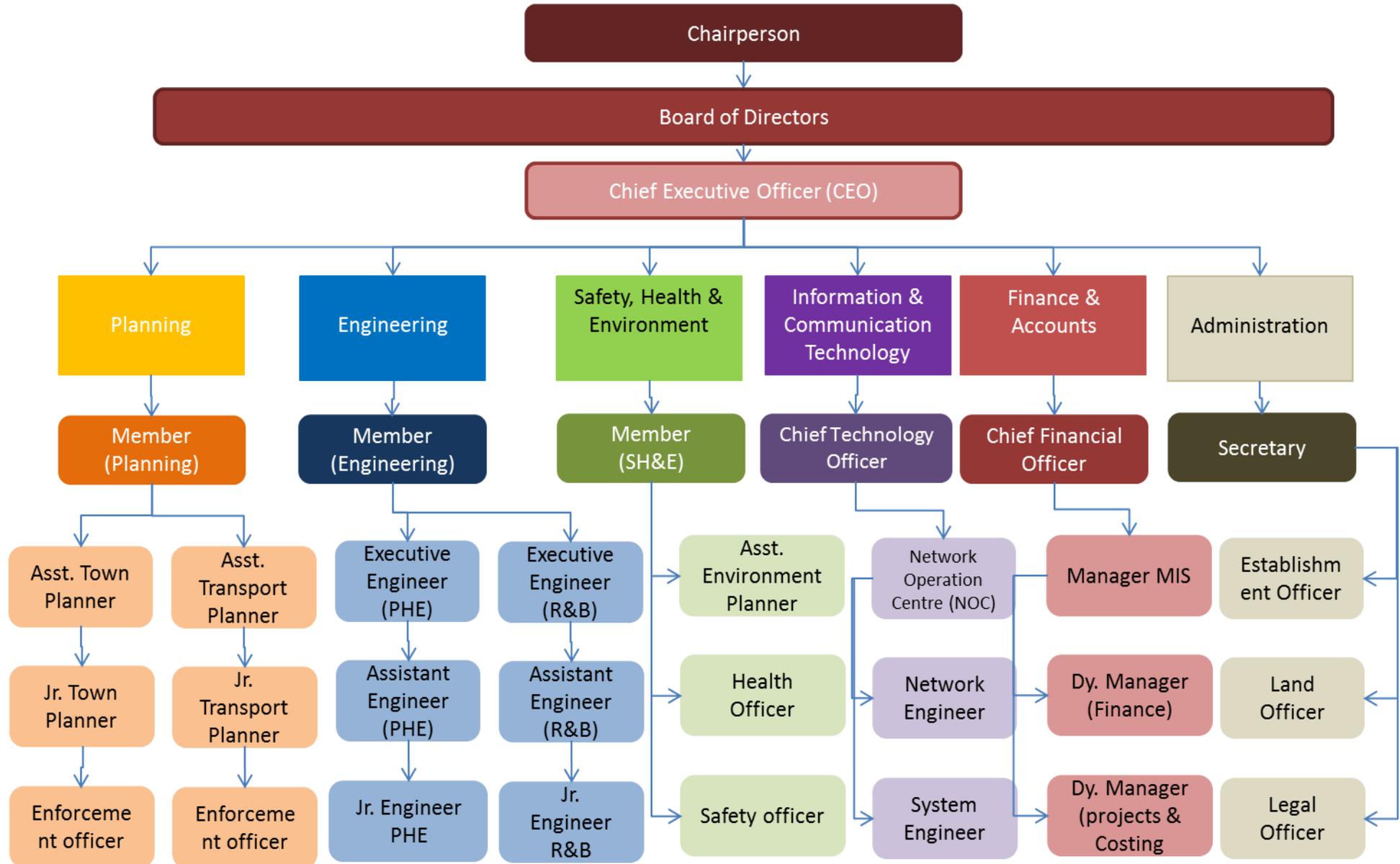


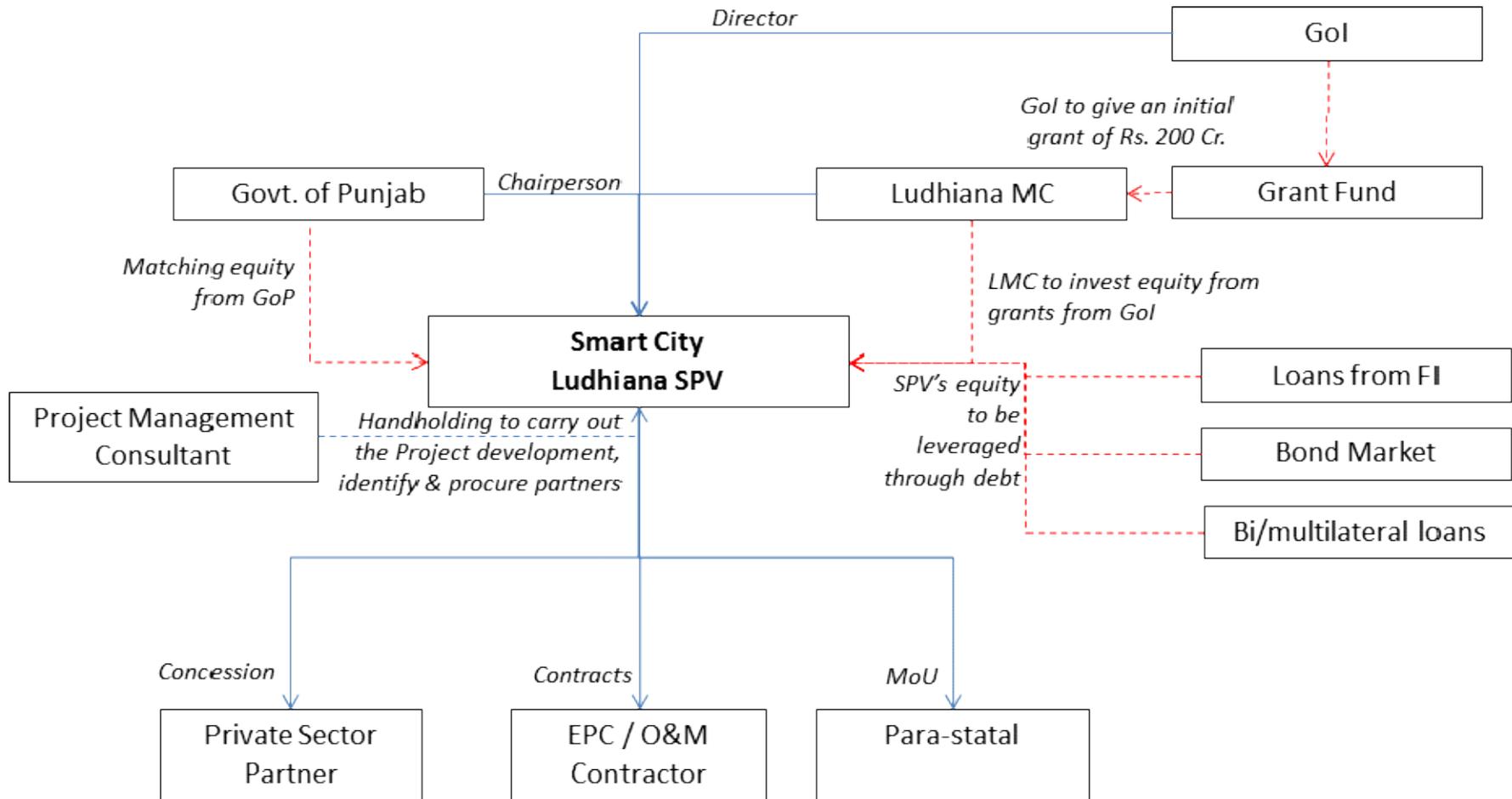
A	B	C	H	I	J	K
Feature	Definition	Self-assessment for the full city with regard to each feature	Basis for assessment and/or quantitative indicator (Optional - only if data exists)	Projection of 'where the city wants to be' with regard to the feature/indicator based on the city vision and strategic blueprint	Input/initiative that would move the city from its current status to Advanced status (Scenario 4: Column G)	
1	Citizen participation	A smart city constantly shapes and changes course of its strategies incorporating views of its citizen to bring maximum benefit for all. (Guideline 3.1.6)	1&2	<ul style="list-style-type: none"> 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, C1.3.3.3) 	3&4	<ul style="list-style-type: none"> 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.
2	Identity and culture	A Smart City has a unique identity, which distinguishes it from all other cities, based on some key aspect: its location or climate; its leading industry, its cultural heritage, its local culture or cuisine, or other factors. This identity allows an easy answer to the question "why in this city and not somewhere else?" A Smart City celebrates and promotes its unique identity and culture. (Guideline 3.1.7)	1&2	<ul style="list-style-type: none"> Ludhiana is Asia's largest hub for bicycle manufacturing and produces more than 50% of India's bicycle consumption. (CDP 2014, C1.2.1) 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. 	4	<ul style="list-style-type: none"> Advocacy of bicycling in the city automatically promotes the local bicycle industries and ties back to building of the economy.
3	Economy and employment	A smart city has a robust and resilient economic base and growth strategy that creates large-scale employment and increases opportunities for the majority of its citizens. (Guideline 2.6 & 3.1.7 & 6.2)	2	<ul style="list-style-type: none"> Ludhiana is an industrial hub with more than 80,000 small, medium and large industrial units. With WFRP more than 35%, the city has a good economic base which is dominated by secondary sector (factory) employment. Major employment provider are small scale industrial units showing growth of 47.47% in last 13 years. (CDP 2014, C1.4.2; 4.4.2) 	4	<ul style="list-style-type: none"> Retrofitting and improving public pedestrian access to "HIGH STREET ZONE - Ferozpur road and Ghumar Mandi" shall enhance the footfall volumes to support these district commercial centres
4	Education	A Smart City offers schooling and educational opportunities for all children in the city (Guideline 2.5.10)	2	<ul style="list-style-type: none"> One degree college, one polytechnic, one ITI, one engineering college and one dental college both in public and private sector where educational facilities available are not sufficient to meet the requirements. (CDP 2014, C1.7.5.2) Punjab Agricultural University has played key role in promoting the 'Green revolution' in Punjab. 	4	<ul style="list-style-type: none"> 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, agriculture and management etc. to be established.
5	Health	A Smart City provides access to healthcare for all its citizens. (Guideline 2.5.10)	2&3	<ul style="list-style-type: none"> One government 100 bed general hospital resulting in inadequacy of the health infrastructure (CDP 2014, C1.7.5.1) 	4	<ul style="list-style-type: none"> 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 2030.
6	Mixed use	A Smart City has different kinds of land uses in the same places; such as offices, housing, and shops, clustered together. (Guidelines 3.1.2 and 3.1.2)	1&2	<ul style="list-style-type: none"> Although informally there exists a prevalent trend of co-existence of industrial, 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% 	4	<ul style="list-style-type: none"> Dedicated Hawker zone within commercial areas like Ghumar Mandi would activate the edges and pedestrian experience
7	Compact	A Smart City encourages development to be compact and dense, where buildings are located close to one another and are ideally within a 10-minute walk of public transportation, forming concentrated neighborhoods. (Guidelines 2.3 and 5.2)	2	<ul style="list-style-type: none"> Ludhiana has grown organically from the core and has maintained a compact but not dense growth pattern. Basic facilities like local grocery shops exist within 10-minute walking distance Last mile connectivity from a public transportation still an issue. Students do not walk to school due to poor pedestrian infrastructure and safety issues. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> Proposal eventually would cater to the compact growth by providing integrated public transport connectivity within walking distance. Some pockets of the city proposed to be redeveloped into denser colonies. Laying of complete and well connected pedestrian infrastructure proposed in phases.
8	Public open spaces	A Smart City has sufficient and usable public open spaces, many of which are green, that promote exercise and outdoor recreation for all age groups. Public open spaces of a range of sizes are dispersed throughout the city so all citizens can have access. (Guidelines 3.1.4 & 6.2)	2	<ul style="list-style-type: none"> 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 Daresi Ground and Issa Nagri Ground. Green belts along roads have become a dumping place for a solid waste. (CDP 2014, C1.6.12) 	4	<ul style="list-style-type: none"> 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. This initiative should help in raising the water table.
9	Housing and inclusiveness	A Smart City has sufficient housing for all income groups and promotes integration among social groups. (Guidelines 3.1.2)	1&2	<ul style="list-style-type: none"> 3,20,000 households; 2,78,323 housing stock 209 slums with 25% or 3.9 lakh population (SWM DPR) Around 57 slums with upgraded infrastructure out of remaining 152 slums, 45% have provision of roads, street lights and individual water connections (SFCPOA Report, 2015) 	4	<ul style="list-style-type: none"> Recently approved Housing & Urban Development Policy 2013 aims to regulate the urban development through optimal utilization of scarce land resources and focuses on affordable housing to the weaker section of the society. Promoting redevelopment of Jawahar nagar scheme under PPP format for commercial viable Affordable housing scheme and supporting social infrastructure.
10	Transport	A Smart City does not require an automobile to get around; distances are short, buildings are accessible from the sidewalk, and transit options are plentiful and attractive to people of all income levels. (Guidelines 3.1.5 & 6.2)	1	<ul style="list-style-type: none"> Extreme usage of cars reflected by 16 lakh registered vehicles with highest per capita vehicle ownership in country (CDP 2014, C1.5.6.2) 55,000 vehicles entering city every-day over 150,000 vehicles existing in inner area Unregulated auto rickshaws (30,000) are major source of pollution 	4	<ul style="list-style-type: none"> Phasing out of existing Auto Rickshaws, replaced by E-Rickshaws. Bus based public transport integrated with proposed Bus Rapid Transit System (BRTS) having Clean Technology (electric/ battery operated) with Smart ticketing, Passenger and Bus Information System to users and at stops. Smart signaling at all intersections for efficient traffic management.
11	Walkable	A Smart City's roads are designed equally for pedestrians, cyclists and vehicles; and road safety and sidewalks are paramount to street design. Traffic signals are sufficient and traffic rules are enforced. Shops, restaurants, building entrances and trees line the sidewalk to encourage walking and there is ample lighting so the pedestrian feels safe day and night. (Guidelines 3.1.3 & 6.2)	1	<ul style="list-style-type: none"> Only 70 Km (23%) of walkways out of 300 Km of total road network with non-contiguous footpaths No dedicated Non Motorized Transport facilities 	4	<ul style="list-style-type: none"> 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. City wide integration of walking and bicycling network interconnecting market places, work centers, green spaces and other public activity zones.
12	IT connectivity	A Smart City has a robust internet network allowing high-speed connections to all offices and dwellings as desired. (Guideline 6.2)	1	<ul style="list-style-type: none"> Basic internet connectivity at office level only. Personal ownership of internet at household level by requirement. 	4	<ul style="list-style-type: none"> Proposal to provide access to free high speed Wi-Fi at all public spaces including markets, bus stands, railway station and parks.
13	ICT-enabled government services	A Smart City enables easy interaction (including through online and telephone services) with its citizens, eliminating delays and frustrations in interactions with government. (Guidelines 2.4.7 & 3.1.6 & 5.1.4 & 6.2)	1	<ul style="list-style-type: none"> Most of city's governance processes are manual and involve a cumbersome channel which may or maynot lead to productive outcome. (Stakeholder FGD and Citizen Engagement) To enable hassle free access to statutory documents provision of Suvidha Kendra for various citizen related documents such as certificates but no provision for tracking. 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 	4	<ul style="list-style-type: none"> Continuation of www.smartcityludhiana.in website for purpose for filing complaints, receiving updates on filed complaints and giving feedback and suggestions. 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. App-based payment of bills
14	Energy supply	A Smart City has reliable, 24/7 electricity supply with no delays in requested hookups. (Guideline 2.4)	4	<ul style="list-style-type: none"> Surplus power is available throughout Punjab with 24X7 power supply in Ludhiana Electronic Meter Register system implemented and CT meter installed at each transformers. GIS based system and coordinated meter system establishment is under progress. Online portal available for complaint registration and new connection facility. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> Assured power supply with underground cabling and smart metering. SCADA system to be ensured.
15	Energy source	A Smart City has at least 10% of its electricity generated by renewables. (Guideline 6.2)	1	<ul style="list-style-type: none"> No renewable energy policy exists at present in the city. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> 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. 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 meets national and global health standards. (Guidelines 2.4 & 6.2)	2	<ul style="list-style-type: none"> Frequency of water supply is about 10 hours a day. Primary water source is tube wells (Unchlorinated Ground Water). Total 935 tube wells extract approx. 560 MLD. 35 working OHSR out of 61. 1.9 lac water connection out of 3.5 lac household. 87% water supply coverage, rest dependent on hand pumps and tanker supply. (CDP 2014, C1.5.2) 	4	<ul style="list-style-type: none"> Water Storage facility- Rehabilitation and improvement or Construction of OHSR for 24X7 water supply Water distribution network- dismantling and Rehabilitation of water distribution system Replacements of Valves- Dismantling and Restoration of road pavement SCADA System- Implementation of PLC & SCADA for potable water system Smart Meters system- Installation of Smart Meters
17	Water management	A Smart City has advanced water management programs, including smart meters, rain water harvesting, and green infrastructure to manage stormwater runoff. (Guideline 6.2)	1	<ul style="list-style-type: none"> Encroachments on banks of drains obstruct free flow of stream. 11% of city area covered under stormwater network. All water requirement (potable, irrigation, industrial etc) is fulfilled by the fresh water (mostly ground water) Non-metering of individual water connection leads to loss of revenue. (CDP 2014, C1.5.4) 	4	<ul style="list-style-type: none"> High priority to control of encroachments along streams. 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. Separate networks for sewage and stormwater proposed. 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 2.4)	1	<ul style="list-style-type: none"> 90% declared area covered under sewage network. Three STPs of capacities 111MLD, 48MLD and 152MLD treat 80% of waste water and rest led to open drains without treatment. 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. (CDP 2014, C1.5.3.4) 	4	<ul style="list-style-type: none"> Replacement and Rehabilitation of sewerage distribution system Augmentation of existing Sewage Treatment Plant (STP) for recycling for 10MLD of this area sewage with tertiary treatment Recycle water distribution network for reuse
19	Air quality	A Smart City has air quality that always meets international safety standards. (Guideline 2.4.8)	1	<ul style="list-style-type: none"> Ludhiana is one of the most polluted city in India (WHO study) Mean annual PM2.5 level exceeds the Indian annual standard (Remote Sensing of Environment 127 (2012)) Critically high PM10 levels at 207 ug/m3 (Ambient air quality data year 2012) Emission from diesel equipments and vehicles-failure to meet with pollution control standards (CDP 2014, C1.6.2.2) Industries, traffic, open waste dumping, etc 	4	<ul style="list-style-type: none"> 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 bring the air pollution levels down by a phenomenal amount.
20	Energy efficiency	A Smart City government uses state-of-the-art energy efficiency practices in buildings, street lights, and transit systems. (Guideline 6.2)	1	<ul style="list-style-type: none"> City does not have energy efficient infrastructure or policies in place at present. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> Transformation of all Street Lights 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.
21	Underground electric wiring	A Smart City has an underground electric wiring system to reduce blackouts due to storms and eliminate unsightliness. (Guideline 6.2)	1	<ul style="list-style-type: none"> All cables throughout the city run overhead in ill-organized and unaesthetic manner. Exposed wiring acts as major safety issue and even life threat to passersby. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> Complete underground cabling network for the entire city shall be achieved in phases.
22	Sanitation	A Smart City has no open defecation, and a full supply of toilets based on the population. (Guidelines 2.4.3 & 6.2)	2	<ul style="list-style-type: none"> Lack of well-maintained public conveniences throughout the city (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> Discussion of 40 community toilets all over the city as per MCL pipeline project record
23	Waste management	A Smart City has a waste management system that removes household and commercial garbage, and disposes of it in an environmentally and economically sound manner. (Guidelines 2.4.3 & 6.2)	1	<ul style="list-style-type: none"> 968MLD (2011) of 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 A2Z), 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) 	4	<ul style="list-style-type: none"> ICT enabled integrated solid waste management facility is planned to have an efficient segregation, collection, transportation, treatment and disposal mechanism including waste to energy.
24	Safety and security	A Smart City has high levels of public safety, especially focused on women, children and the elderly; men and women of all ages feel safe on the streets at all hours. (Guideline 6.2)	1	<ul style="list-style-type: none"> Haphazard 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 citizens (CDP 2014). Women safety, instances of chain snatching etc. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> 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.

A	B	C	H	I	J	K
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1	Citizen participation	A smart city constantly shapes and changes course of its strategies incorporating views of its citizen to bring maximum benefit for all. (Guideline 3.1.6)	1&2	<ul style="list-style-type: none"> 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.3.3.3) 	3&4	<ul style="list-style-type: none"> 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.
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6	Mixed use	A Smart City has different kinds of land uses in the same places; such as offices, housing, and shops, clustered together. (Guidelines 3.1.2 and 3.1.2)	1&2	<ul style="list-style-type: none"> Although informally there exists a prevalent trend of co-existence of industrial, 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% 	4	<ul style="list-style-type: none"> Dedicated Hawker zone within commercial areas like Ghumar Mandi would activate the edges and pedestrian experience
7	Compact	A Smart City encourages development to be compact and dense, where buildings are located close to one another and are ideally within a 10-minute walk of public transportation, forming concentrated neighborhoods. (Guidelines 2.3 and 5.2)	2	<ul style="list-style-type: none"> Ludhiana has grown organically from the core and has maintained a compact but not dense growth pattern. Basic facilities like local grocery shops exist within 10-minute walking distance Last mile connectivity from a public transportation still an issue. Students do not walk to school due to poor pedestrian infrastructure and safety issues. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> Proposal eventually would cater to the compact growth by providing integrated public transport connectivity within walking distance. Some pockets of the city proposed to be redeveloped into denser colonies. Laying of complete and well connected pedestrian infrastructure proposed in phases.
8	Public open spaces	A Smart City has sufficient and usable public open spaces, many of which are green, that promote exercise and outdoor recreation for all age groups. Public open spaces of a range of sizes are dispersed throughout the city so all citizens can have access. (Guidelines 3.1.4 & 6.2)	2	<ul style="list-style-type: none"> 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 Daresi Ground and Issa Nagri Ground. Green belts along roads have become a dumping place for a solid waste. (CDP 2014, Cl.6.12) 	4	<ul style="list-style-type: none"> 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. This initiative should help in raising the water table.
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15	Energy source	A Smart City has at least 10% of its electricity generated by renewables. (Guideline 6.2)	1	<ul style="list-style-type: none"> No renewable energy policy exists at present in the city. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> 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. 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 meets national and global health standards. (Guidelines 2.4 & 6.2)	2	<ul style="list-style-type: none"> Frequency of water supply is about 10 hours a day. Primary water source is tube wells (Unchlorinated Ground Water). Total 935 tube wells extract approx. 560 MLD. 35 working OHSR out of 61. 1.9 lac water connection out of 3.5 lac household. 87% water supply coverage, rest dependent on hand pumps and tanker supply. (CDP 2014, Cl.5.2) 	4	<ul style="list-style-type: none"> Water Storage facility- Rehabilitation and improvement or Construction of OHSR for 24X7 water supply Water distribution network- dismantling and Rehabilitation of water distribution system Replacements of Valves- Dismantling and Restoration of road pavement SCADA System- Implementation of PLC & SCADA for potable water system Smart Meters system- Installation of Smart Meters
17	Water management	A Smart City has advanced water management programs, including smart meters, rain water harvesting, and green infrastructure to manage stormwater runoff. (Guideline 6.2)	1	<ul style="list-style-type: none"> Encroachments on banks of drains obstruct free flow of stream. 11% of city area covered under stormwater network. All water requirement (potable, irrigation, industrial etc) is fulfilled by the fresh water (mostly ground water) Non-metering of individual water connection leads to loss of revenue. (CDP 2014, Cl.5.4) 	4	<ul style="list-style-type: none"> High priority to control of encroachments along streams. 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. Separate networks for sewage and stormwater proposed. 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 2.4)	1	<ul style="list-style-type: none"> 90% declared area covered under sewage network. Three STPs of capacities 111MLD, 48MLD and 152MLD treat 80% of waste water and rest led to open drains without treatment. 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. (CDP 2014, Cl.5.3.4) 	4	<ul style="list-style-type: none"> Replacement and Rehabilitation of sewerage distribution system Augmentation of existing Sewage Treatment Plant (STP) for recycling for 10MLD of this area sewage with tertiary treatment Recycle water distribution network for reuse
19	Air quality	A Smart City has air quality that always meets international safety standards. (Guideline 2.4.8)	1	<ul style="list-style-type: none"> Ludhiana is one of the most polluted city in India (WHO study) Mean annual PM2.5 level exceeds the Indian annual standard (Remote Sensing of Environment 127 (2012)) Critically high PM10 levels at 207 ug/m3 (Ambient air quality data year 2012) Emission from diesel equipments and vehicles-failure to meet with pollution control standards (CDP 2014, Cl.6.2.2) Industries, traffic, open waste dumping, etc 	4	<ul style="list-style-type: none"> 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 bring the air pollution levels down by a phenomenal amount.
20	Energy efficiency	A Smart City government uses state-of-the-art energy efficiency practices in buildings, street lights, and transit systems. (Guideline 6.2)	1	<ul style="list-style-type: none"> City does not have energy efficient infrastructure or policies in place at present. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> Transformation of all Street Lights 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.
21	Underground electric wiring	A Smart City has an underground electric wiring system to reduce blackouts due to storms and eliminate unsightliness. (Guideline 6.2)	1	<ul style="list-style-type: none"> All cables throughout the city run overhead in ill-organized and unaesthetic manner. Exposed wiring acts as major safety issue and even life threat to passersby. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> Complete underground cabling network for the entire city shall be achieved in phases.
22	Sanitation	A Smart City has no open defecation, and a full supply of toilets based on the population. (Guidelines 2.4.3 & 6.2)	2	<ul style="list-style-type: none"> Lack of well-maintained public conveniences throughout the city (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> Discussion of 40 community toilets all over the city as per MCL pipeline project record
23	Waste management	A Smart City has a waste management system that removes household and commercial garbage, and disposes of it in an environmentally and economically sound manner. (Guidelines 2.4.3 & 6.2)	1	<ul style="list-style-type: none"> 968MLD (2011) of 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) 	4	<ul style="list-style-type: none"> ICT enabled integrated solid waste management facility is planned to have an efficient segregation, collection, transportation, treatment and disposal mechanism including waste to energy.
24	Safety and security	A Smart City has high levels of public safety, especially focused on women, children and the elderly; men and women of all ages feel safe on the streets at all hours. (Guideline 6.2)	1	<ul style="list-style-type: none"> Haphazard 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 citizens (CDP 2014). Women safety, instances of chain snatching etc. (Stakeholder FGD and Citizen Engagement) 	4	<ul style="list-style-type: none"> 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.

Structure of the SPV

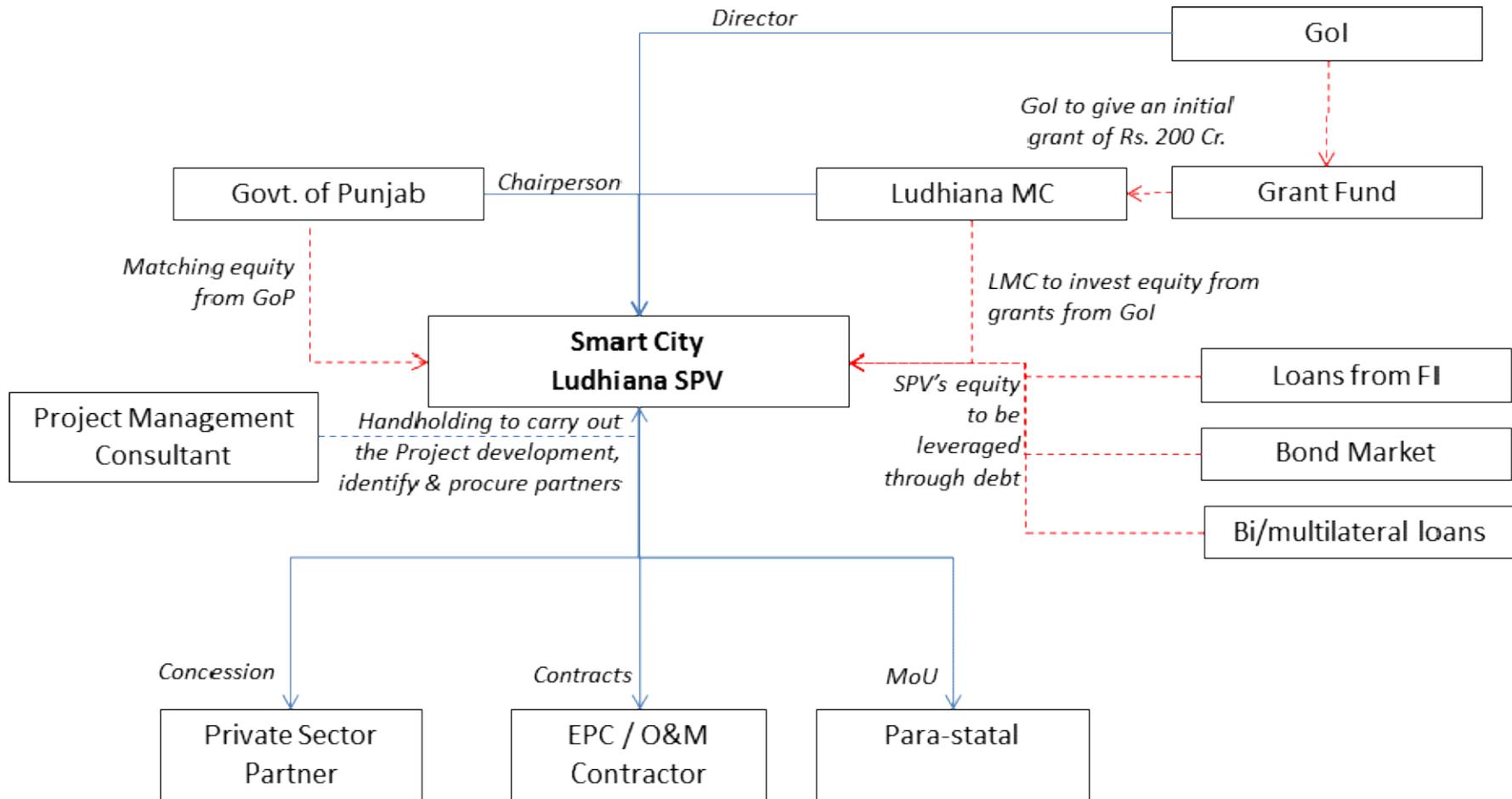


Annexure 3
Sheet 3



—————> Flow of Authority
- - - - -> Flow of Funds

Annexure 3
Sheet 3



—————> Flow of Authority
- - - - -> Flow of Funds

**Annexure 3
Sheet 4**

S.no	Sector	Projects	Project Components & Descriptions	Pan City	Area Wide	Short Term	Medium Term	Long Term			
AREA WIDE PROPOSALS											
A	Potable Water					2016-17	2017-18	2018-19	2019-20	2020-21	
1		Water Storage facility	Rehabilitation and improvement or Construction of OHSR for 24X7 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	
					44.06	2.90	20.58	20.58	0.00	0.00	
B	Waste Water										
1		Waste water collection system	Replacement and Rehabilitation of sewage distribution system		4.80	0.00	4.80	0.00	0.00	0.00	
			Augmentation of existing Sewage Treatment Plant (STP) for recycling for 10MLD of this area sewage with tertiary treatment		5.00	0.00	0.00	5.00	0.00	0.00	
			Recycle water distribution network for reuse		4.50	0.00	0.00	2.25	2.25	0.00	
					14.30	0.00	4.80	7.25	2.25	0.00	
C	Power										
1		Underground Distribution Network	laying Underground power distribution network and eliminating over head network		58.05	0.00	14.51	14.51	14.51	14.51	
2		Street Lighting	Installation of Solar based LED street lighting		10.00	2.50	2.50	2.50	2.50	0.00	
					68.05	2.50	17.01	17.01	17.01	14.51	
D	Storm Water Management										
1		Storm Water network	Construction of dedicated Storm water network		37.15	7.43	7.43	7.43	7.43	7.43	
2		Rain water harvesting	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 drain along Ferozpur road and along Rose garden road for 2km		12.00	6.00	6.00	0.00	0.00	0.00	
					39.65	8.68	8.68	7.43	7.43	7.43	
E	Waste Management										
1		Integrated Solid Waste management System	Collection Bins		0.26	0.26	0.00	0.00	0.00	0.00	
			Augmenting Tippers Capacity 1 ton - 10 Nos, 8 Ton - 3 Nos		4.72	2.36	2.36	0.00	0.00	0.00	
			Bio-Methanation Plant @ PAU 30 TPD, Segregation Plant		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	
					7.52	2.62	4.06	0.58	0.13	0.13	
F	Urban Design & Landscape										
1		Streetscape Improvement	Landscaping, Signages		7.00	7.00	0.00	0.00	0.00	0.00	
2		Bio Swale on Ferozpur road	2.7 kms on ferozpur road		4.25	4.25	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		252.52	0.00	0.00	84.17	84.17	84.17	
					286.97	24.45	10.00	84.17	84.17	84.17	
G	Transportation										
1		Footpath	29		8.69	8.69	0.00	0.00	0.00	0.00	
2		Dedicated Cycle Tracks shared with Footpath	21		6.15	6.15	0.00	0.00	0.00	0.00	
3		Elevated BRT along Ferozpur Road	5		190.00	0.00	0.00	190.00	0.00	0.00	
4		BRT Stops	5		125.00	0.00	0.00	125.00	0.00	0.00	
5		Temporary Bus Shelters	5		2.00	2.00	0.00	0.00	0.00	0.00	
6		Foot Over Bridges	2		2.60	0.00	2.60	0.00	0.00	0.00	
7		Public Bike Sharing	8 Smart Bike Cluster		1.45	0.72	0.72	0.00	0.00	0.00	
8		Area Wise E Rickshaws (50 no)	50		0.58	0.29	0.29	0.00	0.00	0.00	
9		Signalisation at Intersections (Vehicle Activated ATCS Comaptable 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		Miscellaneous			1.00	0.20	0.20	0.20	0.20	0.20	
					431.20	24.22	27.23	358.25	20.75	0.75	
PAN CITY PROPOSALS											
H	E-Rickshaw Project										
1		E Rickshaw	5000		57.50	11.50	11.50	11.50	11.50	11.50	
2		GPS	5000		15.00	3.00	3.00	3.00	3.00	3.00	
3		Charging Stations	15		0.23	0.06	0.06	0.03	0.05	0.03	
4		Kiosk	15		0.30	0.08	0.08	0.04	0.06	0.04	
5		Control Center	1		7.00	3.50	3.50	0.00	0.00	0.00	
					80.03	18.14	18.14	14.57	14.61	14.57	
I	GIS Based Mapping										
1		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	
					77.50	16.73	27.98	27.98	2.40	2.40	
		Grand Total			157.53	891.75	100.25	138.49	537.83	148.75	123.96

Annexure 3
Sheet 5

	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

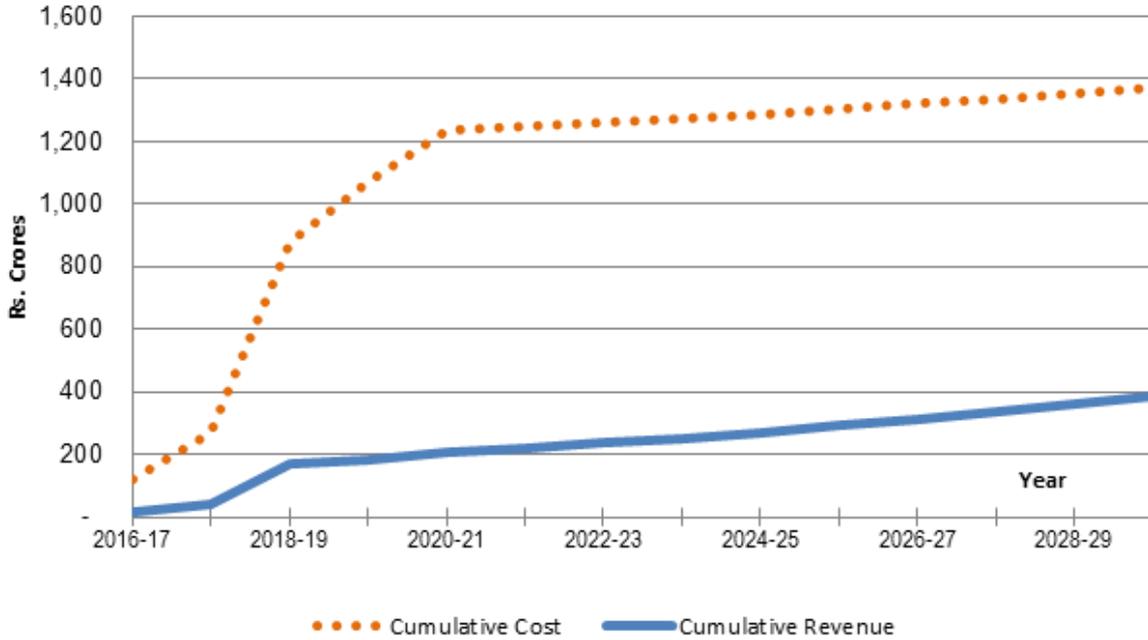
Annexure 3
Sheet 6

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	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.5	1.6	1.6	1.7	1.8	1.9	2.0
CAPEX																
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	176.8	155.3	-	-	-	-	-	-	-	-	-	-
Opex																
	1%						12.76	13.39	14.06	14.77	15.50	16.28	17.09	17.95	18.84	
Revenue																
Services		10.58	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		2.16	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		0.96	0.96	1.01	1.01	1.06	1.06	1.11	1.11	1.17	1.17	1.23	1.23	1.29	1.29	
- Digital hoardings		1.20	1.34	1.51	1.69	1.89	2.11	2.37	2.65	2.97	3.33	3.73	4.17	4.68	5.24	
- Multilevel car parking		2.63	2.94	3.30	3.69	4.14	4.63	5.19	5.81	6.51	7.29	8.16	9.14	10.24	11.47	
- Solar power		3.63	3.81	4.00	4.20	4.41	4.63	4.86	5.11	5.36	5.63	5.91	6.21	6.52	6.84	
Tax Increment Financing (TIF)		0.05	0.05	0.06	0.06	0.07	0.08	0.09	0.09	0.10	0.11	0.12	0.13	0.14	0.15	
Total Revenue		10.62	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	483.6	176.8	113.0	-	-	-	-	-	-	-	-	-	-
Closing Balance		296.23	373.43	89.81	113.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest		8.89	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	0.00
Application and Sources of Funds																
Application of funds		118.4	148.5	611.3	188.7	166.5	12.8	13.4	14.1	14.8	15.5	16.3	17.1	17.9	18.8	
Capex (with inflation)		118.4	148.5	611.3	188.7	166.5	-	-	-	-	-	-	-	-	-	
IDC		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Interest		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Repayment 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	
Tax Increment Financing		-	-	-	-	0.07	0.08	0.09	0.09	0.10	0.11	0.12	0.13	0.14	0.15	
Terminal Value																
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	
Cumulative Cost		118	267	878	1,067	1,233	1,246	1,260	1,274	1,288	1,304	1,320	1,337	1,355	1,374	
Cumulative Revenue		15	40	168	180	205	220	236	253	271	291	313	336	361	388	

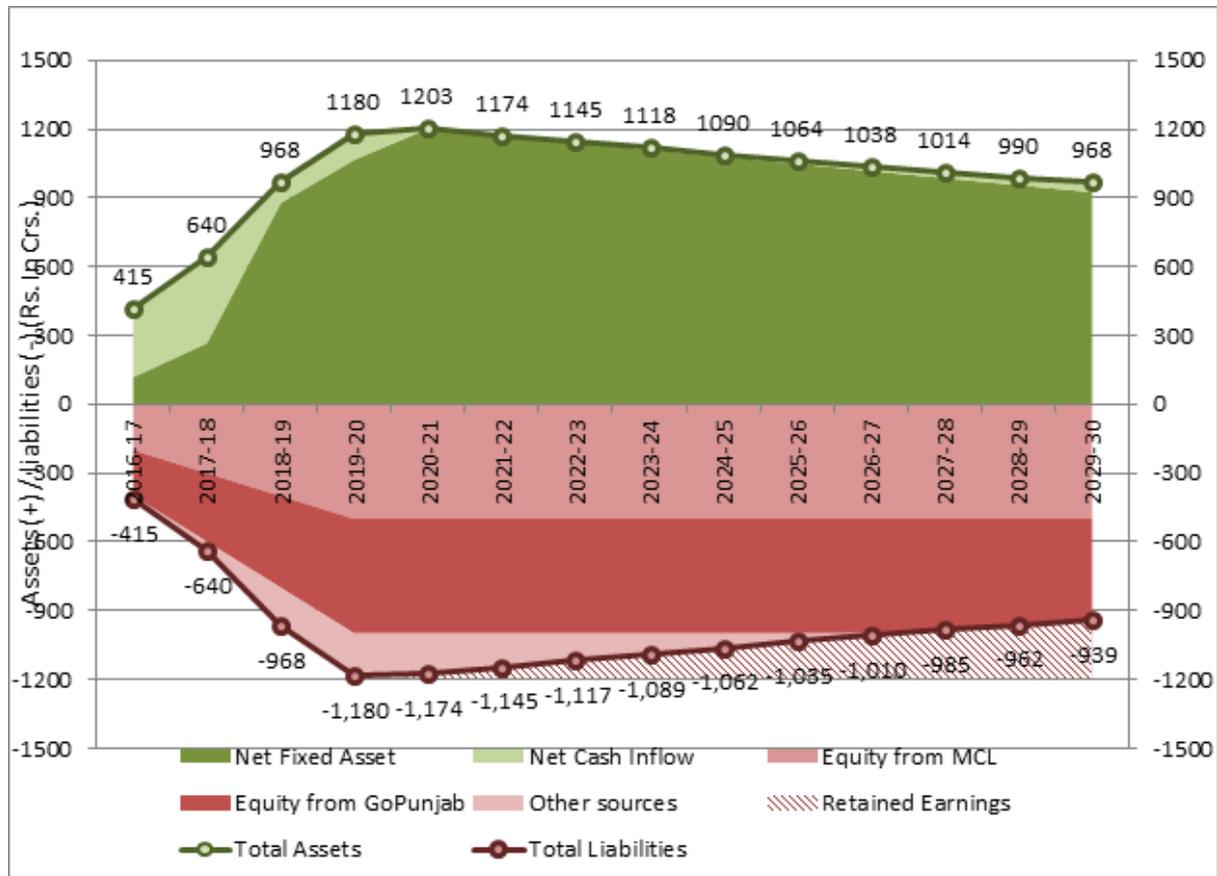
Annexure 3

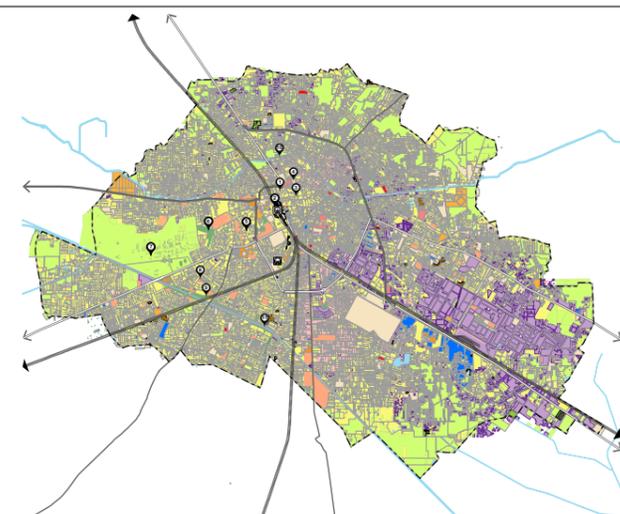
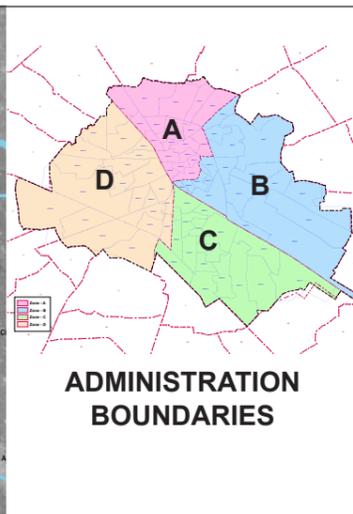
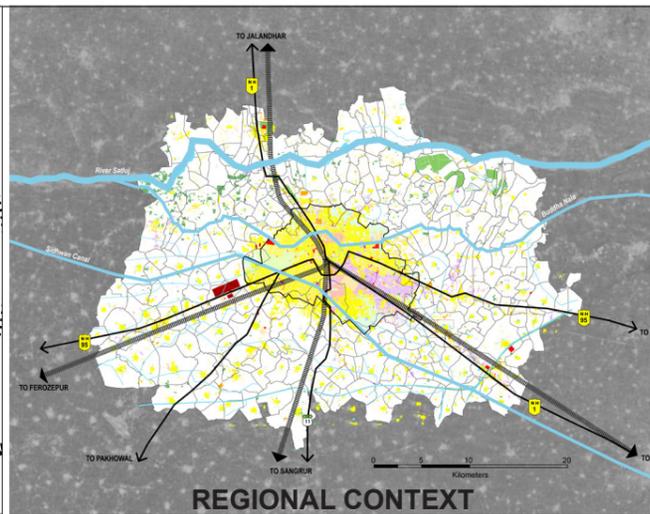
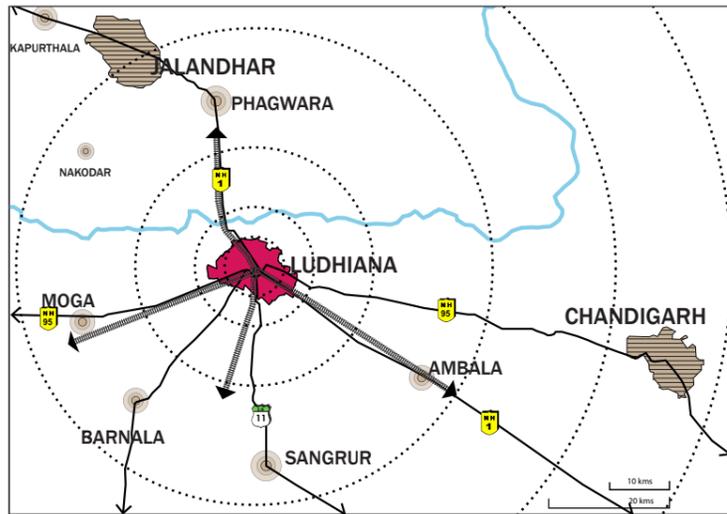
Sheet 7

Cumulative cost and Revenues



Balance Sheet





L U D H I A N A
BASEMAP

LEGEND

ADMINISTRATION

- MUNICIPAL CORPORATION/MUNICIPAL COUNCIL/NAGAR PANCHAYAT BOUNDARY
- ZONAL BOUNDARY
- WARD BOUNDARY

LANDUSE

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- MIXED USE
- EDUCATIONAL INSTITUTES
- HOSPITAL AND HEALTH INSTITUTIONS
- RELIGIOUS
- OFFICES
- PUBLIC BUILDINGS
- 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

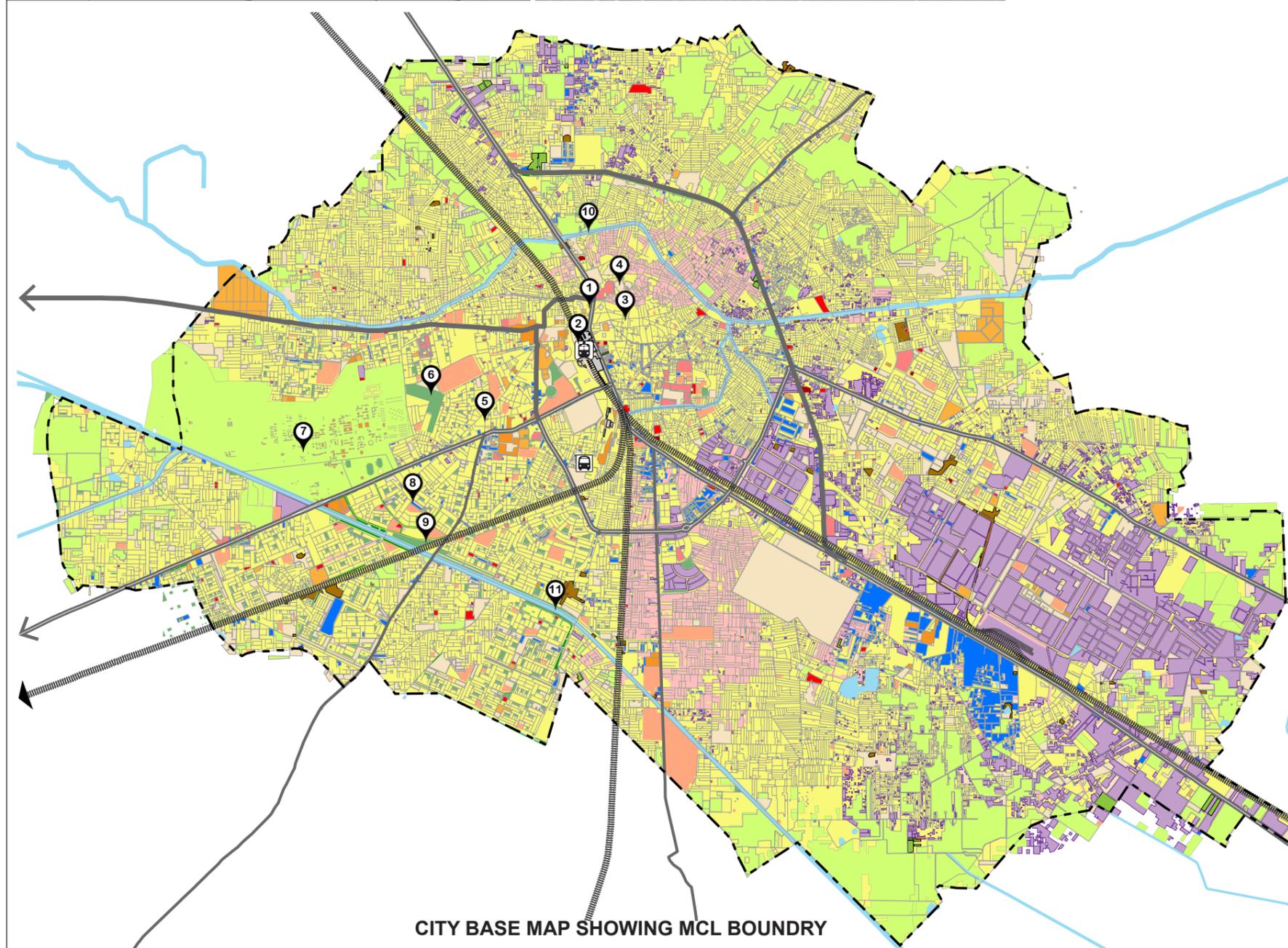
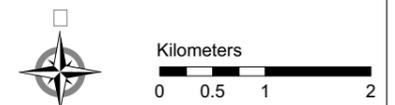
- MAJOR ROADS
- INTERNAL ROADS
- BRIDGES
- FLYOVERS
- MAJOR JUNCTIONS / CHOWKS
- RAILWAY STATION
- RAILWAY LINE
- BUS TERMINAL
- CITY BUS NETWORK
- MAJOR BUS STOPS

INFRASTRUCTURE

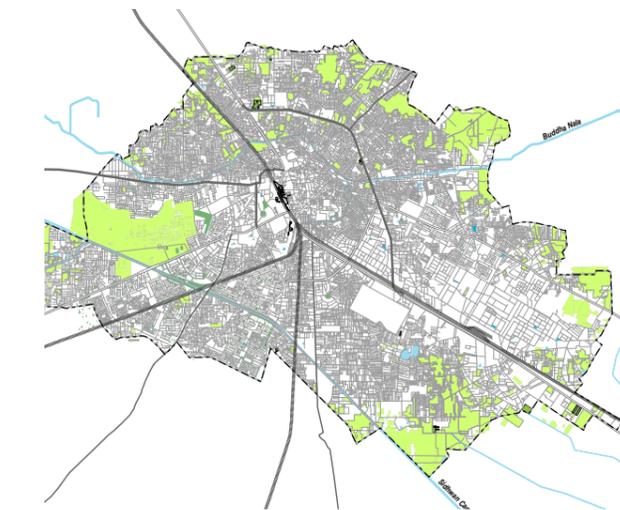
- WATER SUPPLY SOURCES
- SEWERAGE TREATMENT PLANT
- ELECTRIC SUBSTATION
- CIRCUIT HOUSE

LANDMARKS

- 1 CLOCK TOWER
- 2 RAILWAY STATION
- 3 CHAURA BAZAAR
- 4 DARESI GROUND
- 5 GHUMAR MANDI
- 6 ROSE GARDEN
- 7 PUNJAB AGRICULTURE UNIVERSITY
- 8 SARABHA NAGAR MAIN MARKET
- 9 LEISURE VALLEY
- 10 BUDHA NALA
- 11 SIDHWAN CANAL



CITY BASE MAP SHOWING MCL BOUNDRY



OPEN SPACES AND WATER FEATURES



TRANSPORTATION

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 ?

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

India TV news desk [Updated 14 Nov 2013, 06:54:26]

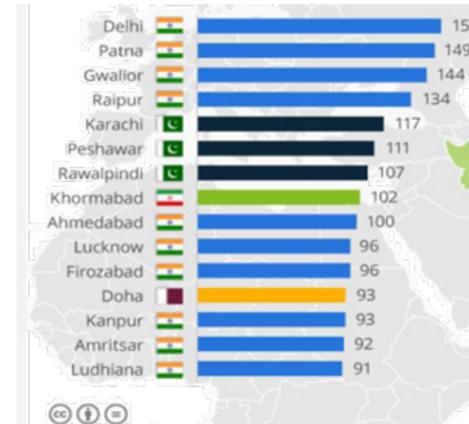
Share Tweet Share A+ A-



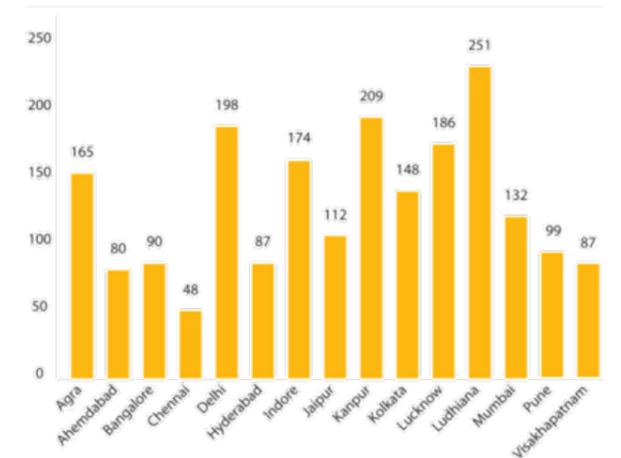
LUDHIANA IS ONE OF THE **MOST POLLUTED** CITIES IN THE WORLD!

THE NUMBERS SAY IT ALL !

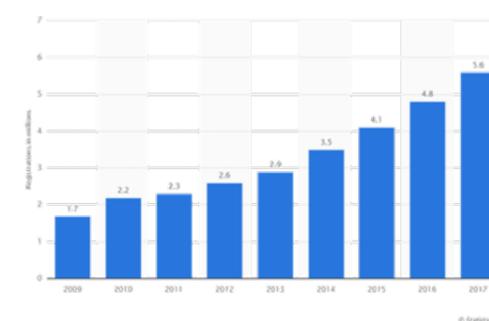
PM 2.5(MICROGRAMS PER CUBIC METER) IN THE MOST POLLUTED CITIES WORLDWIDE 2014



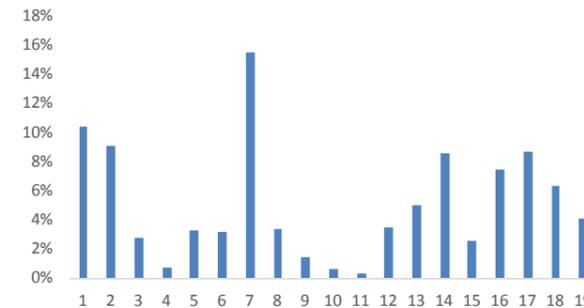
ANNUAL MEAN PM10 IN INDIA CITIES



PASSENGER VEHICLE REGISTRATION IN INDIA



LUDHIANA HAS 16,00,000 VEHICLE REGISTRATIONS



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

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

THE BIG IDEA

THE MOST BIKE FRIENDLY CITY IN INDIA



REDUCED TRAFFIC CONGESTION



SAFE AND WALKABLE



IMPROVED AIR QUALITY



HEALTHY AND THRIVING



GOALS AND SUB GOALS

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

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

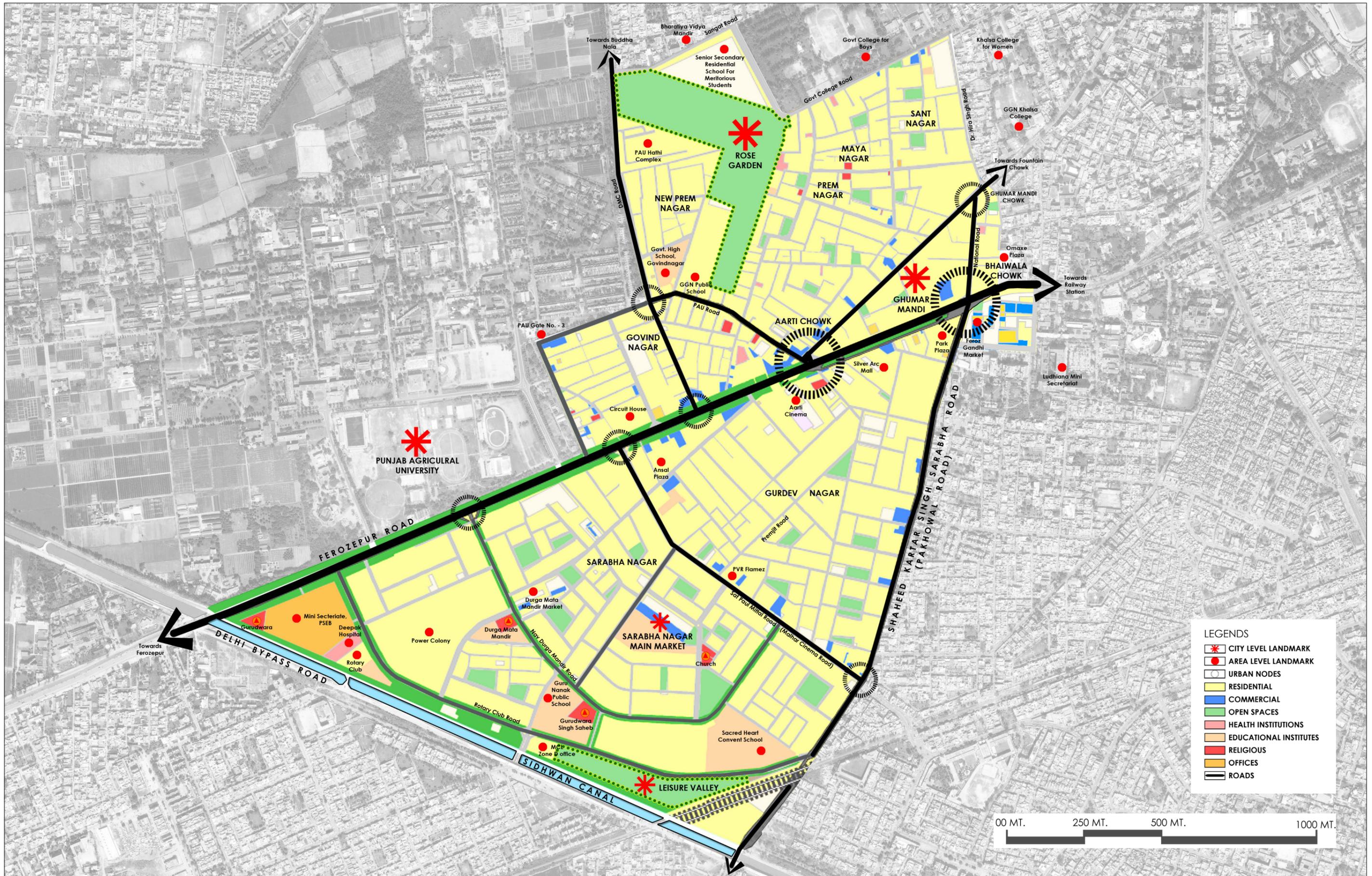
- Switch from diesel and petrol to electric and renewable sources
- Alternative sources of energy for public space lighting - 10% of the Smart City's energy requirement should come from solar energy
- Integrated Solid Waste Management Strategy- *Align with "Swachh Bharat Mission"*
- Waste to energy

Ensure Public Safety

- Responding effectively to traffic patterns, disasters, security breaches
- Crime prevention and monitoring, and protecting citizens and public assets
- Street lighting to ensure walkable environment
- Emergency response
- Law enforcement for traffic rules, pedestrian rights and safeguarding right of way for bike riders

Enable E-Governance

- GIS based mapping
- Smart Metering
- Smart Monitoring
- App based and telephonic citizen grievance redressal system – plus into existing system available on MCL website - Single emergency help line
- 24x7 Information kiosks



7. UDGL AT PUBLIC PLACES
 - FACADE CONTROL
 - STREETScape DEVELOPMENT
 - DIGITAL HOARDING & INFORMATION KIOSKS
 - DEDICATED HAWKER ZONES

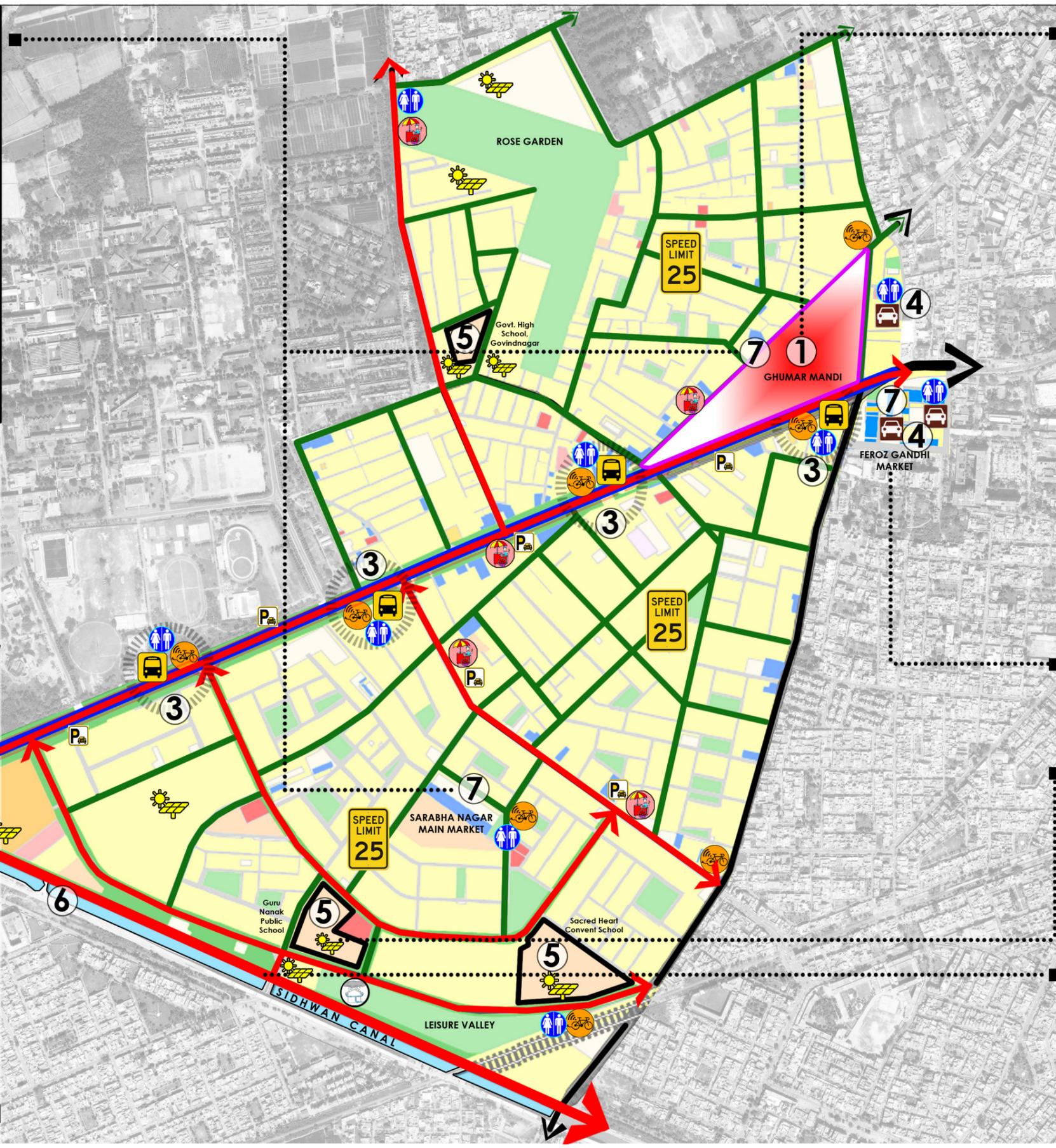


PROPOSED PROJECTS

- VEHICLE FREE ZONES
- SHARED CYCLE TRACK
- DEDICATED CYCLE TRACK
- SMART BICYCLE CLUSTERS
- BRT SMART BUS STOP
- MULTIUSE MULTI LEVEL PARKING
- BRTS ROUTE
- SMART ON STREET PARKING

- WATER HARVESTING POND
- PUBLIC TOILET
- DEDICATED HAWKER ZONE
- SOLAR ROOFS (PUBLIC BLDG)

00 MT. 250 MT. 500 MT. 1000 MT.



1. VEHICLE FREE ZONES
 Ghumar Mandi Area

2. PEDESTRIAN & BIKE FRIENDLY STREETS

SHARED BICYCLE TRACK
 DEDICATED BICYCLE TRACK

3. MULTIMODAL CLUSTER

SMART BUSSTOP
 BICYCLE CLUSTER
 SMART E-TOILET

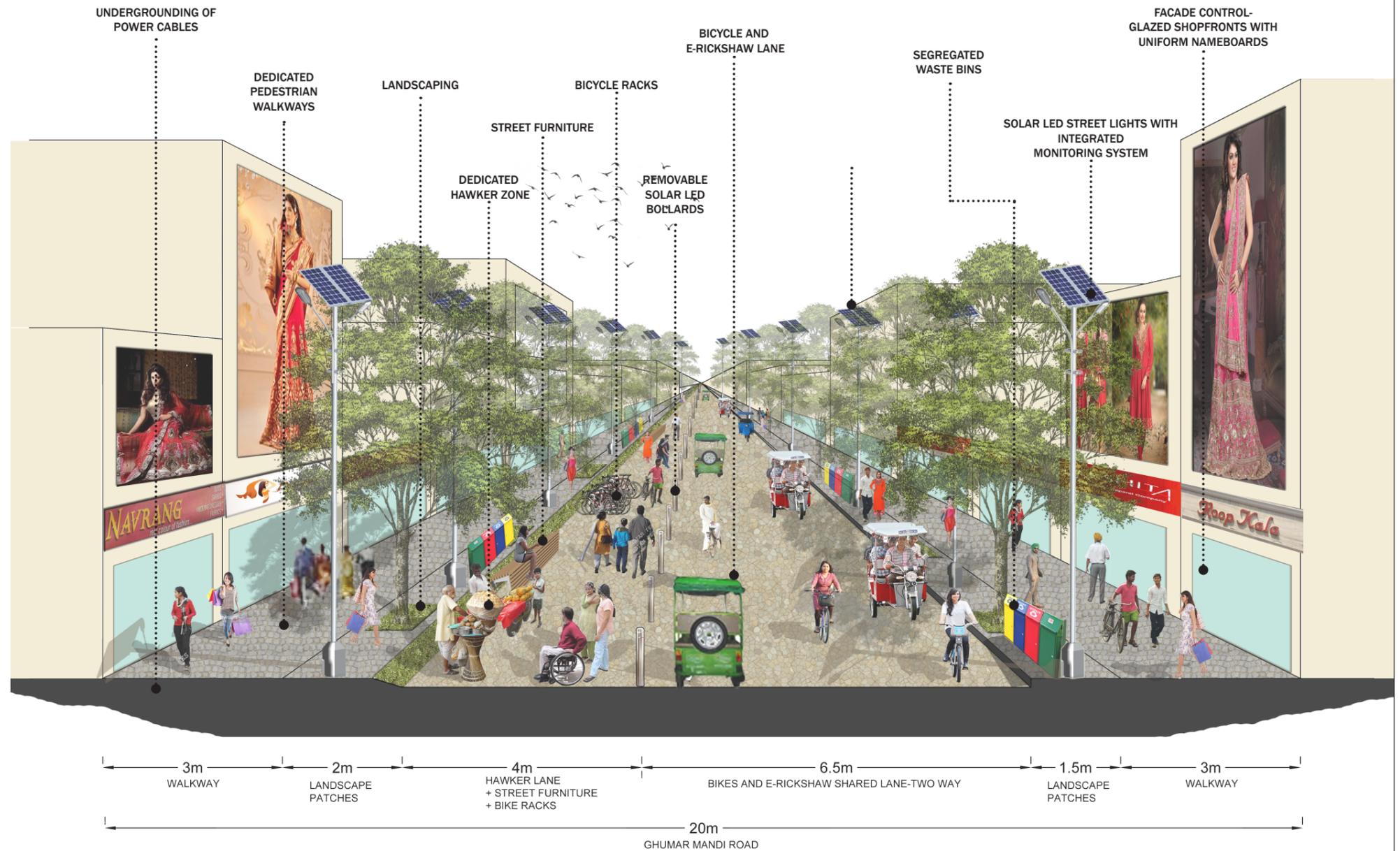
4. MULTIUSE MULTI LEVEL CAR PARKING

5. NOISE FREE ZONES AT INSTITUTES

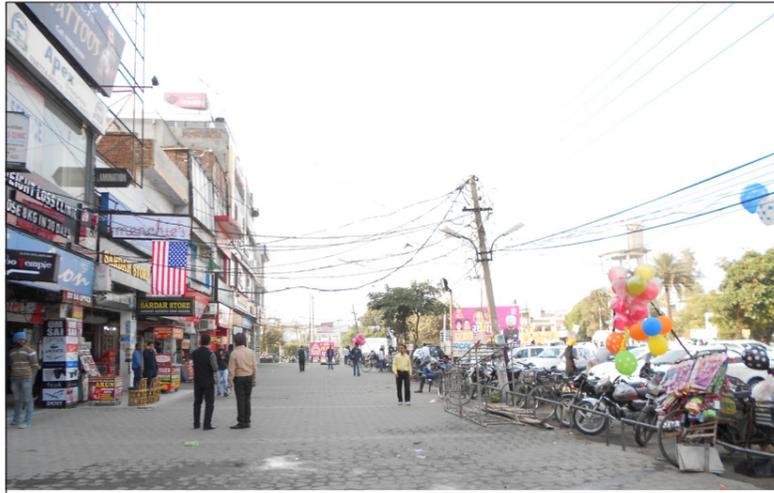
6. BICYCLE HIGHWAY ALONG CANAL



EXISTING VIEW OF GHUMAR MANDI



PROPOSED VIEW OF GHUMAR MANDI



EXISTING VIEW OF SARABHA NAGAR MAIN MARKET



PROPOSED VIEW OF SARABHA NAGAR MAIN MARKET

EXISTING VIEW OF FEROTZEPUR ROAD



EXISTING VIEW OF SAT PAUL MITTAL ROAD



EXISTING VIEW OF PAKHOWAL ROAD



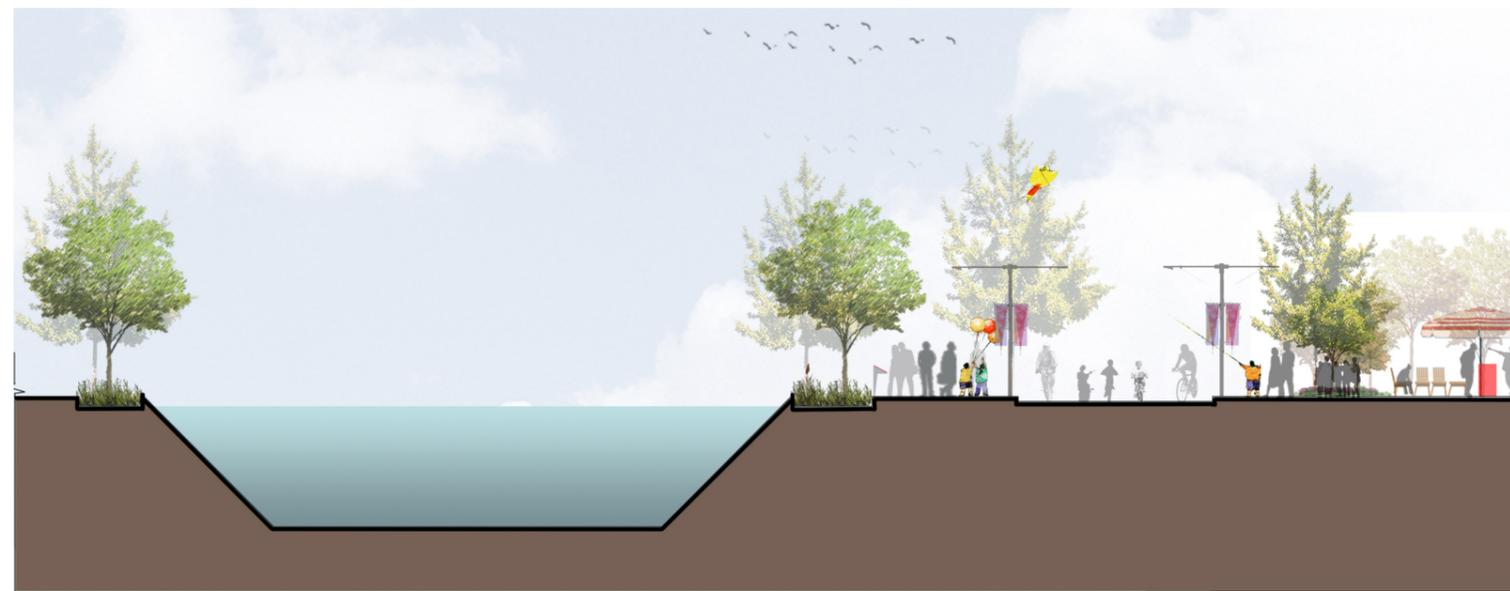
EXISTING VIEW OF SIDHWAN CANAL



60 MT. WIDE FEROTZEPUR ROAD



20 MT. WIDE SHAHEED KARTAR SINGH SARABHA ROAD (PAKHOWAL ROAD)



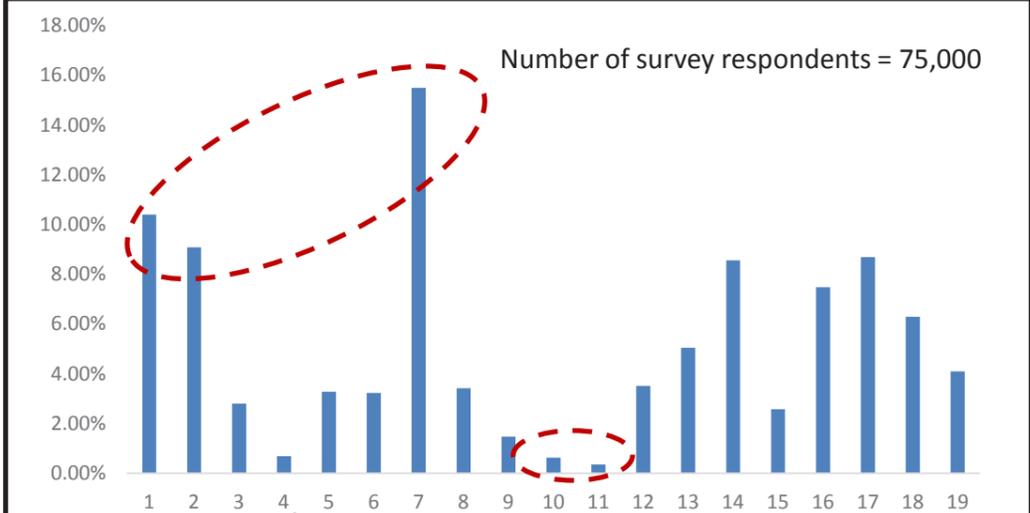
SIDHWAN CANAL SIDE DEVELOPMENT - DEDICATED BIKE PATH



30 MT. WIDE SAT PAUL MITTAL ROAD (MALHAR ROAD)

Round 1 CITIZEN ENGAGEMENT

Door-to-Door survey- Questionnaire Analysis



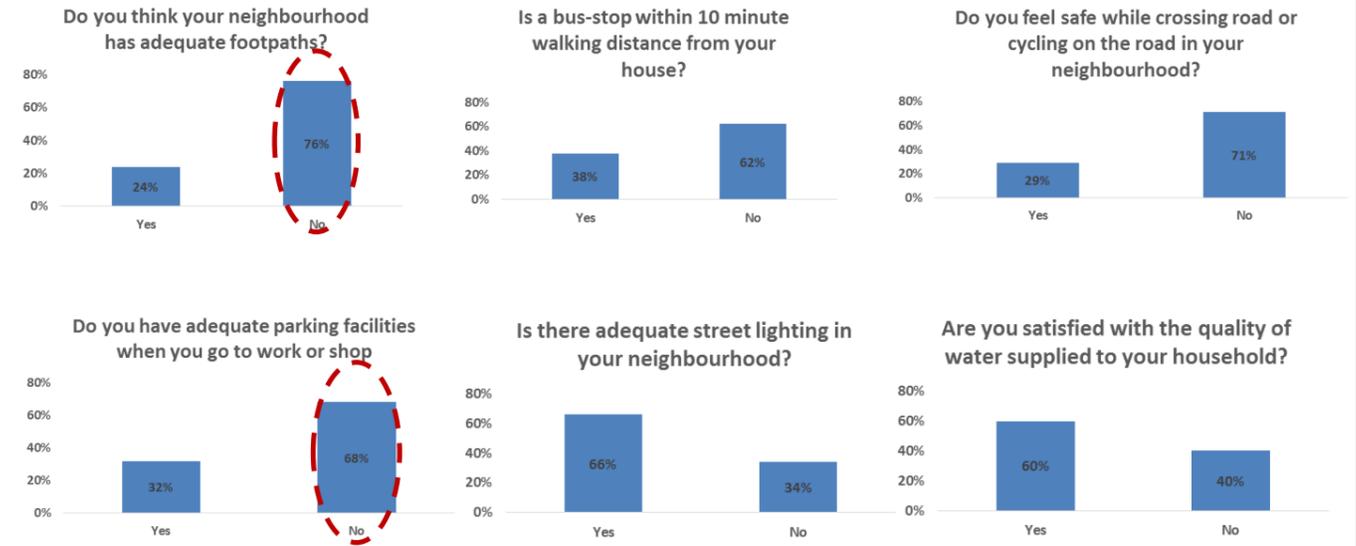
1. 24 x 7 Power supply
2. Adequate & quality Water supply
3. Business Friendly Environment
4. Citizen participation in Governance and promoting e-governance
5. Dedicated Bicycle tracks in the city
6. Education
7. Environment control – pollution (air / sound / water)
8. Healthcare
9. Industrial area- waste disposal
10. Non-Conventional sources of energy
11. Others (please specify)
12. Parks and Recreation
13. Pollution free Buddha Nala
14. Public Safety and Security on streets
15. Public Transportation
16. Sewage & Drainage
17. Solid Waste Management
18. Traffic Management & Parking
19. Wi-Fi and Internet Connectivity



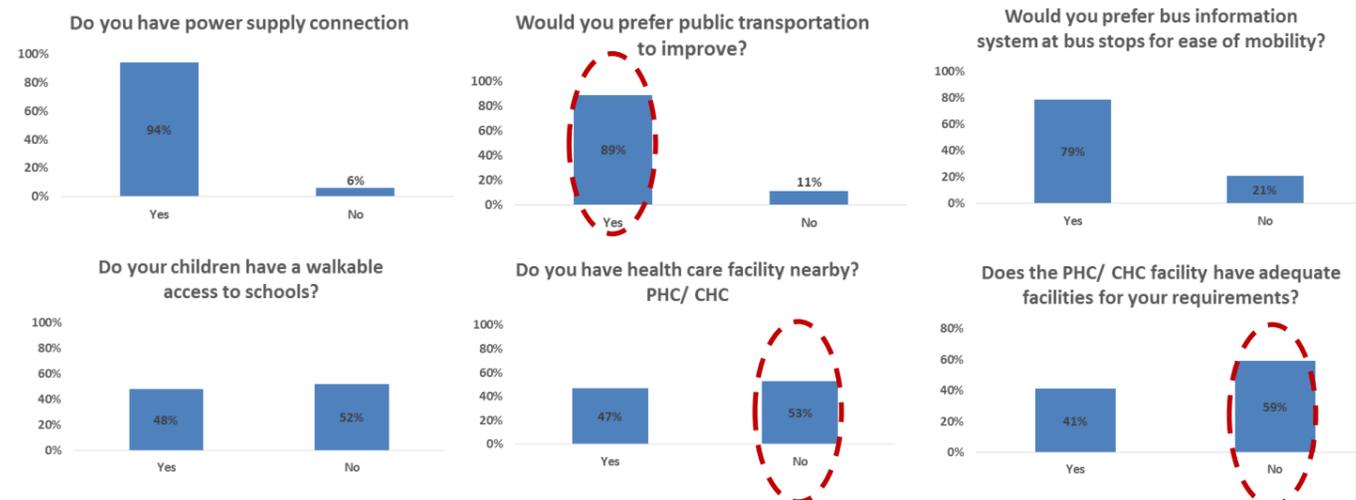
24x7 Power Supply, Adequate & Quality Water supply and Environment Control – pollution (air/water/sound) are the items that find mention in the top priority list maximum number of time

Non conventional source of energy and Citizen participation in governance and promoting e-governance is mentioned least number of times in the top priority list.

No adequate footpaths for pedestrians



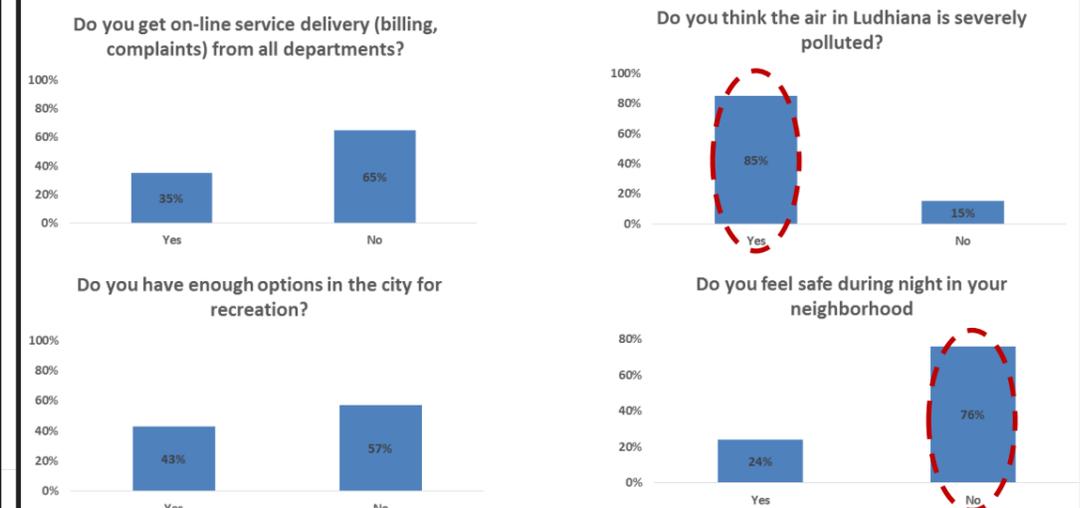
Need for proper health care facilities



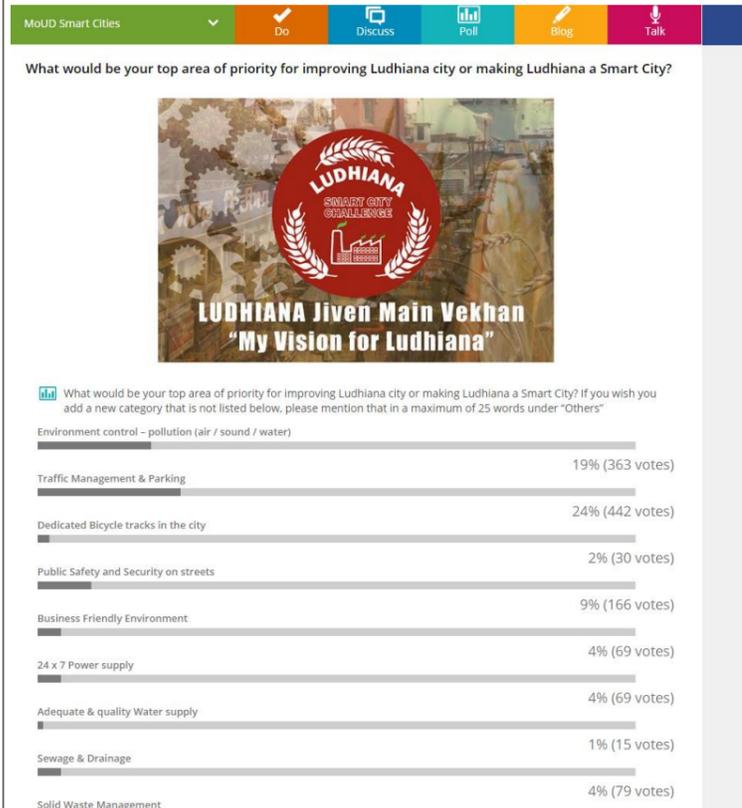
Lack of public toilets at convenient locations



85% of respondents consider Ludhiana to be polluted



Round 1 CITIZEN ENGAGEMENT MyGov. Portal



Polling for Prioritizing Pan City Proposal 1844 VOTES

Ludhiana - Jiven Main Vekhan or My Vision for Ludhiana - A vision Competition

The Ludhiana Municipal Corporation is pleased to inform you that our city has been selected through a competitive process for Smart City Mission under the Ministry of Urban ...

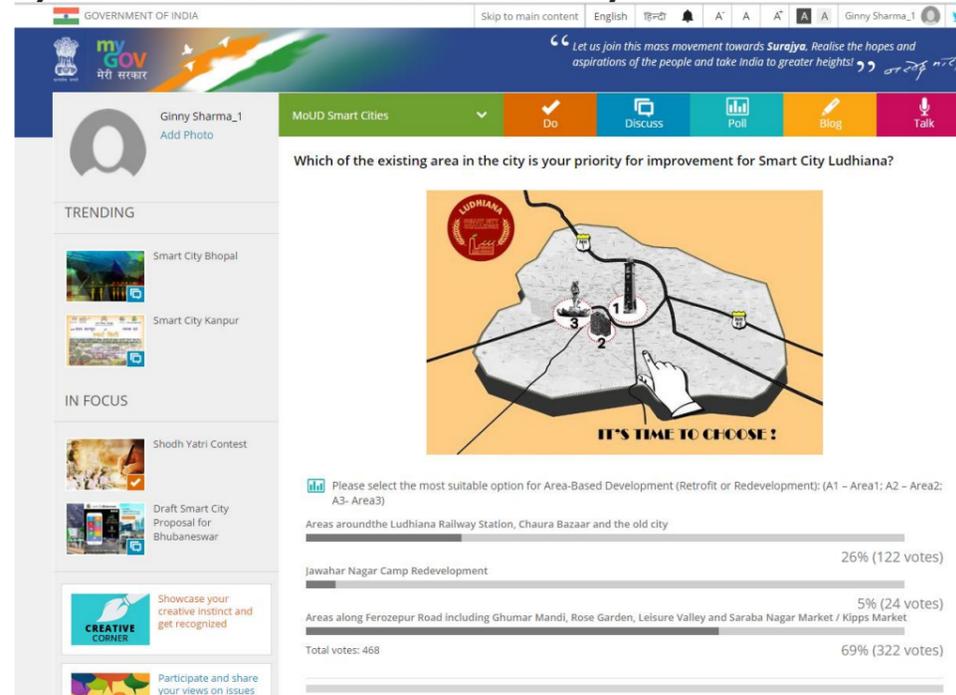
Total Submissions (97) Approved Submissions (79) Submissions Under Review (18)

Showing 79 Submission(s)

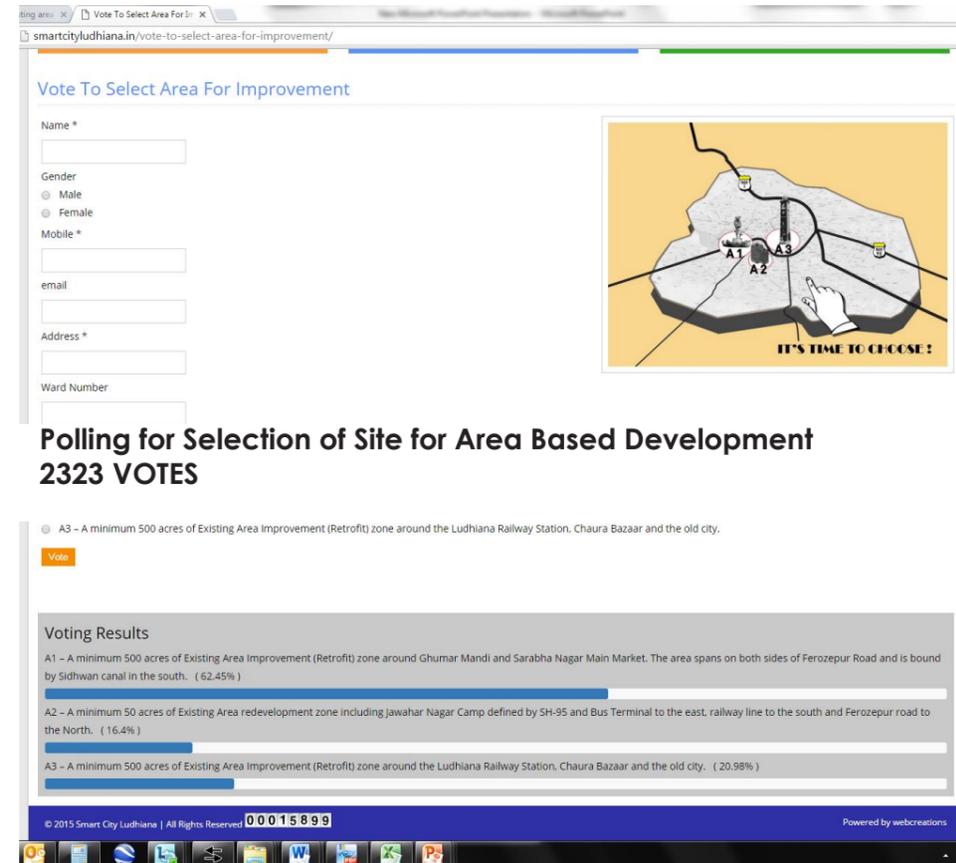
My Vision Statement Competition

2206 VISIONS

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



Polling for Selection of Site for Area Based Development 455 VOTES



SAMPLE QUESTIONNAIRE

B. S. Tuli
 Xan, P.W.D. (B & R), Ludhiana
 Ph: - 98729-75288

"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.

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

"Your Opinion is Valuable"

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.

Questionnaire	Yes	No
Q1. Name 1 thing you love the most in Ludhiana	My Home	
Q2. Name 1 thing you hate the most in Ludhiana	Air Pollution	
Q3. Do you think your neighbourhood has adequate footpaths?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 3 4 5 6	
Q5. Is a bus-stop within 10 minute walking distance from your house?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q6. Do you feel safe while crossing road or cycling on the road in your neighbourhood?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q7. Do you have adequate parking facilities when you go to work or shop?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q8. Is there adequate street lighting in your neighbourhood?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q11. Do you have power supply connection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q12. How many hours of uninterrupted power supply do you get? (Specify No.)	8	
Q13. Would you prefer public transportation to improve?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q14. Would you prefer bus information system at bus stops for ease of mobility?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Q15. Do your children have a walkable-access to schools?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Q16. Do you have health care facility nearby? PHC/ CHC	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Q17. Does the PHC/ CHC facility have adequate facilities for your requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CITIZEN ENGAGEMENT - ROUND 1 & 2 RESULTS

SAMPLE QUESTIONNAIRE

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 Ltd.
6. Detailed Project Report for Bus Rapid Transit (BRT) System including elevated BRT
7. Construction of Missing Link – II 140'wide road from Dhandran Road to Dhuri Railway Line, Ongoing.
8. 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)

**ANNEXURE 4
SHEET 1**

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 ਹਾਊਸ 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.

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

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

A: City Level 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-Based Development (Abd)

S. No.	Criteria
a.	"Smartness" of proposal
b.	Citizen engagement
c.	Result orientation
d.	Process followed
e.	Implementation framework, including feasibility and cost-effectiveness

C: Pan-City Solution

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:

- i. 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.

ਸਹੀ ਪਈ
ਮੁਹਿੰਦਰ
ਨਗਰ ਨਿਗਮ, ਲੁਧਿਆਣਾ
ਏਜੰਡਾ ਕਲਰਕ

- 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 Gol 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 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.

7. In view of the above, the following may be placed before the House of Municipal Corporation House for approval please:
- i. 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।

ਸਹੀ ਪਈ

 ਏਜੰਡਾ ਕਲਰਕ
 ਨਗਰ ਨਿਗਮ, ਲੁਧਿਆਣਾ

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(G)

Date: 11/12/15

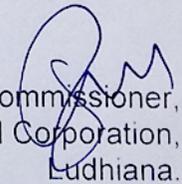
Statement Regarding Agreements with Para Statal Bodies, Boards existing in the City for implanting the full scope of the SCP and sustaining the Pan-City and area based development

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;

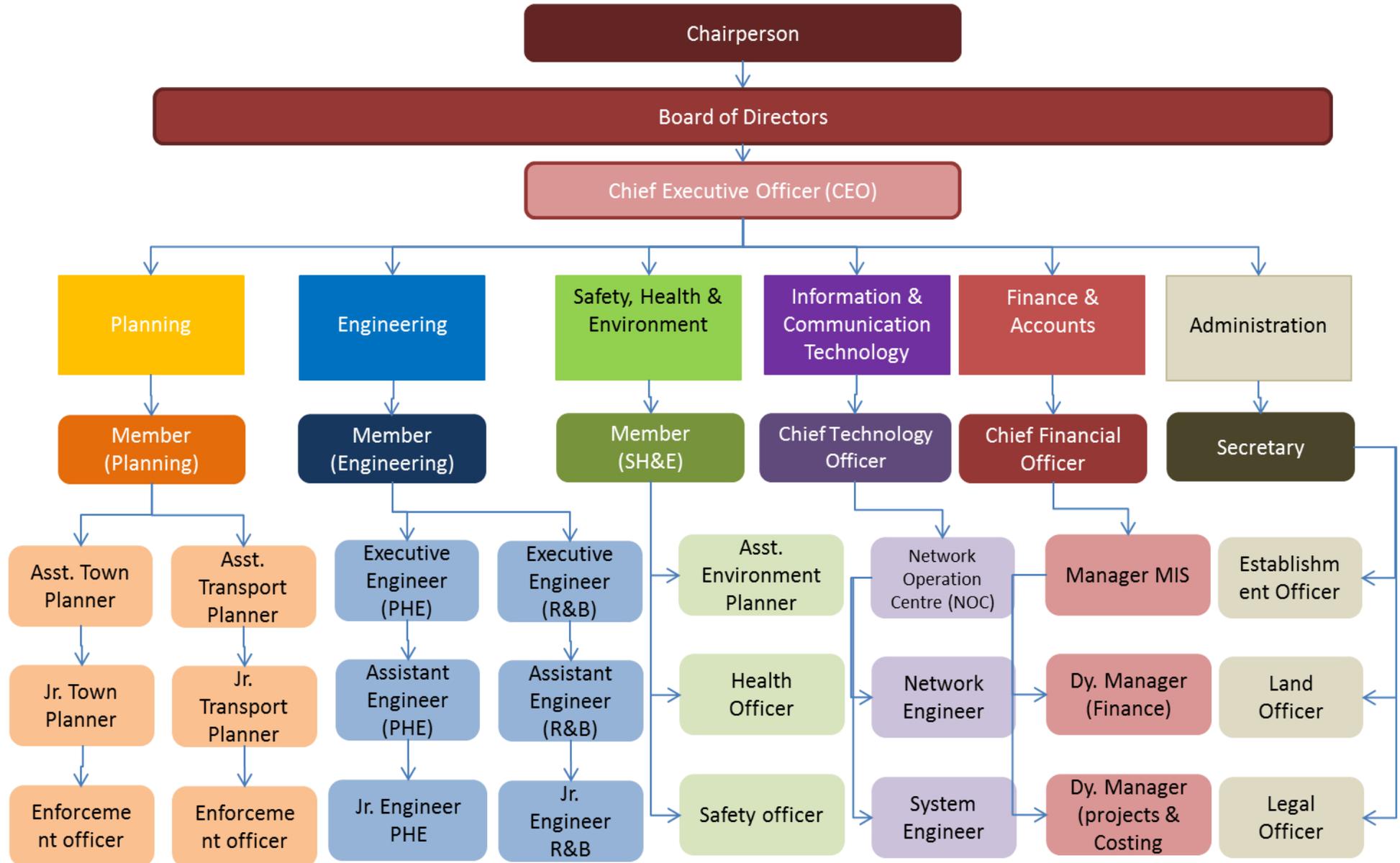
1. Punjab Water Supply & Sewerage Boards (PWSSB) – Executing Agency for water supply & sewerage projects.
2. Punjab Infrastructure Development Board (PIDB) – Executing Agency for BRTS projects.
3. Punjab Heritage & Tourism Promotion Board (PHTPB) – for executing tourism development projects
4. Punjab 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.


Commissioner,
Municipal Corporation,
Ludhiana.

Structure of the SPV



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.

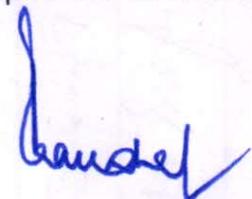
The attendance sheet of the meeting is enclosed as **Annexure-I**

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;

- a. 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.

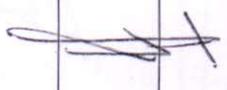
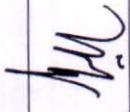
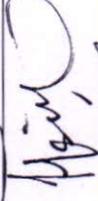
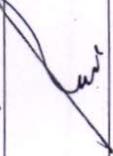
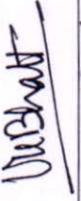
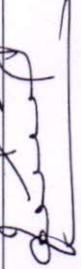


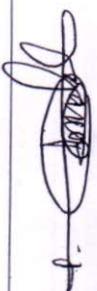
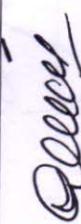
Chief Secretary to Govt. of Punjab &
Chairman, HPSC (Smart Cities)

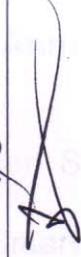
GOVERNMENT OF PUNJAB

10th X AMRUT Scheme
Meeting

Dated 10.12.2015 at 3.45 onwards

Name	Department	Sign
Pardeep Kumar	CMC, ASR	
Gurpreet S. Khanna	CMC, Jal.	
Ghanshyam Thori	CMC Ludhiana	
Harsharan Singh Chahalwasi	LMC, Ludhiana Mayor	
Sunit Tyoti	MCI, Mayors	
MajGen VK Bhatt	Tech Adviser (LG)	
V.P. SINGH	GM (Project) PMIDC	
YASH PAUL BADRANA	MANAGER (PROJECT) PMIDC	
Jasraj Singh	XEN, PMIDC	
Kulvinder Singh SE	M.C. Jal	

Sl. No.	Name	Department	Sign
	B. M. DATE	Consultant for Amritsar (TCE)	
	GAURAV WAHAP	JUL	Gw
	ER. P. K. GOHAL	S.E/civil, M. C. AMRITSAR	
	VISHAL KUNDRA	AECOM	
	DINESH ARORA	AECOM	r
	HARPREET SINGH	AECOM	HLC
	JITENDRA UPADHYAYA	IBM	
	MANISHA BHARTIA	BDP	MMB
	Saurabh Vora	J. L. L	
	SAURABH BHARTIA	IIDC	

Sr. No.	Name	Department	Sign
11.	ANKUR SARG	IIDC Ltd.	
12.	Rajmish Karmal	IDC Ltd.	
13.	Parveen.	Add. Secy Png, Deptt. of Png.	
14.	Yogesh Goel	AND - PIDB	
15.	Ashok Goyal	C.E. AND (B&R)	
16.	D.K. TIWARI	CEO, PWSSB	
17.	D P REDDY	PSF	
18.	Mangraaj Karmal	PSUD.	
19.	N.S. Kabi	ACS PW	
20.			

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.

PUNJAB & HARYANA HIGH COURT

By our order dated 2.12.2008 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 order carried out the requisite tests and submitted a report. From a reading thereof, 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.

Name of Location City	Respirable Suspended Particulate Matter	Oxides Nitrogen (NO _x)		Sulphur Dioxide (SO ₂)			
		Prescribed Value	Value found	Prescribed Value	Value found		
Ludhiana	Bharat Nagar Chowk	100 µ/m ³	261-296 µ/m ³	80 µ/m ³	44-53 µ/m ³	80 µ/m ³	13-16 µ/m ³
	Vishavkarma Chowk	100 µ/m ³	268-311 µ/m ³	80 µ/m ³	50-59 µ/m ³	80 µ/m ³	15-17 µ/m ³
	Samrala Chowk	100 µ/m ³	382-462 µ/m ³	80 µ/m ³	65-79 µ/m ³	80 µ/m ³	19-23 µ/m ³
	Sherpur Chowk	100 µ/m ³	379-416 µ/m ³	80 µ/m ³	76-83 µ/m ³	80 µ/m ³	22-26 µ/m ³
Jalandhar	BMC Chowk	100 µ/m ³	375-682 µ/m ³	80 µ/m ³	22-31 µ/m ³	80 µ/m ³	15-21 µ/m ³
	Pathankot Bye-pass chowk	100 µ/m ³	334-540 µ/m ³	80 µ/m ³	29-43 µ/m ³	80 µ/m ³	16-22 µ/m ³
	Kapurthala Chowk	100 µ/m ³	350-732 µ/m ³	80 µ/m ³	28-31 µ/m ³	80 µ/m ³	18-22 µ/m ³
Amritsar	Gurdwara Sahib Saneeda Chowk	100 µ/m ³	265-350 µ/m ³	80 µ/m ³	54-59 µ/m ³	80 µ/m ³	17-20 µ/m ³
	Batala Road & Majitha Road outside Dental College Sangam	100 µ/m ³	265-327 µ/m ³	80 µ/m ³	56-62 µ/m ³	80 µ/m ³	19-33 µ/m ³
	Takkies Chowk	100 µ/m ³	282-408 µ/m ³	80 µ/m ³	60-67 µ/m ³	80 µ/m ³	23-23 µ/m ³
	Putlighar Chowk	100 µ/m ³	279-441 µ/m ³	80 µ/m ³	60-65 µ/m ³	80 µ/m ³	18-21 µ/m ³

PUNJAB & HARYANA HIGH COURT

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, plying in large numbers in all the three cities. According to an estimate of Mr. Khosla, there are 12000 auto rickshaws in the Ludhiana 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

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	Taxis	Three wheelers	Two Wheelers	Goods Vehicles	Total
Amritsar	21.57 Lac	2364	56246	3368	747	14233	468375	46057	591390
Jalandhar	19.63 Lac	2307	72924	10158	536	6913	523053	53741	696632
Ludhiana	30.33 Lac	1942	117002	7364	1367	12117	72769	80997	945382

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 our 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 LPG 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 be benefit from the availability of the fuel required for such rickshaws. It is indeed heartening to note that in the Union Territory of Chandigarh,

PUNJAB & HARYANA HIGH COURT

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 Government 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.

We are also of the opinion that apart from taking up the issue with the Government of India for supply of CNG and for setting up of a more effective and wide network of L P G Supply Stations, the State Government ought to regulate the grant of permits for autos in the three

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, are 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.

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

- 1) 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

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.

Copy of this order be given dasti on payment of usual

charges

Sd/- T.S. Thakur
Chief Justice

Sd/- Kanwaljit Singh Ahluwalia
Judge

True Copy

[Signature]
Examiner

July 23, 2009

HARYANA HIGH COURT

- *Shankar Singh's answer memo*
- *scheme copy*
- *MWD treasury letter for Alay*
- *with funds meant for City*
- *bus service*

175

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) **Photography:-** 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) **Linking of Photographs in GIS environment:-** 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

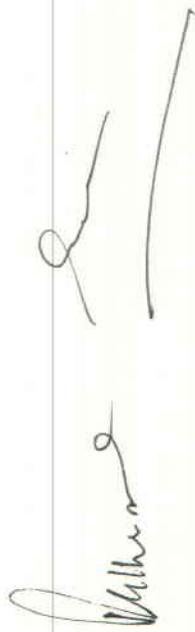
Signature

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, cities/ 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) **Identification and demarcation of assets:-** 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;
 - (v) Main Roads/ Scheduled roads, internal ward roads, streets, lanes, sub lanes, bridges, canals, drains, flyovers and roundabouts etc;



(10)

- (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) **Attributes:-** 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) **Allocation of Unique Identification number:-** 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) **HRS Data to be kept in safe custody:-** 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) **Data-Use for Billing:-** 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) **Direct printing of Bills:-** 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) **To develop GIS query system :-** 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”.

Handwritten signature/initials

(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) **Supply of Data and maps**:- 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) **Project work with due diligence**:- 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

(13)

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

Functions/ obligations of Corporation

1. **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;
2. **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. **Test/pilot study by "Corporation"**:- 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.
4. **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,

Signature

