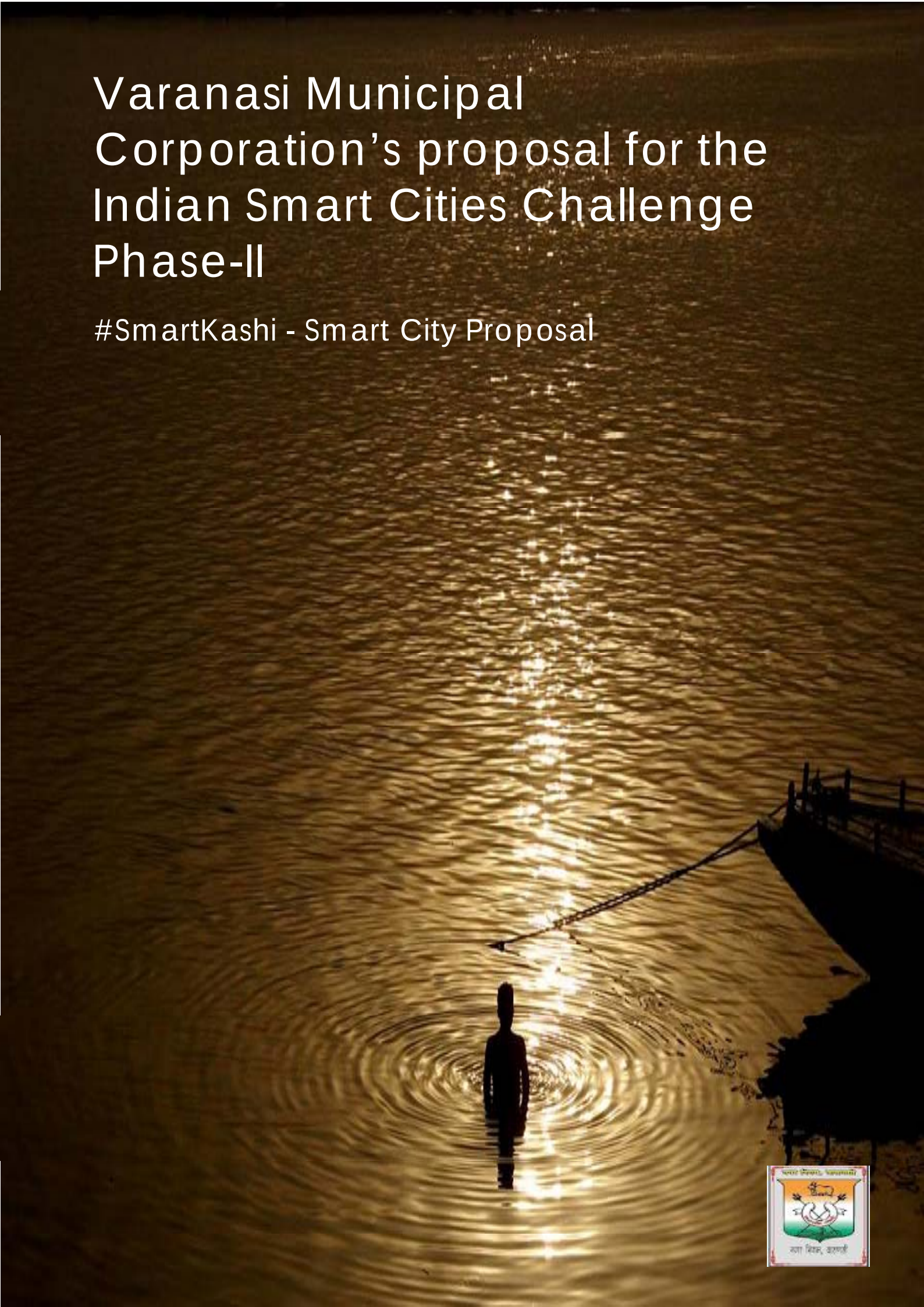
Varanasi Municipal Corporation's proposal for the Indian Smart Cities Challenge Phase-II

#SmartKashi - Smart City Proposal



EXECUTIVE SUMMARY

Intro: Varanasi's proposal for Phase 2 of the Smart Cities Challenge was drafted by putting our citizens right in the middle of all discussions. Varanasi Municipal Corporation's (VMC) outreach to the residents, involved a massive awareness and discussion campaign which leveraged:

- Print-media: 60 articles
- Radio: 9 lakh secondage across 3 channels
- Advertising: 165 hoardings
- Tableau vehicles: 6,000 km
- Social Media (reach):2 lakhs

Citizen connect: A multi-pronged approach was adopted across 175 workshops, which bucketed diverse groups representative of key demographics

- Renowned personalities from Arts & Culture
- Established educationalists
- NGOs
- Tourism industry
- The business community
- Economically weaker sections (eg. Boatsmen)

We started our citizen dialogue on approach & methodology, and continued it to the detailed SWOT analysis. Citizens were brought to a broad consensus of issues, from which we derived our Vision of #SmartKashi.

Vision: The outcome of the SWOT was deliberated on for us to arrive at an appropriate vision, which truly represented the aspiration of our residents.This led us to develop, the following vision:

*"To **rejuvenate** the oldest Indian living city of Varanasi as a **great place to live** and visit by **conserving** and **showcasing** its **enriched** heritage, culture, spirituality and traditions **through innovative social and financial inclusion solutions**."*

From the vision, we derived six key pillars of Varanasi's future.Citizens indulged in animated discussion on their preference of ABD area. Our citizens identified the following parameters as crucial to selection of the best fitted ABD area:

i. Citizen priorities
ii. Impact assessment
iii. Ease of execution
iv. Revenue generation potential.

Our deliberations resulted in the selection of the iconic Old City area adjoining the Kashi Vishwanath temple and serene riverfront ghats as the Area Based Development area.

Leveraging SMEs to layout the Strategic Blueprint: With an understanding of the pulse of our people, we at VMC reached out toa variety of SME experts to discuss the outcomes of our SWOT and the citizen's vision to identify possible interventions.

Our esteemed panel of experts included:

(a) Regional Centre for Urban & Environmental Studies, Lucknow (RCUES)
(b) SMEs from the Indian Institute of Technology, Banaras Hindu University (IIT BHU)
(c) Ministry of Urban Development, Government of India (MoUD) and

(d) Department for International Development, Government of United Kingdom (DFID)

The SMEs stressed on the importance of practically implementable solutions, the benefits of which should have a multiplier effect on the well-being of society, and which would be tangible in the short to medium term.

The resultant solutions arrived at were then deliberated with citizens through our online & offline campaign to secure adequate stakeholder buy-in.

Our Smart Solutions:

1. **Suramya Kashi |** Area Based Development | INR 572.14Crore

The predominant strength of Varanasi lies in its heritage, being amongst the world's oldest living cities (dating back to 1200 BC).It is a treasure trove of culture and spirituality handed down over generations. Rapid urbanization (on account of distress migration) and a high footfall of pilgrims however, have taken a toll on thecity.

The old city area is a high density zone (400-500pph), creating pressure for substituting existing spacious architectural forms with optimal space utilization plans. Citizen feedback emphasises that future development must not impede the old city charm. Yet, given the tourist potential, citizens stressed on reviving the old city with minimal intervention which maximised impact.

The solution therefore lie in:

- Rejuvenation of historic temples and the riverfront ghats
- Providing a worthy platform for visitors to experience & imbibe Varanasi's inherently rich cultural and heritage
- Capitalise on Varanasi's status under the UNESCO City of music label

These, amongst a host of experiential initiatives which indirectly also provided opportunity for meaningful employment for the local populace to benefit.

2. **Nirmal Kashi|** Area Based Development | INR 241.08Crore

Varanasi's spiritual importance is particularly derived from the revered Ganges, where visitors flock to wash their sins in the river, a symbol of purity. The irony being the poor sanitation in the city and low adoption of eco-friendly initiatives in our day to day lives.

The solutions accordingly are aimed at rejuvenating public spaces, particularly holy ponds and lakes while addressing challenges of sanitation in the city while promoting eco-friendly practices in the ABD area. Specifically, the solutions include:

- Rejuvenation of sacred water bodies& parks
- Providing effective andaccountable SWMsolutions
- Increased adoption of earth friendly initiatives such as green rooftops and rain water harvesting

3. **Surakshit Kashi |** Area Based Development | INR 15.81 Crore

Tourism is an important factorof the holy city's economy, given tourism's multi-industry linkage, it offers

tremendous benefits for the citizens to reap. The year 2013-14 saw ~63 lakh touristsvisit. Given the high foot fall of visitors, which is almost five times the city's population, it is important to be recognised as a safe place to travel. Security is also an important aspect of improving our people's quality of life. Varanasi being a city of all states, we borrow from the words of Nobellaureate Rabindranath Tagore:

"চিত্তযথো ভয়শূন্য, উচ্চযথো শির"

"*Where the mind is without fear, and the head held high*"

To enable this,our solutions include:

- Analytics based CCTV Surveillance to reduce violations
- Augmentation of Emergency Response (ER) services
- Improving aspects of the police citizen interface

4. **Samunnat Kashi |** Area Based Development | INR 1209.84 Crore

This interventionis aimed to improve the quality of life of our residents, we are dedicated to providing all classes with opportunities for meaningful employment while addressing other social parameters such as sports. It envisions, promotion of local entrepreneurship, ease of doing business and seeks to provide employment for various skilled, semi-skilled and unskilled groups amongst other solutions.

The interventions under this pillar include:

- Skill Development Centre for a "right-skilled work force"
- Promotion of local artefacts by establishing market linkages
- Providing a platform to street vendors while decongesting streets
- Develop a system of incentives to boost R&D and innovation
- Implementation of smart technologies to enhance the lives of local boatmen &e-Rickshaw drivers
- Multi-purpose sports stadium for a healthier future

5. **Ekikrit Kashi |** Pan-city initiative | INR 81.40 Crore

Our citizens sought ways to improve the G2C interface and enable effective and transparent two-way communication between the two. The solutions therefore, seek to bridge the digital divide while availing G2C services, by provision of a common platform to interface with the municipal administration in their hands (mGov) and through digital displays at public spaces.

The solution requires a combination of hardware and software which enable a common platform, easily accessible to our citizens while reaching out for G2C services. The solution includes:

- Accessibility to transparent information and quality services for all citizens
- One-stop-shop Smart card
- Information in your palm – Mobile app
- Effective grievance redressal mechanism

6. **Sanyojit Kashi |** Pan-city initiatives | INR 737.39crore

During our conversations with citizens, a common cause that was espoused by them included the challenges in intra-city transportation. Public transport in the city is currently driven by 130 busses procured by VMC under JnNURM which ferry close to 20,500 passengers per day. Reliance on them is low on account of intermittent and irregular service. Intermediate transport in the city is driven by a combination of e-Rickshaws and cycle rickshaws who do not have a standard fare. Encouragingly, vehicle sharing as a concept appears acceptable to the local populace as is evident from the use of e-Rickshaws.

The city's traffic density is primarily comprised of two wheelers which account for 79% of vehicles against a minor 7% attributed to cars.

Citizens regularly voiced their need/desire for an effective and reliable public transport system which would help in decongesting roads, reducing pollution and yet be comfortable for everyone to travel in.

Towards improving intra-city transport, the following solutions are proposed for long, intermediate and short trips:

- Multi-modal transportation hubs with Metro and other public transport
- Integrated traffic management system with CCTV surveillance
- Smart multi-level parking in the city for reducing congestion
- e-Rickshaws for clean last mile connectivity
- Development of waterways as an alternate mode of transport

Together, the municipal administration of Varanasi and our residents believe each of these solutions, if successfully implemented and nurtured would go miles to unleash the true potential of our people and India's ancient heritage.

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INDIA SMART CITY MISSION

MISSION TRANSFORM-NATION

THE SMART CITY CHALLENGE

STAGE 2

SMART CITY PROPOSAL

SMART CITY CODE:

UP - 09 - VNS

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	✓	Para No. 1 page 36
2.	Adequate water supply including waste water recycling and storm water reuse	✓	Para No. 2 page 36
3.	Sanitation including solid waste management	✓	Para No. 3 page 36
4.	Rain water harvesting	✓	Para No. 4 page 36
5.	Smart metering	✓	Para No. 5 page 36
6.	Robust IT connectivity and digitalization	✓	Para No. 6 page 36
7.	Pedestrian friendly pathways	✓	Para No. 7 page 36
8.	Encouragement to non-motorised transport (e.g. walking and cycling)	✓	Para No. 8 page 36
9.	Intelligent traffic management	✓	Para No. 9 page 36
10.	Non-vehicle streets/zones	✓	Para No. 1 page 37
11.	Smart parking	✓	Para No. 2 page 37
12.	Energy efficient street lighting	✓	Para No. 3 page 37

13.	Innovative use of open spaces	☑	Para No. 4 page 37 & para 1 38
14.	Visible improvement in the Area	☑	Para No. 2 page 38
15.	Safety of citizens especially children, women and elderly	☑	Para no 3 page 38
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.	☐	
18.	Additional 'smart' applications, if any	☑	Para no 4,5,6,7,8 Page 38

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

Road improvements:
— Widening & carpeting (45 Km), — Construction of dividers (70 Km)
— Anti-Encroachment drive: 110 encroachments removed
— Augmentation of traffic brigade: Force augmentation of 100 personnel
— Electric vehicles: 1000 rickshaws & 11 e-boats distributed by constituency's MP
— MRTS DPR approved- for 29.2 Km
— Social media Traffic updates
— Water transport as alternate to road
Source: CDP, Newspaper Articles

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

New distribution network: 425 KM commissioned
- Automated & new tube wells: 140 automated + 9
- 125 MLD from surface water and 205 MLD from Ground water: 330 MLD
- Re-bore of 3 tube wells for increased yield of 21.45 MLD
KPIs:
- NRW Reduction: 58% to 55%
- Network coverage: 65% to 69.81%
- Complaint redressal: 95% , - Per person water availability increased: from 84-95 LPCD
Source: CDP, Varanasi Nagar Nigam data

c. Solid waste management programs in the city

Domestic D2D collection: 41/90 wards (90 wards targeted by Dec), Commercial D2D initiated: FY 15-16, no segregation at source; total 520 MT/day of waste goes to landfill
- Citywide IEC campaign: past 3 years
- Primary & secondary collection augmented: with new vehicles & instruments (31 new vehicles attached.), - Waste to compost plant: operationalized, - Reduction of floating SW in Ganga: using streamer & floating booms
- Night sweeping initiated: 14 wards, - Agreement to implement automated waste collection & transport system
Source: CDP, Varanasi Nagar Nigam data

d. Safety/ security conditions in the city

24 hours Tourist police commissioned
- Smart Police app launched: anonymous complaints & emergency alerts
- Hi-tech control room being setup
- Dedicated helplines for issue specific redressal:
— Women:1090; Pregnant women: 102; Medical Emergency: 108, Water ambulance:1
- Augmentation of ER services by commissioning:38 ambulances
- 1 Battalion of National Disaster Response Force stationed at Varanasi
Source: National Crime record bereau ,

e. Energy availability and reduction of outages in the city

IPDS initatied: underway in 16 sq km
- Draws from N-grid: 100 % supply is grid based from thermal source
- LED lights:
— 13 lakh LEDs to be distributed to 2,28,496 customers
KPIs
- AT&C losses reduced: from 29.97%- 24.33%
- Scheduled outages reduced: from 2-3hrs to 0-1hrs
Source: CDP, Electricity Board, New atricles

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

GIS implemented for Building Plan & tax collection, 100% Geo-tagging has be achieved
- Ensuring housing for all: 7,166 houses approved; EWS: provision for 3,429 houses
KPIs
- GIS implemented approval time reduced: from 90-60 days, - GIS caused increased tax collection through GIS: from 96.89-99.54% , - Reduction building plan approval time: from 90-to-60 days, evidenced by surge in number of approvals
- Ensuring housing for all: Affordable housing: 7,097 units constructed
- Property tax collection: increased from 96.89%-99.54% in 3 years
Source: CDP, Varanasi Development Authority data

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

Biometric attendance, master-roll & salary system linked for field sanitation staff
- Varanasi 311 App: allows citizens to identify problems & provide feedback on action taken
KPI
- Overall attendance increased: from 80% to 99 %
- Varanasi – 311 has ensured staff of Engineering, Health & Jal-Kal are present on field & monitoring problems on spot
Source: Varanasi Nagar Nigam data, newspaper articles

b. Two-way communication between citizens and administration

Improved communication between VMC & citizens
- Telephone, mobile & online grievance redressal system introduced & connected with sub-office & officers with SMS/email system
- IGRS system enables efficient & qualitative Redressal of grievances in addition to communication
- Varanasi 311 launched for complaint registration & action taken report
- Social media: FB/Twitter/whatsapp & Website provide effective communication
e-Newsletter published monthly on VMC website
Source: Varanasi Nagar Nigam data

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

VMC website hosts important communications, notifications & citizen-forms
- Important statutory documents on website include:
— public-notices/G.O/notifications
— Development plan
— Annual budgets & balance sheets
— eNews Letter
— monthly progress reports, — Property tax, — Tenderin
Source: Varanasi Nagar Nigam data, e-sewa website

d. Dashboards that integrate analytics and visualization of data

IGRS launched 6 months ago
- Integrated control Center & IPGR
- Senior officers dash-board includes sector & zone wise complaints
— No. of complaints
— Complaints addressed
— Pending complaints & negative feedback
- Field officer dash-board:
— Last 10 complaints , — List of complaints (due date)
Source: Varanasi Nagar Nigam, newspaper article

e. Availability of basic information relevant to citizens

CT extensively leveraged for information dissemination:
- e-paper for latest updates , - Website, Social & print media leveraged for project/scheme details
- Property tax information available online & in zonal offices having good IT connectivity amongst them, - Kashi IPDS app: for dissemination of project progress & details of upcoming works, - Toll free numbers and email ids created for registering complain and seeking other relevant information, - These activities have collectively led to easier access to information
Source: Varanasi Nagar Nigam data

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):

Strength
Culture and Heritage
• One of the oldest living cities of the world dated back to CA. 1200 BC and follows a number of unique cultural traditions.
• Ghats and the Ganga: Varanasi has a total of 84 river front Ghats along the Ganga which are of historical, heritage and spiritual importance.
• It is a prominent center of Hindustani classical music as recognized by UNESCO (2015) and home to the Banaras Gharana of instrumental and vocal music like Sahnai, Tabla, Thumri and Khayal etc.
• Old city of Varanasi and Sarnath are home to many 16 centrally/state protected monuments by the Archaeological Survey of India.
• Some of the buildings in old city have a unique architectural style that can be only found in Varanasi.
• Varanasi is among the most visited place by tourist in the country.
Centre of Religious Tourism
• City of all India- The areas is home for people from various states and UTs.
City of death and liberation- People from all over UP and neighboring parts of MP and Bihar come here to attain salvation and cremation and Aasthi Visarjan.
Shrines and Temples: The city has around 3000 shrines and temples, of relevance to multiple communities, including the most important Kashi Vishwanath temple, one of 12 Jyotir- lingam.
• The River Ganga is believed to be grant salvation Mokshadayani and holy dip in Ganga. Aarti (Old Lamp Ritual) at Ganga unique attraction for religious tourism. It has the distinction of being known as the religio-cultural capital of India, it celebrates 720 festivities annually.
Education Centre
• Centre of Scholastic Learning and knowledge. Presence of four universities including the prestigious Banaras Hindu University. It centers Sampoornanand Sanskrit Vishwavidalaya (University) oldest Sanskrit University in the country.
• Ancient and Vedic learning – Sanskrit and Ayurveda, Jyotish and Astronomy Studies, Vedic Studies, Literature Education etc.
Cottage Industry
• Home to the world famous Banarsi silk sarees and also known for brocades. It is also renowned for hand-knotted carpets, lacquered toys, sculpture and several other handicrafts.
Scared Ponds/Wells
• There are many ponds/wells in the city which can be improved for better ground water recharge and recreation
Open Spaces
• Lot of open spaces in the city which may be improved sustainably
Connectivity
Varanasi is well connected with rest of the country by rail, road and air network. The Lal Bahadur Sashtri International Airport provides good air connectivity to the city.
Sports facility availability

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Varanasi has produced many sports person who have represented India and the sport stadium needs up gradation.

WEAKNESS

Pilgrimage Infrastructure

• Lack of bathing facility and changing rooms on the ghats
• The pilgrimage path/route is congested due to encouragement.
• The old city has lost its ancient grandeur and its needs restoration
• The signage and the information is limited or missing

Tourist Infrastructure

• Lack of quality tourism infrastructure and information centers.
• Lack of networking of heritage/budget hotels, dharamsalas and rest rooms for pilgrims.
• Foreign/domestic tourist facilities not of international standards.

Emergency Response

• The streets in the old city area are so narrow that effective emergency response during fire and earthquake, are difficult to be taken.

This problem is aggravated during major bathing festival.

Sanitation

• Public toilets are inadequate and ill-maintained and open defecation is a problem at the city level
• In some parts of the city area sewerage system is limited and also in peripheral areas of the city the sewerage is limited.
• Absence of proper septic management and dependence on old methods in low lying areas.

Solid Waste management (SWM)

• Door to door collection is limited
• Inadequate infrastructure for SWM in terms of processing and scientific disposal.
• No segregation of waste is done, all the waste is dumped at the waste
• Lack of customized waste management practices in the areas like- Ghats, narrow lanes, temples and kunds.

Water Supply

• Water supply coverage is only 69%.
• Extent of non-revenue water (NRW) is very high (55%) compared to the MoUD Benchmark (20%)

Traffic and Transport

• Lack of public transport facility in the city
• Insufficient infrastructure for parking causing congestion on roads.
• No proper traffic management system.

Multiplicity of Agencies and Lack of transparency In Governance

• Lack of adoption of e-governance for effective and transparent governance ensuring accountability for good governance.
• Lack of coordination among the different departments and also between government bodies and the public for good governance.

Opportunities

Tourism and Pilgrimage

• Potential for development as an integrated tourism destination for pilgrims and tourists.
• Foreign tourist arrival may be encouraged by providing quality tourist facilities at par with international standards.
• ICT based solutions for tourists and pilgrims.
• Better networking of the heritage, budget hotels, dharmasalas, ashrams and other facilities.

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Developing new attractions which add a new dimension to the Ghats and surrounding areas.
Culture, Music and Dance
• Development of a Centre of Excellence for Art and Culture.
Pond Rejuvenation
Rejuvenated water bodies inside the city can be used for religious and commercial purposes as well as community spaces.
Waterways and Water Resources
• The river Ganga provides a perennial supply of surface water to the entire city. This supply can be used for multiple purposes.
• Varanasi has a high potential for rainwater harvesting as it receives an average rainfall of 1110mm annually.
• The river Ganga provides an excellent opportunity for developing as transport and tourism facilities.
Urban Mobility
• Intelligent traffic management system and provision of Mass Rapid Transit System and public transport system.
• Provision of good parking facilities to reduce congestion.
• Developing of smart signage for public notification that can additionally be used for revenue generation through advertising.
• Non-motorised and non-polluting modes of transport and infrastructure along with pedestrian movement to be promoted.
Energy Saving Mechanism
• Opportunity for sufficiently investing in energy efficient technologies such as LED lights and Photovoltaic cells ave a positive impact on the environment.
Silk and Handicraft Sector Growth: This sector has immense potential for growth
Threats
Pollution
• The Ganga river is under tremendous pressure due to pollution and other water related issues.
• High degree of air pollution due to lack of restrictions on vehicular emission.
Disaster Prone
• Located in a medium risk seismic zone, classified as 3 on 5 point scale.
• Low-lying areas of the city are prone to flooding.
Other Issues
Damage to Pucca Ghats and change in river ecosystem

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):

Strategic focus of the Varanasi was derived from the SWOT analysis, ensuring to capitalize on the strength and the opportunities and mitigating its threats and weakness. Varanasi being one of the oldest living city, has a rich culture, spiritual and traditional components which gives it's a status of religious capital. SWOT analysis, which is derived from Citizen Consultation, also indicates its strength and opportunities as a a pilgrimage and spiritual tourist destination. On the other hand, lack of several urban facilities emerges as the weakness and threats of the city. In this background, the strategic focus of Varanasi is considered and showcasing its enriched heritage component at the same time developing its facilities. In the manner to make its global cultural promoting and conserving the rich heritage.

Situated along the banks of Ganga, the city represents a unique case of harmony with the holy river. Manifestation of this is evident in its rich cultural heritage, both tangible and intangible. Our strategic focus is to leverage Varanasi's core strengths: cultural and spiritual heritage, strong tourist footfall and world renowned silk and weaving and excellent handicraft as key strengths. Varanasi aspires to become a universally well known religious and cultural center by addressing it key infrastructure issues and emerge as the most favored pilgrim and tourist destination by enhancing its inner core to be aesthetically beautiful, clean and green city and to provide high quality of life..

For defining the Strategic blue print extensive citizen inputs were taken (detailed in the next question) and the following components were identified:
A. SURAMAY KASHI - Leveraging its rich cultural, spiritual, religious and heritage component of Old City .
• To enhance the divine aspect of Kashi by rejuvenating the Ganga Ghats, ancient temples
• To enhance the cultural environment by providing platform for showcasing the culture of the city
• To promote the "City of Music" by establishment Music School and Performance centres
• Enhance the visual look and façade improvement streets and walls
• Establishment of Divyang/Pedestrian friendly Pedestrian Pathways.
• Upgradation of necessary facilities at Cremation Ghats

B. NIRMAL KASHI - Making the City Clean, Green, Livable, Environment Friendly to provide healthy and quality life to the citizen
• Assured quality water supply to all its citizens
• Effective Management of Solid Waste
• Improved sanitation facilities and effective management of Sewerage
• Rejuvenation of Water bodies & innovative usage of open spaces
• Waste water recycling and storm water reuse and rain water harvesting
• Green rooftops in Schools and Govt. building and plantations across the City
• Landscaping and redevelopment of all parks
• Promotion of energy efficient solutions and smart multi-functional poles (like solar energy and LED based street lighting)

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c. SURAKSHIT KASHI - Safety and Security to all (especially children, women and the elderly)
• To monitor and prevent Crime within the city
• Enhancement of security to elderly, women and children
• Augmentation of Emergency initiatives

D. SAMMUNNAT KASHI- To promote local entrepreneurship, ease of doing business and employment for various skilled, semi-skilled and unskilled groups
• Establish Skill Development Centre to boost employment opportunities
• Providing platform to all street vendors
• Establishing market linkage for the local artisans and weavers
• Making provision of houses for urban poor

E. EKIKRIT KASHI- To provide SMART (Simple, Moral, Accountable, Responsive, Transparent) services for citizens and tourists through use of ICT
• Easy access to information and quality services online for all citizens
• Smart card for tourist related and other services
• Providing Services in Citizen User Friendly manner – Mobiles apps/ Multi-lingual
• Effective Grievance Redressal Mechanism

F. SANYOJIT KASHI – Provide seamless Mobility to All
• Development of Multi model transport system
• Develop organized multi utility parking in the city
• Integrated Traffic Management System with CCTV surveillance
• Promote Battery powered e-rickshaw and e-auto for last mile connectivity.

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
The oldest living city of India, Varanasi, aspires to leverage its place as the soul of India through inclusive and innovative solutions that enhance quality of life, while positioning itself as the world's cultural and spiritual destination.
Goals
The overall goals and aspirations and public benefit outcomes (livability and sustainability improvement) over the next 5-10 years are explained below, mainly in qualitative terms.
1: Suram Kashi (Divine) - Leveraging its rich cultural, spiritual, religious and heritage component of Old Kashi
G 1: To restore the yesteryear glory of Kashi
SG1: To ensure the Conservation and upgradation of the Ganga Ghats, temples and monuments to enhance the historic and cultural significance of the area.
G 2: To promote our fine arts, music and singing
SG 2: To facilitate and encourage the Banaras Gharana and other classical music, singing and dance forms by providing them a platform at the city level to perform and spread their knowledge and impart education to new generation.
G 3: To improve the experience of citizens, pilgrims & tourists
SG 3: To enhance the experience of tourist, heritage sites and Ganga ghats through development of divyang friendly pedestrian paths, enlightened heritage walks, public conveniences etc by capitalizing on heritage, cultural, religious and spiritual assets of the city to boost tourism as an economic potential and create employment opportunities, especially pro poor.
SG 4: To ensure that the ABD area has proper signage and the roads are paved properly
SG 5. To improve the tourist/pligriamage facilities in the city by provision of NMT, solar boats etc.
SG 5: Improved shopping, tour and darshan experience of the tourist and pilgrimage as more options are available through app and opening of market area till late hours
2: Nirmal Kashi – Making the City Clean, Green, Livable, Environment Friendly City
G 4: To provide an improved quality of life to our citizens
SG 6. To make provision of open spaces to all the residents
SG 7: To promote Waterways improvement – ferry/e-boats, Ferry Water connectivity of Ghats, Boat taxi etc
SG 8: To promote water sports for recreation, employment and revenue generation
G 5: To rejuvenate ponds & public spaces
SG 9: To rejuvenate ponds and purify their water with real time monitoring of ponds/kunds
G 6: To increase adoption of eco-friendly sustainable technologies
SG 10: Provision of assured water to all the residents
SG 11: Provide better sanitation, improved toilets and waste management facilities
SG 3: Surakshit Kashi – Safe and Secure
G 7: To ensure security of vulnerable groups

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SG 12: To ensure closely/remotely monitored and non-intrusive, city surveillance measures based on ICT platform
SG 13. To ensure Safety and security to women, elderly and marginalized
G 8: To be well prepared for emergency response
SG 14: Provision of emergency infrastructure and proper disaster mitigation (fire safety, earthquake safety and water ambulances)
G 9: To ensure public infrastructure is conducive for children
SG 15. To provide safety and child friendly infrastructure
SG 4: Sammunnat Kashi- Harmonious Growth
G 10: To incentivize innovation & adoption of smart technologies
SG 16: Long term sustainability of roads by building dedicated electricity cables, smart metering etc.
SG 17: Assured power supply, along with improvement in safety and aesthetics as electric cables are shifted underground,
SG 18: Provide organized smart multi parking inside the ADB area to provide safe, hassle -free spaces for the residents as well as the visitors.
SG 19: Providing ICT and e-governance services to the residents to access information on most government-provided services on online/phone-based platforms at their convenience.
SG 20: Promotion of energy efficient solutions (like solar energy and LED based street lighting) to reduce dependence on conventional form of energy.
G 11: To provide meaningful employment opportunities to our citizens
SG 21: Skill development and enabling infrastructure for handicraft industry and strengthening the backward and forward linkages to provide access to global market.
SG 22. Making provision for houses for urban poor
G 12: To enhance the livelihoods of street vendors
SG 23. To provide equal opportunity and level playing field to the street vendors by providing designated permanent spots
G 13: To bring about a renewed vitality in local artefacts
SG 24. Ensure market linkages and skill urgadation to the artisans and the weavers

SG 5: EKIKRIT KASHI- To provide SMART (Simple, Moral, Accountable, Responsive, Transparent) services for citizens and tourists through use of ICT)
G 14: To provide a platform for citizens to avail services & information
SG 25: To provide easy access to information and quality delivery of services online for all citizens
G 15: To have an integrated system for all tourist related services
To develop a smart card for the tourist and general public and link all the tourist related service to to the smart card
G 16: To establish an effective grievance redressal mechanism
SG 26: Providing Services in Citizen User Friendly manner – Mobiles apps/ Multi-lingual and Effective Grievance Redressal Mechanism
SG 6: SANYOJIT KASHI – Provide seamless Mobility to All

G 17: To have seamless connectivity across multiple modes of transport
SG 27: To develop Multi Modal transport system for urban mobility by provision of Mass Rapid Transit System and Public Transport (Bus) and e-rickshaw and e- autos with last mile connectivity

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SG 28: To develop organized smart multi parking in the city and Multi model transport by provision of Mass Rapid Transit System and Public Transport (Bus)
G 18: To enhance mobility in the city, offer effective traffic management
25: Integrated Traffic Management System with CCTV surveillance with proper command and control centre
G 19: To explore alternate modes of transport especially on waterways
26: Development of Waterways Connectivity as alternate mode of transport
Following are KPIs which are expected to improve over the plan period resulting in improvements in metrics of livability and sustainability
KPIs
Economic Development
1. Increase in employment ratio
2. Increase in digital literacy rate
3. Skill upgradation training provided to artisans
4. Trade promotion assistance provided to the weavers and artisans
5. More opportunity provided to the boatsman
6. Better opportunity provided to the street vendors
Environment
1. Air and water quality monitoring
2. Decrease in carbon footprint
3. Number of ponds/kunds rejuvenated
Tourism/Pilgrimage
1. Number of places rejuvenated in the city
2. Number of new initiative taken in the area for the sector development
3. Number of Ganga ghats developed in the city
Community development
1. Percentage of area developed as open spaces
2. Increase in the daily supply of water to individuals
3. Increase in wi-fi access points per sq km
4. Number of area created for Hat development and night bazar in the city
Mobility
1. Increase in the number of streets having unobstructed footpaths and dedicated cycle tracks
2. Density of intersections per sq kilometer area
3. Percentage of street kilometers having mixed landuse
4. Increase in transit ridership

Equity
1. Percentage of G2C transactions made online
2. Average response time for grievances received

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

More than 4.4 lakh forms were collected for citizens input, through strategically located booths at prominent locations and municipality offices. Over 2,10,000 people were engaged through social media. Posts educating people to participate in the decision making process reached more than 16 lakh people.
Citizens of Varanasi were engaged in a participatory decision making process throughout the life cycle multiple mediums. 175 focus group discussions were conducted at the Nagar Nigam and elsewhere, wherein representatives of:
-Boatsmen, ,NGOs, Tour operators, Clubs, Trade associations, Educational Institutes, Civil defence officers, District Urban Development Authority etc. were invited to conduct:-
-SWOT analysis
-construct vision
-determine goals for the city
Schools were engaged through essay and art competitions. Workshops with prominent citizens from the fields of arts, literature, sports & included several Padma awardees including Padma Vibhushan Thumri singer Girija Devi. Vernacular dailies were also roped in to organize workshops with diverse citizen groups.

b. Engagement strategy to get best results from citizens

Placing residents as the centrepiece of discussions of the smart city proposal was the cornerstone of our engagement strategy. It included the following:-
1. Apprise: A comprehensive awareness drive, was held to increase awareness using online and offline channels. Residents were informed about the contours of the #SmartCitiesChallenge and the smart interventions suited to them.
2. Discuss: Different stakeholder groups were engaged in understanding the pivotal SWOT points and identifying potential ABD areas. Prominent personalities were invited to conceptualise the vision and goals.
3. Consult: Subsequently, we reached out to our residents to identify the issues which affected them the most.
4. Assess: Pressing issues were put forward to a diverse panel of SMEs to ideate practically implementable solutions.
5. Feedback: An iterative deliberation was held in conjunction with our residents to modify the solutions to best fit the needs of the city.

c. Different means of citizen engagement adopted

Online:
-MyGov.in
-Social Media: Facebook, Twitter & Youtube : Infographics explaining smart solutions and coverage of all events was regularly updated to keep citizens engaged.
-Dedicated page: www.smartcityvaranasi.com
-SMS campaign
Offline:
-Workshop: with stakeholders including EWS and prominent citizens from fields of arts, science, sports & business. Prominent employment generating industries were engaged to reach out to tourist operators, lawyers, boatsmen etc.
-School Competitions: for essay writing & drawing to engage children (representative of 32.1% population)
-Print Media: events were covered by Vernacular and English dailies.
-Smart City Desks: at key locations having heavy foot fall where citizens could deposit forms identifying their priorities for smart solutions.
-Radio stations: to spread awareness of online and offline campaigns and jingles were created.
-Tableaus: equipped with A/V aids engaged to spread awareness on citizen engagement initiatives.
-Flash Mob: was held at Assi Ghat, for the first time in the history of the city.

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

Total Votes: 11,00,479
Online
-MyGov.in:: Discussions: 14141 Polls: 7817, -Smartcityvaranasi.com:: Registered users: 2.14 lakh; Total Votes: 6.38lakh, -Facebook:: Reach: 16.89lakh; Likes: 32.7k; Engagements: 2.1 lakh, -Twitter:: Followers: 668; Impressions: 57.5k
-Youtube:: Total Views: 1.08lakh; Viral Videos: 12, -SMS:: Messages sent: 3.05 lakh
Offline
-Survey forms: 4.4 lakh (33.8% of the population of the city)
-Print Media: The extent of coverage was widespread in both English and Vernacular dailies with 60 articles. Press Coverage included articles on TOI, HT, AU, DJ, I-Next, Hindustan, etc, -School Competitions::Essay Competition: 2500; Art Competition: 78; Participating Schools: 55, -Workshop/ FGDs: 175, -Radio:: Stations: 3(Red, Mirchi, Mantra); Secondage: 9 lakh,
-Radio:: Stations: 3(Red, Mirchi, Mantra); Secondage: 9 lakh
-Roadshows: 12, -Smart city desks: 60, -Hoardings and Glowpoles: 165
-Tableaus:: Vehicles: 4; Distance covered: 6000km, -Flash Mob:: Attended by 1500 people, included flash mob dance, kathak performance, bi

e. Incorporation of citizen inputs in overall vision

The consultative process, citizens were asked to voice their concerns regarding various aspects of urban infrastructure in the city and their aspirations for the future of Varanasi. After hearing their challenges, smart solutions were discussed with them to decide on the best fitment of solutions.
Eminent personalities from different fields were invited as representatives of citizens and were shown word clouds typically associated with Varanasi. They constructed a vision which reflected the aspirations of residents of Varanasi. This was achieved through dividing them into small groups, where they conducted a SWOT analysis, and culminated their efforts into framing a vision. These visions were uploaded on social media for voting and the final vision was selected on the basis of votes cast.
The proposed vision statement was put before all local Representative including Hon'ble MLA, Mayor and Counselors, administrative officers IAS/IPS/PCS officers of town, head of public departments, and prominent academics of the city.

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)

Varanasi proposes to retrofit old city area (1389 acres) along river Ganga comprising of major temples, heritage, cultural places with emphasis on socio-economic growth.

1. A pilgrim and tourist City- Global destination for an enriched experience
2. A heritage City- To promote Banaras Gharanas cultural legacy
3. A livable & modern city- By rejuvenation of ponds, temples, River Ghats. Green spaces, stadiums and heritage structures, sustainable infrastructure and clean energy options
4. An economic vibrant city- Creating growth hub for weavers and artisans of the city
5. Inclusive City- safety and security for women, children, elderly and minorities.

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

(a) Detailed study of the city profile & key performance indicators of different services was carried out based on past studies, SCP round one and extensive consultations with citizens, stakeholders, academic institutions, NGOs/CBOs, religious organizations, musicians, singers, weavers community, artisans, trade associations, street vendors, boatmen (mallahas) and Smart City action committee comprising professors of Banaras Hindu University and other premier institutions.

In-depth study of existing documents such as Master Plan-2031, City Development Plan-2015, City Sanitation Plan-2011, Swacch City Plan-2015, AMRUT SLIP, HRIDAY DPRs, JICA DPRs, PRASAD DPR, Tourism Plan, ITMS proposal etc. were done.

The Smart City action committee while selecting options among retrofitting, redevelopment or Greenfield development, proposed the option of retrofit because
(i). It can be easily replicable across the city
(ii). A larger area (1,000 acres) can be covered, impacting most citizens in the pilot phase itself.

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(iii). The time to impact is relatively shorter compared to greenfield or redevelopment.
(iv). The cost of retrofitting is relatively low in comparison to greenfield or redevelopment as it needs less infrastructure. This makes implementation feasible with lesser bottlenecks.

Once retrofit was identified as the choice of ABD, 9 objectives were selected for area based development:
1. Leveraging the ancient attributes – heritage, culture etc.
2. Number of people to be benefitted both floating and living
3. Scope for social inclusive
4. Existing degree of liveability
5. Scope for sustainable development
6. Ease of smart solution application
7. Ease of implementation
8. Future good to great potential
9. Financial upliftment of the downtrodden

After carefully studying the city growth and history for last 150 years the Task force committee & Smart city group of Varanasi headed by Commissioner shortlisted 5 potential areas for area based Development.

1. Old city area of Varanasi (1500 acres) – The area was proposed for its rich, religious, heritage, spiritual, cultural, pilgrimage and tourist components along the river Ganga.
2. Sarnath Area (500 acres) – the area was chosen for its ancient structures, heritage and
cultural significance and its tourism aspects.
3. River Front Assi (500 acre) – The area was proposed for landscaping river front development and walkability and recreational space.
4. River front Varuna (500 acre)- The area was proposed for landscaping river front development and walkability and recreational space.
5. River front Ganga, Assi and Varuna (1500 acre)- The area was proposed for landscaping
river front development, Cultural and Religious aspects and walkability and recreational space.

(b) CITIZEN OPINION AND ENGAGEMENT:
As Smart city development is citizen-centric, wide consultations were held for selecting the specific area along with the type of development. VMC received formal-informal opinions from various quarters and from every section of the society. On a broader level, citizens were most inclined towards selection of the Old city area for which the city derives its identity and has 4000 years of recorded history. The old city with Ganga as its pivotal and Kashi Vishwanath temple defining the awe, ethics, belief and the reflection of the masses emerged as the forerunner.

The area chosen covers temples, Ganga ghats, mathas, dharamsalas, heritage structures, shops, eateries, weavers community, artisans etc, and people residing here from all corners of India. The selection of the ABD area was done on the basis of 4.37lakh votes across offline and online channels.

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(c) OPINION OF ELECTED REPRESENTATIVES:
Various elected representatives were consulted. These included Hon'ble Members of Assembly, Hon'ble Mayor, Standing Committee members, members of various subject committees, councillors etc. Most of the opinions were based on the cost-benefit analysis. The output of the citizen engagement and urban planning exercises were shared with elected representatives, who facilitated and expedited the selection of the old city area for retrofitting.
Scale of engagement and involvement of expertise: more than 95 key elected representatives from all major political parties including councilors, MLAs engaged in the selection process.

(d) DISCUSSION WITH URBAN PLANNERS AND SECTOR EXPERTS
More than 5 renowned urban planners and sector experts worked with the team for a month to provide critical inputs. The projects were identified and analyzed in consultation with experts to select the appropriate projects components for implementation in ABD area. Constulation were done with experts from Universities like BHU, Kashi Vidhyapeeth, Samproonanand Sanskrit Vishwavidhyalay Central University for Tibetian Studies etc.
(e) DISCUSSION WITH SUPPLIER PARTNERS
About 23 partners and suppliers were engaged over one to one discussion and possible solutions (both ICT and non-ICT based). They focused on understanding solutions that could be applied for local area development across several sectors such as transport, water, solid-waste management, sewerage, safety and security, e-governance, solar energy, smart bus stops, solar aerators, data security, data management, command and control centres, smart multi-utility poles, water purification, smart building management, municipal operations, public safety, health- care, disaster management, bio digesters, smart grid, multi-touch display, digital signage, energy and sustainability, infrastructure management, city wide management solutions etc. Best practises and implementation model were also discussed. As a result, 23 MoUs were signed with SECI, CDAC, IBM, 3M, GAIA Smart Cities, Schneider Electric, NetApp, Netmagic IT Services, Commvault Systems, Novus, Ericsson, Navgathi, KPIT, Trinity Mobility, V3 Teletech, Advantech, Unipolar Water Technologies, Cartwheel Hydrogen Technology, Lorax System Inc., MUT, Innowatts Energy, Reliance and HFCL.

With this exhaustive exercise, old city area emerged as the democratic and rational choice for ABD. About 1389 acres in the old city area was demarcated for ABD projects. Thus, after carefully considering all basic features and after consulting a wide range of stakeholders, the area having maximum potential to sustain the SMART city efforts in rejuvenating the local economy was selected. The area is also significant because it occupies 7 % of physical area of the city, houses 31% of the population and contributes to 38% of the GDP of the 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)

1. SURAMYA KASHI - LEVERGING THE CITY STRENGTH AS THE RELIGIOUS, CULTURAL AND HERITAGE CENTRE
in Varanasi is considered as land of temples and river ganga with rich culture, heritage. Keeping the above in mind the key component chosen are:
1.1- REJUVENATION OF GANGA GHATS AND TEMPLES
Improvement of major amenities at Ganga Ghats, development of infrastructure & facilities temple vicinity
1.2 – DEVELOPMENT OF CULTURAL, HERITAGE AND BANARAS GHARANA
Development of Cultural cum convention centers, promotion and opening of music schools, promotion of the city of music and bringing visible improvement in the area and restoration of important monuments
2. NIRMAL KASHI – green spaces
2.1 ECOLOGICAL AND WATER BODIES & OPEN SPACES RESTORATION, GREEN SPACES
Rejuvenation to be done in 11 Water bodies, development of 10 parks with citizen friendly features and green rooftops in Schools and Govt. building and Environmental monitoring
2.2 WATERWAYS IMPROVEMENT AND RAINWATER HARVESTING
Waterways Improvement in Ganga river as alternate mode of transportation and ensuring rain water harvesting
2.3 SANITATION INCLUDING SOLID WASTE MANAGMENT AND ASSURED WATER SUPPLY TO ALL
Proper Sanitation provision to the people, efficient solid waste management and assured water supply to all the citizens, ,
3. SAMMUNNAT KASHI –
3.1 PROVIDING THE CITIZENS THE WORLD CLASS INFRASTRUCTURE SERVICES
Provision of the Assured electricity supply with at least 10% of the Smart City's energy coming from solar, Robust IT connectivity and digitalization, Smart Parking, Energy Efficient Street lighting, Encouragement to non-motorized transport (e.g. walking and cycling)
3.2 EQUAL EMPLOYMENT OPPORTUNITIES AND OPPORTUNITY FOR GROWTH
Skill Development and Trade promotion by Identifying Artisans, Development of Working Working Museum for Weavers and Artisans, creation of the Silpiward for artisans and construction of Multi Utility Sports Stadium for the children and public and pro poor activities

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)

Street view improvement: Projects like underground utility duct would ensure improving the streetscape and better delivery of services. Façade development of the buildings will improve aesthetic look, the installation of heritage electricity poles, improved road signage board will increase street beauty. Providing citizens with smart parking areas at commercial zones would help reduce the count of unregulated on-street parking. Development of façade and old design of lampposts and pedestrian friendly roads will enhance the street views.

• Traffic de-congestion: Projects like Variable Message Signs, New Multi-Level Car Parking, introduction of more e-rickshaw, battery buses, introduction of multi modal nodes, Smart Parking Solutions for Off Street Parking, Smart Parking Solutions for On Street Parking and Smart Ticketing would ensure reduction in traffic congestion and travel time.

Place making: Projects like Road & Junction Improvements; pedestrian friendly path ways and cycle tracks would help in ease of movement of traffic and encourage walkability& cyclablity. Projects like Beautification of Parks/Greens & Establishing Open Gyms & Wifi Hotspots.

• Mobility nodes- To facilitate bicycle and battery Scooty hiring, Free WiFi, information centre, E- suvidha Kendra- Public toilets, commercial areas, parking and solar based battery charging points for E-rickshaws. To introduce an inclusive concept where NMT modes can be facilitate to avoid on road parking to gather commuters which results in traffic congestion. Introduction of solar led charging points to facilitate E-rickshaws to charge their vehicle.

• Rejuvenating existing heritage areas: Projects like reuse and rejuvenation of existing heritage buildings and water ponds will ensure usage of underutilized structures. Proper lighting, signages with heritage look and Conservation of bazaars through façade improvements, public places, parking etc.

Pedestrianisation & NMT: Decongestion of traffic in walled city through restriction on entry of vehicles in daytime, improvements in the pavements for pedestrians, shared bicycling, promotion of heritage walks.

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	1.1 AMRUT (Ministry of Urban Development, GoI)	• Augmentation of existing Water Supply system including smart metering : Rs. 75 cr. • Sewerage System with SCADA System implementation: Rs. 481 cr. • Landscaping and development of 3 parks: Rs. 1.25 cr. AMRUT PMU will assist SPV implementation
	1.2 Swachh Bharat Mission (SBM), (Ministry of Urban Development, GoI): Total project cost Rs. 33 cr.	• Waste management, Collection, Segregation in (14+9) wards : Rs. 26.6 cr • Behavioral change communication for Street Vendors on Sanitation and Hygiene: Rs. 18 lakh • SBM PMU will assist SPV in implementation of converged components
2	HRIDAY, (Ministry of Urban Development, GoI)	• Heritage Street Lights: Rs. 26.8 cr. • Theme based redevelopment of roads: Rs.51.72 cr. • Heritage improvement in ABD road development facade improvement. 100 sites development with 80 Cr. HRIDAY PMU will assist SPV in implementation
3	3.1 Sughmaya Bharat Abhiyan	Divyang Friendly footpaths, ramps etc. on ghats and roads : Rs. 5 cr.
	3.2 IPDS (Underground cabling	Underground cabling of the electric cables, installation of 40 transformers, 2 distribution network, 2 substations: Rs.431.96 cr.

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TABLE 1		
S.No	**Mission/Programme/ Scheme/Project**	**How to achieve convergence**
4	Department of Tourism PRASAD, Govt. of India	Light and sound show at Assi Ghat, signages, Interactive Information Kiosk: Rs. 2.43 cr. Jetty development for mooring and charging of battery of boats, filter water cooler, 60 Chatri, 60 stone slab, signage , dustbin, 72 RCC bench, Urinal, changing rooms:
5	Samajwadi Jal Sanchay Yojana, Govt. of U.P.	Rejuvenation of 10 ponds and kunds: Rs. 20 cr.
6	National Mission for Clean Ganga and JICA	Cleaning of Ghats -15 Cr. (5 Cr. per year) Facade improvements and restoration of Ghats, development of new toilets and up-gradation of existing toilet : Rs. 16.38 cr. Cleaning of floating solid waste in river (EIL) JICA PMU will assist SPV.
7	Convergence under CSR funding: 7.1 Central Coal Field Ltd. 7.2 Goenka Foundation 7.3 Indian Oil Corporation 7.4 ONGC 7.5 Roopa Foundation 7.6 Varanasi Vikas Samiti 7.7 Bill and Milinda Gates 7.8 CSR initiatives by AAI, BHEL, HPCL, Reliance	(Detailed list of CSR initiatives is at annexure 4) Development of one ghat near Assi: Rs 110 cr. Redevelopment of Harishchandra Ghat-Electric crematorium: Rs. 4 cr. Waste processing plant: Rs. 10 cr. Water ATMs, Rejuvenation of Ghats and ponds: Rs. 27.86 cr. Redevelopment of Manikarnika Ghat: Rs. 6 Cr. Jal Sav Vahini: Rs. 50 Lakh Bio-digestor- 5 nos.: Rs. 1.5 cr. Solid Waste Management, construction of toilet, WIFI, development of parks >98.75 cr.

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)

The convergence criteria shall be implemented in the following manner:
Firstly there are certain schemes where DPR has been sent to the Central Government and following its approval, budget outlay has been concretized. For example projects under AMRUT, Swachh Bharat Mission, Namami Gange and HRIDAY.
Secondly few projects that are approved at the state government level will be leveraged, for e.g. IPDS and ITMS.
Thirdly, many projects are being taken under the multilateral and bilateral funding will be taken up. The organization supporting are JICA and other Japanese Government programme
Fourthly, many projects re taken under the CSR funding of the PSU and other organizations. These projects will also be converged in the ABD and the Pan City level

AMRUT
Convergence is part of the State Annual Action Plan (SAAP) approved by State High Power Steering Committee (HPSC) for water supply, sewerage projects and parks & open spaces.
• Swachh Bharat Mission
Grant from Swachh Bharat Mission is proposed to be utilized for provision of smart bins, community toilets in ABD along with public toilets on PPP mode. VNN shall take up these projects on priority and shall apply for accessing grants under SBM with support from SPV.
• UPPCL/MVVNL
They have applied for grants under IPDS before the start of SCP preparation. However, they have prepared a supplementary DPR for underground cabling of electricity lines, which is under progress.
• GoUP'sNagriyaSadakSudharYojna
Funds available under this scheme/programme shall be earmarked for infrastructure improvement works for slums in ABD.
Capital Budget of Varanasi Municipal Corporation, Urban Infrastructure Fund: Funds from the Multilateral and Bilateral Organisation

JICA- japan government is funding the non-severed, sanitation and Ghats renovation component which will be leverged in the smart city development, as most the work done falls in the ABD area.
Funds under the CSR funds or Various PSUs and Corporates.
These funds shall be pooled to finance various sub-projects under ABD as finalized during various discussion.
All the projects in the Area Based Development (ABD) will be implemented by the Special Purpose Vehicle (SPV) either through various government departments/parastatals or invite Private Sector (through transparent tendering process) with monitoring support from government departments/parastatals.

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
1. GOVERNANCE RISK - • Poor cooperation between local and state level governments bodies / para-statals such as UP Jal Nigam,Varanasi Development Authority etc. Various departments like Transport, Development Authority, Archaeological Survey of India, PWD have different administrative structure, varying functioning approach and minimal interdepartmental coordination	High	HIGH • Project deadlock. • Infrastructure planning strategy may have to be altered completely. • Difficulty in removing encroachments. • Cost escalations in implementation.	SPV shall closely coordinate with all state parastatals and departments, to brief about the projects undertaken as part of Smart City Project and develop consensus. Inviting representation from executive officials holding executive positions in concerned agencies. • Pre-approval from state government on DPR and project plan. • Representative from concerned department has been included in SPV.
CLEARANCES - • Environmental clearances - Area based development will require extensive landscaping, ducting and trenching which will require approvals from MoEF or State Environment department. Such approvals have been slow in the past and can stall project. • High Court • ASl clearance	Medium	MEDIUM • Slow approvals can derail project operations by as much as 2 years. • Objections to development plan may alter the area based development strategy.	A state level single window clearance will be setup for clearances. • A state liasoning officer for all clearances for the center will be appointed for coordination and fast tracking approvals. • Responsibility of clearances will be taken by ULB or State

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TABLE 2			
Risk	**Likelihood**	**Impact**	**Mitigation**
Regulatory Risk: Approval from competent authorities [ASI, UPPCB etc.] for the proposed interventions.	Medium	MEDIUM Revision in the approach of the specific projects	Compliance with the set norms and standards
Regulatory Risk: Approval from competent authorities [ASI, UPPCB etc.] for the proposed interventions. Execution risk: Significant governance and competency will be required to execute all 36 local area development ideas in a seamless manner	Medium	MEDIUM Delay in project execution; significant cost and time overruns; potential of investments being unable to create the right impact due to poor execution	A separate SPV to drive all ABB projects, with approval from the general body of municipality • 45-50 strong team structure designed for SPV along with a governing board consisting of the right people to drive action on the ground. • Operating model defined very clearly for each initiative with clear roles for SPV and other agencies-passed by the general body

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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)

1 Assured electricity supply with at least 10% of the Smart City's energy requirement coming from solar
i) Assured electricity supply covering the ABD Area, ii) Underground wiring to reduce AT&C losses to below 10% (IPDS), iii) Installation of rooftop Solar Panels in Govt. Buildings (Stadium, Station, etc.) Schools, Public &Private Institutions and Private buildings, in all Mutli parking buildings and give promotion for private player
2 Adequate water supply including waste water recycling and storm water reuse
i) Augmentation of existing Water Supply system, ii) Enhancement of per capita water in ABD area, iii) To improve the quality of water supplied, iv) Water ATMs at prominent places
3 Sanitation including solid waste management
i) Waste management, Collection, Segregation being done on PPP basis, ii) GPS enabled vehicles with g-fencing, iii) Mobile alerts on waste collection from waste bins, iii) 70 Public Conveniences: bio-Toilets, iv) ICE and Behavioral change communication in the ABD area, v) provision of dustbins to all the street vendors and on the ghats, vi) Solid Waste Management through organic compost converter, vii) Decentralized Waste Management (processing), viii) Non-sewarage component for ADB are by JICA
4 Rain water harvesting
i) Making rain water harvesting mandatory for all government buildings and for all new private construction and incentive to private players, ii) In ABD area to be made mandatory for all buildings through regulation, iii) Community level sumps for community consumption e.g. watering gardens, recharge wells and recharging the ponds/kunds
5 Smart Metering
a. Smart metering water, b. smart Metering electricity - The smart metering will ensure Non Revenue Water Reduction (NRW) and Smart metering of electricity.
6 Robust IT connectivity and digitalization
i) Citywide OFC infrastructure through PPP with open access protocol, access charge, revenue share based agreement, ii) Wi-Fi HUBs in all Public Places, Schools, Public and private Institutes & Govt. Offices and identified -locations across ABD by leveraging OFC.(Reliance)
7 Divyang Friendly Pedestrian Pathways including differently-abled design
Barrier free Divyang friendly Footpath integrated with new street section design at selected roads and Ganga ghat-
8 Encouragement to non-motorized transport (e.g. walking and cycling)
(i) Augmentation of cycle rickshaw and conversion of diesel Auto-rickshaw and Cycle rickshaw to e-rickshaws - through a VMC promoted institutional financing mechanism, ii) Rent-a-Cycle scheme with dedicated 6 stations (integrated with Metro Stations) across 10 KM by use of City card - and mobile app, iii) development of cycle track
9. Intelligent Traffic Management
i) Integrated Traffic Management System with Smart City Surveillance, ii) Bicycle renting will be provisioned on all 24 metro stations, iii) Smart bus stops with water ATM,

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digital display and charging points, iv) Battery operated GPS city buses, freight and feeder buses connecting all metro stations
9.2 Waterways Improvement
(i) Ferry Water connectivity of Ghats and liking the same to online portal, ii) Sunset and Sunrise visits on boats, iii) Floating markets to be developed around Tulsi and Assi Ghat, iv) Water sports – with speed boats, speed bikes, parasailing etc.at ASSI Ghat, v) Solar power e-boats boats for recreational tour and Night Cruise with dinner and cultural show, vi) Upgradation and shifting of Dhobhi Ghats, vii) Cruise services
10 Non vehicle Street Zones
i) 2 roads to be developed as no vehicle zone (acception for divyang, elderly and pregnant women)
11. Smart Parking
i) Development of smart parking at 11 locations Integrated with charge stations and NMT parking at basement 3 level, integrated with smart card and mobile app. Ii) Parking to be developed for multi use commercial activities, restaurants, shops, water ATMs, skill development training centres.
12 Energy Efficient Street lighting
I. Heritage street lighting in ABD area-8000, ii) Energy Efficient Street lighting at City level-36037 (taken in Pan City)
13 Innovative use of Open space:
Landscaping and redevelopment of 10 parks: (I) Children Play area with all children features, Women area, elderly area, area for Yoga and Open Gyms and cycle track (ii) Landscaping and Musical Fountains (iii) Cycle Tracks in Park for children and (iv) Wifi Hotspots
12.2 Rejuvenation of Water bodies and creation of open space–
i) Natural purification and real time monitoring of Lake water, Standalone floating solar aerators, ii) Promoting ornamental fish farming with path development and its illumunation around it and installation of musical fountains
14.1 Visible improvements in the area
(i) Heritage Lamppost in the ABD area – 8000 nos, for the entire ABD area, ii) Heritage lighting and development of Kabir Churah, iii) Façade Improvements and Restoration of Important Landmarks at Ghats, iv) Road development from Durga Kund to Assi Ghat v) Paving of ways on some routes, v) Street Beautification – e.g. vendor stalls painted in hues of ochre, reds, browns reflecting the aura of Ganga, vi) Use buildings to paint history of Kashi, vii) Common Smart Kashi Signage shop boards
14.2 Light and Sound Show
I. Light and Sound Show (watching by boats, bookings by online App) at Assi Ghat & at Ravi Das Park
14.2 Facelift of Temples Vicinity
i)Queue Management Solution for Temples so that people may do the Darshan properly, Separate Queue for Divyang Friendly people, elderly and pregnant women, ii) Lane Improvement (paving, dustbins, digital display for people standing in queque - video streaming of aatri, bhajan etc.) for Till Bhandeshwar, Kallbhiarav& Vishwanath Mandir etc. iii) Organic waste Composter for few major temple tc.iv) Linking of temples with e rickshaws and e boats ridesso that Kashi parikarma is complete. V) The Kashi parikarma also be taken up by Ambhibious RTV (for Divyang, elderly and Pregnant women etc.) and AmbhiBus- for longer Kashi Parikrama Routes which is connected through the marketing, eating and other places vi) Temple redevelopment to be taken up starting with few temples vii) Development of Ganga Museum at Manmandir Ghat so that people know the importance of Ganga as holy river

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14.4 Rejuvenation of Ganga Ghats other components
i) Illumination of Ghats so that they are visible in nights, ii) Façade Heritage lighting of the important monuments at the Ganga Ghats, iii) Repair of steps leading to Ganga rivers, iv) Signage and repair and development of streets leading to Ganga Ghats, v) Jetty development for mooring and charging of battery of e-boats at Ganga Ghat having facilities of points for charging the battery powered boats, vi) Creation of Pathways connecting Ganga Ghats also (Divyang friendly), viii) Creation of separate areas and facilities for Ganga Snan / Puja / boating, ix) Development of Changing rooms/creation of separate area for ladies Ghat at Ganga Ghats,x) the changing rooms to have solar generation facility for self power generation and feeding the jetties for power charging (Solar Powered), xi)
Chattri on Ganga Ghats to be made in aesthetic way for the pandits, xii) Stone slabs to be made at the Ganga Ghat in the aesthetics form for evening Aartis and for use by Pandits for puja, xiii) Dustbins to be designed in aesthetic way and to be put at every 50 meters and cleaning of Ganga Ghats by water everyday, xiv)
Installation of Security CCTV camera, placing of tourism police force, creation of salvage area, and permanent place for divers, xv) Creation of the Cultural spaces to have life competation at -Live events, xvi) Development of new toilets with Divyang Friendly features in aesthetic design to synchronism with the built form (bio digesters toilets), xvii) Up gradation of existing toilet having Divyang Friendly features in the aesthetic design to synchronism with the built form of Ganga Ghats, xviii) Organic Waste Composters to be put at Ganga Ghats so that all the flower waste is collected from dustbins and decomposed, xix) Organization to be involved for collection of flowers, its composting and make the value added products like incense sticks, Deo etc. from the same
15. Safety of citizens especially children, women and elderly
i) Surveillance under ITMS (taken up in the pancity solutions), ii) Women help line number to be integrated, iii) Development of All Women- Police Station, iv) elderly Helpline to be developed, v) Augmentation of Fire fighting and earthquake initiatives – firefighting bikes, SUV, Hazmat vans etc., vi) Water Ambulance & Emergency Operation Centre stationed in water (to have the drivers facility and clear connectivity with (Linked to central control center proposed in Pancity), mobile health clinics
16. NA,
17. NA
18. Others
18.1 Development of Town Hall as heritage center
i) For visitors and pilgrims including Cleaning, repair, up gradation of the main building, site development, landscaping etc., ii) Open semi-circular auditorium for cultural show in the evening of the emerging artist from Varanasi to showcase their talent, iii) Development of Sanskritic Haat along with permanent shops for local artisans, saree weavers, lacqured toys, other handicraft products etc.iv) local cuisine to be promoted by giving them permanent shops, v) Reuse of Town hall for Museum and Ramleela performance center
18.2 Development of Cultural cum Convention Centre
i) IMAX Theater to be developed so that people can films especially designed for Varanasi on its history, culture, heritage, spirituality etc, ii) 1000 seater auditorium for cultural show by the renowned artist of the city and also for the Jugalbandi and other cultural linkages from world over, iii) Yoga center for the people of the city by specialized yoga center, iv) Spiritual learning of Varanasi to be developed by allocating the space and promote spiritual learnings, v) Art gallery to be developed by depicting the 4000 years of Varanasi, vi) Museum & Library to be developed, vii) Convention Centre for all

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form of development art Seminar Hall for learning discourse on heritage, culture, spirituality etc.viii) Exhibition Hall for the arts form available in Varanasi and from other part of world too, viii) Conference hall for all forms of activities, ix) Development of Ganga interpretation center depicting the importance of Ganga as holy river and importance of its water in Hindu religion

18.3 Creation of Kashi Kala Dham

i) Centre of excellence with - Hall of Fame- to showcase the important personalities of Varanasi - • Guru Ashram – where all the students can learn from the Banaras Gharana -- 500 seater auditorium (Sanaskritic Kendra) for the cultural and other shows to be performed by the students and teachers of the institute-- Parking facility -- Research Centre – on the various subjects related to Music, singing and dancing-- Recording Centre, ii) ¬ Music Gharanas promotion by linking it to 10 schools where all the aspirants will be imparted education and later on polish their skills at Kasha Kala Dham, iii) ¬ Jyotish Vidya to be promoted by providing space and other allied services at the centre so that the knowledge available are used for future generation too

18.4 Development of Night Bazzar at Ganga ASSI Ghat

i) Some shops to be developed on a permanent basis so that people can buy and eat as per their requirement, ii) Many shops be to set up on temporary basis (to be initiated in the evening) as battery powered mobile food vending carts and battery powered mobile shops vending shops fitted with to be introduced so that the same can be removed in the morning. The booking to be done online with VMC.

18.5 Promotion of City of Music

I. Development of Music/Dance/Song Performance center at Rewa Kothi for international an domestic tourist as well for general public, ii) Banaras Music Walk- Linking all the important musicians near Kabir Chura, the Heritage walk will cover all the imminent people who have awarded Padam Shree, Padam Bhushan and Padma Bhibhushan and other international and state award staying in the single area.

18.6 Green rooftops in Schools and Govt. building

18.7 Smart Environment Monitoring

(i) Water Quality monitoring, ii) Installation of sceemers in the ganga water for cleaning, iii) Air Quality monitoring, iv) Early warning sensors in water zones (for floods)

18.8 Skill Development and Trade promotion by Identifying Artisans

i)Skill Development of the artisans under Baba Saheb Hastsilp Vikas Yojana (Central Govt. Scheme), ii) State Government skill promotion, iii) Trade development centres for artisans, iv) Linkages with the bank for credit cards and life insurance, v) Provision of space in the Multi Utility parking area

18.9 Development of Working Museum for Weavers and Artisans

i)Museum to have the looms used by the weavers and the tools used by the artisans so that people can be taught the skills in the center, ii) Space for the weaver and other artisans community to sell their goods, iii) IT enabled space for the weavers and the artisans for interacting with clients nationally and internationally

18.10 Silpihatt at Madanpura Area

i)Development of local trade center for all the wavers in the locality, ii) Integration with the APP Development of these weavers and their linking, iii) Social Development programmes for these weavers provision of children play area, iv) Linking off all the artisans family in the area with health programmes

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)

Effective Governance
Different departments and private sector entities are involved in planning and execution of Smart City projects in ABD. Effective use of ICT and E-governance will result in better coordination among all the stakeholders. SPV will be the central body having command on all the stakeholders. The SPV will be empowered to give clearance during implementation phase with coordination with all the stakeholders. Project level Sub-SPV's, if required, will be constituted for focused and better delivery of projects. The convergence and coordination of the competent authority towards implementing the projects will be a major impact on the outcome of the smart city project. Further, the SPV will be the driving force for the operation and maintenance of the smart city projects.
In case of variation from the assumed scenario, capacity building exercises to increase/enhance the technical capacity and project management skills will be undertaken. The SPV will ensure timely completion of project under smart city plan.

Convergence:
The Smart City Proposal intends to Converge different initiatives by the Government of India, State level programmes, multi-lateral funding, CSR funding etc. Smart City Varanasi proposal takes into considerations all such funding schemes. Works such as Solid Waste Management, Solar Energy Generation, Water Supply and Sewerage, IPDS, Heritage, Tourism etc. are key schemes to access funds required by the city to make Area based Development smart.
Public Private Partnerships
Involvement of private sector is critical for success of Smart City project. The challenge is nature of projects required in the Area based Development have limited scope for private sector participation.
It is expected that components such as Solid Waste Management, proposed non-polluting Intermediate Public Transport (IPT) such as battery operated autos, parking, WiFi, Solar Energy Farm, Tourist related infrastructure, ICT based smart solutions etc. would attract private participation. Other core components of physical infrastructure such as water supply, sewerage, Utility Ducting, Heritage related may not show interest in these projects. Therefore, SPV will have to explore innovative ways to involve private sector participation for projects that are amenable to PPP in some ways

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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)

• Reduction in electricity pilferages by 50% on account of underground cabling of electricity distribution lines (25%) are lost annually in ABD due to pilferage]
• More than 50% increase in complaints to be registered on E-Governance platform
• The APP download number will prove the usage
• Increase in house tax timely collection by spot billing and payment
• Availability on Jan Suvidha Kendra for facilitating services to the common citizens

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

• 22 acre or 2 percent of te ABD area used for 11 parks development for the people with all modern amenities
• On 12 acre or 0.9 percent of the area being used for 10 ponds restoration with footpath all around with better illumination for common people
• 5 small road being identified for the pedestrian movement with footpath development, the total length of the footpath will be 4 kms
• 500 mts of the road being developed with proper façade improvement
• Out of the 84 ghats 14 ghats being developed in ABD with proper amenities
• The ABD area to have 8000 heritage lamp posts to give a different look to the place
• On 1 km one section of the road 15 walls to be painted in a particular fashion to give it distinctive identity
• 10 acre of the aKPMGKPMGrea is being used for stadium renovation with all modern amenities
• 11 Multi Utility parking will reduce the parking on the road and therefore benefit the peoples movement
• The open defecation in the ABD area to be reduced to 0 percent form 5 percent now

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

• Reduction in the NRW by 30% on account of SCADA and smart metering (Current NRW losses: is 1800 Mn liters annually, value approx. 1.5 Cr.)
• Creation of the cultural and the convention centre will add to the revenue of the Municipal Corporation by 2 Cr. Per year
• By installation of the LED lights the Municipal Corporation 18 Cr. Each year every year to the Municipal Corporation
• 10 MW is being generated by solar energy with total saving of energy thereby saving Rs. 1.60 cr.
• Total revenue generated by several new initiatives will generate 499.53 Cr. Over 15 years cycle

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

• 328 CCTV installation at 65 locations will benefit the people of the area
• 70 Public/Community toilets will benefit the people of the area and will in making the city open defecation free
• 11 Parks development in the ABD area will bring in better impact
• 10 ponds development with pedestrian paths will bring in good impact at the city level
• Cultural cum convention Centre and other cultural cum music school will bring in the better impact
• The separate area for bathing and regular cleaning of Ganga River will bring in positive impact
• Availability of Changing rooms at the Ghats will bring in positive impact for pilgrimage
• The new initiative of including Hazmat vans, Bike laden emergency response and SUV equipped emergency response will make te response 50% more effective

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

• Increment of 25% in share of NMT in the ABD area due to introduction of e-rickshaw and pedestrian movement
• Around 11 MW solar energy is being generated which will create positive impact produced at the city level
• The Municipal Corporation is saving Rs.18 crore per year through the LED lights
• The parks development with lot of plantation will add to the environmental improvement
• Restoration of 10 ponds in the ABD area will clean the water and add to the ground water recharge also
• 5000 plantation of tress per year at the city level will bring in positive impact to the environment
• Regular monitoring and cleaning of Ganga water through skimmer will benefit the water quality
• The organic waste composters at the temples and the ghats for converting the flower waste into compost and other valuable products will benefit the overall environment

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)

The Pan City Proposal proposes to provide the following solutions:
a) Kashi Sanyojit Yatayat: While ABD will have smart bus shelters, e-rickshaw, cycle sharing the Pancity will have Multi Modal Public transport system supported by Intelligent Traffic Management System (ITMS) unified with Central Control Center for City Surveillance, Outcomes: (i) Efficient Public transport system in the city (ii) Reduction in traffic congestion and travel time (ii) increase in safety of citizens by CCTV surveillance (iii) reduction in air pollution and fuel consumption
b) Kashi Ekikrit Suvidha: An ICT based citizen services solution by use of Portal and Mobile App integrated with multi-purpose Smart Card. The portal and Mobile App will have services for the citizen with enabled feature on Tourism and Pilgrimage. Outcomes: i) Efficient and transparent delivery of services and (ii) Enhanced interdepartmental coordination for delivery of services (iii) All tourist/pilgrimage related services payment, booking and information on single platform

20. **COMPONENTS**

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

The key components of Pan City Proposal is as below:
(a) Kashi Sanyojit Yatayat:
(i) Multi Modal Public transport system supported by Intelligent Traffic Management System (ITMS) unified with Central Control Center for City Surveillance. (ii) Multi level smart parking with electronic ticket system and real time availability of parking slots (iii) Energy efficient LED street lights (iv) Bicycle renting will be provisioned on all 24 metro stations(v) Smart bus stops with water ATM, digital display and charging points (vi) battery operated GPS city buses, freight and feeder buses connecting all metro stations (vii) Smart Street Light Poles with integrated telecom, surveillance, digital signage, environmental sensors, Wi-Fi etc. (viii) Repair of roads and pedestrian footpath has been considered as an enabler for smooth traffic movement
(b) Kashi Ekikrit Suvidha:
(i) Integrated portal and Mobile App for Citizen Services for better delivery of services to the citizens. The following services would be available:
a. e-booking of boats, guides, taxi, e-rickshaw, hotels
b. Places of interest near me- ATM, Temples, Museums, Gallery
c. Locator for Handicraft shop, Sweet Shop, Chaat Shop, Pan Shop, hotels, tourist kiosk, toilet, dustbins, parking etc.
d. Complaints for solid waste/sanitation, water supply, street light, sewer, road condition etc.
e. Apply for Licenses for shops, establishments, street vendors etc.
(ii) One City Card (Multi-purpose smart card) for
f. Hotel Payment
g. Multi-mode transport payment-metro, bus, bicycle, boats
h. Rewards on shopping and payments
i. Utility bill payment
(iii) Information Kiosks and large LED display - Information for Citizen services with special focus for Tourist and Pilgrims
(iv) Development of common platforms for various citizen centric services
j. Utility Dashboards- Common Dashboard (Power, Water, Gas etc) Usage, Leaks, Billing Reporting
k. Digital Wallet - Kashi Card Platform integrated with PayGov of GoI
l. Citizens Engagement platform on lines of MyGov
m. Digital Signage Platform (events, public service information, schedules, storytelling of History etc.)
n. Interactive kiosks and large LED display platform
o. Share/Rent/Book Vehicles (e-Rickshaws, e-Boats. Rent-a-Cycle)
p. Integrated Command & Control Center: Power, Water, Transport Traffic, Parking, Waste, Crowd, Environmental, Emergency Response, Disaster Management etc.

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

(a) The city profile and self-assessment:
A detailed city analysis was done by using the data collection from various departments and para-statal agencies. The scenario sheet of self-assessment was prepared to understand the current scenario. Key performance indicators were identified for various sectors. The existing schemes/programs and new schemes have been identified and populated in the project log form. The existing funds and proposed funds have been used for convergence of funds for the Smart City Proposal.
(b) Citizen opinion and engagement:
A comprehensive Citizen engagement exercise has been done to seek opinion of diverse group of Stakeholders such as Govt. official, NGOs, Associations of Hotels and Traders, leading urban planners/architects, professional such as lawyers, doctors, CAs, elected representatives of the town, artists, sportspersons etc.
Citizen engagement was done through offline and online polling with over 4.39 Lacs votes being cast. Based on the citizen consultation it emerged that the main areas of concern are Urban Mobility and lCT based citizen services. lt was suggested to have intelligent traffic management, smart parking spaces in various places and efficient citizen service as the main priority area.
(c) Opinion of the elected representatives
All public representatives have been consulted in each stage of proposal preparations. MLAs, and Mayor & Councilors have also come forward in communicating city specific suggestions. They also highlighted the need to improve the prevailing traffic congestion problems along with problems of footpath, repair of roads and absence of bus stops etc.
(d) Discussion with urban planners and sector experts
Consultation with Urban planner, Traffic policeman, Public utility vehicle drivers, Auto-rickshaw, drivers, general commuters, and tourist guide associations were organized. A detail meeting took place with those who are managing the traffic and tackling problem day to day basis. The town planner of the VDA also expressed their opinion regarding areas of concerns in the city. The major areas of concern has been:
a. Traffic congestion on busy junctions
b. Encroachment on road by local shopkeepers
c. street parking vehicle
d. lack of parking facilities
e. lack of single payment card for all transport
f. lack of footpaths
(e) Discussion with suppliers/ partners.
lBM, Orcale, 3M, Novus, Netmagic, NetApp, GAlA Smart Cities, CDAC, Speedway Electric, KPlT etc are prominent solution providers in terms of lCT Solutions, they were

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invited to Varanasi for consultation. These partners suggested some lCT intervention for the City. They suggested key solutions which could lead to improvement in the addressing the major concerns and improving the quality of life with the help of the lCT solutions.
The proposed solutions were put to discussions with officials, site visit was made to understand the critical points of city and the problem areas. The solution provider explained the initiatives taken in other cities, specially related to lCT initiatives in the old city area. Letter of support and MoU were signed with 23 of the prominent solution providers such as SECl, CDAC,lBM, 3M, GAlA Smart Cities, Schneider Electric, NetApp, Netmagic lT Services, Commvault Systems, Novus, Ericsson, Navgathi, KPIT, Trinity Mobility, V3 Teletech, Advantech, Unipolar Water Technologies, Cartwheel Hydrogen Technology Lorax System lnc., MUT, lnnowatts, HFCL and Reliance.

For Selection of components at the primary level 9 major components were proposed and out of them 2 were prioritized by people.
The two choosen were
1) Urban Mobility
2) E-Governance.

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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 main areas which have been identified from city profiling and citizen engagement will be addressed through the Pan-city solutions.
AREA OF CONCERN 1: Traffic congestion in the city.
Issue - 1: traffic Congestion, non-functional, traffic lights, absence of traffic regulations and signage. In addition to this encroachment and absence for parking areas add to the traffic woes of the citizens.
a. Multi Modal Public transport system supported by Intelligent Traffic Management System (ITMS) unified with Central Control Center for City Surveillance. Implementation of Integrated Traffic Management System in the City. Installation of CCTV based lane management system will help in regulating the traffic in proper manner. Development of a Central Control Centre to receive and analyze data from traffic junctions will help in managing traffic in dynamic fashion. It will improve the response time to accident/incident

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congestions and faulty traffic signals. The dispatch would be provided with state of the art communication, messaging devices/terminals and GPS to ensure prompt response.
b. Dynamic traffic signal and variable signage (58 nos.): dynamic traffic signal would ensure traffic lights are regulated based on the dynamic load of the traffic. Variable signage would enable information sharing for regulating traffic especially in case of incidents. This would enable decision making for citizen, based on the key information such as jam locations, parking possibilities, etc.
c. Junction improvement at 61 locations to reduce traffic congestion & improve traffic flow through channelization, rotary & signals, median extensions proper signage and road markings etc.
d. Smart solution for existing & proposed parking spots such as smart parking system. Mounting of cameras and sensors to display the occupancy at parking, live feed on display boards to inform citizens. Smart card can be used for payment of parking bill as well as for public transport ticket.
lssue 2: Traffic congestion due to unauthorized parking
e. lt is proposed that 8 Smart Multi-level parking system will be proposed on PPP basis to create more parking space in the city
f. e- challan system to be introduced to issue challans to traffic violators and for unauthorized parking on streets. This would ensure strong enforcement of traffic rules especially for frequent offenders.
lssue 3: Low reliability, safety on roads
g. CCTV based city surveillance system
h. lntegration & augmentation of existing control room to develop a Central Control Centre police for effective monitoring and to ensure ease of commute and safety of citizens.
i. The live feed would be sent to a centralized control centre to ensure safety
j. This system will enable police and security agencies to take proactive/ reactive measures and ensure safe & smooth environment on road.
lssue 4: Lack of bus stops and poor visibility on roads
k. Provision of 50 smart bus stops with real time information of buses, water-atms, information kiosk, recharge points.
l. 36027 street lights will be provisioned with LED lights
m. Provision of smart street light poles integrated with Wi-Fi, Panic / Emergency Buttons, CCTV & Video Analytics, Digital Signage, Air Quality Monitoring etc.
Goals that would be achieved would be:
n. Reduce vehicle congestion on roads based on optimized signaling
o. Efficiently detect red light jump, over speeding and lane change violations and identify vehicle registration number and issue e-Challans
p. Decreased average stoppage time
q. Dissemination of information to commuters on the move
r. Parking management
s. Coordinated Red Lights & Optimized Signaling
t. lmproving the quality of life by enhanced safety conditions, saving in travel time, facilities at bus stops etc.
u. Reduced power consumption for street lights
v. Reduced pollution levels due to use of battery operated bus and e-rickshaws.

AREA OF CONCERN 2: e-Governance and lCT based Citizen services lssue 1:

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There is a lack of integration across departments, which means that service delivery or administrative processes planning with multiple departments are a nightmare for citizens; projects are not co-ordinated; no single point access for payment of bills for city services; Roles and responsibilities across departments are not clear. Citizens are often unaware about the present service delivery channels and the SLAs. While there is some initiative to improve departmental processes and transparency through use of lCT/ e-Governance, there is coherent approach and most initiative on a standalone basis and on different platforms. This leads to a number of urban development problems across all sectors; lneffective revenue collection due to poor coverage/ assessment/ measurement of the tax or services. Lack of a common-integrated data management system that translates into departments working in silos using different reference points. There is no single platform / dashboard to monitor / measure or manage the overall service delivery or governance efficiency or effectiveness in the city that may help in developing a coherent and integrated strategy for improvement.

The project proposes the creation of a platform for integrating lT systems and for creating a coherent lT system within Varanasi that will provide effective infra and monitoring system as well as e-governance application. Some of the key feature of this initiative would be

w. Common/Unified lT, Data and Application lnfrastructure: The infrastructure refers to hardware, communications, data and software requirements that are common to all or most functions related to service delivery and governance. These include: (a) Database and Application Servers hosted in a common secured data center or linking up existing major data centers of the state or the city and connecting them through high bandwidth high availability communication channels.

x. Common security and application services platform to enable different department to build specific applications (mobile or web) with a consistent Ul and back-end integration.

y. Varanasi smart city portal and mobile apps: The web portal and mobile apps ecosystem developed over the unified platform would enable different departments to use common back-end data and provide the citizens a consistent user interface. This would also improve interdepartmental coordination and enable the citizens to raise multiple requests with multiple departments through a unified interface without repeating information or documentary requirements.

z. Work flow automation and interdepartmental coordination: The comprehensive-unified architecture of the e-Governance Project would also provide building blocks for work flow applications to be built by individual department to automate and streamline their processes and also make interdepartmental coordination easier wherever action of one department may result in work flows being initiated in another.

aa. Central Dashboard: This would be a centralized dashboard for enabling and empowering all department with a unified monitoring & management. The unified platform would enable the department to monitor, evaluate & understand the performance vis a vis service delivery efficiency.

23. INCLUSION

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

Different groups were approached through the vigorous consultation workshops to identify the two areas of concerns. The process consultation was done in both online & offline mode.
Kashi Sanyojit Yatayat proposes Multi Modal Transport system for overall improvement in public transport and Integrated traffic management system of the city and improving the quality of life of citizen. The metro will provide major transportation and city bus services will improve public transport while e-rickshaw will provide last mile connectivity to the metros. Use of battery operated transport and cycle sharing will ensure a better standard of living for city inhabitants with less noise pollution, better air quality, better utilization of public space and increased road safety for all road users, especially the elderly, children and specially-abled. It will deliver positive impacts to a variety of social and economic groups and will benefit tourists and visitors to the city improving their overall city experience.
Kashi Ekikrit Suvidha, an ICT based citizen service will drastically improve the delivery of citizen centric services. The delivery of services would be through portal, app for Citizen having internet connectivity. Jan Suvidha Kendra would be the delivery outlets for citizens not having internet connectivity.

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
Multiplicity of Organizations/Departments: Various departments like Transport, Varanasi Development Authority, Tourism Department, Archaeological Survey of India, PWD has different administrative structure, different style of functioning and minimal coordination with other department	Medium	The impact will be in delay of the convergence with the smart city mission and ultimately it will result in project delays and financial implications	• SPV to hold regular meetings with all state para-statals, brief about the projects undertaken as part of Smart City Project and develop consensus. • common branding and common advertising can lead to higher revenues and coordination

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TABLE 3			
Risk	**Likelihood**	**Impact**	**Mitigation**
Technical capacity of officials Lack of technical capability in the field staff for handling initiatives like smart meters, online delivery of services, etc.	Medium	Adversely affect smooth roll out and also may result in public complaints regarding faults in operation/ billing	• Provision for mandatory training of new initiatives for officials to update their technical skills • Capacity Building Programmes for department officials at regular intervals
Technology Risk (a) Technological Obsolescence- Technology is changing rapidly	High	Can lead to costly upgrades and dissatisfied consumers.	• Use of open standards with open access and open data standards will provide future proof systems integration. • All applications to be developed as per the e-Kranti guidelines under Digital India
(b) Cyber Security & Privacy risk- vulnerabilities and attacks on IT systems .	High	Can lead to data thefts, hacks and data privacy issues for critical Government as well as Citizen data	• Use of Cyber Security Model Framework for Smart Cities as released by MoUD will be considered while implementing solutions for setting up Smart Cities. • All IT application to be audited by CERT-In empaneled vendors before Go-Live

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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)

Case Studies of Integrated Traffic Management models of cities like London, Singapore and Barcelona have been studied with a relevance to issues in Varanasi. The result from these case studied shows a reduction in travel time, improvement in travel speed, and reduction in number of accidents.

Since the profile of commuters and cities in India are completely different, the best implementation methodologies in the Indian context have been considered.
Some Indian cities such as Mumbai, Ahmedabad, Bengaluru, Pune, Hyderabad and Mysore has also applied different components of ITMS but none has a holistic developed ITMS System.
a. Mumbai, for example, uses centrally coordinated traffic signal using real-time data collected through detectors to maximise traffic flow, reduce congestion and reduce junction stops and delays to suit traffic conditions at different time of the day.
b. Janmarg (Ahmedabad BRTS) has made very effective use of ITS and constantly maintained the benchmark of operation and service Quality.
c. In Bangalore there are 180+ locations for better traffic management using area traffic control systems, The cameras also help in maintaining law and order, boosted by use of incident detection and management software. Additionally enforcement systems have been installed at 5 locations which automatically detect red light violations. Bengaluru Transport Information System (BTIS) tracks location of buses through GPS system, displays information about bus routes, estimated arrival time through both its website and mobile app.
The frugal innovation proposed in Pan City proposal are
(i) Development of e- Kashi mobile app integrated with smart card. It will help in creating a single unified platform for integration and all future citizen centric services.
(ii) Multi-purpose smart card can be used for urban mobility and can be extended to include metro rides and a host of other services.
(iii) Putting air quality sensors at all junctions and street light, will also prove to be frugal in long term as a correlating information about the air quality levels will help in reducing traffic movement and ultimately enable controlling pollution levels.
(iv) Smart solutions related to variable information sign board may be useful in generation of small revenues also at later stages, in form of advertisement feed.
(v) e-auto, cycle sharing, battery operated city buses will help in providing affordable public transport, improve last mile connectivity and reduce pollutions
(vi) Smart bus stops will be have digital display for status of buses, water ATMs, charging points, WiFi and information kiosks.
(vii) Information kiosks and large LED displays will be used for information dissemination and can be used for revenue generation via advertisement feeds.
(viii) Smart Poles will not only act as street lights but will also have house Telecom Equipment, Surveillance Camera, Environment Sensors and Wi-Fi. It will also have the capability to incorporate backhaul for connectivity such as Optical Fiber Network and Microwave as per requirement.

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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	ITMS integrated with CCTV surveillance	One of the main objectives of this project is to develop Integrated Traffic Management and Smart City Surveillance to reduce traffic congestion and improve urban mobility. Convergence will be achieved through Rs. 14.04 cr. from Varanasi Municipal Corporation, Rs. 2.82 cr. Varanasi Development Authority and Rs. 55.30 cr. from Govt. of U.P. through Department for Police.

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TABLE 4		
S.No	**Missions/Programmes/Schemes/Projects**	**How to achieve convergence**
2	HRIDAY	Under HRIDAY scheme Rs. 98.8 cr. would be spent for repair and development of 34 roads with heritage development and theme enhancement
3	Public Works Department	The roads condition needs improvement and PWD will spend Rs. 20 cr for repair of roads
4	Govt. of U.P.: Inter model hubs and Varanasi metro	Govt. of U.P. would contribute Rs. 223.8 cr. towards, creation of inter-modal hubs at 24 metro stations, augmentation of women helpline. The last mile connectivity will be provided by making provision of e-rickshaw and e-auto, cycle sharing and battery operated buses.

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TABLE 4		
S.No	**Missions/Programmes/Schemes/Projects**	**How to achieve convergence**
5	Department of IT NIC	For the implementation of the e-governance programme an estimated amount of Rs. 5 crore will be spent of services under e-district project and strengthening of connectivity through SWAN. Around 130 citizen services will be delivered in online mode through the city portal and a mobile app. ln first phase 60 services (including existing 26 services) will be made available on Portal and Mobile App online and in next phase another 70 services will be made online. The service delivery using the Portal and Mobile App will be done as per the Digitial lndia Guidelines of DeitY, Gol.
6		
7		

27. CONVERGENCE IMPLEMENTATION

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

1. lTMS integrated with CCTV surveillance: Rs. 55.30 Cr will be converged from State Government's lntegrated Transport Management System [lTMS] project, Department of Police being the nodal agency. Rs. 14.04 cr. from Varanasi Municipal Corporation and Rs. 2.82 cr. form Varanasi Development Authority would be converged for lTMS implementation.
Within a duration of 2 yrs, 80% of the interventions would be done in 1st yr and the rest 20% in the second year.

2. Under HRlDAY scheme Rs. 98.8 cr. would be spent for repair and development of 34 roads with heritage development and theme enhancement. Within a period of 1 year the repair and development of roads will be completed.

3. Repair of roads by PWD is estimated at Rs. 20 cr. would be taken up in phases manner and would take 2 years for complete implementation.

4. Creation of inter-modal hubs at 24 metro stations and creation of last mile connectivity would be converged through Govt, of U.P. contribution and would start after 2 years of smart city project initiation and would take 2 years for completion.

5. Department of lT/NlC would contribute Rs. 5 cr. towards implementation of e-Governance services and expected to be completed within a period of 1.5 years. ln the first year 50 services of select departments and all common platforms for service delivery would be taken for implementation. ln second year the remaining 50 services would be implemented.

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)

1. lnter-departmental coordination
Creation of a common platform for delivery of services would require buy-in of all departments as lT implementation in the departments has occurred in different stages. Digitization of data and sharing of database for one common platform is critical factor for success of Portal and Mobile App. The technical difficulties of integration of different of database can be overcome deployment of opens standards and use of open APls as per the guideline of DeitY, Gol. A detailed GAP analysis would be required for each

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department's services and handholding support would be required by Department of IT and NIC. SPV will closely monitor the activities and provide risk mitigation measures in case of any issues and bottlenecks.

2. Citizen Awareness:
The success of Portal and Mobile App and urban mobility interventions will depend in active citizen participation. Therefore, it is imperative that some amount of funds should be allocated for creation of awareness of citizens. The departments can come forward and jointly undertake branding and promotion activities. Usages of services by online mode should also be given some incentives.

3. Financial Success:
The cost of the projects listed under in Pan city will be converged from various programs/schemes of various departments. Success of these initiatives will depends on interdepartmental coordination and timely fund release by the departments. SPV would have to build the strong consensus while undertaking the projects/initiatives and drive the projects through course correction, moderation and appropriate mitigation measures.

In order to have a robust SPV functioning, a dedicated PMU of resources from varied sectors will be deployed. The PMU will work closely with the SPV and assist in effective inter-departmental coordination and Programme Management.

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 implementation of pan city solutions would provide the following benefits:
• within 1 year :
1. Utility bills can be paid online and anytime by citizen, it reduce the hassle to visit the Govt. offices.
2. Citizen can lodge their complaint and grievances online and check the status of its resolution.Social Media integration can used to lodge and provide resolution online.
3. Tourist will benefit as all the information regarding places interest, hotels, shops and booking can be done online
4. The Central Portal/Mobile App will give all city related information & services to citizen
5. LED based street lights will be operational in 6 months and provide proper illumination during night time. The saving in electricity will be to the tune of Rs. 18 cr. each year.
• within 2-3 years :
1. The ITMS will ease the traffic congestion and will save the travel time within 2 years
2. The intelligent parking system will ease the parking woes (at present no multi-level parking)
3. 50 bus stops will have facilities like water ATMs, digital display for bus running status, charging points etc.
4. 50 Smart poles will be implemented on pilot basis with sensors, telecom infrastructure, CCTV and digital signage for information dissemination

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)

The implementation of pan city solutions would provide the following benefits:
• within 1 year :
1. Utility bills can be paid online and anytime by citizen, it reduce the hassle to visit the Govt. offices.
2. Citizen can lodge their complaint and grievances online and check the status of its resolution.Social Media integration can used to lodge and provide resolution online.
3. Tourist will benefit as all the information regarding places interest, hotels, shops and booking can be done online
4. The Central Portal/Mobile App will give all city related information & services to citizen
5. Traffic on website/portal to be increased by 50%
6. Increment on number of Mobile App users: 50,000 users (Currently 1000 users)
7. Timely response to citizen grievances as per charter: 99.9%
8. Reduction in service delivery time to 30 days from present 45 days
9. Increase in tourist footfall:25 %
10. Increment in revenue generation from international tourists and pilgrims: 30%

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

The measurable impacts out lined are targeted to be achieved by the end of next 5 years.
(i) Average Travel time by Public Transport to be reduced by 25% on account of reduced congestion by provision of 61 nos. junction with intelligent Traffic Signals
(ii) 30% reduction in time spent for parking vehicles in organized Parking on account of IT enablement for 8 intelligent parking
(iii) Public transport utilization increment by 20%
(iv) increase in number of fleet of City Buses by 100 nos. (present 150 buses)
(v) Reduction on electricity bill of street lights by use of LED lights in 36000 street lights: Rs. 18 cr. each year

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)	Target	Resources required	Likely date of completion
AREA-BASED DEVELOPMENT						
1	1. Water Supply- Component	A.NRW/Quality Moitoring Duration of water supply Extent of water reuse	A1: 3 hrs everyday water supply	24 /7 water suopply, 100 % metering,	A. Project Funds ,Financial ,Functional & HR convergence with water supply	A.9/30/2020
	2.Wastewater Component	B.Adequate Functional Sewrer Lines,Encroachment on Natural drainage Paths, % 0f Door to Door Coverage, segregationof waste at source	B: 0% coverage of Slums, Collection at source Improper in some areas, Local Floods	B:100% collection and segregation , lining of river, Slum rehabilitation by providing sanitation	B:Redesign Trenchless machines,Funds, Rs.13000L, SWM for convergence	B: 9/30/2019
	3.Underground Cabling	C: Underground cables & smart meter, Approachable utility ducts , path ways for laying of utilities	C: 20%	C: 100% shifiting of al utilities underground	Sound planning, Smart meters,censors funds,Rs.8481L,Project Funds, financial convergence with IPDS	C:9/30/2019
2	4. Solar Power	D: Installation of solar power plants on all terrace on redevelopment bld	D:0%	D:12 % to be added to Grid	D: Solar Panels, Manpower,Funds, Rs 6750 L, SECI & VMC	D: 3/31/2017
	5.Solid Waste water Mangement	E: % Coverage, Decentralised Traetment of Wast e	E:50%	E: Solid Waste Composters	E: Censor based Bins,GPs based machines, Control Room,Rs 1000L,Cr Covered in SWM	E: 3/31/2017
	6. Adequate Storm Water Management	F: % Coverage, River Front Development and UG SWD network	F:40%	F: 100%	F: Censors for showing depth of flow in underground drains Rs.2000L	F: 12/31/2017
	7. Rain Water harvesting public buildings	G: % Public Buildings equipped with RWH mechanisms	G:Negligible	G: 90%	G: Proper public space,Planning,Funds,Rs.200L	G: 9/30/2019

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Table 5						
S. No	Activity/component	Indicator	Baseline (as on)	Target	Resources required	Likely date of completion
3	8.Heritage & Culture Conservation of Heritage Sites, Heritage street Redesign creating the historic ambiance, Capacity Building to locals for guides, Improvement roads , Vehicular intersections,pedestrian crossing	H: City heritage facade makeover and theme based redesign to reflect the legacy	H: o Nos	H: Kashi Parikrama , sanskrutic lehar, Improvement of Roads, Vehicle to be restricted for certain lanes	H: HRIDAY,funds Convergence ,	H: 3/31/2017
	9. Dedicated Cycle Tracks	I: Kilo meters of Track	I: 0 Km	I: 10 Km	I:Layout finalization,Development Funds, Rs.250L	I: 3/31/2017
	10. Quality Monitoring	J:No. of Stations	J: 0 Nos	J: 10 Nos	J: Locations for Installations, procurement erection, Funds, Rs 100L	J: 3/31/20017
4	11. Development of Footpath/Foot over Bridges/escalators	K: Possible length	K: 10 Km	K: 30 Km	K: Sound alignment finalisation, Escalators, Erections,Rs 600L	K: 9/30/2017
	12. Rickshaw	L: No.s	L:20 Nos.	L: 45 Nos.	L: Identification of beneficiatiaries, administrative decision for other no vehicle zone , Rs.31.5L	L: 12/31/2016
	13. CCTV Camera,Fire Alarms,Variable information Sign Board	M: No of Instatllations	M: 0	M: 15	M: 15 sound location planning, camera sensors, display board fixing,Rs.300L	M: 3/31/2017
	14. WIFI Establishment	N: WIFI cioverage in area at important Loaction	N: 0%	N:100%	N: Coordination with Providers,Rs.200L	N: 3/31/2017
5	15. Development of town Hall-Heritage buildings	O: Buildings Renovated in Vicinity	O: 2 nos.	O: 3 Nos.	O: Sound DPR, sensor, Escalators installations,executing aency,Funds, Rs.1338 L	O: 9/30/2017
	16. Development of ponds	P: No of Ponds Rejuvenated	P: 3 Nos	P: 10 Nos.	P: Conservations architect , smart LED Lights,Solar aeriators, Floating SOlar panels, Rs 2000L	P: 9/30/2017
	17.Facility Godowliya dashahwamed	Q: % Coverage,U-1,Nos of such health Facility in region	Q:0%	Q: 100%	Q: IEC campaign, Sound DPR, Conservation architect smart LED lights in that aea, Solar interventions for clean Energy	Q: 9/30/2017

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Table 5						
S. No	Activity/component	Indicator	Baseline (as on)	Target	Resources required	Likely date of completion
6	18. Modern Heritage Center-Convention center with SMLP at Sigra 19. Pedestrian Friendly Pathways including differently-abled design Barrier free Divyang friendly Footpath integrated with new street section design- Godowlia Chowk to Dashashwamedh Ghat- 250 mtr Harishchandra Junction Hanuman Ghat- 300 mtr Sonepura Raod to Shivala Ghat -	R: No of Convention Center Number Number Number Number	R: 0 Nos NIL NIL NIL	R: 1 nos	R: Proper Designs,smart censors, escalators, Lifts,Sound Erection agency, Smart Cards,Funds,Rs 10000L HRIDAY/Sugamya Bharat Abhiyaan, 5 Cr	R: 3/31/2019 31.12.2019
7	Creation of Pathways connecting Ghats (Physically disabled friendly) VII. Creation of separate areas and facilities for Ganga Snanam / Puja / boating VIII. Development of Changing rooms/creation of ladies Ghat at Ghats (Solar Powered) IX. Chattri on Ghats X. Stone slabs XI. Creation of utilities (solid waste management, 24x7 cleaning, dustbins at every 50 mts Stone slabs	Numbers Numbers Numbers Numbers Numbers Numbers	NIL NIL NIL NIL Nil NIL	1 at 14 ghats 60 60 ro be ascertained 60	JVMC, 1Cr VMC, 10L NMCG, 80L *, 10 L	31-12-2016 31-12-2016 31-12-2017 31-06-2017 31-06-2017
8	ABD Mobility Smart parking Solutions Smart parikarma routes Road Improvement Junction Improvement e-ricjshaw e-Autos e-boats	Numbers Numbers Length and no of roads Numbers Numbers Numbers Numbers	NIL NIL NIL NIL NIL NIL NIL	11 Numbers All the buses introduced 34 number of streets improved 64 junctions no of places installed Installed in smart poles no of kiosks		31.12.2019

Table 5						
S. No	Activity/component	Indicator	Baseline (as on)	Target	Resources required	Likely date of completion
PAN-CITY SOLUTION						
1	Sanyojit Kashi- a) Integrated traffic management system - Intelligent traffic signals and traffic sensors - variable message signs -Augumentation of existing command centre b) Smart City survillance system - installation of PTZ camera -	No junctions Number Number Capacity to handle handle ITMS Locations Network	NIL NIL NIL NIL NIL NIL	64 50 100 1 NIL	All being covered under the ITMS funds, The project being Implemented by UP Government with collaboration with Traffic Police, Varanasi Development Authority and Varanasi Nagar Nigam	03/31/2018
2	ICT for City Bus Service GPS Devices for Tracking of Buses -CCTV camera on board - On board display panels - Automated fare Collection System - Bus operation Command Centre Smart Bus Shelter Smart card for all services Energy efficient Strret lightings	Number Number Number Number Number Number	NIL NIL NIL NIL NIL NIL	60 nos. 200 60 60 26 (Inter Modal Hubs) 50 for all persons interested 36037	All being covered under the ITMS funds, The project being Implemented by UP Government with collaboration with Traffic Police, Varanasi Development Authority and Varanasi Nagar Nigam ESSL to put the same on the PPP basis	03/31/2018
3	Kashi ekikrit Suvidha E booking of Boats,Guides,Taxi,e rickshaw,Hotels Places of interets near me, ATM,TEemples,museum,Gallery etc. Shops locators, Sweet Shops, Chat Shops, Pan Shops Complain for solid waste sanitation,street light etc. Utility bills payment All information on App.	Number Number Number Number Number Number	NIL NIL NIL NIL NIL NIL	All the services are linked to the smart card and information is available on APP and through information Kiosks	This will be taken on PPP basis	03/31/2017

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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)

Varanasi SCP will be implemented in a period of five years (2016-17 to 2020-21). Varanasi smart city has selected a majority of the projects under Convergence agenda, many of the projects are being covered under the national and the state governments plan and so the fund requirement has been ensured. The projects covered under AMRUT, HRIDAY, Namami Gange, Tourism, JICA, IPDS, CSR initiatives etc. have well defined DPRs which needs to be implemented under Smart City. After submission of the proposal a detailed execution plan execution plan for the remaining components will be done. The projects have been scheduled on the basis of Convergence with other scheme, time taken in execution, realistic timeframe, timely impact, easiness of implementation, social benefits, fund flow,
Appreciating the importance of SCM GoUP and VMC have taken broad decision in terms of structure and framework for operations for the SPV. Municipal Commissioner of VMC will be CEO of SPV and this provides a strong base in terms of organisation head's familiarity with SCP vision & goals, work ecosystem and constraints.
As the SPV team has been made the key people will would execute the entire proposal and will closely into the critical things which is need for the execution by putting all the department representative at one place. (SPV structure is detailed in SPV Q# 33).
SPV will complete the recruitments for all the Functional Heads within 2-3 months. The DPR will be prepared for early bird projects, a regular interaction will be carried out with vendor/contractor/partners leading to crystallization of project scope. For example projects like ITMS, Smart City Surveillance Project identified under SANYOJIT for Pan City.

After the detailed execution plan is in place, all short, medium and long term initiatives will be executed. While doing the initial planning for the timelines and milestones, the following principles were followed:
The APP development and the smart city initiative under the head EKIKRIT VARANASI and other ICT based initiatives will be initiated as ‘Fast Track’ projects that do not require significant physical infrastructure creation and are more ICT dependent which will be fully completed in the first 12-18 months of execution, for example: A) LED lighting: funds not required, just needs replacement, vendors to execute contract on % savings basis – finish early in 6 months B) Single window clearance for 20-25 citizen services: e-governance module needs to be rolled out with just change in processes and no major capex C) Pan-city Smart ITMS public transport: can be quickly rolled-out.

2. Initiatives that require high capex and have a long lead time to impact were phasedout, Similarly, Smart parking at 11 new MLCPs that will cost INR 25 Cr and take 4 years to complete is phased-out in 3-phases – with the first one being setup in the transit and start-up hub in ABB to ensure the tighter project management and control and ensuring that the pilot is successful

3. Integrated planning was done for initiatives in convergence with other government projects and schemes, e.g. in local-area, smart grid and metering has been planned in

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4. Detailed cash-flow was constructed to ensure cash outflow due to projects matched the cash inflow from funds from the Smart City mission and other sources like land convergence, CSR and other government missions, and also revenue from completed projects offsets the O&M cost etc

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

DESCRIPTION: As per decisions made with the Government of Uttar Pradesh and the Varanasi Nagar Nigam, SPV shall be the aggregator and coordinator for implementation of the smart city solutions. The SPV shall be an independent corporate entity which shall work under the aegis and in coordination with the local, state and central governments and citizen groups through its corporate structure and mechanisms defined under the memorandum and articles of association.
COMPOSITION/HOLDING PATTERN/STRUCTURE: SPV shall be wholly owned by the state and the local government in a 50:50 ratio. Once the SPV is successfully operationalized, private sector can be brought in as strategic investor through equity dilution within limits set under mission guidelines. SPV shall initially be capitalized with grant received from MoUD, GoI and GoUP. These grant funds shall reside in Grant Fund Account, which shall be utilized to pay for EPC contracts, Grants/VGF/Revenue Short-fall for PPP Projects.
LEADERSHIP & GOVERNANCE: The board of directors shall primarily provide corporate leadership and governance to the SPV and ensure fulfilment of its objectives in an effective and transparent manner. GoUP and VMC have taken necessary decisions regarding SPV. Urban Development Department, GoUP has already decided on the structure of the board of the SPV (refer Annexure 4.2). VMC in its meeting of councillors held on 31.03.2016 has decided on broad functions, guidelines, rights and obligations (refer Annexure 4.4). The composition of the board of SPV is defined considering the smart city mission guidelines.
1. President: Divisional Commissioner, 2. CEO: Municipal Commissioner, Varanasi Nagar Nigam 3. Member: Representative of GoI, 4. Member: Vice-president, VDA, 5. Member: Chief Engineer PuVVNL , 6. Member: Chief Engineer, Varanasi Jal Nigam,7. Member: Joint Director Town and Country Planning Department , 8. Member: Director, RCUES., 9. Member: Director Regional Town and Pollution Research Centre, Lucknow, Member: 10. Mission Director Smart City, 11. Six Technical Directors , 12. Six Nominee Directors, 13. Six Independent Directors
ADVISORY COUNCIL: Advisory Council consisting of people's representatives including VMC, mayor, councillors, regional MLAs, professionals from fields of urban planning, economics, development, ICT, utilities or DFI and local NGO/CBO/SGH. The council shall ensure citizens' engagement & ownership in the smart city plan and its implementation through maintaining oversight on the SPV. The SPV may seek review, advice and recommendations from Advisory board. The advisors may participate in board or council meetings.
WORKING/OPERATIONAL MODEL: The CEO of SPV with assistance of COO & CFO shall be responsible Overseeing and managing the general conduct of the day-to-day operations of the SPV, Entering into contracts or arrangements subject to the supervision and control of the Board. The SPV shall be a lean organization that can innovate and adapt quickly to fulfil its roles and responsibilities towards the achieving the vision of Lucknow Smart City. The SPV would specialize in urban planning & development, communications, legal & contracts, project management, financial management and control. The project execution and O&M functions would generally be achieved through contracts, concessions or coordinated with parastatals/line departments. The SPV can collectively bill and collect revenue for all urban services including taxes on behalf of the ULB or parastatals and share the same as per predefined agreements.

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	1.1 AMRUT (Ministry of Urban Development, GoI) Augmentation of existing Water Supply system including smart metering : Rs. 75 cr. • Sewerage System with SCADA System impl 1.2 Swachh Bharat Mission (SBM), (Ministry of Urban Development, GoI): Total project cost Rs. 33 cr. Waste management, Collection, Segregation in (14+9) wards : Rs. 26.6 cr • Behavioral change communication for Street Vendors on Sanitation and Hygiene: Rs. 18 lakh	Ministry of Urban Development and Varanasi Nagar Nigam Ministry of Urban Development and Varanasi Nagar Nigam	For Implementing the AMRUT and SWACHH Bharat Component the role and responsibility if of Varanasi Nagar Nigam
2	HRIDAY, (Ministry of Urban Development, GoI) Facade improvements and restoration of Ghats, development of new toilets and up-gradation of existing toilet : Rs. 16.38 cr. • Heritage Street Lights: Rs. 26.8 cr. • Theme based redevelopment of roads: Rs.51.72 cr. • Face-lift of temple area: Rs.1.00 cr. • Development of Town hall as heritage centre: Rs. 13 cr.	Ministry of Urban Development and Varanasi Nagar Nigam	For Implementing the HRIDAY Component the role and responsibility if of Varanasi Nagar Nigam
3	3.1 Sughmaya Bharat Abhiyan Divyang Friendly footpaths, ramps etc. on ghats and roads : Rs. 5 cr. 3.2 IPDS (Underground cabling Underground cabling of the electric cables, installation of 40 transformers, 2 distribution network, 2 substations: Rs.431.96 cr.	Ministry of Social Justice and empowerment and Social welafre Department Ministry of Power and Purvanchal Vidyut Vitran Nigam Limited (State Government)	The implementation responsibility lies with Department of Social Justice and Varanasi Nagar Nigam The implementation of the scheme is is the responsibility of Purvanchal Vidyut Vitran Nigam Limited

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TABLE 7			
S.No	**Activity/Component**	**Department/agency/ organization**	**Role/responsibility**
4	Ministry of Tourism Light and sound show at Assi Ghat, signages, Interactive Information Kiosk: Rs. 2.43 cr. PRASAD, Govt. of India Jetty development for mooring and charging of battery of boats, filter water cooler, 60 Chatri, 60 stone slab, signage , dustbin, 72 RCC bench, Urinal, changing rooms: (3.6 Cr)	Ministry of Tourism and Tourism Department and department of Tourism Uttar Pradesh Ministry of Tourism and Tourism Department and department of Tourism Uttar Pradesh	Implementation will be done by Ministry of Tourism and Department of Tourism Uttar Pradesh Implementation will be done by Ministry of Tourism and Department of Tourism Uttar Pradesh
5	Samajwadi Jal Sanchay Yojana, Govt. of U.P Restoration of 10 ponds in the ABD area of the city	Department of Water Resources	Implementation of the scheme is to done by Varanasi Nagar Nigam alongwith department of water resources
6	National Mission for Clean Ganga and JICA Facade improvements and restoration of Ghats, development of new toilets and up-gradation of existing toilet : Rs. 16.38 cr.	National Mission for Clean Ganga) and Varanasi Nagar Nigam	Responsibility is of Varanasi Nagar Nigam National Mission for Clean Ganga
7	Convergence under CSR funding: 7.1 Central Coal Field Ltd. 7.2 Goenka Foundation 7.3 Indian Oil Corporation 7.4 ONGC 7.5 Roopa Foundation 7.6 Varanasi Vikas Samiti 7.7 Bill and Milinda Gates	Varanasi Nagar Nigam with various organisation	Responsibility is of Varanasi Nagar Nigam with organisation

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TABLE 7			
S.No	**Activity/Component**	**Department/agency/ organization**	**Role/responsibility**
8	ITMS integrated with CCTV surveillance ntegrated Traffic Management and Smart City Surveillance to reduce traffic congestion and improve urban mobility. Convergence will be achieved through Rs. 14.04 cr. from Varanasi Municipal Corporation, Rs. 2.82 cr. Varanasi Development Authority and Rs. 55.30 cr. from Govt. of U.P. through Department for Police.	Varanasi Municipal Corporation, Varanasi Development Authority and Govt. of U.P. through Department for Police.	Responsibility of Implementation is with Varanasi Municipal Corporation, Varanasi Development Authority and Govt. of U.P. through Department for Police.
9	Public Works Department The roads condition needs improvement and PWD will spend Rs. 20 cr for repair of roads	Public Works Department	Responsibility is of Public Works Department
10	Department of IT with NIC For the implementation of the e-governance programme an estimated amount of Rs. 5 crore will be spent of services under e-district project and strengthening of connectivity through SWAN. Around 130 citizen services will be delivered in online mode through the city portal and a mobile app. In first phase 60 services (including existing 26 services) will be made available on Portal and Mobile App online and in next phase another 70 services will be made online.	Department of IT with NIC	Responsibility of Department of IT with NIC, Varanasi Nagar Nigam and other line departments
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	Smart Multi level parking	Tender to be floated for procurement	Construct and operate the Multi Level parking, where in the parking will be till -3 level. The lowest level to be used for e-rickshaw and e-buses charging and the parking will have commercial space too. Joint Venture Model
2	Inter Modal Hubs	Tender to be floated for procurement	Construct and operate the Inter modal Hub on PPP Vendor Model
3	Upgradation of sports stadium	Tender to be floated for procurement	Upgrade, renovate and operate it on PPP model, Joint Venture Model

Continue on next page

TABLE 8			
S. No	**Activity/Component**	**Company/corporation/ organization**	**Role/responsibility (basic TOR)**
4	Amphibious vehicle and Amphibus	Tender to be floated for procurement	Vendor to supply and maintain on PPP
5	Battery/solar e-Boats (Solar Powered)	Tender to be floated for procurement	On Joint Venture
6	Battery Operated Buses	Tender to be floated for procurement	Operation and maintenance on PPP
7	e-Auto for last mile connectivity	Tender to be floated for procurement	Operation and maintenance on PPP

TABLE 8			
S. No	**Activity/Component**	**Company/corporation/ organization**	**Role/responsibility (basic TOR)**
8	Rent a cycle scheme	Tender to be Floated	Operation and maintenance on PPP
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 estimated block cost of Smart City Proposal (SCP) is INR 2520.73 Cr. which includes INR 2268.88 Cr. as CAPITAL COST FOR ABD and PAN CITY, INR 22.69 Cr. for Technical & Administration support expenses like survey and investigations, preparation of DPR, project management and supervision etc. @ 1% and INR 229.16 Cr. for Price and Physical Contingencies likes escalation in civil works, human resource costs etc. @10%
• INR 2268.88 Cr. as CAPITAL COST FOR ABD and PAN CITY includes INR 1650.79 Cr for retro-fitting ABD Proposal and NR 618.09 Cr. for Pan-City Proposal.
• As here, SPV will be managing their CAPEX from their own sources (Recurring and Non-Recurring) and Funding from GOI and GOUP, no provision for Loan has been made here and accordingly no Interest during construction has been capitalized as per AS-16 “Borrowing Cost” and therefore not included.
Following Assumptions for Project Cost are being considered
• Capex Refresh (Replacement Cost) of INR 20 Cr. has been included and assumed to be replaced after 7 years of commissioning of IT Components and shown in the cash flow statement as a capital outflow
• Cost Basis: The cost has been calculated after discussion with IT OEMs, Standard Market rate comparisons, all the relevant documents like AMRUT-SLIP, JICA, SAAP, VMC existing Master Plans, CDP, HRIDAY’s DPR, Varanasi Metro DPR etc.

The detailed activity wise block estimates has been provided in Annexure - 4.1: SUMMARY OF CAPITAL COST & Annexure 4.2- ITEM WISE BREAKUP OF CAPITAL COST FOR ABD/PAN CITY

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 financial resource planning has been done considering use of Government of India (GoI) and Government of Uttar Pradesh (GoUP) assistance as a seed capital for Smart City implementation and the same shall be used for Capex Plan under the SCP and this along with other funding will be recovered over the period. The total project investments under Varanasi SCP (including ABD and Pan-City Proposals) to be spent across mission period (Year 1 to Year 15) is INR 2520.73 Cr. The proposed financing sources, which can be used to fund the SCP is as follows:

CAPITAL STRUCTURE

• TIED GRANT FROM GOVERNMENT OF INDIA (GOI) UNDER SCM/VMC EQUITY: After selection of Varanasi in 2nd Round City Challenge Competition under SCM, VMC will receive a tied grant of INR 488 crore from GoI in first four years of the mission period, which will be used as Municipal Corporation Varanasi (VMC) Equity in the SPV to be invested in the first four years of the mission period;

• EQUITY FROM GOVERNMENT OF UTTAR PRADESH (GoUP): Matching Equity of INR 488 crore from GoUP would be invested in first four years of the mission period;

• CONVERGENCE PLAN – It is proposed to Converge INR 1289.93 Cr.(inclusive of CSR amount of Rs. 268.45 Cr.) Such CSR amount will be directly spent by CSR companies and therefore, it will not be a direct inflow from SPV perspective. Convergence would be achieved from AMRUT, BSUP, HRIDAY, IPDS, JICA, NMCG, PRASAD, Department of Tourism, PWD etc. However there are multiple Financial & Functional convergence points with GOI and GoUP schemes which would be applicable as and when requirement arises and respective DPRs/Project plans are approved. Such Amount arising from proposed convergence has not been taken to consideration in the present cash flow projections and therefore such amount will act as a fall back plan and thus ensures financial sustainability of the SPV accommodating variations in the assumptions.

• FUNDING FROM PPP MODEL: These are the activities which are proposed under PPP mode- development of inter-modal hubs, development of smart multi-level parkings, battery powered cruiser boats, upgradation of sports stadium. Based on the above activities multi-level parking at 3 locations out of 11 locations will be under the BOOT mode and the remaining 8 location will be under management contract mode. Similarly sports stadium will be under the management contract mode and here funding will be shared equally by private player and SPV. Lastly, battery powered boats will again be on management contract mode.

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• ULB OWN SOURCE: The revenue considered for the project under ULB OWN Sources are further categorized as CITY RESOURCES and REVENUE FROM SMART INITIATIVES. These revenue is considered only from ABD households and population because the maximum impact of Smart City Initiatives will be in ADB area and would benefit these households. However the PAN city initiatives would impact complete city and any incremental revenue from the same has not been considered for project financials statements. The total revenue expected from ULB OWN SOURCE is INR 505.45 Cr. i.e. Rs Rs. 5.91 Cr from CITY RESOURCES and Rs. 499.53 crore from Smart initiatives over the project Lifecycle period of 15 years)

CITY RESOURCES – Various new innovative sources of finance have been proposed that can be leveraged to partially finance the project life cycle costs. Some of them which have been considered in the present proposal are Urban Infrastructure Improvement Tax (refer Land Based Fiscal Tools Study commissioned by MOUD-2012-13), Tatkal Fees for premium Services like Birth, Death Certificate. Such new innovation will generate INR 5.91 Cr. over project Lifecycle of 15 years.

• REVENUE FROM SMART INITIATIVES: Smart initiatives which have been proposed in the ABD area include revenue from Parking Lots covering both Valet & Normal Parking, charging stations for e-Rickshaw, Revenue from Leasing of food court, revenue from Open Air Theatre, Revenue from Water ATMs, revenue from Wi-Fi Usage/ Splash Ads & Website Advertisement, advertisement from kiosks, changing rooms, LED displays, smart poles, smart bus stops, Kashi Kala Dham- Hall rent/learner fees, revenue from Light and Sound show, revenue from battery operated carts, revenue from cultural cum convention Centre etc. A conservative estimate of revenue from smart initiatives has been considered at INR 499.53 Cr. over project Lifecycle of 15 years.

• REVENUE FROM PPP INITIATIVES: SPV will be getting revenue from a lot of PPP initiatives which can executed in the form of service contract, management contract or BOOT mode. Options like inter-modal hubs, club member-ship, certain parking lots, battery operated boats, fees from buses, e-auto, Amphibuses and many more have been considered in the present proposal. Such initiatives will generate on an average INR 139.64 crores during the project life cycle.

• IMPROVING GOVERNANCE THROUGH FINANCIAL MANAGEMENT IMPROVEMENT ACTION PLAN (FMIAP): Leakages because of ghost employees, non-transparent accounting are being addressed by bringing biometric based attendance system and by moving to double entry accrual based accounting system. Further double entry accrual based accounting will ensure robust financial system and thus will open the door for SPV to access the market through Municipal Bonds. Such Initiatives have already been taken by VMC. SPV has to prepare their accounts on Accrual based Double Entry Accounting System as per requirement of The Companies Act 2013 and AS -1 Disclosure of Accounting Policies.

FALL BACK

• PUBLIC PRIVATE PARTNERSHIP (PPP) Plan– VMC is undertaking various Social Programs such as Waste to Energy Solid waste management project, Bicycle sharing under PPP mode. Revenue to be accrued to Smart City Varanasi SPV from such arrangements has not been taken to consideration in the present cash flow projections

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and therefore such amount will act as a fall back plan and thus ensures financials sustainability of the SPV accommodating variations in the assumptions.

• TAX INCREMENTAL FINANCING (TIF) is proposed to be implemented by ploughing back incremental increase in User Charges such as property taxes, Advertisement rights on VMC Assets, Trade License, Market fees etc. due to Smart Varanasi interventions. VMC will share the incremental revenue with SPV. The base collection year is FY 2016-17. This incremental revenue will become part of SPV's cash inflows for improving financial viability. However, such increase in revenue has not been considered while preparing Cash Flow and Income Statement Projections as surplus if any from such initiatives has been kept as back-up plan

• REVENUE ENHACEMENT ACTION PLAN: Apart from the above, there are various Untapped Sources which would be explored and executed as a fall back plan to fill the funding gap whenever required for ex. Innovative revenue from Smart Interventions such as Traffic Violation fees, Carbon Credits, Interest on Savings or FDR primarily from Funds received from GoI/GoUP etc. such revenue and cost savings has not been taken to consideration in the present cash flow projections and therefore such amount will act as a fall back plan and thus ensures financial sustainability of the SPV accommodating variations in the assumptions.

Summary of Resourcing Plan

Rs. in Crores

S.NO.	Source of Funds	% Share
1 Smart CityGrant-GoI Share	488.00	16.76%
2 Smart City Grant- State GoI.Share	488.00	16.76%
3 Convergence Funding	1021.48	35.09%
4 CSR	268.45	9.22%
5 PPP	139.64	4.80%
6 ULB Own Sources	505.45	17.36%
TOTAL-Inflows	2911.02	100.00%

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 Total Life Time cost for a project period of 15 years for the SCP is INR 2857.65 Cr., which includes CAPEX of INR 2268.88 Cr. and OPEX of INR 588.77 Cr. The detailed breakup of OPEX is given below. The breakup of CAPEX is given in Question no. 37.
• The Annual O&M cost will increase from INR 3.59 Cr. in Year 2 to INR 34.04 Cr. in Year 15: CAGR of 17.43%. Year 1 would be preparatory phase, hence no O&M cost has been considered.
• The O&M cost of the various component under ABD and PAN CITY proposals varies from 1% to 10% of the capital expenditure based on the components/activities and the specific O&M required for those components/activities.

Following O&M Costs have been built in while Preparing Projected Cash Flow Statement:
• Preliminary Expenses: To establish SPV, initial expenses needs to be incurred for Filing Fees, Lawyer Fees, Memorandum and Article of Association fees. This has been considered at INR 100 lakhs in Year 1
• Other Operation & Maintenance Cost: Utilities like Electricity and Water Bill of SPV has been considered at 1 % of Total Project Capital Cost (INR 2268.88 Cr.) with increase every year @ 5.47 % (Inflation rate).
• Under the Smart City Mission many projects are to be developed under the PPP mode therefore, their O&M cost will be responsibility of individual owners and thus not taken into consideration while preparing projected financial statements. Further to this, Food court will be on Operating Lease and thus O&M cost will be their responsibility of the lessee as per AS-19 accounting for Leases and not taken into consideration while preparing projected financial statements.
• Marketing Cost-(Initially High Cost for branding and promotion for the smart innovations developed in the ABD area, tendering of various PPP options): Operating Lease of Food court and for other possible PPP options, SPV may have to incur some cost on Marketing so as to augment the demand and establish higher quotations. Hence the Marketing cost has been kept at 2% of Annual Gross Revenue from Year 5 onwards as the revenue would be realized from that year. However to meet the initial Marketing expenses in initial years (Year 2 & 3) the marketing cost has been kept as INR 2 Cr. per Annum. No marketing cost has been earmarked for Year-1 as it is a preparatory year.
• Staff Cost of SPV: SPV needs to pay salary and sitting fees for their staffs. Per Annum Cost of Rs. 25,920,000/- has been considered with increase in every year @ 5.47 % (inflation rate)
• Program/Workshop Cost: It is envisaged that SPV in collaboration with BHU may conduct various Startup and Skill Development programs to promote Startups, research and innovation. Though it is envisaged to financially and functionally converge such programs with related State and National programs such as Start Up India, Atal Innovation Mission, NSDC etc., some cost to conduct independent programs has been considered in the O&M cost. The cost for the same is INR 10 Lakhs per month with increase every year @ 5.47 % (Inflation rate). It is proposed to conduct 1 workshop/program/ trainings per week at a cost of Rs. 2.5 lakh per workshop.

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• Bandwidth Cost: The provision to provide Free Wi-Fi and internet bandwidth to SPV and other associated offices is estimated to be 3 GBPS. Thus bandwidth cost of INR 3 Cr. per annum has been considered with increase every year @ 5.47 % (Inflation rate).
• IT and Solar Equipment's Operation & Maintenance Cost-O&M cost to manage Roof Top Solar and IT Equipment's has been proposed at Rs 12 crores. This will increase every year @ 5.47 %(Inflation rate).
• Saving in Cost Due to Solar/LED: Due to installation of Solar Plant and replacement with LED bulbs will lead to huge savings in cost of energy consumption. Such cost has been calculated so as to reduce regular revenue expenditure. Annual Savings from LED and Roof Top Solar which is estimated to Rs. 3.00 Cr. per annum will be used for funding new ideas for Start-ups under "Knowledge Management Fund".
• The Detailed Financial model including the details of life-time Cost have been presented in the
• Annexure 4.6: Per Annum Manpower Cost of SPV
• Annexure 4.7: Income Statement
• Annexure 4.8: O&M

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)

• EQUITY FROM VMC through TIED-GRANT FROM GOI under SCM (i.e. INR 488 cr);
• EQUITY FROM THE GOUP, matching the VMC EQUITY (i.e. INR 488 cr);
• CONVERGENCE with AMRUT, BSUP, HRIDAY, IPDS, JICA, NMCG, PRASAD, Department of Tourism, PWD etc. for INR 1290.43 Cr. (including CSR)
• REVENUE FROM PPP INITIATIVES: INR 139.64 Cr.
• ULB Own Sources: Recurring revenue of INR 505.45 Cr. for project life time of 15 years
• Financial Net Present value for the project Lifecycle of 15 years discounted @ 12% comes to be INR 29.57 Cr.
• A dedicated "Knowledge Management Fund" for funding new ideas for Start-ups has been earmarked to ensure that sufficient funding is available for such ideas. The source of this fund is from the Annual Savings from LED and Roof Top Solar estimated to be around INR 3.00 Cr. per annum. The fund would be maintained in a separate bank account and will be used only to fund Star Ups and Entrepreneurs after due evaluation and approval at COE. This has been considered while preparing project Financial Statements and Amount of this fund will be accounted as Specific Fund as per Accounting Principles.

Reference Question no. 38 resources plan and Annexure 4.4 & 4.5

Annexure 4.9: BREAKUP OF COST AND SOURCE OF FUNDS

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 Smart City ABD and Pan-city proposal will be delivered to citizens of Varanasi by the start of Year 5.

O&M Expenditure
• The O&M expenditure on infrastructure components developed under SCP (both ABD and Pan-city proposal) will start immediately from Year 2 along with Pre-incorporation expenses. The Annual O&M cost will increase from INR 3.59 Cr. in Year 2 to INR 34.04 Cr. in Year 15: CAGR of 17.43%. Year 1 would be preparatory phase, hence no O&M cost has been considered.
SPV through the executive powers provided by VMC plans to recover O&M costs, by generating sustainable revenue sources, such as:

Source of Revenue
Revenue from City Resources: The benefits from additional Smart City Tax in the name of Urban Infrastructure Improvement Tax will be collected for ABD HHs.

Revenue from Smart interventions: There would be additional revenue from Smart innovations like revenue from Parking Lots covering both Valet & Normal Parking, charging stations for e-Rickshaw, Revenue from Leasing of food court, revenue from Open Air Theatre, Revenue from Water ATMs, revenue from Wi-Fi Usage/ Splash Ads & Website Advertisement, advertisement from kiosks, changing rooms, LED displays, smart poles, smart bus stops, Kashi Kala Dham- Hall rent/learner fees, revenue from Light and Sound show, revenue from battery operated carts, revenue from cultural cum convention Centre etc. etc.

The above would ensure recovery of Operation and Maintenance (O&M) and make the project self-sustainable. Any revenue from Grant or Capital Receipts has not been considered for recovery of O&M. The details of each components of revenue is given below

City resources: The revenue from these resources would be accumulated to the General Account of SPV
1. Urban Infrastructure Improvement Tax (UIIT): UIIT is proposed to be levied by SPV through VMC on the ABD properties only @ INR 200 per HHs per year with increase every year @ 5.47%. A conservative estimate of UIIT will generate revenue of INR 5.35 Cr in Project Life Cycle. Refer Annexure 4.8 & 4.9
2. Tatkal Fees: Birth & Death- SPV through VMC would be able to charge other taxes such as Tatkal Tax, at Rs 250 per person from incremental population as they may apply for immediate delivery of Birth/Death certificate. The accumulated revenue would be Rs 0.57 Cr. in the project life cycle.

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REVENUE FROM SMART INITIATIVES: The revenue from these resources would be accumulated to the General Account of SPV: Revenue from Parking Lots covering both

Continue on next page

Valet & Normal Parking, charging stations for e-Rickshaw, Revenue from Sale of Commercial Shops and Leasing of food court, revenue from Open Air Theatre, Revenue from Water ATMs, Revenue from Wi-Fi Usage/ Splash Ads & Website Advertisement. A conservative estimate of revenue from smart initiatives has been considered. Rs 499.53 Cr. over project Lifecycle of 15 years.

REVENUE FROM PPP INITIATIVES: SPV will be getting revenue from a lot of PPP initiatives which can executed in the form of service contract, management contract or BOOT mode. Options like inter-modal hubs, club member-ship, certain parking lots, battery operated boats, fees from buses, e-auto, Amphibuses and many more have been considered in the present proposal. Such initiatives will generate on an average INR 139.64 crores during the project life cycle.

This arrangement will allow SPV to generate substantial revenue on a recurring basis and will make the proposal a self-sustaining arrangement for O&M recovery without relying on the capital receipts.

Please refer Annexure 5.10 CONSOLIDATED CASH FLOW STATEMENT OF SPV

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)

Year/ Mileston	Financial Timeline-Fund Inflow	Financial Timeline-Fund Out
	Year-1 (2016-17) • SPV preparatory Phase and will be operational before March 2017 • Pre-Incorporation Expenses will be paid in Year 2 after establishment of SPV	
Year 2 (2017-18)	• GoI Tied-Grant as VMC Equity – INR 194 crore • Investment in Equity from GoUP – INR 194 crore • Convergence funding- INR 65.87 crore	• CAPEX – INR 118.57 crore • OPEX – INR 3.59 crore
Year-3 (2018-19)	• GoI Tied-Grant as VMC Equity – INR 98 crore • Investment in Equity from GoUP – INR 98 crore • Convergence funding- INR 329.37 crore	• CAPEX – INR 592.86 crore • OPEX – INR 4.73 crore
Year-4 (2019-20)	• GoI Tied-Grant as VMC Equity – INR 98 crore • Investment in Equity from GoUP – INR 98 crore • Convergence Funding - INR 526.99 crores	• CAPEX – INR 948.58 crore • OPEX – INR 4.88 crore
Year-5 (2020-21)	• GoI Tied-Grant as VMC Equity – INR 98 crore • Investment in Equity from GoUP – INR 98 crore • Convergence Funding – INR 608.87 crores • Recurring revenue- INR 40.77 crores	• CAPEX – INR 711.43 crore • OPEX – INR 43.22 crore
Year-6-15 (2021-22)- (2030-31)	• Recurring revenue- INR 583.30 Cr.	• CAPEX REFRESH (Replacement Cost) – INR 20 Cr. • OPEX INR 532.34 crore
	** Inflow from CSR initiatives has not been considered	

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)

Sensitivity Analysis has been conducted to in order to validate any of the assumptions based on which financial model has been developed. Following criterias are being used for sensitiy analysis:

• Funding from GOI, GOUP and Convergence is delayed by One Year.
• Recurring Revenue Income decrease by 10% and Recurring revenue expenditure increase by 10%

Such combined scenario was tested at Discount rate of 12% will generate FNPV INR (306.83) Cr. In order to ring fence such scenario, a provision for various avenues of revenue have been kept under the fall back plan which are being illustrated below:

1. GIS Based Efficiency Improvements in revenue collection
2. Revenue Enhancement Action Plan
3. Revenue Earned By Co-Sharing of facilities & Projects funded through Knowledge Management Fund
4. Any interest earned by SPV on amount deposited in the saving bank
5. Any reduction in cost due to cost control measures
6. There are multiple Financial & Functional convergence points with GOI and GoUP schemes which would be applicable as and when requirement arises and respective DPRs/Project plans are approved. Such amount arising from proposed convergence has not been taken to consideration in the present cash flow projections and therefore such amount will act as a fall back plan and thus ensures financials sustainability of the SPV accommodating variations in the assumptions.
7. The PAN city initiatives would impact complete city and any incremental revenue from the same has not been considered for project financials statements.
8. PUBLIC PRIVATE PARTNERSHIP (PPP) Plan– VMC is undertaking various Social Programs such as Waste to Energy Solid waste management project, Bicycle sharing under PPP mode. Revenue to be accrued to Smart City Varanasi SPV from such arrangements has not been taken to consideration in the present cash flow projections and therefore such amount will act as a fall back plan and thus ensures financials sustainability of the SPV accommodating variations in the assumptions.
9. Any amount from SCM or convergence or revenue generated from ULB own sources which is remains unspent towards CAPEX may be used to cover up any contingencies. For example out of INR 976 crore under SCM only 642.9 crores will be spent for CAPEX and the balance would be used to meet any contingency and O&M cost.

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	THE ANATOMY OF #SMARTKASHI (CITY PROFILE)	☑
2	CITIZEN CONNECT	☑
3	VISION, GOALS & STRATEGY	☑
4	ABD OVERVIEW: CURRENT PROJECTS	☑
5	ABD OVERVIEW: PROPOSED PROJECTS	☑
6	SMART PLATFORMS	☑
7	SURAMYA KASHI (PICTURESQUE) | ABD	☑
8	SURAMYA KASHI (PICTURESQUE) | ABD	☑
9	SAMUNNAT KASHI (PROGRESSIVE) | ABD	☑
10	NIRMAL KASHI (PURE) | ABD	☑
11	SURAKSHIT KASHI (SECURE) | ABD	☑
12	SANYOJIT KASHI (ORGANIZED) | PAN-CITY	☑
13	EKIKRIT KASHI (UNIFIED) | PAN-CITY	☑
14	IMPLEMENTATION TIMELINE	☑
15	FINANCIALS: OVERVIEW	☑
16	FINANCIALS: CASH FLOW STATEMENTS	☑
17	SPV CONSTITUTION & ORGANOGRAM	☑
18		☐
19		☐
20		☐

ANNEXURE 4

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

S. No	Particulars	✓
1	Minutes of the meeting- State High Powered Committee	☑
2	Policy level interventions for implementation of Smart City (including approval in Sadan)	☑
3	Municipal Corporation Department Data (minutes MoM, notifications, published reports etc)	☑
4	Project project reports of HIRDAY, JICA, etc.	☑
5	AMRUT SLIP docmuments	☑
6	Institutional arrangement of SPV (approved by Government of UP)	☑
7	Project Financials (OPEX, cashflow, resource plan, itemized cost etc.) placed at annexure 5	☑
8	MoU with Departments-26	☑
9	MoU with Partners/OEMs-24	☑
10	MoU with Associations-9	☑
11	MoU with Artist-10	☑
12	MoU with Institutions -3	☑
13	Policy intervention for Street Vendor, Rain Water Harvesting Policy, Property Tax Incentives etc.	☑
14	MoU for CSR activities-17	☐
15	Financial Plan at Annexure 4, Volume 4	☐
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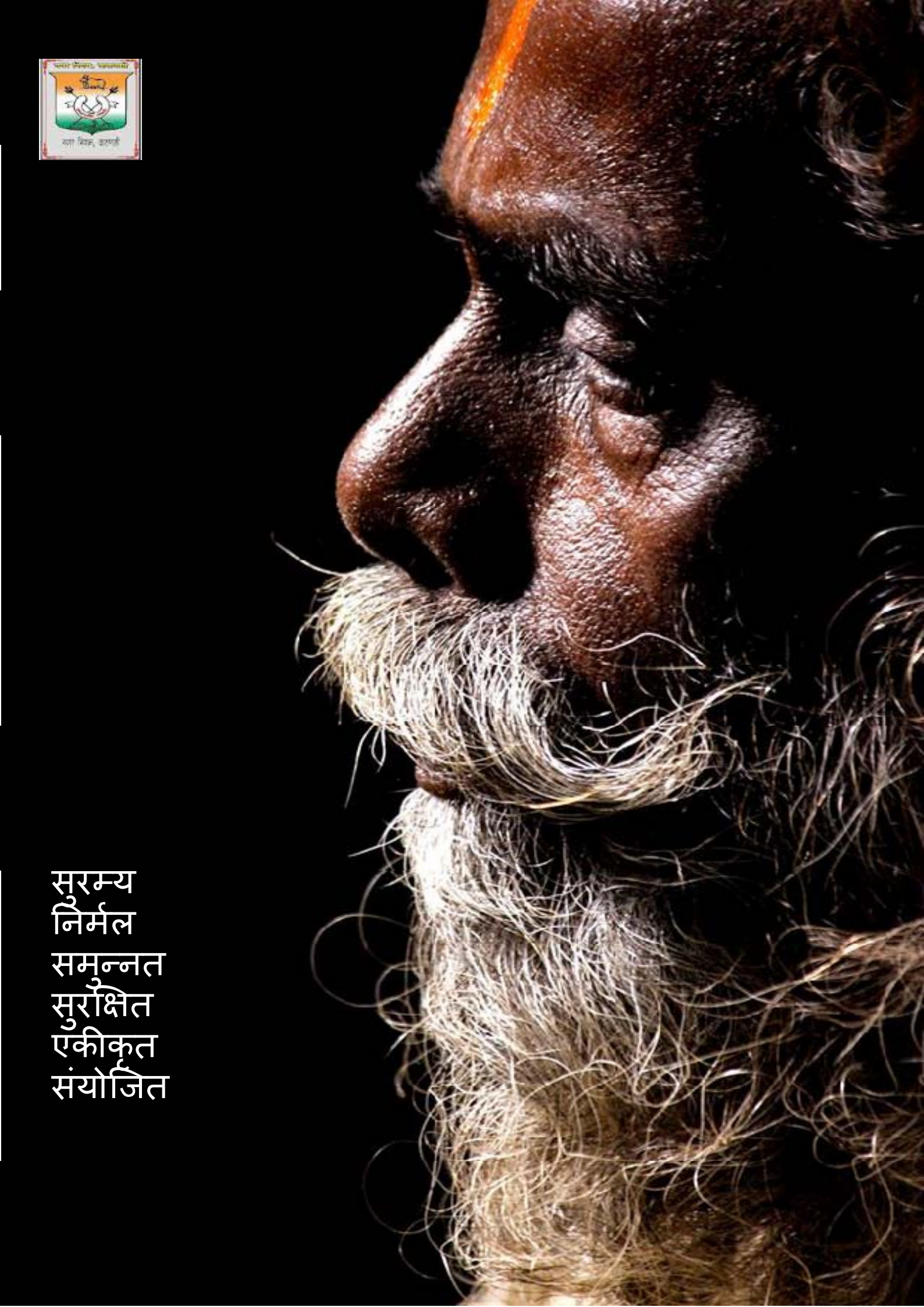

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सुरक्षित
एकीकृत
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