



PC-II

For

Feasibility Study for the Project “Smart City Lahore Phase-I”

PC-II Cost	PKR. 100.00 Million
Approval Forum	PDWP
GS#	ADP - 4669

Punjab Information Technology Board

Government of Punjab

Arfa Software Technology Park, 346-B, Ferozpur Road, Lahore

1. Name by which survey/ feasibility will be identified

“Smart City Lahore Phase-I”

Administrative authorities responsible for

I. Sponsoring Agency:

Punjab Local Government and Community Development Department

II. Executing Agency:

Punjab Information Technology Board (PITB)

2. Source of Funding

ADP	Scheme Name	Department	GS#	Allocation
2022-2023	Smart City Lahore Phase I	LG&CD Department	4669	100.00 Million PKR

3. Details of survey/feasibility study

i. General description and justification

With the rapid urbanization of the world, the concept of “Smart Cities” has been gaining momentum in the international political agenda. The transformation of cities into digital cities brings along an incredible opportunity for improving citizens’ welfare and fostering economic progress. By 2050, 70% of the Population will live in cities. Cities represent more than 80% of the global GDP and 67% of the overall energy consumption

There is no universally accepted definition of a Smart City. It means different things to different people. The conceptualization of Smart City, therefore, varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents. Smart Cities endeavor to tackle the present and future problems by solving pressing issues while still making sound fiscal decisions. This is sometimes slow but always challenging. However, gradually IOT technology drivers and conditions of necessity within use cases are molding today’s IOT revolution into tomorrow’s norm.

The population of Lahore is rapidly increasing, and as urban cities have a major role in the economic development of any country. Therefore, there is a need to develop

smart applications that provide decent quality of life to citizens. The core applications in smart city would include but not limited to:

- Energy Management which includes Municipal services but not limited to street lights.
- Clean and Adequate Water supply
- Health Information Management System
- Efficient Urban Mobility and Public Transport
- Robust IT Connectivity and Digitalization
- Good governance, especially e-Governance and citizen participation,
 - Sustainable Environment
 - Safety and Security of citizens
 - Waste Management

4. Implementation period of PC-II: Seven (7) Months

i. Month of Commencement: September, 2022

Activities/ Period	Sept 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023	March 2023
PC-II / Project admin approval							
Advertisement for Hiring of Consultant							
Onboarding of consultant							
Work Plan Submission							
Draft Report and a presentation on initial findings							
Final Report Submission							

ii. Month of Completion: March, 2023

5. Objective of Consultancy Services

The main objectives of these Terms of Reference is to define consultant's deliverables that would result in a well-defined project with clear objectives:

- I. Review the existing public and private infrastructure of stakeholders including but not limited to PITB, Urban Unit, Punjab Safe Cities Authority, and advice on the communication medium of the system and applications, considering sustainability and coverage across Lahore of the Smart City Project. Moreover, chalk out the possibility of utilizing existing infrastructure of stakeholders considering its integration with the proposed system after performing a comprehensive situation analysis/need assessment and gap analysis of the infrastructure.
- II. Review IT applications and systems developed by The Government of Punjab and the private sector to ascertain the possibility of integration with the proposed Smart City Sectors in Table 1. Moreover, suggest mechanism of integration for the systems on a unified platform that can be streamlined in the short term and also conduct a detailed gap analysis of the concerned stakeholder's IT systems.
- III. Propose best fit smart city models for Lahore including correct IoT solutions, considering global best practices and accreditation requirements for Smart City Lahore. Furthermore, conduct a site feasibility for the Smart City Command and Control Center, and comprehensively elaborate the planning and designing of the facility. In addition, assist the client in developing the PC-I of Smart City Lahore Phase -1.
- IV. Develop Legal and Institutional Framework for adoption and implementation by concerned departments.

6. Scope, Duties and Responsibilities of Consultant

The consultancy scope is divided into four major outputs of Consultant's engagement with the Project. These outputs are further segregated into different tasks. Following outputs of consultant are:

Output A: Project Plan and Situation Analysis

Output B: Review of Existing Applications and Systems (Public & Private)

Output C: Propose Smart City Solutions, Planning and Design

Output D: Propose Legal and Institutional Framework

Output	Deliverable	Disbursement (% of contract)
Output A: Project Plan and Situation Analysis	<ol style="list-style-type: none"> 1. Work Plan 2. Situation Analysis 3. Report on viability of existing infrastructure 	20
Output B: Review of Existing Applications and Systems (Public & Private)	<ol style="list-style-type: none"> 1. Report on Smart City Applications 2. Report on existing public/private automated services, with potential for immediate integration 	30
Output C: Propose Smart City Solutions, Planning and Design	<ol style="list-style-type: none"> 1. Report on findings of study 2. Central Command & Control room feasibility 3. PC-I Recommendations 	30
Output D: Propose Legal and Institutional Framework	<ol style="list-style-type: none"> 1. Report proposing Legal and Institutional Framework 	20

Table 2: Disbursement Linked Outputs

Outputs are segregated into following tasks:

Output A: Project Plan and Situation Analysis

Task 1: Work Plan for consultancy

Task 2: Situation Analysis of Stakeholders.

Output B: Review of Existing IT Applications and Systems both Public & Private.

Task 1: Identify smart city solutions with capability to enhance various sectors of the quality of life, like safety, transport, environment (air quality, energy consumption optimization, electricity, gas, water and waste digital tracking, smart citizens’ services apps linking people government departments, health etc.)

Output C: Propose Smart City Solutions, Planning and Design

Task 1: Identify the basic software and hardware requirements of the proposed system with focus on the utilization and integration of existing infrastructure & system that have already been developed by Government of Punjab and other agencies

Task 2: Planning, Designing and feasibility of Control Room estimates as per the requirements of the systems and give assistance to client for PC-I development of smart city project.

Output D: Propose Legal and Institutional Framework

Task 1: Drafting of Legal and institutional Framework governing Smart City Lahore

7. Estimated cost for Consultancy

Sr. No.	Allocated Cost
1	100.00 Million

8. Item-wise summary of Cost

Summary of Head Wise Costing			
Sr. No	Head		Cost (PKR)
1	Core Team of Experts	Lump-sum	100 Million
2	Direct Cost		
3	Advertisement cost		

9. Change Management Strategy

Helping the team adapt to business change usually involves some degree of training or other educational component. This can be accomplished through special sessions designed to introduce and educate staff on the changes.

10. Indicate studies already taken on the subject.

Multiple independent studies have already been conducted by third parties to identify and highlight the potential of Smart Cities in Punjab, few of which are mentioned below:

- i. University of Cambridge, State of Smart Cities in Pakistan, Challenges, Issues and Initiatives, Sept 2016
- ii. A Comprehensive Review of Smart Cities Components, Applications, and Technologies Based on Internet of Things
- iii. Smart City Lahore, Pre-feasibility Report, Local Government and Community Development Department, Government of Punjab, 2022.




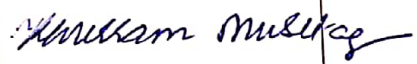
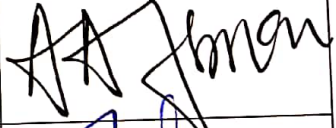
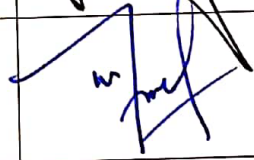
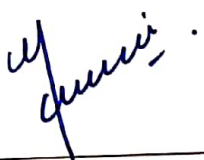


11. Reporting mechanism

The consultant will report to the Punjab Information Technology Board submitting a monthly progress report of activities and tasks performed.

PITB will further submit consultant's performance report to Local Government and Community Development Department (sponsor) on monthly basis.

All deliverables will be submitted to the Punjab Information Technology Board. After review. The deliverables will be forwarded to the Local Government and Community Development Department by PITB.

12. Certificate

Prepared By	Mr. Abdullah Kharal Programme Manager Punjab Information Technology Board	
	Mr. Danish Ahmad Senior Programme Manager Punjab Information Technology Board	
Reviewed By	Mr. Haroon Rasul Khokhar Project Director Punjab Information Technology Board	
	Mr. Khurram Mushtaq Additional Director General, IT-Operations Punjab Information Technology Board	
Verified By	Mr. Atta-ur-Rehman Director, Development & Procurement Punjab Information Technology Board	
	Mr. Faisal Yousaf Director General, IT-Operations Punjab Information Technology Board	
	Ms. Maria Tariq Additional Secretary(Development), LG&CD Department Government of Punjab	
Approved by	Mr. Ali Sarfaraz Chairman Punjab Information Technology Board	
	Mr. Syed Mubasher Hussain Secretary LG&CD Department Government of Punjab	

ANNEXURE-A

Terms of Reference Feasibility Study for the Project “Smart City Lahore Phase-I”

1. Introduction

The Government of Punjab intends to develop an Integrated Information Communications and Technology Development Project i.e., **SMART CITY, LAHORE PHASE-I** to support the following Smart City Sectors across Lahore:

Sr. No.	Smart City Proposed Sectors
1.	Smart Mobility
2.	Smart Healthcare
3.	Smart Utilities
4.	Smart Safety and Security
5.	Smart Economy

Table 1: Smart City Proposed Sectors

Evolving urban cities to “Smart Cities” presents an opportunity to improve the access and quality of urban services for citizens and businesses through the strategic use of digital technologies, which in turn, improves overall sustainability. The smart city concept relies on fostering a balanced confluence of growing urbanization and digital transformation. The synergy of these trends can bring about improved livability for citizens, enhanced human capital while transforming the relationship between Government, Civic Society and Market players in an environmentally sustainable manner. Research estimates that cities can use smart technologies to improve key quality-of-life indicators by 10 to 30 percent—numbers that translate into lives saved, fewer crime incidents, shorter commutes, a reduced health burden, carbon emissions averted and increased resource efficiency.

The proposed project will support the government to adopt a long-term strategy and Legal framework for ICT sector and smart city solutions to allow holistic development of IT ecosystem, through the establishment of a benchmark model **Smart City** in **Lahore**. The expected outcome

of the project is strengthened by holistic development of ICT sector smart city solutions in Pakistan.

2. Objective of Consultancy Services

The main objectives of these Terms of Reference is to define consultant's deliverables that would result in a well-defined project with clear objectives:

- I. Review the existing public and private infrastructure of stakeholders including but not limited to PITB, Urban Unit, Punjab Safe Cities Authority, and advice on the communication medium of the system and applications, considering sustainability and coverage across Lahore of the Smart City Project. Moreover, chalk out the possibility of utilizing existing infrastructure of stakeholders considering its integration with the proposed system after performing a comprehensive situation analysis/need assessment and gap analysis of the infrastructure.
- II. Review IT applications and systems developed by The Government of Punjab and the private sector to ascertain the possibility of integration with the proposed Smart City Sectors in Table 1. Moreover, suggest mechanism of integration for the systems on a unified platform that can be streamlined in the short term and also conduct a detailed gap analysis of the concerned stakeholder's IT systems.
- III. Propose best fit smart city models for Lahore including correct IoT solutions, considering global best practices and accreditation requirements for Smart City Lahore. Furthermore, conduct a site feasibility for the Smart City Command and Control Center, and comprehensively elaborate the planning and designing of the facility. In addition, assist the client in developing the PC-I of Smart City Lahore Phase -1.
- IV. Develop Legal and Institutional Framework for adoption and implementation by concerned departments.

3. Scope, Duties and Responsibilities of Consultant

The consultancy scope is divided into four major outputs of Consultant's engagement with the Project. These outputs are further segregated into different tasks. Following outputs of consultant are:

Output A: Project Plan and Situation Analysis

Output B: Review of Existing Applications and Systems (Public & Private)

Output C: Propose Smart City Solutions, Planning and Design

Output D: Propose Legal and Institutional Framework

Output	Deliverable	Disbursement (% of contract)
Output A: Project Plan and Situation Analysis	<ol style="list-style-type: none"> 1. Work Plan 2. Situation Analysis 3. Report on viability of existing infrastructure 	20
Output B: Review of Existing Applications and Systems (Public & Private)	<ol style="list-style-type: none"> 1. Report on Smart City Sectors and Applications 2. Report on existing public/private automated services, with potential for immediate integration 	30
Output C: Propose Smart City Solutions, Planning and Design	<ol style="list-style-type: none"> 1. Report on findings of study 2. Central Command & Control room feasibility 3. PC-I Recommendations 	30
Output D: Propose Legal and Institutional Framework	<ol style="list-style-type: none"> 1. Report proposing Legal and Institutional Framework 	20

Table 2: Disbursement Linked Outputs

Outputs are segregated into following tasks and further into activities:

Output A: Project Plan and Situation Analysis

Task 1: Work Plan for consultancy

List of activities

- i. The consultancy firm shall have a kick-off meeting with the Client to understand expectations from the project and it will mobilize the entire project team within 5 days.
- ii. The consultancy firm shall discuss the data to be collected from various sources, surveys to be conducted, analysis to be undertaken, as well as major Stakeholders

to be consulted to complete the functional design document during the inception period.

- iii. During the inception meeting, the consultancy firm will present complete project approach based on the TORs, methodology, key activities, outputs, deliverables, timelines, project team profile and personnel deployment schedule to meet the requirements stated under the TORs.
- iv. The Consultancy firm shall prepare a detailed work plan, including all pertinent activities, responsibility and function of each team member, coordination mechanism and procedures between client and consultancy firm. The mechanism and procedures shall be subject to the approval by the client.
- v. The consultancy firm shall prepare an inception report within 2 weeks of the commencement.
- vi. Based on Client's feedback, the consultancy firm shall revise above and incorporate Client's suggestions and submit a revised inception report within 7 days.
- vii. Any other agreed tasks identified and delegated by the Client.

Task 2: Situation Analysis of Stakeholders.

List of Activities:

- i. Identify and map all stakeholders relevant to Smart City Lahore
- ii. Engage & consult identified stakeholders
- iii. Review and assesses the existing Public and Private infrastructure including but not limited to Punjab Safe Cities Authority (PSCA), Urban Unit, Punjab IT board, Telecommunication networks etc. in terms of its coverage, sustainability, readiness, interoperability, viabilities in order to utilized for smart city applications.
- iv. Assess needs and evaluate gaps between the stakeholder systems and proposed solutions.
- v. Present findings to the client
- vi. Any other agreed tasks identified and delegated by the Client

Deliverables:

- The Consultancy firm shall provide the detailed Work Plan of the Project.

- Perform Situation analysis of stakeholders, that will provide comprehensive overviews of need assessment, e-readiness and functional requirements for each of the proposed smart city sector mentioned in Table 1. It will also include the relevant governance model with clearly identified custodianship, ownership model and roles & responsibilities of stakeholders.
- Submit report with review of findings for stakeholders' existing infrastructure, assessing the viability of integrating existing infrastructure with the Smart City initiative.

Output B: Review of Existing IT Applications and Systems both Public & Private.

Task 1: Identify smart city solutions with capability to enhance various sectors of the quality of life, like safety, transport, environment (air quality, energy consumption optimization, electricity, gas, water and waste digital tracking, smart citizens' services apps linking people government departments, health etc.)

List of Activities:

- i. Conduct an assessment of IT applications developed by private organizations, and the Government of Punjab functioning in other departments/attached departments/autonomous bodies (Health, Transport, Environment, LWMC, MCL, LE Park etc.) to ascertain the possibility of integration over a unified platform.
- ii. Review of proposed smart city sector mentioned in Table.1 and suggest other sectors/sub-sectors if needed based on the feasibility Study.
- iii. Identify smart city solutions suitable for Lahore City against the proposed sectors.
- iv. Suggest detailed phase-wise prioritization of implementation Smart Solutions.

Deliverables:

- Report proposing smart city applications with detailed implementation plan in phased manner.
- Report containing details of all public/private services already automated that can be included in Smart City Lahore.

Output C: Propose Smart City Solutions, Planning and Design

Task 1: Identify the basic software and hardware requirements of the proposed system with focus on the utilization and integration of existing infrastructure & system that have already been developed by Government of Punjab and other agencies.

List of Activities:

- i. Study applicable hardware and software's relevant to proposed smart city applications
- ii. Suggest the best applicable ecosystem for Smart City Lahore
- iii. Propose the monitoring and evaluation mechanism, of service delivery for efficient smart city services, learning from international best practices.
- iv. Suggest most suitable international standards, international accreditation and ranking system for the Smart City Lahore project.
- v. Propose guidelines to adopt and indicators to focus on, in order to qualify for identified accreditations and standards.

Task 2: Planning, Designing and feasibility of Control Room estimates as per the requirements of the systems and give assistance to client for PC-I development of smart city project.

List of activities:

- i. Prepare detailed estimates of control rooms which includes civil design structure, electrical cabling, networking cabling, and renovation of required, façade, fans/lights etc. complete in all aspects.
- ii. Prepare a detailed design with drawings which includes each and every component like Video wall, networking, CCTV, fire alarm system, electrical and any other system which will be deployed in the building.
- iii. Carrying out necessary and required feasibility assessment of the site, working with & recommending the Client and relevant stakeholders on the selection of the

appropriate site/building to develop Smart City Control center and deploy smart solutions.

- iv. Assist in drafting project PC-I and propose recommendations.

Deliverables:

- A report containing findings of the conducted study, further providing justification of proposed ecosystem, and elaborating on proposed international accreditation & ranking system.
- A report entailing detailed estimates of control room, civil and electrical layout designs, maintenance works, elaborated with specifications and recommendations. Where applicable, suggest alternatives. Include detail drawings for execution and feasibility
- Assistance to client for the development of Smarty City Lahore Phase-I PC-I

Output D: Propose Legal and Institutional Framework

Task 1: Drafting of Legal and institutional Framework governing Smart City Lahore

List of activities:

- i. Draft the legal framework in terms of but not limited to data sharing protocols, lawful interceptions, personal data protection, security, interoperability to data and services.
- ii. Draft Institutional framework, after reviewing the existing roles and responsibilities of the relevant departments, for the integration of different services over a unified platform. To enable effective communication, operational activities, reporting and monitoring mechanisms among departments/stakeholders for Smart City Lahore.
- iii. Any other agreed tasks identified and delegated by the Client

Deliverables:

- Submission of report, proposing Legal and Institutional Framework across relevant stakeholders/departments for Smart City Lahore

4. Reporting mechanism

The consultant will report to the Punjab Information Technology Board submitting a monthly progress report of activities and tasks performed.

PITB will further submit consultant's performance report to Local Government and Community Development Department (sponsor) on monthly basis.

All deliverables will be submitted to the Punjab Information Technology Board. After review. The deliverables will be forwarded to the Local Government and Community Development Department by PITB.

5. Time Duration of Proposed Consultancy and Deliverables

Time Duration of Consultancy

The Consultancy must be concluded by **31st March, 2023**.

Activity	Time Allocated (In Days)
Design, methodology and detailed work plan	15
Draft Report and a presentation on initial findings	60
Final report and presentation on findings	30
Total	105 – 120

6. Role of Client Agencies

Responsibilities	LG&CD	EXECUTING AGENCY
Preparation of ToRs	R	I
Advertisement of ToRs	R	I
Selection of Consultancy Firm	R	I
Coordination, Monitoring & Evaluation	R	-

7. Core Team of Experts required for the Assignments

The Description of Core Team which is required in Consultancy are as follows:

Note: Professional Liability of the consultant as per PPRA Rules

Sr. No	Expert Description	Minimum Qualification
1	Team Leader	<p>Qualification: Minimum qualification 16 Years of education in Computer Science/Software Engineering/IT/Engineering/Management or related discipline from an HEC recognized local or foreign Institution.</p> <p>Experience: 15 Years' experience of IT systems and infrastructure development /Systems Integration Minimum 5 Years of Project Management /Implementation experience in the IT sector preferably with expertise of Smart City related solutions.</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> ● Experience of managing public sector projects will be an added advantage ● Must have extensive expertise in scoping, designing, developing, deploying, and supporting enterprise scale business applications. ● Must understand Punjab Government's context, a dynamic visionary with the understanding of smart solutions and exemplary management skills etc.
2	IOT Expert	<p>Qualification: 16 Years of education in Computer Science/Software Engineering/IT/Engineering or related discipline from an HEC recognized foreign Institution</p> <p>Experience: 5 Years' experience in developing IoT Architecture, In-depth understanding of computer programming and network security, custom-build firmware and hardware.</p> <p>Minimum 3 Years of Working Experience with IoT software like Netbeast, Neura, OpenSensors, Node ,Big Data, machine learning algorithms and experience with custom- build firmware and</p>

		<p>hardware</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> ● In-depth understanding of computer programming and network security ● Proficient knowledge of sensors ● Knowledge of machine learning and AI ● Knowledge of software like Netbeast, Neura, OpenSensors and Node ● Expert knowledge of Linux OS ● Well-versed with multiple programming languages such as Embedded-C, Embedded C++, Java and Python ● Knowledge of device and data security
3	Radio Frequency (RF) Expert	<p>Qualification: 16 Years of education in Telecommunication/Electrical Engineering or related discipline from an HEC recognized local or foreign Institution</p> <p>Experience: 5 Years’ experience in RF field, sound expertise to Perform, characterize, quantify and optimize electrical and RF frequency performance of wireless systems and components</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> ● Shall have the capability to Perform characterize, quantify and optimize electrical and RF frequency performance of wireless systems and components ● Have expertise in designing and enforce RF circuits, filters, power amplifiers and lumped element matching Circuits.
4	Artificial Intelligence/Machine Learning Expert	<p>Qualification: 16 Years of Education in Computer Science/ Computer Engineering/ IT/Engineering or related field from a reputed recognized local or foreign Institution. Master degree is a plus.</p> <p>Experience: 5 Years of relevant experience in software development, expertise in Python and basic libraries for machine learning, visualizing and manipulating big datasets.</p> <p>Minimum 3 years of experience in hardware to run an ML model</p>

		<p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • Must have the knowledge of ML, deep learning, Python, NLP • Knowledge of basic algorithms, object-oriented and functional design principles, and best practice patterns
5	<p>Database Management Expert</p>	<p>Qualification: 16 Years of education in Computer Science/IT/Software Engineering/Computer Engineering or related discipline from an HEC recognized local or foreign Institution</p> <p>Experience: 5 Years working experience of hardware and software troubleshooting, Familiarity with TCP/IP protocols, firewall management, database administration and working technical experience with relational database servers, exposure to smart solutions in a city wide context.</p> <p>Minimum 2 years of experience of SQL and MySQL, understanding of code and script (PHP, Python, Perl, Node, Powershell and/or Ruby MongoDB, and other Big Data languages).</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • Excellent knowledge of data backup, recovery, security, integrity and SQL • Familiarity with database design, documentation and coding • Familiarity with programming languages & API's
6	<p>Institutional/Legal Expert</p>	<p>Qualification: 16 years of education in Law/ Policy studies/ Public Administration Related discipline from an HEC recognized local or foreign Institution</p> <p>Experience: Minimum 10 years' experience in the field of Law /Policy Studies/Public Administration with 5 Years' experience in institutional analysis with regard to legal aspects, technically sound in legal matters and should have in depth knowledge of the municipal laws, international agreements, environment and Policy guidelines and Institutional factors.</p>

		<p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • Review current laws, policies, rules of business etc. relevant to implementation of Smart City across the world • Review international legal practices and frameworks governing Smart Cities anywhere in the world • Developing legal framework relevant to smart city anywhere in the world • Developing institutional framework that enables effective and communicative administration.
7	Economist/Financial Expert	<p>Qualification: 16 years of education in Economics/Finance or related discipline from an HEC recognized local or foreign Institution</p> <p>Experience: 10 Years’ experience of in Developing economic/financial models, generate reports of economic outlook, Design advanced analysis of projects, evaluate other work using best practices.</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • Preparing financial plans and developing financial models. • Evaluating cost structures and revenue streams. • Researching and analyzing business trends and preparing financial forecasts.
8	Civil Engineering Expert (design expert)	<p>Qualification: 16 Years of education in Civil Engineering or related discipline from an HEC recognized local or foreign institution. Registered Engineer with PEC</p> <p>Experience: 5 Years’ experience in developing detailed designs of IT related control rooms, doing feasibility assessment and site inspections, well aware of Punjab government regulations and ordinances related to construction.</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • knowledge of building legislation in Punjab

		<ul style="list-style-type: none"> • Should have a knowledge to Manage, design, develop, create and maintain small-scale to large-scale IT Control rooms • Must Carry out technical and feasibility studies and draw up blueprints that satisfy technical specifications any of the IT related Project
9	Environmental Expert	<p>Qualification: 16 Years of education (Masters) in Environmental Sciences or related discipline from an HEC recognized local or foreign Institution.</p> <p>Experience: Minimum 10 years' experience in the field of environmental sustainability, with exposure to smart city solutions and IT based interventions to improve environmental conditions.</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • Have a sound understanding of smart cities and smart climate initiatives, • Must know about the environmental impact of the Smart City Lahore Project • Design any of the project comply with environmental and health regulations anywhere in the world.
10	Urban Planning Expert	<p>Qualification: Masters in Urban Planning (16 years of education) or Related discipline from an HEC recognized local or foreign Institution.</p> <p>Experience: Minimum 10 years of proven experience in the field of Urban planning and development of cities, preferably in implementation of smart city initiatives and IoT based city wide projects.</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • How to prepare plans and studies required for implementing Smart Initiatives • Assist in designing feasibility of smart city initiatives anywhere in the world
11	Electrical Engineering Expert	<p>Qualification: 16 Years of education in Electrical Engineering or Related discipline from an HEC recognized local or foreign Institution.</p>

		<p>Experience: Minimum 10 years’ experience in the field design, develop, and test electrical devices and equipment, including communications systems, power generators, motors, sensors, and navigation systems, and electrical systems for smart initiatives.</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • Designing electrical systems or their components. • Diagnosing and solving electrical problems with products or systems. • Installing, servicing, calibrating and updating electrical systems.
12	Traffic Engineering Expert	<p>Qualification: 16 Years of education in Traffic Engineering or Related discipline from an HEC recognized local or foreign Institution.</p> <p>Experience: Minimum 10 years’ experience in the field of Plan and design transport improvements including junctions, parking, traffic control systems and public transport systems that incorporate smart city interventions.</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • Simulating transport problems using computer models, and working out solutions • Analyzing and interpreting data gathered from transport studies • Forecasting the impact of new developments • Looking at schemes to manage traffic • Studying accident ‘black spots’ to design road safety improvements
13	Public Health Administration Expert	<p>Qualification: Masters in Public Health Administration (16 years of education) or related discipline from an HEC recognized local or foreign Institution.</p> <p>Experience: Minimum 10 years’ experience in the field of hospital administration, deployment of medical technology at hospitals, upgradation of health services etc.</p> <p>Exposure in the following is expected:</p>

		<ul style="list-style-type: none"> • Knowledge to develop framework of macro level data necessary to collect for efficient and effective administration of public healthcare services • Knowledge to coordinate and engage with public health administrators and stakeholders for needs assessment and systems analysis • Any Engagement with public and private hospitals for data integration advocacy and feasibility
14	IT Expert	<p>Qualification: 16 years of education in Computer Science/Software Engineering/IT or related discipline from an HEC recognized local or foreign Institution.</p> <p>Experience: Minimum 10 years' experience in the field of :</p> <p>Exposure in the following is expected:</p> <ul style="list-style-type: none"> • Working knowledge of relevant operating systems, software and programming • Excellent problem-solving and critical thinking skills • Familiar with security certificates and compliance of requirements
15	Field Staff	<p>Qualification: Diploma/FA/Fsc Minimum 12 Years of education from recognized institution.</p> <p>FA/FSc.</p>