocation/ availability is INR 96.95 crores.

- SWADESH DARSHAN: The redevelopment of the Temple Precinct is combined with the larger East Fort Area development and links into the pedestrian network, cycle tracks, tourist information centres,signage, etc.

  ► The total fund allocation/ availability is INR 80.36 crore

- MNRE Solar City Program: Support/Subsidy for the setting up of the Roof Top Solar Units for public buildings can be converged with the approved Solar Master Plan and taken up through the funding under MNRE.

  ► The total fund that can be availed is INR 80.36 crore

- LIFE/PMAY: There are 2 slum pockets with 957 & 142 households within the ABD area. Redevelopment of the slums and upgradation of EWS housing into affordable housing stock will be converged with LIFE and/or PMAY.

  ► The total fund that can be availed is INR 42.36 crore

- SUCHITWA MISSION: The project related to citizen led MSW management and decentralised processing facilities, can be converged with funding from Suchitwa Mission.

  ► The total fund that can be availed is INR 1.93 crore

- SWACHH BHARAT MISSION (SBM): Upgradation of Public Toilets can come under the SBM through the submission of a detailed project report.

  ► The total fund that can be availed is INR 1.05 crore

(Refer Annexure 4)

15. RISKS

What are the three greatest risks that could prevent the success of the area-based proposal? In Table 2, describe each risk, its likelihood, the likely impact and the mitigation you propose. (max. 50 words per cell)

TABLE 2

Risk	Likelihood	Impact	Mitigation
INTERDEPARTMENTAL CONCURRENCE There is lack of inter departmental coordination for project implementation. This will create a delay in the approval and decision making process for implementation of projects	Medium	Very High	→ Include the concerned depts. in all the decision making stages → Strengthening inter departmental coordination with sessions and regular update to avoid operational objections. → Incorporation of project specifications in service DPRs bringing clarity.
DELAYED EXECUTION OF ON-GOING PROJECTS There are multiple projects under different schemes, if delayed it will have a direct impact on the ABD proposal	High	High → Subsequent delay of other projects → Delayed time lines can cause inconvenience to people and make them impatient	→ Coordination between multiple agencies involved in the project → Pro-active planning and transparent time lines for execution with timely monitoring

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TABLE 2			
Risk	**Likelihood**	**Impact**	**Mitigation**
LOCAL POLITICAL OPPOSITION Local Corporators who's wards are not included in the ABD proposal may not agree/ support the Smart City Proposal	Medium	High → Projects may not stem off the ground if not given political support → Alteration of interventions	→ Constant involvement of the Mayor and local MLAs in the project preparation stage → Consultation meeting with the Council for approval
DIGITAL DIVIDE This can become a major barrier in achieving the usability of the city's technology related features	Medium	Low → Knowledge and usability of the features and services may get limited	→ Providing supportive structures and visual material for understanding digital interventions → Increasing digital literacy through skill programs

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TABLE 2			
Risk	**Likelihood**	**Impact**	**Mitigation**
WILLINGNESS & INVOLVEMENT (slum dwellers & informal sectors) Interventions addressing informality like slum re-location and rehabilitation, creation of vending zones, auto stands, etc. will require willingness participation from citizens	Medium	High → Projects may get delayed due to difficulty in removing encroachments → Less usability and uptake of services, thereby decreasing the impact of the development	→ Introduce participatory planning procedures → Build awareness on the potential benefits of the new proposal → Regularization through policy creation, ex. Vending Zones

16. ESSENTIAL FEATURES ACHIEVEMENT PLAN

Describe a plan for achieving the Essential Features in your area-based proposal. Importantly, accessible infrastructure for the differently-abled should be included. List the inputs (eg. resources) that will be required for the activities that you will conduct, leading to the outputs. Please note that all Essential Elements, item-wise, have to be included in the area-based proposal. (max. 2000 words)

■ EF 01: IMPROVING BASIC SERVICES [Refer Annexure: 3.6, 3.7 & 3.8]

► 1. STORM WATER DRAINS: The area has no storm water drains; these are proposed to be constructed throughout the 68.45 km road length and channelled into the canal network. • AGENCIES: PWD, TMC & NHAI • STATUS: Approved (AMRUT)

► 2. 24X7 WATER SUPPLY: Water supply has been completed for the entire ABD area, however replacement of old damaged pipe lines and installation of smart meters, water quality sensors and flow meters are included. A model revenue collection centre is proposed at Vellayambalam. • AGENCIES: KWA & KSUDP • STATUS: Approved (AMRUT)

►3. UNDERGROUND DRAINAGE: Rehabilitation of machinery at Kuriathy Pumphouse, completion of network in the missing areas and rehabilitation of existing networks. • AGENCIES: KWA & KSUDP • STATUS: On-going (AMRUT)

► 4. DECENTRALISED SOLID WASTE MANAGEMENT: Building on the 'My City Beautiful City' campaign, the idea is to make the area Zero-waste, which includes (i) extending 100% door to door collection of segregated waste for residential units (ii) Setting up a Material Recovery Facility at Sri Chitra Park and Chalai for Dry Waste (iii) Upgrading existing and building new in-situ composting units for wet waste at Palayam Market, Sri Citra Park, Chalai, Temples, etc. (iv) Intensive cleaning of CBD area, including dumping spots in the city and introduction dry and wet street litter bins in areas with high commercial activities and Public Places within the area (v) IEC campaign. • AGENCIES: TMC

► 5.UNDERGROUND DUCTING: Integrated underground ducting network is proposed for the entire 68.45 km road stretch within the ABD. It integrates all networked services under the road – water, sewage, power, OFC, gas and any other facilities in the future. • AGENCIES: TMC, PWD, NHAI, KWA and KSEB

► 6. UPGRADATION OF PUBLIC TOILETS: Upgrading the infrastructure of 15 Public toilets and increasing no. of units (11 She-toilets already exist in the area). • AGENCIES: TMC

► 7. DRINKING WATER FOUNTAINS: Installation of 25 barrier-free, single bubbler, drinking fountains in key tourist areas, transit nodes and alongside information. • AGENCIES: TMC and KWA

■ EF 02: CREATING A WELL-CONNECTED, SAFE & ACCESSIBLE CITY CENTRE

► 8. NON-MOTORISED TRANSPORT: 68.45 km long footpath network and 15.6 kms cycle track proposed in the Area are an attempt to re-distribute road share and encourage alternate modes of transportation – pedestrians and cyclists. It prioritises the comfort and safety of pedestrians and cyclists, recognizes the needs of street vendors and hawkers and combines street landscape and hardscape aesthetics.

►9. INTEGRATED PARKING: To address the issue of haphazard parking in the city centre, the project proposes a combination of both Multi-level parking and organised on-street parking zones in within 250m of transit nodes and key activity hubs. Five MLCPs housing approximately 1200 cars and 2500 two-wheelers are proposed near

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Sri Citra Park (0.60 Acres), Putharikandam Maidaan (1.61 Acres), Palayam Market (1.35 Acres), Chalai (2.5 Acres) and near the Railway station and Bus stand (0.64 Acres). Additionally on-street smart parking facility is proposed along Power house road, CV Raman Pillai Road & Trivandrum Bakery Palayam Road. Commercial areas like Chalai Bazaar, Palayam, etc. will be provided with timed loading and unloading zones. • AGENCIES: TRIDA, TMC.

- ►10. ROAD & JUNCTION IMPROVEMENT: Carriage way improvement along the entire 68.45 kms length & improvement of 44 junctions and intersections with smart signalling at major junctions in the area are proposed in order to decongest the centre & stream-line the flow of traffic. This includes the integration of all networked services under the road and design of the junction suited to the road type, the environment and capacity, in order to maintain good readability both of the road and junction as well as a satisfactory level of safety. • AGENCIES:TMC, PWD and NHAI.
- ►11. SMART BUS-STOPS: Redesigning the 35 bus stops in the area into robust structures with embedded features like solar charging, WiFi, Digital Information Boards, etc. • AGENCIES: TMC, PWD and KSRTC.
- ►12. WAY-FINDING SIGNAGE AND MARKERS: While traditional signage in cities caters to drivers – traffic lights, right of way, parking privileges – way-finding signs reflect the legibility of a city for pedestrians and cyclists. This prioritization in signage supports this shift from the automobile-driven city to the pedestrian-oriented city. The 4 type proposed system of information and direction signage includes 10 large 'You are here' signage placed at transit nodes and near Main junctions, 35 mini signage along the 3 trails, 176 direction signage and 95 markers highlighting key heritage, educational and government building. • AGENCIES: TMC
- ►13. LAST MILE CONNECTIVITY: Encouraging use of Public Transport through a multi-modal feeder system network will ensure ridership and minimise the city's carbon footprint. 15 Auto stands with e-Autos, taxi stands & 8 bicycle sharing pods with 10 e-cycles each will be located in close proximity to transit nodes (bus stand, railway& LRT stations)& important public buildings (Tourist, commercial,Institutional and Administrative). • AGENCIES: TMC with respective Unions (Taxis & Autos) [Refer Annexure: 3.14]

■ EF 03: RE-DENSIFICATION WITH CREATIVE LAND-USE [Refer Annexure: 3.9]

- ►14. MULTI-TASKING SPACES - Spatial optimisation of open spaces like canals, school grounds, heritage buildings and public parks for multi-use activities like events, leisure and recreation. The idea is to make all space, including infrastructure spaces, serve multiple uses & users. Thereby increasing the land available to meet needs of residents & tourist.• AGENCIES:TMC, DoT,DTPC,ASI & other agencies.
- ►15. RE-DEVELOPMENT OF PALAYAM MARKET: The proposed development includes 4 acres of land which will be converted into a vibrant part-open market space with additional facilities like shopping outlets, food plazas,& storage godowns and decentralised solid waste management facility (in-situ). The Re-development will retain the existing market wall, which is of heritage value. The proposed MLCP will support the development's parking requirement. • AGENCIES: TRIDA, TMC
- ►16.INTEGRATED TRANSIT NODE:Re-development of East Fort bus stand(1.4 acre) with parking, commercial, smart lounges & office spaces.• AGENCIES: KSRTC
- ►17. TAMPANOOR RAILWAY COMMERCIAL COMPLEX: Development of 1.16 acres abutting Tampanoor Railway Station is proposed to be a transit cum commercial development housing supporting infrastructure like offices, retail space, information zones and parking. • AGENCIES: Thiruvanthapuram Railway Division
- ►18. CHALAI WAREHOUSE & COMMERCIAL COMPLEX: Integrated development

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of the 7.58 acre TRIDA land near Chalai Bazaar with an IT enabled, state of the art warehouse facility, decentralised solid waste management facility, commercial complex and an MLCP • AGENCIES: TRIDA, TMC

►19. OAT AT PUTHARIKANDAM MAIDANAM: In order to support the existing activities in the 3.95 Acre Maidanam, an Open Air Theatre is proposed with controlled entrances, intuitive movement, signage, an organised stage area, open seating, waste management system and parking spaces. • AGENCIES: TMC

■ EF 04: CELEBRATING & CONSERVING HISTORIC & CULTURAL ASSETS

►20. RENOVATION OF PADMANABASWAMY TEMPLE PRECINCT: As a part of a planned Spiritual Circuit, the development of the temple precinct is proposed to be undertaken for the North, South, East and West Nada. Components information kiosks, toilets, restoration work, footpaths, water fountains, etc. • AGENCIES: KTDC, DTPC,DoT & Temple Trust • STATUS: Approved (Swadesh Darshan)

►21. CHALAI BAZAAR IMPROVEMENT: Officially established in the 18th Century, Chalai bazar was the central point for the supply of commodities to the Travancore kingdom and continues to be the same today. The proposal includes upgrading the existing structures to improve visual aesthetics (i.e. Façade improvement, street-scaping, signage, furniture) and pedestrianize the 2km Chalai Market Road. • AGENCIES: TMC, Chalai Merchants' Association

►22.CULTURAL STREETS (MANVEEYAM VEEDHI & CHARITRA VEEDHI): The proposal identifies two key streets which will be designed to house cultural activities and handicraft markets. It includes the 180m Manaveeyam Veedhi, which already asserts itself as an art and cultural corridor that hosts multiple performances, street plays, film screenings, exhibitions, etc. (since 2001)& the 370m Taluk office road (Charitra Veedhi) which will house a street craft bazaar. • AGENCIES: TMC, Manaveeyam Theruvorakkoottam, HDCK

►23. CONSERVING HISTORIC ASSETS: In order to protect & enhance the historic environment, funds are allotted for the conservation and revival of key monuments like Margi Complex, Mitrananda Temple & Old Taluk Kacheri Complex; 11 Tanks, 6 Gateways, 4 Clock towers and Statues and the Fort Wall. • AGENCIES: TMC, Travancore Devaswom Board, ASI, Dept. of Archaeology, Temple Trusts

►24. HERITAGE SETTLEMENTS – AGRAHARAMS: Repairs and restoration work of the centuries-old Brahmin Agraharams is being taken up in order to preserve the ethnic tradition. • AGENCIES: TMC, KSWCFC, Travancore Devaswom Board and Residents • STATUS: Approved (State Mission) [Refer Annexure: 3.10]

■ EF 05: LEVERAGING EDUCATIONAL INSTITUTIONS & TOURISM POTENTIAL

►25. TRAILS AND WALKS: Three key trails are curated to showcase administrative and public buildings (Palayam), historic and religious sites (East Fort & Chalai) and Educational Institutions (Thycaud).). These trails are proposed to be 3.6 km (Culture & Recreation Trail), be 4.5 km (Heritage Walk) and 5.6 km (University Trail)

►26.INTERACTIVE INFORMATION KIOSKS & DISPLAY BOARDS:5 Touch enabled un-manned tourism information kiosks are proposed in key arrival zones of the city and main tourist spots, for dissemination of city information to tourists. Additionally display boards will be located near the city bus stand & railway station, showing the availability of budget hotels in city.• AGENCIES:TMC,DTPC,DoT, KSRTC, Railways

►27. WI-FI LOUNGE: Plug-in modules ranging from 250-2000 sq.ft., based on space availability are proposed in 8 locations (Govt. College, Transit Nodes, etc.) in the ABD ares. These will be equipped with WiFi Hotspots, charging stations, café & work cum meeting spaces which can be used by the students and tourists. • AGENCIES:

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TMC, DTPC, DoT, KSRTC, Railways, Govt College. [Refer Annexure: 3.11]

■ EF 06: FACILITATING SUSTAINABLE BUILT & NATURAL LANDSCAPES

►28. SUSTAINABLE CAMPUSES-ENERGY, WATER, WASTE AND TRANSPORT: The aim is to support large campuses and buildings to practice resource conservation (harnessing solar energy, recycling waste water, managing waste in-situ, promoting NMT & rain water harvesting)& help them transition towards becoming economically, socially and environmentally conscious. This includes 12 institutions, 24 govt. offices, 3 transit nodes & 2 private buildings.

• AGENCIES TMC, KSEB and respective stakeholders [Refer Annexure: 3.12]

■ EF 07: ENCOURAGING ACTIVE LIVING & HEALTHY COMMUNITIES

►29. LINKED GREEN ACTIVITY ZONES: Parks and recreation facilities provide opportunities for physical activity and can help people of all ages lead a more active lifestyle. Thereby upgrading and connecting 6 main parks in the ABD area via shaded tree cover, footpath and cycle lanes are proposed, making them active exercising spaces that are disabled friendly and universally accessible.

• AGENCIES: TMC • STATUS: Part approved (AMRUT)

►30. PEDESTRIAN STREETS: Reserving areas for pedestrian-only use & in which most or all automobile traffic may be prohibited, are proposed in and around the Temple Precinct, on Chalai Road, Taluk Office Road and Manaveeya veedhi (only on Sundays). These streets will be provided with both hard and soft landscape, bollards to restrict vehiclular traffic excepting bicycles, buggies and emergency vehicles. Timed loading and unloading will be allowed in marked zones.

• AGENCIES: TMC, PWD • STATUS: Part approved (AMRUT)

■ EF 08: ENABLING DISASTER MITIGATION

►31. FLOOD PREVENTION BY REVIVING & RE-ACTIVATING CANAL FRONTS: Though the canal network continues throughout the area, 5 m green buffer along the railway line and in Chenkalchoola (~2.5kms) will implement the 5m green buffer along the canal. The maintenance of the canal is proposed in the second phase of Operation Ananatha. • AGENCIES: District Collector office, Minor and Major Irrigation department, KSUDP, TMC.

■ EF 09: PROMOTING DIVERSITY & FOSTERING INCLUSIVENESS

►32. FLEXI VENDING ZONES: Development of a Vending Zone Policy that includes the registration of vendors and subsequent creation of 30 Flexi-Vending Zones [10 bunks each] located along 3.5 kms on key roads like MG, LMS Vellayambalam, CV Raman Pillai, Chalai and East Fort. • AGENCIES: TMC

►33. INTEGRATED SOCIAL HOUSING COMPLEX: In-situ development of the two slums in the area – Chenkalchoola/ Rajajinagar (12 Acres, 971 H/hs), Poundakulam (1.5 acres 142 H/hs) & Chirakullam colony (147H/hs) ; into housing complexes with all services and recreational facilities. • AGENCIES: TMC, KHB, communities • STATUS: Proposed under LIFE scheme (state)

►34. UPGRADATION OF ANGANWADIS & PUBLIC HEALTH CENTRES: Improvement of the Anganwadi buildings & provision of adequate text books, toys, daily meals, play areas and CCTV surveillance. Provision of equipment, skilled doctors, digitisation and integration of database for improved accountability. AGENCIES: TMC, Health Department & Education Department [Annexure: 3.13]

►35. TOTAL INCLUSION PROJECT: Universal access to available social entitlements within ABD area preceded by a participatory vulnerability analysis

17. SUCCESS FACTORS

Describe the three most significant factors for ensuring the success of the area-based development proposal. What will your city do if these factors turn out to be different from what you have assumed? (max. 500 words)

The significant Critical Success Factors (CSFs) for ensuring success of the ABD proposals are as follows:

- CSF1: INCLUSIVE PLANNING PROCESS - Citizens and multiple stakeholders have been extensively involved in the process of formulating the Smart City Plan for Thiruvananthapuram. With over 2.78 lakh people were involved in the creation of the proposal. Hence a participatory approach including all sections of people and the concerned departments has also to be adopted for developing DPRs. This will ensure easy project implementation and timely completion of the project as required.

  ► Alternative strategy - Awareness campaigns and education of citizens on the 'Smart' Features of the proposal and its potential positive impacts. The system of social audits can also be introduced for better transparency. This will strengthen people's faith in the SPV which will ensure smooth & quality execution of projects.

- CSF2: TOURISM POTENTIAL - The city is a well-known destination for both international and domestic tourists, who frequent the city for its history, culture, beaches, ayurveda and pilgrimage. Apart from its strategic location, good climate and connectivity, the city itself will offer variety of city based recreational and knowledge sharing attractions. This will boost the city's tourism economy and cause manifold increase in employment opportunities.

  ► Alternative strategy - Tourism promotion and marketing of the city's tourist potential and attractions through various medias, facilitating increase in tourist accommodation facilities, improvement of tourist infrastructure and safety measures.

- CSF3: DEDICATED SMART CITY CO-ORDINATING TEAM - The City SPV and the participating government agencies will need to identify/hire specialized dedicated team for implementing the ABD initiative and managing the interface with consultants, vendors and 3rd party service provider. Apart from the technical team it would also be necessary to have a multi-disciplinary team to manage the legal and commercial aspects of the various contracts.

  ► Alternative strategy – Building capacity and understanding of 'Smart Cities' within the existing government agencies and stakeholders via the appointment of one person per agency to co-ordinate with the SPV for implementing the proposal.

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18. MEASURABLE IMPACT

What will be the measurable impact of the area-based development proposal, on the area and the wider city, through scale-up and replication? Please describe with respect to the five types below, as relevant to your city and proposals (max. 150 words each):

a. Governance Impact (eg. improvement in service provision and recovery of charges due to establishment of SPV)

- With SPV and dedicated team in place, it is expected to ensure improvement in service delivery, timely recovery of charges/ tariffs to its advantage and responsible functioning.
- The presence of PPP funds and realization of tariffs and user charges will make it possible for the SPV to enforce retrofitting activities and infrastructure improvement which will improve services and living conditions.
- Increase in revenue under various basic services due to introduction of proper technological options for reduction of transmission and distribution losses
- Strong community action as unorganized sectors like slums, street vendors get formalised and organized into community based organisations and associations
- Evidence based decision making as data at multiple points (metadata) becomes available and gets integrated with the PAN City Control Centre

b. Spatial Impact (eg. built form changed to incorporate more density or more public space)

- Creating a network of well-connected and universally accessible public open spaces in the city which are well maintained for public use providing not only better quality of life but also reduction in the pollution levels.
- Adopting compact mixed land use development in the core city creating multi utility amenities like MLCPs, transport cum commercial complexes, recreational zones, etc.
- Converting the congested & widespread slum settlements (3 nos.) into compact well planned pockets offering a better living environment.
- 100% Retrofitting of city roads and streets with proper pedestrian pathways, adequate landscaping, signage, street lighting and underground ducting of services will help the area to be completely devoid of visual clutter and ensure easy navigation.
- Revival of all the water canals to mitigate flooding & act as future active public places.
- Development of Padmanabhaswamy Temple precinct area, Chalai street, Manviyaveedhi Street & Charitra Veedhi and historic assets will enhance the religious, heritage and cultural tourism potential of the city.

c. Economic Impact (eg. new commercial space created for organized economic activity)

- Leverage tourism based economic gains by restoration of historic assets and activating the city yearlong with events, offering a mix of various recreational, educational and cultural activities.
- 100% paid on-street parking and MLCP will be revenue source for Corporation
- Organised vending zones in the city centre will help create a self-sufficient economic model that will benefit the informal sector and facilitate easy integration.
- Provision of affordable housing with basic services for the EWS section will support to accommodate the poor in the city centre who are majorly employed in various formal & informal city services.
- Over-all upgradation of the city centre with the rejuvenation of its green and blue infrastructure and revival of its heritage, as an integrated hub that sets the first impression and identity of the city, will help attract the captive market and new investments in the city
- Use of renewable options like use of solar power, shifting to energy efficient building concept, harvesting rainwater etc. will reduce the cost incurred on services 50%.
- Improved mobility will support the economic activities within the city due to reduction in travel time by 10-15 mins.

d. Social Impact (eg. accessible features included in the Proposal)

- Increase in public space, greening, access to basic amenities and inclusive development etc. ensures equality and cohesive integration of all stratas of society
- Enhancement of livelihood assets of informal sector workers through initiatives such as vendor programs
- Increase in public health and hygiene standards within the area
- Improved safety & mobility for all sections including the disabled through having components of auditory signals, braille signage in junctions and ease of navigation
- Mainstreaming of infrastructure promoting universal access in all project components
- 100% employment for all sections - Trans genders, unemployed youth and women by provision of skill centres and training programmes
- 100% safe zone ensuring zero crimes against children, minors, women & elderly
- Access to improved and affordable health and educational facilities: Upgradation of all the anganwadis and public health centres within the ABD.
- Shelter for All catering to the migrants and homeless population

e. Sustainability, including environmental impact (eg. intensive 24X7 use of public spaces results in reduced traffic and reduced pollution)

- Increase in green cover and visual aesthetics leading to a reduction in temperature of the micro-climate
- Improvement in air quality as public transport and non-motorized mode shares increase
- Reduced traffic congestion and related GHG emissions by smart traffic, transport and parking management.
- Reduction in waste generated by implementation of Decentralised Waste Mgmt.
- Improved energy efficiency by the Sustainable Buildings program
- Decrease in area's overall carbon footprint through encouraging NMT infrastructure & demarcating vehicle free zones.
- Create livable neighbourhoods by providing affordable housing for EWS section.
- Early warning & response systems - It will enable to track the climate changes, coastal erosions, flood levels in the water bodies & occurrence of vector borne diseases in time and alert the administration to be equipped with response mechanism for minimum losses.

C. PAN-CITY PROPOSAL (S)

A pan-city smart solution should benefit the entire city through application of ICT and resulting improvement in local governance and delivery of public services. The SCP should contain one or two such Smart Solutions. Generally, 'smartness' refers to doing more with less, building upon existing infrastructural assets and resources and proposing resource efficient initiatives.

19. **SUMMARY**

Summarize your idea(s) for the pan-city proposal(s). (max. 100 words)

■ PAN CITY 1: INTEGRATED CITY MANAGEMENT CONTROL CENTRE (ICMCC)
The ICMCC will be an integrated system that will operate & manage multiple city service operations including real time monitoring & improving services delivery efficiency. The applications of ICMCC are:

- ► Integration of the following independent solutions to ICMCC
- ► Smart Water Network: Continuous monitoring of water supply w.r.t availability (supply levels, losses (NRW) and water quality.
- ► Intelligent Traffic & Transport Management: Traffic management, offence tracking at major junctions, VMS, smart parking and smart bus stops
- ► SWM Data Centre: Linking private empanelled vendors with waste generators, coordinating, monitoring & reviewing decentralised activities & IEC material
- ► Safety & Security: CCTV Surveillance &Solar LED Street Lighting with control system
- ► Early Warning System: Flood Hazards, Coastal Hazards and Public Health Risks
- ► Smart Mosquito Density System: Tracking Sensors linked to control room and alert system for officials through smart phones and web applications

■ PAN CITY 2: UNIFIED E-GOVERNANCE PORTAL

- ► A unified portal for Government to Citizen(G2C), Government to Employee (G2E), Department to Department(D2D), Government to Business(G2B) with integrated data [Refer Annexure: 3.14]

20. **COMPONENTS**

List the key components of your pan-city proposal(s). (max. 250 words)

PANCITY 1:INTEGRATED CITY MANAGEMENT CONTROL CENTRE (ICMCC)

■ CONCEPT: Envisaged as an administrative control center for effective & efficient service delivery by collecting functional information of all the concerned departments and public on real time day-to-day basis. Automated sensors & systems will send various data sets to ICMCC, which will be collected, processed & analyzed to avail important information for necessary decisions.

■ KEY COMPONENTS:

► CENTRALISED CONTROL ROOM: Fully equipped operational control room for individual sub-domains & large control room for multi-agency collaboration. (Operator monitoring consoles, video-walls, two-way communication system, hardware hosting facility and secondary control room)

► DOMAINS:

→ Smart Metering: Automatic Meter Readers (domestic consumers) - water, Remote pumping systems (for water), SCADA for system monitoring and control, quality sensors, remote manhole status sensing system, GIS map with complete asset mapping and on-line payment systems.

→ Intelligent public transport system: GIS Map with bus routes, bus stops, vehicle mounted GPS device, LED passenger information boards, public bus transit monitoring backend software and hardware

→ Intelligent parking system: GIS Map with parking lots, GPRS enabled handheld devices with front-end software, LED information boards, parking management backend software and hardware

→ Intelligent traffic management system: Traffic volume cameras, wi-fi enabled Adaptive controllers, solar panels, central control software and hardware

→ Surveillance system: CCTV cameras (with IR), PTZ cameras, monitoring screens in the control room, surveillance software

→ Early Warning System: Hardware Installation & Calibration, alert warning-de warning systems, Sirens, Area based SMS Service, LED Display board, Installation of fail proof communication system

→ SWM Data center: Web based Portal for monitoring the day to day operations.

→ Street-light monitoring and management system: Solar panel, LED lights, GPRS enabled controllers, backend street-light monitoring system and hardware

→ Smart Mosquito Density System: Sensors, smart phones, web applications etc.

PANCITY 2: UNIFIED e-GOVERNANCE PORTAL

■ CONCEPT: Web based ICT Application for delivering government services, exchange of information, communication transactions, integration of various stand-alone system and services between G2C, G2B, G2G & G2E.

► G2C: Dashboards & information dissemination, taxes and grievance redressal

► G2E: Internal employee related services/ work flows, biometric devices, GIS mapping software, MIS & FIS systems, file tracking system, audits, etc.

► G2G: Database with Web based portal, inter-department, etc.

► G2B: Web based portal for Building permits, licenses, and e-payments

21. APPROACH & METHODOLOGY

What is the approach and methodology followed in selecting/identifying the pan-city proposal(s)?

Describe the reasons for your choice based on the following (max. 1000 words):

a. The city profile and self assessment;

b. Citizen opinion and engagement

c. Opinion of the elected representatives

d. Discussion with urban planners and sector experts

e. Discussion with suppliers/ partners

■ CITY PROFILE AND SELF ASSESSMENT [Refer Annexure:1, 2 & 3.3]

The City Profile including Quality of Life & Administrative Efficiency along with detailed Self Assessment of the city features has helped to have a first hand information of the issues and gaps in the present system. It has also been decisive in relating to the citizen's concerns & future aspirations. The top issues derived are as follows:

► Inadequate Basic Services
→ Water supply - 35% NRW losses, absence of usage based water tax system
→ Traffic & Transportation - Lack of integrated traffic management system, integrated parking system, Real time information system & safety in PT system
→ Waste Management -Absence of Grievance addressal & Information system
→ Street lights - Poor maintenance resulting in poor visibility
→ Storm water drains - City prone to frequent flooding, roads lack 100% SWD
→ Safety & Security - CCTV surveillance coverage limited only to major traffic junctions & administrative/ public/ institutional buildings.
→ Public Health - 1280 dengue cases, 225 chickungunya cases & 260 malaria cases registered(2014)

► Absence of Integrated Governance system
→ Lack of interdepartmental coordination & decision making process
→ No Centralised database & Information systems for all the public services
→ Corporation yet to implement & fully adopt e-Governance system for its administrative functioning, tax collections & Grievances addressal

■ CITIZEN OPINION & ENGAGEMENT [Refer Annexure: 3.3]

Extensive Citizen engagement at ward level (100 wards) and online voting was adopted to understand the citizens opinions & expectations. The Top 6 issues which emerged out for direct intervention are listed as follows.

► Water supply (41%) --- Clean river/water bodies (70%) | Rain water harvesting (61%) Reduction in water leakage/wastage (56%) | 24x7 water supply (53%)

► Sewerage (43%) & Sanitation (48%) --- Zero discharge into water bodies (66%) | Zero discharge of untreated water (64%) |100% UGD (57%)|Adequate toilets (52%)

► Waste mgmt (65%) --- 100% D2D collection (67%) | Penality on littering/ burning waste (47%) | Dust bins at public spaces (42%) | Dumping in water bodies (39%)

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► Transportation & Mobility(33%) --- Traffic discipline (52%) | Better planned parking (45%) | Reduction in traffic congestion (39%) | Accident reduction (39%)

► Safety & Security (28%): Women, child & elderly safety (73%), Greater road safety (61%), Better crime surveillance (51%), Improved lighting at public places (48%)

► Public Health(34%): Prevent vector-borne diseases(66%), Reduce air pollution (64%), Healthy living & affordable health services (62%), increased green cover & parks (59%)

■ DISCUSSIONS WITH URBAN PLANNERS & SECTOR EXPERTS

► Based on the city profile, issue areas suggested by citizens and the 6 areas of interventions which emerged from citizen voting, pan city solutions of Integrated City management Control Centre along with e-Governance portal was suggested to be more comprehensive and inclusive.

► Detail one to one discussions were carried out with the concerned department officials (KWA, KPWD, TMC, KSRTC, ASI, KSDMA) and sector experts (health, disaster mgmt, elderly welfare group, waste mgmt, education & Transportation) on the implementation of the proposed Pan City Proposals.

► Technical Committee appointed by the Corporation has multi disciplinary experts - Urban planners, Visionaries, Historian, Waste mgmt expert & transportation expert.

► The pan city options derived were discussed & assessed by the Technical Committee and finalized taking into account citizen's poll results, gaps in basic services, convergence under various schemes, technological adaptivity, ease of implementation & study of best practices in country & abroad.

■ DISCUSSIONS WITH SUPPLIERS/ PARTNERS

► Various discussions were conducted with the service providers on the technological solutions in various sectors of service provision. The TMC was actively involved in collecting and understanding the use, technical inputs, advantages in service delivery through various vendors and market suppliers.

■ OPINION OF THE ELECTED REPRESENTATIVES

► The elected representatives of the TMC (Thiruvananthapuram Municipal Corporation) includes Mayor, Deputy Mayor & 100 Ward Councillors. All representatives worked in collaboration to understand people's concerns through ward level consultations & carried out a collective decision making process.

► The Mayor along with Technical Committee presented the Pan city proposals finalised as per the city's need to all the Councillors in the Council meeting. The process of selection, advantages of each pan city proposal & components were explained in detail.

► Consensus of the elected representatives on the selected pan city proposals was arrived and the Corporation gave its final approval for two pan city solutions.

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22. DEMAND ASSESSMENT

What are the specific issues related to governance and public services that you have identified during city profiling and citizen engagement that you would like to address through your pan city proposal(s)? How do you think these solution(s) would solve the specific issues and goals you have identified? (max.1000 words)

The specific issues to be resolved and the smart solutions proposed are as below:

■ PANCITY 1: INTEGRATED CITY MANAGEMENT CONTROL CENTRE (ICMCC)
► SMART METERING
→ Issues: High leakages in the water supply system (both UFW and NRW), no planned maintenance schedules, lack of data or response in case of emergency repairs, ineffective grievance readressal, no automated system for project monitoring, Polluted water bodies and no active open areas for citizens.
→ Solutions: It is proposed to meter the entire water supply network through a combination of conventional meters and AMRs. The AMRs would be installed for bulk consumers and at the distribution zones. Pressure sensors and water quality

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sensors would be installed to monitor the service parameters across the network and SCADA based monitoring system for the entire network.
Billing would be done using handheld devices and payments would be enabled through web and mobile. Since all of the above also requires physical infrastructure to be built, the city would also implement a project monitoring module and approval workflow system to ensure that the project is implemented in a timely manner.

► INTELLIGENT PUBLIC TRASPORT SYSTEM
→ Issues: No information on public transport & decreasing share of public transport
→ Solutions: GPS based tracking of public bus transport, mapping of routes and bus stops on GIS. This system would be used to publish information of bus time-table, routes and real time bus arrival. The system is also expected to improve the operational efficiency of the operating company (KSRTC).

► INTELLIGENT PARKING
→ Issues: No information on location of parking lots, no real-time information on availability of parking lots &lack of levy of parking charges for on-street parking.
→ Solutions: Earmarking and specifying rated capacity for on-street and off-street parking facilities, GPRS enabled handheld based ticketing system with real-time parking availability updation of common backend system, publishing of parking information through VMS and city mobile application.

► INTELLIGENT SIGNALLING
→ Issues: Increasing congestion on roads and key junctions
→ Solutions: Implementation of traffic actuated intelligent signaling system throughout the junctions and reduce congestion.

► SURVEILLANCE SYSTEM
→ Issues: Lacks 24X7 surveillance of sensitive areas which witness crowd surges
→ Solutions: CCTV surveillance of core-city area to monitor crowd movement and enable early response in case of emergencies

► STREET LIGHT MONITORING AND MANAGEMENT SYSTEM
→ Issues: High power consumption & operational costs and poor monitoring system
→ Solutions: LED street lights with GPRS based control system ensuring well lit streets necessary to give a sense of safety& security to both, residents & visitors

► SWM DATACENTER
→ Issues: Prevalent waste burning & open dumping, no system for tracking in situ units and lack of public awareness
→ Solutions: IEC portal for awareness creation, vendor empanelment system linked to the generators, mobile app to coordinate, monitor & review of decentralised units and grievance readdressal system

► EARLY WARNING SYSTEM
→ Issues: City is subjected to the risks of frequent floods in monsoons, sudden spread of health hazards & natural disasters as it is located along the coast line.
→ Solutions: Predict the occurrence of natural and human-initiated disasters enabling the preparedness of the authorities to mitigate the damage to human life & assets before time.

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► SMART MOSQUITO DENSITY SYSTEM
→ Issues: Seasonal upsurge of vector borne diseases& lack of preventive measures
→ Solutions: Track the growth of mosquitoes w.r.t gender, breeds and alert the administration for immediate and appropriate action for the identified location to avoid outburst of specific diseases.

► CENTRALISED CONTROL ROOM
→ Issues: Ensuring that there is smooth coordination between the various departments/agencies
→ Solutions: Common control room platform which integrates with standalone component systems across different vendors. This will have a cross system monitoring and control features along with escalation work flows

■ PANCITY 2: UNIFIED e-GOVERNANCE PORTAL

► e-GOVERNANCE PORTAL
→ Issue 1: Partial ICT coverage of administrative functions & citizen interfaces, lack of proper system to maintain accurate database, manual maintenance of staff attendance, harassment & inconvenience causing delays in administrative procedure & approvals and possibility of efficient use of existing staff.
→ Solution 1 (G2E, G2C & G2B) : Single portal for citizen's end to end needs which can be accessed through multiple modes like mobile app, internet, centralised service centre, smart desks, quick issue of permits, licenses & single window approvals for various businesses, e-payments, paperless offices, proactive disclosures, social audits for implementation of schemes and responsive grievance reddressal system

→ Issue 2: Absence of unified platform for inter-departmental communication & coordination, departments working in silos on similar projects, lack of integrated real time database for holistic decision making process
→ Solution 2 (G2G): Integrated portal interlinked to various departments facilitating access to unified database and sharing of information on the department wise development projects /activities in the city.

23. INCLUSION

How inclusive is/are your pan-city proposal(s)? What makes it so? (max. 150 words)

The Pan city solutions 1 & 2 are inclusive for all socio - economic groups.

- Smart Metering: Equitable water supply to all. Reducing AT&C losses & and NRW contribute to addl. availability of water shall be made available for weaker sections.
- Intelligent Public Transport System: Improves the availability, reliability and comfort for passengers utilizing public transport. Physically disadvantaged persons will be provided with wheel-chair friendly facility in the public transport fleet.
- Intelligent Parking System: All households with vehicle ownership will be beneficiaries.
- Intelligent Signalling & Signage: All the citizens and visitors of Thiruvananthapuram. For people with visually impairment, sound sensors will be implanted at key crossings.
- Street light mgmt system & CCTV Surveillance: Facilitate better visibility to all the commuters especially pedestrian & cyclists, tracking crimes against women, children and vulnerable sections of society.
- Early Warning system: Safeguard lives of all the citizens as well as city's assets
- Smart Mosquito Density System: Protect all the citizens from mosquito menance.
- Unified e-Governance portal: Digitisation of the administration into an integrated portal will improve governance and service delivery of the civic authorities which will benefit all the common citizens, businesses and city level decision makers.

24. RISK MITIGATION

What are the three greatest risks that could prevent the success of the pan-city proposal(s)? In table 3, describe each risk, its likelihood, the likely impact and the mitigation you propose. (max. 50 words per cell)

TABLE 3

Risk	Likelihood	Impact	Mitigation
MULTIPLE DOMAIN INTEGRATION: Integration of all the existing and proposed domains to the centralised platform As the technology required for operationalization of ICMCC is asset knowledge intensive and is based on proper mapping of system requirements and outcomes.	MODERATE Risk is more in terms of implementation of relevant processes and functional capabilities, rather than technology deployment.	HIGH Impact can be severe specially in terms of compatibility of different domains to a single platform. Achievements of outcomes as per the KPIs set leading to non-optimization of returns on investment.	Allocate: Single Performance Based Contract Management Model Monitoring: Predefined SLAs, deployment scale and time schedule for KPIs to be achieved for each of the service/domain. Deployment: Setting up of Project Management Office (PMO), with technical experts, scope of which will include overall program implementation and not just procurement support for technology components.

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TABLE 3			
Risk	**Likelihood**	**Impact**	**Mitigation**
INTER DEPARTMENT COORDINATION: Collaboration between various Government agencies- ICMCC & Unified e-Governance portal envisages to move multiple agencies and domains to a single platform for operation and management. This might initially lead to slight resistance to adopt.	MODERATE The risk will be low with respect to various utility operators. Risk will be moderate to high for agencies like police, traffic and health services.	MODERATE to HIGH	INSTITUTIONAL CONVERGANCE: Detailed Governance Model and Target Operations Model shall be set forth in consultation with line departments and including their role in the SPV. Workshops with line departments for participation and define process maps (as-is and to-be)
WILINGNESS FOR INTEGRATION: Bus operators and independent auto-rickshaws operators may be unwilling to participate in Automatic Vehicle Locator Emergency Response: Functioning of fire, health and police departments	MODERATE Initially, risk is likely to be high as they may perceive the system being against their revenue interests. The risk will come down over period of time as benefits of integration in citywide system starts accruing to all.	MARGINAL TO HIGH Moderate impact on the project success. But, if resistance to integrate with citywide system continues then there will be adverse consequences on usability of services provided by ICMCC leading to underutilized capacities in these components.	1. SINGLE CONTRACT The solution should aim for integrated planning 1. SINGLE CONTRACT The solution should aim for integrated planning and delivery through a system of “Integrated contract” instead of different agencies being integrated. 2. PMO Setting up of Project Management Office (PMO), with technical experts and define the scope of which will include overall program implementation and not just procurement support for technology component-wise.

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TABLE 3			
Risk	**Likelihood**	**Impact**	**Mitigation**
CITIZENS ADAPTABILITY The success of technology is dependent on the maturity of citizens using it and the capacity of officials administering it	LOW	MEDIUM • Citizens may not be aware of the functionality and benefits of technology deployed which will reduce the impact of pan city proposal	More than 10% citizens from different sections of the society were involved in the citizen engagement process which helped us identify the interventions required. This will continue over the next 3-4 years to deploy solutions which match the requirement and capability of end users. Sufficient awareness building exercises will be held to keep people informed about solutions being deployed and how it can be best used.
Risk 4: LOW TECHNOLOGY ADOPTION The SPV staff & Corporation staff needs to be trained and educated about the new technological solutions for efficient operations.	MEDIUM	HIGH	Ensure that SPV has appropriately qualified staff. The delegation of powers to management should allow contract appointments in case qualified staff is not available within the ULB Provisions in the agreement between SPV and the participating authorities to provide qualified staff. All vendor contracts to ensure required training

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25. FRUGAL INNOVATION

Which is the model or 'best practice' from another city that you are adopting or adapting in your proposal(s)? How are you innovating and ensuring best use of resources? Is there an aspect of 'frugal innovation' in your proposal(s)? (max. 500 words)

■ PAN CITY 1: ICMCC - City Management tool is conceptualized by studying the solutions adopted in various forms, by cities like Barcelona, Dublin, Rio, New York and Sydney. The examples of Indian cities that were also considered for synchronization with ground reality were cities like Delhi, Bengaluru, Surat, Calcutta and Mysore under various proposed components.
Implementation: Adopting a managed service contract model of procurement will ensure continued maintenance of assets being created as vendors get paid for service procurement and not for physical assets.

► SMART METERING: Bangalore | Delhi | Newyork | Terrel city in Texas
→ Instead of having AMRs at each household, traditional meters at households and AMRs only for bulk and commercial consumers and at distribution points proposed. Achieve reduction in the financial burden on the consumer and make it more acceptable. In addition implementation of handheld based billing for households also proposed to ensure complete audit of the performance of each link in the network without having to go in for extensive use of expensive AMRs.

► INTELLIGENT PT SYSTEM: Delhi | Mysore | Dublin in Ireland | Izmir in Turkey
→ Propose to have empaneled set of GPS vendors (possibly at the state level) thereby ensuring that issues relating to proprietary protocols are avoided which is also expected to drive down field deployment costs.

► INTELLIGENT PARKING SYSTEM: Delhi | Barcelona | Las Vegas
→ Use of GPRS enabled handheld based ticketing for giving real-time parking availability information. This can be used for both on-street and off-street parking and is much cheaper than the embedded sensor technology. Propose to also have an empanelled set of vendors for field that issues relating to proprietary protocols are avoided.

► INTELLIGENT SIGNALLING: Surat | Singapore
→ Use of C-DAC technology for traffic signal control using Wi-Fi communication between master and slave (thereby preventing road cutting)& solar power for lamp heads. Developed indigenously by C-DAC which is available with source code.

► SURVEILLANCE SYSTEM: Surat | Davao city in Philippines
→ Have separate vendors for backend system and field devices thereby ensuring that proprietary nature of the system is broken thereby driving down costs.

► STREETLIGHT MONITORING & MANAGEMENT SYSTEM:
Calcutta | Oslo in Norway
→ Since a combiner solar-LED-central control system may not be viable on an ESCO model, pole mounted advertisement panels integrated into the pole design is proposed.

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A formalized Incident Command System that sets forth standardized procedures for managing personnel, communications, facilities, and resources during disaster. Through Geographic Information Systems (GIS) division, the ULB can easily map and access data — on flood zones, local infrastructure to road closures — before, during, and after an emergency.

► SMART MOSQUITO DENSITY SYSTEM: Andhra Pradesh - Proposed | Singapore
→ Ovitraps are used extensively in Singapore as a tool to monitor, detect and control mosquito population in the city. They give an approximate gauge of the adult population in an area and act as an early warning signal to pre-empt any impending dengue outbreaks. A Geographic Information System (GIS) will be established to develop a real-time Aedes mosquito control and monitoring system for spatial epidemiological study

■ PAN CITY 2: UNIFIED e-GOVERNANCE PORTAL: NewYork (NYC.gov)

→ Providing various e-services (like viewing property statements, obtaining birth and death certificates, or finding out recycling and garbage collection schedule) centrally, under city's main e-government portal (NYC.gov). Additionally, New York also has a formalized Incident Command System that sets forth standardized procedures for managing personnel, communications, facilities, and resources thereby lending consistency, fostering efficiency and providing direction during disaster and emergency situations.

26. CONVERGENCE AGENDA

In Table 4, list the Missions/Programmes/Schemes of the Government of India (eg. SBM, AMRUT, HRIDAY, Shelter for All, Digital India, Make in India, Skill India) and relevant external projects and describe how your proposal(s) will achieve convergence with these, in terms of human and financial resources, common activities and goals. (max. 50 words per cell)

TABLE 4

S.No	Missions/Programmes/Schemes/Projects	How to achieve convergence
1	Digital India	→ Implementation of consumer redressal portals → Implementation of service information portals (public transport, parking, tourism information, etc.) → Digital India focuses on improving the citizen services and strengthening the e-governance platforms across ULBs Convergences with goals of Digital India Mission; across multiple pillars viz. National Information Infrastructure (NII), e-Governance, e-Kranti – electronic delivery of services

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TABLE 4		
S.No	**Missions/Programmes/Schemes/Projects**	**How to achieve convergence**
2	SWACHH BHARAT ABHIYAN:	Up-gradation of pubic toilets and provision of additional toilets thereby improving access to public sanitation throughout the city to achieve SBA goals.
3	Nirbhaya Fund	→ Funding for city surveillance → Funding for emergency response system → Funding for installation of GPS on public transport
4	Skill India	→ Capacity building for SPV staff → Effective delivery of service would require skilled personnel at the local level – to staff the call-centres and for maintenance of the IT equipment

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TABLE 4		
S.No	**Missions/Programmes/Schemes/Projects**	**How to achieve convergence**
5	Internet of Things (IOT) Project - DeitY	→ Design & Development of Network Architecture → Design & development of Cloud Network → Smart City applications
6	SMART CITY GRANTS	→ Project preparation of all components → Implementation gap funding → Capacity building for the SPV
7		

27. CONVERGENCE IMPLEMENTATION

Describe how the convergence will be implemented? (max. 350 words)

■ PHYSICAL CONVERGENCE: Utilities and hard infrastructure is being developed or improved for various civic services under schemes such as AMRUT, DELP and ongoing projects under various central and state level schemes. Planning and DPRs are completed for most of the projects/sectors and implementation is yet to be started.

■ TECHNOLOGY CONVERGENCE (ICT Layer): Technology layer would be adopted over the hard infrastructure assets for the existing and proposed projects for the entire city including the assets created in the ABD area.

■ FINANCIAL CONVERGANCE: For only ICT Layer

Sector/Component	Hard Infrastructure	ICT Layer	Pan City Cost
1. Control Room	DeitY	Digital India & Smart City	29.6
2. Smart Water Network	Smart City	Smart City	58.6
3. Traffic & Transport	Smart City & ULB	Smart City	24.0
4. Mosquito Monitor	Smart City	Smart City	0.5
5. Surveillance	Nirbhaya	Nirbhaya & Smart City	13.6
6. Disaster Mgmt.	KSUDP	Smart City	10.5
7. Street Light with Monitor	Smart City	Smart City	10.15
8. SWM Data Center	Swacch Bharat	Smart city	0.12
9. e- Governance portal	Smart City	Digital India	5.0

■ HUMAN RESOURCE CONVERGANCE:
- ► Capacity building: Line Department Officers and IEC campaigns for citizens
- ► Technical Assistance

28. SUCCESS FACTORS

Describe the three most significant factors for ensuring the success of the pan-city proposal(s). What will your city do if these factors turn out to be different from what you have assumed? (max. 250 words)

Significant Critical Success Factors (CSFs) for ensuring pan-city success is as follows:

■ CSF1: Detailed Project Planning and Preparation
- ► Prepare detailed system and functional requirements to minimize contract variations and avoid integration issues and proprietary software/protocols
- ► Prepare a detailed roll-out and integration plan and carry out rigorous testing
- ► Prepare equitable performance linked contract
- ► Appoint competent project consultants for the above

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■ CSF2: Capacity building for City SPV and Participating Agencies
- ► The City SPV and the participating agencies will need to identify/hire specialized dedicated team for implementing the pan-city initiative and managing the interface with consultants, vendors and 3rd party service providers (telecom operators, software and hardware providers etc.). Apart from the technical team it would also be necessary to have a multi-disciplinary team to manage the legal and commercial aspects of the various contracts.
- ► Since it might not be possible to have an in-house team, the maintenance and operations activities may be outsourced with the key management and operations control positions being staffed by on-roll staff.

■ CSF3: City's conviction on following:
- ► Many IT systems in India have failed owing to damage/ willful negligence of field equipment used to monitor agency staff (water meters, GPS, handhelds etc.). It is imperative that field staff be held responsible for equipment safety and upkeep.
- ► Placing a reasonable User Charge regime (parking, water etc.)
- ► Prompt performance linked payments made to vendors.

(In case user charges are not levied, then an escrow mechanism for payment could be structured to ensure payments to service provider and cover the funds shortfall)

29. **BENEFITS DELIVERED**

How will you measure the success of your pan-city proposal(s) and when will the public be able to 'see' or 'feel' benefits: immediately, within Year 1, or in the medium or long term, 3-5 years? (max. 150 words)

A well represented PMO will perform a quantitative assessment of smart city features every six months after first year of implementation through a pre-planned marking system. This will be compared against the base score captured at the start of implementation.

■ Benefits shall be measured tangibly through parameters such as
Water Availability & NRW | Accident decrease rate | Energy Efficiency | Crime rate| Share of Public with Digital Footprint for Services | Data Availability for service delivery

■ Citizens are expected to realize the benefits in the following manner:

- ► Immediate Benefits: Reduced on-road congestion and junction queuing, Reduction in crime rate,cleaner city environs, faster service delivery, online citizen services for tax payments & building/license permits.
- ► Benefits in 1-2 years: Get reliable and real-time information on public transport, parking information availability, social audits, better visibility
- ► Benefits in 2-5 years: Coordinated action by various departments/agencies, efficient grievance readdressal, improved revenue collection, quick coordinated response in case of disasters & reduced NRW

30. **MEASURABLE IMPACT**

What will be the measurable impact of your pan-city proposal(s)? Please describe with respect to the following types given below, as relevant to your city and proposals (max. 150 words)

a. Governance Impact (eg. government response time to citizen complaints halved, creating faster service delivery overall)

■ PAN CITY 1 & PAN CITY 2

► SERVICE DELIVERY: Response time during disasters, repairs, complaint resolving is reduced by 20-30 minutes due to effective monitoring & response system. Increase in supply and good quality water supply.

► COST SAVINGS: Service delivery can be achieved due to Intelligent public transport system, street-light monitoring and management system,

► REVENUE GENERATION: Increased revenue generation due to Intelligent parking system, smart water metering, NRW reduction, GIS linked online tax collection system, smart parking facilities,

► OTHERS: Transparency | Operational Control | Monitoring | Standardization | | Productivity | Accountability | Ease of Business | Decision making

b. Impact on public services (eg. real-time monitoring of mosquito density in the atmosphere reduces morbidity)

It is difficult to quantify now the impact on city's life through these ICT interventions in absence of necessary hard infrastructure on ground. However few aspects of urban life that would be improved are as set out below:

■ PAN CITY 1: ICMCC

►DE-CONGESTION: Intelligent Public Transport and Parking System
→Impact: Reduction in congestion, signal waiting time and bus waiting time,

►SECURITY: CCTV Surveillance
→Impact: Greater safety for visitors and city residents especially for women

► SWM Data center
► Intelligent Signalling System
► Smart Water Network
► Early Response system
→ Ensure CLEAN and SAFE Environment

► Mosquito density monitoring system
► LED street lights with auto monitoring

■ PAN CITY 2: Unified e-Governance Portal
→Impact: Transparency, smoothen inter-departmental works, efficient service delivery, improved employee efficiency, ease of decision making, increased accountability

D. IMPLEMENTATION PLAN

31. IMPLEMENTATION PLAN

In Table 5, describe the activities/components, targets, resources and timelines required to complete the implementation of your area-based development and pan-city solution/s. This should include the items mentioned as Essential Features in Q. No. 16 plus other 'smart' solutions, including accessible infrastructure for differently-abled. (max. 50 words per cell)

Table 5

S.No	Activity/component	Indicator	Baseline (as on) 31/03/2017	Target	Resources required	Likely date of completion
AREA-BASED DEVELOPMENT						
1	IMPROVING BASIC SERVICES					
	1. 24x7 Water Supply	Supply Network NRW Smart Meters	100 lpcd 83% 35% 0	135 lpcd 100% 15% 100%	Financial (Rs in Cr): 01) 22.83 Cr. 02) 26.57 Cr. 03) 47.50 Cr. 04) 2.57 Cr. 05) 160.30 Cr. 06) 1.41 Cr. 07) 7.32 Cr. Manpower: • KWA, TMC, KSUDP, KPWD, Suchitwa Mission • Contractor / PPP • Consultants • O&M Provider/ Vendor	2020
	2. UGD Network system	% of Area covered % HHs covered	90% 95%	100% 100%		2020
	3. Storm water drains	% Coverage	partial	100%		2020
	4. Decentralised Solid Waste Mgmt (ABD area)	% Organic Waste Processed No. of black spots	41.2% Unknown	100% 0		2018 2021
	5. Underground ducting of utilities	% Coverage	0%	100%		2019
	6. Up-gradation of Public toilets	Nos.	26	26		2018
	7. Drinking water fountains	Nos.	0	25		
2	WELL-CONNECTED, SAFE & ACCESSIBLE CITY CENTRE					
	08) Non Motorised Transport	Share of NMT Coverage of footpaths	7% 10%	50% 100%	Financial (Rs in Cr): 08) 77.00 Cr. 09) 98.14 Cr. 10) 319.56 Cr. 11) 0.57 Cr. 12) 1.92 Cr. 13) 4.10 Cr. Manpower: • KPWD, TMC, NHAI, Kerala Tourism, DTPC, Traffic Police, KSEB • Contractor / PPP • Consultants • O&M Provider/ Vendor	2019
	09) Integrated Parking - on-street & off-street	No. of MLCPs	1	6		2020
	10) Road & Junction improvement	Average travel time	15 mins	10 mins		2019
	11) Way finding signage and markers	No. of Maps	nil	10 large 35 mini 176 direction 95 markers		2019
	12) Last Mile Connectivity	% Increase in Ridership	43%	75%		2018
	13) Smart Bus stops	Nil	0	35 nos.		2019

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Table 5

S. No	Activity/component	Indicator	Baseline (as on)	Target	Resources required	Likely date of completion
3	RE-DENSIFICATION WITH CREATIVE LAND-USE 14) Redevelopment of Palayam Market 15) Integrated Transit Node 16) Thampanoor Railway Commercial Complex 17) Chalai Warehouse & Commercial complex 18) OAT at Putharikandam Maidanam 19) Multi-tasking spaces	n/a n/a n/a n/a n/a n/a	n/a n/a n/a n/a n/a n/a	n/a n/a n/a n/a n/a n/a	Financial (Rs in Cr): 14) 118.22 Cr. 15) 54.51 Cr. 16) 44.38 17) 10.82 Cr. 18) 10.07 Cr. 19) Nil Manpower: • TMC, TRIDA, Railway, KSRTC, Merchants' & Market Association • Contractor / PPP • Consultants • O&M Provider/ Vendor	2020 2020 2019 2019 2018
4	CELEBRATING & CONSERVING HISTORIC & CULTURAL ASSETS 20) Renovation of Shri Padmanabhaswamy Temple Precinct 21) Chalai Bazaar Improvement 22) Cultural Streets - (Manveeyam Veedhi & Charitra Veedhi) 23) Conserving Historic Assets 24) Heritage Settlements – Agraharams	n/a n/a n/a No. of buildings conserved n/a	n/a n/a n/a 22 n/a	n/a n/a n/a 42 n/a	Financial (Rs in Cr): 20) 89.29 Cr. 21) 3.60 Cr. 22) 8.08 Cr. 23) 11.69 Cr. 24) 4.68 Cr. Manpower: • Kerala Tourism, DTPC, KTDC, ASI, Chalai Merchants' association, Manaveeyam Theruvorakkootta m, HDCK, Travancore Devaswom Board, TMC, KSWCFC • Contractor / PPP • Consultants • O&M Provider/ Vendor	2019 2019 2019 2019 2019
5	LEVERAGING EDUCATIONAL INSTITUTIONS & TOURISM POTENTIAL 25) Trails and Walks 26) Interactive Information Kiosks & Display boards 27) Café & Wi-Fi Lounge FACILITATING SUSTAINABLE BUILT & NATURAL LANDSCAPES 28) Sustainable Campuses - Solar Energy, waste water reuse, zero waste and Transportation (NMT)	Street length covered n/a n/a % Reduction of Waste in the Area % Water Treated % of Solar Energy	0.8 kms n/a n/a 0% 0% 0%	13.7 kms n/a n/a 25% 50% 10%	Financial (Rs in Cr): 25) 3.23 Cr. 26) 0.29 Cr. 27) 5.62 Cr. 28) 66.23 Cr. Manpower: • DTPC, Kerala Tourism, ASI, KSRTC, KSEB, KPWD, TMC, Railway Dept, Government colleges, KWA, Suchitwa Mission and respective stakeholders • Contractor / PPP • Consultants • O&M Provider/ Vendor	2019 2019 2019 2019

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Table 5						
S. No	**Activity/component**	**Indicator**	**Baseline (as on)**	**Target**	**Resources required**	**Likely date of completion**
6	ENCOURAGING ACTIVE LIVING & HEALTHY COMMUNITIES 29) Linked Green Activity Zones --- 30) Pedestrian Streets	 Area of green per person --- Street length	 0.6 sqm/person --- 0 km	 --- ---	Financial (Rs in Cr): 29) 12.85 Cr. 30) 1.72 Cr. Manpower: • TMC, Public Health department & KPWD • Contractor / PPP • Consultants • O&M Provider/ Vendor	 2020 --- 2018
7	ENABLING DISASTER MITIGATION 31) Flood Prevention by Reviving & Re-Activating Canal Fronts	Length covered	Partial (15 km)	Complete coverage	Financial (Rs in Cr): 31) 64.60 Cr. Manpower: • TMC, District Collector Office, Minor and Major Irrigation Department, KSUDP • Contractor / PPP • Consultants • O&M Provider/ Vendor	2020
8	PROMOTING DIVERSITY & FOSTERING INCLUSIVENESS 32) Flexi Vending Zones --- 33) Integrated Social Housing Complex --- 34) Up-gradation of Anganwadis & PHCs --- 35) Total Inclusion Project	 % of street vendors covered --- % of houses upgraded --- n/a --- % population	 0% --- 0% --- 1PHC & 6 anganwadis --- partial	 100% --- 100% --- - --- 100%	Financial (Rs in Cr): 32) 5.27 Cr. 33) 95.90 Cr. 34) 5.27 Cr. 35) Nil Manpower: • KHB, TMC, LIFE, KPWD, Hawkers association • Contractor / PPP • Consultants • O&M Provider/ Vendor	 2021 --- 2021 --- 2020 --- 2020

Table 5

S. No	Activity/component	Indicator	Baseline (as on)	Target	Resources required	Likely date of completion
	PAN-CITY SOLUTION					
1	INTEGRATED CITY MANAGEMENT CONTROL CENTRE (ICMCC) 1) Centralised Command Centre 2) Smart water network (meters) 3) Intelligent Traffic & Transportation System • Intelligent PT system • Intelligent parking system • Smart Bus-stops 4) SWM Data centre	 n/a % coverage % Auto-signalised junctions with real-time & VMS boards % of city buses covered % of parking lots covered Tracking segregation levels	 n/a 0% 0% 0% 0% 0%	 n/a 100% 100% 100% 100% 80%	Financial (Rs in Cr): 1) 29.63 Cr. 2) 58.55 Cr. 3) 23.96 Cr. 4) 0.12 Cr.	 2019 2020 2020 2019
2	5) Safety & Security • CCTV Surveillance • LED Street-lighting monitoring and mgmt. system 6) Smart Mosquito density system 7) Disaster Management (Early Warning System)	 % coverage % Coverage of LED lights % Area covered n/a	 partial (traffic junctions) 0% 0% n/a	 100% 100% 100% n/a	Financial (Rs in Cr): 5) 23.74 Cr. 6) 0.54 Cr 7) 10.54 Cr. Manpower: • KSRTC, TMC, KWA, KPWD, KSEB, Traffic Police, City Police, Public Health Dept • Contractor / PPP • Consultants • O&M Provider/ Vendor	2019 2019 2020
3	UNIFIED E-GOVERNANCE PORTAL • G2E: Biometric system, paperless office, MIS& FIS system, file tracking system • G2C: Dashboards & information dissemination, taxes & online grievance redressal, social audits • G2B: Online application 7 issue of building permits, trade licenses and e-payments • G2G: Database with Web based inter-department portal	 % Biometric Attendance % of online services	 0% partial	 100% 100%	Financial (Rs in Cr): 5 Cr. Manpower: • All Parastatal Bodies, TMC • Contractor / PPP • Consultants • O&M Provider/ Vendor	2020

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Table 5						
S. No	Activity/component	Indicator	Baseline (as on)	Target	Resources required	Likely date of completion
4						
5						
6						

32. **SCENARIOS**

Using information from Table 5, describe the critical milestones, realistic timelines and sequencing of efforts and events that you are projecting as the short-, medium- and long-term scenarios for your smart city. If necessary, include PERT and CPM charts in Annexure 3. (max. 500 words)

There are five streams of activity envisaged:

■ CONSTITUTION OF SPV: An SPV will be constituted legally and MoUs/Working arrangements with key line departments/ agencies including roles and responsibilities, revenue sharing, implementation responsibility, O&M responsibility etc. The responsibilities of various departments / agencies towards implementation of the Area based proposal and their relationship with the SPV is discussed under q.no 34. The SPV will be equipped with staffing commensurate with its roles and responsibilities laid out therein.

■ MONITORING & REVIEW: A project monitoring and implementation structure shall be constituted which is in-line with the three-tier institutional structure at City, State and National levels envisaged under the Smart City Guidelines.

■ PREPARATORY ACTIONS AND ROLL-OUT: Implementation of the ABP calls for significant preparatory activities both at the project level and with respect to institutional and policy coherence. The Gantt chart enclosed in Annexure 3 provides a specific listing of the project development requirements, which would cover both

(a) review and up-dation of 'ready' DPR to address gaps if any and to ensure that they adhere to the smart city characteristics as reflected in the SCM guidelines

(b) project preparatory work (including fresh feasibility studies, DPRs etc.)

where preparatory action is yet to be initiated. The SPV will take stock of the preparatory status and will prepare / disseminate a implementation roll-out plan within three months of its first Board meeting, which will fine-tune and flesh out the Gantt chart provided as part of this document. In preparing the implementation roll-out, care will be taken to ensure right sequencing. For example comprehensive road re-configuration envisaged will need to be carried out after completion of sewerage network / water supply networks if they need to be constructed.

■ PROCUREMENT & CONTRACTING: The procurement and contracting will follow from the preparatory actions and will be structured to ensure scale and smart technologies. This will significantly improve the attractiveness of the project for private participation.

■ Sustainable O&M: The SPV will either handle the O&M on its own or delegate it to line agencies or private service providers depending on the nature of arrangements for implementing different components. This will be based on the terms of the working arrangement between the SPV and line agencies as laid out in response to Q.no. 34. A key role of the SPV will also be to interface with private service providers and financing institutions to lock-in external financing and resource mobilisation options identified. This is critical to implement some of the programs envisaged with non-grant financing. Similarly, process and organisational improvements towards better O&M, financial sustainability and asset management will also be identified and reflected in the plan early on.

[Refer Annexure 3.15]

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33. **SPV**

The SPV is a critical institution for the implementation of the Proposal. Describe the SPV you propose to create in your city, with details of its composition and structure, leadership and governance, and holding pattern. Based on your responses in Table 6 describe how you envision the SPV to fulfill the role set out in the Mission Guidelines. (max. 500 words)

Table 6
(CHECKLIST: supporting documents for 1-7 must be submitted in Annexure 4)

S. No.	Activity	Yes/No
1.	Resolution of the Corporation/Council approving Smart City Plan including Financial Plan.	Yes
2.	Resolution of the Corporation/Council for setting up Special Purpose Vehicle.	Yes
3.	Agreement/s with Para Statal Bodies, Boards existing in the City for implementing the full scope of the SCP and sustaining the pan-city and area-based developments.	Yes
4.	Preliminary human resource plan for the SPV.	Yes
5.	Institutional arrangement for operationalisation of the SPV.	Yes
6.	If any other SPV is operational in the City, the institutional arrangement with the existing SPV	No
7.	Additional document/s as appropriate	Yes

As per the SCM guidelines, an SPV will be created to steer implementation of the Smart City Proposal. Additional documents as referenced in Table 6 are attached in Annexure 4. Initial structure and functions of the SPV is described below.

i. The SPV will be owned by GoK and TMC with 50%-50% shareholding pattern. The SPV will be created with a strong capital base with paid up equity of Rs.200 crore and will directly receive Grants due under the Smart Cities Mission.

ii. The Board of Directors (including the Chairperson) of the SPV would be constituted and a full-time CEO would be inducted as per the guidelines of the SCM. The suggested composition of the Board of Directors is given below and would be fine-tuned as per any further guidelines from MoUD

- o Chairman (Chief Secretary GoK)
- o CEO (Nominee appointed by GoK)
- o Mayor, Thiruvananthapuram Municipal Corporation
- o Secretary, Thiruvananthapuram Municipal Corporation
- o Representatives appointed by GoK
- o Central Government nominee, appointed by MoUD
- o Representatives appointed by GoK
- o Independent Directors as per Companies Act requirements

iii. To start with, the SPV will have specialist positions for Urban Planning, Engineering, Environment, Mobility and Urban Finance. The exact staffing pattern would be finalized by the Board of Directors at the time of actual formation and operationalization of the SPV.

iv. The SPV would be delegated powers required to execute the activities relating to implementation of the SCP in line with the guidelines of SCM.

v. Depending on the nature of the component, the SPV may directly be responsible for implementation or by entering into MoUs with other line agencies. The implementation of various components under the SCM will be steered by the SPV under three approaches:

- ► Components where it will hold end-to-end responsibility for implementation on EPC/O&M format and on PPP framework. These would typically involve functions that are delegated to the SPV by TMC through appropriate suitable legal instrument.
- ► Components which will be handled through line agencies will be through an MoU or other similar arrangements with concerned line agency. Here the SPV will work with the concerned line agency and jointly agree on service levels and financing plan to implement the component
- ► Components where the authorized line agency entrusts select activities to the SPV through suitable mechanism.

vi. TMC and GoK will ensure SPV's financial sustainability to meet its capital expenditure and O&M commitments through a range of options including apportioning/ earmarking select TMC's revenue streams (tax, non-tax and transfers) and allowing the SPV to retain some of the revenue streams accruing from the developments undertaken by the SPV. The financial plan (refer response to Q.no:42) factors these options to ensure sustainability

vii. The SPV will also function as a Corporate Municipal Entity on behalf of TMC for resource mobilization including raising resources through municipal bonds, as required.

[Refer Annexure: 3.16]

34. CONVERGENCE

In Table 7, give details of the government (Central, state/ULB) departments, parastatal organizations and public agencies who will be involved with the time-bound execution of each of the project activities/components (both area-based and pan-city) you have identified. (In Annexure 3, include a flowchart showing the network/relationships that the SPV will form with government and non-government agencies, and indicating the nature of connection with each entity.) (max. 50 words per cell)

TABLE 7

S.No	Activity/Component	Department/agency/ organization	Role/responsibility
1	IMPROVING BASIC SERVICES • 24x7 Water Supply • UGD Network system • Storm water drains • Decentralised Solid Waste Mgmt (ABD area) • Underground ducting of utilities • Sanitation - Public toilets • Drinking water fountains Pan city Solutions • Smart water meters • SWM Data centre • e-Governance portal	SPV, KWA, KPWD, NHAI, TMC, KSUDP, Major & Minor irrigation department, District Collector Office, Suchitwa Mission	- Project preparation - Procurement - Construction - Operations & Maintenance - Vendor management
2	WELL-CONNECTED, SAFE & ACCESSIBLE CITY CENTRE • Non Motorised Transport • Integrated Parking - on-street & off-street • Road & Junction improvement • Way finding signage and markers • Last Mile Connectivity Pan city Solutions • Intelligent Traffic Management • Street-light monitoring and mgmt. system • Intelligent Public Transport system • Intelligent parking system • Smart bus stops • CCTV Surveillance	TMC, KSRTC, KPWD, TRIDA, NHAI, KRFB, Traffic Police, Kerala Tourism, Respective unions (Taxis and Autos), KSEB	SPV in Consultation with concerned departments - Project Preparation - Tender Supervision - O&M - Vendor management - Collection of revenues - Provision of space for installation of Variable message sign (VMS) boards KSEB - Power supply for VMS boards Traffic Police - Regulation & enforcement
3	RE-DENSIFICATION WITH CREATIVE LAND-USE • Multi Tasking Spaces • Redevelopment of Palayam Market • Integrated Transit Node • Thampanoor Railway Commercial Complex • Chalai Warehouse & Commercial complex • OAT at Putharikandam Maidanam	TRIDA, TMC, Railway Division, KSRTC, Kerala Tourism, DTPC, ASI	- Design and Planning - Procurement - Construction - Contract Monitoring - Vendor Management PPP projects - Technical Studies - Preparation of Tender Documents - Selection of Concessionaire - Share of Revenue/Lease Rentals

Continue on next page

TABLE 7			
S.No	**Activity/Component**	**Department/agency/ organization**	**Role/responsibility**
4	CELEBRATING & CONSERVING HISTORIC & CULTURAL ASSETS • Renovation of Shri Padmanabhaswamy Temple Precinct • Chalai Bazaar Improvement • Cultural Streets - (Manveeyam Veedhi & Charitra Veedhi • Conserving Historic Assets • Heritage Settlements – Agraharams	Kerala Tourism,Temple Trust, DTPC, KTDC, ASI, Chalai Merchants' association, Manaveeyam Theruvorakkoottam, HDCK, Travancore Devaswom Board, KSWCFC, TMC	- Design and Planning - Procurement - Construction - Contract Monitoring - Vendor Management
5	LEVERAGING EDUCATIONAL INSTITUTIONS & TOURISM POTENTIAL • Trails and Walks • Interactive Information Kiosks & Display boards • Café & Wi-Fi Lounge	DTPC, Kerala Tourism, ASI, KSRTC, KSEB, KPWD, TMC, Railway Dept, Government colleges	- Design and Planning - Procurement - Construction - Contract Monitoring - Vendor Management
6	FACILITATING SUSTAINABLE BUILT & NATURAL LANDSCAPES • Sustainable Campuses - Solar Energy, waste water reuse, zero waste and Transportation (NMT)	TMC, KSEB, KWA, Suchitwa Mission and respective stakeholders	-Technical Studies - Feasibility Studies - Bid Process - Access of Grants - Selection of Concessionaire - Operations Monitoring - Awareness Campaigns
7	ENCOURAGING ACTIVE LIVING & HEALTHY COMMUNITIES • Linked Green Activity Zones • Pedestrian Streets Pan city Solutions • Smart Mosquito density system	TMC & Public Health department	-Technical Studies - Design and Planning - Procurement - Construction - Contract Monitoring - Vendor Management

Continue on next page

TABLE 7			
S.No	**Activity/Component**	**Department/agency/ organization**	**Role/responsibility**
8	ENABLING DISASTER MITIGATION • Flood Prevention by Reviving & Re-Activating Canal Fronts Pan city Solution • Early Warning System	TMC, District Collector Office, Minor and Major Irrigation Department, KSUDP	-Technical Studies - Design and Planning - Procurement - Construction - Contract Monitoring - Vendor Management
9	PROMOTING DIVERSITY & FOSTERING INCLUSIVENESS • Flexi Vending Zones • Integrated Social Housing Complex • Upgrdation of PHCs & anganwadis • Total Inclusion project	KHB, TMC, LIFE, Hawkers association, KPWD	- Demand Surveys - Accessing grants - Identification of land - Construction of units - Allotment of houses - Provision of education material & health equipment - Identification of beneficiaries through vulnerability analysis
10			
11			

35. PPP

In Table 8, give details of all the private companies/corporations/organizations that need to be engaged with the execution and operations &maintenance of the various activities and componentsenvisaged in this proposal, along with a description of their roles and responsibilities as basic TORs. Use appropriate terms such as 'vendor', 'concessionaire', 'JV partner', etc. (max. 50 words per cell)

TABLE 8

S. No	Activity/Component	Company/corporation/ organization	Role/responsibility (basic TOR)
1	Vendors (Consultancy Services): Consulting and advisory services. Hand holding assistance to the Corporation in 1. Project preparation 2. Bid process 3. Implementation monitoring	AECOM, TCE, Black & Veatch, HCP, Jacobs, iDeCK, Mahindra Acres, Hyder Consulting, Feedback Ventures, DIMTS	• Preparation of Detailed Project Report • Tender documents • Bid Process Management • Construction Supervision
2	Contractors/Concessionaires: Construction contractors engaged under a PPP framework for Implementation and O&M of water supply and sewerage projects --- e-Toilets ---	Veolia, Suez, L&T, Tata Projects, ILFS Water, Subhash Projects, Megha Infrastructure --- Eram Scientific ---	Design and construction of the water supply system, sewerage system, STPs, Storm water drains, natural gas pipeline. O&M of the implemented system
3	Contractors Utility re-alignment and Street-scaping	L&T, HCC, Gammon, Shapoorji Pallonji, Oriental Construction, ITNL	Design and construction of the streets (including drainage system)

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TABLE 8			
S. No	**Activity/Component**	**Company/corporation/ organization**	**Role/responsibility (basic TOR)**
4	Contractors: Solar Rooftop on Public buildings	TATA Power Solar, PCI Limited, Punj Lloyd Infra, Moser Baer	Project implementation and subsequent O&M Training of SPV personnel
5	Contractors/ Concessionaires: Warehouse facility at Chalai	JICS ligistics, AEGIS logistics, Reverse logistics, Siesta Logistic Corporation	Design, Construction, Project implementation and subsequent O&M Training of SPV personnel
6	Contractors/ Concessionaires: Multi Level Car Parking at Chalai & Palayam	DLF Limited, Il&FS, SMS Limited	Design, Construction, Project implementation and subsequent O&M Training of SPV personnel
7	Contractors: Implementation of Intelligent Water Management Systems	Schneider, Rebenius, IBM, Wipro, TCS, Siemens	Project implementation and subsequent O&M Training of SPV personnel

TABLE 8			
S. No	**Activity/Component**	**Company/corporation/ organization**	**Role/responsibility (basic TOR)**
8	Contractors: Implementation of Intelligent Transport Systems	DIMTS, Rebenius,Trimax, Schneider, Arya Omnitec, Continental, Siemens	Project implementation and subsequent maintenance Training of SPV and relevant agency personnel
9	Contractors: Implementation of Early Warning Systems & Smart Mosquito Density system --- Contractors: Providing GIS mapping system	ROLTA, HCL, Rebenius, L&T --- ESRI, MapmyIndia, ROLTA, NIIT	Project implementation and subsequent maintenance Training of SPV and relevant agency personnel --- Project implementation and subsequent O&M Training of SPV and Corporation personnel
10	Contractors: Surveillance Systems --- Contractors: Intelligent Street-lighting Systems	Siemens, Bosch, DIMTS, ROLTA --- Schneider, Rebenius, BOSCH, ROLTA, HCL	Project implementation and subsequent maintenance Training of SPV and relevant agency personnel --- Project implementation and subsequent maintenance Training of SPV and relevant agency personnel
11	Contractors: Integrated Control Room System	IBM, CISCO, Siemens, Rebenius System Integrators: TCS, HCL, Wipro, Infosys, Mindtree	Project implementation and subsequent O&M Training of SPV and Corporation personnel

36. STAKEHOLDER ROLES

Attach one A-4 sheet (part of 'Annexure 3'), containing an organogram showing the relationships:

a) MPs, MLAs, MLCs.

b) Mayors, Councilors, other elected representatives.

c) Divisional Commissioner

d) Collector

e) Municipal Commissioner

f) Chief Executive of the Urban Development Authority/ Parastatal

g) Consultant (Select from empanelled list)

h) Handholding Organisation (Select from following list: World Bank, ADB, JICA, USTDA, AFD, KfW, DFID, UN Habitat, UNIDO, Other)

i) Vendors, PPP Partners, Financiers

j) Others, (eg. community representatives) as appropriate to your city

E. FINANCIAL PLAN

The development of bankable proposals will be a key success factor in the Smart City Mission. In order to arrange appropriate amounts and types of funding and financing for your SCP, you must keep financial considerations always in mind while preparing your overall strategy and the pan-city and area-based proposals. It is anticipated that innovative means of funding and financing the projects will be necessary. For this purpose, you must evaluate the capacity of the ULB and the SPV to undertake self-funded development projects, the availability of funds from other government schemes that will converge in your SCP (refer Questions 13 and 26), and the finance that can be raised from the financial market.

37. ITEMISED COSTS

What is the total project cost of your Smart City Proposal (SCP)? Describe in detail the costs for each of the activities/components identified in Questions 31. (Describe in Max. 300 words)

The total estimated capital cost of the SCP is Rs. 1538.2 Crores towards Area Based Development and Pan City Initiative. The central elements of the ABD and Pan City are:

■ ABD : Urban Basic Services | Land use Efficiency | Resilience & Eco friendliness | Culture Identity & Heritage, | Socio - Economic Inclusiveness

■ Pan City: Integrated Centralised Control Room | Unified e-Governance Portal

PARTICULARS	AMOUNT (in Rs. Crs)
■ AREA BASED DEVELOPMENT:	1386.1
► Urban Basic Services:..... (Water Supply, UGD, SWD, SWM, MLCPs, NMT and UG Ducting)	771.5
► Land-use efficiency:..... (Market Development, Railway Station Development, Warehouse facilities East Fort Bus Depot and Maidaan Redevelopment)	238.0
► Resilience & Eco-Friendliness:..... (Sustainable campuses, Linked green activity zones, Pedestrian streets, canal front improvement, disaster management)	143.7
► Cultural Identity & Heritage:..... (Temple Precinct Development, Restoration of Agraharams, Heritage Trails, Unmanned Kiosks, Urban Street Haat and Conservation of Monuments)	126.5
► Socio - Economic Inclusiveness:..... (Slum housing, flexi-vending zones, upgrading anganwadis& PHCs, Total inclusion)	106.4
■ PAN CITY SOLUTION: Components: Centralised Control Room, Smart Water Network, Intelligent Traffic & Transportation, Early response system, Smart Mosquito Density System, SWM Data Centre	152.1
■ TOTAL COST OF THE PROJECT	1538.2

Note: Soft Costs such as Escalations, Detailed planning, Preparation of DPRs and Administrative Expenses are already included while estimating the above costs (For detailed cost breakup of the sub components (projects) refer Annexure 3.18)

38. RESOURCES PLAN

Describe the financing sources, the own-sources of income, the financial schemes of the Central or State governments for which your city/SPV is eligible, which can be used to fund the SCP proposals and pay back loans. Briefly describe an action-plan for resource improvement to make the ULB financially self-sustaining. (max. 1500 words)

The smart city proposal for the city is aligned to the Smart City Misssion of Govt. of India and is envisaged to be self-sustaining on a standalone basis and also contribute to the development of the city in the future. The key elements of financial plan such as funding pattern, convergence and PPP details and revenue sources are detailed below:

■ FUNDING PATTERN

SOURCE	ABD	PAN CITY	ALLOCATION	%age
► SMART CITY GRANTS (GoI & State Govt.)	872	128	1000	65%
► CENTRAL SCHEMES (AMRUT, SBM, PMAY, Digital India, Skill India, Nirbhaya, DELP, IPDS and MNRE)	248	12	260	17%
► PPP	142	-	142	9%
► OWN SOURCES (ULB Own Sources, State Departments & Other Schemes)	124	12	136	9%
TOTAL COST	1386	152	1538	100%

■ CONVERGANCE PLAN | ► National Schemes: Rs. 260.1 Crores

1. AMRUT: SLIPs were approved for the Corporation and the State Annual Action Plan (SAAP) with allocation if Rs. 357 Crores budgeted for next 3 years is under implementation. The disbursement for the first year is already completed and the status of few works/projects are either commenced/under construction/tendered.

   → Proposed Smart City Projects:
   - Water Supply - Replacement of pipes and installation of flow meters
   - Sewerage - Rehab of pumps and machineries and replacement of old pipes
   - Storm Water - Providing network in uncovered areas (within ABD area)
   - Urban Transport - Footpaths, Walkways, Bicycle tracks, and foot over bridges
   - Green Space & Parks - Sreekanteswaram Park Development (within ABD area)

   → Allocation for Smart City ABD Area : Rs. 96.95 Crores

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2. Swadesh Darshan: Ministry of Tourism as Spiritual Circuit in Kerala sanctioned for Rs. 92.4 crores for development of Sree Padmanabha Swamy Temple area and its surroundings in 2016. already designs were approved and an amount of Rs. 18.5 Crs (20% of Central Financial Assistance) is sanctioned as first installment to Kerala Tourism Development Corporation Limited.
   → Convergance for Smart City (ABD Area: 4 Nadas): Rs. 80.4 Crores
3. Other Schemes:
   Nirbhaya: Setting up of CCTV cameras & Emergency Response - Rs. 3.6 Crores
   Solar City Mission, IPDS: Solar Roof Top with Grid Connectivity - Rs. 19.9 Crores
   PMAY (Housing for All): Development of Slum Houses (ABD) - Rs. 48.0 Crores
   Swach Bharat: Public Toilets and SWM facilities - Rs. 3.0 Crores
   Digital India: Setting up of Centralised Control Room - Rs. 8.4 Crores

■ PPP DETAILS

Many of the projects identified through Smart City for Trivandrum have potential to be financially viable either on a standalone basis or viable through providing some viability gap funds.

Proposed Projects Envisaged through PPP - Rs. 142.4 Crores

1. Palayam market development with Commercial Complex - capex grant support
2. Multi Level Car Parks - with capex grant as support
3. Redevelopment of Railway Station with Commercial Development
4. Redevelopment of Bus Terminal - PPP with revenue share and capex grant
5. Rooftop Solar - 29 acres of rooftop available with govt. buildings in the ABD area
6. Development of warehouse facility for Chalai Bazar - PPP with Land as equity
7. Smart Lounges - PPP with share of land space within government campuses

■ ULB OWN SOURCES

Funds for Proposed Projects from State Level Agencies and TMC - Rs. 136.0 Crores

1. KSWCFC - Support for repairs and restoration of houses in Agraharams
2. Kerala Tourism - Development of maidaans into a cultural hub - Mini Urban Haat
3. State Government (through KSUDP) - Operation Anantha - Phase II (flood control program through canal improvement - within ABD Area)
4. Kerala Road Fund Board - through TRDCL for road improvement projects
5. State Housing Department - Project LIFE (Livelihood, Inclusion, Financial Empowerment) - Support of Rs. 2 lakh per house for homeless families
6. TMC - Support for Slum rehabilitation | Junction Improvement | IT Solutions
7. Internal Sources - ULB grant sources shall be utilized for meeting the subsequent replacement expenditure for the projects under ABD, Pan City Initiatives and any projects proposed in future. The existing grant sources of TMC in the last few years can be categorized under Road Maintenance Grants, SFC, CFC and Other Funds.

No.	Source	FY 16	Average Share (5 Year)	CAGR
1.	Road Maintenance	21.2 Crs	8%	27%
2.	SFC Grants	104.4 Crs	73%	73%
3.	CFC Grants	54.3 Crs	12%	152%
4.	Other Grants	16.1 Crs	7%	14%
	TOTAL	196.1 Crs	100%	25%

(Portion of these above funds shall be allocated for the SPV year on year)

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■ FINANCIAL PERFORMANCE OF TMC

TMC has been maintaining a cash surplus track record and approximately 30&-40% of the share of Total revenue is through tax based income in the last six financial years. Also TMC does not have any outstanding debt and there is no immediate plan to raise in the near future.

Parameter	Last 5 years Performance		
	2011	2016	Growth
1. Total Revenue	126 Crs	318 Crs	CAGR - 20.4%
2. Expenditure	125 Crs	249 Crs	CAGR - 14.8%
3. Operating Margin	0.78%	27.89%	-
4. Grant Income Share	(51% - 62% of total revenue)		Average: 56.6%
5. Tax Collection Efficiency	45.6%	53.4%	
6. Expenditure per Citizen	Rs. 1,243	Rs. 2585	CAGR - 15.8%

■ REVENUE SOURCES & SUSTAINABILITY

In order to maintain this initiative financially sustainable and enhance the financial situation, several revenue enhancers and new income sources were identified and evaluated critically and a specific set of realistic and achievable options were proposed and considered for estimating the financial viability of the project. The proposed revenue options for the SPV are mentioned below:

- ►Property Tax: Increase in the property taxes within the ABD area in a phase-wise manner subject to successful improvement in delivery of services. ABD shall have a different structure and incremental revenue proceeds shall be escrowed to SPV.
- ►Increase in Stamp Duty & Land Conversion Charges
- ►Lease Rentals: Land shall be given as a grant for projects such as Bus terminal development, market development, MLCPs, on street Parking and smart lounges
- ►User Development Fees: Grants are initially given to the developer for redevelopment of bus terminal in the ABD area. These grants shall be recovered through levy of development fees from the visitors by charging marginal amount of Rs. 5/-
- ►Savings from ICT Interventions: Savings realized from ICT interventions shall be monetized and ploughed back to the SPV's account utilized for meeting O&M expenses for the projects as well as for upcoming capital expenditure.
- ►Parking: Revision of parking fees and differential parking shall be proposed. Also through the smart parking proposed under pan city initiative, leakages shall be controlled. (Parking Policy is annexed to this report)
- ►Land Related: 1. Building Bye Laws - Additional FAR post construction completion
  2. Zonal Regulation - One time Rezoning Exercise
- ►Others: Advertisement Revenue, Levy on vacant lands and Revenue from Feeder

39. **COSTS**

What is the lifetime cost estimated for your area-based development and your pan-city solution/s? Add O&M costs wherever applicable. (max 500 words)

SPV is proposed to take up 35 projects under Area Based Development and 2 project under Pan City (with 11 domains). Out of these 39 projects, SPV will borne capital and O&M expenses for ? projects, only capital support for ? projects and ? projects to be totally implemented under PPP mode. The lifetime costs of the projects (excl. the PPP projects) for a 20 year period are estimated and detailed in the table below:

COMPONENT	CAPITAL COST	REPLACEMENT COST	O&M COST	TOTAL COST
► Urban Basic Services (Water Supply, UGD, SWD, SWM, MLCPs, NMT and UG Ducting)	771.5	176.3	82.3	1030.1
► Land-use efficiency (Market Development, RailwayStation Development, Warehouse facilities and Maidaan Redevelopment)	238.0	82.9	27.5	348.4
► Resilience & Eco-Friendliness: (Parks & Open Spaces, Solar Roof Top, Rain water harvesting and Canal Improvements)	143.7	74.9	24.3	243.0
► Cultural Identity & Heritage (Temple Precinct Development, Restoration of Agraharams, Heritage Trails, Unmanned Kiosks and Conservation of Monuments)	126.5	44.0	39.6	210.0
► Socio- Economic Inclusiveness (Slum housing, flexi-vending zones, upgrading anganwadis& PHCs, Total inclusion)	106.4	32.3	22.9	161.7
► Pan City (ICMCC & e-Gov Portal)	152.1	173.8	128.1	453.9
TOTAL COST	1,538.2	584.3	324.7	2,447.2
PROPORTION	62.9%	23.9%	13.3%	100.0%

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Note: 1. The above lifetime costs are assessed and presented in NPV terms with a discount rate of 12% for a period of 20 years
2. 6% inflation was considered for estimating replacement costs and O&M expenses.
3. The above lifetime costs does not include investment through private developers for PPP projects in the case of projects such as market development, MLCPs, Bus Terminal Development, Solar rooftop projects, smart lounges and warehouse facilities on Chalai Bazar area.
4. Only capital support is considered for estimating lifetime costs incase of PPP projects where SPV support is required
5. Also the above costs does not include O&M expenses for projects developed under PPP mode.

[Refer Annexure 3.18]

40. REVENUE AND PAY-BACK

How will the area based development and the pan-city smart solutions(s) of your city be financed? If you plan to seek loans or issue bonds, what revenue sources will be used to pay back the loans? (max. 250 words)

The total cost of implementation of the proposal is Rs. 1538.2 Crores which shall be funded from various sources as mentioned earlier.

*PPP is envisaged in projects such as bus terminal and MLCPs, market development, warehouse facility, solar roof top, street lighting and lounges.

The revenue sources for SPV are categorized into two components:
► Direct Income: Advertisement and Parking Revenue, Lease Rentals and UDF
► Indirect Income: Incremental Tax Revenue and Escrow Savings from ICT Solutions
► Capital Income: Share of SFC and CFC receipts to support future capex of the SPV

The revenue generated from the above sources are sufficient to meet the O&M expenses and generate enough cash surpluses and reserves for servicing the assets perpetually and also provide replacement and upgradation in future.

Loans are not envisaged for implementation of smart city at this stage as the ULB is already cash surplus and the projects proposed under SCP are sufficiently funded. Incase of any shortfall in raising enough funds for the project, TMC shall raise funds from the market through commercial borrowings. Also government of Kerala constituted Kerala Urban and Rural Development Finance Corporation Limited (KURDFC) to provide project backed term loans and payback shall ensured through escrow mechanism.

TMC has already sought Credit rating from a rating agency and as per the assessment report, the latest rating is mentioned below:

CREDIT RATING : Tenure: Long Term | Rating: BBB | Outlook: Stable | Year: 2016

41. RECOVERY OF O&M

What is your plan for covering the Operations & Maintenance costs for each of the activities/components identified in Questions 31? (max. 1000 words)

A range of revenue sources will be tapped to address the additional O&M cost for the service delivery which includes Tax and other own funds, user charges in Water supply and Sewerage, development charges, user charges/ rentals from commercial properties, pay and use provisions and advertisement options for toilets, rental income from municipal properties and public spaces, advertisement revenue, parking revenue, etc. Provisions for annual revision of charges may also be considered instead of periodic revisions. However, the revenue improvement strategies will be subject to the recommendations of the Business-cum-financial plan to be prepared for the SPV.

The project has a mix of remunerative and non-remunerative project components. The revenue strategy is to earmark a portion of the revenue streams from the area and the respective projects for ensuring sustainability. The strategies for achieving reasonable levels of O&M sustainability for each project component have been laid out below:

■ The city has separate plans for Operation and Maintenance for each of the component which is detailed below:

► Water Supply – The O&M for water supply will be met through user charges. The city has implemented 24/7 Water Supply project and proposed to shift from flat rate system to volumetric method. Higher number of commercial connections in the ABD area will bring improved returns on the project. The city has a high user charge collection efficiency with the lower cost recovery. Through metering all the connections and implementing the 'Smart Metering' Pan City Solution for tracking NRW, reducing leakages, savings in pumping costs and increase in revenue shall make the project more viable.
► Lease Rentals - The proposed ABD covers commercial exploitation of lands for office spaces and parking lots which will contribute for the revenue through lease rentals.
► Solid waste management and Sanitation – TMC is currently collecting SWM Charges from each property owner along with property tax. This charge shall be increased to meet the O&M expenditure which includes cost towards collection, transportation, processing and disposal of waste. The cost towards meeting the same shall be met through increased cess which shall be revised periodically.
► NMT and Green Spaces - These components are generally non remunerative in nature and are expected to be met through taxes and CSR funds.
► Other Non-Remunerative Components - Maintenance of Roads and Junctions, Open Space Maintenance, Storm Water Drains, etc. These components shall be met through taxes and other indirect sources of revenue as detailed below:

■ Other Revenue Sources:
► Enhanced Property Taxes: Implementation of SCP in the ABD area will enhance the property values in the area. Hence a differential tax rate shall be implemented to this area. Even though the ABD area is a part of CBD core area covering 2.6% of city area and 5.6% of population, but generates around 17.0% of the tax revenue to the TMC. Enhancement in the property tax in this area can sustain only after substantial increase in the services through the proposed interventions mentioned in SCP.

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► Savings from ICT Interventions: Savings from proposed pan city interventions shall be monetized and portions of the same shall be escrowed into the SPV account for recurring investments of the smart city and future investments of replicating the model in other parts of the city.
→ Efficiency improvements in Water Supply: Reduction in NRW by curbing
→ Reduction in Manpower: IT based technological interventions in sectors such as traffic & transport, emergency services and streetlight control.
→ Contract Monitoring of SWM: Reduction in leakages in the payments

► SFC Salaries and Electricity: Funds towards salaries for employees and electricity expenses shall be a pass through

► Capital Income for Future Capex: Grant sources of TMC such as SFC untied and special grants, 14th FC, etc. can be utilized to meet the cost towards future investments. For this purpose 15% of the grants received by TMC, year on year shall be allotted for future investments of the smart city initiative.

► Land Related Interventions:
→ Shared Selling of assets (land parcels) available with other PSUs such as railways, KSRTC, Railways, etc. by providing additional FSI for development.
→ One-time Rezoning Exercise
→ Enhancement of land conversion charges
→ Levy on Vacant Lands

■ Reinvestment

The revenue generated from the above sources shall be utilized to meet the O&M expenditure of the projects and also plough back the surpluses for reinvesting in the developed projects as well as replicating the same model in other parts of the city. The research and planning for future investments shall be initiated from 2018 and an indicative list of areas for improvement are listed below:

1. Kovalam - Kazhakootam Corridor ---- TOD ---- Retrofit cum Redevelopment ---- 2022
2. Medical College ---------- Medical District Hub ---------- Retrofitting ---------- 2024
3. Kazhakootam Area ------ IT Hub - Techno Park ---------- Retrofitting ---------- 2028

TMC is also looking forward to utilize the surpluses for scaling up the pan city initiatives from area/zonal/street level monitoring of services to household level and citizen level monitoring in the subsequent years.

42. FINANCIAL TIMELINE

What is the financial timeline for your smart city agenda? Describe the milestones and target dates related to fund flows, payback commitments, etc. that must be adhered to for the proposal to achieve the vision set out in Table 5 (question 31)? (max. 1 page: A4 size)

Sl. No.	Milestone/Phase of Project	Target Timeline
1.	Preliminary Approvals & Commitments on Grants - Approval from MoUD on the proposal - Incorporation of proposed SPV - First Disbursement of central share of grants to the SPV - First Disbursement of state share of grants to the SPV - Disbursement of funds of other schemes	 Q1 FY 2018 Q1 FY 2018 Q2 FY 2018 Q2 FY 2018 Already started
2.	Research & Planning - Tying of funds (apart from Grants) - Preparation of DPRs - Approval of Cost Estimations - Feasibility studies for specific projects - Obtain necessary clearances for each project	 Q2 FY2018 Q4 FY2018 Q4 FY2018 Q3 FY2018 Q4 FY2018
3.	Financial Closure - Procurement of the Contractors (Construction/PPP partners) - Financial closure of the projects	Q1 FY2019 Q2 FY2019
4.	Construction Phase - Year on year timely construction - Appointing IEE - Completion of Construction (for all projects) - Betterment Charges from Consumers (timely manner) - Propose future developments	Q3 FY2019 to Q2 FY2021
5.	Commercial Operation Date & Revenue Enhancements - COD of all projects - Revenue share from commercial property developments - Revenue from User Charges (volumetric billing for consumers) - Escalation of Property Taxes - Levy on vacant lands	 Q4 FY2019 to Q3 FY2021 from Q3 FY 2021 from Q3 FY 2021 Q4 FY 2021 Q4 FY 2021
6.	Pooling of Alternative Sources of Funds - Enhancement of Duties, conversion charges, etc. - Shared selling of PSUs lands - Future Developments in the area	Post 2021

43. FALL-BACK PLAN

What is your plan for mitigating financial risk? Do you have any alternatives or fall-back plans if the financial assumptions do not hold? (max. 250 words)

The financial risk emanates from two possible scenarios:

- In case there is a shortfall in financing the capital expenditure, either due to certain funding sources not materializing as envisaged or owing to cost over-runs in the project
- In case there is a shortfall in meeting the O&M requirements as against planned revenue sources.

In the first case, the following actions would be taken:

1. Rescheduling the start of yet-to-bid projects so as to match funds available and reallocating these funds for projects already underway
2. Restructure the yet-to-bid projects to have a lower upfront payment and deferred payments over a 5-10 year time frame, thereby reducing the upfront fund requirement

In the second case, since O&M expenses would be known once implementation bids are finalized, gaps in O&M funding shall be bridged by garnering resources through user charges/cess/taxes levied on visitors (preferred) and/or residents.

- Other Risks
  - ► Poor Participation of Pvt. Sector:
    - → Restructuring the PPP mode after consultations with stakeholders
    - → Prefer only remunerative projects initially - Markets, MLCP and Bus Terminal
  - ► Shortfall/Delays in fund disbursements from other sources - Convergance
    - → Low Cost Loans from KURDFC and Commercial Borrowings from market
  - ► Shortfall in Expected Revenue from Taxes and User Charges
    - → Citizen engagement campaign for timely payment for improved services
    - → Strengthen the revenue administration through IT enabled mechanism

Also, the city would immediately take following steps to garner additional revenue:

- ► Draw up an inventory of land assets by the city and leverage the same on PPP basis.
- ► Prepare a parking plan and bid out packages on PPP. On street parking should provide a reasonable steady cash flow to the city.
- ► Prepare an outdoor advertising master plan for the city. Again bidding out as zones/clusters should result in a reasonable steady cash flow to the city

The cash flows from these initiatives could be escrowed and leveraged to mobilize debt funds for the city and/or used to meet shortfalls in O&M funding requirements.

ANNEXURE 1

S. No	Feature	Definition
1.	Citizen participation	A smart city constantly adapts its strategies incorporating views of its citizens to bring maximum benefit for all. (Guideline 3.1.6)
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)
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)
4.	Health	A Smart City provides access to healthcare for all its citizens. (Guideline 2.5.10)
5.	Education	A Smart City offers schooling and educational opportunities for all children in the city (Guideline 2.5.10)
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)
7.	Compactness	A Smart City encourages development to be compact and dense, where buildings are ideally within a 10-minute walk of public transportation and are located close together to form concentrated neighborhoods and centers of activity around commerce and services. (Guidelines 2.3 and 5.2)
8.	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)
9.	Housing and inclusiveness	A Smart City has sufficient housing for all income groups and promotes integration among social groups. (Guidelines 3.1.2)
10.	Transportation & Mobility	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)
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)
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)

13.	Intelligent 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)
14.	Energy supply	A Smart City has reliable, 24/7 electricity supply with no delays in requested hookups. (Guideline 2.4)
15.	Energy source	A Smart City has at least 10% of its electricity generated by renewables. (Guideline 6.2)
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)
17.	Waste water management	A Smart City has advanced water management programs, including wastewater recycling, smart meters, rainwater harvesting, and green infrastructure to manage storm water runoff. (Guideline 6.2)
18.	Water quality	A Smart City treats all of its sewage to prevent the polluting of water bodies and aquifers. (Guideline 2.4)
19.	Air quality	A Smart City has air quality that always meets international safety standards. (Guideline 2.4.8)
20.	Energy efficiency	A Smart City promotes state-of-the-art energy efficiency practices in buildings, street lights, and transit systems. (Guideline 6.2)
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)
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)
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)
24.	Safety	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)

ANNEXURE 2

Self-Assessment Form

Attach self-assessment format given in supplementary template (Excel sheet), with columns I-L duly filled

ANNEXURE 3

Twenty sheets (A-4 and A-3) of annexures, including annexures mentioned in questions 32, 34, 36

S. No	Particulars	✓
1	Regional Context and City Profile	☑
2	Tourism	☑
3	Citizen Engagement	☑
4	Citizen Engagement (Area Selection & Top Issues)	☑
5	Area Profile	☑
6	Urban Basic Services (Improving Basic Services)	☑
7	Urban Basic Services (Well-connected, safe & accessible City Centre)	☑
8	Urban Basic Services (Complete Streets)	☑
9	Land Use Efficiency	☑
10	Cultural Identity & Heritage (Celebrating & Conserving Historic Assets)	☑
11	Cultural Identity & Heritage (Leveraging Educational Institutes & Tourism Potential)	☑
12	Resilience & Eco-Friendliness (Sustainable Building, Active Living & Disaster Mitigation)	☑
13	Socio-economic Inclusiveness (Promoting Diversity & Fostering Inclusiveness)	☑
14	PAN City Initiative	☑
15	PERT & CPM	☑
16	Convergence & SPV	☑
17	Stakeholder Organogram	☑
18	Financial Plan	☑
19		☐
20		☐

ANNEXURE 4

(Supporting documents, such as government orders, council resolutions, response to Question 33 may be annexed here)

S. No	Particulars	✓
1	Resolution of the Council approving Smart City Plan including Financial Plan - Malayalam & English (2 sets) versions	✔
2	Resolution of Council for setting up Special Purpose Vehicle - As part of the Resolution of the Council shown in S. No. 1	✔
3	Minutes of 10th State Level High Powered Steering Committee held on 22nd March, 2017	✔
4	Development of Sree Padmanabha-Aranmula-Sabarimala as a spiritual circuit in Kerala under Swadesh Darshan scheme [File. No. 5(04)/2016-SD dated 19th September, 2016]	✔
5	Release of first installment of Central Assisance (CA) to Govt. of Kerala under AMRUT dated 28th September, 2016	✔
6	Council approval for DPR under PMAY dated 7th February, 2017 (in Malayalam)	✔
7	Selection of Solar Master Plan for the city under MNRE scheme	✔
8	Kerala Rapid Transit Corporation Limited - Implementation of light metro rail system in Thiruvananthapuram and Kozhikade [order no. 74/2015/PWD dated 11th September 2015]	✔
9	KSWC for Forward Communities Ltd - Proposal for Renovation of Dilapidated Agraharas - Administrative Sanction [G.O.(Rt) No.3207/2016/GAD dated: 20th May, 2016]	✔
10	Implementation of operation Anantha flood control programme at Thiruvananthapuram under the Disaster Management Action plan - Phase I (Committee Constitution Order)	✔
11	Kerala Monorail Corporation Limited [G.O. & Certificate for commencement of Business]	✔
12	Consent Letter [Roc No. H1-33275/ 15 from District Collector office dated 18th March, 2017	✔
13	Consent Letter from Kerala Water Authority Letter dated 17th March, 2017	✔
14	Consent Letter [CE(IT) /RITU/ Smart City] from Kerala State Electricity Board Limited, Thiruvananthapuram - dated 17th March, 2017	✔
15	Consent letter [RoC No. TR1 -000017/2017]from Kerala State Road Transport Corporation dated 18th March, 2017	✔
16	Consent Letter [No.3719/D1/2015/SM] from Suchitwa Mission dated 17th March, 2017	✔
17	Consent Letter from Department of Tourism, Thiruvananthapuram dated 17th March, 2017	✔
18	Consent Letter [No.D3-1230/SE/ISC/2015] from Irrigation and Administration dated 20th March, 2017	✔
19	Consent letter from Department of Archeology dated 23rd March, 2017	✔
20	Consent letter [No.67/ Camp/ CP/2017-TC] from Thiruvananthapuram City police dated 17th March, 2017	✔

21	Consent Letter [E1/583/2017/ TRIDA] from Thiruvananthapuram TRIDA dated 18th March, 2017	✔
22	Consent Letter [A.81/2017/SPST] from Thiruvananthapuram Sree Padmanabha Swami Temple dated 29th March, 2017	✔
23	Consent Letter [No. CE/BL/G1/A1/2586/2017 from Public Works Department (Buildings) dated 27th March, 2017	✔
24	Consent Letter [No. CE/R&B/3313/2017/Tvm from Public Works Department (Roads and Bridges)dated 21st March, 2017	✔
25	Consent Letter [No.A6.2193/17/DC] from Directorate of Culture dated 29th March 2017	✔
26	Article on Annual Survey of India's City Systems, 2016	✔
27	G.O (MS) No.62/2011/LSGD dated 26th Febrauary, 2011 - Automobile Parking Policy for the towns and cities in the state of Kerala under JnNURM	✔
28	G.O.(P) No. 49/2013/PD dated 25th Novemeber, 2013 - Kerala Solar Energy Policy 2013, Power (PS) Department, Thiruvananthapuram	✔
29	EOI submitted by Eram Scientific Solutions Pvt Ltd, Kerala dated 17th March, 2017	✔
30	EOI submitted by RSR Designs, Thiruvananthapuram	✔
31		☐
32		☐
33		☐
34		☐
35		☐
36		☐
37		☐
38		☐
39		☐
40		☐

ANNEXURE 1 : SELF ASSESSMENT

	Level of Development of city overall	Level of Development of city overall	(OPTIONAL) Any additional information, inlcuding any quantitative information
Citizen participation	**Scenario 4**	City constantly conducts citizen engagement with people at each Ward level to incorporate their views, and these shape priorities and development projects in the city. Multiple means of communication and getting feedback such, both face-to-face and online are utilised. The effectiveness of city governance and service delivery is constantly enhanced on the basis of feedback from citizens.	
Identity and culture	**Scenario 4**	Built, natural and intangible heritage are preserved and utilised as anchors of the city. Historical and cultural resources are enahnced through various mediums of expression. Public spaces, open spaces, amenities and public buildings reflect local identity and are widely used by the public through festivals, events and activities.	
Economy and employment	**Scenario 3**	There are adequate job opportunities for all sections of society. But skill availability among residents can sometimes be a challenge.	
Education	**Scenario 4**	City provides adequate and high-quality education facilities within easily reachable distance of 10 minutes walking for all the residential areas of the city and provides multiple options of connecting with specialised teaching and multi media enabled education. Education facilities are regularly assessed through database of schools including number of students, attendance, teacher-student ratio, facilities available and other factors.	
Health	**Scenario 3**	City provides adequate health facilities within easily reachable distance for all the residential areas and job centers of the city. It has an emergency response system that connects with ambulance services.	
Mixed use	**Scenario 3**	Most parts of the city have housing, retail, and office buildings in close proximity. Some neighborhoods have light industrial uses within them (e.g., auto repair, craft production). Land use rules allow for mixed uses.	
Compact	**Scenario 2**	The city has one or two high density areas - such as the city center, or historic areas, where buildings are concentrated together and where people can walk easily from building to building and feel as though they are in center of activity. Most of the city consists of areas where buildings are spread out and difficult to walk between, sometimes with low-density per hectare. Regulations tend to favor buildings that are separated from one another, with lots of parking at the base and set-back from the streets. The city likely has some pockets of under-utilized land in the center. New formal developments at the periphery tend to be large-scale residential developments, often enclosed with a gate and oriented to the automobile.	
Public open spaces	**Scenario 1**	The city has very few usable public open spaces and very few usable green spaces. Available recreational spaces are located far away and are dispersed at long distances around the city. The few available public open spaces offer a limited variety of experiences for all sections of population and age groups such as places for sport, places for rest, and places for play.	
Housing and inclusiveness	**Scenario 2**	Housing is available at most income levels but is highly segregated across income levels. Population growth slightly exceeds the creation of new housing. The wealthy and the middle class have housing that meets their needs at costs appropriate to their income. The poor live in informal settlements.	
Transport	**Scenario 3**	Network of streets are fairly complete. Public transport covers most areas of the city. However last mile connectivity remains incomplete and affects transport options. Foot paths are accessible in most areas, whereas concerns of safe crossings and security throughout the day remain. Parking zones are demarcated but absence of pricing increases over utilization of parking lots.	
Walkable	**Scenario 1**	The city is designed mainly for the automobile. Daily life without a car requires long bus rides. Walking is difficult and often dangerous; there are few pavements, existing pavements need repair and lack trees to provide shade for pedestrians, and marked pedestrian crossings are rare. New buildings have their main entrances set-back from the street, sometimes with large driveways or parking lots separating them from the street, and sometimes are are enclosed by gates. Traffic signals are often disobeyed	
IT connectivity	**Scenario 2**	The city has made plans to provide high speed internet connectivity through the existing framework.	
ICT-enabled government services	**Scenario 2**	Some of the public services are provided online and infrastructure for total digitalization is not in place. Service delays occur regularly in some sectors. Responses to citizen inquiries or complaints are often delayed. No integration between services and billing.	
Energy supply	**Scenario 2**	Electricity supply and loads are managed as per demand and priority for various functions with clear scheduling, with electricity being available in many areas for most hours of the day.	
Energy source	**Scenario 3**	Some energy consumed is the city is produced through renewable sources. There are long term targets for higher renewable energy capacities and the city is making plans to achieve these.	
Water supply	**Scenario 2**	The city has intermittent water supply and availability. However it is setting targets and processes in place to try to improve its water supply. Unaccounted water loss is less than 30%.	
Water management	**Scenario 1**	The city does not measure all its supply. It does not recycle waste water to meet its requirements and rain water harvesting is not prevalent. Flooding often occurs due to storm water run-off.	
Waste water management	**Scenario 1**	The city is unable to treat all its sewage. Many local sewer lines open on to water bodies and open ground and pollute the environment.	
Air quality	**Scenario 3**	City has programs and projects to monitor air quality and spatialising the data to ascertain reasons for degrees of pollution in the air. Pollution levels are acceptable.	
Energy efficiency	**Scenario 2**	The city promotes energy efficiency and some new buildings install energy effeciency systems that track and monitor energy use and savings.	
Underground electric wiring	**Scenario 2**	More than 40% of the city has underground electric wiring system.	
Sanitation	**Scenario 4**	Sanitation facilities are available to 100% of the city's population.	
Waste management	**Scenario 2**	Waste generated is usually collected but not segregated. Recycling is attempted by difficult to implement.	
Safety and security	**Scenario 2**	The city has medium levels of public safety - some more vulnerable groups feel insecure during some points of the day and in some parts of the city	

ANNEXURE 2 SELF ASSESSMENT SHEET

A	B	C	D	E	F	G	H	I	J	K
S. No.	**Feature**	**Definition**	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 4**	**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)**
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)**	The City begins identifies priorities and projects to pursue without consulting citizens.	City undertakes citizen participation with some select stakeholders. The findings are compiled and incorporated in some projects or programs. Very few major decisions are shared with -citizens until final projects are unveiled.	City conducts citizen engagement at city level and local area level with most stakeholders and in most areas. The findings are compiled and incorporated in projects or programs.	City constantly conducts citizen engagement with people at each Ward level to incorporate their views, and these shape priorities and development projects in the city. Multiple means of communication and getting feedback such, both face-to-face and online are utilised. The effectiveness of city governance and service delivery is constantly enhanced on the basis of feedback from citizens.	**SCENARIO 4**	Ward sabhas conducted at every 3 months to take opinions & suggestions on various development projects. Five Yearly City Investment Plan prepared based on Ward level consultations Source: TMC, 2017	1. 100% people's participation in decision making process for various development projects	*Adopting various modes online and mass media modes for citizen engagement to bring increased transparency & 2 way communication *Awareness activities for increasing people's participation
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)**	There are few architectural monuments, symbols, and festivals that emphasise the unique character of the city. Built, natural and cultural heritage is not preserved and utilised or enhanced through physical, management and policy structures.	Historic and cultural resources are preserved and utilised to some extent but limited resources exist to manage and maintain the immediate surroundings of the heritage monuments. New buildinds and areas are created without much thought to how they reflect the identity and culture of hte city.	Historic and cultural heritage resources are preserved and utilised and their surroundings are well-maintained. Public spaces, public buildings and amenities reflect the cultural identity of the city.	Built, natural and intangible heritage are preserved and utilised as anchors of the city. Historical and cultural resources are enahnced through various mediums of expression. Public spaces, open spaces, amenities and public buildings reflect local identity and are widely used by the public through festivals, events and activities.	**SCENARIO 4**	***Administrative Capital -** Served as the Adminsitrative centre during past eras & presently the state capital ***Built Heritage** - Anantha Padmanabha Swami temple along with several prominent heritage structures viz. city museum, Kuthiramalika Palace, Kanaka Kunnu Palace, East Fort Area etc. form the focal attraction for tourists within city ***Eco tourism** - Well known for Kovallam Beach receiving high influx of foreign tourists. * **City based Events** - Major events inlcude the International Film Festival of Kerala & Soorya Festival (75 day event). Other include Swati Sangeethotsavam and Nishagandhi festival, Kovalam Literary festival etc. ***Fairs & festivals** - Onum, Attukal Pongala, Navratri festival, etc. * **Other land marks** - Southern Air Command headquarters of Indian Air Force, Thumba Equatorial Rocket Launching Station, Regional Medical hub Source: Kerala Tourism Dept & TMC, 2017	1. Strengthening of the weak Heritage & Cultural links	**1. Tourist Information system** - Dashboards, mobile apps, websites etc providing easy access to various tourist locations, history, festivals, fairs, local specialities, accessibility, accomodation facilties etc. **2. Mapping the Heirtage structures/ sites within the fort city** to plan a comprehensive conservation plan of the fort area **3. Heritage area building byelaws** for new buildings proposed within the heritage zone.
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)**	There are some job opportiunities in the city but they do not reach all sections of the population. There are a high number of jobs in the informal sector without sufficient facilities.	There is a range of job opportunities in the city for many sections of the population. The city attemps to integrate informal economic activities with formal parts of the city and its economy.	There are adequate job opportunities for all sections of society. But skill availability among residents can sometimes be a challenge.	There are adequate opportunities for jobs for all sections of income groups and skill levels. Job-oriented skill training supported by the city and by industry. Economic activities are suited to and build on locational and other advantages of the city.	**SCENARIO 3**	▪ Largely service sector, as the city is the administrative capital. ▪ **Industries** - Major industries include manufacturing sector, IT sector & handloom sector. KINFRA Film & Video Park, KINFRA Small Industries Park, HLL, Industrial estate & Industrial development Centre ▪ IT sector is emerging in the Northen part of the city - Technopark (Phase 2 proposed) while boost to Port based activities is anticipated due to proposed Vizhimjam International Port in Sountern part of the city ▪ Tourism is one of the major contributor to the city's economy - Internationally renowned tourist destinations, cultural events, religious circuits and local craft & art forms. Source: DIC, 2017 & Master Plan, 2015	1. Promoting & facilitating growth of IT sector which will attract global investment and employment for skilled graduates in the city. 2. Develop & capture religious, heritage and beach tourism potential of the city which will create multiplier effect for employment opportunities for the city's residents 3. Promoting & facilitating the indigenous handloom industries under Make in India initiative targeting women employment 4. Skill development training for economically weaker sections under NULM.	1. Skill development training programmes/ courses for youth of BPL/ EWS category to boost their employment rate targeting the job opportunities in the existing industries and emerging tourism/ IT/BT sectors. 2. Training & skill development in Handloom industries for women
4	**Education**	**A Smart City offers schooling and educational opportunities for all children in the city (Guideline 2.5.10)**	The city provides very limited educational facilities for its residents. There are some schools but very limited compared to the demand. Many schools are in poor condition.	City provides adequate primary education facilities within easily reachable distance of 15 minutes walking for most residential areas of the city. The city also provides some secondary education facilities.	City provides adequate primary and secondary education facilities within easily reachable distance for most residential areas of the city. Education facilities are regularly assessed through - databases of schools including number of students, attendance, teacher - student ratio, facilities available and other factors.	City provides adequate and high-quality education facilities within easily reachable distance of 10 minutes walking for all the residential areas of the city and provides multiple options of connecting with specialised teaching and multi media enabled education. Education facilities are regularly assessed through database of schools including number of students, attendance, teacher-student ratio, facilities available and other factors.	**SCENARIO 4**	▪ The city is known for its primary and higher educaional institutions, run by government as well private entities. ▪ Of the 142 schools, there are 53 HS, 34 UP and 55 LP Schools. 66% of these are government schools and 34% are aided. ▪ As an initiative to encourage collaborative learning, IT@School Project was introduced in 2011 as a customized version of the Wikipedia which is called as 'School Wiki' for all the schools in the state. In addition to this, to ensure that quality ICT equipments with necessary software and applications are supplied to schools in a systematic and meticulous manner, technical guidelines have been set and modes of funding established. ▪ A single-window system has been set up for higher secondary admissions ▪ Textbook supply monitoring system has been set up Source: General Education Department, GoK	1. Increase literacy rate from 95.10 % (2011) to 100% in the coming years 2. Besides improving the higher education facilities, the city shall focus on improving the primary education facilities in the town. 3. It is anticipated there will be more schools in the near future. Government college campuses are expected to become smart too, and be used for skill development.	1. Create a more integrated knowledge sharing and research platforms with the multiple specialised institutions in the city. 2. Link up professional instituions with jobs within the city in order to retain talent
5	**Health**	**A Smart City provides access to healthcare for all its citizens. (Guideline 2.5.10)**	Healthcare is difficult for citizens to access - demand for healthcare often exceeds hospitals' ability to meet citizen needs.	The city provides some access to healthcare for its residents but healthcare facilities are overburdened and far from many residents. Access to preventive health care is only easily available for some residents.	City provides adequate health facilities within easily reachable distance for all the residential areas and job centers of the city. It has an emergency response system that connects with ambulance services.	City provides adequate health facilities at easily accessible distance and individual health monitoring systems for elderly and vulnerable citizens which are directly connected to hospitals to prevent emergency health risks and to acquire specialised health advice with maximum convenience. The city is able to foresee likely potential disases and develop response systems and preventive care.	**SCENARIO 3**	▪ The modern medicine hospitals in the city have 1 bed for 668 people of city. ▪ Being the district headquarters, Trivandrum is the centre for medical facilities in the surrounding rural areas. ▪ Trivandrum is a ayurvedic healing destination known across. People from all over the world visit Trivandrum for its ayurvedic retreats. ▪ The city has seen mosquito borne communicable disease outbreak in recent times. The prevalence of diabetes in the city is 17%, as compared to the national average of 8% Source: Health Department & City disaster management Plan, 2016	1. The government health facilities shall improve the basic infrastructure and cater to more number of patients. 2. Pro-active public health information and preventive measures will keep a check on the epidemic outbreaks. 3. Ayurvedic health facilities will be affordable to all sections of community.	1. Control the epidemic outbreak by improving the hygenic conditions of the city. 2. Developing public parks with public gyms to inculcate active lifestyles among people. 3. Improving the emergency response system network for the city.

S. No.	Feature	Definition	Scenario 1	Scenario 2	Scenario 3	Scenario 4	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)
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)**	The city has mostly separated uses and areas are focused either on residential, commercial, or industrial, with little co-existance of uses. The average resident cannot walk to the closest market or shops near his or her home. For almost everyone, going to work or going shopping for basic needs requires a journey by automobile or bus of more than 15 minutes. Land use regulations prevent putting commercial or office locations in residential neighborhoods and vice versa.	In some parts of the city , there is a mixture of land uses that would allow someone to live, work, and shop in close proximity. However, in most areas, there are only small retail stores with basic supplies near housing. Most residents must drive or use public transportation to access a shop for food and basic daily needs. Land use rules support segretating housing, retail, and office uses, but exceptions are made when requested.	Most parts of the city have housing, retail, and office buildings in close proximity. Some neighborhoods have light industrial uses within them (e.g., auto repair, craft production). Land use rules allow for mixed uses.	Every part of the city has a mix of uses. Everyone lives within a 15-minute trip of office buildings, markets and shops, and even some industrial uses. Land use rules require or encourage developers to incorporate a mixture of uses in their projects.	**SCENARIO 3**	▪ City has well developed mixed use as per bye-laws. The commercial zones are concentrated in the city centre. Neighbourhood levele amenities available within 5 mins walking distance. ▪ Land use rules allow mixed use and do not exhibit inclination towards segregating housing, retail and office uses. ▪ Connectivity and mobility are compact. Source: Proposed Master Plan, 2015	1. Develop well developed mixed landuse pattern with 10-15 min distance from the nearest transit facility. 2. Regulations on new housing projects to undertake mixed use integrated with public amenities and commercial facilities. 3. Master Plan for the city to be proposed taking into account proper land allocation facilitating hierarchy of mixed landuse pattern - neighbourhood level, sector level and city level.	Amendment in Building Bye-laws to encourage and incentivize mixed use developments (higher FAR and TDR) like TOD and ZDP thus facilitating higher commercial activities and improved revenue collection.
7	**Compact**	**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 neighborhoods. (Guidelines 2.3 and 5.2)**	The city is expanding rapidly at its periphery into undeveloped land, rural or natural areas, or along industrial corridors - both formally and informally. Formal new development is occuring in a way that is "sprawling," meaning that the buildings spread across a wide area and are far from one another. Residents or tenants find it easier or safer to travel by automobile because it takes a long time to walk between destinations and there are busy roads separating buildings. Large pockets of land in the inner-city are vacant. New developments at the periphery tend to be large-scale residential developments, often enclosed with a gate and oriented to the automobile.	The city has one or two high density areas - such as the city center, or historic areas, where buildings are concentrated together and where people can walk easily from building to building and feel as though they are in center of activity. Most of the city consists of areas where buildings are spread out and difficult to walk between, sometimes with low-density per hectare. Regulations tend to favor buildings that are separated from one another, with lots of parking at the base and set-back from the streets. The city likely has some pockets of under-utilized land in the center. New formal developments at the periphery tend to be large-scale residential developments, often enclosed with a gate and oriented to the automobile.	The city has multiple high density clusters that are easy to walk around where buildings are close together. However, the city actively encourages development to occur on under-utilized parcels of land into high-density, walkable areas. When new formal large-scale development projects happen at the periphery, they are encouraged to be dense and compact, with buildings that are close together and line the streets. The city actively encourages or incentivizes re-development of under-utilized parcels in the inner-city, especially those located close to public transportation.	The city is highly compact and dense, making the most of land within the city. Buildings are clustered together, forming walkable and inviting activity centers and neighborhoods. Regulations encourage or incentivize re-development of under-utilized land parcels in the city center. Buildings are oriented to the street — and parking is kept to a minimum, located below ground or at the back of buildings. Public transport and walking connects residences to most jobs and amenities. Residential density is at an optimal with affordable housing available in most areas.	**SCENARIO 2**	▪ Average density of the city of the city is 3669/sqkm (36 pph). ▪ The sparsely populated areas have a density of around 1500/sqkm (15 pph) and the densely poplated city cemtres have 9000/sqkm (90 pph). ▪ Though the CBD and old areas are compact, they lack proper walkable streets, well planned public spaces and prone to traffic congestion. Source: Census 2011 & Proposed Master Plan, 2015	1. Integration of the Master Plan, Public Transport system and Non motorised transport options connecting the residences to the work place and amenities.	1. Land use bye-laws to encourage vertical developments with higher FAR and TDR. Also the horizontal expansion of the city needs to be restrict/ limited to control the haphazard unplanned expansion of the city area.
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)**	The city has very few usable public open spaces and very few usable green spaces. Available recreational spaces are located far away and are dispersed at long distances around the city. The few available public open spaces offer a limited variety of experiences for all sections of population and age groups such as places for sport, places for rest, and places for play.	A variety of public open spaces are available in some neighborhoods, but are not available in all the areas of the city or are located far away from residential areas Many of the open spaces have access restrictions, or are not well-maintained. A variety of types of public open spaces may be lacking, such as natural areas, green areas, parks, plazas, or recreation areas.	Most areas of the city have some sort of public open space. There is some variety in the types of public spaces in the city. However, public spaces are sometimes not within easy reach or access of more vulnerable populations and are more restricted in poorer neighbourhoods.	Public open spaces are well dispersed throughout the city. Every residential area and work space has access to open space within 10 minutes walking distance. Open spaces are of various types - natural, green, plazas, parks, or recreation areas - which serve various sections of people. Public spaces tend to truly reflect the natural and cultural identity of the city.	**SCENARIO 1**	▪ Only 1% of the land is allocated for parks and open spaces in the city currently. This comes to only 0.60 sq. m/ person. ▪ This is absymally low as per the URDPFI guidelines, which recommends 10% of the city area under open spaces. Source: TMC, 2017	1. More number of neighborhood parks which will promote an active lifestyle of the people. 2. Gradual improvement towards attaining the URDPFI norm of 12 sqm/ person urban open space. 3. Additionally provision of a continuous footpath network to increase walkability.	1. The new developments shall have a dedicated percentage of land allocated for the parks and playgrounds. 2. Integrated parks connected by shaded, green pedestrain pathways. Also the parks shall be improved with open gyms, jogging tracks and other activity space
9	**Housing and inclusiveness**	**A Smart City has sufficient housing for all income groups and promotes integration among social groups. (Guidelines 3.1.2)**	Housing is very limited and highly segregated across income levels. Population growth far exceeds the creation of new housing. The poor live in informal settlements with limited to no access to basic services, and are concentrated in a few areas. The wealthy live in separate enclaves. Those in the middle have few , if any options.	Housing is available at most income levels but is highly segregated across income levels. Population growth slightly exceeds the creation of new housing. The wealthy and the middle class have housing that meets their needs at costs appropriate to their income. The poor live in informal settlements.	Housing is available at all income levels, but is segregated across income levels. The growth of supply of housing almost meets the rate of population growth. Increasingly, lower and middle-income people can find housing in areas that are conveniently located.	A wide range of a housing is available at all cost levels. The supply of housing is growing at pace with population. Afforable, moderate, and luxury housing are found clustered together in many areas of the city	**SCENARIO 2**	▪ Sufficient housing is available for Middle and higher income groups. ▪ Total slums - 179 with 19,362 households. . 7.93% of the city population resides in slums. ▪ Most of these slums are locted along Coastal areas, roads or major drains/ nallahs & are devoid of land tenureship. ▪ 20,048 EWS housing units constructed by Kudumbashree and 1,707 new units under implementation under VAMBAY scheme. ▪ Central & State funds allocated for EWS housing for the beneficieries under PMAY & LIFE Source: TMC, 2017	1. Tenure issues of the slum dwellers to be resolved. 2. Affordable housing for the EWS & migrant workers 3. Basic infrastructure improvement in all the slums	1. A total investment of Rs.225cr is envisaged improvements in housing and basic infrastructure for all slums in city 2.The improvements are in the sectors of water supply, storm water drains, internal roads, street lights, IHHTs, community toilets etc.
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)**	Personal automobile centric city with very few modal options. Long trip lengths for daily commute to work and education. Accessing various areas by walking or cycling is difficult. Women and vulnerable sections find it very difficult to move independently in the city. There is limited public transport. Vehicles cause high air and noise pollution levels in the city. Vehicles dominate public spaces and affect their effective functioning.	The street network system is elaborate but public transport choices are restricted. Public transport can be too expensive or unafforadable for the poor. Pedestrian infrastructure is only available in select areas. Tha majority of investments focus on reducing traffic congestion through the creation of more roads.	Network of streets are fairly complete. Public transport covers most areas of the city. However last mile connectivity remains incomplete -and affects transport options. Foot paths are accessible in most areas, whereas-concerns of safe crossings and security throughout the day remain. Parking zones are demarcated but absence of pricing increases over utilization of parking lots.	Street network is complete and follows a clear structure. Public transportation network covers the entire city and intensity of connection relates with the demand. Plenty of options of public transport are available and affordable for all sections of the society. There is multi-modal integration at all mass transit staions and organized-priced on street and off street parking. Walking and cycling is prevalent.	**SCENARIO 3**	▪ KSRTC is the nodal agency for bus transport within the city. It serves the city as well as region. KURTC was formed under JnNURM scheme which operates low floor buses. Apart from this private operator ply private buses within the city. ▪Total KSRTC & KURTC bus fleet - 700 nos. & private buses - 110 nos. ▪ Share of PT use is 43% while city roads covered under PT is 77%. About 45% of the population is dependent on private transportaton. ▪ Average trip length is 7.55 kms; average travel time less than 15 minutes & average travel speed is 25 kmph ▪ Last mile connectivity is through private auto rickshaws and pedetrian mode. **Proposed Projects** ▪ LRT proposed & got state approval (40 km) connecting North to South mobility corridor across city ▪ Outer Ring Road(55 km) under Capital Region Development Programme Phase -II interconnecting NH-66, SHs & M.C. road passing through city. ▪ Pilot PPP project implemented by TRDCL for city centre roads(42 kms); Maintained on BOT annuity model since 2006. Source: KRFB, KRTL & TMC, 2017	1. Increased dependence on PT system (60%) & NMT (50%) 2. Last mile connectivity from transit nodes through NMT infrastructure (within 0.5 km) 3. 100% coverage of PT system (bus stops & routes) 4. Integrated PT Information system	1. Real time information system of the PT system for increased usage 2 Integrated NMT system with . Public bike sharing system & bicycle tracks connecting LRT stations, bus stations, railway station to residential pockets 3. Awareness programmes in schools, colleges, institutions & government offices to encourage increased use of NMT infrastructure.

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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)**	The city is designed mainly for the automobile. Daily life without a car requires long bus rides. Walking is difficult and often dangerous; there are few pavements, existing pavements need repair and lack trees to provide shade for pedestrians, and marked pedestrian crossings are rare. New buildings have their main entrances set-back from the street, sometimes with large driveways or parking lots separating them from the street, and sometimes are are enclosed by gates. Traffic signals are often disobeyed	Older areas of the city see a mix of pedestrians, cyclists, and vehicles but newer areas are focused mainly on the automobile. In the new areas, there are few pavements and main entrances to new buildings are not accesible from the front of the street. large driveways or parking lots often separating them from the street, and sometimes are are enclosed by gates. In these areas, traffic signals are disobeyed.	The city has a good network of pavements and bike lanes. Buildings in most areas of the city are easily accessible from the pavement. Howver, traffic signals are sometimes disobeyed and it can feel difficult to cross the street.	The city is highly walkable. Pavements exist on every street and are maintained. Trees line many sidewalks to provide shade for pedestrians. Buildings in most areas of the city are easily accessible from the sidewalk. Traffic signals control the flow of automobiles and are enforced. A network of bike lanes exists to promote cycling as a means of transport. Traffic rules are followed and enforced with great seriousness.	**SCENARIO 1**	▪ **NMT -** Modal share of NMT in the city is only 7%. Only 10% of the total city roads have footpaths 1.2m wide (one sided or two sided). ▪ No dedicated bicycle tracks ▪ Kerala Road Fund Board has implemented improvement of major city centre roads (42 km) for better walkability, improved traffic safety, improved road alignment, street lights, signage, tree plantation & bus bays on BOT model. ▪ **Street lights -** Coverage -100%; 74% tube lights & 13% are SV/ MV lamps. ▪ Manually monitored which has resulted in creation of unsafe black spots along the roads. ▪ Dedicated on-street parking areas & off-street parking with proper enforcement along major CBD roads. ▪ Commercial streets lack walkability, signage, street lighting and parking facilities. Source: CMP, 2015 & TMC	1. To encourage safe and secure walkability & cycling tracks within the city to all the public and semipublic zones. 2. Tree Plantations along all the pedestrain pathways and zones. 3. 100% coverage of automated LED street lights	1. CMP 2015 proposal includes: 42.3 km of bicycle lanes, 2.20 km of no vehicle zone and 89.8 km of new footpaths. 2. AMRUT proposal includes no vehicular zone with bicycle connectivity along 5 nos. of roads , 4 nos. of footover bridge and 2 MLCPs. 3. Provide smart Solar based LED street lighting system across the city.
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)**	City has no major plans to bring increased high speed internet connectivity to the public.	The city has made plans to provide high speed internet connectivity through the existing framework.	The city makes has high speed internet connectivity available in most parts of the city.	The city offers free wifi services to provide opportunity for all the citizens to connect with high speed internet across the city.	**SCENARIO 2**	▪ TVM has provided Wi -Fi spots in 12 locations within the city through BSNL providing 5G wi fi service. ▪ Access to free internet for 15 minutes/ device/ month within 100m radius of the 12 spots. Additional usage can be availed through prepaid vouchers Source: TMC, 2017	1. Access to High speed latest internet for all to improve the city's overall quality of life and ease of access to various online facilities.	1. Seamless Public WiFi all over the city which will mainly include all public buildings, educational institutes, government schools, hospitals, bus stands, bus stops, parks &MLCPs 2. In the longer run, access ponts can be installed on street lights to provide wifi through the city.
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)**	Essential Government services are not linked with online platforms. Paper intensive interactions with the local Government continues. Recieving services and response to citizen complaints take a long time. There is limited availability of data to monitor service delivery.	Some of the public services are provided online and infrastructure for total digitalization is not in place. Service delays occur regularly in some sectors. Responses to citizen inquiries or complaints are often delayed. No integration between services and billing.	Most of the services are provided online and offline. Data transparency helps monitoring. Systema and processes to better coordinate between various Government agencies are being developed.	All major services are provided through online and offline platforms. Citizens and officials can access information on accounting and monitor status of projects and programs through data available on online system. Robust data infratsructure system shares information and enhances internal governmental coordination.	**SCENARIO 2**	**Online systems available for citizens -** 1. Property tax , 2. Water tax, 3. Electricity bills, 4. Issue of birth. death & marriage certificates 5. Online application & disbursement of social security pension (Sevana pension) ▪ Lack of interdepartmental communication & online information system for basic services. ▪ TVM yet to introduce building plan approval system, project reports, GIS based City Master Plan, paperless office etc. **Public Grievence Addressal -** 1. Toll Free Customer care numbers (KWA) 2. Online grievience system - (KWA, KPWD, KSEB) 3. Whatsapp & Facebook page - (TVM, KWA) ▪ TVM yet to evolve efficient online public grievience system for improved service delivery Source:Information Kerala Mission (GoK), KWA, KSEB, KPWD & TMC, 2017	1. Integration of common database across all the line departments to achieve seamless and layered information which can be utilised holistically for planning, office administration and efficient service delivery system. 2. Adopting e-Governance system across all the government offices to maintain updated database on timely basis and to achieve consistentency , transparency and quick responsive system	1. Integrated citizen services portal and call center with mobile apps to service G2G, G2C & G2B. 2. Integrated E-Governance system for all the departments involved in service delivery - TVM, KWA, KSEB, KPWD, KSRTC etc.
14	**Energy supply**	**A Smart City has reliable, 24/7 electricity supply with no delays in requested hookups. (Guildeline 2.4)**	There is only intermittent electricity supply with regular power shedding. Many residents have to plan their days around when power is available.	Electricity supply and loads are managed as per demand and priority for various functions with clear scheduling, with electricity being available in many areas for most hours of the day.	Electricity is available in most parts of the city for most hours of the day but some areas are not so well-served. Smart metering exists in some parts of the city but not all.	Electricity is available 24 x 7 in all parts of the city with smart metering linked to online platforms for monitoring and transparency.	**SCENARIO 2**	KSEB is the nodal agency for power generation & supply ▪ Peak Demand - 3.71 MW ; Present Supply - 3.95 MW ▪ Implemented SCADA/DMS project for automation of distribution system up tp 33 KV. SCADA control centre under implementation ▪ 50% reduction in scheduled and unscheduled outages ▪ 98.5% collection efficiency ▪ 24x7 customer care services for city residents ▪ No smart meters yet installed in the city Source: KSEB, 2017 & MNRE	1. 24x7 power supply, with minimum supply-level losses. 2. 100% of households, commercial, institutions and public building electric meters will be replaced by smart electric meters	1. Augment the source of power supply by using renewable energy . 2. Passive lighting and cooling techniques shall be encouraged in the city to reduce the power consumption.
15	**Energy source**	**A Smart City has at least 10% of its electricity generated by renewables. (Guideline 6.2)**	The city does not have any renewable sources of energy and there is no commitment to promote this for the forseeable future.	The city is preparing plans for ensuring that it gets more energy from renewable sources and is in the process of making commitments in this regard.	Some energy consumed is the city is produced through renewable sources. There are long term targets for higher renewable energy capacities and the city is making plans to achieve these.	At least 10% of the energy used in the city is generated through renewable sources. The city is undertaking long-term strategic projects to tap renewable sources of energy in its region/beyond to increase the percentage of renewable energy sources.	**SCENARIO 3**	**Statewide Initiatives:** ▪ Policy Initiatives - Kerala Solar Energy Policy, 2013, GO on Land allocation for renewable energy projects, 2015, Kerala Renewable Energy Policy 2002 ▪ ANERT is a state nodal agency for MNRE(GoI) to carry out Centrally Assisted Programmes. ▪ Kerala State Electricity Board (KSEB) has set up a dedicated unit for renewable energy to explore and optimally develop renewable energy resources in state **City Based Initiatives:** ▪ KSEB has installed 12 nos. of solar units with 235 KW capacity within the city. Additional 4 units are under implementation of 90 KW capacity. ▪ Solar Master Plan has been prepared & approved by MNRE with total investment of Rs. 50 crores. Source: KSEB, 2017 & MNRE	1. To generate and substitute above 10% of the city's power requirement through Solar based energy.	1. Installation of Solar rooftops on all public, institutional and large scale commercial buildings. 2. Implement the approved Solar Master Plan for the city under MNRE scheme.
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)**	The city has a poor water supply system with limited water availability. There are no clear targets to achieve higher quality and optimal quantity standards. Unaccounted water loss is above 40%	The city has intermittent water supply and availability. However it is setting targets and processes in place to try to improve its water supply. Unaccounted water loss is less than 30%.	The city has 24 x 7 water supply in most areas but the quality of water does not meet international health standards. Unaccounted water loss is less than 20%.	The city has 24 x 7 treated water supply which follows national and global standards and also available in suffecient quantity and affordable across all sections of the society. Unaccounted loss less than 15%.	**SCENARIO 2**	▪ Surface water source -River Karamana; Total Supply - 174 MLD; 24X7 water supply system in the city ▪ 100% treated water supplied @ 100 lpcd; Quality of water supplied - 92% ▪ Increase in water supply network - 76% to 83%; Increase in HSCs from 1,67,093 to1,91,845 nos. (100% metered) Source: KWA & TMC, 2017	1. 100% coverage of 24x7 treated water supply @135 lpcd in the city 2. 100% network coverage 3. Reduction in NRW 4. Highest standards of water quality to be maintained.	1. Augmentation of water treatment facilities 2. Replacement of old pipelines and aged water meters 3. Rehabilitation of existing treatment plants 4. Augmentation of 24 X 7 WS system in newly added areas 5. ICT enabled NRW tracking & monitoring and smart metering for all connections.

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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 stormwater runoff. (Guideline 6.2)**	The city does not measure all its supply. It does not recycle waste water to meet its requirements and rain water harvesting is not prevalent. Flooding often occurs due to storm water run-off.	The city has meters for all its water supply but lacks mechanisms to monitor. Water wasteage is very high. Some, but not much, rainwater harvesting exists.	The has meters for all its water supply with some smart mechanisms to monitor. Rainwater harvesting systems are installed and storm water is collected and stored in water bodies. However, recycling of waste water and reusage of storm water is limited.	The city has meters for all its water supply. It includes smart mechanisms to monitor remotely. Rainwater harvesting systems are installed and utilised through the city and storm water is collected and stored in water bodies and treated for usage. Recycled waste water is supplied for secondary uses.	**SCENARIO 1**	▪ 83% coverage of piped WS from River Karamana and availaibility of potable water due to high groundwater table ▪ No focussed initiative or regulatory policy for rain water harvesting initiated. ▪ Coverage of roadside drains is 60%; incidence of water logging - 21 times every year. ▪ Major strom water drains are encroached & subjected to direct discahrge of sullage & solid waste, incidence of sewerage mixing in drain is 30% ▪ State Initiative Anantha Phase 1 for cleaning & restoration of canals in the city centre implemented in 2016. Phase 2 proposed Source: KWA & TMC, 2017	1. 100% rainwater harvesting 2. 100% coverage of roadside drains 3. Cleaning & restoration of all the water canals and removal of encroachments along the water channels.	1. Rain water harvesting units for larger public, institutional & educational buildings 2. Provision of SWD for the uncovered 40% roads within the city 3. Implementation of Anantha Phase- 2 project.
18	**Waste water management**	**A Smart City treats all of its sewage to prevent the polluting of water bodies and aquifers. (Guideline 2.4)**	The city is unable to treat all its sewage. Many local sewer lines open on to water bodies and open ground and pollute the environment.	Most waste water is collected and treated before before disposal. However the treated water does not meet standards and is not recycled for secondary uses.	All the waste water is collected and treated before before disposal. It is also treated to a high standard and some is recycled.	The city has zero waste water because all the waste water is collected, treated and recycled. It meets standards an reduces the need for fresh water.	**SCENARIO 1**	▪ 37% coverage of UGD network. Remaining depend on onsite sanitation systems. ▪ 103 MLD of sewage is generated per day out of which only 44 MLD is treated per day (41%) ▪ Treatment efficiency of STP - 58% Source: KWA & TMC, 2017	1. 100% coverage of UGD network 2. Regularise the decentralised sanitation system	1. Lay UGD network for uncovered areas 2. Connecting streets/ neighbourhood to decentralised treatment unit 3. ICT enabled leak detection system
19	**Air quality**	**A Smart City has air quality that always meets international safety standards. (Guideline 2.4.8)**	City does not have plans, policies or programs to improve the air quality. Systems to monitor air quality are absent.	City has programs and projects to monitor air quality and spatialising the data to ascertain reasons for degrees of pollution in the air. A few strategies to decrease air pollution have been implemented.	City has programs and projects to monitor air quality and spatialising the data to ascertain reasons for degrees of pollution in the air. Pollution levels are acceptable.	The city has clean air by international standards. Live Air quality monitoring cover the entire city and data of air quality are mapped.	**SCENARIO 3**	▪ Air quality is monitored in various locations in the city. In most cases, the contaminant levels are found well under the permissible levels. ▪ High levels of Nox and RSPM due to vehicular pollution. Source: KSPCB, 2017	1. The city will work towards achieving euro standards of air quality. This shall be achieved by increasing the green cover, reducing the use of private vehicles.	1. Increase in the percentage of open spaces in the city, which will act as a lung space. 2. Efficient Public Transport system & facilitating NMT mode of mobility
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)**	City has no programs or controls or incentive mechanisms to promote or support energy effeciency in buildings	The city promotes energy efficiency and some new buildings install energy effeciency systems that track and monitor energy use and savings.	Most new public buildings install energy effeciency systems and some older buildings are also retrofitted to be more energy efficient. Local government conducts counselling and outreach with developer, businesses and residents to adopt energy effeciency strategies	All the existing old and new public buildings employ energy effeciency principles in development and operation and apply for energy rating by national and international forums. Many non-public buildings are also energy efficient because the government promotes energy efficiency through incentices and regulations.	**SCENARIO 2**	▪ The city was home to well known architect Laurie Baker who emphasised & practised cost-effective energy-efficient architecture and designs for buildings. ▪ Infosys Trivandrum Building Awarded Highest LEED Rating includes water efficiency, energy efficiency, renewable energy, indoor quality environment, efficient use of material & resources ▪ Installation of solar power units initiated by KSEB in public buildings within city. (12 nos. of solar units with 235 KW capacity) ▪Street lights mostly include tube lights (72%) and sodium vapour lamps (13%). Only 0.7% LED street lights in city. Source: KSEB, 2017	1. 100% coverage of energy efficient & reliable street lighting system for entire city 2. Adopting green & sustainable building concept in all public and institutional buildings	1. ICT based Street lighting system - auto on /off, auto updation on replacement, fitted with Solar based LED lights 2. Capacity Building and Awareness Activities under MNRE scheme 3. Ratings & Rewards for adoption of green building concept for new buildings
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)**	City does not have plans for underground electric wiring system.	More than 40% of the city has underground electric wiring system.	More than 75% of the city has underground electric wiring system.	More than 90% of the city has underground electric wiring system.	**SCENARIO 2**	▪ Underground ducting of 441 km HT lines proposed under R-APDRP scheme. ▪ Under ground ducting for the other electric cables within the city not yet planned. Source: KSEB & TMC, 2017	1. 100% underground ducting of electric wiring to reduce T&D losses , breakages & maintenance cost, power thefts and improve city aesthetics. 2. 100% integrated underground ducting of	1. Underground ducting of all electrical wiring especially in the congested dense commercial areas and transport nodes.
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)**	Many parts of the city do not have access to sanitation infrastructure and facilities.	Sanitation facilities are availabile to 70% of the city's population.	Sanitation facilities are available to 90% of the city's poopulation.	Sanitation facilities are available to 100% of the city's population.	**SCENARIO 4**	▪ Thiruvananthapuram has been declared an ODF district, 99.5% of the households in city have IHHLs. ▪ She-toilets have been installed in various locations ▪ Total number of toilets - 35 nos.; Public toilets: 28 nos., Community toilets: 5 nos.; Private toilets: 2 nos. Source: TMC, 2017	1. 100% coverage of household toilets 2. Improvement of existing toilets & provision of best suitable public toilets in uncovered areas. .	1. Enhanced awareness and sustained behavioral change 2. Improved Institutional governance and enhanced human resource capacities for city-wide Sanitation 3. Improvise with technological efficiency and appropriateness
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)**	Waste collection systems do not pick up waste on a frequent basis and waste often enters into water bodies.	Waste generated is usually collected but not segregated. Recycling is attempted by difficult to implement.	Waste is segretated, collected, recycled and disposed in an environmentally sound manner.	The city reduces land fill caused by waste so that it is minimal. All the solid waste generated is seggregated at source and sent for recycling. Organic waste is sent for composting to be used for gardening in the city. Energy creation through waste is considered.	**SCENARIO 2**	▪ 350 TPD of waste is generated in the city , of which 65% is organic. ▪ Vilappilsala waste plant was shut down in 2015 & remains so. ▪ The city has adopts a decentralised approach ▪ With little or no segregation, open dumping in water bodies and burning of mixed waste is rampant in the city. Source: Suchitwa Mission & TMC, 2017	1. Plan of 100% processing of waste by setting large scale decentralised units for different streams of waste 2. Extending 100% door to door collection for dry and reject waste streams	1. SWM Data Centre - for motnitoring, emapnelment of vendors, linking to generators, IEC and reporting of the decentralised system adopted 2. Identification of a landfill site for disposal of rejects
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)**	The city has low levels of public safety - most groups of residents feel insecure during most parts of the day in many parts of the city.	The city has medium levels of public safety some more vulnerable groups feel insecure during some points of the day and in some parts of the city	The city has high levels of public safety - all citizens including women, children and the elderly feel secure in most parts of the city during most time in the day.	The city has very high levels of public safety - all residents feel safe in all parts of the city during all hours of the day.	**SCENARIO 3**	▪ **General Public** Police stations - 22 nos., CCTV cameras - 223 nos., central police control room interlinked with all police stations for immediate response within 4 - 5 minutes, hotline numbers - airports, banks & fire station, whatsapp number ▪ **Women & Children section** iSafe mobile app based alert system, pink patroling vehicles (3 nos. operating on 3 major routes), pink beat system (group of 10 women police for day to day on ground surveillence in crowded areas & public transport), 24X7 helpline service - Vanita Helpline : 9995399953; Women Helpline: 1091 connected to women cell in control room ▪ **Elderly & Senior citizen section** Grievance Readdressal Forum held monthly & action taken against any issues raised from elderly groups/ individual ▪ **Increasing Crime incidents**-10,153 (2013) to 15,594 (2015) ▪ **Street lighting coverage** - 100% . However, 74% of lights are tube lights followed by 13% SV/ MV lamps & 10% ordinary bulbs. Poor Visibility due to inconsistent lighting Source: Suchitwa Mission & TMC, 2017	1. 100% coverage of city surveillence system (day & night vision) - 2. 100% coverage of energy efficient & reliable street lighting system for entire city	**1. Integrated city surveillence system linked to central control system** which will monitor traffic junctions, city roads, public transport buses, bus stops, bus terminals, tourist spots, markets, public parks etc. **2. ICT based Street lighting system** - auto on /off, auto updation on replacement, fitted with LED and operated on solar energy.

STRATEGIC LOCATION AND CONNECTIVITY

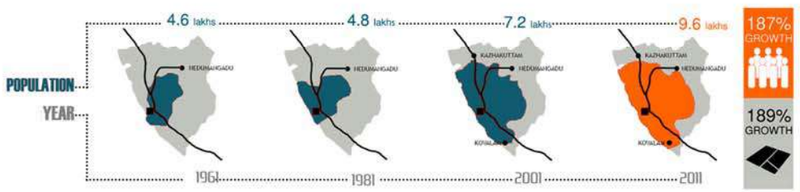
8th busiest airport in India. The International Airport is considered an all-weather airport and is busiest in terms of international traffic.

Central Railway Station is the largest railway station in Kerala in terms of passenger movement and an important rail hub in Southern Railway. There are direct rail connections to all major cities in India.

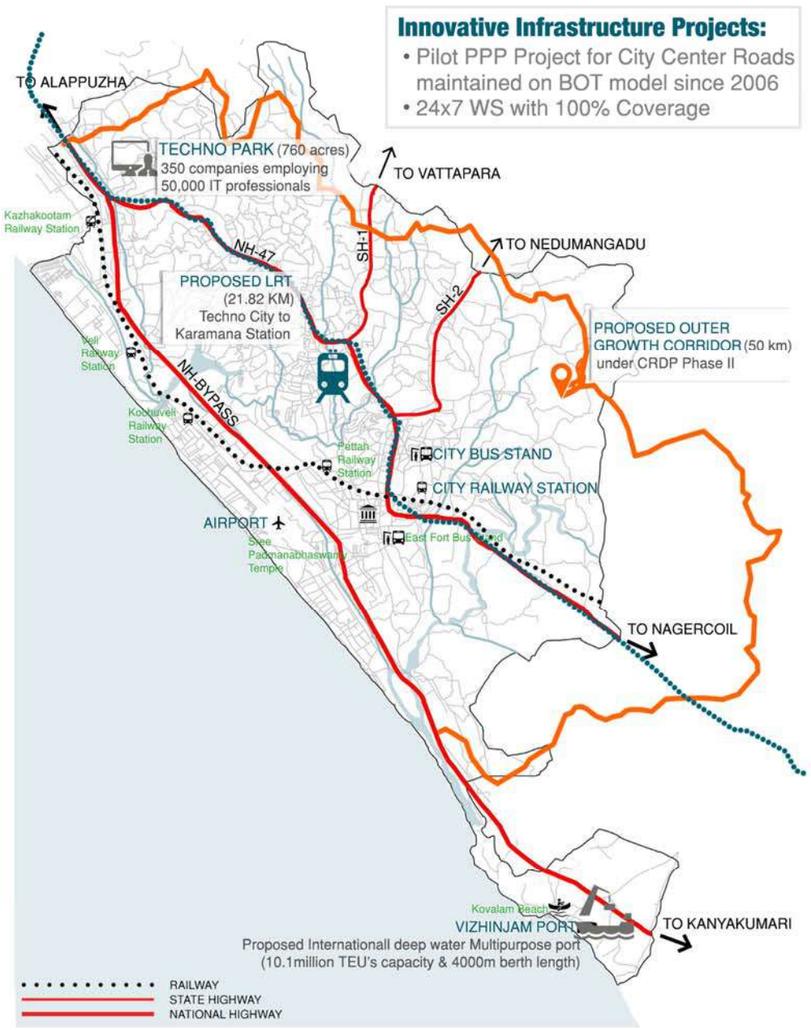
KSRTC is one of the oldest state run public bus transport services in India. Daily scheduled distance is over 14,22,546 km

- Administrative capital, located along the west coast (southernmost part of India)
- Acts as a gateway to the Middle East and South Asian countries
- Southern Air Command headquarters of the Indian Air Force

CITY EVOLUTION AND IDENTITY

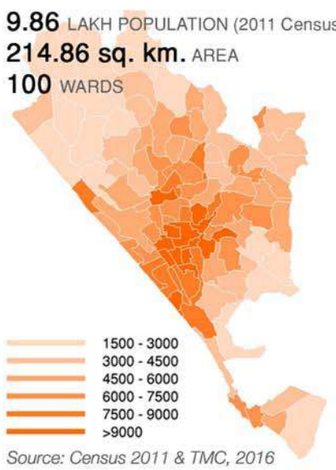


- Derived from 'Thiru-Anantha-Puram' meaning 'The town of Lord Anantha'
- Marthanda Varma founded the princely state of Thiruvithamkoor with Thiruvananthapuram as the capital in 1745
- Acted as trading post for spices, sandalwood and ivory during pre-colonial and colonial period
- Municipality set up in 1920 and upgraded to Corporation in 1940
- International tourist destination - Shri Anantha Padmanabhaswamy Temple and Kovalam Beach
- Hosts the Annual International Film Festival
- Thumba Equatorial Rocket Launching Station is located here



AREA AND DEMOGRAPHY

9.86 LAKH POPULATION (2011 Census)
214.86 sq. km. AREA
100 WARDS



Source: Census 2011 & TMC, 2016

4,470 persons/sq.km. AVERAGE DENSITY

1,088 to 1,000 SEX RATIO

75,623 persons SLUM POPULATION

1,96,202 HHs, **4** persons/HH HOUSEHOLDS AND AVERAGE SIZE

86% AVERAGE LITERACY RATE

36% WORK PARTICIPATION RATE

13.29% (1981-91), **3.25%** (2001-11) GROWTH RATE

LAND USE PATTERN

74.66 sq.km. (1966) to **214.6 sq.km.** (2012) GROWTH OF THE CITY

Land use	Area (sq. km)	%	As per URDPFI guidelines
Residential	120.34	56	40-45%
Commercial	2.53	1	3-4%
Public/ Semi Public	27.86	13	10-12%
Transportation	6.46	3	12-14%
Industrial	1.82	1	8-10%
Parks & Open Space	0.54	0	18-20%
Agriculture/ Paddy cultivation	48.27	23	-
Water Bodies	5.18	2	-
TOTAL	214.60	100%	

Source: Draft Masterplan Report 2015

BASIC SERVICES

WATER SUPPLY

Source: River Karamana
Total supply/day: 174 MLD
Distribution Network: 1500 km (83%)
Tap connections: 1,91,845 (98%)

PROPOSALS UNDER AMRUT @ 373.0 CR.
Augmentation of treatment facilities.
Replacement of old pipelines & aged water meters
Rehabilitation of existing WTPs
Augmentation of 24X7 WS (new areas)
Smart meters for bulk consumers & revenue collection centres

Source: TMC (2017)

STORM WATER DRAINS

Total coverage wrt roads: 119.78 km (60%)
Flood prone areas:
Thampanoor, East Fort, Chalai, Karamana, Manacaud, Thiruvallam, Ulloor, Vanchiyoor, Kumarapuram Attakulangara & Kannammoola

PROPOSALS UNDER AMRUT @ 292 CR.
Includes cleaning & desilting of the existing drains
Rejuvenation of existing drains
Extension of the SWD network for uncovered areas

OPERATION ANANTHA
Canal cleaning & restoration
PHASE 1(completed in 2015): 15.11 km
Project cost: 20.45 cr
PHASE 2(proposed): Project cost:6.4 cr

Source: TMC (2017)

SOLID WASTE MANAGEMENT

Current waste generation/day: 350 TPD
Waste Composition: 60% Organic | 35% recyclable | 5% reject/inert
Proposed processing (on-going): 41.6% Waste handeled at source | 35% Recycled

TMC INITIATIVES
194 Comunity Aerobins distributed
50 Biogas plants and 19 OWCS installed

SUCHITWA MISSION INITIATIVES
Green Protocol toward Zero-Waste Event demonstrated at National games 2015

Source: TMC (2017), Suchitwa Mission (2015)

TRAFFIC AND TRANSPORT

Total Road length: 1810 km
Surfaced: 1227 km (68%)
Unsurfaced: 583 km (32%)
Total Footpath length: 112 km

PUBLIC TRANSPORT:
Public Transport Coverage: 77%
KSRTC Buses: 114 (Intra-City), 586 (Inter-City)
Private Buses: 110

Source: CMP (2015), KSRTC (2017)

SEWERAGE AND SANITATION

Generation/day: 103 MLD
UGD coverage: 42 wards of 100
Treatment capacity: 107 MLD (58% used)
Toilets: 28 Public, 5 Community, 2 Private and 20+ She-Toilets

PROPOSALS UNDER AMRUT @ 1386 CR.
Extension of sewerage network
Rehabilitation of old network & 5 MLD STP
Pumping mains & stations
Septage management

Source: TMC (2017)

POWER SUPPLY

Peak demand: 3.72 MW
Present supply: 3.95 MW
Reduction in Outages: 50%
Collection effeciency: 98.5%

KSEB INITIATIVES
Installed 12 nos Solar units (235 KW capacity) within the city
Additional 4 nos Solar units (90KW) under implementation

Source: KSEB (2017)

SAFETY AND SECURITY

Police Stations: 22 nos.
CCTV cameras: 223 nos.
Response time: 4-5 mins

WOMEN & CHILDREN SECURITY:
I-SAFE app based alert system
Pink patroling and pink beat vehicles
24/7 VANITA helpline
SENIOR CITIZENS:
Monthly Grevience readdresal forums
STREET LIGHTS:
Coverage:100 %
Type: 74% Tubelights; 13% SV/MV lamps

Source: Traffic Police and City Police (2017)

HEALTH

City level Hospitals: 8 Nos.
Key Hospitals: Regional Cancer Center, Women and Children Hospital, Mental Health Center

PREVALENCE OF DIABETES
20% in the Kerala and 17% in Thiruvananathapuram; Very high in comparison to national avg. of 8%

(Source: http://www.indushealthplus.com/kerala-health-statistics.html)

TOP RANKED CITY

#1 in Quality of Life
#2 in Urban Governance

Source: Annual Survey of India's City Systems (Janagraha 2016)

POPULAR TOURIST SPOTS (KERALA)

RELIGIOUS CIRCUIT

Sree Ananthapadmanabha Temple and Sabarimalai

ECO - TOURISM CIRCUIT

7 popular hill stations in the state, Ponmudi being the closest to Thiruvananthapuram

BEACHES CIRCUIT

6 popular beaches along coastal line. Kovalam most popular destination in India.

TOURIST FOOTFALL

RANK IN STATE

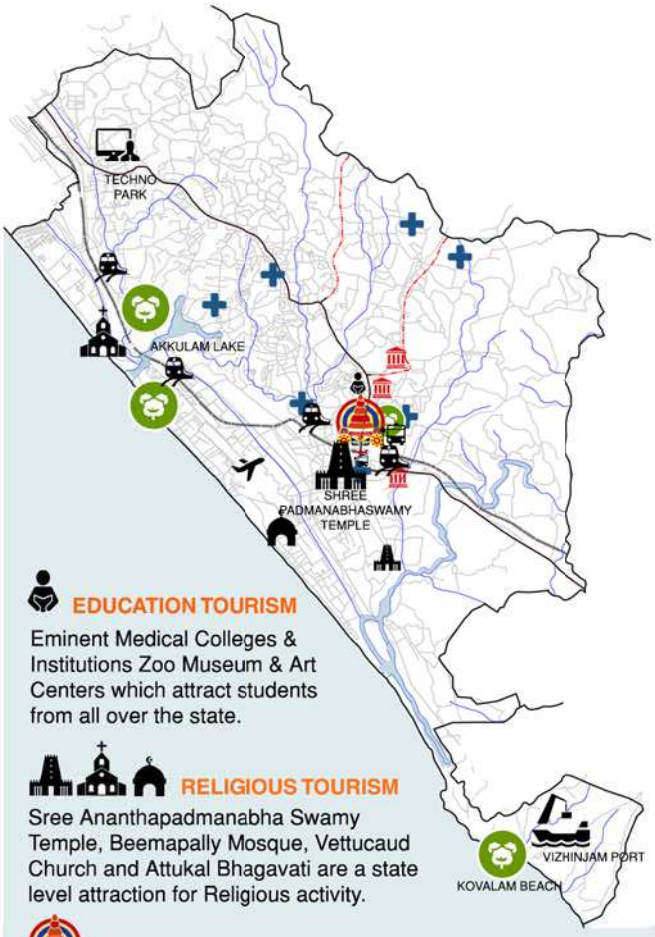
#2 In International (31.2%)

#3 In Domestic (14.59%)

Source: Department of Tourism, GoK (2013-14)

EVENTS AND FESTIVALS IN THE CITY

POINTS OF INTEREST IN THE CITY



EDUCATION TOURISM

Eminent Medical Colleges & Institutions Zoo Museum & Art Centers which attract students from all over the state.

RELIGIOUS TOURISM

Sree Ananthapadmanabha Swamy Temple, Beemapally Mosque, Vettucaud Church and Attukal Bhagavati are a state level attraction for Religious activity.

ART & CULTURE TOURISM

Three major Dance and Music festivals - Nisha Gandhi, Swathi Tirunal and Utsavam. City is a host to many Art and Dance form institutions.Street plays and perfomances at Manaveeya Veedhi

ECO - TOURISM

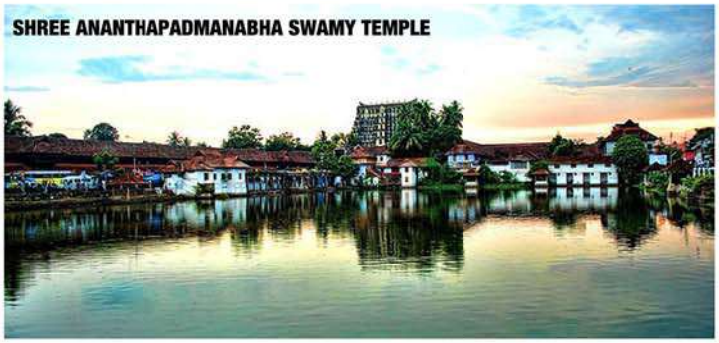
Natural Tourism spots along the coastal line. Three beaches and two natural lakes. Vizhinkam Port is also a major attraction

HERITAGE TOURISM

ASI has declared two monuments at national level. Department of Archaeology has recognised 300 heritage monuments in the city

MEDICAL TOURISM

Over 100 recognised Ayurvedic treatment centers. Three recognised state level Govt. Hospitals catering to 7 million population of the state.



CITIZEN ENGAGEMENT STRATEGY

CITIZENS & STAKEHOLDERS

ROUND 2: Conceptualisation

AWARENESS AND SETTING THE VISION & GOALS

- Setting up of the Technical Expert Committee & Smart City cell by TMC.
- Campaigns & Events to create awareness.
- Crowdsourcing through contests for suggestions and generate a theme for the city.

DEPARTMENT / EXPERTS CORPORATION OFFICIALS / CITIZENS REPRESENTATIVE

ROUND 2: Project Development

FINALISATION OF AREA & KEY INTERVENTIONS

- Ideas, Suggestions and Feedback from Ward Sabha varied Citizen groups and experts
- Survey to priotrize the city's key concerns
- Stakeholder consultations, Technical committee meeting inputs & FGD's to select ,priotrize city's key concerns.

STATE LEVEL OFFICIALS / CORPORATION / TECHNICAL EXPERTS / STATE COMMITTEE

ROUND 3: Proposal Strengthening

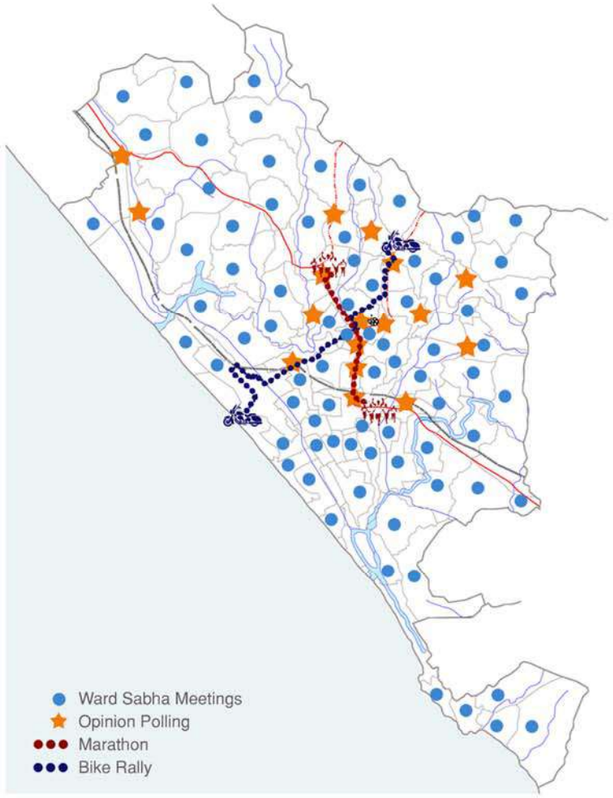
CONSULTATIONS FOR FURTHER IMPROVEMENT

- Post results of SCP - Round 2
- City wide concept and draft stages of proposal discussion for improvements.
- Strengthening of the final SCP

NEWS AND PRINT MEDIA:

MODES OF ENGAGEMENT

ACTIVITIES AND EVENTS:



STAKEHOLDER & WARD SABHA MEETINGS:

TOTAL OUTREACH

WARD SABHAS: 3,095 RESPONSES

Ward Sabha Meetings conducted by councillors in all 100 wards in the city

PRINT MEDIA: 2,58,141 EXPOSURES

Articles and updates published weekly in 11 Malayalam and English newspapers, circulated city wide.
Over 2000 flyers and brochures handed out.

ONLINE MEDIA: 10,535 RESPONSES

Responses recieved through multiple social media portals and messaging services.

- 2,000 Likes
- 28 Broadcasts
- 391 Suggestions (e-mail & website)

EVENTS: 5,588 PARTICIPANTS

Several events and activities were held to engage citizens to become active participants of the Smart City process.

- 60 participants — PAINTING COMPETITION
- 58 entries — ESSAY WRITING
- 3,015 performers — FLASH MOB
- 250 runners — MARATHON
- 100 riders — BIKE RALLY
- 95 locations — SUGGESTION BOXES

STAKEHOLDER MEETINGS: 583 PPL

Over 35 stakeholder meetings held with citizen groups, NGOs, experts, officials, vulnerable groups, industry associations, etc.

TOP PRIORITY AREAS

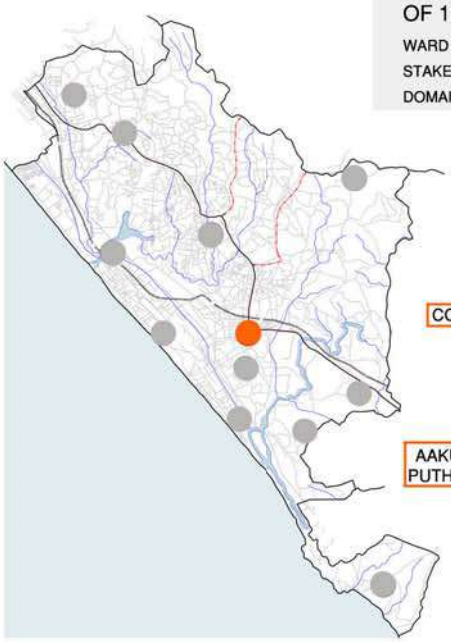
Through Ward Sabha's, 24 sectors were sent out to vote, where citizens ranked them on top priority with respect to issues faced in the city.

ANNEXURE 3.4 CITIZEN ENGAGEMENT

STAGE 01 : IDENTIFICATION OF 12 AREAS
WARD MEETINGS
STAKEHOLDER CONSULTATIONS
DOMAIN / EXPERT MEETINGS

STAGE 02 : SHORTLISTING OF 7
COUNCIL AND TECHNICAL COMMITTEE

STAGE 03 : SELECTION OF TOP 3 AREAS
CITIZEN VOTING VIA POLL

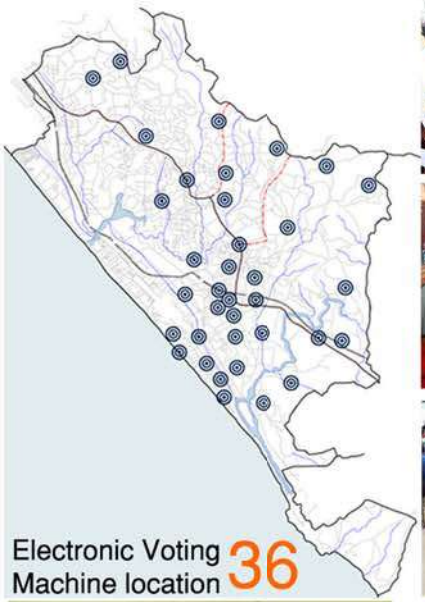


- AAKULAM - VELI LAKE & KOCHUVELI AREA ①
- KAZHAKOOTAM ②
- CITY CENTRE / CBD ③
- ATTUKAL ④
- CORRIDOR ALONG NH BYPASS ⑤
- OUTER AREA GROWTH CORRIDOR ⑥
- VIZHINJAM PORT ⑦
- AAKULAM - VELI LAKE - PARVATY PUTHNAR CANAL - EDYAR ISLAND ⑧
- THIRUVALLAM AREA ⑨
- MEDICAL COLLEGE ⑩
- SHREEKARYAM AREA ⑪
- NEMOM AREA ⑫

STAGE 04 FINAL ABD AREA

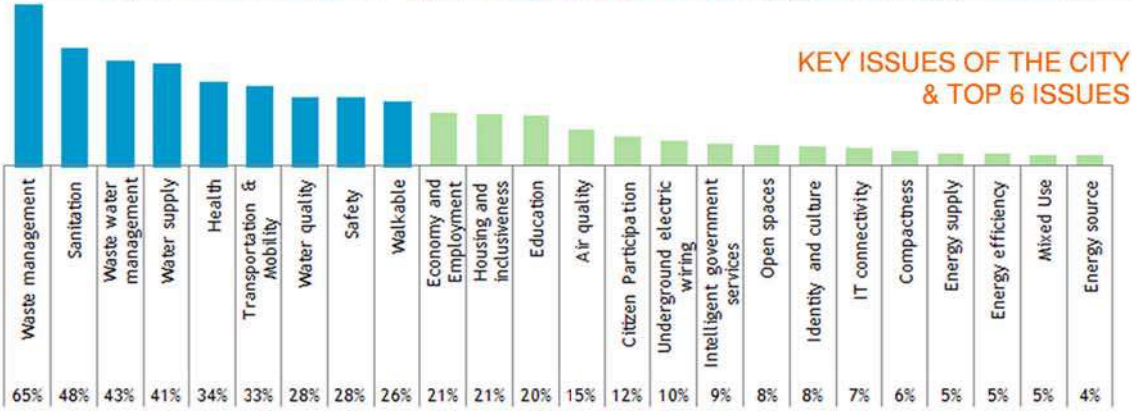
REDEVELOPMENT & RETROFITTING | **RETROFITTING & GREENFIELD** | **GREENFIELD** | **REDEVELOPMENT & GREENFIELD**

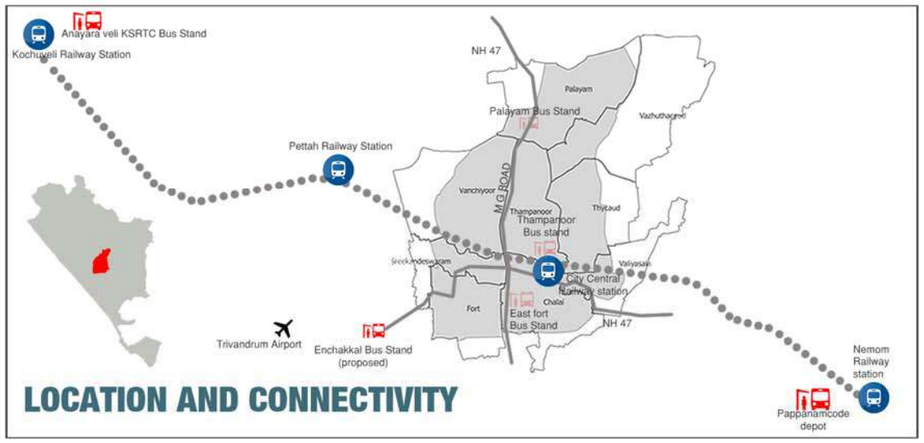
STAGE 02 : ELECTRONIC VOTING TO SELECT TOP 3 AREA



EVM VOTING FOR AREA SELECTION AT THYCAUD, KAZHAKOOTTAM &VIZHINJAM

KEY ISSUES OF THE CITY & TOP 6 ISSUES





LOCATION AND CONNECTIVITY

AREA AT A GLANCE: RETRO-FITTING

AREA: 1403.3 Acres (2.6%)

The area covers parts of 9 central wards in the city. These include Palayam (27), Thycaud (28), Vazuthcaud (29), Vanchiyoor (82), Chalai (71), Fort (80), Sreekandeshwaram (83), Thampanoor (81), Valiyasala (43)

POPULATION: 53,225 Persons (5.6%) RESIDENTIAL POPULATION

The city centre has a large floating population as it is the city business district, the administrative centre and is the arrival point for both domestic and international tourists that visit the city.
The average density is 9,429 persons per sq.km.

KEY INFRASTRUCTURE

HERITAGE BUILDINGS: 49 NOS

Ananthapadmanabha temple, Temple tank, Mitrananda tank, Sreekandeshwaram tank, Sreekandeshwaram temple, Chalai Market, Connemera Market

TRANSPORTATION: 68.45 km ROADS, 4 NODES, 35 BUS STOPS

Thampanoor Bus stand, Thampanoor Railway Station, East Fort Bus Stand, Palayam Bus Stand

INSTITUTIONS: 10 NOS

Government High School, Fort High School, Tiruvananthapuram University. Government women's college

ADMINISTRATIVE BUILDINGS: 10 NOS

Corporation Building, Secretariat, District Court

SLUMS: 3 NOS

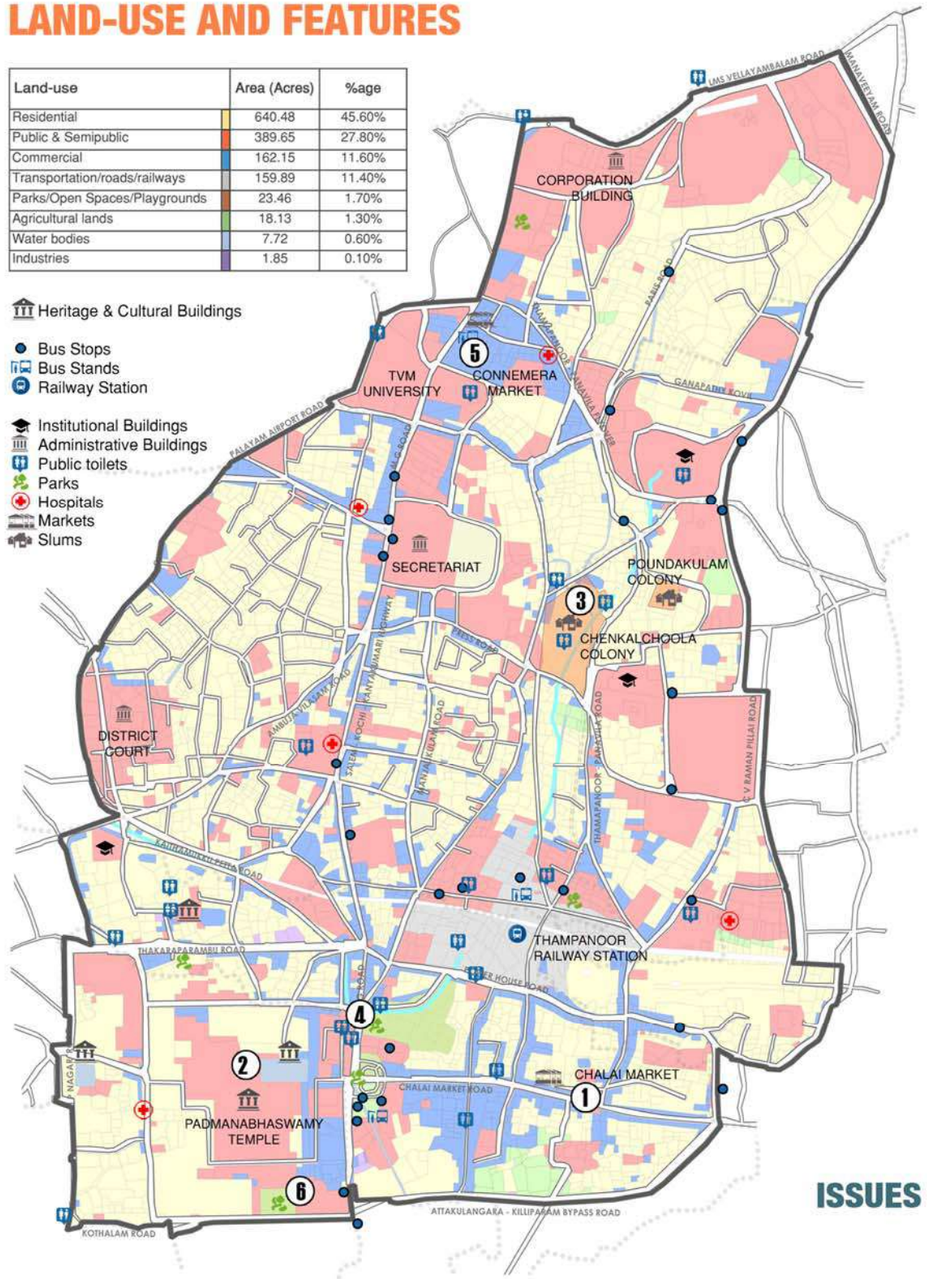
Chenkalchoola Colony/Rajajinagar Slum (971 Households), Poundakulam (142 Households), Chirrakulam (147 Households)

PUBLIC AMMENITIES:

Public Toilets (15 nos.), She-toilets (11 nos.), Parks (7 nos.), temple Tanks (10 nos.), Hospitals (5 nos.), Markets (2 nos.)

LAND-USE AND FEATURES

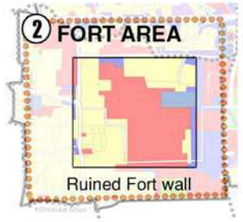
Land-use	Area (Acres)	%age
Residential	640.48	45.60%
Public & Semipublic	389.65	27.80%
Commercial	162.15	11.60%
Transportation/roads/railways	159.89	11.40%
Parks/Open Spaces/Playgrounds	23.46	1.70%
Agricultural lands	18.13	1.30%
Water bodies	7.72	0.60%
Industries	1.85	0.10%



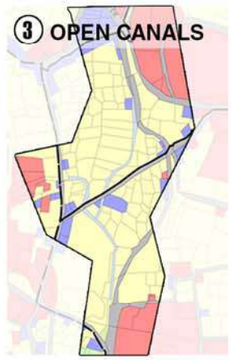
ISSUES

① CHALAI MARKET ROAD

Haphazard parking | Broken footpaths | Dilapadated structures | Prone to Fire Accidents due to short circuiting

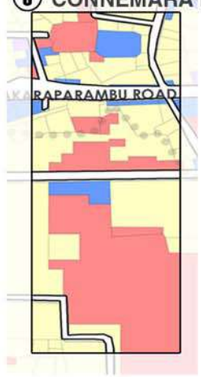


Parts of the fort wall are already broken | Presence of encroachments in certain sections | Open burning of garbage all along the wall | Character and Identity is lost due to the lack of conservation



Encroachments along the canal stretch | Open dumping of waste & sewerage | Lack of maintenance | Prone to flooding

Traffic congestion | Lack of footpaths | Bottle neck due to bad design of roads



Open dumping in premises

Unorganised Market spaces

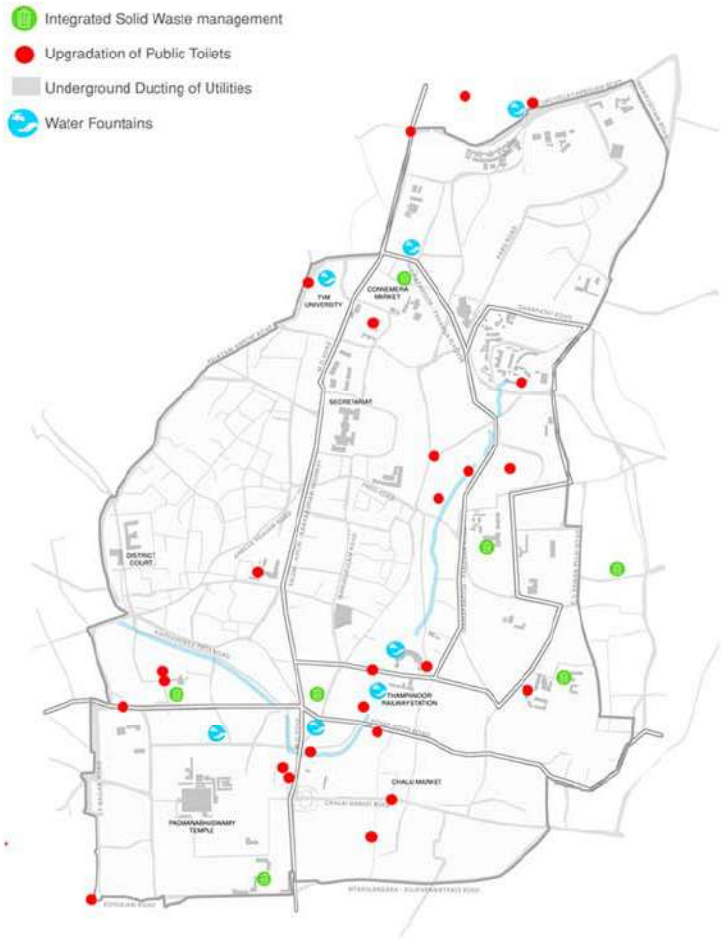
Open burning of waste | Lack of organised parking spaces

TOP ISSUES

24 Issue areas were put out to vote and these were the top 8 selected by the ABD Area Wards.

01 SOLID WASTE MANAGEMENT	75%	05 TRANSPORTATION AND MOBILITY	30%
02 SEWERAGE AND SANITATION	63%	06 SAFETY AND SECURITY	23%
03 WATER AND WATER QUALITY	37%	07 HOUSING AND INCLUSIVENESS	15%
04 HEALTH	33%	08 ECONOMY AND EMPLOYMENT	10%

IMPROVING BASIC SERVICES



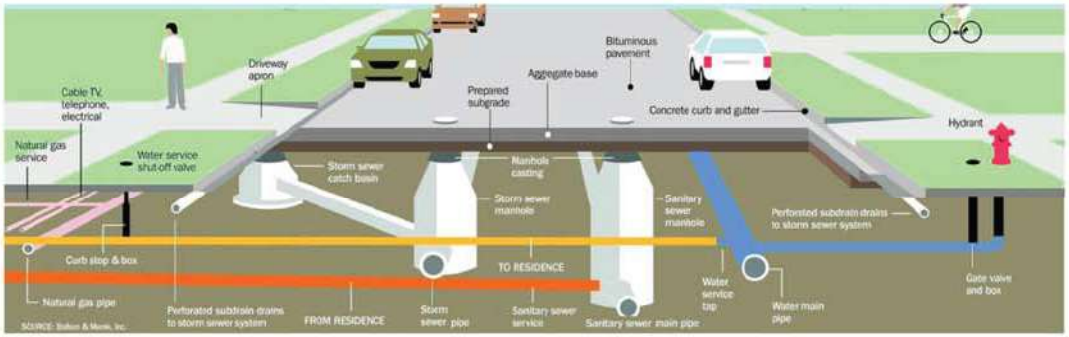
Enabling infrastructure for basic services like water, waste, sanitation, transportation, etc. leeds to the improvement in quality of life.

KEY PROPOSALS

Improving basic services
Streamlining service delivery & governance

PUBLIC UTILITIES

Provision of infrastructure for water supply,under ground drainage and storm water drains, etc.



DRINKING WATER FOUNTAIN

Safe drinking water provided in strategic locations across the city.

STORM WATER DRAINS

Safe drinking water provided in strategic locations across the city.

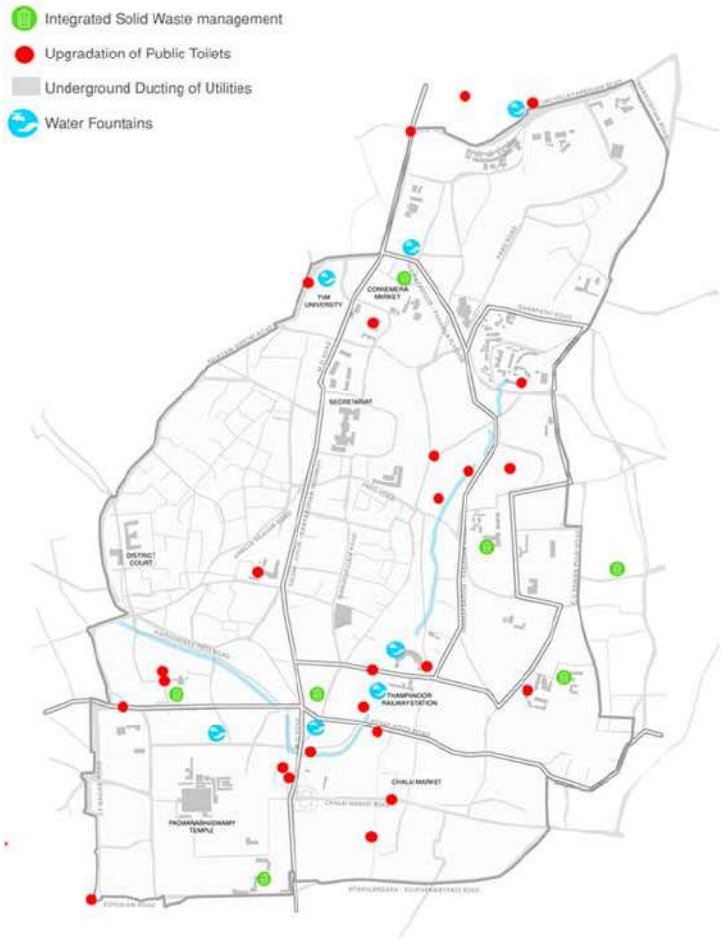
DECENTRALISED SOLID WASTE MANAGEMENT

Collection & Transportation Decentralised Processing Facilities, Waste Management System in Commercial & Recreational Areas.

UPGRADATION OF PUBLIC TOILETS

This includes upgrading 15 Public toilets within the area. 11 Women only-toilets already operational in the area.

IMPROVING BASIC SERVICES



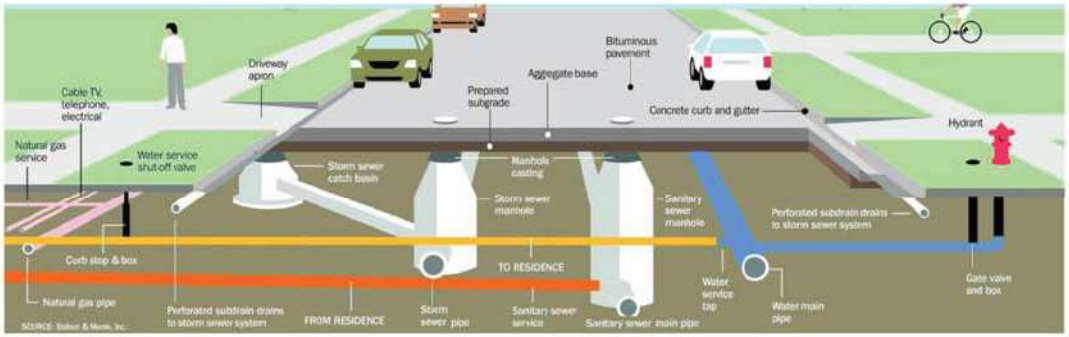
Enabling infrastructure for basic services like water, waste, sanitation, transportation, etc. leeds to the improvement in quality of life.

KEY PROPOSALS

Improving basic services
Streamlining service delivery & governance

PUBLIC UTILITIES

Provision of infrastructure for water supply,under ground drainage and storm water drains, etc.



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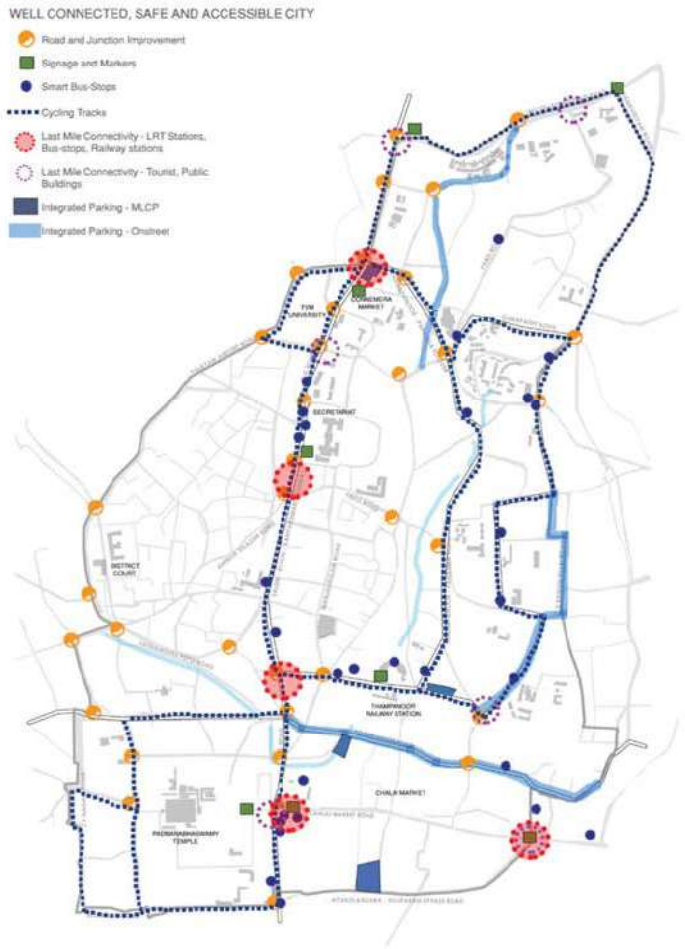
CREATING A WELL CONNECTED SAFE & ACCESSIBLE CITY CENTER



Improving Mobility & ease of navigation in the city centre will contribute to efficient transportation network, which makes the city friendly, accessible & pleasant to live work and travel

KEY FEATURES

Creating a well-connected, safe & accessible city centre
Creating an alternative Green mode of transport

SIGNAGE & MARKERS

Provision of an integrated & consistent Information to highlight key information & features.

SMART BUS STOP

Redesigning the 35 bus stops in the city, embedded with features like solar charging, WiFi, Digital Boards, etc.

INTEGRATED CYCLE LANES

Provision of an integrated cycle lane along the university area & heritage zone. Total length of the cycle track 15.6 km

PROPOSED BUS STAND AT EAST FORT AREA

ANNEXURE 3.8 URBAN BASIC SERVICES

COMPLETE STREETS

NON MOTORISED TRANSPORT

Provision of cycle tracks & footpaths to increase Cycling & Walkability along the entire network

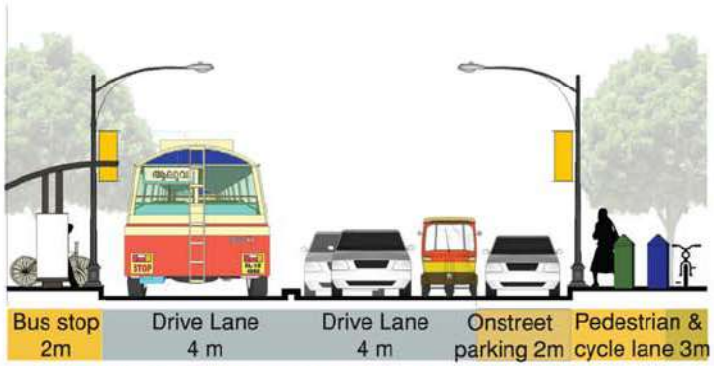
ROAD & JUNCTION IMPROVEMENT

Junction redesign, carriage way improvement, tree plantation, solar street lighting along the entire network

LAST MILE CONNECTIVITY

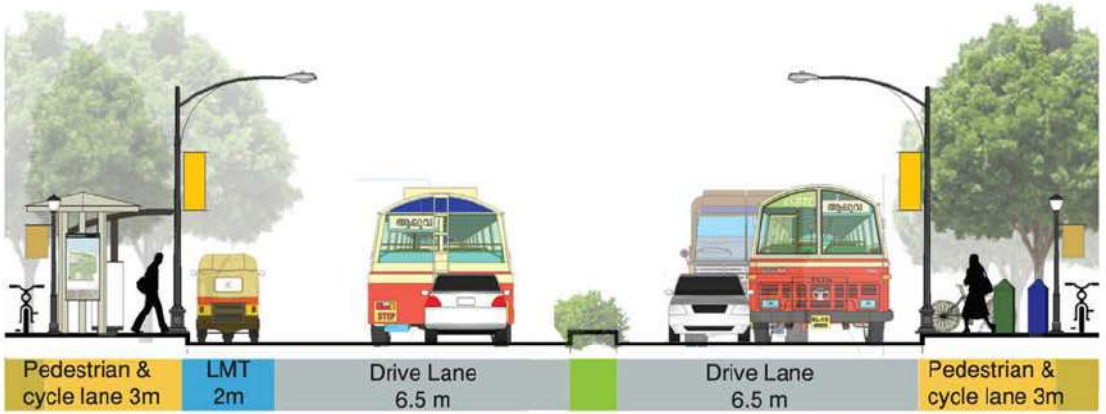
Encouraging use of Public Transport by locating auto & taxi stands in close proximity to transit nodes (bus stand, railway & LRT stations) & important locations (Tourist, Commercial, Administrative & Institutional).

TYPICAL STREET SECTION - RIGHT OF WAY 15M



CYCLE PARKING

MG ROAD STREET SECTION - RIGHT OF WAY 24M

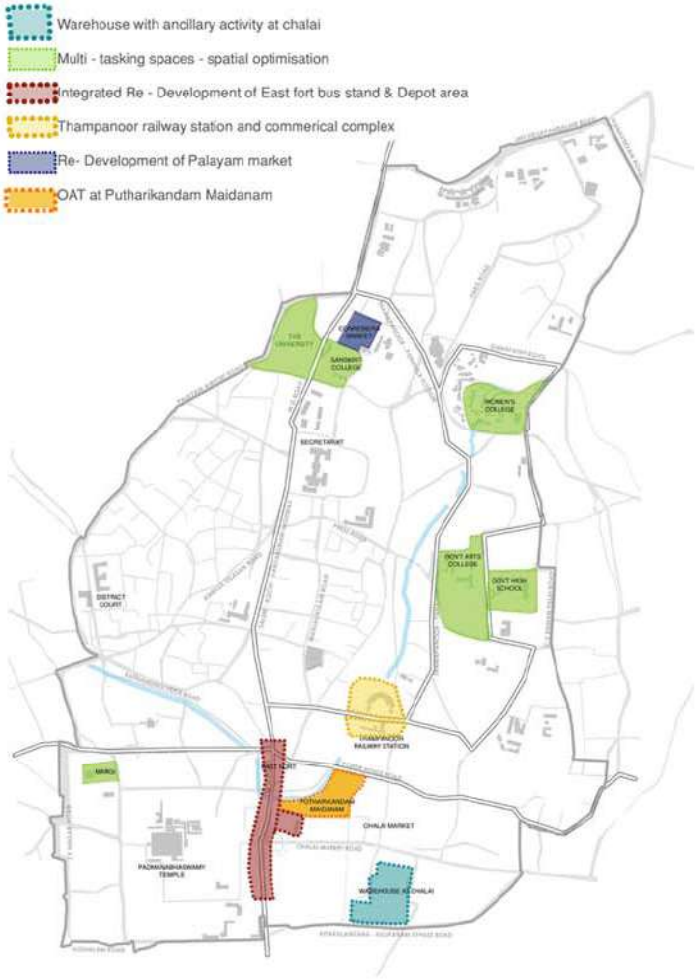


SIGNAGE

EAST FORT STREET SECTION - RIGHT OF WAY 36M

ANNEXURE 3.9 LAND-USE EFFICIENCY

RE-DENSIFICATION WITH CREATIVE LAND-USE

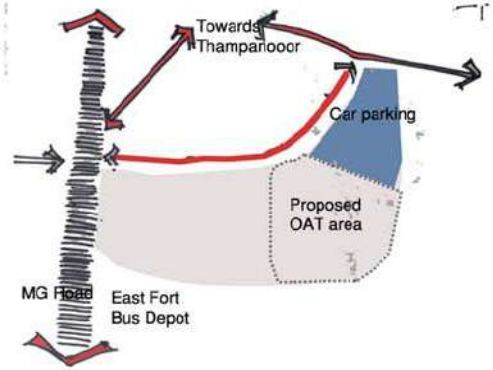


Areas like the city centre, being the oldest area might have received the highest attention in provision of infrastructure, resulting in high land value in view of location advantages.

About 90% of the buildings are old & dilapidatedhfThereby to optimise on land, the pillar respond to the city need & propose new integrated developments that house multiple activities & optimise on the 2.5 FAR.

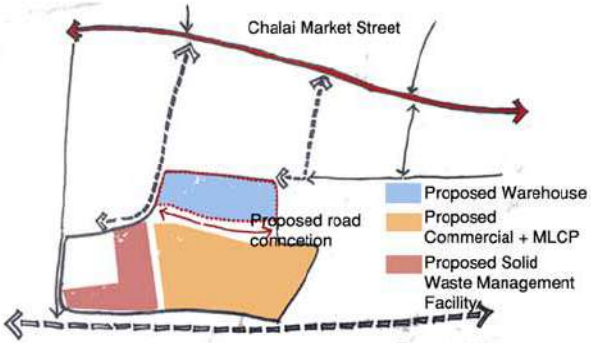
OPEN AIR THEATRE AT THE EXISTING PUTHARIKANDAM MAIDANAM

3.95 acre Maidanam, an OAT proposed to support the existing activities



CHALAI WAREHOUSE & COMMERCIAL COMPLEX

7.58 acre integrated development with IT enables state of art warehouse facility & retail area.



MUTI USE SPACES

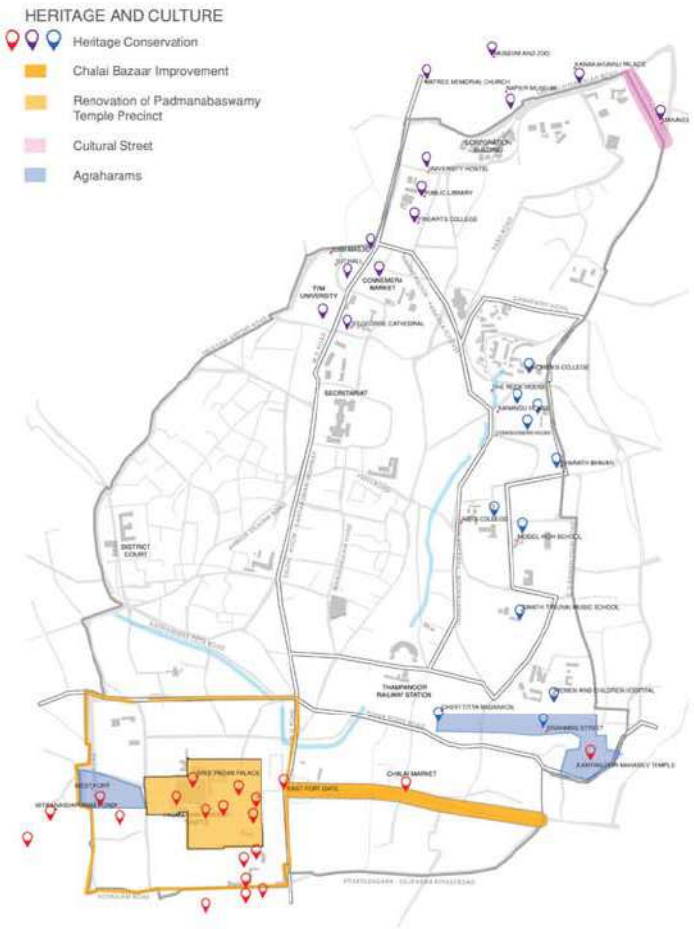
Spatial optimization of under used, neglected spaces

RE-DEVELOPMENT OF PALAYAM MARKET

4 acres redevelopment into a vibrant part open market

ANNEXURE 3.10 CULTURAL IDENTITY & HERITAGE

CELEBRATE & CONSERVING HISTORIC & CULTURAL ASSETS



Trivandrum's cultural heritage, customs, & traditions are a source of pride for the people, contributing to the distinctiveness of the city. They need to be revived & celebrated.

KEY FEATURES

Celebrating & conserving historic & cultural assets

RE-DEVELOPMENT OF ANANTHAPADMANABHA SWAMY TEMPLE PRECINCT

Provision of facilities, renovation of structures, connectivity, pedestrianisation, along the precinct

CHALAI BAZAAR IMPROVEMENT

Improving visual aesthetics (Façade improvement, signage, furniture street-scaping) & pedestrianisation of Chalai Market Road

CULTURAL STREETS

Manayeeyam Vidhi & Charitra Vidhi to be developed to further enhance it as a cultural corridor, and make the area more friendly to existing activities and performances

CONNECTING HERITAGE

Heritage markers
Interactive Screens
Tourist kiosks & shops

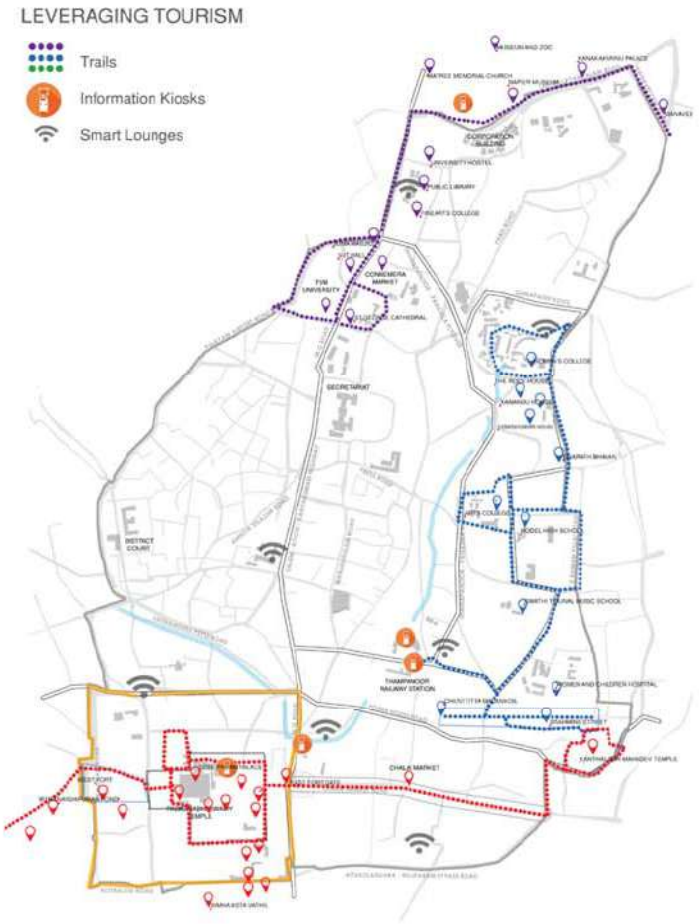
Existing and Proposed view of Shree Ananthapadmanabha Swamy Temple street

Existing and Proposed view of Chalai Market Street

Existing and Proposed view of Manaveeyam Veedhi

ANNEXURE 3.11 CULTURAL IDENTITY & HERITAGE

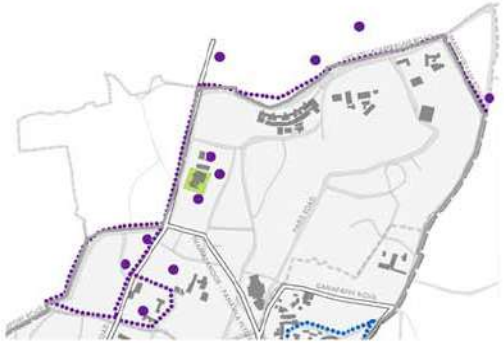
LEVERAGING EDUCATIONAL INSTITUTIONS & TOURISM POTENTIAL



Three key trails are curated to showcase administrative & public buildings (Palayam), historic and religious sites (East Fort & Chalai) & Educational Institutes (Thycaud). Proposal includes façade improvement, provision of street furniture, signage and integration of a digital app with stories and information

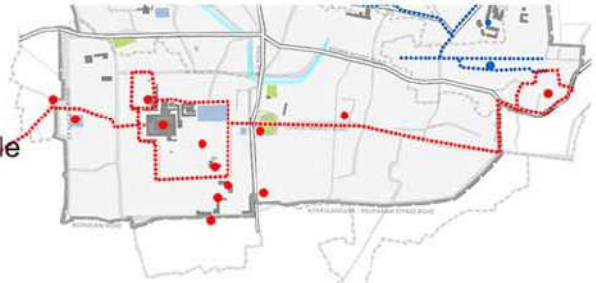
CULTURE & RECREATION TRAIL 3.6KM

Manveeyam Veedhi
Napier Museum & Zoo
Matree Memorial Church
Conemmera Market
Juma Masjid
VT Hall
St.George Cathedral



HERITAGE TRAIL 4.5KM

Ananthapadmanabha Swamy Temple
Sree Padam Palace
Kuthiramalika Palace
Mitranandapuram Temple
East Fort
Chalai Bazaar
Agraharam



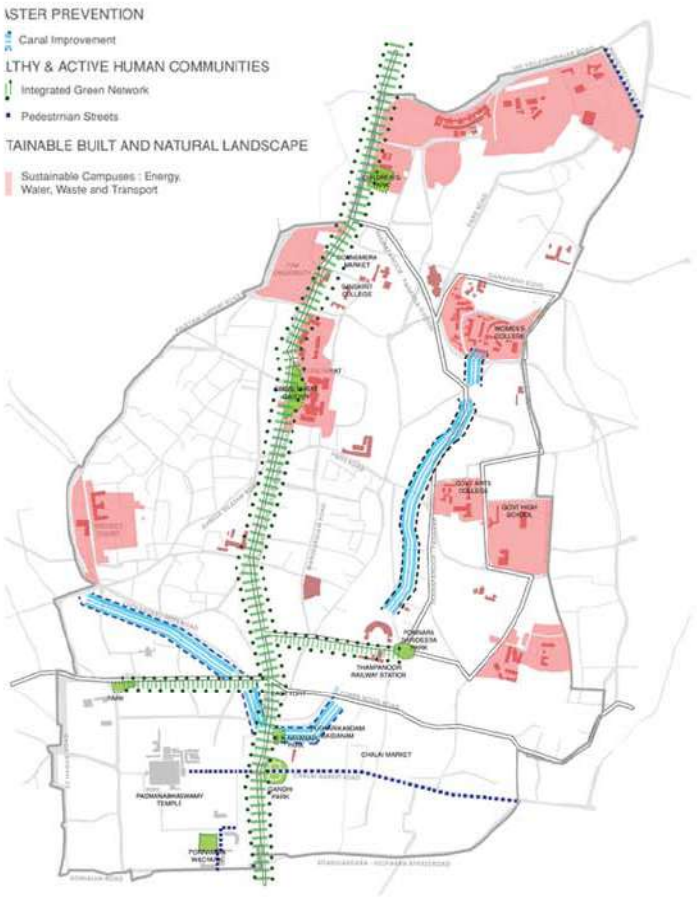
UNIVERSITY TRAIL 5.6 KM

Women & Children Hospital
Model High School
Govt. Arts College
Commissioners's House
Govt. Women's College
Brahmin's Street

MAKING IT INTERACTIVE

Encouraging use of Public Mobile connect with WiFi Embedded QR codes

SUSTAINABLE BUILDING, ACTIVE LIVING & DISASTER MITIGATION



Using density, design, and land use as catalysts for an environmentally sustainable, affordable and a inclusive city. This will result in a more efficient use of urban land and existing infrastructure, improved viability of energy efficient buildings and green energy systems, and more resilient and adaptable communities through a greater diversity of building types and land uses.

INTEGRATED GREEN NETWORK

Upgradation & linking of 6 main parks in the area, making them active exercising spaces that are universally accessible

Dis abled friendly Parks

PEDESTRIAN ZONES

Barrier free pedestrian footpath , integrated street furniture,bollards, timed access to vehicles

SUSTAINABLE CAMPUS (INSTITUTIONAL, PUBLIC & SEMI-PUBLIC)

Solar rooftop, rainwater harvesting, green roofs, sustainable transport, re-use of waste water & 'Zero-Waste' Campus.

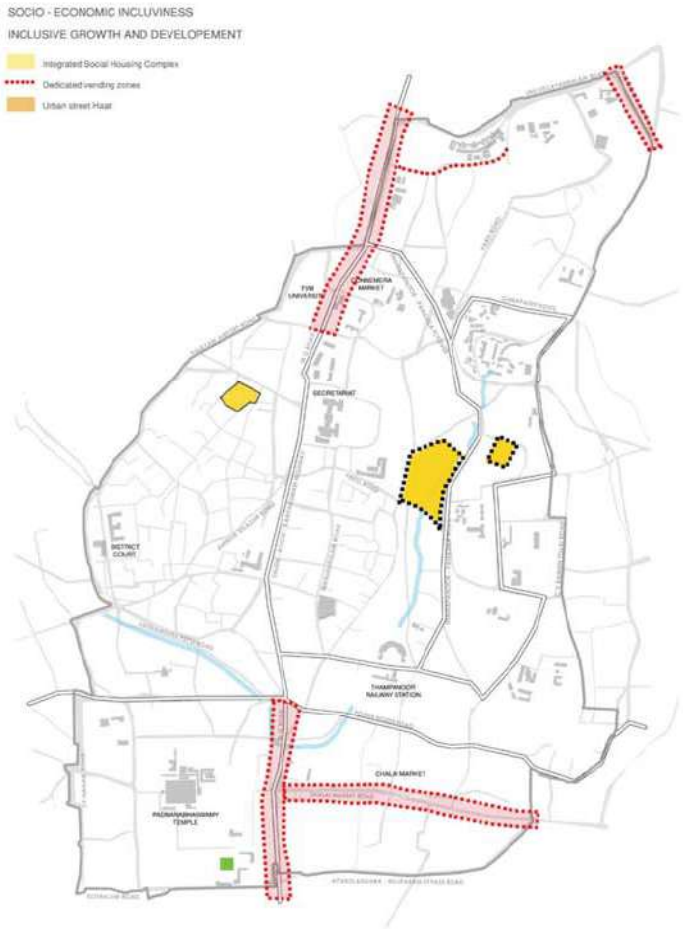
Solar Roof tops

CANAL IMPROVEMENT

Creation of 5m green buffer along the non-encroached portions of the Canals (~2.5kms).

ANNEXURE 3.13 SOCIO- ECONOMIC INCLUSIVENESS

PROMOTING DIVERSITY & FOSTERING INCLUSIVENESS



The opening up of economic opportunities & housing to previously under-served social groups, is integral to development. If people are given a chance to succeed, they are more likely to participate in the workforce, pursue education, or engage in other activities that lead to economic growth. This, in turn, strengthens the transition process & generates wider public support for economic reforms.

DEDICATED VENDING ZONES

Policy development & spatial allotment along commercial roads – 15 mobile vending zones that are flexible

Dedicated Vending zones for Food stalls proposed along Manaveeyam Veehi

Dedicated Vending zones along for vegetables and other items proposed along MG Road

INTEGRATED HOUSING COMPLEX

Chenkalchoola & Poundakulam

1. INTEGRATED CITY MANAGEMENT CONTROL CENTER (ICMCC)

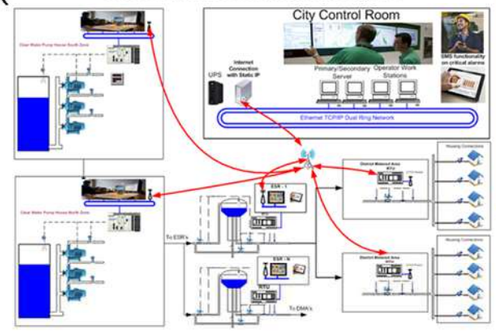
INTEGRATED SYSTEM - OPERATE AND MANAGE MULTIPLE CITY SERVICE OPERATIONS TARGETING TO IMPROVE SERVICES DELIVERY & GOVERNANCE

WATER

Smart Water Network

- Automatic Meter Readers
- Remote pumping systems
- SCADA for system monitoring & control
- Quality sensors
- Remote manhole status sensing system
- GIS Map with complete asset mapping & on-line payment systems

Water distribution Improvement Program



DISASTER MANAGEMENT

Early Warning System

- Hardware installation & Calibration
- Alert warning-de warning systems
- Sirens
- Area based SMS Service
- LED Display board
- Fail proof communication system

MOSQUITO DENSITY

Smart Mosquito Density System

- Sensors, Smart phones, Web applications to detect Mosquito Density

TRANSPORT & MOBILITY

Intelligent Public Transport

- GIS Map with bus routes
- Bus stops
- Vehicle mounted GPS device
- LED passenger information boards
- Parking management backend software & hardware

Intelligent Traffic Management

- Traffic volume cameras
- Wi-fi enabled adaptive controllers
- Solar panels
- Central control software & hardware

Intelligent Parking System

- GIS Map with parking lots
- GPRS enabled handheld devices with front-end software
- Public bus transit monitoring

SWM DATA CENTER

SWM Management

- Web based portal for monitoring the day to day operations

SAFETY & SECURITY

Smart Street Lighting Monitoring & Management

- Solar panels
- LED Lights
- GPRS Enabled controllers
- Backend street light monitoring system & hardware

Intelligent Surveillance System

- CCTV Cameras (with IR)
- PTZ Cameras
- Monitoring screens in the control room
- Survillance software

CENTRALISED CONTROL ROOM

Data Bank, Processing and Analysis
Cross System Monitoring
Planning and Management

2.UNIFIED e-GOVERNANCE PORTAL

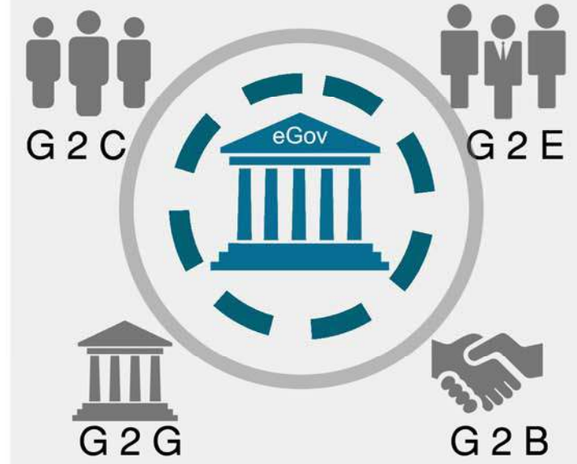
WEB BASED ICT APPLICATION FOR DELIVERING GOVERNMENT SERVICES

G 2 C - Government to Citizen

- Dashboards and Information Dissemination
- Taxes and Grievance redressal

G 2 E - Government to Employee

- Internal Employee work flow, biometrics
- GIS Mapping, MIS & FIS systems
- File tracking / social audits



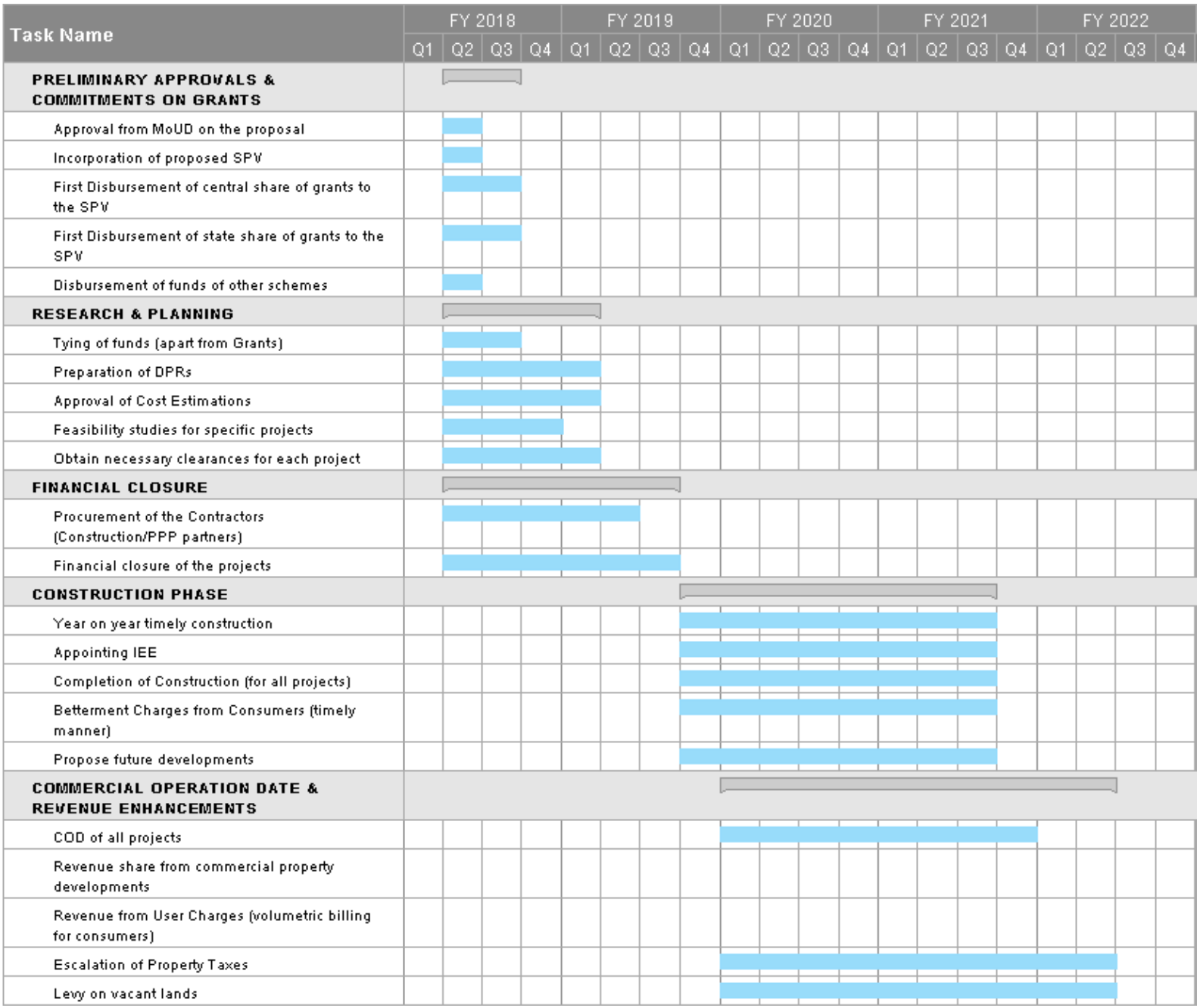
G 2 G - Government to Government

- Database with Web Portal
- Inter - depatmental Co-ordination

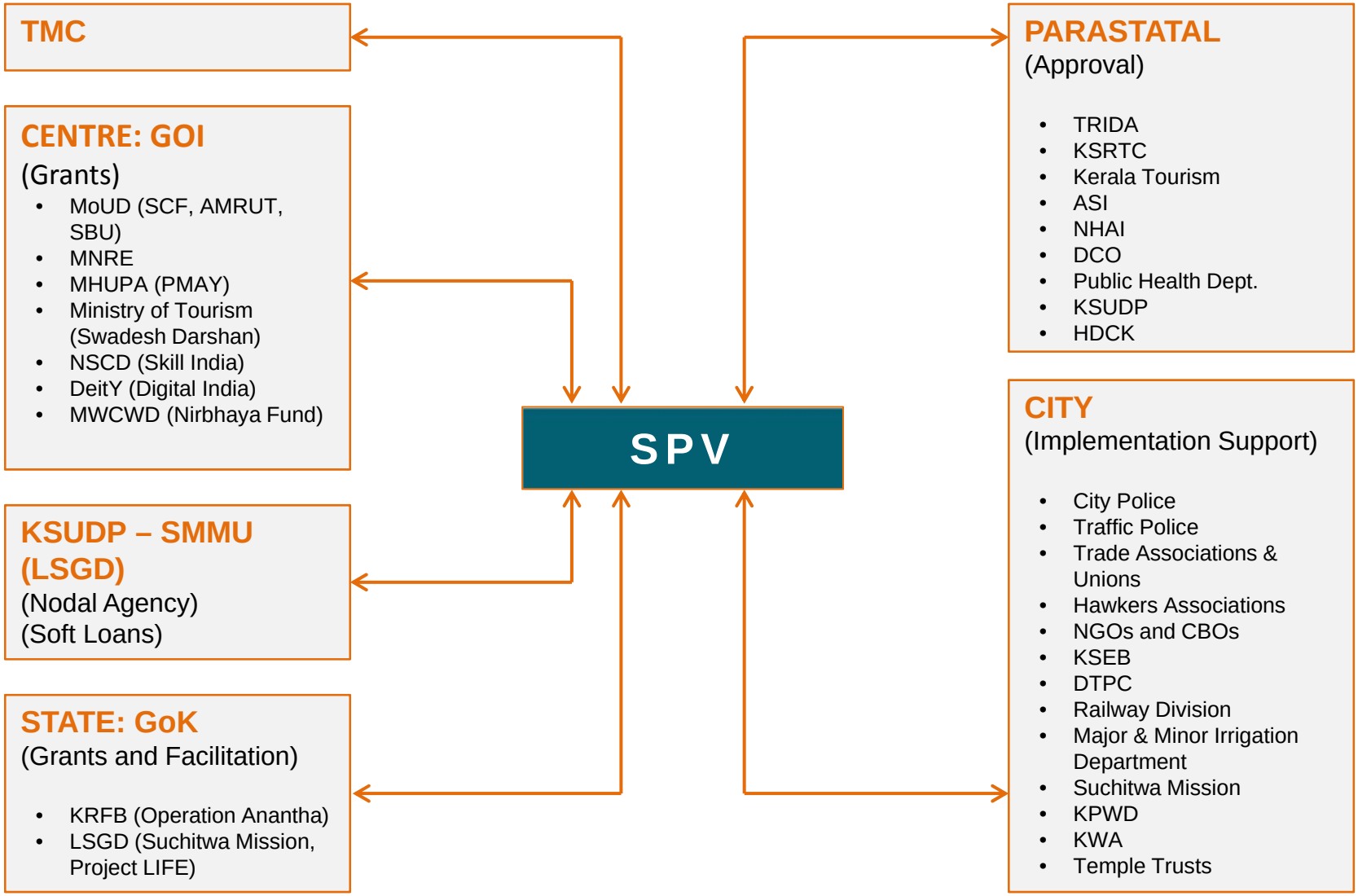
G 2 B - Government to Business

- Web based portal for Online building permits
- Licenses and e- payments

ANNEXURE 3.15 PERT CHART AND CPM



ANNEXURE 3.16 CONVERGENCE AND SPV



ANNEXURE 3.17 STAKEHOLDER ORGANOGRAM

PMU Consultants | Developers / Contractors | Vendors | Funding Agencies

CENTRE: GOI

- MoUD
- MNRE
- MHUPA
- Ministry of Tourism
- NSCD
- DeitY
- MWCWD
- ASI
- NHAI

STATE: GoK

KRFB, LSGD, DoT
KSRTC, HDCK
KPWD, KSEB, City Police, TRIDA,
Suchitwa Mission,
Irrigation Dept.

KSUDP – SMMU (LSGD)

TMC

Special Purpose Vehicle (SPV)*

CENTRE: GoI
- Representatives appointed by GoK

STATE: GoK
- **Chairman** (Chief Secretary, GoK)
- **CEO** (Nominee appointed, GoK)

CITY: TMC
- **Mayor**, TMC
- **Secretary**, TMC

INDEPENDENT POSITIONS
- **Independent Directors** (as per Companies Act requirements)
- **Specialist positions:** Urban Planning, Engineering, Environment, Mobility and Urban Finance

** Owned by GoK and TMC with 50%-50% shareholding pattern*

PROJECTS:

AREA BASED DEVELOPMENT

EF 01: Improving Basic Services
EF 02: Creating A Well-connected, Safe & Accessible City Centre
EF 03: Re-densification With Creative Land-use
EF 04: Celebrating & Conserving Historic & Cultural Assets
EF 05: Leveraging Educational Institutions & Tourism Potential
EF 06: Facilitating Sustainable Built & Natural Landscapes
EF 07: Encouraging Active Living & Healthy Communities
EF 08: Enabling Disaster Mitigation
EF 09: Promoting Diversity & Fostering Inclusiveness

PAN-CITY IINITIATIVE

PAN-CITY 1: Integrated City Management Control Centre (ICMCC)

PAN-CITY 2: UNIFIED e-Governance Portal

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KPWD, KSEB, City Police, TRIDA,
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PAN-CITY 1: Integrated City Management Control Centre (ICMCC)

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ANNEXURE 3.18 FINANCIAL PLAN

	Project Details		Cost Phasing					Sources of Funds			
	Particulars	Estimated Cost (Rs. In Crs)	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Grant - Smart City (Centre/State)	Central Schemes	PPP	ULB Own Sources, Ongoing Schemes and Other agencies
	AREA BASED DEVELOPMENT										
A	**URBAN BASIC SERVICES**										
1	Continous Piped Water Supply	22.83	-	6.85	11.42	4.57	-	-	20.55	-	2.28
2	Under Ground Drainage Network	26.57	-	7.97	13.28	5.31	-	-	26.57	-	-
3	Storm Water Drains	47.50	-	14.25	23.75	9.50	-	19.00	28.50	-	-
4	Decentralised Solid Waste Management	2.57	-	2.57	-	-	-	0.64	1.93	-	-
5	Upgradation of Existing Public Toilets	1.41	-	0.42	0.98	-	-	0.35	1.05	-	-
6	Underground Ducting of Utilities	160.30	-	16.03	48.09	80.15	16.03	160.30	-	-	-
7	Drinking Water Fountains	7.32	-	7.32	-	-	-	7.32	-	-	-
8	MLCPs cum Commercial Complexes (4 No.s)	96.68	-	29.00	48.34	19.34	-	83.69	-	12.99	-
9	On-street Parking Lots	1.46	-	1.46	-	-	-	0.73	-	-	0.73
10	Road and Junction Improvement *(Carriageway Improvement, Tree Plantation, Street Lighting and Junction Redesign)*	319.56	-	255.65	63.91	-	-	287.61	-	-	31.96
11	Way Finding Signage and Markers	0.57	-	0.28	0.28	-	-	0.57	-	-	-
12	Redesign of Bus Stops with WiFi Hotspot Facilities	4.10	-	2.05	2.05	-	-	4.10	-	-	-
13	Last Mile Connectivity *(e-autos, taxi stands, bicycle sharing pods)*	1.92	-	1.92				1.92			
14	NMT *(Cycle Tracks and Footpaths Railing, Pavers, Formation, Curb stones)*	77.00	-	23.10	53.90	-	-	58.68	18.32	-	-
15	Non Vehicular Zone	1.72	-	1.72				1.72			
B	**LAND-USE EFFICIENCY**										
16	Tampanoor Railway Commercial Complex	44.38	-	11.09	28.84	4.44	-	13.19	-	31.18	-
17	Redevelopment of Palayam Market	118.22	-	35.47	59.11	23.64	-	82.76	-	35.47	-
18	Integrated Transit node (East Fort Bus stand)	54.51	-	16.35	27.25	10.90	-	43.61	-	10.90	-
19	Warehouse facilities with ancillary activities at Chalai Chalai warehouse with commercial complex	10.82	-	3.25	7.57	-	-	8.11	-	2.70	-
20	OAT at Putharikandam Maidanam	10.07	-	3.02	7.05	-	-	8.86	-	-	1.21
C	**CULTURAL IDENTITY & HERITAGE**										
21	Heritage Trails & Walks - Façade, Wall painting & Floor Marking	3.23	-	0.97	2.26	-	-	3.23	-	-	-
22	Interactive Information Kiosks & Display boards	0.29	-	0.26	0.03	-	-	0.29	-	-	-
23	Heritage Conservation *(Monuments, Tanks, Façade Improvement, Gateways, Clock tower & Statues)*	11.69	-	3.51	8.18	-	-	11.69	-	-	-
24	Chalai Bazaar Improvement *(Streetscaping, signage, furniture, etc.)*	3.60	-	2.16	1.44	-	-	3.60	-	-	-
25	Renovation of Shri Anantha Padmanabhaswamy Temple Precinct *(Facilities, Renovation of structures, connectivity, signage, walkways)*	89.29	-	26.79	62.50	-	-	8.93	80.36	-	-
26	Wi-Fi Lounges	5.62	-	1.69	3.93	-	-	2.81	-	2.81	-
27	Urban Street Haat - (Charitha Veedhi)	4.68	-	4.68				4.68			
28	Cultural streets - (Manveeyam Veedhi)	3.40	-	1.02	2.38	-	-	3.40	-	-	-
29	Heritage settlements (Agraharams)	4.68	-	1.87	2.81	-	-	0.68	-	-	4.00
D	**RESILIENCE & ECO-FRIENDLINESS**										
30	Anantha - Phase II (Disaster Management)	64.60	-	19.38	32.30	12.92	-	-	-	-	64.60
31	Linked Green Activity Zones and Pedestrian Streets *(Shantinagar Park, Children's Park, E K Nayanar park, Ponnara Sreedhar Park, Gandhi Park & Shree Kandeshwaram Park)*	12.85	-	3.85	6.42	2.57	-	9.85	3.00	-	-
32	Sustainable Campuses *(Solar Rooftop, Rainwater harvesting and Public Bike Sharing)*	66.23	-	19.87	46.36	-	-	-	19.87	46.36	-
E	**SOCIO-ECONOMIC INCLUSIVENESS**										
33	Integrated Social Housing Complex - Slum HHs	95.90	-	9.59	23.98	47.95	14.39	31.41	47.95	-	16.54
34	Upgradation of Anganwadis & Public Health Centres	5.27	-	1.05	2.63	1.58	-	2.63			2.63
35	Vending zones	5.27	-	0.53	1.32	2.63	0.79	5.27	-	-	-
	Sub Total	**1,386.12**	**-**	**537.01**	**592.40**	**225.51**	**31.21**	**871.64**	**248.10**	**142.42**	**123.96**
	PAN CITY										
1	**Centralised Command Control Centre**	29.63	-	17.78	11.85	-	-	22.22	7.41	-	-
2	**Smart Water Network**	58.55	-	20.49	32.20	5.85	-	58.55	-	-	-
3	**Traffic & Transportation** *(Intelligent transport, Variable Message Signboards & Smart Parking)*	23.96	-	8.39	11.98	3.59	-	13.30	-	-	10.66
4	**Smart Mosquito Density System**	0.54	-	0.22	0.33	-	-	0.54	-	-	-
5	**SWM Data Centre**	0.12	-	0.04	0.08	-	-	0.10	0.02	-	-
6	**Safety & Security** *(CCTV Camera Surveillance System & Street Lighting with Control System)*	23.74	-	7.12	16.61	-	-	20.18	3.6	-	-
7	**Unified e-GOVERNANCE PORTAL**	5.00	-	1.50	3.00	0.50	-	4.00	1.00		
8	**Disaster management** *(Local Warning cum Response System)*	10.54	-	3.16	5.27	2.11	-	9.48	-	-	1.05
	Sub Total	**152.07**	**-**	**58.69**	**81.32**	**12.06**	**-**	**128.37**	**11.98**	**-**	**11.71**
	GRAND TOTAL	**1,538.19**	**-**	**595.70**	**673.72**	**237.56**	**31.21**	**1,000.0**	**260.1**	**142.4**	**135.7**

17.03.2017–ൽ കൂടിയ കൗൺസിൽ തീരുമാനം നം. 1(1)

E13/138341/15: തിരുവനന്തപുരം നഗരസഭ – സ്മാർട്ട് സിറ്റി പ്രൊപ്പോസൽ അംഗീകരിക്കുന്നത് സംബന്ധിച്ച്.

സ്മാർട്ട് സിറ്റി പ്രൊപ്പോസൽ

തിരുവനന്തപുരം നഗരസഭ കേന്ദ്ര സർക്കാറിന് സമർപ്പിക്കുന്ന സ്മാർട്സിറ്റി പ്രൊപ്പോസൽ കൗൺസിൽ വിശദമായി ചർച്ച ചെയ്യുകയും, 1538.2 കോടി രൂപ അടങ്കൽ വരുന്ന പദ്ധതി നടത്തുന്നതിനായി അംഗീകരിക്കുകയും ചെയ്തു. കൂടാതെ പദ്ധതി നടത്തിപ്പിന് കമ്പനീസ് ആക്ട് 2013 പ്രകാരം ഒരു സ്പെഷ്യൽ പർപ്പസ് വെഹിക്കിൾ രൂപീകരിക്കുന്നതിനും തീരുമാനിച്ചു. പ്രോജക്ട് സമ്മറിയും സ്പെഷ്യൽ പർപ്പസ് വെഹിക്കിളിന്റെ ഘടനയും ചുവടെ ചേർക്കുന്നു.

തിരുവനന്തപുരം സമാർട്ട്സിറ്റി പ്രൊപ്പോസൽ – ഘട്ടം 3

ഏര്യ ബെയ്സ്ഡ് ഡെവലപ്മെന്റ്

നിർദ്ദേശിച്ചിട്ടുള്ള ഏര്യ: തിരുവനന്തപുരത്ത് 1403 ഏക്കറോളം വരുന്ന പൈതൃക കേന്ദ്രവും നഗരഹൃദയ ഭാഗവുമായ പ്രദേശം ആകർഷകവും എല്ലാ വിഭാഗത്തിലുമുള്ള ജനങ്ങളെ ഉൾക്കൊള്ളുന്നതുമാക്കി മാറ്റുന്നതിനാണ് വിഭാവനം ചെയ്യുന്നത്

PARTICULARS	PROPOSED AREA
ആകെ സിബിഡി ഏര്യ (ഏക്കറിൽ)	1403.33
സിറ്റി ഏര്യയുടെ ശതമാനം	2.6%
ഉൾപ്പെടുത്തിയിരിക്കുന്ന വാർഡ് നമ്പരുകൾ	27, 28, 29, 43, 71, 80, 81, 82 and 83
ജനസംഖ്യ (താമസിക്കുന്നവരുടെ)	53,225 (5.6%)
വിനോദ സഞ്ചാരികളുടെ ജനസംഖ്യ (2014)	2.8 Lakhs (Int.), 17 Lakhs (Dom)
ജനസാന്ദ്രത (per sq.km)	9,420

പ്രോജക്ടുകളുടെ ലിസ്റ്റ്:

1 മിശ്രിത ഭൂവിനിയോഗം

- ഉയർന്ന ജനസാന്ദ്രതയും ഫലപ്രദമായ ഭൂവിനിയോഗവും:
    1. പാളയം മാർക്കറ്റിന്റെ പുനർവികസനം
    2. റെയിൽവേ സ്റ്റേഷനു സമീപം വാണിജ്യ സമുച്ചയങ്ങളുടെ വികസനം

3. കിഴക്കേകോട്ട ബസ് സ്റ്റാന്റിന്റെയും ഡിപ്പോകളുടെയും സമഗ്രമായ പുനർ നിർമ്മാണം
4. ചാലയിലെ വ്യാപാരങ്ങൾക്ക് അനുബന്ധ സൗകര്യമായി വെയർഹൗസ്
5. വിവിധ ഉദ്ദേശങ്ങൾക്ക് പ്രയോജനകരമായ സ്ഥലസൗകര്യം
6. പുത്തരിക്കണ്ടത്ത് ഓപ്പൺ എയർ തീയറ്റർ

2 പൈതൃകം, സംസ്ക്കാരം, സവിശേഷത

- **ചരിത്രപരവും സാംസ്ക്കാരികവുമായ ആസ്ഥികകളുടെ സംരക്ഷണം:**
  7. പൈതൃക സംരക്ഷണം
  8. ചാല കമ്പോളത്തിന്റെ വികസനം
  9. പത്മനാഭസ്വാമിക്ഷേത്ര പരിസരത്തിന്റെ പുനരുദ്ധാരണം
  10. സാംസ്ക്കാരിക വീഥികൾ
  11. അഗ്രഹാരങ്ങൾ
- **വിദ്യാഭ്യാസവും വിനോദ സഞ്ചാരവും ശാക്തീകരിക്കൽ:**
  12. സ്മാർട്ട് ലോഞ്ചുകൾ
  13. വിനോദ കേന്ദ്രങ്ങളെ ബന്ധിപ്പിക്കുന്ന നടപ്പാതകൾ
  14. വിവര കിയോസ്ക്കുകൾ

3 സംയുക്ത നഗര സേവനം

- **അടിസ്ഥാന സൗകര്യം മെച്ചപ്പെടുത്തൽ:**
  15. ഭൂഗർഭ പൊതു സേവന ഡക്ട് പൂർത്തീകരിക്കൽ,
  16. 24x7 കുടിവെള്ള വിതരണം, സമഗ്ര ഖര മാലിന്യ നിർമ്മാർജനം
  17. പൊതു ശൗചാലയങ്ങൾ മെച്ചപ്പെടുത്തൽ
  18. വാട്ടർ ഫൗണ്ടെനുകൾ
- **സുരക്ഷിതവും, നല്ല ഗതാഗത ബന്ധവും ഉള്ള നഗര മദ്ധ്യം:**
  19. സംയോജിത പാർക്കിംഗ്
  20. മോട്ടർ-രഹിത ഗതാഗതം (നടപ്പാത, സൈക്കിൾ
  21. ചിഹ്നങ്ങൾ, അടയാള വാക്കുകൾ,
  22. സ്മാർട്ട് ബസ് സ്റ്റോപ്പുകൾ
  23. ഗതാഗത നിലയങ്ങളും ഉൾപ്രദേശങ്ങളും ആയുള്ള ബന്ധം
  24. റോഡ്, ജംഗ്ഷൻ മെച്ചപ്പെടുത്തൽ

4 പരിസ്ഥിതി സൗഹൃദമായ ദൃഢത

- **ദൂരന്തം ഒഴിവാക്കുക:**
  25. കനാൽ നവീകരണം
- **സുസ്ഥിരമായ കെട്ടിടങ്ങളും പ്രകൃതി ഭൂഭാഗവും:**
  26. സുസ്ഥിരമായ സമുച്ചയങ്ങൾ: ഊർജം, വെള്ളം, മാലിന്യം മറ്റും ഗതാഗതം
- **ആരോഗ്യകരവും സജീവമമായ സമൂഹം:**
  27. പാർക്കുകളുടെയും തുറസ്സായ സ്ഥലങ്ങളുടെയും സംയോജിതമായ ശൃംഖല നിർമ്മിക്കൽ
  28. കാൽനടക്കാർക്ക് മാത്രമുള്ള വീഥികൾ

5 സാമൂഹ്യവും സാമ്പത്തികവുമായി പിന്നോക്കം നിൽക്കുന്നവരെ ഉൾകൊള്ളിച്ചു കൊണ്ടുള്ള വികസനം

- **പിന്നോക്കം നിൽക്കുന്നവരെ ഉൾകൊള്ളിച്ചു കൊണ്ടുള്ള വളർച്ചയും വികസനവും:**
  29. പ്രത്യകേ തെരുവ് വ്യാപാര മേഖലകൾ
  30. സമഗ്ര സാമൂഹ്യ ഭവന സമുച്ചയം

31. തെരുവോര ചന്തകൾ

പാൻ സിറ്റി പ്രൊപോസൽ

പ്രോജക്ടുകളുടെ ലിസ്റ്റ്:

സമഗ്ര നഗര നിർവഹണ നിയന്ത്രണ കേന്ദ്രം- INTEGRATED CITY MANAGEMENT CONTROL CENTRE (ICMCC):
ഈ സമഗ്ര പദ്ധതി വിവിധ നഗര സേവന പ്രവർത്തനങ്ങളെ സംയോജിപ്പിക്കുകയും, തത്സമയ നിരീക്ഷിക്കുകയും, സേവനങ്ങളും ഭരണനിർവഹണം മെച്ചപ്പെടുത്താനും സഹായിക്കും.

- നഗരസഭയുടെ സേവനങ്ങൽ ഇ-ഗേവണൻസിലൂടെ എല്ലാവർക്കും ലഭ്യമാക്കുക
- സ്മാർട്ട് വാട്ടർ മീറ്ററിംഗ്
- ഇന്റലിജന്റ് ട്രാഫിക് & ഗതാഗത പരിപാലനം
- സിസിടിവി ഉൾപ്പെടെയുള്ളവ ഉപയോഗിച്ചുള്ള പര്യവേഷണ സംവിധാനം
- അടിയന്തിര സാഹചര്യങ്ങളിലെ പ്രതികരണ – ഇടപെടൽ സംവിധാനം
- ഊർജ്ജ ശേഷിയുള്ള സ്ട്രീറ്റ് ലൈറ്റുകൾ

സാമ്പത്തിക പദ്ധതി

Particulars	Area Based Development					Pan City	TOTAL
Component	Diverse & Mixed Land-use	Heritage, Culture and Identity	Integrated Urban Services	Resilient and Environment Friendly	Socio-Economic Inclusiveness	Integrated City Control Room	
Key Components	• Multi-tasking spaces • Re-development of Palayam market, • Integrated Transit node – East fort • Railway commercial complex • Chalai Ware house &commercial • OAT at Puthari-kandamMaidanam	• Temple Precinct Development • Restoration of Agraharams&historic assets • Chalai Bazaar improvement • Cultural streets • Trails& Walks • Interactive information kiosks &Display boards • Wi-Fi lounge	• Public Utilities (WS, UGD & SWD) • Decentralised SWM & Public Toilets • Underground Ducting • Drinking water fountains • MLCPs & Parking Lots • Signage &Markers • Smart Bus Stops • NMT & Last Mile Connectivity • Road & Junction improvement	• Sustainable campuses • Linked green activity zones • Pedestrian streets • Reviving & Re-activating canal fronts • Disaster management	• Flexi vending zones • Integrated social housing complex • Up-gradation of anganwadis& public health centres	**Pan city 1: Centralised Control Room:** - Smart Water Network - Intelligent Traffic &Transportation system - SWM data centres - Smart street lights - CCTV surveillance - Early response system - Smart Mosquito Density system **Pan city 2: Unified e-Governance Portal**	
Total Cost *(Rs. Crores)*	**238.0**	**126.5**	**771.5**	**143.7**	**106.4**	**152.1**	**1538.2**
Smart City Grants *(Centre*	156.5	39.3	626.6	9.8	39.3	128.4	1000.0

& State Share)							
Central Schemes	0.0	80.4	96.9	22.9	48.0	12.0	260.1
PPP	80.3	2.8	13.0	46.4	0.0	0.0	142.4
ULB Own Sources & Other State Schemes	1.2	4.0	35.0	64.6	19.2	11.7	135.7
Convergence	Smart City Grants PPP ULB Own Funds	Smart City Grants SwadeshDarshan KSWCFC	Smart city Grants AMRUT State Agencies ULB Own Sources Swach Bharat PPP	Smart City Grants AMRUT State Budget - KSUDP PPP MNRE Solar City Program	Smart City Grants PMAY Project LIFE State Departments	Smart City Grants Digital India Nirbhaya Fund	

സ്പെഷ്യൽ പർപ്പസ് വെഹിക്കിൾ - ഘടന

ചെയർമാൻ (ചീഫ് സെക്രട്ടറി)
സി.ഇ.ഒ (സംസ്ഥാന സർക്കാർ നിയമിക്കുന്ന വ്യക്തി)
മേയർ, തിരുവനന്തപുരം നഗരസഭ
സെക്രട്ടറി, തിരുവനന്തപുരം മുനിസിപ്പൽ കോർപ്പറേഷൻ
കേന്ദ്രസർക്കാർ നിയമിക്കുന്ന പ്രതിനിധി
സംസ്ഥാന സർക്കാർ നിയമിക്കുന്ന പ്രതിനിധികൾ
കമ്പനി ആക്ട് പ്രകാരം നിയമിക്കുന്ന സ്വതന്ത്ര ഡയറക്ടർമാർ

മേൽപ്പറഞ്ഞ പ്രൊപ്പോസലും സ്പെഷ്യൽ പർപ്പസ് വെഹിക്കിൾ ഘടനയും അംഗീകരിക്കുന്നതിനും കേന്ദ്ര സർക്കാറിന് സമർപ്പിക്കുന്നതിനും തീരുമാനിച്ചു.

(ഒപ്പ്)
മേയർ

// ശരിപ്പകർപ്പ് //

കൗൺസിൽ സെക്രട്ടറി

CORPORATION OF THIRUVANANTHAPURAM

SECRETARY
Thiruvananthapuram Corporation

Council Resolution No. 1 (1) – Dated 13/03/2017

The Thiruvananthapuram Municipal Corporation discussed the Smart City Proposal in detail and the Council approved the Project with a total estimate cost of Rs. 1,538.2 Crores and also agreed to incorporate the Special Purpose Vehicle (SPV) as per the Companies Act 2013 to implement the Projects proposed under the Smart City Proposal. The Project summary and structure of SPV is shown below.

THIRUVANANTHAPURAM SMART CITY PROPOSAL: ROUND 3

VISION STATEMENT: "A VIBRANT & ALLURING Capital city that is INCLUSIVE, SAFE & ACCESSIBLE; and which respects its NATURAL ENVIRONMENT & celebrates its HERITAGE & CULTURE."

AREA BASED PROPOSAL

Thiruvananthapuram aims to transform 1403.33 acres (2.6% of city area) of its CBD area into a well-connected, inclusive, vibrant and engaging city centre through **RETROFITTING development approach.**

PARTICULARS	PROPOSED AREA
Total CBD Area (in acres)	1403.33 (2.6%)
Ward names & nos.	Thampanoor **(81),**Vanchiyoor**(82),** Fort **(80),** Chalai **(71),** Valiyasala **(43),** Palayam **(27),**Thycaud **(28),** Vazhuthacaud **(29)**, Sreekandeswaram**(83)**
Population (Residential)	53,225 (5.6%)
Tourist Population (2014)	2.8 lakhs (Int.), 17.0 lakhs (Dom)
Population Density	9,420 per sq.km

LIST OF PROPOSED PROJECTS IN ABD AREA

#1 URBAN BASIC SERVICES:

- **Improving Basic Services:**24X7 water supply, storm water drains, UGD network, decentralised solid waste, underground ducting , up-gradation of existing toilets,drinking water fountains, ICT based services & governance
- **Creating A Well-Connected, Safe & Accessible City Centre:** Road & junction improvement, Integrated parking (MLCP & on-street), smart bus stops, Way finding signage & markers, Last Mile Connectivity (e-autos, taxi stands, bicycle sharing pods), Smart street lights & CCTV surveillance

#2 LAND-USE EFFICIENCY

- **Re-Densification With Creative Land-Use:** Multi-tasking spaces, Re-development of Palayam market, Integrated Transit node (East Fort Bus stand), Tampanoor railway commercial complex, Chalai warehouse & commercial complex, OAT at PutharikandamMaidanam

#3 CULTURAL IDENTITY & HERITAGE

- **Celebrating & Conserving Historic & Cultural Assets:** Renovation of ShriAnanthaPadmanabhaswamy Temple Precinct, Chalai Bazaar improvement, Cultural streets (ManveeyamVeedhi&CharithaVeedhi), Conserving historic assets, Heritage settlements (agraharams)
- **Leveraging Educational Institutions& Tourism Potential:**Trails& walks, Interactive info. kiosks &Display boards, Wi-Fi lounge

#4 RESILIENCE & ECO-FRIENDLINESS

- **Facilitating Sustainable built & natural landscape:**Sustainable campuses (energy, water, waste & transport)
- **Encouraging Active Living & Healthy Communities:**Linked green activity zones and pedestrian streets
- **Enabling Disaster Mitigation:**Reviving& Re-activating canal fronts, Disaster management

#5 SOCIO-ECONOMIC INCLUSIVENESS

- **Promoting Diversity & Fostering Inclusiveness:**Flexi vending zones, Integrated social housing complex,Upgradation of anganwadis& public health centres

PAN CITY PROPOSAL

LIST OF PROJECTS:

PAN CITY-1: INTEGRATED CITY MANAGEMENT CONTROL CENTRE (ICMCC)

The ICMCC will be an integrated system that will operate & manage multiple city service operations including real time monitoring & help in improving services delivery & governance.

- Smart Water Network
- Intelligent Traffic & Transportation system (intelligent parking, intelligent signalling, intelligent PT system)
- SWM data centres
- Street-light monitoring and management system
- CCTV surveillance
- Early warning system
- Smart Mosquito Density system

PAN CITY-2: Unified e-GOVERNANCE PORTAL

- G2C: Dashboards & information dissemination, taxes and grievance re-addressal
- G2E: Internal employee related services/ work flows, biometric devices, GIS mapping software, MIS & FIS systems,file tracking system, social audits, etc.
- G2G: Database with Web based portal, inter-department database, etc.
- G2B: Web based portal for online building permits, licenses and e-payments

FINANCIAL PLAN(next page)

Particulars	Area Based Development					Pan City	TOTAL
Component	**Diverse & Mixed Land-use**	**Heritage, Culture and Identity**	**Integrated Urban Services**	**Resilient and Environment Friendly**	**Socio-Economic Inclusiveness**	**Integrated City Control Room**	
Key Components	• Multi-tasking spaces • Re-development of Palayam market, • Integrated Transit node – East fort • Railway commercial complex • Chalai Ware house &commercial • OAT at Puthari-kandamMaidanam	• Temple Precinct Development • Restoration of Agraharams&historic assets • Chalai Bazaar improvement • Cultural streets • Trails& Walks • Interactive information kiosks &Display boards • Wi-Fi lounge	• Public Utilities (WS, UGD & SWD) • Decentralised SWM & Public Toilets • Underground Ducting • Drinking water fountains • MLCPs & Parking Lots • Signage &Markers • Smart Bus Stops • NMT & Last Mile Connectivity • Road & Junction improvement	• Sustainable campuses • Linked green activity zones • Pedestrian streets • Reviving & Re-activating canal fronts • Disaster management	• Flexi vending zones • Integrated social housing complex • Up-gradation of anganwadis& public health centres	**Pan city 1: Centralised Control Room:** - Smart Water Network - Intelligent Traffic &Transportation system - SWM data centres - Smart street lights - CCTV surveillance - Early response system - Smart Mosquito Density system **Pan city 2: Unified e-Governance Portal**	
Total Cost *(Rs. Crores)*	**238.0**	**126.5**	**771.5**	**143.7**	**106.4**	**152.1**	**1538.2**
Smart City Grants *(Centre & State Share)*	156.5	39.3	626.6	9.8	39.3	128.4	1000.0
Central Schemes	0.0	80.4	96.9	22.9	48.0	12.0	260.1
PPP	80.3	2.8	13.0	46.4	0.0	0.0	142.4
ULB Own Sources & Other State Schemes	1.2	4.0	35.0	64.6	19.2	11.7	135.7
Convergence	Smart City Grants PPP ULB Own Funds	Smart City Grants SwadeshDarshan KSWCFC	Smart city Grants AMRUT State Agencies ULB Own Sources Swach Bharat PPP	Smart City Grants AMRUT State Budget - KSUDP PPP MNRE Solar City Program	Smart City Grants PMAY Project LIFE State Departments	Smart City Grants Digital India Nirbhaya Fund	

Structure of Special Purpose Vehicle (SPV)

- Chairman (Chief Secretary)
- C.E.O. (Nominee from State Government)
- Mayor, Thiruvananthapuram Municipal Corporation
- Secretary, Thiruvananthapuram Municipal Corporation
- Central Government nominee, appointed by MoUD
- Representatives appointed by GoK
- Independent Directors as per Companies Act requirements

sd/-
Mayor

// True Copy //

Council Secretary

CORPORATION OF THIRUVANANTHAPURAM

SECRETARY
Thiruvananthapuram Corporation

Minutes of the 10th State Level High Powered Steering Committee (HPSC) chaired by the Chief Secretary held on 22nd March 2017 at 3.00 pm in the Committee room of Chief Secretary, Government of Kerala.

Members Present:

1. *Adv V K Prasanth, Worshipful Mayor, Corporation of Thiruvananthapuram*
2. *Smt. Soumini Jain, Worshipful Mayor, Corporation of Kochi*
3. *Dr K M Abraham IA S, Additional Chief Secretary, Finance Department*
4. *Sri T K Jose I A S, Principal Secretary , LSGD*
5. *Dr K Vasuki IAS, Director Urban Affairs & ED, Suchitwa Mission*
6. *Dr. Narasimhugari TL Reddy IAS, Municipal Secretary, CoT*
7. *Sri P A Sajikumar, Chief Engineer, LSGD*
8. *Sri. Shaji Joseph, Chief Town Planner(Planning), LSGD*
9. *Sri Ravindran , Technical Member, Kerala Water Authority*
10. *Sri Binu Francis, Programme Officer, Kudumbashree*
11. *Sri D Rajkuamr Finance Officer, Urban Affairs*

The 10th meeting of the State Level High Powered Steering Committee (HPSC) chaired by the Chief Secretary, Government of Kerala, commenced at 3.00 pm in the Committee Room.

1. **Approval of Minutes of the Previous meeting**

   The Committee approved the minutes of 9th meeting of SHPSC held on 25th January 2017.

2. **Action Taken Report of the previous meeting**

   The Committee took note of the following actions taken as per the decision of 9thSHPSC held on 25thJanuary 2017.

S.N	Agenda Items & decisions	Action Taken
I	Selection of Project Management Consultant (PMC) to implement Area Based Development- Smart City Kochi. The SHPSC has decided to seek the approval of government to waive the e-procurement process in selection of PMC.	*The technical committee has completed the evaluation process for selection of PMC and submitted its recommendation to the Mission Director on 28th January 2017. As per the decision of 9th SHPSC, the file is submitted to the government on 13th February 2017 to waive the e-procurement process in selection of PMC.*

3. Additional fund to CSML for the year 2016-17

In the State budget for the financial year 2016-17, allocations for Smart Cities Mission in Kochi is Rs 318 Cr (40 % State share).Though the guidelines of Smart Cities Mission envisages an equal amount (in the ratio of 50:50), to be contributed by the State/Kochi Municipal Corporation, the State government has truncated the State share from 50% to 40%, which is contrary to the financial architecture of the Smart Cities Mission. A request for the same was submitted to Finance Department on 23.11.2016 via letter no. CSML/GOKCorr/2016. GOK has sanctioned to release of Rs. 318 Cr to CSML (Rs 90 Cr via GO(Rt) No. 2365/2016/LSGD dated 5.08.2016 and Rs 228 Cr via GO(Rt) No.704/2017/LSGD dated 15.3.2017), being Central share Rs 190.80 Cr and State share Rs 127.20 Cr. State has to release balance of Rs 76 Cr:- Central share of Rs 3.20 Cr and State share of Rs 72.80 Cr.

SHPSC discussed the matter in detail, the Additional Chief Secretary (Finance) suggested to the Principal Secretary (LSGD) to submit a request to allocate additional fund of Rs 76 Cr to CSML so as to maintain the ratio of 50:50 between Central and State funding as per the Mission Guideline.

Action by	Time Limit	Monitoring by
Principal Secretary (LSGD)	23/03/2017	Chief Secretary

4. Review of Smart City Proposal of Thiruvananthapuram

The Ministry of Urban Development (MoUD), Government of India, launched the prestigious ***Smart Cities Mission*** in 2015. Thiruvananthapuram, being the state capital OM K-1506/185/2015-SC-I dated 25th May 2016 from MOUD nominated to participate in the 3rd round of national level Smart Cities Challenge.

Vide OM K-1506/185/2015-SC-I dated 14th March 2017, the MoUD has asked to submit Smart City Proposal (SCP) in the prescribed template issued by MoUD before 31st March 2017. The Corporation of Thiruvananthapuram has prepared SCP with the support of M/s IDeCK Bangalore& CMD Thiruvananthapuram. The draft SCP is placed in SHPSC for its consideration.

4.1 Secretary CoT briefed the approach and methodology adopted for the preparation of SCP in Thiruvananthapuram. Further, the consultant presented the major themes of the projects proposed in the SCP. The highlights of the projects are as follows.

The proposal has adopted retrofitting strategy for Area Based Development in 1403 Acres (5.6% of the city area) of its Heritage and Central City Area. The strategic Directions in the proposal are:

a. Improving Basic Services
b. Creating A Well-Connected, Safe and Accessible City Centre
c. Re-densification with Creative Land-Use
d. Conservation of Historic and Cultural Asset
e. Leveraging Educational Institutions and Tourism Potential
f. Facilitating Sustainable built and natural landscape
g. Encouraging Active Living and Healthy Communities
h. Disaster Prevention
i. Promoting Diversity & Fostering Inclusiveness

SHPSC discussed various projects in detail and made following decisions.

4.2. Area finalization:

It is observed that only 45% of the area is under residential category and around 40% is under institutions that functions only between10 am to 6pm .Hence the Committee suggested to seek the possibility of the increasing the geographical coverage to maximise the percentage residential population into the smart city area. However the Mayor informed that the area selection is finalised and approved by the Corporation Council.

4.3. Flood Prevention and Mitigation

The region identified for ABD has an undulating topography and vulnerable to floods. Hence SHPSC decided to include proposal for the improvement of canals as well as to have a comprehensive plan for flood prevention and mitigation.

4.4. Plan for Total Inclusion

SHPSC decided that a well-structured plan for total inclusion should be an integral part of the Smart Cities Mission both in Kochi and Thiruvananthapuram. Corporations of Thiruvananthapuram and Kochi may decide whether the inclusion plan to be limited to the ABD area or for the entire city. It is decided that the following elements would form part of the inclusion plan :

a. A participatory vulnerability analysis to be conducted.
b. Asraya Scheme to be revamped with a resurvey and revised plan..
c. Universalization of BUDS school.
d. Palliative care should be universalized. Individual care plan should be prepared for persons from vulnerable groups who are suffering from life threatening diseases/conditions and extreme disabilities.
e. All families should have access to different social entitlements including ration card, land titles, electricity and water connections, welfare pensions

4.5. Pan City Proposals : Government to Citizen Services and E-Governance

The two major projects proposed under pan city solutions are Integrated City Management Control Centre (ICMCC) and e-governance portal. The ICMCC will be an integrated system that will operate & manage multiple city service operations including real time monitoring & help in improving services delivery & governance.

It is decided that the e-governance proposal for service delivery should include the following :

a. The entire list of citizen services
b. Issuance of Building permit and licenses, Grievance Redressal system, tax collection, Social Security pensions, file tracking must be mandatory services to be delivered online.
c. Proactive disclosures as stipulated through RTI should be promoted.
d. Social Audit to be conducted through participatory approach
e. Citizen's charter to be published.
f. Corporation of Thiruvananthapuram to evolve as a paperless office in the next 3 years.

4.6. Special Purpose Vehicle

It is decided that SPV to follow the same structure as adopted in Cochin Smart Mission Limited and suggested CoT to initiate the preparation of AoA and MoA for the incorporation of Trivandrum Smart Mission Limited.

4.7. Project Cost

It is decided that CoT to consider following projects with an approximate project cost of Rs 2000 Cr under convergence.

a. Redevelopment of Secretariat
b. Revamping of Central Stadium
c. Light Metro Proposal
d. Skywalk connecting Thampanoor KSRTC bus station, Railway Station and the Fort Bus station proposed by NATPAC into SCP.
e. Beneficiary led improvement of Chalai market and Strategies for prevention and mitigation of fire.
f. Improvement of market near/ vending zone the Fire Station Road (Chenkalchoola)

Try to re-validate the viability of projects proposed along the MG road in the context of proposed light metro project.

4.8. Project Share of the Corporation

SHPSC felt that both the Corporation of Kochi and Thiruvananthapuram do not have additional resources to support the Smart Cities mission as the major project component is limited to a selected region. However, it is decided to allocate Rs 50 Cr as the ULB's contribution towards Smart Cities Mission over a period of 5 years at the rate of Rs 10Cr per annum. The committee decided to seek the consent of Government in this regard.

4.9. It is also decided that the final SCP documents to include the following details as annexures

- Location map with boundary details of region under ABD
- List of all proposed projects and costing
- Project Phasing plan
- Responsibility matrix
- Financial Plans

4.10. Approval and Recommendation

The SHPSC approved the Smart City Proposal prepared by the Corporation of Thiruvananthapuram and recommend the same to the Ministry of Urban Development (MoUD) to participate in the second stage of the Smart City Challenge.

The committee entrusted the Secretary, CoT to make necessary corrections in the SCP document and submit the document for the consideration of MoUD.

Action	Time Limit	Monitoring
Secretary, CoT	29th March 2017	Mission Director

28/3/2017

Principal Secretary (LSGD)&
Mission Director, Smart Cities Mission

T.K.JOSE. IAS
Principal Secretary to Government
Local Self Government Department
Government Secretariat
Thiruvananthapuram-695 001

Chief Secretary &
Chairman –SHPSC

29/3/17

S.M. VIJAYANAND
Chief Secretary

OFFICE OF THE CHIEF SECRETARY TO GOVERNMENT OF KERALA

Government of India
Ministry of Tourism
(Swadesh Darshan Division)

Transport Bhawan
1, Parliament Street
New Delhi-110001

Dated: 19.09.2016

File No. 5(04)/2016-SD

The Pay and Accounts Officer
Ministry of Tourism
C-I, Hutments, Dalhousie Road
New Delhi – 110 0011.

Subject: Development of Sree Padmanabha Aranmula Sabarimala as a Spiritual Circuit in Kerala under Swadesh Darshan Scheme.

Sir,

I am directed to refer to letter No. P3-16565/2015(1) dated 18.5.2016 received from Director (T) Government of Kerala and to convey the administrative and financial sanction of the President of India for 'Development of Sree Padmanabha Aranmula Sabarimala as a Spiritual Circuit' in Kerala under Swadesh Darshan Scheme, with Central Financial Assistance of Rs.9244.26 Lakh (Rupees Ninety Two Crore Forty Four Lakh and Twenty Six Thousands only) for the under mentioned components:

(Rs. in lakh)

S. No.	Name of the Component	Amount
	Sree Padmanabaswamy Temple	
A	**East Nada**	
1.	Construction of tourist Information centre	3.08
2.	Construction of Bio Toilet (2No.)	50.00
3.	Construction of drinking water Fountain (2 Nos)	7.05
4.	Restoration of padmatheerthakulam	700.09
5.	Construction of bathing complex-east nada	65.01
6.	Storm water drain	153.19
7.	Heritage Walk Footpath	750.07
8.	Last mile connectivity	45.78
9.	Construction of Bus stop, toilets, cloak room, waiting hall.	500.00
10	Electrical works	411.80
11	Electrification works for street lighting	273.06
12	Signage	65.63
13	Dustbins	3.05
	Sub Total	**3027.81**
B	**West Nada**	
1.	Construction of drinking water fountain (1 Nos)	3.53
2.	Providing granite paving for Nambhi Nada and temple entrance pathways	147.30

3.	Storm water drain	159.69
4.	Heritage Walk Footpath	103.71
5.	Last Mile Connectivity	59.12
6.	Electrical Works	411.80
7.	Electrification works for street lighting	126.18
8.	Signage	49.22
9.	Dustbins	3.05
	Sub Total	**1063.60**
C	**North Nada**	
1.	Construction of drinking water fountain (1 Nos)	3.53
2.	Storm water drain	146.70
3.	Heritage Walk Footpath	200.02
4.	Last Mile Connectivity	174.05
5.	Electrical Works	411.80
6.	Electrification works for street lighting	139.34
7.	Signage	65.63
8.	Dustbins	3.05
9.	Hardware provision for security service-CCTV cameras, security systems.	200.00
10	Software components for the digital museum and security services @ 2% of the hardware cost.	4.00
	Sub Total	**1348.12**
D	**South Nada**	
1.	Construction of drinking water fountain (1 Nos)	3.53
2.	Construction of Bio Toilet (1No.)	25.00
3.	Storm water drain	153.85
4.	Heritage Walk Footpath	351.98
5.	Last Mile Connectivity	152.90
6.	Electrical Works	411.80
7	Electrification works for street lighting	136.40
8.	Signage	65.63
9.	Dustbins	3.05
10	Solar paneling works	549.36
11	Restoration works for the fort gates and wall	333.38
	Sub Total	**2186.88**
E	**Aranmula**	
1.	Construction of Retaining Wall	171.20
2.	Construction of canopy for VIP gallery	165.90
3.	Construction of Bathing Ghat	28.56
4.	Construction of Toilet	26.32
5.	Construction of dining hall to perform Valla Sadhya	85.57
6.	Provision for solar powered street lights and solar farms	50.00
7.	Provision of signage boards and uniform name boards	19.57
8.	Provision of drinking water fountain	7.05
9.	Providing dustbins around the complex	3.48

10	Construction of display dock for the Thiruvonathoni	20.00
	Sub Total	**577.65**
F.	**Sabrimala**	
1.	Construction of Waiting Hall, Cloak Rooms, Shower room and toilet	100.00
2.	Development of parking facilities @ Nilackal	100.00
3.	Construction of a pedestrian bridge at Pampa next to the existing vehicular bridge	150.00
4.	Construction of a pedestrian bridge at Pampa next to the existing pedestrian bridge connecting the parking lot to the trekking path.	250.00
	Sub Total	**600.00**
	Total	**8804.06**
	Add Contingencies @ 3%	264.12
	Architectural consultancy fees @ 2%	176.08
	Grand Total	**9244.26**

2. The sanction of the President of India is also accorded to the release of Rs.1848.85 Lakh (Rupees eighteen crore forty eight lakh and eighty five thousand only) i.e. 20% of CFA as first instalment in advance for starting the work to Kerala Tourism Developemnt Corporation Limited. The payment will be arranged by Drawing and Disbursing Officer of the Ministry of Tourism by presenting a bill to Pay and Accounts Officer, Ministry of Tourism for electronic transfer of funds in favour of Kerala Tourism Developemnt Corporation Limited, Bank: State Bank of India, Account No.10347391392, IFSC Code: SBIN0007898.

3. The State Government of Kerala shall make land for the project available free of cost and also render all possible assistance for completion of the project on time. No portion of the sanctioned project should be executed/implemented on land/property owned by private individual or trust.

4. The Principal Secretary (Tourism) Govt. Of Kerala will be the nodal officer for implementation and monitoring of the project. The State Government shall set up a Monitoring Committee headed by Principal Secretary (Tourism) Kerala with a Member from the Ministry of Tourism and the Implementing agency to monitor physical and financial progress of the sanctioned project and submit the progress report to Ministry of Tourism on quarterly basis.

5. The executing agency shall put in place the mandatory facilities for barrier free access by physically disabled persons.

6. The State Government would get the work executed through Kerala Tourism Development Corporation Ltd. (KTDC) and shall have the work started immediately to ensure timely utilization of funds and to avoid escalation of cost. The project should be completed and commissioned within 36 months and any cost escalation on account of delay etc. would be met by the State Government of Kerala and no reimbursement will be made by the Central Government on this account.

7. The Central Financial Assistance will be utilized for the purpose for which funds are released. The State Government/executing agency shall not rent/lease or transfer the property without the permission of the Ministry of Tourism Government of India.

8. The State Government/KTDC would undertake the responsibility for maintenance and management of facilities for which the funds are released and no reimbursement on account of losses incurred, if any. would be made by the Central Government.

9. The State Government/KTDC shall follow PWD Schedule of rates and also follow all codal formalities while executing the project. The State Government/executing agency would take all necessary clearances which are required as per prevailing rules and regulations including relating to environment, forest & pollution control before undertaking this project.

10. The second/final instalment of CFA will be released on receipt of utilization certificate of 1st instalment of central financial assistance released for the project.

11. The Government of Kerala shall regularly furnish the monthly statement of progress of work and expenditure incurred to the Central Govt., Ministry of Tourism. The final installment will be released in the form of reimbursement on receipt of Utilization Certificate for the total amount of Central financial assistance sanctioned for the project, details of contribution made by the State Government towards State component, Completion/Commissioning Certificate to the effect that the project has been completed as per the original plan, drawing, blue print etc., approved by the Central Government and the State Government has followed all the codal formalities while executing the project, Management Agreement for proper upkeep, maintenance and operation of the asset created and Undertaking that the facility and the land on which the project has been constructed out of Central financial assistance will not be transferred/sold/alienated without the approval of the Ministry of Tourism, Government of India.

12. The executing agency will not keep the amount released by Central Government unutilized for more than six months. In case the funds cannot be utilized by such time the same will have to be surrendered to Central Government with interest or their formal approval should be taken to transfer/adjust the amount against other Central financially assisted projects.

13. Commercial Quotes etc. furnished along with the project proposal should not be deemed as accepted by Government of India. The Executing Agency/State Government shall follow the codal procedures of inviting tenders etc. while actually awarding the work for execution.

14. The assets acquired wholly or substantially out of CFA except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR shall not be disposed of without obtaining the prior approval of the authority which sanctioned the Central Financial Assistance.

15. The State Government/executing agency will maintain subsidiary account of the Government grant and furnish to the Accounts Officer a set of audited statement of accounts. These audited statement of accounts are required to be furnished after utilization of the grants-in-aid or whenever called for.

16. The accounts of all grantee Institutions or Organizations shall be open to inspection by the sanctioning Authority and audit, both by the Comptroller and Auditor-General of India under the provision of CAG (DPC) Act 1971 and internal audit by the Principal Accounts Office of the Ministry or Department.

17. The expenditure involved is debitable to Demand No.88-Tourism; 3452-Tourism (Major Head), 01-Tourist Infrastructure (Sub-Major Head), 01-101-Tourist Centres (Minor Head), 14-Swadesh Darshan – Integrated Development of Theme-Based Tourist Circuit, 14.00.31 Grants in Aid General for the year 2016-17 (Plan).

18. The State Government of Kerala has certified that no utilization certificate is pending from them in respect of grant in aid released by the Central Government in respect of all the schemes/projects/programs of Ministry of Tourism.

19. This issues with the concurrence of IF vide their U.O. No.817 dated 16.09.2016.

20. It is certified that this sanction order has not been operated earlier. This is the first installment; hence no UC/CC is required for this project at this stage.

21. This sanction is noted at Serial No. 17, Page no.09 in the Register of Grants being maintained by the Swadesh Darshan Division of Ministry of Tourism.

Yours faithfully,

Raja Kar

(Raja Kar)
Under Secretary to the Govt. of India

Copy to:-

1. The Principal Secretary (Tourism), Government of Kerala, Trivandrum.
2. MD, Kerala Tourism Development Corporation Ltd. Trivandrum.
2. Liaison Officer, Kerala Tourism, New Delhi.
3. The Pr. Pay & Accounts Officer, Ministry of Civil Aviation and Tourism, Safdarjung Airport, New Delhi
4. Integrated Finance, Ministry of Tourism, Transport Bhavan, 1, Parliament Street, New Delhi w.r.t. UO. mentioned above
5. Pr. Dte of Audit, CW&M ,N.Delhi/A. General (AE), Govt. of Kerala, Trivandrum.
6. PS to Minister (T), Transport Bhawan, 1, Parliament Street, New Delhi.
7. Regional Director, India Tourism, Chennai.
8. Asstt. DG (P&C)/DDO/AO(B&A) Ministry of Tourism, New Delhi.
9. Sanction File.

(A. S. Saxena)
Assistant Director (SD)

F.No.K-16015/35/2016-AMRUT-II
Government of India
Ministry of Urban Development
AMRUT Division

Nirman Bhawan, New Delhi
Dated: 28th September, 2016

To,

The Pay & Account Officer (Sectt.)
Ministry of Urban Development
Nirman Bhawan, New Delhi.

Subject: Release of first instalment of Central Assistance (CA) amounting Rs.77,28,00,000 /- (20% of the approved Central Share towards project fund of Rs.386.40 crore) to Govt. of Kerala under Atal Mission for Rejuvenation and Urban Transformation (AMRUT).

I am directed to convey the sanction of the Competent Authority for the release of an amount of Rs 77,28,00,000/- (Rupees Seventy Seven Crore and Twenty Eight Lakh only) to the State Government of Kerala. This amount is being released as 1st instalment being 20% of the approved Central Assistance towards project fund of Rs.386.40 crore under Atal Mission for Rejuvenation and Urban Transformation (AMRUT) for implementation of projects related to Water Supply, Sewerage, Drainage, Urban Transport (Non-motorised) and Parks approved in SAAP 2016-17. The total approved size of State Annual Action Plan (SAAP) of Kerala is Rs.796.06 crore for 2016-17.

2. The first instalment is being released on the basis of estimated project cost and any excess or shortfall in the first instalment shall be adjusted while releasing the second instalment of Central Assistance based on approved cost.

3. Diversion of Central Grants for purposes other than the Mission projects is not allowed and shall entail levy of penal interest on the amount and any other action by the Apex Committee and may include adverse effect on release of grants.

4. As per the provision of the Mission's Guidelines State Government is required to release the Central Assistance funds along with State share to the ULBs within seven working days of release of Central share by the Ministry otherwise interest at the rate specified by the Ministry of Finance shall be levied on the State for delay and appropriate deductions made from future instalments.

5. This release will be governed in terms of provisions of GFR. The amount of Central Assistance should be kept in separate account and be open to inspection/Audit as per provisions.

Contd.....

6. State Govt may take necessary action in respect of observations/ comments made by Apex Committee and recorded in the Minutes of 13th meeting of Apex Committee.

7. Atal Mission for Rejuvenation and Urban Transformation (AMRUT) is a new Mission and presently no utilization certificate is pending from the State under the Mission.

8. The sanction has been enter at Sl.No. 25 of the sanction register.

9. The expenditure involved is debitable to the Major Head 3601 - Urban Development, 04 - grants for Centrally Sponsored Plan Scheme, 315- Other Urban Development Scheme- Assistance to Local Bodies, Corporations, Urban Development Authorities, Town Improvement Boards etc., 04 Urban Rejuvenation Mission- 500 Habitations, 04.00.35-Grants for creation of capital assets under grant No. 95 -Ministry of Urban Development of the year 2016-17 (Plan).

10. The amount of Rs.77,28,00,000/- will be credited to the State Government's account to RBI as per procedure laid down by Ministry of Finance, Department Expenditure vide OM No.F-II (45/76/SC) dated 22.02.1977.

11. This issues with the concurrence of Integrated Finance Division vide their Dy. No. 1724/IFD/2016 dated 28.09.2016.

Yours faithfully

(R.P. Singh)
Under Secretary to the Government of India

Copy to:-

1. Principal Secretary, Local Self Government Department, Govt of Kerala. The amount released be utilised for the purpose for which it has been sanctioned and utilization status be furnished within six months.
2. Budget and Account Section, Ministry of Urban Development.
3. Integrated Finance Division, MoUD
4. Guard File of the Section.

(R.P. Singh)
Under Secretary to the Government of India

07.02.2017-ൽ കൂടിയ കൗൺസിൽ തീരുമാനം നം. 1

UPA3/149851/2016: പ്രധാനമന്ത്രി ആവാസ് യോജന പദ്ധതിപ്രകാരമുള്ള ഭവന നിർമ്മാണ ധനസഹായത്തിനുള്ള വിശദമായ പദ്ധതി റിപ്പോർട്ട് (DPR) തിരുവനന്തപുരം നഗരസഭ തയ്യാറാക്കിയിട്ടുണ്ട്. ജനറൽ വിഭാഗത്തിൽ 1175 ഗുണഭോക്താക്കളെയും, പട്ടികജാതി വിഭാഗത്തിൽ 218 ഗുണഭോക്താക്കളേയും, പട്ടികവർഗ്ഗ വിഭാഗത്തിൽ 4 ഗുണഭോക്താക്കളേയുമാണ് വാർഡ് കമ്മിറ്റികൾ തെരഞ്ഞെടുത്തിട്ടുള്ളത്. ടി പദ്ധതിയ്ക്കായി വേണ്ടിവരുന്ന ഫണ്ട് വിവരം ചുവടെ ചേർക്കുന്നു.

ഗുണ ഭോക്താക്കൾ	കേന്ദ്ര സർക്കാർ വിഹിതം	സംസ്ഥാന സർക്കാർ വിഹിതം	നഗരസഭ വിഹിതം	ഗുണഭോക്തൃ വിഹിതം	ആകെ
ജനറൽ - 1175	17,62,50,000	5,87,50,000	5,87,50,000	5,87,50,000	35,25,00,000
പട്ടികജാതി - 218	3,27,00,000	1,09,00,000	1,52,60,000	65,40,000	6,54,00,000
പട്ടികവർഗ്ഗം - 4	6,00,000	2,00,000	3,04,000	96,000	12,00,000
ആകെ	**20,95,50,000**	**6,98,50,000**	**7,43,14,000**	**6,53,86,000**	**41,91,00,000**

മേൽ പറഞ്ഞതിൽ നഗരസഭ വിഹിതമായി ഒടുക്കേണ്ട തുക 7,43,14,000/- രൂപ നഗരസഭാ പദ്ധതി വിഹിതത്തിലുൾപ്പെടുത്തി ഒടുക്കുന്നതിന് തീരുമാനിച്ചിട്ടുണ്ട്.

1397 പേരുള്ള ഗുണഭോക്തൃ പട്ടികയും, ഡി.പി.ആറും അംഗീകരിച്ച് സംസ്ഥാന, കേന്ദ്ര സർക്കാരുകൾക്ക് സമർപ്പിക്കുന്ന വിഷയം അംഗീകരിക്കുന്നതിന് തീരുമാനിച്ചു.

(ഒപ്പ്)
മേയർ

// ശരിപ്പകർപ്പ് //

കൗൺസിൽ സെക്രട്ടറി

PMAY

Ward No	Ward Name	No houses included in 1st phase DPR (PMAY)	Total Amount	ULB Share
27	Palayam	4	1200000	220000
28	Thycaud	8	2400000	500000
29	Vazhuthacud	5	1500000	290000
43	Valiyasala	8	2400000	400000
71	Chalai	6	1800000	360000
82	Vanchiyoor	12	3600000	660000
83	Sreekandeswaram	5	1500000	250000

List of Selected Solar Cities under "Development of Solar Cities Programme"

Sr. No	State	Approved Solar Cities	Status of Master Plan	Status of Solar City Cell
1	Andhra Pradesh	1. Vijayawada*	Prepared	Yes
		2. Narsapur Town	--	--
		3. Kakinada	--	--
2	Assam	4. Guwahati	Prepared	No
		5. Jorhat	Prepared	Yes
3	Arunachal Pradesh	6. Itanagar	Prepared	Yes
4	Bihar	7. Gaya	--	--
5	Chandigarh	8. Chandigarh**	Prepared	Yes
6	Chhattisgarh	9. Bilaspur	Prepared	Yes
		10. Raipur	Prepared	Yes
7	Gujarat	11. Rajkot*	Prepared	Yes
		12. Gandhinagar**	Prepared	Yes
		13. Surat	Prepared	Yes
8	Goa	14. Panaji City	Prepared	No
9	Haryana	15. Gurgaon	Prepared	No
		16. Faridabad*	Prepared	Yes
10	Himachal Pradesh	17. Shimla*	Prepared	Yes
		18. Hamirpur	Prepared	Yes
11	Karnataka	19. Mysore**	Prepared	Yes
		20. Hubli-Dharwad	Prepared	No
12	Kerala	21. Thiruvananthapuram	Prepared	No.
		22. Kochi	Prepared	Yes
13	Maharashtra	23. Nagpur**	Prepared	Yes
		24. Thane*	Prepared	Yes
		25. Kalyan-Dombivli	Prepared	Yes
		26. Aurangabad	Prepared	No
		27. Nanded	Prepared	No
		28. Shirdi*	Prepared	Yes
		29. Pune	--	--
14	Madhya Pradesh	30. Indore	Prepared	
		31. Gwalior	Prepared	Yes
		32. Bhopal	Prepared	--
		33. Rewa*	Prepared	Yes
		34. Jabalpur	--	--
15	Manipur	35. Imphal	Prepared	Yes
16	Mizoram	36. Aizawl*	Prepared	Yes
17	Nagaland	37. Kohima	Prepared	Yes
		38. Dimapur	Prepared	No

GOVERNMENT OF KERALA

Abstract

Public Works Department - Kerala Rapid Transit Corporation Limited - Implementation of Light Metro Rail System in Thiruvananthapuram and Kozhikode - Administrative Sanction accorded - Orders issued.

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PUBLIC WORKS (H) DEPARTMENT

G. O. (MS) No.74/2015/PWD Dated, Thiruvananthapuram 11.09.2015.

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Read:- 1) G.O.(MS) No. 72/12/PWD dt: 09.10.2012.

2) G.O.(MS) No. 78/12/PWD dt: 22.10.2012.

3) G.O.(MS)No. 44/13/PWD dt, 30.05.2013

4) G.O.(MS) No. 50/13/PWD dt: 14.06.2013.

5) G.O.(MS) No. 56/15/PWD dt: 09.01.2015

6) Letter No.66/KMCL/13/375& 463 dt: 31.10.2014 and 23.02.2015 from the Managing Director, KMCL, Thiruvananthapuram.

ORDER

Government of Kerala have decided to introduce Mass Rapid Transit System (MRTS) in Thiruvananthapuram and Kozhikode cities. M/s Delhi Metro Rail Corporation Limited (DMRC) was engaged to prepare the Detailed Project Report (DPR) for Monorail projects for both the cities. As per G. O. read as 1st and 3rd paper above Administrative Sanction were accorded for implementing Kozhikode and Thiruvananthapuram Monorail projects. As per the G.O. read as 2nd paper above, Government constituted a Special Purpose Vehicle, namely, Kerala Monorail Corporation Ltd. (KMCL) for implementing both the monorail projects.

2. As per G.O.read as 4th paper above, DMRC was appointed as the General Consultant for the implementation of these projects on a Consultancy fee @ 3.25 % of the total estimated cost. The General Consultancy Agreement between DMRC and KMCL was also signed.

3. When tenders were invited globally for both the projects, only a single bid from M/s Bombardier Transportation Consortium was received. On re-tender

also only a single bid was received from the very same firm quoting Rs.14588.08 Crore as against the estimated cost of Rs. 4500 Crore. DMRC examined the financial bid in detail. As there was only one bidder and as the quoted figure was so high, DMRC did not recommend the bid for consideration.

4. In the circumstances, DMRC put forth the following 3 options before the Board of Directors of KMCL.

i) Negotiate with the bidder
ii) Retender the monorail project
iii) Go for an alternative MRTS

5. Since the 1st and 2nd options were found not viable, the Board has decided to go for the 3rd option, ie, alternative MRTS. As an alternative, DMRC suggested the adoption of a Light Metro Rail system and pointed out the following merits of the Light Metro System:-

" The corridor selected for introduction of MRTS do not have sufficient Peak Hour Peak Direction Traffic (PHPDT) to qualify for a normal Metro. Further on these corridors, there are sharp curves upto a radius of 60 metre and gradients as steep as 6%. Light Metro has the capability to negotiate sharp curves of 60 metre radius and steep gradients of 6%. Since there are more number of players in the field of Light Metro, the chances of getting more competition while tendering is high. Moreover, the Metro technology is already available in the country. Therefore implementation of Light Metro at a comparatively lower cost is possible. It is possible to have separate tenders for rolling stock, civil works, signal systems etc. which will lead to savings in the total cost of the project compared to a single bidding process as in the case of the Monorail Project. Apart from all these, moving dimensions of the Light Metro Train will not need extensive widening and hence large scale acquisition of land and demolition of building can be avoided."

6. The Board meeting of KMCL held on 28.08.2014 considered the options putforth by DMRC and resolved to drop the Monorail project and to explore the possibilities of Light Metro Rail System as an alternative. It was also decided to entrust the preparation of a DPR for lighter version of Metro Rail System with DMRC. Accordingly DMRC prepared and submitted DPR for Light Metro Rail Project System in Thiruvananthapuram and Kozhikode.

7. The salient features of the Light Metro Project at Thiruvananthapuram and Kozhikode as per the DPR are as follows :

Light Metro Project			
		Thiruvananthapuram	**Kozhikode**
a)	Route length	21.821 Kms.	13.33 Kms
b)	No. of Stations	19	14
c)	Land Requirement		
	Government land	8.92 Hect	8.554 Hect
	Railway Land	-	0.518 Hect
	Private land	3.04 Hect	1.582 Hect
	Total	11.96 Hect.	10.654 Hect
d)	Estimated cost (Sept 2014 prices)		
	Without taxes	3024 Cr	1820 Cr
	With Central taxes	3453 Cr	2057 Cr
e)	Completion cost with Central taxes only (by the year 2020)	4219 Cr	2509 Cr
f)	Financial Indices		
	a) FIRR - without property development	2.07%	2.74%
	with property development	8.09%	8.02%
	b) EIRR	17.99 %	17.39 %
g)	Estimated Completion Period	5 years	4 years

8. As per the Detailed Project Reports, the projects would be taken up as a Joint Venture by the State and Central Governments, with 20% funding by Government of Kerala, 20% by Government of India and the balance 60% from domestic and external borrowings as done in Kochi Metro Project.

9. The Managing Director, KMCL as per letter above, reported that the 11th Board meeting of KMCL held on 24.10.2014 resolved to change the name of the Company from Kerala Monorail Corporation Limited to Kerala Rapid Transit Corporation Limited and also to recommend the DPRs for the Light Metro Projects

in Thiruvananthapuram and Kozhikode prepared by DMRC for the approval of Government.

10. Accordingly, as per Government Order read as 5th paper above, sanction was accorded to change the name of Kerala Monorail Corporation Limited to Kerala Rapid Transit Corporation Limited (KRTL).

11. Government have examined the DPR in detail and are pleased to accord Administrative Sanction for the implementation of Light Metro Rail System in Thiruvananthapuram and Kozhikode at a total estimated cost of Rs. 5510 Crore and Project Completion cost of Rs.6728 Crore.

12. Sanction is also accorded for taking up this matter with Government of India for seeking in-principle sanction for the implementation of these projects.

By Order of the Governor,

A P M MOHAMMED HANISH
Secretary to Government

To

The Managing Director, KRTL, Thiruvananthapuram
The Accountant General (Audit) ,Kerala, Thrissur
The Accountant General (A&E) ,Kerala, Thiruvananthapuram
Finance Department (vide U. O No.42440/Ind&PW B3/2015/Fin dt: 03.06.2015)
General Administration (SC) Department (vide item No. .....)
Planning & Economic Affairs Department (vide U. O No. 18438/A2/2014/Plg)
Director of Public Informations
SF/OC

Forwarded/By Order

Section Officer

GOVERNMENT OF KERALA

Abstract

PWD – Monorail Project at Kozhikode – Detailed Project Report approved – Administrative Sanction for Phase I accorded – Orders issued.

PUBLIC WORKS (H) DEPARTMENT

G.O.(Ms)No.72/2012/PWD Dated, Thiruvananthapuram, 09.10.2012.

Read:- 1. Letter No. 1966/KRFB/2012 dated 20.06.2012 from the Chief Executive Officer, Kerala Road Fund Board.
2. G.O.(Rt)No.1755/2011/PWD dated 15.12.2011.

ORDER

The present public transport system in Kozhikode is inadequate to address the needs of the public. Hence government decided to set up a Mass Rapid Transport System (MRTS) in the city. The Kerala Road Fund Board was tasked to conduct a feasibility study of introducing such a System. Kerala Road Fund Board engaged M/s Wilbur Smith Associates to conduct a feasibility study, which was completed in December 2010. The consultant proposed a monorail system from Medical College Junction to Ramanattukara for a length of 23 Kms and recommended to take up the 13 Kms from Medical College Junction to Meenchanda with 14 stations as Phase I of the project. As per G.O. (Rt)No.1755/2011/PWD, dated 15.12.2011, Kerala Road Fund Board was entrusted with the implementation of the Project in Kozhikode City.

2. Kerala Road Fund Board entrusted the task of preparation of Detailed Project Report (DPR) for the first phase of Monorail Project to Delhi Metro Rail Corporation (DMRC). Accordingly, DMRC prepared the DPR for the project from Medical College junction to Meenchanda touching Kozhikode railway station. It was also proposed that the depot of the project would be shifted to the vacant land near the Pain and Palliative Clinic of the Medical College. The length of the proposed monorail extends to 14.2 Kms with the following 15 stations:-

1. MC Hostel
2. Medical College
3. Chevayur
4. Thondayad
5. Kottuli
6. New Bus Stand
7. KSRTC
8. Mananchira

9. Palayam
10. Railway Station
11. Pushpa
12. Kallayi
13. Panniyankara
14. Vattakkinar
15. Meenchanda

3. The alignment of the Monorail will be along the middle of the PWD roads and will be fully elevated. Stations and platforms will be above the road. All stations will have elavators and the stations at Medical College, Mananchira and Railway Station will have escalators. The trains will consist of 3 cars with a carrying capacity of 525 passengers. The trains will be driverless but may also be operated with drivers.

4. DMRC has estimated a requirement of 10.654 hectares of land for implementing the project, out of which only 1.582 hectares are private land. The balance 8.554 hectares are Government land and 0.518 hectares, Railway land.

5. The total power supply needed for the project is 5 MVA. Traction voltage will be 750 V (DC). There will be two receiving substations, one at the Depot and the other at Meenchanda.

6. The rolling stock, signalling, telecommunication, traction, turnouts and workshop facilities would be combined into a single contract package and global tenders invited for procurement. The project cost is estimated at Rs.1991 crores with taxes and duties, for completion by September 2015.

7. The Internal Rate of Return (IRR) of the project is 1.42% at a cost of Rs. 1991/- crores. The Economic Rate of Return (ERR) of the project is 15.92%.

8. Government examined the matter in detail and are pleased to accord Administrative Sanction for Phase I of the Kozhikode Monorail Project at an estimated cost of Rs. 1991 crores. The DPR for Phase I of the project is approved subject to the following conditions:-

i) There will be a common Special Purpose Vehicle (SPV), namely KERALA MONORAIL CORPORATION for the implementation of Kozhikode and Thiruvananthapuram monorail Projects, with the following members in the Board of Directors:-

Chief Minister	Chairman
Minister (Works)	Vice Chairman
Minister (Industries & IT)	Director
Minister (Power & Transport)	"
Minister (Finance, Law & Housing)	"

Minister (Urban Affairs, Minority Welfare)	Director
Minister (Panchayat & Social Welfare)	"
Minister (Health & Devaswom)	"
Principal Secretary (Works)	"
Additional Chief Secretary (Transport)	"
Chief Executive Officer, Kerala Road Fund Board	"

i(a). Chief Executive Officer, Kerala Road Fund Board will be in charge of the Managing Director of the Kerala Mono Rail Corporation. A Chief Executive Officer will be appointed for managing the day today affairs of the Corporation later.

i(b). In addition, a Technical Expert in the field will also be inducted into the Board in due course.

ii). The administrative, financial and technical matters of the project will be decided by the Board of Directors. However, prior sanction of Government will be obtained for major policy decisions.

iii). The project will be structured in two stages. The first stage will consist of Land Acquisition and civil construction as a government initiative on the lines of "Vizhinjam Port" model. The second stage consisting of procurement of roiling stock, signalling, telecommunications, operation and maintenance will be implemented in Public-Private-Partnership (PPP) mode.

iv). The entire project, including civil construction works (Stage 1) and the selection of concessionaire for the PPP mode (Stage 2) will be executed through international competitive bidding.

v). DMRC may be engaged directly as a turn key consultant for the implementation of the project in a transparent manner. The SPV constituted for implementing the project will negotiate with DMRC, the detailed terms of referencce covering scope of works, terms and conditions, deliverables and fee for executing the project as a turrn key consultant. As mentioned earlier, the Board of Directors of the SPV will take all decisions on the administrative, financial and technical matters of the project, except those involving policy matters for which prior sanction from the Government will be obtained.

vi). The options of raising funds through bonds, domestic or foreign loans, Viability Gap Funding (VGF) or a combination of them will be explored for implementing the project.

vii). Government of India will be addressed to exempt the project from all Central Taxes and duties for a period of 3 years.

viii). If no exemption is granted as proposed above, then Government of India will be addrssed to sanction a grant equivalent to 50% of t.. Central Taxes and duties applicable to the project. The balance 50% will be borne by the State Government.

9. Orders will be issued separately for the following:

a). To impose 5% surcharge on fuel sold in Kerala for a period of 10 years for financing Mass Rapid Transport Projects.

b). To exempt the project from all State Taxes and Duties.

(By order of the Governor),

R. KRISHNAKUMAR
Special Secretary to Government
(In charge of Principal Secretary)

To

1. The Chief Engineer (R & B), PWD, Thiruvananthapuram.
2. The Chief Executive Officer, Kerala Road Fund Board, T.C.4/1654, Mayooram No.7, Belhaven Gardens, Thiruvananthapuram – 695 003.
3. The Managing Director, Kerala Monorail Corporation Limited.
4. The Principal Accountant General (A & E), Kerala, Thiruvananthapuram.
5. The Principal Accountant General (Audit), Karunakaran Nambiar Road, Thrissur.
6. General Administration (SC) Department
7. Finance Department
   (Vide U.O.No.56800/Ind&PW.B1/12/Fin, dated 28. 06.2012)
8. Planning & Economic Affairs Department
   (Vide U.O.No.11544/A2/12/Plg dated 06.08.2012)
9. The Director of Information & Public Relations Department
10. The Additional Chief Secretary, Transport
11. The Principal Advisor, DMRC Camp Office, Perumbavayil House, Kuttikkad P.O., Ponnani, Malappuram
12. Office copy/Stock File

Forwarded/By Order

Section Officer

നം. 102/A/2017/KSWCFC

Samunnathi

15-03-2017

മാനേജിംഗ് ഡയറക്ടർ

അഡ്വ. വി.കെ.പ്രശാന്ത്,
ബഹു. മേയർ,
മുൻസിപ്പൽ കോർപ്പറേഷൻ,
തിരുവനന്തപുരം

സർ,

വിഷയം : KSWCFC- സ്മാർട്ട്സിറ്റി പദ്ധതി - വിവരങ്ങൾ ലഭ്യമാക്കുന്നത്- സംബന്ധിച്ച്.

സൂചന : താങ്കളുടെ 07-03-2017 ലെ E13/138341/15 നമ്പർ കത്ത്.

സൂചനയിലേയ്ക്ക് ശ്രദ്ധ ക്ഷണിക്കുന്നു. സംസ്ഥാന സർക്കാർ കേരള സംസ്ഥാന മുന്നാക്ക സമുദായ ക്ഷേമ കോർപ്പറേഷൻ മുഖേന നടപ്പിലാക്കി വരുന്ന ഭവനസമുന്നതി- അഗ്രഹാരങ്ങളുടെ നവീകരണ പദ്ധതിയുടെ കീഴിൽ അഗ്രഹാരങ്ങളുടെ നവീകരണപ്രവർത്തനങ്ങൾക്കായി 2016-17 സാമ്പത്തിക വർഷം സംസ്ഥാന സർക്കാർ 3 കോടി രൂപ അനുവദിക്കുകയുണ്ടായി (ഉത്തരവിന്റെ പകർപ്പ ഉള്ളടക്കം ചെയ്യുന്നു). ടി പദ്ധതി പ്രകാരം തെരെഞ്ഞടുക്കപ്പെട്ട ഗുണഭോക്താക്കളുടെ പട്ടിക സംബന്ധിച്ച ഉത്തരവ് ഉള്ളടക്കം ചെയ്യുന്നു. കൂടാതെ ഭവനസമുന്നതി- അഗ്രഹാരങ്ങളുടെ നവീകരണ പദ്ധതിയുടെ രണ്ടാം ഘട്ടത്തിന്റെ ഭാഗമായി തിരുവനന്തപുരം കോർപ്പറേഷൻ പരിധിയിൽ വരുന്ന 20- ഓളം അപേക്ഷരെ കൂടി പരിഗണിച്ചു വരിക യാണെന്ന വിവരം അറിയിക്കുന്നു.

വിശ്വസ്തതയോടെ,
ശോഭ. വി
ജനറൽ മാനേജർ
മാനേജിംഗ് ഡയറക്ടർക്കുവേണ്ടി

അംഗീകാരത്തോടെ,

അസിസ്റ്റന്റ് മാനേജർ

Kerala State Welfare Corporation for Forward Communities Ltd.
T.C.9/476, L2, Kuleena, Jawahar Nagar, Kowdiar P.O., Thiruvananthapuram - 3
Phone : 0471 2726599, Fax : 0471 2311215, Email : kswcfc@gmail.com, md.ksacdc@gmail.com, Web : www.kswcfc.org

GOVERNMENT OF KERALA
Abstract

General Administration – Kerala State Welfare Corporation for Forward Communities Ltd – Proposal for 'Renovation of Dilapidated Agraharas' - Administrative Sanction accorded - orders issued.

GENERAL ADMINISTRATION (CO-ORDINATION) DEPARTMENT

G.O.(Rt) No.3207/2016/GAD Dated, Thiruvananthapuram, 20.05.2016.

Read:- 1) Letter No.70/MD/2016/KSWCFC dated 01.03.2016 from Managing Director, Kerala State Welfare Corporation for Forward Communities Ltd, Thiruvananthapuram.
2) Minutes of the Departmental Working Group meeting held on 05.03.2016.

ORDER

The Managing Director, Kerala State Welfare Corporation for Forward Communities Ltd, vide letter read as 1st paper above has submitted a proposal on 'Repair and Restoration of Dilapidated Agraharas' by utilising the current year's budget allocation of ₹ 300 lakhs under the head of account '2235-02-190-97-34-OC(P)' for renovating 150 units of houses in agraharas belonging to the people whose annual income is less than ₹ 2 lakhs at Palakkad and Thiruvananthapuram districts. The Corporation will provide ₹ 2 lakhs for each unit for it's renovation.

2) The proposal was placed before the Departmental Working Group held on 05.03.2016 for its consideration and the Working Group approved the proposal for issue of administrative sanction with the following recommendations.

- The term 'repair and restoration' may be avoided and only the term 'renovation' may be coined for the name of the Scheme.
- The administrative sanction should be issued only on or after 01.04.2016. Before issuing administrative sanction, clearance from Chief Electoral Officer may be sought.
- $^1/_3$ of the total budget provision only should be incurred during the Vote on Account period.
- Expenditure should be incurred only in the financial year 2016-17.

3) The proposal has been forwarded to the Chief Electoral Officer for getting approval but the Chief Electoral Officer deferred the proposal till the completion of General Election of 2016 to Kerala Legislative Assembly is over. As the General Election is over, Government have examined the proposal and the recommendations of the Departmental Working Group in detail and are pleased to accord Administrative Sanction to the proposal of 'Renovation of Dilapidated Agraharas' submitted by the Managing Director, Kerala State Welfare

Corporation for Forward Communities Ltd for an estimated cost of ₹ 300 lakhs to be met from the current year's allocation under the head of account '2235-02-190-97-34-OC (P)' subject to the above recommendations of the Departmental Working Group.

(By order of the Governor)

K. R. JYOTHILAL
Secretary to Government

To

The Managing Director, Kerala State Welfare Corporation for Forward Communities Ltd, L.2, Kuleena, Jawahar Nagar, Kawdiar, Thiruvananthapuram
The Accountant General (A&E)/(Audit), Kerala, Thiruvananthapuram
Finance (PUC) Department (for information)
The Member Secretary, State Planning Board, Pattom, Thiruvananthapuram.
Planning & Economic Affairs Department. (for information)
The Information & Public Relations Department. (for wide publicity through media)
Web & New Media, Information & Public Relations Department, Government Secretariat. (for publishing in the Government website)
Stock File / Office Copy.

Forwarded/By order

Section Officer

Copy to:

The Private Secretary to the Hon'ble Chief Minister.
Additional Secretary to Chief Secretary.
PA to Secretary, GAD.
CA to Additional Secretary, GAD.

KERALA STATE WELFARE CORPORATION FOR FORWARD COMMUNITIES Ltd
PROCEEDINGS OF THE MANAGING DIRECTOR
(Present : Dr. K Ampady IIS)

No: 70/MD/2016/KSWCFC Thiruvananthapuram, dated: 03-08-2016

Sub: KSWCFC –Bhavana Samunnathi- Renovation of dilapidated Agraharas – Beneficiaries selected – Approval of estimates & disbursal of financial assistance – Sanction accorded- Proceedings issued- reg.

Read: 1. Proceedings of even No: dated 05.02.2016
2. G.O.(Rt) No: 3207/2016/GAD dated 20.05.2016.
3. G.O.(Rt) No: 4846/2016/GAD dated 28.07.2016.

1. Government have accorded sanction for the scheme, "Renovation of Dilapidated Agraharas" for the year 2016-17 and has provided Rs.300 lakh under the head of account "2235-02-190-97-34 OC(P)" in the current year's budget , vide G.O read as 1st paper above. Government have released Rs. 50 lakh for the implementation of first phase of the scheme, vide G.O. read as 3rd paper above.
2. The Selection Committee has selected the 45 beneficiaries (39 beneficiaries in Palakkad and 6 beneficiaries in Thiruvananthapuram) as per the proceeding read above.
3. The designated engineer of the technical consultant viz, Kerala State Coastal Area Development Corporation Limited has prepared and submitted the estimates in respect of each of the beneficiaries, as detailed below.

Estimate in respect of Beneficiaries in Palakkad District

Sl. No	Name	Address	Estimate Amount	1st Instalment (50%)	2nd Instalment (25%)	3rd Instalment (25%)
1	K.S. Gomathy	2/144, New Street, New Village, Kollamkode, Kollamkode- 1, Chittur Taluk, Palakkad.	₹ 75,000	₹ 37,500	₹ 18,750	₹ 18,750
2	A.S.Thailambal	9/127, Aalampallam, Vadavannur, Kollamkode, Chittur.P.O	₹ 1,80,000	₹ 90,000	₹ 45,000	₹ 45,000
3	R. V. Balakrishnan	10/88, Ramanathapuram, Alampallam, Kollamkode, Vadavannur, Chittur, Palakkad	₹ 2,00,000	₹ 1,00,000	₹ 50,000	₹ 50,000

4	V.Krishnamani Iyar	14/119, Thennilapuram Gramam, Thennilapuram .P.O Anchumoorthi(via), Kavasseri Village II, Alathur, Palakkad-678682.	₹ 25,000	₹ 12,500	₹ 6,250	₹ 6,250
5	Venkidachalapathi. A.V	1/504, Chathapuram, Kalpathi, Palakkad-678003.	₹ 1,00,000	₹ 50,000	₹ 25,000	₹ 25,000
6	Smt. Rema Subramanyan	V.N.Puram, 6/244, Palakkad.	₹ 75,000	₹ 37,500	₹ 18,750	₹ 18,750
7	Sundaram A. S	9/162, Alampallam, Pazhaya Gramam, Vadavannur, Chittur, Palakkad- 678506.	₹ 2,00,000	₹ 1,00,000	₹ 50,000	₹ 50,000
8	Sankara Narayanan	9/50, Alampallam, Kollengode, Vadavannur, Chittur, Palakkad- 678506.	₹ 1,00,000	₹ 50,000	₹ 25,000	₹ 25,000
9	S.Adhimoorthi	37/230, NGS.105, R.N.Puram, Nurani Village, Palakkad	₹ 1,00,000	₹ 50,000	₹ 25,000	₹ 25,000
10	Balambal	5/136, G.R.Puram, Ambikapuram.P.O, Alathur, Palakkad	₹ 2,00,000	₹ 1,00,000	₹ 50,000	₹ 50,000
11	Subramannian. T.S	8/205, Thrithamara Gramam, Paruthipully, Peringottukurussu Village I, Alathur Taluk, Palakkad-678573.	₹ 1,00,000	₹ 50,000	₹ 25,000	₹ 25,000
12	A.R.Narayanan	9/144, Aalampallam (Old), Kollencode .P.O, Vaduvanur,Chittur Taluk, Palakkad.	₹ 2,00,000	₹ 1,00,000	₹ 50,000	₹ 50,000
13	Krishnamoorthy	10/33, Perumal Kovil, Alampallam, Kollemkode, Chittur Taluk, Palakkad.	₹ 1,00,000	₹ 50,000	₹ 25,000	₹ 25,000
14	Lakshmi. K	9/57, Alampallam, Kollengode P.O, Vadavannur, Chittur Taluk, Palakkad-678506	₹ 50,000	₹ 25,000	₹ 12,500	₹ 12,500

	M.P. Srikumar	9/153, Alampallam Pazhaya Gramam, Kollamkode. P.O., Vadavannur, Chittoor Taluk, Palakkad-678506.	₹ 1,45,000	₹ 72,500	₹ 36,250	₹ 36,250
16	T.M.Ananthalekshmi	39/195, T.G.S-16, Thondikulam Village, Nurani.P.O,Palakkad-678004.	₹ 90,000	₹ 45,000	₹ 22,500	₹ 22,500
17	Ananthalekshmi Ammal	Thennilapuram Gramam, Thennilapuram P.O, Anjumoorthi, Mangalam (via) Alathur- 678682.	₹ 1,70,000	₹ 85,000	₹ 42,500	₹ 42,500
18	T.S.Lekshmiammal	1/531, Chathapuram Village, Kalpathi. P.O, Palakkad- 678003.	₹ 2,00,000	₹ 1,00,000	₹ 50,000	₹ 50,000
19	Ananthammal. T.S	Gowri Nilayam, Thennilapuram Gramam, Anjumoorthi. P.O, Alathur, Palakkad-678682.	₹ 20,000	₹ 10,000	₹ 5,000	₹ 5,000
20	K.S.Subramanian	Near Lekshmi Narayana Temple, Kuzhalmannam Agraharam, Kuzhalmannam. P.O, Palakkad- 678702.	₹ 1,80,000	₹ 90,000	₹ 45,000	₹ 45,000
21	Seetha Lekshmi R	Kuzhalmannam Agraharam, Kuzhalmannam. P. O, Alathur, Palakkad-678702.	₹ 85,000	₹ 42,500	₹ 21,250	₹ 21,250
22	K.R.Balan	No.5/353, New Kalpathy Village, Palakkad- 678003.	₹ 1,80,000	₹ 90,000	₹ 45,000	₹ 45,000
23	P.M.Radha	Kuzhalmannam Agraharam, 94, Kuzhalmannam P O, Alathur, Palakkad-678702.	₹ 1,85,000	₹ 92,500	₹ 46,250	₹ 46,250
24	R. Narayani	Shivakripa,13/538, Irattatheruvu Gramam, Vadakkancherry, Alathur, Palakkad-678683.	₹ 40,000	₹ 20,000	₹ 10,000	₹ 10,000

Sivaraman G S	6/829, Puthiya Kalpathy,Palakkad-678003.	₹ 85,000	₹ 42,500	-₹ 21,250	₹ 21,250
K.V.Sankara Narayanan	1/519, Chathapuram, Kalpathy.P.O., Palakkad- 678003.	₹ 1,00,000	₹ 50,000	₹ 25,000	₹ 25,000
Lekshmiammal	Ayilam Gramam, Lalitha Nilayam, Varode.P.O, Kottayi, Palakkad- 678572.	₹ 1,25,000	₹ 62,500	₹ 31,250	₹ 31,250
G.K.Meenakshi	5/106, Govindarajapuram, Ambikapuram. P.O., Palakkad- 678011.	₹ 1,30,000	₹ 65,000	₹ 32,500	₹ 32,500
Madhurameenakshi K R	Old No.1/728, New No.5/670, Old Kalpathy, Palakkad.	₹ 2,00,000	₹ 1,00,000	₹ 50,000	₹ 50,000
P.M. Ramachandran	22/267, Thirunellai Village, Thirunellai. P.O.Palakkad-678004.	₹ 90,000	₹ 45,000	₹ 22,500	₹ 22,500
A.N.Ramanathan	1/614,Old Kalpathy.P.O, Palakkad - 678 003	₹ 1,30,000	₹ 65,000	₹ 32,500	₹ 32,500
L.R.Gopala Krishnan	7/712, L. N Puram, Puthur Village, Palakkad.	₹ 2,00,000	₹ 1,00,000	₹ 50,000	₹ 50,000
N.S.Viswanathan	NGS 150, Single Street, Nurani, Palakkad- 678004.	₹ 2,00,000	₹ 1,00,000	₹ 50,000	₹ 50,000
Soundaryavally	24/5, Muthukulam, Nurani. P.O., Palakkad-678 004	₹ 2,00,000	₹ 1,00,000	₹ 50,000	₹ 50,000
T.K.Devarajan	Old No. 22/169, New No. 35/692, Thirunellai Village, Thirunellai. P.O., Palakkad - 4	₹ 1,20,000	₹ 60,000	₹ 30,000	₹ 30,000
K.N.Lakshmy	24/162-1, Lekshmi Nivas, NGS 116, R. N. Puram, Nurani , Palakkad.	₹ 1,90,000	₹ 95,000	₹ 47,500	₹ 47,500
S.Jayalakshmy	24/153, R N Puram Street, Nurani, Palakkad.	₹ 1,70,000	₹ 85,000	₹ 42,500	₹ 42,500
C.A.Viswanathan	C S Puram Village, Parli Thaluk, Palakkad - 678 611.	₹ 1,30,000	₹ 65,000	₹ 32,500	₹ 32,500

Krishnamoorthy G D	2/316, Govindarajapuram,Jadavallabar House, Ambikapuram.P.O., Palakkad.	₹ 1,00,000	₹ 50,000	₹ 25,000	₹ 25,000

Estimate in respect of Beneficiaries in Thiruvananthapuram District

Name	Address	Estimate Amount	1st Instalment (50%)	2nd Instalment (25%)	3rd Instalment (25%)
S. Seetha	Sree Padmanabha, TC 37/1824, WSRA-27, Mithranandapuram, West Street, Fort P.O, Thiruvananthapuram	₹ 60,000	₹ 30,000	₹ 15,000	₹ 15,000
N. Rajagopalan Potty	TC. 37/1022, ASRA 20, Tippu Street, Fort, Trivandrum- 23	₹ 1,10,000	₹ 55,000	₹ 27,500	₹ 27,500
Meena Bhaskaran	TC 28/1999 Ramaswamy Kovil Theruv, Fort P.O, Vanchiyoor Village, Thiruvananthapuram- 23.	₹ 1,00,000	₹ 50,000	₹ 25,000	₹ 25,000
R Kumar	TC. 37/1171, Dheeshithar Theruv, Fort,Thiruvananthapuram	₹ 80,000	₹ 40,000	₹ 20,000	₹ 20,000
S Subramani	TC-37/1032 ASRA -30 Ayyavadhyar Street, fort, Vanchiyoor Village Thiruvananthapuram	₹ 1,20,000	₹ 60,000	₹ 30,000	₹ 30,000
R. Krishnamoorthi	TC 37/1737, S.P Lane, West fort, Trivandrum-23, Vanchiyoor Village	₹ 1,30,000	₹ 65,000	₹ 32,500	₹ 32,500
Total		**₹ 57,70,000**	**₹ 28,85,000**	**₹ 14,42,500**	**₹ 14,42,500**

The mode of disbursement of estimate amount to the beneficiaries will be as follows:

Instalment	% of estimate amount to be disbursed	Conditions
1st	50%	As advance on selection
2nd	25%	On production of certificate regarding completion of 50% of work as per the approved estimate.
3rd	25%	On production of certificate regarding completion of entire work as per the approved estimate.

5. The estimates in respect of the aforesaid 45 beneficiaries amounting to ₹ 57,70,000 (Rupees Fifty seven lakh and seventy thousand only) in total is hereby approved.
6. Sanction is also accorded for the disbursement of the 1st instalment, being 50% of the cost of the approved estimates, amounting to ₹ 28,85,000 (Rupees Twenty eight lakh and eighty five thousand only) in total to the 45 beneficiaries.

Managing Director
Kerala State Welfare Corporation
for Forward Communities Limited.

To
1. Managing Director, Kerala State Coastal Area Development Corporation Limited (KSCADC)
2. Stock file
3. Office Copy

Forwarded/By order

Assistant Manager

10 R

GOVERNMENT OF KERALA

Abstract

Implementation of "Operation Anantha", flood control programme at Thiruvananthapuram under the Disaster Management Action Plan - Constitution of Cabinet Committee to monitor the project - Designation of KRFB as the nodal agency - Orders Issued.

DISASTER MANAGEMENT(REVENUE-K) DEPARTMENT

G.O.(Rt)No. 2893/2015/DMD. Dated, Thiruvananthapuram, 05th June, 2015

Read: 1. Meeting conducted by the Hon. Chief Minister on 18.05.2015
2. Minutes of the meeting conducted by Secretary, Public Works Department on 19.05.2015

ORDER

(1) Thiruvananthapuram City has been experiencing severe floods particularly at East Fort and Thampanoor even during a moderate rain. Despite repeated attempts involving various types of engineering intervention, the areas still face the menace of flooding and this causes significant loss to public and private properties. Despite spending crores of rupees by various agencies under the State Government the flooding situation has become routine affecting the normal life of the people. The major reason for the frequent floods are manifold some of which are given below:-

- Large scale encroachments which have occupied the entire drain in certain areas.
- Narrowing of the drains due to encroachments from either side.
- Criss crossing of cables/utility pipelines etc. across the canals causing obstruction to the free flow of water.
- Filling up of ponds and conversion of ponds for other purposes (parks/playgrounds/buildings etc.)
- Silt depositions in canals.
- Dumping of solid waste directly into canals by both individuals and institutions.

(2) Even during the recent summer rain of April - May of 2015 East Fort and Thampanoor got flooded, affecting the normal life and it was apprehended that there would be an impending disaster during the monsoon. The District Administration was asked to intervene aggressively to manage the flooding situation. Hence, it was decided that the emergency powers be vested upon the District Collector as Chairman of District Disaster Management Authority invoking Kerala State Disaster Management Rules, 2007 under Chapter VI of the Disaster Management Act 2005 (DM Act, 2005) to ensure an immediate solution to tackle this threatening situation to life and public property.

(3) Accordingly short and long term action plans were prepared for implementation by various organizations under the State Government like PWD (Roads), Minor Irrigation, Major Irrigation, KSUDP, KRFB, KWA (Sewerage), KWA (Water Supply), Thiruvananthapuram Corporation, KSEB, BSNL etc. to mitigate the disastrous effect of flooding during the monsoon of 2015. The action plan named as "Operation Anantha" attaches top priority to clearing the encroachments and obstructions in the existing drains in and around East Fort and Thampanoor. The progress of action taken as per the action plan is being reviewed at the level of the Chief Secretary, Principal Secretary, District Collector and other senior officers of the respective departments. An amount of Rs. 10 Crore has also been sanctioned for the above works.

(4) Multiple agencies doing the flood eradication works often reduce its effectiveness and cause confusion. It was therefore suggested that a single nodal agency that can co-ordinate with all the stake holders would be a better solution to implement the project in a more effective way.

(5) Government have examined the case in detail and are pleased to order as follows:-

(a) A Cabinet Sub Committee consisting of the following Ministers is constituted to monitor and oversee the various programs of flood control taken up under "Operation Anantha":-

1. Sri. P.J.Joseph, Hon'ble Minister for Water Resources
2. Sri. V.K.Ebrahim Kunju, Hon'ble Minister for Public Works Department
3. Shri Manjalamkuzhi Ali , Minister for Urban Affairs & Minority Welfare
4. Shri V.S. Sivakumar, Minister for Health & Dewasom
5. Shri Adoor Prakash, Minister for Revenue and Coir

(b) A District Level Co-ordination Committee with District Collector as Chairman, Sub Collector as Convenor and officers of the various departments/organizations at the level of Executive Engineers shall also be constituted to oversee the progress of daily activities.

(c) Kerala Road Fund Board (KRFB) shall be designated as the nodal agency for planning and co-ordinating the project for this monsoon (short term). A separate wing will be created in KRFB with professionals posted on working arrangement from various organizations, who are presently executing the works of "Operation Anantha". This wing will have the responsibility to plan, co-ordinate and monitor the works on a war footing under fast-track mode under Disaster Management Action Plan. All the encroachments affecting the smooth and normal flow of the existing rains in the city will be demolished and cleared. Drains will be constructed wherever necessary including through private properties in which case adequate compensation will be given to the owners, wherever eligible as per rules.

(d) The wing constituted in KRFB for the purpose of "Operation Anantha" will contain the following officers on a working arrangement basis.

1. Executive Engineer, PWD (Roads)
2. Asst. Executive Engineer, (Major & Minor Irrigation)
3. Asst. Executive Engineer, KWA (sewerage)
4. Asst. Executive Engineer, Thiruvananthapuram Corporation
5. Assistant Engineer PWD (NH)
6. Assistant Engineer, PWD (Bldgs)
7. Assistant Engineer, KWA (PH)
8. Assistant Engineer KSEB
9. Assistant Engineer, Inland Navigation
10. Representative from KSUDP
11. Representative from NATPAC

(e) The Empowered Committee chaired by the Chief Secretary will sanction works (both Administrative Sanction and Technical Sanction) costing more than Rs. 25 lakhs and the District Level Committee chaired by the District Collector will sanction works below Rs. 25 lakhs.

(f) The District Collector, Thiruvananthapuram shall continue to arrange for eviction of encroachments into the existing drains in the city.

(g)The concerned departments shall arrange for clearing, widening, reconstructing and maintenance of the drains.

(h) Nodal agency shall finalize a uniform design and style for the work. There should be effective co-ordination among the various agencies.

(i) Estimates for clearing/maintenance/widening/reconstruction etc of the drains shall be prepared by the concerned organizations.

(j) Works can be entrusted with contractors empanelled by the respective departments deviating from the tender formalities, considering the emergency, based on the AS & TS issued by Empowered Committee to avoid delays.

(k) Supervision of works and scrutiny of bills shall be done by concerned departments.

(l) Payments are to be made by the District Collector and Chairman of Disaster Management Action Plan based on the completion certificates issued by the competent officials of the concerned departments.

(m) Execution of works already undertaken by the concerned departments with own funds shall be continued as such and expedited. The same need not be clubbed with "Operation Anantha".

(n) The expenditure for existing emergency works already started by Revenue Department shall be met by the District Collector on receipt of bills duly certified by the concerned duty officer of Revenue Department. KSUDP shall provide necessary technical assistance for the scrutiny.

(o) Shifting of utilities, cables etc., that is hindering the smooth flow of water in the canals should be ensured by the utility agencies along with the drain works.

This order will supersede all previous orders.

(By Order of the Governor)
JIJI THOMSON
Chief Secretary

To

All Secretaries to Government
All Departments in the Secretariat
Dr. R.K.Dave, Head, Information Technology Research Academy,
Media Lab Asia, Department of Electronic and Information Technology,
Government of India, New Delhi.
The Secretary, State Disaster Management Authority, Revenue Complex,
Public Office Building, Thiruvananthapuram
The District Collector, Thiruvananthapuram
Dr.Sekhar L.Kuriakose, Head(Scientist), State Emergency Operations Centre ,
ILDM, PTP Nagar,Thiruvananthapuram
The Principal Accountant General (Audit) Kerala, Thiruvananthapuram
The Accountant General (A&E) Kerala, Thiruvananthapuram
The Managing Director, KWA, Thiruvananthapuram
The Project Director, KSUDP, Thiruvananthapuram
The Chief Engineer (R&B, NH, Building, Administration etc.), PWD
The Chief Engineer, (Irrigation)
The Chief Engineer, Water Authority (Southern Region)
The Director, Inland Navigation
The Secretary, KSEB
The Secretary, Thiruvananthapuram Corporation
The Principal General Manager, Thiruvananthapuram (With C/L)
The Local Self Government Department
The Local Self Government(Urban Affairs) Department
The Home (Vigilance) Department
Water Resources Department
The Public Works Department (U.O. (f) No.12839/H1/15/PWD
The Finance Department
The Transport Department

Copy to:

PS to Hon'ble Chief Minister
PS to Minister (Revenue & Coir)
PS to Minister (Urban Affairs & Minority Welfare)
PS to Minister(Health & Devaswom)
PS to Minister (Water Resources)
PS to Minister (PWD)
Additional Secretary to Chief Secretary
PS to Principal Secretary (Revenue & DM)
Stock File/Office Copy
The Information Officer, Web & New Media, I&PRD

Forwarded/By Order

Section Officer

सत्यमेव जयते

व्यापार प्रारंभ करने का प्रमाण-पत्र

कम्पनी अधिनियम 1956 की धारा 149(3) के अनुसरण में

कॉर्पोरेट पहचान संख्या : U60210KL2012SGC032836

मैं एतदद्वारा सत्यापित करता हूँ कि मैसर्स
Kerala Monorail Corporation Limited

जिसका निगमन, कम्पनी अधिनियम, 1956(1956 का 1) के अंतर्गत दिनांक पांच दिसम्बर दो हजार बारह को किया गया था और जिसने निर्धारित प्रपत्र में घोषणा प्रस्तुत की है या विधिवत सत्यापित किया है कि उक्त कम्पनी ने, अधिनियम की धारा 149(2) (क) से (ग) तक की शर्तों का अनुपालन कर लिया है और व्यापार करने के लिए हकदार है।

यह प्रमाण-पत्र आज दिनांक चार अप्रेल दो हजार तेरह को इरणाकुलम में जारी किया जाता है।

Certificate for Commencement of Business

Pursuant of Section 149(3) of the Companies Act, 1956

Corporate Identity Number : U60210KL2012SGC032836

I hereby certify that the Kerala Monorail Corporation Limited which was incorporated under the Companies Act, 1956(No. 1 of 1956) on the Fifth day of December Two Thousand Twelve , and which has this day filed or duly verified declaration in the prescribed form that the conditions of the Section 149(2)(a) to (c) of the said act, have been complied with and is entitled to commence business.

Given at Ernakulam this Fourth day of April Two Thousand Thirteen.

Registrar of Companies, Kerala and Lakshadweep
कम्पनी रजिस्ट्रार, केरल एवं लक्षद्वीप

*Note: The corresponding form has been approved by V E JOSEKUTTY, Deputy Registrar of Companies and this certificate has been digitally signed by the Registrar through a system generated digital signature under rule 5(2) of the Companies (Electronic Filing and Authentication of Documents) Rules, 2006.
The digitally signed certificate can be verified at the Ministry website (www.mca.gov.in).

कम्पनी रजिस्ट्रार के कार्यालय अभिलेख में उपलब्ध पत्राचार का पता :
Mailing Address as per record available in Registrar of Companies office:

Kerala Monorail Corporation Limited
Mayooram ,Belhaven Gardens, Kowdiyar,
Trivandrum - 695003,
Kerala, INDIA

GOVERNMENT OF INDIA

MINISTRY OF CORPORATE AFFAIRS

Registrar of Companies, Ernakulam

1st Floor , Company Law Bhawan , BMC Road , Thrikkakara (PO) Ernakulam - 682021, Kerala, INDIA

Certificate of Incorporation pursuant to change of name

[Pursuant to rule 29 of the Companies (Incorporation) Rules, 2014]

Corporate Identification Number (CIN): : U60210KL2012SGC032836

I hereby certify that the name of the company has been changed from Kerala Monorail Corporation Limited to KERALA RAPID TRANSIT CORPORATION LIMITED with effect from the date of this certificate and that the company is limited by shares.

Company was originally incorporated with the name Kerala Monorail Corporation Limited

Given under my hand at Ernakulam this Thirtieth day of June Two Thousand Fifteen.

Signature Not Verified
Digitally signed by Ministry of Corporate Affairs - Govt of India
Date: 2015.06.30 18:27:31 GMT+05:30

A SEHAR PONRAJ

Registrar of Companies

Registrar of Companies

Ernakulam

Mailing Address as per record available in Registrar of Companies office:

KERALA RAPID TRANSIT CORPORATION LIMITED
Mayooram ,Belhaven Gardens, Kowdiyar,
Trivandrum - 695003,
Kerala, INDIA

VENKATESAPATHY S. IAS
District Collector &
District Magistrate

COLLECTORATE, CIVIL STATION
KUDAPPANAKUNNU
THIRUVANANTHAPURAM
KERALA, INDIA

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Direct : +91 471-2731177
Fax : +91 471-2731166
Res : +91 471-2318746
Cell No. : 9447700222

E-mail : dctvm.ker@nic.in
dctvpm14@gmail.com

The Mission Director
Smart Cities Mission
Ministry of Urban Development

Roc No. H1-33275/15

Dated 18.03.2017

Dear Sir,

Sub: Smart City – District Collector, Thiruvananthapuram – Letter of support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission – Regarding.

Ref: Letter from the Hon'ble Mayor, Thiruvananthapuram Corporation

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative, we hope to undertake host of projects under Pan City and Area Based components.

We understand that our Department falls under the ambit of Smart City and the District Collector, Thiruvananthapuram assures to extend its co-operation in implementation of the Project and support the newly set up Special purpose vehicle.

Yours faithfully,

District Collector

E-mail: md@kwa.kerala.gov.in
Website:http://www.kwa.kerala.gov.in

Fax: 91-0471-2324903
Tel: 0471-2328654

KERALA WATER AUTHORITY

JALABHAVAN
THIRUVANANTHAPURAM – 695 033
KERALA –SOUTH INDIA

Roc No.

Dated 17-03-2017

From

The Deputy Chief Engineer (Planning)
Kerala Water Authority
Jalabhavan
Thiruvananthapuram

To

The Mission Director
Smart Cities Mission
Ministry of Urban Development

Dear Sir,

Sub: Smart City – Kerala Water Authority– Letter of support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission – Regarding.

Ref: E-mail dated 17-03-2017 from the Mayor, Thiruvananthapuram Municipal Corporation.

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative, we hope to undertake host of projects under Pan City and Area Based components.

We understand that our department falls under the ambit of Smart City and Kerala Water Authority assures to extend its cooperation in implementation of the Project and support the newly set up Special purpose vehicle.

Yours faithfully

E V RAJAGOPALAN
Deputy Chief Engineer (Planning)

Deputy Chief Engineer (P&M)
Jalabhavan
Kerala Water Authority
Thiruvananthapuram-33

KERALA STATE ELECTRICITY BOARD LTD.
(Incorporated under Indian Companies Act, 1956)
Regd. Office Vydyuthi Bhavanam, Pattom, Tvpm;
Web Site: www.kseb.in ;CIN:U40100KL2011SGC027424
Office of the Chief Engineer (IT& CR), Cabin No.856,
Phone: 0471-2514610, e-mail: ceit@kseb.in

CE(IT)/RITU/SmartCity/ Dated 17.03.2017

From
Sri.V.Kesavadas
Chief Engineer(IT&CR)
Vydyuthi Bhavanam\
Thiruvanathapuram

To

The Mission Director
Smart Cities Mission
Ministry of Urban Development

Dear Sir,

Sub: Smart City -Thiruvananthapuram- Kerala State Electricity Board Limited-
Letter of Support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission-Regarding.

Ref: Letter from the Mayor, Trivandrum Corporation dated 15th March 2017

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative ,we hope to undertake host of projects under Pan City and Area Based components

We understand that our Department falls under the ambit of Smart City and KSEBL assures to extend its co-operation in implementation of the Project and support the newly set up Special purpose Vehicle.

Chief Engineeer (IT&CR)

KERALA STATE ROAD TRANSPORT CORPORATION

TRANSPORT BHAVAN, FORT, THIRUVANANTHAPURAM-695023

Phone: 0471-2471011, 2462829 Fax : 0471-2462679

E-mail: mdkeralartc@yahoo.com,cmd@kerala.gov.in, Website : www.keralartc.com

Roc No.TR1 – 000017/2017.

Dated, 18-03-2017

From

The Chairman & Managing Director
Kerala State Road Transport Corporation.
Transport Bhavan, Fort,
Thiruvananthapuram – 695023.

To

The Mission Director,
Smart Cities Mission,
Ministry of Urban Development,
New Delhi

Dear Sir,

Sub: Smart City – Kerala State Road Transport Corporation, Thiruvananthapuram – Letter of support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission – Regarding.

Ref: e-mail from the Mayor, Thiruvananthapuram Municipal Corporation, Dated, 18-03-2017

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative, we hope to undertake host of projects under Pan City and Area Based components.

We understand that our department falls under the ambit of Smart City and Kerala State Road Transport Corporation assures to extend its cooperation in implementation of the Project and support the newly set up Special purpose vehicle.

Yours faithfully,

CHAIRMAN & MANAGING DIRECTOR

SUCHITWA MISSION
Local Self Government Department
Government of Kerala

No. 3719/D1/2015/SM

Date: 17/03/20167

From

Executive Director

To

The Mission Director
Smart Cities Mission
Ministry of Urban Development

Sir,

Sub:- Smart City-Thiruvananthapuram Municipal corporation-Letter of Support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission-reg

Ref:- Letter from the Mayor,Thiruvananthapuram Municipal Corporation dated 17/3/2017.

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative, we hope to undertake host of projects under Pan City and Area based components.

We understand that our department falls under the ambit of Smart City and Suchitwa Mission assures to extend its co-operation in implementation of the Project and support the newly set up Special purpose vehicle.

Yours faithfully,

Executive Director

Swaraj Bhavan, Basement Floor (-1), Nanthencode, Kowdiar P.O., . Thiruvananthapuram- 695 003
Ph: 0471-2316730, 2312730 Fax0471 – 2312730, E-mail :sanitationkerala@gmail.com

Department of Tourism
Park View, Thiruvananthapuram, 695 033,
Kerala, India, Fax: 0471-2322279
Phone-0471-2326812, 2321132,
E-Mail: info@Keralatourism.org
http://www.keralatourism.org
Date: 17-03-2017

From,
Director

To
The Mission Director
Smart Cities Mission
Ministry of Urban Development

Dear Sir,

Sub: Smart City – Department of Touris, Thiruvananthapuram– Letter of support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission – Regarding.
Ref: Mailed letter dated 17.03.2017 from the Mayor, Thiruvananthapuram Corporation

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative, we hope to undertake host of projects under Pan City and Area Based components.

We understand that our department falls under the ambit of Smart City and Department of Tourism assures to extend its cooperation in implementation of the Project and support the newly set up Special purpose vehicle.

DEPARTMENT OF TOURISM
PARK VIEW
THIRUVANANTHAPURAM
695 033
GOVT OF KERALA

Director

No.D3-1230 /SE/ISC/2015

Office of the Superintending Engineer,
Irrigation South Circle,
Thiruvananthapuram
Dated:- 20 /03/2017

From

The Superintending Engineer.

To

The Mission Director
Smart Cities Mission
Thiruvananthapuram

Sir,

Sub: Smart City -Thiruvananthapuram –Co ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission - reg:

Ref : E mail sent to the Chief Engineer, Irrigation and Administration, Thiruvananthapuram

With reference to the E mail sent, the Chief Engineer, Irrigation and Administration has authorized this office to accordthis office department's consent for implementing the above said project.

While according a general consent , it may be informed that on receipt of funds to this department from the Mission Director ,the work could be undertaken by this department.

Yours faithfully,

Pl to SE

Superintending Engineer.

Copy submit to Chief Engineer(I&A) Thiruvananthapuram
for information . This is with respect to that office Letter No W3/10767/2017/DB3 dtd:18 /03/2017

OFFICE OF THE SUPERINTENDING ENGINEER
PMG JUNCTION
THIRUVANANTHAPURAM
PIN: 695 004
SOUTH CIRCLE

From

The Director
Department of Archaeology
Sundaravilasam Palace, Fort P.O.
Thiruvananthapuram – 23.

To

The Mission Director
Smart Cities Mission
Ministry of Urban Development

Roc No.

Date: 23/03/2017

Dear Sir,

Sub: Smart City – Thiruvananthapuram – Department of Archaeology – Letter of support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission – Regarding.

Ref: e-mail message from Mayor, Thiruvananthapuram Corporation.

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative, we hope to undertake host of projects under Pan City and Area Based components.

We understand that our department falls under the ambit of Smart City and Department of Archaeology assures to extend its cooperation in implementation of the Project and support the newly set up Special purpose vehicle.

പുരാവസ്തു വകുപ്പദ്ധ്യക്ഷ കാര്യാലയം
തിരുവനന്തപുരം-23
ഫോർട്ട് പി.ഒ.

Director

No. 67/Camp/CP/2017-TC
Office of the District Police Chief
Thiruvananthapuram City
Dated 17.03.2017

From

District Police Chief
Thiruvananthapuram city

To

The Mission Director
Smart Cities Mission
Ministry of Urban Development

Dear Sir,

Sub: Smart City – Thiruvananthapuram City Police – Letter of support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission – Regarding.

Ref: Email dated 15.03.2017 from the Mayor, Thiruvananthapuram Municipal Corporation.

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative, we hope to undertake host of projects under Pan City and Area Based components.

We understand that our Department falls under the ambit of Smart City and Thiruvananthapuram city police assures to extend its co-operation in implementation of the Project and support the newly set up Special purpose vehicle.

Office of the DIG & District Police Chief * Thiruvananthapuram City *

Yours faithfully

District Police Chief,
Thiruvananthapuram city.

TIRUVANANTHAPURAM DEVELOPMENT AUTHORITY

From

The Secretary,
TRIDA,
Thiruvananthapuram

To

The Mission Director
Smart Cities Mission
Ministry of Urban Development

Letter No.E1/583/2017/TRIDA dtd 18/03/2017

Dear Sir,

Sub: Smart City – Thiruvananthapuram -TRIDA – Letter of support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission – Regarding.

Ref: Letter from the Hon'ble Mayor, Thiruvananthapuram Corporation by e-mail received on 17/03/2017.

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative, we hope to undertake host of projects under Pan City and Area Based components.

We understand that our department falls under the ambit of Smart City and TRIDA assures to extend its cooperation in implementation of the Project and support the newly set up Special purpose vehicle.

Yours Faithfully

Secretary

SECRETARY
Thiruvananthapuram Development Authority

SREE PADMANABHA SWAMY TEMPLE

Mathilakam Office, West Nada, Fort, Thiruvananthapuram - 695 023, Phone : 0471-2450233, 2575550,
Fax : 0471-2450233, Website : www.sreepadmanabhaswamytemple.org.,
E-mail : info@sreepadmanabhaswamytemple.org

A.81/2017/SPST

Date : 29.03.2017

To

The Mission Director
Smart Cities Mission
Ministry of Urban Development

Roc No.

Dear Sir,

Sub: Smart City – Thiruvananthapuram – Sree Padmanabha Swamy Temple - Letter of support towards co-ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission – Regarding.

Ref: Email from Mayor, Thiruvananthapuram Municipal Corporation

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City Challenge. As part of the Smart City initiative, we hope to undertake host of projects under Pan City and Area Based components.

We understand that our department falls under the ambit of Smart City and Sree Padmanabha Swamy Temple assures to extend its cooperation in implementation of the Project and support the newly set up Special purpose vehicle.

SREE PADMANABHASWAMY TEMPLE

Yours faithfully,

Manager
For Executive Officer

No. CE/BL/Gl/A1/2586/2017

Office of the Chief Engineer
PWD, Buildings
Thiruvananthapuram
Dated : 27.03.2017

From

The Chief Engineer

To

Adv. V.K.Prasanth
Hon'ble Mayor
Thiruvananthapuram Corporation

Sir,

Sub:- **PWD (Buildings) Smart City – Thiruvananthapuram - letter of Support towards co-ordinating and delivering the pan city and area based initiatives under the Smart City Mission – Reg.**

Ref:- That office letter No. E 13-138341/15 dated 20.03.2017

.....

It gives me great pleasure to note that Thiruvananthapuram city Municipal Corporation has been short listed to participate in the Smart City Challenge. It is learnt that as part of the smart City initiative, Thiruvananthapuram Corporation is planning to undertake host of projects under pan city and area based components.

We understand that our department falls under the ambit of smart city and Kerala Public Works Department assures to extend its co-operation to implementation of the project and support the newly set up special purpose vehicle.

Yours faithfully,

CHIEF ENGINEER

Svs 29.03.2017

No. CE/R&B/3313/2017/Tvm.

Phone: 0471 2322346
Fax : 0471 2322346
Mob (O) : 80 86 39 5025
E mail: ceroads.pwd@kerala.gov.in
Office of the Chief Engineer,
PWD Roads & Bridges,
Public Office, Museum P.O.,
Thiruvananthapuram,
Dated 21/03/2017.

From

The Chief Engineer.

To

Adv. V.K. Prasanth,
Hon'ble Mayor,
Thiruvananthapuram Corporation.

Sir,

Sub:- PWD (R&B) – Smart City – Thiruvananthapuram – Letter of support towards co-ordinating and delivering the Pan City and Area Based initiatives under the Smart City Mission – reg.

Ref:- That office Letter No. E13-138341/15. Dated 20/03/2017

It gives me great pleasure to note that Thiruvananthapuram City Municipal Corporation has been short listed to participate in the Smart City challenge. As part of the Smart City Initiative, we hope to undertake host of projects under Pan City and Area Based Components.

We understand that our department falls under the ambit of Smart City and Kerala Public Works Department assures to extend its co-operation to implementation of the Project and support the newly set up Special Purpose vehicle.

Yours faithfully,

CHIEF ENGINEER

No.A6.2193/17/DC

DIRECTORATE OF CULTURE
THYCAUD
THIRUVANANTHAPURAM.

FROM,

DIRECTOR

TO,

The Mission Director
Smart Cities Mission
Ministry of Urban Development

Dear Sir,

Sub: Smart City - Directorate of Culture, Thiruvananthapuram - Letter of support towards co -ordinating and delivering the Pan City and Area Based Initiatives under the Smart City Mission - Regarding.

Ref: Mailed letter dated 17.03.2017 from the Mayor, Thiruvananthapuram Corporation.

It gives me great pleasure to note that Thiruvananthapuram City Muncipal Corporation has been short listed to participate in the Smart City Challenge. As part of the smart City initiative, we hope to undertake host of projects under Pan City and Area Based components.

We understand that our department falls under the ambit of Smart City and directorate of Culture assures to extend its cooperation in implementation of the Project and support the newly set up Special purpose vehicle.

DIRECTOR

V. R. RADHAKRISHNAN
DIRECTOR OF CULTURE
(Additional Secretary to Government)
Thiruvananthapuram-695014
Kerala

Thycaud
29/03/2017.

0471-2328193

Delhi, Mumbai not the best in urban governance, Thiruvananthapuram first

Thiruvananthapuram, Pune and Kolkata have emerged as the top three Indian cities that were tested on various urban governance parameters, according to a 21-city survey by Bengaluru-based advocacy group Janaagraha Centre for Citizenship and Democracy.

According to the fourth edition of the Annual Survey of India's City Systems 2016, Delhi that has a population of about 18 million has been ranked at a distant 9, behind much smaller cities such as Bhopal and Kanpur.

The national capital, which was ranked 6 in the 2015 survey, fared poorly on three aspects of urban governance --- urban capacities and resources of municipalities to undertake reform; empowered and legitimate political representation; transparency, accountability and participation. Delhi, however, topped the chart in the urban planning and design category with a score of 3.7 --- ahead of Mumbai and Bengaluru, among others.

Chandigarh, perceived to be a planned city, and Jaipur finds mention at the bottom of the list.

"Our cities have continued to score low indicating that progress, on fixing city-systems, has been slow," Srikanth Viswanathan, Janaagraha CEO, said.

Mumbai and Ahmedabad with a score of 4.4 top the list of cities that have invested adequate funds in public infrastructure and services. A majority of the cities rely heavily on government grants.

The survey found that the 21 cities generate just 37% of the amount they spend on average, with Patna raising only 17% on its own. Only Mumbai, Delhi, Hyderabad and Pune generate over 50% of the amount they spend from their own revenue.

While Thiruvananthapuram's per capita spend on capital expenditure is Rs 8,389, it is as low as Rs 418 in Patna.

Irrespective of the rankings, none of the Indian cities match up to London and New York, which top the global benchmarks.

All the 21 cities scored between 2.1 and 4.4 out of 10 on all the indicators as against 9.4 and 9.7 scored by the two global cities, implying how grossly under-prepared Indian cities in terms of delivering a high quality of life that is sustainable in the long term.

The survey says none of the Indian cities, for instance, have effective policies to deter plan violations, which is evident from the mushrooming slums and unauthorised colonies across states. All the 21 cities scored zero on this parameter as compared to 9.1 to 10 for London and New York.

CITY	OVERALL SCORE	2016 RANK	2015 RANK
Thiruvananthapuram	4.4	1	1
Pune	4.2	2	4
Kolkata	4.1	3	3
Mumbai	4.1	4	2
Hyderabad	3.9	5	6
Bhopal	3.7	6	5
Kanpur	3.6	7	9
Chennai	3.6	8	8
DELHI	3.6	**9**	**7**
Bhubaneshwar	3.5	10	18

WHERE DO INTERNATIONAL CITIES STAND

CITY	AVERAGE SCORE
London	9.3
New York	9.8

BOTTOM FIVE INDIAN CITIES

CITY	OVERALL SCORE	2016 RANK	2015 RANK
Chandigarh	2.1	21	21
Jaipur	2.7	20	20
Ludhiana	3.0	19	19
Dehradun	3.1	18	17
Surat	3.2	17	15

**governance: urban planning and design; urban capacities and resources; empowered and legitimate political representation; transparency, accountability and participation.

The report quotes a survey done by Bangalore Municipal Corporation in 2014 where out of 400 buildings that were inspected only three conformed to rules.

"Our cities singularly lack in municipal capacities running on outdated systems. Municipalities are the closest governance system to citizens directly impacting their lives. They are responsible for improving the quality of life in our cities," KT Ravindran, dean emeritus at the RICS School of Built Environment, said.

"If we are serious about improving our cities, we need to invest in municipal capacities, training staff, etc," Ravindran, who is the former chairperson of Delhi Urban Arts Commission, added.

Most of the Indian town and country planning acts date back to last century. India has one planner per four lakh citizens as against 48 in the United States and 148 in the United Kingdom.

And poor urban planning can cost a country 3% of its GDP, the survey says.

However, the findings also reveal silver linings and aspects where Indian cities can learn a lot from each other.

"Rajasthan ushering in urban land titling reforms and Odisha's efforts to increase municipal capacities by constituting municipal cadres are excellent examples from this year of how we can move forward and help our cities serve their citizens better," the survey notes.

GOVERNMENT OF KERALA

Abstract

Local Self Government Department - JNNURM - Automobile Parking Policy for the towns and Cities in the State of Kerala - orders issued.

==========

LOCAL SELF GOVERNMENT (DC) DEPARTMENT

G.O.(MS.)No.62 /2011/LSGD. Dated, Thiruvananthapuram, 26-2-2011.

==========

ORDER

Government are pleased to approve the Automobile Parking Policy for the towns and cities in the State of Kerala appended herewith as envisaged in the Reforms under JNNURM.

By order of the Governor,

M.Unnikrishnan,
Addl. Secretary to Government.

To

All Mayors, Corporation of Thiruvananthapuram/Kollam/Kochi/ Thrissur/Kozhikode.
The Director of Urban affairs, Thiruvananthapuram.
The Project Director, Kerala Sustainable Urban development Project.
All Secretaries, Corporation of Thiruvananthapuram/Kollam/Kochi/ Thrissur/Kozhikode.
All Chairmen of Municipalities (Through Director of Urban Affairs)
All Secretaries of Municipalities (Through Director of Urban Affairs).
The Secretary, Ministry of Urban Development, Government of India (with C/L)
PWD/Transport/Finance Department.
The Chief Engineer, Local self Government Department.
The Chief Town Planner, Thiruvananthapuram.
The Principal Accountant General (Audit) Kerala, Thiruvananthapuram.
The Accountant General (A&E) Kerala, Thiruvananthapuram.
The Director, Information and Public Relations Department.
Stock File/Office Copy.

Copy to:- PS to Minister (LSGD).
PA to Addl. Chief Secretary, LSGD.
PA to Secretary, LSGD.

Forwarded/By order.

Section Officer.

VEHICLE PARKING POLICY FOR THE TOWNS AND CITIES IN THE STATE OF KERALA

Introduction

The State of Kerala has been experiencing astounding annual growth in the number of vehicles during the last two decades. Such increase in the number of vehicles (passenger and goods vehicles) increase the traffic volume much beyond the capacity of the roads in the State. Though all the motorable roads, irrespective of urban or rural, are affected by this increasing traffic volume, the urban roads suffer most due to the convergence of traffic. The State has been spending substantial funds on widening and improvement of the roads for increasing the carrying capacity of the roads; though the expected benefits do not result. Urban Planning practices prove that widening of the roads in proportion to the increasing traffic volume is not the only option in traffic planning. However, it is seen that even when roads are widened, the expected reduction of traffic congestion does not happen. Traffic Studies in some of our towns show that one of the major factors contributing to traffic congestion is on-street parking of vehicles. Precious carriage way is used for parking vehicles, which reduces the width of the motorable way. 4 lane roads behave as two lane roads since outer lanes on either side are used for parking. Traffic movement on 2 lane roads are blocked /slowed down when vehicles are parked on the side of the carriage way. This private enjoyment of the public road is discouraged in traffic planning.

Urban Traffic has become a very important aspect in urban planning and development. The State hitherto did not have any policy on parking. Study by experts point out serious issues with regard to parking of vehicles in the towns and cities of the State. A number of agencies/stakeholders are responsible for construction and maintenance of roads and for traffic management. The State Public Works Department (Roads & Bridges and National Highways), the Urban Local Bodies and the State Police have direct roles and responsibilities as far as roads in the urban areas are concerned. It is necessary to coordinate these agencies and their actions. Considering these the State finds it necessary to bring out a Parking Policy for towns and cities in the State of Kerala.

Parking Issues

1. Roads are meant to be used for movement of people and goods. Roads are the main intra-city connecting links between various activity areas. Such connectivity upholds the economy of the urban area and facilitates better quality of life in that urban area. No action from any public agency or any private interest shall be allowed to obstruct movement of pedestrian and vehicular traffic on the roads.

2. The State/any responsible agency of Government or any ULB has not yet prepared Parking Plan for the city/town, which designates road margin or areas where vehicle parking can be allowed, road stretches which can be allowed for orderly on-street parking of vehicles, designation of bus bays off the carriageway, provision for off street parking facilities etc. Whatever action in this regard taken in any city/town is only based on ad-hoc arrangements.

3. Since on-street parking arrangements are made in a planned manner, vehicles are parked perpendicular to the road (at right angles to the carriageway), diagonally (angular parking at 45 or 60 degrees), parallel parking (parallel to the carriageway) or haphazardly. In all such cases (except in the case of parallel parking) the vehicles are reversed into the carriage way to drive into the moving stream. Such parking not only eats into the precious road space, but such parking also affects the traffic movement - often blocking the traffic when reversing the vehicles (often causing accidents).

4. It is seen that in some road stretches especially in busy commercial streets/market roads vehicles are 'double parked' (two vehicles are parked side by side parallel to the road) when more than two third of the road width is occupied by parking vehicles. (Ex: Chalai Bazaar in Thiruvananthapuram). Hardly one lane width of road space is left free for vehicular movements and pedestrian movements. It is seen that at the cost of road usage such practices escape enforcement.

5. Mass transport and intermediate public transport modes (buses, mini passenger & goods carriages-vans, trucks, and three wheelers) make intermediate halts for alighting or boarding of passengers or for loading /unloading of goods by stopping the vehicles right in the middle of the carriageway without caring for the movement of other vehicles. Bus bays and lay-bys are not provided by any conscious efforts, though any available road margin may at times be used for the purpose (mostly hindering pedestrian movement).

6. Many drivers of vehicles consider it a right for parking on the carriageway – unmindful of the traffic problems they cause.

7. Even when 'No-Parking' signs are put up (though based on ad-hoc decisions) at specified locations/stretches of roads, in the absence of enforcement people (sometimes even the enforcement officers) ignore such mandatory signs.

8. No city/town has taken any conscious effort to designate places / locations for stationing hired vehicles (taxis/auto-rickshaws-three wheelers /vans /small goods

vehicles/omnibuses etc.). As a result of this drivers of these vehicles themselves designate locations – many often at road junctions – causing road /traffic blocks, hindering vision lines (visibility) at junctions etc.

9. Movement of incoming and outgoing goods is essential for the economic life of any town/city. Many of the towns and cities in the State have active market/bazaar areas and industrial areas. But towns/cities have most often failed to provide designated areas for truck parking with ancillary facilities. As a result of this, trucks are parked right on the roads hindering traffic movements (*the resultant sanitation problems etc. are not discussed here*). Even National Highways near the industrial cities /towns are choked by parking of trucks. This situation is caused by the inaction of the local governments in these areas to provide parking facilities for trucks.

10. Many of the towns and cities have omni buses operating to major cities within the State and in other states. Without designated bus parking and boarding facilities, these buses are parked on the roads causing traffic blocks. Master Plans of these cities and towns have to address these issues to designate locations where such operations can be accommodated.

11. Regular bus terminals of the KSRTC and private buses in many towns and cities are also located on the roads without terminals located off the road spaces. Traffic congestion in locations like East Fort area in Thiruvananthapuram is mainly attributed to bus terminals on the road.

12. Though stipulations exist in the Kerala Municipal Building Rules for providing parking spaces for vehicles for buildings requiring parking spaces, unauthorized conversion of such plot level parking spaces in full or in part and/or inaccessible & inadequate parking spaces provided in the plans and/or non-provision of parking spaces for the number of vehicles reaching the building, result in parking on the roads. Though the KMBR stipulates only the minimum required parking facility it is for the owners/designers of such buildings to estimate the anticipated parking requirements and to provide for that requirement, this is often not adhered to. They get away with meager provisions resulting in road side parking unmindful of the traffic problems they cause.

13. Major cities in other States have adopted the policy of 'pay and park' even for on-street parking. The revenue earned is used for creating parking facilities for vehicles. This system of pay to park is yet to take off in Kerala, though it is high time that we think on those lines in view of the fact that

i. The State has great difficulty in acquiring land for widening of the roads, so that the existing road space has to be optimally utilised for movement of vehicles and pedestrians,

ii. The ULBs are not financially sound to acquire and develop land for creating off street parking facilities,

iii. Paid parking facilities may result in designation of parking spaces, designation of no-parking areas and result in road discipline

iv. Revenue generated from the paid parking facilities can be ploughed back to maintain (and sometimes) develop parking areas.

14. Roads within the town /cities are constructed and maintained by the State PWD (MDRs and ODRs) or the National Highway Department (Highways) or the ULB (ODRs and Local Roads). Traffic signs are provided by the respective agency, but traffic management is enforced through the police. Therefore not much attention is given for coordinated road network planning, except in cases where Master Plans are prepared, which partially address this issue. Because many agencies are responsible for different roads, no single agency has attempted to prepare city/town level parking plans, designate parking areas and impose 'pay and park' facilities. A single agency responsibility for this task is required.

Legal Provisions

The First Schedule of the Kerala Municipality Act which lists the Functions of the Municipality includes "Providing parking spaces for vehicles" as one of the Mandatory Functions of the Municipality. Section 472 of the Kerala Municipality Act, 1994 provides for establishment of public cart stands etc. It says that a Municipality may subject to such guidelines as the Government may issue in this behalf, construct or provide public landing places, halting places and cart stands and may levy fee for the use of the same. A Cart Stand include a Bus Stand, Taxi Stand, Auto-rickshaw Stand, Lorry Stand and Stand for other vehicles.

It is noticed that in many States in India, provision of parking spaces is provided as a Municipal function. Bihar Municipality Act, 2007 not only makes 'provision of parking spaces' as a responsibility of the Municipalities, but also provides in Sn. 128 of the Act that " The Municipality may levy user charges for ..... parking of different types of vehicles in different areas and for different periods..."

It is the duty of every Urban Local Body to establish parking areas at appropriate locations within the town /city. Establishment and/or maintenance expenses of such public vehicle

parking arrangements may be met by levying differential charges under the practice of 'Pay and Park'. Alternatively, the ULB may also rope in a private partner for establishing and maintaining public vehicle parking facilities under suitable Public Private Partnership (PPP) arrangements.

Recommended Policies

1. The State of Kerala decides that cities and towns should address the issue of 'Traffic in Towns' as a major subject in urban planning and management. Though every city or town should go for adoption of Master Plan, whether a Master Plan is in place or not, traffic management shall be discussed at the town level with the participation of all the stakeholders and traffic management policies shall be arrived at for implementation. The ULB shall coordinate such activities.

2. Vehicle parking facilities in the town/city shall be a priority in urban traffic management. Even before the urban traffic management policies are finalized, it is imperative to adopt strategies to mitigate vehicle parking problems.

3. Though different agencies are responsible for construction and maintenance of different categories of urban roads, the State considers it necessary to entrust the responsibility for implementation of vehicle parking policies at the town/city level to a single agency. This responsibility is assigned to the Municipality/Municipal Corporation, as the case may be. The Municipality/Municipal Corporation shall plan for it and implement the proposals by coordinating with the other stakeholders.

4. The Standing Committee dealing with Town Planning in the Municipality/Municipal Corporation shall also be responsible for developing vehicle parking proposals in the town/city in consultation with the Department of Town and Country Planning, NATPAC or experts in the field and for initiating actions for participatory implementation.

5. For the purpose of Property Tax assessment the towns/cities are identifying and declaring 'primary and secondary zones'. Based on the same, every town/city shall in the first phase subject

   (i) The declared 'primary zone (zones)'
   (ii) Major market areas and/or
   (iii) Major institution areas for parking studies, to plan for vehicle parking facilities and to adopt parking are development strategies and for parking area regulations. Awaiting detailed studies and finalization of proposals with regard to vehicle

parking, the Municipality/Municipal Corporation shall review the parking issues along with the officers of the Department of Town and Country Planning, State PWD and the NH Department having jurisdiction in the town/city, prepare an interim plan and adopt the Plan for implementation.

6. The State feels that use of public land (roads, road margins or public vacant land) for private facility of parking of vehicles shall be on 'pay and park' principle. The methods, the parking charges, the methods for developing parking facilities and the operation & maintenance parts may be worked out as part of the Parking Plan adopted by the Municipality/Municipal Corporation.

7. Differential parking charges at the rates adopted by the Council differently for short duration parking and long duration parking shall be prescribed and notified. The parking fee collected by the ULB shall be separately accounted for and shall be ploughed back together additional ULB level funding for developing parking facilities at more locations in the town/city.

8. Management including maintenance and fee collection can be arranged through private operators under the general supervision of a Municipal level Committee.

9. The Municipality shall also identify and designate parking areas for taxis and auto rickshaws. Such locations shall be notified and boards to that effect shall be erected at such locations. Such parking stands for taxi cars/vans, commercial light goods carriage vehicles, auto rickshaws etc. shall not be located at road junctions and shall be off the carriageway at a minimum distance of 75 metres.

10. Towns and Cities shall assess requirement of truck parking facilities in their respective areas and shall provide for truck parking facilities on pay & park basis (together with facilities for truck drivers and helpers) preferably in the peripheral areas of the towns/ cities.

11. Locations of the existing taxi stands, auto rickshaw stands, lorry /van stands, stands for omnibuses etc. shall be reviewed and re-designated and notified with the consent of the Regional Transport Authority, if required. Such locations shall be in conformity with accepted norms and standards. The number of vehicles allowed to be parked in each of the designated stands shall also be stipulated. Overspill into the roads shall be regulated.

12. Automobile workshops which function utilizing the adjacent roads for parking and repairing of vehicles shall be prohibited from doing so, with due notices to shift such

parking on roads and to provide parking within the premises or to shift to new locations. Such notices shall specify time allowed to carry out implementation of the directions given in the orders/notice.

13. Vehicle parking facilities may be provided through the following methods based on the gravity of problem, width of carriageway and right of way of roads, land availability, project feasibility etc.

(i) **On street parking facilities for small vehicles**: On-street parking facility shall be resorted to only when there are no other options. On street parking can be provided only on selected road stretches provided the on street parking facility shall not obstruct traffic movement along the road. On street parking areas may be identified and provided for separately for two wheelers and four wheelers (small vehicles).

Specific site studies shall be carried out before deciding to use any road side margin for parking of vehicles to ensure that the proposed parking provision would not obstruct pedestrian and vehicular traffic. Large off street parking lots shall preferably be installed with surveillance cameras.

On-street vehicle parking arrangement may be designed subject to the width of land available at the specific location as:

- Diagonal parking facility;

- Parallel parking facility;

- Perpendicular (right angle) parking facility

Parking bays (separately for 2 wheelers and 4 wheelers) shall be marked with road marking lines and parking shall be regulated (restricted) only within the designated areas.

(ii) **Off street parking areas for small vehicles:**

Off-street parking facility means parking area not within the 'right of way' (land area within the confines of the side boundaries) of roads. Off street vehicle parking facility is an ideal solution since traffic on the roads would not be disturbed due to parking of vehicles. Such off street parking facilities shall have to be developed at such selected locations where due to congregation of people in large numbers for shopping, to avail services from various institutions and/or to participate in various events, vehicles get regularly parked on the roads causing hindrances to regular /routine traffic movement. The Municipality shall identify such locations and decide on off street vehicle parking facility based on the severity of issue.

Off- street vehicle parking facility can be developed in public land and also in private land, based on some benefit sharing arrangement and agreement with the private land owner.

Off- street vehicle parking facility can be developed in one of the two methods:

(a) At grade – at the ground level only; or

(b) At more than one level – (multi-grade) parking arrangement in more than one floor level: though the multi level parking plaza can accommodate more number of vehicles in a unit area of land, the cost is high in developing such an arrangement. This higher cost of parking area development may reflect in the parking fee that would be proposed. However, in city locations where land cost is high and the parking demand is high, it is recommended that multi-level parking arrangement may be developed since the economics of the scheme may make the scheme viable. Multilevel parking arrangement is also suitable when the terrain of the land justifies such an arrangement. When the available land is at a lower level than the road, one level of parking can be brought to the access level from the road and the lower level at the level of the ground can be accessed through a drive down ramp.

(c) At locations where parking demand is very high and where the land value is at a premium, a three level ramp up solution may be a good option. However, such options may be adopted only after a model study. Such a techno-economic feasibility study would reveal: (i) whether it is technically feasible to construct a multi level parking arrangement with driving ramp within the available piece of land (after leaving necessary/mandatory open spaces around and providing parking bays and maneuvering spaces as per KMBR) ; (ii) whether the cost of investment would justify such a development; (iii) whether the expected returns from the parking fee (either run directly by the Municipality or contracted out to agencies) would be sufficient to meet operation and maintenance (O&M) expenses and/or would recover capital expenditure at least partly.

(d) At major city locations where parking demand is very high (Especially short duration parking) as in central city commercial areas where it is difficult to procure land for providing 'at grade' parking spaces, it is also possible to provide multi level parking arrangement in small parcels of land with vertical lift with parking attendants or through computer controlled systems. However, such facility has three major defects (i) capital cost of such

development is high, which would be justified only by a higher rate of parking fee and high parking demand; (ii) O&M Cost is very high (also to be supported by standby power generator to work when electrical supply fails); and (iii) due to the employment of sophisticated electrically operated equipments, skilled manpower is required to operate the system.

Public Private Partnership (PPP) Programmes for Developing and Operating Parking Arrangements

It is not always easy for Municipal Councils to develop on-street and off-street parking facilities due to various reasons. A few of the reasons are noted below:

- When on-street parking spaces are designated, wherever adequate road margins are available, the action has to be necessarily followed up with 'no parking' regulation on the road (carriage way) stretch. But enforcement of this can be effected only with the help of police force.

- When on-street parking is provided with parking lane markings, sign boards etc., this has to be continuously maintained and disciplined parking within the designated bay has to be ensured. Once the facility is created, Municipal Councils fail to follow up with further actions, with the result that the facility is rendered useless and/or the land is encroached upon by unauthorized bunks.

- In case public land is available beyond the carriageway to provide for off-street parking spaces, Municipal Councils are not able to decide to use the land for off-street parking facility considering the commercial potential of the high value property.

- The Municipal Councils are not able to pool in technical expertise to develop a feasible parking facility proposal or structure the proposal to exploit commercial returns.

- In view of high land value in the towns and cities, Municipal Councils are not able to acquire land to be utilized for vehicle parking facilities

In view of the above, it is necessary for the Municipal Councils to adopt solutions to the parking problems appropriate to each of the locations. One of the solutions is to rope in partnership with the private sector. Many options for partnership with private sector can be worked out to suit specific needs. A few of them are indicated below.

(1) When wide public land is available by the road side in possession of the Municipality depending on the demand for parking at that part of the town/city, this land can be developed as vehicle parking facility (for two wheeler or four wheeler, based on demand and availability of width). This 'pay & park' facility can be developed by the Municipality and entrusted through auction / public tender to a private agency for collecting parking fee and to maintain the facility in good condition for a specified number of years. (Occasional verification by the Standing Committee on Town Planning is necessary to see that the operator does not charge more than the specified amount and that the premises are maintained in good condition.

(2) In the above case, the traders' association can be permitted to operate and maintain.

(3) A few cities have also permitted the traders' associations to develop such parking facility in the road side public land close to the commercial centres and to operate and maintain the facility for a specified number of years, subject to conditions stated in the PPP agreement.

(4) Municipality may also move the Department of Revenue to entrust development right on available revenue puramboke land at specific locations to the Municipality to develop parking centres

(5) Similarly, the Municipality may give develop right of a Municipal land to a private agency/individual through duly approved processes to develop and operate vehicle parking facility through a clearly drawn up agreement, specifying all necessary conditions.

(6) A private land owner can be allowed by the Municipality to develop public parking facility (only vehicle parking facility or public parking facility in combination with commercial spaces) and operate the same based on mutual agreement and subject to verification by the Municipality to ascertain that such facility is continually made available for public parking as per agreed terms. *(It may be noted that in such cases relaxed conditions are permissible in the KMBR 1999)*

It may be noted that many such options for PPP can be worked out depending on the situation. However, it is to be borne in mind that Private participation with the Municipality for providing public parking facility does not mean 'no role' for Municipalities, but that the private sector would take care of everything. The Municipalities have to lay down ground rules for the same, facilitate such partnership and development, draft the TOR (terms of reference) and Agreement, grant necessary approvals and monitor implementation.

Related Actions to be taken by the Municipal Councils

(1) Once parking development plan is prepared for any location, necessary consent from the stakeholder agencies should be obtained. If on-street parking arrangement is proposed on a road being maintained by the PWD, consent of the Executive Engineer having jurisdiction over the road should be obtained. The Revenue and Police authorities shall be informed of such a proposals and once the facility is established and comes into operation, the Police and PWD shall be informed and the road stretch shall be declared as 'no parking zone'. The police shall be requested to enforce the regulation.

(2) Establishment of parking space and rates of parking fees shall be notified by the Urban Local Body as per the provisions contained in Section 524 of the Kerala Municipality Act, 1994. Wide publicity must be given regarding the provision for parking spaces and information boards shall be fixed.

(3) After the identification of parking areas, Urban Local Bodies shall fix the fees to be charged. A variable pricing based on the location of the parking - parking in the centre of the city will be costlier than parking in the periphery. Variable pricing based on hourly basis during peak hours and lower prices during the off peak periods can be considered. Variable pricing can be fixed on size and type of vehicle also. Adequate Council Resolution shall be taken for the establishment of parking areas and fixing the parking fees. Urban Local Bodies can engage the collection of fees on contract basis.

(4) Urban Local Bodies shall prohibit footpath parking and encroachments especially by Street Vendors.

(5) Urban Local Bodies shall prohibit the parking of vehicles by workshops on roadsides and public land.

(6) Conversion of parking areas to commercial and other uses, by the building owners should be prevented. Basement floor, which are meant for parking, are put to other use and the shopkeepers and customers are forced to park vehicles on roads. Strict monitoring and actions should be taken from the part of Urban Local Bodies for preventing the conversion of parking areas for other uses.

(7) Urban Local Bodies can promote PPP initiatives for establishing public parking facility. Unused land can be converted for parking on interim parking location until the desired development. Urban Local Bodies can take these lands on lease for a specific period.

GOVERNMENT OF KERALA

Date.....

ABSTRACT

Power Department - Kerala Solar Energy Policy 2013 - Approved - Orders issued.

POWER (PS) DEPARTMENT

G.O(P) No. 49/2013/PD Dated, Thiruvananthapuram, 25/11/2013

Read: 1) Minutes of the meeting held on 29.06.2012, under the Chairmanship of Hon'ble Minister (Power and Transport).
2) GO(Rt)160/2012/PD dated 04.08.2012.

ORD E R

The State has substantial sources of renewable energy, viz, Solar, Wind, Small Hydro Power, etc. The potential of Solar Power in the State is yet to be exploited. In order to tap the vast potential of Solar Power in the State, Government as per the minutes read as first paper above have decided to formulate a Solar Policy for the development of Solar Power in the State. Based on the decision at the above meeting, a Committee was constituted vide order read as 2nd paper above for formulating the draft Solar Policy in the State.

2. Accordingly the Draft Solar Policy submitted by the Committee was put on the website of ANERT calling for comments and suggestions. Based on the comments from the Public, the members of the Committee and other expert in the field, certain modifications were made in the draft policy.

3. Government have examined the draft Solar Policy so prepared in detail and are pleased to approve the 'Kerala Solar Energy Policy 2013' as appended to this Order.

(By Order of Governor)
NIVEDITA P HARAN
Additional Chief Secretary

To,

All Heads of Department's / PSU's
The Chairman, KSEB, Thiruvananthapuram'
The Director, ANERT, Thiruvananthapuram
The Director, EMC, Thiruvananthapuram
The Secretary, KSERC, Thiruvananthapuram
The Secretary, Kerala Legislature, Thiruvananthapuram
The Principal Accountant General (Audit), Thiruvananthapuram
The Accountant General (A&E), Thiruvananthapuram
The General Administration (SC) Department
The I and PR (Web and New Media) Department (For vide publicity)
The Stock file / Office copy.

Forwarded / By Order

Section Officer

KERALA SOLAR ENERGY POLICY 2013

Preamble

A forward looking Government needs to have a structured approach to seriously evaluate the possibilities of harnessing renewable energy sources and accord due weightage in a realistic manner for such sources to be integrated into its overall energy generation strategies. There is a popular perception that solar energy could be a key part of the solution to the energy crisis in the State. To promote the systematic tapping of the Solar Energy potential to the maximum, an appropriate policy framework is essential. This policy seeks to evaluate, in a realistic manner, the possibilities of harnessing solar energy to optimal levels and to put in place the necessary framework.

Low maturity level and high cost of the technology, non-compatibility of transmission and distribution infrastructure, limitations on land availability, inadequacy of fiscal incentives and entry of unscrupulous elements into the field have been the reasons behind the very low penetration of solar energy in the mainstream life of Kerala. The lack of easy off- the- shelf availability of solar powered equipments with standardised quality and pricing is another reason for its very low presence.

Solar energy is one of the major sources of renewable energy. As improved technology becomes available and at a reasonable cost, the use of Solar energy will gain acceptance. The negative impact that the actions of the imposters and fly-by-night operators out to make illegal gains, has to be strongly counter-acted by the governmental agencies working in the field of renewable energy.

However at a macro level, Electricity Act 2003 promotes absorption of renewable energy and mandates for specified consumption from renewable sources in the area of every distribution utility. Accordingly Renewable Purchase Obligation (RPO) and more specifically solar purchase obligations have become mandatory recently. This at present is fixed at 3% of the total consumption for RPO and out of which 0.25% shall be from the solar sources alone, with annual escalation at 10% till the quantum from renewable reaches 10% of total purchase.

2. Vision

Vision is to mainstream the use of solar energy in the energy mix of Kerala in an inclusive manner to ensure optimal usage of the available solar potential in this region.

3. Mission

The Mission is to:

i. Increase the installed capacity of the solar sector in the State to 500MW by 2017 and 2500 MW by 2030;
ii. Contribute to long term energy security of the State of Kerala as well as ecological security by reduction in carbon emission;

iii. Define end users who can adapt solar in a big way and target them;
iv. Adopt a multi-pronged approach in targeting different groups of consumers;
v Deploy package of incentives and disincentives for identified groups;
vi Adapt solar to trigger a paradigm shift in the usage of energy at the micro and macro levels;
vii Generate large direct and indirect employment opportunities in solar and allied industries;
viii Create skilled and semi-skilled man power resources for installation and maintenance of the solar systems through promotion of technical and other related training facilities;
ix Promote entrepreneurs / startups industries / institutions in the State that are engaged in the development of innovative solar based systems;
x Create an R&D hub by establishment of institutional collaborations with educational institutions, research centres, industries, utility, etc. for working towards applied research and commercialization of nascent technologies to accelerate deployment of various combinations of solar power technologies and solar- based hybrid co-generation technologies which will focus on improving efficiency in existing systems, reducing cost of balance of system.

4. Title and enforcement:

a. This Policy will be known as Kerala Solar Energy Policy, 2013
b. The Policy will come into operation with effect from the date of publication and will remain in force until superseded or modified by another Policy.
c. State Government may undertake review of this Policy as and when the need arises in view of any technological breakthrough or to remove any inconsistency with Electricity Act 2003, Rules & Regulation made thereof or any Government of India Policy/State Electricity Regulatory Commission's order.

5. Strategy of implementation

The strategies to achieve the policy objectives are outlined as below:

1. Supply side interventions

1.1 Off-grid roof top systems at demand points / consumer premises like solar inverter installations, solar powered cellular towers, display boards/ hoardings, etc.
1.2 Promoting conversion of existing inverter installations to solar power by way of providing suitable incentive schemes.
1.3 Grid connected systems partly meeting requirements at demand points and feeding to the grid.

1.4 Off site generation at locations like canals, reservoirs (floatovoltaic), waste lands, quarries, etc.

1.5 Off shore generating plants - primarily solar-thermal systems.

1.6 The off-grid solar applications shall be promoted for replacement of diesel-based generator sets. Guidelines and incentives issued by MNRE from time to time shall be followed in the State for promotion of decentralized and off-grid solar applications.

1.7 Empanelment of Suppliers / system integrators as per the guidelines in force for implementation of the solar systems envisaged in the policy.

1.8 Standards for grid connectivity at LT level will be notified for the State to promote decentralized solar power generation, which will remain applicable until national standards are notified and adopted by the State.

1.9 Since large scale absorption of solar electricity into the system is impossible without sufficient storage, a program for exploring and developing Pumped Storage schemes in the state shall be promoted as part of the Solar Policy.

1.10 Since developing Balance Of Supply (BoS) plants is essential to tap the employment opportunities presented by Solar to the fullest measure, the state will promote public sector enterprises like Keltron etc to manufacture BoS plants.

2. Promotion of Solar Thermal Collectors:

2.1 Solar Water Heating System (SWHS):

The State will promote Solar Water heating system by adopting the key strategy of making necessary policy changes for mandatory use of solar water heating system (SWHS) in the following potential categories:-

a) All Industrial buildings where hot water is required for processing.
b) All Government/Private Hospitals and Nursing homes.
c) All Hotels, Resorts, Motels, Banquet halls, Catering Units and Industrial Canteens.
d) Individual Residential buildings with an area of 3000 sq feet and above within the limits of Municipality/Panchayat/Corporations including Housing Complexes set up by Group Housing Societies/Housing Boards.
e) Hostels in educational institutions/Pvt. Hostels, Testing Labs/Laboratories of Educational Institutes/Hospitals
f) Barracks of Police, Paramilitary Forces and Jails.
g) Private/Government Guest Houses, Govt. Tourist Hotels, Inspection Bungalow, Circuit House and retiring rooms of Railways.
h) Health Centres, Sports Complex.
i) All weather swimming pools.

2.2 Solar Steam Systems:

The State will promote the use of solar steam systems for wider applications such as

a) Community cooking in residential institutions/ industrial mess/Hotels /Barracks/ Mid day meal program/Hospitals etc.
b) Industrial application of steam in process industries such as Textile/Food industry etc.
c) Laundries

2.3 Industrial Applications:

The State will promote the use of Solar Water Heating System (SWHS), Solar Steam Systems etc. for Industrial applications such as:

a) Process requirements of hot water.
b) Process requirements of steam.
c) Pre-heating applications in variety of Industries.
d) Drying applications.
e) Steam press and laundry units
f) Solar steam cooking applications in industrial mess/hotels etc.

3. Financing the projects

3.1 For off-grid systems the policy seeks to ensure bank finance at attractive rates and provide generation based incentives rather than capital subsidies to ensure that the systems are installed, maintained and continue to remain functional. The existing capital subsidies shall be restructured appropriately for the same.

3.2 For grid- connected systems Government itself by way of setting an example would initiate a programme by which all public buildings are provided with generation facilities using appropriate technology options. Here also rather than an EPC mode of implementation, a design, build, operate and transfer scheme with annuity payments shall be preferred. As the Load cycle of the government offices match with that of the solar plants, they are fitting cases for solar application. Policy urges all the concerned to make use of the roof top and premises to install solar plants to match maximum demand of the concerned office, within a period of 2 years time. A panel of implementing agencies and pro-rata costs per kilo watt shall be prepared and each office/department can choose a developer for implementing this scheme.

3.3 For grid - connected systems in non-Government buildings / premises the incentives shall be on the basis of net metering, feed-in tariff and Renewable Energy Certificate mechanism, the appropriate tariff system being decided by following due procedure.

3.4 Grid - connected systems will be promoted for domestic consumers in a phased manner after formulating grid connection standards for LT distribution in line with this policy. In this regard cluster wise installations will be given suitable incentives on a conditional basis for adopting solar installations.

3.5 Regarding floatovoltaic and public place installations a wider community ownership model with direct financial stake by the public shall be encouraged.

3.6 For logistically difficult and technically challenging options like off-shore generating plants, projects shall be structured on the basis of competitive bidding in IPP mode.

4. Building Transmission and Distribution Infrastructure.

4.1 Safety / quality protocols for all such installations shall be worked out in detail at international standards. For this the capability of academic institutions both within and outside the country shall be leveraged.

4.2 This whole initiative would also be structured to improve the quality of the grid in general with specific focus on evolving nano / community grids working on smart grid principles.

4.3 Evolving standards for grid connectivity at different voltage levels.

4.4 Notifying User Manual / guidelines on solar application – leveraging Internet Communication Technologies (ICT), Social media etc., for propagation.

4.5 Integrating with no load shedding campaign.

4.6 Creation of mechanisms like Battery banks, centralized banking of energy etc for decentralized distributed generation of infirm energy.

5. Industry tie-ups

In the case of grid-tie systems, only components complying with national or international standards as approved by CEA can be used. But in the case of non-subsidised off-grid systems, there are currently no such regulations. It is proposed to bring about licensing for all solar photovoltaic systems and manufactures to be installed in Kerala. A certification and testing facility would be set up. Industries based in Kerala, including system integrators will have to obtain licensing from designated authority (Chief Electrical Inspectorate) to be eligible to install systems and components meeting approved specifications or standards. For industries from outside the State, channel-partner status or recognition of MNRE (Govt. of India) would be mandatory.

6. Legal and regulatory framework

6.1 Support the formulation of regulatory environment encouraging the common man more towards solar applications

6.2 Legally enforcing use of electricity from solar source in specified sectors of energy use.

6.3 A tariff incentive for consumers opting for solar generation shall be offered with respect to non-solar consumption subject to prefixed levels of usage.

6.4 Incentive for people's representatives / panchayats for promoting solar installations and street light optimization.

6.5 Incentive schemes for conversion of existing inverter installations to solar based ones.

6.6 Solar Procurement Obligation (SPO) will be mandated for Commercial consumers with more than 20kVA connected load, LT Industrial with more than 50kVA connected load and for all HT & EHT consumers in a phased manner. All HT/EHT consumers shall have to procure 0.25% of their energy consumed through SPO till March 2015 with 10% increase every year. From April 2015 onwards the same shall be applicable for commercial consumers and LT industrial as per the criteria mentioned above. The same shall be made applicable for high consuming domestic consumers i.e. more than 500 units per month at a later stage.

The above obligated consumers may fulfill their SPO by

- Buying equivalent to or more than their SPO from third party developers of Solar Power projects in the State of Kerala.
- Buying RECs generated by Solar Power projects in the State equivalent to or more than their SPO.
- Purchasing power from KSEB at Solar Tariff
- Consumers desirous of availing SPO exemption by captive solar generation shall necessarily install separate meters to measure captive generation.

6.7 All new domestic buildings having a floor area in between 2000 sq.ft to 3000 sq.ft should install at least 100 litres solar water heater and 500W solar PV system. All the buildings above 3000 sq.ft should install 100 litre solar water heater and at least 1000W solar PV system.

6.8 In the case of residential flats/ apartments 5% of the energy usage for common amenities should be from Solar

6.9 In the potential categories to be notified like star hotels, hospitals, residential complexes, with more than 50 kVA total connected load, the use of solar water heating system shall be made mandatory.

7. 'Feed-in-Tariff', 'Net Metering' and Pooled Cost of Energy' of the utility applicable to Solar energy.

Kerala State Electricity Regulatory Commission (KSERC) will notify the normative Feed-in-Tariff of solar power for procurement by KSEB in case of off-site commercial installations. For all agencies that consume grid power and have installed solar installations with some form of Government subsidy only net metering shall be applicable. However for consumers with monthly consumption of 30 units and below efforts shall be made involving welfare departments of Government and LSGIs to solar enable them and in such cases a special feed-in-tariff scheme shall be notified.

KSERC will also annually notify the Pooled Cost of Power Purchase of the utility as applicable to solar power sector, as required under CERC (Terms and Conditions for Recognition and Issuance of REC for Renewable Energy Generation) Regulations 2010, to facilitate investors tap the Renewable Energy Certificate market.

8. Request for connectivity

Plants requiring grid connectivity shall make application to the utility as per the standards in place and the utility shall provide connectivity if found feasible as per the interconnection standards in practice, after collecting a processing fee.

9. Procurement Policy on grid connected solar plant

KSEB will have first right of refusal for the power from the plants established in private lands / premises, except in cases of self/captive use. In such cases the sale of power to KSEB shall be as at a tariff decided by KSERC or at the pooled cost of the power purchase of the utility or net metering.

10. Reservation of land for the renewable project

The prime responsibility for identifying the land for renewable energy shall be with the developer. Government shall endeavor to assess clearly the land suitable for the development of solar installations in the possession of either Government, private or tribal individuals. For tribal lands, in addition to the lease rentals, a revenue (not profit) sharing mechanism for the land owner is envisaged as follows.

- The willingness of the land owner is mandatory.
- The land ownership rights shall continue to fully vest with the original owner. The developer shall have only rights to setup and operate the project. The land owner will have the right to use land for agricultural purpose.
- Revenue (not profit) sharing based on the power generated, possibly in the range not below of 5% is envisaged.
- The payment of share of revenue shall be made directly to the bank account of the land owner. For this purpose a tripartite agreement has to be entered into among the developer , the land owner and the KSEB.

Only lands which do not have an immediate productive use shall be thus identified/ permitted.

11. Settlement of Energy charges

All settlement associated with the energy charges for the grid connected plant between the developer and the utility shall be settled on a monthly basis.

12. Incentives and facilities under this policy

a. Evacuation facility

KSEB shall create necessary evacuation facility beyond the pooling station for the projects with capacity less than or equal to 10MW. For higher capacity plants, KSEB shall construct the evacuation facility on deposit work basis.

b. Open access Charges

There shall be no open access charges for solar projects for wheeling the power within the state.

c. Wheeling charges and T&D losses

Wheeling charges and T&D losses will not be applicable for the Captive Solar generators within the state.

d. Exemption of electricity Duty

The energy generated from the plants under this policy shall be fully exempted from the Electricity duty.

e. Banking facility

Conditional Banking facility shall be available to captive generators after considering system constraints.

f. Facilitating for subsides from MNRE

ANERT being the nodal agency for the non conventional energy in the State, shall act as a facilitator for the developer for making available the subsidy from MNRE or any other central agency.

13. Agencies involved and their role under this policy

a. State Level Empowered Committee (SLEC)

Administration of this policy shall be entrusted with the State Level Empowered Committee (SLEC) constituted for that purpose. The committee shall have the following constitution.

(i) Additional Chief Secretary/Principal Secretary (Power), GoK - Chairman
(ii) Chairman, KSEB
(iii) Member (Generation Projects), KSEB
(iv) Member (Transmission & Generation Operations), KSEB
(v) Member (Distribution), KSEB
(vi) Director, EMC
(vii) Director, ANERT - Convenor
(viii) Exe, Vice President of the Kerala S&Y Council (KSCSTE)
(ix) Director of Industries
(x) Land Revenue Commissioner
(xi) A representative from Law Department
(xii) An expert from Government SPB (nominated)

The Committee shall have the following responsibilities:

a) To suggest necessary amendments to the policy to remove difficulties in implementing the policy;
b) Give approval for the developer requiring land allocation from the government;

c) Approval for utilization of land designated by ANERT for development of renewable energy;
d) Specifying the time schedule of eligible projects for which land had been allocated;
e) Empowered Committee shall do an yearly review and publish a document;
f) Any other function which may found necessary.

b. Agency for Non-conventional Energy and Rural Technology (ANERT)

ANERT is the nodal agency for the non conventional energy in the State. In administering this policy ANERT will have the following responsibilities:

(i) To act as the linking agency between all the stake holders in matters related with this policy;
(ii) To empanel the system providers in solar technology after due process;
(iii) To assess the solar energy potential in the State and prepare area map of renewable energy potential of the State;
(iv) To act as the nodal agency for the Off-grid solar applications in the State;
(v) To facilitate in providing incentives and subsidies to the investor in the off grid application;
(vi) To directly set up solar energy installation manufacturing units as paradigm centres;
(vii) To be part of the joint mechanism with KSEB in the administration of Roof-Top solar installations with grid connectivity;
(viii) To short list and maintain the database on the system provider in the case of solar plants with LT connectivity and prescribe maximum permissible installations under each system provider in proportion to their financial strength and infrastructure capability.

c. System Provider/Integrator

Being new technology and considering safety requirements due to complexity of the system, the assistance from the system provider is essential throughout the life period of the plant. This is necessary to instill confidence among potential small scale investors and roof top owners in the initial phase of technology adoption, which could be reviewed periodically based on the maturity achieved by the technology and the level of deployment. Thus the system provider will have the following responsibilities:

(i) To register itself with the ANERT through their due process to enable itself to provide service in the state.

(ii) On completion of the project, enter into a tri-partite agreement involving also the facility owner of the roof top solar plant and KSEB, ensuring continued technical support to the plant.

(iii) Conduct periodical maintenance to the plant as per the standards and provide report of the same to the investor as well as to KSEB.

(iv) In case investors under him opt for REC mechanism, to play the role of facilitator for the purpose.

d. Kerala State Electricity Board

Being the integrated utility on transmission and distribution in the state, KSEB shall have the following responsibility under this policy:

(i) To mainstream solar applications by pioneering installations in canals, reservoirs (floatovoltaic), public spaces, etc;

(ii) To evolve and update standards of grid-connectivity for the Solar Power Systems at LT and HT level and notify to promote decentralized solar power generation which would also enable the State to gain maximum benefit from the 13 FC allocation and other Financial allocation.

(iii) To assess the feasibility and provide connectivity to grid connected solar projects in a timely manner;

(iv) Resort to tariff based bidding for solar energy in meeting RPO, if required;

(v) To develop necessary transmission infrastructure based on a renewable master plan;

(vi) To provide banking facility for solar energy, incentives in the form of exclusion from open access charges, wheeling charges and T&D loss for solar power;

(vii) To act as single window service provider to all grid connected solar plants in association with other state agencies.

Eram Scientific

EXPRESSION OF INTEREST
Sustainable Initiatives for Smart City Project, Trivandrum

To
The Director,
Smart City,
Trivandrum.

Date: 17/03/17

SUMMARY

Eram Scientific Solutions Pvt Ltd, Kerala, are the manufacturers of India's First Electronic Public Toilet "eToilet" with implementation experience in more than 20 states with over 2000+ eToilets and 600 sewage treatment plants installed to date and 43+ awards to our name including the prestigious Toilet Titan Award from the Hon'ble Prime Minister.

eToilet is an indigenous & innovative product which is India's first automatic, unmanned, electronic public toilet. We have comprehensively addressed the Urban Public Sanitation challenges through a product mix of eToilets for the General Public, eToilets for Schools and She Toilets exclusively for women.

eToilets are unmanned, made of steel enclosures, has inbuilt automatic washing/cleaning using sensors, and has proven itself as a very dependable and viable sanitation solution densely populated areas, schools, colleges, hospitals, busy population centres such as bus stands, railway stations, parks, tourist spots etc. The eToilets features automatic pre-flush and after-flush, automatic platform cleaning, and LED indications and have GPRS-enabled remote monitoring of the functioning and health status of each eToilet unit and online tracking of entry and usage of every user. The plug and play system of eToilet provides easy installation at a low cost and eToilets occupies only 35 sqft. space and very well fit into the urban infrastructure.

Eram has developed a fully integrated solar street lighting system –**an eco friendly and electronically controlled solar integrated street light system** to upgrade the street lights of Municipal bodies and other public places of the State to world class standards and maintain the same.

OUR SOLUTION FOR SMART CITY

1. eToilet for Public

An public saniation solution for urban and upcoming cities to keep in pace with the expansive growth in terms of population and technology. The SS model eToilet has effectively addressed sanitation issues in public places. We have established successful models of connected eToilets infrastructure in over 10 smart cities which include Navi Mumbai,

Bangalore, Chennai, Visakhapatnam, Delhi etc. Chennai City has the most number of installations with 230 e-Toilets which has considerably reduced the open defecation in the city and has raised the levels of hygiene in the city.

2. eToilet with rest room for ladies

Eram has also developed a world class model 'She Toilet with restroom', having exclusive features and functionalities like napkin vending machine, napkin incinerator, baby feeding and diaper changing station etc. These facilities were incorporated to ensure a differentiating unmanned safe and hygiene rest room for women.

3. eToilet with Shower room for beaches

This model is uniquely developed for beaches and backwater tourist spots. Apart from the eToilet unit an additional shower room facility is provided which is accompanied with wall mounted shower system and other necessities.

4. eToilet for Schools

Eram Scientific offers a comprehensive and holistic solution for the school sanitation that consists of a robust superstructure integrated with user-friendly electronic interfaces and self-cleaning mechanisms along with solar/electric gird compatibility, water management and waste management modules. The inbuilt maintenance plans makes our solution a highly desirable and sustainable one for schools.

5. Napkin Incinerator and Vending Machine

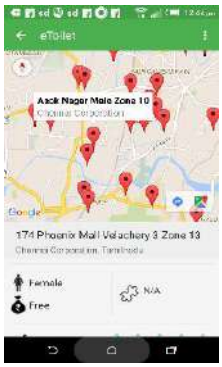
To address the sanitation issues of women Eram supply women and girl friendly hygiene products like Napkin Incinerator and Napkin Vending Machine for Schools and commercial spaces to enhance every woman's health and lifestyle

6. Connected eToilet Infrastructure

eToilets can be connected over a GPRS network, which ensure real-time monitoring of the usage and health status of the eToilets. This can be viewed and managed over a web interface for ensuring minimal downtime and standardised maintenance operations. A dedicated team of Service Engineers attend to technical trouble shooting of the eToilets.

7. Mobile App

eToilet Mobile App for electronic Toilets in India, has been developed as part of establishing a new Connected eToilet Infrastructure (CeTI). The eToilet App is freely downloadable for Android users from the Google Play Store by typing the keyword "etoilets". Its unique features include locating the nearest eToilets via Map & Address Listings, understanding the mode of operations, mode of access and information on facilities such as napkin vending machine, incinerator etc., and sharing feedback on the user experience of eToilet along with image uploading.



Eram Scientific

8. Sewage Management in the city

On-site waste treatment part through Anapackage, an anaerobic treatment system and Bio digester- an anaerobic technology developed by DRDO, Govt. of India. These sewage treatment plants (STPs) are highly reliable and effluents cause no harm to the environment there by offering a comprehensive, sustainable solution for the sanitation sector.

9. Street Lighting System in the city

Eram's solar street lighting system is a fully integrated system with Solar panel, battery, controller, light, sensor and all other accessories integrated in a single cabinet. These street lights are completely automated with minimal manual intervention.

- Easy installation
- Automated ON/OFF mechanism according to natural light /time/web
- Minimizes manual interventions
- Power saving technologies – Intensity of light varies according to motion presence & time.
- IOT based technologies –Web Based remote controlling and monitoring facilities.
- Green- CO2 emission is less

PROPOSED MODEL

1. Comprehensive supply, installation and commissioning of eToilet including 5 year Annual Maintenace Contract.
2. Smart city to identify appropriate advertising agency and ensure generation through advertisement in the eToilet panels

ABOUT ERAM GROUP

Eram Group is a business conglomerate comprising over 40 companies spanning diverse sectors such as Oil and Gas, Power , Construction, Manufacturing, Travel, Healthcare, IT, Media, Logistics , Automotive and Training and Education. With operations in the Middle East, Europe, Asia Pacific and the United States, the group has a large, multi-cultural workforce delivering innovative solutions to varied markets. Eram's presence in Saudi Arabia and India is substantial, while operations in other countries continue to grow.

CONCLUSION

eToilet is an effective sanitation solution and complies with the smart city features and some of the key evaluators like smart solutions to infrastructure, Waste management, Safety conditions for women, energy reduction, efficiency by Internet of Things(IOT) and Comprehensive maintenance support.
In this context ERAM SCIENTIFIC SOLUTION express our interest to partner with Trivandrum Smart City Project for creating a network of intelligent and smart eToilet infrastructure which will effectively address the public sanitation challenges.

Thanking You,

Yours faithfully,

Bincy Baby
Director
+91 9072852244

Proposal & Statement of Work (SOW)

RSR Designs (UAN KL12D0000480)
Varadhanam, Puthumana, Anayara. P. O, TVPM-695029
Mobile No: **9447015349** Email: **rsrdesigns@gmail.com**

Pursuant to the Master Services Agreement dated December 07, 2016 between Thiruvananthapuram Corporation("Client") and Renjith S R(RSR Designs) for Thiruvananthapuram Corporation Councilor's App(TCCA)

Project ID: TCCA-0012-01-00

Project Description:	RSR Designs will develop a mobile approvals application that allows a Corporation Councilor to manage complaints and can communicate with ward members pending approval request on a compatible mobile device. The application for the Mayor will be absolutely free of cost which can be use to communicate with councilors, each councilors can update the status and progress of works to Mayor and Mayor can do the same.
Features:	• Ward members can communicate with councilor via TCCA regarding complaints and update about the same. • Councilor can update the status of complaints. • Councilor can send common message to all ward members through a single click and can send individually. • TCCA will support to send photos along with complaint or message as attachments. • Particular app for the councilor will communicate only with the same ward member or councilor. • Mayor can communicate with all councilors at a time and individually
Scope of Work:	• Requirement gathering and analysis is based on the needs study of councilors in each ward. • Prepare and define the Software Requirements Specification for the mobile client application. • Develop a solution architecture and design for the mobile client application. • Implement the mobile client application using XCode. • Integrate the mobile client application with web services. • Development using iterative methodology (weekly sprints) • Minor branding changes for the release (less than 10% of total effort). • Android mobile client will support version 4.0 to 5.1. **Out-of-Scope** • Hardware and Software procurement. • Install & configure FeedHenry infrastructure for Development, Testing and Production. FeedHenry account and set up will be managed by Thiruvananthapuram Corporation. • Any functionality that are not default in Mobile phones of branded

	contents for different form factors (logos, icons, images, etc) for the mobile application. • System Integration testing (SIT). • User Acceptance testing (UAT).
Deliverables:	• Baselined Software Requirement Specification. • Software Design Document for mobile client that includes o Mobile application flow o Mobile client design o Overview of mobile application flow o Authentication and security flow o Class diagrams • Release notes
Assumptions:	• Implementations will be initiated based on agreements of the signed SOW. • The scope of Approvals solution is limited only to mobile client applications. • The mobile client applications will not support multi-orientation. It will only support Portrait mode. • The mobile client is designed to work on a single or multiple devices per user. • The mobile client application will not work in offline mode, error message will be displayed. • Thiruvananthapuram Corporation will provide RSR Designs team members with appropriate access to tools, software, servers, network connectivity, and project/team artifacts. • The approach and estimates of this proposal. • Based on the formal Business Requirement document, if there is any deviation or additions in features that has a major development work (greater than 10% the total effort), the estimate and work order will have to be revisited. • RSR Designs will be testing the application in the Smartphone devices. • Procurement of any device outside the above list should be Thiruvananthapuram Corporation' responsibility.

	• Thiruvananthapuram Corporation will provide all branded content (e.g. logos, icons). • TCCA will have individual access for each users. • Thiruvananthapuram Corporation will make available SMEs to work with RSR Designs & Team and provide any necessary support to make this engagement successful. • Any changes to scope will be managed through the change control process defined in MSA (Master Services Agreement). • RSR Designs shall comply with all rules and regulations of Thiruvananthapuram Corporation at all times and while on Thiruvananthapuram Corporation' premises. RSR Designs shall be responsible for its employees, contractors and representatives while on Thiruvananthapuram Corporation' premises whether or not any actions fall outside the scope and course of employment or engagement by RSR Designs. RSR Designs employees and contractors will not be considered employees of Thiruvananthapuram Corporation' for any purpose whatsoever, and RSR Designs shall have sole responsibility for their supervision and management. Accordingly, Renjith S R shall be solely responsible for the compensation of its employees and all employment-related taxes and benefits. • Thiruvananthapuram Corporation agrees to provide, at its sole expense, safe facilities, reasonably sufficient equipment, and reasonably necessary supplies for all RSR Designs resources required to perform services on-site at Thiruvananthapuram Corporation facility. RSR Designs is required to purchase software to perform the requisite services under this Statement of work, Thiruvananthapuram Corporation agrees to reimburse RSR Designs for the associated licensing fee(s). Further, if applicable, Client agrees to provide Virtual Private Network (VPN) connectivity between the RSR Designs development center in India and the Thiruvananthapuram Corporation host.
Fixed Bid Fee:	Renjth S R will perform the work stated herein for a fixed fee of **INR 15,000**/Councilors minimum 100 or above members exclusive of change orders. If the number of councilors will be 200 or above can supply the App for **INR 9000**/Councilors
Timeframe:	45 working days

Payment Terms:

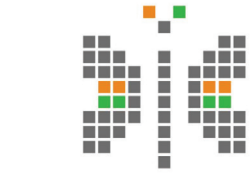
Milestone#	Milestone	Acceptance Criteria	Payment Amount
1	SOW signoff	Client delegate Signature on SOW	50% of implementation
2	Mobile Client Beta	Email confirmation	40% of implementation
3	Go Live	Deployment Complete	10% of implementation

ANNEXURE-2

COCHIN SMART MISSION LIMITED

INDIA SMART CITY MISSION

MISSION TRANSFORM-NATION



THE SMART CITY CHALLENGE

STAGE 2

SMART CITY PROPOSAL

SMART CITY CODE:

KL-01-KOC

Ministry of Urban Development
Government of India

CHECKLIST

All fields in the SCP format document have to be filled. The chart below will assist you in verifying that all questions have been answered and all fields have been filled.

Q. No	TICK			
PART A: CITY PROFILE				
1.	✔	QUALITY OF LIFE		
2.	✔	ADMINISTRATIVE EFFICIENCY		
3.	✔	SWOT		
4.	✔	STRATEGIC FOCUS AND BLUEPRINT		
5.	✔	CITY VISION AND GOALS		
6.	✔	CITIZEN ENGAGEMENT		
7.	✔	SELF-ASSESSMENT: BASELINE		
8.	✔	SELF-ASSESSMENT: ASPIRATIONS & IMPERATIVES		
PART B: AREA BASED PROPOSAL				
9.	✔	SUMMARY		
10.	✔	APPROACH & METHODOLOGY		
11.	✔	KEY COMPONENTS		
12.	✔	SMART URBAN FORM		
13.	✔	CONVERGENCE AGENDA	✔	Table 1
14.	✔	CONVERGENCE IMPLEMENTATION		
15.	✔	RISKS	✔	Table 2
16.	✔	ESSENTIAL FEATURES ACHIEVEMENT PLAN		
17.	✔	SUCCESS FACTORS		
18.	✔	MEASURABLE IMPACT		
PART C: PAN-CITY PROPOSAL(S)				
19.	✔	SUMMARY		
20.	✔	COMPONENTS		
21.	✔	APPROACH & METHODOLOGY		

22.	✔	DEMAND ASSESSMENT				
23.	✔	INCLUSION				
24.	✔	RISK MITIGATION	✔	Table 3		
25.	✔	FRUGAL INNOVATION				
26.	✔	CONVERGENCE AGENDA	✔	Table 4		
27.	✔	CONVERGENCE IMPLEMENTATION				
28.	✔	SUCCESS FACTORS				
29.	✔	BENEFITS DELIVERED				
30.	✔	MEASURABLE IMPACT				
PART D: IMPLEMENTATION PLAN						
31.	✔	IMPLEMENTATION PLAN	✔	Table 5		
32.	✔	SCENARIOS				
33.	✔	SPV	✔	Table 6	✔	7 DOCUMENTS
34.	✔	CONVERGENCE	✔	Table 7		
35.	✔	PPP	✔	Table 8		
36.	✔	STAKEHOLDER ROLES				
PART E: FINANCIAL PLAN						
37.	✔	ITEMISED COSTS				
38.	✔	RESOURCES PLAN				
39.	✔	COSTS				
40.	✔	REVENUE AND PAY-BACK				
41.	✔	RECOVERY OF O&M				
42.	✔	FINANCIAL TIMELINE				
43.	✔	FALL-BACK PLAN				

ANNEXURE 1	Smart City features
ANNEXURE 2	A-3 sheets (self-assessment)
ANNEXURE 3	max 20 sheets (A-4 and A-3)
ANNEXURE 4	Documents for Question 33

INSTRUCTIONS

1. This document must be read along with the Smart City Mission Guidelines. An electronic version of the SCPformat is also available on the website <smartcities.gov.in>
Follow: 'Downloads' > 'Memos'.

2. The responses must be within the word limits given. The font size must be 12 Arial, with 1.5 spacing, left aligned paragraphs with one inch margins. All additional information must be given in 20 nos. A-4 size pages in Annexure 3.

3. For the Area-Based Proposal, only one 'Area' should be selected. The Area selected can be a combination of one or more types of area-based developments. This can be retrofitting or redevelopment or greenfield alone or a combination of these, but the area delineated should be contiguous and not at separate locations in the city.

4. The Area-based Development must contain all the Essential Features as per para 6.2 of the Mission Guidelines. Please fill out the following checklist.

S. No	Essential Feature	Confirm if included (✓)	Para. No. in SCP
1.	Assured electricity supply with at least 10% of the Smart City's energy requirement coming from solar	✔	16 (D) (i-d)
2.	Adequate water supply including waste water recycling and storm water reuse	✔	16(D) (i)
3.	Sanitation including solid waste management	✔	16(D) (i-c)
4.	Rain water harvesting	✔	16(D) (i-a)
5.	Smart metering	✔	16(D) (i-a) 19
6.	Robust IT connectivity and digitalization	✔	16(D) (iv)
7.	Pedestrian friendly pathways	✔	16(A) (ii)
8.	Encouragement to non-motorised transport (e.g. walking and cycling)	✔	16(A) (iii)
9.	Intelligent traffic management	✔	16(A) (iv)
10.	Non-vehicle streets/zones	✔	16(A) (iii)
11.	Smart parking	✔	16(A) (iv)
12.	Energy efficient street lighting	✔	16(A) (iv)

13.	Innovative use of open spaces	✔	16(B)
14.	Visible improvement in the Area	✔	16(B) 16(C)
15.	Safety of citizens especially children, women and elderly	✔	16(A) (i & ii) 16(A) (iv)
16.	At least 80% buildings (in redevelopment and green-field) should be energy efficient and green buildings		
17.	In green-field development, if housing is provided, at least 15% should be in 'affordable housing' category.		16(D) (ii)
18.	Additional 'smart' applications, if any	✔	16 (Summary)

5. The pan-city Smart Solution should be IT enabled and improve governance or public services. Cities may propose one or two such Smart Solution(s). If more than one solution is presented kindly use supplementary template 'Pan-City Proposal No 2'.

6. In order to make the proposal credible, all claims must be supported with government order, council resolutions, legal changes, etc and such supporting documents must be attached as Annexure 4.

7. The Questions can be answered directly in this editable PDF file and can be saved on local computer, before printing. Your submission in electronic form should contain:
   1. The SCP in whole (92) pages
   2. The Self Assessment Sheet (Annexure 2)
   3. Additional 20 Sheets (Annexure 3)
   4. Additional list of Documents (Annexure 4)

   Electronic submission to be sent on DVD along with printed copies. 5 printed copies of the SCP document (complete in all respect) should be sent to MoUD along with the DVD containing the complete electronic copy. The printed copies should be spiral bound as separate volumes.

   It is advised to use latest version of Acrobat Reader (Acrobat XI or higher) to fill the form.
   Acrobat Reader XI can be downloaded from:
   https://www.adobe.com/support/downloads/thankyou.jsp?ftpID=5507&fileID=5519

SCORING DIVISION

TOTAL 100 POINTS

CITY-LEVEL:	**30**
AREA-BASED DEVELOPMENT:	**55**
PAN-CITY SOLUTION:	**15**

CITY LEVEL CRITERIA: 30%

S.No.	Criteria	%
1.	Vision and goals	5
2.	Strategic plan	10
3.	Citizen engagement	10
4.	Baseline, KPIs, self-assessment and potential for improvement	5

AREA-BASED DEVELOPMENT (ABD): 55%

S.No.	Criteria	%
1.	'Smartness' of proposal	7
2.	Citizen engagement	5
3.	Results orientation	15
4.	Process followed	3
5.	Implementation framework, including feasibility and cost-effectiveness	25

PAN-CITY SOLUTION: 15%

(If more than one solution is proposed, each proposed solution will be graded separately and the average of the two aggregate scores will be awarded to the city toward the 15% overall weightage)

S.No.	Criteria	%
1.	'Smartness' of solution	3
2.	Citizen engagement	1
3.	Results orientation	5
4.	Process followed	1
5.	Implementation framework, including feasibility and cost-effectiveness	5

A. CITY PROFILE

1. QUALITY OF LIFE

In the last three years, what efforts have been made by the city to improve livability, sustainability and economic development? Give specific examples along with improvement with KPIs that are in the public domain and/ or can be validated. Your answer should cover, but not be restricted to (Describe in max. 50 words each, mentioning the source of the data):

a. Transportation condition in the city

- Constitution of Unified Metropolitan Transport Authority for multi-modal integration
- Fastest Metro Rail construction in India; reflects ability to implement projects through SPV model.
- Despite high private vehicle growth (CAGR- 12.2%), Public Transport share continues to be >50% and average traffic speeds have remained steady at 20 kmph

Source annexed (Annexure 3.2)

b. Water availability in the city and reduction in water wastage/ NRW

- City receives 160 MLD water
- Reduction in Average NRW from 40% to 30% during 2013-15 through institutional interventions (separate NRW wing) and use of smart solutions (Smart-Ball, and Sahara technologies).
- City targets achieving all SLB (CPHEEO) by 2019.

Source annexed (Annexure 3.2)

c. Solid waste management programs in the city

- Ranked 4th under Swachh Bharat rankings
- Bin-free city; 100% Door-to-Door collection
- Procurement for Rs. 300 crore Waste-to-Energy project completed;
- Active involvement of citizen groups/forums including Kudumbashree (Collection), CREDAI (organic/plastic processing) and IMA (Bio-medical).
- User charge Policy in place for commercial waste
- Established CKC Ltd for Plastic/e-waste collection/ processing

Source annexed (Annexure 3.2)

d. Safety/ security conditions in the city

- High levels of public safety - Decrease in the number of cases of murder (26 to 7) and Rape (62 to 40) during 2011-13
- Community driven “Janamaithri” Police and Student Police Cadet project (SPC) considered a national model for safety and security
- Initiatives including Citizen helpline, Cyber safety, Tourist assistance, Drug awareness (HOPE), Community Oriented Police officers to improve safety further.

Source annexed (Annexure 3.2)

e. Energy availability and reduction of outages in the city

- City receives 24x7 power supply; Scheduled interruptions down from 1900 to 647 instances during 2012-15
- City’s MNRE-approved Solar Master Plan implementation underway
- Kochi airport’s 25MWp solar plant operational; first energy neutral airport in India
- Underground wiring ~200 km under R-APDRP
- Net metering, SCADA Centralized customer care (1912) in place

Source annexed (Annexure 3.2)

f. Housing situation in the city, specifically role of municipality in expediting building plan approvals, enhancing property tax collection, etc

- Online building plan approval system; reduced average time for approvals by ~50%.
- Property tax collection grew by 37%; Collection efficiency increased from 66% to 82% during 2012-15.
- 6787 DUs under BSUP scheme, benefitting ~ 30,000 people.
- FAR increased from 1.5 to 2 (upto 4 with a fee) in 2012

Source annexed (Annexure 3.2)

2. ADMINISTRATIVE EFFICIENCY

In the last three years, what have been the changes in Administrative Efficiency due to the use of Information and Communication Technology (ICT) (Describe in max. 50 words each, mentioning the source of the data):

a. Overall attendance of functionaries

- KMC has Biometric attendance system (based on thumb impression) since 2012; installed in Main Office, Zonal and Circle offices of the Corporation.
- To ensure compliance the authorities have also provided for penal provisions for repeat offenders

b. Two-way communication between citizens and administration

- Active Ward Sabhas with high women participation
  - o Multi-year investment plans
  - o Social Audits
- Projects uptoRs. 5 lakhs implemented through Community Contracts
- Right-to-Service legislation in place.
- State-level 'SutharyaKeralam', Citizen Grievance Redressal in place.
- E-governance platform (with 22 modules) under implementation to strengthen G2C interface

c. Use of e-Gov to enable hassle free access to statutory documents

KMC's active Web portal managed by IKM provides

- Municipal legislation and all bye-laws
- Government Orders
- Access to Citizen Charter, Financial accounts and Budget documents, Minutes of Council meetings
- Approved Master Plan and reports

d. Dashboards that integrate analytics and visualization of data

- KWA - e-ABACUS software in operation since 2013; integrates metering, billing, collection databases; enables data extraction across office tiers.
- KMC – Sulekha (Plan monitoring), Saankhya (Accounting) softwares provides customized analytics of data.
- Use of spatial mapping on GIS platform by KSEB, KWA, and KMC
- ITS for bus transport under implementation

e. Availability of basic information relevant to citizens

KMC's Web portal provides links for

- Citizen Charter,
- Financial accounts, Budget documents,
- E-newsletter, Minutes of meetings,
- Project progress, Tender details
- Online automated issue of birth/death, marriage certificates and online approval of Building plans.
- Information on Ward councillors, Officials, Project updates, Tender details
- Issue of Birth/Death, Marriage certificates and building plan approval

3. SWOT

Based on the detailed city profiling, what are the strengths and developmental areas of the city? Conduct a detailed SWOT analysis of the city with all relevant metrics and data. (max 1000 words):

STRENGTHS

i. Unique Geography and Location: Kochi is centrally located with efficient global connectivity. It has vast expanse of water sheets (22% of city area) in the form of canals and backwaters. Has widely used waterways of 40kms.

ii. Pluralistic and multicultural backdrop: Long history of settlements – West Kochi is home to about 10 communities of varied culture (foreign and Indian origin). Many pockets of these colonies still exist and add to the charm of the area.

iii. Clean and sanitised city: Ranked 4th on Swachh Bharat and scores well on access to toilets (95% coverage) and cleanliness dimensions

iv. History of successfully executed Signature Projects: City-level plans in place: CDP – 2006, CSP – 2011, CMP – 2007 (ongoing) & Development Plan for Kochi City Region 2031. Kochi has executed several marquee projects: Kochi Metro Rail (fastest metro in India), Vyttila Mobliity hub (only multi-modal transport hub in India), Brahmapuram plant (only Septage treatment plant in India) and CIAL (1st airport in India in PPP and SCADA facilities; With 12 MW plant making it the first power neutral airport globally)

v. Port and Airport infrastructure: With a strong port infrastructure, modern transhipment terminal at Vallarpadam and its ongoing airport expansion (with a new international terminal), the city is emerging as a key regional trade hub.

vi. Growing IT and services industry: The Kochi region has around 10 IT/ITES based special economic zones. The Start-Up Village in the city serves as an incubation centre and aims to launch 1000 technology start-ups over the next 10 years.

vii. Heritage and tourism hotspot: Kochi houses precincts of high heritage value. It is recognised as the Gateway to Kerala's buoyant tourism sector. 3.73 lakh foreign tourists and 22.25 lakh domestic tourists (~4 times the KMC population) visited Kochi in 2014, reflecting an annual (2013-14) increase (in arrival) of 5% and 7% respectively

viii. HDI and social indicators: The State's strong performance on human development and social indicators is reflected in Kochi too with high levels of literacy (88.4%) and women literacy (88%). Kochi also has high levels of digital literacy owing to the State's Akshaya and IT@school programs.

ix. Active Citizen Engagement: Peoples Plan Scheme introduced in 1996 integrates citizens views with projects planned and implemented in the city. Ward committees meet every quarter to discuss development proposals.

x. Inclusive and Gender-sensitive development: Kudumbashree mission and its SHGs have been nerve centres for social, economic and political advancement of women. The city also earmarks 30-40% of its budget for social development.

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WEAKNESS

i. Land availability constraints: Wetland plus water area account for close to 27 % of the gross city area. Although net area available for development in Kochi is 73%, the development around the canals, mangroves and wetlands is governed by the CRZ rules. The total area under CRZ restrictions (Zone I and Zone 2) is around 10% of the land area. Additionally, the fragmented land holdings and unplanned growth leading to deterioration of the core city.

ii. Differential service levels across the city: While many parts of the city has excellent basic services, the old city areas like Fort Kochi-Mattancherry are relatively deprived households with inadequate access to basic services.

iii. Constrained road network: The total land-use reserved for surface transport is only 6.4% against the UDPFI standard of 12-14%. The city roads are overstressed due to increasing traffic volume and unscientifically designed road network with too many intersections.

iv. Poor walkability and street safety: Less than 6% of the road network comprises of roads with footpath on either side. Unmanageable traffic, disorganized signals, etc. make it unsafe for pedestrians and cyclists.

v. Inefficient integration of multi-modal transport systems: However, with initiatives like the Vyttila Mobility Hub, healthy public transport share and pro-active initiatives including the expansion of Smart Card access (planned as a Pan-city initiative), tangible improvements in this area are expected in the next few years.

vi. Over-reliance on Grants: Even though Corporation of Kochi's revenues have grown rapidly (22% CAGR during FY 12 and FY 15), its own revenues (Tax and non-tax) have grown relatively slower at 15% during this period while Grants (4th SFC and 13thFC) grew at 30%. There appears to be greater potential to increase own sources of income. Similarly, Capital expenditure is largely grant driven, with negligible levels of leverage.

vii. Outward migration of educated population: Inadequate higher education facilities and commensurate economic opportunities in the past has contributed to out-migration of educated talent.

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OPPORTUNITIES

i. Potential for multi-modal mobility: Operationalization of an integrated multi-modal transportation plan comprising road, rail,water and air network could make the system efficient and environment friendly.

ii. Kochi Biennale – Annual Biennale organized in Kochi provides an opportunity to showcase its heritage precincts and leverage Brand Kochi as an International Tourist hub. The Tourism Master Plan lays out a roadmap for Fort Kochi to target the UNESCO World Heritage status and reinforce its image as a cultural hub.

iii. Potential for development of pristine open spaces around canals, potential to preserve existing green cover and canals and to create new green pockets by enhancing recreational and natural habitat features.

iv. Leverage the social base to expand employment generation: Employment generation could be improved through initiatives like incubation centre for business, vocational training centres, etc.

THREATS

i. Increase in private vehicles : Kochi registered the second highest growth rate in vehicular population among million-plus cities in India (12% annually).

ii. Climate change: Kochi falls on the coast line and is intersected by a network of 77 kms of water ways. The city has a flat-terrain with much of area at near sea-level and exposes city to the risks of flooding.

iii. Escalating cost of inputs to infrastructure creation : Implementation of infrastructure projects is affected by constant rise in the cost of construction - material and labour and other resources.

iv. Administrative Difficulties in Land Acquisition

4. STRATEGIC FOCUS AND BLUEPRINT

Based on the SWOT analysis, what should be the strategic focus of the city and the strategic blueprint for its development over next 5-10 years to make it more livable and sustainable? (max 500 words):

A systematic process was adopted to help formulate the strategic focus areas and blueprint for the city. This involved inputs to enable a balanced intersection of Policy direction and aspirations, Analysis of Potential areas of improvement, findings from SWOT analysis and views from citizen consultations.

Strategic Blueprints have been developed to guide the public, private and community sectors efforts and investment. While consideration has been given to all potential sectors, the focus has been on those areas where benefit can be maximized based on the assessment of current and future needs. Key strategic focus areas and specific interventions are listed below:

A. Transportation

i. Leverage the inherent diversity and potential transportation modes (Waterways, Metro rail, Buses) to create a seamless modern and safe multi-modal transport system
ii. Make pedestrianization and NMT key focus areas for developing mobility solutions and improvements to road network and to address last-mile linkages to access trunk corridors
iii. Implement Transit Oriented Developments in the built-environment to efficiently leverage the multi-modal transportation network planned
iv. Ensure safety in all transport modes, including in water transportation

B. Heritage and Tourism

i. Enhance Kochi's status as a cultural gateway to Kerala and India, and pro-actively build case for UNESCO World Heritage Status for Fort Kochi – Mattancherry corridor
ii. Strengthen branding through events like Biennale and Cochin Carnival
iii. Involve community in tourism development (homestays, local events, local cuisine development) to enable wider reach of the economic benefits from tourism Environment and Infrastructure
iv. Reduce carbon footprint; implement climate change mitigation/adaptation actions to build resilience
v. Promote a sustainable approach to provision of water, sewerage services and flood management
vi. Manage waste in a sustainable manner
vii. Conserve, protect and enhance built environment (by leveraging FAR increase to re-configure congested areas) and natural environment (by rejuvenating canals and water ways)

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C. Society and Governance

i. Create a cohesive society by ensuring quality of life and universal access to smart urban services.
ii. Reinforce strengths in citizen driven planning
iii. Deliver ICT-led and smart government service delivery.

D. Economy

i. Strengthening support systems for facilitating the core sectors like Trade, Information Technology, Port related activities, Services and Hospitality
ii. Strengthen support systems and infrastructure networks to enable creation of vibrant, safe and clean city core (c) Industrial Engagement to diversify economic base into Banking and financial services, offsite services for MENA region (d) Transit oriented development along select Multi modal nodes and corridors
iii. Enhance Tourism, Heritage and Public space imagery
iv. Reinforce local economies and improve livelihood avenues through the involvement of local businesses and residents in the development of the areas. For example: Biennale, Cochin Carnival, Traditional art forms (like Chavittunadakam), promoting local cuisines of 8 different communities.

5. CITY VISION AND GOALS

What should be the vision of the city based on the strategic blueprint? How does the Vision Statement relate specifically to the city's profile and the unique challenges and opportunities present in your city? Define overall aspirations and goals for the city along with how you see key metrics of livability and sustainability improving over the next 5-10 years? (max 1000 words):

The Vision is "to transform Kochi into an inclusive, vibrant city of opportunities with efficient urban services, sustainable growth and ease of living"

The Vision is built on four themes identified from citizen consultations as reflected below:
- Theme 1: Connected and Accessible City
- Theme 2: A City with a Vibrant Identity
- Theme 3: A Clean, Green, Safe and Healthy City
- Theme 4: An Inclusive and Smartly Governed City

The Vision and the strategic focus themes seeks to address key imperatives emerging from self-assessment and citizen priorities and aspirations as emerging from consultations.
- Inclusiveness is a core philosophy underlying Kerala's relatively unique development model which has helped the state remain numero uno on Human Development Indices consistently and reflects in Kochi's vision.
- The Vision is also aligned with the unique opportunity for the city to enhance its position as a Tourism Gateway for Kerala and as a tourist hub leveraging its distinct culture and heritage.
- The City's Vision is rooted in the underlying city context. With nearly three-fourth of its net land use being residential, the vision captures the aspirations of the huge residential population to be provided efficient mobility, smart/efficient services and livelihood/economic opportunities.

The key goals under each of the Strategic focus themes, specific actions identified to realise these goals and metrics to capture livability improvements are summarised below:

THEME- 1: CONNECTED AND ACCESSIBLE CITY

Goal 1 : Increase in Public transport share to at least 60% within 10 years
Activity 1: Implement Integrated and Intelligent multi-modal transport with focus on faster access and improved commuter experience; Regulate traffic and implement Smart parking solutions
Metrics 1: Reduction in travel time; Greater area under pedestrianization

Goal 2 : Promote eco-friendly mobility with focus on pedestriansation and NMT
Activity 2: Promote public transport; Enforcing Emission standards; Create NMT corridors for Efficient / Eco-friendly last mile connectivity
Metrics 2: Reduction in road congestion and Improvement of air quality parameters

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THEME -2: A CITY WITH A VIBRANT IDENTITY

Goal 1 : Strengthen Kochi's positioning as Kerala's Tourist Gateway
Activity 1: Strengthen art and cultural festivals; Scale reach and branding of Kochi Biennale; Implement Tourism master plan for Fort Kochi and Mattancherry; Boost medical tourism
Metrics 1: Growth in tourists arrivals; Increase in average days of stay; Growth in tourism earnings

Goal 2 : Revitalization of City areas
Activity 2: Revitalization of Broadway and Ernakulam market in central Kochi; Compact development across metro corridors and NMT corridors
Metrics 2: Improvement in Safety and hygienic conditions; Increased economic activity

Goal 3 : Green neighbourhoods
Activity 3: Community owned preservation of green spaces; Tree planting in public places, and institutions
Metrics 3: Increase in green cover, Reduction in carbon footprint

THEME 3- A CLEAN, GREEN, SAFE AND HEALTHY CITY

Goal 1 : 100% compliance of SWM Rules 2000
Activity 1: Expeditious implementation of Waste to Energy project; Universal source segregation; Exploit decentralized waste treatment potential fully; Smart monitoring
Metrics 1: Decrease in waste transferred to landfill; Extent of waste segregated and processed locally

Goal 2 : Rejuvenated Canals and Waterways
Activity 2: Rejuvenate water bodies; Leverage canals as open space; Arrest sewage flows through a comprehensive sewerage and septage program
Metrics 2: Improved water quality; Increased coverage of waste-water treatment; Increase in the area under improved water fronts;

Goal 3 : Open Defecation free city
Activity 3: Expand provision of Public Toilets; Build awareness and ownership for sustainable maintenance
Metrics 3: 100% Open defecation free city

Goal 4 : Affordable Housing for all
Activity 4: Add low-cost housing units through re-development policy in core areas linked with Low Carbon solutions
Metrics 4: Affordable housing units added/ occupied

Goal 5 : Energy efficient city
Activity 5: Implement approved Solar City master plan recommendations, Solar panels in Housing/ Institutions, Smart metering solutions
Metrics 5: 10% of the energy through non-renewable energy

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Goal 6 : Climate Change resilience
Activity 6: Fluvial , tidal and pluvial food hazard model and identification of vulnerable areas and communities, Effective SWD linked with the canals
Metrics 6: Reduction in number of incidents of waterlogging

Goal 7 : 24x7 Water supply and Sewerage access to all
Activity 7: Revamp of Water supply distribution infrastructure; Smart metering and leak detection systems;
Metrics 7: Decrease in NRW; Coverage of sewer/septage systems

Goal 8 : Best in class and Affordable social infrastructure
Activity 8: Upgrade Public healthcare and Education facilities; Emergency response systems
Metrics 8: Higher number of smart classrooms for all; Quick and timely access to quality healthcare

Goal 9 : 24x7 Electricity, Digital Access and inclusion
Activity 9: Scale up of Electricity distribution infrastructure – T&D losses reduction through underground wiring; Strong IT connectivity in the city; WiFi hotspots in public spaces; Trade facilitation centres
Metrics 9: Reduction in T&D losses; Area covered by city wi-fi networks

THEME 4: AN INCLUSIVE AND SMARTLY GOVERNED CITY

Goal 1 : Inclusive city
Activity 1: Community driven Rehabilitation plan for Vulnerable sections of society including senior citizens, women and children, destitute etc; Formal framework for engaging with NGOs;
Metrics 1: Increase in economic opportunities for vulnerable groups

Goal 2 : Citizen driven Planning and Seamless Government – Citizen Interface
Activity 2: Scale up the Multi-year Capital Investment plan and Annual Plans under the Peoples plan scheme; Include Social media and e-governance tools for greater citizen outreach; Intelligent Government services; Improved disclosure standards related to administrative efficiency
Metrics 2: Increased transparency and accountability at citizen and Govt. level; Improved transparency; Improvement in response time for public services and grievance redressal

6. CITIZEN ENGAGEMENT

How has city leveraged citizen engagement as a tool to define its vision and goals? Specifically describe (max 150 words each):

a. Extent of citizens involved in shaping vision and goals

Kochi adopted an extensive diverse and inclusive citizen engagement process :
i. Citizen interactions through Ward committee: over 5000 people through Kochi's unique Ward committee in 73 of 74 wards. One of the meetings attended by Hon'ble Chief Minister of Kerala.

ii. Key stakeholders: 30 meetings/workshops, > 500 participants
a. Professional forums: BAI, CREDAI, IMA, Educational institutions, NATPAC, KITCO, IIA, IIUD
b. Industry chambers: CII, FICCI, Cochin Chamber of Commerce
c. Opinion makers and others: BKRG, Centre for Public policy and research, Trade unions and Auto/ taxi unions

iii. Special groups: Self-Help Groups, EWS etc.,6 meetings, ~ 200 people; Kudumbashree Network, Women and Child Rehabilitation centre, Old Age home, physically challenged, Migrant labourers and tribal hamlet meetings

iv. Events and Social Media
a. Facebook, MyGov and Twitter: 6000 likes, 200 posts, views and suggestions, outreach to >10,000 citizens
b. Contests: Logo/Tagline, Essay writing, Technology competition – 1500 participants

b. Engagement strategy to get best results from citizens

The engagement strategy involved a range of interventions towards (a) wide outreach and engagement, (b) capture views across diverse stakeholders and (c) translate these inputs meaningfully into Vision themes through structured questionnaire surveys/polls. Accordingly the engagement strategy covered:

i. Questionnaire survey – Questionnaire survey through ward committees to identify the key priorities areas and vision for the city
ii. Ward Sabha documentation – Suggestions from citizens to transform Kochi into a Smart City shared during the ward committees.
iii. Citizen poll survey – Online polls to identify vision, key areas of concern and the priority focus area over next 5-10 years
iv. Social media – Engagement across social media forums – Facebook, Twitter and Mygov. Facebook was used as the primary engagement forum
v. Competitions
   a. Logo and Tagline competition through newspaper
   b. Essay and Painting in association with Schools/ professional colleges

c. Different means of citizen engagement adopted

The following citizen engagement methods adopted were as follows:

i. Ward committees helped to gather suggestions of citizens during these well-attended meetings, an unique aspect of cities in Kerala.
ii. Workshops/Town halls: Various workshops/ townhalls were conducted covering city council, city officials, Stakeholders, and Resident Welfare associations
iii. Focus Group discussions: With Professional associations, Industry experts, technical groups, Kudumbashree, Women and child care centres etc.
iv. One-to-one interaction with sectoral experts/officials helped capture the city's context and lessons from past experiences .
v. Social media: Two-way Interactions in the social media forums
vi. Whatsapp: A whataspp group was created for active engagement with officials from key departments
vii. Radio, Television and Print media: Consultations and progress was actively covered in radio, print media and television. A panel discussion with experts in urban planning, Bureaucrats, Elected Representatives and prominent citizens was conducted by one of the television channels.

d. Extent of coverage of citizen engagement in different media and channels

The citizen engagement process was covered in different media:
i. Direct connect with over 5000 Households in ward committees (Suggestions from over 25% of participants minuted, 70% participated in questionnaire surveys). Additionally:
a. Logo design: 337 participants
b. Tag line: 1327 participants
c. Painting and essay writing in schools: 25 shortlisted entries from Painting and 35 shortlisted entries from Essay writing
d. Technical: 25 Technical suggestions from various technical institutes

ii. Media coverage
a. Print - 100 articles across print media
b. Radio and Television, over 100 spots on Radio Mango, Rainbow FM and All India Radio. Regular coverage of important consultations across all regional channels. A Panel discussion was telecast on Today TV channel

iii. Social media
a. Online citizen poll: More than 800 citizens
b. Over 10,000 people reached on Facebook, MyGov and Twitter.
c. Over 200 comments with a response rate of 90%

e. Incorporation of citizen inputs in overall vision

The citizen inputs were collated and the inferences formed the foundation for the Strategic blueprint for the city. Citizen polls and survey information were also sought to identify Pan-city citizen priorities.

Citizens' inputs, social media comments and suggestions through ward committees and other channels were integrated to identify four thematic areas for city's growth and were incorporated into the City's Vision.

- Theme 1: Connected and Accessible City
- Theme 2: A City with a Vibrant Identity
- Theme 3: A Clean, Green, Safe and Healthy City
- Theme 4: An Inclusive and Smartly Governed City

A Detailed Stakeholder consultation report was prepared with the minutes of all the meetings during consultation and formed an input into preparation of the Smart City Proposal.

7. SELF-ASSESSMENT: BASELINE

Define the baseline for your city based on self-assessment criteria given in Annexure 2 (column 'H'). Marks will be awarded based on how well you know your city (Fill column 'I' in the self assessment sheet in Annexure 2 with as many KPIs and "hard metrics" as possible; max 50 words per cell)

Note: Attach Annexure 2

8. SELF-ASSESSMENT: ASPIRATIONS & IMPERATIVES

Emerging from the vision statement, assess the qualitative or quantifiable outcomes that need to be achieved for each of the Smart City Features described in Annexure 2 (column 'J'). In column 'K' describe the biggest single initiative/solution that would get each feature of the city to achieve 'advanced' characteristics (eg. increasing share of renewable energy generation in the city by X percent). Note that a single initiative/solution may impact a number of features (eg. improved management of public spaces may ease congestion on roads as well as improve public health). (Fill in Annexure 2; max 50 words per cell)

Note: Attach Annexure 2

B. AREA-BASED PROPOSAL

The area-based proposal is the key element of the proposal. An area-based proposal will identify an area of the city that has been selected through desk research, analysis, meetings with public representatives, prominent citizens, and citizen engagement, as the appropriate site for either of three types of development: retrofitting (approx. 500 acres), redevelopment (approx. 50 acres) or Greenfield development (approx. 250 acres). This area will be developed into a 'smart' area, which incorporates all the Essential Features/Elements prescribed in the Mission Guidelines and any additional features that are deemed to be necessary and appropriate.

Mapping of information and data is a key part of your Smart City Proposal. Create a suitable Base Map of your city with all the relevant systems and networks as they exist today, showing its physical, administrative and other characteristics, such as natural features, heritage areas, areas prone to flooding, slums, etc. The base map should show the regional context in which your city is located and should contain the spatial and physical layout/morphology of your city, the street network, the open and green spaces, the geographical features and landmarks and the infrastructure, including for transportation, water supply, sewerage, electricity distribution and generation, and so on.

Using the base map, represent, with the most effective method available, as much information and data about the 'Area' selected for area-based development. **Only one 'Area' should be selected and attached in the form of a map containing the spatial and physical layout/morphology of the Area, the street network, the open and green spaces, the geographical features and landmarks and the infrastructure, including for transportation, water supply, sewerage, electricity distribution and generation, and so on**. The Essential Elements and additional features that are proposed to be part of the area-based development should be included. Describe, using mainly graphic means (maps, diagrams, pictures, etc.) the proposed area-based development, including the project boundaries, connectivity, significant relationships, etc.
(max. 2 nos. of A-3 size sheets)

9. SUMMARY

Summarize your idea for an area-based development. (max. 100 words)

A holistic replicable Retrofit Transformation of ~7 sq km of Fort Kochi-Mattancherry-Central City linked by waterway.

i. Seamless multi-modal transport covering Waterway(4 km), pedestrian and NMT friendly roads (~ 110 km) and links with metro, mobility hubs and other water ways

ii. Renewal of Open Spaces through rejuvenation of 4 Canals and adjoining open spaces in their vicinity.

iii. Inclusive essential services delivery to 100,000 citizens including 24x7 water supply, energy, SWD, sewerage, housing, sanitation and SWM.

iv. Restoring Fort Kochi as a Heritage area and re-configuring City Centre as a Commercial Hub.

v. Embedded Smart Solutions across all components.

10. APPROACH & METHODOLOGY

What is the approach and methodology followed in selecting/identifying the area-based development?

Describe the reasons for your choice based on the following (max. 1000 words):

a. The city profile

b. Citizen opinion and engagement

c. Opinion of the elected representatives

d. Discussion with urban planners and sector experts

e. Discussion with suppliers/ partners

The Approach and Methodology followed for identifying the Area development proposal is as follows:

(i) Stage 1 – City profiling and citizen consultations
(ii) Stage 2 – Reconnaissance survey
(iii) Stage 3 – Identify options for ABP
(iv) Stage 4 – Zeroing in on the area

Stage I: City Profiling and citizen consultations:

City profile: In-depth review of existing plan documents like Development Plan for Kochi city region 2031, CMP 2007 (revised 2015), NMT plan 2015, Strategic TOD plan 2014, CSP 2013, Sewerage Master plan 2011, CDP 2006, HDR for Ernakulam district 2009 and Tourism master plan 2015, and Technical documents related to Water transport, Metro, Slum development, Market redevelopment plan, and Canal improvement plan were carried out. Some of the key observations are summarized below:

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(1) Strong Multi-modal infrastructure focus – The city has taken an integrated approach to multi-modal transportation. Leveraging the waterway for effective mass transit system and integrating the same with the Rail, and Bus transport provide a unique set up for development
(2) The distributed land ownership and haphazard land development in the central city area has limited the economic growth in the area
(3) Only 3 percent of the areas are covered under sewerage network
(4) Areas of extreme poverty in Mattancherry – Inspite of the high social indicators of the city, there is a significant disparity in the quality of life of citizens especially in Mattancherry
(5) Underutilized Heritage and Tourism potential

Citizen Consultation:
More than 5000 Households in the city were reached out to during the course of these consultations. Direct citizen outreach through Ward committees and FGDs with Key stakeholders, and vulnerable groups, were undertaken to elicit feedbacks from them on their priorities for the city. Some of the key concerns as well as aspirational elements about the city highlighted by the citizens are (i) Lack of quality transport, pedestrian facilities, (ii) Limited livelihood opportunities, (iii) lack of affordable housing and access to basic services especially in Mattancherry, (iv) polluted canals and waterways, and (v) Congested city centres. Further, the discussions with elected representatives and officials of the line department identified the following themes for growth: (i) Need for Focus on Urban transportation/ Mobility (ii) Effective models for Sewerage/ Septage - Rejuvenation of canals; (iii) Focus on West Kochi belt which has been left out of the Kochi growth story (iv) Retrofitting as a priority for ABP considering the non-availability of land in the city; Redevelopment of Slums may be taken up but adequate provisions for resettlement should be provided.

Stage II: Reconnaissance survey
Reconnaissance surveys were conducted in all 74 wards to examine the baseline status of smart city features, readiness of plans/ projects and the potentiality to develop as a replicable model for the city. This was also tabulated against the citizen inputs received during the ward committees. The details of the reconnaissance survey were presented before the city council for discussion.

Stage III: Options for ABP
After detailed deliberations, three options for ABP were shortlisted by the council considering the impact on the quality of life as well as the ease in replicating the project. The council suggested that the shortlisted area should serve as a backdrop for the best of smart interventions to transform the area. This area should be accepted by all citizens to serve as an example and model for replication for development of Kochi city and its suburbs. The options for ABP suggested by the council were:
Option 1: Integrated development of Fort Kochi-Mattancherry and Central city by leveraging the Water transport infrastructure
Option 2: TOD along the Metro corridor and development across key nodes in and around major terminal
Option 3: Connecting Kochi Project – Integrated Intelligent Multi Modal transport plan for end-to-end city linkage

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Stage IV: Zeroing in on the area for development

The three options provided by the council were evaluated based on the following criteria to select the final area for ABP:

a. Alignment with Citizen Priorities and City Vision – 20%
b. Considerable Economic and livelihood impact – 15%
c. Inclusiveness – 15%
d. Maximum impact wrt number of beneficiaries – 20%
e. Innovative and building on the unique strengths of the city – 15%
f. Readiness of plan/ projects – 15%

Based on the above assessment, Option 1 – the Integrated development of Fort Kochi-Mattancherry and Central city by leveraging the Water transport infrastructure – scored the highest points and the same was selected and approved by the council. (Refer Annexure for assessment).

Fort Kochi-Mattancherry area is characterized by multi-cultural settlement patterns, heritage precincts and hotspots, settlements of urban poor, poor infrastructure levels, etc., while the Central City is characterized by commercial centres, mixed land use pattern of development, multi-modal transport nodes, higher quality of infrastructure, etc. The area reflects the different facets of urban life in Kochi and has a strong coverage in terms of number of projects being implemented and the agencies working in coordination with each other for the same.

Subsequently, the technical feasibility and the development impacts of the proposal were evaluated. Towards this, two expert groups were constituted to review the existing proposals, and recommend interventions to suit the smart city objectives. The expert groups were categorized as follows:

(i) Technical impact assessment group – To review the technical feasibility of project interventions in the area based on the area context. This included engineers, architects and urban planners in the city

(ii) Social impact assessment group – To review the social challenges and study the development impacts based on history of interventions in the proposed area. This included Social experts, Kudumbashree representatives, and Social welfare staff active in the region.

Once the area was selected and the potential interventions narrowed down, an elaborate research on smart solutions and technology options were undertaken. This included three rounds of consultations with technology service providers to identify potential smart solutions that could be embedded and built-into various components of the Area based proposal.

11. **KEY COMPONENTS**

List the key components of your area-based development proposal (eg. buildings, landscaping, on-site infrastructure, water recycling, dual piping for water supply, etc.)? (max. 250 words)

Key components of ABP are summarized below:

i. Seamless multi-modal road-rail-waterway-last mile linkage through
   a. Boat connectivity (4 km waterway)
   b. NMT with Electric vehicle system in Fort Kochi (8 kms)
   c. Pedestrian friendly walkways (1 km - water-way and Metro)
   d. Re-designed road network with NMT facilities ducting/underground cabling (~ 38 km of arterial/sub-arterial roads and 70 km of interior roads) linking Metro transit, Bus terminal, Vyttila Mobility Hub, Railway stations and other waterways

ii. Reconstituted Urban Form and Rejuvenated natural elements:
   a. Transit-Oriented compact mixed use development on MG Road (200 acres)
   b. Re-development of retail areas to free land for open and public spaces
   c. Rejuvenating city canals (~ 4 km) with green walkways
   d. Improved landscaping/citizen amenities at Nehru park (1.2 acres)

iii. Universal provision of Best in class smart urban services
   a. 24*7 water supply
   b. 100% Sewerage /septage access
   c. Efficient SWD network integrated with canals
   d. Access to Toilets and compliance to SWM Rules 2000
   e. Housing for all: Housing facilities for all the 4000 impoverished households along with provision of infrastructure services

iv. Identity and culture elements:
   a. Revival of Fort Kochi-Mattancherry as a heritage area
   b. City centre as a Commercial hub through market redevelopment plans, rejuvenation of parks and public spaces, etc.

v. Embedded Smart Solutions
   a. Wifi hotspots and kiosks for public services at strategic points
   b. Decentralized waste water systems
   c. Energy efficient lighting with multi-functional poles
   d. Smart traffic signal management
   e. Smart metering - water and electricity

12. SMART URBAN FORM

Describe the 'smart' characteristics of the proposed development that relate to urban form (eg. uncluttered public places, mixed-use, open spaces, walkability) and how these will be incorporated. (max. 250 words)

The ABP incorporates following smart characteristics with respect to the Urban Form in particular:

i. Mixed use and Compactness: The HSPC has proposed to notify the selected area as a TP scheme and further increase FAR from 2.5 to 6. Options for introducing TDR have been assessed. This will help re-constitution of land parcels in the Central City area to allow for compactness and mixed use.

ii. Redefining the Urban grain: Kochi will see a surge of creative elements such as landmarks, plazas and promenades along with urban design features such as street furniture, signages, etc placed at strategic nodes. Attempts will be made to redefine the skyline in identified areas using customized DCRs as a tool.

iii. Seamless connectivity: The Area will have a pedestrian spine and bicycle lane along all major roads. All arterial roads will be redesigned to have 2m - 3m wide footpaths. Barrier free elements such as ramps, and soft landscaping, user friendly digital kiosks, etc will be planned in the city.

iv. Rejuvenated green – blue network: Existing canals and green spaces will be rejuvenated and rendered accessible via treated walkways. A network of such green blue elements will be formed via these accentuated walkways. Existing parks such as Nehru park in Fort Kochi will be redesigned to be harmonious with the proposed urban pattern

13. CONVERGENCE AGENDA

In Table 1, list the Missions/Programmes/Schemes of the Government of India (eg. AMRUT, HRIDAY, SBM, IPDS, Shelter for All, Digital India, Make in India, Skill India) and relevant external projects and describehow your proposal will achieve convergence with these,in terms of human and financial resources, common activities and goals. (max. 50 words per cell)

TABLE 1

S.No	Mission/Programme/ Scheme/Project	How to achieve convergence
1	ATAL MISSION FOR REJUVENATION AND URBAN TRANSFORMATION	• The city covered under the AMRUT scheme. • State and City level Mission management units Amount of Rs 76 crore sanctioned for Kochi in 2015-16 focused on WS, Sewerage, SWM, Urban transport, & SWD • The WS and Sewerage projects will be part funded (minimum 20% of outlay) under AMRUT
2	SWACHH BHARAT MISSION	• Solid Waste Management projects in the proposed area will be part-funded under SBM. • The areas of intervention will include universal coverage of toilets, decentralized composting facilities.
3	INTEGRATED POWER DEVELOPMENT SCHEME	• Under the IPDS scheme, the laying of underground electric cables and Smart meters will be promoted with an intention to reduce the overall losses in the distribution network. • KSEB has already submitted a proposal of Rs 40 crore including AMR and Underground wiring

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TABLE 1		
S.No	**Mission/Programme/ Scheme/Project**	**How to achieve convergence**
4	HOUSING FOR ALL	• Development of Slum Housing will be taken up in convergence with the scheme. • Upgradation and construction of 755 DUs in Thuruthy and Kalvathy colonies planned under RAY. • Upgradation of infrastructure for the urban poor in Mattancherry will be taken up in convergence with the Credit Linked Scheme. • Construction costs will be covered under the Housing for All scheme
5	MNRE SOLAR CITY MISSION	• A Solar City Master Plan has been prepared for Kochi • Indicative budget for solar city is ~Rs. 696 crore which will be invested over the 5 years with MNRE subsidy of 30% • Solar rooftops will be implemented with MNRE subsidy scheme. The key elements include Solar based LED streetlights and Grid connected Solar panels will be funded by a combination of Solar city, Smart city and beneficiary contribution.
6	NATIONAL URBAN LIVELIHOODS MISSION	• Financial assistance, skill training and community contracting are provided for improving the livelihood opportunities of weaker sections especially women. • Some of the activities associated with Smart city (like housing improvement, Open space management) may be contracted to the neighbourhood groups for execution
	NATIONAL HEALTH MISSION	• The Upgradation of the GH and the Integrated development of the 4 identified Hospitals can be part-funded under NHM.
7	AKSHAYA PROJECT	• Akshaya centres for citizen support will be implemented across select locations in the region. • The centres will provide a location for Tourist assistance and tourist information kiosk components under the smart city scheme.
	IT@SCHOOL	• It is an ICT driven school education scheme of the Government of Kerala. The ICT component under the Smart classroom component Smart City schemes shall be implemented with part funding under the scheme.

14. CONVERGENCE IMPLEMENTATION

Describe how the convergence will be implemented? For example, convergence with IPDS will be credible if 'smart' city elements (e.g. smart metering, underground cabling, shifting of transformers) are included in the DPR being prepared for IPDS. If, a DPR has already been prepared, then the 'smart' elements should be included in the form of a supplementary DPR. Furthermore, according to the IPDS Guidelines the DPR has to be approved by the State Government and sent to the Ministry of Power, Government of India. All these have to be completed before submitting the proposal. (max. 350 words)

Convergence implementation will be driven through effective project development/ planning and Institutional actions as described below.

A. Effectively Project Development / Planning for convergence implementation will be realised through the following:

i. Alignment of objectives. Relevant linkages have been identified with National and State level schemes/ programmes for the ABP

ii. Rigor Project preparation. The additionality of the Smart Cities Programme with respect to the following will be effectively factored:
   a. Enhancing transformative potential (in terms of their economic, social and environmental benefits) and expected service delivery outcomes -at Project preparation stage;
   b. Enhancing measures for long term O&M sustainability M by strengthening capacity, co-ordinating action and embedding "smart proposals" within procurement guidelines

iii. SPV's role in blended financing: The ABP will seek to identify and mobilise a broader range of sources of finance to unlock projects addressing the funding and viability gaps which have been a barrier to projects in Kochi from proceeding. The SPV structure provides a basis to mobilise new sources of finance from international financial institutions, philanthropic funds and private finance/project contributions.

B. Institutional Actions taken towards effectively implementing convergence include the following:

i. High Powered Steering Committee (HPSC): At the apex level, the High Powered Steering Committee with its multi-departmental representation will drive convergence among various departments at the state level and at the level of Government of India.

The State Mission Director SCM will work in coordination with the Mission Director, Smart Cities Mission Government of India wherever coordination on behalf of line departments is required to implement projects identified.

ii. City level: At the City level,

a. An Inter-Departmental task force and a city level committee comprising officials from 47 line departments will review the proposals requiring convergence periodically to ensure expeditious implementation.
b. A City Advisory Forum will help drive greater citizen participation in project planning and implementation

KMC and the SPV will work in coordination with these coordination committees at State and City level for effectively convergence.

15. RISKS

What are the three greatest risks that could prevent the success of the area-based proposal? In Table 2, describe each risk, its likelihood, the likely impact and the mitigation you propose. (max. 50 words per cell)

TABLE 2			
Risk	**Likelihood**	**Impact**	**Mitigation**
Delayed completion of ongoing projects that may have direct impact on the proposals under the Area Development Plan	LOW	MEDIUM	a. Pro-active planning, setting realistic timelines for project preparation, stringent monitoring. b. Inducting professional managerial and technical capacity in the SPV. c. Ensure seamless coordination between SPV, ULB and agencies implementing ongoing projects.
Coordination issues between the SPV and various activity partners	MEDIUM	HIGH	a. Create structured decision platforms for interaction, smooth functioning and coordination between SPV and other agencies b. Regular meetings and stringent monitoring to keep each other well informed of progress Policy support to ensure efficient operation of SPV. c. the active Ward committee structures to build Citizen ownership and participation

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TABLE 2			
Risk	**Likelihood**	**Impact**	**Mitigation**
Lack of land for development, availability of fragmented land parcels	LOW	MEDIUM	a. Create and maintain land parcels inventory available for development. b. Incorporate facilitating mechanisms including land-pooling and TDRs to enable efficient in land acquisition where deemed necessary. c. Ensure effective citizen engagement thereby instilling a sense of ownership and openness to reconstitution, etc.

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TABLE 2			
Risk	**Likelihood**	**Impact**	**Mitigation**

16. ESSENTIAL FEATURES ACHIEVEMENT PLAN

Describe a plan for achieving the Essential Features in your area-based proposal. Importantly, accessible infrastructure for the differently-abled should be included. List the inputs (eg. resources) that will be required for the activities that you will conduct, leading to the outputs. Please note that all Essential Elements, item-wise, have to be included in the area-based proposal. (max. 2000 words)

The Aim of the ABP Plan is to revive the character and glory of Fort Kochi-Mattancherry as a heritage area and Central Kochi (Mainland) as a bustling commercial centre and provide for high speed water connectivity. The plan for achieving the Essential Features in the ABP is captured with respect to the four central themes of the ABP

A. Intelligent Transportation and Seamless Mobility:
Under this theme, the objectives are to achieve seamless multi-modal integration through (a) developing a waterway linkage to complement other trunk networks, (b) re-configured world-class roads with pedestrian/NMT facilities equipped with ducted utilities and cabling, (c) Non-motorised zones, Smart junctions and Smart parking as detailed below:

i. New Modern Waterway linkage between Ernakulam and Fort Kochi
   a. Redevelopment of Ernakulam Jetty and Fort Kochi Jetty into modern waterway facilities
   b. Ferry service equipped with 12 modern FRP Smart Boats
   c. 5 rapid response boats and drone surveillance for enhanced safety

ii. NMT-Pedestrian oriented integrated three tier road connectivity
   a. World-class Arterial Roads (~ 12 km) comprisingBannerjee Road (East-West axis), MG Road (North South), Park Avenue, Shanmugam Road and Hospital Road. The Shanmugam Road will be widened to run parallel to the Marine walkway, for which 16m space has been demaracated within Subhash Park. These roads would have 2.5m footpaths and 2m bicycle tracks and will be re-configured with cable and utility ducting and integration with water/sewer lines and drains. The Metro Rail would ply on parts of this corridors including on MG Road.
   b. Sub-Arterial Roads (~ 26 km) which are largely between 6-12 m widths will be re-designed with diet lanes, pedestrian footpaths/cycle lanes and safety features, cable ducting, integration of water/sewer lines and drains with street fronts and provide complementary access to major nodes in the Area. Public transport (Metro Rail, Bus and Bus) would be accessible on the Arterial and Sub-arterial trunks and nodes.
   c. Tertiary last-mile network (~ 70 km) will be similarly re-configured to move all cabling and wiring underground, provide for safe pedestrian footpaths (in view of narrow widths and relatively lower speeds, dedicated cycle lanes are not envisaged). This network would be connected through last mile feeder connectivity through electric buses in Fort Kochi and para-transit systems in Central city area for seamless fast and efficient last-mile connectivity to public transport systems.

iii. Non-motorised zones, Walkways/Foot-over bridges, Bicycle sharing
   a. Three zones namely - Broadway area (500m), Ernakulam Market (1 acre) and Jew road (800m) are proposed as Pedestrian-NMT zones.
   b. Smart Bicycle Sharing system (2000 cycles) will be operational on ~30 km roads in Fort Kochi area.

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c. Aesthetically designed Foot-over bridges would facilitate ease of movement on busy road junctions (including a 25m FOB across Penta-menaka plaza - Shopping complex across Shanmugam road). A 1 km walkway with aesthetic urban design elements including street furniture, landscaping between Maharajas Metro Station and Ernakulam Boat jetty is proposed.

iv. Smart Parking, Smart Junctions and inclusive features

a. Barrier free environment: Kochi has 1200 registered differently-abled persons. Barrier free elements such as ramps, soft landscaping, will be an integral element of the road network re-design

b. Smart junctions: All strategic points will be equipped with 'smart poles' integrated with automated signalisation, smart surveillance and solar powered LED street lights.

c. Smart Parking:The Area will have Smart Multi-level parking systems in Kacheripady (ongoing) and KTDC parking lot (near Broadway) PPP mode. Both on-street and off-street parking will be equipped with modern and smart solutions including Smart Sensors, ANPR, Parking meters, Signages, real-time information system and occupancy reporting.

B. Re-constituted Urban Form

Under this theme, the focus is to adopt modern urban planning principles and exploit the increased FAR to facilitate re-constitution and creation of vibrant commercial spaces, healthy residential areas intertwined with rejuvenated live natural spaces along canals and green pockets.

i. Improving Mixed land-use, compactness characteristics through a pro-active use of FAR flexibility in central city area and regulated development and heritage conservation in Fort Kochi-Mattancherry area.

a. Pro-active Transit oriented Development(~ 11 km of main roads) building on the impending Metro connectivity

b. Reconstitution of densely packed retail areas (in 1.5 km of TD Road and Market Road) to free land for development of green pockets.

c. This would facilitated by necessary policy interventions and land-use regulations. For instance, the free FAR has been increased from 2.5 to 4 in Central City area and a further FAR of 6 is accessible through Land Pooling, TDR and other land management principles for a Nominal fee.

d. While the Central City area will be provided the increased FAR, revision and stringent enforcement of DCR would be used to regulate development around heritage precincts in Fort Kochi-Mattancherry

ii. Rejuvenation of canals and enhancing the natural environment

a. Rejuvenation of Mullassery canal, Market Canal (0.4 km), Kalvathy (0.8km) and Boundary canal (3km) to render them accessible through de-silting, de-weeding, cleaning for improved flow and cleanliness.

b. Redevelopment of the 1.2 acre Nehru Park in Fort Kochi incorporating design features, drainage system, RWH and Bio-composting system, e-toilets, surveillance systems.

c. Conservation actions to preserve coastal areas around Fort Kochi and development controls around natural spaces including Mangalavanam wetlands

d. Building inter-linkages and access with plazas, walk-ways and cycle tracks between green-blue elements - DH ground - central city-Marine walkway - Mangalavanam wetlands

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C. Boosting Tourism and Economic potential by restoring Fort Kochi's heritage, branding & events, and unlocking Central city's commercial potential

i. Enhancing Fort Kochi-Mattancherry's Tourist appeal by implementing key recommendations of the Heritage Management Plan including
   a. 3.5 km Heritage Trail linking historic buildings with information kiosks, informative signages and sound & light shows
   b. Restoration of heritage buildings to house a 'Museum capturing Kochi history and evolution' and a 'Culture/Heritage centre'.
   c. Exhibition Pavilion and Theatre for Art exhibitions, Performance and Exhibition pavilion in Fort Kochi to display the rich cultural heritage.
   d. Ayurveda spa, museum, clinic and pharmacy on PPP mode
   e. Facilitating Special Restaurants promoting Local Cuisine by restoring isolated and dilapidated buildings in Mattancherry on a rental basis.
   f. Public amenities including 6 e-toilet complexes in Fort Kochi area

ii. Brand-building in Association with Biennale 2016
   a. Collaboration with Artists to create murals, paintings, sculptures at strategic points in the Fort Kochi- Mattacherry area.
   b. Interactive Heritage Information System at strategic points.
   c. Development of Smart signage systems, publications, online booking of home-stays, etc

iii. Reviving commercial activities in central city area
   a. Redevelopment of Broadway including complete Pedestrianization (0.5km), with smart kiosks as help desks, property reconstitution where feasible, regulating loading and unloading of goods, street furniture, drainage, fire safety, provision of bins, development of walkways, provision of Smart, multilevel car parking at the existing parking area.
   b. Redevelopment of Ernakulam Market including Surface redesigning, reconstitution of vending zones, segregating zones for vegetable and fish market, dedicated material loading and unloading area, Bio-composting at site, public amenities, drainage, fire safety (hydrants), Solar powered LED lighting, Parking facilities outside the market zone.

D. Inclusive Delivery of Essential Services to all citizens in a efficient manner

i. Universal Access to Basic Services
   a. 100% 24x7 metered piped water supply through
      • Augmenting pumping/storage at Karuvelipady sump by 5 ML
      • Distribution revamp/strengthening (for additional 12MLD supply)
      • 10,000 House connections with smart metering,
      • Bulk Meters Isolation valves with remote meter reading,
      • >5000 HHs with Rain water harvesting structures
   b. 100% Sewerage and Septage access
      • Decentralized Treatment and collection system (Small bore sewer/ Vacuum system) for onsite sanitation management
      • Improvements to Elamkulam STP and collection system in the city centre
   c. Compliance to SWM Rules 2000 and 100% sanitation
      • 100% Waste collection, source segregation
      • Decentralised processing facilities to reduce water transported
      • Secondary transport linkages with Brahmapuram W2E project
      • Provision of Community Toilets and Public Toilets at identified locations
   d. 24*7 Power supply with complete underground wiring to reduce T&D losses
      • Provision of grid connected solar panels for atleast 40% HHs

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ii. Housing for All in Fort Kochi-Mattancherry
  a. Slum redevelopment and provision of upgraded housing to 4000 HHs under Housing for All scheme at Thruruthy and Kalvathy colonies
  b. Upgradation of services under the Credit Linked scheme.
iii. Vocational skilling and organised hawker zones
  a. Incubation centre for small businesses in Mattancherry
  b. Vocational Training Centres at 10 locations
  c. Organized Hawker Zones along Shanmugham road, Marine drive and Fort Kochi
  d. Redevelopment of Spice market, Ernakulam market, Broadway
iv. Social Infrastructure
  a. Schools equipped with
    • Smart classrooms: Conversion of all classrooms to digital classrooms, training centre for teachers and students
    • Girl friendly amenities, e-toilets, treatment and recycling of waste water re-use of waste water
    • Scale up of Infrastructure of school for disabled - 5 schools catering to the area
    • Green interventions: Biogas plant, vermi-composting beds, Urban farming patches in schools
  b. Integrated Development of Hospitals
    • Modernise and upgrade 4 hospitals into a Model Hospital for the region (Fort Kochi, Mattancherry, Karuvelipady) with world class facilities for Secondary care and Palliative care for the elderly
    • Modernise and upgradation of General Hospital to a Best-in-Class Super Speciality hospital
    • Scale up Emergency response “102” (Smart & Water ambulances)
    • Introduction of On-call support system and integrated database management system and citizen information systems
  c. Night Shelters: Two Night shelters will be developed for migrant labour and floating workers in Fort Kochi and central city area

Smart Solutions leading the way to sustainable Development:
Summarized below is a list of such highlighted smart solutions:
1. Smart solutions for enhanced Mobility: Creation of Barrier free environment for children, the elderly, and differently-abled citizens, Equipped with and On-street and off-street smart parking facilities, Improved connectivity and linkage via proposed NMT corridors, Smart signage and interactive information kiosks
2. Smart solutions for re-configured Urban Form: Pushing the area towards guided and compact growth, the ABP proposes Transit Oriented Development along all major corridors to achieve a high-density and mixed use development pattern. The proposal for linking all green, open spaces and water bodies to build aesthetic and visual character of the smart city area, unlocks the potential for similar interventions in the future.
3. Smart solutions for revival of identity of the Fort Kochi-Mattancherry-Central city area: What the Fort Kochi area lacks as a Tourist hotspot are intelligent interactive information platforms, signages, and accessible amenities. The Heritage Information Kiosks addresses this issue while also catering to other services such as instant booking of homestays, etc
4. Smart solutions that cater to provision of smart urban services Smart water supply system with smart metering of 10,000 HHs in the central city area; Solar powered LED street lighting in the area with a network of ‘smart poles’

17. SUCCESS FACTORS

Describe the three most significant factors for ensuring the success of the area-based development proposal. What will your city do if these factors turn out to be different from what you have assumed? (max. 500 words)

Three significant factors that play an important role in the success of the Area development Plan are as below:

i. Citizen centric planning: The Area Development Plan is the result of constant back and forth consultative sessions between various stakeholders including Citizens, Officials and Technology providers. Effective Citizen engagement is critical at every stage including project planning, DPR preparation, implementation and O&M will be critical to ensure consensual buy-in, ownership and successful implementation. Citizen engagement during implementation will be facilitated through the Citizen Advisory Forum and the active Ward Committee set up at KMC to ensure that all citizen issues are pro-actively captured and addressed prior to and during implementation

ii. Reliable and timely financing: The success of the ABP hinges on assured and timely availability of funds. Given that funds are sought to be accessed through convergence of various schemes, there will be concerted efforts to mobilise the required resources ahead of implementation. The creation of an SPV with a strong equity base will help partly by enabling the SPV to tap alternative mechanis (including potentially identifying bridge financing options to manage for delays etc.). At the same time, the SPV and KMC will need to work in close coordination with the HPSC (at the State level) and Mission Directorates (at state and national levels) to ensure timely availability and release of funds consistent with the implementation plan.

iii. Policy support and institutional coordination: Given Kochi's multi-institutional framework for service delivery (in view of the many institutions and departments involved in service delivery and infrastructure provision including KMRL, KWA, KSUDP), the Government of Kerala and KMC have created coordination mechanisms to enable smooth interaction and effective action orientation and accountability for the various components. The roles and responsibilities for various components as identified in the Smart City Proposal will be further formalised through specific MOUs between the SPV and the various line agencies that have a role to play with respect to implementation.

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18. MEASURABLE IMPACT

What will be the measurable impact of the area-based development proposal, on the area and the wider city, through scale-up and replication? Please describe with respect to the five types below, as relevant to your city and proposals (max. 150 words each):

a. Governance Impact (eg. improvement in service provision and recovery of charges due to establishment of SPV)

The SPV will bring about considerable improvement in the governance by the following ways:

- Higher transparency and citizen accountability due to establishment of SPV
- Improved response time for citizen grievance redressal
- Institutional integration leading to efficiency in project execution-Timely implementation
- Improved level of services across 24 smart city features
- Higher revenue realization due to improvement in collection efficiency
- Financial independence and rationalization of revenue and cost leading to improved return on assets

b. Spatial Impact (eg. built form changed to incorporate more density or more public space)

The Area covered under the ABP has distinctive characteristics and land-use patterns in Fort Kochi and Central city area.

- In Fort Kochi, the plan seeks to revitalise the heritage precincts, conserve the vernacular architecture in the area and facilitate smooth linkage of the area with the mainland. The rejuvenation of canals and parks in this area is also expected to open up spaces for public use and recreation, while making them safe and secure.
- The Central city area will be transformed into a compact commercial hub with improved aesthetic/visual experience and mixed use characteristics. This would open up areas for circulation, green pockets and organised retail zones.
- Non-motorised movement and pedestrianisation features underlying the development would further enable safe and eco-friendly mobility
- Redensification to attain compact development
- Increase in blue-green network by ~12%
- Improvements in city image with fine urban grain

c. Economic Impact (eg. new commercial space created for organized economic activity)

i. The ABP would directly contribute to accentuating the heritage value of the Fort Kochi-Mattancherry area along with tourist friendly amenities will open up opportunities forinitiating partnerships (PPP) with owners of private buildings of heritage value, to re-use them as affordable homestays, libraries and other such uses. This would help create employment opportunities for local community and businesses from the increase tourist flow and their longer stay in the area.

ii. Re-densification along the main corridors would enable greater value creation in terms of better utilisation of space and improve economic output from the area and resultant incomes to KMC and Government. Additionally, re-organisation of the informal retail activity into organised vending zones will contribute to inclusive development.

iii. Support envisaged in the form of vocational training would enhance opportunities for skill development and employment generation.

iv. Greater participation of women in workforce from ~19% to 30%

v. Reduction in fuel cost and travel cost due to integrated multi-modal transport.

d. Social Impact (eg. accessible features included in the Proposal)

The ABP's inclusive social impact will be reflected in the following:

i. Nearly 100,000 beneficiaries will have access to best-in-class levels of urban services.

ii. Rehabilitation of 4000 low income households in the area with upgraded housing facilities and access to basic services housing Plans to rehabilitate slum colonies in West Kochi with housing and basic services. will improve their social and economic status.

iii. Barrier free elements (ramps, brail equipped signs) construction of night shelters, community kitchens etc. will contribute positively to special needs of vulnerable sections including differently-abled and migrant labour

iv. Reduction in morbidity and water borne diseases

v. Reduction in crime rate

e. Sustainability, including environmental impact (eg. intensive 24X7 use of public spaces results in reduced traffic and reduced pollution)

i. Proposals that revolve around rejuvenating open spaces, green pockets and canals will usher in recreational avenues for public and will instill a sense of responsibility to keep the city green. Increase in green cover by ~5%

ii. Mandatory provisions for environment systems such as Rainwater Harvesting, Installation of solar roof panels, efficient sewerage/ sanitation systems in the city will result in efficient recharge of the groundwater, decreased dependability on conventional source of energy, reduced or zero discharge of wastewater into canals.

iii. A strong multimodal network will allow for decreased dependency on private modes. Well connected walkways, NMT and pedestrian friendly roads will lead to increased safety, have an impact on the urban form and also ensure better quality of air and life

iv. Reduction in air, water, land and noise pollution

C. PAN-CITY PROPOSAL (S)

A pan-city smart solution should benefit the entire city through application of ICT and resulting improvement in local governance and delivery of public services. The SCP should contain one or two such Smart Solutions. Generally, 'smartness' refers to doing more with less, building upon existing infrastructural assets and resources and proposing resource efficient initiatives.

19. **SUMMARY**

Summarize your idea(s) for the pan-city proposal(s). (max. 100 words)

Two solutions are proposed under the Pan City Solution:

Pan-city Solution (I)
Integrated delivery of Government-to-Citizen (G2C) services using Smart Card and mobile platforms in two phases

- Phase 1: Extension of EMV-enabled SMART Card payment solution from Transportation to all City Services (in 6 months)
- Phase 2: Development of an integrated mobile platform for Citizen Engagement and ubiquitous delivery of all G2C services (in 12-15 months)

Pan-city Solution (II)
Implementation of a intelligent water management solutions (including smart metering and command and control systems) for city-wide 24x7 water supply. The proposed solutions will use instrumentation and analytics to better manage demand and supply.

20. **COMPONENTS**

List the key components of your pan-city proposal(s). (max. 250 words)

The key components of the pan-city proposal are summarised below:

i. Integrated delivery of Government-to-Citizen (G2C) services using Smart Card and mobile platforms in two phases

a. Phase I: Extension of EMV enabled SMART Card solution to all service (including KMC, KMRL, KWA and other line agencies/departments) covering:
- Front-end Application to access and deliver citizen services of different departments and agencies
- Common Standards and Protocol to enable integration and database access for delivery of different services seamlessly through the Smart Card infrastructure (viz., Property tax, Water charges and Electricity charges database, social security benefits etc)
- Ubiquitous provision of PoS points for enabling payment across all modes of transport including metro, city buses, para-transit, common service centres and kiosks/retail points to increase transactions under the Smart Card Infrastructure

b. Phase II: Integrated Mobile Platform which provides a single mobile based platform for city information, citizen engagement as well as citizen services across service providers and would cover
- Transport services – Real time information
- City information – City calendar, Weather forecast, Tourist assistance, Merchant directory
- Integration of all Public services– Two way communication between citizens and with Local body and all major departments/ agency services, Emergency services – Police, smart ambulance, Suspicious activity reporting
- Infotainment – Free Wifi, City search, Live streaming
- M-Commerce – Travel bookings, Click & Collect
- Other Value added services

ii. Intelligent water management solutions for City-wide 24x7 supply covering
a. GPS/GPRS-enabled meters for city-wide water connections to capture automated meter and citizen data on a centralized location
b. Efficient metering billing and collection solutions
c. Bulk meters and Pressure Relief Valves/isolation valves to used to isolate a unit for service.
d. Centralized command and control centre backed by efficient ICT infrastructure

21. APPROACH & METHODOLOGY

What is the approach and methodology followed in selecting/identifying the pan-city proposal(s)?

Describe the reasons for your choice based on the following (max. 1000 words):

a. The city profile and self assessment;

b. Citizen opinion and engagement

c. Opinion of the elected representatives

d. Discussion with urban planners and sector experts

e. Discussion with suppliers/ partners

The Approach and Methodology followed for identifying the Area development proposal is as follows:

A. Stage 1 – City context
B. Stage 2 – Review of citizen consultations and City vision
C. Stage 3 – Shortlist of Thematic Options for PCS
D. Stage 4 – Theme Specific Consultations
E. Stage 5 – Finalize the solution and its broad contours

The detailed approach and methodology followed for identifying the pan-city proposal is as follows:

A. Stage 1: City context:

The City context was derived out of (1) SWOT analysis (2) Self assessment and (3) Baseline review of the services and the existing plans/ studies. Some of the key observations which directly contributed to the proposed solution are given below:

a. Smart Card initiative – A unique EMV based Smart Card initiative for cashless payment solution for transportation is to be implemented in the city. With the uncontrolled growth in private vehicular population leading to traffic congestion across the city, Kochi is looking towards building an effective multi-modal transit system. The Smart Card initiative would help in improving citizen convenience and improve public transport efficiency.
b. Institutional multiplicity and overlapping accountability – A planned approach to growth and is constrained by the presence of multiple agencies in charge of urban services and in many instances leads to diffused accountability. Some of the agencies involved in urban service provisioning include KMC, KWA, KMRL,KSRTC, GCDA, KSPCB,Town and Country Planning Department, Department of Health, Education etc.
c. Information silos – A direct impact of the institutional multiplicity is the fragmented data availability which makes the service delivery inefficient. The citizens have to interact with multiple agencies across multiple platforms making it an inefficient form of citizen engagement. An integrated platform for citizen engagement will improve the efficiency of citizen services considerably.

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d. Inefficiencies in water distribution – Inspite of a strong water source, the city is not able to provide for continuous water supply largely due to lack of efficiency and effectiveness of the Distribution and Water management systems in the city. With an NRW in some lines as high as 50%, the benefits for the citizen is largely underachieved.

B. Stage 2: Review of Citizen Engagement and city vision:

The Citizen engagement was structured so as to ensure platforms for all sections of society. Some of the key suggestions that emerged during the consultations included the following:

a. The institutional multiplicity challenge was reinforced during the consultations in the city, who identified the multitude of agencies in the city and the lack of a seamless platform for engaging with the agencies as a point of concern for the city.
b. Need for Integrated, and Intelligent Multi-modal transport systems
c. Inefficiencies in the existing Water supply systems due to which the NRW in many areas is as high as 50% was also highlighted; the city and the agglomeration has adequate source for the next 20 years and the focus should be on fixing NRW/ UFW.
d. Poor quality of groundwater – The ground water in the city is contaminated by the presence of high levels of E-coli bacteria as a result on ineffective sewerage and sanitation systems. The citizens highlighted the extreme health hazards due to dependence on ground water.
e. Need for improving governance through e-governance and m-governance platforms

C. Stage 3: Shortlisting of thematic options for Pan city solutions

Three thematic areas were shortlisted based on citizens' priority and aspirations namely, (1) Urban Transportation and mobility, (2) Water and sanitation, and (3) Intelligent government services

D. Stage 4: Theme specific consultations

1. Competition for Technical institutes in the city to identify technology driven solutions to address the city's problems were conducted. The City shortlisted eight innovative and frugal solutions shared by the student community on a wide range of sectors and in line with the city's major concerns. The solutions were scrutinized by the state technical team and top entries were identified for feasibility assessment.

2. Separate Round table consultations with Service Providers: Separate Round table consultations were carried out inviting participants representing three different groups based on the role played by them – 1) Line departments/ agencies/ service providers 2) Key Stakeholders, urban planners and sector experts 3) Technology service providers. The Consultations were structured so as to identify the key challenges in service delivery from the perspective of line departments, urban planners and sectoral experts'. The technology providers responded with specific customized smart solutions to address the city's challenges. Separate Round Table Consultations were undertaken across three themes identified

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2. a. Urban transportation and mobility :

Chaired by MD, KMRL along with key service providers including Traffic Police, Department of transport, Bus owners associations, Bus/ Auto/ Taxi employee unions. Some of the key solutions suggested in this forum included Advanced Traffic Management and Traveller information systems, Grievance redressal system for Mobility, Smart mobility solutions for Parking, Mobile Application for integrated citizen services, Traffic control through VMS and Signaling systems, Surveillance system with APNR, Single ticketing solution for all transport and city services.

2.b. Water, Sewerage and Sanitation :

Chaired by MD, KWA along with other key line depart Control centre as support systems for implementing 24/7 supply, Leak detection technologies, Vacuum technologies for Sewerage system, Improved E-toilet systems, and Integrated payment solutions.

2.c. Seamless G2C interface through Intelligent Government Services

Chaired by District Collector, Ernakulam along with representatives from more than 15 line departments/ agencies. Specific focus areas covered included File tracking systems, Smart Classrooms for Education, Smart Ambulance and Emergency response systems, Energy efficient street lighting on Smart Poles.

E. Stage 5: Finalise the solutions and its broad contours

Finalization of smart solutions to be taken up under ABP and Pan-city smart solutions were based on the following criteria (1) Maximum impact (2) technical feasibility of the solutions on a pan-city level (3) Challenges in implementation and maintenance, and (4) Ease in adoption of the solutions by the citizens.

22. DEMAND ASSESSMENT

What are the specific issues related to governance and public services that you have identified during city profiling and citizen engagement that you would like to address through your pan city proposal(s)? How do you think these solution(s) would solve the specific issues and goals you have identified? (max.1000 words)

The specific issues related to governance and public services that are to be addressed by each of the two Pan solutions are detailed below:

A. Pan-city Solution (I)

Integrated delivery of Government-to-Citizen (G2C) services using Smart Card and mobile platforms in two phases

This solution seeks to build on the Smart Card Infrastructure (proposed for enabling seamless ticketing for Metro and other modes of public and para-transit) to create a delivery platform for extending G2C services.

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Further with explosive growth in penetration of smartphones in recent years, the goal is to extend these several of these G2C services eventually through mobile apps.

The integrated platform for G2C service delivery will address the following:

i. Convenient multi-modal ticketing access: As a city constrained in terms of road space and high private vehicle growth, improved multi-modal(Metro, Water ways, Road and para-transit) public transport access is vital.

a. Kochi registered the second highest vehicle growth in million plus cities over the period 2002-12. It is also a road constrained city with over 53% of its roads having a width of less than 5 m.

b. On the positive side, Kochi has a fairly good public transport share of over 50%. With the impending completion of the Metro and waterway access, Kochi is well placed to overcome the constraints listed above. The mass transit projects would potentially improve the quality and patronage of its public transport access if it can provide the convenience of seamless ticketing across the various modes

c. The proposed Smart Card infrastructure will enable ease of ticketing and payment across all these modes of travel, enable seamless integration of the various public modes of transport and significantly reduce usage of private vehicles thereby reducing the city's carbon footprint.

ii. Platform and database creation to use Smart Card / Smart Phones as citizen interface points to deliver a range of G2C services: While mobility is the initial trigger for creation of the Smart Card infrastructure, the platform created will be utilised to deliver a range of G2C services from across various government departments using Smart Cards and Smart phones as citizen interface points through smart card solutions and mobile applications

a. This will initially cover utility payments for other services (property taxes, water etc.)

b. Inspired by the Jan Dhan – Aadhar - Mobile initiative of GoI, this Mobile and Smart Card infrastructure will also be serve to seamlessly support G2C transactions including subsidy and social security payouts.

The platform is thus conceived as a 'multiplier' initiative in keeping with the themes of a well governed and well connected city identified during the course of citizen consultations.

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B. Pan-city Solution (II)

Implementation of Intelligent water management solutions for the proposed 24*7 Water supply scheme

This solution seeks to complement the proposed initiative to provide city-wide 24x7 water supply and equip the proposed distribution infrastructure creation with smart water management solution like smart meters equipped with GPS/GPRS based meter reading.

The solution is a vital component towards the Government of Kerala's initiative to implement a city wide 24x7 water supply in Kochi city. Kochi region is geographically endowed with an extensive system of rivers and water bodies and also has plentiful rains for around 6 months a year. Further, Kochi's gross water supply at 160 MLD translates to a per capita supply of ~266 lpcd. Yet its distribution infrastructure is dilapidated leading to NRW levels as high as 50% in West Kochi area

Salient aspects of the city's infrastructure are provided below:

- Average per capita supply ranges between 70 lpcd to 200 lpcd with duration of supply between 2 hours a day to 24 hours.
- Significant leakages compounded by a weak asset database
- Old and poorly maintained Distribution network which are over 25 years old
- With a flat terrain, pumping costs tend to be high in view of the need to maintain adequate pressure, which makes it even more imperative to cut distribution losses.

The proposed solution will complement the proposed initiative of Government of Kerala through supporting financing and implementation of intelligent smart water management solutions for the system. The solution would contribute significantly to the efforts of Kochi towards provision of universal and efficient 24x7 water supply to its citizens and bring down the NRW to less than 10 percent. For example, the systems help predict potential delivery disruption, better forecast long-term demand, and coordinate resources to protect water supply The proposed intervention shall also provide real time information on the efficiency of operations including pressure and leak management, quality management, and work scheduling.

23. INCLUSION

How inclusive is/are your pan-city proposal(s)? What makes it so? (max. 150 words)

A. Pan city Solution (I)

The Smart Card cum Mobile based delivery of services will enable access of services to every citizen's palms. This is reflected in the provision of physical Smart card systems along with the Mobile based platform for the payment solutions.

B. Pan city Solution (II)

The Intelligent water management solution is critical ingredient to make the vision of 24x7 water supply a reality. This is proposed to be implemented with a progressive metered tariff structure while ensuring availability of lifeline supply at affordable levels. This initiative will significantly contributed to the goal of inclusive, fair and equitable water supply.

24. RISK MITIGATION

What are the three greatest risks that could prevent the success of the pan-city proposal(s)? In table 3, describe each risk, its likelihood, the likely impact and the mitigation you propose. (max. 50 words per cell)

TABLE 3

Risk	Likelihood	Impact	Mitigation
Difficulties in getting all institutions / agencies on board for the G2C service delivery initiative	Medium	High	a. Designation of SPV as the nodal agency to drive implementation b.Oversight by HPSC to ensure apex policy commitment and to bring all departments and agencies on board

Continue on next page

TABLE 3			
Risk	**Likelihood**	**Impact**	**Mitigation**
Inability to build commensurate Organisational Capacity to implement and manage the system	Low	High	a. Equipping the nodal agency with resources for management of the ICT infrastructure b. Identify and select suitable implementation partners to develop and manage system with in-built SLAs
Technical inter-operability risk and security risk	Medium	High	a. Prepare an IT strategy covering key citizen servicing departments to evolve roadmap towards inter-operable standards b. Adopt inter-operability standards on the lines of the IFEG framework of Government of India

Continue on next page

TABLE 3			
Risk	**Likelihood**	**Impact**	**Mitigation**

Continue on next page

25. FRUGAL INNOVATION

Which is the model or 'best practice' from another city that you are adopting or adapting in your proposal(s)? How are you innovating and ensuring best use of resources? Is there an aspect of 'frugal innovation' in your proposal(s)? (max. 500 words)

A. Pan City Solution -I

The proposed pan-city solution builds on the initiatives in Cities like Dubai, Singapore, Netherlands and Stockholm wherein a single ticketing for multi-modal transport has been successful.

For example, Denmark employs a nationwide integrated fare management system based on contactless technology whic covers around 3,300 buses have been equipped with on-board validators.

In Netherlands, the nationwide fare management system (OV-chipkaart) based on contactless smart cards, covers all modes of transport – metro, train, bus and tramway across 5 major operators covering 13 million cards and processing nearly 2 billion transactions in a year.

Similarly, the PRESTO system in Canada covers around 1 million passengers while the Dubai smart system manages around 9 billion transactions per year. The success of these models are reflected in the huge number of coverage of the proposed cards.

The frugal innovation adopted in the city's context is to drive the creation of an integrated city database through a bottom up approach. As a unique model, the city is planning to address the dual challenges of institutional multiplicity and disconnected citizen-government interface by building on the Smart Card system. The foundation for IoT interventions in Smart cities lies in the active utilization of connections and information to transform the quality of life of citizens. By extending the smart card payment solutions to other city services in a phased manner (through incentive schemes), the city aims to support the creation of an integrated ICT ecosystem for the city. The Information will be structured as an open-data system which will facilitate crowd-sourcing of App components. Institutional support to this system by adding all the additional information will be supported during phase 2 of project implementation.

The City also seeks to move beyond the mobility challenge and citizen engagement models by leveraging the most effective tool in the city: the Smartphone. Towards this, the City is initiating a City App which will integrate services from across the spectrum and provide one-stop solution for citizen services leveraging on the proposed ICT ecosystem created.

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B. Pan City Solution : II

The smart metering initiative of Kochi under the pan city solution is inspired by recent successes achieved by several other Indian cities including Mumbai and Delhi that have opted for smart meters. In some cases, installation of smart meters led to reduction in water

KMC and KWA recognise that water metering is not a stand-alone initiative. Significant upfront work in the form of creation of Discrete Metering Areas (DMAs) and network isolation, creation of adequate overhead storage/pumping capacity and a revamped distribution network are critical. Further, for a truly end-to-end 24x7 solution, it is critical to plug leakages at house-level through awareness programs. The smart metering solution is therefore a critical component but its implementation will be sequenced after completion of some of the pre-requisite steps that are highlighted above in a phased manner.

26. CONVERGENCE AGENDA

In Table 4, list the Missions/Programmes/Schemes of the Government of India (eg. SBM, AMRUT, HRIDAY, Shelter for All, Digital India, Make in India, Skill India) and relevant external projects and describe how your proposal(s) will achieve convergence with these, in terms of human and financial resources, common activities and goals. (max. 50 words per cell)

TABLE 4

S.No	Missions/Programmes/Schemes/Projects	How to achieve convergence
1	Skill India	Under the Skill India initiative, Government will provide technical and financial assistance for training citizens. To support the new City App and Smart card systems, forums for training citizens as well as the officials may be supported under this scheme.

Continue on next page

TABLE 4		
S.No	**Missions/Programmes/Schemes/Projects**	**How to achieve convergence**
2	Em-power Kerala	Convergence with the ‘Em-power Kerala’ M-governance initiative of Government of Kerala. Em-power Kerala is an encapsulated and comprehensive integrated Service Delivery Platform is being created and integrated with the e-Governance infrastructure, for enabling m-Services of various Departments in a "Plug and Play" fashion.
3	Digital India	The city has a extensive OFC network. To support the huge bandwidth requirements of the city additional infrastructure for supporting the same including additional towers and OFC cable lines may be funded through the Digital India scheme to implement the project.
4	AMRUT and State schemes (Pan-City Solution 2)	The Smart Metering initiative under the Pan City Proposal will support and complement the proposed 24x7 water supply that is envisaged for implementation through a combination of funds from AMRUT and State Schemes

Continue on next page

TABLE 4		
S.No	**Missions/Programmes/Schemes/Projects**	**How to achieve convergence**
5		
6		
7		

27. CONVERGENCE IMPLEMENTATION

Describe how the convergence will be implemented? (max. 350 words)

A. Pan City Solution (I)
The implementation of Smart Card Infrastructure is being steered by KMRL as the nodal agency and will be initially implemented for ticketing and access to public transport modes starting with the Kochi Metro and subsequently extended to other public/para-transit forms. Subsequently it will be extended to other G2C services. Two levels of convergence are envisaged

i. National level – for back-bone and possible funding: The Government of Kerala plans to support Kochi under the Digital India scheme for creation of network backbone and OFC connectivity of all Government office. KMRL will through KMC/SPV explore if there is potential to leverage this infrastructure as the network backbone for delivery of services under the Smart Card/Mobile App initiative. Similarly synergies will also be explored with BSNL
ii. State level – for coordination across different agencies: The State will create an capable IT cell under KMRL which will be responsible for implementing the Smart Card infrastructure for ticketing & transport solution. The IT cell will be tasked to work with KMC/SPV to prepare a roadmap for expanding the solution on the lines envisaged under the pan city initiative. KMRL and its IT cell may also seek to utilise some portion of the Project Development funds available under the mission to undertake technical studies, drawing IT roadmap and user requirement specifications for implementing the initiative. Kochi will also explore possible funding support and technical assistance under the Em-power Kerala scheme.

B. Pan City Solution (II)
The KWA will prepare a detailed spatial plan of the infrastructure and assets owned by KWA which shall be taken up under the Project development funds available under the scheme. This will be followed by a detailed DPR for 24*7 Water supply system which clearly lays out the components envisaged under the scheme. The Intelligent water solutions identified will be taken up for funding under the Smart city mission while the cost of asset creation especially the replacement of the inefficient distribution network will be taken up through a combination of state schemes/ external lines of credit.

28. SUCCESS FACTORS

Describe the three most significant factors for ensuring the success of the pan-city proposal(s). What will your city do if these factors turn out to be different from what you have assumed? (max. 250 words)

Three most significant factors for success the Pan-city solutions detailed below:
A. Pan-city solution -(I)
i. Institutional buy-in: It is important that the existing platforms are integrated into the common platform which will bring in efficiency and transparency. If however, all departments do not come together as envisaged, the Smart Card solution will still be implemented to address mobility and ticketing.

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ii. Technical Integration: Building a roadmap for technical integration and inter-operability early on is critical. To address these concerns, clear specifications need to be drawn on the capacity and components of the proposed systems in alignment with the baseline review of systems of line departments/agencies along with a roadmap for integration / inter-operability.
iii. Contracting for performance: Procurement of IT services of this nature will require sophistication and capacity to deal with infinite possibilities. Key staff from KMRL's IT Cell and KMC/SPV will go through technical orientation early on and will learn from experiences of other cities that have implemented such systems.
BPan-city solution (II)
i. Expeditious distribution infrastructure creation: Implementation of intelligent water management solution will need to be preceded by creation of distribution infrastructure equipped to delivery 24x7 supply.
ii. Citizen awareness creation: The shift to intelligent water management solutions will need to be accompanied by creating citizen awareness with respect to plugging leaks in their internal networks as these would lead to inflated bills which out to be avoided.
iii. Strengthening asset database – digital survey of the exisitng network is being carriedout by KWA and its critical to ensure success of the project
iv. Performance guarantees and replacements: Since meters and other smart solutions are capital intensive they need to be procured with some clear guarantees on performance and procurement should ideally be performance-linked.

29. **BENEFITS DELIVERED**

How will you measure the success of your pan-city proposal(s) and when will the public be able to 'see' or 'feel' benefits: immediately, within Year 1, or in the medium or long term, 3-5 years? (max. 150 words)

The Success of the projects would be measured

A. Pan-city proposal (1) can be measured in terms of growth in daily commuters using various public transport modes in the short term. In the medium-long term, an exponentially increase in transactions under the smart card eco-system will signify its value and utility to public. Other benefits will include greater adoption of public transport, ease/convenience to commuters and attendant broader benefits of safety, reduced pollution and lower carbon footprint. The first visual impact would be by end of 2016 with the integration of metro rail, bus and the water transport infrastructure.

B. Pan-city proposal (II) can be measured directly in terms of reduced NRW and an ability to better monitor and plug leakages. Further, the system coupled with independently regulated and appropriate tariffs, could also support an improvement in water supply finances.

30. **MEASURABLE IMPACT**

What will be the measurable impact of your pan-city proposal(s)? Please describe with respect to the following types given below, as relevant to your city and proposals (max. 150 words)

a. Governance Impact (eg. government response time to citizen complaints halved, creating faster service delivery overall)

A. Impacts on Governance of the proposed Pan-city solution(I) are summarized below:

- Increase in government revenue – Efficient payment solution leading to increase in revenue collection by plugging leakages
- Reduction in response time for citizen grievances
- Increase in the number of citizen inputs to city planning; Greater involvement of the citizens in city affairs, allows deeper understanding between citizens and city officials by closing the gaps through simple online interactions
- Increase in economic activity

B. Impacts on Governance of the proposed pan-city solution(II) are summarized below

- Reduction in NRW
- Improved user charge realisations
- Better monitoring

b. Impact on public services (eg. real-time monitoring of mosquito density in the atmosphere reduces morbidity)

A. Impacts on Governance of the proposed Pan-city solution(I) are summarized below:

- Improved mobility access in terms of lesser time and cost for citizens
- Increase in average travel speed due to decongestion of roads and shifting from private to public transport systems.
- Reduction in accidents due to proper monitoring and control
- Reduction in air pollution especially particulate matter and greenhouse gas due to greener modes of mass transit system, indirectly contributing to improvements in health and productivity

B. Impacts on Governance of the proposed pan-city solution(II) are summarized below

- Assured supply and value for user charges paid (in terms of linkage with consumption)
- Ease of payment and information access (online hassle free meter-reading)

D. IMPLEMENTATION PLAN

31. IMPLEMENTATION PLAN

In Table 5, describe the activities/components, targets, resources and timelines required to complete the implementation of your area-based development and pan-city solution/s. This should include the items mentioned as Essential Features in Q. No. 16 plus other 'smart' solutions, including accessible infrastructure for differently-abled. (max. 50 words per cell)

Table 5

S.No	Activity/component	Indicator	Baseline (as on) Dec 15	Target	Resources required	Likely date of completion
AREA-BASED DEVELOPMENT						
1	INTELLIGENT TRANSPORTATION & SEAMLESS MOBILITY					
	Component 1: Efficient Water transport connectivity	Number of green and faster boats	0	12	Rs. 111 crore	Mar'19
	Component 2: World class arterial roads	Length in km	0	11	Rs. 197 crore	Dec '20
	Component 3: NMT and last mile connectivity with MLCP	Length in km	Neg.	70		
2	Reconstitution of Urban form					
	Component 1: Central city - Urban renewal and revival of open spaces	Project completion	0	100%	Rs. 115 crore	Dec '20

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Table 5						
S. No	Activity/component	Indicator	Baseline (as on)	Target	Resources required	Likely date of completion
3	Inclusive urban planning..1					
	Component 1: Slum redevelopment and Housing improvement	Number of dwelling units improved/ redeveloped	NA	4000	Rs. 240 crore	Mar '19
	Component 2: Water Supply	Supply per capita	66 lpcd in West Kochi	150 lpcd	Rs 132 crore	Dec '19
		NRW	NRW>40%			
	Component 3: Sewerage/ Septage	% of HSCs with Sewerage/ improved on-site sanitation systems	8% HSCs in the area connected to sewerage	>80%	Rs 202 crore	Dec '19
4	Inclusive urban planning...2					
	Component 4: SWM	% of HHs Source segregation	50%	>90%	Rs 7 crore	Mar '17
	Component 5: Rejuvenation of Canals/ Waterways	Quality of surface water	>200 mg/l	<30 mg/l	Rs 41 crore	Dec '18
	Component 6: Energy	Aggregate losses	>16%	<15%	Rs 152 crore	Jun '20
		HHs with grid connected solar	Neg.	>50%		
	Component 7: Social infrastructure	Indicators already exceed UDPFI guidelines; Focus on improvement in quality of services			Rs 63 crore	Dec '18
5	Revival of the multi-cultural, pluralistic and commercial identity					
	Heritage and Tourism development	Increase in average number of days of stay of tourists	1	2	Rs 30 crore	Dec '18

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Table 5						
S. No	Activity/component	Indicator	Baseline (as on)	Target	Resources required	Likely date of completion
6						
7						
8						

Table 5						
S. No	**Activity/component**	**Indicator**	**Baseline (as on)**	**Target**	**Resources required**	**Likely date of completion**
PAN-CITY SOLUTION						
1	Smart Card integration and an Integrated city app	Number of Citizens integrated	0%	60%	Rs 25 crore	Mar '17
2	Intelligent water management solutions for 24*7 Water supply	Number of HSCs	0	> 1 lakh HHs	Rs 701 crore	Mar '22
3						

Continue on next page

Table 5						
S. No	Activity/component	Indicator	Baseline (as on)	Target	Resources required	Likely date of completion
4						
5						
6						

32. SCENARIOS

Using information from Table 5, describe the critical milestones, realistic timelines and sequencing of efforts and events that you are projecting as the short-, medium- and long-term scenarios for your smart city. If necessary, include PERT and CPM charts in Annexure 3. (max. 500 words)

There are five streams of activity envisaged:

i. Constitution of SPV: An SPV will be constituted legally and MoUs/Working arrangements with key line departments/ agencies including roles and responsibilities, revenue sharing, implementation responsibility, O&M responsibility etc. The responsibilities of various departments / agencies towards implementation of the Area based proposal and their relationship with the SPV is discussed under q.no 34. The SPV will be equipped with staffing commensurate with its roles and responsibilities laid out therein.

ii. Monitoring and Review: A project monitoring and implementation structure shall be constituted which is in-line with the three-tier institutional structure at City, State and National levels envisaged under the Smart City Guidelines.

iii. Preparatory actions and implementation roll-out: Implementation of the ABP calls for significant preparatory activities both at the project level and with respect to institutional and policy coherence. The Gantt chart enclosed in Annexure 3 provides a specific listing of the project development requirements, which would cover both
(a) review and updation of 'ready' DPR to address gaps if any and to ensure that they adhere to the smart city characteristics as reflected in the SCM guidelines
(b) project preparatory work (including fresh feasibility studies, DPRs etc.)
where preparatory action is yet to be initiated. The SPV will take stock of the preparatory status and will prepare / disseminate a implementation roll-out plan within three months of its first Board meeting, which will fine-tune and flesh out the Gantt chart provided as part of this document. In preparing the implementation roll-out, care will be taken to ensure right sequencing. For example comprehensive road re-configuration envisaged will need to be carried out after completion of sewerage network / water supply networks if they need to be constructed.

iv. Procurement and contracting: The procurement and contracting will follow from the preparatory actions and will be structured to ensure scale and smart technologies. This will significantly improve the attractiveness of the project for private participation.

v. Sustainable O&M: The SPV will either handle the O&M on its own or delegate it to line agencies or private service providers depending on the nature of arrangements for implementing different components. This will be based on the terms of the working arrangement between the SPV and line agencies as laid out in response to Q.no. 34. A key role of the SPV will also be to interface with private service providers and financing institutions to lock-in external financing and resource mobilisation options identified. This is critical to implement some of the programs envisaged with non-grant financing. Similarly, process and organisational improvements towards better O&M, financial sustainability and asset management will also be identified and reflected in the plan early on.

Continue on next page

33. **SPV**

The SPV is a critical institution for the implementation of the Proposal. Describe the SPV you propose to create in your city, with details of its composition and structure, leadership and governance, and holding pattern. Based on your responses in Table 6 describe how you envision the SPV to fulfill the role set out in the Mission Guidelines. (max. 500 words)

Table 6 (CHECKLIST: supporting documents for 1-7 must be submitted in Annexure 4)		
S. No.	**Activity**	**Yes/No**
1.	Resolution of the Corporation/Council approving Smart City Plan including Financial Plan.	Yes
2.	Resolution of the Corporation/Council for setting up Special Purpose Vehicle.	Yes
3.	Agreement/s with Para Statal Bodies, Boards existing in the City for implementing the full scope of the SCP and sustaining the pan-city and area-based developments.	Yes
4.	Preliminary human resource plan for the SPV.	Yes
5.	Institutional arrangement for operationalisation of the SPV.	Yes
6.	If any other SPV is operational in the City, the institutional arrangement with the existing SPV	Yes
7.	Additional document/s as appropriate	Yes

As per the SCM guidelines, an SPV will be created to steer implementation of the Smart Cities Proposal. Additional documents as referenced in Table 6 are attached in Annexure 4. Initial structure and functions of the SPV is described below.

i. The SPV will owned by GOK and KMC with 50%-50% shareholding pattern. The SPV will be created with a strong capital base with paid up equity of Rs. 200 crore and will directly receive Grants due under the Smart Cities Mission.
ii. The Board of Directors (including the Chairperson) of the SPV would be constituted and a full-time CEO would be inducted as per the guidelines of the SCM. The suggested composition of the Board of Directors is given below and would be fine-tuned as per any further guidelines from MOUD
    - o Chairperson (Secretary, KMC or District Collector)
    - o CEO
    - o Representatives appointed by GOK
    - o Central Government nominee, appointed by MoUD
    - o Independent Directors as per Companies Act requirements

iii. To start with, the SPV will have specialist positionsfor Urban Planning,Engineering, Environment, Mobility and Urban Finance. The exact staffing pattern would be finalised by the Board of Directors at the time of actual formation and operationalization of the SPV.

iv. The SPV would be delegated powers required to execute the activities relating to implementation of the SCP in line with the guidelines of SCM.

v. Depending on the nature of the component, the SPV may directly be responsible for implementation or by entering into MOUs with other line agencies. The implementation of various components under the SCM will be steered by the SPV under three approaches:
    a. Components where it will hold end-to-end responsibility for implementation on EPC/O&M format and on PPP framework. These would typically involve functions that are delegated to the SPV by KMC (for e.g. Housing)
    b. Components which will be handled through line agencies will be through an MOU with concerned line agency. Here the SPV will work with the concerned line agency and jointly agree on service levels and financing plan to implement the component (For e.g. 24x7 water supply through KWA).
    c. Components where the authorised line agency delegates and entrusts select activities to the SPV. (For e.g., while KMRL may be the eventual process owner and responsibility centre for implementing the Smart Card pan city initiative, it may entrust the SPV's expert team with the project development and procurement actions for the same)

vi. KMC and GOK will ensure SPV's financial sustainability to meet its capital expenditure and O&M commitments through a range of options including apportioning / earmarking select KMC's revenue streams (tax, non-tax and transfers) and allowing the SPV to retain some of the revenue streams accruing from the developments undertaken by the SPV.The financial plan (refer response to q.no 42) factors these options to ensure sustainability

vii. The SPV will also function as a Corporate Municipal Entity on behalf of KMC for resource mobilisation including raising resources through municipal bonds.

34. CONVERGENCE

In Table 7, give details of the government (Central, state/ULB) departments, parastatal organizations and public agencies who will be involved with the time-bound execution of each of the project activities/components (both area-based and pan-city) you have identified. (In Annexure 3, include a flowchart showing the network/relationships that the SPV will form with government and non-government agencies, and indicating the nature of connection with each entity.) (max. 50 words per cell)

TABLE 7

S.No	Activity/Component	Department/agency/ organization	Role/responsibility
1	INTELLIGENT TRANSPORTATION & SEAMLESS MOBILITY		
	Component 1: Efficient Water transport connectivity	KMRL	Procurement, Implementation and O&M
	Component 2: World class arterial roads	KMRL and SPV	
	Component 3: NMT and last mile connectivity	KMC and SPV	
2	Reconstitution of Urban form		
	Component 1: Central city - Urban renewal and revival of open spaces	SPV	Project procurement, implementation and O&M
3	Inclusive urban planning..1		
	Component 1: Slum redevelopment and Housing improvement	SPV	
	Component 2: Water Supply	KWA and SPV	Co-ordinate project implementation as per terms of MoU between SPV and KWA
	Component 3: Sewerage/ Septage	KWA and SPV	

Continue on next page

TABLE 7			
S.No	**Activity/Component**	**Department/agency/ organization**	**Role/responsibility**
4	Inclusive urban planning...2		
	Component 4: SWM	SPV	Project procurement, implementation and O&M
	Component 5: Rejuvenation of Canals/ Waterways	Irrigation department and SPV	As per terms of MoU between Irrigation Dept and SPV
	Component 6: Energy	KSEB	Complete responsibility
	Component 7: Social infrastructure	DMO, DEO	Co-ordinate as per terms of MoU
5	Revival of the multi-cultural, pluralistic and commercial identity		
	Heritage and Tourism development	Tourism Department	DPR available; In charge of project planning, procurement implementation and maintenance
6	Pan-city Solution#1 Smart Card integration and an Integrated city application	KMRL	As per terms of MoU between SPV and KMRL
7	Pan-city Solution#2 Intelligent water management solutions for 24*7 Water supply	KWA and SPV	Co-ordinated project implementation as per terms of MoU between SPV and KWA

Continue on next page

TABLE 7			
S.No	**Activity/Component**	**Department/agency/ organization**	**Role/responsibility**
8			
9			
10			
11			

35. PPP

In Table 8, give details of all the private companies/corporations/organizations that need to be engaged with the execution and operations &maintenance of the various activities and componentsenvisaged in this proposal, along with a description of their roles and responsibilities as basic TORs. Use appropriate terms such as 'vendor', 'concessionaire', 'JV partner', etc. (max. 50 words per cell)

TABLE 8

S. No	Activity/Component	Company/corporation/ organization	Role/responsibility (basic TOR)
1	Central city Renewal, Tourism renewal, Housing and slum redevelopment	EPC contractors	Turnkey contractors for updating the plans, project planning and implementation
2	Water supply, sewerage	Vendors	Vendors – Supply of equipments and materials
		Management Contract	Management contract for O&M of the Sewerage systems including the Decentralized system
		Technology partners	Annuity based structure for implementing effective water supply and sewerage systems with command and control centres for effective monitoring and redressal
3	Roads and allied infrastructure	EPC contractors	Annuity based Management contract for area road management

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TABLE 8			
S. No	**Activity/Component**	**Company/corporation/ organization**	**Role/responsibility (basic TOR)**
4	Solid waste management	"Kudumbashree" as Contractors	Performance based O&M system for effective Collection and Segregation. The performance may be linked to the SLB benchmarks
5	Energy efficient street lights	PPP- DBFOT "Concessionaire"	ESCO model of investment where the Energy service company will invest a major portion and the returns are based on the energy saving achieved
6	Social infrastructure	JV partners	Jointly working with IMA/ Educational institutions in project planning and outreach. For example, National initiative for Safe Sound of IMA
7	Project preparatory activities and Project management support	Private Consultancies	Feasibility studies DPRs, Transaction advisory services, Project management consultancies

TABLE 8			
S. No	**Activity/Component**	**Company/corporation/ organization**	**Role/responsibility (basic TOR)**
8			
9			
10			
11			

36. STAKEHOLDER ROLES

Attach one A-4 sheet (part of 'Annexure 3'), containing an organogram showing the relationships:

a) MPs, MLAs, MLCs.

b) Mayors, Councilors, other elected representatives.

c) Divisional Commissioner

d) Collector

e) Municipal Commissioner

f) Chief Executive of the Urban Development Authority/ Parastatal

g) Consultant (Select from empanelled list)

h) Handholding Organisation (Select from following list: World Bank, ADB, JICA, USTDA, AFD, KfW, DFID, UN Habitat, UNIDO, Other)

i) Vendors, PPP Partners, Financiers

j) Others, (eg. community representatives) as appropriate to your city

E. FINANCIAL PLAN

The development of bankable proposals will be a key success factor in the Smart City Mission. In order to arrange appropriate amounts and types of funding and financing for your SCP, you must keep financial considerations always in mind while preparing your overall strategy and the pan-city and area-based proposals. It is anticipated that innovative means of funding and financing the projects will be necessary. For this purpose, you must evaluate the capacity of the ULB and the SPV to undertake self-funded development projects, the availability of funds from other government schemes that will converge in your SCP (refer Questions 13 and 26), and the finance that can be raised from the financial market.

37. ITEMISED COSTS

What is the total project cost of your Smart City Proposal (SCP)? Describe in detail the costs for each of the activities/components identified in Questions 31. (Describe in Max. 300 words)

The Total Capital Cost of the SCP is Rs. 2076 crore. The outlay towards Area Development Plan is 1386 crore and Rs 690 crore is towards the Pan-city Solution.
The central elements of the ABP (Seamless connectivity, Heritage Revival, City centre renewal and Affordable housing/access to basic services) would transform the quality of life in the area in a replicable manner.
Under the Pan-city Solution, the 24*7 Water supply system provides for universal access as well as improved quality of life for the citizens while the Smart Card/Mobile platform will deliver seamless G2C services.

A. ABP - The Outlay towards specific components is provided below:

i) Intelligent Transportation and Seamless Mobility
   a) Integrated Intelligent Multi-modal transport - Rs 111 crore
   b) World class arterial roads and NMT for Last mile - Rs. 197 crore

ii) Reconstitution of Urban form
   a) Central City Urban Renewal including Market Development - Rs 115 crore
   b) Revival of Parks and open space - Rs 4 crore

iii) Inclusive Urban Planning
   a) Slum Redevelopment and Housing improvement - Rs 240 crore
   b) Water Supply - Rs 131 crore
   c) Sewerage/ Septage - Rs 202 crore
   d) SWM and Sanitation - Rs 7 crore
   e) Canals/ Waterways - Rs 41 crore
   f) Energy - Rs 153 crore
   g) Social Infrastructure - Rs 63 crore

iv) Revival of the multi-cultural, pluralistic and commercial identity
   a) Heritage and Tourism Development - Rs 30 crore

B. PANCITY - Under pan-city solution the specific components include
   a) 24/7 Water Supply pan city - Rs 621 crore
   b) Integrated City APP - Rs 25 crore

The city's overall capital outlay is pegged at Rs. 5000 crore (more than twice the outlay of the SCP) which it plans to access through proposed revenue mobilisation efforts, incremental transfers and leverage to support other city-wide priority projects (e.g., 24x7 water supply, sewerage, mobility proposals etc.) identified in addition to SCP.

38. RESOURCES PLAN

Describe the financing sources, the own-sources of income, the financial schemes of the Central or State governments for which your city/SPV is eligible, which can be used to fund the SCP proposals and pay back loans. Briefly describe an action-plan for resource improvement to make the ULB financially self-sustaining. (max. 1500 words)

The total project cost of Rs 2,076 crore will be funded across multiple sources with a major portion allocated through the Smart City Grants from Centre and the State. The Funding allocation takes into consideration the financial profile of the ULB, the State's financial position and the possibilities as well as constraints in Convergence. The Source-wise funding for the project is as follows:

i. Smart City funds – Rs 1077 crore
ii. Convergence with Central Schemes / State schemes – Rs 505 crore
iii. Loans, PPP and external funds – Rs. 493 crore

The project financing is detailed below:

- Smart Cities funding: The Total funding under the SCM shall be ~Rs 1077 crore (over and above the stipulated 1000 crore mandated) (~50 percent of the total outlay), of which Rs. 500 crores shall be the Central Grant component, and the remaining from the State Grants/ ULB's contribution. The City/ State shall look at leveraging a portion of the funds earmarked for the region under the People's plan scheme towards meeting the State Grant requirements. With respect to own funds, the city shall enter into an agreement with the SPV to ensure financial and operational sustainability. The HPSC has directed all the parastatal departments to earmark 20 percent of their outlay for Kochi city towards Smart City Projects. The city shall also prepare comprehensive business-cum-financial plan to improve own source income in the proposed area.

- Convergence with Central/ State schemes: Kochi will leverage active central/ state schemes to fund the huge infrastructure requirements of the region. Around 505 cr of funds (`24% of the total outlay) will be raised through other state/ central schemes wherein Smart City grants will part-fund the projects thereby significantly improving its viability and scalability. The HPSC has recommended to KMC to give active consideration to the funds under the 14th Finance commission towards implementation of 24*7 water supply solutions. Some of the other active GoI schemes include AMRUT (for Basic services), SBM (for Solid waste management), NHM (Healthcare), Housing for All (for Housing and basic infrastructure), IPDS/ R-APDRP (for Energy supply and distribution), Solar City Mission (for solar power and State Grants (24*7 Water supply in the city). Additionally, active State schemes like People's Plan scheme (for basic services), Nirbhaya Scheme for Women and child development (for safety and security), Kerala State Entrepreneur Development Mission (for economy and employment), Micro-financing under Kudumbashree (for livelihood schemes), and several other housing and basic services schemes for weaker sections of the society will be leveraged.

Continue on next page

- Debt funding: Kochi will access debt to meet the financing requirements especially of trunk infrastructure projects in the city. Kochi will raise around ~250 crore of funds through debts. Bulk of this debt will be towards implementation of 24*7 Water supply in the city, which will be raised by KWA by accessing lines of credit under multilateral agencies like JICA, World Bank and KfW or local institutional lending agencies like KRFB, KIIF etc. The City recognizes that it is not ideally positioned for accessing the capital markets at this juncture owing to institutional challenges as well as financial limitations. Hence, the city shall review its financial position and undertake governance and financial reforms as part of its commitment under GoI schemes over the next 2-3 years before laying a roadmap for accessing the capital markets. This would also involve identifying strategies for revenue augmentation in view of the increased impact of the project on the quality of life of citizens.

- PPP/ Beneficiary Contribution and others: Kochi envisages to raise around Rs 243 cr (~9 percent) through PPP, Beneficiary contribution and contribution from line agencies/ departments. The city shall avail the services of Partner Kerala Mission (GoK Urban affairs initiative) for time-bound implementation of PPP projects. The role of private sector will be in the smarter elements of infrastructure with guaranteed returns. Key examples include Redevelopment projects, Public toilets, Solar panels in Households, Multi-level car parking, Smart Street lighting, and Bio-composting in Institutions. Additionally, CSR contributions will be utilized to meet the requirements in the social sector.

OWN SOURCE IMPROVEMENT PLAN

The Major sources of income for the KMC includes property tax, professional tax, rental income from municipal properties, SWM charges from commercial establishment, advertisement revenue, and entertainment tax. Additionally portion of revenue from KSEB, KWA, GCDA, KMRL will also be apportioned as per the terms of MoU signed by the SPV with the line agencies. Some of the revenue allocations include Fare revenue, Advertisement revenue, rentals from commercial development, Parking revenue, Water and Sewerage charges, Development charges, Power charges, savings due to energy efficient Solar panels and streetlights etc.
The city envisages a phase-wise action-plan for resource improvement to make the project financially sustainable. The broad framework for resource augmentation and financial sustainability is summarized below:

- The City aims to undertake financial and administrative reforms to improve the disclosure standards, timely audit of accounts, and Spatial mapping of properties
- Detailed survey of properties to identify under-assessed and un-assessed properties in the city. Early bird and penalty provisions to ensure timely payment of taxes
- Rationalization of user charges for non-residential assessments
- Review of the existing O&M cost of assets in the region and evolve strategies for comprehensive revival of the same: Hence the O&M rationalization plan will look into most effective ways of utilization of the assets and resources so that the additional O&M cost of the project will be addressed by the surplus generated by the SPV.
- Rationalization of revenue considering the increased revenue and economic benefits accrued to the implementation of Metro rail as well as Smart City project in the region.

The details of the project cost and components are provided in the Annexure 3

Continue on next page

39. **COSTS**

What is the lifetime cost estimated for your area-based development and your pan-city solution/s? Add O&M costs wherever applicable. (max 500 words)

The lifetime cost of the project is estimated at Rs 2161 crore (assumed for a period of ~15 years post completion). This includes 2076 crore of Initial capital investment and an additional annual O&M cost to the city of ~Rs 80 crore towards the end of the implementation period. This is over and above the base O&M cost attributable to the specific area. The incremental Annual O&M cost for the project is estimated based on the asset life, and phase-wise capital expenditure plan.

Some of the key highlights of the O&M cost

- The annual O&M estimate for the region will increase from Rs 1.2 crore in Year 1 to around Rs. 30 crore by end of project implementation. The O&M cost includes cost of servicing of Municipal services, Water and Sewerage for the region, Transportation, Electricity, and Social infrastructure.

- The major sectors with maximum O&M cost and the revenue attributable to the same is summarized below:
    - o Roads and allied infrastructure – O&M cost of ~Rs 14 crores will be financed from Municipal funds. Part of the revenue will also be funded by Cable laying charges and Advertisement revenue.
    - o Housing and slum development – Cost of Rs 10 crore will be borne by the beneficiaries themselves
    - o Water supply and sewerage component of Rs 11 crore financed by tariff income apportioned by the KWA
    - o Central city Rejuvenation and Water transport component of Rs 11 crore – The O&M cost will be financed through increased realization of development charges by private sector (supported by increase in FAR), commercial rentals, fare revenue, parking revenue and advertisement revenue.

Continue on next page

40. REVENUE AND PAY-BACK

How will the area based development and the pan-city smart solutions(s) of your city be financed? If you plan to seek loans or issue bonds, what revenue sources will be used to pay back the loans? (max. 250 words)

The city's core philosophy is to move towards financial independence. From the Revenue account perspective, the city has been able to consistently improve its surplus over the years. The overall surplus of KMC increased by almost 500% over the last 3 years. The next stage would be to extend it to capital account as well. The financing plan for the smart city mission has been prepared in line with this philosophy whereby diverse sources of funding are being considered while planning the project. The city also took into consideration the financial profile of the ULB, the State's financial position and the opportunities as well as constraints in Convergence.

The Central Government grants under Smart city mission will be only 24 percent of the overall project cost. Another 24 percent is planned to be raise through Loans and other innovative financing tools like PPP, Beneficiary contribution, CSR and City's own funds.

Source-wise funding for the project is as follows:

i. Smart City funds – Rs 1077 crore
ii. Convergence with Central Schemes / State schemes – Rs 505 crore
iii. Loans, PPP and external funds – Rs. 493 crore

As indicated in the O&M plan, the city generates adequate funds to meet the O&M and interest requirements attributable for the region. The loans (especially for 24*7 WS) will be paid out of the revenue generated by user charges and a portion of the grants under the 14th CFC.

41. RECOVERY OF O&M

What is your plan for covering the Operations & Maintenance costs for each of the activities/components identified in Questions 31? (max. 1000 words)

The total operation and maintenance cost for the Smart City project is estimated to be around Rs 80 crores. The O&M cost attributable is around Rs 30 crore per year (taking out energy, housing, city-wide water supply and water transport infrastructure).

A range of revenue sources will be tapped to address the additional O&M cost for the citizens which includes Tax and other own funds, user charges in Water supply and Sewerage, development charges, user charges/ rentals from commercial properties, pay and use provisions and advertisement options for toilets, rental income from municipal properties and public spaces, advertisement revenue, parking revenue, etc. Provisions for annual revision of charges may also be considered instead of quinquennial revision. However, the revenue improvement strategies will be subject to the recommendations of the Business-cum-financial plan to be prepared for the city.

The project has a mix of remunerative and non-remunerative project components. The revenue strategy is to earmark a portion of the revenue streams for ensuring sustainability. Towards this, the HPSC has directed all the parastatal departments to earmark 20 percent of their outlay for Kochi city towards Smart City Projects. The strategies for achieving reasonable levels of O&M sustainability for each project component have been laid out below:

The city has separate plans for Operation and Maintenance for each of the component which is detailed below:

- Urban Transport and connectivity – The intelligent integrated multi-modal transport systems is the central theme of the project linking Water, Bus and Metro transit systems. The special focus will be an water transport infrastructure with safe and effective linkages to Metro through mass transit systems. The revenue profile would include passenger fares with annual escalation component, Advertisement revenue, commercial rentals from commercial space developed in and around the jetties, parking revenue.

- Roads and allied infrastructure – With respect to Road infrastructure and pedestrian facilities, the major source of revenue will be the apportioned property tax and other source of funds. In case of allied infrastructure like utility ducting, rentals from OFC network infrastructure, advertisement revenue along the proposed world class roads

- Central City Economic Rejuvenation –The MG Road station area is envisaged to be developed as a TOD corridor housing a population of 31,500 whilst creating about 37,096 job opportunities. The Economic rejuvenation of the area is also supported by redevelopment of the Broadway and Ernakulam market which is expecting to bring in significant improvement in improved rentals, and higher realization of advertisement revenue. The HPSC has recommended a revision to FAR to 6 (at select pockets) to promote compact redevelopment in the central city areas. This will lead to scale up in economic activity and also increased realization of development charges by promoting private sector development in the region.

Continue on next page

- Slum Redevelopment and Housing improvement – The objectives of the slum redevelopment and housing improvement projects is aimed at improving the livelihood conditions for some of the poorest sections in the city. The focus in more on the Economic return of the intervention. However, the possibility of compact development and opening up hitherto inaccessible areas for economic activity will drive the property prices and thus the revenue realization for the city.

- Water Supply and Sewerage – The O&M for water supply and Sewerage will be meted out of the user charges. Kochi follows a volumetric method for tariff determination with slab based tariff structure. High number of commercial connections in the Central city and the Tourism/ Heritage areas will bring about improved returns on the project. The city has a high user charge collection efficiency of 80% in Water supply; with the cost recovery low at 50%. However, the recent hike in tariffs by almost 100 percent and the high number of commercial connections in the area will help address the cost recovery challenge.

- Solid waste management and Sanitation – The City has a tariff policy for collection of Solid waste from commercial institutions which will be leveraged to meet the O&M cost in the proposed area. Adequate incentive structures to improve waste segregation and decentralized composting will be meted out of the tax components.

- Open spaces and Canals/ Waterways – The projects are inherently non remunerative in nature, hence the city shall look at involving the local communities and CSR funds to fund the O&M of open spaces. The indirect impact of the projects will be increase in economic activity in the region, which will drive the ULB's income through increased Rentals from commercial centers, and advertisement revenue.

- Social Infrastructure – The O&M interventions in Social infrastructure shall be meted out of the funds from CSR, PPP, User payments etc. However, the salary component which forms a significant portion of the interventions shall be financed by the respective departments like Department of Health and Department of Education. Similarly the existing grant funds outlay towards operation and maintenance of the social infrastructure in the region will be utilized for greater convergence and implementing an integrated plan.

- Heritage and Tourism Development – The Heritage and Tourism development interventions will lead to higher footfalls of tourists and greater economic activity surrounding the West Kochi region. The Tourist facilitation and effective co-ordination may be met by higher realization from commercial properties and user charges from tourist specific services.

42. FINANCIAL TIMELINE

What is the financial timeline for your smart city agenda? Describe the milestones and target dates related to fund flows, payback commitments, etc. that must be adhered to for the proposal to achieve the vision set out in Table 5 (question 31)? (max. 1 page: A4 size)

Head	Financial plan	Strategies
Capital income	The financial timeline for the Smart City agenda is between FY 17 and FY 21 1. Grants (including convergence) of Rs 1582 crore will be received FY 17 to FY 20. 2. Loans of Rs 251 crore will be accessed, especially for 24*7 WS and World class arterial roads projects 2. The proportion of Grant/ Loan/ Own funds and others on an annual basis will be driven by individual project requirements	HPSC has directed all the parastatal departments to earmark 20 percent of their outlay for Kochi city towards Smart City Projects Loans/ Lines of credit/ convergence will be accessed by FY 17;
Capital expenditure	The total capital expenditure envisaged is Rs 2076 crore across FY 17 to FY 22 with majority of the project executed by FY 19-20. The Capex for Year 1 will be driven by DPR ready/ ongoing projects to the tune of Rs 170 crores. The capex will progressively increase to Rs 450-500 crore annually over the next 3-4 years. The 24*7 WS pan-city solution is expected to be completed by FY 22/ FY 23	The annual capex of Rs 1385 crore will be utilized by FY 21. Around 80% of the projects under ABP will be completed by Dec 19/ FY 20.
Revenue income	The apportioning of the revenue sources as per the recommendations of the HPSC will ensure that the SPV will generate adequate resources towards meeting the additional O&M requirements. The Revenue income including devolved plan funds attributable to the region and services is expected to increase by almost 36% to Rs 58 crore by FY 21. Long term benefits will be accrued from higher FAR	The HPSC has recommended a revision to FAR to 6 (at select pockets) - Increase in development charges and property tax Earmarking a proportion of revenue to Smart city area
Revenue expenditure	The overall additional O&M cost will be around Rs 80 crore. However, revenue expenditure attributable to the O&M of the new assets created will increase from Rs 1 crore in FY 17 to around Rs 30 crore in FY 21.	The revenue expenditure of the projects not executed by SPV, will be meted out by the specific line departments
	Financial model is provided in the Annexure 3.12	

43. FALL-BACK PLAN

What is your plan for mitigating financial risk? Do you have any alternatives or fall-back plans if the financial assumptions do not hold? (max. 250 words)

The City has clearly charted out its strategic growth plan and also the role of the smart city mission in the overall scheme of things. The City's objective through the scheme is to create a visible working model of excellence in the city which will drive the push towards focused development through a bottom-up approach. Hence, the city has taken a diverse but conservative approach to project planning in phase 1. The estimated project cost is around Rs 2076 crore which is funded through a combination of grants, loans and own funds.

The possible financial risks associated with the proposed mission areas follows

i. Estimates on Convergence – The proposed outlay factors a moderate portion of the funds through convergence from other schemes like State Plan funds, AMRUT,IPDS, SBM etc. In case of any realignment of the schemes or any shortfall in the fund allocation, the city will re-align some of the State Plan fund schemes and devolution under the 14th CFC towards this purpose. However, the level of dependence on convergence has been structured so that there is no significant amendment to the plans.

ii. The city plans to have an efficient model for O&M sustainability under the smart cities mission. Hence, moderate improvement in own funds is envisaged through a combination of measures including increased administrative efficiency, integration of efficient smart payment solutions, higher realization due to rise in economic activity and land value in the proposed area. However, in case of policy and administrative challenges in improving own revenue, SPV will have to revisit some of the funding

iii. Revision of the Project cost : The project cost estimates have been worked out based on the detailed interactions with line departments and building on some of the technical/ feasibility studies undertaken by the agencies. This will be addressed during the projectisation phase wherein the gaps in funding will be addressed beforehand through State grants/ lines of credit from multilateral institutions. A significant Institutional intervention is that the SPV will have a dedicated staff in charge of Revenue, Accounts and Resource mobilization. The Manager will work actively with the ULB, State departments, financial agencies like KIIF, Kerala Road Fund Board and Multilateral agencies in raising funds for the SPV. Additional lines of credit from other multi-lateral agencies will also be accessed as a backup plan in case of any gaps in the State's outlay towards the project. The appetite for funding in the city is reflected in the interest evinced by the British High Commission and Atkins International which is associated with the Smart City Kochi.

ANNEXURE 1

S. No	Feature	Definition
1.	Citizen participation	A smart city constantly adapts its strategies incorporating views of its citizens to bring maximum benefit for all. (Guideline 3.1.6)
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)
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)
4.	Health	A Smart City provides access to healthcare for all its citizens. (Guideline 2.5.10)
5.	Education	A Smart City offers schooling and educational opportunities for all children in the city (Guideline 2.5.10)
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)
7.	Compactness	A Smart City encourages development to be compact and dense, where buildings are ideally within a 10-minute walk of public transportation and are located close together to form concentrated neighborhoods and centers of activity around commerce and services. (Guidelines 2.3 and 5.2)
8.	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)
9.	Housing and inclusiveness	A Smart City has sufficient housing for all income groups and promotes integration among social groups. (Guidelines 3.1.2)
10.	Transportation & Mobility	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)
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)
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)

13.	Intelligent 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)
14.	Energy supply	A Smart City has reliable, 24/7 electricity supply with no delays in requested hookups. (Guideline 2.4)
15.	Energy source	A Smart City has at least 10% of its electricity generated by renewables. (Guideline 6.2)
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)
17.	Waste water management	A Smart City has advanced water management programs, including wastewater recycling, smart meters, rainwater harvesting, and green infrastructure to manage storm water runoff. (Guideline 6.2)
18.	Water quality	A Smart City treats all of its sewage to prevent the polluting of water bodies and aquifers. (Guideline 2.4)
19.	Air quality	A Smart City has air quality that always meets international safety standards. (Guideline 2.4.8)
20.	Energy efficiency	A Smart City promotes state-of-the-art energy efficiency practices in buildings, street lights, and transit systems. (Guideline 6.2)
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)
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)
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)
24.	Safety	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)

ANNEXURE 2

Self-Assessment Form

Attach self-assessment format given in supplementary template (Excel sheet), with columns I-L duly filled

ANNEXURE 3

Twenty sheets (A-4 and A-3) of annexures, including annexures mentioned in questions 32, 34, 36

S. No	Particulars	✓
1	List of Abbreviations	☑
2	List of Abbreviations	☑
3	List of sources and references (Question 1)	☑
4	Kochi City profile – Growth nodes	☑
5	Consultation Sessions - Photographs	☑
6	Options for Area Based Development emerging from consultations	☑
7	Significance of Selected Area	☑
8	Significance of Selected Area	☑
9	Major projects in the city	☑
10	ABP : Graphical representation of Potential Interventions	☑
11	ABP : Graphical representation of Potential Interventions	☑
12	ABP : Graphical representation of Potential Interventions	☑
13	ABP : Graphical representation of Potential Interventions	☑
14	SCP Implementation: Gantt Chart showing Activities, Sequencing, Timelines	☑
15	SCP Implementation: Gantt Chart showing Activities, Sequencing, Timelines	☑
16	Relationship of SPV with Govt. / Non. Governmental agencies	☑
17	Stakeholder Role and Relationships	☑
18	Financial Summary and Capital Investment Plan	☑
19	Financial Summary and Capital Investment Plan	☑
20		☐

ANNEXURE 4

(Supporting documents, such as government orders, council resolutions, response to Question 33 may be annexed here)

S. No	Particulars	✓
1	Resolution of the Corporation/Council approving Smart City Plan including Financial Plan	☑
2	Resolution of the Corporation/Council for setting up Special Purpose Vehicle	☑
3	Minutes of HPSC meeting for agreement/s with Para Statal Bodies, Boards & SPVs in the City for implementing the full scope of the SCP and sustaining the pan-city and ABP	☑
4	G.O no. 2280/2015/LSGD for Constitution of Inter-departmental Task Force	☑
5	G.O no. 2848/2015/LSGD for Consultative sessions – Govt. Departments	☑
6	G.O no. 2799/2015/LSGD for Special Ward Committees for Smart city discussion	☑
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ANNEXURE-4

No.K-14012/101(04)/2021-SC-III-A
Government of India
Ministry of Housing & Urban Affairs
SC-III-A Section

Nirman Bhawan, New Delhi-110011
Dated: 1st May, 2023

To,

1. Chief Secretaries of all States/UTs
2. Principal Secretaries (Urban Development) of all States/UTs
3. CEOs of 100 Smart Cities SPVs

Sub:- Approval for extension of Smart Cities Mission for the period upto 30th June, 2024.

Sir/Ma'am,

The undersigned is directed to convey that the Ministry of Housing & Urban Affairs has decided to extend the Smart Cities Mission for the period upto 30th June, 2024 without any additional cost, subject to the condition that no additional liability / new work should be created beyond the already approved financial allocation and that all ongoing projects / works should be completed before 30th June, 2024.

Yours faithfully,

(Lal Chhandama)
Director (Smart Cities)

Copy for information to:

1. Secretary, Deptt. of Expenditure, North Block, New Delhi with reference to DoE's OM No. 24(35)/PF-II/2012-Pt. dated 05/06/2017.
2. PS to Hon'ble HUAM,
3. Sr. PPS to Secretary, HUA
4. PPS to JS & MD (SCM)
5. Sr. PPS to JS & FA, HUA
6. SO (IT Cell for uploading the order on the e-office portal)

അനുബന്ധം–3

I. സ്മാർട്ട് സിറ്റി തിരുവനന്തപുരം ലിമിറ്റഡിന് കീഴിലെ പദ്ധതികൾ :

Sl No.	Project Name	Current Status	Date of Completion
1	Redevelopment of Palayam Market	Finishing works of block 1 Rehabilitation block nearing completion [Block II & III completed] . Redevelopment of Palayam will commence after shifting of vendors.	30.03.2025
2	Chalai Warehousing	Piling works nearing completion.Pre Fabricated structure manufacturing in progress	31.07.2024
3	DIfferently Abled School Phase I	Renovation of building nearing completion .Exterior development and beautification works in progress	31.07.2024
4	OWC at Shanghumukham	Material Supply completed. Shed works in progress.	31.07.2024
5	Digitalisation of Property Tax	Digitisation of Documents of corporation in progress.	30.06.2024
6	Azhankal Walkway - River Bund Strengthening	River Bund works nearing completion -1.20 km of 1.35 km completed.	31.07.2024
7	Azhankal Walkway - General Civil Work- Toe wall construction	1.30 km of 1.45 km completed. Balance works in progress	31.07.2024
8	E-Health Laptop	Laptops and peripherals procurement in progress.	30.06.2024
9	Display Board	Display boards delivered. Installation in progress	31.07.2024
10	Flood Monitoring	Installation at all vulnerable locations completed.	30.06.2024

		Integration in progress.	
11	Entrance Gate-Sanskrit College-Charithra Veedhi	Works nearing completion . Paint works in progress.	30.06.2024
12	Solid Waste Management	Items delivered ,installation in progress.	31.07.2024
13	Gandhi Park	Outside periphery wall completed. Inside beatification works like interlock and landscaping in progress.	31.07.2024
14	Smart Parking	Installation completed .Integration in process.	30.06.2024
15	Beautification Work at Shanghumugham	Entrance gateway works nearing completion.	31.07.2024
16	Tensile Roof Structure above the central plaza of E K Nayanar Memorial Park	Pedestal works for columns completed. Fabrication completed. Material in transit.	31.07.2024
17	Geospatial Management Information System-GIS	Drone survey and Lidar survey completed. Household survey ongoing.	30.06.2024
18	Smart Class Room- PHASE I	Out of 55 Classrooms 42 Nos completed. Work of 13 Nos of classrooms in progress.	31.07.2024
19	Solar Roof Top 30KWp -DPI Jagathy	Installation completed. Commissioning of Solar roof top in progress.	31.07.2024
20	DIfferently Abled School Phase II	Audiology works completed. Commissiong to be done. Sensory park works in progress.	31.07.2024
21	Blind School	Flooring works and tactile works in progress. Painting works nearing completion. Electrical and Lift works in progress. Studio room works in progress.	31.07.2024

22	Azhankal Walkway - Cycle Track	Cycle track work ,walkway works in progress.	31.07.2024
23	Sreekandeswaram	Clearing of site completed. Setting out and leveling works in progress.	31.07.2024
24	Development of Parking Space & Landscaping Work at Civil Station	Parking space pole erection completed. Sheet works in progress. Landscaping completed.	31.07.2024
25	MLCP Putharikandam	Pile load test of 1 Pile completed. 2nd Load test preparations in progress. Design vetting in progress.	30.09.2024
26	MLCP Medical College	Excavation of footings completed. Footing and raft works for columns and sump tank in progress.	30.09.2024
27	MLCP Vaniyamkulam	Technical Evaluation phase.	30.12.2024
28	Beautification worksication-shangumugham - Electrical-Electrical	UG ducting works nearing completion. Procurement of lights in progress. Electrical UG ducting in progress.	31.07.2024
29	Beautification- Azhankal	Development of radio park with seaters, boat landing center and allied works in progress.	31.07.2024
30	Smart Class Room Phase V	Total No. of Classrooms = 34 Nos. Civil and Electrical works completed. CCTV and networking works in progress. Procurement of Smart Screen in progress.	31.07.2024
31	City beautification-Footpath and Handrail- Akkulam to Kuzhivila-NH 66	Fabrication of handrails in progress. Footpath works to commence.	31.07.2024
32	City beautification - smart road-Sreekariyam- Kazhakuttam	Excavation of drains started. Marking of levels in progress.	31.07.2024

33	Beautification - Sasthamangalam-Peroorkada Road	Total Road Length. Drain and duct works completed. Subgrade preparation in progress. Beautification works in progress	31.07.2024
34	Beautification - Karamana-Pravachambalam Road SITC-Electrical	Installation of Street Light and lamps completed. Commission in progress.	31.07.2024
35	Beautification- NH 66(47) Median- Karamana to Pravachambalam- Civil work	Median Beautification and landscaping works completed. Median Barrication works in progress.	31.07.2024
36	Integrated Social Housing Complex- Rajaji Nagar- Phase I	Tendering Phase.	30.11.2024
37	Smart Class Room Phase VI	Total No. of Classrooms = 38 Nos. Civil and Electrical works completed. CCTV and networking works in progress. Procurement of Smart Screen in progress.	31.07.2024
38	City Beautification Phase V	Trial lighting of bridges completed. Painting of bridges in progress. Procurement in progress.	31.07.2024
39	Re-development of EMS Park at PMG, TVM	Initial setting out and survey in progress.	31.07.2024
40	EV Charging Station- ANERT	Material delivery completed. Installation of 13 locations in progress.	31.07.2024
41	KRFB Roads	Out of 40 Roads.25 Roads under 1 package 100 % completed.2 Roads 100 % Completed.10 Roads 75 % Completed. Balance 3 roads under tendering phase.	31.07.2024
42	ANERT Solar city Project	Total sites = 515 . 349 locations commissioned.150 locations Installation completed. 5	30.06.2024

		Locations installation in progress. 11 Locations material procurement in progress.	
43	Smart Roads- Corporation	Out of 40 Corporation Roads 25 Roads Surfacing works / DGBM works completed , Balance 15 Roads works in progress.	31.07.2024
44	Solid Waste Management Machine	Machine to be delivered by 25th June.	30.06.2024
45	City Beautification Phase III	478 Poles out of 478 completed. Charging of poles in progress	30.06.2024
46	City Beautification Phase IV	518 Poles out 518 completed. Charging in progress	30.06.2024
47	Beautification of Civil Station	Landscaping works completed. Finishing works in progress.	30.06.2024
48	Jetting Machine	GeM Procurement.Technical evaluation Phase.	30.06.2024

II. കൊച്ചിൻ സ്മാർട്ട് മിഷൻ ലിമിറ്റഡിന് കീഴിലെ പദ്ധതികൾ :

ക്രമ നം.	പ്രോജക്ടിന്റെ പേര്	നിലവിലെ അവസ്ഥ	പദ്ധതി തീർപ്പാകുന്നതിനു പ്രതീക്ഷിക്കുന്ന തീയതി
1	തുരുത്തി ഹൗസിങ് ടവർ നിർമ്മാണം	G+13 നിലകൾ പൂർത്തിയായി, ഫ്ളോറിങ് പെയിന്റിംഗ് പ്ലംബിംഗ് , ലിഫ്റ്റ് ഇലക്ട്രിക്കൽ വർക്കുകൾ ഉൾപ്പെടെ ഉള്ള ഫിനിഷിങ് പണികൾ നടക്കുന്നു.	31.07.2024
2	എറണാകുളം മാർക്കറ്റ് പുനർ വികസനം	B+G+3 നിലകൾ പൂർത്തിയായി, ഫ്ളോറിങ് പെയിന്റിംഗ് പ്ലംബിംഗ് , ലിഫ്റ്റ് ഇലക്ട്രിക്കൽ വർക്കുകൾ ഉൾപ്പെടെ ഉള്ള ഫിനിഷിങ് പണികൾ നടക്കുന്നു.	310.06.2024
3	കൽവത്തി സ്കൂൾ നവീകരണം	കെട്ടിടത്തിന്റെ (G+3) സ്ട്രക്ച്ചർ പൂർത്തിയായി . നിലവിൽ ഉള്ള കോൺട്രാക്ടറിനെ ടെർമിനേറ്റ ചെയ്തു	31.07.2024

		ബാലൻസ് പണികൾ പുതിയ കൺട്രാക്ടർക്കു റിസ്ക് ആൻഡ് കോസ്റ്റ ഇൽ ആണ് ഇപ്പോൾ അവാർഡ് ചെയ്തിരിക്കുന്നത് . പണികൾ ഇപ്പോൾ ത്വരിതഗതിയിൽ നടക്കുന്നു. ഫിനിഷിങ്, ഇലെക്ട്രിക്കൽ , ലിഫ്റ്റ് പണികൾ ആണ് നടക്കുന്നത്	
4	ഒ.പി. ആന്റ് അഡ്മിനിസ്ട്രേറ്റീവ് ബ്ലോക്ക്, കൊച്ചി താലൂക്ക് ആശുപത്രി,	കെട്ടിടത്തിന്റെ (G+2) സ്ട്രക്ച്ചർ പൂർത്തിയായി . നിലവിൽ ഉള്ള കോൺട്രാക്ടറിനെ ടെർമിനേറ്റ ചെയ്തു ബാലൻസ് പണികൾ പുതിയ കൺട്രാക്ടർക്കു റിസ്ക് ആൻഡ് കോസ്റ്റ ഇൽ ആണ് ഇപ്പോൾ അവാർഡ് ചെയ്തിരിക്കുന്നത്. പണികൾ ഇപ്പോൾ ത്വരിത ഗതിയിൽ നടക്കുന്നു. ഫിനിഷിങ്, ഇലക്ട്രിക്കൽ, ലിഫ്റ്റ് പണികൾ ആണ് നടക്കുന്നത്	31.07.2024
5	ഒ.പി. ആന്റ് അഡ്മിൻ ബ്ലോക്ക് സ്ത്രീ, കുട്ടികളുടെ ആശുപത്രി, മട്ടാഞ്ചേരി	കെട്ടിടത്തിന്റെ (G+2) സ്ട്രക്ച്ചർ പൂർത്തിയായി . നിലവിൽ ഉള്ള കോൺട്രാക്ടറിനെ ടെർമിനേറ്റ് ചെയ്തു ബാലൻസ് പണികൾ പുതിയ കൺട്രാക്ടർക്കു റിസ്ക് ആൻഡ് കോസ്റ്റിൽ ആണ് ഇപ്പോൾ അവാർഡ് ചെയ്തിരിക്കുന്നത്. പണികൾ ഇപ്പോൾ ത്വരിത ഗതിയിൽ നടക്കുന്നു. ഫിനിഷിങ്, ഇലക്ട്രിക്കൽ, ലിഫ്റ്റ് പണികൾ ആണ് നടക്കുന്നത്	31.07.2024
6	പി ജെ ആന്റണി കൾച്ചറൽ സെന്റർ	ഫിനിഷിങ് പണികൾ ആണ് ഇപ്പോൾ നടക്കുന്നത്	30.06 .2024
7	പാർക്ക് കളുടെയും പൊതു ഇടങ്ങളുടെയും നിർമാണം/ നവീകരണം –പാക്കേജ് 2	ഫിനിഷിങ് പണികൾ ആണ് ഇപ്പോൾ നടക്കുന്നത്	30.06.2024
8	പാർക്ക് കളുടെയും പൊതു ഇടങ്ങളുടെയും നിർമാണം/ നവീകരണം –പാക്കേജ് 3	ഫിനിഷിങ് പണികൾ ആണ് ഇപ്പോൾ നടക്കുന്നത്	30.06.2024
9	പാർക്ക് കളുടെയും പൊതു ഇടങ്ങളുടെയും നിർമാണം/ നവീകരണം –പാക്കേജ് 4	ഫിനിഷിങ് പണികൾ ആണ് ഇപ്പോൾ നടക്കുന്നത്	31.07.2024
10	കമ്മ്യൂണിറ്റി ഹാൾ മട്ടാഞ്ചേരി റെന്നോവഷൻ ഓഫ് കസ്റ്റംസ് ബോട്ട് ജെട്ടി	പൈലിങ് പൈൽ ക്യാപ് പണികൾ പുരോഗമിക്കുന്നു	31.08.2024

11	അംഗനവാടികളുടെ നവീകരണം	ഫിനിഷിങ് പണികൾ ആണ് ഇപ്പോൾ നടക്കുന്നത്	30.06.2024
12	എറണാകുളത്തെ വിവിധ റോഡുകൾ പാക്കേജ് –1	ഫോർഷോർ റോഡ് ഡ്രയിനേജ്, ഫുട്പാത് പണികൾ പൂർത്തിയായി DBM പണികൾ നടന്നു കൊണ്ട് ഇരിക്കുന്നു	31.08.2024
13	വെസ്റ്റ് കൊച്ചി വിവിധ റോഡുകൾ പാക്കേജ്– 2	താമരക്കുളം റോഡ്, സ്റ്റാച്യു റോഡ് എന്നിവ പൂർത്തിയാക്കി. പദ്ധതി ഇപ്പോൾ ഫിനിഷിങ് സ്റ്റേജ് ആണ്	31.08.2024
14	എറണാകുളത്തെ വിവിധ റോഡുകൾ പാക്കേജ്– 3	കർഷക റോഡ്, ഐജി എച് പണികൾ നടന്നു കൊണ്ട് ഇരിക്കുന്നു	31.07.2024
15	സർക്കുലർ ബസ് റൂട്ട്	വൈറ്റില മൊബിലിറ്റി ഹബ്ബിൽ സർവീസ് റോഡ് പണികൾ പൂർത്തീകരിച്ചു. പ്രധാന എൻട്രി ഏരിയയിൽ ഡ്രയിനേജ് സുഗമം ആക്കുവാൻ പൈപ്പ് കൾവർട്ട് സ്ഥാപിച്ചു റോഡ് കട്ട വിരിക്കൽ ആണ് ഇനി ബാക്കി ഉള്ളത്	31.08.2024
16	അമരാവതി കൽവത്തി റോഡ് വെസ്റ്റ് കൊച്ചി	കൽവതി റോഡ് ഡ്രയിൻ ഡക്ട് വെക്കൽ എന്നിവ പൂർത്തിയായി ഇലക്ട്രിക്കൽ കേബിൾ സ്ഥാപിച്ചതിനു ശേഷം ആണ് നടപ്പാതയുടെ പണികൾ ആരംഭിക്കാൻ സാധിക്കുക ഉള്ളൂ. റോഡ് കട്ട വിരിക്കൽ പണികൾ നടന്നു കൊണ്ട് ഇരിക്കുന്നു	31.08.2024
17	സ്മാർട്ട് റോഡ് :കെ ബി ജേക്കബ് റോഡ് ,ബെല്ലർ റോഡ് വെസ്റ്റ് കൊച്ചി	കെ ബി ജേക്കബ് റോഡ് പണികൾ എല്ലാം പൂർത്തിയായി . ബെല്ലർ റോഡിൽ ഫുട്പാത് പണികൾ കുറച്ചു ബാക്കിയുണ്ട്. അതും റോഡ് മാർകിങ് ഉൾപ്പെടെ ഈ മാസം തന്നെ തീർക്കും	30.06.2024
18	ഭൂഗർഭ വൈദ്യുതി കേബിളിംഗ്	എറണാകുളത്തെ സ്മാർട്ട് റോഡുകൾ, :കെ ബി ജേക്കബ് റോഡ് ,ബെല്ലർ റോഡ് പണികൾ പൂർത്തിയായി കൽവത്തി റോഡിൽ പണികൾ പുരോഗമിക്കുന്നു	31.12.2024
19	എൽ.ഇ.ഡി. ലൈറ്റിംഗ് എ.ബി.ഡി പ്രദേശം	എറണാകുളത്തെ സ്മാർട്ട് റോഡുകൾ, :കെ ബി ജേക്കബ് റോഡ് ബെല്ലർ റോഡ് , പണികൾ പൂർത്തിയായി കൽവത്തി റോഡിൽ സിവിൽ ഫൌണ്ടേഷൻ പണികൾ കഴിഞ്ഞതിനു ശേഷം ആണ് ലൈറ്റ് സ്ഥാപിക്കുന്ന പണികൾ നടപ്പാക്കുക	31.08.2024
20	സിറ്റി സർവെയ്ലൻസ്	331 ആധുനിക ക്യാമെറകൾ സ്ഥാപിച്ചു ക്യാമെറകളുടെ നിരീക്ഷണത്തിനായി പ്രത്യേകം കണ്ട്രോൾ റൂം പ്രവർത്തനം	31.08.2024

		ആരംഭിച്ചു കഴിഞ്ഞു	
21	ചെറിയ പാലങ്ങളുടെ നിർമാണം (കോഞ്ചേരി , ചിരട്ടപ്പാലം)	ഒരു പാലത്തിന്റെ പൈലിങ് പൈൽ ക്യാപ് പണികൾ പുരോഗമിക്കുന്നു പ്രീ കാസറ്റ് ഗിർഡർ കാസറ്റ് കഴിഞ്ഞു	31.08.2024
22	എൽ.ഇ.ഡി. ലൈറ്റിംഗ് (PAN City)	തിരഞ്ഞെടുക്കപ്പെട്ട പ്രധാന റോഡുകളിൽ ലൈറ്റ് സ്ഥാപിച്ചു കഴിഞ്ഞു.മറ്റു റോഡുകളിലെ പണികൾ പുരോഗമിക്കുന്നു	31.08.2024
23	ഇ ഹെൽത്ത് പദ്ധതി	30 ആശുപത്രികളിലും ഇ ഹെൽത്ത് സംവിധാനം നടപ്പാക്കാൻ വേണ്ട പണികൾ പൂർത്തിയായി. 5 ആശുപത്രികളിൽ മെഡിക്കൽ എക്വിപ്മെന്റ്സ് നൽകുന്ന പ്രവർത്തി പുരോഗമിക്കുന്നു	30.06.2024
24	മൾട്ടിലെവൽ കാർ പാർക്കിംഗ് പദ്ധതി	മണ്ണ് പരിശോധന പൂർത്തിയാക്കി പ്രാരംഭ പ്രവർത്തികൾ ആരംഭിച്ചു	31.03.2025
25	കമ്മ്യൂണിറ്റി ഹാൾ മട്ടാഞ്ചേരി റെന്നോവഷൻ ഓഫ് കസ്റ്റംസ് ബോട്ട് ജെട്ടി- അഡിഷണൽ വർക്സ്	പൈലിങ് പൈൽ ക്യാപ് പണികൾ പുരോഗമിക്കുന്നു	31.08.2024
26	പാർക്ക് കളുടെയും പൊതു ഇടങ്ങളുടെയും നിർമാണം/ നവീകരണം -പാക്കേജ് 5	പ്രാരംഭ പ്രവർത്തികൾ ആരംഭിച്ചു	30.09.2024
27	പാർക്ക് കളുടെയും പൊതു ഇടങ്ങളുടെയും നിർമാണം/ നവീകരണം -പാക്കേജ് 6	പ്രാരംഭ പ്രവർത്തികൾ ആരംഭിച്ചു	30.09.2024
28	ഫ്ലോട്ടിങ് ജെട്ടിയും മറ്റു അനുബന്ധ വർക്ക് കളും	മണ്ണ് പരിശോധന പൂർത്തിയാക്കി പ്രാരംഭ പ്രവർത്തികൾ ആരംഭിച്ചു	30.09.2024
29	പൂവത് റോഡ് രാജേന്ദ്ര മൈതാനം ... ഗ്രൗണ്ട് എന്നിവിടങ്ങളിലെ മറ്റു പ്രവർത്തികൾ	പ്രാരംഭ പ്രവർത്തികൾ ആരംഭിച്ചു	30.09.2024
30	പാണ്ടിക്കുടി റോഡ് ടാറിങ് പ്രവർത്തികൾ, ബ്രോഡ് വേ അനുബന്ധ പ്രവർത്തികൾ	പാണ്ടിക്കുടി റോഡ് പണികൾ പൂർത്തിയായി. ബാക്കി പ്രവർത്തികൾ ഈ മാസത്തോടെ പൂർത്തീകരിക്കും	30.06.2024
31	സ്മാർട്ട് സോളിഡ് വേസ്റ്റ് മാനേജ്മന്റ് മെഷീൻ	മെഷീൻ നിർമ്മാണ പ്രവർത്തികൾ പൂർത്തിയായി	30.06.2024

32	സപ്ലൈ ഓപ്പറേഷൻ, മെയ്റ്റനൻസ് : പൊട്ഹോൾ പാച്ചിങ് മെഷീൻ	എഗ്രിമെന്റ് ഒപ്പിട്ടു. മെഷീൻ നിർമ്മാണ പ്രവർത്തികൾ ഫാക്ടറികളിൽ നടന്നു കൊണ്ട് ഇരിക്കുന്നു	31.07.2024
33	സപ്ലൈ ഓപ്പറേഷൻ, മെയ്റ്റനൻസ് : സക്ഷൻ കം ജെറ്റിങ് മെഷീൻ	എഗ്രിമെന്റ് ഒപ്പിട്ടു. മെഷീൻ നിർമ്മാണ പ്രവർത്തികൾ ഫാക്ടറികളിൽ നടന്നു കൊണ്ട് ഇരിക്കുന്നു	31.07.2024
34	സപ്ലൈ ഓപ്പറേഷൻ, മെയ്റ്റനൻസ് : കോംപാക്ടർ	എഗ്രിമെന്റ് ഒപ്പിട്ടു. മെഷീൻ നിർമ്മാണ പ്രവർത്തികൾ അതാതു ഫാക്ടറികളിൽ നടന്നു കൊണ്ട് ഇരിക്കുന്നു	31.07.2024
35	സപ്ലൈ ഓപ്പറേഷൻ, മെയ്റ്റനൻസ് :Amphibian Weed Harvestor/Cuttng Machine	എഗ്രിമെന്റ് ഒപ്പിട്ടു. മെഷീൻ നിർമ്മാണ പ്രവർത്തികൾ ഫാക്ടറികളിൽ നടന്നു കൊണ്ട് ഇരിക്കുന്നു	31.07.2024
36	സപ്ലൈ ഓപ്പറേഷൻ, മെയ്റ്റനൻസ് : Silt Pusher machine	എഗ്രിമെന്റ് ഒപ്പിട്ടു. മെഷീൻ നിർമ്മാണ പ്രവർത്തികൾ ഫാക്ടറികളിൽ നടന്നു കൊണ്ട് ഇരിക്കുന്നു	31.07.2024
37	ഇന്റലിജന്റ് സോളിഡ് വേസ്റ്റ് മാനേജ്മന്റ് സൊല്യൂഷൻ	ആപ്പ് ഡെവലപ്മെന്റ് ഫസ്റ്റ് സ്റ്റേജിൽ ആണ്, സ്റ്റേക്കഹോൾഡർമാരുടെ മീറ്റിംഗ് കൾ നടന്നു കൊണ്ട് ഇരിക്കുന്നു അതിനു ശേഷം ആവശ്യാനുസരണ മാറ്റങ്ങൾ വരുത്തി ലോഞ്ച് ചെയ്യുവാൻ ആണ് ഉദ്ദേശിക്കുന്നത്	31.07.2024
38	സ്മാർട്ട് പാർക്കിംഗ് മാനേജ്മന്റ് സൊല്യൂഷൻ	ആപ്പ് ഡെവലപ്മെന്റ് ഫസ്റ്റ് സ്റ്റേജിൽ ആണ് , സ്റ്റേക്ക്ഹോൾഡർമാരുടെ മീറ്റിംഗുകൾ നടന്നു കൊണ്ട് ഇരിക്കുന്നു അതിനു ശേഷം ആവശ്യാനുസരണ മാറ്റങ്ങൾ വരുത്തി ലോഞ്ച് ചെയ്യുവാൻ ആണ് ഉദ്ദേശിക്കുന്നത്	31.07.2024