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А	Б	C			J	K
	Feature	Definition	for the full city	exists)	city wants to be' with	
			with regard to each feature		regard to the feature/indicator based on	
					the city vision and strategic	
1	Citizen participation	A smart city constantly shapes and changes course of	1&2	Weak feedback mechanisms in the city demands need to set up grievance	3&4	Set up a grievance redressal cell in the Municipal Corporation.
		its strategies incorporating views of its citizen to bring maximum benefit for all. (Guideline 3.1.6)		redressal cell in Municipal Corporation. • Communication with officials is a cumbersome process.		 Continue to use the website developed for SCP www.smartcityludhiana.in for public outreach, including social media.
		-		Lack of access to information for citizens due to poor internet penetration directly impacts their knowledge about and access to conjugat		Engage NGOs and RWS representative in major city initiatives while ensuring assistance in larger citizen acticipation of concount wilding for major city projects
				(CDP 2014, Cl.3.3.3)		participation of consensus building for major city projects.
2	ldentity and culture	A Smart City has a unique identity, which	1&2	Ludhiana is Asia's largest hub for bicycle manufacturing and produces more than	4	Advocacy of bicycling in the city automatically promotes the local bicycle industries and ties back to building of
		distinguishes it from all other cities, based on some key aspect: its location or climate: its leading		50% of India's bicycle consumption. (CDP 2014, Cl.2.1) • Efforts of Puniab Tourism Department have been limited to installing 57 sign		the economy.
		industry, its cultural heritage, its local culture or		boards across the city, distribution of pamphlets/brochures on sites of interest,		
		cuisine, or other factors. This identity allows an easy answer to the question "why in this city and not		and featuring the hotels in the area in its websites and brochures.		
		somewhere else?" A Smart City celebrates and				
		3.1.7)				
3	Economy and employment	A smart city has a robust and resilient economic base and growth strategy that creates large-scale	2	 Ludhiana is an industrial hub with more than 80,000 small, medium and large industrial units. 	4	 Retrofitting and improving public padestrian access to "HIGH STREET ZONE - Ferozepur road and Ghumar Mandi" shall enhance the footfall volumes to support these district commercial centres
		employment and increases opportunities for the		With WFPR more than 35%, the city has a good economic base which is		
		majority of its citizens. (Guideline 2.6 & 3.1.7 & 6.2)		 Major employment provider are small scale undustrial units showing growth of 		
				47.47% in last 13 years.		
4	Education	A Smart City offers schooling and educational opportunities for all children in the city (Guideline	2	One degree college, one polytechnic, one ITI, one engineering college and one dental college both in public and private sector where educational facilities	4	Ludhiana is emerging as an educational center with its vast spread of institutions, some of them of national repute. More number of institutions, and colleges in various sectors like medical, engineering.
		2.5.10)		available are not sufficient to meet the requirements. (CDP 2014, Cl.7.5.2)		agriculture and management etc. to be established.
				 Punjab Agricultural University has played key role in promoting the 'Green revolution' in Punjab. 		
5	Health	A Smart City provides access to healthcare for all its citizens (Guideline 2.5.10)	2&3	One government 100 bed general hospital resulting in inadequacy of the health infrastructure (CDP 2014, CL2 5, 1)	4	One 100 bed hospital is proposed for the year 2015 and 2 of 500 beds general hospitals, 34 dispensaries, Society to complete 100% coverage of the health sector by
		,				2030.
6	Mixed use	A Smart City has different kinds of land uses in the	1&2	Although informally there exists a prevalent trend of co-existence of Industrial,	4	Dedicated Hawker zone within commercial areas like Ghumar Mandi would activate the edges and pedestrian
		same places; such as offices, housing, and shops, clustered together. (Guidelines 3.1.2 and 3.1.2)		commercial and residential growth in many pockets all over the city, current land use plan has provision for 1.01 % mixed land use (1277 hectares) and the		experience
				projection for 2021 is for 1.51%		
,	Compact	A smart City encourages development to be compact and dense, where buildings are located close to one	2	 Ludniana has grown organically from the core and has maintained a compact but not dense growth pattern. 	4	 Proposal eventually would cater to the compact growth by providing integrated public transport connectivity within walking distance.
		another and are ideally within a 10-minute walk of public transportation, forming concentrated		Basic facilities like local grocery shops exist within 10-minute walking distance Last mile connectivity from a public transportation still an issue.		 Some pockets of the city proposed to be redeveloped into denser colonies. Laving of complete and well connected pedestrian infrastructure proposed in phases.
		neighborhoods. (Guidelines 2.3 and 5.2)		Students do not walk to school due to poor pedestrian infrastructure and safety		estud er eenthese and des eenthese heesen en under eere e historie uit historie.
				issues. (Stakeholder FGD and Citizen Engagement)		
8	Public open spaces	A smart City has sufficient and usable public open spaces, many of which are green, that promote	2	• 655 parks and 6.80 lacs plants planted in the city yet an acute shortage of open spaces in Core city area where only two major open spaces available, namely	4	 Open areas of the city like areas along canals, government buildings, parks, etc. to be used as recharging grounds. Department of Water and Soil Conservation engaged for design and execution of recharging projects.
		exercise and outdoor recreation for all age groups.		Daresi Ground and Issa Nagri Ground.		This initiative should help in raising the water table.
		throughout the City so all citizens can have access.		• Green bets along roads have become a dumping place for a solid waste. (CDP 2014, Cl.6.12)		
	Housing and	(Guidelines 3.1.4 & 6.2)	18.2	3 20 000 households: 2 78 323 housing stock		Recently approved Housing & Irban Development Policy 2013 aims to regulate the urban development through
-	inclusiveness	groups and promotes integration among social	182	 209 slums with 25% or 3.9 lakh population (SWM DPR) 	4	optimal utilization of scarce land resources and focuses on affordable housing to the weaker section of the
		groups. (Guidelines 3.1.2)		 Around 57 slums with upgraded infrastructure out of remaining 152 slums, 45% have provision of roads, street lights and individual water connections 		 society. Promoting redevelopment of Jawahar nagar scheme under PPP format for commercial viable Affordable housing
				(SFCPOA Report, 2015)		scheme and supporting social infrastructure.
10	Transport	A Smart City does not require an automobile to get around: distances are short, buildings are accessible	1	• Extreme usage of cars reflected by 16 lakh registered vehicles with highest per capita vehicle ownership in country. (CDP 2014, CL5, 6, 2)	4	Phasing out of existing Auto Rickshaws, replaced by E-Rickshaws. Bus based public transport integrated with proposed Bus Banid Transit System (BBTS) having Clean Technology
		from the sidewalk, and transit options are plentiful		55,000 vehicles entering city every-day over 150,000 vehicles existing in inner		(electric/ battery operated) with Smart ticketing.
		and attractive to people of all income levels. (Guidelines 3.1.5 & 6.2)		 Unregulated auto rickshaws (30,000) are major source of pollution 		 Smart signaling at all intersections for efficient traffic management.
11	Walkable	A Smart City's roads are designed equally for	1	Only 70 Km (23%) of walkways out of 300 Km of total road network with non-	4	 Advocating use of bicycle as mode of transport by proposing bicycle tracks and bike storage at all intersections
		pedestrians, cyclists and vehicles; and road safety and sidewalks are paramount to street design. Traffic	1	contiguous footpaths	-	on major roads with priority signals and incentivizing purchase of bicycles.
		signals are sufficient and traffic rules are enforced.		- No dedicated Northiotorized Transport facilities		spaces and other public activity zones.
		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.				
17	IT connectivity	(Guidelines 5.1.5 & 6.2)		• Paris internet connectivity at office level only. Parsonal overarchip of internet at		• Desperal to provide present to fees high enord Wi Ei at all public spaces including particles, but stands, collumn
14	IT connectivity	A Smart City has a robust internet network allowing high-speed connections to all offices and dwellings as	1	 Basic internet connectivity at office level only. Personal ownership of internet at household level by requirement. 	4	 Proposal to provide accesst to free high speed WI-FI at all public spaces including markets, bus stands, railway station and parks.
13	ICT-enabled	desired. (Guideline 6.2) A Smart City enables easy interaction (including	1	Most of citu's governance processes are manual and involve a cumbersome	4	Continuation of www.smartcitylushiana.in website for nurnose for filing complaints, receiving undates on filed
1.	government services	through online and telephone services) with its	1	channel which may or maynot lead to productive outcome. (Stakeholder FGD and	4	complaints and giving feedback and suggestions.
		citizens, eliminating delays and frustrations in interactions with government. (Guidelines 2.4.7 &		Citizen Engagement) • To enable hassle free access to statutory documents provision of Suvidha Kendra		 GIS based mapping of the entire city proposed at household scale for convenience and transparency in collection of property taxes and to enable e-governance.
		3.1.6 & 5.1.4 & 6.2)		for various citizen related documents such as certificates but no provision for		App-based payment of bills
				All the online channels http://main.mcludhiana.gov.in/ (along with dedicated		
				Suvidha Kendra) – back end database remains the same – citizens register their complaint and get complaint registration ID no provision for tracking.		
				More than 40% increase in online tax payments in 2015		
				E-tokens provided at service counters		
14	Energy supply	A Smart City has reliable, 24/7 electricity supply with	4	Surplus power is available throughout Punjab with 24X7 power supply in	4	Assured power supply with underground cabling and smart metering, SCADA system to be ensured.
		no delays in requested hookups. (Guildeline 2.4)		Electronic Meter Register system implemented and CT meter installed at each		
				transformers. • GIS based system and coordinated meter system establishment is under		
				progress.		
				(Stakeholder FGD and Citizen Engagement)		
15	Energy source	A Smart City has at least 10% of its electricity	1	No renewable energy policy exists at present in the city.	4	At least 10% of total power consumption generated by solar power to be achieved
		generated by renewables. (Guideline 6.2)		(Stukenolaer FGD and Citizen Engagement)		 Initiative to replace all the street lights throughout the city with solar powered LED lamps. Roof tops of all major buildings in the area based development to be cover with solar panels.
16	Water supply	A Smart City has a reliable, 24/7 supply of water that	2	Frequency of water supply is about 10 hours a day.	4	Water Storage facility- Rehabilitation and improvement or Construction of OHSR for 24X7 water supply
		meets national and global health standards. (Guidelines 2.4 & 6.2)		 Primary water source is tube wells (Unchlorinated Ground Water). Total 935 tube wells extract approx. 560 MLD. 		 Water distribution network- dismantling and Rehabilitation of water distribution system Replacements of Valves- Dismantling and Restoration of road pavement
				35 working OHSR out of 61.		SCADA System- Implementation of PLC & SCADA for potable water system
			1	87% water supply coverage, rest dependent on hand pumps and tanker supply.		Short maters system - materiolati un smiller infeceis
				(CDP 2014, Cl.5.2)		
17	Water management	A Smart City has advanced water management	1	Encroachments on banks of drains obstruct free flow of stream.	4	High priority to control of encroachmnets along streams.
		programs, including smart meters, rain water harvesting, and green infrastructure to manage	_	 11% of city area covered under stormwater network. All water requirement (potable, irrigation, industrial etc is fulfilled by the fresh water (mostly ground) 		 Rain water harvesting and recycling is proposed for the waste water generated out of the area based development to start with and using the same for irrigation/industrial purpose.
		stormwater runoff. (Guideline 6.2)		water)		Separate networks for sewage and stormwater proposed.
L				 Won-metering or individual water connection leads to loss of revenue. (CDP 2014, Cl.5.4) 		• smart water meters proposed for all water connections.
18	Waste water management	A Smart City treats all of its sewage to prevent the polluting of water bodies and aquifers. (Guideline	1	90% declared area covered under sewage network. Three STPs of capacities 111MLD. 48MLD and 152MLD treat 80% of waste waster	4	Replacement and Rehabilitation of sewerage distribution system Augmentation of existing Sewage Treatment Plant (STP) for recycling for 10MID of this area sewage with
		2.4)		and rest led to open drains without treatment.		tertiary treatment
				 Omy ISUMILD of 200MLD industrial effluents generated is treated by CETP. Treated effluent links back to sewage network and untreated effluent is drained 		Recycle water distribution network for reuse
			1	into rivers. (CDP 2014, CL 5, 3, 4)		
-	Air quality	A Smart City has air quality that always and the	-	Ludhiana is one of the most colluted city is logi- (MUO - web)		Proposal of phasing out discal autor by randaring them with better anotation to be a statement of the s
19	An quality	international safety standards. (Guideline 2.4.8)	1	Mean annual PM2.5 level exceeds the Indian annual standard (<i>Remote Sensing</i>	4	usage by introducing quality integrated clean fuel public transport system and encouraging bicycling as a prime
				of Environment 127 (2012)) • Critically high PM10 levels at 207 μg/m3 (Ambient air quality data year 2012)		mode of transport to bring the air pollution levels down by a phenomenal amount.
			1	Emission from diesel equipments and vehicles-failure to meet with pollution		
				Industries, traffic, open waste dumping, etc		
20	Energy efficiency	A Smart City government uses state-of-the-art energy	1	 City does not have energy efficient infrastructure or policies in place at present. 	Λ	Transformation of all Street Lights to Solar powered LED lamps hopes to be first of the many steps towards a
	,	efficiency practices in buildings, street lights, and transit systems. (Guideline C.2)	1	(Stakeholder FGD and Citizen Engagement)	4	greener future for Ludhiana.
-	Underground	A Smart City has an understand electric state	-	All cables throughout the city run quarkend in the energy of a structure that the structure of the stru	-	Complete underground cabling actively for the paties after shall be active at a strengthenergy of the str
21	electric wiring	system to reduce blackouts due to storms and	1	manner.	4	- complete underground cabing network for the entire city shall be achieved in phases.
		eliminate unsightliness. (Guideline 6.2)		 Exposed wiring acts as major safety issue and even life threat to passersby. (Stakeholder FGD and Citizen Engagement) 		
-	Sanitation	A Smart City has no or d-f	-	Lack of well-maintained sublic restances the state that the state of the state	-	Discussion of 40 community tailots all over the site or an MCL station of the second state of the sec
22	sanitation	of toilets based on the population. (Guidelines 2.4.3	2	FGD and Citizen Engagement)	4	- oracussion of 40 community tonets an over the city as per MCL pipeline project record
2:	Waste management	& 6.2) A Smart City has a waste management system that	1	968MLD (2011) of solid waste generated	Δ	ICT enabled integrated solid waste management facility is planned to have an efficient segregation, collection
		removes household and commercial garbage, and	T	Two landfill sites out of which 1 has exceeded the capacity.	4	transportation, treatment and disposal mechanism including waste to energy.
		aisposes of it in an environmentally and economically sound manner. (Guidelines 2.4.3 & 6.2)	1	 DOOR to door collection increased from 10% to 24% (2012 to 2015) managed by private parties (SPV A22), whereas other areas are covered by the MCL directly for 		
				door to door collection.		
			1	dumping.		
				Punjab pollution control board identified 245 health care establishments in city generating about 2.2 TPD of bio-medical waste		
				(SWM DPR, 2015)		
24	Safety and security	A Smart City has high levels of public safety, especially focused on women, children and the	1	 Haphhazard placement of street lights and no proper provision of cameras and security systems. 	4	 Ludhiana becomes first city to be covered under Safe City Project. Project has state backing is launched to ensure proper surveillance and monitoring (MCI). 1.200 CCTV cameras will be installed in the city in different
		elderly; men and women of all ages feel safe on the		Water logging due to deficient storm water drains, high share of fast moving		phases. In first phase, the police will cover 25 points of the city, including entry and exit points.
		streets at all hours. (Guideline 6.2)	1	 trattic are directly tied to safety of citizens (CDP 2014). Women safety, instances of chain snatching etc. 		
				(Stakeholder FGD and Citizen Engagement)		

1 Featu 1 Citizen 2 Identity 3 Econom employ 4 Educati 5 Health 6 Mixed t 7 Compare 8 Public c 9 Housing inclusiv 10 Transpr 11 Walkat 12 IT conn 13 ICT-ena governi 14 Energy	eature tizen participation A lits br internity and culture A di kin in cur ar a di kin in cur ar	Definition A smart city constantly shapes and changes course of its strategies incorporating views of its clitzen to pring maximum benefit for all. (Guideline 3.1.6) A smart City has a unique identity, which distinguishes it from all other clites, based on some ey aspect: its location or climate; its leading dustry, its cultural heritage, its local culture or uisine, or other factors. This identity allows an easy moswer to the question "why in this city and not norewhere else?" A Smart City celebrates and promotes its unique identity and culture. (Guideline 1.7.) A smart City has a robust and resilient economic base employment and increases opportunities for the najority of its citizens. (Guideline 2.6 & 3.1.7 & 6.2) A Smart City offers schooling and educational poportunities for all children in the city (Guideline 1.5.10) A Smart City provides access to healthcare for all its itizens. (Guideline 2.5.1.2) A Smart City has different kinds of land uses in the ame places; such as offices, housing, and shops, fustered together. (Guideline 3.1.2 and 3.1.2)	Self-assessment for the full city with regard to each feature 1&2 1&2 2 2	 Basis for assessment and/or quantitative indicator (Optional - only if data exists) Weak feedback mechanisms in the city demands need to set up grievance redressal cell in Municipal Corporation. Communication with officials is a cumbersome process. Lack of access to information for citizens due to poor internet penetration directly impacts their knowledge about and access to services. (CDP 2014, Cl.3.3.) Ludhiana is sais's largest hub for bicycle manufacturing and produces more than 50% of India's bicycle consumption. (CDP 2014, Cl.2.1) Efforts of Punjab Tourism Department have been limited to installing 57 sign boards across the city, distribution of pamphets/brochures on sites of interest, and featuring the hotels in the area in its websites and brochures. Ludhiana is an industrial hub with more than 80,000 small, medium and large industrial units. With WFPR more than 35%, the city has a good economic base which is dominated by secondary sector (factory) employment. Major employment provider are small scale undustrial units showing growth of 47.47% in last 13 years. (CDP 2014, Cl.4.2.) 	Projection of 'where the city wants to be' with regard to the feature/indicator based on the city vision and strategic blueprint 3&4 4	Input/Initiative that would move the city from its current status to Advanced status (Scenario 4: Column G) • Set up a grievance redressal cell in the Municipal Corporation. • Continue to use the website developed for SCP www.smartcityludhiana.in for public outreach, including social media. • Engage NGOs and RWS representative in major city initiatives while ensuring assistance in larger citizen participation or consensus building for major city projects. • Advocacy of bicycling in the city automatically promotes the local bicycle industries and ties back to building of the economy. • Retrofitting and improving public padestrian access to "HIGH STREET ZONE - Ferozepur road and Ghumar
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2 Identity 3 Econom employ 4 Educati 5 Health 6 Mixed t 7 Compat 8 Public c 9 Housing 10 Transpc 11 Walkat 12 IT conn 13 ICT-ena governi 14 Energy	entity and culture A di di A di li A d	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 ndustry, its cultural heritage, its local culture or uisine, or other factors. This identity allows an easy inswer to the question "why in this city and not omewhere else?" A Smart City celebrates and promotes its unique identity and culture. (Guideline 1.7) A smart City has a robust and resilient economic base ind growth strategy that creates large-scale employment and increases opportunities for the majority of its citizens. (Guideline 2.6 & 3.1.7 & 6.2) A Smart City offers schooling and educational opportunities for all children in the city (Guideline 1.5.10) A Smart City provides access to healthcare for all its itizens. (Guideline 2.5.10) A Smart City has different kinds of land uses in the ame places; such as offices, housing, and shops, dustred together. (Guideline 3.1.2 and 3.1.2)	1&2 2 2	directly impacts their knowledge about and access to services. (CDP 2014, Cl.3.3.3) • Ludhiana is Asia's largest hub for bicycle manufacturing and produces more than SOK of India's bicycle consumption. (CDP 2014, Cl.2.1) • Efforts of Punjab Tourism Department have been limited to installing 57 sign boards across the city, distribution of pamphlets/brochures on sites of interest, and featuring the hotels in the area in its websites and brochures. • Ludhiana is an industrial hub with more than 80,000 small, medium and large industrial units. • With WFPR more than 35%, the city has a good economic base which is dominated by secondary sector (factory) employment. • Major employment provider are small scale undustrial units showing growth of 4747% in last 13 years. (CDP 2014, Cl.4.2, 4.4.2)	4	participation or consensus building for major city projects. Advocacy of bicycling in the city automatically promotes the local bicycle industries and ties back to building of the economy. Retrofitting and improving public padestrian access to "HIGH STREET ZONE - Ferozepur road and Ghumar
2 Identity 3 Econom 4 Education 5 Health 6 Mixed to 7 Compace 9 Housing 10 Transport 10 Transport 11 Walkab 12 IT conn 13 ICT-ena 14 Energy	entity and culture A is keep in the second s	A Smart City has a unique identity, which distinguishes it from all other cities, based on some grapacet: its location or climate; its leading industry, its cultural heritage, its local culture or uisine, or other factors. This identity allows an easy snower othe question "why in this city and not comewhere else?" A Smart City celebrates and promotes its unique identity and culture. (Guideline 1.1.7) a smart City are orbust 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) A Smart City offers schooling and educational poportunities for all children in the city (Guideline 1.5.10) A Smart City provides access to healthcare for all its titzens. (Guideline 2.5.10) A Smart City and efferent kinds of land uses in the ame places; such as offices, housing, and shops, dustered together. (Guideline 3.1.2 and 3.1.2)	1&2 2 2	 Ludhiana is Asia's largest hub for bicycle manufacturing and produces more than 50% of India's bicycle consumption. (CDP 2014, Cl.2.1) Efforts of Punjab Tourism Department have been limited to installing 57 sign boards across the city, distribution of pamphlets/brochures on sites of interest, and featuring the hotels in the area in its websites and brochures. Ludhiana is an industrial hub with more than 80,000 small, medium and large industrial units. With WFPR more than 35%, the city has a good economic base which is dominated by secondary sector (factory) employment. Major employment provider are small scale undustrial units showing growth of 47.47% in last 13 years. 	4	Advocacy of bicycling in the city automatically promotes the local bicycle industries and ties back to building of the economy. Retrofitting and improving public padestrian access to "HIGH STREET ZONE - Ferozepur road and Ghumar
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3 Econom 4 Educati 5 Health 6 Mixed u 7 Compace 8 Public c 9 Housing 10 Transpc 11 Walkab 12 IT conn 13 ICT-enargy 14 Energy	conomy and A arms are ended and an arms are ended and an arms are ended and are ended and arms are arms arms are arms arms are arms arms are arms arms arms arms arms arms arms arms	A smart city has a robust and resilient economic base employment and increases opportunities for the majority of its citizens. (Guideline 2.6 & 3.1.7 & 6.2) A Smart City offers schooling and educational opportunities for all children in the city (Guideline 2.5.10) A Smart City provides access to healthcare for all its sitizens. (Guideline 2.5.10) A Smart City has different kinds of land uses in the ame places; such as offices, housing, and shops, situstered together. (Guideline 3.1.2 and 3.1.2)	2	 Ludhiana is an industrial hub with more than 80,000 small, medium and large industrial units. With WFPR more than 35%, the city has a good economic base which is dominated by secondary sector (factory) employment. Major employment provider are small scale undustrial units showing growth of 47,47% in last 13 years. (CDP 2014, CI.4.2; 4.4.2) 	4	 Retrofitting and improving public padestrian access to "HIGH STREET ZONE - Ferozepur road and Ghumar
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4 Educati 5 Health 6 Mixed t 7 Compace 8 Public d 9 Housing inclusiv 10 Transpo 11 Walkab 12 IT conn 13 ICT-ena governi 14 Energy	Jucation A or 2. ealth A lixed use A cit inted use A cit ompact A ar ar	A Smart City offers schooling and educational opportunities for all children in the city (Guideline 2.5.10) A Smart City provides access to healthcare for all its itizens. (Guideline 2.5.10) A Smart City has different kinds of land uses in the ame places; such as offices, housing, and shops, itustered together. (Guidelines 3.1.2 and 3.1.2)	2	47.47% in last 13 years. (CDP 2014, Cl.4.2; 4.4.2)		
4 Education 5 Health 6 Mixed to 7 Compact 9 Housing 10 Transport 10 Transport 11 Walkab 12 IT conn 13 ICT-ena governi 14 Energy	aucation A or 2. ealth A iixed use A sa clu ompact A ar ar	A Smart City offers schooling and educational opportunities for all children in the city (Guideline 5.5.10) A Smart City provides access to healthcare for all its itizens. (Guideline 2.5.10) A Smart City has different kinds of land uses in the ame places; uch as offices, housing, and shops, sustered together. (Guidelines 3.1.2 and 3.1.2)	2			
5 Health 6 Mixed t 7 Compace 8 Public o 9 Housing 10 Transport 11 Walkab 12 IT conn 13 ICT-ena governi 13 14 Energy	ealth A ci lixed use A sa ch ompact A ar ar	A Smart City provides access to healthcare for all its itizens. (Guideline 2.5.10) A Smart City has different kinds of land uses in the ame places; such as offices, housing, and shops, sustered together. (Guidelines 3.1.2 and 3.1.2)		One degree college, one polytechnic, one ITI, one engineering college and one dental college both in public and private sector where educational facilities	4	Ludhiana is emerging as an educational center with its vast spread of institutions, some of them of national regular. More number of institutions, and colleges in various sectors like medical engineering
5 Health 6 Mixed 1 7 Compace 8 Public 0 9 Housing 10 Transpc 11 Walkab 12 IT conn 13 ICT-ena governi 13 14 Energy	ealth A cit iixed use A sa clu ompact A ar ar	A Smart City provides access to healthcare for all its itizens. (Guideline 2.5.10) A Smart City has different kinds of land uses in the ame places; such as offices, housing, and shops, sustered together. (Guidelines 3.1.2 and 3.1.2)		 Available are not sufficient to meet the requirements. (CDP 2014, CL7.5.2) Punjab Agricultural University has played key role in promoting the 'Green 		agriculture and management etc. to be established.
5 Health 6 Mixed t 7 Compace 8 Public o 9 Housing 10 Transport 11 Walkab 12 IT conn 13 ICT-ena governi 13 14 Energy	ealth A cii lixed use A sa clu ompact A ar ar pp	A Smart City provides access to healthcare for all its itizens. (Guideline 2.5.10) A Smart City has different kinds of land uses in the ame places; such as offices, housing, and shops, dustered together. (Guidelines 3.1.2 and 3.1.2)		revolution' in Punjab.		
 6 Mixed 1 7 Compact 8 Public of the second se	propact A arran pp	A Smart City has different kinds of land uses in the ame places; such as offices, housing, and shops, Justered together. (Guidelines 3.1.2 and 3.1.2)	2&3	One government 100 bed general hospital resulting in inadequacy of the health infrastructure (CDP 2014, Cl.7.5.1)	4	 One 100 bed hospital is proposed for the year 2015 and 2 of 500 beds general hospitals, 34 dispensaries, 5 polyclinics and 5 nursing homes are proposed in the project to complete 100% coverage of the health sector by
7 Compace 8 Public of 9 Housing 10 Transport 11 Walkab 12 IT conn 13 ICT-ena governi 13 14 Energy	sa cli ompact A ar ar p	ame places; such as offices, housing, and shops, lustered together. (Guidelines 3.1.2 and 3.1.2)	1&2	Although informally there exists a prevalent trend of co-existence of Industrial,	4	2030. Dedicated Hawker zone within commercial areas like Ghumar Mandi would activate the edges and pedestrian
7 Compace 8 Public of 9 Housing inclusive 10 Transpo 11 Walkab 12 IT conn 13 ICT-ena governi 14 Energy	ompact A ar ap pt			commercial and residential growth in many pockets all over the city, current land use plan has provision for 1.01 % mixed land use (1277 hectares) and the projection for 2021 is for 1.51%		experience
10 Transpo 11 Walkab 12 IT conn 13 ICT-ena governi 14	ompact A ar ar pu					
 8 Public o 9 Housing inclusiv 10 Transpo 11 Walkab 12 IT conn 13 ICT-ena governi 14 Energy 	ar ar pu	A Smart City encourages development to be compact	2	Ludhiana has grown organically from the core and has maintained a compact but	4	Proposal eventually would cater to the compact growth by providing integrated public transport connectivity
8 Public of 9 Housing 10 Transport 11 Walkab 12 IT conn 13 ICT-ena governi 14 Energy	pu	and dense, where buildings are located close to one mother and are ideally within a 10-minute walk of		not dense growth pattern. • Basic facilities like local grocery shops exist within 10-minute walking distance		within walking distance. Some pockets of the city proposed to be redeveloped into denser colonies.
8 Public of 9 Housing inclusiv 10 Transport 11 Walkab 12 IT conn 13 ICT-ena governi 14 Energy	ne	neighborhoods. (Guidelines 2.3 and 5.2)		Last mile connectivity from a public transportation still an issue. Students do not walk to school due to poor pedestrian infrastructure and safety issues.		 Laying or complete and well connected pedestrian intrastructure proposed in phases.
 Public o Public o Housing Indusive Indusive Transpo Transpo				(Stakeholder FGD and Citizen Engagement)		
9 Housing inclusiv 10 Transport 11 Walkab 12 IT connor 13 ICT-ena governi 14 Energy	ublic open spaces A sp	A Smart City has sufficient and usable public open spaces, many of which are green, that promote	2	 883 parks and 6.80 lacs plants planted in the city yet an acute shortage of open spaces in Core city area where only two major open spaces available, namely 	4	 Open areas of the city like areas along canals, government buildings, parks, etc. to be used as recharging grounds. Department of Water and Soil Conservation engaged for design and execution of recharging projects.
9 Housing inclusiv 10 Transpo 11 Walkab 12 IT conn 13 ICT-ena governr 14 Energy	ex Pu th	exercise and outdoor recreation for all age groups. Public open spaces of a range of sizes are dispersed hroughout the City so all citizens can have access.		Daresi Ground and Issa Nagri Ground. • Green belts along roads have become a dumping place for a solid waste. (CDP 2014, CI.6.12)		This initiative should help in raising the water table.
10 Transpo 11 Walkab 12 IT conn 13 ICT-ena governn 14 Energy	(G ousing and A	Guidelines 3.1.4 & 6.2) A Smart City has sufficient housing for all income	1&2	3,20,000 households; 2,78,323 housing stock	4	Recently approved Housing & Urban Development Policy 2013 aims to regulate the urban development through
10 Transpo 11 Walkab 12 IT conn 13 ICT-ena governn 14 Energy	clusiveness gr gr	groups and promotes integration among social groups. (Guidelines 3.1.2)		 209 slums with 25% or 3.9 lakh population (SWM DPR) Around 57 slums with upgraded infrastructure out of remaining 152 slums, 45% base provide on fraste street light and individual water connections. 		optimal utilization of scarce land resources and focuses on affordable housing to the weaker section of the society.
10 Transpo 11 Walkab 12 IT conn 13 ICT-ena governn 14 Energy				(SFCPOA Report, 2015)		 Fromoting redevelopment of savariar hager scheme under PPF format for commercial viable Anorable housing scheme and supporting social infrastructure.
11 Walkab 12 IT conn 13 ICT-ena governi 14 Energy	ransport A	A Smart City does not require an automobile to get	1	• Extreme usage of cars reflected by 16 lakh registered vehicles with highest per	4	Phasing out of existing Auto Rickshaws, replaced by E-Rickshaws,
11 Walkab 12 IT conn 13 ICT-ena governn 14 Energy	ar fro ar	round; distances are short, buildings are accessible rom the sidewalk, and transit options are plentiful and attractive to people of all income levels.		 capita venicie ownersnip in country (<i>LDP 2014</i>, <i>L.S.6.2</i>) 55,000 vehicles entering city every-day over 150,000 vehicles existing in inner area 		 Bus based public transport integrated with proposed bus kapid Transit System (BKTS) having clean Technology (electric/battery operated) with Smart ticketing. Passenger and Bus information System to users and at stops.
11 Walkab 12 IT conn 13 ICT-ena governi 14 Energy	(G	Guidelines 3.1.5 & 6.2)		 Unregulated auto rickshaws (30,000) are major source of pollution 		 Smart signaling at all intersections for efficient traffic management.
11 Walkab 12 IT conn 13 ICT-ena governr 14 Energy						
12 IT connu 13 ICT-ena governr 14 Energy	/alkable A pe	A Smart City's roads are designed equally for bedestrians, cyclists and vehicles; and road safety and	1	 Only 70 Km (23%) of walkways out of 300 Km of total road network with non- contiguous footpaths 	4	 Advocating use of bicycle as mode of transport by proposing bicycle tracks and bike storage at all intersections on major roads with priority signals and incentivizing purchase of bicycles.
12 IT connu 13 ICT-ena governr 14 Energy	si si	idewalks are paramount to street design. Traffic ignals are sufficient and traffic rules are enforced.		No dedicated Non Motorized Transport facilities		 City wide integration of walking and bicycling network interconnecting market places, work centers, green spaces and other public activity zones.
12 IT connu 13 ICT-ena governn 14 Energy	th	he sidewalk to encourage walking and there is ample ighting so the pedestrian feels safe day and night.				
13 ICT-ena governr 14 Energy	connectivity A	Guidelines 3.1.3 & 6.2) A Smart City has a robust internet network allowing	1	Basic internet connectivity at office level only. Personal ownership of internet at	4	Proposal to provide accesst to free high speed Wi-Fi at all public spaces including markets, bus stands, railway
governr 14 Energy	T-enabled A	high-speed connections to all offices and dwellings as desired. (Guideline 6.2) A Smart City enables easy interaction (including	1	household level by requirement. • Most of city's governance processes are manual and involve a cumbersome	1	station and parks. • Continuation of www.smartcitylushiana.in website for purpose for filing complaints, receiving updates on filed
14 Energy	overnment services th cit	hrough online and telephone services) with its itizens, eliminating delays and frustrations in	1	channel which may or maynot lead to productive outcome. (Stakeholder FGD and Citizen Engagement)	4	complaints and giving feedback and suggestions. • GIS based mapping of the entire city proposed at household scale for convenience and transparency in collection
14 Energy	in 3.	nteractions with government. (Guidelines 2.4.7 & 3.1.6 & 5.1.4 & 6.2)		 To enable hassis free access to statutory documents provision of suvidna Kendra for various citizen related documents such as certificates but no provision for tracking. 		of property taxes and to enable e-governance. • App-based payment of bills
14 Energy				All the online channels http://main.mcludhiana.gov.in/ (along with dedicated Suvidha Kendra) – back end database remains the same – citizens register their		
14 Energy :				Compliant and get compliant registration ID no provision for tracking. • More than 40% increase in online tax payments in 2015 • E-tokens provided at service counters		
	nergy supply A	A Smart City has reliable, 24/7 electricity supply with	4	Surplus power is available throughout Punjab with 24X7 power supply in	4	Assured power supply with underground cabling and smart metering, SCADA system to be ensured.
	nc	no delays in requested hookups. (Guildeline 2.4)		Ludhiana • Electronic Meter Register system implemented and CT meter installed at each transformerr		
				 GIS based system and coordinated meter system establishment is under progress. 		
1 1				Online portal available for complaint registration and new connection facility. (Stakeholder FGD and Citizen Engagement)		
15 Energy	nergy source A	A Smart City has at least 10% of its electricity generated by renewables. (Guideline 6.2)	1	No renewable energy policy exists at present in the city. (Stakeholder FGD and Citizen Engagement)	4	At least 10% of total power consumption generated by solar power to be achieved Major initiative to replace all the street lights throughout the city with solar powered LED lamps.
						 Non tops of an major buildings in the area based development to be cover with solar panets.
16 Water :	/ater supply A m	A Smart City has a reliable, 24/7 supply of water that neets national and global health standards.	2	 Frequency of water supply is about 10 hours a day. Primary water source is tube wells (Unchlorinated Ground Water). Total 925 tube wells extract approx. 560 MID 	4	Water Storage facility- Rehabilitation and improvement or Construction of OHSR for 24X7 water supply Water distribution network- dismantling and Rehabilitation of water distribution system Replacement of Values. Discussion of Retroction of condexpandent
	10	Guidennes 2.4 & 0.2)		35 working OHSR out of 61. 1.9 lac water connection out of 3.5 lac household.		SCADA System-Implementation of PLC & SCADA for potable water system Smart Meters system-Installation of Smart Meters
				87% water supply coverage, rest dependent on hand pumps and tanker supply. (CDP 2014, Cl.5.2)		
17 Water r	/ater management A	A Smart City has advanced water management	1	Encroachments on banks of drains obstruct free flow of stream. 11% of city area covered under stormwater network. All water and an area of the store of	4	High priority to control of encroachmnets along streams. Rain water harvesting and revueling is proposed for the water water appended out of the same harved
	pr ha st	arvesting, and green infrastructure to manage tormwater runoff. (Guideline 6.2)		(potable, irrigation, industrial etc is fulfilled by the fresh water (mostly ground water)		development to start with and using the same for irrigation/ industrial purpose. • Separate networks for sewage and stormwater proposed.
18 Waster	lasta watar 🗛) Smart City tracts all of its sources to provent the		Non-metering of individual water connection leads to loss of revenue. (CDP 2014, CLS.4) = 00% (dctard area coursed upder course patwork		Smart water meters proposed for all water connections. Replacement and Rebabilitation of rewarse dictribution surtem
manage	anagement pc 2.	colluting of water bodies and aquifers. (Guideline 2.4)	1	Three STPs of capacities 111MLD, 4MMLD and 152MLD treat 80% of waste water and rest led to open drains without treatment.	4	 Augmentation of existing Sewage Treatment Plant (STP) for recycling for 10MLD of this area sewage with tertiary treatment
1 1				 Only 150MLD of 200MLD industrial effluents generated is treated by CETP. Treated effluent links back to sewage network and untreated effluent is drained into rivers. 		Recycle water distribution network for reuse
	ir quality	Smart City has air nuality that shows are the	-	(CDP 2014, CL5.3.4) Ludhiana is one of the most polluted situ in India (11110 study)		Proposal of phasing out discal subre by rankaring them with batter analysis C plateters of the original content of the second seco
	ir quality A in	A Smart City has air quality that always meets nternational safety standards. (Guideline 2.4.8)	1	 Ludhiana is one of the most polluted city in India(WHO study) Mean annual PM2.5 level exceeds the Indian annual standard (<i>Remote Sensing</i> of Environment 127 (2012)) 	4	 Proposal of phasing out diesel autos by replacing them with battery operated E-Rickshaws, reduction of car usage by introducing quality integrated clean fuel public transport system and encouraging bicycling as a prime mode of transport to brins the air pollution levels down by a phenomenal amount.
19 Air qua				 Critically high PM10 levels at 207 µg/m3 (Ambient air quality data year 2012) Emission from diesel equipments and vehicles-failure to meet with pollution control charder (COC 914 CLC 914 C		
19 Air quai				control standards (<i>LDP 2014</i> , (.1.6.2.2) Industries, traffic, open waste dumping, etc		
19 Air qua	ergy efficiency A ef tra	similart City government uses state-of-the-art energy ifficiency practices in buildings, street lights, and ransit systems. (Guideline 6.2)	1	 City does not nave energy encount intrastructure or policies in place at present. (Stakeholder FGD and Citizen Engagement) 	4	 Intervention of an artered ughts to solar powered LED lamps hopes to be first of the many steps towards a greener future for Ludhiana. Aim to enforce all new infrastructure to incorporate green building practices.
19 Air qual	nderground A	A Smart City has an underground electric wiring system to reduce blackouts due to storms and	1	All cables throughout the city run overhead in ill-organized and unaesthetic manner.	4	Complete underground cabling network for the entire city shall be achieved in phases.
19 Air qual 19 Air qual 20 Energy 21 Underge 21 Underge	ectric wiring sv	eliminate unsightliness. (Guideline 6.2)		• Exposed wiring acts as major safety issue and even life threat to passersby. (Stakeholder FGD and Citizen Engagement)		
19 Air qual 20 Energy 21 Underg electric	ectric wiring sy eli	A Smart City has no open defecation, and a full supply of toilets based on the population. (Guidelines 2.4.3	2	Lack of well-maintained public coveniences throughout the city (Stakeholder FGD and Citizen Engagement)	4	Discussion of 40 community toilets all over the city as per MCL pipeline project record
19 Air qual 20 Energy 21 Underg electric 22 Sanitat	ectric wiring sy el mitation A of	8 6 2)	1	- 000MID (2014) - 6 - Piterster		ICT enabled integrated solid waste management facility is planned to have an efficient segregation, collection
19 Air qual 20 Energy 21 Underg electric 22 Sanitat 23 Waste	ectric wiring sy anitation A of & /aste management A	A Smart City has a waste management system that	1	SpontLD (2011) of solid waste generated Two landfill sites out of which 1 has exceeded the spont't:	4	transportation, treatment and disposal mechanism including waste to operate
19 Air qual 20 Energy 21 Underg electric 22 Sanitat 23 Waste	ectric wiring sy anitation A of aste management A re dis so	A Smart City has a waste management system that emoves household and commercial garbage, and disposes of it in an environmentally and economically sound manner. (Guidelines 2.4.3 & 6.2)	1	 - soownu (2011) or solid waste generated Two landfill sites out of which 1 has exceeded the capacity. Door to door collection increased from 10% to 24% (2012 to 2015) managed by private parties (SPV A22), whereas other areas are covered by the MCL directly for 	4	transportation, treatment and disposal mechanism including waste to energy.
19 Air qual 20 Energy 21 Underg electric 22 Sanitat 23 Waste I	ectric wiring sy el initation A for a stemanagement A distemanagement A so so	Smart City has a waste management system that emoves household and commercial garbage, and disposes of it in an environmentally and economically ound manner. (Guidelines 2.4.3 & 6.2)	1	 soomuu (2011) or solid waste generated Two landfill sites out of which I has exceeded the capacity. boor to door collection increased from 10% to 24% (2012 to 2015) managed by private parties (SPV A22), whereas other areas are covered by the MCL directly for door to door collection. No segregation of waste or treatment facility even for hazardous waste before diverging. 	4	transportation, treatment and disposal mechanism including waste to energy.
19 Air qual 20 Energy 21 Underg electric 22 Sanitat 23 Waste	ectric wiring sy el initation A /aste management A di so	Smart City has a waste management system that emoves household and commercial garbage, and lisposes of it in an environmentally and economically ound manner. (Guidelines 2.4.3 & 6.2)	1	 soownu (¿UL1) or solid waste generated Two landfill sites out of which 1 has exceeded the capacity. Door to door collection increased from 10% to 24% (2012 to 2015) managed by private parties (SPV A22), whereas other areas are covered by the MCL directly for door to door collection. No segregation of waste or treatment facility even for hazardous waste before dumping. Punjab pollution control board identified 245 health care establishments in city generating about 2.2 TPD of bio-medical waste. 	4	transportation, treatment and disposal mechanism including waste to energy.
19 Air qual 20 Energy 21 Underg electric 22 Sanitati 23 Waste i 24 Safety i	ectric wiring syles anitation A for a security A affety and security A	Smart City has a waste management system that emoves household and commercial garbage, and lisposes of it in an environmentally and economically ound manner. (Guidelines 2.4.3 & 6.2) A Smart City has high levels of public safety,	1	 "soomuu (2011) or solid waste generated Two landfill listes out of which 1 has exceeded the capacity. Door to door collection increased from 10% to 24% (2012 to 2015) managed by private parties (SPV A22), whereas other areas are covered by the MCL directly for door to door collection. No segregation of waste or treatment facility even for hazardous waste before dumping. Punjab pollution control board identified 245 health care establishments in city generating about 2.2 TPD of bio-medical waste. (SWM DPR, 2015) Haphhazard placement of street lights and no proper provision of cameras and 	4	transportation, treatment and disposal mechanism including waste to energy. Ludhiana becomes first city to be covered under Safe City Project. Project has state backing is launched to
19 Air qual 20 Energy 21 Underg electric 23 Waste 1 23 Waste 1	ectric wiring even anitation A faste management A faste management A rection and security A est el eter +	A Smart City has a waste management system that emoves household and commercial garbage, and lisposes of it in an environmentally and economically ound manner. (Guidelines 2.4.3 & 6.2) A Smart City has high levels of public safety, especially focused on women, children and the ilderly, men and women of all ages feel safe on the treets at all hours. (Guideline 6.2)	1	 soomuu (2011) or solid waste generated Two landfill sites out of which 1 has exceeded the capacity. Door to door collection increased from 10% to 24% (2012 to 2015) managed by private parties (SPV A22), whereas other areas are covered by the MCL directly for door to door collection. No segregation of waste or treatment facility even for hazardous waste before dumping. Punjab pollution control board identified 245 health care establishments in city generating about 2.2 TPD of bio-medical waste. (SWM DPR, 2015) Haphhazard placement of street lights and no proper provision of cameras and security systems. Water logging due to deficient storm water drains, high share of fast moving traffic are directly tied to safety of clittens (CDP 2014). 	4	 Ludhiana becomes first city to be covered under Safe City Project. Project has state backing is launched to ensure proper surveillance and monitoring (MCL). 1,200 CCTV cameras will be installed in the city in different phases. In first phase, the police will cover 25 points of the city, including entry and exit points.

			Long Term																				_			
Image: mark to the part of the part			Medium Terr	m				_																		
Description			Short Term																							
Description			2016					2017					2018					2019					2020			
Note: Note:< Note:< Note:< Note:< Note:< Note: Note:< Note:< Note:< Note:< N		AREA WIDE PROPOSALS	Jan Feb N	Var Apr I	May Jun Jul	Aug Sep	Oct Nov Dec	Jan Feb I	Mar Apr M	ay Jun Ju	ıl Aug Sep	Oct Nov	v Dec Jan F	eb Mar Apr	May Jun	Jul Aug Sep	Oct Nov D	ec Jan Feb	Mar Apr	May Jun Ju	I Aug Sep Oct	Nov Dec	Jan Feb Mar	Apr May J	ın Jul Aug	Sep Oct Nov Dec
	A Potable Water																									
	1 Water Storage facility	Rehabilitation and improvement or Construction of OHSR for 24X7 water supply																								
	2 Water distribution network	dismantling and Rehabilitation of water distribution system																								
	3 Replacements of Valves	Dismantling and Restoration of road pavement																								
1 Mathematical Mathamatical Mathematical Mathematical Mathemati	4 SCADA System	Implementation of PLC & SCADA for potable water system																								
	5 Smart Meters system	Installation of Smart Meters																								
	B Waste Water																									
	1 Waste water collection system	Replacement and Rehabilitation of sewerage distribution system																								
Image: Province intermediation of the strateging of t		Augmentation of existing Sewage Treatment Plant (STP) for recycling for 10MLD of this area sewage with tertiary treatment																								
		Recycle water distribution network for reuse																								
Note: Not: Note:																										
	C Power																									
2 Note: in the factor of t	1 Underground Distribution Network	laying Underground power distribution network and eliminating over head network																								
	2 Street Lighting	Installation of Solar based LED street lighting																								
Description Note																										
	D Storm Water Management																									
	1 Storm Water network	Construction of dedicated Storm water network																								
- - - - -	2 Rain water harvesting	Provision of large scale rain water harvesting poid / canal																								
Image: 1 Image: 1 <td< th=""><th></th><th>Replacement of old Brick masonry drain along Ferozpur road and along Rose garden road for 2km</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>		Replacement of old Brick masonry drain along Ferozpur road and along Rose garden road for 2km																								
	F Waste Management											+ + -							+ +							
	Integrated Solid Waste management System	Collection Bins																								
		Augmention Tippers Capacity 1 ton - 10 Nos. 8 Ton - 3 Nos																								
0 10 0 0 0 0 <td< th=""><th></th><th>Compost Plant</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>		Compost Plant																								
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1 Second processes Second processes Second processes	F Urban Design & Landscape	•																								
2 Boald and memory andefecoperiod and memory ande	1 Streetscape Improvement	Landscaping, Signages																								
1 Diplication grant from any basic for the free sequence 1	2 Bio Swale on Ferozepur road	2.7 kms on ferozepur road																								
Abc Abc	4 Digital Hoarding and information kiosks	Digital Hoardings																								
6 Bodrop Solution for 10% of the Area requirement 6 <	5 Public Toilets (10 nos. with 10 seats/Toilet with Solar roof top)	Align with swachh bharat mission																								
	6 Rooftop Solar installation	Rooftop Solar installation for 10% of the Area requirement																								
6 Image: bit is and is a																										
	G Transportation																									
2 Decidented Cycle Tacks shared with Forestander funds shared with Forestander f	1 Footpath	Developing 29 Km Footpath along the Ferozepur road and Ghumar Mandi																								
	2 Dedicated Cycle Tracks shared with Footpath	Developing 21 Km Cycle Tracks along the Ferozepur road and Ghumar Mandi																								
d BM: Stops -	3 Elevated BRT along Ferozepur Road	5 km of section of City Wide network proposed falls in Area selected					<u> </u>																			
	4 BKI Stops	uedicated smart bus stops for the BK15 system																								
a free work RNAMONS (SU(1)) Providing Social above Providing Social	/ Public Bike Sharing	Promoting Bike sharing for last mile connectivity Demoting use sharing for last mile connectivity																								
10 Shift (Drame (bot by)) Or shift (bot dy) Or shift (bo	Area wise E Ricksnaws (50 no) Smart On Street Parking (200 Paur)	Promoting sustainable in 1 system and prasing out policing at load we along the bids treat changing area		_ =																						
	12 Multilevel Car Park	On-site of parking integrated with retroining or rand use along the night site of shopping area																								
Image: control contro	13 RoB Pakhowal Rd	Improve area wide transport network and traffic flow management																								
PANCITY PROPOSALS PANCITY PR																										
I I <tdi< td=""> <tdi< td=""> <tdi< td=""></tdi<></tdi<></tdi<>		ΡΔΝ ΓΙΤΥ ΡΡΟΡΟΔΙ S																								
interst interst water interstwater interst water interst water interst water inters	H Smart IPT - F Rickshaw																									
A Changing Stations E-inclusion of protection of prot	1 F Rickshaw	Interest Subsidy led procurement of F-rickshaws, which will be fitted with tracking gadgets and e-navment facility																								
- -	3 Charging Stations	Frick supporting information of the maximum system in the mice with making gauges and e payment rating																								
5 Control Centre 6 <t< th=""><th>4 Kiosk</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	4 Kiosk																									
	5 Control Centre																									
I GIS Based Mapping 1 Mapping and Ground Proofing 1 Mapping and Corrup DR Site, License and Staffing 2 Command centre and Retwork for e-sewa centres at block level to enhance public service levels																										
1 Mapping and Ground Proofing Mapping all the households in MCL limits on GIS and adding multiple attributes layers Image: Command Centre, D R Site, License and Staffing	I GIS Based Mapping	· · · · · · · · · · · · · · · · · · ·																								
2 Command Centre, D R Site, License and Staffing Command centre and network for e-sewa centres at block level to enhance public service levels	1 Mapping and Ground Proofing	Mapping all the households in MCL limits on GIS and adding multiple attributes layers																								
	2 Command Centre, D R Site, License and Staffing	Command centre and network for e-sewa centres at block level to enhance public service levels																								

Sheet 2 Sheet 2 Sheet 2







S.no	Sector	Projects	Project Components & Descriptions	Pan City	Area Wide	Short Term	Mediur	m Term	Long	Term
Δ	Potable	Water	A	REA WIDE PROPOSALS		2016-17	2017-18	2018-10	2010-20	2020-21
1	FUIADIC	Water Storage facility	Rehabilitation and improvement or		0.00	2010-17	2017-10	2010-19	2019-20	2020-21
			water supply		2.00	2.00	0.00	0.00	0.00	0.00
2		Water distribution network	dismantling and Rehabilitation of water distribution system		0.90	0.90	0.00	0.00	0.00	0.00
3		Replacements of Valves	Dismantling and Restoration of road pavement		9.60	0.00	4.80	4.80	0.00	0.00
4		SCADA System	Implementation of PLC & SCADA for potable water system		11.50	0.00	5.75	5.75	0.00	0.00
5		Smart Meters system	Installation of Smart Meters		20.06	0.00	10.03	10.03	0.00	0.00
В	Waste V	Vater			44.00	2.70	20.30	20.30	0.00	0.00
1		Waste water collection system	Replacement and Rehabilitation of seweage distribution system		4.80	0.00	4.80	0.00	0.00	0.00
			Augumentation of existing Sewage Treatment Plant (STP) for recycling for 10MLD of this area sewage with		5.00	0.00	0.00	5.00	0.00	0.00
			tertiary treatment Recycle water distribution network		4.50	0.00	0.00	2.25	2.25	0.00
			for reuse		14.30	0.00	4.80	7.25	2.25	0.00
С	Power		laying Underground power							
1		Underground Distribution Network	distribution network and eleminating over head network		58.05	0.00	14.51	14.51	14.51	14.51
2		Street Lighting	street lighting		10.00	2.50	2.50	2.50	2.50	0.00
D	Storm \	Vater Management			68.05	2.50	17.01	17.01	17.01	14.51
1		Storm Water network	Construction of dedicated Storm		37.15	7.43	7.43	7.43	7.43	7.43
2		Rain water harwesting	Provision of large scale rain water harvesting pond / canal		2.50	1.25	1.25	0.00	0.00	0.00
			Replacement of old Brick masonry drian along Ferozpur road and along	3	12.00	6.00	6.00	0.00	0.00	0.00
			Rose grader road for 2km		20.45	0.40	0.40	7.40	7 40	7.40
E	Waste N	Management			39.05	8.08	8.08	7.43	7.43	7.43
1		Integrated Solid Waste management System	Collection Bins		0.26	0.26	0.00	0.00	0.00	0.00
			Augumenting Tippers Capacity 1 tor - 10 Nos, 8 Ton - 3 Nos	n	4.72	2.36	2.36	0.00	0.00	0.00
			Bio-Methenation Plant @ PAU 30		1.70	0.00	1.70	0.00	0.00	0.00
2		ICT Cost			0.84	0.00	0.00	0.58	0.13	0.13
F	Urban [Design & Landscape			7.52	2.62	4.06	0.58	0.13	0.13
1		Streetscape Improvement Bio Swale on Ferozenur road	Landscaping, Signages 2.7 kms on ferozenur road		7.00	7.00	0.00	0.00	0.00	0.00
4		Digital Hoarding and information kiosks	Digital Hoardings		20.00	10.00	10.00	0.00	0.00	0.00
5		Public Toilets (10 nos. with 10 seats/Toilet with Solar roof top)	Align with swachh bharat mission		3.20	3.20	0.00	0.00	0.00	0.00
6		Rooftop Solar installation	Rooftop Solar installation for 10% of the Area requirement	F	252.52	0.00	0.00	84.17	84.17	84.17
G	Transp	ortation			286.97	24.45	10.00	84.17	84.17	84.17
1	Transpo	Footpath	29		8.69	8.69	0.00	0.00	0.00	0.00
2		Footpath	21		6.15	6.15	0.00	0.00	0.00	0.00
3		Elevated BRT along Ferozepur Road	5		190.00	0.00	0.00	190.00	0.00	0.00
4		BRT Stops Temporary Bus Shelters	5		125.00 2.00	0.00	0.00	125.00 0.00	0.00	0.00
6		Foot Over Bridges	2 9 Smort Bike Chuster		2.60	0.00	2.60	0.00	0.00	0.00
8		Area Wise E Rickshaws (50 no)	50		0.58	0.72	0.72	0.00	0.00	0.00
9		Signalisation at Intersections (Vehicle Activated ATCS Comaptible Traffic Signals)	5		3.50	3.50	0.00	0.00	0.00	0.00
10		Smart On-Street Parking (300 Bays)			3.23	0.66	0.92	0.55	0.55	0.55
11		Signage, Road Marking & Wayfinding	lumpsum		2.00	2.00	0.00	0.00	0.00	0.00
12		Multilevel Car Park (300 Cars capacity) (Cost Rs 500000/ECS)	3		45.00	0.00	22.50	22.50	0.00	0.00
13		RoB Pakhowal Rd.	1		40.00	0.00	0.00	20.00	20.00	0.00
14					431.20	24.22	27.23	358.25	20.75	0.20
H	E-Ricks	shaw Project	F	PAN CITY PROPOSALS						
1	- HICKS	E Rickshaw	5000	57.50		11.50	11.50	11.50	11.50	11.50
2		GPS Charging Stations	15	0.23		0.06	0.06	0.03	0.05	0.03
4		Kiosk Control Center	15	0.30		0.08	0.08	0.04	0.06	0.04
	010-7-			80.03		18.14	18.14	14.57	14.61	14.57
1	GIS Bas	sed Mapping Mapping and Ground Proofing		5.00		5.00	0.00	0.00	0.00	0.00
2		GIS Application Centre and Remote Sensing Centre and Block Networks	37	28.00		9.33	9.33	9.33	0.00	0.00
3		License and Staffing		12.00		2.40	2.40	2.40	2.40	2.40
4		Central Command Centre & DR Site		32.50		0.00	16.25	16.25	0.00	0.00
		Grand Total		77.50	891 75	16.73	27.98	27.98 537.83	2.40	2.40

	Total Lifetime Cost														
PAN CITY PROJECTS		2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
E-Rickshaw Project	104.09	19.05	20.00	16.87	17.75	18.60	1.07	1.13	1.18	1.24	1.30	1.37	1.44	1.51	1.58
GIS Based Mapping	99.23	24.40	20.10	21.11	10.82	11.36	1.04	1.09	1.15	1.20	1.26	1.33	1.39	1.46	1.53
Area Wide															
Portable Water	56.07	3.05	22.69	23.82	0.00	0.00	0.59	0.62	0.65	0.68	0.72	0.75	0.79	0.83	0.87
Waste Water	18.53	0.00	5.29	8.39	2.73	0.00	0.19	0.20	0.21	0.22	0.23	0.24	0.26	0.27	0.28
Power	90.33	2.63	18.76	19.69	20.68	18.52	0.91	0.96	1.01	1.06	1.11	1.16	1.22	1.28	1.35
Storm Water Management	51.66	9.11	9.57	8.60	9.03	9.48	0.53	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.79
Waste Management	9.33	2.75	4.47	0.67	0.16	0.16	0.10	0.11	0.11	0.12	0.12	0.13	0.13	0.14	0.15
Urban Design & Landscape	386.29	25.68	11.03	97.44	102.31	107.43	3.85	4.04	4.24	4.45	4.67	4.91	5.15	5.41	5.68
Transportation	5933.46	215.23	547.12	4978.59	126.26	2.53	5.78	6.07	6.37	6.69	7.02	7.37	7.74	8.13	8.54
Grand Total	6748.99	301.89	659.03	5175.19	289.74	168.09	14.06	14.76	15.50	16.28	17.09	17.95	18.84	19.79	20.77

Year		2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
FUNDING															
Inflation Index															
Inflation Index	1	0 1	11	12	12	13	13	14	15	16	16	17	1.8	19	2.0
															2.0
САРЕХ															
Capex (without inflation)		112.7	134.7	528.1	155.2	130.5	-	-	-	-	-	-	-	-	-
Capex (with inflation)		118.4	148.5	611.3	188.7	166.5	-	-	-	-	-	-	-	-	-
Convergence Funding Sources (AMRUT, IPDS, PPP)		14.6	25.7	127.7	11.9	11.2	-	-	-	-	-	-	-	-	-
Capex to be incurred by SPV		103.8	122.8	483.6	1/6.8	155.3	-	-	-	-	-	-	-	-	-
Oper															
Opex	1%						12.76	13 39	14.06	14 77	15 50	16.28	17.09	17 95	18.84
	170						12.70	10.07	11.00		10.00	10.20	17.07	17.70	10.01
Revenue															
Services		10.58	3 11.22	11.97	12.75	13.76	14.70	15.80	16.95	18.27	19.79	21.41	23.13	25.10	27.21
- Water charges		2.10	5 2.16	2.16	2.16	2.27	2.27	2.27	2.27	2.27	2.38	2.38	2.38	2.38	2.38
- Waste collection		0.90	0.96	1.01	1.01	1.06	1.06	1.11	1.11	1.1/	1.1/	1.23	1.23	1.29	1.29
- Digital noardings Multilovel car parking		1.20	1.34	1.51	1.69	1.89	2.11	2.37	2.65	2.97	3.33	3.73	4.1/	4.68	5.24
- iviuilievei car parking		2.6	2.94	3.30	3.69	4.14	4.63	5.19	5.81	6.51 E.24	1.29	8.16 E.01	9.14	10.24	11.4/
Tax Increment Financing (TIF)		3.0.	5 3.81	4.00	4.20	4.41	4.03	4.80	5.11	0.10	0.03	0.12	0.21	0.32	0.84
		0.03	0.05	0.00	0.00	0.07	0.08	0.09	0.09	0.10	0.11	0.12	0.13	0.14	0.15
Total Revenue		10.62	2 11.27	12.03	12.81	13.83	14.78	15.88	17.04	18.37	19.90	21.52	23.25	25.23	27.36
Cash Equity Account															
Opening Balance		-	296.23	373.43	89.81	113.04	-	-	-	-	-	-	-	-	-
New Cash Equity injected		400.00	200.00	200.00	200.00	-	-	-	-	-	-	-	-	-	-
- LMC equity		200	100	100	100	-	-	-	-	-	-	-	-	-	-
- GOP equity		200	100	100	100	-	-	-	-	-	-	-	-	-	-
Equity Spent		103.8	122.8	483.0	I /0.8	113.0	-	-	-	-	-	-	-	-	-
		290.2.	5/5/45	07.01	113.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest		8.8	20.09	13.90	6.09	3.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		0.0			0.07			0.00		0.00	0.00	0.00	0.00	0.00	0.00
Application and Sources of Funds															
Application of funds		118.4	148.5	611.3	188./	166.5	12.8	13.4	14.1	14.8	15.5	16.3	1/.1	17.9	18.8
Lapex (with inflation)		118.4	148.5	611.3	188.7	166.5	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Renavment of Debt															
Opex for Utilities		-	-	-	-	-	12.8	13.4	14.1	14.8	15.5	16.3	17.1	17.9	18.8
Sources of funds		414.6	225.7	327.7	211.9	53.5	14.8	15.9	17.0	18.4	19.9	21.5	23.3	25.2	27.4
Equity from LMC		200.0	100.0	100.0	100.0	-	-	-	-	-	-	-	-	-	-
Equity from GOP		200.0	100.0	100.0	100.0	-	-	-	-	-	-	-	-	-	-
Term Loan		-	-	-	-	28.4	-	-	-	-	-	-	-	-	-
Convergence Funding Sources (AMRUT, IPDS, PPP)		14.6	25.7	127.7	11.9	11.2	-	-	-	-	-	-	-	-	-
Revenue from Utilities		-	-	-	-	13.76	14.70	15.80	16.95	18.27	19.79	21.41	23.13	25.10	27.21
Terminal Value		-	-	-	-	0.07	0.00	0.09	0.09	0.10	0.11	0.12	0.13	0.14	0.15
CASH FLOW STATEMENT															
Opening Cash Balance		-	296.2	373.4	89.8	113.0	-	2.0	4.5	7.5	11.1	15.5	20.7	26.9	34.2
Closing Cash Balance		296.2	373.4	89.8	113.0	-	2.0	4.5	7.5	11.1	15.5	20.7	26.9	34.2	42.7
Variation in Cash Flow during the Period		296	77	(284)	23	(113)	2	2	3	4	4	5	6	7	9
Project Cash Flows		(104) (123)	(484)	(177)	(141)	2	2	3	4	4	5	6	7	9
Construction Const			0.17	070	4.075	4.005			4.071	6.000		4.005	4.007	6.055	
cumulative Cost		118	267	8/8	1,067	1,233	1,246	1,260	1,2/4	1,288	1,304	1,320	1,337	1,355	1,374
		15	40	168	180	205	220	236	253	2/1	291	313	336	361	388

Annexure 3



Cumulative cost and Revenues





Balance Sheet



REGIONAL CONTEXT AND CITY-LEVEL BASEMAP

Ň **Smart City**



BASEMAP LEGEND ADMINISTRATION MUNICIPAL CORPORATION ICIPAL COUN [___] ZONAL BOUNDARY WARD BOUNDARY LANDUSE RESIDENTIAL COMMERCIA INDUSTRIAL MIXED USE EDUCATIONAL INSTITUTES HOSPITAL AND HEALTH INSTITUTIONS RELIGIOU PUBLIC BUIL SLUMS OTHERS OPEN SPACES AND WATER FEATURES PUBLIC OPEN SPACES / PARKS AGRICULTURE PLANT, FRUIT NURSERY AND ORCHARDS RIVERS, CANALS, LAKE AND WATER BODIES / PONDS TRANSPORTATION MAJOR ROADS INTERNAL ROADS BRIDGES FLYOVERS MAJOR JUNCTIONS / CHOWKS RAILWAY STATION RAILWAY LINE CITY BUS NETWORK MAJOR BUS STOPS INFRASTRUCTURE WATER SUPPLY SOURCES SEWERAGE TREATMENT PLANT ELECTRIC SUBSTAT CIRCUIT HOUSE LANDMARKS 1 CLOCK TOWER RAILWAY STATION CHAURA BAZAAR GHUMAR MANDI ROSE GARDEN PUNJAB AGRICULTURE UNIVERSITY SARABHA NAGAR MAIN MARKE LEISURE VALLE RUDHA NAI Kilometers

LUDHIANA



1

0.5

0

WHY LUDHIANA SMART CITY ?

- Largest manufacturer of bicycles can become the most bicycle friendly city in the country creating a symbiotic relationship with other Indian cities to promote sustainable practices around the country
- Capitalise on manufacturing base of the city for a sustainable growth

Proposal takes into account citizens' concerns and have come up with specific projects to mitigate pollution, congestion, safety on streets to safe neighbourhoods

Vehicle free zones, bike highways, shared streets will be done in a phased manner ensuring citizen adopt and adapt for a positive outcome in the long run



WHY LUDHIANA SMART CITY



WHY LUDHIANA SMART CITY ?

Ludhiana, Kanpur among world's top 10 cities with worst air pollution



LUDHIANA IS ONE OF THE **MOST POLLUTED CITIES IN THE WORLD!**



WHY LUDHIANA SMART CITY

SAY

NUMBERS

Ш

PM 2.5(MICROGRAMS PER CUBIC METER) IN THE MOST POLLUTED CITIES WORLDWIDE 2014





PASSENGER VEHICLE REGISTRATION IN INDIA





- 24 x 7 Power supply 1.
- Adequate & quality Water supply 2
- **Business Friendly Environment**
- Citizen participation in Governance and promoting e-aovernance
- Dedicated Bicycle tracks in the city
- Education
- Environment control pollution (air / sound / water)
- Healthcare
- Industrial area- waste disposal
- 10 Non-Conventional sources of energy

ANNEXURE 3 SHEET 10

85% OF SURVEY **RESPONDENTS THINK AIR IN LUDHIANA IS** SEVERELY POLLUTED

LUDHIANA HAS 16,00,000 VEHICLE REGISTRATIONS



ANNUAL MEAN PM10 IN INDIA CITIES

THE BIG IDEA

THE MOST BIKE FRIENDLY **CITY IN INDIA**









SAFE AND WALKABLE

1











AND THRIVING

НЕАLTHY

Re-discover the Bicycle capital of the world

- Bicycle manufacturing hub of the world Align with "Make in India"
- Innovative and indigenous solutions like bamboo bicycles
- Participation by citizens in biking culture
- Healthier and more active lifestyle
- Improve health metrics

Enhance Health + Wellness of citizens

- Promote healthier mobility options like Bicycles, e-rickshaws
- Reduce pollution and vehicular congestion
- Mitigate industrial pollution

Reduce Traffic Congestion

- Integrated Traffic Management Systems (IMS)
- Make streets pedestrian and bike friendly
- Improve existing Public Transport
- Reduce dependence on privately owned vehicles

Clean + Green the city

- Switch from diesel and petrol to electric and renewable sources
- energy requirement should come from solar energy
- Waste to energy

Ensure Public Safety

- Responding effectively to traffic patterns, disasters, security breeches
- Street lighting to ensure walkable environment
- Emergency response
- for bike riders

Enable E-Governance

- GIS based mapping
- Smart Metering •
- Smart Monitoring
- system available on MCL website Single emergency help line
- 24x7 Information kiosks

VISION

GOA

SUB

GOALS

Provide better integrated healthcare facilities to citizens -inclusive care, smart hospitals

• Alternative sources of energy for public space lighting - 10% of the Smart City's • Integrated Solid Waste Management Strategy-Align with "Swachh Bharat Mission"

Crime prevention and monitoring, and protecting citizens and public assets

• Law enforcement for traffic rules, pedestrian rights and safeguarding right of way

App based and telephonic citizen grievance redressal system – plus into existing



Focus Groups Ward-to-ward surveys Reach Out Campaigns































The Smart City team

collected feedback

from focus groups,

popular schools and

colleges, commercial

areas, public spaces

with the local citizens

of Ludhiana.

campaigns and

actively ran awareness

Local architects on advisory board soon: Mayor

TRIBUNE NEWS SERVICE

detail the past, present and future of Ludhiana with respect to the 'Smart City' status. He shared his symposium on 'Smart ty' project was organ-ed by the Indian Instised by the Indian Insti-ute of Architects (IIA), outcome of meetings with the Central Government in the last few months. He also announced that Chandigarh Punjab Chap-ter and Ludhiana Centre. More than 300 architects, engineers, interior designlocal architects would be ers, town planners, devel-opers, students and citi-zens attended the on the Advisory commit-tee of the Municipal Corporation soon. symposium. Mayor Har-Vijay Garg, member

ernment of India was funding only Rs 500 crore

Smart city: कॉलेज और स्कूलों के प्रिंसिपल ने भी दी राय MC goes to schools for

suggestions TIMES NEWS NETWORK



Smart suggestions: MC teams reach out to college, school students

Smart City

 DMC&H and various other
 dents.

 Ludhiana: Teams of the public corporation
 places.
 Some students from Delhi Public School also

 (MC) visited schools, colleges and other public places.
 With the aim of seeing the suggestions from the public under the suggestions
 Some students from Delhi Public School also

 from the public under the suggestions
 youth, the teams discussed about various aspects of a municipal commissioner
 municipal Commissioner

School, DAV school, forms were filled by stu-DMC&H and various other dents. teractive session was held smart city pro Further o get the suggestions youth, the feams discussed between the sudgestions and that the about various aspects of a municipal commissioner the sales and that the schools of the city and took feed back on how it could be according to informate the teams visited the mission of young gen- said that the process will be schools to give suggest- tert to all the schools to give suggest the schools to give suggest the schools to give suggest and Facebook page.



CITIZEN ENGAGEMENT





The mayor explained in



More than 1 Lac responses received from citizens of Ludhiana

financial mode of setting-up smart cities as the Gov-ernment of India was

of Rs 45,000 crore budget for setting of one Smart City. This project requires Private Public Participa-tion (PPP) mode in a big way so that dream 'Smart City' can be real-ized, he added.

"Every city has a different style of living culture,

council of Architecture and past National Joint Secretary of IIA, spoke on of local citizens the mindarea, population and her- Corporation, explained set of the people has to change. Ludhiana has the potential to do this. The Ludhiana Municipal Corporation has an important role to play to make good presentation to the government so that the city comes in the list of first 20 smart cities," Garg added.

Surinder Bhaga, nominated counselor from Chandigarh Mu

Chandigarh Corporation as architect counselor to make the city further smart. Mahesh Paliwa Paliwal from New Delhi in his detailed prese elaborated on the presentation landscape in smart cities The Symposium

attended architecte from New Delhi, Haryana, Jammu, Himachal, Chandigarh, Jalandhar, Patiala. Amritsar





AREA BASED DEVELOPMENT EXISTING





AREA BASED DEVELOPMENT PROPOSED STRUCTURE PLAN







EXISTING VIEW OF GHUMAR MANDI





AREA BASED DEVELOPMENT



EXISTING VIEW OF SARABHA NAGAR MAIN MARKET





AREA BASED DEVELOPMENT Sarabha Nagar Market : PROPOSED VIEWS





AREA BASED DEVELOPMENT EXISTING VIEWS : PROPOSED SECTIONS

Smart City

















Smart City



CITIZEN ENGAGEMENT - ROUND 1 & 2 RESULTS

JD Smart Cities	~	Do	Discuss	Poll	Blog	Talk	
at would be your to	p area of priori	ity for impro	oving Ludhiar	a city or makin	ng Ludhiana a	a Smart City?	
	LUDHI	ANA Jin		n Vekha biana"			
What would be your t add a new category th vironment control – pollu	top area of priority hat is not listed bel ition (air / sound / w	for improving low, please me vater)	Ludhiana city or Ludhiana that in a m	making Ludhiana aximum of 25 wor	a Smart City? If y ds under "Other	you wish you 's"	
What would be your t add a new category th ivironment control - pollu affic Management & Parki	top area of priority hat is not listed bel ution (air / sound / w	for improving low, please me vater)	Ludhiana city or	making Ludhiana aximum of 25 wor	a Smart City? If ; ds under "Other 199	you wish you 's" 6 (363 votes)
What would be your t add a new category th vironment control – pollu affic Management & Parki	top area of priority hat is not listed bel- ition (air / sound / w	for improving low, please me vater)	Ludhiana city or	making Ludhiana aximum of 25 wor	a Smart City? If ; ds under "Other 199	you wish you 's" 6 (363 votes 6 (442 votes)
What would be your t add a new category th nvironment control – poliu raffic Management & Parki edicated Bicycle tracks in t	top area of priority hat is not listed bel ition (air / sound / w ing the city	for improving low, please me vater)	; Ludhiana city or ention that in a m	making Ludhiana aximum of 25 wor	a Smart City? If y ds under "Other 199 249	you wish you s ^{er} 6 (363 votes 6 (442 votes)
What would be your t add a new category th nvironment control – pollu raffic Management & Parki edicated Bicycle tracks in t ublic Safety and Security oi	top area of priority hat is not listed bel ition (air / sound / w ing the dty n streets	for improving low, please me vater)	; Ludhiana city or ention that in a m	making Ludhlana aximum of 25 wor	a Smart City? If y ds under "Other 199 249	you wish you s" 6 (363 votes 6 (442 votes 2% (30 votes)
What would be your t add a new category th nvironment control – pollu raffic Management & Parki redicated Bicycle tracks in t ublic Safety and Security or usiness Friendly Environm	top area of priority hat is not listed bel ttion (air / sound / w ing the city n streets ent	for improving low, please me vater)	; Ludhiana city or ention that in a m	making Ludhiana aximum of 25 woi	a Smart City? If ;; ds under "Other 199 249 2	vou wish you s ^r 6 (363 votes 6 (442 votes 2% (30 votes 6 (166 votes)
What would be your t add a new category th nvironment control – pollu raffic Management & Parki edicated Bicycle tracks in t ublic Safety and Security or usiness Friendly Environm 4 x 7 Power supply	top area of priority hat is not listed bel ition (air / sound / w ing the city in streets ent	for improving (ow, please me vater)	: Ludhiana city or ention that in a m	making Ludhiana aximum of 25 wor	a Smart City? If ;; ds under "Other 199 249 2 99	you wish you 5° 6 (363 votes 6 (442 votes 6 (442 votes 6 (166 votes 1% (69 votes	
What would be your t add a new category th nvironment control - pollu raffic Management & Parki edicated Bicycle tracks in t ublic Safety and Security of usiness Friendly Environm 4 x 7 Power supply dequate & quality Water st	top area of priority hat is not listed bel ution (air / sound / w ing the city in streets ent upply	for improving low, please me vater)	: Ludhiana city or ention that in a m	making Ludhiana aximum of 25 wor	a Smart City? If y ds under "Other 199 249 2 99 2 2 2 2 2 2 2 2 2 2 2 2 2 2	you wish you 6 (363 votes 6 (442 votes 1% (30 votes 6 (166 votes 1% (69 votes 1% (69 votes	
What would be your t add a new category the wironment control – pollu affic Management & Parki affic Management & Parki edicated Bicycle tracks in t ublic Safety and Security of asiness Friendly Environme x 7 Power supply lequate & quality Water su wage & Drainage	top area of priority hat is not listed bel ution (air / sound / w ing the city in streets ent upply	for improving low, please me vater)	; Ludhiana city or ention that in a m	making Ludhiana aximum of 25 woi	a Smart City? If yes a smart C	vou wish you s' 6 (363 votes 6 (442 votes 2% (30 votes 6 (166 votes 1% (69 votes 1% (69 votes 1% (15 votes	

Polling for Prioritizing Pan City Proposal **1844 VOTES**



Round 2 CITIZEN ENGAGEMENT MyGov. Portal and www.smartcityludhiana.com



Polling for Selection of Site for Area Based Development **455 VOTES**





CITIZEN ENGAGEMENT - ROUND 1 & 2 RESULTS SAMPLE QUESTIONNAIRE

SAMPLE QUESTIONNAIRE

B. S. TULI Xen, P.W.D. (B & R) ; hudblene.

"My Top Three Priority Areas for Improvement in Ludhiana" What would be your top three priority areas for improving Ludhiana city? Please pick 1 option from each box in order of preference.

PH: - 98729-75288

iori	ty 1:	Priori	ty 2:	Priority 3:
0	Environment control – pollution (air / sound / water)	0	Environment control – pollution (air / sound / water)	 Environment, control – pollution (air / sound / water)
6	Traffic Management & Parking	0	Traffic Management & Parking	 Traffic Management & Parking
0	Dedicated Bicycle tracks in the city	0	Dedicated Bicycle tracks in the city	 Dedicated Bicycle tracks in the city
0	Public Safety and Security on streets	0	Public Safety and Security on streets	 Public Safety and Security on streets
0	Business Friendly Environment	0	Business Friendly Environment	 Business Friendly Environment
0	24 x 7 Power supply	V6	24 x 7 Power supply	 24 x 7 Power supply
0	Adequate & quality	0	Adequate & quality	 Adequate & quality
	Water supply		Water supply	Water supply
0	Sewage & Drainage	0	Sewage & Drainage	 Sewage & Drainage
0	Solid Waste	0	Solid Waste	o Solid Waste
	Management		Management	Management
0	Public Transportation	0	Public Transportation	 Public Transportation
0	Parks and Recreation	0	Parks and Recreation	 Parks and Recreation
0	Connectivity	0	Wi-Fi and Internet Connectivity	 Wi-Fi and Internet Connectivity
0	Pollution free Buddha nala	0	Pollution free Buddha nala	 Pollution free Buddha nala
0	Industrial area- waste disposal	0	Industrial area- waste disposal	 Industrial area- waste disposal
0	Healthcare	0	Healthcare	 Healthcare
0	Education	0	Education	 Education
0	Non-Conventional sources of energy	0	Non-Conventional sources of energy	 Non=Conventional Sources of energy
0	Citizen participation in	0	Citizen participation in	Citizen participation in
	Governance and		Governance and	Governance and
	promoting e-governance		promoting e-governance	promoting e-governance

"Your Opinion is Valuable"

Priority 1:

We need your input to assess your needs and aspirations. Please respond to the questions listed below Against each of the questions, your response could be either "yes" or "no". In few questions, please specify a number (wherever asked). If you wish to make additional suggestions, please use the "Comments and Suggestions" box to share your ideas.

Questi	onnaire	Yes	. •	No
1	Name 1 thing you love the most in Ludhiana	My	H	0 m
22	Name 1 thing you hate the most in Ludhlana	Ain	Po	68
Q3	Do you think your neighbourhood has adequate footpaths?	V		
Q4.	How do you commute to work – Car (1), Two-Wheeler (2), Bike (3), Bus (4), Auto (5), others (6)? (Specify No. from 1 to 6)	1 2	345	6
Q5.	Is a bus-stop within 10 minute walking distance from your house?	~		
Q6.	Do you feel safe while crossing road or cycling on the road in your neighbourhood?	~		
Q7.	Do you have adequate parking facilities when you go to work or shop	V		191
Q8.	Is there adequate street lighting in your neighbourhood?	V		
Q9.	How many hours in a day is water supplied to your house? (Specify No.)	6		
Q10.	Are you satisfied with the quality of water supplied to your household?	V	Í	124
Q11	Do you have power supply connection	V		
Q12.	How many hours of uninterrupted power supply do you get? (Specify No.)	8		
Q13.	Would you prefer public transportation to improve?	V		
Q14.	Would you prefer bus information system at bus stops for ease of mobility?	V	Ē	
Q15.	Do your children have a walkable access to schools?			V
Q16.	Do you have health care facility nearby? PHC/ CHC	1		V
Q17.	Does the PHC/ CHC facility have adequate facilities for your requirements?	299		V

Annexure 3

Sheet 20

Question 1:

a. Transportation condition in the city

Government has taken number of initiatives towards sustainable transport:

- 1. Widening and 8 laning of Ferozepur road from Sidhwan Canal to MC Limit, Year 2012-2013.
- 2. Widening of Roads of Sector 32 in Urban Estate, year 2012-2013.
- 3. Construction of RUB near Lodhi Club on Ferozepur Railway Line, Year 2013-2014.
- 4. DPR for Ludhiana Metro Rail project (DPR) 2012, DMRC.
- 5. Completed Comprehensive Mobility Plan Ludhiana (2011-2014), Rites Itd.
- Detailed Project Report for Bus Rapid Transit (BRT) System including elevated BRT
- Construction of Missing Link II 140'wide road from Dhandran Road to Dhuri Railway Line, Ongoing.
- Ongoing construction of Missing Link II, Part 2, from Dhuri Railway Line to Malerkotla Road up-to Lohara Bridge and Sidhwan Canal
- 9. Construction of ROB in lieu of Lakkar Bazaar.
- 10. Flyovers at Sherpur Chowk, Jalandhar Bypass chowk, Rahon Road chowk and Samrala Chowk (NHAI).
- 11. Construction of roads along Budha nallah (13 Cr)

ਮੱਦ ਨੰ: 1 /ਇੰਜੀ. ਸ਼ਾਖਾ

ਵਿਸ਼ਾ:-

Approval of Smart City Proposal (SCP) for Ludhiana under Smart Cities Mission of Govt. of India.

ਨੋਟ ਕਾਰਜਕਾਰੀ ਇੰਜੀਨੀਅਰ (ਪ੍ਰੋਜੈਕਟ) ਮਿਤੀ 27-11-2015, ਜਿਸ ਦੀ ਪ੍ਰਵਾਨਗੀ ਹਿੱਤ ਪ੍ਰੋੜਤਾ ਵਧੀਕ ਕਮਿਸ਼ਨਰ (ਜੀ) ਨੇ ਮਿਤੀ 27-11-2015 ਨੂੰ ਕੀਤੀ ਹੋਈ ਹੈ, ਜੋ ਕਿ ਹਾਉਸ ਦੀ ਮੀਟਿੰਗ ਵਿੱਚ ਵਿਚਾਰਨ ਹਿੱਤ ਪੇਸ਼ ਹੈ ਜੀ।

The Ministry of Urban Development (MoUD), Government of India has launched Smart Cities Mission covering 100 Cities in India. For selection of 100 Cities throughout India, the Govt. of India has set two stages i.e. Stage I & Stage II of competition. 2

In Stage I, the State was required to consider potential Smart Cities among the Cities of the State which fulfilled the conditions precedent to selection as set in the guidelines issued by the Govt. of India. The Govt. of India has selected the following three (3) Cities of Punjab;

- i. Amritsar
- ii. Ludhiana
- iii. Jalandhar

3 In Stage II of the competition, these Cities have to prepare the Smart City Proposals (SCPs) based on the guidelines & formats issued by the Ministry of Urban Development, Govt. of India. These Cities through SCPs shall compete amongst 100 Cities at National Level for selection of 20 Cities in 1st phase; further 40 Cities in the 2nd phase & the remaining 40 Cities in the 3rd & last phase. The selected Cities would be granted Rs.1000 Crore (Rs.500 Cr. - Gol & Rs.500 Cr. - GoP), which can be leveraged for getting additional resources for funding the project implementation / execution under the SCM. The Smart City Proposal shall include the following;

- i. Area and proposal identification retrofitting, redevelopment and greenfield
- developments.
- ii. Proposal scope and objectives.
- iii. Proposal concept, development & Implementation framework.
- iv. Proposed financing options and institutional framework.
- v. Proposal phasing and timeframe.

PMIDC has engaged M/s AECOM India Pvt. Ltd. in association with AECOM 4 Asia Company Limited and IBM India Private Limited as 'Consultant' for the preparation of Smart City Proposal for the city of Ludhiana.

The Consultant has prepared the Smart City Proposal (SCP) based on the 5. following indicative criteria and guidelines of MoUD, Govt. of India;

A: City L	evel Criteria
S. No.	Criteria
a.	Vision and goals
b.	Strategic Plan
C.	Citizen engagement
d.	Baselines, KPIs, Self-assessment and potential for improvement
B: Area-I	Based Development (Abd)
S. No.	Criteria
a.	"Smartness" of proposal
b.	Citizen engagement
C.	Result orientation
d.	Process followed
and the second se	

Implementation framework, including feasibility and costeffectiveness

Pan-City Solution

o. run-c	ity colution
S. No.	Criteria
a.	"Smartness" of solution
b.	Citizen engagement
C.	Result orientation
d.	Process followed
e.	Implementation framework, including feasibility and cost- effectiveness

6

Further, as envisaged in the guidelines issued by the Govt. of India, a Special Purpose Vehicle (SPV) shall be set up in the Cities for implementation of Smart City projects. The structure and functions of the SPV shall be as follows: İ.

Structuring of SPV:

The City Level SPV will be established as a Limited Company under the Companies Act, 2013 and will be promoted by the State and the ULB jointly, both having 50:50 equity shareholding. The SPV shall be headed by Chief Executive Officer (CEO) and he shall be appointed with the approval of the MoUD, Govt. of India for a fixed term of three (3) years.

ii. Raising & Utilization of Funds by the SPV:

The funds given by the Central Govt. to the SPV will be in the shape of tied grants and kept in a separate Grant Fund. The ULB may through the State Govt. request the MouD to permit utilization of GoI grants as ULBs equity contribution to the SPV.

The SPV will also access funds from other sources such as debt, user charges, taxes, surcharges, etc. iii. Board of Directors:

The BoD shall have representatives of Central Govt., State Govt., ULB and Independent Directors in addition to the Chief Executive Officer (CEO) and the Functional Directors.

- iv. Delegation of Powers to the SPV:
 - SPV shall have operational independence and autonomy in decision making and mission implementation.
 - Delegating the rights and obligation of the Municipal Corporation with respect to the Smart City projects and other urban infrastructure projects to the SPV.
 - Delegating the related decision making powers available to the ULB under the Municipal Act / Govt. rules to the CEO of the SPV.
- v. Key Functions & Responsibilities of the SPV:
 - Approve and sanction the projects including their technical appraisal.
 - Execute the Smart City Proposal with complete operational freedom.
 - Approve and act upon the reports of the third party Review and Monitoring Agency.
 Overview Capacity Duilding A third
 - Overview Capacity Building Activities
 - Ensure timely completion of the projects according to set timelines.
 - Monitor and review quality control related matters and act upon issues arising thereof.
 - Determine and collect user charges, surcharges, etc. as authorized by the ULB.

In view of the above, the following may be placed before the House of Municipal Corporation House for approval please:

- . The SCP prepared by the Consultant M/s AECOM for submission under Stage II competition at National level.
- ii. Formation of SPV under Company Act 2013, the Board Directors and Delegation of Powers to the SPV by the ULB as detailed above and as per guidelines issued under Smart Cities Mission & Punjab Urban Development Mission (PUDM) by MoUD, Govt. of India and the Govt. of Punjab respectively.

8. After due approval of the SCP & SPV by the House, the same shall be forwarded to High Powered Steering Committee (HPSC) under the Chairmanship of Chief Secretary, Punjab for further approval and submission to MoUD, Govt. of India for Stage II Competition at National level.

ਮਾਣਯੋਗ ਮੇਅਰ ਜੀ ਨੇ ਮਿਤੀ 27-11-2015 ਨੂੰ ਉਪਰੋਕਤ ਕੇਸ ਨੂੰ ਹਾਊਸ ਵਿੱਚ ਪੇਸ਼ ਕਰਨ ਲਈ ਆਗਿਆ

ਦਿੱਤੀ ਹੈ।

7.

Hall and Brian aroad

ਮਤਾ ਨੰ: 285 ਪ੍ਰਵਾਨ ਹੈ। ਸਹੀ/– ਮੇਅਰ 02-12-2015

ਸਹੀ/–

ਮੇਅਰ ਨਗਰ ਨਿਗਮ, ਲੁਧਿਆਣਾ। 02-12-2015

ANNEXURE 4 SHEET 2

MUNICIPAL CORPORATION LUDHIANA

No. 407/AC(4)

Date: 11/12/15

Statement Regarding Agreements with Para Statal Bodies, Boards existing in the City for implanting the full scope of the SCP and sustaining the Pan-City and area based development

There are several State Level and City Level Para Statal Bodies of Boards which are carrying out projects in their respective areas. The following is an illustrative list of such State Level Bodies and Boards and their area of projects;

- Punjab Water Supply & Sewerage Boards (PWSSB) Executing Agency for water supply & sewerage projects.
- Punjab Infrastructure Development Board (PIDB) Executing Agency for BRTS projects.
- Punjab Heritage & Tourism Promotion Board (PHTPB) for executing tourism development projects
- 4. Punjab Municipal Infrastructure Development Company (PMIDC) for implementation of schemes of Govt. of India.
- 5. City Bus Company for implementing City Bus services
- 6. Punjab Bus Metro Society (PBMS) for execution of the BRTS projects
- 7. Punjab Roadways Transport Corporation (PRTC)
- 8. Greater Ludhiana Area Development Authority (GLADA)
- 9. Ludhiana Improvement Trust (LIT)
- 10. Ludhiana Police Commissioner
- 11. Ludhiana Punjab Urban Development Authority (PUDA)
- 12. Punjab State Power Corporation Limited (PSPCL)
- 13. Public Works Department (PWD) Building & Roads (B&R)

(Note: Above list is illustrative, not exhaustive)

Once, the SPV at the City level is created, it is proposed to have arrangements of MoUs, agreements etc. in order to co-opt such agencies in the implementation of the SCP proposals.

Municipal C

SHEET 3 SHEET 3



ANNEXURE 4 SHEET 4

Minutes of the meeting of High Powered Steering Committee (HPSC) for approval of Smart City Proposals of Amritsar, Ludhiana & Jalandhar held under the Chairmanship of Chief Secretary, **Punjab** on 10.12.2015 at 4:00 PM.

The attendance sheet of the meeting is enclosed as Annexure-I

At the outset, State Mission Director-cum-Member Secretary (Smart Cities Mission) briefed the members of HPSC about the Smart Cities Mission of Govt. of India and also informed that the following Consultants have been engaged for preparing Smart City Proposals;

- M/s Jones Lang LaSalle / Tata Consulting Engineer / Townland (Hong Kong) for Amritsar
- b. M/s AECOM India/ IBM for Ludhiana
- c. M/s IIDC / UMTC / BDP (UK) for Jalandhar

The team consisting Mayors, Commissioners of Municipal Corporation of Amritsar, Ludhiana & Jalandhar & their Consultants gave the presentation of the Smart City Proposal (SCP) highlighting the area based development i.e. retrofitting, redevelopment and greenfield development and pan-city solutions including financial / resources plan & implementation plan.

In the meeting, HPSC members gave valuable suggestions and the Committee recommended that the Smart City Proposals (SCPs) for the above three potential Smart Cities be forwarded to the Govt. of India after incorporating the suggestions / comments given in the meeting for stage II competition at National level.

Chief Secretary to Government of Puppaby& GOVERNMENT OF PUN AB Chairman, HPSC (Smart Cities)

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ANNEXURE 4 SHEET 5

Civil Writ Petition No. 13490 of 2008

Present: Mr. Sumeet Mahajan, Senior Advocate with Mr. Sham Lal Bhalla, Advocate for the petitioner.

Mr. Onkar Singh Batalvi. Advocate for respondents No.1, 2 and 9.

Mr. Rupinder Khosla. Additional Advocate General. Punjab. for respondents No. 3, 4, & 7.

Mr.Rajesh Garg, Advocate for respondents No.5 and 10.

Mr. Anupam Gupta, Advocate Senior Standing Counsel for U.T. Administration Chandigarh, for respondents No 6 and 8.

By our order dated 2.12.2003 passed in Civil Writ Petition No 7676 of 2007, we had directed the Punjab Pollution Control Board to carry out a study on the ambient air quality in the cities of Ludhiana. Jalandhar and Amritsar, which, according to learned counsel for the parties, are the most densely populated and polluted cities in the State of Punjab. The Punjab Pollution Control Board has, pursuant to the said

carried out the requisite tests and submitted a report, from a ouding whereof, it is evident that all the three cities, mentioned above, are highly polluted. The results and discussions as also the recommendations made by the Punjab Pollution Control Board present a disturbing picture about the prevailing situation in the three cities and the need for immediate, action to remedy the same. This is evident from the following data given in the report regarding the level of pollution.

Civil Writ Petition No. 13490 of 2008

Name of City	Location	Respirable Suspended	Matter	Oxides Nitrogen (N	of O.)	Sulphur D (SO₂)	ioxide	
udhiana	Bharat Nagar	Particulate Prescribed Value 100 µ/m	Value tound 261-296 µ/m	Prescribed Value 80 μ/m ³	Value found 44-53 µ/m	Prescribed Value 80 µ/m ⁻	Value found 13-16 µ/m'	
	Chowk Vishavkarma Chowk Samrala Chowk Sherpur	100 μ/m 100 μ/m 100 μ/m	268-311 µ/m ⁻ 382-462 µ/m ⁻ 379-416	80 µ/m² 80 µ/m² 80 µ/m²	50-59 μ/m ³ 66-79 μ/m ³ 76-83	80 µ/m 80 µ/m 80 µ/m	15-17 μ/m ⁻ 19-23 μ/m ⁻ 22-26 μ/m	
Jalandhar	Chowk BMC Chowk Pathankot Bye-pass	100 µ/m 100 µ/m	μ/m 375-682 μ/m 334-540 μ/m	80 µ/m° 80 µ/m ³	μ/m 22-31 μ/m 29-43 μ/m	80 µ/m 8C µ/m	15-21 μ/m 16-22 μ/m	
	chowk Kapurthala Chowk	100 µ/m	350-732 µ/m⁻	80 µ/m'	28-31 µ/m`	80 µ/m [°]	18-22 µ/m	
Amritsar	Gurdwara Sahib Saheeda	100 µ/m •	285-350 µ/m	80 µ/m 🍾	54-59 µ/m	80 µ/m	17-20 µ/m	
	Batala Road & Majitha Road outside Dental	100 µ/m a e	265-327 µ/m	80 µ/m³	56-62 μ/m΄	30 µ/m ¹	19-33 µ/m`	
	College Sangam Takkies	100 µ/m	282-408 µ/m	80 µ/m³	60-67 µ/m	80 µ/m	23-23 µ/m	
	Unowk Putlighar Chowk	100 µ/m	279-441 µ/m	80 µ/m`	60-66 µ/m	80 µ/m`	18-21 µ/m	

One of the recommendations, which the Punjab Pollution Control Board, has made to mitigate the hazards of highly polluted environment is the use of low sulphur/alternative fuel like CNG for public transport system, especially the three wheelers/auto rickshaws which are, according to learned counsel for the parties, clving in large numbers in all the three cities. According to an estimate

City alone. There may be an equal number of such rickshaws plying in the cities of Jalandhar and Amritsar. In addition, according to Mr. Khosla, there are 337 city buses run on diesel fuel operating in the

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Civil Writ Petition No. 13490 of 2008

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three cities, which also contribute in a large measure to environmental degradation. The statistic regarding vehicles registered with the Department of Transport Authorities as given in the report is as under:-District Population Buses Cars Jeeps Taxies Three Two Goods Lotal wheelers Wheelers Vehicles 46057 591390 408375 747 14233 2304 50240 336.5 21.57 Lac 53741 (59632 Amritsar 523(153 0913 10158 530 2307 72924 19.031.ac Jalandhar 80997 945382 72769

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Mr. Khosla further submitted that the State is not insensitive to the need for taking effective measures to control the pollution, one of which measures, that the State has viewed, is to introduce CNG as a fuel for public transport in the aforementioned three cities. He has drawn cur attention, in this regard, to a meeting held under the Chairmanship of Principal Secretary Transport. Government of Punjab. on 27.10.2008, from a reading whereof, it appears that the Government have expressed its concern about the problems arising out of use of highly polluting fuel for public transport system and started an exploratory exercise for a switch over from the traditional diesel fuel to LPG and/or CNG There is, however, nothing on the record to show whether any further steps, beyond the meeting that was held as far as back in October 2008, have been taken by the State Government. From a communication dated 3.2.2009, placed on record, it appears that the Indian Oil Corporation has already set up LPS Dispensing Stations at Ludhiana, Jalandhar, Batala, Gurdaspur, Bathinda, Amritsar and Pathankot. This would prima facie mean that while CNG remains one of the options. LPG is already available in the three major cities. mentioned earlier. It also means that auto rickshaws plying on LPG can te benefit from the availability of the fuel required for such rickshaws. It is indeed heartening to note that in the Union Territory of Chandigarh.

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Civil Writ Petition No. 13490 of 2008 --- 4 --the Administration has already taken a decision to ban all diesel driven auto rickshaws w.e.f. 31.8.2009. Autos in Chandigarh would, according to Mr. Gupta, counsel for the U.T. Administration, run from 1.9 2009 only on LPG.

Our attention was also drawn by counsel for the parties to the decision of the Hon'ble Supreme Court in *M.C. Mehta v. Union of India and Others" (2002) 4 Supreme Court Cases 356.* in which the Hon'ble Supreme Court had issued extensive directions including a direction to the Union of India to give priority to the transport sector including private vehicles all over India with regard to the allocation of CNG and to allot the supply of CNG, first to Delhi and to other polluted cities. before allocating the same for industrial use. The Government have also been directed to supply LPG and CNG in addition to any other clean non-adulterable fuel as the Bhure Lal Committee may recommend. The Court has observed that LPG has been found to be environmentally acceptable for the present.

Such being the situation, we are of the view that the State einment ought to give a very serious thought and draw up a road map for the future as the challenges faced by the people of Punjab on account of extensive environmental degradation are formidable and unless proper care is taken and thought given to the same, people of the region would continue to suffer not because there is no way one but on account of neglect and apathy of those in position.

with the Government of India for supply of CNG and for setting up of a more effective and wide network of L PG Supply Stations, the State Government ought to regulate the grant of permits for autos in the three

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polluted cities of Punjab, namely Ludhiana, Jalandhar and Amritsar. If a large number of such autos, that are the main cause of polluting these cities area already operating in these cities, we see no reason why the State cannot straightway stop issuing any further permits for autos there to run on diesel or kerosene as a fuel. Since the Government does not appear to have done even that bit, we are forced to issue directions to prevent any further environmental degradation in these cities that are already polluted far beyond the permissible limits.

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In the totality of the above circumstances, therefore, we deem it fit to issue the following interim directions:-

1)

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The Chief Secretary of Government of Punjab shall convene a meeting of all those connected with a possible switch over from diesel to LPG/CNG as a fuel. 'He may invite.' for the said meeting, officers from the Gas Authority of India Limited. and the Petroleum Corporations like Indian Oil Corporation. Bharat Petroleum and Hindustan Petroleum. The meeting would address the issues referred to above and attempt to draw up a road map that would give a clearer picture regarding the proposed switch over and the time frame within which it would be implemented. A status report shall be placed before this Court by the next date of hearing.

2)

Pending further orders from this Court. the issue of permits to auto rickshaws and public transport buses (city buses) run on diesel within the Municipal Corporation limits of the three cities mentioned above shall remain stayed. This order would not

Civil Writ Petition No. 13490 of 2008

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prevent the State Transport Authorities in Punjab from issuing permit for auto rickshaws which run on LPG or CNG. Auto rickshaws that can run on any other non-polluting fuel can also be permitted.

Post this writ petition on 15.10.2009.

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charges

Sd/- T.S. Thakur Chief Justice

Sd/- Kanwaljit Singh Ahluwalia Judge

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July 23, 2009

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ANNEXURE 4 SHEET 6 138 aus ghis ween IT ADHE জা মৰিবৰী ভাষিপাল SPECIAL AGREEMENT

THIS DEED OF AGREEMENT is made on this **Jo**th day of August, 2010 between the Municipal Corporation, Ludhiana through B.K.Gupta its Joint Commissioner, who has been duly authorized in this behalf by the Commissioner, Municipal Corporation, Ludhiana and herein after called as "**Corporation**" as part of the 1st part which context shall unless excluded by or repugnant to the context be deemed to include their successors-in-interest, administrator, successor etc. and Dr. P.K. Sharma, Director, Punjab Remote Sensing Centre, Punjab Agricultural University, Campus Ludhiana, who is duly authorized in this behalf and herein after called as "**Agency**" and which expressions shall unless excluded by or repugnant to the context be deemed to include their successors-in-interest, transferee, assignee the other part.

AND whereas the "Agency" has submitted a proposal with the "Corporation" to prepare data base using high resolution satellite data. The "Corporation" has considered the proposal of the "Agency" in the larger public interest and with an object to improve the existing system of assessment of properties, levy of tax and for effective supervision on the illegal / unauthorized construction in the limit of Municipal Corporation, Ludhiana. The "Agency" has agreed to procure the High Resolution Satellite Data from National Remote Sensing Centre (NRSC), Deptt. of Space, Govt. of India which is the sole agency for the procurement and sale of High Resolution satellite data of foreign satellites as per requirement of the "Corporation".

And whereas Municipal Corporation, Ludhiana is a statutory body charged with the responsibility of running the Municipal administration and in the process is to update and maintain the Municipal record. Now it intends to generate the database in respect of location, size of structure/construction of all the buildings, roads/streets etc situated within the Municipals limits and in the buffer zone of 2 kilometers of Municipal boundary. It also instances to periodical update the data in respect of existing and new constructions both horizontally and vertically. Accordingly, the 'Corporation'' has decided to avail the services of the "Agency" for preparation of the data base. Now the parties to this agreement have mutually agreed to perform the functions and obligations as enumerated herein after:-

Functions and obligations of the Agency

(1) Identification and demarcation of Municipal boundary:-

Based on Municipal Maps/ plans, the Agency shall mark all the wards of Municipal Corporation on the High Resolution Satellite data. The Municipal limits will also be digitized from revenue maps to be supplied by the Corporation and these maps shall be superimposed on the base map. The digitization of Boundaries will be based on time/ date parameter so that the alterations/ changes in boundaries during the preparatory period and occurring in future also are corrected.

- (2) Procurement of latest High Resolution :- The Agency shall procure High resolution(0.5/06 m) satellite data (GeoEye/ World view/ Quick Bird) for the area situated within the Corporation boundary as well as for a buffer zone of 2 kilometers beyond the present boundary enable the MC to notice/assess the changes in these areas as this area may come within the Municipal limits in near future;
- (3) <u>Photography</u>:- The Agency shall undertake Field photography of all the buildings including the buildings (road/ street wise) situated in the interior of the city to the extent feasible;
- (4) <u>Linking of Photographs in GIS environment:</u> The Agency shall link the photographs in respect of all the Houses/ Building polygons by assigning a code to each of house/building in such manner that it is correlating with the Municipal Corporation record;
- (5) **Provision for interpretation of High Resolution Satellite data** :-The Agency shall provide for the interpretation of the High Resolution Satellite data for the demarcation of individual buildings, parks, vacant plots, roads, water Tanks, Shopping Centres etc and also to generate detailed land use/ land cover map for each building, block, ward and Zone;
- (6) **Ground Truthing-marking of general attributes** :- On the preparation of the land use/ land cover map, the survey teams shall be sent to the field for Ground Truthing. Each and every feature emerging on the maps shall be verified and any missing feature on the maps

shall be marked without the use of GPS. The general attributes like road surface/ road width/ location of the public buildings/ Govt. offices/ monuments including the orchards along with the type of plantation will be captured and marked on the maps;

- (7) Utilization of Departmental maps during Ground Truthing:-During ground Truthing, the information available on the SOI top sheets and Departmental maps provided by the Corporation shall be utilized for annotation of the villages, cites/ town, canals, rivers, drains, roads, lanes, by lanes, blocks, sub blocks etc.
- (8) Supply of Maps of Block and sub blocks and Photographs to survey teams:- The Agency shall provide maps of blocks as well as sub blocks along with photographs of each of the Building situated therein to the team deputed on survey for smooth cross check of the information provided for by the owner/ occupant.
- (9) Collection of Information relating to Self assessment form :-Collection of information of each of the property as specified in the "Self assessment form (Annexure – I) and linking the same with respective polygon demarcated from High Resolution Satellite Data shall be the responsibility of the Agency;

To obviate any confusion, the data would be collected by a joint team consisting of four members (two each of Corporation and Agency)

- (10) <u>Identification and demarcation of assets</u>:- All assets, categorized as follows, will be identified and demarcated by the **Agency** :-
 - (i) Housing Units and plots;
 - (ii) Commercial Units and plots;
 - (iii) Industrial units and plots;
 - (iv) Institutional areas and plots;
 - Main Roads/ Scheduled roads, internal ward roads, streets, lanes, sub lanes, bridges, canals, drains, flyovers and roundabouts etc;

- (vi) Utility net work- Water supply, Sewerage, storm water, drainage, power distribution, streetlight net work, fire hydrants, ;
- (vii) Miscellaneous :- Play grounds, Stadiums, Bus stands, Bus queue/shelters, signboards, community centers, Municipal residences and offices etc;
- (11) <u>Attributes:</u>- The Data base to be prepared by the Agency would essentially comprise of attributes listed in Annexure-I that includes;
 - (a) the property number already assigned by the Corporation;
 - (b) number of storeys of the assessed building and quality of construction;
 - (c) The area of property (based on the sale deed/ conveyance deed/or any other registered document;
 - (d) If the property owners/ occupants fails to supply the above stated documents, the joint team shall record the data as per the site verifications so as to co-relate it with the size of the building/house polygon demarcated from Satellite data;
- (12) <u>Allocation of Unique Identification number</u>:- To make codification of the polygons representing the buildings/ houses with Unique identification number (UID), the Data in respect of each house/plot shall be assigned a separate UID by the Agency;
- (13) Inclusion of Collector rates in the Database:- The rates fixed by the Collector (Deputy Commissioner) for different areas (Residential as well as commercial) for payment of fee for registration of the sale documents shall be mention all data by the Agency road/ street, block/ sub block wise to be prepared by the Agency.
- (14) **Structure of Database**:- The structure of database to be prepared by the Agency including the map database shall be in such form that all future transactions of the existing properties are properly recorded and also the new properties are recorded without any hassles. The map database will also include the history of the properties so that there is proper monitoring and the database provides answers to all property related queries. The interface of application shall be defined in such a fashion that officials of the revenue department can update the

information in the system with due approval at all stages. For this purpose, the existing processes in use in Municipal Corporation and Revenue department shall be suitably modified so that system can be integrated for regular capturing of the transactions happening in the office of the sub registrar. The database may also handle the queries of the revenue officials regarding the intensity of transaction activity happening in any particular area.

- (15) Data-Based on Self Assessment form: A self assessment form (Annexure – I) would be provided by the Agency to the owner or occupant of the house/ building unit for furnishing the requisite information within 7 days to the joint team of the Corporation and Agency. The details supplied by the Owner/ occupier shall be cross checked by the team before the same is loaded in the database.
- (16) <u>HRS Data to be kept in safe custody</u>:- Since, as per the High Resolution Satellite Data Policy of the Govt. of India, the Data being purchased cannot be parted with and is for single use only, therefore, the Data would remain with the Agency.
- (17) <u>Data-Use for Billing:-</u> On final generation of the database, the same shall be passed on to the "Corporation" for interalia issue of the House Tax and Water and Sewerage bills etc.
- (18) <u>Direct printing of Bills</u>:- For direct printing of the House tax and Water supply sewerage bills from the soft ware application, "query shell" software shall be prepared by the Agency and the software shall have the provision for incorporating the changes in the notices/ bills as per the field staff reports and or GIS.
- (19) <u>To develop GIS query system</u>:- A customized GIS based query system shall be developed by the Agency to answer all types of queries of Corporation and to generate spatial and aspatial reports. The final data base generated using Arc map GIS software will be transferred on the GIS system of the Corporation.
- (20) Site Training to Corporation officials :- The Agency shall impart on site training to officials of Corporation on the customized GIS software developed by the "Agency".

- (21) Project period one year only:- The "Agency" is under contractual obligations to complete the project within in the area of Zone "D" of Corporation within four months and in another eight months in all other three Zones. Thus, the total project shall be completed within 12 months to be reckoned the date the work order is issued by the "Corporation" along with 10% of the contract amount or from the date the Satellite imageries are received by the Agency from the NSRC Hyderabad., which ever is later.
- (22) <u>Supply of Data and maps:-</u> The " Agency shall supply/ deliver the following to the " Corporation";-

Softcopy of land use/land cover map of Ludhiana i.e. existing boundary and 2 kilometer of buffer zone indicating the boundaries/ward boundaries/blocks/sub blocks/rail net work/utility services network etc.

10 sets of Hardcopy map of the city on AO size

Hard copy of detail of properties i.e. residential, commercial, industrial, institutional block wise, ward wise and zone wise

Billing software of House tax and Water supply and Sewerage

- (23) Service Tax and other charges to be borne by the "Agency" Agency has agreed to charge fee of Rs. 100/- per unit /building inclusive of all taxes. Therefore the Service tax other charges such as out of pocket expenses, boarding and lodging, traveling etc shall be borne by the "Agency". The "Agency" shall abide by all the Central & State Acts/ rules/bylaws/regulations/ instructions applicable in this regard.
- (24) **Contract is non transferable**:- "The "Agency" shall not be authorized to transfer, assign or pass on this contract to any other company/firm/ individual etc. unless with the written consent of "Corporation".
- (25) The **"Agency"** shall not, either during the term or after the completion of the project, disclose any proprietary or confidential information in relation to the project as service so rendered seeing the nature of consultancy
- (26) <u>Project work with due diligence</u>:- The "Agency" shall perform the service and carry out the obligations, offered above (para No. 1 to 25) with all due diligence, efficiency and economy, accordance with

generally accepted professional techniques and practices, and shall observe sound management practices applying and an vast technologies and safe methods.

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Functions/ obligations of Corporation

- Supply of utilities maps:- To provide the utilities maps to Agency likewise water supply system, Sewerage system, Storm water system, water drainage system, power distribution, street light network for digitalization and superimposing the same on the base map;
- Supply of Deputy Commissioner rates for sale of land:- To provide the rate of land (Residential and Commercial) fixed for different areas by the Deputy Commissioner for the purpose of charging stamp fee under the Indian Registration Act, 1908 to the "Agency" for mentioning in the Data.
- 3. <u>Test/pilot study by "Corporation"</u>:- To make quality check of the work of "Agency" so that the error if any may be brought within the permissible limits of 5%-7%. The Corporation may also involve the "Agency" for test/pilot studies to check the methodology and accuracy and joint field visits would be undertaken to check 3% of the Data. This will ultimately make the data reliable and can be used for taxation purposes.
- Payment of Contract amount: The Corporation shall make the following payments to the Agency:-
 - (i) 100% amount as per invoice charged by the NRSC, Hyderabad from the Agency for supplying the Satellite imageries;
 - (ii) 10% of the contract amount at the time of issuance of work order;
 - (iii) 25% of contract amount on completion of 50% project work to the satisfaction of Commissioner "Corporation";
 - (iv) 25% of contract amount on completion of 75% project work to the satisfaction of Commissioner "Corporation";
 - (v) 40% of contract amount on completion of 100% project work to the satisfaction of "Commissioner "Corporation".

All payments shall be released in favour of the Director, Punjab Remote Sensing Centre, payable at Ludhiana,



Data including the base maps to be property of Corporation :- All the Data generated by the "Agency" under this contract shall be the property of the "Corporation" and the "Corporation" shall be free to use the same in the manner it desires such as for the billing of Water rate, Sewerage charges and House tax billing.

5. Liberty to execute work from other agencies: If at any stage before completion of work assigned to Agency, the contract is terminated on any ground, "Corporation" shall be at liberty to get the balance work executed through some other agency and the Corporation shall liable to take contractual payment /amount in respect of only the completed work.

Joint Responsibilities of parties:-

- a) <u>Period of Contract</u>:- That this agreement unless it is not cancelled/ revoked by the "Corporation" due to the non fulfillment of all or any of the terms and conditions of this agreement by the "Agency" or is any time abandoned by the "Agency" shall be for a maximum period of one year commencing from the date of the signing of this agreement.
- b) <u>Extension in agreement period</u>:- After one year if both the parties mutually agree to extend the period of agreement, it can be extended provided the Finance and Contract Committee of Corporation accord if approval.
- c) <u>Arbitration:</u> That in case of any disagreement or dispute over the interpretation of any Term used in this agreement, the decision of the Commissioner, Municipal Corporation, Ludhiana being the sole arbitrator, on reference by the either party, shall be final and binding.

The parties in the presence of the below mentioned witnesses have signed to day i.e. the **10**th day of August, 2010.

Witness

NEERAJ JAIM.



10/8/10 "Agency"

Director Punjab With Se Sensing Centre PAU Campus, Ludhiana-141004

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