RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving - PWGSC / Réception des soumissions - TPSGC
11 Laurier St. / 11, rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Title - Sujet CCTV ACCESSORIES	
Solicitation No. - N° de l'invitation 47064-152445/A	**Amendment No. - N° modif.** 001
Client Reference No. - N° de référence du client 1000322445	**Date** 2015-02-03
GETS Reference No. - N° de référence de SEAG PW-$$HN-458-66685	
File No. - N° de dossier hn458.47064-152445	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à 02:00 PM** **on - le 2015-03-16**	**Time Zone** **Fuseau horaire** Eastern Standard Time EST
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☑ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Lee, Carlos	**Buyer Id - Id de l'acheteur** hn458
Telephone No. - N° de téléphone (819) 956-3490 ( )	**FAX No. - N° de FAX** (819) 953-4944
Destination - of Goods, Services, and Construction: **Destination - des biens, services et construction:**	

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Telephone No. - N° de téléphone
Facsimile No. - N° de télécopieur

Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature **Date**

Issuing Office - Bureau de distribution

Electrical & Electronics Products Division
11 Laurier St./11, rue Laurier
7B3, Place du Portage, Phase III
Gatineau, Québec K1A 0S5

Canada

Amendment 001 is raised to include the solicitation document and to revise the closing date as follows:

Closing Date:

INSERT:

March 16, 2015

DELETE:

February 18, 2015

All other terms and conditions remain unchanged.

PART 1 - GENERAL INFORMATION

1. Security Requirement

There is no security requirement associated with the requirement.

2. Requirement

The contractor must provide the goods in accordance with the technical requirements and in the quantities stated at Annex A – Statement of Requirement and Annex C – Pricing Schedule.

2.1 Delivery Requirement

Delivery of the equipment is requested to be completed by March 31, 2015.

3. Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

4. Trade Agreements

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), and the Agreement on Internal Trade (AIT).

PART 2 - BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2014-03-01) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: sixty (60) days
Insert: ninety (90) calendar days

1.1 SACC Manual Clauses

SACC Reference	Section	Date
A9033T	Financial Capability	2012-07-16
B1000T	Condition of Material	2007-11-30

2. Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

3. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than five (5) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

4. Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (2 hard copies)

Section II: Financial Bid (1 hard copy)

Section III: Certifications (2 hard copies)

Section IV: Additional Information (2 hard copies)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

(a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
(b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html). To assist Canada in reaching its objectives, bidders are encouraged to:

1) use paper containing fibre certified as originating from a sustainably-managed forest and/or containing minimum 30% recycled content; and

2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

1.1 Exchange Rate Fluctuation Risk Mitigation

1. The Bidder may request Canada to assume the risks and benefits of exchange rate fluctuations. If the Bidder claims for an exchange rate adjustment, this request must be clearly indicated in the bid at time of bidding. The Bidder must submit form PWGSC-TPSGC 450, Claim for Exchange Rate Adjustments with its bid, indicating the Foreign Currency Component (FCC) in Canadian dollars for each line item for which an exchange rate adjustment is required.

2. The FCC is defined as the portion of the price or rate that will be directly affected by exchange rate fluctuations. The FCC should include all related taxes, duties and other costs paid by the Bidder and which are to be included in the adjustment amount.

3. The total price paid by Canada on each invoice will be adjusted at the time of payment, based on the FCC and the exchange rate fluctuation provision in the contract. The exchange rate adjustment will only be applied where the exchange rate fluctuation is greater than 2% (increase or decrease).

4. At time of bidding, the Bidder must complete columns (1) to (4) on form PWGSC-TPSGC 450, for each line item where they want to invoke the exchange rate fluctuation provision. Where bids are evaluated in Canadian dollars, the dollar values provided in column (3) should also be in Canadian dollars, so that the adjustment amount is in the same currency as the payment.

5. Alternate rates or calculations proposed by the Bidder will not be accepted for the purposes of this exchange rate fluctuation provision.

Section III: Certifications

1.2 Certifications

Bidders must submit the certifications required under Part 5.

Section IV: Additional Information

1.3 Additional Information

1.3.1 Delivery Offered

While delivery is requested as indicated above, the best delivery that could be offered is_____.

1.3.2 Contractor Representatives

Name and telephone number of the person responsible for :

General enquiries
Name:
Telephone:
Facsimile:
E-mail:

Delivery follow-up

Name:
Telephone:
Facsimile:
E-mail:

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

(a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

(b) An evaluation team composed of representatives of Canada will evaluate the bids.

Evaluation Criteria

All bids must be completed in full and provide all of the information requested in the bid solicitation to enable full and complete evaluation.

1.1 Technical Evaluation

1.1.1 Mandatory Technical Criteria

The following Mandatory requirements must be submitted with the bid for evaluation

Technical compliance (description of items stated herein and at Annex A);
Completion of Annex C – Pricing Schedule

1.2 Financial Evaluation

1.2.1 Pricing Basis

The bidder must quote firm unit prices in Canadian dollars, DDP Delivered Duty Paid (destination), Applicable Taxes extra, as applicable. Freight charges to destination and all applicable Custom duties and Excise taxes must be included.

2. Basis of Selection

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest unit price on an aggregate basis will be recommended for award of a contract.

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and documentation to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default, if any certification made by the Bidder is found to be untrue whether during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with this request will also render the bid non-responsive or will constitute a default under the Contract.

1. Mandatory Certifications Required Precedent to Contract Award

1.1 Code of Conduct and Certifications - Related documentation

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instructions 2003. The related documentation therein required will assist Canada in confirming that the certifications are true.

1.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from Human Resources and Skills Development Canada (HRSDC) - Labour's website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid " list at the time of contract award.

2. General Environmental Criteria Certification

By submitting the bid, the bidder certifies that the information submitted in the General Environmental Criteria table found at Annex D is accurate and complete.
By submitting the bid the Bidder certifies that it meets, and will continue to meet throughout the duration of any resulting contract, a minimum of four out of seven requirements identified in the General Environmental Criteria Table found at Annex D;

Additional Information

The Bidder must complete Annex D by inserting a checkmark next to every criteria that are met. Bidders are required to complete and submit Annex D with their bid. As this is a new procedure, Canada reserves the right to request Annex D after bid closing. The Contracting Authority will inform the Bidder of a time frame within which to provide it. Failure to provide Annex D within the required time frame will render the bid non-responsive.

PART 6 - RESULTING CONTRACT CLAUSES

1. Security Requirement

There is no security requirement associated with the requirement.

2. Statement of Work

The contractor must provide the goods in accordance with the technical requirements and in the quantities stated herein at Annex A – Statement of Requirement and at Annex C – Pricing Schedule.

2.1 SACC Manual Clauses

SACC Reference	Section	Date
B1501C	Electrical Equipment	2006-06-16
B7500C	Excess Goods	2006-06-16

2.2 Optional Goods

The Contractor grants to Canada the irrevocable option to acquire additional units of the goods described at Annex C – Pricing Schedule within the Contract under the same conditions and at the prices stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, in whole or in part, through a contract amendment.

The Contracting Authority may exercise the option within twenty four (24) months after contract award by sending a written notice to the Contractor.

3. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual*(https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

3.1 General Conditions

2010A (2014-03-01), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

4. Term of Contract

4.1 Delivery Date

All the deliverables must be received on or before _____ (Delivery as offered and as accepted will be inserted at contract award).

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Carlos Lee
Public Works and Government Services Canada
Acquisitions Branch
Logistics, Electrical, Fuel and Transportation Directorate
"HN" Division
7B3, Place du Portage, Phase III
11 Laurier Street
Gatineau, QC, K1A 0S5

Telephone: (819) 956-3490
Facsimile: (819) 953-4944
E-mail address: Carlos.lee@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

5.2 Contractor's Representative

Name and telephone number of the person responsible for:

General Enquiries

Name: will be inserted at contract
Telephone: will be inserted at contract
Facsimile: will be inserted at contract
E-mail: will be inserted at contract

Delivery Follow-up

Name: will be inserted at contract
Telephone: will be inserted at contract
Facsimile: will be inserted at contract
E-mail: will be inserted at contract

6. Payment

6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm unit prices, as specified in Annex C – Pricing Schedule . Customs duties are included and Applicable Taxes are extra.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

6.2 Limitation of Price

SACC Manual clause C6000C (2011-05-16) Limitation of Price

6.3 Multiple Payments

SACC Manual clause H1001C (2008-05-12) Multiple Payments

6.4 SACC Manual Clauses

SACC Reference	Section	Date
G1005C	Insurance	2008-05-12

6.5 Exchange Rate Fluctuation Adjustment

1. The foreign currency component (FCC) is defined as the portion of the price or rate that will be directly affected by exchange rate fluctuation. The FCC should include all related taxes, duties and other costs paid by the Bidder and which are to be included in the adjustment amount.

2. For each line item where a FCC is identified, Canada assumes the risks and benefits for exchange rate fluctuation, as shown in the Basis of Payment. For such items, the exchange rate fluctuation amount is determined in accordance with the provision of this clause.

3. The total price paid by Canada on each invoice will be adjusted at the time of payment, based on the FCC and the exchange rate fluctuation provisions in the contract. The exchange rate adjustment amount will be calculated in accordance with the following formula:

   Adjustment = FCC x Qty x (i1 - i0) / i0

   where formula variables correspond to:

   FCC

   Foreign Currency Component (per unit)

   i0

   Initial exchange rate (CAN$ per unit of foreign currency [e.g. US$1])

   i1

   exchange rate for adjustments (CAN$ per unit of foreign currency [e.g. US$1])

   Qty

   quantity of units

4. The initial exchange rate is typically set as the noon rate as published by the Bank of Canada on the solicitation closing date.

5. For goods, the exchange rate for adjustment will be the noon rate as published by the Bank of Canada on the date the goods were delivered. For services, the exchange rate for adjustment will be the noon rate on the last business day of the month for which the services were performed. For advance payments, the exchange rate for adjustment will be the noon rate on the date the payment was due. The most recent noon rate will be used for non-business days.

6. The Contractor must indicate the total exchange rate adjustment amount (either upward, downward or no change) as a separate item on each invoice or claim for payment submitted under the Contract. Where an adjustment applies, the Contractor must submit with their invoice form PWGSC-TPSGC 450, Claim for Exchange Rate Adjustments.

7. The exchange rate adjustment will only be applied where the exchange rate fluctuation is greater than 2% (increase or decrease), calculated in accordance with column 8 of form PWGSC-TPSGC 450 (i.e [i1 - i0) / i0]).

8. Canada reserves the right to audit any revision to costs and prices under this clause.

7. Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

2. Invoices must be distributed as follows:

   (a) one (1) copy must be forwarded to the consignee.

   (b) one (1) copy must be forwarded to the following email address for certification and payment.

   vendors-fournisseurs@cbsa-asfc.gc.ca

   (c) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

   Department of Public Works and Government Services
   "HN" Division
   7B3 Place du Portage, Phase III
   11 Laurier Street
   Gatineau, QC
   K1A 0S5
   Attention: Carlos Lee

8. Certifications

8.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

9. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

10. Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

(a) the Articles of Agreement;
(b) 2010A (2014-03-01) General Conditions – Goods (Medium Complexity);
(c) Requirement;
(d) Annex A, Statement of Requirement;
(e) Annex B, Mandatory Evaluation Criteria
(f) Annex C, Pricing List
(g) Annex D, Environment Criteria Table
(h) Annex E, Exchange Rate Fluctuation Form
(i) the Contractor's bid dated

11. SACC Manual Clauses (Delivery)

SACC Reference	Section	Date
D2000C	Marking	2007-11-30
D2001C	Labelling	2007-11-30
D6010C	Palletization	2007-11-30
D9002C	Incomplete Assemblies	2007-11-30

11.1 Shipping Instructions - Delivery at Destination

Goods must be consigned to the destination specified in the Contract and delivered:

Delivered Duty Paid (DDP) (Ottawa, ON and Piney, MB) Incoterms 2000 for shipments from a commercial contractor.

ANNEX "A"
STATEMENT OF REQUIREMENT

1.0 Scope

The successful bidder will supply, and deliver the listed Closed Circuit Television (CCTV) and related IT infrastructure equipment required for this project.

1.1 Delivery Dates and Locations

The equipement required in table 2 (below) must be delivered to the CBSA at the following locations by, or before the following dates:

System	Delivery Location	Delivery Dates
S-1	79 Bentley Ave, Ottawa ON, K2E 6T7	March 31st, 2015
S-2	1 Provincial route 98, Piney MB, R0A 1K0	July 31st, 2015

2.0 Equipment List

2.1 Cameras

The bidder, will supply and deliver cameras as per requirements and specifications listed below.

2.1.1 Camera General Requirements:

All IP cameras selected will meet or exceed the the following general camera requirements

General Camera Requirements *All stated requirements are mandatory*	
Open Architecture	•Cameras must be network addressable via Internet Protocol (IP) •Cameras must support ONVIF profile
Video	Camera must support the following video settings: •Multiple compression formats, including but not limited to H.264 and MJPEG. •Camera must be able to output at least two video streams simultaneously and must also support simultaneous streaming of multiple formats. •Frame rate and resolution must be controllable for each stream.
Power	Camera must be POE or High POE compatible.
Audio	•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. The audio on all cameras must be disabled unless otherwise specified. •Pan-Tilt-Zoom (PTZ) cameras, thermal and license plate capture cameras are excluded from the requirement for an audio input port. •All cameras which are audio capable must have audio capability disabled from the camera or video management software (VMS), unless otherwise noted.
Exposure Settings	•Must be configurable for different lighting conditions such as shutter speed, and gain. •Must allow an automatic compensation of the image level with regard to the lighting conditions variations
Privacy	Must support and include privacy masking capabilities
Warranty	All cameras must carry one year (minimum) manufacturer's warranty covering parts and labour.
Specification sheets	Detailed specification sheets must be provided to contracting authority with bid/proposal

2.1.2 Camera Specifications:
Each camera identified above must meet the general cameras specifications and the specific cameras specifications identified below.

Reference: IN-D-1.3MP-100/WDR **Indoor Camera 1.3MP Wide Angle, Wide Dynamic Range** *All stated requirements are mandatory*	
Enclosure	The camera must be contained in housing and securely mounted. The camera must be resistant to tampering. Cameras which are not dome cameras require additional enclosures.
Environment	The camera assembly must be: •Dustproof. •Capable of operating in temperature range between -10 to +50 C •Rated IP52 or better. •Rated IK10 or better. A custom enclosure may not be provided to meet these requirements.
Field of View	The camera must provide a range of field of view that covers at least 100 degrees horizontal.
Focus	The camera must have remote focus.
Frames Per Second	The camera must support at least 15 frames per second at the minimum resolution specified.
Night Capability	The camera must be a true Day/Night camera with a mechanical IR cut filter.
Resolution	The camera must have approximately a 1.3 mega pixel (MP) resolution @ ± 10% tolerance.
Zoom	The camera must support at least a 2X optical zoom.
Special	The camera must feature ‘Wide Dynamic Range’.
Example	Cameras such as Axis P3364 6mm, or similar can be used.

Reference: IN-C-1.5MP-120 **Indoor Corner-mount Camera 1.5MP** *All stated requirements are mandatory*	
Enclosure	Cameras must be contained in corner housing and securely mounted. These cameras must be highly resistant to vandalism and tampering.
Environment	Camera assembly must be: •Waterproof •Capable of operating in temperature range between -10 to +50 C. •Rated IP65 or better. •Rated IK10 or better A custom enclosure may not be provided to meet these requirements.
Field of View	Must provide a horizontal field of view of at least 120 degrees.
Frames Per Second	Camera must support at least 15 frames per second at the minimum resolution specified.
Night Capability	The camera must be a true Day/Night camera with a mechanical IR cut filter. The camera must also be equipped with integrated IR illumination for use at night, with a range of at least 9m (30 ft).
Resolution	Camera must have approximately a 1.5 mega pixel (MP) resolution @ ± 10% tolerance.
Example	Cameras such as Bosch Flexidome corner 9000MP or similar can be used.

Reference: OU-D-2MP-100/WDR **Outdoor Camera 2MP** *All stated requirements are mandatory* *It is strongly desired for the selected cameras to perform well in low light conditions.*	
Enclosure	Cameras must be contained in housing and securely mounted. These cameras must be resistant to vandalism and tampering. Cameras which are not dome cameras require additional enclosures.
Environment	The camera assembly must be: •Waterproof. •Dustproof •Capable of operating in temperature range between -40 to +50 C* •Rated IP65 or better. •Rated IK10 or better. **A custom enclosure may be provided so that a camera can operate within this temperature range but should be expressly noted.*
Field of View	Must provide a range of field of view that covers at least 100 degree horizontal.
Focus	Must have remote focus.
Frames Per Second	Camera must support at least 30 frames per second at the minimum resolution specified.
Night Capability	The camera must be a true Day/Night camera with a mechanical IR cut filter.
Resolution	Camera must have approximately a 2 mega pixel (MP) resolution @ ± 10% tolerance.
Zoom	The camera must support at least a 3X optical zoom.
Special	The camera must feature up to 120 dB of 'Wide Dynamic Range', including through the use of 'dynamic capture'.
Example	Cameras such as Axis Q3505-VE 9mm or similar can be used.

Reference: OU-LP-0.4MP-20 **Outdoor LPC** *All stated requirements are mandatory* *This is a camera that has the capability to capture a License Plate of a vehicle in motion*	
Enclosure	Camera must be contained in housing and securely mounted. The camera must be resistant to tampering or better.
Environment	The camera assembly must be: •Waterproof. •Dustproof •Capable of operating in temperature range between -40 to +50 C* •Rated IP65 or better. •Rated IK10 or better. **A custom enclosure may be provided so that a camera can operate within this temperature range but should be expressly noted.*
Field of View and Capture Range	Must be LP capable at a minimum horizontal angle of 20° and minimum distance of 9m. Must be able to capture LP at speed up to 200 km/h
Night Capability	The camera must be able to capture a License Plate in low light.
Resolution	Camera must have at least 0.4 megapixel image resolution ±10%.
Example	LP Cameras such as Bosch VER-D2R3-1 DINION 7000 or similar can be used.

Reference: OU-TH-0.3MP-90 **Outdoor Thermal Camera** *All stated requirements are mandatory*	
Enclosure	Cameras must be contained in housing and securely mounted. These cameras must be resistant to vandalism.
Environment	The camera assembly must be: •Waterproof. •Dustproof •Capable of operating in temperature range between -40 to +50 C* •Rated IP65 or better. •Rated IK10 or better. *A custom enclosure may be provided so that a camera can operate within this temperature range but should be expressly noted.*
Field of View	Must provide a field of view that covers at least 90 degree horizontal.
Detector	The camera detector must be a Long Wave Infrared (LWIR) Uncooled thermal detector The detector must not be damaged when exposed directly to the sun
Sensitivity	The thermal image sensor must provide high sensibility imaging and must able to detect small object temperature. The Noise Equivalent Temperature Difference (NETD) must be less or equal than 75 mK The Thermal camera must not be sensitive to the visible light and must perform in complete darkness as well in day time
Resolution	Camera must have at least 0.3 megapixel image resolution ±10%.
Frames Per Second	Camera must support at least 15 frames per second at the minimum resolution specified above.
Power	Camera must be Power over Ethernet compatible
Example	Cameras such as FLIR FC-690 or similar can be used.

Reference: OU-PTZ-1MP-45 **Outdoor PTZ Camera 1MP** *PTZ cameras are intended to be used for live monitoring patrolling, or when there are specific objects which must be captured in high detail, such as in baggage areas or large halls. A PTZ keyboard and a computer mouse to control pan, tilt and zoom functionality must BOTH be configured in the installation.*	
Enclosure	Cameras must be contained in housing and securely mounted. These cameras must be resistant to vandalism and tampering.
Environment	The camera assembly must be: •Waterproof. •Dustproof •Capable of operating in temperature range between -40 to +50 C* •Rated IP65 or better. •Rated IK09 or better. **A custom enclosure may be provided so that a camera can operate within this temperature range but should be expressly noted.*
Power	Camera must be network powered, if more power is needed than the network switch can supply, a POE injector must be provided
Resolution	Camera must have at least a 1 mega pixel (MP) resolution @ ± 10% tolerance.
Frames Per Second (FPS)	Camera must support at least 20 frames per second at the minimum resolution specified above.
Night Capability	The camera must be a true Day/Night camera with a mechanical IR cut filter.
Range of Motion	Must have a pan range of 360 degrees endless. Must have a tilt range of at least 180 degrees.
Preset when idle	The camera PTZ must be able to reset automatically to a preset position 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.
Focus	Must have auto focus.
Field of View	Must provide at least a 45 degree horizontal field of view.
Optical Zoom	The PTZ camera must support at least 10X optical zoom.
Special	The camera must feature ‘Wide Dynamic Range’.
Example	Camera such as Axis Q6044-E or similar can be used.

2.2 Digital I/O switches

The CCTV system will receive alarms from various dry contact relays. The CCTV contractor will provide (2) networked digital input/output switches as per the specification in the table below:

Reference: Digital I/O **Networked Digital Input / Output Switch** The Networked Digital Input / Output Switch is a configurable digital I/O module for triggering VMS events like pre-set views and camera pre-sets. *All stated requirements are mandatory.*	
I/O interface	Must have minimum 8 configurable I/O ports
I/O functionality	Input trigger Output toggle/pulse
Event triggers	External inputs
Input type	Dry contact or Digital (connect to GND to activate, or leave floating to deactivate)
Network	Must support IPv4, configuration via web browser and password protection
VMS	Must be supported by the selected VMS.
Power	Must be Power over Ethernet IEEE 802.3af compliant
Example	Networked digital input switch such as Axis P8221 or equivalent.

2.3 Video Management System

This project requires two independent Video Management Systems (VMS).
Each VMS consists of the VMS software, a recording server, a management/failover server, a remote viewing server, a POE local client viewing workstation, and a remote management center (RMC) viewing workstation.

2.3.1 VMS Software

The Video Management Software chosen for this project will meet the requirements listed in the table below:

Video Management Software Specifications *All stated specifications are mandatory.* *Intention is to provide an open standards based video management system which can scale up to at least 100 cameras and can support multiple video storage servers. The video management system must also support the export and handling of video suitable for evidence.* *The word "product" in these specifications means VMS*	
Software Specifications	The software used to control and manage the cameras must offer a client-server model. The server application is in a remote location and provides camera control (live viewing, PTZ controls) and video archiving functions. The client application connects to the server to access live video from cameras, and archived videos. The individual specifications for the server and client applications are outlined below. The product must be compatible with McAfee Host Intrusion Prevention and VirusScan Enterprise with Anti-Spyware. In addition, the product must be able to provide for management through secure connections that utilize TLS or SSL.
Open standards	•The product must support "Open Standards" architecture to interoperate with a variety of cameras, encoders, and IT infrastructure. •The product must be "ONVIF profile S" compliant. •The product must have a Software Development Kit (SDK) available. •The product must support industry available commercial off the shelf (COTS) client workstations, servers, and customer selected archiving system. •The product must be compatible with open architecture industry leading camera manufacturers including but not limited to: Sony, Axis, Panasonic

	and Bosch. •All camera connected to the VMS must be approved and certified by the manufacturer. •The product must be able to support an application programming interface (API) for integration of third party software such as industry available video analytics or license plate recognition.
Scalability / future expansion	•The product must be upgradeable without migration to another platform. •The server application must be scalable, i.e. the same application must be able to support 2 or 200 cameras, without additional application upgrades or purchases. •VMS grouping: o The product must be able to join multiple independent systems together in order to view videos from sources connected to these multiple independent systems. o The viewing procedure of the remote cameras must be transparent to the user.
Architecture	•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. •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. •The server and client application must be compatible with Microsoft Windows 2008 R2 or higher. •The product must support multicast and unicast transmission. •The product must support multiple streams from the same camera at different resolution. •The product must provide redundancy features to ensure access to all live data at all times and to ensure recording of all cameras in the event of server failure.
PTZ Controls	•Pan-tilt-zoom function must be supported by traditional CCTV keyboard/joystick and PC keyboard/mouse. •Variable speed and direction pan-tilt-zoom control must be available using the PC mouse by

	selecting the area of interest around the video pane. •Must have zoom in, zoom out, focus near, focus far and multiple speed pan and tilt operations.
Video Archiving and Retrieval	•The product must support management, distribution and storage of video surveillance data in a centralized and distributed network environment. •The product must support multiple recording modes and formats: ○Always recording, on motion recording, pre and post motion recording, and scheduled recording. These modes must be available for all compatible cameras. ○The product must support video recording in multiple standard compression formats including but not limited to H.264, configured at the camera level. •The product must be able to record audio that is synchronized with the video. •The product supports internal and external storage devices. •The product must provide advanced search functions. •The product must provide different levels of application access control at individual and user group levels.
Reliability	•The product must be able to failover the Management Server to the Recording Server and the Recording Server to the Management Server so that if any one of the servers fail the other will take over without service interruption •The product must provide a high level of availability for the recording function with failover features to ensure recording of all cameras at all times on the failover server without loss of data. •The product must provide a high level of availability for the viewing function with failover features to ensure access to all live data at all times through the failover server without service interruption.
Configuration function or tool	•The camera settings including frame rate, resolution and compression must be configurable by the VMS.

	• The camera settings including motion detection must be configurable by the VMS. • The VMS configuration function must be inaccessible for specific user or group without permissions. • The VMS must provide a hardware discovery tool.
Alarms, Events, Logging, and Management	• There must be an interface to define "Events" including but not limited to built-in motion detection, digital inputs, third party events, third party video analytics, time of day etc. • Events must trigger associated alarms and pre-set views for unique users. • The product provides user options to log text descriptions of Event Triggers, Actions, and Alarms. • Alarms must be associated with user defined actions. • The VMS must have log management that includes the following: ○ camera setting modification ○ PTZ move ○ video export ○ alarms ○ disk above a threshold ○ camera not working ○ The VMS must be able to produce audit records that capture at a minimum the following events performed by user, service, and system accounts, groups, and roles, including those that are privileged: ○ Type (e.g.. login, logoff, configuration changed); ○ When (e.g. 2013-01-01 5:00am EST); ○ Where (e.g. system ID); ○ Source (e.g. workstation ID); ○ Outcome (e.g. success, fail); and ○ Identity (e.g. User ID, service account ID, system account ID). ○ The VMS must be able to customize where audit logs stored within the solution. ○ The VMS must audit read access of data by users and administrators. ○ The VMS must permit the configuration of an audit log retention period. ○ The VMS must be able to export audit records. ○ The VMS solution must generate reports for audit

	records in a readable format. ○The VMS exception handling service must log all exceptions and failure events to an exception log. ○The VMS must notify administrators and perform configured recovery actions if the audit service fails or is inadvertently turned off. ○The VMS must generate time stamps for audit records that use internal system clocks and contain both date and time including seconds expressed in Coordinated Universal Time (UTC) or local time with an offset from UTC. ○The VMS must be able to synchronize its time with a client defined authoritative time source. •The VMS must have a user interface to display and search the logs.
Client Workstation (Application) Specifications	
Live Viewer	•The live viewer client application must display live video from cameras connected to the server located in a remote location. •The live viewer must have these features: ○Support two languages: English and French. ○Provide help options to locate a function or feature. ○Must have the capability of displaying live video at 30 FPS and have an adjustable frame rate. ○Must have the capability of switching the IR cut filter of the cameras on and off (only applicable for cameras with a mechanical IR cut filter). ○Display live video at different resolutions. ○Provides configurable live audio functions, including but not limited to audio ON/OFF, audio synchronized with video and adjustable audio volume. ○The operator must have the ability to choose playback layouts including 2x2, 4x4 and various customs layouts. ○The VMS must be able to add bookmark with notes in order to tag live events. ○Must be able to show different views on multiple monitors. Must be able to trigger via digital inputs up to twenty (20) pre-set views on multiple monitors (up to 2) ○Must support dynamic stream selection based on tile size.

Archive Player	•The product must provide multiple playback functions, including but not limited to play, pause, fast forward, rewind, and variable play speed functions. •The product must provide synchronized playback from multiple cameras. •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. •Live viewer software must have synchronous playback mode. •It must be possible to disable audio during playback. •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. • The VMS must be able to export video in an original format with watermarking and timestamp. •The VMS must also be able to export multiple video at the same time.
User (Client) Management	•The product must support Lightweight Directory Access Protocol (LDAP). •There must be a capability to control who has access to the software and camera features. These specifications relate to: ○The proposed solution must support role-based access control (RBAC) or group-based access control (GBAC) where privileged users can define roles or groups and can assign users to roles or groups. ○The proposed solution must allow the assignment of granular permissions to users, groups or roles. The granularity of these permissions must include but is not limited to: ▪Archive viewing access to specific cameras ▪Live viewing access to specific cameras ▪Access to the camera configuration ▪Access to server configuration ▪Export of images ○The proposed solution must be capable of enabling/disabling recording and listening of audio.

Example	Video Management Systems such as Genetec Security Center, or similar can be used.

2.3.2 VMS Servers General Requirements

The VMS servers chosen for this project will meet the general requirements listed in the table below:

General Server Requirements *All stated specifications are mandatory.*	
General	The following servers must be provided for each POE system • 1 X Management Server / Recording Failover Server • 1 X Video Recording Server • 1 X Remote Viewing Server A single server hosts both the management application and the recording failover application. Video recording for all cameras should be done on the Video Recording Servers. In the event of machine failure of the Video Recording Server, all cameras from that server must switch to record on the Management Server / Recording Failover Server. This list does not include networking equipment such as switches. UPS equipment is specified separately in the *UPS* section. The detailed specifications for each type of server are in the *Management Server / Recording Failover Server* section and in the *Video Recording Server* sections. The storage specifications are listed under "Storage" in the *Management Server / Recording Failover Server* and the *Video Recording Server.*
Recording/Retention	All cameras must be configured to record 24/7 continuously at the minimum specified resolution and frame rate for each camera type. The minimum frame rate for recording is 15 FPS, unless otherwise specified. Recording on motion should not be configured unless otherwise specified. The retention time of all camera footage must be at least 30 days. The retention time of the failover video must be at least 15 days
Write Failover	The video surveillance system must continue to record all camera footage in the event of a video storage server failure. In the event of a machine failure of a Video Recording Server, the Management Server / Recording Failover Server must be configured to takeover recording. The failover storage server must provide a minimum of 15 days or 9 TB of storage (whichever is larger). Live and archived video associated with the failover storage server must be accessible at all times.

	RAID 6 is required for primary video storage. RAID 1 is required for all OS/Application drives. Redundant storage of recorded video on multiple servers is not required.

2.3.3 VMS Recording Server Specifications

In addition to meeting the general server requirements listed in the general server requirements table in section 2.7.2, the VMS recording server will meet the specifications of the table below (SERV-R)

Reference: SERV-R **Video Recording Server** *All stated specifications are mandatory.* *The management application refers to the component of the video management system which contains configuration settings including product licensing, camera recording settings and user permissions as well as any logging..* *The failover application refers to the component of the video management system which takes over recording in the event of failure of the video storage server*		
Form Factor	Rack-mount and sliding rails with cable management arm.	
Processor	Number of Processors Required	1
	Cores	6 or more
	Clock Speed	2.6 GHz or higher
	Instruction Set	64-bit
	Processor such as Intel Xeon E5-2630 v2 or better.	
Motherboard	Supports Dual Socket	
Memory	16GB RDIMM or higher	
RAID Controller	RAID 1 System + RAID 6 Storage 512 MB Battery Backed Cache or higher	
System/Application Drives	Minimum of two (2) 2.5'' or 3.5'' drives must be present. The drives must be RAID 1 managed. The total usable capacity after RAID must be 300GB or higher. 10K RPM or better SATA/SAS or better.	
Recording Drives	The total usable capacity after RAID must be twenty eight (28) TB or higher. The storage must be RAID 6 managed Minimum of nine (9) 3.5'' 4TB hot swappable drives must be present. Minimum of three (3) empty additional 3.5'' hot swappable bays for future expansion must be present. 7.2K RPM or better SATA/SAS or better	
Power Supply	Must have dual, hot-plug redundant power supplies.	
OS	Must have Microsoft Windows Server 2012 x64 Standard or	

	Data Center installed or Microsoft Windows Server 2008 R2 SP1 x64 Standard installed. Server must be Certified for Windows by Microsoft for the version of OS installed.
Network	Must have dual Gigabit Ethernet Connections.
Software	Recording Server Application must be stored on this server. The software must support the version of OS installed.
Example	Dell R720xd or equivalent configured with 2 X 300 GB SAS, 9 X 4 TB Near-Line SAS

2.3.4 VMS Management / Recording Failover Server Specifications

In addition to meeting the general server requirements listed in the general server requirements table in section 2.7.2, the VMS management / recording failover server will meet the specifications of the table below (SERV-M-F).

Reference: SERV-M-F **Management Server / Recording Failover Server Requirements** *All stated specifications are mandatory.* *The management application refers to the component of the video management system which contains configuration settings including product licensing, camera recording settings and user permissions. The management application is also responsible for user authentication as well as any logging.* *The failover application refers to the component of the video management system which takes over recording in the event of failure of the video storage server*		
Form Factor	Rack-mount and sliding rails with cable management arm.	
Processor	Number of Processors Required	1
	Cores	6 or more
	Clock Speed	2.6 GHz or higher
	Instruction Set	64-bit
	Processor such as Intel Xeon E5-2630 v2 or better.	
Motherboard	Supports Dual Socket	
Memory	16GB RDIMM or higher	
RAID Controller	RAID 1 System + RAID 5 Storage 512 MB Battery Backed Cache or higher	
System/Application Drives	Minimum of two (2) 2.5'' or 3.5'' drives must be present. The drives must be RAID 1 managed. The total usable capacity after RAID must be 300GB or higher. 10K RPM or better SATA/SAS or better.	
Recording Drives	The total usable capacity after RAID must be twelve (12) TB or higher. The storage must be RAID 5 managed Minimum of four (4) 3.5'' 4TB hot swappable drives must be present. Minimum of four (4) empty additional 3.5'' hot swappable bays for future expansion must be present. 7.2K RPM or better SATA/SAS or better	
Power Supply	Must have dual, hot-plug redundant power supplies.	

OS	Must have Microsoft Windows Server 2012 x64 Standard or Data Center installed or Microsoft Windows Server 2008 R2 SP1 x64 Standard installed. Server must be Certified for Windows by Microsoft for the version of OS installed.
Network	Must have dual Gigabit Ethernet Connections.
Software	Video Management and Recording Failover Server Application must be stored on this server. The software must support the version of OS installed.
Example	Dell R720xd or equivalent configured with 2 X 300 GB SAS, 4 X 4 TB Near-Line SAS

2.3.5 VMS Remote Viewing Server

The ability to view the CCTV video at a remote site over a remote network connection will be accomplished through a CITRIX HDX remote desktop environment.

The CCTV contractor will provide remote viewing server

The CCTV Contractor will also provide the CITRIX HDX licences specified below. However, CBSA will install and configure the CITRIX HDX components on the remote viewing server.

In addition to meeting the general server requirements listed in the general server requirements table in section 2.7.2, the VMS remote viewing server must meet the specifications of the table below:

SERV-RV **Remote Viewing Server** *The viewing station is where the VMS client software is installed. This computer will have a special GPU and will be used by the BSO at the RMC to remotely view and control the CCTV cameras through the VMS client software.* All stated requirements are mandatory.		
Form Factor	« Rackmount » standard, Width of 48.26cm (19’’), height of 2U	
Processor	Number of Processors Required	2
	Cores (per processor)	10 or more
	Clock Speed	3.0 GHz or greater
	Instruction Set	64-bit
	Processor such as Intel Xeon E5-2690 v2 or better	
Processor GPU (for RDP)	Must have NVIDIA GRID K1 graphics card for virtualized Citrix environments	
Memory	64 GB RAM	
Storage	1 TB	
Application	Must support the installed virtualized Citrix HDX software	
Licence*	1 X Zen Server Licence (2 socket) 1 X Zen Desktop Platinum Licence (1 User) 2 X Microsoft Server 2012 Licence 1 X Microsoft Windows 8 Licence	
Example	HP ProLiant DL380p Gen8 Server with graphics card NVIDIA GRID K1	

2.3.6 VMS Local (POE) Viewing Workstations

The CCTV Contractor will provide CCTV viewing workstations for each CCTV system.
The CCTV Viewing Workstations will meet the specifications of the table below:

VWST-M-D-UPS-S **Viewing Station with UPS and Monitor** *The viewing station is where the video management system client software is installed. This computer will be used to perform live monitoring of video.* *Four (4) stations are required for this project: one in the Morses Line POE, one in the Piney POE, one in the Hamilton RMC and one in the Emerson POE.* *All stated specifications are mandatory.*		
Monitor	Must have two (2) 24” connected LCD or LED monitors. Must have extended monitor option on video card.	
Resolution	Must be configured with a minimum of 1920 X 1080 image resolution on each display.	
Workstation	Minimum system requirements: Microsoft Windows 7 Anytime Upgrade enterprise edition 8 GB RAM 1 TB Storage	
Processor	Cores	4 or more
	Clock Speed	3.0 GHz or greater
	Instruction Set	64-bit
	Intel Core i7 4770R or better.	
DVD Burning Capability	Must have an installed DVD burner.	
USB Exporting	Must allow for the files to be exported and saved onto a USB (in addition to being exported and saved onto a DVD).	
Power/UPS	Viewing station must include a surge protected, desktop-grade Uninterruptable Power Supply (UPS) capable of powering the PC and monitor for a minimum of 20 minutes in the event of power failure. Examples such as the APC BN700M, APC BR1000G, or similar products may be used provided the 20 minutes of run time is achieved.	

2.4 Rack Enclosure

The rack chosen for this project will meet the specifications listed in table (RACK) below

Reference : RACK **RACK enclosure** *All stated specifications are mandatory*	
Standard	The rack must be compliant with approved safety standards for use in Canada.
Function	The rack must be able to contain the equipment including servers, UPS system, remote management system, KVM, KMM and switch(es) of the CCTV system (see RTP Rack Layout Diagram).
Form Factor	The rack must be a Network Rack type.
	The rack must be a 4 *Post Open Server Equipment Rack Enclosure* type.
	The rack must include single front perforated door, double rear perforated door, front and rear keyed two point keyed latches, square punched mounting rails, solid sides, 4 opening top panel (each corner), and front and rear finger vertical cable managers with doors/covers.
Size	The rack must be a « Rackmount » standard **with** a width of 19''
	The **depth** of the rack must be sufficient to contain all the CCTV system equipment including all servers, UPS, remote management system, KVM, KMM and the network switch(es).
	The **usable height** of the enclosure must be more than or equal to 42U.
PDUs	The rack must include a minimum of four (4) 20amp 125V vertical power bar PDUs
	The rack must include a minimum of four (4) 20amp 240V vertical power bar PDUs
Knockouts	The rack must have electrical knockouts on removable rear panel at the top and bottom.
Lock	The rack must have a front door that can be locked by key.
Ventilation	The rack must have vented panels on top and rear and /or side panel (s).
	The rack must have at least one (1) fan.
Stability of the enclosure	The rack must **not** have wheels installed.

2.5 Keyboard Video Mouse (KVM) Management System

The CCTV contractor will provide a Keyboard Video Mouse (KVM) management system for the local and remote management of the servers installed in the system rack enclosure.

2.5.1KVM Switch Specification

The supplied KVM switch must meet the specifications of the table below:

Reference: KVM **KVM Switch** *All stated requirements are mandatory.*	
Form Factor	« Rackmount » standard, Width of 43.18cm (17'')
Ports	Must have 8 usable device ports Must have 2 power control ports
Resolution	Must support minimum resolution of 1280 x 1024 local and remote
Remote Console	Must support remote connectivity via an Ethernet port for Internet Protocol (IP) connectivity and a RS-232 serial port for modem connectivity
Local Console	Must have minimum 1 Local Console with USB and VGA connectors
Example	KVM such as Avocent Mergepoint Unity MPU108E-001 or equivalent.

2.5.2KMM Rack Console

The supplied KMM Rack Console must meet the specifications of the table below:

Reference: KMM **KMM – Keyboard Monitor and Mouse rack console** *All stated requirements are mandatory.*	
Form Factor	« Rackmount » standard, Width of 43.18cm (17''), height of 1U
Display	18" display LED-backlit
Resolution	Must support minimum resolution of 1280 x 1024 local and remote
Input device interfaces	Keyboard: USB connector. Mouse: USB connector.
Example	KMM such as Dell KMM FPM185 or equivalent.

2.6 Power Management System

Although each POE site has a backup generator, it is crucial for the CBSA's CCTV system's backend equipment (servers, switches, etc.) to have an enterprise level Uninterrupted Power Supply (UPS) with high availability, reliability and clean backup power. The POEs are notorious for power surges, brown-outs and blackouts so it is vital to have the power equipment outlined in this technical requirement.

The CCTV Contractor will provide, all power management for the CCTV rack. The rack power management devices must include one (1) UPS and (3) networked power supplies (NPS) (networked controlled power bars).

2.6.1 Uninterrupted Power Supply (UPS)

The supplied UPS will meet the specifications of the table (UPS-M) below:

Reference : UPS-M **UPS (Uninterrupted Power Supply) Requirements** *All stated specifications are mandatory*	
Form Factor	« Rackmount » standard, Width of 48.26 cm (19''), Height of 9U
Power Rating	The uninterruptible power supply (UPS) or series of uninterruptible power supplies must be able to supply power to the servers, Ethernet switch, and cameras in the Port of Entry.
Power Runtime	The uninterruptible power supply (UPS) must be able to supply a minimum of 20 minutes of power at 8000VA power capacity during a power outage.
Soft Shutdown	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.
Connectivity	UPS system must be connected to each server through a network interface in order to initiate the shutdown in case of power outage.
	UPS must support SNMP
	UPS must support RPO – Remote Power Off
	UPS must support ROO – Remote On/Off
Output Waveform	True sine wave output Output voltage distortion with less than or equal to 5% distortion at full load.
Inputs/Outputs	Inputs – Hard Wire 3-wire (2PH + G)
	Outputs – (8) NEMA 5-20R (1) NEMA L14-30R

	(4) NEMA L6-20R (2) NEMA L6-30R
Topology	The UPS must be Online Topology type, constantly converting the power from AC to DC then back to AC.
	Must utilize a three-stage charging technique or better
Batteries	Must utilize hot-swappable batteries to maximize the up-time and availability of the CCTV network
Efficiency	Must have an efficiency rating of 93% (+/- 2%) at full load
Grade	UPS must be considered 'Server Grade'.
Example	UPS such as APC SURT8000XLT-1TF3 + SURT192XLBP or equivalent.

2.6.2 Networked Power Supply (NPS)

The supplied NPS will meet the specifications of the table (NPS) below:

Reference: NPS **NPS (Networked Power Supply)** *All stated requirements are mandatory.*	
Output connections	Minimum 8 NEMA 5-15R
Load Capacity	Minimum 1400 VA
Network management	Remote individual outlet control via Web SSL or RS-232 (console session)
Max input current	15A
Example	NPS such as APC AP7900 or equivalent.

2.7 Network Switches

This technical requirement is for the switch and connectivity infrastructure for the CCTV and remote processing systems network at the Ports of Entry (POE)s. It is crucial for the CBSA's CCTV and remote processing system network's to have enterprise level switches and connectivity to provide high availability and reliability.

The foundation of this switch infrastructure is that they are programmable which allows for features such as Quality of Service (QoS) and security. This switch infrastructure is scalable with the ability to have 10/100/Gigabit and 10 Gigabit interfaces with integrated PoE (Power over Ethernet) and POE plus for power to devices.

2.7.1 48 Port Network Switch

The 48 port network switch must meet the specification in the following table:

Reference: SW48-24P-24HP **48 Port Network Switch** *All stated requirements are mandatory.*	
Static IP Addressing	All the equipment on the network must be assigned a fixed IP address unless otherwise specified. This IP Address should be noted in the table in "Appendix B-3 IP Address Scheme" and submitted to CBSA after completing the installation of the system.
Connectivity	**Ports and Interfaces:** Must have 48 10/100/Gigabit Ethernet ports and 2 10Gigabit interfaces **IPv6:** IPv6 host: enables switches to be managed and deployed at the IPv6 network's edge Dual stack (IPv4/IPv6): transitions from IPv4 to IPv6, supporting connectivity for both protocols MLD snooping: forwards IPv6 multicast traffic to the appropriate interface IPv6 ACL/QoS: supports ACL and QoS for IPv6 network traffic, preventing traffic flooding IPv6 routing: supports static and OSPFv3
Power over Ethernet	**IEEE 802.3af Power over Ethernet (PoE):** Provide minimum of 24 ports of 15 W per port to IEEE 802.3af-compliant PoE-powered devices such as IP Phones, wireless access points, and security cameras **IEEE 802.3at Power Over Ethernet Plus:** Provide minimum of 12 ports of 30 W per port to IEEE 802.3 for PoE-/PoE+-powered devices such as video IP Phones, IEEE 802.11n wireless access points, and advanced pan/zoom/tilt security cameras Prestandard PoE support: detects and provides power to pre-standard PoE devices;
Management	**Remote Intelligent Mirroring:**

	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. **RMON, XRMON, and sFlow v5:** Provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events. **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** Automated device discovery protocol provides easy mapping by network management applications. **Uni-Directional Link Detection (UDLD):** 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.
Security	**Access control lists (ACLs):** 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. **Multiple user authentication methods:** 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 **Virus throttling:** 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 **DHCP protection:** Blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks. **Secure management access:** Securely encrypts all access methods (CLI, GUI, or MIB) through SSH, SSL, and supports SNMP.
Physical Specifications:	Dimensions – 19 inch rack mountable industry standard switches for installation into the rack / cabinet. Form factor – 1 U-space (17.5”w x 13.25”d x 1.75”h cm)
Example	Switches such as Cisco Catalyst 2960S-48FPD-L or equivalent.

2.7.2 24 Port Network Switch

The 24 port network switch must meet the specification in the following table:

Reference: SW24-24P **24 Port Network Switch** *All stated requirements are mandatory.*	
Connectivity	**Ports and Interfaces:** Must have 24 10/100/Gigabit Ethernet ports and 2 10Gigabit interfaces **IPv6:** IPv6 host: enables switches to be managed and deployed at the IPv6 network's edge Dual stack (IPv4/IPv6): transitions from IPv4 to IPv6, supporting connectivity for both protocols MLD snooping: forwards IPv6 multicast traffic to the appropriate interface IPv6 ACL/QoS: supports ACL and QoS for IPv6 network traffic, preventing traffic flooding IPv6 routing: supports static and OSPFv3
Power over Ethernet	**IEEE 802.3af Power over Ethernet (PoE):** Provide minimum of 24 ports of 15 W per port to IEEE 802.3af-compliant PoE-powered devices such as IP Phones, wireless access points, and security cameras
Management	**Remote Intelligent Mirroring:** 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. **RMON, XRMON, and sFlow v5:** Provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events. **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** Automated device discovery protocol provides easy mapping by network management applications. **Uni-Directional Link Detection (UDLD):** 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.
Security	**Access control lists (ACLs):**

	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. **Multiple user authentication methods:** 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 **Virus throttling:** 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 **DHCP protection:** Blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks. **Secure management access:** Securely encrypts all access methods (CLI, GUI, or MIB) through SSH, SSL, and supports SNMP.
Physical Specifications:	Dimensions – 19 inch rack mountable industry standard switches for installation into the rack / cabinet. Form factor – 1 U-space (17.5”w x 13.25”d x 1.75”h cm
Example	Switches such as Cisco Catalyst 2960S-24PD-L or equivalent.

ANNEX "B"
MANDATORY EVALUATION CRITERIA

1.0 - INFRASTRUCTURE

	1.1 Mandatory Requirements: RACK Enclosure Reference : RACK Item: 13		Met/ Not Met	Bidder Description (reference location in bid)
I1	**Standard**	The rack must be compliant with approved safety standards for use in Canada.		
I2	**Form Factor**	The rack must be a Network Rack type.		
		The rack must be a 4 *Post Open Server Equipment Rack Enclosure* type.		
		The rack must include single front perforated door, double rear perforated door, front and rear keyed two point keyed latches, square punched mounting rails, solid sides, 4 opening top panel (each corner), and front and rear finger vertical cable managers with doors/covers.		
I3	**Size**	The rack must be a « Rackmount » standard **with** a width of 19''		
		The **depth** of the rack must be sufficient to contain all the CCTV system equipment including all servers, UPS, remote management system, KVM, KMM and the network switch(es).		
		The **usable height** of the enclosure must be more than or equal to 42U.		
I4	**PDUs**	The rack must include a minimum of four (4) 20amp 125V vertical power bar PDUs		
		The rack must include a minimum of four (4) 20amp 240V vertical power bar PDUs		
I5	**Knockouts**	The rack must have electrical knockouts on removable rear panel at the top and bottom.		
I6	**Lock**	The rack must have a front door that can be locked by key.		
I7	**Ventilation**	The rack must have vented panels on top and rear and /or side panel (s).		
		The rack must have at least one (1) fan.		

I8	**Stability of the enclosure**	The rack must **not** have wheels installed.		

	1.2 Mandatory Requirements UPS (Uninterrupted Power Supply) **Reference : UPS-M** **Item: 16**		**Met/ Not Met**	**Bidder Description (reference location in bid)**
I11	**Form Factor**	« Rackmount » standard, Width of 48.26 cm (19''), Height of 9U or less		
I12	**Power Rating**	The uninterruptible power supply (UPS) or series of uninterruptible power supplies must be able to supply power to the servers, Ethernet switch, and cameras in the Port of Entry.		
I13	**Power Runtime**	The uninterruptible power supply (UPS) must be able to supply a minimum of 20 minutes of power at 8000VA power capacity during a power outage.		
I14	**Soft Shutdown**	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.		
I15	**Connectivity**	UPS system must be connected to each server through a network interface in order to initiate the shutdown in case of power outage.		
		UPS must support SNMP		
		UPS must support RPO – Remote Power Off		
		UPS must support ROO – Remote On/Off		
I16	**Output Waveform**	True sine wave output Output voltage distortion with less than or equal to 5% distortion at full load.		
I17	**Inputs/Outputs**	Inputs – Hard Wire 3-wire (2PH + G)		
		Outputs – (8) NEMA 5-20R (1) NEMA L14-30R (4) NEMA L6-20R (2) NEMA L6-30R		
I18	**Topology**	The UPS must be Online Topology type, converting the power from AC to DC then back to AC.		
		ABM technology to increase battery life by 50 percent. Utilizing ABMs three-stage charging technique or better.		
I19	**Grade**	UPS must be considered 'Server Grade'.		

	1.3 Mandatory Requirements: NPS (Networked Power Supply) Reference: NPS Item: 17		Met/ Not Met	Bidder Description (reference location in bid)
I22	**Form Factor**	« Rackmount » standard, Width of 48.26 cm (19''), Height of 1U or less		
I23	**Output connections**	Minimum 8 NEMA 5-15R		
I24	**Load Capacity**	Minimum 1400 VA		
I25	**Network management**	Remote individual outlet control via Web or RS-232 (console session)		
I26	**Max input current**	15A		

	1.4 Mandatory Requirements: KVM Switch Reference: KVM Item 14		Met/ Not Met	Bidder Description (reference location in bid)
I29	**Form Factor**	« Rackmount » standard, Width of 48.26 cm (19''), Height of 1U or less		
I30	**Ports**	Must have minimum 8 usable device ports Must have at least 2 power control ports		
I31	**Resolution**	Must support minimum resolution of 1280 x 1024 local and remote		
I32	**Local Console**	Must have minimum 1 Local Console with USB and VGA connectors		

	1.5 Mandatory Requirements: KMM – Keyboard Monitor and Mouse rack console Reference: KMM Item: 15		Met/ Not Met	Bidder Description (reference location in bid)
I35	**Form Factor**	« Rackmount » standard, Width of 48.26 cm (19''), Height of 1U or less		
I36	**Display**	17" to 18" display LED-backlit		

I37	**Resolution**	Must support minimum resolution of 1280 x 1024 local and remote		
I38	**Input device interfaces**	Keyboard: USB connector. Mouse: USB connector.		

	1.6 Mandatory Requirements: 48 Port Network Switch **Reference: SW48-24P-24HP** **Item: 18**		**Met/ Not Met**	**Bidder Description (reference location in bid)**
I41	**Connectivity**	**Ports and Interfaces:** Must have at least 48 10/100/Gigabit Ethernet ports and at least 2 10Gigabit interfaces **IPv6:** IPv6 host: enables switches to be managed and deployed at the IPv6 network's edge Dual stack (IPv4/IPv6): transitions from IPv4 to IPv6, supporting connectivity for both protocols MLD snooping: forwards IPv6 multicast traffic to the appropriate interface IPv6 ACL/QoS: supports ACL and QoS for IPv6 network traffic, preventing traffic flooding IPv6 routing: supports static and OSPFv3		
I42	**Power over Ethernet**	**IEEE 802.3af Power over Ethernet (PoE):** Provide minimum of 24 ports of 15 W per port to IEEE 802.3af-compliant PoE-powered devices such as IP Phones, wireless access points, and security cameras **IEEE 802.3at Power Over Ethernet Plus:** Provide minimum of 24 ports of 30 W per port to IEEE 802.3 for PoE-/PoE+-powered devices such as video IP Phones, IEEE 802.11n wireless access points, and advanced pan/zoom/tilt security cameras Prestandard PoE support: detects and provides power to prestandard PoE devices;		
I43	**Management**	**Remote Intelligent Mirroring:** 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. **RMON, XRMON, and sFlow v5:** Provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events. **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** Automated device discovery protocol provides easy mapping by network management applications. **Uni-Directional Link Detection (UDLD):** 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.		
I44	**Security**	**Access control lists (ACLs):** 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. **Multiple user authentication methods:** 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 **Virus throttling:** 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 **DHCP protection:** Blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks. **Secure management access:** Securely encrypts all access methods (CLI, GUI, or MIB) through SSH, SSL, and supports SNMP.		
I45	**Physical Specifications**	Dimensions – 19 inch rack mountable industry standard switches for installation into the rack / cabinet. Form factor – 1 U-space (17.5”w x 13.25”d x 1.75”h cm)		

	1.7 Mandatory Requirements: 24 Port Network Switch Reference: SW24-24P Item: 19		Met/ Not Met	Bidder Description (reference location in bid)
I48	**Connectivity**	**Ports and Interfaces:** Must have at least 24 10/100/Gigabit Ethernet ports and at least 2 10Gigabit interfaces **IPv6:** IPv6 host: enables switches to be managed and deployed at the IPv6 network's edge Dual stack (IPv4/IPv6): transitions from IPv4 to IPv6, supporting connectivity for both protocols MLD snooping: forwards IPv6 multicast traffic to the appropriate interface IPv6 ACL/QoS: supports ACL and QoS for IPv6 network traffic, preventing traffic flooding IPv6 routing: supports static and OSPFv3		
I49	**Power over Ethernet**	**IEEE 802.3af Power over Ethernet (PoE):** Provide minimum of 24 ports of 15 W per port to IEEE 802.3af-compliant PoE-powered devices such as IP Phones, wireless access points, and security cameras		
I50	**Management**	**Remote Intelligent Mirroring:** 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. **RMON, XRMON, and sFlow v5:** Provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events. **IEEE 802.1AB Link Layer Discovery Protocol (LLDP):** Automated device discovery protocol provides easy mapping by network management applications. **Uni-Directional Link Detection (UDLD):** 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.		
I51	**Security**	**Access control lists (ACLs):** 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. **Multiple user authentication methods:** 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 **Virus throttling:** 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 **DHCP protection:** Blocks DHCP packets from unauthorized DHCP servers, preventing denial-of-service attacks. **Secure management access:** Securely encrypts all access methods (CLI, GUI, or MIB) through SSH, SSL, and supports SNMP.		
I52	**Physical Specifications**	Dimensions – 19 inch rack mountable industry standard switches for installation into the rack / cabinet. Form factor – 1 U-space (17.5”w x 13.25”d x 1.75”h cm)		

2.0 - CCTV CAMERA REQUIRMENTS

	2.1 Mandatory Requirements: General Camera Requirements *Items: 1 to 6*		Met/ Not Met	Bidder Description (reference location in bid)
C1	**Open Architecture**	•Cameras must be network addressable via Internet Protocol (IP) •Cameras must support ONVIF profile		
C2	**Video**	Camera must support the following video settings: •Multiple compression formats, including but not limited to H.264 and MJPEG. •Camera must be able to output at least two video streams simultaneously and must also support simultaneous streaming of multiple formats. •Frame rate and resolution must be controllable for each stream.		
C3	**Power**	Camera must be POE or High POE compatible.		
C4	**Audio**	•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. The audio on all cameras must be disabled unless otherwise specified. •Pan-Tilt-Zoom (PTZ) cameras, thermal and license plate capture cameras are excluded from the requirement for an audio input port. •All cameras which are audio capable must have audio capability disabled from the camera or video management software (VMS), unless otherwise noted.		
C5	**Exposure Settings**	•Must be configurable for different lighting conditions such as shutter speed, and gain. •Must allow an automatic compensation of the image level with regard to the lighting conditions variations		
C6	**Enclosure**	Cameras must be contained in a housing and the bid must demonstrate that it will be securely mounted.		
C7	**Conduit**	The bid must demonstrate that all exposed cabling will be contained within the CBSA provided conduit.		
C8	**Privacy**	Must support privacy mask		

	2.2 Mandatory Requirements: Indoor Camera 1.3MP Wide Angle, Wide Dynamic Range Reference: IN-D-1.3MP-100/WDR Item: 1		Met/ Not Met	Bidder Description (reference location in bid)
C9	**Enclosure**	The camera must be contained in housing and the bid must demonstrate that it will be securely mounted. The camera must be resistant to tampering. Cameras which are not dome cameras require additional enclosures.		
C10	**Environment**	The camera assembly must be: •Dustproof. •Capable of operating in temperature range between -10 to +50 C •Rated IP52 or better. •Rated IK10 or better. A custom enclosure may not be provided to meet these requirements.		
C11	**Field of View**	The camera must provide a range of field of view that covers at least 100 degrees horizontal.		
C12	**Focus**	The camera must have remote focus.		
C13	**Frames Per Second**	The camera must support at least 15 frames per second at the minimum resolution specified.		
C14	**Night Capability**	The camera must be a true Day/Night camera with a mechanical IR cut filter.		
C15	**Resolution**	The camera must have approximately a 1.3 mega pixel (MP) resolution @ ± 10% tolerance.		
C16	**Zoom**	The camera must support at least a 2X optical zoom.		
C17	**Special**	The camera must feature ‘Wide Dynamic Range’.		

	2.3 Mandatory Requirements: Indoor Corner-mount Camera 1.5MP Reference: IN-C-1.5MP-120 Item: 2		Met/ Not Met	Bidder Description (reference location in bid)
C20	**Enclosure**	Cameras must be contained in corner housing and the bid must demonstrate that it will be securely mounted. These cameras must be highly resistant to vandalism and tampering.		
C21	**Environment**	Camera assembly must be: •Waterproof •Capable of operating in temperature range between -10 to +50 C. •Rated IP65 or better. •Rated IK10 or better A custom enclosure may not be provided to meet these requirements.		
C22	**Field of View**	Must provide a horizontal field of view of at least 120 degrees.		
C23	**Frames Per Second**	Camera must support at least 15 frames per second at the minimum resolution specified.		
C24	**Night Capability**	The camera must be a true Day/Night camera with a mechanical IR cut filter. The camera must also be equipped with integrated IR illumination for use at night, with a range of at least 9m (30 ft).		
C25	**Resolution**	Camera must have approximately a 1.5 mega pixel (MP) resolution @ ± 10% tolerance.		

	2.4 Mandatory Requirements: Outdoor Camera 2MP Reference: OU-D-2MP-100/WDR Item 3		Met/ Not Met	Bidder Description (reference location in bid)
C28	**Enclosure**	Cameras must be contained in housing the bid must demonstrate that it will be securely mounted. These cameras must be resistant to vandalism and tampering. Cameras which are not dome cameras require additional enclosures.		
C29	**Environment**	The camera assembly must be: •Waterproof. •Dustproof •Capable of operating in temperature range between -40 to +50 C* •Rated IP65 or better. •Rated IK10 or better. **A custom enclosure may be provided so that a camera can operate within this temperature range but should be expressly noted.*		
C30	**Field of View**	Must provide a range of field of view that covers at least 100 degrees horizontal.		
C31	**Focus**	Must have remote focus.		
C32	**Frames Per Second**	Camera must support at least 30 frames per second at the minimum resolution specified.		
C33	**Night Capability**	The camera must be a true Day/Night camera with a mechanical IR cut filter.		
C34	**Resolution**	Camera must have approximately a 2 mega pixel (MP) resolution @ ± 10% tolerance.		
C35	**Zoom**	The camera must support at least a 3X optical zoom.		
C36	**Special**	The camera must feature up to 120 dB of 'Wide Dynamic Range', including through the use of 'dynamic capture'.		

	2.5 Mandatory Requirements: Outdoor LPC Reference: OU-LP-0.4MP-20 Item: 4		Met/ Not Met	Bidder Description (reference location in bid)
C39	**Enclosure**	Camera must be contained in housing the bid, must demonstrate that it will be securely mounted. The camera must be tamper resistant.		
C40	**Environment**	The camera assembly must be: •Waterproof. •Dustproof •Capable of operating in temperature range between -40 to +50 C* •Rated IP65 or better. •Rated IK10 or better. **A custom enclosure may be provided so that a camera can operate within this temperature range but should be expressly noted.*		
C41	**Field of View and Capture Range**	Must be LP capable at a minimum horizontal angle of 20° and minimum distance of 9m. Must be able to capture LP at speed up to 200 km/h		
C42	**Night Capability**	The camera must be able to capture a License Plate in low light.		
C43	**Resolution**	Camera must have at least 0.4 megapixel image resolution ±10%.		

	2.6 Mandatory Requirements: Outdoor Thermal Camera Reference: OU-TH-0.3MP-90 *Item 5*		Met/ Not Met	Bidder Description (reference location in bid)
C46	**Enclosure**	Cameras must be contained in housing the bid must demonstrate that it will be securely mounted. These cameras must be resistant to vandalism.		
C47	**Environment**	The camera assembly must be: •Waterproof. •Dustproof •Capable of operating in temperature range between -40 to +50 C* •Rated IP65 or better. •Rated IK10 or better. *A custom enclosure may be provided so that a camera can operate within this temperature range but should be expressly noted.*		
C48	**Field of View**	Must provide a field of view that covers at least 90 degree horizontal.		
C49	**Detector**	The camera detector must be a Long Wave Infrared (LWIR) Uncooled thermal detector The detector must not be damaged when exposed directly to the sun		
C50	**Sensitivity**	The thermal image sensor must provide high sensibility imaging and must able to detect small object temperature. The Noise Equivalent Temperature Difference (NETD) must be less or equal than 75 mK The Thermal camera must not be sensitive to the visible light and must perform in complete darkness as well in day time		
C51	**Resolution**	Camera must have at least 0.3 megapixel image resolution ±10%.		
C52	**Frames Per Second**	Camera must support at least 15 frames per second at the minimum resolution specified above.		
C53	**Power**	Camera must be Power over Ethernet compatible		

	2.7 Mandatory Requirements: Outdoor PTZ Camera 1MP Reference: OU-PTZ-1MP-45 *Items: 6*		Met / Not Met	Bidder Description (reference location in bid)
C56	**Enclosure**	Cameras must be contained in housing, the bid must demonstrate that it will be securely mounted. These cameras must be resistant to vandalism and tampering.		
C57	**Environment**	The camera assembly must be: •Waterproof. •Dustproof •Capable of operating in temperature range between -40 to +50 C* •Rated IP65 or better. •Rated IK09 or better. **A custom enclosure may be provided so that a camera can operate within this temperature range but should be expressly noted.*		
C58	**Power**	Camera must be network powered, if more power is needed, a POE injector must be provided		
C59	**Resolution**	Camera must have at least a 1 mega pixel (MP) resolution @ ± 10% tolerance.		
C60	**Frames Per Second (FPS)**	Camera must support at least 20 frames per second at the minimum resolution specified above.		
C61	**Night Capability**	The camera must be a true Day/Night camera with a mechanical IR cut filter.		
C62	**Range of Motion**	Must have a pan range of 360 degrees endless. Must have a tilt range of at least 180 degrees.		
C63	**Preset when idle**	The camera PTZ must be able to reset automatically to a preset position 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.		
C64	**Focus**	Must have auto focus.		
C65	**Field of View**	Must provide at least a 45 degree horizontal field of view.		
C66	**Optical Zoom**	The PTZ camera must support at least 10X optical zoom.		
C67	**Special**	The camera must feature ‘Wide Dynamic Range’.		

	2.8Mandatory Requirements: Networked Digital Input switch Reference: Digital I/O		Met/ Not Met	Bidder Description (reference location in bid)
C70	I/O interface	Must have minimum 8 configurable I/O ports		
C71	I/O functionality	Input trigger Output toggle/pulse		
C72	Event triggers	External inputs		
C73	Input type	Dry contact or Digital (connect to GND to activate, or leave floating to deactivate)		
C74	Network	Must support IPv4, configuration via web browser and password protection		
C75	VMS	Must be supported by the selected VMS.		
C76	Power	Must be Power over Ethernet IEEE 802.3af compliant		

3.0 – Video Management System (VMS) REQUIREMENTS

	3.1 Mandatory Requirements: Video Management Software Specifications		Met/ Not Met	Bidder Description (reference location in bid)
V1	Software Specifications	The software used to control and manage the cameras must offer a client-server model. The server application is in a remote location and provides camera control (live viewing, PTZ controls) and video archiving functions. The client application connects to the server to access live video from cameras, and archived videos. The individual specifications for the server and client applications are outlined below. The product must be able to integrate with McAfee Agent, McAfee VirusScan Enterprise + AntiSpyware, McAfee Host Intrusion Prevention, McAfee Policy Auditor, and McAfee System Information Reporter. The contractor's solution must provide for management through secure connections that utilize TLS v1.1 or SSL v3.0.		
V2	Open	•The product must support "Open Standards" architecture		

	standards	to interoperate with a variety of cameras, encoders, and IT infrastructure. •The product must be "ONVIF profile S" compliant. •The product must have a Software Development Kit (SDK) available. •The product must support industry available commercial off the shelf (COTS) client workstations, servers, and customer selected archiving system. •The product must be compatible with open architecture industry leading camera manufacturers including but not limited to: Sony, Axis, Panasonic and Bosch. •All cameras connected to the VMS must be approved and certified by the manufacturer. •The product must be able to support an application programming interface (API) for integration of third party software such as industry available video analytics or license plate recognition.		
V3	**Scalability / future expansion**	•The product must be upgradeable without migration to another platform. •The server application must be scalable, i.e. the same application must be able to support 2 or 200 cameras, without additional application upgrades or purchases. •VMS grouping: o The product must be able to join multiple independent systems together in order to view videos from sources connected to these multiple independent systems. o The viewing procedure of the remote cameras must be transparent to the user.		
V4	**Architecture**	•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. •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. •The server and client application must be compatible with Microsoft Windows 2008 R2 or higher. •The product must support multicast and unicast transmission. •The product must support multiple streams from the same camera at different resolutions. •The product must provide redundancy features to ensure		

		access to all live data at all times and to ensure recording of all cameras in the event of server failure.		
V5	**PTZ Controls**	•Pan-tilt-zoom function must be supported by traditional CCTV keyboard/joystick and PC keyboard/mouse. •Variable speed and direction pan-tilt-zoom control must be available using the PC mouse by selecting the area of interest around the video pane. •Must have zoom in, zoom out, focus near, focus far and multiple speed pan and tilt operations.		
V6	**Video Archiving and Retrieval**	•The product must support management, distribution and storage of video surveillance data in a centralized and distributed network environment. •The product must support multiple recording modes and formats: ○Always recording, on motion recording, pre and post motion recording, and scheduled recording. These modes must be available for all compatible cameras. ○The product must support video recording in multiple standard compression formats including but not limited to H.264, configured at the camera level. •The product must be able to record audio that is synchronized with the video. •The product supports internal and external storage devices. •The product must provide advanced search functions. •The product must provide different levels of application access control at individual and user group levels.		
V7	**Reliability**	•The product must be able to failover the Management Server to the Recording Server and the Recording Server to the Management Server so that if any one of the servers fail the other will take over without service interruption •The product must provide a high level of availability for the recording function with failover features to ensure recording of all cameras at all times on the failover server without loss of data. •The product must provide a high level of availability for the viewing function with failover features to ensure access to all live data at all times through the failover server without service interruption.		
V8	**Configuration function or**	•The camera settings including frame rate, resolution and compression must be configurable by the VMS.		

	tool	•The camera settings including motion detection must be configurable by the VMS. •The VMS configuration function must be inaccessible for specific user or group without permissions. •The VMS must provide a hardware discovery tool.		
V9	**Alarms, Events, Logging, and Management**	•There must be an interface to define "Events" including but not limited to built-in motion detection, digital inputs, third party events, third party video analytics, time of day etc. •Events must trigger associated alarms and pre-set views for unique users. •The product provides user options to log text descriptions of Event Triggers, Actions, and Alarms. •Alarms must be associated with user defined actions. •The VMS must have log management that includes the following: ○camera setting modification ○PTZ move ○video export ○alarms ○disk above a threshold ○camera not working ○The VMS must be able to produce audit records that capture at a minimum the following events performed by user accounts including those that are privileged: ○Type (e.g. login, logoff, configuration changed); ○When (e.g. 2013-01-01 5:00am EST); ○Where (e.g. system ID); ○Source (e.g. workstation ID); ○Outcome (e.g. success, fail); and ○Identity (e.g. account ID). ○The VMS must be able to customize where audit logs stored within the solution. ○The VMS must audit read access of data by users and administrators. ○The VMS must permit the configuration of an audit log retention period. ○The VMS must be able to export audit records. ○The VMS solution must generate reports for audit records in a readable format. ○The VMS exception handling service must log all exceptions and failure events to an exception log. ○The VMS must notify administrators and perform configured recovery actions if the audit service fails or		

		is inadvertently turned off. ○The VMS must generate time stamps for audit records that use internal system clocks and contain both date and time including seconds expressed in Coordinated Universal Time (UTC) or local time with an offset from UTC. ○The VMS must support NTP v4.0 for synchronization of time. •The VMS must have a user interface to display and search the logs.		
	Client Workstation (Application) Specifications			
V10	**Live Viewer**	•The live viewer client application must display live video from cameras connected to the server located in a remote location. •The live viewer must have these features: ○Support two languages: English and French. ○Provide help options to locate a function or feature. ○Must have the capability of displaying live video at 30 FPS and have an adjustable frame rate. ○Must have the capability of switching the IR cut filter of the cameras on and off (only applicable for cameras with a mechanical IR cut filter.) ○Display live video at different resolutions. ○Provides configurable live audio functions, including but not limited to audio ON/OFF, audio synchronized with video and adjustable audio volume. ○The operator must have the ability to choose playback layouts including 2x2, 4x4 and various customs layouts. ○The VMS must be able to add a bookmark with notes in order to tag live events. ○Must be able to show different views on multiple monitors. Must be able to trigger via digital inputs up to twenty (20) pre-set views on multiple monitors (up to 2) ○Must support dynamic stream selection based on tile size.		
V11	**Archive Player**	•The product must provide multiple playback functions, including but not limited to play, pause, fast forward, rewind, and variable play speed functions. •The product must provide synchronized playback from multiple cameras. •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. •Live viewer software must have synchronous playback mode. •It must be possible to disable audio during playback. •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. • The VMS must be able to export video in an original format with watermarking and timestamp. •The VMS must also be able to export multiple video at the same time.		
V12	**User (Client) Management**	The product must be able to integrate with Lightweight Directory Access Protocol (LDAP) v3. The product must be able to encrypt user IDs and passwords between a client device and server(s) in accordance with applicable CSEC guidance[3]. Additionally, these user IDs and passwords must not be able to stored unencrypted locally on a device. •There must be a capability to control who has access to the software and camera features. These specifications relate to: ○The proposed solution must support role-based access control (RBAC) or group-based access control (GBAC) where privileged users can define roles or groups and can assign users to roles or groups. ○The proposed solution must allow the assignment of granular permissions to users, groups or roles. The granularity of these permissions must include but is not limited to: ▪Archive viewing access to specific cameras ▪Live viewing access to specific cameras ▪Access to the camera configuration ▪Access to server configuration ▪Export of images ○The proposed solution must be capable of enabling/disabling recording and listening of audio.		

	3.2 Mandatory Requirements: General Server Requirements		Met/ Not Met	Bidder Description (reference location in bid)
V15	**General**	The following servers must be provided for each POE system •1 X Management Server / Recording Failover Server •1 X Video Recording Server •1 X Remote Viewing Server A single server hosts both the management application and the recording failover application. Video recording for all cameras should be done on the Video Recording Servers. In the event of machine failure of the Video Recording Server, all cameras from that server must switch to record on the Management Server / Recording Failover Server. This list does not include networking equipment such as switches. UPS equipment is specified separately in the *UPS* section. The detailed specifications for each type of server are in the *Management Server / Recording Failover Server* section and in the *Video Recording Server* sections. The storage specifications are listed under "Storage" in the *Management Server / Recording Failover Server* and the *Video Recording Server.*		
V16	**Recording/ Retention**	All cameras must be configured to record 24/7 continuously at the minimum specified resolution and frame rate for each camera type. The minimum frame rate for recording is 15 FPS, unless otherwise specified. Recording on motion should not be configured unless otherwise specified. The retention time of all camera footage must be at least 30 days. The retention time of the failover video must be at least 15 days		
V17	**Write Failover**	The video surveillance system must continue to record all camera footage in the event of a video storage server failure. In the event of a machine failure of a Video Recording Server, the Management Server / Recording Failover Server must be configured to takeover recording. The failover storage server must provide a minimum of 15 days		

		or 9 TB of storage (whichever is larger). Live and archived video associated with the failover storage server must be accessible at all times. RAID 6 is required for primary video storage. RAID 1 is required for all OS/Application drives. Redundant storage of recorded video on multiple servers is not required.		

	3.3 Mandatory Requirements: Management Server / Recording Failover Server Requirements **Reference: SERV-M-F** ***Item: 10***			**Met/ Not Met**	**Bidder Description (reference location in bid)**
V18	**Form Factor**	« Rackmount » standard, Width of 48.26cm (19’’), height of 2U or less			
V19	**Processor**	Number of Processors Required	1		
		Cores	6 or more		
		Clock Speed	2.6 GHz or higher		
		Instruction Set	64-bit		
		Processor such as Intel Xeon E5-2630 v2 or better.			
V20	**Motherboard**	Supports Dual Socket			
V21	**Memory**	16GB RDIMM or higher			
V22	**RAID Controller**	RAID 1 System + RAID 5 Storage 512 MB Battery Backed Cache or higher			
V23	**System/ Application Drives**	Minimum of two (2) 2.5’’ or 3.5’’ drives must be present. The drives must be RAID 1 managed. The total usable capacity after RAID must be 300GB or higher. 10K RPM or better SATA/SAS or better.			
V24	**Recording Drives**	The total usable capacity after RAID must be twelve (12) TB or higher. The storage must be RAID 5 managed Minimum of four (4) 3.5’’ 4TB hot swappable drives must be present. Minimum of four (4) empty additional 3.5’’ hot swappable			

		bays for future expansion must be present. 7.2K RPM or better SATA/SAS or better		
V25	**Power Supply**	Must have dual, hot-plug redundant power supplies.		
V26	**OS**	Must have Microsoft Windows Server 2012 x64 Standard or Data Center installed or Microsoft Windows Server 2008 R2 SP1 x64 Standard installed. Server must be Certified for Windows by Microsoft for the version of OS installed.		
V27	**Network**	Must have dual Gigabit Ethernet Connections.		
V28	**Software**	Video Management and Recording Failover Server Application must be stored on this server. The software must support the version of OS installed.		

	3.4 Mandatory Requirements: Video Recording Server Reference: SERV-R Item: 9			Met/ Not Met	Bidder Description (reference location in bid)
V31	**Form Factor**	« Rackmount » standard, Width of 48.26cm (19''), height of 2U or less			
V32	**Processor**	Number of Processors Required	1		
		Cores	6 or more		
		Clock Speed	2.6 GHz or higher		
		Instruction Set	64-bit		
		Processor such as Intel Xeon E5-2630 v2 or better.			
V33	**Motherboard**	Supports Dual Socket			
V34	**Memory**	16GB RDIMM or higher			
V35	**RAID Controller**	RAID 1 System + RAID 6 Storage 512 MB Battery Backed Cache or higher			
V36	**System/Application Drives**	Minimum of two (2) 2.5'' or 3.5'' drives must be present. The drives must be RAID 1 managed. The total usable capacity after RAID must be 300GB or higher. 10K RPM or better SATA/SAS or better.			
V37	**Recording Drives**	The total usable capacity after RAID must be twenty eight (28) TB or higher. The storage must be RAID 6 managed Minimum of nine (9) 3.5'' 4TB hot swappable drives must be present. Minimum of three (3) empty additional 3.5'' hot swappable bays for future expansion must be present. 7.2K RPM or better SATA/SAS or better			
V38	**Power Supply**	Must have dual, hot-plug redundant power supplies.			
V39	**OS**	Must have Microsoft Windows Server 2012 x64 Standard or Data Center installed or Microsoft Windows Server 2008 R2 SP1 x64 Standard installed. Server must be Certified for Windows by Microsoft for the version of OS installed.			
V40	**Network**	Must have dual Gigabit Ethernet Connections.			

V41	**Software**	Recording Server Application must be stored on this server. The software must support the version of OS installed.		

3.5 Remote Viewing Server Requirements

	3.5 Mandatory Requirements: Remote Viewing Server **Reference: SERV-RV** **Item: 11**			**Met/ Not Met**	**Bidder Description (reference location in bid)**
V44	**Form Factor**	« Rackmount » standard, Width of 48.26cm (19’’), height of 2U or less			
V45	**Processor**	Number of Processors Required	2		
		Cores (per processor)	10 or more		
		Clock Speed	3.0 GHz or greater		
		Instruction Set	64-bit		
		Processor such as Intel Xeon E5-2690 v2 or better			
V46	**GPU (for RDP)**	Must have NVIDIA GRID K1 graphics card for virtualized Citrix environments			
V47	**Memory**	64 GB RAM			
V48	**Storage**	1 TB			
V49	**Application**	Must support the installed virtualized Citrix HDX software			
V50	**Licence***	1 X Zen Server Licence (2 socket) 1 X Zen Desktop Platinum Licence (1 User) 2 X Microsoft Server 2012 Licence 1 X Microsoft Windows 8 Licence			

	3.6 Mandatory Requirements: Viewing Station with UPS and Monitor (VWST-M-D-UPS-S) Item 12			Met/ Not Met	Bidder Description (reference location in bid)
V53	**Monitor**	Must have two (2) 24” connected LCD or LED monitors. Must have extended monitor option on video card.			
V54	**Resolution**	Must be capable of displaying a minimum of 1920 X 1080 image resolution on each display.			
V55	**Workstation**	Minimum system requirements: Microsoft Windows 7 Anytime Upgrade enterprise edition 8 GB RAM 1 TB Storage			
V56	**Processor**	Cores	4 or more		
		Clock Speed	3.0 GHz or greater		
		Instruction Set	64-bit		
		Intel Core i7 4770R or better.			
V57	**DVD Capability**	Must have an installed DVD burner.			
V58	**USB Exporting**	Must allow for the files to be exported and saved onto a USB (in addition to being exported and saved onto a DVD).			
V59	**Power/UPS**	Viewing station must include a surge protected, desktop-grade Uninterruptable Power Supply (UPS) capable of powering the PC and monitor for a minimum of 20 minutes in the event of power failure. Examples such as the APC BN700M, APC BR1000G, or similar products may be used provided the 20 minutes of run time is achieved.			

ANNEX "C"
PRICING SCHEDULE

Item	Equipment Reference	Description	Qty to ON	Option Qty to ON Year 1	Option Qty to ON Year 2	Qty to MB	Option Qty to MB Year 1	Option Qty to MB Year 2
1	IN-D-1.3MP-100/WDR	Indoor 1.3MP Fixed Camera	6	N/A	N/A	6	N/A	N/A
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
2	IN-C-1.5MP-120	Indoor Corner 1.5MP Camera	1	N/A	N/A	1	N/A	N/A
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
3	OU-D-2MP-100/WDR	Outdoor 2MP Fixed Camera	13	8	8	13	8	8
		Unit Price	**$**	**$**	**$**	**$**	**$**	**$**
4	OU-LP-0.4MP-20	Outdoor Licence Plate Camera	3	2	2	3	2	2
		Unit Price	**$**	**$**	**$**	**$**	**$**	**$**
5	OU-TH-0.3MP-90	Outdoor Thermal Camera	2	2	2	2	2	2
		Unit Price	**$**	**$**	**$**	**$**	**$**	**$**
6	OU-PTZ-1MP-45	Outdoor 1MP PTZ Camera	7	8	8	7	8	8
		Unit Price	**$**	**$**	**$**	**$**	**$**	**$**
7	Digital I/O	Digital Input / Output Switch	3	2	2	3	2	2
		Unit Price	**$**	**$**	**$**	**$**	**$**	**$**
8	VMS	Video Management Software	1	**N/A**	**N/A**	1	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
9	SERV-R	Recording Server	1	**N/A**	**N/A**	1	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
10	SERV-M-F	Management / Failover Server	1	**N/A**	**N/A**	1	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
11	SERV-RV	Remote Viewing Server	1	**N/A**	**N/A**	1	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**

12	VWST-M-D-UPS-S	Viewing Station	3	**N/A**	**N/A**	3	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
13	RACK	Rack Enclosure	1	**N/A**	**N/A**	1	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
14	KVM	KVM Switch	1	**N/A**	**N/A**	1	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
15	KMM	Keyboard Monitor Mouse Console	1	**N/A**	**N/A**	1	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
16	UPS-M	Uninterrupted Power Supply	1	**N/A**	**N/A**	1	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
17	NPS	Networked Power Supply	3	**N/A**	**N/A**	3	**N/A**	**N/A**
		Unit Price	**$**	**N/A**	**N/A**	**$**	**N/A**	**N/A**
18	SW48-24P-24HP	48 Port Network Switch	2	2	2	2	2	2
		Unit Price	**$**	**$**	**$**	**$**	**$**	**$**
19	SW24-24P	24 Port Network Switch	3	2	2	3	2	2
		Unit Price	**$**	**$**	**$**	**$**	**$**	**$**

N/A indicates that options are not required for this item.

Annex D - General Environmental Criteria Table

The Contractor must meet and continue to meet four out of seven criterions during the entire duration of the contract.

Green practices within supplier's organization:	**Insert a checkmark for each criteria that is met**
Promotes a paperless environment through directives, procedures and/or programs.	
All documents are printed double sided and in black and white for day to day business activity unless otherwise specified by your client.	
Paper used for day to day business activity has a minimum of 30% recycled content and has a sustainable forestry management certification.	
Utilizes environmentally preferable inks and purchase remanufactured ink cartridges or ink cartridges that can be returned to the manufacturer for reuse and recycling for day to day business activity.	
Recycling bins for paper, newsprint, plastic and aluminum containers available and emptied regularly in accordance with local recycling program.	
A minimum of 50% of office equipment has an energy efficient certification.	
Registered to ISO 14001 or has an equivalent environmental management system in place	

Annex E
Exchange Rate Fluctuation Form