

Punjab Police Integrated Command and Control Centre

(PP-IC3) Programme

The overall objective of the Punjab Police Integrated Command and Control Centre (PP-IC3) Programme to modernise the infrastructure, systems and capabilities for the police to proactively manage the security situation and to professionalise the police response to incidents by moving towards directed and mission-focused deployment of resources. IC3 will bring together the innovative Concept of Operations (ConOps), quality focused business processes with an integrated technical solution to provide an operational solution that delivers:

- New technology and process infrastructure to provide real-time information and intelligence to facilitate field commanders making evidence based decisions in operationally critical situations
- Ability to have access to and share information within the Punjab Police departments as well as external agencies to ensure seamless service delivery to the public and a more timely and effective response
- Provision of information and intelligence to ensure that informed decisions are made with regard to priority and allocation of the most appropriate resources in response to calls for assistance
- Provision of high quality emergency response systems to the residents and visitors to Punjab and specifically Lahore
- Delivery of flexible operational systems that can evolve and expand with the evolving needs of the Punjab and Pakistan
- Increased capacity that acknowledges foreseeable growth profiles in the future.
- The design and implementation of a consolidated PP-IC3 organisational operating model to optimize cross agency coordination, communication, and effectiveness of public safety and emergency services delivery.

The PP-IC3 Programme will facilitate the Punjab Police to address the escalating crime situation and enhance the security for the citizen. It will help the Government of Punjab to achieve its stated aim of improving the security situation in Punjab.

Scope of Technologies

The technology scope for the PP-IC3 Programme includes the following technologies and systems:

- **CAD (Computer Assisted Dispatch) System** – CAD will provide the means to capture the details of an incident. The CAD form will be initially populated with the caller's details e.g. Name, Telephone/Mobile phone number and location. During the incident resolution the CAD will be further populated with details of the incident.
- **ACD (Automatic Call Distribution) System** – The ACD will distribute both conventional telephone calls and VOIP (Voice of Internet Protocol) calls to the operators within the PP-IC3 Centre and the Police Stations within Lahore. The Programme will provide the infrastructure for the Police Stations but not the hardware.
- **GIS (Geographic Information) System** – The GIS will provide the operators with a map of the area that they are responsible for. On the map will detailed the position of resources available to them be it technology or operational resources.
- **ICP (Integrated Communications Platform)** – The ICP provides a single access point to the LTE Radio network, the VOIP telephone system, the conventional phone system, the legacy radio systems (Tetra, UHF and VHF) and control of the CCTV system.
- **CCTV (Close Circuit Television) System** – The CCTV system provides images from the 6700 cameras that will be installed during phase 1 and phase 2. The cameras will primarily provide images for incident and event management but will also be connected to the analytics systems.
- **Crime System** – The Crime System will initially be populated from the CRO database. However as the PP-IC3 System operates it will be update with real time data from the CAD system allow the intelligence aspect to be added to Police response.
- **ANPR (Automatic Number Plate Recognition) System** – The ANPR system uses dedicated cameras to capture number plates of vehicle passing through their fields of view. This data is used for identifying

stolen vehicles, using data from the Excise database and CAD, and also provides data to the analytics systems.

- **SOPs/FAQ (Standard Operating Procedures/Frequently Asked Questions)** – The SOPs/FAQ provides the operators information for managing events and incidents from the SOPs but also provides answers to members of the public for questions they may have concerning the Police.
- **Gazetteer** – The Gazetteer is a database of geographical information that shall be used to assist in Event planning and responses to Civil emergencies. The information is displayed on the GIS screen.
- **Resource Management System** – The Resource Management System provides the ability to plan the manning of the PP-IC3 Centre using the CRO information.
- **AVLS (Automatic Vehicle Location System)** – The AVLS allows the GIS system, from data from the LTE network, to display the location of all the vehicles that are available for dispatch to incidents or that are being used to manage events.
- **APLS (Automatic Personal Location System)** – The APLS allows the GIS system, from data from the LTE network, to display the location of personal that are available to dispatch to incidents or that are being used to manage events.
- **Analytics Systems** – The analytical systems being deployed are Facial recognition, Object Tracking, Forensic Analysis, Left Object recognition, Event detection, Vehicle and People counting, Loitering and Counter Flow detection.
- **Management System** – The management system will provide in one platform the ability to manage the Phase 1 and Phase 2 systems e.g. Configure on the fly talk groups, define new users on the system, provide rights management for access to cameras etc.
- **DRC (Disaster Recovery Centre)** – The DRC will provide the facility to recover any system that fails within the PP-IC3 Centre by restoring the system from backup data, The training system will also be located at the DRC providing a backup control room in the event the PP-IC3 Centre becomes unusable or over whelmed.
- **JTMS (Journey Time Monitoring) System** – The JTMS will use the information from the ANPR cameras to calculate the time taken for a

vehicle to travel between two points in Lahore. This information will be used to inform the citizens of Lahore as to areas of congestion, blocked roads and diversions that provide a quicker route.

- **RLMS (Red Light Monitoring System)** – The RLMS will use information from the ANPR cameras and traffic signals to capture the number plates of vehicles which ignore red lights at traffic signals. The same system will also monitor traffic flow to ensure that vehicles are using the correct lanes.
- **E Challan Integration** – The E Challan system will be integrated with the RLMS and ANPR systems to send out traffic offence notices so that offenders can pay their fines over the internet. There will also be portable terminals that will allow traffic police officers to issue traffic offence notices for incorrect or no licenses and any other traffic offences that may have been committed.
- **VMS (Variable Message System)** – The VMS will use the data from the JTMS to inform drivers as to obstructions on the route ahead i.e. at the road side signs will be installed which will display the appropriate message for the road it is installed upon.
- **Specialist Vehicles** – Specialist vehicles will be provided to provide local command and control of events e.g. International Cricket matches or for major incidents e.g. Aircraft Crash
- **UAV (unmanned Aerial Vehicle)** – UAVs will provide support to the PP-IC3 Centre when the installed resources e.g. CCTV cameras do not have the coverage of the area where an incident is ongoing or when surveillance is required of a covert nature.
- **MDT (Mobile Data Terminals)** – The MDT terminals will provide a gateway for operational resources, deployed in a vehicle, to gain access to PP-IC3 system resources e.g. using the CAD system to identify a suspect.

Description and Justification and Technical Parameters

Given the difficult security situation in Punjab, the policing environment continues to be dangerous, dynamic and complex. The key concerns continue to be the safety of the citizen within the growing specter of serious crime and terrorism. While there continues to be extensive personal sacrifice and bravery, the police have struggled to control these escalating operational situations. There needs to be a Programme of modernising the police

systems to deliver better and more flexible resources to meet the requirements of a dynamic and complex policing environment. Operational processes, facilities and ICT infrastructure need to be aligned to ensure that they support this evolving capacity, capability, efficiency and effectiveness approach.

The Concept of Operations (ConOps) describes the future state of call taking, dispatch, surveillance and monitoring, incident response and incident management operations for the Punjab Police Service. As part of the overall solution design the PP-IC3 Programme will ensure that Punjab Police has the capabilities and facilities to access and assess background information on the incident and deployment activity as well as any other relevant information which may influence what, how, when, where and whether deployment is made and provide information relevant to investigation and officer safety. This coupled with documented processes and procedures will enable performance monitoring and improvement which in turn will lead to improved time to answer, better resource utilization and desired business outcomes.

Scope of the Project: The scope for the PP-IC3 Programme contains the following projects / work streams:

- Civil works for connectivity & technologies of the PP-IC3 Centre
- Technology Implementation for the PP-IC3 Centre. This includes:
 - **Command and Control System** - including Command and Control Incident Management, Geographic Information System (GIS), Resource Management System, Integrated Automatic Resource Location System (ARLS), and Mobile Data Terminals
 - **Integrated Video Management System (IVMS)** – including System Control and Management, Digital Recording and Archiving, Specific Analysis Tools, Video Walls and Control Systems, and In-Vehicle Video Systems
 - **Field Equipment** – including Strategic Surveillance Locations, Surveillance of Public Places, Surveillance of Intersections, Surveillance of Highways, Surveillance of Iconic Buildings / Locations, Camera installation and Security and power and connectivity.
 - **Implementation and Fit-out** – including Data Centre fit-out, structured cabling, furniture and desktop as well as system integration and testing.

- Process development and Police Transformation
 - Development of operational processes for Emergency Call Centre, Dispatch Centre, Strategic, Operation Monitoring Suite and Crisis Management Centre
 - Change management strategy to support the leadership, cultural and behaviour change
- Human Resources to manage and run the PP-IC3 operations. This included:
 - Organisation Structure
 - Roles and responsibilities
 - Training and developments

Expected Project Outcome Indicators

The following issues are the reasons behind growing interest in establishing Integrated Command, Control & Communication Centre:

1. The rate of urbanization is increasing in Punjab, especially in Lahore, and with urban growth comes an increase in crime and safety concerns due to concentrated and diverse populations.
2. There is an increasing strain on local law enforcement authorities to cope with both expected and unexpected security threats against citizens. This reflects in slower response times, spreading thin the resources due to lack of geo-spatial situational awareness and lack-luster service delivery. In addition, due to lack of proper information in a useable manner, it is difficult for field, tactical and strategic commanders to make appropriate decisions which can affect performance. Security and safety issues span across economic and political boundaries, having international repercussions such as capital flight worth billions, brain drain, emigration, lack of foreign investments, remittances etc.
3. Cities are centers of wealth creation and compete fiercely with each other to attract inward investment from large multinationals. Cities that are able to demonstrate robust safety and security technology and planning will be able to leverage this to attract new business, and consequently capital investment, job creation, economic development and ultimately the level of citizen satisfaction.

4. Through the establishment of the Punjab Police Integrated Command, Control and Communications Center (PP-IC3), it is envisaged that roughly 20 percent of crimes such as rioting, destruction of public and private property, 28-30 percent of vehicular crime, and 15-20 percent reduction in crimes against property such as house burglary, robbery, street crime will be achieved in the first five years of operation. Augmented with the newly developed Dolphin Police Patrolling force comprising 400 motorcyclists, and 240 Police Emergency Response Unit Cars patrolling their beats throughout Lahore, It is expected that through the technology provided for in the proposal, the first responders will be dispatched to the caller while the emergency call is in process, so the police response time will be reduced to within 7-9 minutes of emergency call received, which is currently 20 minutes as opposed to internationally accepted time of 12 minutes. This will greatly increase in the prevention of crime, and also real time tracking and detection of suspects.
5. The PPIC3 Programme also aims to increase public satisfaction levels as real time comparison of suspected persons with criminal and other allied departmental databases will make apprehension of record holders instantaneous and innocent public will not have to face hassle of going to police station for verification of record and antecedents.
6. Anticipatory technologies will ensure that police responders are dispatched to assembling congregations before they start a riot, and immediate police presence will ensure safety and security of property. Real time monitoring of processions and law and order situations will ensure efficient resource deployment for optimum effect.
7. Another major benefit of the project will be traffic management, where public will be informed of choking and density and alternate routes will be planned for them through the Variable Messaging System, and through broadcast; thus minimizing journey times and stops at traffic signals, which will save enormous costs of fuel and time. The project also envisages traffic rules enforcement and it is estimated to generate approximately 175- 210 million in traffic violation fines.

Comparison of Decrease in Crime Rates

Another benefit of IC3 Projects is a reduction in the rates of crime. As a reference point, the rates of crime before, after deployment and at maturity level in the metropolitan city of London, U.K are given for comparison purposes.

Crime Rates Annual	2002-2003	2003-2004	2008-2009	2012-2013
Crimes against Person	178,802	186,188	174,414	149,716
Robbery	42,496	40,640	32,555	34,740
Burglary	113,427	105,361	93,575	92,648
Theft and Peddling	463,710	448818	313,329	33,3769
Rioting and damage to public and private property	144,374	147,465	95,224	59,924
Total Reported Crimes (London Met. Police)	1,080,741	1,060,930	845,040	771,566

Due to intelligence and information led policing, spearheaded by the London Command and Control infrastructure, the rates of crime have had a consistent downward trend. The rates of homicide have shown a marked reduction as have assorted crimes against property and damage of property has more than halved since the project has become operational, resulting in savings of hundreds of millions of pounds every year. The centers replicated elsewhere have shown a consistent decrease in the crime rates and are now being replicated globally under the Safe Cities philosophy.