Technical Requirements:

These are the minimum requirements required of any organizations taking part in a competitive tender process:

Documentation

1. High-level documentation with summary how systems will be integrated
2. MAF (Manufacturer Authorization Form) from proposed brands
3. Timeframe for delivery and installation of each product
4. Warranty coverage and period of each product
5. Personnel capacity for setup and support
6. Reference of completed projects

Active Network

- **Manageable & stackable L2 switches supporting 10 Gbps uplink, VSF/IRF or similar, VLANs, QoS, LACP, RRST, IEEE 802.1x, PoE+ AP/CCTV/VoIP, full Wi-Fi coverage of -65dbm @ AC1300**
- Core Switch:
    - 1 x Aruba 5406R zl2 with 16.07 or newer firmware (JL095A or J9821A)
    - 2 x 700W PSU (J9828A)
    - 1 x Rack mount kit (J9852A)
    - 1 x Management Module (J9827A – unless already included in the switch)
    - 2 x 8-port 10GbE SFP+ v3 module (J9993A)
    - 2 x 8-port 10GBase-T v3 module (J9995A)
    - 1 x 20-port 1000Base-T PoE+ / 4-port 10GbE SFP+ v3 module (J9990A)
- Access Switches:
    - Quantity: depends on port count
    - Aruba 2930F or similar, 2 x SFP+ ports or more, VSF or IRF stacking
- Transceivers:
    - SFP+
        - Quantity: 4 per Access Switches + 2 per Wi-Fi controller
        - Aruba-compatible, 10GBase-SR, duplex LC connector, DDM (J9150A or similar)
    - SFP Bi-Di
        - Quantity: 5
        - Aruba-compatible, 1000Base-BX, simplex LC connector, DDM, 20km, TX1310/RX1550nm (J9143B-BXU35 or similar)
- Gateway: CheckPoint 3200 Security Appliance, CPAP-SG3200-NGTP, rack mount kit
- Modem:
    - 4G/3G/2G, LTE band 3 & 20, external antenna (Netgear LB2120-100EUS or similar)
    - High-gain (7-10dBi) outdoor directional antenna with wall mount
    - 10 meters low-loss coax cable, adapter to connect antenna-cable-modem (if needed)
- Wi-Fi Access Points:
    - Quantity: according to heat-map of a site survey
    - Corridors: Aruba 300 or similar, minimum: -65dBm, 2x2:2 MU-MIMO, AC1300, PoE, BLE is optional
    - Pubic Areas: Aruba 300 or similar, minimum: -65dBm, 3x3:3 MU-MIMO, AC1300, PoE, BLE is optional
    - Controller: Aruba 7205 or similar, with license for all APs and Captive Portal, rack mount kit

1. CCTV
- **Fully IP infrastructure, 1/3" or 1/2.8" IP cameras, NVRs or recording server.**

- All cameras:
  - Quantity: **will be provided later**
  - 2 Megapixels, native 16:9
  - Main-stream: 1080p resolution
  - Sub-stream: 4CIF resolution
  - H.264 or H.265 encoding
  - 2.8mm fixed lens (Angle of View > 95°) or 2.8mm to 12mm verifocal lens
  - Auto-focus
  - PoE powered
  - Without infrared LEDs
  - (Digital) Wide Dynamic Range
  - Digital Noise Reduction
  - ONVIF is an advantage
  - Non-PTZ
- Indoor cameras: dome type, low light (< 0.03 Lux) only in areas without window
- Outdoor cameras: dome or bullet type, minimum IP66 ingress protection, defog, ultra-low light (< 0.01 Lux)
- NVR or recording server:
  - Quantity depending on capacity required to store every camera for 31 days
- 24/7 recording @ 10 fps in 1080p resolution
  - H.264 High or H.265 encoding
  - VBR or MBR @ 4 Mbps bitrate
  - RAID6 storage
  - License for all cameras (if required)
  - Rack mount kit
- Playback:
  - 3 x mini PC, each with 2 x DP or HDMI output (HP EliteDesk 705 G3 or similar, with 8 GB memory & SSD storage)
  - 3 x mini PC wall mount brackets (HP G1K22AA or similar)
  - 6 x monitors, 23-24 inch, full HD, LED, anti-glare, VESA
  - 6 x fixed wall mount brackets for monitors
  - 1 x USB 2.0 peripheral switch, 4 USB-in & 4 USB-out (IOGEAR GUS404 or similar)
  - 1 x USB CCTV control keyboard compatible with NVR or recording server (PTZ joystick not required)
  - Software (with license if required) to live view all cameras on 6 monitors