

# CCTV System Appendix

## St. Stephen 3rd Brdg - FC

### 1. Performances expected

The contractor warranty the following performances of the complete CCTV Solution:

#### ***Power supply availability***

- The CCTV System must be resilient in the event of a grid failure, by using a UPS device for the first 20 minutes. CBSA will ensure that a generator will take over the UPS before the runtime expires.

#### ***Video Viewing Performance***

- At minimum, all cameras must be configured to have live stream at the specified resolution and frame rate for each camera type, unless otherwise specified.
- The minimum frame rate in viewing mode must be 30 FPS, unless otherwise specified.

#### ***Video Recording Performance***

- At minimum, all cameras must be configured to record 24/7 continuously at the specified resolution and frame rate for each camera type, unless otherwise specified.
- The minimum frame rate for recording is 15 FPS, unless otherwise specified. Video Recording on motion should not be configured unless otherwise specified.

#### ***Video Playback Performance***

- At minimum, all cameras must be configured to playback at the specified resolution and frame rate for each camera type, unless otherwise specified.
- The minimum frame rate in Playback mode must be 15 FPS, unless otherwise specified.

#### ***Video Retention Period***

- The retention time for all camera footage must be of at least 30 days, unless otherwise specified.

#### ***Recording availability (Failover)***

- The video surveillance system must continue to record with the same performance, all camera footage in the event of a Video Recording Server failure.
- In the event of a machine failure of the Video Recording Server, a Video Recording Failover Server must be configured to take over automatically the recording in less than one (1) minute..
- The Video Recording Failover server must provide a minimum of 5 days of storage.
- Live and archived video associated with the Video Recording Failover Server must be accessible at all times by the client applications.

## 2. Requirements concerning the CCTV System equipment in General

The supplied equipment and services must meet or exceed all of the specifications defined below. The supplied equipment is to be new, not used either refurbished. Generally, where applicable, the equipment supplied must be compliant and compatible with the requirements of the existing CBSA environment that hosts the equipment; This includes, but not limited to the available electric power, the connection type, the available voltages and the heat dissipation capacity (BTU) of this environment. As an additional criteria, it is desirable where available, to utilise a higher voltage source, for greater efficiency and power saving. It is the contractor's responsibility to ensure that the equipment it provides and it installs respect this compliance and compatibility. Systems not meeting all the following Mandatory Specifications will be considered non-compliant.

Please note that compliance with the stated criteria must be demonstrated by submission of supporting documentation such as technical literature/brochures, operating manuals, and/or written statement describing how each requirement is met. If a bidder only states "comply" without any further details, this is not considered as a demonstration of compliance.

**Proposal evaluation will be based upon the information supplied with the bid only. Failure to demonstrate compliance with any area of the criteria will render your proposal non-responsive and no further consideration will be given. References are to be specific to supporting documentation (ex. document title, page, and paragraph number).**

The supplied equipment must be thoroughly tested prior to installation.

The submissioner must commit in a written maner in his proposal to provide detailed specifications sheets and documentations related to the CCTV equipment and installation to CBSA contracting authority for the concerned project.

By submitting a proposal, the submissioner commit to proceed to an acceptance test at the delivery phase based on the features and performances defined in the contract for the install of the CCTV System.

The supplied equipment and services must carry at least one year manufacturer's warranty covering parts and labor, where the contractor is the primary warranty contact for CBSA.

### **Glossary**

- Surveillance location: This is an area that one or several Officers can use to observe video surveillance images provided by one or more CCTV computers. These computers have embedded Client Management Software that are dedicated to allow viewing of live or playback videos, that can be interactively managed by the operator.
- Viewing Station: This is the workstation / computer dedicated to a video surveillance function where a Video Management Client Software is embedded in order to allow viewing of images from CCTV cameras and allows the Officer to interactively control the System through keyboard/mouse,...
- Monitor: This is a dedicated screen, usually connected to a Viewing Station located in the same Room as the screen. The monitor can extend the viewing capability of the standard/typical Viewing Station or can be used in order to investigate an event on a given camera while the regular screen displays the overview of the area of interest.
- Video Wall: This is a dedicated screen, typically connected to a Remote Viewing Station located in the Server Room. The Screen has fixed camera views and is not operated/controlled by the user, as the choice of the images are defined at the configuration phase. This is typically used within a control

Center, in order to have an overview of a given area.

### 3. CCTV System Architecture Specifications

#### St Stephen 3<sup>rd</sup> Bridge

- Version 2.6 -

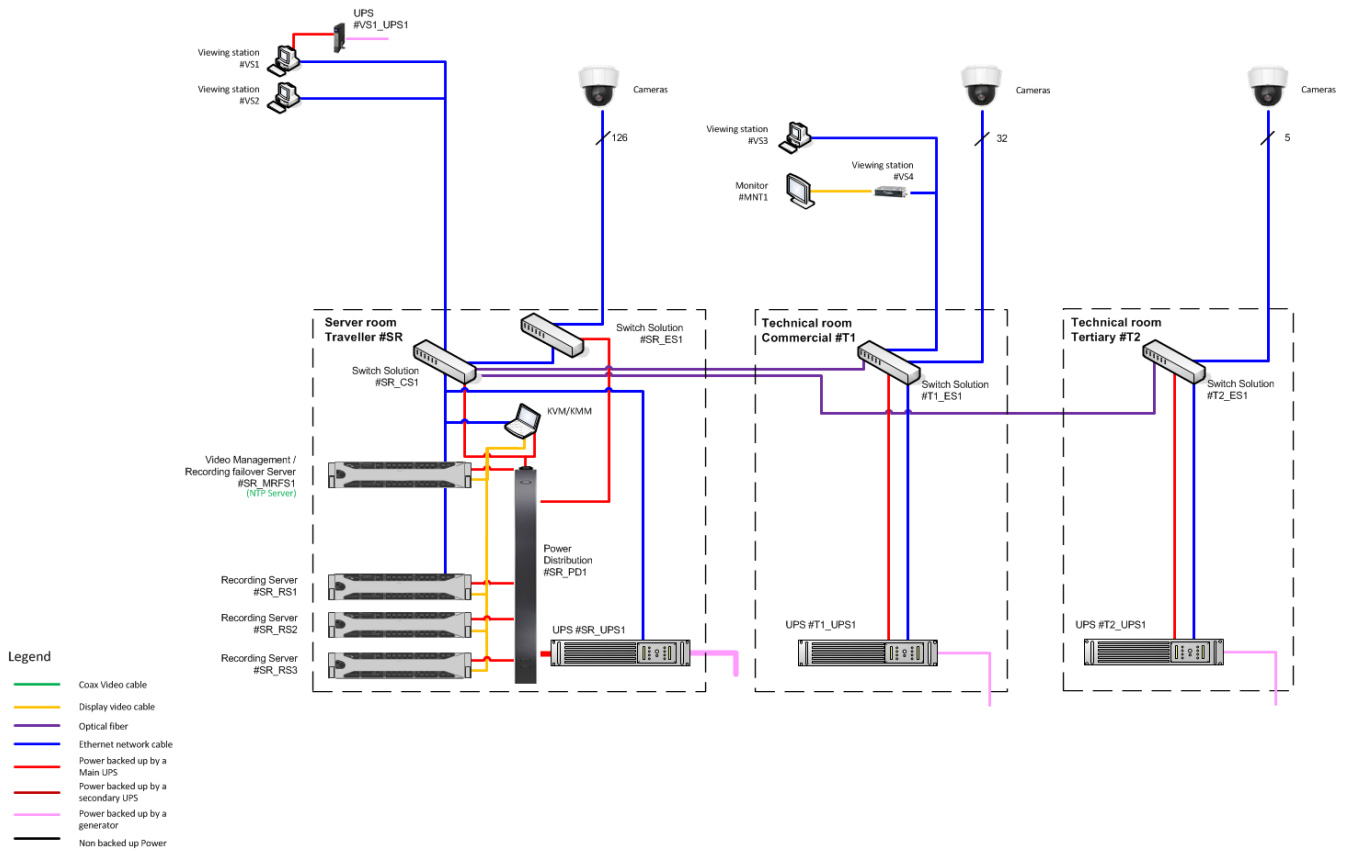


Figure 1 - CCTV System Architecture Diagram

The diagram above represents the CCTV System architecture for the CBSA controlled areas of the concerned POE site.

This management and recording device is sized to be able to manage about 163 cameras. The site includes a server room which contains the CCTV equipment including but not limited to, servers, switches, UPS as listed in the table below and all necessary IT accessories that will allow the assembly of these CCTV equipment.

The CCTV solution includes:

- One (1) x Video Management / Video Recording Failover Server
- Three (3) x Video Recording Server

Note that the first server hosts both the Video Management and the Video Recording Failover applications. Video recording for all cameras should be done by default on the Video Recording Servers. In the event of a Video Recording Server failure, all assigned cameras to this server must switch to record on the Video Management / Video Recording Failover Server.

The total capacity of the storage solution must be at least 129 TB and must allow in any cases a retention period of at least 30 days for each camera, while the backup storage which must be at least of 5 days is

estimated to be at least 20 TB.

The electrical power required for the Server Room must be at least 9.2 kW, in order to power the CCTV server rack and all CCTV equipment that are hosted there. The cooling system in the Server Room must also be capable of dissipating approximately 10,000 BTU heat generated by the equipment housed, and maintain a stable temperature according to the standards imposed by PWGSC.

Four viewing stations will allow operations officers to operate the video surveillance system.

The Video Management and Recording device located in the server room will be powered by a main UPS system that will be supported by the site generator. This main UPS will support the rack equipment in the server room, and may in case of power failure, keep the equipment power with a medium runtime, as defined in the UPS requirements table. Once the battery is below a minimum threshold, the UPS will softly shutdown all the equipment in a sequential manner.

All viewing stations will be powered by the circuit rescued supported by the site generator.

The main viewing stations, located in the main officer room will be powered by UPS.

## 4. CCTV System Equipment List

#	Equipment	Reference #
1	A1-01	D-1.2-80/VW5
2	A1-02	D-1.2-100:Co/V
3	A1-03	D-1.2-80/VW5
4	A1-04	D-2.3-100/VW5
5	A1-05	D-2.3-100:Co/V
6	A1-06	D-5-80/VEW1
7	A1-07	D-1.2-100:AU/V
8	A1-08	D-2.3-100:Co/V
9	A1-09	D-2.3-100:Co/V
10	A1-10	D-2.3-100:Co/V
11	A1-11	D-2.3-100:Co/V
12	A1-12	D-2.3-100:Co/V
13	A1-13	D-2.3-100/V
14	A1-14	D-1.2-80/VW5
15	A1-15	D-1.2-80/VW5
16	A1-16	D-1.2-80:Co/VW5
17	A1-17	D-1.2-80:Co/VW5
18	A1-18	D-1.2-100/V
19	A1-19	D-1.2-80:Co/VW5
20	A1-20	D-1.2-100:Co/V
21	A1-21	D-5-80/VEW1
22	A1-22	D-5-80/VEW1
23	A1-23	D-5-80/VEW1
24	A1-24	D-2.3-100/VW5
25	A1-25	D-2.3-100/VW5
26	A1-26	D-2.3-100/VW5
27	A1-27	D-1.2-100:Co/V
28	A1-28	C-1.5-120:11/V
29	A1-29	D-2.3-100/VW5
30	A1-30	D-1.2-100/V
31	A1-31	C-1.5-120:11/V
32	A1-32	D-1.2-100/V
33	A1-33	D-1.2-100/V
34	A1-34	D-1.2-80/VW5
35	A1-35	D-2.3-100/VW5

36	B-01	D-2.3-100:Co/V
37	B-02	D-2.3-100/V
38	B-03	D-2.3-100:Co/V
39	B-04	D-5-80/VEW1
40	B-05	D-5-80/VEW1
41	B-06	D-1.2-100/V
42	B-07	D-1.2-100:Au/V
43	B-08	D-1.2-100/V
44	B-09	D-1.2-100:Au/V
45	B-10	D-1.2-100:Au/V
46	B-11	D-1.2-100/V
47	B-12	D-1.2-100/V
48	B-13	D-2.3-100/VEW5
49	B-14	D-2.3-100:Co/V
50	B-15	D-1.2-100:Co/V
51	B-16	D-1.2-100/V
52	B-17	D-1.2-100:Co/V
53	B-18	D-1.2-100:Co/V
54	B-19	D-1.2-100:Co/V
55	B-20	D-1.2-100:Co/V
56	B-21	D-1.2-100/V
57	B-22	D-1.2-80/VW5
58	B-23	D-1.2-80/VW5
59	B-24	D-1.2-100/V
60	B-25	D-2.3-100/V
61	B-26	D-1.2-80/VW5
62	B-27	D-1.2-80/VW5
63	B-28	D-1.2-80/VW5
64	B-29	D-1.2-80/VW5
65	B-30	D-1.2-80/VW5
66	B-31	D-1.2-100:Co/V
67	B-32	D-2.3-100:Co/V
68	B-33	D-1.2-100/V
69	B-34	D-1.2-100/V
70	B-35	D-5-80/VEW1
71	B-36	D-5-80/VEW1
72	B-37	C-1.5-120:11/V
73	B-38	C-1.5-120:11/V
74	B-39	D-1.2-80/VW5
75	C-1	D-2.3-100/VW5

76	C-2	D-2.3-100/VW5
77	EX-001	D-5-80/VEW1
78	EX-002	D-5-80/VEW1
79	EX-003	D-2.3-100/VEW5
80	EX-004	D-2.3-100:Co/VEW5
81	EX-005	D-2.3-100:Co/VEW5
82	EX-006	D-2.3-100/VEW5
83	EX-007	D-2.3-100/VEW5
84	EX-008	D-5-80/VEW1
85	EX-009	D-5-80/VEW1
86	EX-010	D-5-80/VEW1
87	EX-011	D-5-80/VEW1
88	EX-012	D-2.3-100/VEW5
89	EX-013	Z-1-60-x30/E
90	EX-014	Z-1-60-x30/E
91	EX-015	D-2.3-100/VEW5
92	EX-016	D-2.3-100/VEW5
93	EX-017	D-2.3-100/VEW5
94	EX-018	D-2.3-100/VEW5
95	EX-019	D-5-80/VEW1
96	EX-020	D-2.3-100:Co/VEW5
97	EX-021	D-2.3-100:Co/VEW5
98	EX-022	D-2.3-100:Co/VEW5
99	EX-023	D-2.3-100:Co/VEW5
100	EX-024	D-2.3-100/VEW5
101	EX-025	D-2.3-100:Co/VEW5
102	EX-026	D-2.3-100:Co/VEW5
103	EX-027	D-2.3-100:Co/VEW5
104	EX-028	D-2.3-100/VEW5
105	EX-029	D-2.3-100:Co/VEW5
106	EX-030	D-2.3-100:Co/VEW5
107	EX-031	D-2.3-100:Co/VEW5
108	EX-032	D-2.3-30/VEW5
109	EX-033	D-2.3-30/VEW5
110	EX-034	D-2.3-30/VEW5
111	EX-035	D-2.3-100:Co/VEW5
112	EX-036	D-2.3-100:Co/VEW5
113	EX-037	D-2.3-100/VEW5
114	EX-038	D-2.3-100/VEW5
115	EX-039	D-2.3-100/VEW5



116	EX-040	D-2.3-100:Co/VEW5
117	EX-041	D-2.3-100:Co/VEW5
118	EX-042	D-2.3-100/VEW5
119	EX-043	D-2.3-100/VEW5
120	EX-044	D-2.3-100/VEW5
121	EX-045	D-2.3-100/VEW5
122	EX-046	D-5-80/VEW1
123	EX-047	D-2.3-100/VEW5
124	EX-048	Z-1-60-x30/E
125	EX-049	Z-1-60-x30/E
126	EX-050	D-2.3-100/VEW5
127	EX-051	D-2.3-100:Co/VEW5
128	EX-052	D-2.3-100/VEW5
129	EX-053	D-2.3-100/VEW5
130	EX-054	Z-1-60-x30/E
131	EX-055	Z-1-60-x30/E
132	EX-056	Z-1-60-x30/E
133	EX-057	Z-1-60-x30/E
134	EX-058	D-2.3-100/VEW5
135	EX-059	D-2.3-100:Co/VEW5
136	EX-060	D-2.3-100/VEW5
137	EX-061	D-2.3-100/VEW5
138	EX-062	D-2.3-100/VEW5
139	EX-063	D-2.3-100/VEW5
140	EX-064	D-2.3-100/VEW5
141	EX-065	D-2.3-100/VEW5
142	EX-066	D-2.3-100/VEW5
143	EX-067	D-2.3-100/VEW5
144	EX-068	D-2.3-100/VEW5
145	EX-069	D-2.3-100:Co/VEW5
146	EX-070	D-2.3-100:Co/VEW5
147	EX-071	D-2.3-100:Co/VEW5
148	EX-072	D-2.3-100:Co/VEW5
149	EX-073	D-2.3-100:Co/VEW5
150	EX-074	D-2.3-100:Co/VEW5
151	EX-075	D-2.3-100/VEW5
152	EX-076	D-2.3-100/VEW5
153	EX-077	D-2.3-100:Co/VEW5
154	EX-078	D-2.3-100/VEW5
155	EX-079	D-1.2-80/VEW5

156	EX-080	D-2.3-100/VEW5
157	EX-081	D-2.3-100/VEW5
158	EX-082	D-1.2-80/VEW5
159	EX-083	D-1.2-80/VEW5
160	EX-084	D-2.3-100:Co/VEW5
161	EX-085	D-2.3-100:Co/VEW5
162	EX-086	D-2.3-100:Co/VEW5
163	EX-087	D-5-80:Co/VW1
164	Rack #SR_R1	RCK-4532:GEN
165	Rack #T1_R1	RCK-W-1826:GEN
166	Rack #T2_R1	RCK-W-1826:GEN
167	Joystic #1	JOY-I:U
168	Kmm #1	KMM:VGA-2USB
169	Kvm #1	KVM:8
170	MNT1	UI-MNT:46
171	Power distribution #SR_PD1	PDS-U/8
172	Management / Recording Failover Server	SRV-R-L:MRF/R5-18TB
173	Recording Server #SR_RS1	SRV-R-L:R/R6-42TB
174	Recording Server #SR_RS2	SRV-R-L:R/R6-42TB
175	Recording Server #SR_RS3	SRV-R-L:R/R6-42TB
176	Switch Solution #SR_CS1	SWT-R:C
177	Switch Solution #SR_ES2	SWT-R:E/POE+
178	Switch Solution #T1_ES1	SWT-R:E/POE+
179	Switch Solution #T2_ES1	SWT-R:E/POE+
180	UPS #SR_UPS1	UPS-R:H7.5
181	UPS #T1_UPS1	UPS-R:M1.5
182	UPS #T2_UPS1	UPS-R:S0.7
183	UPS #VS1_UPS1	UPS-R:M1.5
184	Viewing Station #VS1	VST-D-G2-M32:CV/16H
185	Viewing Station #VS2	VST-D-M24:CV/9H
186	Viewing Station #VS3	VST-D-G2-M32x2:CV/16H
187	Viewing Station #VS4	VST-D-G2-M27:CV/16H
188	Client for Viewing Station #1	VMS-C
189	Client for Viewing Station #2	VMS-C
190	Client for Viewing Station #3	VMS-C
191	Client for Viewing Station #4	VMS-C
192	Video Management Software #SR_VMS1	VMS-M/LR

## 4.1. Equipment summary

Reference #	Equipment count
D-1.2-80/VW5	13
D-1.2-100:Co/V	9
D-2.3-100/VW5	8
D-2.3-100:Co/V	10
D-5-80/VEW1	16
D-1.2-100:Au/V	4
D-2.3-100/V	3
D-1.2-80:Co/VW5	3
D-1.2-100/V	13
C-1.5-120:11/V	4
D-2.3-100/VEW5	37
D-2.3-100:Co/VEW5	28
Z-1-60-x30/E	8
D-2.3-30/VEW5	3
D-1.2-80/VEW5	3
D-5-80:Co/VW1	1
RCK-4532:GEN	1
RCK-W-1826:GEN	2
JOY-I:U	1
KMM:VGA-2USB	1
KVM:8	1
UI-MNT:46	1
PDS-U/8	1
SRV-R-L:MRF/R5-18TB	1
SRV-R-L:R/R6-42TB	3
SWT-R:C	1
SWT-R:E/POE+	3
UPS-R:H7.5	1
UPS-R:M1.5	2
UPS-R:S0.7	1
VST-D-G2-M32:CV/16H	1
VST-D-M24:CV/9H	1
VST-D-G2-M32x2:CV/16H	1
VST-D-G2-M27:CV/16H	1
VMS-C	4
VMS-M/LR	1

## 5. Cabling Recommendations

### ***Cabling standards***

CBSA CCTV systems cabling must meet at least the following list of standards, where applicable:

- ANSI/TIA/EIA-568B (or CAN/CSA T529 M), Commercial Building Telecommunications wiring standard and all the Telecommunications Bulletin Boards (TSBs') and Addenda issued by the above standard body at the time of tender.
- CSA C22.1 Canadian Electrical Code, Part 1 19TH Edition (2002) and BC Amendments.
- CAN/CSA C22.2 No. 232-M Optical Fibre Cables
- EIA/TIA-568-B2 (2001) Commercial Building Standard for Telecommunications Cabling Standard Part 2 (Balanced Twisted – Pair Cable component).
- EIA/TIA-606-A (2002) - Administration Standard for Commercial Telecommunications appendix.
- ANSI/EIA/TIA-607 (or CSA T527), Commercial Building Grounding and Bonding requirements for telecommunications.
- BICSI Telecommunications Distribution Method Manual 10th Edition.
- BICSI Information Transport System Manual 4th Edition
- CAN/ULC S102.4-M – (1987) Test for Fire and Smoke Characteristics of electrical Wiring and Cable
- ANSI/TIA/EIA-492AAAB (1998), Detailed Specification for 50mm Core Diameter/125 mm Cladding Diameter Class 1a Multimode, Graded-Index Multimode Optical Waveguide Fibres.
- ANSI/TIA/EIA-492BAAA, Detailed Specifications for Class IVa Dispersion-Unshifted Singlemode Optical Waveguide Fibres Used In Communications Systems.
- ANSI/TIA/EIA-455-61, FOTP-61 Measurement of Fibre or Cable Attenuation
- ANSI/TIA/EIA-526-14A, OFSTP14A (1998) Optical Power Loss Measurement of Installed Multimode Fibre Cable Plant.
- ANSI/TIA/EIA-604-3, FOCIS 3 Fibre Optic Connector Intermateability Standard.
- ANSI/ICEA S-83-596, Fibre Optic Premises Distribution Cable
- National Building Code / Provincial Building Code
- ANSI Z136.2, American Standards For The Safe Operation Of Optical Fibre Communication Systems Utilizing Laser Diode And LED Sources.
- Treasury Board Information Technology Standard (TBITS) No. 6.9 – Profile for the Telecommunications Wiring System in Government Owned and Leased Buildings.
- ANSI/TIA-568 C.0-2009, Generic Telecommunication Cabling for Customer Premises.
- ANSI/TIA-568 C.1-2009, Commercial Building Telecommunications Cabling Standard.
- ANSI/TIA-568 C.2-2009, Balanced Twisted Pair Telecommunications Cabling and Components Standard.
- TIA-569B Commercial Building Standard for Telecommunications Pathways and Spaces

### ***Location of conduits***

Given that the CCTV cameras transmit “Protected B” data over a network or coaxial cable, dedicated conduits for the exposed CCTV cables and equipment must be provided in accordance not only with applicable electrical standards, but also with *Shared Services Canada's* data protection requirements.

The CCTV conduits must be routed and sized based on the CCTV System Design Document (D), which

specifies the physical location of the cameras throughout the buildings and the grounds surrounding them.

### ***Size of conduits***

The size of the CCTV conduits will depend on the cables to be run through them, which will depend on the selected camera groupings.

### ***Type of cabling***

The cabling installed for the CCTV System must meet all applicable fire and building codes, including the use of plenum rated cabling where required by the building code.

Generally speaking, unless otherwise specified, all IP cameras installed at the site will be connected through a single network cable using PoE (power over Ethernet). Therefore, a single network cable, Cat 6 or higher, will be required per camera. Where the cable can reach the server room directly (critical distance of less than ~80 m), the switch supplies power to the cameras through its PoE ports.

For each analog camera, a coaxial wiring is needed as well as a specific wiring for the power supply.

### ***PTZ-specific cabling***

The PoE standard for PTZ IP cameras, that is, their power supply standard, is different from that of conventional cameras, since they require a power supply of 60 watts, as opposed to the traditional 15 to 30 watts. Because of line loss, they therefore cannot be powered from the server room. One injector per PTZ camera must therefore be provided, and these high-PoE “super injectors” need to be positioned (and protected from weather) along the PTZ camera cable route, as close to the camera as possible. These injectors must be properly electrically powered.

For each analog PTZ camera, a coaxial wiring is needed as well as a specific wiring for the power supply and the command.

### ***Potential need for indoor/outdoor junction boxes***

If the length of the standard network cables exceeds the critical distance of about ~80 m and depending on the criteria of *Shared Services Canada*, an indoor or outdoor (as applicable) junction box will be required. This junction box will have a switch function, properly electrically powered, to enable the connection of all cameras within a radius of less than 80 m and interconnect via fibre-optic to the server room.

Generally speaking, if the boxes are not in an area with restricted access, they must be capable of being locked by key and it must be specified if they are intended for an outdoor environment.

### ***Server room cabling***

The server room must have the required electrical power specified in the CCTV system specification document (S) to power all of the planned CCTV equipment, and must have an air conditioning system capable of evacuating the quantity of heat also indicated in the CCTV system specification document (S), in accordance with the standards set by *Public Works and Government Services Canada*. Bidders are responsible for proposing equipment that is compatible and consistent with the electrical environment and heat dissipation of the server room.

## 6. Camera Specifications

General Camera Specifications <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Open Architecture</b>	<ul style="list-style-type: none"> <li>Cameras must be IP if not specifically mentioned.</li> <li>Cameras must support ONVIF profile S.</li> <li>All camera connected to the VMS must be approved and explicitly certified by the manufacturer.</li> </ul>	
<b>Video</b>	<p>If the camera is IP, it must support the following video settings:</p> <ul style="list-style-type: none"> <li>Multiple compressions formats, including but not limited to H.264 and MJPEG.</li> <li>Camera must be able to output at least two video streams simultaneously and must also support simultaneous streaming of multiple formats.</li> <li>Frame rate must be controllable for each stream.</li> </ul>	
<b>Power</b>	IP Cameras must be POE or High POE compatible.	
<b>Disabled Audio</b>	All cameras which are audio capable must have audio capability disabled from the camera and video management software (VMS), unless otherwise noted.	
<b>Exposure Settings</b>	<ul style="list-style-type: none"> <li>Must be configurable for different lighting conditions such as shutter speed, and gain.</li> <li>Must allow an automatic compensation of the image level with regard to the lighting conditions variations</li> </ul>	
<b>Connectivity</b>	All cameras of the CCTV System must be wired, except where this is specifically mentioned. This also applies, without limitation, to cameras for elevator , etc...	

Reference: D-1.2-100/V  
 Indoor Camera 1.2MP Wide Angle, Vandal Resistant  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 95 and 110 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have approximately a 1.2 mega pixel (MP) resolution @ $\pm 10\%$ tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Example</b>	Camera such as Axis P3364-V 6mm or similar can be used.	

Reference: Z-1-60-x30/E Outdoor PTZ Camera 1MP <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP66 or better. The camera assembly must have an operating temperature range between -40 to +40 C. A custom enclosure will not be considered acceptable.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 55 and 65 degrees.	
<b>Focus</b>	The camera must have auto focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	Camera must have about 1 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least 30X optical zoom.	
<b>Range of motion</b>	Must have a pan range of 360 degrees endless. Must have a tilt range of at least 180 degrees.	
<b>Preset positions</b>	The camera must have at least 100 preset positions	
<b>Return Home when inactive</b>	The camera PTZ must be able to return in a Home position automatically when a period of inactivity is detected. A configuration tool for the PTZ must be able to define this period of inactivity in a range from 1 second to 5 minutes.	
<b>Example</b>	Camera such as Axis Q6054-E or similar can be used.	



Reference: D-5-80/VEW1  
 Outdoor Camera 5MP, Vandal Resistant, Wide Dynamic Range  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP66 or better. The camera assembly must have an operating temperature range between -40 to +40 C. A custom enclosure will not be considered acceptable.	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 75 and 85 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 12 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	Camera must have about 5 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Wide Dynamique Range</b>	The camera must feature 'Wide Dynamic Range'.	
<b>Example</b>	Camera such as Axis P3367-VE or similar can be used.	

Reference: D-1.2-80/VW5  
 Indoor Camera 1.2MP, Vandal Resistant, Very Wide Dynamic Range  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 75 and 85 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have approximately a 1.2 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Wide Dynamique Range</b>	The camera must feature at least 120 dB of 'Wide Dynamic Range'	
<b>Example</b>	Camera such as Axis P3384-V or similar can be used.	

Reference: D-1.2-80/VEW5  
 Outdoor Camera 1.2MP, Vandal resistant, Very Wide Dynamic Range  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP66 or better. The camera assembly must have an operating temperature range between -40 to +40 C. A custom enclosure will not be considered acceptable.	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 75 and 85 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have approximately a 1.2 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Wide Dynamique Range</b>	The camera must feature at least 120 dB of 'Wide Dynamic Range'	
<b>Example</b>	Camera such as Axis P3384-VE or similar can be used.	

Reference: D-1.2-100:Co/V Indoor Camera 1.2MP Wide Angle, Corridor Format <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 95 and 110 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have approximately a 1.2 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Corridor</b>	The camera must support a rotation of 0°, 90°, 180° and 270°. The camera must be installed and configured to be in corridor mode where the orientation is vertical "portrait".	
<b>Example</b>	Camera such as Axis P3364-V 6mm or similar can be used.	

Reference: D-2.3-100/V <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 95 and 110 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have about 2.3 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	

Reference: D-2.3-100/VW5  
 Indoor Camera 2.3MP, Vandal Resistant, Very Wide Dynamic Range  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 95 and 110 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have about 2.3 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Wide Dynamique Range</b>	The camera must feature at least 120 dB of 'Wide Dynamic Range'	
<b>Example</b>	Camera such as Axis Q3505-V or similar can be used.	

Reference: D-2.3-100/VEW5

Outdoor Camera 2.3MP, Vandal Resistant, Very Wide Dynamic Range

*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP66 or better. The camera assembly must have an operating temperature range between -40 to +40 C. A custom enclosure will not be considered acceptable.	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 95 and 110 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have about 2.3 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Wide Dynamique Range</b>	The camera must feature at least 120 dB of 'Wide Dynamic Range'	
<b>Example</b>	Camera such as Axis Q3505-VE or similar can be used.	

Reference: D-2.3-100:Co/V  
 Indoor Camera 2.3MP, Vandal Resistant, Corridor Format  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 95 and 110 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have about 2.3 mega pixel (MP) resolution @ $\pm 10\%$ tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Corridor</b>	The camera must support a rotation of 0°, 90°, 180° and 270°. The camera must be installed and configured to be in corridor mode where the orientation is vertical "portrait".	
<b>Example</b>	Camera such as Axis Q3505-V or similar can be used.	

Reference: D-1.2-100: Au/V  
 Indoor Camera 1.2MP Wide Angle, Vandal Resistant, with audio  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 95 and 110 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have approximately a 1.2 mega pixel (MP) resolution @ $\pm 10\%$ tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Audio</b>	Camera must have at least one audio input port that uses a standard 3.5mm plug, so that a microphone may be connected to the camera to receive audio.	
<b>Example</b>	Camera such as Axis P3364-V 6mm or similar can be used.	



Reference: C-1.5-120:11/V  
 Indoor Camera 1.5MP, Corner, Vandal Resistant  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be contained in a corner mount housing, having no grip design and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 115 and 125 degrees.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	Camera must have approximately a 1.5 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Privacy mask</b>	Must support privacy mask	
<b>Infrared illuminator built-in</b>	The camera must feature integrated IR illumination.	
<b>Example</b>	Camera such as Bosch Flexidome IP corner 9000MP or similar can be used.	

Reference: D-1.2-80:Co/VW5 Indoor Camera 1.2MP, Vandal Resistant, Very Wide Dynamic Range, corridor format <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 75 and 85 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have approximately a 1.2 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Wide Dynamique Range</b>	The camera must feature at least 120 dB of 'Wide Dynamic Range'	
<b>Corridor</b>	The camera must support a rotation of 0°, 90°, 180° and 270°. The camera must be installed and configured to be in corridor mode where the orientation is vertical "portrait".	
<b>Example</b>	Camera such as Axis P3384-V or similar can be used.	

Reference: D-2.3-30/VEW5  
 Indoor Camera 2.3MP, Vandal Resistant, Very Wide Dynamic Range  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP66 or better. The camera assembly must have an operating temperature range between -40 to +40 C. A custom enclosure will not be considered acceptable.	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 25 and 35 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have about 2.3 mega pixel (MP) resolution @ ± 10% tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Wide Dynamique Range</b>	The camera must feature at least 120 dB of 'Wide Dynamic Range'	
<b>Example</b>	Camera such as Axis Q3505-VE or similar can be used.	

Reference: D-2.3-100:Co/VEW5

Outdoor Camera 2.3MP, Vandal Resistant, Very Wide Dynamic Range, Corridor Format

*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP66 or better. The camera assembly must have an operating temperature range between -40 to +40 C. A custom enclosure will not be considered acceptable.	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 95 and 110 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 30 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	The camera must have about 2.3 mega pixel (MP) resolution @ $\pm 10\%$ tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Wide Dynamique Range</b>	The camera must feature at least 120 dB of 'Wide Dynamic Range'	
<b>Corridor</b>	The camera must support a rotation of 0°, 90°, 180° and 270°. The camera must be installed and configured to be in corridor mode where the orientation is vertical "portrait".	
<b>Example</b>	Camera such as Axis Q3505-VE or similar can be used.	

Reference: D-5-80:Co/VW1  
 Indoor Camera 5MP, Vandal Resistant, Wide Dynamique Range, Corridor Mode  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Enclosure</b>	The camera must be resistant to tampering. The camera must be contained in Dome housing type and securely mounted.	
<b>Environment</b>	The camera assembly must be dustproof and waterproof and must be rated IP52 or better. Only a compliant manufacturer approved enclosure may be considered acceptable	
<b>VandalProof</b>	These cameras must be resistant to vandalism and tampering. Must be rated IK10 or better.	
<b>Field of View</b>	The camera must provide a maximal horizontal field of view between 75 and 85 degrees.	
<b>Focus</b>	The camera must have remote focus.	
<b>Frame per Second (FPS)</b>	The camera must be able to support at least 12 frames per second at the minimum resolution specified above.	
<b>Night Capability</b>	The camera must be a true Day/Night camera with a mechanical IR cut filter.	
<b>Native Resolution</b>	Camera must have about 5 mega pixel (MP) resolution @ $\pm 10\%$ tolerance.	
<b>Optical zoom</b>	The camera must support at least a 2X optical zoom.	
<b>Wide Dynamique Range</b>	The camera must feature 'Wide Dynamic Range'.	
<b>Corridor</b>	The camera must support a rotation of 0°, 90°, 180° and 270°. The camera must be installed and configured to be in corridor mode where the orientation is vertical "portrait".	
<b>Example</b>	Camera such as Axis P3367-V or similar can be used.	

## 7. Rack Specifications

This section contains the minimum performance specifications with respect to power, temperature, humidity and dust control in a server room/enclosure which contains the servers, UPS systems, switches, local workstations, etc.

For server rooms, the *PWGSC Mechanical Design Guidelines - MD 15116-2006 "Computer Room Air Conditioning Systems"* is to be followed. Where a server room is not available, an environmentally controlled, secure rack enclosure is specified.

<http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/tech/telecommunications/im-id-15116-06-eng.html>

Power specifications and estimated BTU load for the server room/enclosure are to be included in vendor proposals.

General Rack Specifications <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>General</b>	<p>Some performance are required with respect to power, temperature, humidity and dust control in a server room/enclosure which contains the servers, UPS systems, switches, local workstations, etc.</p> <p>Where applicable, the "<i>PWGSC Mechanical Design Guidelines - MD 15116-2006 Computer Room Air Conditioning Systems</i>" (<a href="http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/tech/telecommunications/im-id-15116-06-eng.html">http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/bi-rp/tech/telecommunications/im-id-15116-06-eng.html</a>) is to be followed for server rooms. Where a server room is not available, an environmentally controlled, secure rack enclosure can be specified.</p> <p><b>Important</b> : Power requirements and estimated BTU load for the server room/enclosure are to be included in vendor proposals.</p>	

Reference: RCK-4532:GEN  
 Large Video Surveillance Enclosure  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Function</b>	The enclosure must be able to contain all servers, the UPS, switch(es) and IT accessories of the CCTV system.	
<b>Standards</b>	The enclosure must be compliant with approved safety standards for use in Canada.	
<b>Form Factor</b>	<ul style="list-style-type: none"> <li>• The enclosure must be a Server Rack type.</li> <li>• The enclosure must be standalone and closed.</li> <li>• The enclosure must be a 4 Post Server Equipment Rack Enclosure type.</li> <li>• The enclosure must have vertical Wire Managers.</li> </ul>	
<b>Sizes</b>	<p>The enclosure must be a « Rackmount » standard <b>with</b> a width of 19".</p> <p>The enclosure must have sufficient <b>depth</b> to accommodate all the CCTV equipment for which the cabinet is dedicated and depth must be surpérieure or equal to 32".</p> <p>The enclosure must have sufficient useful <b>height</b> to contain all the CCTV equipment for which the cabinet is dedicated and height must be less than or equal to 45U.</p>	
<b>Front Panel</b>	Must be a key locking door.	
<b>Rear Panel</b>	Must be a key locking door.	
<b>Knockouts</b>	The enclosure must have electrical knockouts at the top and bottom of the rack for the passage of all the network cables and power wires.	
<b>Rack Ventilation</b>	<p>The enclosure must have side vented panels and vented panel at the rear and front door so that there can be a ventilation and an access control to the embedded equipment.</p> <p>The enclosure must have at least one (1) fan at the top panel.</p>	
<b>Wheels</b>	The enclosure must have wheel installed.	
<b>Example</b>	Rack such as Middle Atlantic BGR-SA Series Rack - 45 RU - 32 or similar can be used.	

Reference: RCK-W-1826:GEN Small Wall Mount Video Surveillance Enclosure <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The enclosure must be able to contain all servers, the UPS, switch(es) and IT accessories of the CCTV system.	
<b>Standards</b>	The enclosure must be compliant with approved safety standards for use in Canada.	
<b>Form Factor</b>	The enclosure must be a Server Rack type. The enclosure must be standalone and closed. The enclosure must be a Wall Mount Server Equipment Rack Enclosure type. The equipment bearing portion is hinged to allow it to be swung open for accessibility to equipment rear panels, wiring and wiring conduits. The enclosure must have Wire Managers.	
<b>Sizes</b>	The enclosure must be a « Rackmount » standard <b>with</b> a width of 19". The enclosure must have sufficient <b>depth</b> to accommodate all the CCTV equipment for which the cabinet is dedicated and depth must be surpérieure or equal to 26".  The enclosure must have sufficient useful <b>height</b> to contain all the CCTV equipment for which the cabinet is dedicated and height must be less than or equal to 18U.	
<b>Knockouts</b>	The enclosure must have electrical knockouts at the top of the rack for the passage of all the network cables and power wires.	
<b>Lock</b>	The enclosure must have a front door that can be locked by key, as well as the same key lock to secure the hinged sections together.	
<b>Rack Ventilation</b>	The enclosure must have side vented panel and vented front door so that there can be a ventilation and an access control to the embedded equipment. The enclosure must have at least one (1) fan at the top or bottom panel.	
<b>Holding</b>	The wall mount enclosure must be able to be firmly anchored to the supporting structure, taking into account all the manufacturer's related stipulations. The gauge and construction must be rated to support the weight of the equipment to be housed with a minimum 50% margin.	
<b>Example</b>	Rack such as Middle Atlantic DWR Series Rack - 18 RU - 26 or similar can be used.	



## 8. Joystick Specifications

Reference: JOY-I:U 3 axis joystick device for video surveillance <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The video surveillance joystick must allow to select a specific PTZ on a LAN and to control it according to all axes: vertical, horizontal and according to the zoom.	
<b>Form Factor</b>	The device is a finished product consisting of one or two boxes  Contains an ergonomic joystick control and a keypad  Must be able to easily fit on a desk	
<b>PTZ comand function</b>	The joystick-type device must have a 3-axis joystick, with a rotary knob.	
<b>Keyboard function</b>	The joystick device must have integrated or separately, a keypad dedicated to video surveillance, that allows to select the device to control.	
<b>Compatibility</b>	The joystick must be compatible with the version of Windows and also the VMS client software installed on the viewing station.	
<b>Connexion</b>	The joystick device must be able to connect the viewing station via USB.	
<b>Example</b>	Joystick such as Axis T8311, Axis T8312 or similar can be used.	

## 9. KVM/KMM Specifications

Reference: KMM:VGA-2USB Keyboard, Monitor and Mouse, rack format <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The device is an KMM integrated COTS product which includes the keyboard, monitor and mouse functions.	
<b>Form Factor</b>	<ul style="list-style-type: none"> <li>• The product must have a closable display screen.</li> <li>• Width: The product must have 19-inch wide rack format, meeting the industry standards for installation purposes in a rack or cabinet.</li> <li>• Height: The closed product must not exceed a 1U high.</li> <li>• The product must have rails that allow drag the KMM outside the server rack and open the display screen.</li> </ul>	
<b>Input</b>	The product must have a keyboard and a "touchpad"	
<b>Connectivity</b>	The KMM must be able to connect with a VGA (DB-15) and 2 USB 3.0 ports interfaces.	
<b>Monitor resolution</b>	The product must have a screen resolution of at least 1366 X 768.	
<b>Monitor size</b>	The product must include a 18.5 " or more, LCD or LED display screen.	
<b>Power supply</b>	The device must be able to be powered on 120VAC and 230VAC.	
<b>Example</b>	KVM/KMM such as Dell DKMMLED185-G01 - 18.5" 1U KMM Console or similar can be used.	

Reference: KVM:8  
 Analog KVM Switch, rack format  
*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Function</b>	<ul style="list-style-type: none"> <li>• The device is an KVM integrated COTS product (keyboard, video and mouse) for the inter connection between a set of monitor / keyboard / mouse and serveral computers or servers.</li> <li>• The product allows switching and visualization using a KMM or remotely through an Ethernet connection.</li> </ul>	
<b>Form Factor</b>	<ul style="list-style-type: none"> <li>• Width: The product must have 19-inch wide rack format, meeting the industry standards for installation purposes in a rack or cabinet.</li> <li>• Height: The closed product must not exceed a 1U high.</li> </ul>	
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>• The KVM must have at least eight (8) ports each comprising: an analog VGA, mouse &amp; keyboard connection.</li> <li>• The KVM needs access to the equipment by all following links: USB, PS2 and Serial.</li> <li>• The KVM must have at least a TCP / IP network connection for remote access.</li> <li>• The KVM must have at least one connection port for remote access by telephone modem.</li> </ul>	
<b>Power supply</b>	The device must be able to be powered on 120VAC and 230VAC.	
<b>Example</b>	KVM/KMM such as KVM Avocent MergePoint Unity MPU108EDAC-001 1U or similar can be used.	

## 10. Monitor Specifications

Reference: UI-MNT:46 46 inch monitor for viewing station <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The main function of the product must be a Monitor.	
<b>Monitor Size</b>	Must have 46" connected LCD or LED monitor.	
<b>Monitor Resolution</b>	Monitor(s) must have a minimum of 1920 X 1080 image resolution.	
<b>Monitor Angle of view</b>	The monitor must have a horizontal and vertical angle of view equal or better than 175 degrees.	
<b>Monitor Static contrast</b>	The monitor must have a static contrast ratio equal or better than 1000:1	
<b>Monitor connexion</b>	<ul style="list-style-type: none"> <li>• The monitor must be able to be connected through HDMI and one of these two VGA or DVI-i types of connexion.</li> <li>• If the distance between the monitor and the computer or server exceeds the recommended limit for this type of connection, a video extender system must be installed to maintain the quality of the video signal between the computer or server and the monitor.</li> </ul>	

## 11. Power Distribution Unit Specifications

Reference: PDS-U/8 Power Distribution Solution <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	<ul style="list-style-type: none"> <li>The Power Distribution System (PDS) must be able to manage the power distribution of all the <b>equipment supported by the main UPS</b>, such as servers and other IT equipment.</li> <li>The PDS solution can be comprised of one or more Power Distribution Units (PDU).</li> </ul>	
<b>Form Factor</b>	The PDS solution must be « Rackmount » standard, Width of 48.26 cm (19")	
<b>Power</b>	The PDS solution must be able to support the power rating of all the CCTV equipment connected to it and must be able to distribute at least 8 kVA in total.	
<b>Input</b>	The PDS solution input must be compatible with the electrical ratings of the environment to which it is connected in the CCTV rack. This means that the voltage and frequency rating and connection type must be compatible.	
<b>Output</b>	<ul style="list-style-type: none"> <li>The PDS solution outputs must be compatible with the CCTV equipment to which they are connected in the CCTV rack. This means that the voltage and frequency rating and connection type must be compatible.</li> <li>The PDS solution must have enough outputs in order to be able to distribute power to all the CCTV equipment hosted by the CCTV rack with at least 3 spare outputs.</li> </ul>	
<b>Network Management</b>	<ul style="list-style-type: none"> <li>Must have network management interfaces that provide standards-based management via Web, SNMP and Telnet.</li> <li>Must allow users to access, configure, and manage units remotely.</li> </ul>	
<b>Power delays</b>	The PDS solution must be able to allow users to configure the sequence in which power is turned on or off for each outlet.	
<b>Visual indicators</b>	The PDS solution must be able to visually indicate overload and warning conditions, based on the user-defined alarm thresholds.	
<b>Example</b>	Power Distribution Unit such as APC Switched Rack PDUs AP79xx or AP89xx series or similar can be used.	

## 12. Server Specifications

General Server Specifications <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>General</b>	<p>In the proposed solution, Servers must be provided with all the accessories, connectors, cables and firmware required to have a complete installation for a proper functional CCTV System based on the performance specified in this document.</p> <p>In the proposed solution, the servers must be able to be individually switched on or off, for maintenance or emergency purposes.</p> <p>In case of failure requiring replacement, the default server must be able to be independently replaced with a new server, without having to change the remaining functional servers.</p> <p>The Video Management software and the Video Recording Failover software must be installed on the same physical machine.</p> <p>RAID 6 setup is required for regular Video Recording Server storage, unless otherwise specified.</p> <p>RAID 5 setup is required for Video Recording Failover Server storage, unless otherwise specified.</p> <p>RAID 1 setup is required for all OS/Application drives.</p> <p>The availability Function <b>cannot be</b> done by using "redundant storage" of recorded video on multiple servers, unless otherwise specified.</p>	

Reference: SRV-R-L:MRF/R5-18TB  
 Video Management System / Video Recording Failover Server  
 All stated requirements are mandatory

Reference to bid document (document name, page, and paragraph number)

<b>Function Type</b>	The server must have a <b>Video Management</b> function AND also a <b>Video Recording Failover</b> function	
<b>Form Factor</b>	Must be « Rackmount » standard, Width of 48.26 cm (19") Must have sliding rails with cable management arm.	
<b>Processor specifications</b>	Number of Processors required: 2 or more Number of Cores required : 6 or more Instruction Set: 64-bit	
<b>Processor Reference</b>	Processor such as Intel Xeon E5-2600 v4 series or better.	
<b>Motherboard</b>	Supports Dual processor Socket	
<b>RAM Memory</b>	16 GB RDIMM or higher	
<b>RAID Controller</b>	Must have 512 MB Battery Backed Cache or higher	
<b>System/Application Drives</b>	The drives must be RAID 1 managed. The total usable capacity after RAID must be 250GB or higher. Minimum of two (2) 2.5" or 3.5" drives must be present. The type of drive must be SSD. The drives must also be SAS type or better.	
<b>Video Recording Drives</b>	Drives must be setup on RAID 5 mode. The total usable capacity after RAID must be 18TB or higher. Minimum of 4 x 3.5" 6TB hot swappable drives must be present. Minimum of 2 empty additional 3.5" hot swappable bays for future expansion must be present. Hard drive rotation speed must be at least 7.2K RPM or better Hard drives must be Near-line SAS type or better.	
<b>Operating System</b>	Must have Windows Server 2012 x64 installed. Server must be Certified by Microsoft for the version of Windows OS installed.	
<b>Application Software</b>	The Video Management and Video Recording Failover application software must be installed on the OS drive space. The version of the Video Management and Video Recording Failover application software installed must be compatible with the OS installed. Data base used for the application software must be installed and setup as recommended by the software manufacturer.	
<b>NTP Software</b>	Must have NTP server software installed on the OS partition and activated, able to communicate and synchronize its server time with all the Devices connected on the CCTV network.	
<b>Communication software to the UPS</b>	The server must have automated power shutdown software installed on the OS partition and activated. When the UPS send the order, this software must softly shutdown all the embedded applications on the server and must turn off the device.	
<b>Network</b>	Must have dual 1Gb Ethernet connection capability.	
<b>Power Supply</b>	Must have dual, hot-plug redundant power supplies.	
<b>Example</b>	Server such as Dell PowerEdge R730 or similar can be used.	

Reference: SRV-R-L:R/R6-42TB

**Video Recording Server**

*All stated requirements are mandatory*

Reference to bid document (document name, page, and paragraph number)

<b>Function Type</b>	The server must have a <b>Video Recording</b> function.	
<b>Form Factor</b>	Must be « Rackmount » standard, Width of 48.26 cm (19") Must have sliding rails with cable management arm.	
<b>Processor specifications</b>	Number of Processors required: 2 or more Number of Cores required : 6 or more Instruction Set: 64-bit	
<b>Processor Reference</b>	Processor such as Intel Xeon E5-2600 v4 series or better.	
<b>Motherboard</b>	Supports Dual processor Socket	
<b>RAM Memory</b>	16 GB RDIMM or higher	
<b>RAID Controller</b>	Must have 512 MB Battery Backed Cache or higher	
<b>System/Application Drives</b>	The drives must be RAID 1 managed. The total usable capacity after RAID must be 250GB or higher. Minimum of two (2) 2.5" or 3.5" drives must be present. The type of drive must be SSD. The drives must also be SAS type or better.	
<b>Video Recording Drives</b>	Drives must be setup on RAID 6 mode. The total usable capacity after RAID must be 42TB or higher. Minimum of 9 x 3.5" 6TB hot swappable drives must be present. Minimum of 2 empty additional 3.5" hot swappable bays for future expansion must be present. Hard drive rotation speed must be at least 7.2K RPM or better Hard drives must be Near-line SAS type or better.	
<b>Operating System</b>	Must have Windows Server 2012 x64 installed. Server must be Certified by Microsoft for the version of Windows OS installed.	
<b>Application Software</b>	The Video Recording application software must be installed on the OS drive space. The version of the Video Recording application software installed must be compatible with the OS installed. Data base used for the application software must be installed and setup as recommended by the software manufacturer.	
<b>NTP Software</b>	Must have NTP client software installed on the OS partition, able to communicate and synchronize the Device time with the NTP server installed on the CCTV network.	
<b>Communication software to the UPS</b>	The server must have automated power shutdown software installed on the OS partition and activated. When the UPS send the order, this software must softly shutdown all the embedded applications on the server and must turn off the device.	
<b>Network</b>	Must have dual 1Gb Ethernet connection capability.	
<b>Power Supply</b>	Must have dual, hot-plug redundant power supplies.	
<b>Example</b>	Server such as Dell PowerEdge R730xd or similar can be used.	





### 13. Switch Specifications

Reference: SWT-R:E/POE+ Edge Swith(es) Solution <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The Edge Switch Solution must interconnect CCTV equipments on the same standalone network. The list includes mainly cameras and network accessories.	
<b>Form Factor</b>	<ul style="list-style-type: none"> <li>The <i>Switch Solution</i> can include one or several interconnected switches.</li> <li>The <i>Switch Solution</i> must have 19 inch standard width and must be able to be installed in a grade server rack/cabinet.</li> </ul>	
<b>Standards</b>	The <i>Switch Solution</i> must be compliant with the Canadian industry standards when apply.	
<b>Layers</b>	Switch solution must have fully Layer 2 capability.	
<b>Ethernet Port Number</b>	<ul style="list-style-type: none"> <li>The Edge <i>Switch Solution</i> must have enough Ethernet ports in order to connect all the IP cameras of its neighbourhood zone and all needed IT accessories at the appropriate bandwidth, greater than 100 Mb/s at least.</li> <li>Unless elsewhere specified, the Edge Swith Solution must have at least two (2) Uplink Ports to interconnect the Core Switch Solution at the appropriate bandwidth, greater than 1 Gb/s at least.</li> <li>If it apply and if there is long communication distances or a high bandwidth required, the type of the uplink ports must be SFP optical fiber, equipped with optical fiber SFP type modules, to interconnect the <i>Edge Switch Solution</i> to the <i>Core Switch Solution</i>.</li> <li>The <i>Edge Switch Solution</i> must be sized to host 20% of additional cameras.</li> </ul>	
<b>Network Bandwidth</b>	The Switch Solution must support at least two times the bandwidth of the traffic of all cameras of the considered zone being viewed and recorded continuously and simultaneously in the worst case scenario. Each camera is supposed to have an average bandwidth of 2Mb/s in recording mode and 3Mb/s in viewing mode. Each Port must support the bandwidth of the device connected.	
<b>Protocols</b>	<ul style="list-style-type: none"> <li>The Switch Solution must allow optimizing bandwidth on the CCTV network, supporting routing type "Multicast" for IPv4 and IPv6. In particular it must enable <b>monitoring IGMP (Internet Group Management Protocol)</b> IPv4 and IPv6 MLD (versions 1 and 2) and must enable customers to rapidly join and leave multicast streams and limit intensive video traffic to bandwidth only applicants.</li> <li>Must support Multiple Spanning Tree Protocol (STP)</li> </ul>	
<b>Latency</b>	The <i>Switch Solution</i> must be able to switch video streams in a transparent manner and must not contribute to generate latency more than 80ms on the CCTV network.	
<b>IPv6</b>	<ul style="list-style-type: none"> <li>IPv6 host: enables switches to be managed and deployed at the IPv6 network's edge</li> <li>Dual stack (IPv4/IPv6): transitions from IPv4 to IPv6, supporting connectivity for both protocols</li> <li>MLD snooping: forwards IPv6 multicast traffic to the appropriate interface IPv6</li> <li>ACL/QoS: supports ACL and QoS for IPv6 network traffic, preventing traffic flooding.</li> <li>IPv6 routing: supports static and OSPFv3</li> </ul>	

<b>Power over Ethernet (PoE/PoE+)</b>	<ul style="list-style-type: none"> <li>● <b>PoE in accordance with IEEE 802.3af</b> All ports of switches connected cameras directly must be a minimum configurable PoE in accordance with IEEE 802.3af and thus must be able to provide a power of 15W to each camera that is connected to the port.</li> <li>● <b>PoE PLUS accordance with IEEE 802.3at</b> All ports of switches connected directly to the cameras that require PoE +, must be configured PoE + according to IEEE 802.3at, and must thus be able to provide 30W to each device connected to the said port.</li> </ul> <p>The total power budget or switches must be sufficient to withstand the power of PoE and PoE + ports needed.</p> <ul style="list-style-type: none"> <li>● <b>PoE that needs greater power than 30W</b> If some equipment like heated PTZ cameras require greater power than 30W, independant power injectors may be used. For the cabling requirements refer please to the cabling section if applicable.</li> </ul>	
<b>Backup Power</b>	<p>The <i>Swith Solution</i> has two power supply, where the main power supply is automatically backed up by the secondary power supply in caser of failure.</p> <p>To get a high availability network, the Switche(s) Solution must be powered by an uninterruptible power supply (UPS) with a 20 minutes run time and by generator after this period of time.</p>	
<b>Management</b>	<p>Must have a full management capability.</p> <ul style="list-style-type: none"> <li>● <b>Remote Intelligent Mirroring:</b> Mirrors selected ingress/egress traffic based on ACL, port, MAC address, or VLAN to a local or remote 8200zl,6200yl, 5400zl, or 3500yl switch anywhere on the network.</li> <li>● <b>RMON, XRMON, and sFlow v5:</b> Provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events.</li> <li>● <b>IEEE 802.1AB Link Layer Discovery Protocol (LLDP):</b> Automated device discovery protocol provides easy mapping by network management applications.</li> <li>● <b>Uni-Directional Link Detection (UDLD):</b> Monitors cable between two switches and shuts down the ports on both ends if the cable is broken turning the bi-directional link into uni-directional; this prevents network problems such as loops.</li> <li>● <b>Remote Power Management:</b> if applicable, must be capable of controlling the power to the individual ports, i.e. remote POE OFF/ON.</li> </ul>	

<b>Security</b>	<ul style="list-style-type: none"> <li>● <b>Access control lists (ACLs):</b> Provide filtering based on the IP field, source/destination IP address/subnet, and source/destination TCP/UDP port number on a per-VLAN or per-port basis.</li> <li>● <b>Multiple user authentication methods:</b> IEEE 802.1X users per port: provides authentication of multiple IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication. Web-based authentication: authenticates from Web browser for clients that do not support IEEE 802.1X supplicant; customized remediation can be processed on an external Web server</li> <li>● <b>Virus throttling:</b> Detects traffic patterns typical of WORM-type viruses and either throttles or entirely prevents the virus from spreading across the routed VLANs or bridged interfaces, without requiring external appliances</li> <li>● <b>DHCP protection:</b> Blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks.</li> <li>● <b>Secure management access:</b> Securely encrypts all access methods (CLI, GUI, or MIB) through SSHv2, SSL 3.0, and/or SNMPv3.</li> </ul>	
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Reference: SWT-R:C Core Swith(s) Solution <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The <i>Core Switch Solution</i> provides high speed interconnection between the servers, viewing stations and the Edge Switch(es) Solutions. This <i>Core Switch Solution</i> must be positioned within the backbone of the network.	
<b>Form Factor</b>	<ul style="list-style-type: none"> <li>● The <i>Switch Solution</i> can include one or several interconnected switches.</li> <li>● The <i>Switch Solution</i> must have 19 inch standard width and must be able to be installed in a grade server rack/cabinet.</li> </ul>	
<b>Standards</b>	The <i>Switch Solution</i> must be compliant with the Canadian industry standards when apply.	
<b>Layers</b>	Switch solution must have fully Layer 3 capability including advances routing protocols.	
<b>Ethernet Port Number</b>	<ul style="list-style-type: none"> <li>● The <i>Core Switch Solution</i> must have enough Ethernet ports in order to interconnect all the servers at the appropriate bandwidth, greater than 1 Gb/s at least.</li> <li>● The <i>Core Switch Solution</i> must have enough Ethernet ports in order to interconnect all the viewing stations and encoders at the appropriate bandwidth, greater than 1 Gb/s at least. If these viewing stations and encoders are too far, the <i>Core Switch Solution</i> must be have enough SFP or higher optical fiber ports, equipped with the adequate optical fiber SFP type modules, to interconnect the <i>Core Switch Solution</i> to these equipments.</li> <li>● The <i>Core Switch Solution</i> must have enough Ethernet ports in order to connect the KVM and all needed IT accessories at the appropriate bandwidth, greater than 100 Mb/s at least.</li> <li>● The <i>Core Switch Solution</i> must have enough SFP+ or higher optical fiber ports, equipped with the adequate optical fiber SFP+ type modules, to interconnect the <i>Core Switch Solution</i> to the different concerned equipments.</li> <li>● The <i>Core Switch Solution</i> must be sized to host 20% of additional equipments.</li> </ul>	

<b>Network Bandwidth</b>	<p>The Switch Solution must support at least two times the bandwidth of the cumulated traffic of all servers, viewing stations and cameras or the considered zone being viewed and recorded continuously and simultaneously in the worst case scenario. Each camera is supposed to have an average bandwidth of 2Mb/s in recording mode and 3Mb/s in viewing mode.</p> <p>Each Port must support the bandwidth of the device connected.</p>	
<b>Protocols</b>	<ul style="list-style-type: none"> <li>● The Switch Solution must allow optimizing bandwidth on the CCTV network, supporting routing type "Multicast" for IPv4 and IPv6. In particular it must enable <b>monitoring IGMP (Internet Group Management Protocol)</b> IPv4 and IPv6 MLD (versions 1 and 2) and must enable customers to rapidly join and leave multicast streams and limit intensive video traffic to bandwidth only applicants.</li> <li>● Must support Multiple Spanning Tree Protocol (STP)</li> <li>● Must support routing protocol RIP-1 and RIP-2</li> </ul>	
<b>Latency</b>	<p>The <i>Switch Solution</i> must be able to switch video streams in a transparent manner and must not contribute to generate latency more than 80ms on the CCTV network.</p>	
<b>IPv6</b>	<ul style="list-style-type: none"> <li>● IPv6 host: enables switches to be managed and deployed at the IPv6 network's edge</li> <li>● Dual stack (IPv4/IPv6): transitions from IPv4 to IPv6, supporting connectivity for both protocols</li> <li>● MLD snooping: forwards IPv6 multicast traffic to the appropriate interface IPv6 ACL/QoS: supports ACL and QoS for IPv6 network traffic, preventing traffic flooding.</li> <li>● IPv6 routing: supports static and OSPFv3</li> </ul>	
<b>Backup Power</b>	<p>The <i>Switch Solution</i> has two power supply, where the main power supply is automatically backed up by the secondary power supply in case of failure.</p> <p>To get a high availability network, the Switch(es) Solution must be powered by an uninterruptible power supply (UPS) with a 20 minutes run time and by generator after this period of time.</p>	
<b>Management</b>	<p>Must have a full management capability.</p> <ul style="list-style-type: none"> <li>● <b>Remote Intelligent Mirroring:</b></li> </ul> <p>Mirrors selected ingress/egress traffic based on ACL, port, MAC address, or VLAN to a local or remote 8200zl, 6200yl, 5400zl, or 3500yl switch anywhere on the network.</p> <ul style="list-style-type: none"> <li>● <b>RMON, XRMON, and sFlow v5:</b></li> </ul> <p>Provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events.</p> <ul style="list-style-type: none"> <li>● <b>IEEE 802.1AB Link Layer Discovery Protocol (LLDP):</b></li> </ul> <p>Automated device discovery protocol provides easy mapping by network management applications.</p> <ul style="list-style-type: none"> <li>● <b>Uni-Directional Link Detection (UDLD):</b></li> </ul> <p>Monitors cable between two switches and shuts down the ports on both ends if the cable is broken turning the bi-directional link into uni-directional; this prevents network problems such as loops.</p> <ul style="list-style-type: none"> <li>● <b>Remote Power Management:</b></li> </ul> <p>if applicable, must be capable of controlling the power to the individual ports, i.e. remote POE OFF/ON.</p>	

<p><b>Security</b></p>	<ul style="list-style-type: none"> <li>● <b>Access control lists (ACLs):</b> Provide filtering based on the IP field, source/destination IP address/subnet, and source/destination TCP/UDP port number on a per-VLAN or per-port basis.</li> <li>● <b>Multiple user authentication methods:</b> IEEE 802.1X users per port: provides authentication of multiple IEEE 802.1X users per port; prevents user "piggybacking" on another user's IEEE 802.1X authentication. Web-based authentication: authenticates from Web browser for clients that do not support IEEE 802.1X supplicant; customized remediation can be processed on an external Web server</li> <li>● <b>Virus throttling:</b> Detects traffic patterns typical of WORM-type viruses and either throttles or entirely prevents the virus from spreading across the routed VLANs or bridged interfaces, without requiring external appliances</li> <li>● <b>DHCP protection:</b> Blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks.</li> <li>● <b>Secure management access:</b> Securely encrypts all access methods (CLI, GUI, or MIB) through SSHv2, SSL 3.0, and/or SNMPv3.</li> </ul>	
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## 14. UPS Specifications

Reference: UPS-R:S0.7 Small UPS for server and switches <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Grade</b>	UPS must be considered 'Server Grade'.	
<b>Form Factor</b>	« Rackmount » standard, Width of 48.26 cm (19")	
<b>Topology</b>	The UPS must be Online Topology type, converting the power from AC to DC then back to AC.	
<b>Power Rating</b>	The uninterruptible power supply (UPS) must meet the highest of these two criterias: <ul style="list-style-type: none"> <li>• The UPS or series of uninterruptible power supplies must be able to supply power to the servers, the Ethernet POE switches and all critical devices of the CCTV System in the rack.</li> <li>• The UPS must be able to supply at least 700W.</li> </ul>	
<b>Power runtime</b>	The uninterruptible power supply (UPS) must be able to supply a minimum of 20 minutes of power at full power capacity of the supported equipment during a power outage.	
<b>Output Waveform</b>	True sine wave output Output voltage distortion with less than or equal to 5% distortion at full load.	
<b>Soft Shutdown</b>	In the event of a power outage, the UPS system is to be configured to initiate a safe shutdown of the servers based on battery capacity and/or time delay.	
<b>Connectivity</b>	UPS system must be able to connect to each server through a network interface in order to initiate the shutdown in case of power outage.	
<b>Example</b>	UPS such as Eaton 9130 Rackmount UPS or similar can be used.	

Reference: UPS-R:M1.5 Medium UPS <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Grade</b>	UPS must be considered 'Server Grade'.	
<b>Form Factor</b>	« Rackmount » standard, Width of 48.26 cm (19")	
<b>Topology</b>	The UPS must be Online Topology type, converting the power from AC to DC then back to AC.	
<b>Power Rating</b>	The uninterruptible power supply (UPS) must meet the highest of these two criterias: <ul style="list-style-type: none"> <li>• The UPS or series of uninterruptible power supplies must be able to supply power to the servers, the Ethernet POE switches and all critical devices of the CCTV System in the rack.</li> <li>• The UPS must be able to supply at least 1.35kW.</li> </ul>	
<b>Power runtime</b>	The uninterruptible power supply (UPS) must be able to supply a minimum of 20 minutes of power at full power capacity of the supported equipment during a power outage.	
<b>Output Waveform</b>	True sine wave output Output voltage distortion with less than or equal to 5% distortion at full load.	
<b>Soft Shutdown</b>	In the event of a power outage, the UPS system is to be configured to initiate a safe shutdown of the servers based on battery capacity and/or time delay.	
<b>Connectivity</b>	UPS system must be able to connect to each server through a network interface in order to initiate the shutdown in case of power outage.	
<b>Example</b>	UPS such as Eaton 9130 Rackmount UPS or similar can be used.	

Reference: UPS-R:H7.5 Huge UPS <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Grade</b>	UPS must be considered 'Server Grade'.	
<b>Form Factor</b>	« Rackmount » standard, Width of 48.26 cm (19")	
<b>Topology</b>	The UPS must be Online Topology type, converting the power from AC to DC then back to AC.	
<b>Power Rating</b>	The uninterruptible power supply (UPS) must meet the highest of these two criterias: <ul style="list-style-type: none"> <li>• The UPS or series of uninterruptible power supplies must be able to supply power to the servers, the Ethernet POE switches and all critical devices of the CCTV System in the rack.</li> <li>• The UPS must be able to supply at least 7.5kW.</li> </ul>	
<b>Power runtime</b>	The uninterruptible power supply (UPS) must be able to supply a minimum of 20 minutes of power at full power capacity of the supported equipment during a power outage.	
<b>Output Waveform</b>	True sine wave output Output voltage distortion with less than or equal to 5% distortion at full load.	
<b>Soft Shutdown</b>	In the event of a power outage, the UPS system is to be configured to initiate a safe shutdown of the servers based on battery capacity and/or time delay.	
<b>Connectivity</b>	UPS system must be able to connect to each server through a network interface in order to initiate the shutdown in case of power outage.	
<b>Example</b>	UPS such as Eaton 9PX Rackmount UPS or similar can be used.	





## 15. Viewing Station Specifications

Reference: VST-D-M24:CV/9H Desktop Client Viewing Station - 4 images / 24" screen <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The product is a client system that must allow the user to interact remotely with the CCTV System and to manage the video data.	
<b>Form Factor</b>	The computer is a Desktop type computer	
<b>Processor / RAM memory</b>	<ul style="list-style-type: none"> <li>The computer must be sized in terms of CPU, RAM and/or GPU type accelerated hardware such that it is able to decompress and simultaneously display 9 video streams H2.64, at 30 frames per second and 1080p HD resolution.</li> <li>For the scenario specified above, this viewing function should take less than 50% of CPU resources.</li> </ul>	
<b>Hard Drive Storage Capacity</b>	500 GB Hard Drive <ul style="list-style-type: none"> <li>Partition OS of 100 GB for the Operating System</li> <li>Partition 400GB for Storage</li> </ul>	
<b>Graphic Card</b>	Must have graphic card with an output that includes but not limited to DVI-I or HDMI, at a display resolution of 1920 X 1080.	
<b>Video Extender</b>	If the distance between the monitor and the computer or server exceeds the recommended limit according to the recommendations of this type of connection, a video extender system must be installed to maintain the quality of the video signal between the computer or server and the monitor.	
<b>Exporting</b>	Must allow exporting and saving the data, images and video directly onto a DVD support and also a USB memory device.	
<b>Operating System</b>	Windows 7 or higher	
<b>Application Software</b>	The client computer must have a VMS client software installed on the OS partition, able to manage remotely the VMS sever through a LAN.	
<b>NTP software</b>	Must have NTP client software installed on the OS partition, able to communicate and synchronize the Device time with the NTP server installed on the CCTV network.	
<b>Communication software to the UPS</b>	If the viewing workstation is power supplied by a UPS, the workstation must have automated power shutdown software installed and activated, like "Powerchute". When the UPS send the order, this software must softly shutdown all the embedded applications and must turn off the device.	
<b>Monitor Size</b>	Must have 24" connected LCD or LED monitor.	
<b>Monitor Resolution</b>	Must be configured with a minimum of 1920 X 1080 image resolution on each display.	
<b>Monitor Angle of view</b>	The monitor must have an horizontal and vertical angle of vue equal or better than 175 degrees.	
<b>Monitor Static contrast</b>	The monitor must have a static contrast ratio equal or better than 1000:1	

<b>Keyboard</b>	Wired keyboard Microsoft Compatible USB	
<b>Mouse</b>	Wired mouse Microsoft Compatible USB Three button Right and left hand Optical motion detection	

Reference: VST-D-G2-M32x2:CV/16H Desktop Client Viewing Station - 16 images / Dual 32" screen <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The product is a client system that must allow the user to interact remotely with the CCTV System and to manage the video data.	
<b>Form Factor</b>	The computer is a Desktop type computer	
<b>Processor / RAM memory</b>	<ul style="list-style-type: none"> <li>The computer must be sized in terms of CPU, RAM and/or GPU type accelerated hardware such that it is able to decompress and simultaneously display 16 video streams H2.64, at 30 frames per second and 1080p HD resolution.</li> <li>For the scenario specified above, this viewing function should take less than 50% of CPU resources.</li> </ul>	
<b>Hard Drive Storage Capacity</b>	500 GB Hard Drive <ul style="list-style-type: none"> <li>Partition OS of 100 GB for the Operating System</li> <li>Partition 400GB for Storage</li> </ul>	
<b>Graphic Card</b>	Must have graphic card with at least two (2) independent video outputs, including but not limited to DVI-I and HDMI, able to manage two (2) display monitors with 1920 X 1080 resolution.	
<b>Video Extender</b>	If the distance between the monitor and the computer or server exceeds the recommended limit according to the recommendations of this type of connection, a video extender system must be installed to maintain the quality of the video signal between the computer or server and the monitor.	
<b>Exporting</b>	Must allow exporting and saving the data, images and video directly onto a DVD support and also a USB memory device.	
<b>Operating System</b>	Windows 7 or higher	
<b>Application Software</b>	The client computer must have a VMS client software installed on the OS partition, able to manage remotely the VMS sever through a LAN.	
<b>NTP software</b>	Must have NTP client software installed on the OS partition, able to communicate and synchronize the Device time with the NTP server installed on the CCTV network.	
<b>Communication software to the UPS</b>	If the viewing workstation is power supplied by a UPS, the workstation must have automated power shutdown software installed and activated, like "Powerchute". When the UPS send the order, this software must softly shutdown all the embedded applications and must turn off the device.	

<b>Monitor Size</b>	Must have two (2) x 32" connected LCD or LED monitors.	
<b>Monitor Resolution</b>	Must be configured with a minimum of 1920 X 1080 image resolution on each display.	
<b>Monitor Angle of view</b>	The monitor must have an horizontal and vertical angle of view equal or better than 175 degrees.	
<b>Monitor Static contrast</b>	The monitor must have a static contrast ratio equal or better than 1000:1	
<b>Keyboard</b>	Wired keyboard Microsoft Compatible USB	
<b>Mouse</b>	Wired mouse Microsoft Compatible USB Three button Right and left hand Optical motion detection	

Reference: VST-D-G2-M27:CV/16H Desktop Client Viewing Station - 16 images / 27" screen <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The product is a client system that must allow the user to interact remotely with the CCTV System and to manage the video data.	
<b>Form Factor</b>	The computer is a Desktop type computer	
<b>Processor / RAM memory</b>	<ul style="list-style-type: none"> <li>The computer must be sized in terms of CPU, RAM and/or GPU type accelerated hardware such that it is able to decompress and simultaneously display 16 video streams H2.64, at 30 frames per second and 1080p HD resolution.</li> <li>For the scenario specified above, this viewing function should take less than 50% of CPU resources.</li> </ul>	
<b>Hard Drive Storage Capacity</b>	500 GB Hard Drive <ul style="list-style-type: none"> <li>Partition OS of 100 GB for the Operating System</li> <li>Partition 400GB for Storage</li> </ul>	
<b>Graphic Card</b>	Must have graphic card with at least two (2) independent video outputs, including but not limited to DVI-I and HDMI, able to manage two (2) display monitors with 1920 X 1080 resolution.	
<b>Video Extender</b>	If the distance between the monitor and the computer or server exceeds the recommended limit according to the recommendations of this type of connection, a video extender system must be installed to maintain the quality of the video signal between the computer or server and the monitor.	
<b>Exporting</b>	Must allow exporting and saving the data, images and video directly onto a DVD support and also a USB memory device.	
<b>Operating System</b>	Windows 7 or higher	

<b>Application Software</b>	The client computer must have a VMS client software installed on the OS partition, able to manage remotely the VMS sever through a LAN.	
<b>NTP software</b>	Must have NTP client software installed on the OS partition, able to communicate and synchronize the Device time with the NTP server installed on the CCTV network.	
<b>Communication software to the UPS</b>	If the viewing workstation is power supplied by a UPS, the workstation must have automated power shutdown software installed and activated, like "Powerchute". When the UPS send the order, this software must softly shutdown all the embedded applications and must turn off the device.	
<b>Monitor Size</b>	Must have one 27" connected LCD or LED monitor.	
<b>Monitor Resolution</b>	Must be configured with a minimum of 1920 X 1080 image resolution on each display.	
<b>Monitor Angle of view</b>	The monitor must have an horizontal and vertical angle of vue equal or better than 175 degrees.	
<b>Monitor Static contrast</b>	The monitor must have a static contrast ratio equal or better than 1000:1	
<b>Keyboard</b>	Wired keyboard Microsoft Compatible USB	
<b>Mouse</b>	Wired mouse Microsoft Compatible USB Three button Right and left hand Optical motion detection	

<b>Reference: VST-D-G2-M32:CV/16H</b> <b>Desktop Client Viewing Station - 16 images / 32" screen</b> <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The product is a client system that must allow the user to interact remotely with the CCTV System and to manage the video data.	
<b>Form Factor</b>	The computer is a Desktop type computer	
<b>Processor / RAM memory</b>	<ul style="list-style-type: none"> <li>The computer must be sized in terms of CPU, RAM and/or GPU type accelerated hardware such that it is able to decompress and simultaneously display 16 video streams H2.64, at 30 frames per second and 1080p HD resolution.</li> <li>For the scenario specified above, this viewing function should take less than 50% of CPU resources.</li> </ul>	
<b>Hard Drive Storage Capacity</b>	500 GB Hard Drive <ul style="list-style-type: none"> <li>Partition OS of 100 GB for the Operating System</li> <li>Partition 400GB for Storage</li> </ul>	
<b>Graphic Card</b>	Must have graphic card with at least two (2) independent video outputs, including but not limited to DVI-I and HDMI, able to manage two (2) display monitors with 1920 X 1080 resolution.	

<b>Video Extender</b>	If the distance between the monitor and the computer or server exceeds the recommended limit according to the recommendations of this type of connection, a video extender system must be installed to maintain the quality of the video signal between the computer or server and the monitor.	
<b>Exporting</b>	Must allow exporting and saving the data, images and video directly onto a DVD support and also a USB memory device.	
<b>Operating System</b>	Windows 7 or higher	
<b>Application Software</b>	The client computer must have a VMS client software installed on the OS partition, able to manage remotely the VMS sever through a LAN.	
<b>NTP software</b>	Must have NTP client software installed on the OS partition, able to communicate and synchronize the Device time with the NTP server installed on the CCTV network.	
<b>Communication software to the UPS</b>	If the viewing workstation is power supplied by a UPS, the workstation must have automated power shutdown software installed and activated, like "Powerchute". When the UPS send the order, this software must softly shutdown all the embedded applications and must turn off the device.	
<b>Monitor Size</b>	Must have one 32" connected LCD or LED monitor.	
<b>Monitor Resolution</b>	Must be configured with a minimum of 1920 X 1080 image resolution on each display.	
<b>Monitor Angle of view</b>	The monitor must have an horizontal and vertical angle of vue equal or better than 175 degrees.	
<b>Monitor Static contrast</b>	The monitor must have a static contrast ratio equal or better than 1000:1	
<b>Keyboard</b>	Wired keyboard Microsoft Compatible USB	
<b>Mouse</b>	Wired mouse Microsoft Compatible USB Three button Right and left hand Optical motion detection	

## 16. Video management system Specifications

General Video management system Specifications <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>General Architecture</b>	<ul style="list-style-type: none"> <li>The VMS software used to control and manage the cameras must offer a client-server model.</li> <li>The server application can be in a remote location and must be able to provide camera control (live viewing, PTZ controls) and video archiving functions.</li> <li>The client application must be able to connect remotely the server to access: live video from cameras, and archived videos. The individual requirements for the server and client applications are outlined below.</li> <li>The product must be able to group cameras in logical group. It must be possible to select one or more groups within the programmed hierarchy and go directly to that camera group's views.</li> <li>It must be possible to use a traditional CCTV keyboard and connect it to the control center PC to allow full virtual matrix control without the need for PC keyboard and mouse control.</li> <li>The product must support multiple streams from the same camera at different resolution.</li> </ul>	
<b>Open standards</b>	<ul style="list-style-type: none"> <li>The product must support "Open Standards" architecture to interoperate with a variety of cameras, encoder, and IT infrastructure.</li> <li>The product must be "ONVIF profile S" compliant.</li> <li>The product must have a Software Development Kit (SDK) available.</li> <li>The product must support commercial off the shelf (COTS) client workstations, servers, and customer selected archiving system.</li> <li>The product must be compatible with open architecture industry leading camera manufacturers including but not limited to: Sony, Axis, Panasonic and Bosch.</li> <li>The product must have a list of compatible camera models approved and certified by the VMS manufacturer.</li> <li>The product must be able to support an application programming interface (API) for integration of third party software such as video analytics or license plate recognition.</li> </ul>	
<b>Languages</b>	Support at least the two official languages: English and French.	
<b>Retention periode</b>	The product must be able to setup an unlimited video retention time.	
<b>Software compatibility</b>	<ul style="list-style-type: none"> <li>The software used to control and manage the cameras must be compatible with the server and the Operating System that hosts the software.</li> </ul>	

Reference: VMS-C Video Management Client Software <i>All stated requirements are mandatory</i>		Reference to bid document (document name, page, and paragraph number)
<b>Function</b>	The software is hosted by the Viewing Workstation and must be able to inter connect and interact with the Video Management Server Software in order to let users to control and manage all the VMS functions, including but not limited to, video live viewing, video playback, CCTV System configuration, etc.	

<b>Live Viewer</b>	<ul style="list-style-type: none"> <li>● The live viewer client application must display live video images from cameras connected to the server located in a remote location.</li> <li>● The live viewer must have these features: <ul style="list-style-type: none"> <li>○ Must provide help options to locate a function or feature.</li> <li>○ Must be able to display live video at 30 FPS at least and must have an adjustable live display frame rate.</li> <li>○ Must be able to display live video at different resolutions.</li> <li>○ Provides configurable live audio functions, including but not limited to audio ON/OFF, audio synchronized with video and adjustable audio volume.</li> <li>○ The operator must be able to choose playback layouts including 2x2, 4x4 and various customs layouts.</li> <li>○ The VMS must be able to add bookmark with notes in order to tag live events.</li> <li>○ Must be able to show different views on multiple monitors (up to 3)</li> </ul> </li> </ul>	
<b>Play Back</b>	<ul style="list-style-type: none"> <li>● The product must provide multiple playback functions, including but not limited to play, pause, fast forward, rewind, and variable play speed functions.</li> <li>● The product must provide synchronized playback from multiple cameras.</li> <li>● The archive player must have multiple layouts to playback videos from multiple cameras e.g. It must be possible to play 2, 4, or 16 videos synchronously.</li> <li>● Live viewer software must have synchronous play back mode.</li> <li>● It must be possible to disable audio during playback.</li> <li>● The product must be able to export video in a non-proprietary format (such as AVI or ASF) readable on computers without the need to install additional software /codecs.</li> <li>● The VMS must be able to export video in an original format with watermarking and timestamp.</li> <li>● The VMS must also be able to export multiple video at the same time.</li> </ul>	
<b>Video transmission Type</b>	The product must support multicast and unicast transmission.	



<b>Security</b>	<p>The product must provide a role based authorization mechanism that includes, but not limited to the following features:</p> <ul style="list-style-type: none"> <li>● Must have User ID and Password protection for each client connection to the server application.</li> <li>● Must be able to have automatic password expiry function.</li> <li>● Must be able to have encryption of stored Passwords.</li> <li>● The proposed solution must support role-based access control (RBAC) management or group-based access control (GBAC) management where privileged users can define roles or groups and can assign users to roles or groups.</li> <li>● Must have at least one administrator role with full access rights and also multiple user and group profiles with restricted rights.</li> <li>● Must be able to define hierarchy and inheritance mechanisms on user/group rights.</li> <li>● The proposed solution must allow the assignment of granular restriction to users, groups or roles. The granularity of these restriction must include but is not limited to: <ul style="list-style-type: none"> <li>○ Restricted access by device (cameras, microphones, I/O devices,...)</li> <li>○ Restricted access to live view for specific cameras</li> <li>○ Restricted access to playback for specific cameras</li> <li>○ Restricted access to PTZ</li> <li>○ Restricted access to export</li> <li>○ Restricted access to the VMS setup</li> <li>○ Restricted access on enabling/disabling recording and listening of audio.</li> </ul> </li> <li>● The contractor gives warranty that the VMS has no existing back door or non-modifiable default password that gives permanent access to third party to any of the infrastructure or components implemented unless explicitly authorized by the CBSA authority.</li> </ul>	
<b>Example</b>	Video management system such as Milestone XProtect Smart client, Genetec Security Desk client or similar can be used.	

<b>Reference: VMS-M/LR</b> <b>Large scale site Video Management Server Software</b> <i>All stated requirements are mandatory</i>		<b>Reference to bid document (document name, page, and paragraph number)</b>
<b>Function</b>	The Video Management Software is hosted by the Video Management Server and must be able to manage the videosurveillance devices connected to the CCTV network, including but not limited to Cameras, Servers, Digital Input/Output devices (I/O).	
<b>Architecture</b>	<ul style="list-style-type: none"> <li>● The VMS software used to control and manage the cameras must offer a client-server model, centrally managed and distributed sites.</li> <li>● The VMS software must be able to support multiple servers System.</li> </ul>	
<b>Scalability / future expansion</b>	<ul style="list-style-type: none"> <li>● The product must be upgradeable without migration to another platform.</li> <li>● The server application must be scalable, i.e. the same application must be able to support unlimited cameras, without additional application upgrades or purchases.</li> </ul>	

<b>Video Archiving and Retrieval</b>	<ul style="list-style-type: none"> <li>● The product must support management, distribution and storage of video surveillance data in a centralized and also distributed network environment.</li> <li>● Must have the capability of recording video at 15 FPS at least and have an adjustable frame rate.</li> <li>● The product must support multiple recording modes and formats, such as: <ul style="list-style-type: none"> <li>○ Always recording, on motion recording, pre and post motion recording, and scheduled recording. These modes must be available for all compatible cameras.</li> <li>○ The product must support video recording in multiple standard compression formats including but not limited to H.264, configured at the camera level.</li> </ul> </li> <li>● The product must be able to record audio that is synchronized with the video.</li> <li>● The product supports internal and external storage devices, including but not limited to servers, NAS / SAN solutions.</li> <li>● The product must provide advanced search functions, including but not limited to time-line search, event search, and motion search.</li> </ul>	
<b>Availability</b>	<ul style="list-style-type: none"> <li>● The product must provide a high level of availability for the recording function with particularly the existence of a Video Recording Failover function to ensure in case of failure, continuous recording of all cameras at all times on the failover server without loss of data.</li> </ul>	
<b>Audit log</b>	<p>The VMS must allow the management, the visualization and the printing of an audit log which includes, but not limited to the following:</p> <ul style="list-style-type: none"> <li>● The VMS must log user actions types</li> <li>● The VMS must log who did the action and when</li> <li>● The VMS must log User logon/logoff action</li> <li>● The VMS must log Camera setting modification</li> <li>● The VMS must log PTZ move</li> <li>● The VMS must log Video export</li> <li>● The VMS must log Alarms and events</li> <li>● The VMS must log Disk above a threshold</li> <li>● The VMS must log Camera not working</li> <li>● The VMS must have a user interface to display and search the log</li> </ul>	
<b>Video surveillance events</b>	<ul style="list-style-type: none"> <li>● The VMS must allow the definition and management of "Video Surveillance Events" using a VMS rules management, configurable through a user-friendly graphical interface.</li> <li>● The VMS must be able to trigger through its management rules, one or more actions from one or more triggered events, by following a combinational logic.</li> <li>● The list of "Video Surveillance Events" handled by the VMS includes, but not limited to digital I/O, motion detection, video analytics, time of day etc.</li> <li>● The VMS must also be able to handle third party events</li> <li>● Events must trigger alarm actions.</li> <li>● The alarm management function must be accessible based on a role-based user management.</li> <li>● The product provides user options to log text descriptions of Event Triggers, Actions, and Alarms.</li> <li>● Alarms must be associated with user defined actions.</li> <li>● The VMS must be able to provide independent live viewing windows for the alarms / events management, including but not limited to alarm acknowledgement, alarm disabling, alarm forwarding, etc.</li> </ul>	

<b>Diagnostic events</b>	<ul style="list-style-type: none"> <li>● The VMS software must allow “Diagnostic Events” configuration through a friendly integrated Graphic User Interface.</li> <li>● The “Diagnostic Events” handled by the VMS must be based on the CCTV device and function health monitoring where events include, but not limited to, “Disk or server failure”, “camera failure”, “recording failure”, “Disk space full”, etc...</li> <li>● Diagnostic Events must be able to trigger alarm actions.</li> <li>● The alarm management function must provide an overview of all components controlled by the VMS.</li> <li>● The alarm management function must be accessible based on a role-based user management.</li> <li>● The product provides user options to log text descriptions of Event Triggers, Actions, and Alarms.</li> <li>● Alarms must be associated with user defined actions.</li> <li>● The VMS must be able to provide independent live viewing windows for the alarms / events management, including but not limited to alarm acknowledgement, alarm disabling, alarm forwarding, etc.</li> <li>● Alarms must be sent if needed to users through email, SNMP and text message.</li> </ul>	
<b>Video transmission Type</b>	The product must support multicast and unicast transmission.	
<b>Configuration Function or Tool</b>	<ul style="list-style-type: none"> <li>● The VMS configuration tool must be managed using a Graphic User Interface (GUI)</li> <li>● The camera settings including but not limited to frame rate, resolution and compression must be configurable by the VMS.</li> <li>● The camera settings including motion detection must be configurable by the VMS.</li> <li>● The VMS must provide a hardware discovery tool.</li> </ul>	
<b>Configuration reporting</b>	<ul style="list-style-type: none"> <li>● The VMS software must allow the user to generate a Configuration Report file which includes but is not limited to: <ul style="list-style-type: none"> <li>- The name of the equipment,</li> <li>- The model name of the equipment,</li> <li>- The IP and MAC addresses of the equipment,</li> <li>- The settings of the equipment (video settings, storage capacity, ect...),</li> <li>- If possible, a picture of the camera if applicable.</li> </ul> </li> <li>● This configuration Report must be exportable by the VMS software in a popular electronic file format like pdf, and it must be written in a readable and understandable format.</li> </ul>	

<p><b>Security</b></p>	<p>The product must provide a role based authorization mechanism that includes, but not limited to the following features:</p> <ul style="list-style-type: none"> <li>● Must have User ID and Password protection for each client connection to the server application.</li> <li>● Must be able to have automatic password expiry function.</li> <li>● Must be able to have encryption of stored Passwords.</li> <li>● The proposed solution must support role-based access control (RBAC) management or group-based access control (GBAC) management where privileged users can define roles or groups and can assign users to roles or groups.</li> <li>● Must have at least one administrator role with full access rights and also multiple user and group profiles with restricted rights.</li> <li>● Must be able to define hierarchy and inheritance mechanisms on user/group rights.</li> <li>● The proposed solution must allow the assignment of granular restriction to users, groups or roles. The granularity of these restriction must include but is not limited to: <ul style="list-style-type: none"> <li>○ Restricted access by device (cameras, microphones, I/O devices,...)</li> <li>○ Restricted access to live view for specific cameras</li> <li>○ Restricted access to playback for specific cameras</li> <li>○ Restricted access to PTZ</li> <li>○ Restricted access to export</li> <li>○ Restricted access to the VMS setup</li> <li>○ Restricted access on enabling/disabling recording and listening of audio.</li> </ul> </li> <li>● The contractor gives warranty that the VMS has no existing back door or non-modifiable default password that gives permanent access to third party to any of the infrastructure or components implemented unless explicitly authorized by the CBSA authority.</li> </ul>	
<p><b>PTZ Controls</b></p>	<ul style="list-style-type: none"> <li>● Pan-tilt-zoom function must be supported by traditional CCTV keyboard such that the PC keyboard and mouse are not required / mandatory for normal pan-tilt-zoom.</li> <li>● Variable speed and direction pan-tilt-zoom control must be available using the PC mouse by dragging a directional pointer around the video pane. This includes zoom in, zoom out, focus near, focus far and multiple speed pan and tilt operations.</li> <li>● Must be able to store and manage unlimited preset positions for each camera.</li> </ul>	
<p><b>Example</b></p>	<p>Video management system such as Milestone XProtect Corporate, Genetec Ominicast, Genetec Security Center or similar can be used.</p>	